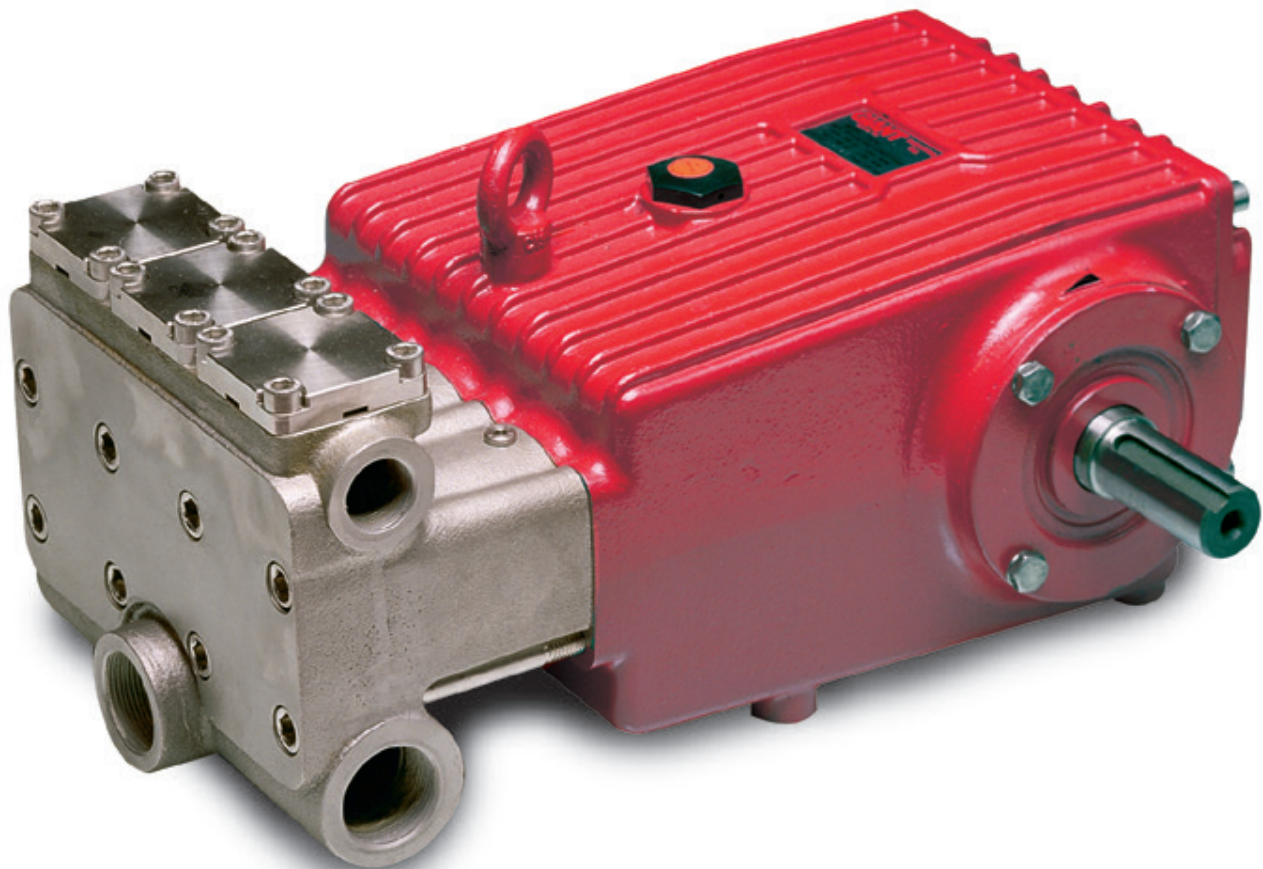


# Models

## GP5136-5100 & GP5145-5100

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# INSTALLATION INSTRUCTIONS

Figures for speed (rpm) and pressure apply to interval operation with cold water.

For continual operation, the speed of all pump models must be limited to 700 rpm and the maximum operating pressure reduced by 10%.

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.

**Oil:** Use only 1.2 gallons (4.6 liters) of ISO VG 220 (e.g. Aral Degol BG220) or SAE 90 gear oil (Giant's part number 01154).

