

Prepared by:-	Mark Dalley	Approved by:-	Matthew Hughes	Date: 18/10/12
REV NO:- 002				
ECO:- 3942				

Hi-Force HTWP21 series electric motor driven pumps are designed to operate high pressure hydraulic double acting torque wrenches with an operating pressure of 700 bar (10 000 psi). These instructions cover the following models:

HTWP2141AR – 110 volt single phase unit.
HTWP2142AR – 240 volt single phase unit

Refer to nameplate on the pump for identification.

SAFETY

READ THIS MANUAL BEFORE OPERATING THE TOOL. FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN SERIOUS BODILY INJURY.

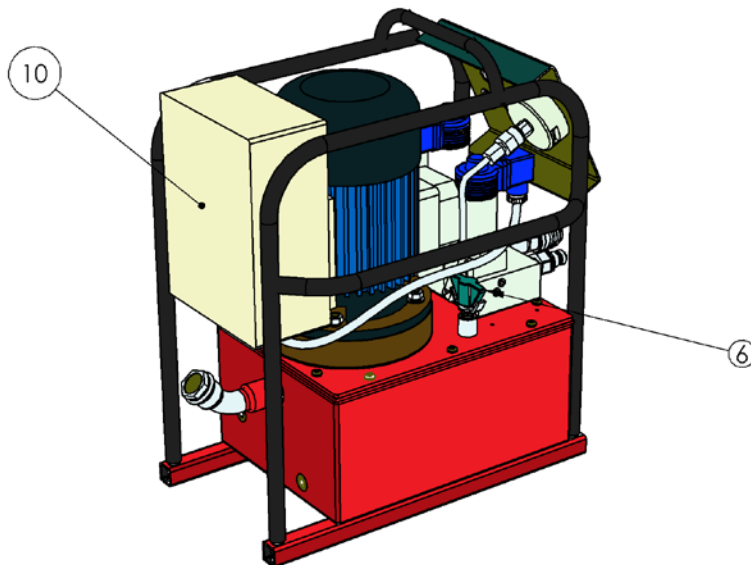
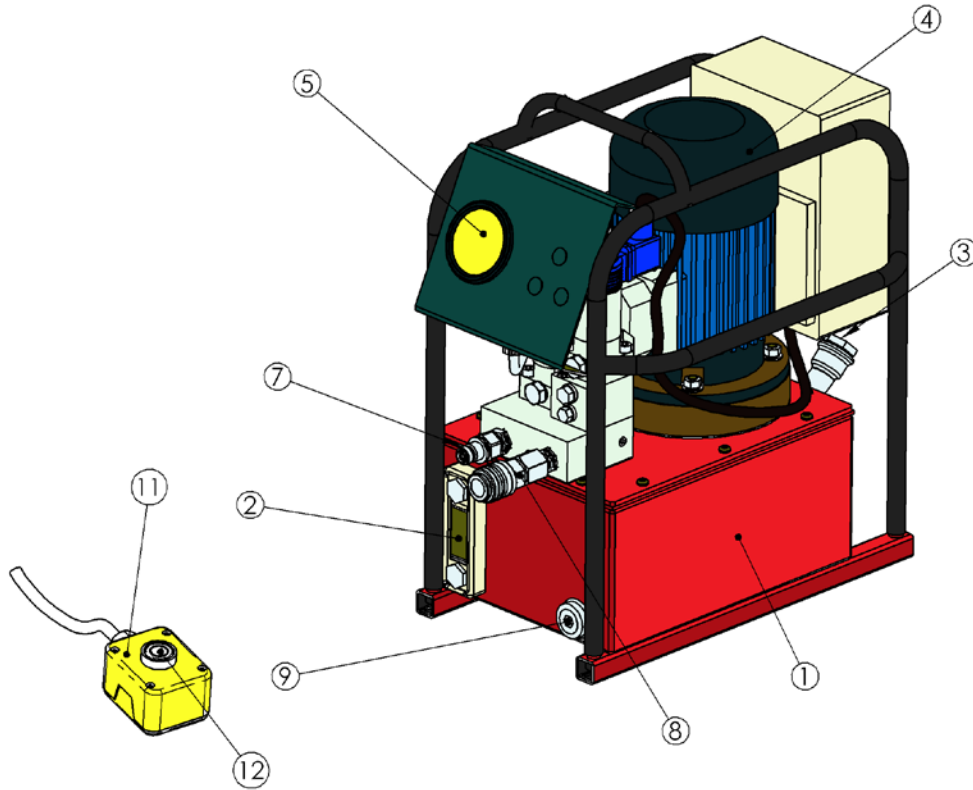
- Ensure that all equipment connected to the pump is in good condition and is all rated for 700 bar operating pressure.
- Always stand the pump on a stable level surface during operation.
- Never invert the pump or lay it on its side either in use, transport or in storage.
- Inspect hoses regularly for damage and wear. Do not use hoses that are frayed, abraded or leaking.
- Never move the pump by pulling the hoses.
- Do not work with hoses sharply bent or kinked.
- Do not handle hoses that are pressurised. Oil escaping under pressure can penetrate the skin causing serious injury. If oil is injected under the skin see a doctor immediately.
- Never pressurise disconnected couplers.
- Always use eye, ear and hand protective equipment when using this pump and associated equipment.
- Isolate the pump from the electrical supply when carrying out maintenance or adjustments (except pressure relief valve adjustments).

