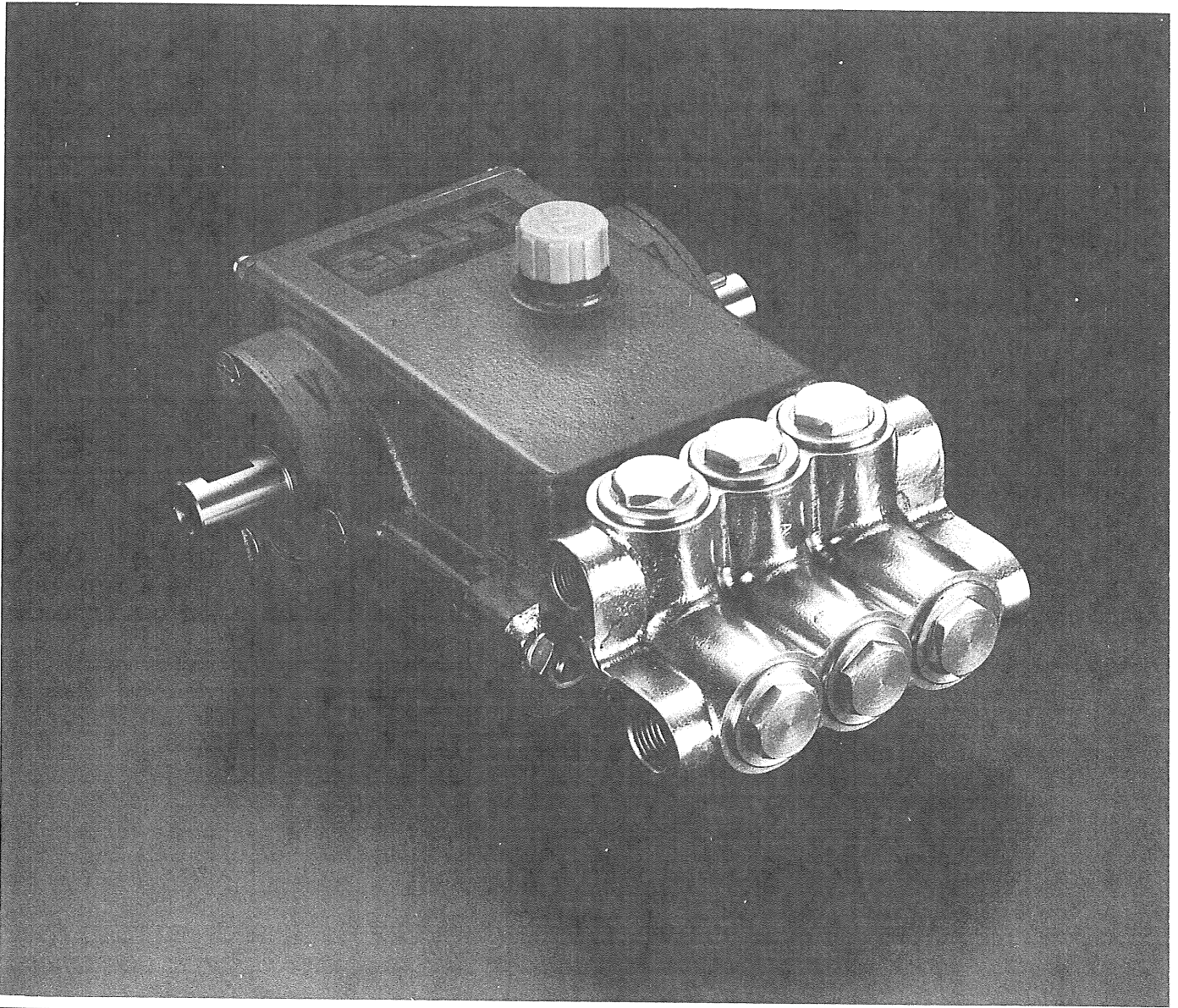


Model CP53/63

Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair, and Service
Manual



GIANT

Contents:

Installation Instructions
Parts List
Trouble Shooting
Repair Instructions
Dimensions and Weight
Warranty Information

INSTALLATION INSTRUCTIONS

Installation of the Giant Products Company 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 Products Company or your local distributor for assistance.

1. The pump should be installed flat on a base to a maximum 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 160°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 by-pass 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 an accumulator is necessary to minimize pulsation at drive elements, plumbing, connections, and other system areas. The accumulator must be sized for the pump operation or approximately 50 percent of the pump operating capacity. The use of an accumulator with Giant Products Company pumps is optional, although recommended by Giant Products Company to further reduce system pulsation, particularly where a shut-off gun results in pressure spikes 10 percent higher than operating pressure. Accumulator must be positioned downstream from unloader.
5. The Giant Products Company pumps may be operated in either direction of rotation. Required horsepower for system operation can be obtained from the charts below and on page 2.
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, used carelessly and without regard to its potential hazard, can cause serious injury.

IMPORTANT OPERATING CONDITIONS **Failure to comply with any of these conditions invalidates the warranty.**

1. Prior to initial operation, fill the crankcase with Giant Products Company crankcase oil or an equivalent heavy duty SAE85W-140 gear oil.
Crankcase oil should be changed after 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 R.P.M. 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 Products Company.
4. Remove drain plug in bottom of manifold and run pump dry approximately 10 seconds to drain water before exposure to freezing temperatures.

