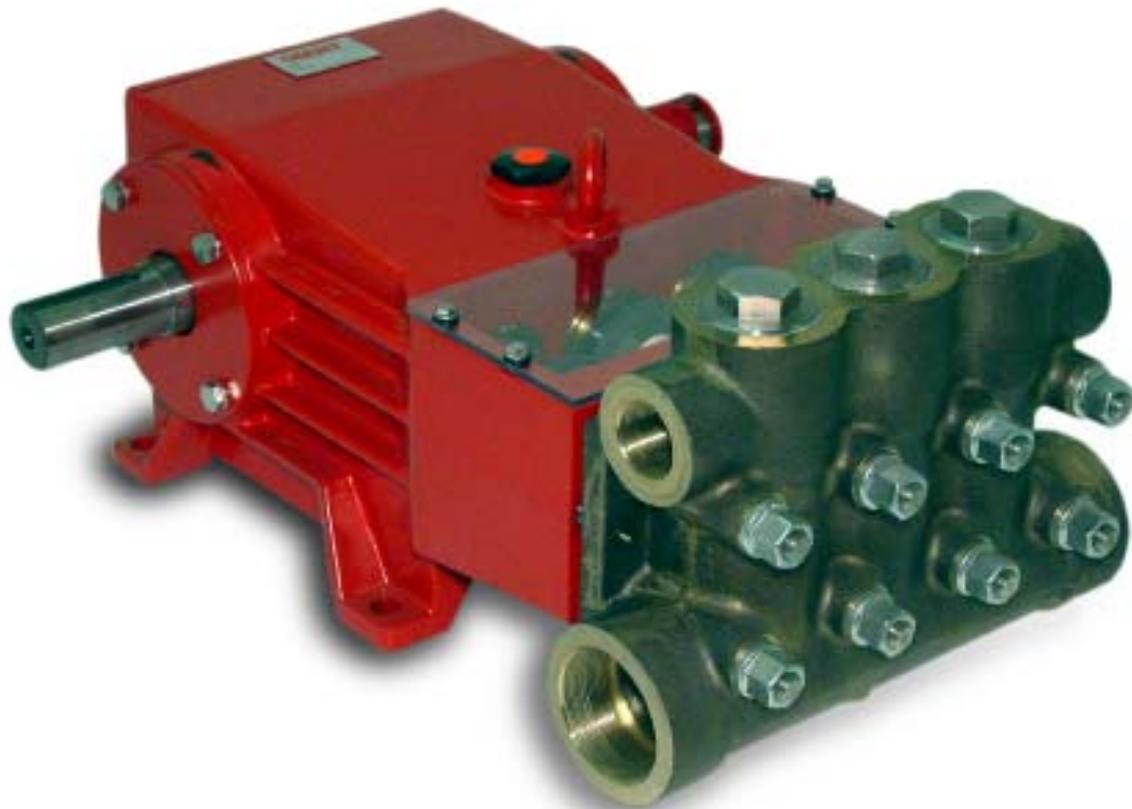


Model GP6132

Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair and Service
Manual



GIANT

| | |
|----------------------------|-----------|
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Updated 8/07

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.
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.

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 charts on pages 3 and 6.

6. 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.

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 the crankcase so that oil level is between the two lines on the oil dipstick. **DO NOT OVERFILL.**

Use Giant's p/n 01154 or the equivalent SAE 80w-90 Industrial Gear oil .

Crankcase oil should be changed after the first 50 hours of operation, then at regular intervals of 500 hours or less depending on operating conditions.

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

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

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

NOTE: Contact Giant Industries for Service School Information. Phone: (419)-531-4600

Specifications

Model GP6132

| | U.S. | Metric |
|------------------------------------|--------------------------------|----------------|
| Volume | 23.5 GPM | 88.9 LPM |
| Discharge Pressure | 3045 PSI | 210 BAR |
| Speed | | 800 RPM |
| Inlet Pressure | -4.35 to 145 PSI | -0.3 to 10 BAR |
| Plunger Diameter | 1.26" | 32mm |
| Plunger Stroke | 1.89" | 48mm |
| Crankshaft Diameter | 1.65" | 42mm |
| Key Width | 0.47" | 12mm |
| Crankshaft Mounting | | Either side |
| Shaft Rotation | Top of pulley towards manifold | |
| Temperature of Pumped Fluids | Up to 140 °F | 60 °C |
| Inlet Ports | | (2) 1-1/4" BSP |
| Discharge Ports | | (2) 2-1/2" BSP |
| Weight | 309 lbs. | 140 kg |
| Crankcase Oil Capacity | 1.1 Gal. | 4.2 Liters |
| Fluid End Material | | Bronze |

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.