**Before starting the pump, the plugs (44) must be removed and the pump cranked manually per hand or started briefly until water emerges from the outlet ports.**

Thereafter, the plugs (44) must be screwed back on and tightened.

Initial change after 50 operating hours and then every 500 operating hours.

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

**Keep NPSH under control.**

Maximum input pressure 145 PSI (10 bar).  
Maximum suction head -4.35 PSI (-0.3 bar).



## 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.

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

With pressure at zero, make sure that all parts on the pressure side of the unit are vented and refilled 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 manufacture and/or operator to ensure that all pertinent safety regulations are adhered to.**

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

# Specifications

## Model GP5136-5100

Flow .....	33.8 GPM .....	127.8 LPM
Discharge Pressure .....	2320 PSI .....	160 Bar
Crankshaft Speed .....		910 RPM
Power Required .....	56 BHP .....	41.8 kW
Inlet Pressure .....	-4.35 to 145 PSI .....	-0.3 to 10 Bar
Plunger Diameter .....	1.42" .....	36mm
Plunger Stroke .....	1.81" .....	46mm
Crankshaft Diameter .....		35mm x 10mm key
Crankshaft Mounting .....		Either side
Shaft Rotation .....		Top of pulley towards manifold
Maximum Temperature of Pumped Fluids .....	140 °F .....	60 °C
Inlet Ports .....		(3) 1-1/2" BSP
Discharge Ports .....		(2) 1" BSP
Weight .....	179 lbs. ....	81 Kg
Crankcase Oil Capacity .....	1.2 Gal. ....	4.6 Liters
Fluid End Material .....		AISI 316 Stainless Steel

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.

GP5136-5100 Horsepower Requirements					
RPM	GPM	1000 PSI	1500 PSI	2000 PSI	2320 PSI
700	26.0	17.9	26.9	35.9	41.6
750	27.9	19.2	28.8	38.4	44.6
800	29.7	20.5	30.7	41.0	47.5
850	31.6	21.8	32.7	43.5	50.5
910	33.8	23.3	35.0	46.6	54.1

### 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:

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

### SPECIAL NOTE:

FOR CONTINUAL OPERATION, THE SPEED OF THE PUMP MUST BE LIMITED TO 700 RPM, AND THE MAXIMUM PRESSURE OF THE PUMP MUST BE REDUCED BY 10%.

# Specifications

## Model GP5145-5100

Flow .....	43.5 GPM .....	164.6 LPM
Discharge Pressure .....	1500 PSI .....	100 Bar
Crankshaft Speed.....	750 RPM	
Power Consumption .....	45 BHP .....	33 kW
Inlet Pressure .....	-4.35 to 145 PSI .....	-0.3 to 10 Bar
Plunger Diameter.....	1.77" .....	45mm
Plunger Stroke.....	1.81" .....	46mm
Crankshaft Diameter.....	35mm x 10mm key	
Crankshaft Mounting .....	Either side	
Shaft Rotation.....	Top of pulley towards manifold	
Maximum Temperature of Pumped Fluids.....	140 °F .....	60 °C
Inlet Ports .....	(3) 1-1/2" BSP	
Discharge Ports.....	(2) 1" BSP	
Weight .....	179 lbs. ....	81 Kg
Crankcase Oil Capacity .....	1.2 Gal. ....	4.6 Liters
Fluid End Material.....	AISI 316 Stainless Steel	

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.

GP5145-5100 Horsepower Requirements					
RPM	GPM	500 PSI	750 PSI	1000 PSI	1500 PSI
400	23.2	8.0	12.0	16.0	24.0
500	29.0	10.0	15.0	20.2	30.0
600	34.8	12.0	18.0	24.0	36.0
700	40.6	14.0	21.0	28.0	42.0
750	43.5	15.0	22.5	30.0	45.0

### 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:

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

### SPECIAL NOTE:

FOR CONTINUAL OPERATION, THE SPEED OF THE PUMP MUST BE LIMITED TO 700 RPM, AND THE MAXIMUM PRESSURE OF THE PUMP MUST BE REDUCED BY 10%.

