AmeriWater
The Water Purification Specialists

HMS
(HORIZONTAL MULTI-STAGE)
DISTRIBUTION PUMP SYSTEM
OPERATION & MAINTENANCE MANUAL

Manufactured With Pride
In The USA

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P/N 98-0112A

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1.0 THEORY OF OPERATION

The AmeriWater distribution pump takes the water from the storage tank, pumps it through the distribution loop to the points of use for dialysis, and re-circulates the water back through the piping to the storage tank. This provides pressurized water to each dialysis wall box, in addition to the re-circulation of the water. Re-circulating the water keeps it “fresh”, minimizing bacterial growth by the constant movement of the water throughout the system.

When the water is at the minimum level (always controlled by the lowest float switch on the storage tank), the distribution pump is not allowed to automatically operate through the distribution controller. When the water level is below the minimum level, the distribution pump will not operate in “AUTO”, but may be operated in “HAND” (manual operation). The distribution pump should only be placed in “HAND” to empty the storage tank. **It should not be left unattended during this process.** Running the distribution pump without water will result with overheating and damage to the pump.

The distribution pumps are available as single pump or dual pump configurations. All distribution pumps are available with 220V single phase, 208V 3 phase, 230V 3 phase, and 460V 3 phase.

The distribution pump controllers have either fuses or overloads to protect the pumps and wiring from overload damage.

The controllers for the dual distribution pumps have an alternating feature that will allow the pumps to alternate from #1 pump to #2 pump that is controlled by a timer set at 5 hours.

WARNING: Both pumps need to be in the AUTO mode for normal operation. If one pump is taken down; ensure the second pump is set on HAND mode. If this is not done; the controller will attempt to cycle between them. The system should only be run in HAND mode for the length of time that it will take to bring the second pump back on line.

Another AmeriWater standard feature for the dual distribution pump controller is to have an overload sensor for each pump. If a pump has an overload condition, the controller will automatically switch to the other pump that does not have the overload. This will prevent a possible water delivery shutdown during the dialysis procedure. An indicator light is on the front panel of the controller to show which pump has an overload failure.

2.0 INSTALLATION

The following guidelines should be met at installation.

1. The customer is to provide properly sized wiring to the distribution pump control enclosure.

2. Place the pump system on firm level flooring, and anchor to the floor in order to prevent movement from vibration or bumping.

3. The inlet piping, and/or hoses from the storage tank to the pump system should be equal to, or greater in diameter, than the inlet piping that is on the pump system.

4. The outlet piping, and/or hoses of the pump system should be equal to, or greater in diameter, than the outlet piping that is on the pump system.

5. Locate the pump control on a wall as close to the pump system as possible. When installing a distribution pump along with an AmeriWater Central Water System, refer to the Plumbing and Instrumentation Diagram (P&ID) for the best location, and where connections are made.

6. Follow all local plumbing and electrical codes.

7. After all guidelines have been met, connect the distribution pump wiring to the motor contactor, located in the control panel (refer to the control wiring diagram provided in this manual, and with the distribution pump control). Connect the three phase or single phase power source to the Main ON/OFF disconnect switch located inside the control panel.

3.0 START-UP

1. Open the inlet and outlet valves to the pump and allow the water in the storage tank to “flood” the inlet of the distribution pump(s). If the storage tank does not have water in it, fill it to above the lowest float switch before attempting to use the pump(s).

2. Verify that the voltage on the pump(s) matches what is indicated on the overload of the motor starter(s).

3. Once the power source has been connected, check the rotation of the pump(s).Turn the disconnect switch to the **ON** position. Jog each pump by momentarily turning the pump power switch to the **HAND** position. An additional person may be helpful to see which way the motor armature is turning just before coasting to a stop. If the rotation is backwards, switch any two of the three non-ground pump wires on the motor contactor that are located inside the control panel.

4. After rotation has been verified, turn the switch on the controller to **HAND**. Allow water to flow to re-circulate through the loop, and return into the storage tank for a few minutes. The water flow should then be verified by observing the flow meter on the return header of the storage tank. If this is a dual pump system; place pump #1 into **HAND** mode to ensure that there is adequate flow through the system at the holding tank flow meter. Once verified, repeat this for pump #2.

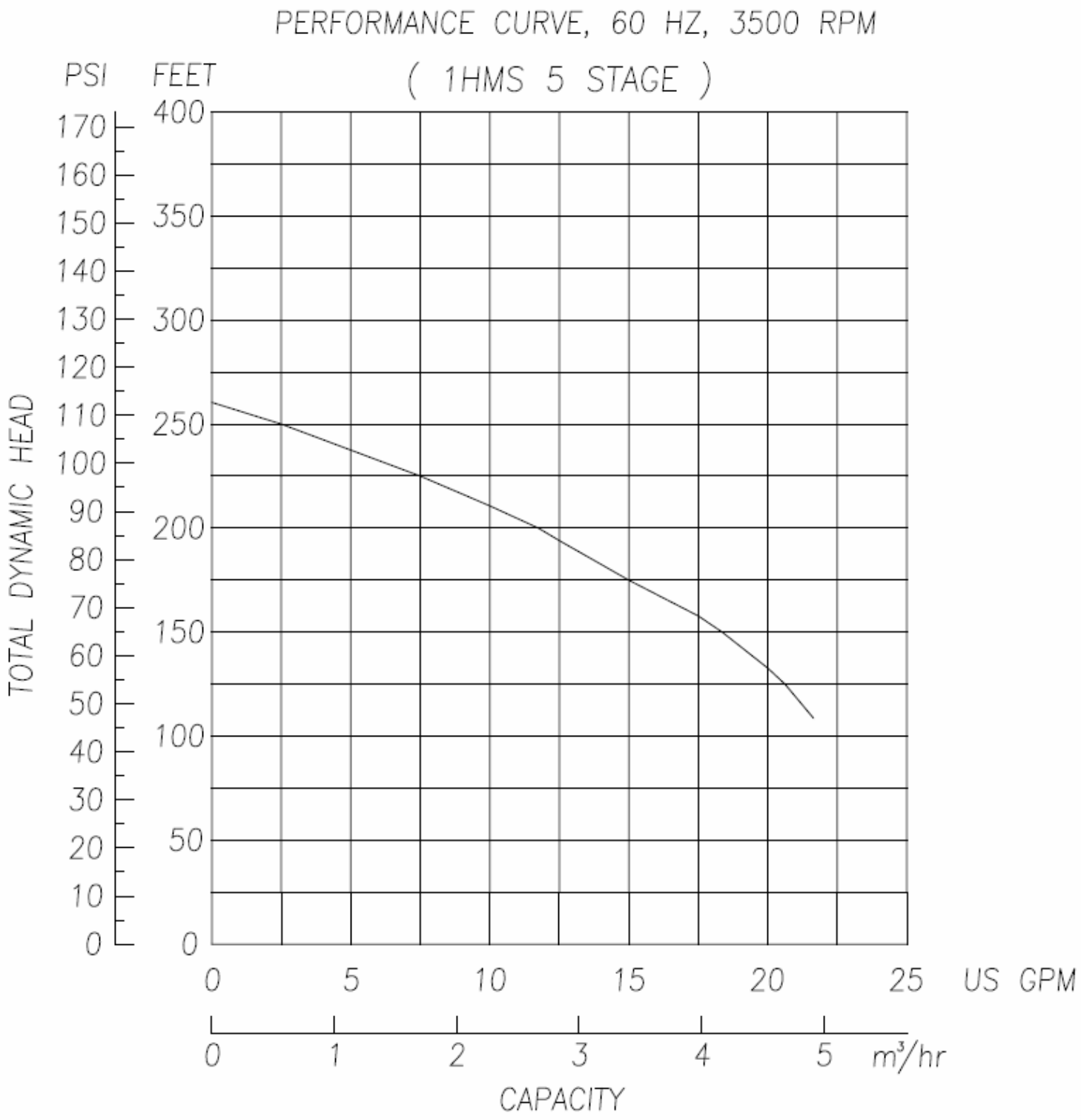
5. Place the system into **AUTO** mode to verify that the low level cut off switch operates correctly. For dual pump systems, this will need to be done for each pump.

