

		<u>OPERATING INSTRUCTIONS FOR HTWP31 SERIES</u> <u>ELECTRIC TORQUE PUMPS</u>		TDS:- 1300
Prepared by:-	Mark Dalley	Approved by:-	Matthew Hughes	Date:12/10/12
REV NO:-002				
ECO:- 3936				

Hi-Force HTWP31 series electric 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:

HTWP3141P – Electric driven units 110 volt supply

HTWP3142P – Electric driven units 230 volt supply

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

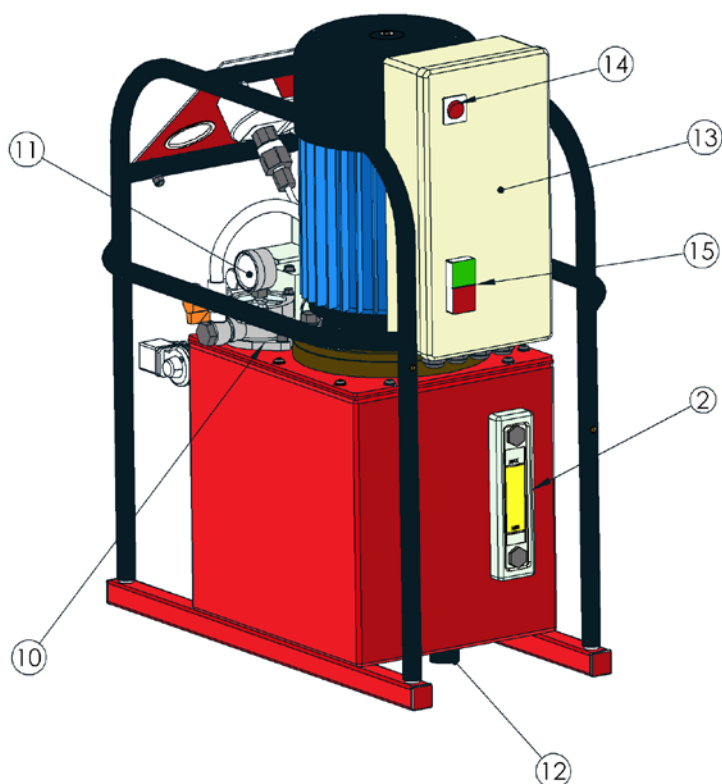
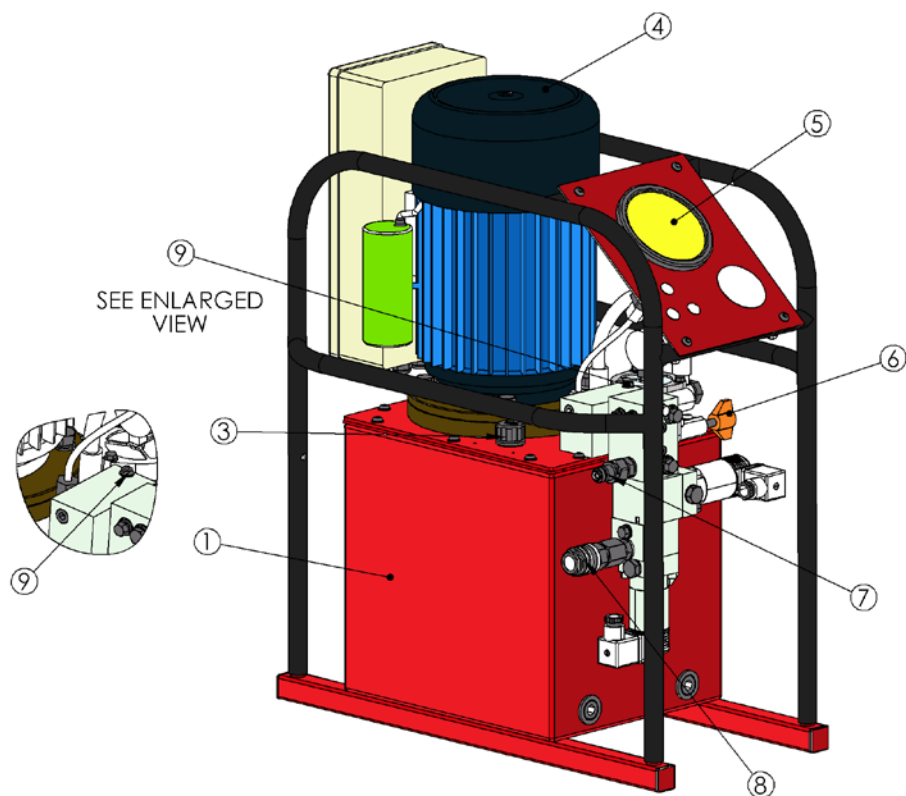
- Ensure that all equipment connected to the pump is in good condition and is all rated for 700 bar operating pressure.
- Always stand the pump on a stable level surface during operation.
- Never invert the pump or lay it on its side either in use, transport or in storage.
- Inspect hoses regularly for 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 uncoupled couplers.
- Always use eye, ear and hand protective equipment when using this pump and associated equipment.
- Isolate the pump from the power source when carrying out maintenance or adjustments (except pressure relief valve adjustments).