IDENTIFICATION OF COMPONENTS

Refer to diagrams on following pages:-

1. Oil reservoir.
2. Oil temperature/ level gauge
3. Oil filler breather cap.
4. Motor.
5. Oil pressure gauge.
6. Adjustable pressure relief valve.
7. Tool advance coupler (700 bar maximum)
8. Tool retract coupler (120 bar maximum)
9. Drain plug.
10. motor control box
11. Pendant (cable not shown)
12. Tool advance button.

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PREPARING THE PUMP FOR FIRST USE

Immediately after unpacking, examine the pump for signs of transit damage and if found contact the shipping company.

Establish the oil level in the oil reservoir using the level gauge on the end of the tank. Depending on the shipping method used, the reservoir may either be supplied full or empty. If the reservoir is empty it must be correctly filled before use. Running the pump without oil will result in damage.

FILLING OF PUMP WITH OIL

Remove the cap (3) from the oil filler.

Stand the pump on a level surface and fill the tank via the filler breather (3) with Hi-force HFO46 oil until the oil level is at the maximum level as shown on the level gauge. N.B more oil can be added if desired to assist cooling but never to more than 25mm below the tank lid.

If the pump was supplied full of oil then no further action is necessary.

ELECTRICAL SUPPLY

Make an electrical connection suitable for the region where the pump is to be used to the motor flying leads. Refer to data plate on the motor for voltage and current requirements. Direction of motor rotation is not important on this model of pump.

N.B. Supply voltages vary from country to country. Hi-Force pumps will operate within normal voltage tolerances, but in extreme cases the motor may overheat and shut down if operated for long periods at high pressures in low voltage conditions. One common cause of failure is the use of long extension cables on the mains supply. The pump should be situated as close as possible to the wall outlet.

CONNECTION OF TORQUE TOOL TO PUMP

Connect the torque tool to the pump using Hi-Force hoses type HTWH. Ensure both halves of the couplers are clean before connecting.

Connect the female coupler on the red hose to the male tool advance coupler (7). Connect the male end of the black hose to the female tool retract coupler (8). Connect the other ends of the hoses to the torque tool. N.B. If using torque tools other than Hi-Force or tools that have been modified check that the tool is connected correctly so that the advance pump port is connected to the advance port on the tool. Failure to do this may result in tool damage or personal injury.

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INITIAL OPERATION

Torque wrenches and hoses are not always completely filled with oil when new. For safe and efficient operation the air must be removed from the system. The following should be carried out with a torque wrench connected to the pump, but not fitted on a bolt. The torque wrench must be located at a lower level than the pump.

Connect the pump to an electrical supply. Switch the mains switch on the motor control box (10) to the on position. Press the green button on the motor control box (10) to start the motor. The tool may slowly perform a retracting motion. This is normal but does not always occur; it will depend on a number of factors. If the tool is slowly advancing then it is probable that it is incorrectly connected. This must be investigated and corrected before proceeding.

Press and hold the advance button (12) on the control pendant (11). The torque wrench should advance until it reaches the end of its stroke and then the pressure on gauge (5) should start to build up. If the torque wrench does not advance and pressure is shown on the gauge then it may already be fully advanced. If there is no pressure registering on the gauge, turn the adjustable pressure relief valve knob (6) clockwise until pressure shows on the gauge. If the tool retracts, then the tool is incorrectly connected. This must be corrected before proceeding.

As soon as the advance button (12) on the control pendant is released. The torque wrench should retract until it reaches the end of its stroke. If pressure registers on the gauge the tool is incorrectly connected and must be corrected.

Repeat this advance and retract cycle at least 10 times to purge air from the system.

NB if very long hoses are employed (greater than 5 m) then this method will not be totally effective. Consult your Hi-Force distributor for advice on pre-filling hoses.

Press and hold the advance button again and whilst doing so adjust the relief valve by turning the knob clockwise until maximum working pressure (700 bar) is reached. Reduce the pressure by turning the knob anticlockwise. The pressure setting can be locked at the desired value by tightening the wing nut under the adjusting knob clockwise.

The pump is now ready for use

To stop the pump, press the red button on the motor control box (10). After use switch off the mains supply with the mains switch.

Refer to torque wrench operating instructions for detailed information on the correct operation of these tools.

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MAINTENANCE

- The oil level in the reservoir should not be allowed to fall below the minimum level during use. Keep the reservoir topped up with Hi-Force HFO46 oil. If the oil level does fall below the minimum level then air may be drawn into the system and cause erratic operation.
- Regularly inspect the electrical cables for damage.
- Oil should be replaced after approximately 500 working hours. Drain oil via drain plug (9)

TROUBLE SHOOTING

These pumps should be repaired only by authorised Hi-Force repair centres. The following table gives possible causes and remedies for common problems.

PROBLEM	POSSIBLE CAUSE
Tool will only reach 120bar in advance mode.	Tool incorrectly connected. Swap hose connections at tool.
Tool retracts when advance button is pressed and advances when released	Tool incorrectly connected. Swap hose connections at tool.
Motor stalls before 700 bar is reached.	Low supply voltage.
Motor runs slowly or does not start	Low supply voltage.

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