6. For the dual pump system only, the timer will need to be verified. This is accomplished by setting the timer to its minimum value, and ensuring the system is alternating between the pumps. See page 5 for the details on adjusting the proper set-point.

7. The inlet and outlet valves are provided to allow for isolation of each pump if maintenance is needed. During operation, leave all of the inlet and the outlet valves open.

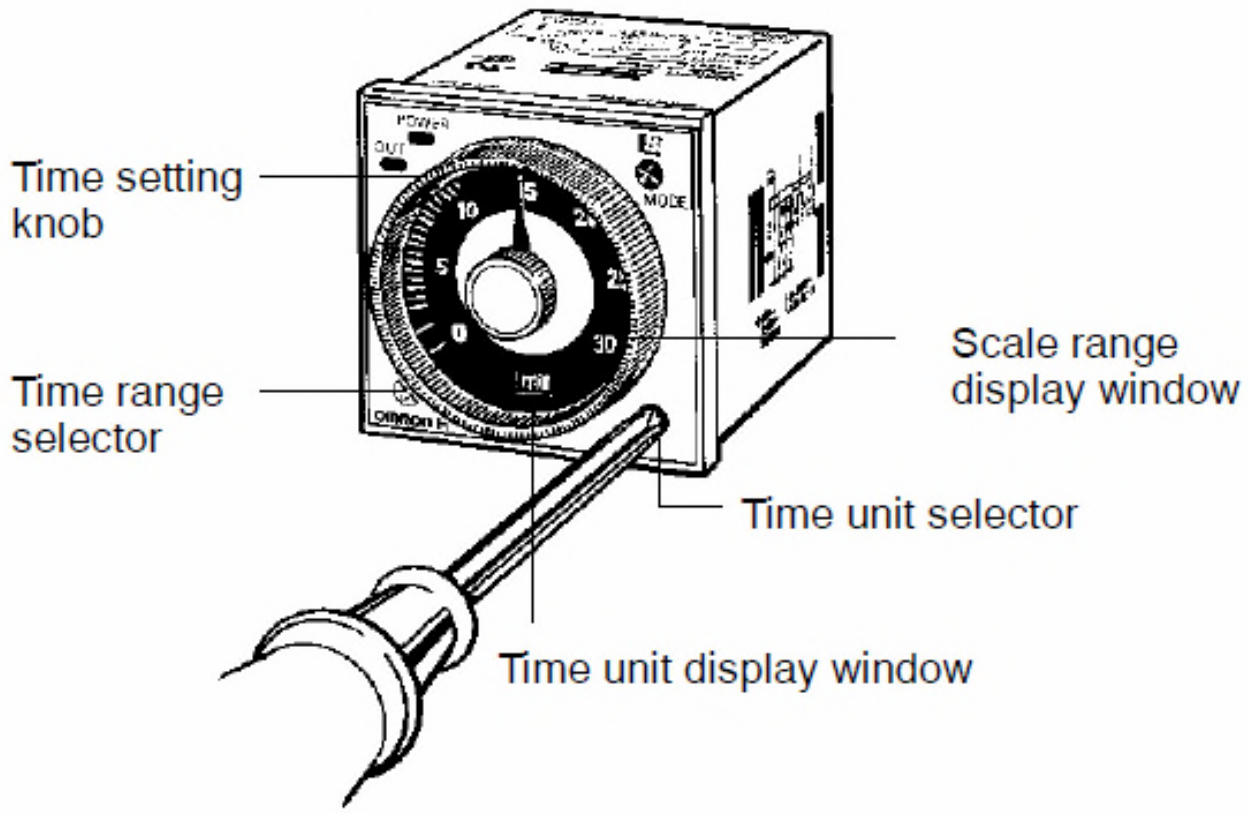
8. While performing the start-up of your distribution pump that is connected to a central system storage tank; adjust the pressure relief valve on the storage tank header, so that the pump outlet pressure and flow rate at the storage tank meets CMS requirements. Refer to the manual that was provided with your storage tank system for the proper adjustments. The pump curve is provided on page 4.

4.0 HMS PUMP CURVE



5.0 Adjusting the Timer (Dual Pumps only)

While the power is off, and the system is properly locked out; open the control panel. Located in the middle of the panel; you will see the timer like the one shown below. To adjust the timer; simply insert a small screwdriver into the screw, at the lower right hand face of the timer. Rotating this screw will toggle the time interval modes; which are displayed on the face of the timer.



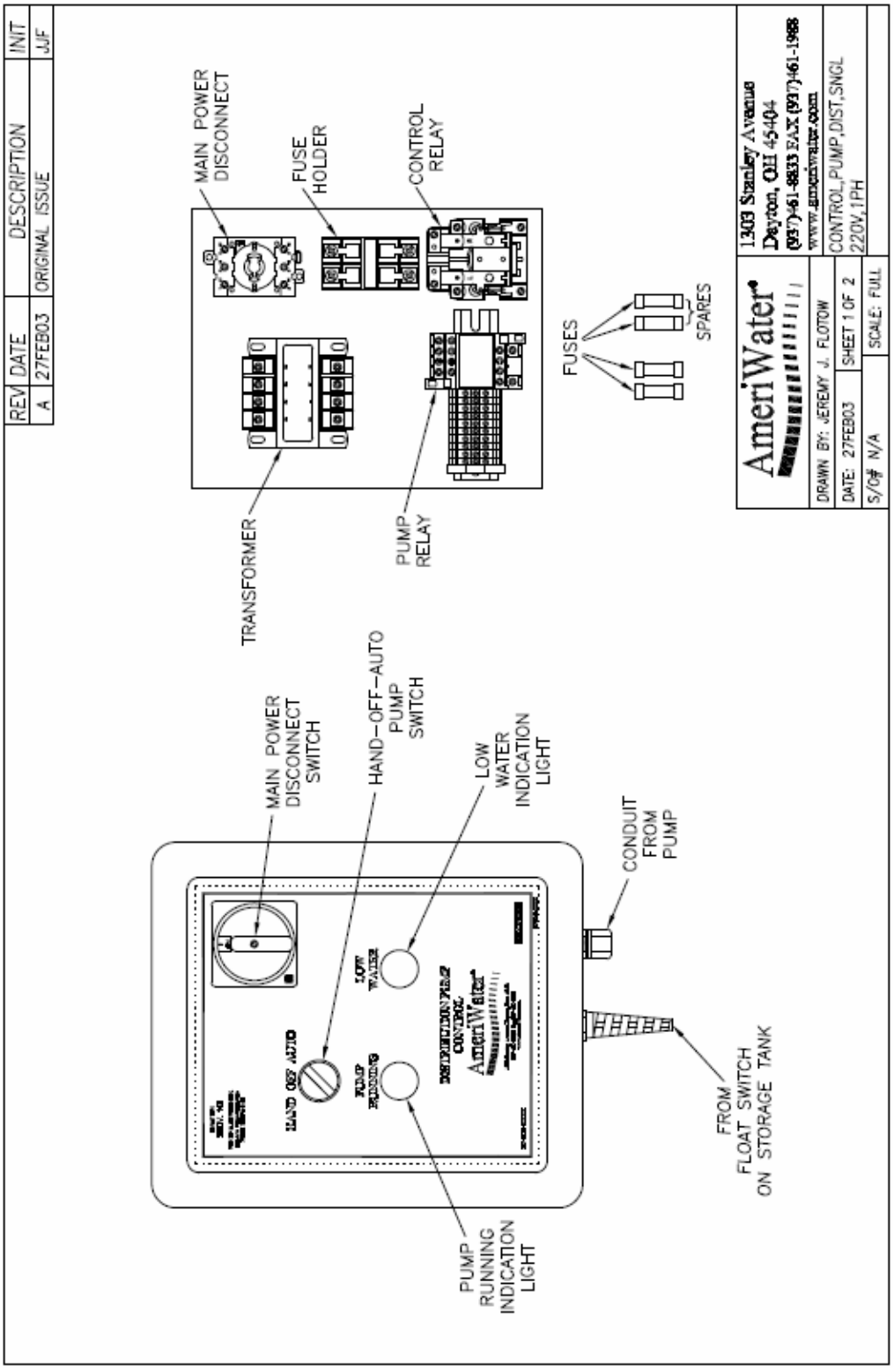
Once all validation of your set-up is complete; you must re-set the timer to 5 hours.

