

Prepared by:-	Mark Dalley	Approved by:-	M. Hughes	Date: 07/03/13
REV NO:-	1			
ECO:-	4050			

DESCRIPTION.

The AHP3 pump range consists of 3 models and provides a source of hydraulic power and is fitted with a pressure gauge to monitor the hydraulic outlet pressure. The range of the pressure gauge is matched to the pump output capability. The gauge may read BAR or PSI or be dual scale. The pump increases the fluid pressure through the use of differential areas. A larger air-driven piston delivers pressure to a proportionally smaller diameter hydraulic piston, providing fluid flow at relatively higher pressures. The pump draws liquid from a hydraulic supply line connect via the 1 ¼"npt inlet port on the pump unit, and delivers to an outlet block, which has a pressure release valve allowing hydraulic outlet pressure to be relieved back via a drain hose.

The air pressure supplied controls the pump output. A compressed air supply is required to operate the pack. Air filter pressure regulator, lubricator, and pressure relief valve are fitted before the pump, together with an ON/OFF valve.

IMPORTANT SAFETY NOTES

Before operating the pump always make sure pipe connections are clean and fully tightened.

Never tighten connections while they are under pressure.

The pack cannot be pressurised without being connected to an item to be pressurized, or blanking plug is fitted to the outlet port.

Use only tube and fittings suitable, for the maximum working pressure, of the pump unit.

PUMP PREPARATION AND CONNECTION.

Connect the liquid supply to the pump inlet port (1 ¼" NPT) This is usually from a reservoir tank. Ensure that the liquid is filtered before reaching the pump unit liquid inlet port. Hydraulic oil (ISO 10 or 32) or water can be used. When using water, a Glycol additive to the water will reduce seal wear in the unit.

Check the air lubricator bottle is filled (use any light grade lubricating oil – SAE 15). To top up undo the screw on top of the bottle and top up.
(Safety note: Ensure the air supply is disconnected when filling the bottle.) The lubricator is factory set to deliver 1 drop every 25 strokes of the pump. The red knob is used to effect this setting.

Connect the air supply line to the pump inlet (1/2" BSP) Min recommended pipe size ½ bore. Air requirement is 70-100psi 56 S.C.F.M. Ensure the air on/off valve is closed.

The item requiring hydraulic pressure connection may now be connected to the outlet block. ½" NPTF

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NB use only fittings and tubing, suitable for the maximum pressure performance of the pump.

PUMP OPERATION

Make sure the Isolator valve and pressure let down valve is open and the air pressure regulator is turned fully anticlockwise. Direct the drain hose into a suitable location as fluid will be discharged from this once the pump starts.

Open the air on/off valve and turn the regulator clockwise until the pump starts to cycle. Increase the air pressure until the pump is running at around 100 cycles per minute. Allow the pump to cycle for approximately two minutes, this will purge the pump of any air.

NB: This will not normally purge air from the item under test. Additional vent points (or other precautions) will be required to ensure the item under test is completely filled with liquid before pressurisation otherwise a dangerous situation may occur.

Stop the pump by closing the air on/off valve.

Should any black oil be visible around the pump air motor exhaust, this should not give rise to concern, as lubricated air is fed to the pump, and excess oil will be discarded via the exhaust.

To apply hydraulic pressure:

Close the pressure let down valve.

Make sure the isolation valve is open.

Turn the air pressure regulator valve fully anticlockwise.

Open the air ON/OFF valve and gradually increase air pressure by turning the pressure-regulator clockwise until the pump starts to cycle. This will deliver liquid to the item under test and (once all vent ports are closed) allow hydraulic pressure to build up. The pressure may build up very slowly depending on the size of the item under test. This pressure will be indicated on the large pressure gauge.

The hydraulic output pressure is directly proportional to the air inlet pressure. The pump will stall when the hydraulic pressure reaches a balance point directly related to the air pressure setting. To increase the hydraulic pressure further, the air pressure must be increased.

This feature can be used to maintain pressure in a vessel over a period of time. The pump will cycle occasionally to keep the pressure topped up against slight leakage loss.

The Isolation valve may be closed if desired to maintain pressure in the item under test, but it must be remembered that if this is done, the pump will not automatically keep the pressure topped up.

To release hydraulic pressure:

Make sure the drain hose is directed into a suitable container or back to the reservoir and open the pressure let down valve. Liquid will be discharged

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along the drain hose.

When releasing hydraulic pressure, it is important to do so slowly to prevent possible damage to the hydraulic pressure gauge.

TROUBLE SHOOTING

Pump will not start:

Check the mains air supply.

Check the regulated air pressure is available via the air pressure gauge, mounted on the air regulator.