HORSEPOWER RATINGS:

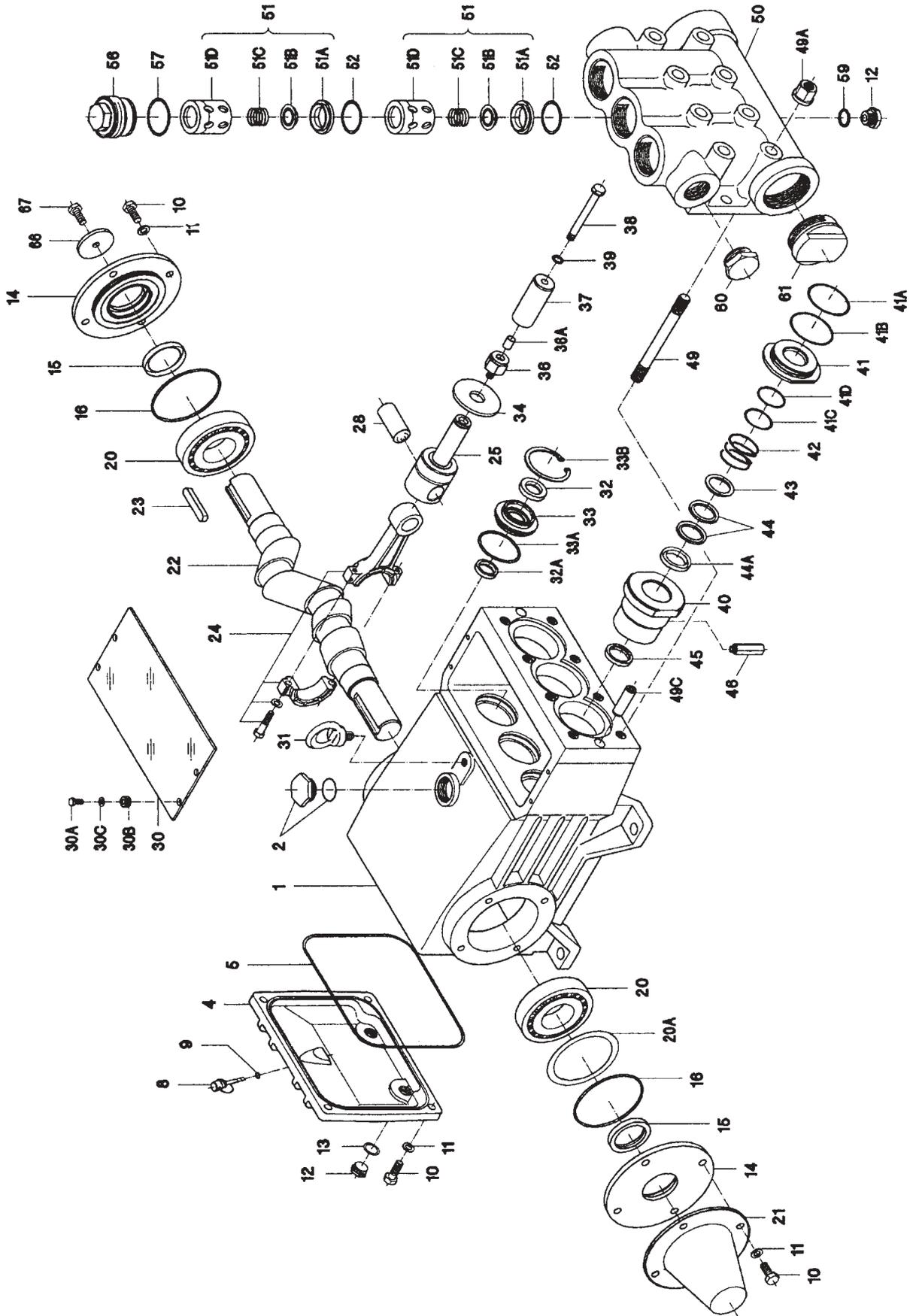
The rating shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

