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| Prepared by:- | Mark Dalley | Approved by:- | Matthew Hughes | Date: 19/10/12 |
| REV NO:- 002 | | | | |
| ECO:- 3942 | | | | |

Hi-Force HTWP21 series air 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:

HTWP2140P – Air driven unit with 7.0 bar 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.

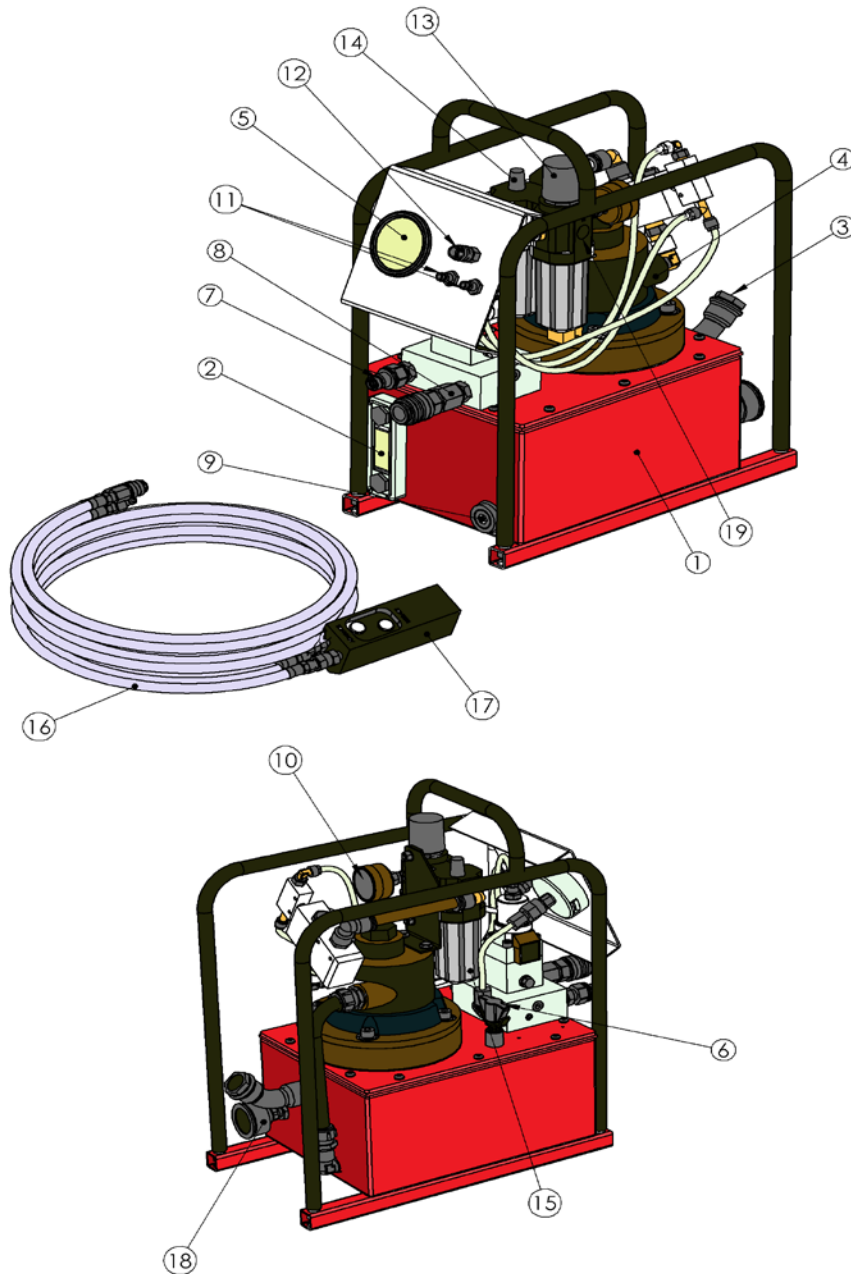
- Ensure that all equipment connected to the pump is in good condition and is all rated for 700 bar operating pressure.
- Always stand the pump on a stable level surface during operation.
- Never invert the pump or lay it on its side either in use, transport or in storage.
- Inspect hoses regularly for 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 disconnected couplers.
- Always use eye, ear and hand protective equipment when using this pump and associated equipment.
- Isolate the pump from the air 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. Air pressure gauge.
11. Pendant signal connections.
12. Pendant air supply connection.
13. Air pressure regulator.
14. Air lubricator control.
15. Air lubricator bowl.
16. Pendant hoses
17. Control pendant
18. Exhaust muffler.
19. Air inlet port G3/8" (3/8" BSP)

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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.

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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.

CONNECTION OF AIR CONTROL PENDANT

The air control pendant has three self sealing quick release connections, one male and two female. The male connection should be connected to the pendant air supply connection (12) on the pump gauge panel. The female connectors should be connected to the pendant signal connections (11). One connection controls tool advance and the other controls tool retract. If the pendant button functions are later found to be incorrect simply swap the connections.

AIR SUPPLY

An air supply up to a maximum of 10 bar must be connected to the air inlet port (19). However the air regulator (13) should be adjusted so that the reading on the air pressure gauge (10) is a maximum of 7 bar (100psi). Operating the pump at above this pressure may result in damage to the motor. The maximum air consumption of the pump is up to 132m³/h (78 cfm) at maximum pressure and power output. Satisfactory operation can be achieved with lower flow rates but tool operation will be slower. Add viscosity grade 22 air line lubrication oil, to reservoir (15), via filler plug adjacent to air lubricator control (14). Do not use hydraulic oil. Adjust the flow of oil using the air lubricator control to give a drop of oil approx every minute.

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.

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 air supply. (The motor will not start until a pendant button is pressed.) Adjust the air regulator control (13) to between 5 and 7 bar, as shown on the air pressure gauge (10).

Press and hold the advance button on the control pendant. The motor will start and 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 swap the pendant signal hoses (11).

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. If the pressure goes above 120 bar then the tool is connected the wrong way round. This must be corrected before proceeding otherwise tool damage or personal injury may result.

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

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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

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

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 air hoses for damage.
- Oil should be replaced after approximately 500 working hours. Drain oil via drain plug (9)
- Add viscosity grade 22 air line lubrication oil to reservoir (15) as required. Do not use hydraulic oil.

Drain water from air regulator filter bowl as required by depressing the valve on the bottom of the bowl.

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, but higher in retract mode. | Tool incorrectly connected. Swap hose connections at tool. |
| Tool advances when retract button is pressed and vice versa. | Pendant signal hoses wrongly connected – swap hoses at connections (11) |
| Motor stalls before 700 bar is reached. | Low supply pressure or insufficient air flow. |
| Motor runs slowly | Low supply pressure or insufficient air flow. |

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