MODEL CP63 TRIPLEX CERAMIC PLUNGER PUMP

Volume	Up to 6.0 G.P.M.
Discharge Pressure	Up to 3100 P.S.I.
R.P.M.	Up to 1490 R.P.M.
Plunger	20 MM
Crankcase Capacity	16 fl. oz.
Temperature of Pumped Fluids	Up to 160°F
Inlet Port	1/2" N.P.T.
Discharge Port	3/8" N.P.T.
Pulley Mtg.	Either Side
Shaft Rotation	top of pulley toward head
Weight	24½ lbs.
Length	10.98"
Width	8.78"
Height	5.12"

PULLEY SELECTION* CP63			
Pump Pulley	Motor Pulley	R.P.M.	G.P.M.
7.75"	3.75"	795	2.9
7.75"	3.95"	840	3.2
7.75"	4.45"	955	3.6
7.75"	4.95"	1070	4.1
7.75"	5.45"	1190	5.0
7.75"	5.95"	1305	5.5
7.75"	6.45"	1420	6.0

*Pump speed and pump output in gallons per minute based on use with a 1725 R.P.M. motor. Select motor pulley size to give desired pump output. Various other pulley sizes are available from Giant Products Co. upon request.

1. Select G.P.M. required then select appropriate motor pulley from same line.
2. The pressure desired is determined by using correct nozzle size to the P.S.I. you require.

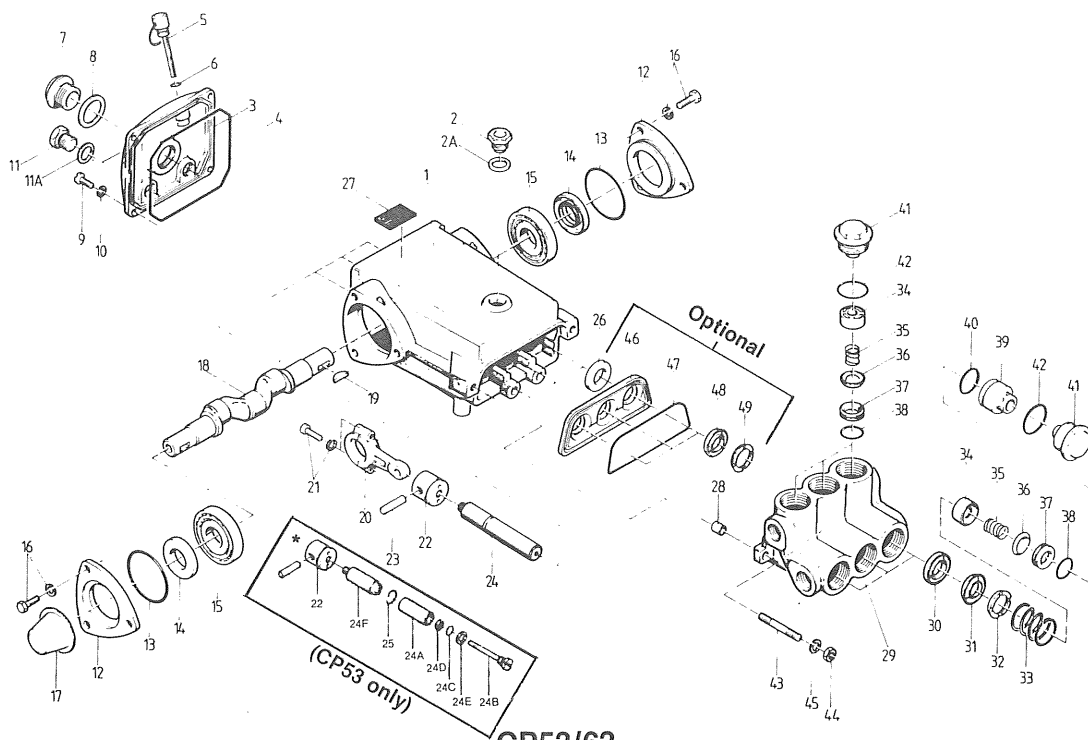
*Pulley Selection based on 1725 R.P.M.
Electric Motor with "B" Section Belts.

HORSEPOWER REQUIREMENTS* CP63												
G.P.M.	2000 PSI	2100 PSI	2200 PSI	2300 PSI	2400 PSI	2500 PSI	2600 PSI	2700 PSI	2800 PSI	2900 PSI	3000 PSI	3100 PSI
3.6	4.7	4.9	5.1	5.4	5.6	5.8	6.1	6.3	6.5	6.8	7.0	7.2
4.1	5.3	5.6	5.8	6.1	6.4	6.6	6.9	7.2	7.4	7.7	8.0	—
4.5	5.8	6.1	6.4	6.7	7.0	7.3	7.6	7.9	8.2	8.5	8.8	—
5.0	6.5	6.8	7.1	7.5	7.8	8.1	8.4	8.8	9.1	9.4	9.7	—
5.5	7.1	7.5	7.8	8.2	8.6	8.9	9.3	9.6	—	—	—	—
6.0	7.8	8.2	8.6	8.9	9.3	9.7	—	—	—	—	—	—
Intermittent duty only												

*Horsepower ratings shown are for electric motors only. Gas engines require approximately twice the horsepower ratings shown.

$$\text{Horsepower Formula} = \frac{\text{GPM} \times \text{PSI}}{1542.6} = \text{h.p.}$$

GIANT
Giant Products / 3156 Bellevue Rd. / Toledo, OH / 43606



CP53/63

To avoid confusion and possible delays when placing an order, always specify the PART NUMBER and DESCRIPTION, plus the MODEL NUMBER of your pump. All parts are available either from your dealer or direct from the factory.

