



- Specialized Features and Functions
- Pump Components (3 Diagrams)

High Pressure (Specialized) Pump Features and Function

- **High Pressure Safety Switch (HPSS) with Omron PLC:** This pump includes a water pressure safety switch. The PLC microprocessor will monitor via the pressure switch. If the water pressure is not sufficient, or is temporarily lost, the red FAULT light will illuminate. If this condition continues for more than the programmed time in the PLC (30 seconds), the PLC will automatically terminate the operation of the pump (PLC factory set 30 seconds is adjustable from 1-99 seconds, or even longer). Once this happens, determine the cause of the pressure loss and correct the problem. The PLC will need to be reset to initiate the pumps operation again. The PLC is reset by turning the system start signal OFF then ON. The fault counters are visible on the PLC display by pressing the ESC button from the standard PLC operating screen.
- **Danfoss 3-2 Valves:** Pumps have either an Electric Danfoss Drain Valve (EDV) for single zone pumps, or Danfoss 3/2 Valves which are used with pumps serving two or more zones. The 3/2 valves provide individual zone control as well as individual zone drain control. Both valve designs will release the 1000 psi water to drain each time the pump is turned off thereby eliminating nozzle dripping.
- **Transformer:** This pump includes a transformer with fuse protection on the secondary power supply. The fuse protection is designed to prevent surges or spikes in the power supply from damaging the transformer to components fed by the transformer. If the transformer secondary power is suddenly terminated, check the fuse and replace as necessary.
- **Fans with Remote Relay Switch Box:** This pump is designed to control the operation of fans with a remote junction box (relay switch) which contains a contactor. The 24VAC control signal for the fans contactor coil should be inserted thru the provided strain relief and connected to the labeled contact points inside the pump and also into the 24VAC contact points inside the remote relay switch (junction) boxes by others.
- **Indicator Lights with Omron PLC:** The pump includes three indicator lights on the side panel of the pump enclosure.
 - The green light will illuminate whenever the pump is 'ON'.
 - The red light will illuminate whenever there is a water pressure fault in the pump. If the insufficient water pressure situation is resolved before the PLC programmed time has passed, the light will go off and operation will continue as normal. If the pressure loss remains for more than the PLC programmed time, the pump will be turned off automatically and the red light will remain illuminated. To re-start the pump, the pressure issue must first be corrected, and then reset by turning OFF then ON either the start signal or the main power.
 - The amber light will illuminate after 500 hours of operation indicating the need for scheduled maintenance.
- **500 Hour Maintenance with Omron PLC:** The PLC will monitor the total run time for the pump and record total hours on the hour meter. After 500 hours, a maintenance message will be displayed on the PLC led screen and the amber indicator light on the pump side panel will illuminate indicating the need for an oil change, inspection of the filter cartridge, and inspection of the pulley belt. Replace the filter cartridge and pulley belt as needed. The 500 hour maintenance schedule also includes the need to inspect the pump head for leaks indicating the need for pump seal replacement. If water is leaking from the under side of the brass pump head, replace the pump seals. The pump seal maintenance should be done as soon as practical to avoid damage to the pumps internal components. Once the needed maintenance is completed, the PLC timer should be reset by pressing buttons 3 and 4 (on the PLC face) simultaneously. This will also reset the amber indicator light. The plc will continue to track the pumps operational time and should be reset every 500 hours.
- **Analog Hour Meter:** This pump includes an analog hour meter which should be used to track the operating time of the pump which indicates the need for periodic maintenance including oil changes and checking the pump head for oil or water leaks.
- **Electrical System Protection:** Fuses are installed on the electrical panel to protect individual circuits. Spare fuses are located in a plastic bag included in the pump box. There is an amp circuit breaker sized for the system, installed to protect the entire pump electrical system.