6.0 Spare Parts List

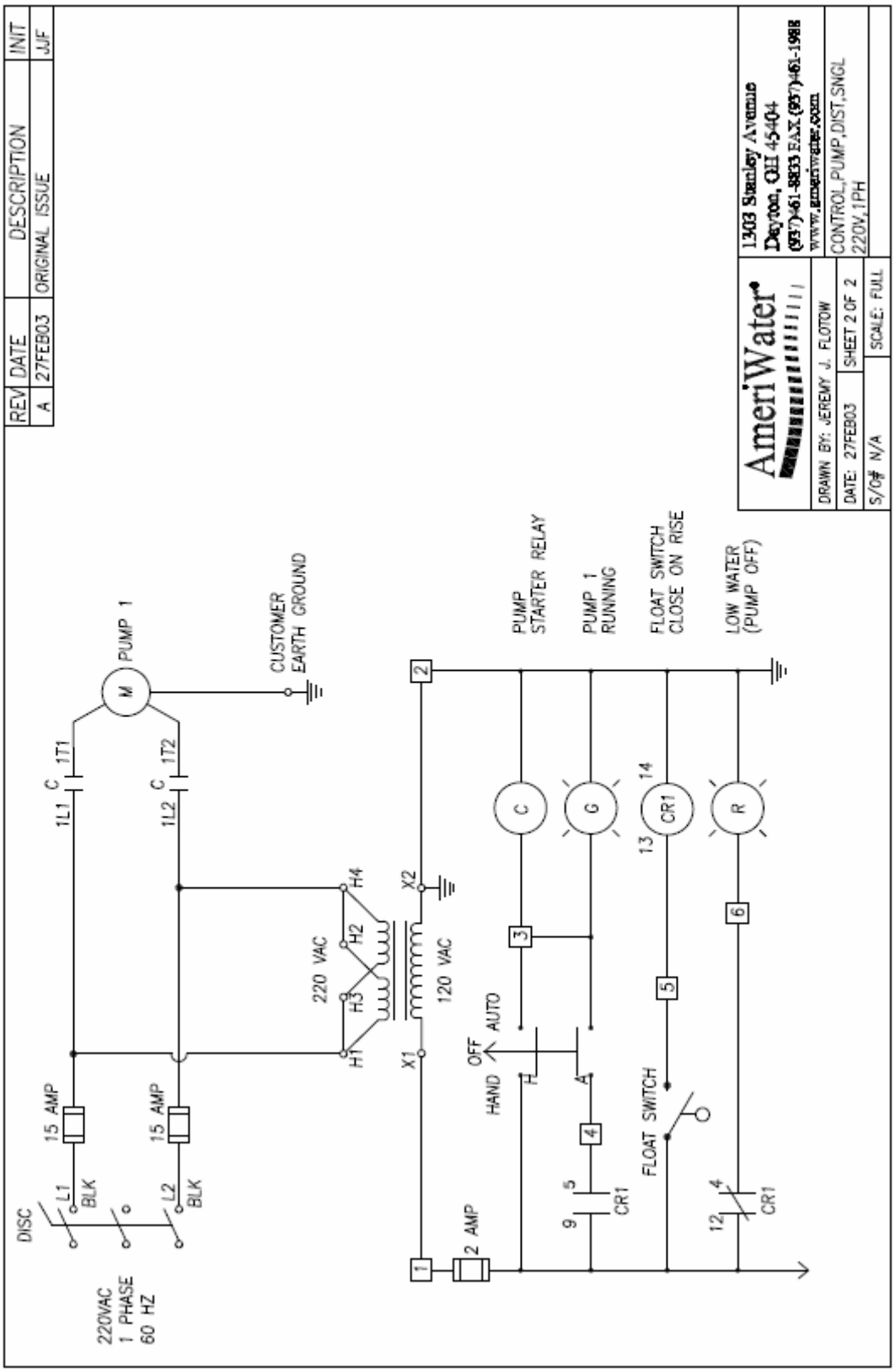
Part #	Description
80-HMS1	Pump, 1.5 HP, Single Phase, 38GPM
80-HMS3	Pump, 1.5 HP, Three Phase, 38GPM
041-0033	Check Valve, Ball Spring Loaded
43-0021	Stainless Steel Pressure Gauge 0-100psi CBM
43530710	Stainless Steel Pressure Gauge 0-100psi
61670245	Contactor, 9 AMP, 3 Pole, 120V Coil
61760226	Motor Contactor/Overload 12 AMP Maximum
63760186	Fuse 15A
63760133	Fuse, 2A, 250V
64760225	Timer, 8-Pin, 120V
64760108	Base, Timer, 8-Pin
61-0002	Relay, 30 AMP, 300V, SPST, NO, 120V-Coil

7.0 DRAWINGS

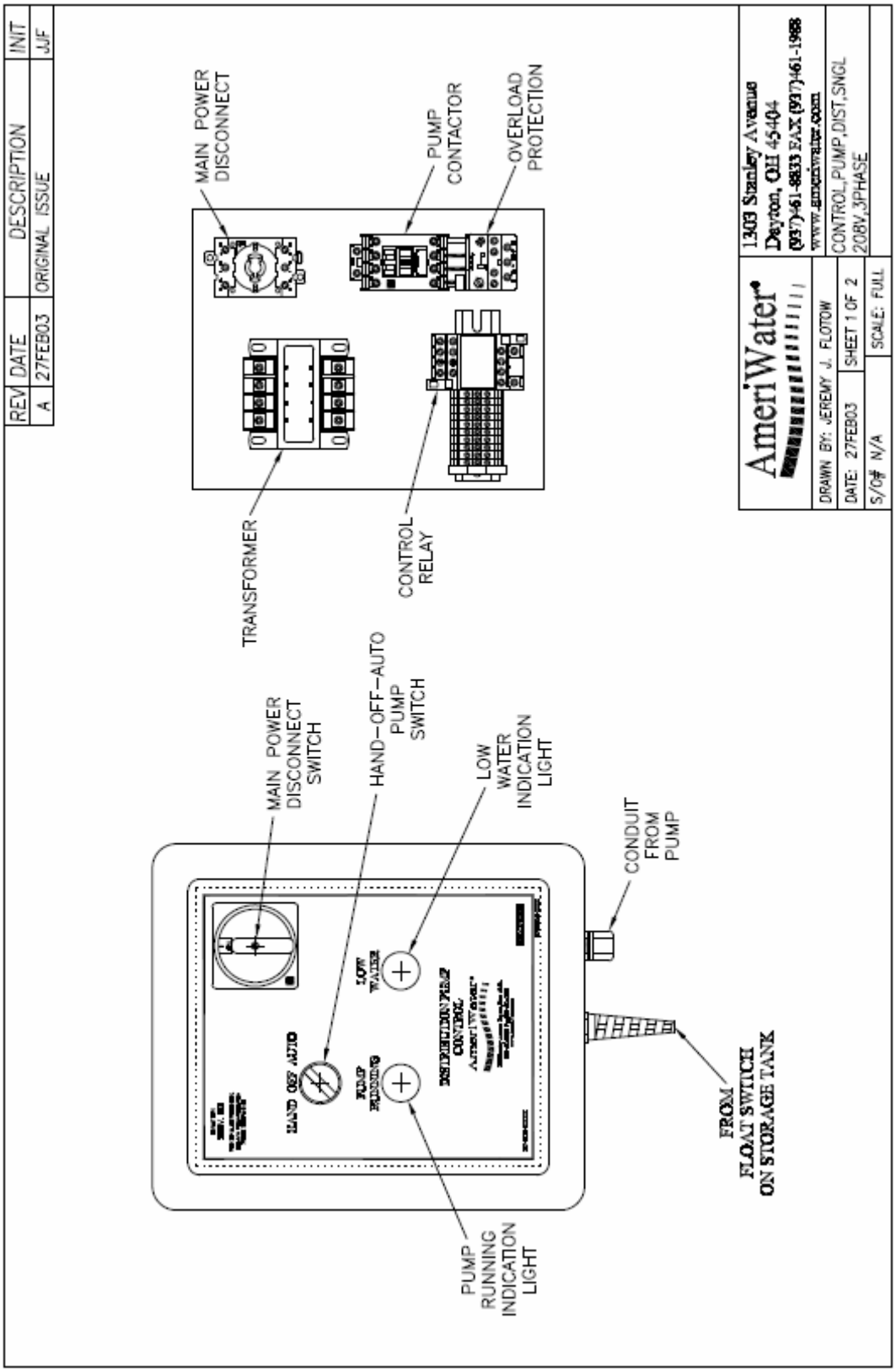
7.1 Single Distribution Single Phase Controller



