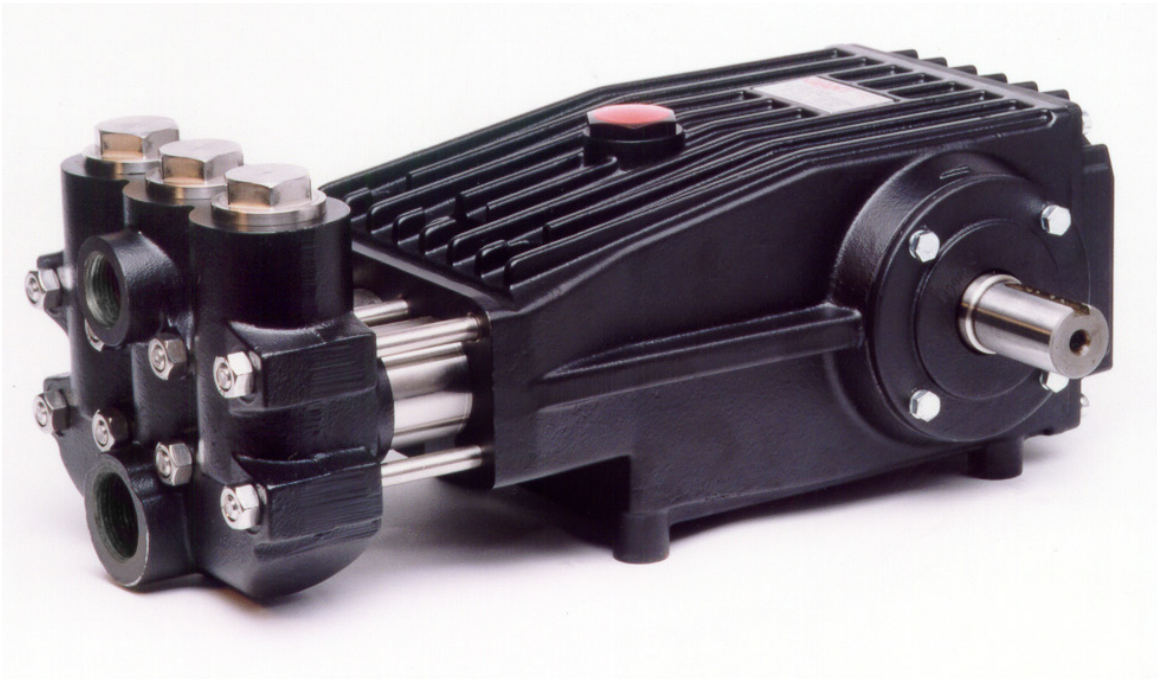


Model BP5236

Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair and Service
Manual



GIANT
Performance Under Pressure

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Updated 08/20

INSTALLATION INSTRUCTIONS

Operation and Maintenance

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

Oil amount: 101 ounces (3.0 L). Only use **ISO VG 220 industrial gear oil** (ex. Aral Degol BG220) or **automobile gear oil SAE 90 GL4** (Giant's p/n 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 or if condensate (frothy oil) occurs in the gear box, oil must be changed immediately.

**Maximum input pressure 145 PSI (10 bar).
Maximum suction head -4.35 PSI (-0.3 bar) - dependent on the viscosity of the medium.**

IMPORTANT! To avoid any incrustation of the medium on to the plunger bases (25), the plungers should be rinsed after every operation by running clear non-pressurized water through the 3 front crankcase openings (1) and seal retainers (32).

IMPORTANT! If recycled bentonite is being pumped, the pump must be rinsed for 3-5 minutes with clear water after usage to flush out dirt particles (sand) in the bentonite. The service life of the seals, ceramic plungers and valves depends largely on how fine the recycled bentonite is filtered.

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, mount the shaft guard (21) together with the holder (21A) onto the bearing cover (14) and secure with bearing cover screws (17).

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 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/medium mixture being absorbed and to prevent cavitation occurring, the pump-npshr, positive suction head and medium 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.

The BP5236 Giant triplex pump is suitable for pumping clean water as well as water containing bentonite in a concentration of maximum 55 lbs (25 kg) of bentonite diluted in 1.3 cubic yards (1m³) of water.