IDENTIFICATION OF COMPONENTS

Refer to diagrams on page 2.

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. Air bleed screw.
10. Return line filter.
11. Return line filter gauge.
12. Drain plug.
13. Electrical control box
14. Mains switch
15. Push buttons (start/stop)

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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. Failure to follow the correct procedure will result in pump malfunction and possible damage.

FILLING OF PUMP WITH OIL

Remove the transit plug from the oil filler aperture on the tank lid and fit the filler breather plug (3) (packed separately) before first use.

Remove the bleed screw (9) and washer completely and keep them safe. Stand the pump on a level surface and fill the tank with Hi-force HFO46 oil via the filler breather cap (3) 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. Allow the pump to stand for at least 5 minutes and then replace the bleed screw and tighten fully. NEVER run the pump -even for a short time - with the bleed screw removed or loose.

If the pump was supplied full of oil, bleeding should not be required. However if the pump will not produce more than 100 bar pressure refer to section on bleeding.

POWER SUPPLY

HTWP3141P 110 volt
HTWP3142P 230 volt

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 high pressure 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 on the mains power using the switch (14) and then press the green button (15) on the electrical box (13). The motor will start and circulate oil through the control valves. **Important: check that the motor is turning anticlockwise when viewed from above.** 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 on the control pendant. The torque wrench should advance until it reaches the end of its stroke and then the pressure 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 clockwise until pressure shows on the gauge.

Press and hold the retract button on the control pendant. The torque wrench should retract until it reaches the end of its stroke and the pressure should build up to a maximum of 120 bar.

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 electrical box (15). After use switch off the mains supply with the rocker switch (14).

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 pump casing and the pump must be re-filled and bled. Refer to sections on Filling and bleeding.
- Regularly inspect the electrical cables for damage.

During use periodically inspect the return line filter pressure gauge (11).

- If the pointer is in the red area the filter element should be replaced. Contact your Hi-Force distributor for correct spare part ordering.
- Oil should be replaced after approximately 500 working hours. When draining oil via drain plug (12) the bleed screw (9) should be removed. Refer to sections on Filling and bleeding.
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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
Pump will only reach approximately 100 bar	Air in pump casing. Refer to section on bleeding.
Tool retracts slowly with no pendant buttons operated.	This is normal, but only occurs with certain tool and hose length combinations
Tool advances slowly with no pendant buttons pressed.	Tool incorrectly connected. Swap hose connections at tool.
Tool will only reach 120bar in advance mode, but higher in retract mode.	Tool incorrectly connected. Swap hose connections at tool.
Motor stalls before 700 bar is reached.	Low supply voltage.
Motor stops working after prolonged use	Motor overheated- allow to cool and reset trip button on side of electrical box
Motor will not start.	Supply failure – check electrical supply. Motor overheated and thermal trip operated – allow motor to cool and reset trip button on the side of electrical box. Fuse blown – have the electrical components checked by suitably qualified technician.

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BLEEDING OF PUMP

The pump unit is a two stage device consisting of a gear pump and a radial piston pump. The gear pump is self priming but the piston pump is not. The piston pump casing must be full of oil before putting the pump into service. If the casing is not full then the pump will only ever reach 100 bar operating pressure and the pump pistons may be damaged.

Provided that the pump is filled and drained with the bleed screw out and the pump is NEVER run with the bleed screw out or loose, bleeding should not normally be necessary. However if the oil level in the tank is allowed to fall below the minimum level or the pump is accidentally tipped over, then air can enter the pump casing. This will prevent the piston pump from operating. The symptom of this is only being able to reach 100 bar regardless of the relief valve setting.

To bleed the pump, proceed as follows: Stand the pump on a level surface and remove the bleed screw (9) Do not lose the screw or sealing washer. Top up the oil level to at least the maximum mark on the level gauge (2). Leave to stand for at least 5 minutes. Replace the bleed screw and sealing washer. Test the pump for correct operation.

In the majority of cases this will be all that is required to bleed the pump. However occasionally an air lock will persist, particularly where the pump has drawn air in due to low oil level in the tank or in cold climates. In these instances, remove the bleed screw and drain the oil tank completely via drain plug (12). Leave to stand for 30 minutes at least then re fill the tank. Leave to stand for at least another 5 minutes, then replace the bleed screw. If the problem persists, contact your distributor.

N.B If oil starts coming out of the bleed screw hole during filling or bleeding DO NOT assume that all the air is out; it is just oil trapped in the bleed hose, mop up the oil and keep the screw out for at least 5 minutes.

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NOTES:-

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