To find the correct part number, first locate the part in the exploded view to get the reference number. Then, using the reference number, find the corresponding part number in the parts list.

*Please note that the plunger assembly consisting of item numbers 22-24F, has been replaced with a ceramic impregnated stainless steel plunger, item #24.

Optional weep back feature may be obtained through installation of item numbers 46-49 and changing Part #29.

CP53/63 PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.	ITEM	PART NO.	DESCRIPTION	QTY.
1	07180✓	Crankcase	1	24	07291✓	Plunger	3
2	07181✓	Oil Fill Cap	1	25	07205✓	Flinger	3
2A	07182✓	Gasket, Oil Fill Cap	1	26	07206✓	Rear Plunger Seal	3
3	07183✓	Cover, Crankcase	1	28	07207✓	Shim, Manifold Stud	2
4	07184✓	"O" Ring, Crankcase Cover	1	29	07352✓	Manifold Head	1
5	07185✓	Oil Dipstick	1	29A	07208✓	Manifold Head, Weep Back	1
6	01009✓	"O" Ring, Oil Dipstick	1	30	07221✓	Pressure Ring	3
7	07186✓	Oil Sight Glass	1	31	06064✓	V-Sleeve	3
8	07187✓	Gasket, Oil Sight Glass	1	32	07209✓	Support Ring	3
9	07188✓	Screw, Cover	4	33	07210✓	Pressure Spring	3
10	07189✓	Spring Washer	4	34	06018✓	Retainer, Spring	6
11	07190✓	Drain Plug	2	35	06017✓	Valve Spring	6
11A	07191✓	Gasket, Drain Plug	2	36	06016✓	Valve Plate	6
12	07192✓	Bearing Cover	2	37	06014✓	Valve Seat	6
13	07193✓	"O" Ring, Bearing Cover	2	38	06015✓	"O" Ring, Valve Seat	6
14	07194✓	Seal, Crankshaft	2	39	07211✓	Adapter, Inlet Valve	3
15	07195✓	Ball Bearing	2	40	07212✓	"O" Ring, Adapter	3
16	07196✓	Screw, Bearing Cover	6	41	07213✓	Plug, Manifold	6
17	07197✓	Shaft Protector	1	42	07214✓	"O" Ring, Manifold Plug	6
18	07198✓	Crankshaft*	1	43	07215✓	Stud, Manifold	4
19	01024✓	Key	1	44	07216✓	Hex Nut, Manifold Stud	4
20	07199✓	Connecting Rod*	3	45	08041✓	Spring Washer, Stud	4
21	01027✓	Conn. Rod Screw w/Washer	6	46	07217✓	Housing, Rear V-Sleeve	1
22	02001✓	Crosshead	3	47	07218✓	"O" Ring, Rear V-Sleeve	1
23	01031✓	Pin, Crosshead	3	48	07219✓	Housing	3
				49	07220✓	Rear V-Sleeve	3
						Support Ring, Rear V-Sleeve	3

*For pumps with mfg. date falling on 4/82 and 5/82, factory should be consulted prior to replacement of this part.

CP53/63 Repair Kits

Part #09040 Plunger Packing Weep Kit CP53/63

3-06064 V-Sleeve
3-07219 Rear V-Sleeve
1-07218 O-Ring

Part #09041 Valve Assembly Kit CP53/63

3-07214 O-Ring, Plug
3-07212 O-Ring, Adapter
(Inlet Only)
3-06015 O-Ring, Valve Seat
3-06014 Valve Seat
3-06016 Valve Plate
3-06017 Valve Spring
3-06018 Valve Spring Retainer

Part #09052 Ceramic Plunger Kit CP53/63

3-07291 Ceramic Impreg.
Stnls. Plunger
3-07205 Flinger
3-07206 Rear Plunger Seal

Part #09067 Optional Weep Assembly Kit CP53/63

1-07217 Housing Rear V-Sleeve
1-07218 O-Ring Rear V-Sleeve
3-07219 Rear V-Sleeves
3-07220 Support Ring,
Rear V-Sleeve
1-07208 Mfd. with Weep
Return Ports

