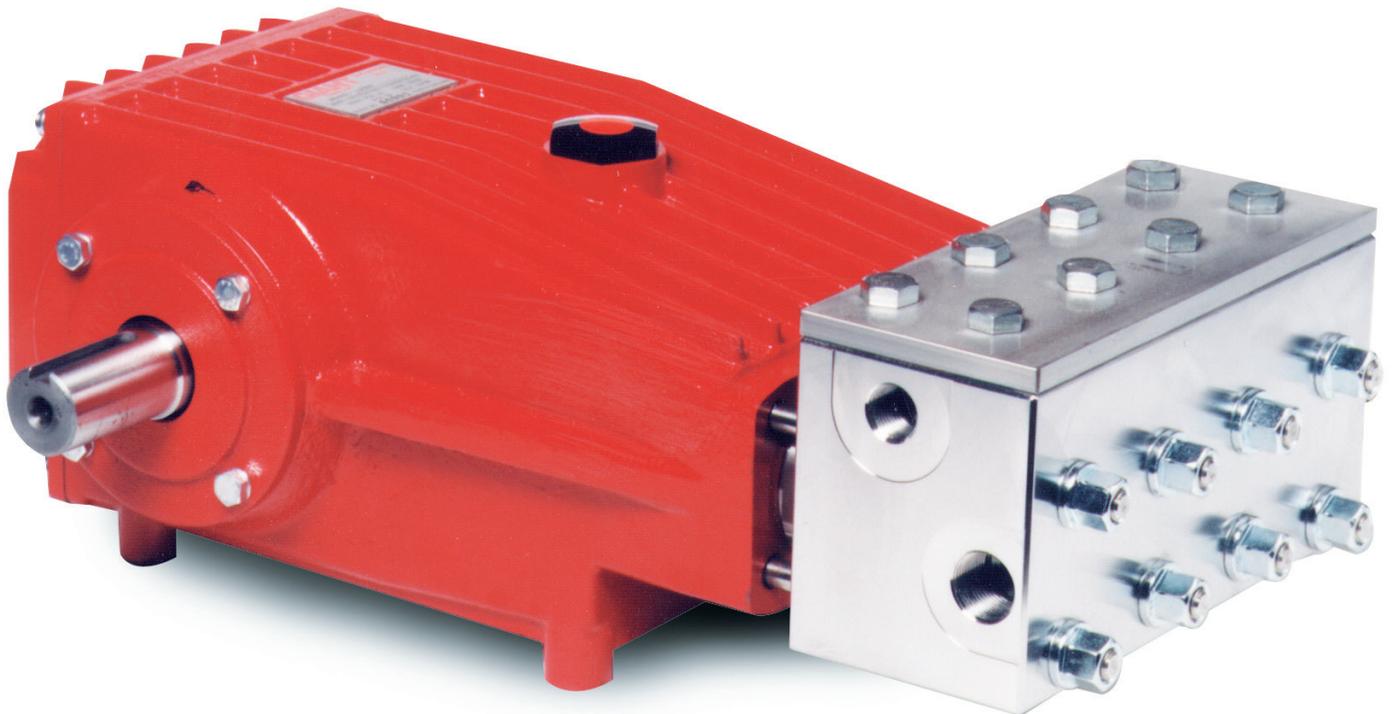


# Model LP700

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Triplex Ceramic  
Plunger Pump  
Operating Instructions/  
Repair and Service  
Manual



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**GIANT**  
Performance Under Pressure

Updated 06/20

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# INSTALLATION INSTRUCTIONS

Required NPSH refers to water: Specific weight 1kg/dm<sup>3</sup>, viscosity 1°E at maximum permissible revolutions.

## Operation and Maintenance

Check oil level prior to starting and ensure trouble-free water supply.

**Important!** If there is a **danger of frost**, the water in the pump and in the pump fittings (particularly the unloader valve) must be emptied. The second discharge port can also be used and the pump run "dry" for 1-2 minutes for this purpose.

Oil: Use only 101 ounces (3.0 liters) of ISO VG 220 (e.g. Aral Degol BG220) or SAE 90 gear oil (Giant's part 01154).

Initial change after 50 operating hours and then every 1000 operating hours, or after 1 year if used less.

Caution when operating in damp places or with high temperature fluctuations. Oil must be changed immediately, should condensate (frothy oil) occur in the gear box.

