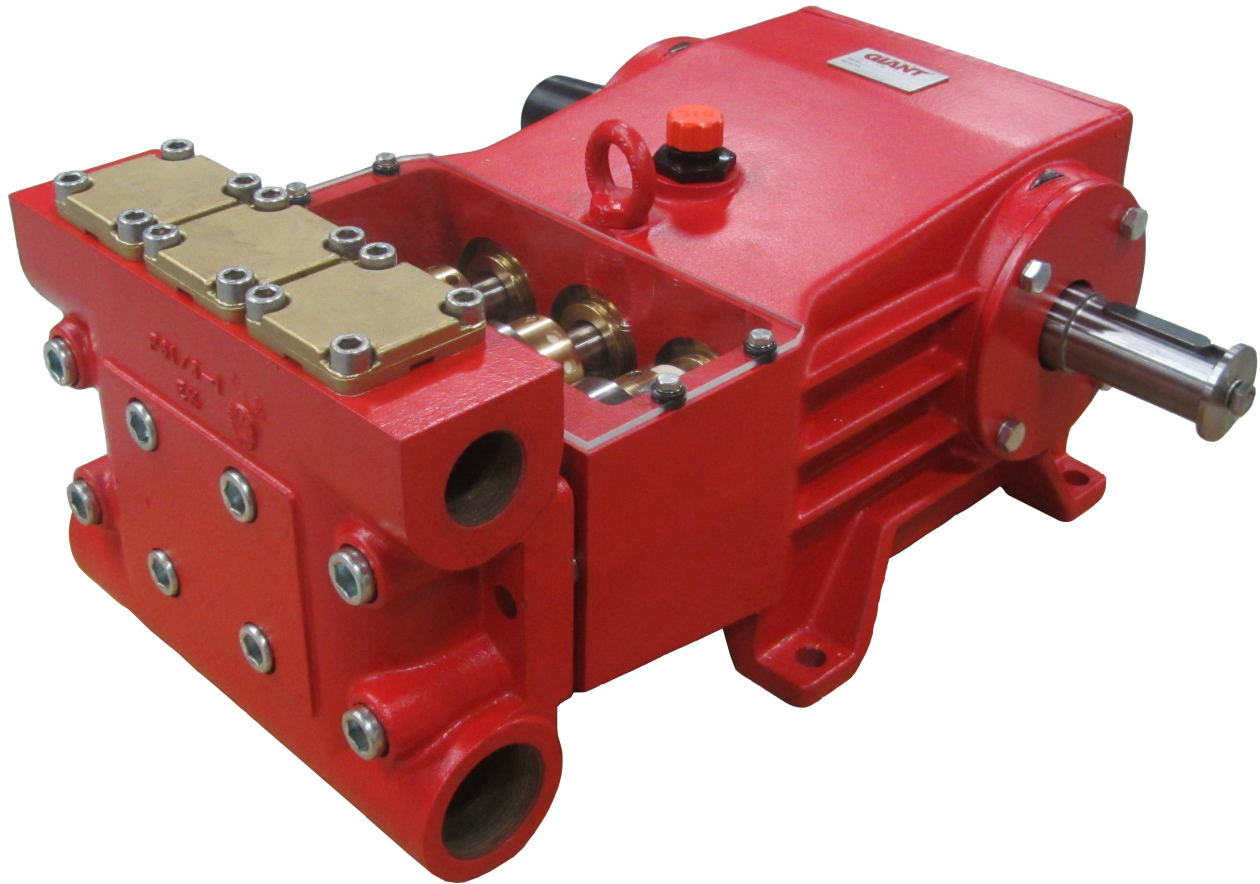


# Model BP6150

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Triplex Ceramic  
Plunger Pump  
Operating Instructions/  
Manual



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**GIANT**  
Performance Under Pressure

Updated 09/15

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# 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 104° 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 chart on page 3.

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.

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## 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.

**SAE 80W-90 Industrial Gear oil may be used. (Giant p/n 01154)**

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.

