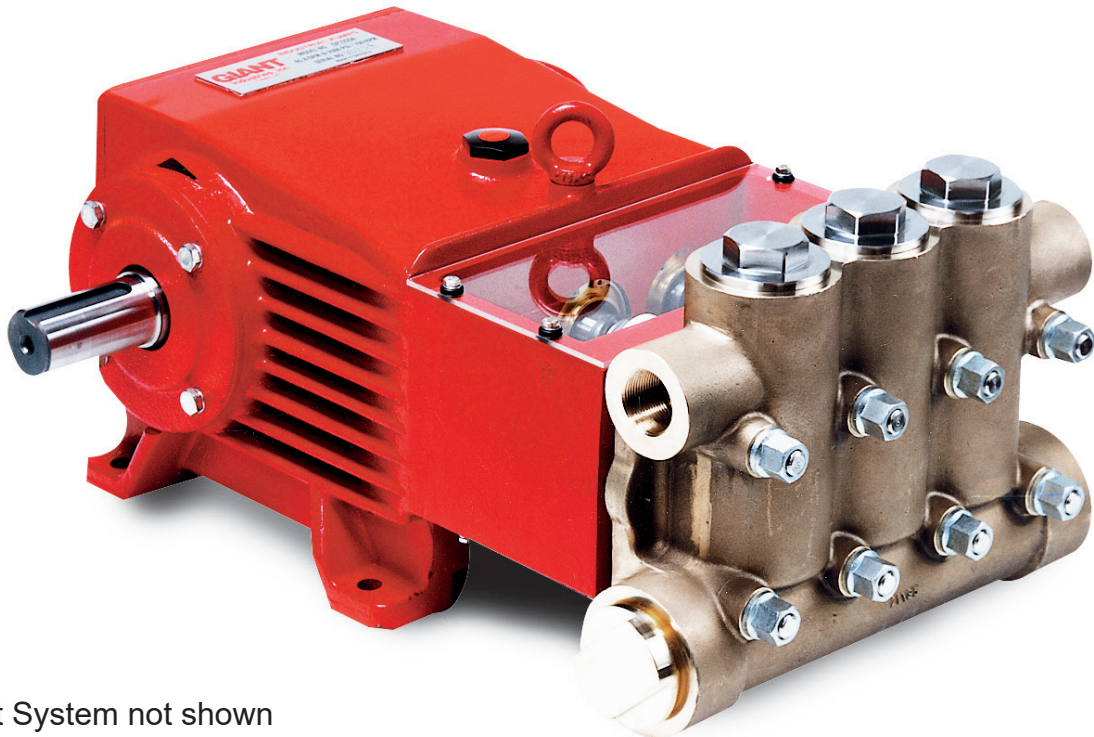


# Models

Triplex Ceramic  
Plunger Pump  
Operation Manual

## GP7155HTC/GP7255HTC

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Coolant System not shown

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**GIANT**  
Performance Under Pressure

Updated 10/22

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# INSTALLATION INSTRUCTIONS

Required NPSH refers to water (specific weight 1kg/dm<sup>3</sup>, viscosity 1cst) at 460 rpm.

## Operation and Maintenance

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

**Oil:** Use only 1.8 gallons (7.0 litres) of ISO VG 220 (e.g. Aral Degol BG220) or SAE 90 gear oil or Giant p/n 01154. We recommend ISO VG 68 (SAE80) gear oil for low ambient temperatures (+5°C and less).  
Initial change after 50 operating hours and then every 1000 operating hours, or after 1 year if used less.

**IMPORTANT!** Should condensate (frothy oil) occur in the gear box or when operating in damp places or with high temperature fluctuations, 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). Make sure that suction pulsation is sufficiently dampened – water column resonance must be avoided.

## Safety Rules

A safety valve is to be installed in accordance with the guidelines for liquid spraying units so that the admissible operating pressure cannot be exceeded by more than 10%. Pump operation without a safety valve as well as any excess in temperature or speed limits automatically voids the warranty.