**Keep NPSH under control.** Maximum input pressure 6 bar. Make sure that suction pulsation is sufficiently dampened - water column resonance must be avoided.

## Safety Rules

Pump operation without safety valve as well as any excess in temperature or speed limits automatically voids the warranty. The safety valve must be regulated in accordance with the guidelines for liquid spraying units so that the admissible operating pressure can not be exceeded by more than 10%.

When the pump is in operation, the open shaft end must be covered up by shaft protector (21), the driven shaft side and coupling by a contact protector.

To cover the exposed crankshaft end with the shaft guard, position the guard directly over the groove in the middle of the bearing cover and gently tap it in to the groove using a plastic hammer.

Pressure in discharge line and in pump must be at zero before any maintenance to the pump takes place. Close ups the suction line. Disconnect fuses to ensure that the driving motor does not get switched on accidentally.

Make sure that all parts on the pressure side of the unit are vented and refilled, with pressure at zero, before starting the pump.

In order to prevent air, or an air/water mixture being absorbed and to prevent cavitation occurring, the pump NPSHR, positive suction head and water temperature must be kept under control.

**Cavitation and/or compression of gases lead to uncontrollable pressure kicks which can ruin pump and unit parts and also be dangerous to the operator or anyone standing nearby.**

Giant Plunger Pumps are suitable for pumping clean water and other non-aggressive or abrasive media with a specific weight similar to water.

**Before pumping other liquids - especially inflammable, explosive and toxic media - the pump manufacturer must under all circumstances be consulted with regard to the resistance of the pump material. It is the responsibility of the equipment manufacturer and/or operator to ensure that all pertinent safety regulations are adhered to.**

# Specifications - LP700

	<u>U.S.</u>	<u>Metric</u>
Volume.....	7.9 GPM .....	30 L/min
Maximum Discharge Pressure .....	7250 PSI.....	500 Bar
Power Required .....	39.5 HP.....	29.5 kW
Maximum Inlet Pressure.....		-4.35 to 90 PSIG
RPM.....		1000
Plunger Diameter.....		18mm
Stroke .....		42mm
Crankcase Oil Capacity.....	101 fl. oz. ....	3.0 Liters
Temperature of Pumped Fluids .....	Up to 104 °F.....	40° C
Inlet Port .....		2 x 3/4" BSP
Discharge Ports.....		2 x 1/2" BSP
Shaft Rotation.....		Either Direction
Weight .....	147 lbs. ....	66.5 Kg
NPSHR.....	26.2 ft. of head.....	8.0 mWs

<b>LP700 HORSEPOWER CHART</b>					
RPM	GPM	3000 PSI	5000 PSI	6000 PSI	7250 PSI
500	3.9	8.1	13.5	16.3	19.6
600	4.7	9.8	16.3	19.6	23.7
700	5.3	11.0	18.4	22.1	26.7
800	6.3	13.1	21.9	26.3	31.7
900	7.1	14.8	24.7	29.6	35.7
1000	7.9	16.5	27.4	32.9	39.8