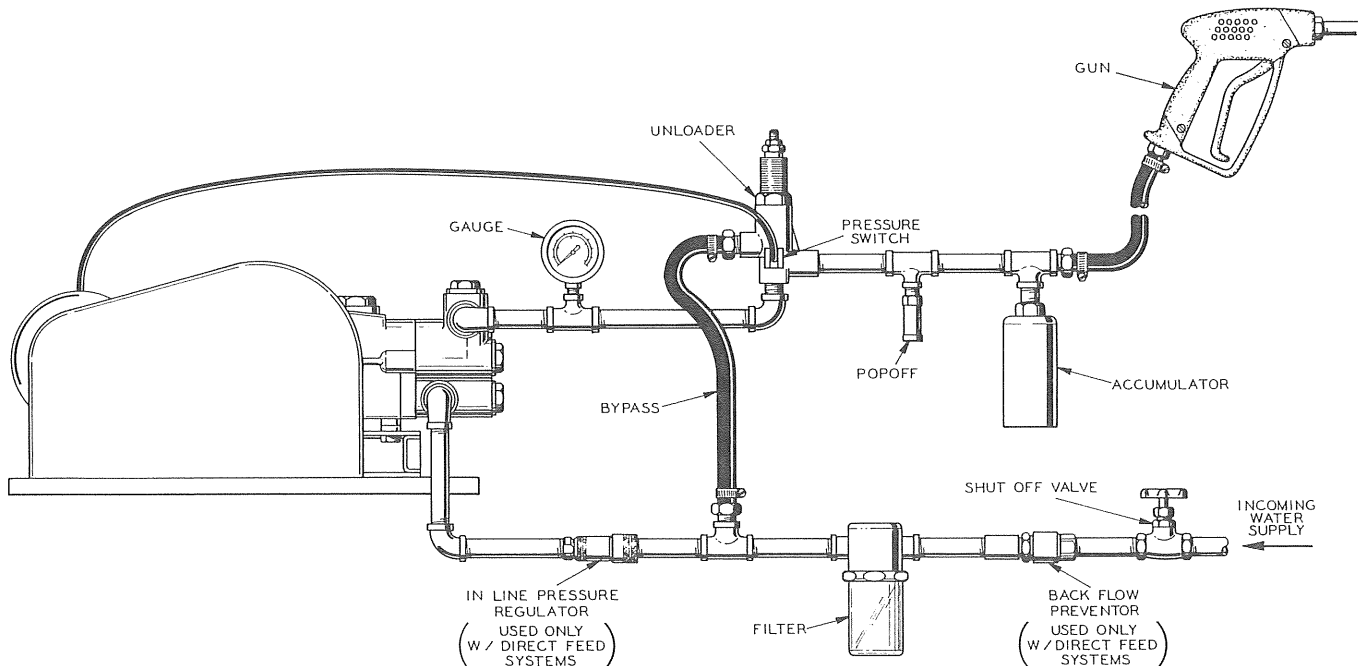
9037 Plunger Packing Kit CP53/63 PB-60

3-06064

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	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
Water in Crankcase	High Humidity	Reduce Oil Change Interval
Noisy Operation	Worn Bearings	Replace Bearings, Refill Crankcase Oil with Recommended Lubricant
Rough/Pulsating Operation with Pressure Drop	Worn Packing Inlet Restriction Accumulator Pressure	Replace Packing Check System for Stoppage, Air Leaks, Correctly Sized Inlet Plumbing to Pump Recharge/Replace Accumulator
Pump Pressure as Rated, Pressure Drop at Gun	Restricted Discharge Plumbing	Resize Discharge Plumbing to Flow Rate of Pump
Excessive Leakage	Worn Plungers Worn Packing/Seals Excessive Vacuum	Replace Plungers Adjust Replace Packing Seals Reduce Suction Vacuum

Typical Installation with Varied Suction and Pressure Feed



Giant Product Company in no way assumes liability or responsibility for operation of customer's high pressure system.

TOOLS

A successful maintenance and repair program starts with good tools. In a pinch, Giant pumps can be repaired with a pair of pliers and an adjustable wrench. However, the following tools are much more efficient to perform these functions:

SHORT TOOL KIT

- 1 Oil Can with Giant Oil
- 1 Plastic or Rubber Mallet
- 1 6" Ratchet assembly
- 1 $\frac{3}{8}$ " Ratchet drive
- 1 22mm socket— $\frac{1}{2}$ " drive
- 1 17mm socket
- 1 large screwdriver
- 2 small screwdrivers
- 1 Torque wrench (range to 700 inch lbs.)
- 1 Small Pilot Bearing Puller
- 1 Small wooden dowel

COMPLETE TOOL KIT

- 1 Oil Can with Giant Oil
- 1 Plastic or Rubber Mallet
- 1 6" Ratchet Assembly
- 1 $\frac{3}{8}$ " Ratchet drive
- 1 22mm socket— $\frac{1}{2}$ " drive
- 1 17mm wrench
- 1 large screwdriver
- 2 small screwdrivers
- 1 torque wrench (range to 700 inch lbs.)
- 1 small pilot bearing puller
- 1 5mm allen wrench
- 1 standard Giant bearing tool
- 1 Small wooden dowel
- 1 small flat punch

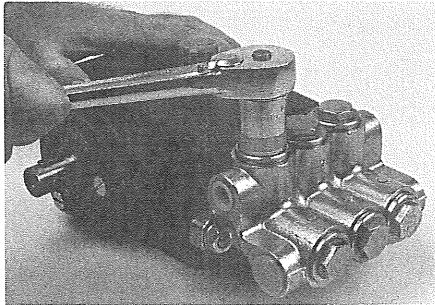
All the above tools are readily available from your local hardware supply except the Giant bearing tool, readily available from Giant Products Company.

After you have assembled the tools necessary to perform the maintenance function you plan, proceed with the repair sequence.

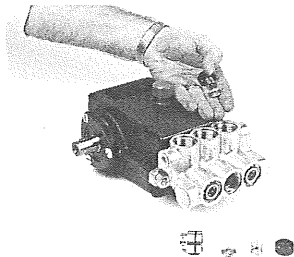
NOTE: Always take time to lubricate all metal and non-metal parts with a light film of oil before re-assembly. This step will help ensure proper fit, at the same time protecting the pump non-metal parts [elastomers] from cutting and scoring.