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

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 cannot 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 avoid 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 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.**

## Supplementary Information

The Giant GP7155HT(C) and GP7255HT(C) have been specially constructed for pumping hot water, to steam boilers, for example. The plunger seals (42) on the water side are made of a high temperature-resistant material. To further increase seal life, there are also rinsing chambers behind the high pressure seals through which cold water flows.

The cold water connections (68) are suited to 6mm Ermeto pipe diameter. The operator can fit hose nipples instead, if wished; the threads in the seal sleeves for this purpose are 1/8" BSP.

The cold water (68 °F - 104 °F) (20°C - 40°C) can be guided into the pump from either side and flows out on the opposite side, into a drain, for example. The cold water flow rate should be at least 16.7 ounces/min (0.5 litre/min) and must be drawn in as soon as the pump is started. If the cold water does not start flowing immediately the pump is put into operation, the ceramic plunger (36B) in particular could crack under the cold shock.

**IMPORTANT!** The cooling water must be delimited to avoid lime formation due to warming.

**IMPORTANT!** If the location of the pump does not allow for cooling, on no account are the connections in the seal sleeves (35) to be closed because this is where water from the high pressure seals has to drip out. The U-pipes (73) should be removed in this case. To ensure the seals are properly greased, the openings in the screw-in joints (68) should be used to fill the rinsing chambers with high-temperature-resistant grease by means of a grease gun.

In the case of water temperature above 194 °F (90°C), we strongly recommend the cold-water rinse.

## Plant Lay-Out

For perfect functioning of the pump, the following points must be adhered to:

### a) Pressure in Suction Side

The stipulated NPSHR is the minimum required pressure above the vapour pressure of the medium and is never to fall short of this figure. Temperature and vapour pressure of the medium, the geodetic height of the location, the flow rate and loss of friction in the suction line, must all be taken into consideration. It may be necessary to install a booster pump (centrifugal pump) in the suction line.

### b) Pulsation

suction and discharge lines. Suction pulsation in particular must be damped in order to prevent resonance in the suction line which in turn causes cavitation. Therefore the pump is never to be connected to a rigid pipe, but instead to a flexible hose (not reinforced by steel), and if possible 1.5 to 2 times wider than the suction connection. If a booster pump is used, the hose is to be attached between the booster pump and the high pressure pump.

If several pumps are used, each pump must have its own suction line. If this cannot be done, a suction air chamber or a suction flow stabilizer must be installed in front of each pump. The bladder in the stabilizer is to be pretensioned on location.

Depending on the lay-out of the plant, a pressure accumulator may be necessary on the discharge side. This pressure accumulator must be installed directly in front of the discharge outlet of the high pressure pump. We recommend the use of only one pressure accumulator respectively in the discharge line in order to avoid irritation which could be caused by different pretension levels in the accumulators.

Gas tension in both the suction flow stabilizer/s and in the pressure accumulator/s should be checked regularly.

# Specifications

## Models GP7155HTC and GP7255HTC

	U.S. ....	(Metric)
Volume.....	42.4 GPM .....	(160.3 LPM)
Discharge Pressure .....	1160 PSI.....	(80 bar)
Power Required.....	34.9 HP .....	26.0 kW
Speed .....		460 RPM
Inlet Pressure (maximum) .....	-4.35 to 145 PSI .....	(-0.3 to 10 bar)
Plunger Diameter.....	2.17" .....	55mm
Plunger Stroke.....	2.0" .....	52mm
Crankshaft Diameter.....	1.9" .....	48mm
Key Width .....	0.6" .....	14mm
Crankshaft Mounting .....		Either side
Shaft Rotation.....	Top of pulley towards manifold	
Temperature of Pumped Fluids .....	Up to 220 °F .....	(105 °C)
Inlet Ports .....	(2) 2-1/2" BSP	
Discharge Ports .....	(2) 1-1/4" BSP	
Weight .....	375 lbs. ....	(170 kg)
Crankcase Oil Capacity .....	1.8 Gal. ....	(7.0 liter)
Fluid End Material (GP7155HTC).....	Bronze	
Fluid End Material (GP7255HTC).....	Nickel Plated Cast Iron	
NPSHR.....	19.7 ft. of head .....	6.0 m of head

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.