### HORSEPOWER RATINGS:

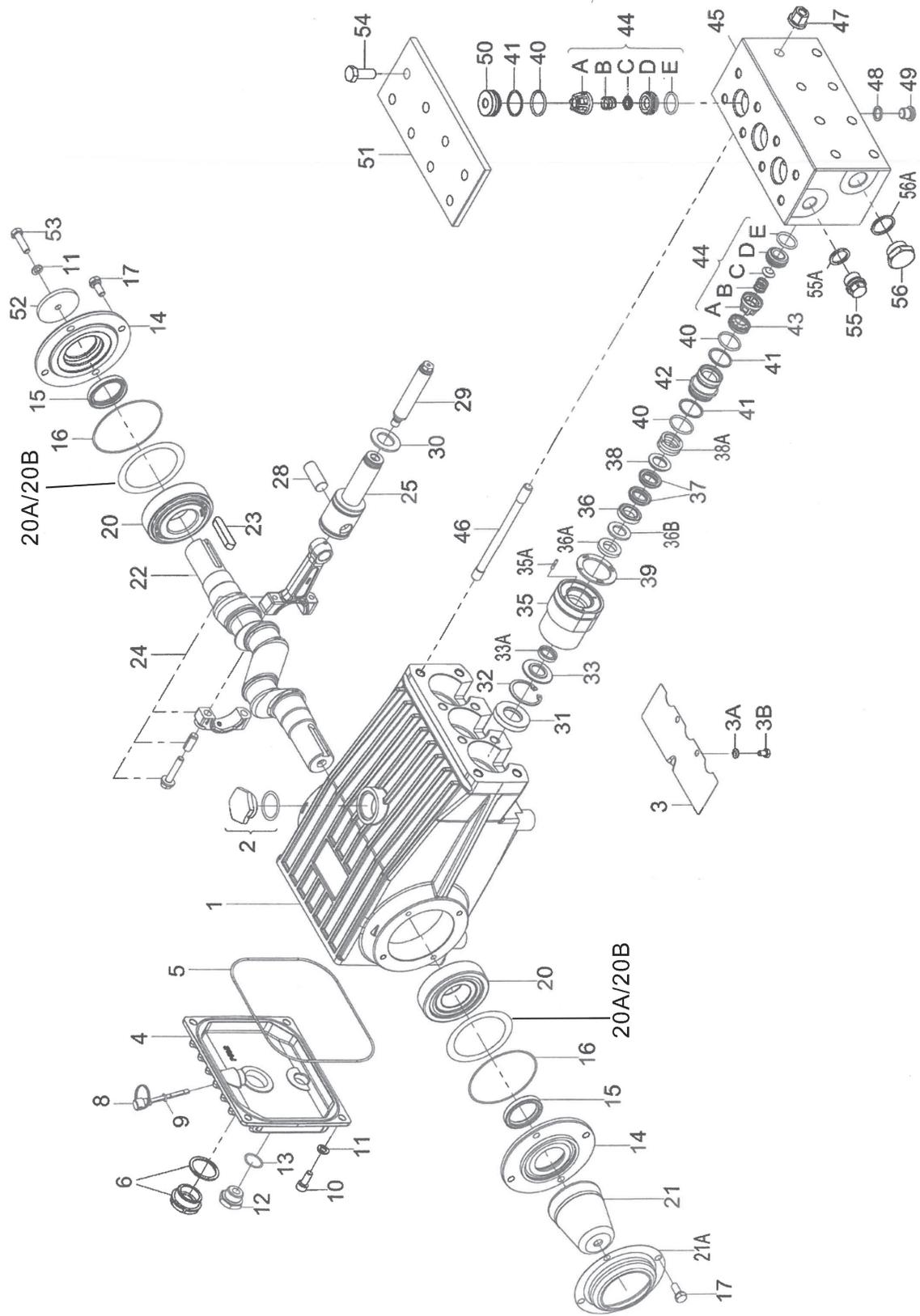
The rating shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

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:

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

<b>LP700 Torque Specifications/Lubrication Information</b>				
Position	Item#	Description	Lubrication	Torque Amount
1	07759	Crankcase	Molycote Cu-Paste	
6	07186	Oil Sight Glass	Loctite 572	29 ft.-lbs. (40 Nm)
10	01010	Cylinder Screw		221 in.-lbs. (25 Nm)
12	07109	Plug		29 ft.-lbs. (40 Nm)
17	07114	Hexagon Screw		221 in.-lbs. (25 Nm)
24A	13277	Hexagon Screw		22 ft.-lbs. (30 Nm)
29	06366	Plunger	Loctite 243	22 ft.-lbs. (30 Nm)
31	07133	Radial Shaft Seal	Loctite 403	
46	13429	Stud Bolt	Loctite 270 (nur AG)	
47	13430	Hexagon Nut		59 ft.-lbs. (80 Nm)
54	13433	Hexagon Screw	Molycote Cu-Paste	59 ft.-lbs. (80 Nm)

