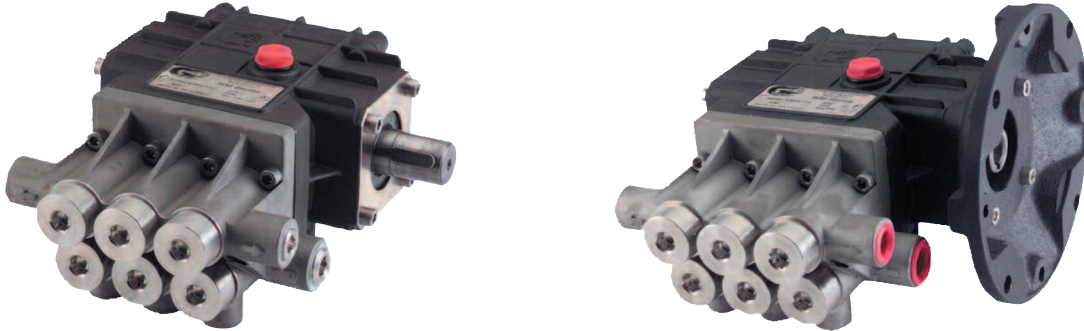
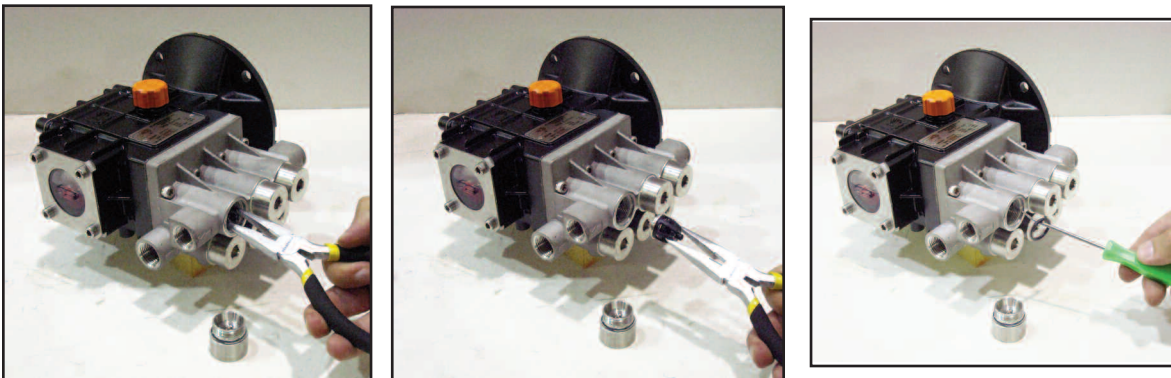


SERVICING INSTRUCTIONS



SERVICING PUMP PROCEDURES

Valve Replacement: All inlet and discharge valves can be serviced without disrupting the inlet or discharge plumbing.



To service any valve:

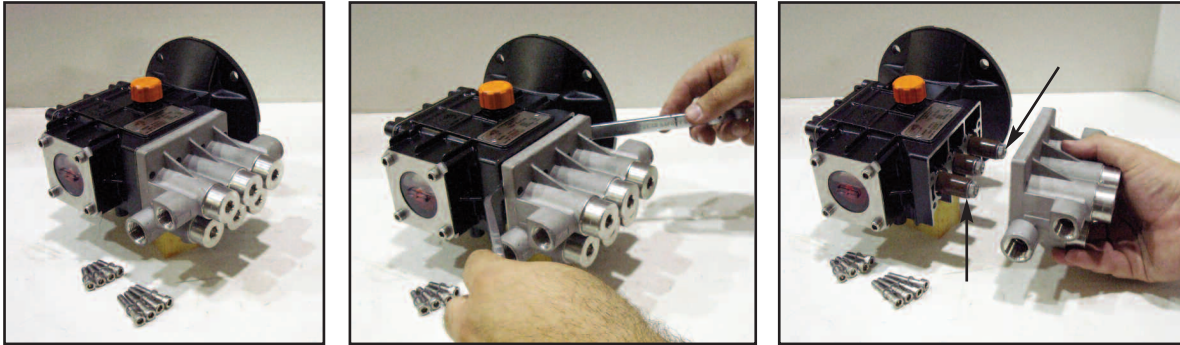
- 1) Using a 3/8" allen wrench, remove valve cap. Examine threads and o-ring. Replace o-ring if there is any evidence of cuts, abrasions, distortion or wear.
- 2) Remove valve assembly (retainer, spring, valve, valve seat) from valve cavity.
- 3) Remove valve seat o-ring from valve cavity.
- 4) Inspect manifold for wear or damage.
- 5) Install new o-ring in valve cavity.
- 6) Insert valve assembly into valve cavity.
- 7) Coat the threads of the valve cap with Loctite anti-seize 77164 and reinstall valve cap. Torque to 10.8 Nm (8.0 Ft-Lbs).