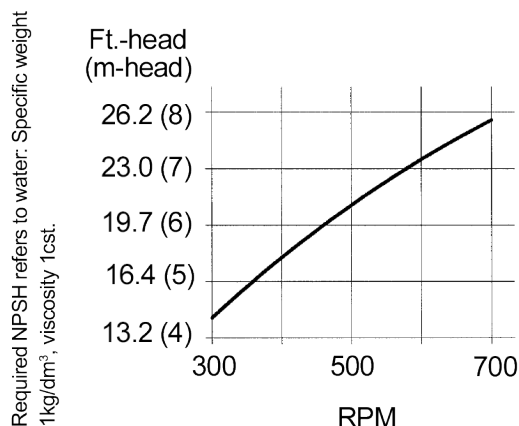
1. Select GPM required, then select appropriate motor and pump pulley from the same line.
2. The desired pressure is achieved by selecting the correct nozzle size that corresponds with the pump GPM.

### HORSEPOWER INFORMATION

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

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:

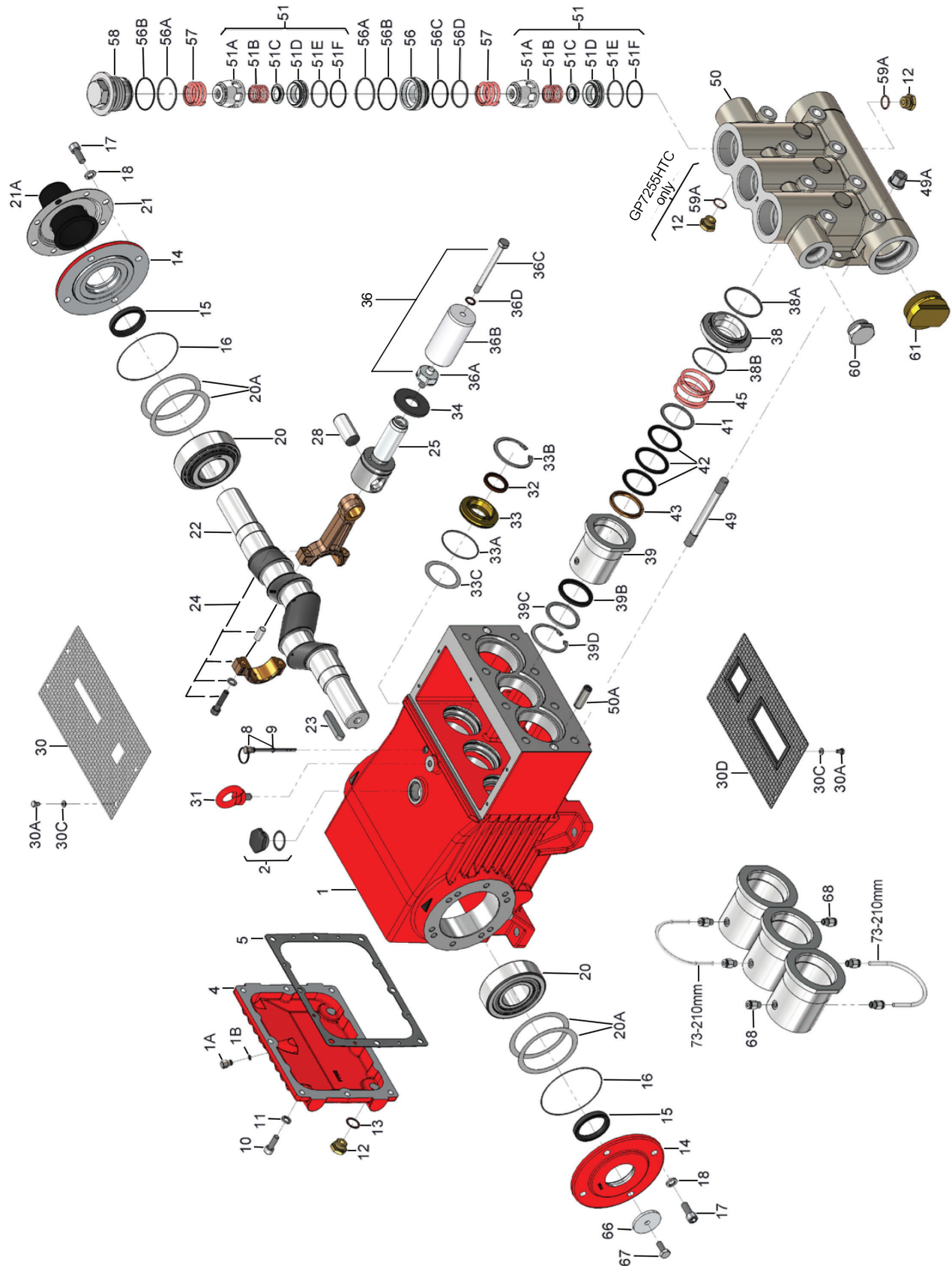
$$(\text{GPM} \times \text{PSI}) / 1450 = \text{HP}$$