Specifications

Model BP5236

| | U.S. | Metric |
|---|-----------------|--------------------------------|
| Maximum Flow..... | 18.5 GPM..... | 70 l/m |
| Maximum Discharge Pressure..... | 1500 PSI..... | 100 bar |
| Power Consumption..... | 19.3 BHP..... | 14.4 kW |
| Maximum Speed..... | | 570 RPM |
| Inlet Pressure..... | -4.35 -145 PSI* | -0.3 TO 10 bar* |
| Plunger Diameter..... | 1.42”..... | 36mm |
| Plunger Stroke..... | 1.65”..... | 42mm |
| Crankshaft Diameter..... | | 35mm |
| Key Width..... | | 8mm |
| Crankshaft Mounting..... | | Either side |
| Shaft Rotation..... | | Top of pulley towards manifold |
| Maximum Temperature of Pumped Fluids..... | 104 °F..... | 40 °C |
| Inlet Ports..... | | (2) 1-1/4” BSP |
| Discharge Ports..... | | (2) 1” BSP |
| Approximate Weight..... | 110 lbs..... | 50 kg |
| Crankcase Oil Capacity..... | 101 fl.oz..... | 3.0 L |
| Fluid End Material..... | | 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.

PULLEY INFORMATION

Pulley selection and pump speed are based on a 1725 RPM motor and “B” section belts. When selecting desired GPM, allow for a ±5% tolerance on pumps output due to variations in pulleys, belts and motors among manufacturers.

1. Select GPM required, then select appropriate motor and pump pulley from the same line.
2. The desired pressure is achieved by selecting the correct nozzle size that corresponds with the pump GPM.