5. Need to check torque on item (49) bi-weekly.

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

# Specifications

## Model BP6150

	U.S. ....	Metric
Volume.....	42.3 GPM.....	160 l/min
Discharge Pressure .....	1450 PSI .....	100 bar
Speed .....		600 RPM
Inlet Pressure.....	-4.35* to 145 PSI.....	(-0.3* to 10 bar)
Power Consumption .....	43.8 HP .....	32.7 kW
Plunger Diameter.....	1.97".....	50mm
Plunger Stroke .....	1.89".....	48mm
Crankshaft Diameter.....	1.77".....	45mm
Key Width .....	0.47".....	12mm
Crankshaft Mounting.....		Either side
Shaft Rotation .....		Top of pulley towards manifold
Temperature of Pumped Fluids.....	Up to 104 °F.....	40 °C
Inlet Ports.....		(2) 2-1/2" BSP
Discharge Ports .....		(2) 1-1/4" BSP
Weight.....	260 lbs. ....	118 kg
Crankcase Oil Capacity .....	1.1 Gal. ....	4.2 L
Fluid End Material.....		Spheroidal Cast Iron

\* Depends on viscosity of medium

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:

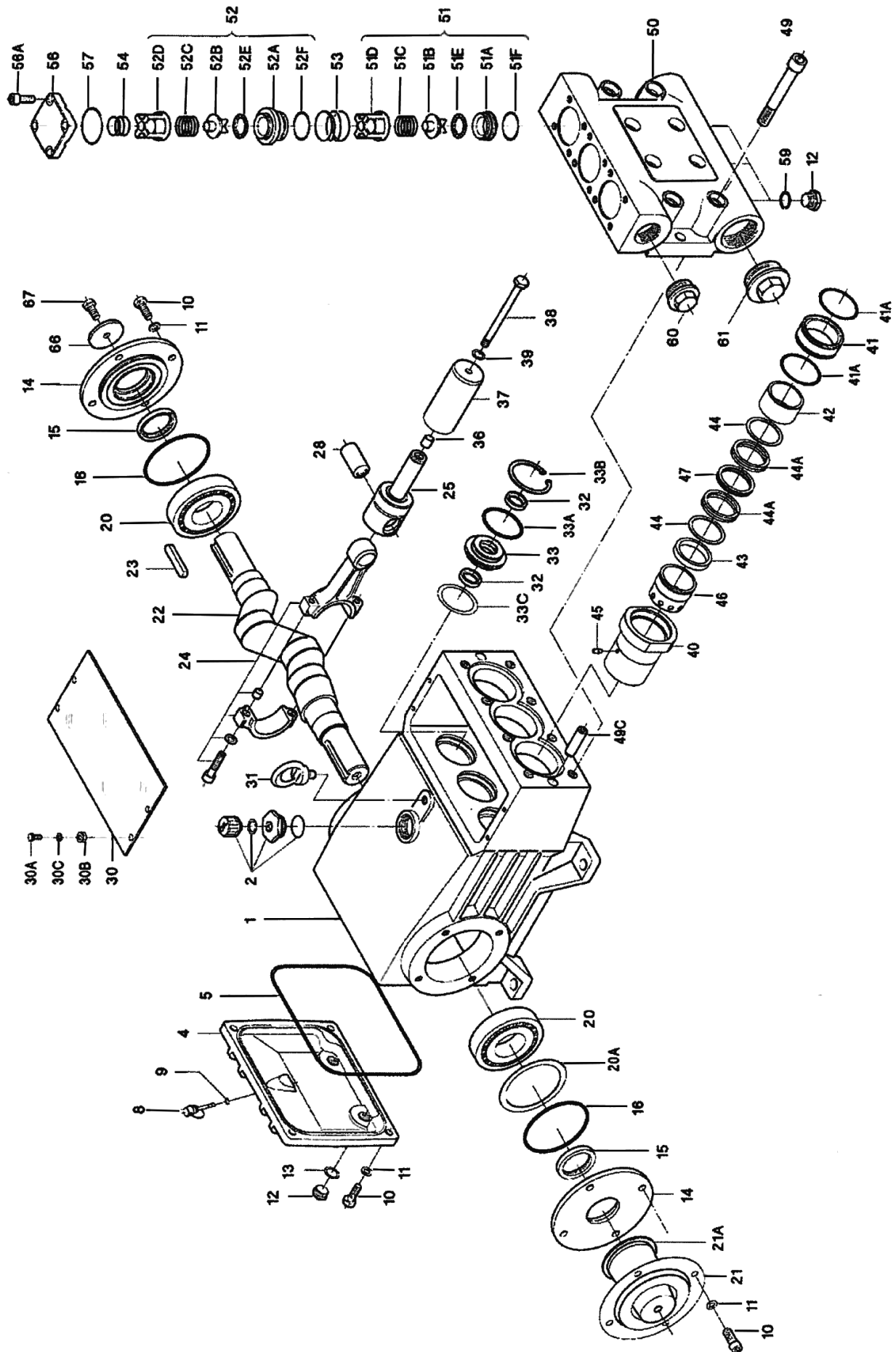
The rating shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

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:

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

GP6150 HORSEPOWER					
RPM	GPM	250 PSI	500 PSI	750 PSI	1450 PSI
100	7.1	1.2	2.5	3.7	7.1
200	14.1	2.4	4.9	7.3	14.1
300	21.2	3.7	7.3	11.0	21.2
450	31.7	5.5	10.9	16.4	31.7
600	42.3	7.3	14.6	21.9	42.3

# Exploded View - BP6150



## BP6150 PARTS LIST

ITEM	PART	DESCRIPTION	QTY.	ITEM	PART	DESCRIPTION	QTY.
1	13200	Crankcase	1	40	04371	Seal Sleeve	3
2	06893	Oil Filler Plug Assembly	1	41	06903	Seal Case	3
4	13201	Crankcase Cover	1	41A	07721	O-Ring	6
5	13202	O-Ring, Crankcase Cover	1	42	04372	Spacer Pipe	3
8	06894	Oil Dip Stick	1	43	04373	Guide Ring	3
9	01009	O-Ring, Dip Stick	1	44	06828	Support Ring	6
10	13133	Hexagon Screw	12	44A	06826	Pressure Ring	6
11	06725	Spring Washer	12	45	04374	Lubrication Nipple	3
12	07109	Drain Plug	5	46	04376	Pressure Sleeve	3
13	07182	Gasket, Drain Plug	2	47	04375	Lubrication Ring	3
14	12549	Bearing Cover	2	49	06905	Inner Hexagon Screw	8
15	07877	Radial Shaft Seal	2	49C	13162	Centering Stud	2
16	08055	O-Ring	2	50	06906	Valve Casing	1
20	13206	Taper Roller Bearing	2	51	06907	Valve Assembly	3
20A	13207	Fitting Disc (Shim)	1-5	51A	06832	Inlet Valve Seat	3
21	05881	Shaft Guard Mount	1	51B	06831	Valve Plate	3
21A	05646	Shaft Protector	1	51C	07732-0100	Valve Spring	3
22	06895	Crankshaft	1	51D	06830	Spring Tension Cap	3
23	08213	Key	1	51E	06829	Gasket	3
24	06896	Connecting Rod Assy.	3	51F	12055	O-Ring	3
25	06897	Crosshead Assy.	3	52	06908	Valve Assembly	3
28	06898	Crosshead Pin	3	52A	06833	Discharge Valve Seat	3
30	13214	Cover Plate	1	52B	06831	Valve Plate	3
30A	07225-0100	Hexagon Screw	4	52C	07732-0100	Valve Spring	3
30B	13136	Grommet	4	52D	06830	Spring Tension Cap	3
30C	08280	Washer	4	52E	06829	Gasket	3
31	07623	Eye Bolt	1	52F	12055	O-Ring	3
32	06117	Radial Shaft Seal	6	53	07173	Tension Spring	3
33	06899	Seal Retainer	3	54	06078	Tension Spring	3
33A	07721	O-Ring	3	56	13316	Plug	3
33B	13217-0100	Circlip	3	56A	07008	Inner Hexagon Screw	12
33C	12551	Fitting Disc	3	57	07740	O-Ring	3
36	06900	Plunger Connection	3	59	06272	Copper Seal	3
37	07793	Plunger Pipe	3	60	06909	Plug, 1-1/4" BSP	1
38	06901	Tensioning Screw	3	61	06910	Plug, 2" BSP	1
39	07665	Copper Ring	3	66	13362	Disc for Crankshaft	1
				67	13358	Hexagon Screw	1

## BP6150 REPAIR KITS

### Plunger Packing Kit

# 09773

Item#	Part #	Description	Qty.
41A	07721	O-Ring	6
43	04373	Guide Ring	3
44	06828	Support Ring	6
44A	06826	Spiral Ring	6

### Valve Repair Kit

# 09562

Item#	Part #	Description	Qty.
51A	06832	Inlet Valve Seat	3
51B/52B	06831	Valve Plate	6
51C/52C	07732-0100	Valve Spring	6
51D/52D	06830	Spring Tension Cap	6
51E/52E	06829	Gasket for Valve	6
51F/52F	12055	O-Ring	6
52A	06833	Discharge Valve Seat	3
57	07740	O-Ring	3

### Oil Seal Kit

# 09560

Item#	Part #	Description	Qty.
32	06117	Radial Shaft Seal	6
33A	07721	O-Ring	3

## BP6150 TORQUE SPECIFICATIONS

Position	Item#	Description	Torque Amount
24	06896	Connecting Rod Assembly	30 ft.-lbs. (40 Nm)
38	06901	Tensioning Screw	30 ft.-lbs. (40 Nm)
49	06905	Inner Hexagon Screw	103 ft.-lbs. (140 Nm)