GP7155HTC and GP7255HTC Horsepower Requirements					
RPM	GPM	500 PSI	750 PSI	1000 PSI	1160 PSI
200	18.4	6.3	9.5	12.7	14.7
300	27.7	9.6	14.3	19.1	22.2
400	36.9	12.7	19.1	25.4	29.5
460	42.3	14.6	21.9	29.2	33.8

# Exploded View - GP7155HTC and GP7255HTC

The EPDM (Buna) o-rings must not come into contact with mineral oil or mineral grease. Use silicone grease only.





## PARTS LIST - GP7155HTC and GP7255HTC

<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	07600	Crankcase	1	36C	07664	Tension Screw	3
1A	05525	Head for Oil Dipstick	1	36D	07665	Copper Ring	3
1B	01009	O-Ring	1	38	05715	Seal Case	3
2	13000	Oil Filler Plug Assembly	1	38A	13156-0003	O-Ring for 38	3
4	07601	Crankcase Cover	1	38B	07721-0003	O-Ring for 38	3
5	05757	Gasket, Crankcase Cover	1	39	05716	Seal Sleeve	3
8	07603	Oil Dip Stick Assembly	1	39B	05717	Compact Ring	3
9	01009	O-Ring, Dip Stick	1	39C	05718	Support Disc	3
10	22706	Hexagon Screw	8	39D	05719	Clip Ring	3
11	06725	Spring Washer	8	41	05720	Sleeve Support Ring	3
12	07109	Drain Plug (GP7155HTC)	3	42	07711-0030	V-Sleeve	9
12	07109	Drain Plug (GP7255HTC)	7	43	07712	Pressure Ring	3
13	07182	Gasket, Drain Plug	2	45	05721	Pressure Spring	3
14	05644	Bearing Cover	2	49	13159	Stud Bolt	8
15	07608	Radial Shaft Seal	2	49A	13160	Hexagon Nut	8
16	07184	O-Ring	2	50	05758	Valve Casing (GP7155HTC)	1
17	05642	Inner Hexagon Screw	8	50	06161	Valve Casing (GP7255HTC)	1
18	05039	Spring Washer	8	50A	13162	Cylinder Stud	2
20	07610	Taper Roller Bearing	2	51	05759	Valve Assembly (51A-51F)	6
20A	07611	Fitting Disc (Shim)	1-5	51A	13165	Spring Tension Cap	6
21	05645	Holder, Shaft Protector	1	51B	07732-0100	Valve Spring	6
21A	05646	Shaft Protector	1	51C	05314	Valve Plate	6
22	13405	Crankshaft	1	51D	05136A	Valve Seat	6
23	07614	Key	1	51E	07653-0003	O-Ring	6
24	13182	Connecting Rod Assembly	3	51F	13166	Support Ring	6
25	13183	Crosshead Assembly	3	56	13167	Valve Adaptor	3
28	13184	Crosshead Pin	3	56A	07658-0003	O-Ring for 56, 58	6
30	05713	Tin Lid	1	56B	07635	Support Ring for 56A, 58A	6
30A	05051-0100	Hexagon Screw	8	56C	13166	Support Ring	3
30C	08280	Disc	8	56D	07653-0003	O-Ring	3
30D	05714	Cover Plate	1	57	13173	Tension Spring	6
31	07623	Eye Bolt	1	58	13170	Plug, M64 x 2	3
32	07624	Radial Shaft Seal	3	59A	07661	Copper Ring (GP7155HTC)	1
33	07626	Seal Retainer	3	59A	07661	Copper Ring (GP7255HTC)	5
33A	07627	O-Ring	3	60	13151	Plug, 1-1/4" BSP	1
33B	07628	Circlip	3	61	13171	Plug, 2-1/2" BSP	1
33C	07249	Fitting Disc	3	66	13362	Disc For Crankshaft	1
34	13137	Oil Scraper	3	67	13358	Hexagon Screw	1
36	07706	Plunger Pipe Assy.(36A-D)	3	68	04781	Push-In Fitting	6
36A	07667	Plunger Connection	3	73	04786	Hose	1
36B	07666	Plunger Pipe	3		07662	Valve Tool (Not Shown)	1