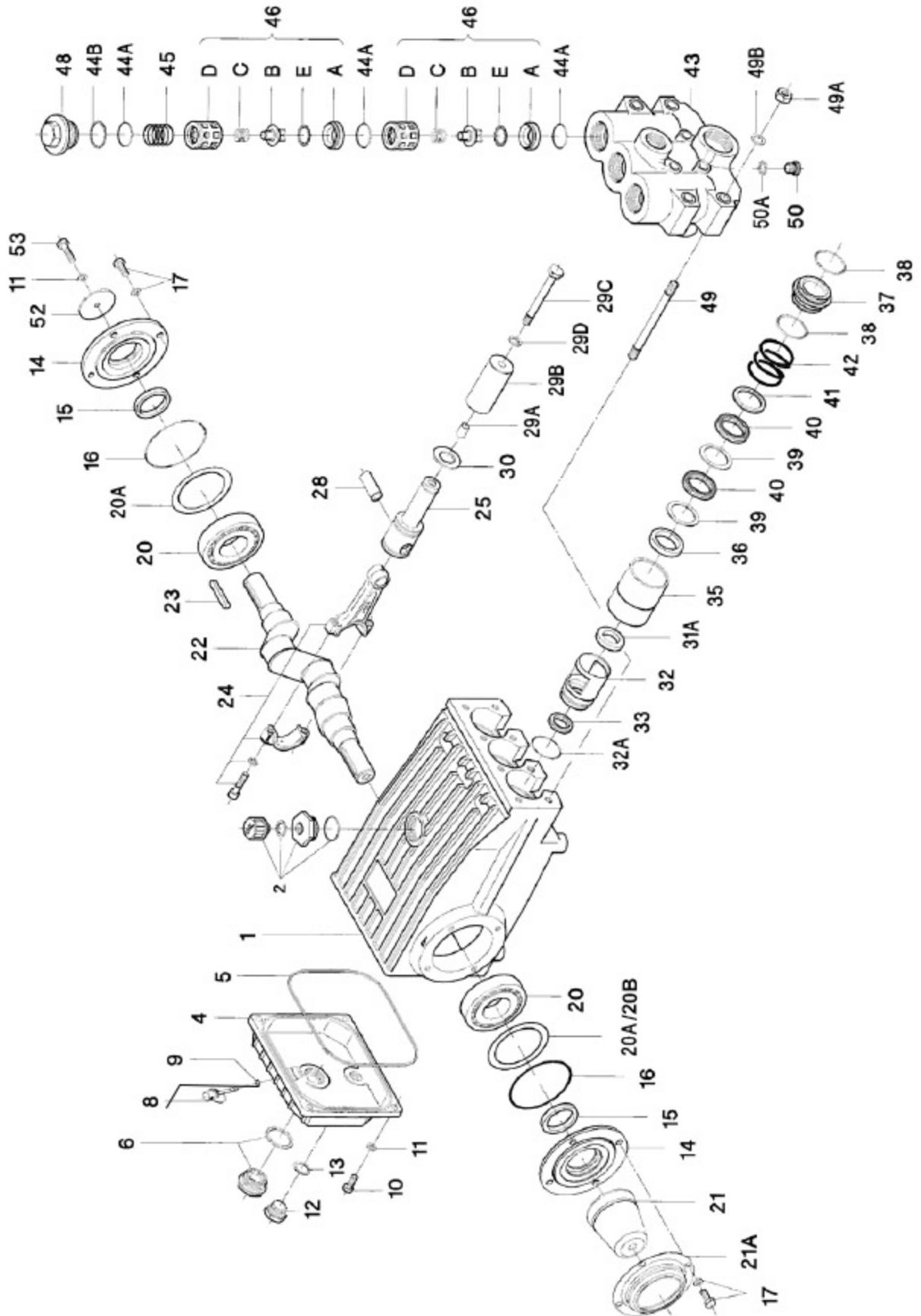
HORSEPOWER INFORMATION

We recommend that 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:

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

| BP5236 HORSEPOWER SPECIFICATIONS | | | | | | |
|---|------|---------|---------|---------|----------|----------|
| RPM | GPM | 250 PSI | 500 PSI | 750 PSI | 1000 PSI | 1500 PSI |
| 100 | 3.2 | 0.6 | 1.1 | 1.7 | 2.3 | 3.4 |
| 200 | 6.4 | 1.1 | 2.3 | 3.4 | 4.6 | 6.9 |
| 300 | 10.0 | 1.8 | 3.6 | 5.4 | 7.1 | 10.7 |
| 400 | 13.0 | 2.3 | 4.6 | 7.0 | 9.3 | 13.9 |
| 570 | 18.5 | 3.3 | 6.6 | 9.9 | 13.2 | 19.8 |

Exploded View - BP5236



BP5236 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 | 06911 | Crankcase | 1 | 31A | 06118 | Oil Seal | 3 |
| 2 | 06912 | Oil Filler Plug Assembly | 1 | 32 | 06116 | Oil Seal Retainer | 3 |
| 4 | 06085 | Crankcase Cover | 1 | 32A | 06119 | O-Ring | 3 |
| 5 | 07104 | O-Ring | 1 | 33 | 06117 | Backup Seal | 3 |
| 6 | 05943 | Oil Sight Glass W/Gasket | 1 | 35 | 06914 | Seal Sleeve | 3 |
| 8 | 06086 | Oil Dipstick Assembly | 1 | 36 | 06915 | Guide Ring | 3 |
| 9 | 01009 | O-Ring | 1 | 37 | 07139 | Seal Case | 3 |
| 10 | 01010 | Screw | 4 | 38 | 07140-0001 | O-Ring, Viton | 6 |
| 11 | 08094 | Spring Ring | 5 | 39 | 06916 | Support Ring | 6 |
| 12 | 07109 | Plug | 1 | 40 | 06917 | Spiral Ring | 6 |
| 13 | 06015 | O-Ring | 1 | 41 | 06918 | Support Ring | 3 |
| 14 | 07111 | Bearing Cover | 2 | 42 | 07147 | Tension Spring | 3 |
| 15 | 07112 | Crankshaft Seal | 2 | 43 | 06919 | Valve Casing | 1 |
| 16 | 07113 | O-Ring | 2 | 44A | 07150-0001 | O-Ring, Viton | 9 |
| 17 | 07114 | Hex Screw | 8 | 44B | 06266 | Support Ring | 3 |
| 20 | 07116 | Taper Roller Bearing | 2 | 45 | 06078 | Spring | 3 |
| 20A | 07117 | Fitting Disc, 0.1mm | 1-3 | 46 | 06924 | Valve Assembly (46A-E) | 6 |
| 20B | 13001 | Fitting Disc, 0.15mm | 1-3 | 46A | 06920 | Valve Seat | 6 |
| 21 | 05376 | Shaft Protector | 1 | 46B | 06921 | Valve Plate | 6 |
| 21A | 05377 | Shaft Guard Protector | 1 | 46C | 07062-0100 | Valve Spring | 6 |
| 22 | 13242 | Crankshaft | 1 | 46D | 06922 | Spacer Pipe | 6 |
| 23 | 13243 | Key | 1 | 46E | 06923 | Gasket for Valve | 6 |
| 24 | 13340 | Connecting Rod Assembly | 3 | 48 | 06077 | Plug | 3 |
| 25 | 06913 | Crosshead Plunger | | 49 | 07157 | Stud Bolt | 8 |
| | | Base Assembly | 3 | 49A | 07158 | Nut | 8 |
| 28 | 13232 | Crosshead Pin | 3 | 49B | 07159 | Washer | 8 |
| 29A | 07125 | Centering Sleeve | 3 | 50 | 07423 | Plug | 1 |
| 29B | 07130 | Plunger Pipe (A-D) | 3 | 50A | 07161 | Gasket | 1 |
| 29C | 07131 | Tensioning Screw | 3 | 52 | 13020 | Disk for Crankshaft | 1 |
| 29D | 07755 | Copper Gasket | 3 | 53 | 04561 | Hexagon Screw | 1 |
| 30 | 07779 | Flinger (E) | 3 | | | | |