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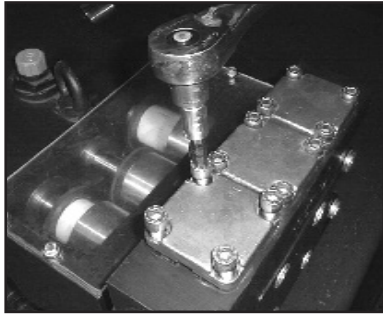
## BP6150 REPAIR INSTRUCTIONS

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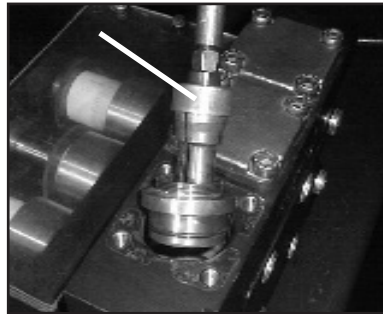
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**NOTE:** Always take time to lubricate all metal and non-metal parts with a light film of oil before reassembling. This step will help ensure proper fit, at the same time protecting the pump non-metal parts (elastomers) from cutting and scoring.

### TO CHECK VALVES



- 1) Unscrew inner hexagon screws (56A), remove plug (56) and pressure spring (54).

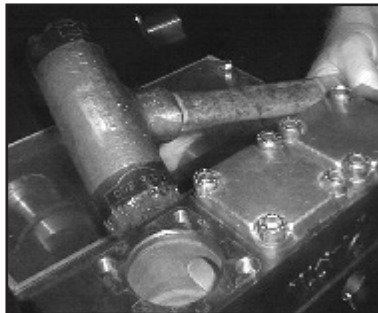


- 2) Using either a pin spanner or pliers, take out complete discharge valve (52), tension spring (53) and suction valve (51). The spring tension cap (51D/52D) is screwed together with valve seat (51A/52A). Remove spring tension cap, remove spring (51C/52C) and valve plate (51B/52B). The seal ring (51E/52E) is snapped onto the valve plate. Check sealing surfaces and o-rings (51F/52F/57). Replace worn parts.

### TO CHECK SEALS AND PLUNGER PIPES



- 3) Unscrew inner hexagon screws (49).



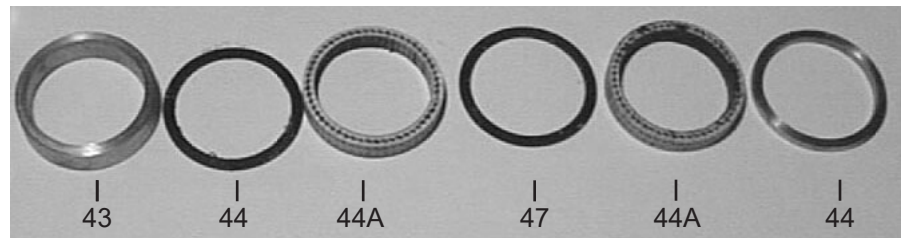
- 4) With a rubber mallet, tap the back of the pump head until it is removed with the seal case (41).



- 5) Remove seal sleeves (40) from the fittings in the crankcase, by tapping seal sleeve (40) out of the crankcase with a rubber mallet.



- 6) Take tension spring (42) out of seal sleeve (40).



- 7) Remove seal unit (43, 44, 44A, 47) from seal sleeve. Examine packing rings (44A) and guide ring (43). Remove seal case (41) from valve casing and check O-rings (41A). Replace worn part, apply silicon grease on seals and O-rings before installing.

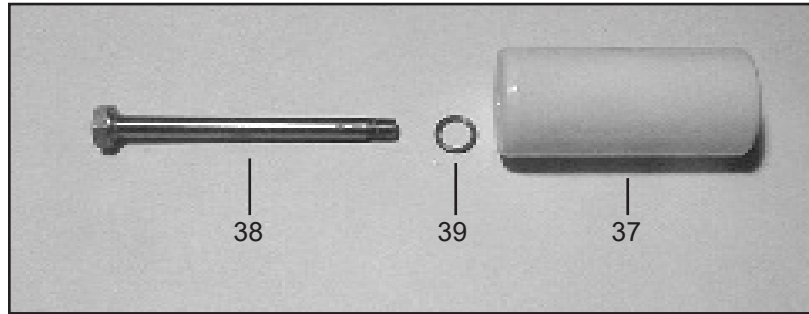
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## BP6150 REPAIR INSTRUCTIONS

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**IMPORTANT:** The seal unit (43, 44, 44A, 47) is tensioned by a spring (42). To achieve a long seal life, the unit is tensioned in such a way that a small amount of leakage can occur. This helps to lubricate and cool the seal. A seal change is only then necessary when leakage increases considerably, in turn causing flow and pressure to fall.