NOTE: Only one valve kit is necessary to repair all the valves in the pump. The kit includes new o-rings, valve seat, poppet, spring and retainer. All are pre-assembled.



WM Series Servicing Instructions

GENERAL PUMP *A member of the Interpump Group*



Replacing packings using kit WM02:

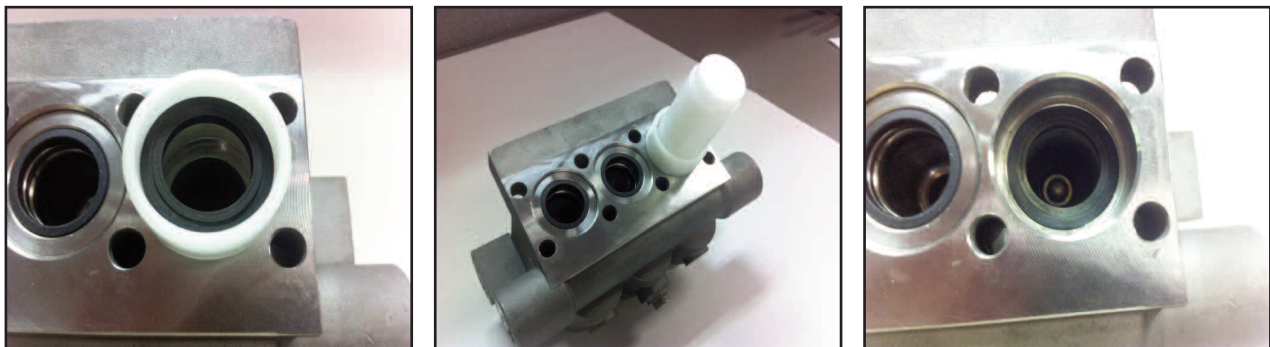
- 1) Remove head bolts using 5mm hex wrench and slide manifold away from crankcase. (It is normal for some packing assemblies to remain on the plungers).

Note: it may be necessary to rotate crankshaft and/or use pry bars to separate manifold from crankcase.

- 2) Inspect plungers for cracks, scoring or build up and replace/clean as needed.



- 3) Insert 18 mm extractor collet through seal retainer. Tighten collet and extract packing assembly from manifold. Clean and inspect cavity for unusual wear, cracks, etc.

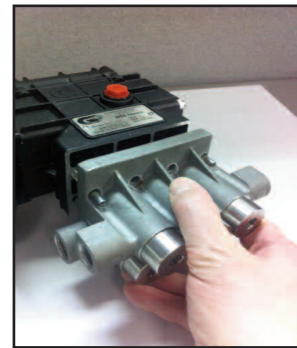
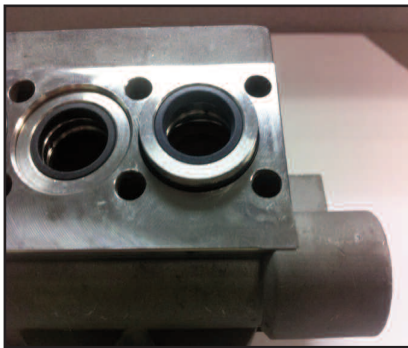


- 4) **Note:** do not grease any portion of the packing assembly during this process. Set high pressure seal insertion collar in manifold cylinder. Assemble Glyd rings (positions 5 & 6) and gently place inside cylinder tool so they are resting evenly. Insert pusher tool and firmly press down to set packing in manifold.

WM Series Servicing Instructions



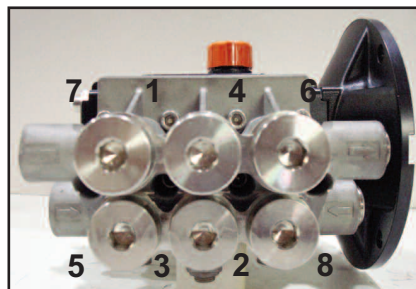
- 5) Set insertion collar over seal casing (position 4) and ensure recess for seal is facing upwards. Gently place low pressure seal (position 2) into collar ensuring the spring side of the seal is facing downward and resting evenly. Insert pusher tool into collar and firmly press down to set seal in casing.
- 6) Install o-ring (position 3) so it's properly seated in the middle groove on the casing groove that doesn't have through holes. Installation in the wrong groove will impede the flow of cooling water resulting in premature seal failure.



- 7) Place seal case into manifold cylinder with low pressure seal facing upwards. Firmly press into cylinder until properly seated and repeat for each cylinder.
- 8) Apply a light coating of silicone grease to each plunger, then rotate crankshaft so center plunger is furthest forward.
- 9) Slide seal retainer ring over the plunger until seated in crankcase. Ensure o-ring (position 3) is positioned so crankcase opening will receive aligned portion.

Note: a small amount of silicone grease on the back side of the retainer ring will help secure it in place.