BP5236 PUMP REPAIR KITS

Plunger Packing Kit # 09569

| Item | Part # | Description | Qty. |
|------|------------|--------------|------|
| 36 | 06915 | Guide Ring | 3 |
| 38 | 07140-0001 | O-Ring | 6 |
| 39 | 06916 | Support Ring | 6 |
| 40 | 06917 | Spiral Ring | 6 |

Oil Packing Kit # 09571

| Item | Part # | Description | Qty. |
|------|--------|-------------------|------|
| 31A | 06118 | Radial Shaft-Seal | 3 |
| 32A | 06119 | O-Ring | 3 |
| 33 | 06117 | Compact Ring | 3 |

Valve Assembly Kit #09570

| Item | Part # | Description | Qty. |
|------|------------|------------------|------|
| 44A | 07150-0001 | O-Ring | 9 |
| 44B | 06266 | Support Ring | 3 |
| 46A | 06920 | Valve Seat | 6 |
| 46B | 06921 | Valve Plate | 6 |
| 46C | 07062-0100 | Valve Spring | 6 |
| 46D | 06922 | Spacer Pipe | 6 |
| 46E | 06923 | Gasket for Valve | 6 |

BP5236 TORQUE SPECIFICATIONS

| Position | Item# | Description | Lubrication Info | Torque Amount |
|----------|-------|---------------------------|-------------------|-----------------------|
| 1 | 06911 | Crankcase | Molycote Cu-Paste | |
| 6 | 05943 | Oil Sight Glass w/Gasket | Loctite 572 | 29 ft.-lbs. (40 Nm) |
| 10 | 01010 | Screw, Cover | | 221 in.-lbs. (25 Nm) |
| 12 | 07109 | Plug | | 29 ft.-lbs. (40 Nm) |
| 17 | 07114 | Hex Screw, Bearing Cover | | 221 in.-lbs. (25 Nm) |
| 24 | 13340 | Hex Screw, Connecting Rod | | 22 ft.-lbs. (30 Nm) |
| 29C | 07131 | Plunger Bolt | Loctite 243 | 26 ft.-lbs. (35 Nm) |
| 31 | 06118 | Oil Seal | Loctite 403 | |
| 48 | 06077 | Plug, Valve | | 107 ft.-lbs. (145 Nm) |
| 49 | 07157 | Stud Bolt | Loctite 270 | |
| 49A | 07158 | Nut, Stud Bolt | | 59 ft.-lbs. (80 Nm) |

| 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 p/n 1154 | | | X | X | | |
| Plunger Packing Kits (1 kit/pump) (See above for kit list) | | | | | X | |
| Valve Assembly Kit (1 kit/pump) (See above for kit list) | | | | | X | |
| Oil Seal Kit (1 kit/pump) (See above for kit list) | | | | | | X |

BP5236 - Repair Instructions



1. Remove plugs (48) with a 36mm wrench and check o-ring (44A) and support ring (44B) take out spring (45).



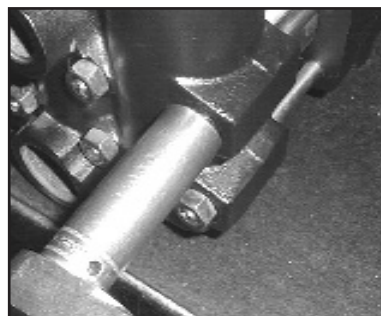
2. Remove discharge and suction valves (46), by pulling them upwards out of the valve casing with a valve puller.