### TO CHECK PLUNGER PIPE



**IMPORTANT:** If plunger pipe (37) is worn, tap the tension screw (38) lightly with a plastic hammer beforehand to loosen the glue on the threads of the tension screw. Then screw out tension screw and remove the plunger pipe from centering sleeve (36). Cover the threads of the tension screw lightly with loc-tite and put the new plunger pipe onto the centering sleeve. Install a new copper ring (39) between the tension screw and plunger pipe. and tighten tension screw to 30 ft-lbs. (40 Nm).

**IMPORTANT:** Care must be taken that no glue gets between the plunger pipe (37) and the centering sleeve (36). The plunger pipe should not be strained by excessive tightening of the tension screw or through damage to front surface of plunger, otherwise it will probably break.

### MOUNTING VALVE CASING

- 8) Check O-rings on seal case (41). Clean mounting surfaces of the seal cases as well as sealing surfaces in valve casing (50). Put seal cases in the centering holes of the valve casing, then push valve casing carefully onto centering studs (49C) Tighten inner hexagon screw (49) at 103 ft-lbs. (140 Nm)

**IMPORTANT:** Need to check torque on item (49) bi-weekly.

### TO DISASSEMBLE GEAR

- 9) Take out plungers and seal sleeves as described above. Drain oil. After removing the circlip ring (33B), lever out seal retainer (33) with a screwdriver. Check seals (32, 33A) and surface of cross-heads.
- 10) Remove crankcase cover (4). Remove inner hexagon screw of connecting rod (24).

**IMPORTANT:** Connecting rods are marked for identification. Do not twist connecting rod halves. Connecting rods should be reinstalled in the original position and orientation on the crankshaft journals.

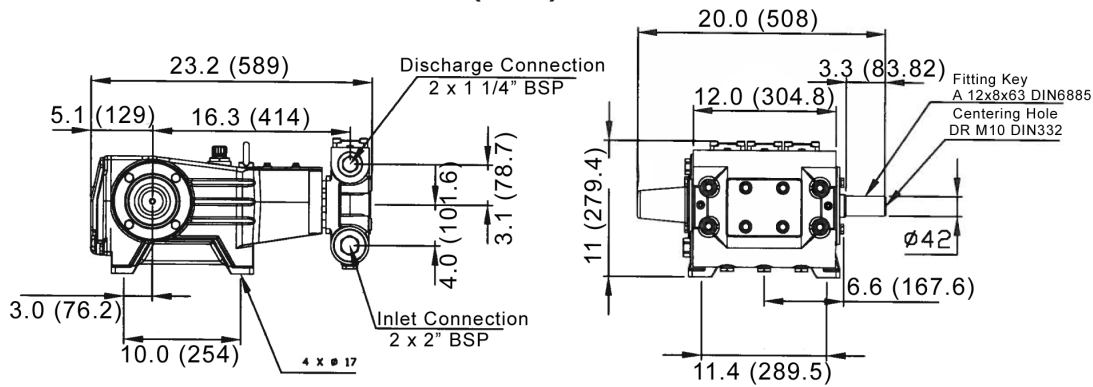
- 11) Check surfaces of connecting rod (24) and crankshaft (22).
- 12) Push in connecting rod halves with crosshead as far as possible into crosshead guide. Unscrew hexagon screws (10) on both sides.
- 13) Remove bearing cover (14) and press out crankshaft. In doing so, pay careful attention not to bend connecting rods.

**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 adapter (33) is compensated by use of shims (33C).

- 14) Reassemble in reverse order. Regulate axial bearing clearance - minimum 0.1mm, maximum 0.15mm - by means of fitting discs (20A). The crankshaft should turn easily and with little clearance. Tighten inner hexagon screws at 30 ft-lbs. (40 Nm).

**IMPORTANT:** Connecting rod must be able to be slightly moved sideways on the crankshaft journals.

## BP6150 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. Five (5) years from the date of shipment for all pumps used in portable pressure washers with NON-SALINE, clean water applications.
2. Two (2) years from the date of shipment for Giant pumps used in car wash applications.
3. One (1) year from the date of shipment for all other Giant industrial and consumer pumps.
4. Six (6) months from the date of shipment for all rebuilt pumps
5. 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.



**WARNING:** This product might contain a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm.  
For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**GIANT**  
Performance Under Pressure

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