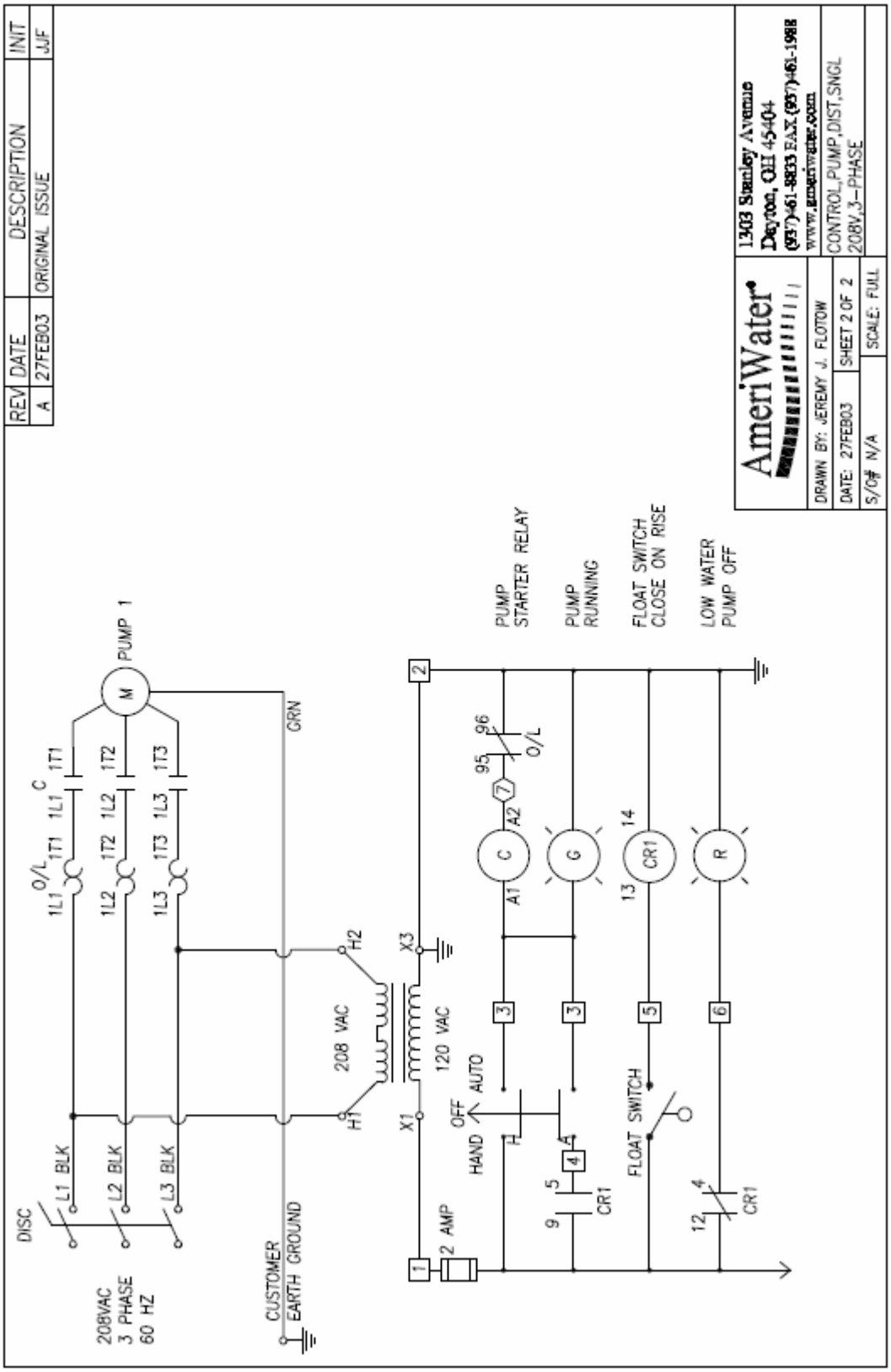
Single Distribution Single Phase Controller Schematic



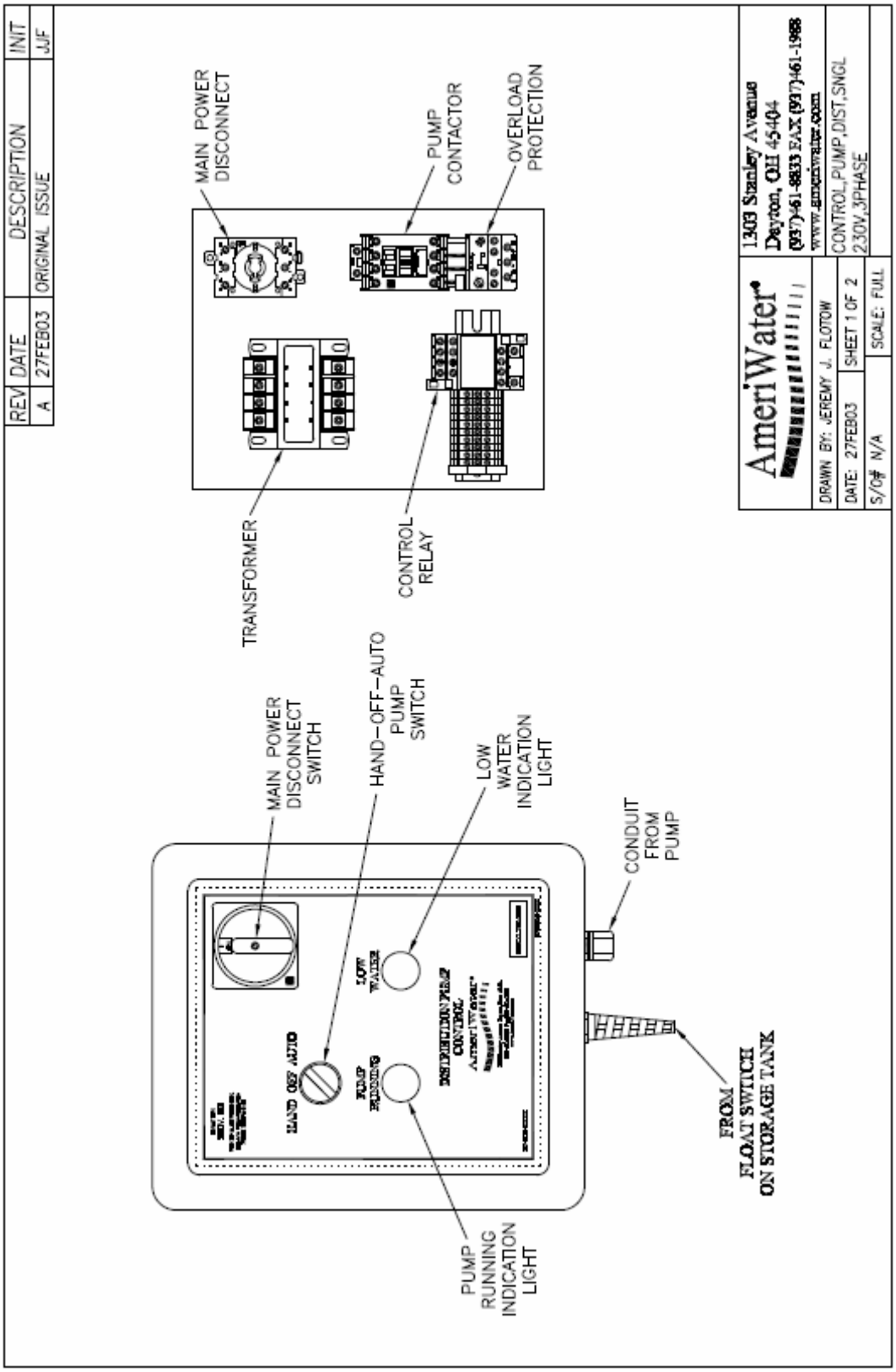
7.2 Single Distribution 208V Three Phase Controller