REPAIR INSTRUCTIONS

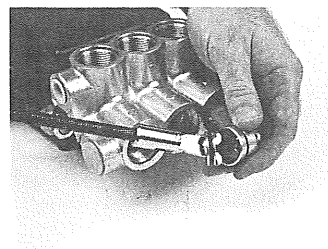
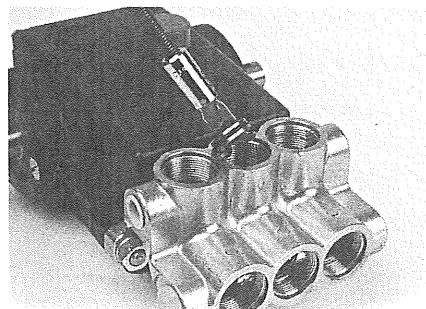
NOTE: Always take time to lubricate all metal and non-metal parts with a light film of oil before reassembly. This step will help ensure proper fit, at the same time protecting the pump non-metal parts (elastomers) from cutting and scoring.



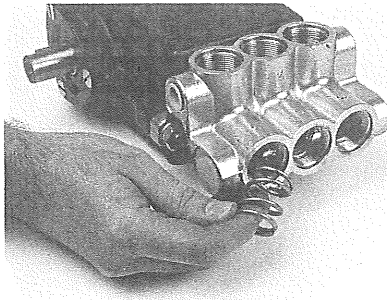
1. With a 22mm socket, remove the (3) inlet & (3) discharge manifold plugs.



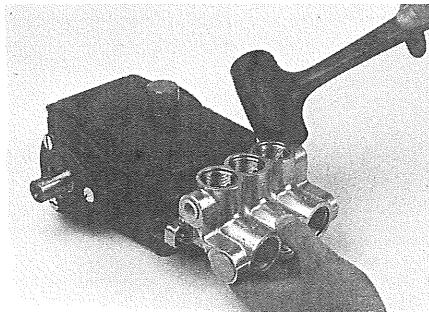
2. Remove inlet and discharge valve assemblies. Replace all o-rings. Inspect valves for wear. If excessive pitting is seen, replace the worn parts.



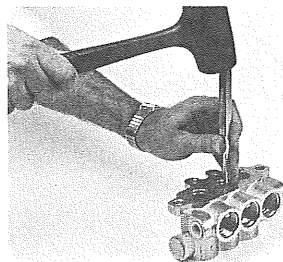
3. Use a small slide hammer to remove valve seats from manifold & inlet valve adapter.



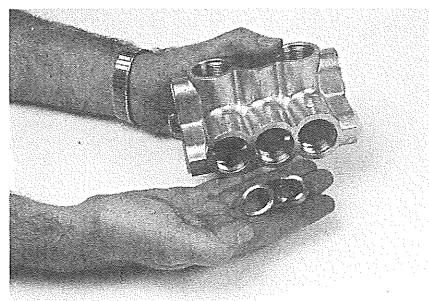
4. From the front inlet valve ports, remove the pressure springs.



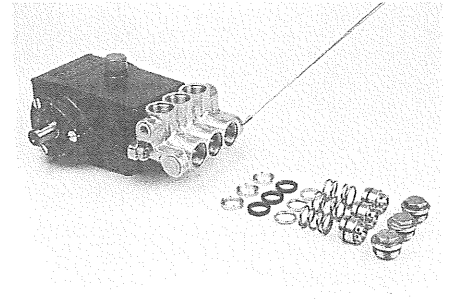
5. Remove the 4 manifolds stud nuts with a 17mm wrench. Tap the back of the manifold with a rubber mallet to dislodge, and slide off the pump.



6. Turn the manifold over. Tap out the v-sleeves and support rings through back of manifold as shown.

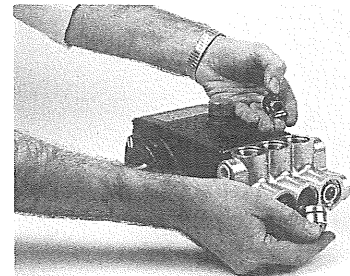


7. The pressure rings, (item #30) can now be removed by pulling *straight* out. Inspect and clean. Replace if necessary. Reinstall into manifold with grooved side forward.

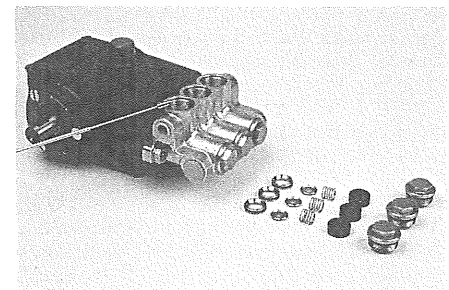


8. Install *new* v-sleeves, with grooved sides towards front of pump.

9. Replace the support rings and pressure springs into manifold.

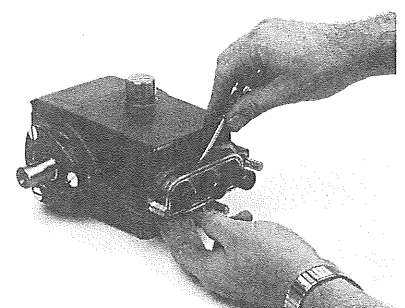


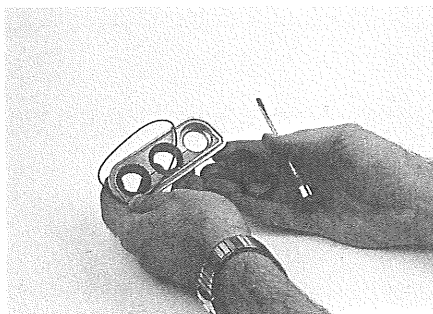
10. Now replace valve seats, valve plates, springs and spring retainers into the inlet valve adapters.