## GP5136-5100 and GP5145-5100 Pumps Repair Kits

### Plunger Packing Kits

#### GP5136-5100 (p/n 09597)

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
35A	07303	O-Ring	6
35B	13286	O-Ring	3
36	13291-0020	Grooved Ring	3
37A	07910	O-Ring	6
39	07142-0100	Pressure Ring	3
40	07144	V-Sleeve	6

#### GP5145-5100 (p/n 09598)

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
35A	08183	O-Ring	3
35B	13286	O-Ring	3
39	13292	Pressure Ring	3
40	13294	Sleeve	6
40A	06146	Grooved Ring	3
40B	03331	Scraper	3

#### Oil Seal Kit (p/n 09230)

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
31	13284	Oil Seal	3

### Valve Assembly Kits

#### Inlet Valve Kit (p/n 09231-0100)

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
46A	06577	O-Ring	3
46C	13304-0100	Inlet Valve Seat	3
46D	13306-0100	Valve Plate	3
46E	13307	Valve Spring	3
46F	13308	Spring Tension Cap	3
46G	13309	Spacer Pipe	3
48B	07740	O-Ring	3

#### Discharge Valve Kit (p/n 09232-0100)

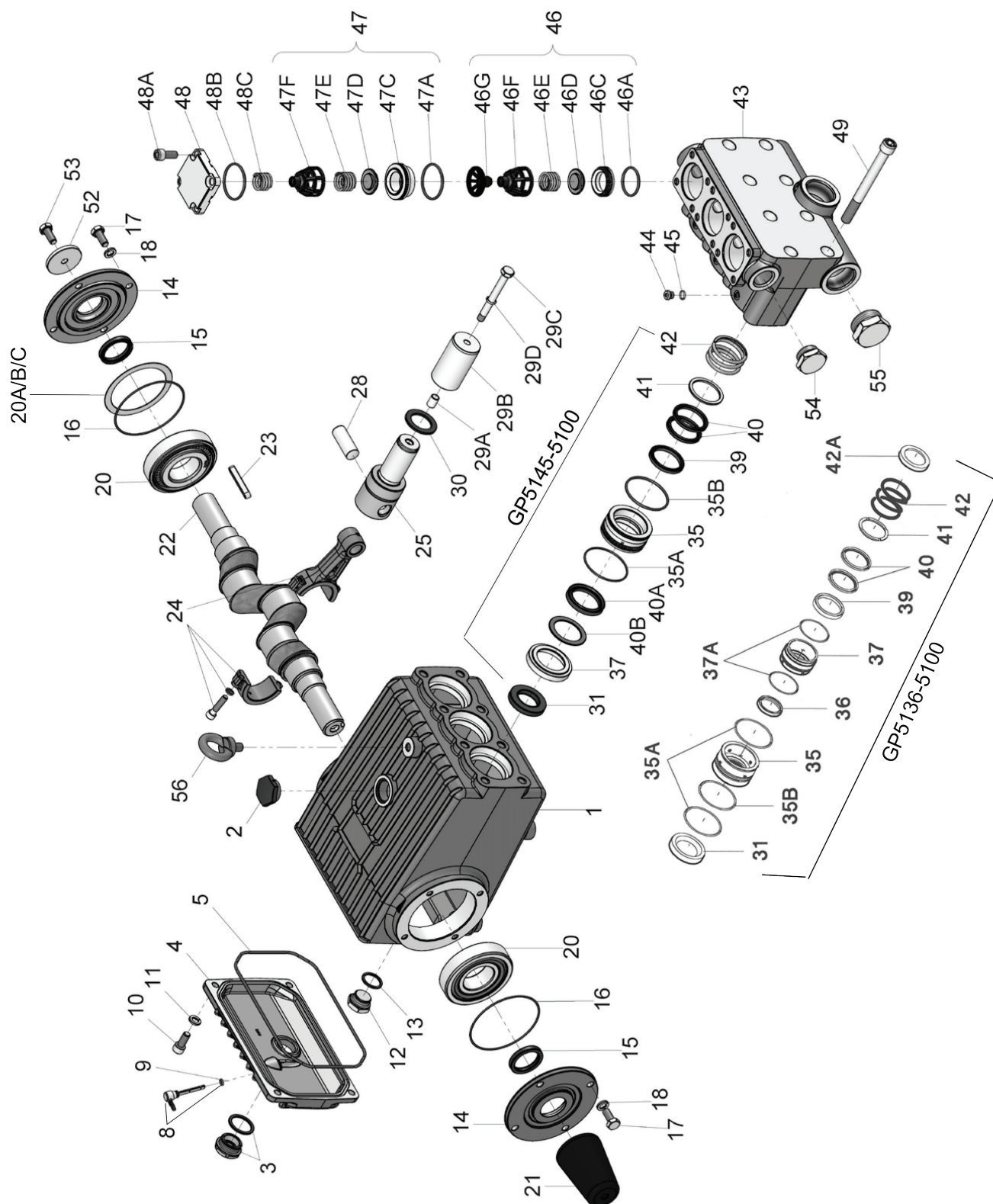
<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
47A	13289-0001	O-Ring, Viton	3
47C	13313	Discharge Valve Seat	3
47D	13306-0100	Valve Plate	3
47E	13307	Valve Spring	3
47F	13308	Spring Tension Cap	3
48B	07740	O-Ring	3