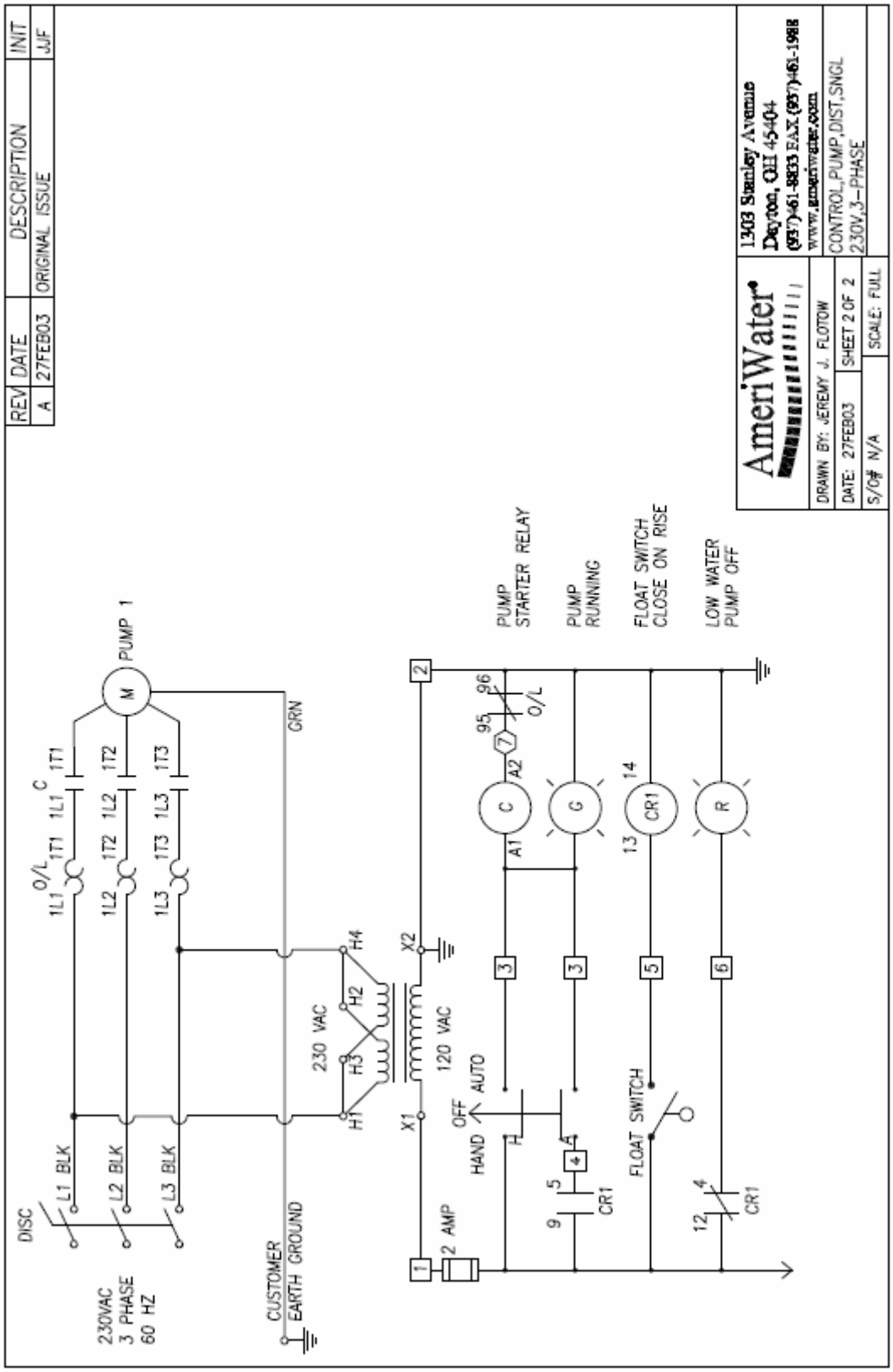
Single Distribution 208V Three Phase Controller Schematic



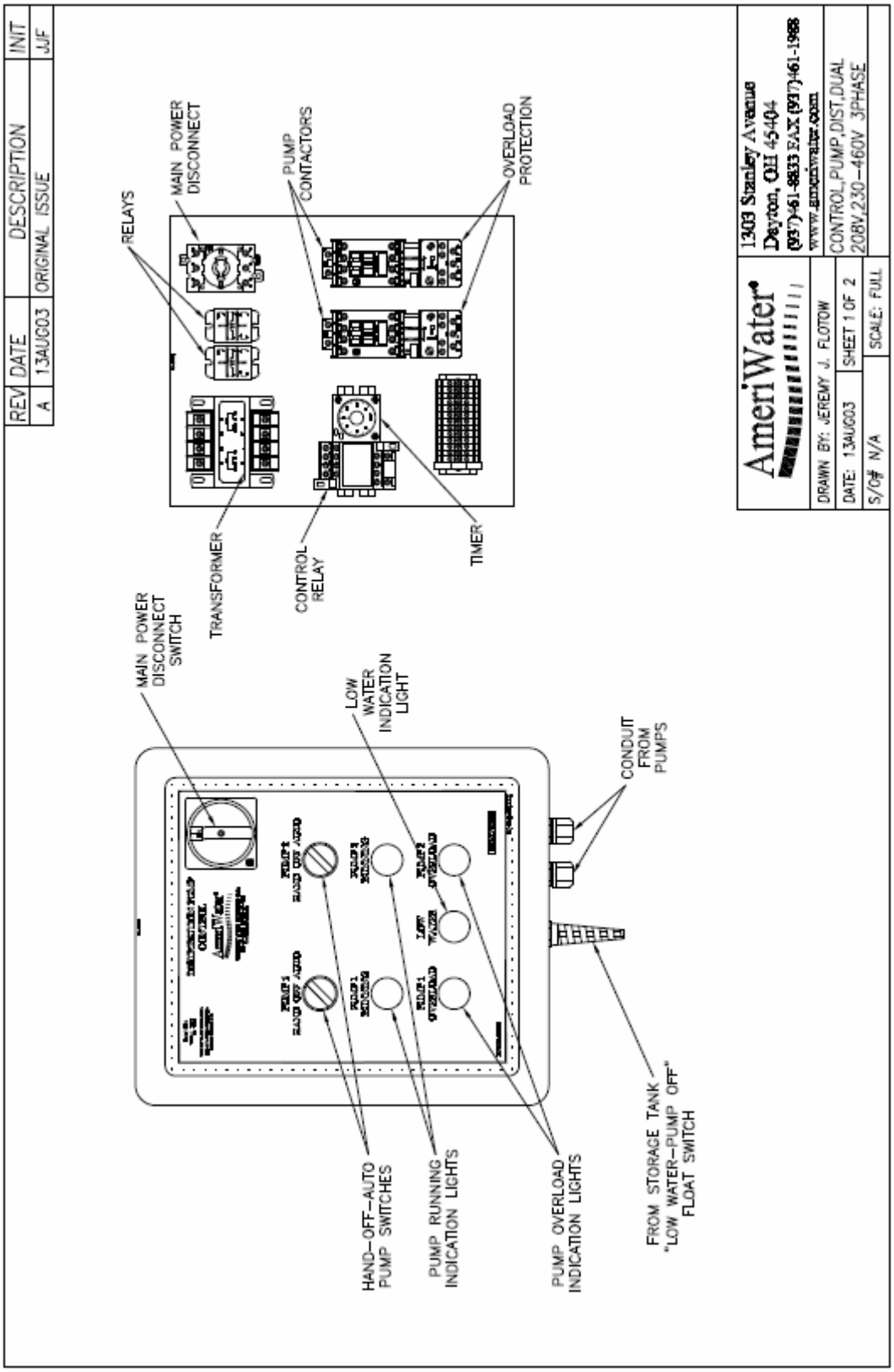
7.3 Single Distribution 230V Three Phase Controller