11. Mount inlet valve assemblies into front ports, and replace manifold plugs.

12. Replace discharge valve seats, valve plates, springs & spring retainers into manifold. Replace manifold plugs. Torque both inlet and discharge manifold plugs to 350 inch lbs.





13. For pumps equipped with optional weep back feature, the weep back plate may be removed by prying evenly outward with a flat screwdriver. After slipping weep back plate over plungers, inspect seals and o-ring and replace as necessary. The weep back plate should not be replaced at this time if the crankcase is to be disassembled.

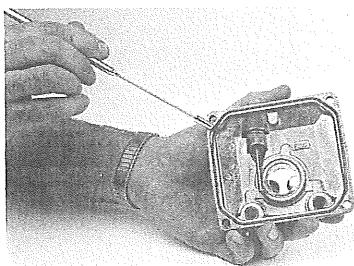
14. Remove the flingers (item #25) from plungers. Inspect ceramic plunger for damage.



15. To remove the crankcase oil seals, if necessary, you may follow either of two methods. If crankcase service is to be performed, as in the case of replacing plungers, the oil seals may be pushed out of their housing after plunger and connecting rod assembly have been removed. If you do not plan to enter the crankcase, the oil seals can be removed by carefully inserting a small pick puller (available from Snap-On Tools), taking care not to make contact with the plunger, and pulling the oil seals out of their housing. If plungers are not damaged, replace oil seals and flingers. Then lubricate v-sleeves from back side of manifold and gently slip over plungers.

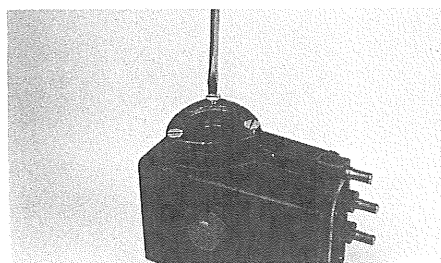
THIS COMPLETES THE DISASSEMBLY AND REPAIR OF THE FRONT END OF GIANT PRODUCTS COMPANY CP53/63 SERIES PUMPS.

Early model pumps have been equipped with ceramic plunger assemblies, whereby the ceramic plunger is bolted to a stainless steel plunger base. In case of damage to this plunger assembly, replacement should be made with the new style ceramic impregnated, stainless steel plunger as per the following procedure.

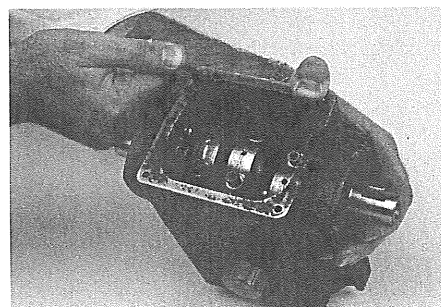


16. Remove the crankcase cover screws. Inspect the crankcase cover "O" ring for wear. Replace if necessary.

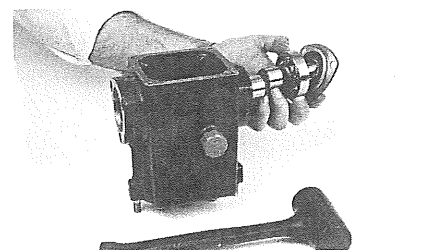
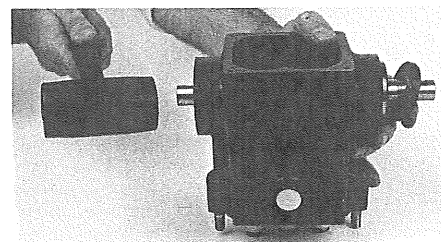
17. Inspect the dip stick vent hole for signs of clogging. Clean if necessary.



18. To remove the crankshaft, first remove the bearing cover plates. Remove the key.



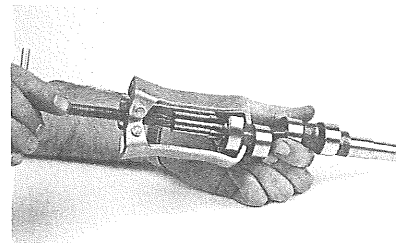
19. Remove the connecting rod caps with a 5mm allen wrench and push the connecting rod and plunger rod down as far as possible into the crankcase housing.



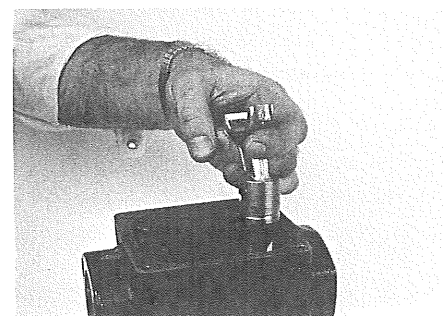
20. Hold the pump rear assembly with a wooden fixture, or other suitable device, in order to secure it while removing the crankshaft. Using a plastic mallet, tap the crankshaft from one side while turning it from the other side. The turning insures that during this sequence the crankshaft does not become wedged against the connecting rods. The far side bearing will remain in the crankcase. When free, the crankshaft can be removed by hand.