## GP5136-5100 & GP5145-5100 Pump Torque Specifications

<b>Position</b>	<b>Item #</b>	<b>Description</b>	<b>Lubrication Info</b>	<b>Torque Amount</b>
1	13266	Crankcase	Molycote Cu-Paste	
3	05943	Oil Sight Glass Assembly	Loctite 572	22 ft.-lbs. (30 Nm)
10	07008	Inner Hexagon Screw		33 ft.-lbs. (45 Nm)
12	07703	Drain Plug		74 ft.-lbs. (100 Nm)
17	13358	Hexagon Screw		33 ft.-lbs. (45 Nm)
24	13276	Connecting Rod Assembly		22 ft.-lbs. (30 Nm)
29C	07131-0100	Tension Screw	Loctite 243	26 ft.-lbs. (35 Nm)
29D	07161A-0100	Steel Ring	Loctite 577	
31	13284	Radial Shaft Seal	Loctite 403	
48A	07008	Inner Hexagon Screw	Anti Seize 350	35 ft.-lbs. (47 Nm)
49	13339	Inner Hexagon Screw		89 ft.-lbs. (120 Nm)
54	13044-0100	Plug	Pro Pack 550	
55	13322-0100	Plug	Pro Pack 550	



# Exploded View - GP5136-5100 and GP5145-5100 Pumps



## GP5136-5100 and GP5145-5100 Pumps 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	13266	Crankcase	1	37A	07910	O-Ring (GP5136-5100 Only)	6
2	13000	Oil Filler Plug Assembly	1	39	07142-0100	Pressure Ring (GP5136-5100)	3
3	05943	Oil Sight Glass Assembly	1	39	13292	Pressure Ring (GP5145-5100)	3
4	13267	Crankcase Cover	1	40	07144	V-Sleeve (GP5136-5100)	6
5	13268	O-Ring	1	40	13294	Sleeve (GP5145-5100)	6
8	07105	Oil Dip Stick Assembly	1	40A	06146	Grooved Ring	
9	01009	O-Ring, Dip Stick	1			(GP5145-5100 Only)	3
10	07008	Inner Hexagon Screw	4	40B	03331	Scraper (GP5145-5100 Only)	3
11	06725	Spring Washer	4	41	07146-0100	Sleeve Support Ring	
12	07703	Drain Plug, 3/4" BSP	1			(GP5136-5100)	3
13	07204-0100	Gasket, Drain Plug	1	41	13395	Sleeve Support Ring	
14	13271	Bearing Cover	2			(GP5145-5100)	3
15	13272	Radial Shaft Seal	2	42	07147	Tension Spring (GP5136-5100)	3
16	08182	O-Ring	2	42	13297	Tension Spring (GP5145-5100)	3
17	13358	Hexagon Screw	8	42A	13298-0100	Spring Guide	
18	06725	Spring Washer	8			(GP5136-5100 only)	3
20	13206	Taper Roller Bearing	2	43	13300-5000	Valve Casing, 316 S.S.	1
20A	13207	Fitting Disc, 0.1mm	1-3	44	06589	Plug, 1/8" BSP	3
20B	04723	Fitting Disc, 0.15mm	1-2	45	07204-0100	Steel Seal Ring	3
20C	04724	Fitting Disc, 0.2mm	1-2	46	13302-0100	Inlet Valve Assembly (46A-G)	3
21	13273	Shaft Protector	1	46A	06577	O-Ring	3
22	13274	Crankshaft	1	46C	13304-0100	Inlet Valve Seat	3
23	13275	Fitting Key	1	46D	13306-0100	Valve Plate	3
24	13276	Connecting Rod Assembly	3	46E	13307	Valve Spring	3
25	13280	Crosshead Assembly	3	46F	13308	Spring Tension Cap	3
28	13281	Crosshead Pin	3	46G	13309	Spacer Pipe	3
29A	07125	Centering Sleeve	3	47	13311-0100	Discharge Valve Assy. (47A-F)	3