# LP700 EXPLODED VIEW



## LP700 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	07759	Crankcase	1	33A	08087	Grooved Ring	3
2	13000	Oil Filler Plug Assembly	1	35	13420	Seal Sleeve	3
3	05940	Cover Plate	1	35A	22764	Lock Pin	3
3A	07223-0100	Spring Ring	2	36	06359A	Pressure Ring	3
3B	05051	Hexagon Screw	2	36A	13421	Guide Ring	3
4	06085	Crankcase Cover	1	36B	05263	Support Ring	3
5	07104	O-Ring	1	37	06360	Sleeve	6
6	07186	Oil Sight Glass Assembly	1	38	13422	Sleeve Support Ring	3
8	06086	Oil Dipstick Assembly	1	38A	13423	Spring	3
9	01009	O-Ring	1	39	13424	Leakage Seal	3
10	01010	Cylinder Screw	4	40	07214	O-Ring	9
11	01011-0400	Spring Ring	5	41	06361	Support Ring	9
12	07109	Plug, 1/2" BSP	1	42	13425	Seal Case	3
13	06015	O-Ring	1	43	13426	Valve Retainer	3
14	07111	Bearing Cover	2	44	04394	Valve Assembly (44A-44E)	6
15	07112	Radial Shaft Seal	2	44A	04395	Spring Tension Cap	6
16	07113	O-Ring	2	44B	04396	Valve Spring	6
17	07114	Hexagon Screw	8	44C	04147	Valve Plate	6
20	07116	Taper Roller Bearing	2	44D	04121	Valve Seat	6
20A	07117	Fitting Disc	1-3	44E	04123	O-Ring	6
20B	13001	Fitting Disc	1-3	45	13428	Valve Casing	1
21	05376	Shaft Protector	1	46	13429	Stud Bolt	8
21A	05377	Shaft Guard Holder	1	47	13430	Hexagon Nut	8
22	13242	Crankshaft	1	48	07161	Copper Washer	3
23	13243	Fitting Key	1	49	07423	Plug, 1/4" BSP	3
24	13340	Connecting Rod Assembly	3	50	13431	Plug	3
25	13341	Crosshead/Plunger Assembly	3	51	13432	Cover for Valve Casing	1
28	13232	Crosshead Pin	3	52	13020	Disc for Crankshaft	1
29	06366	Plunger	3	53	06607	Hexagon Screw	1
30	07779	Oil Scraper	3	54	13433	Hexagon Screw	8
31	07133	Radial Shaft Seal	3	55	13434	Plug, 1/2" BSP	1
32	06584	Clip Ring	3	55A	06272	Copper Washer	1
33	13419	Support Disc	3	56	07703	Plug, 1/2" BSP	1
				56A	07704	Copper Washer	1
					03174	Pumphead Assembly (44, 45, 48-51, 54-56A)	

## LP700 REPAIR KITS

### Valve Assembly Kit

**#09491**

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
40	07214	O-Ring	9
41	06361	Support Ring	9
44A	04395	Tension Ring	6
44B	04396	Valve Spring	6
44C	04147	Valve Plate	6
44D	04121	Valve Seat	6
44E	04123	O-Ring	6

### Oil Seal Kit

**#09577**

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
31	07133	Radial Shaft Seal	3

### Plunger Packing Kit

**#09736**

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
33A	08087	V-Sleeve	3
36	06359A	Pressure Ring	3
36A	13421	Guide Ring	3
36B	05263	Support Ring	3
37	06360	V-Sleeve	6
38	13422	Sleeve Support Ring	3
39	13424	Leakage Seal	3

# REPAIR INSTRUCTIONS - LP700

## To Check Valves

Discharge Valves: screw out 8 x hexagon screw (54), remove cover (51). Screw hexagon screw (54) into thread of the plug (50) and pull out plug. Using a clipping pliers, remove spring tension cup (44A) and valve seat (44D). If necessary, use a diameter 12 pull out tool to remove valve seat. Check parts, and replace if worn.

Check o-rings (40/44E) and support rings (41/44F) and replace as necessary.

Tighten hexagon screws (54) to 59 ft.-lbs. (80 Nm).

Suction Valves: unscrew 8 x nut (47), remove valve casing (45) from seal sleeves (42). Using two screwdrivers, lever out seal case (42) from valve casing. Remove spring tension cup (44A) and valve seat (44D) with a clipping pliers. If necessary, use a diameter 12 pull out tool to remove valve seat. Check parts, and replace if worn.

Check o-rings (40/44E) and support rings (41/44F) and replace as necessary.

**Important!** The leakage seal (39) must be positioned with its  $\varnothing 3$  bore onto the notched pin (35A) so that its cut-outs are placed exactly over the bores of the seal sleeve (35) and the drip return bores of the valve casing. To secure valve casing, tighten nuts (47) evenly to 59 ft.-lbs. (80 Nm).