We recommend a 1.15 service factor be specified when selecting an electric motor as the power source. To compute specific pump horsepower requirements, use the following formula:

$$HP = (GPM \times PSI) / 1450$$

| GP6132 HORSEPOWER REQUIREMENTS | | | | | |
|---------------------------------------|------|----------|----------|----------|----------|
| RPM | GPM | 1000 PSI | 1500 PSI | 2500 PSI | 3045 PSI |
| 400 | 11.8 | 8.1 | 12.2 | 20.3 | 24.7 |
| 500 | 14.7 | 10.1 | 15.2 | 25.3 | 30.8 |
| 600 | 17.6 | 12.2 | 18.2 | 30.4 | 37.0 |
| 700 | 20.6 | 14.2 | 21.3 | 35.5 | 43.2 |
| 800 | 23.5 | 16.2 | 24.3 | 40.5 | 49.4 |

EXPLODED VIEW - GP6132



GP6132 SPARE PARTS LIST

| <u>ITEM</u> | <u>PART</u> | <u>DESCRIPTION</u> | <u>QTY.</u> | <u>ITEM</u> | <u>PART</u> | <u>DESCRIPTION</u> | <u>QTY.</u> |
|-------------|-------------|--------------------------|-------------|-------------|-------------|----------------------|-------------|
| 1 | 13200 | Crankcase | 1 | 36 | 13219 | Plunger Connection | 3 |
| 2 | 13000 | Oil Filler Plug Assy | 1 | 36A | 07125 | Centering Sleeve | 3 |
| 4 | 13201 | Crankcase Cover | 1 | 37 | 13022 | Plunger Pipe | 3 |
| 5 | 13202 | O-Ring for 4 | 1 | 38 | 05168 | Tensioning Screw | 3 |
| 8 | 06894 | Oil Dipstick | 1 | 39 | 07755 | Copper Ring | 3 |
| 9 | 01009 | O-Ring for 8 | 1 | 40 | 05192 | Seal Sleeve | 3 |
| 10 | 13133 | Hexagon Screw | 12 | 41 | 13222 | Seal Case | 3 |
| 11 | 06725 | Spring Washer | 12 | 41A | 07721 | O-Ring for 41 | 3 |
| 12 | 07109 | Drain Plug | 3 | 41B | 13223 | Support Ring for 41A | 3 |
| 13 | 07182 | Seal for 12 | 2 | 41C | 12055 | O-Ring for 41 | 3 |
| 14 | 12549 | Bearing Cover | 2 | 41D | 07693 | Support Ring for 41C | 3 |
| 15 | 13205 | Radial Shaft Seal | 2 | 42 | 07173 | Tension Spring | 3 |
| 16 | 08055 | O-Ring for 14 | 2 | 43 | 05176 | Sleeve Support Ring | 3 |
| 20 | 13206 | Taper Roller Bearing | 2 | 44 | 06096 | Sleeve | 6 |
| 20A | 13207 | Fitting Disc | 1-5 | 44A | 05174 | Pressure Ring | 3 |
| 21 | 13208 | Shaft Protector | 1 | 45 | 13360 | Leakage Seal | 3 |
| 22 | 06895 | Crankshaft | 1 | 46 | 05169 | Threaded Pipe | 3 |
| 23 | 08213 | Fitting Key | 1 | 49 | 13159 | Stud Bolt | 8 |
| 24 | 06896 | Connecting Rod Assy | 3 | 49A | 13160 | Nut | 8 |
| 25 | 06897 | Crosshead Assy | 3 | 49C | 13162 | Centring Stud | 2 |
| 28 | 06898 | Crosshead Pin | 3 | 50 | 05191 | Valve Casing | 1 |
| 30 | 13214 | Cover Plate | 1 | 51A | 12564 | Valve Seat | 6 |
| 30A | 07225-0100 | Hexagon Screw | 4 | 51B | 12565 | Valve Plate | 6 |
| 30B | 13136 | Grommet | 4 | 51C | 12566 | Valve Spring | 6 |
| 30C | 07622 | Disc | 4 | 51D | 12567 | Spacer Pipe | 6 |
| 31 | 07623 | Eye Bolt | 1 | 52 | 05166 | O-Ring for 51 | 6 |
| 32 | 06118 | Radial Shaft Seal | 3 | 56 | 05171 | Plug | 3 |
| 32A | 13215 | Grooved Ring | 3 | 57 | 05167 | O-Ring for 56 | 3 |
| 33 | 13216 | Seal Retainer | 3 | 59 | 07661 | Copper Seal for 12 | 1 |
| 33A | 07721 | O-Ring for 33 | 3 | 60 | 13151 | Plug, 1-1/4" BSP | 1 |
| 33B | 13217 | Circlip for 33 | 3 | 61 | 13171 | Plug, 2-1/2" BSP | 1 |
| 33C | 12551 | Fitting Disc (not shown) | 3 | 66 | 13362 | Disc for Crankshaft | 1 |
| 34 | 13218 | Oil Scraper | 3 | 67 | 13358 | Hexagon Screw | 1 |

