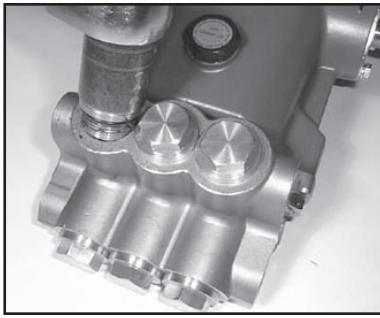
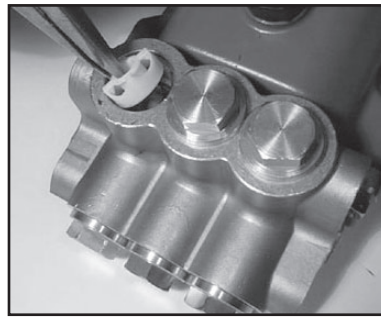


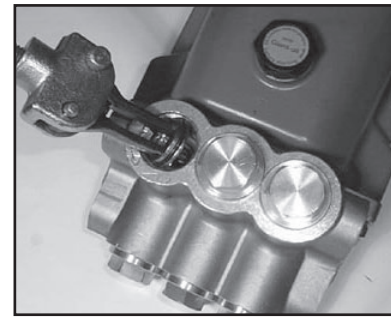
## REPAIR INSTRUCTIONS - P46W, P46W-HK, P46HT, P49W, P49W-HK & P49HT



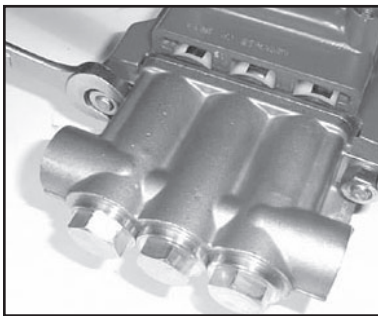
1. With a 22mm socket, remove the three discharge (43) and three inlet (41) manifold plugs. Check o-rings (42 & 44) for wear and replace as necessary.



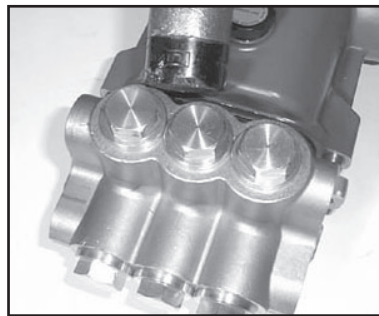
2. Remove the discharge spring retainer (34), valve spring (35), and valve plate (36).



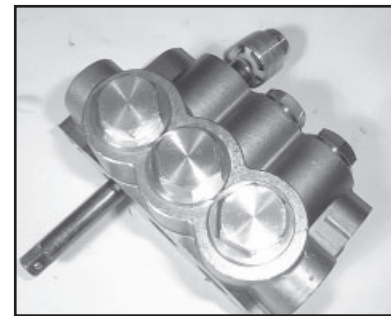
3. Use a small slide hammer to remove valve seats (37) from manifold (29). Inspect valve plates (36) and valve seats (37) for wear. If excessive pitting is seen, replace the worn parts. Check valve seat o-ring (38) for wear and replace as necessary.



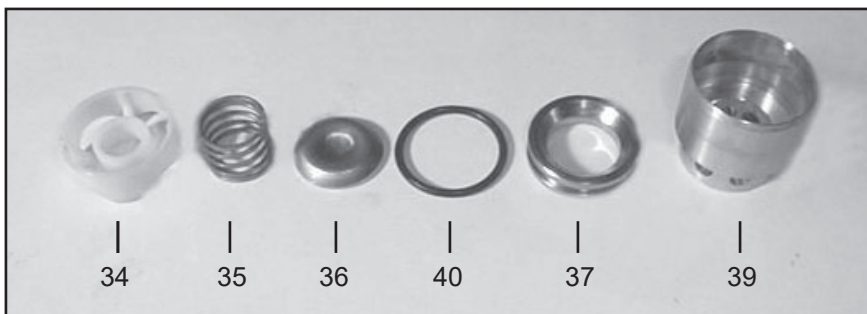
4. Drain the oil from the pump. Turn the pump over to remove the two manifold stud nuts (46) with a 17mm wrench.