3. The spacer pipe (46D) is screwed together with valve seat (46A).



4. Unscrew the valve seat, remove the valve plate (46B) and spring (46C). The seal ring (46E) is snapped onto the valve plate. Check all sealing surfaces and replace worn parts. Tighten plugs (48) to 107 ft-lbs. (145 Nm).



5. Remove hexagon nuts (49A)

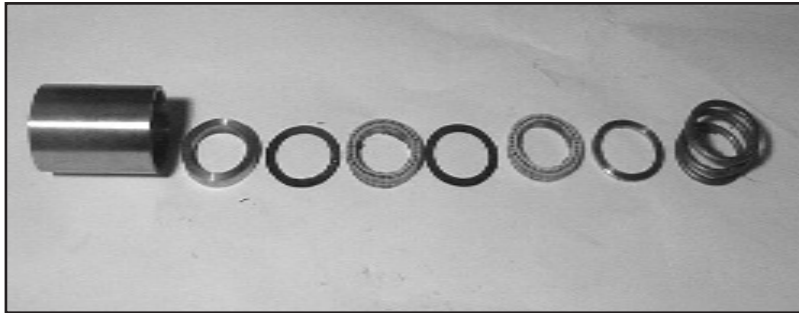


6. Remove pump head by tapping from the back with a rubber mallet.

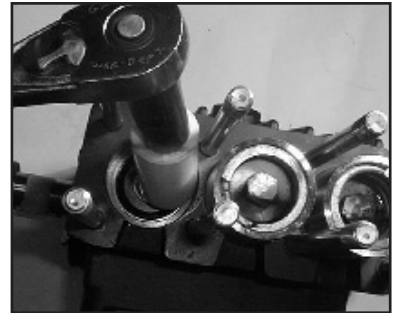


7. Remove seal unit (36, 39, 40) out of seal sleeve (35).

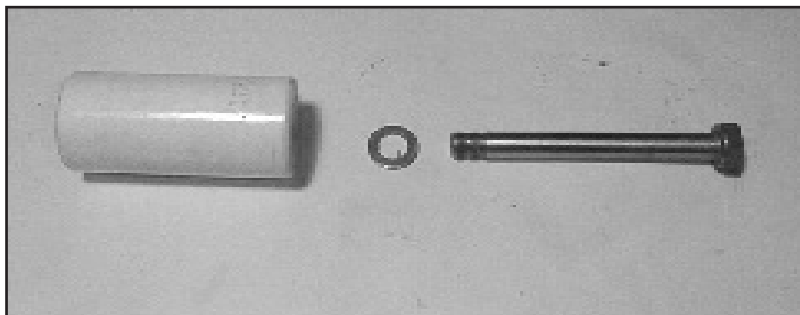
BP5236 - Repair Instructions



9. Examine spiral rings (40) and guide ring (36). Remove seal case (37) from valve casing and check O-rings (38). Replace worn parts; apply silicon grease on seals and o-rings before installing.

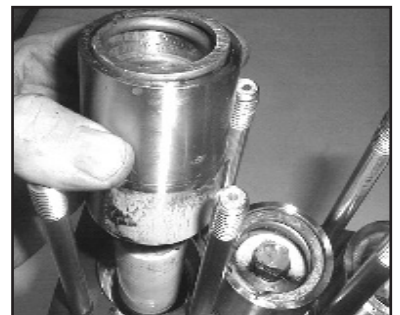


10. Remove tension screw (29C) and remove the plunger pipe from centering sleeve (29A)

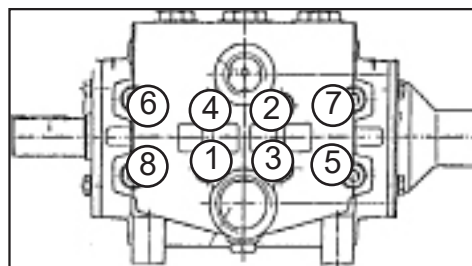


11. Clean plunger surface (25); using the tension screw, put the new plunger pipe and a new copper gasket (29D) onto the centering sleeve. Cover the threads of the tension screw (29C) lightly with lock tight and tighten to 26 ft.-lbs. (35 Nm).