## To Check Seals and Plunger Pipe

Unscrew the 8 x nut (47), remove valve casing by pulling it out to the front. Remove seal sleeve (35) from crankcase guides. If necessary, remove seal case (42) from seal sleeve (35). Remove tension spring (38A) and seal parts (36-38) from seal sleeve. Check plunger surfaces and seals (37). Replace worn parts.

After removing clipping (32) and support ring (33), check leakage seal (33A) and replace if necessary.

If the surface of the plunger is worn, screw out the plunger (29) with a size 13 tool. Clean centring and front surface of crosshead with plunger (25).

Thread new plunger carefully through oiled seals in seal sleeve. Coat thread of new plunger lightly with suitable bonding agent (Loctite). Then insert the seal sleeve together with the plunger into crankcase guide until the threads of the plunger (29) push against plunger (25).

**Important!** Push the seal sleeves all the way into the crankcase guides only after the plungers (29) have been screwed in, as otherwise the leakage seal (33A) will be shorn off.

Crank the drive until all the plungers have been to the top; tighten plungers (29) at 22 ft.-lbs. (30 Nm) using a size 13 torque wrench.

Then press the seal sleeves (35) all the way into the crankcase guides.

**Important!** The leakage seal (39) must be positioned with its  $\varnothing 3$  bore onto the notched pin (35A) so that its cut outs are placed exactly over the bores of the seal sleeve (35) and the drip return bores of the valve casing. To secure valve casing, tighten nuts (47) evenly to 59 ft.-lbs. (80 Nm).

## To Dismantle Gear

After removing valve casing and plunger pipe, drain oil. Screw off gear cover (4) and bearing cover (14). Loosen connecting rod screws and push the front of the connecting rod forward as far as possible into the crosshead guide.

**Important!** Connecting rods are marked for identification. Do not twist connecting rod halves. Connecting rod is to be reinstalled in the same position on shaft journals.

Turning the crankshaft slightly, hit it out carefully to the side with a rubber hammer.