5. Tap the back of the manifold (29) with a rubber mallet to dislodge, and slide off the pump.



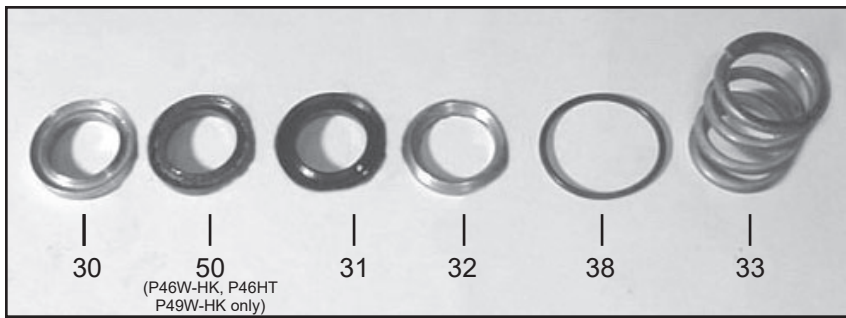
6. From the front inlet valve ports, remove the inlet valve assembly (34-40).



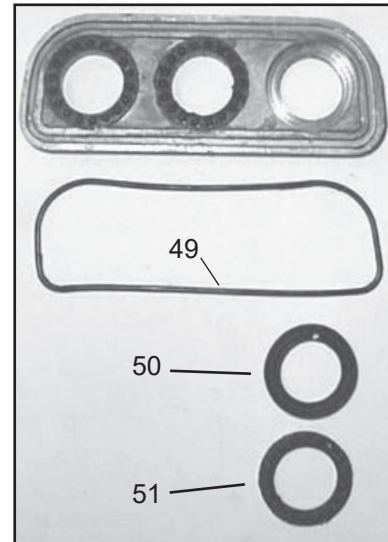
7. Inspect and clean the valve assembly parts. If pitted or worn, replace inlet valve seats (37), valve plates (36), spring (35) and spring retainers (34). Reinsert items 34-38 into valve adapter (39).

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

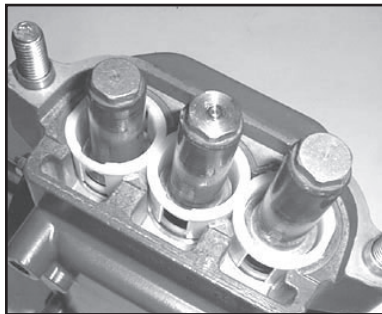
# REPAIR INSTRUCTIONS - P46W, P46W-HK, P46HT, P49W, P49W-HK & P49HT



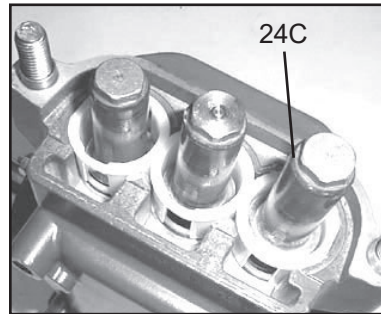
8. The pressure rings (item 30) can now be removed by pulling straight out. Inspect and clean manifold (29) and pressure ring. Replace if necessary. From the front of the pump reinstall pressure rings into manifold (29) with grooved side towards front of manifold. Install new v-sleeves (31), with grooved sides towards front of pump. For P46W-HK, P46HT & P49W-HK pumps, install high temperature seal (50) before v-sleeve (31) with grooved sides towards front of pump. Replace the support rings (32) and pressure springs (33) into manifold (29). Install valve assembly (34-40) into manifold (29). Reinstall manifold plugs (43) and torque plugs to 51 ft.-lbs. (70 Nm).



9. The rear V-sleeve housing (48) may be removed by prying evenly outward with a flat screwdriver. After slipping housing over plunger, inspect rear v-sleeves (50), support rings (51) and O-ring (49) and replace as necessary.

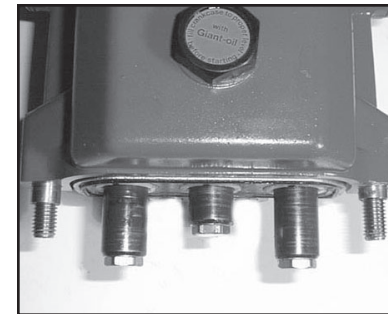


10. Inspect ceramic plunger (24A) tips for wear. If necessary, replacement of the ceramic plungers may be accomplished by removing the plunger bolt assemblies (24B and 24C) with a 13mm wrench. Ceramic plungers should now slide off the stainless steel plunger base (22). Excessive resistance to plunger removal may be overcome by heating the stainless steel plunger base. This will melt any excess loc-tite beneath the ceramic plunger allowing easy removal.