GP6132 REPAIR KITS

Plunger Packing Kit # 09319

| <u>Item</u> | <u>Part #</u> | <u>Description</u> | <u>Qty.</u> |
|-------------|---------------|--------------------|-------------|
| 41A | 07721 | O-Ring | 3 |
| 41B | 13223 | Support ring | 3 |
| 41C | 12055 | O-Ring | 6 |
| 41D | 07693 | Support Ring | 6 |
| 44 | 06096 | Sleeve | 6 |
| 45 | 13360 | Leakage Seal | 3 |

Valve Assembly Kits #09320

| <u>Item</u> | <u>Part #</u> | <u>Description</u> | <u>Qty.</u> |
|-------------|---------------|--------------------|-------------|
| 51A | 12564 | Valve Seat | 6 |
| 51B | 12565 | Valve Plate | 6 |
| 51C | 12566 | Valve Spring | 6 |
| 52 | 05166 | O-Ring | 6 |
| 57 | 05167 | O-Ring | 3 |

Oil Seal Kit # 09304

| <u>Item</u> | <u>Part #</u> | <u>Description</u> | <u>Qty.</u> |
|-------------|---------------|--------------------|-------------|
| 32 | 06118 | Radial Shaft Seal | 3 |
| 32A | 13215 | Grooved Ring | 3 |
| 33A | 07721 | O-Ring | 3 |

GP6132 TORQUE SPECIFICATIONS

| <u>Position</u> | <u>Item#</u> | <u>Description</u> | <u>Torque Amount</u> |
|-----------------|--------------|---------------------|----------------------|
| 10 | 13133 | Inner Hexagon Screw | 30 ft.-lbs. |
| 36 | 13219 | Plunger Connection | 33 ft.-lbs. |
| 38 | 05168 | Tensioning Screw | 30 ft.-lbs. |
| 49A | 13160 | Nut, Valve Casing | 103 ft.-lbs. |
| 56 | 05171 | Tensioning Plug | 160 ft.-lbs. |

REPAIR INSTRUCTION - GP6132

To Check Valves

1. Loosen plugs (56) and take out complete valve assemblies (51) with a slide hammer. Use a bent piece of wire to remove the o-rings (52).
2. To dismantle the valves, carefully tap the valve plate (51B) with a bolt until the valve seat (51A) is pushed out of the spacer pipe (51D).
3. Check the sealing surfaces and replace all worn parts. Check the o-rings.
4. When reinstalling the valve assemblies, particular care must be taken so that the o-rings (52) sit properly in their fittings in the valve casing.
5. Tighten the plugs (56) to 160 ft.-lbs. (220 NM).

To Check Seals and Plunger Pipe

6. Loosen nuts (49A) and remove the valve casing (50).
7. Separate the plunger connection (36) from the crosshead assembly (25) by means of two open-end wrenches (size 22mm and 27mm).
8. Pull seal sleeves (40) out of their fittings in the crankcase (1).
9. Take the seal case (41) out of the seal sleeve (40).
10. Examine plunger parts (36-39) and seals (44 and 45).
11. Check o-rings (41A through 41D) and replace worn parts.
12. When replacing plunger pipe (37), tighten tension screw (38) to 30 ft.-lbs (40 NM).
13. Grease seals with Silicone before reinstalling.

IMPORTANT: Do not loosen the three plunger screws (36) before the valve casing (50) has been removed; otherwise, the tension screw (38) could hit against the spacer pipe (51D) when the pump is being turned.