# REPAIR KITS - GP7155HTC and GP7255HTC

## Plunger Packing Kit - # 09700

Item	Part #	Description	Qty.
38A	13156-0003	O-Ring	3
38B	07721-0003	O-Ring	3
39B	05717	Compact Ring	3
42	07711-0030	V-Sleeve	9

## Oil Seal Kit - # 09221

Item	Part #	Description	Qty.
32	07624	Radial Shaft Seal	3
33A	07627	O-Ring	3

## Valve Assembly Kit - # 09604A-0003

Item	Part #	Description	Qty.
51B	07732-0100	Valve Spring	6
51C	05314	Valve Plate	6
51D	05136A	Valve Seat	6
51E	07653-0003	O-Ring	6
51F	13166	Support Ring	6
56A	07658-0003	O-Ring	6
56B	07635	Support Ring	6
56C	13166	Support Ring	3
56D	07653-0003	O-Ring	3

GP7155HTC and GP7255HTC TORQUE SPECIFICATIONS			
Position	Item	Description	Torque Amount
24	13182	Connecting Rod Assembly	30 ft.-lbs. (40 Nm)
36A	07667	Plunger Connection	33 ft.-lbs. (45 Nm)
36C	07664	Tension Screw	30 ft.-lbs. (40 Nm)
49A	13160	Hexagon Nut	133 ft.-lbs. (180 Nm)
58	13170	Plug	107 ft.-lbs. (145 Nm)

Preventative Maintenance Check List & Recommended Spare Parts List						
Check	Daily	Weekly	50 hrs	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 01154			X	X		
Plunger Packing Kit (1 kit/pump)					X	
Oil Seal Kit (1 kit/pump)					X	
Valve Kit (1 kit/pump)						X

# GP7155HTC and GP7255HTC Repair Instructions

## MAINTENANCE

### To Check Valves

Remove plugs (58), take out tension spring (57). Remove the complete valve (51) with either a valve tool (07662) or an M16 hexagon screw. Remove valve adaptor (56) and tension spring (57) with pull-out tool size 5. To dismantle valves: remove valve seat (51D) out of spacer pipe (51A). Check sealing surfaces and replace worn parts. Check o-rings (51E) and support rings (51F). Tighten plugs (58) at 107 ft.-lbs. (145 Nm).