21. The far side crankshaft seal will be removed by this procedure.

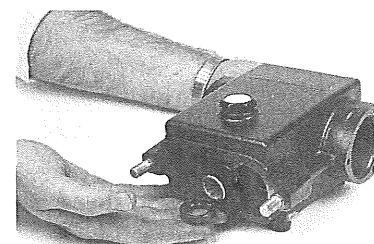
22. It is important that you turn the crankshaft constantly while tapping from the opposite end to avoid any binding. The crankshaft bearing remains on the crankshaft as it is removed.



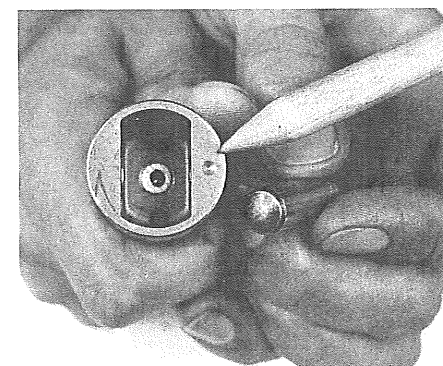
23. Using a bearing puller, remove crankshaft bearing, if necessary.



24. Remove the connecting rod and plunger rod/crosshead assembly from the rear of the pump by pulling straight out of the crosshead guides.



25. To remove crankcase oil seal: Tap oil seal out from the rear of crankcase using a dowel and rubber mallet.

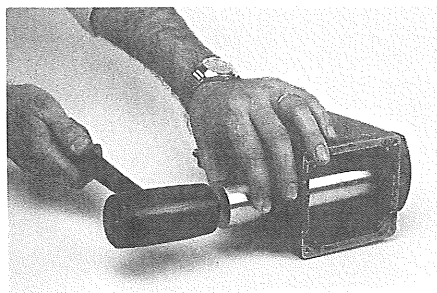


26. To remove the crosshead pin from the crosshead, the assembly should be positioned on a wooden fixture to avoid damage to crosshead.

NOTE: To remove the crosshead pin from the crosshead, be sure the assembly is positioned in such a manner as to prevent damage to the crosshead when driving out the pin.

26. (continued)

Drive out pin on opposite side of mark on the crosshead. On those pumps without mark on crosshead, drive out pin by tapping on tapered side of pin.

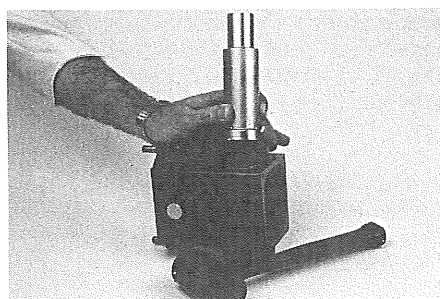


27. To remove the bearing remaining in the crankcase, insert small end of Giant Bearing Tool and tap with a rubber mallet until bearing and seal are completely removed. The bearing can only be removed from the inside by inserting the Giant Bearing Tool through the opposite side of the crankcase.

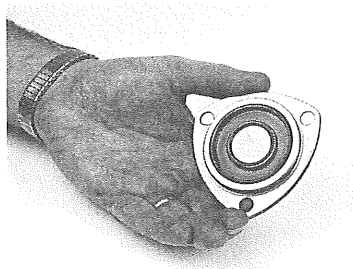
The crosshead guide in the crankcase should be inspected for possible damage.

**THIS COMPLETES THE DISASSEMBLY
OF THE BACK END OF THE GIANT
PRODUCTS COMPANY CP53/63 PUMP**

REASSEMBLY SEQUENCE OF GIANT CP53/63 PUMP



28. To reassemble, place the far bearing in the crankcase bearing housing and with the Giant Bearing tool as a driver, tap into the crankcase using a rubber mallet.

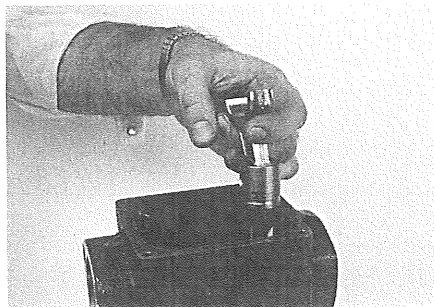


29. Insert the far side crankshaft oil seal with the Giant Bearing Tool making sure it is firmly seated and well oiled. Always make sure that the crankshaft seal lip does not show signs of wear and that the garter spring is firmly in place on the seal before reinserting into the pump. Replace the bearing cover and tighten securely.

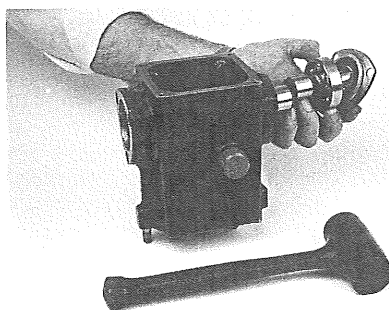
30. Replace the connecting rod and plunger rod/crosshead assembly by press-fitting the crosshead pin. Make sure to insert the

beveled edge of the crosshead pin into crosshead. If the crosshead has a mark, install pin from marked side. (see picture #26)

31. The crosshead pin should not extend beyond either side of the crosshead in order to prevent damage to the crosshead bore of the crankcase.