- 10) Slide manifold assembly on to center plunger first, then align to outer plungers while pushing towards crankcase. **Note:** a pair of make shift 6mm alignment pins will minimize chance of seal damage at this point, see illustration for details.
- 11) Once manifold is properly seated, install head bolts and begin torque sequence as illustrated. Tighten to 10.8Nm or 8.0 Ft-lbs.



Recommended Tools/Supplies:

100783 Complete Extraction Kit

Includes the following tools:

- | | | | |
|---------|--------|---------|-------------|
| 2530016 | handle | 2530020 | 15mm sleeve |
| 2530017 | bolt | 2530021 | 18mm sleeve |
| 2530018 | pin | | |

- 100295** General Pump Series 100 Oil (1-16 oz. bottle)
- 100214** General Pump Series 100 Oil (6-16oz. bottles)
- 100216** General Pump Series 100 Oil (24-16 oz. bottles)
- 100278** General Pump general packing lubricant
- Loctite 77164**
- Loctite 243**



TROUBLESHOOTING



PROBLEM	CAUSE	REMEDY
Pulsation	Valve stuck open.	Check all valves, remove foreign matter.
	Faulty pulsation damper.	Check precharge; if low, recharge it or install a new one.
Low pressure	Worn nozzle.	Replace nozzle, of proper size.
	Belt slippage.	Tighten or replace; use correct belt.
	Air leak in inlet plumbing.	Disassemble, reseal and reassemble.
	Relief valve stuck; partially plugged or improperly adjusted valve seat worn.	Clean, adjust relief valve; check for worn and dirty valve seats. Kit available.
	Inlet suction strainer clogged or improperly sized.	Clean. Use adequate size. Check more frequently.
	Worn packing. Abrasives in pumped fluid or severe cavitation. Inadequate water.	Install proper filter. Suction at inlet manifold must be limited to lifting less than 20 feet of water or -8.5 PSI vacuum.
	Fouled or dirty inlet or discharge valves.	Clean inlet and discharge valve assemblies.
	Worn inlet, discharge valve blocked or dirty.	Replace worn valve seats and/or discharge hose
	Leaky discharge hose.	
	Pump runs extremely rough, pressure very low.	Restricted inlet or air entering the inlet plumbing.
Inlet restrictions and/or air leaks. Stuck inlet or discharge valve.		Replace worn cup or cups, clean out foreign material, replace worn valves.
Water leakage from under manifold. Slight leakage.	Worn packing.	Install new packing.
	Cracked plunger.	Replace plunger(s).
Oil leak between crankcase and pumping section.	Worn crankcase piston rod seals. O-rings on plunger retainer worn.	Replace crankcase piston rod seals. Replace o-rings.
Oil leaking in the area of crankshaft.	Worn crankshaft seal or improperly installed oil seal o-ring.	Remove oil seal retainer and replace damaged o-ring and/or seals.
	Bad bearing.	Replace bearing and any spacer or cover damaged by heat.
Excessive play in the end of the crankshaft pulley.	Worn main bearing from excessive tension on drive belt.	Replace crankcase bearing and/ or tension drive belt.
Water in crankcase.	May be caused by humid air condensing into water inside the crankcase	Change oil intervals. Use General Pump SAE 30 non-detergent oil.
	Worn packing and/or piston rod sleeve, o-rings on plunger retainer worn.	Replace packing. Replace o-rings.
	Cracked plunger	Replace plunger(s).
Oil leaking from underside of crankcase.	Worn crankcase piston rod seals.	Replace seals.
	Scored piston rod.	Replace piston rod.
Oil leaking at the rear portion of the crankcase.	Damaged crankcase, rear cover o-ring, drain plug o-ring, or sight glass o-ring.	Replace cover o-ring, drain plug o-ring, or sight glass o-ring.
Loud knocking noise in pump.	Pulley loose on crankshaft.	Check key and tighten screw.
	Broken or worn bearing on rod(s).	Replace bearing or rod(s).
	Valve stuck open or shut, or not opening enough.	Replace bad valve.
Frequent or premature failure of the packing.	Scored, damaged or worn plunger.	Replace plungers.
	Overpressure to inlet manifold.	Reduce inlet pressure.
	Abrasive material in the fluid being pumped.	Install proper filtration on pump inlet plumbing.
	Excessive pressure and/or temperature of fluid being pumped.	Check pressures and fluid inlet temperature; be sure they are within specified range.
	Overpressure of pump.	Reduce pressure.
	Running pump dry.	Do not run pump without water.
	Upstream chemical injection.	Use downstream chemical injection.

MAINTENANCE LOG**HOURS & DATE**

<p>OIL CHANGE</p> <p>Change oil after first 50 hours of pump operation, then every 300 hours, or every 3 months, thereafter. (Depending on conditions.)</p>							
<p>GREASE</p>							
<p>PACKING REPLACEMENT</p>							
<p>PLUNGER REPLACEMENT</p>							
<p>VALVE REPLACEMENT</p>							



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