29B	07130	Plunger Pipe (GP5136-5100)	3	47A	13289-0001	O-Ring, Viton	3
29B	13283	Plunger Pipe (GP5145-5100)	3	47C	13313	Discharge Valve Seat	3
29C	07131-0100	Tension Screw	3	47D	13306-0100	Valve Plate	3
29D	07161A-0100	Steel Ring	3	47E	13307	Valve Spring	3
30	13282	Oil Scraper	3	47F	13308	Spring Tension Cap	3
31	13284	Radial Shaft Seal	3	48	13316-0100	Plug	3
35	13288-0100	Seal Sleeve (GP5136-5100)	3	48A	07008	Inner Hexagon Screw	12
35	03342	Seal Sleeve (GP5145-5100)	3	48B	07740	O-Ring	3
35A	07303	O-Ring (GP5136-5100)	6	48C	07232	Pressure Ring	3
35A	08183	O-Ring (GP5145-5100)	3	49	13339	Inner Hexagon Screw	8
35B	13286	O-Ring	3	52	13362	Disc for Crankshaft	1
36	13291-0020	Grooved Ring (GP5136-5100)	3	53	13358	Hexagon Screw	1
37	06574-0100	Seal Case (GP5136-5100)	3	54	13044-0100	Plug, 1" BSP	1
37	06145-0100	Pressure Ring, Drip Return (GP5145-5100)	3	55	13322-0100	Plug, 1-1/2" BSP	2
				56	07623	Eye Bolt	1

## GP5136-5100 and GP5145-5100 Pumps Troubleshooting

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



# Repair Instructions - GP5136-5100 and GP5145-5100 Pumps

**Note:** Always take time to lubricate all metal and nonmetal parts with a light film of oil before reassembly. This step will ensure proper fit, at the same time protecting the pump's nonmetal parts (i.e., the elastomers) from cutting and scoring.

## To Check Valves

1. Remove inner hexagon screws (48A) with an allen wrench. Remove discharge plugs (48) with a screw driver. Check o-rings (48B) on discharge plugs and replace as necessary.
2. Pull out pressure ring (48C). Remove the spring tension cap (47F) from the discharge valve plate (47D) lying underneath by screwing in the 10mm screw. Take out the valve spring (47E) and valve plate (47D). Pull out the discharge valve seat (47C) by means of slide hammer. Check sealing areas of the valve plate and the valve seat for damage and replace worn parts. Check o-ring (47A) and replace as necessary.
3. Unscrew spacer pipe (46G) out from the spring tension cap (46F) located in the suction valve lying underneath. Remove the suction valve assembly (46) by screwing in a 10mm screw. Check o-ring (46A) and replace as necessary. If the inlet valve seat (46C) remains in the valve casing (43), remove it with a slide hammer. Check the sealing areas of the inlet valve plate (46D) and the inlet valve seat (46C) for damage and replace worn parts.
4. After reassembling the above items, tighten the inner hexagon screws (48A) to 35 ft.-lbs. (47 Nm).