32. Place each crosshead/plunger assembly into the pump making sure that all of the parts are well oiled before insertion into the crankcase. Notice that the connecting rod halves are numbered. Position the connecting rods with their numbers on the upper left hand side, in the same numerical sequence as when they were removed.

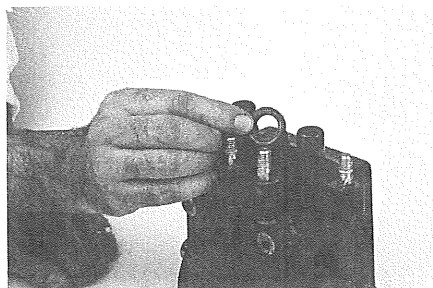


33. Replace near side bearing on crankshaft by using the Giant Bearing Tool and mallet to tap into place.

34. Take the crankshaft end with the bearing and insert the other end through the bearing housing and tap with a rubber mallet until the bearing is seated.

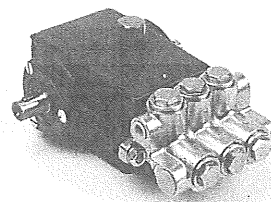
35. When reassembling the connecting rods, note that the connecting rod halves are numbered and that the numbers must be matched and aligned. Torque the connecting rod bolts to 125-150" lbs.

36. Insert the near side crankshaft oil seal with the Giant Bearing tool making sure it is firmly seated and well oiled. Replace the bearing cover and tighten securely.



37. To replace the plunger oil seal, lubricate plunger and outside edges of seal. Push seal over plunger and into crankcase until the seal face is even with crankcase surface. Replace the plingers.

38. Turn crankshaft until two outside plungers are completely forward. Lubricate the plungers.



39. Replace weep back assembly if pumps is equipped with such, and replace manifold. Torque stud bolts nuts to 225 inch pounds.

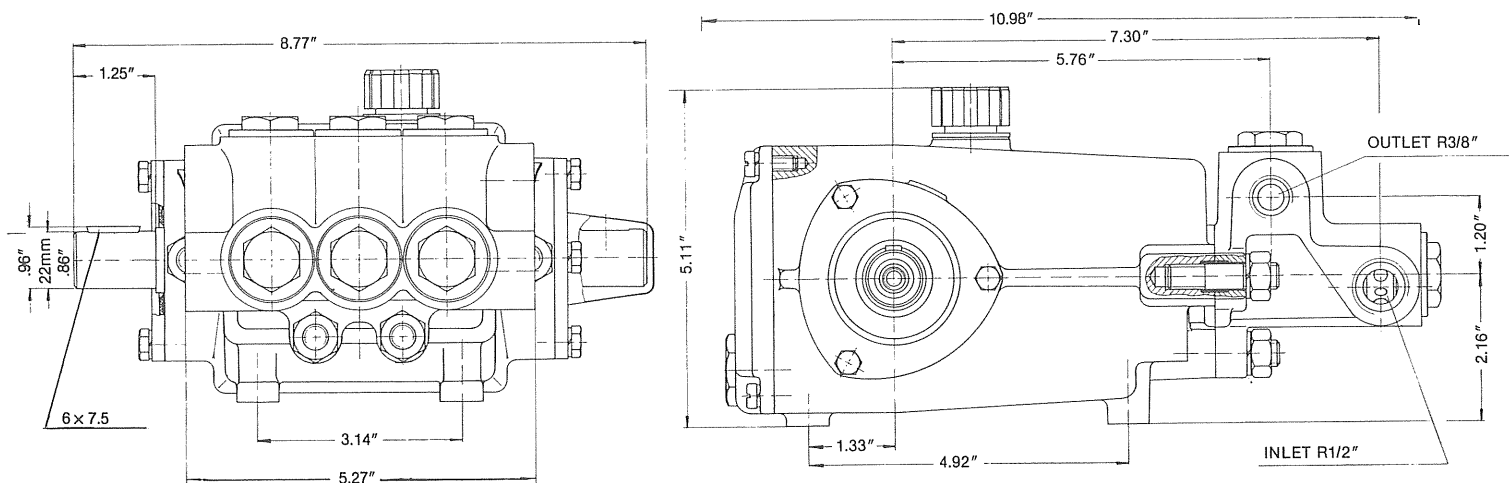
40. Clean the back edge of crankcase and replace the crankcase cover. Be careful not to pinch the crankcase cover o-ring.



41. Fill the CP63 crankcase with 16 oz. of Giant Products Co. oil and check the oil level with the dipstick. Proper level is center of two lines. Reinstall the pump into your system.

MODEL CP53/63

DIMENSIONS



LIMITED WARRANTY

Giant Products Company products are warranted by the manufacturer to be free from defects in workmanship and material for one year from date of manufacturer's shipment. This warranty is limited to repairing or replacing products which manufacturer's investigation shows were defective at the time of shipment by the manufacturer. All products subject to this warranty shall be returned F.O.B. Giant Products Company, 3156 Bellevue Road, Toledo, Ohio 43606, for examination, repair, or replacement.

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There are no warranties which extend beyond the description of the face hereof.