11. Replace copper ring (24C) onto plunger bolt (24B). Slide plunger bolt assembly into ceramic plunger (24A). Apply a light film of loc-tite to plunger bolt threads and place plunger assembly onto stainless steel plunger base (22) and tighten to 200 in.-lbs. (22.5 Nm).

12. To replace plunger oil seals (26), proceed to "Gear End Disassembly" section below. Otherwise, continue as described below.



13. Before replacing pump manifold (29), first rotate crankshaft (18) until two outside plungers (24A) extend evenly forward. Next lubricate rear v-sleeves (50) and support ring (51) in the rear v-sleeve housing (48) and slide housing over plungers. Lubricate ceramic plungers with a light film of oil. Carefully and evenly slide manifold over plungers and press manifold firmly against crankcase (1). Replace manifold stud bolts (45), washers (47) and nut (46) and tighten to 35 ft.-lbs. (47.5 Nm).

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# REPAIR INSTRUCTIONS - P46W, P46W-HK, P46HT, P49W, P49W-HK & P49HT

## Gear End Disassembly

14. Remove the crankcase cover bolts (9). Inspect the crankcase cover O-ring (4) for wear. Replace if necessary.
15. Inspect the dip stick (5) vent hole for signs of clogging. Clean if necessary.
16. To remove the crankshaft (18), first remove the bearing cover plates (12) Remove the key (19).
17. Hold the pump rear assembly with a wooden fixture, or other suitable device, in order to secure it while removing the crankshaft (18). Using a plastic mallet, tap the crankshaft (18) 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 (20). The far side bearing (15) will remain in the crankcase (1). When free, the crankshaft (18) can be removed by hand.
18. The crankshaft bearing (15) remains on the crankshaft (18) as it is removed. The near side crankshaft seal (14) will be removed by this procedure.
19. If necessary, use a bearing puller to remove crankshaft bearing (15).
20. Remove the connecting rod (20) and plunger rod/crosshead assembly (22) from the rear of the pump by pulling straight out of the crosshead guides.
21. To remove the crankcase oil seal (26), tap oil seal out from the rear of the crankcase using a dowel and rubber mallet. The area onto which the oil seal rests should be clean and dry. Put a small drop of loc-tite on the oil seals and place into crankcase with clips facing the rear of the pump.
22. To remove the crosshead pin (23) from the crosshead (22), the assembly should be positioned on a wooden fixture to avoid damage to crosshead. Drive out pin (23) 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.
23. To remove the bearing remaining in the crankcase, insert small end of Giant Bearing tool and tap with a rubber mallet untill 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 (1) and should be inspected for possible damage.

## Gear End Reassembly

24. To reassemble, place the far bearing in the crankcase bearing housing and with the Giant Bearing tool as a driver, tap into the crankcase (1) using a rubber mallet.
25. Insert the far side crankshaft oil seal (14) with the Giant Bearing Tool making sure it is firmly seated and well oiled. Always make sure that the crankshaft seal (14) lip does not show signs of wear. Replace the bearing cover (12) and tighten securely.
26. Replace the connecting rod (20) and plunger rod/crosshead assembly (22) by press-fitting the crosshead pin (23). Make sure to insert the beveled edge of the crosshead pin into crosshead. If the crosshead has a mark, install pin from marked side. The crosshead pin (23) should not extend beyond either side of the crosshead in order to prevent damage to the crosshead bore of the crankcase.
27. Place each crosshead/plunger assembly (22) into the pump making sure that all of the parts are well oiled before insertion into the crankcase.
28. Replace near side bearing on crankshaft (18) and use mallet to tap into place.
29. Take the crankshaft (18) end with the bearing and insert the other end through the bearing housing carefully threading the lobes of the crankshaft through the well lubricated connecting rods (20). Turning the crankshaft while tapping it through the connecting rods will help prevent binding and possible damage to the connecting rods. Continue tapping the crankshaft through the connecting rods (20) until it is firmly seated into far side bearing.
30. Insert the near side crankshaft oil seal (14), making sure it is firmly seated and well oiled. Replace the bearing cover (12) and tighten securely.
31. See instructions (13 above) for re-installing fluid end onto gear end.
32. Clean the back edge of crankcase and replace the crankcase cover. Be careful not to pinch the crankcase cover O-ring.
33. Fill the pump crankcase with 8.8 oz. (0.26L) of Giant oil. and check the oil level with the dipstick. Proper level is center of two lines Reinstall the pump into your system.