## To Check Seals and Plunger Pipes

1. Loosen the eight inner hexagon screws (49) and pull off the valve casing (43) to the front. Pull seal sleeves (35) out of the guides in the crankcase and over the plunger pipes (29B). Remove sleeve support ring (41), sleeves (40) and grooved rings (40A for GP5145-5100 and 36 for GP5136-5100). For GP5145-5100, remove scraper (40B). Replace worn parts as necessary.
2. If a plunger pipe (29B) is worn out, loosen the tension screw (29C) and pull off the plunger pipe to the front. Clean the contact surfaces of the crosshead assembly (25) thoroughly. Place the new plunger pipe carefully through oiled seals back into the seal case. Check o-rings (35A and 35B). For GP5136-5100, also check 37B and replace as necessary.
3. Push the seal sleeves (35) together with the plunger pipe (29B) back into the crankcase guide. Turn the crankshaft (22) carefully until the crosshead assembly (25) comes up against the plunger pipe. Put a new steel ring (29D) onto the tension screw (29C). Cover the thread of the tension screw and the oil scraper and apply a liquid adhesive such as lock-tite. Tighten tension screw to 26 ft.-lbs.. (35 Nm).

**Important!!**

**Do not get any adhesive between the plunger pipe (29B) and the centering sleeve (29A). The plunger pipe should not be strained by excessive force on the tension screw (29C) or through damage to the front surface of the plunger. If these conditions are ignored, the plunger pipe will probably break.**

4. Tighten the inner hexagon screws (49) to the valve casing (43) to 85 ft.-lbs. (120 Nm).

# Repair Instructions - GP5136-5100 and GP5145-5100 Pumps

## 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. Drain oil from the crankcase (1) by removing drain plug (12) with a 3/4" wrench.
3. Loosen inner hexagon screws (10) for the crankcase cover (4) with an allen wrench and remove crankcase cover.
4. Loosen hexagon screws (17) for the bearing covers (14) with a wrench and remove bearing cover.
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

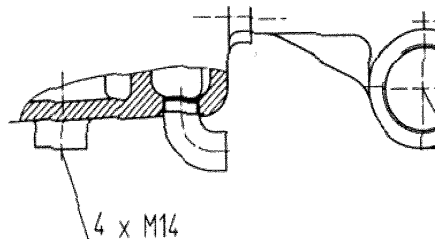
1. Using a soft tool, such as brass or wooden dowel, press in the outer bearing ring until it lines up with the outer edge of the bearing hole. Assemble the bearing cover (14) together with the shaft seal (15) and o-ring (16).
2. Fit the crankshaft (22) with pressed-on bearing parts through the bearing 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/B/C) as necessary. The crankshaft (22) should turn easily with very little clearance. Tighten inner hexagon screws on the connecting rods (24) to 22 ft.-lbs. (30 Nm).