14. The seal unit (43, 44, 44A) is pre-tensioned by a spring (42). Seal life can be increased if the loading allows for a little leakage. This assists lubrication and keeps the seals cool. It is therefore not necessary to replace the seals before the leakage becomes too heavy and causes output and operating pressure to drop.
15. When reassembling, tighten plunger screw (36) to 33 ft.-lbs. (45 NM).

Mounting Valve Casing

16. Check o-rings on seal case (41).
17. Clean surfaces of seal sleeves in crankcase (1) and sealing surfaces of valve casing (50).
18. Push valve casing (50) carefully onto o-rings (41A and 41B) of seal case and centering studs (49C).
19. Tighten nuts (49A) to 103 ft.-lbs. (140 NM).

To Dismantle Gear

20. As described above, take out the plunger and seal sleeves. Drain the oil.
21. After removing the circlip ring (33B), use a screw driver to lever out the seal retainer (33).
22. Check the seals (32, 32A and 33A) and surfaces of the crosshead (25).
23. Remove the crankcase cover (4) and make sure that the o-ring (5) looks good.
24. Loosen the inner hexagon screws on the connecting rods (24).

IMPORTANT: Connecting rods are marked for identification. Do not twist connecting rod halves. Connecting rod halves are to be reinstalled in the same position and orientation onto the crankshaft (22).

25. Push the connecting rod halves as far into the crosshead guide as possible.
26. Take out the bearing cover (14) to one side and push out the crankshaft (22) taking particular care that the connecting rod halves don't bend

IMPORTANT: Seal (32A) must always be installed so that the seal lip on the inside diameter faces the oil. Possible axial float of the seal adaptor (33) is to be compensated for with shims (33C).

27. Reassemble in reverse order
28. Regulate axial play of the crankshaft clearance to minimum of 0.1mm, maximum of 0.15mm by means of fitting disc (20A). The crankshaft should turn easily and with little clearance.
29. Tighten the inner hexagon screws to 30 ft.-lbs. (40 NM).

IMPORTANT: The connecting rods have to be able to slightly moved sidewise at the stroke journals.

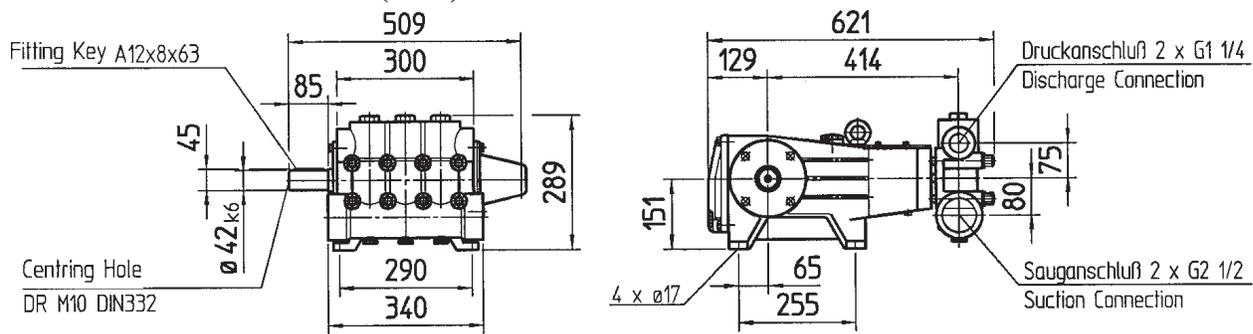
REPAIR INSTRUCTION - GP6132

PUMP SYSTEM MALFUNCTIONS

| <u>MALFUNCTION</u> | <u>CAUSE</u> | <u>REMEDY</u> |
|--|---|---|
| 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 Cavitation | Check for proper operation 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 Inlet pressure too high | Replace plungers 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 | 50 Hrs. | Every | Every | Every |
| | | | | 500 Hours | 1500 Hours | 3000 Hours |
| Oil Level/Quality | X | | | | | |
| Oil Leaks | X | | | | | |
| Water Leaks | X | | | | | |
| Belts, Puelly | | X | | | | |
| Plumbing | | X | | | | |
| Recommended Spare Parts | | | | | | |
| Oil Change (1 gallon) p/n 01154 | | | X | X | | |
| Plunger Seal Kit (1 kit/pump) | | | | | X | |
| Oil Seal Kit (1 kit/pump) | | | | | X | |
| Valve Repair Kit (1 kit/pump) | | | | | | X |

GP6132 DIMENSIONS (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 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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