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(4 pgs)

Diagram 1
Electrical End of the Pump Enclosure
 (Location of all electrical connections)

• ON/Off Switch (Back Side)

• Cube Relays

• Contactor

• Circuit Breaker

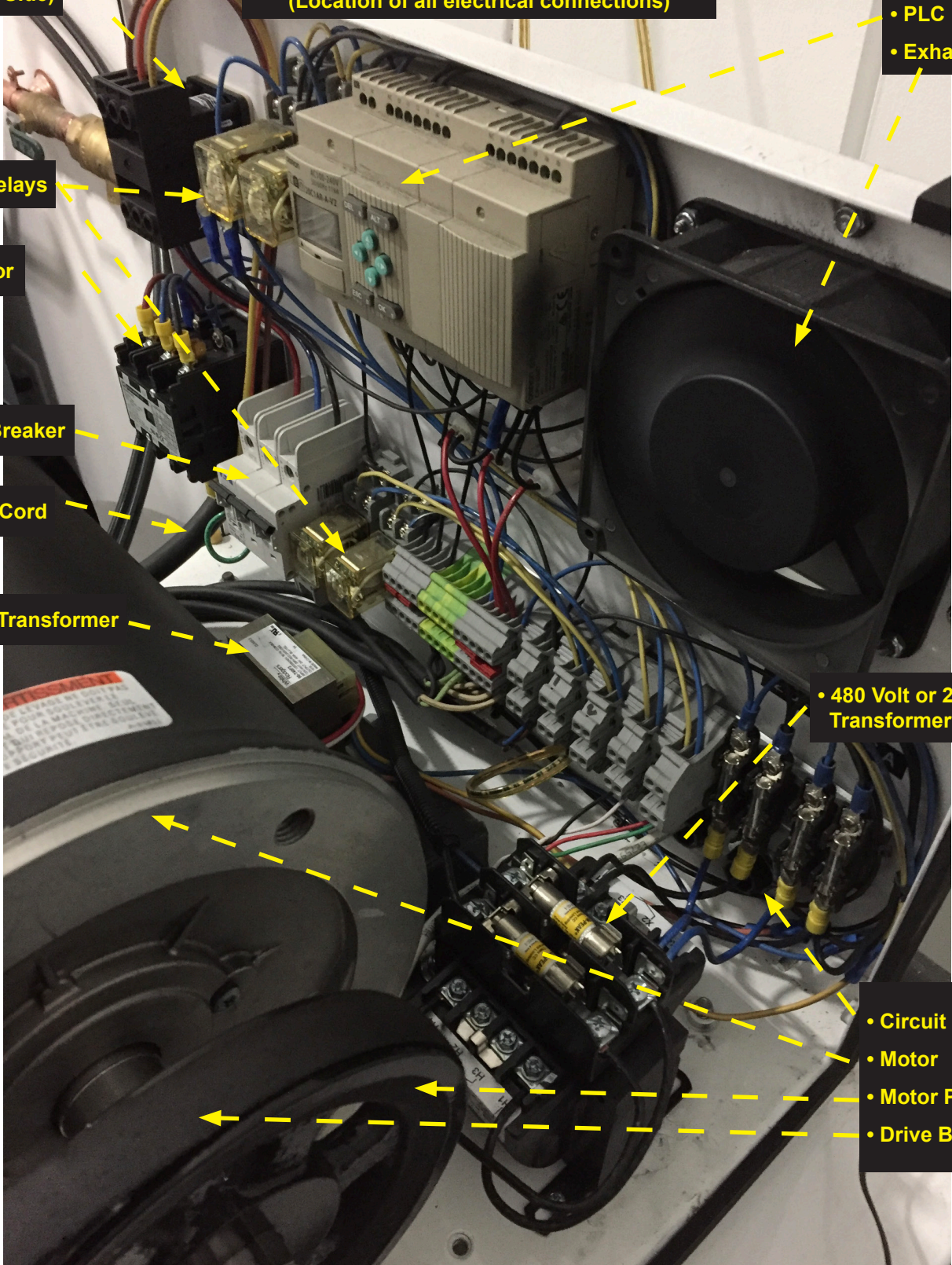
• Power Cord

• 24 Volt Transformer

• PLC
• Exhaust Fan

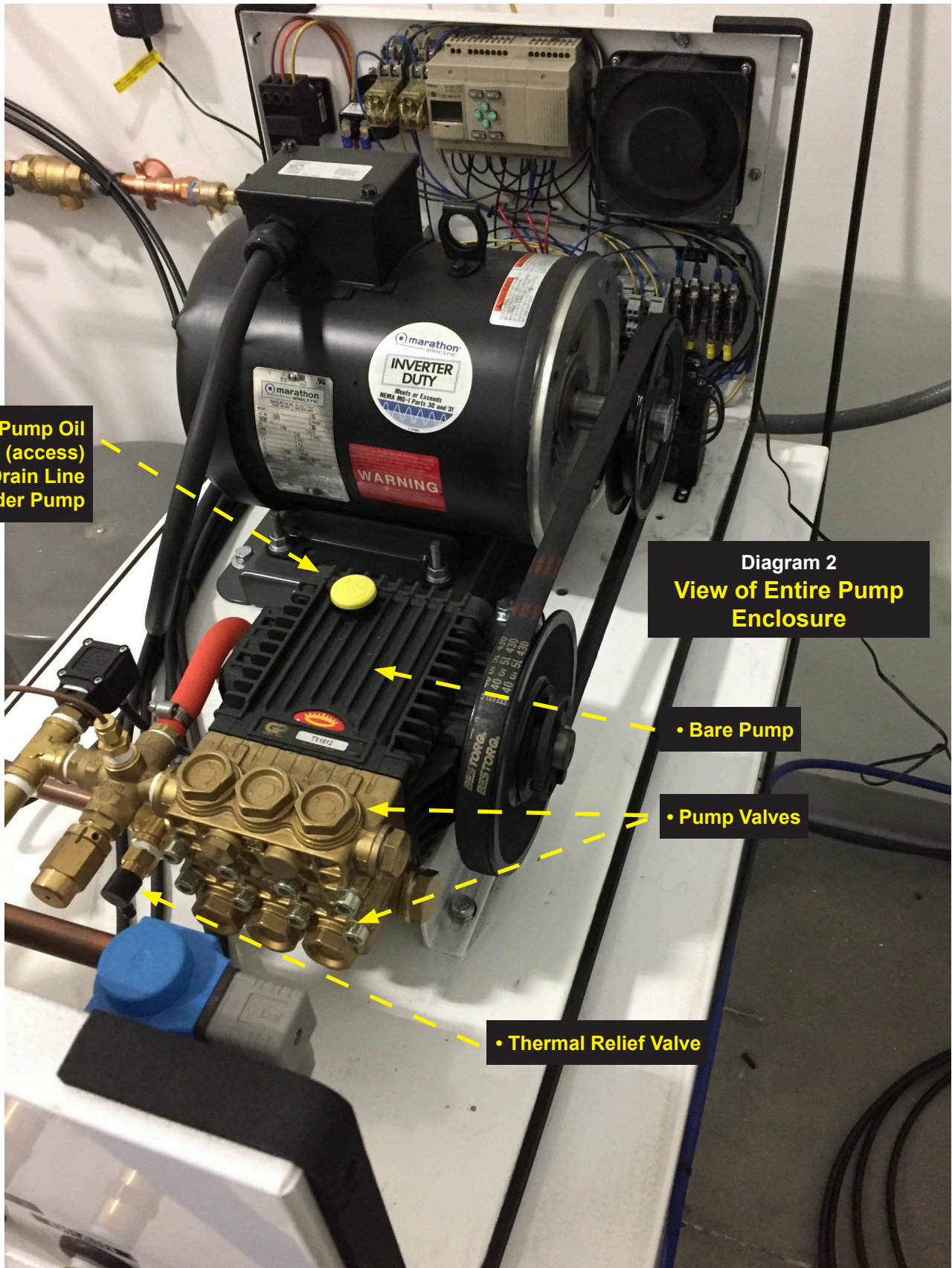
• 480 Volt or 230 V Transformer

• Circuit Fuses
• Motor
• Motor Pulley
• Drive Belt





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• Pump Oil (access) Drain Line under Pump

Diagram 2
View of Entire Pump Enclosure

• Bare Pump

• Pump Valves

• Thermal Relief Valve



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Diagram 3

Water Services End of the Pump Enclosure
(Location of all water connections)

- Danfoss 3/2 Zone Valves
- Blue Valve Coils
- Stainless Steel 3/2 Valves
- w/ Electric Drain Valve (EDV)

- Unloader Valve (Pressure Regulator)

- Outgoing High Pressure Lines to Two Zone Outlets (on back side)

- Pressure Gauge (Located on back side)

- Incoming Treated Water Supply

- Solenoid Valves

- High Pressure Safety Switch (HPSS)

- By-Pass Hose