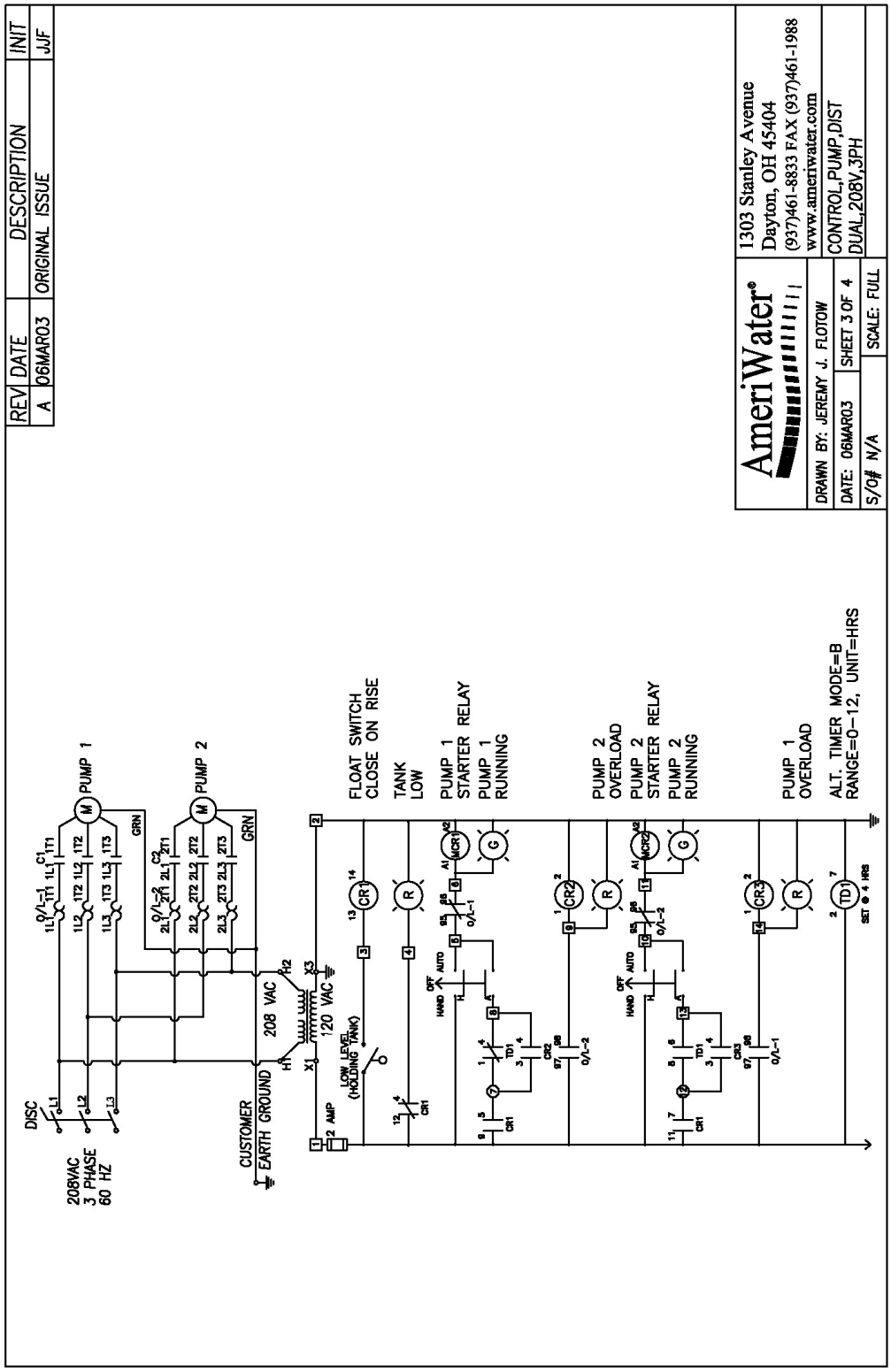
Single Distribution 230V Three Phase Controller Schematic



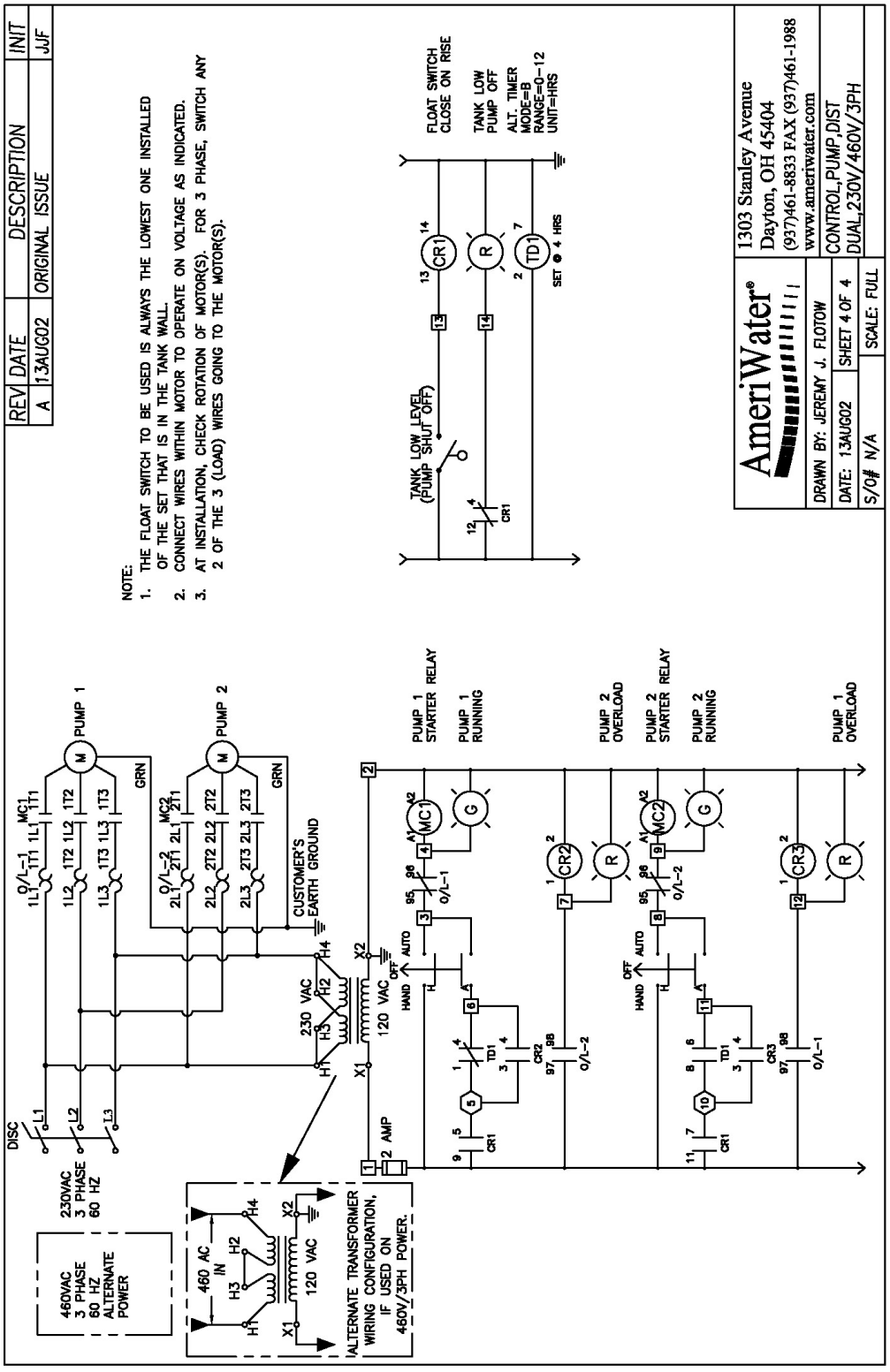
7.4 Dual Distribution 208V, 230-460V Three Phase Controller