IMPORTANT: Care must be taken that no lock tight gets between the plunger pipe (29B) and the centering sleeve (29A). The plunger pipe should not be strained by over tightening of the tension screw or through damage to front surface of plunger, otherwise it will probably break.



12. Check o-rings (38) on seal cases (37). Clean mounting surfaces of the seal cases as well as sealing surfaces in valve casing. Put seal cases (37) in the centering holes of the valve casing, then push valve casing carefully onto stud bolts (49).



13. Tighten hexagon nuts (49A) in a crossing pattern shown to the right to 59 ft.-lbs. (80 Nm).

BP5236 - Repair Instructions

To Dismantle Gear End

14. After removing valve casing and plunger pipes (29B) drain oil by removing drain plug (12). Remove crancase cover (4) and bearing cover (14). Remove connecting rod screws and push the front of the connecting rods as far as possible into the crosshead guide.

IMPORTANT: Connecting rods are marked for identification. Do not twist connecting rod halves. Connecting rods to be reinstalled in their exact original position on shaft journals.

15. 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

16. Using a soft tool, press in the outer bearing ring till the outer edge line 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 0.1mm and maximum 0.15mm 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 to 22 ft.-lbs. (30 Nm).

Pump Mounting Selection Guide

| | |
|--|---|
| Bushings 01065 - 18 mm Tapered H Bushing | Rails 01034 - Steel Box Rails (L=9.25" x W=1.18" x H=1.62") 01075 - Plated Steel Channel Rails (L=9.00" x W=2.12" x H=2.50") |
| Pulley & Sheaves 01061 - 7.75" Cast Iron 1 gr. - AB Section 01062 - 7.75" Cast Iron - 2 gr. - AB Section 01066 - 18 mm - 8" Steel Pulley - 1 gr. | |

