

Hi-Force® HYDRAULIC TOOLS		HMP HYDRAULIC PUMPS			TDS:- 1257
Prepared by:-	J. Davies	Approved by:-	M. Dalley	12/03/13	
REV NO:-	2				
ECO:-	4053				

SAFETY PRECAUTIONS

WARNING

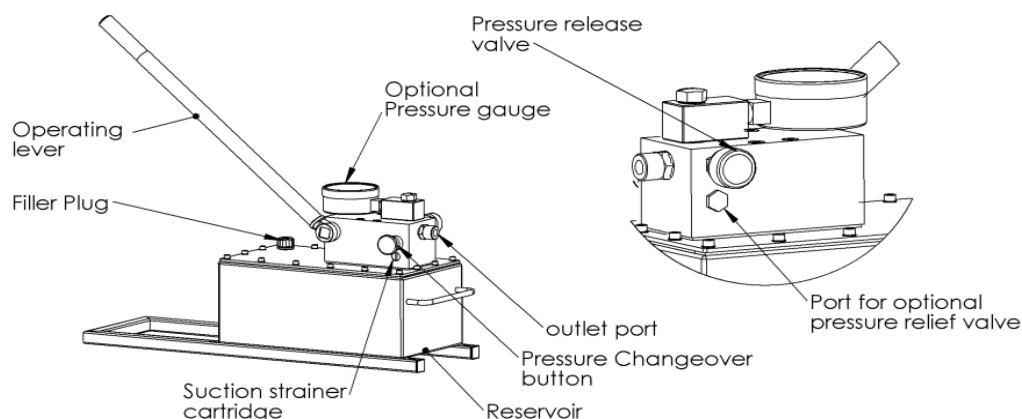
Hi-Force hydraulic equipment operates at very high pressure!! Careful attention to the following safety precautions will help prevent personal injury.

GENERAL

1. All equipment used must be rated for the same operating pressure. Do NOT mix high and low pressure components. If in doubt, consult your Hi-Force Distributor.
2. Select a pump with sufficient reservoir capacity of the required operation.
3. Do NOT exceed the rated pressure of the pump. ONLY use the operating lever supplied with the pump. Do NOT attempt to increase the output pressure by extending the length of the lever. An optional pressure relief valve may be fitted to the pump. These are externally fitted and adjustable. See selection chart below.
4. Whenever possible use a pressure gauge with the pump. The optional pressure gauge is easily fitted to the top of the pump. See selection chart on page 2.
5. ONLY use hydraulic hoses in good condition that have a safety factor on burst pressure of 4:1.

TEST, EXAMINATION AND SERVICE

1. Visually inspect all equipment before use for signs of damage or wear and tear. Any defective or suspect equipment should be repaired or replaced immediately.
2. All high-pressure hydraulic equipment should be thoroughly examined and proof-tested by a competent engineer at least once a year – more frequently for heavy use.
3. Ask your Hi-Force Distributor about the full Hi-Force Repair facilities and the Hi-Force Test and Examination Service – available for all makes of high pressure hydraulic equipment.



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SELECTION CHART

Pump Model Number	Maximum Working Pressure (Bar)	Low Pressure Displacement Per Stroke (cm³)	High Pressure Displacement Per Stroke (cm³)	Optional Pressure Gauge Kit	Optional Pressure Relief Valve
HMP 160	110	49	20	HG 16K	HMPR 1
HMP 250	172	49	13	HG 25K	HMPR 1
HMP 450	310	49	7	HG 45K	HMPR 2
HMP 650	448	49	6	HG 65K	HMPR 2
HMP 800	552	49	4	HG 80K	HMPR 3
HMP 100	700	49	3	HG 100K	HMPR 3
HMP 150	1000	49	2	HG 150K	HMPR 4


ASSEMBLY AND OPERATING INSTRUCTIONS

OPERATING FLUIDS

The HMP pump operates successfully with most hydraulic fluids, many lubricating oils and water. The water must be clean and preferably de-mineralised. Other fluids may also be used with specially-fitted pump seals. Please consult your Hi-Force Distributor.

PREPARATION

1. Fill the pump reservoir with the chosen fluid, leaving a small air space in the reservoir (1cm to 2cms from top of fluid to filler plug).
2. The hose should be connected to the outlet port of the pump. The outlet port thread is ½ " BSP, but may be fitted with a HF69 Adaptor to 3/8" NPT for use with high pressure hydraulic hoses. The hose should be properly tightened using a quality pipe thread sealant or 1 ½ turns of Teflon tape taking care NOT to allow loose ends of the tape to enter the hydraulic system. Do NOT over tighten connections – it can cause premature failure or rupture of fittings at below rated capacity.
3. Fit the operating lever to the pump using the bolt and washer provided. The lever may be fitted in four basic positions or three more by turning the handle over. In addition the lever may be factory fitted to the other side of the pump if required.

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BLEEDING SYSTEM


1. Open the release valve on the pump by turning anti-clockwise. Select low pressure by pulling out the pressure changeover button. Now operate the pump lever several times. Stop pumping and push in the pressure changeover button to obtain high pressure. Again operate the pump lever several times and the pump should now be primed ready for use.
2. Close the pressure release valve by turning clockwise using hand pressure only. Do NOT over tighten! Select low pressure and operate the pump lever. When using the pump in a hydraulic circuit or for pressure tests it may be necessary to vent air from the circuit at the highest point in the system. When using the pump with a hydraulic cylinder, fully extend the cylinder, then invert the cylinder (plunger end down) and open the release valve on the pump to return any air in the system to the reservoir. Repeat bleeding operations if necessary.

OPERATION


1. Start the pumping operation with low pressure to obtain rapid advance to load. When the operating pressure reaches 52Bar (750PSI), or earlier if preferred, select the high pressure by pushing in the pressure changeover button. The operating lever must be stationary during any pressure changeover.
2. Pressure is released by turning the pressure release valve anti-clockwise. The needle type design of this valve allows considerable control over the rate at which fluid is returned to the pump reservoir.
3. Never stand in a direct line with the application of force or allow personnel under loads that are not securely supported by mechanical means.

AFTER OPERATION


1. Fully return hydraulic fluid to pump.
2. Regularly check fluid level of reservoir (with hydraulic cylinder returned if applicable). Always leave a small air space in the reservoir (1cm to 2cms below filter plug).
3. Keep hydraulic fluid clean. Change as necessary and frequently if using water.
4. After heavy use, it may be necessary to clean the suction strainer cartridge. First ensure the system is de-pressurised, and then unscrew the strainer cartridge which is situated immediately below the pressure changeover button. Remove the cartridge, clean and replace.

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