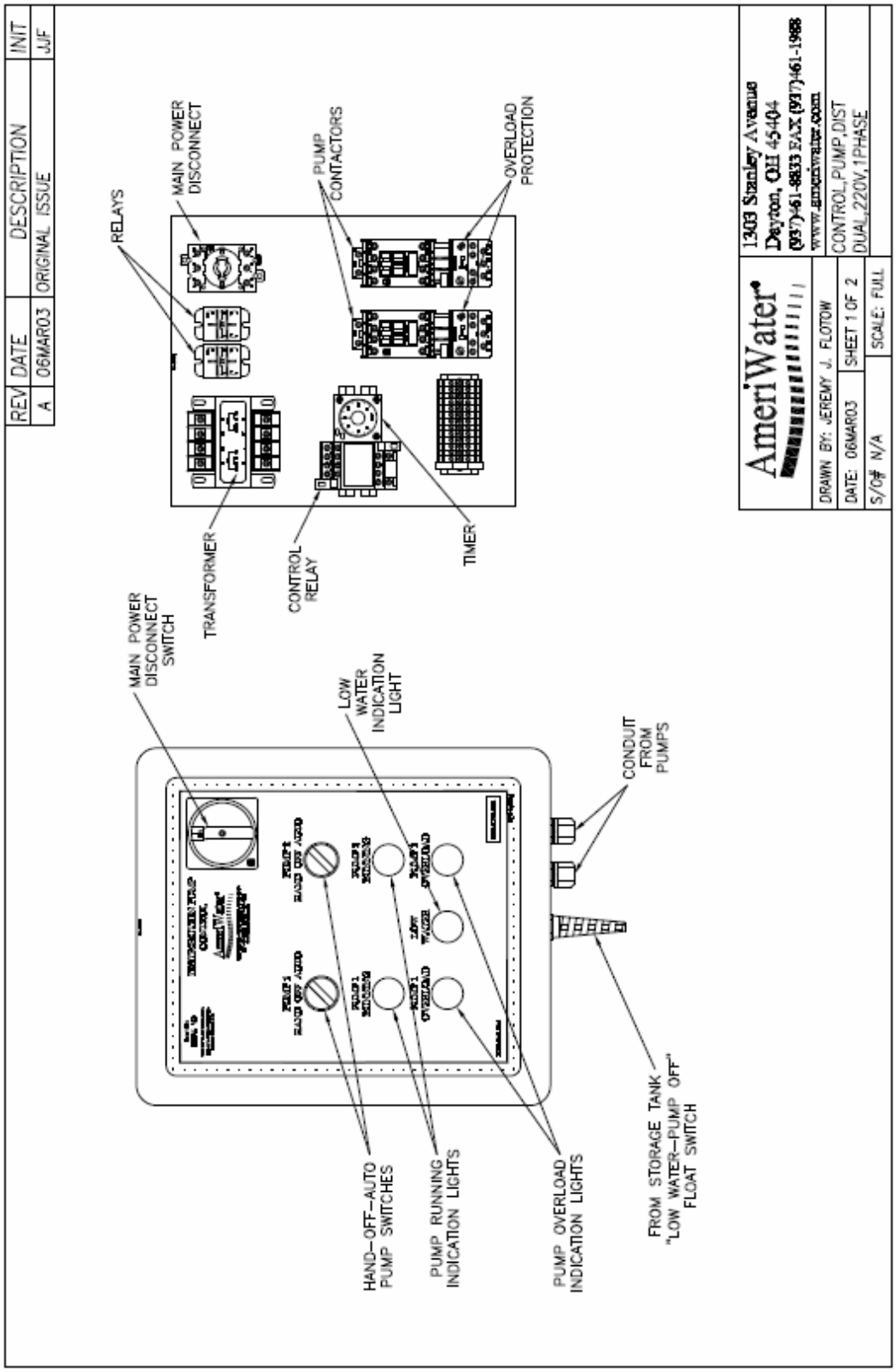
Dual Distribution 208 Volt Three Phase Controller Schematic



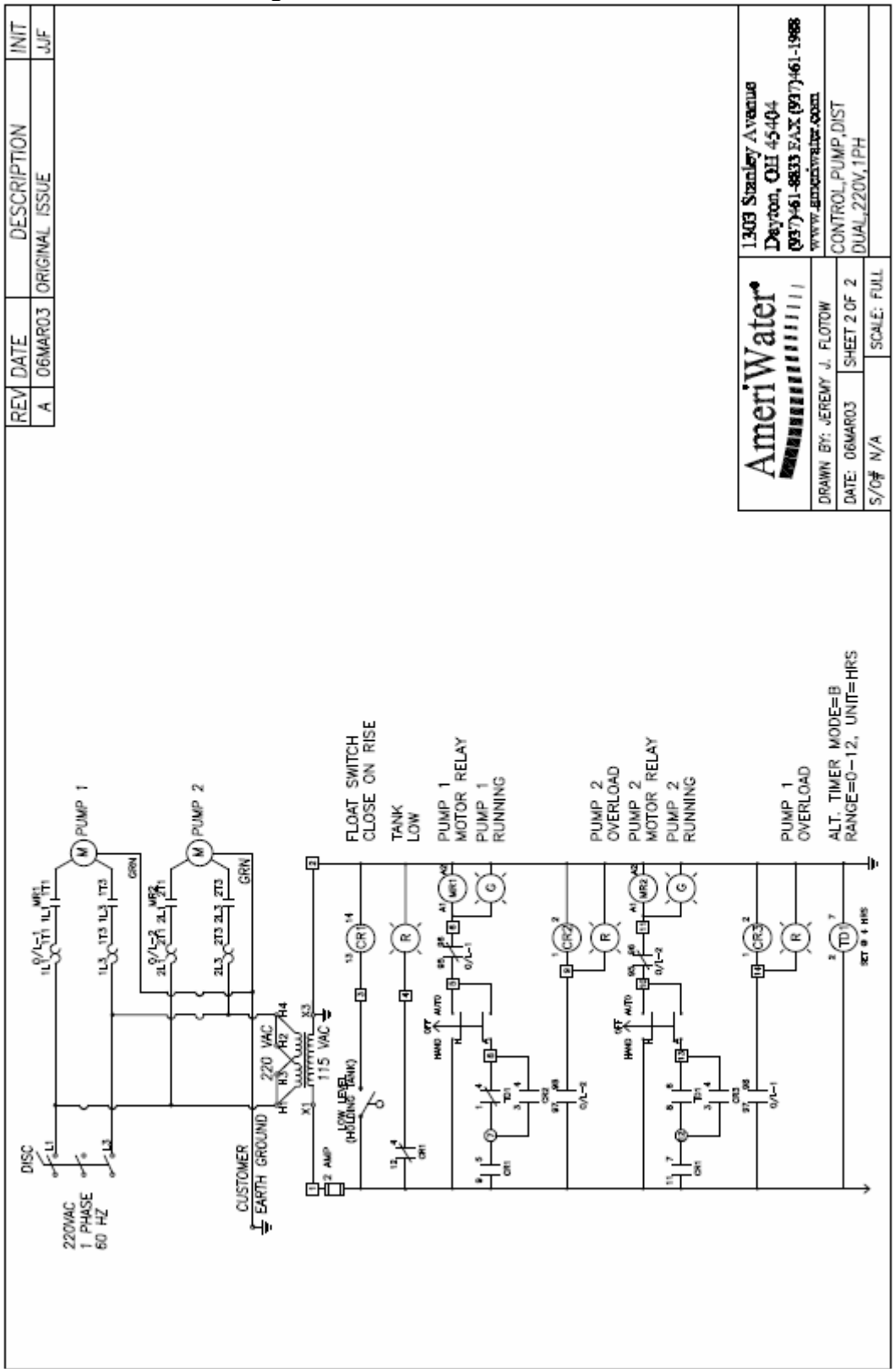
Dual Distribution 230-460V Three Phase Controller Schematic