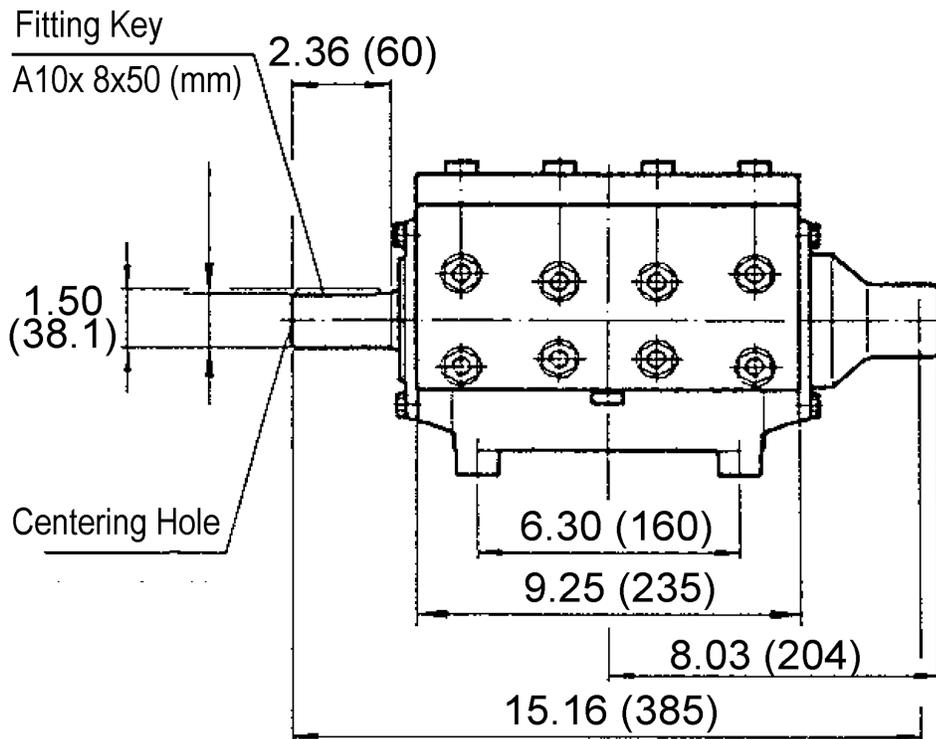
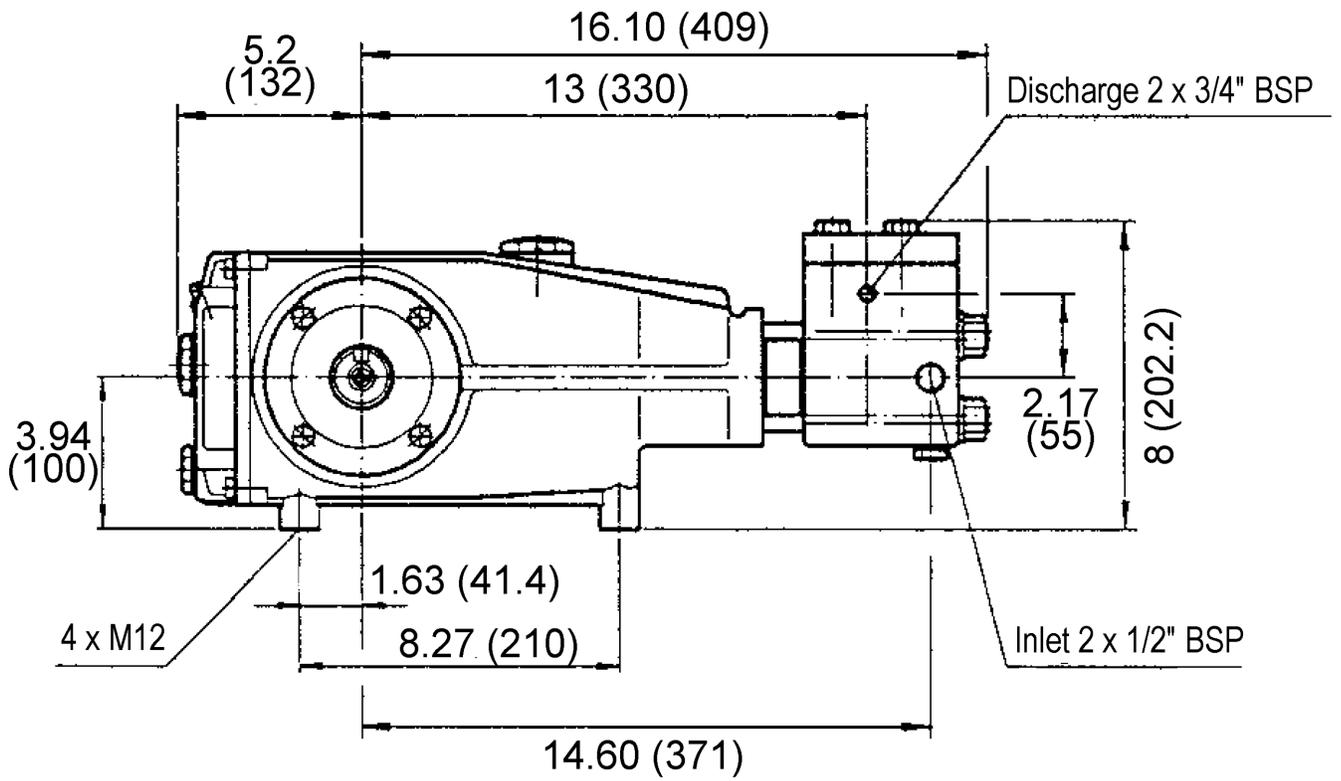
**Important!** Do not bend the connecting rod shanks. Check shaft and connecting rod surfaces, shaft seals and taper roller bearings.

## To Reassemble

Using a soft tool, press in the outer bearing ring till the outer edge lines up with the outer edge of the bearing hole. Screw on bearing cover together with shaft seal and o-ring. Fit shaft through bearing hole on the opposite side. Press in outer bearing ring and tension it inwards with the bearing cover, keeping the shaft in vertical position and turning slowly so that the taper rollers of the bearings touch the edge of the outer bearing ring. Adjust axial bearing clearance to at least 0.1 mm and maximum 0.15 mm by placing fitting discs (20A) under the bearing cover.

**Important!** After assembly has been completed, the shaft should turn easily with very little clearance. Tighten connecting rod screws at 22 ft.-lbs. (30 Nm).

**Model LP700 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)



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