

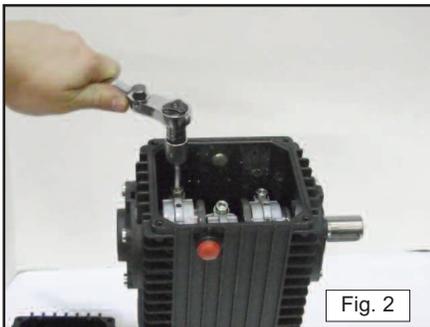
**CRANKSHAFT “FLIP” INSTRUCTIONS**



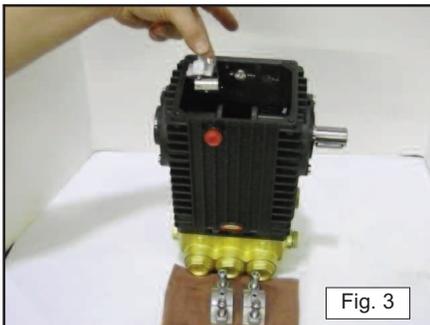
**CRANKSHAFT FLIP PROCEDURES**



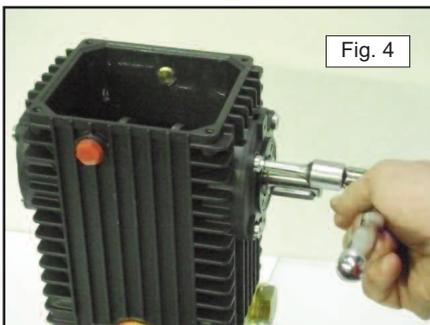
1) Drain crankcase oil.



2) Remove qty. 4 rear cover screws with 5 mm hex wrench. Fig. 1



3) Remove connecting rod cap bolts with 6 mm hex wrench, respecting position and orientation of each cap. Position connecting rod/plunger guides fully into crankcase to allow clearance of crankshaft removal. Fig. 2 and 3.



4) Remove qty. 4 each bolts retaining side covers with 6 mm hex wrench. Fig. 4 and 5.

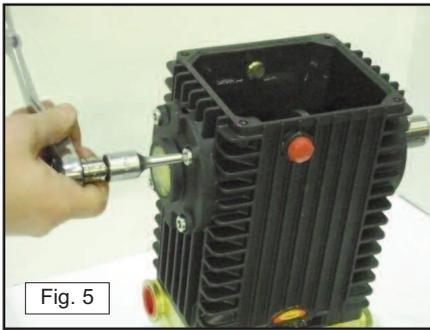
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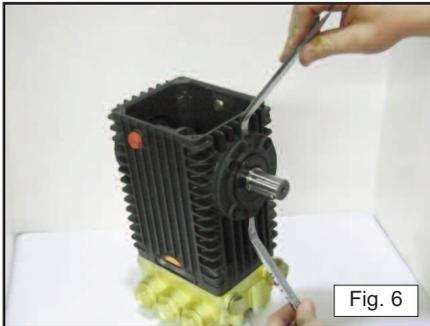


# HTF, TSF, TSP Series 66 Crankshaft Flip Instructions

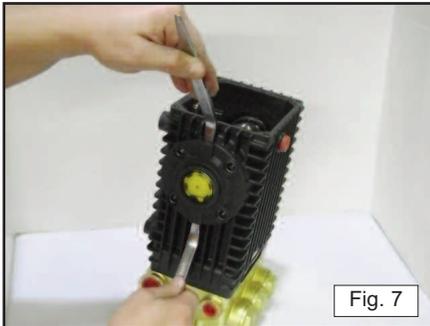
**GENERAL PUMP** *A member of the Interpump Group*



- 5) Carefully remove side covers respecting crankshaft oil seal. Fig. 6 and 7.



- 6) Remove crankshaft out crankcase side cover hole and reassemble shaft position to opposite side. Fig. 8.



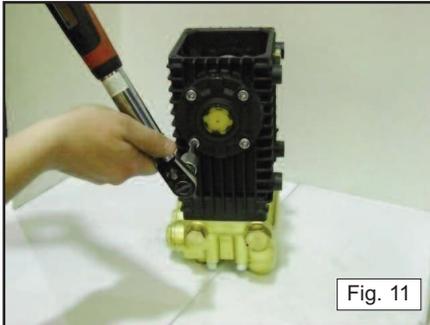
- 7) Reassemble side cover into crankcase starting with closed cover respecting O-ring seals and crankshaft seal. Fig. 9 and 10.

Torque bolts to specifications. Fig. 11.



# HTF, TSF, TSP Series 66 Crankshaft Flip Instructions

**GENERAL PUMP** *A member of the Interpump Group*



8) Install each connecting rod cap back to original place. Fig. 3. Torque bolts to specifications. Fig. 12. Rotate crankshaft to assure smooth operation.

9) Install rear crankcase cover respecting O-ring seal. Torque bolts to specifications. Fig. 13.

10) Replace crankcase oil to proper level and check for possible leaks.



# 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 or-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.