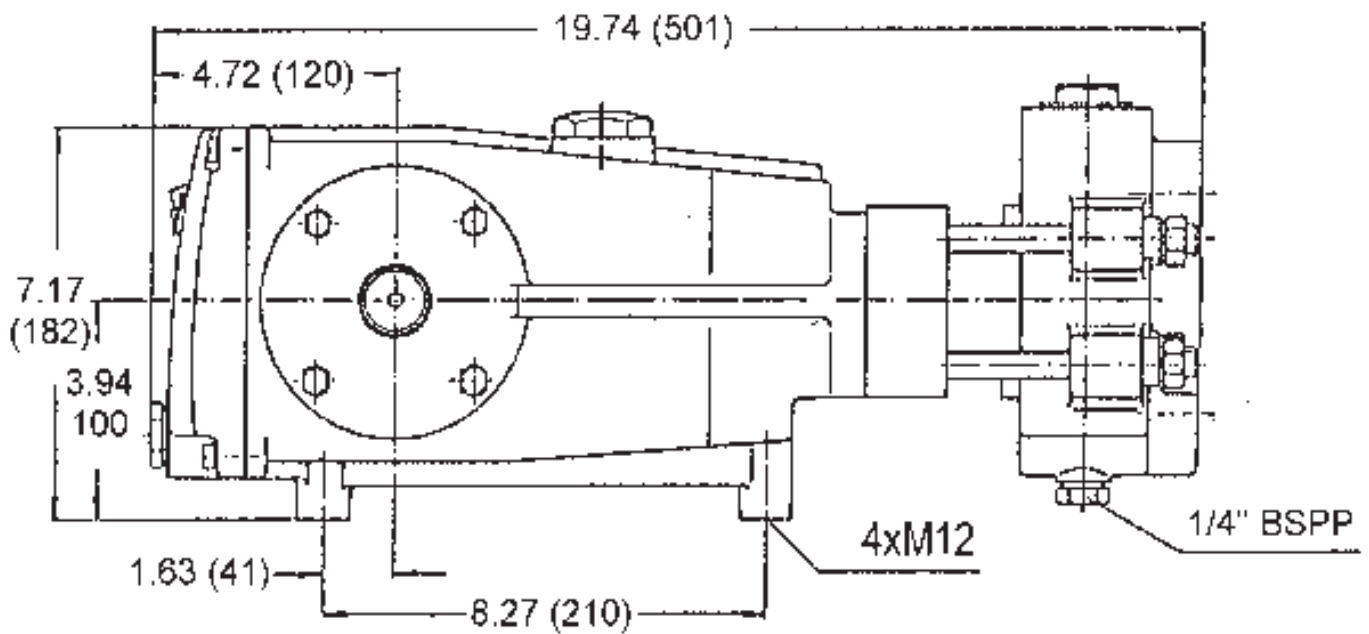
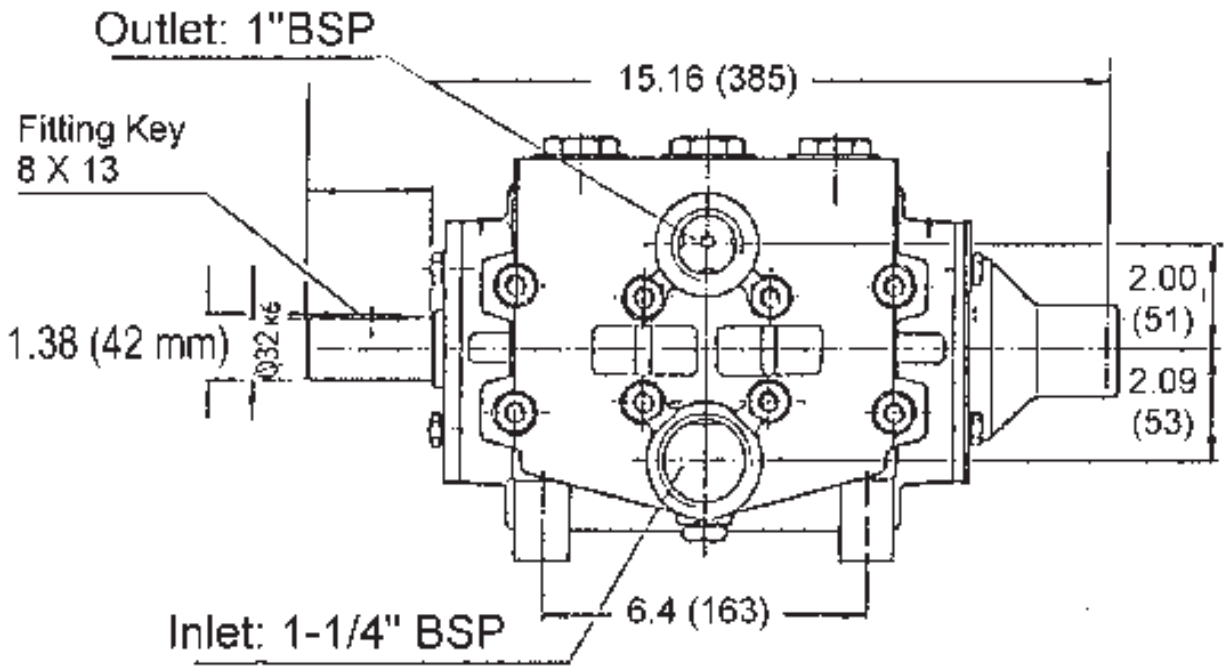
Contact Giant Industries or your local distributor for maintenance of the gear end of your pump. Phone: 419/531-4600

Contact Giant Industries for service school information. Phone: (419) 531-4600

PUMP SYSTEM MALFUNCTION

| MALFUNCTION | CAUSE | REMEDY |
|--|--|--|
| 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 pump for restrictions 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 Check for proper operation |
| Water in crankcase | High humidity Worn seals | Reduce oil change interval Replace seals |
| Noisy Operation | Worn bearings oil with Cavitation | Replace bearings, Refill crankcase recommended lubricant Check inlet lines for restrictions and/or proper sizing |
| Rough/Pulsating Operation with Pressure Drop | Worn packing Inlet restriction Accumulator pressure Unloader Cavitation | Replace packing Check system for stoppage, air leaks, correctly sized inlet plumbing to pump Recharge/Replace accumulator Check for proper operation Check inlet lines for restrictions and/or proper size |
| Pressure Drop at gun | Restricted discharge plumbing | Re-size discharge plumbing 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 |

BP5236 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