### **Important!!**

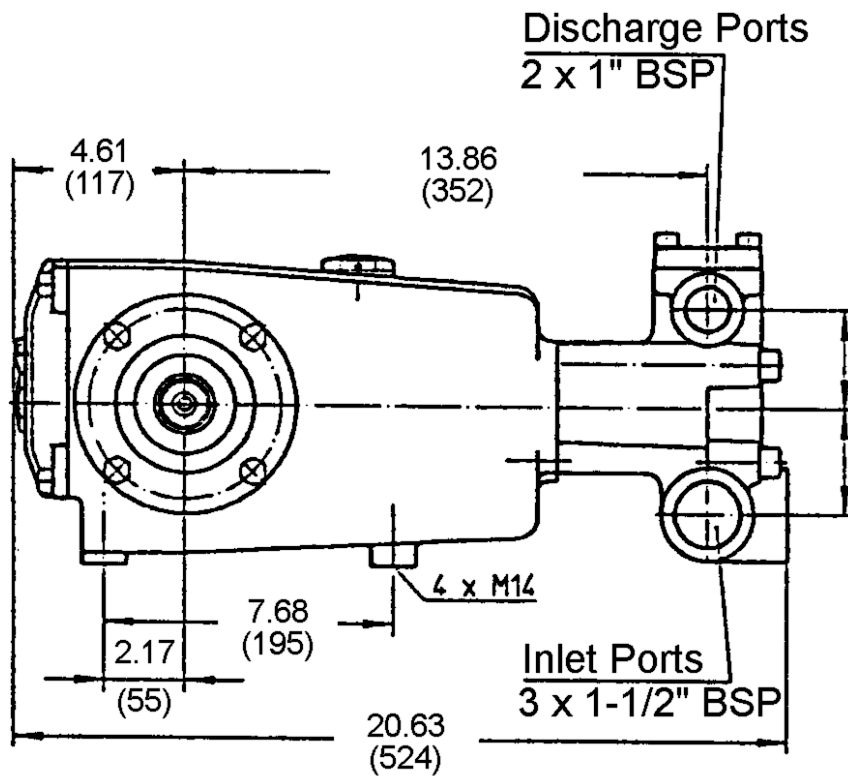
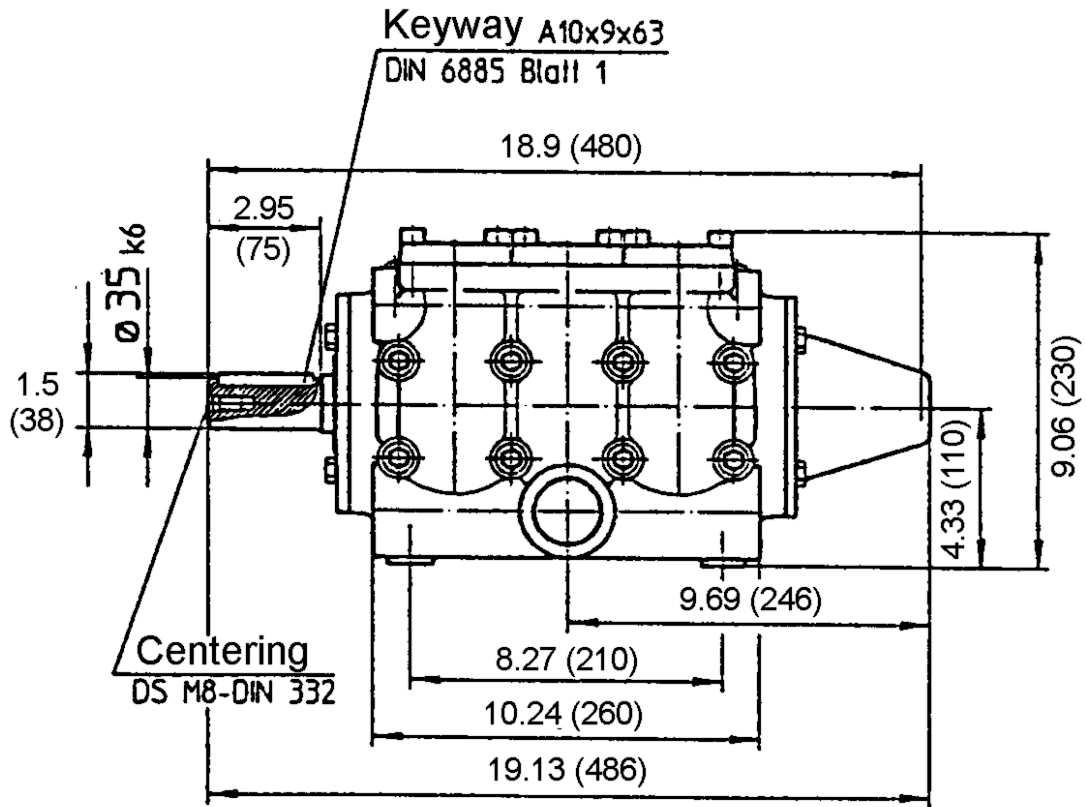
**There should be enough clearance for the connecting rods (24) to move sideways a little on the journals.**

### **Important!!**

**The 1/2" BSP connection in the crankcase serves the purpose of draining leakage water. The connection should not be closed. See the drawing below.**



# Pump Dimensions - GP5136-5100 and GP5145-5100 Pumps - 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)