### To Check Seals and Plunger Pipe

Remove U-pipes (73), take screw-in joints (68) out of seal sleeves (39). Remove nuts (49A) and remove pump head (50). Separate plunger connection (36A) from crosshead (25) by means of an open-end wrench (size 36). Pull seal sleeves (39) out of their fittings in the crankcase. Seal case (38) should remain in the valve casing (50); examine O-rings (38B). Take seals (42) out of seal sleeves (39) and examine them. Check plunger unit (36A-36D). Using a suitable pliers, take clip ring (39D) out of seal sleeve (39); remove and examine seal (39B). Replace worn parts. Be careful to note sequence of installation.

**IMPORTANT!** Do **not** use grease when replacing high pressure plunger seals (42).

Hot water causes grease to wash off the seal which in turn can jam valves.

The new seals and O-rings should only be lightly oiled before installation.

When replacing plunger pipe (36B), tighten tension screws (36C) at 30 ft.-lbs. (40 Nm).

When reassembling, tighten plunger screws (36A) at 33 ft.-lbs. (45 Nm).

**IMPORTANT!** The 3 plungers connections (36A) must not be removed as long as the valve casing (50) is mounted; otherwise, the tension screw (36C) could hit against the spacer pipe (51E) (when the pump is being turned).

### Mounting Valve Casing:

Check O-rings on seal case (38).

Clean the mounting surfaces of seal sleeves (39) in the drive and sealing surfaces of valve casing (50).

Push valve casing carefully onto the seal case (38), o-rings (38A/38B) and centring studs (50A). Tighten nuts (49A) at 133 ft.-lbs. (180 Nm).

### To Dismantle Gear

Take out plunger and seal sleeves as described above. Drain oil.

After removing the circlip ring (33B), remove out seal retainer (33) with a screwdriver. Check seals (32, 33A) and surfaces of crosshead (25).

Possible axial float of the seal adaptor (33) to be compensated with shims (33C).

Remove crankcase cover (4). Loosen screws on the connecting rods (24).

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

Push connecting rod halves together with the crosshead as far as possible in to the crosshead guide.

Take out bearing cover (14) on one side and push out crankshaft (22) taking particular care not to bend the connecting rods (24).

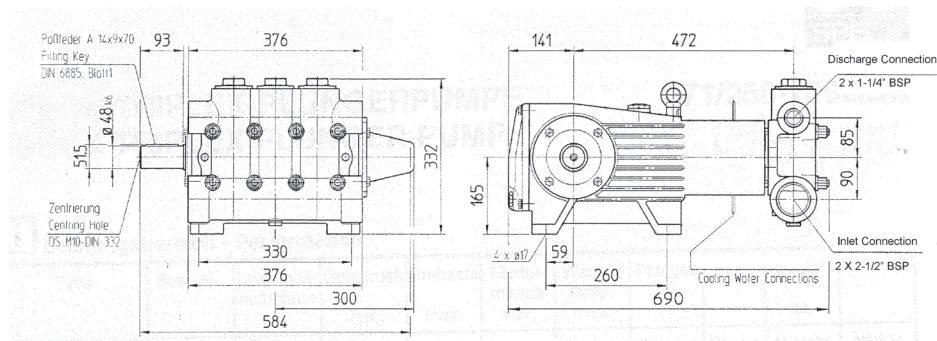
Check surfaces of connecting rods (24) and crankshaft (22).

Reassemble in reverse order. Adjust axial play (clearance) on the crankshaft to minimum 0.1mm / maximum 0.15mm by means of shims (20A). Shaft should turn easily with little clearance.

Tighten screws (24) at 30 ft.-lbs. (40 Nm).

**IMPORTANT!** Connecting rods must be able to be slightly moved sideways at the stroke journals.

## GP7155HTC and GP7255HTC 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.



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For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**GIANT**  
Performance Under Pressure

**GIANT INDUSTRIES, INC.**  
900 N. Westwood Ave  
Toledo, Ohio 43607  
Phone; (419) 531-4600 FAX (419) 531-6836  
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[www.giantpumps.com](http://www.giantpumps.com)