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Installation, Operation and Maintenance Instructions for the Single Pump Pressure Switch Booster Set with Category 5 Break Tank.

Please fulfil all listed requirements prior to and during installation and operation of all equipment to prevent invalidation of any warranty given.

General Installation

Site Location

During off loading and positioning of the unit, care must be taken not to lift the pipework or any electrical equipment.

The unit location should be undercover, dry and freely ventilated. Protection from frost must be ensured.
Reasonable access to all parts of the set and adequate service work space must be provided.
The site base should be firm and level.

All system pipework should be aligned and self supporting preventing any strain on the unit.

On units without isolating valves, these together with unions should be fitted to enable the removal of the pump should a replacement be necessary.

Water Supply

The stored water should be clean and free from any foreign materials. There should be nothing suspended or dissolved to block or wear the pump internal components.
The water storage tank should provide the pump with a fully flooded suction (with the exception of self priming units) at all times irrespective of water level within the tank.
All self priming sets should be fitted at the water source with a good quality foot valve complete with a stainless steel strainer and all suction pipework runs should be sited to avoid any air pockets. Pipe sizing should be to suit the length of suction run and the pump net positive suction head requirements.

Water Tank

The water tank has a raised chamber fitted to it complete with a drop arm float operated valve, this together with the screened spill over slot provides the unit with its category 5 backflow protection.

Gauge

A gauge is supplied to indicate the working pressure of the pump.

Pressure Switch

The pressure switch is fitted to control the starting and stopping of the pump, this is factory set and should not be adjusted, if in doubt please contact our Service Department.

Hydraulic Accumulator (Vessel)

The small accumulator has a rubber membrane within the steel shell and has an air charge on the outside of the membrane. This works together to provide a buffer for the pressure switch and also to store pressured water after the pump stops.

Electrical

The supply should be brought to the set with suitable trunking or armoured cable, terminating in the final metre in a flexible conduit or flex to avoid any stress or fatigue.
All supply cables should be sized to accommodate any long run voltage drop, when checked at the unit the voltage should match that on the specification sheet or motor plate.
A neutral supply is required for all 240 volt sets and 415 volt units that request it on the wiring diagrams.
It is recommended that a fused isolator is fitted locally to the unit.
Supply fuses should be rated to accommodate the pump motor as per the motor plate.
Single phase units are usually supplied without contactors and use the internal motor protection as a cut out, three phase units may be fitted with contactors but if not (3 phase pressure switch type) pump protection must be provided at source with a suitable contactor and thermal overload providing phase loss protection.
All equipment should be earthed.

After priming the pump, rotation should be checked, on three phase models it may be necessary to change phases. This should also be performed after any electrical maintenance work performed within the building.

All electrical work should be performed by a competent electrician.

Start Up

Priming

After flooding the suction line the pump should be primed and vented. On vertical multistage type pumps these should have the individual vent plugs loosened to allow air purging and water flow to each priming point, this may have to be repeated if poor pump performance is experienced due to trapped air pockets.

On certain horizontal end suction pumps these too may have a vent plug, but if not fitted air should be allowed to evacuate via a suitable point of the discharge pipework, eg a drain cock, tap etc.
NEVER RUN ANY PUMPS EVEN TO CHECK ROTATION BEFORE COMPLETE PRIMING IS ACHIEVED.

Check the operation of the storage tank low level float switch where fitted.
Check all valves with the exception of the final discharge are open. Switch on the local isolating switch. Briefly run the pump to check rotation to correspond with the pump casing arrows. If incorrect the electrical supply phases should be changed according (Three phase versions).

On correct rotation continue to run the unit, the final discharge valve should be opened slightly to vent any pipework air and then closed again allowing the pump to fill the accumulator, finally switching off the pump with the pressure switch. Open the main valve slowly filling the system taking care not to overload the pump at this point and as the system pressure rises open the valve fully to leave the system operational.

Maintenance

Booster sets require very little general maintenance, listed below are quarterly and yearly check schedules.

Quarterly

The hydraulic accumulator should have its internal air charge checked and adjusted to the correct pressure using a foot pump or oil free compressor. See vessel label for pressure required. It must be stressed that this is only performed after switching off the unit and releasing all the pressure from the set.

Failure to successfully re-inflate the air charge, or if water is found to be present at the Schrader valve would point to a ruptured vessel membrane, this would require immediate replacement.

The whole unit should be observed for any leaks, particularly the pump shaft seals and the valve glands. If found please contact our Service Department for assistance.

The pump should be noted for any deviations to the smooth running and performance, again please contact our Service Department for any assistance required.

If the unit has not been operational for a long period the pump should be vented as described in the start up information. If not in use during the winter period and there are any chance of freezing, drain the pump and pipe work and cover with suitable frost protection covering. Ensure full venting before start up.

Yearly

All quarterly checks are to be performed.
The pump should have a full load current, and windings test to ascertain pump motor condition.

The non-return valve should have a visual and audible inspection for general wear and sealing.

The pressure switch should be checked for operation.

All electrical cables are to be checked for cuts or chaffing and to be replaced as necessary (After isolation).

It is recommended that all yearly checks are carried out by our engineers and service contracts are available on request.