Check the air valve is turned ON.

If the pump will still not actuate it will require inspection.

Pump will not build up pressure:

Insufficient air pressure causing the pump to stall.

Pressure release valve, not closed. Close to build up pressure.

Insufficient hydraulic fluid, available from the reservoir.

Tube connections loose in system, check and rectify.

Strainer in pump suction blocked, check and clean if necessary.

SERVICING

The pack is designed for long and trouble free service, in a rugged environment with a minimum of servicing.

Regular servicing is confined to:

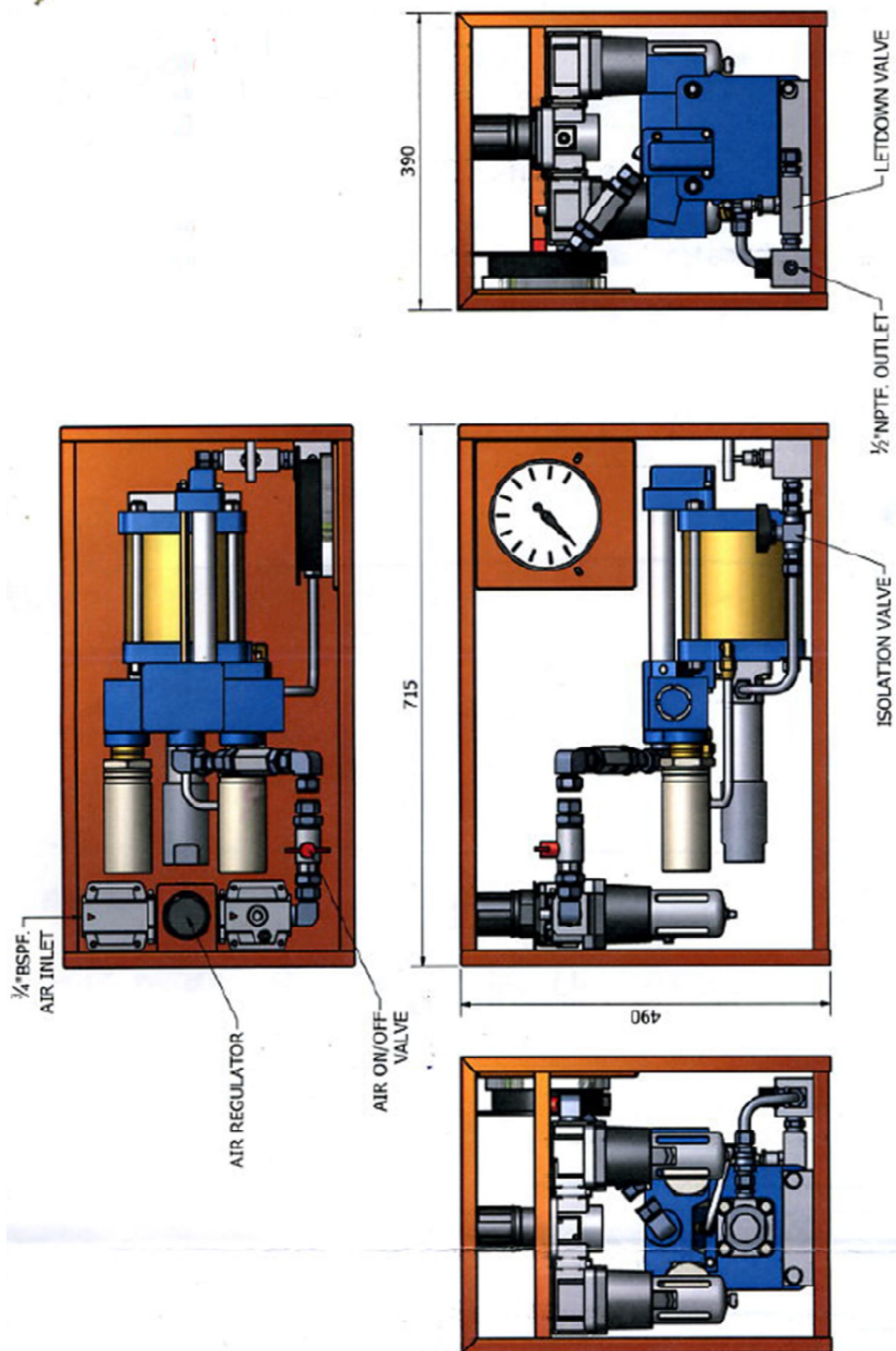
Topping up the air lubricator.

Regular draining of the air filter bowl.

Occasional cleaning of the air filter bowl using warm soapy water only.

Caution shut of the air supply before removing the air filter bowl.

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