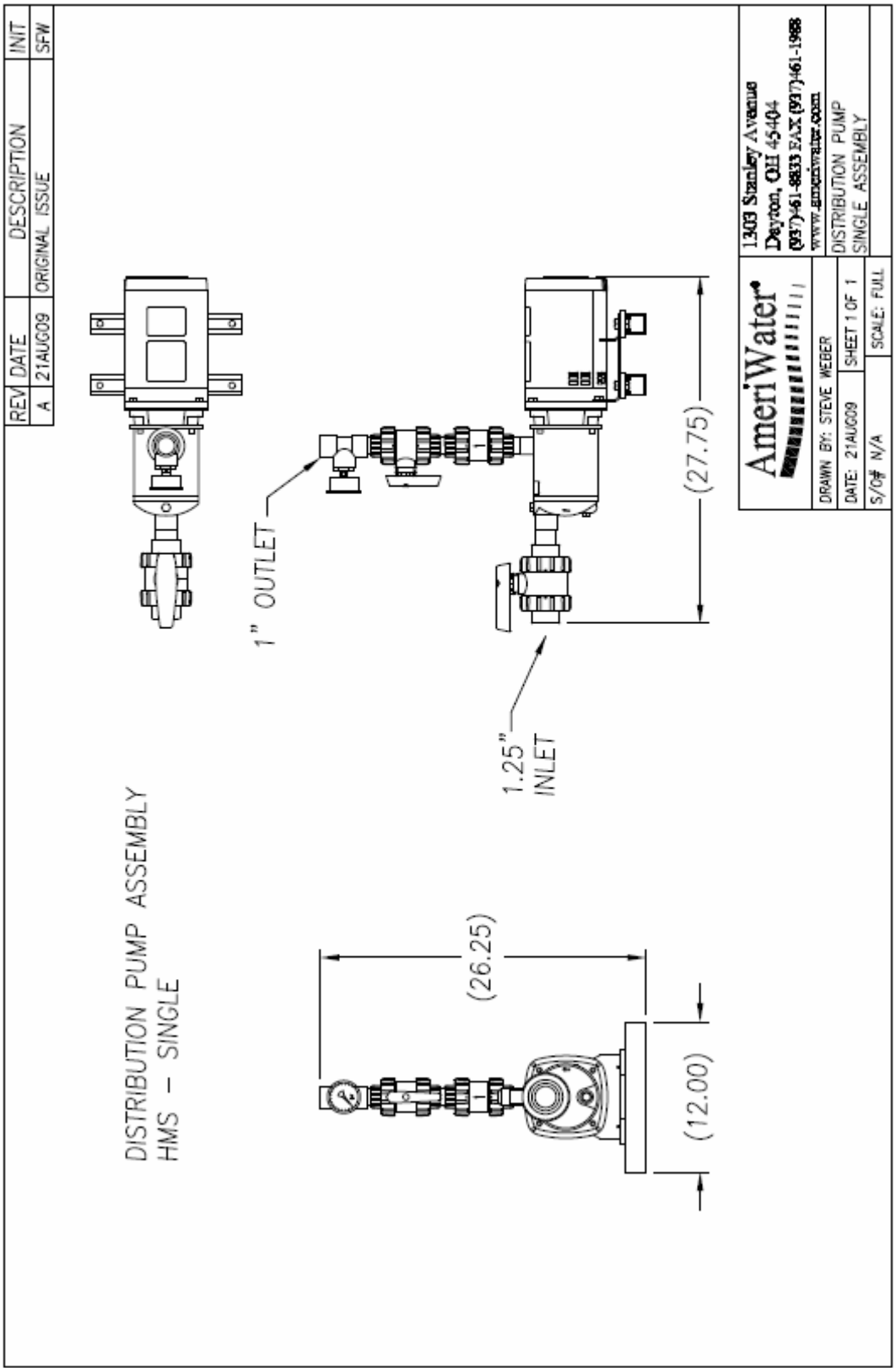
7.5 Dual Distribution Single Phase Controller



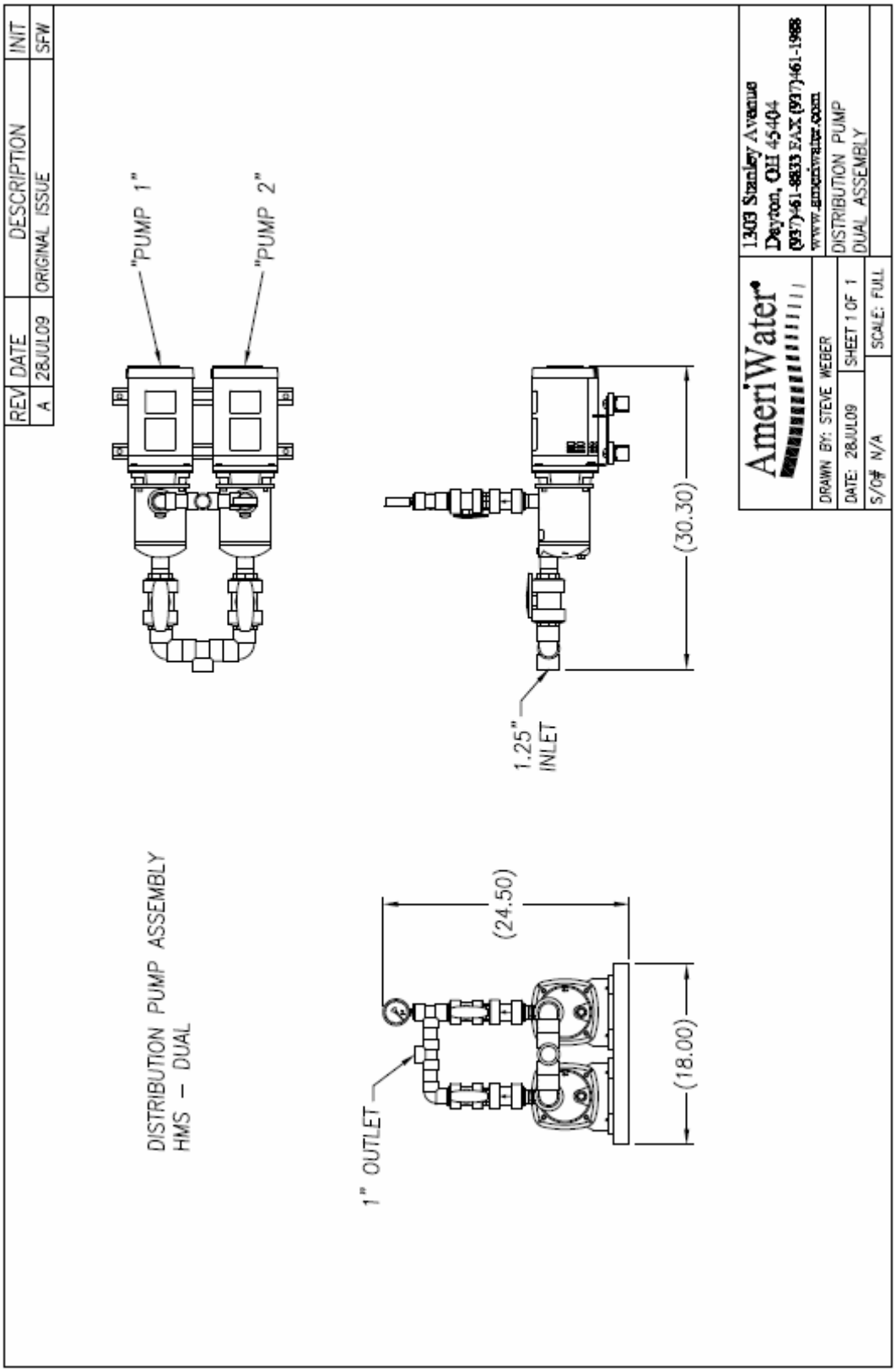
Dual Distribution Single Phase Schematic



7.6 Single Distribution Pump Assembly



7.7 Dual Distribution Pump Assembly



⚠ WARNING

This product can expose you to chemicals such as vinyl chloride (used in the production of PVC) or Nickel (used in the production of stainless steel), that are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Dear Valued Customer,

California Proposition 65 (Prop 65) is the Safe Water and Toxic Enforcement Act of 1986. The State of California began enforcing amendments to California Prop 65 at the end of August 2018. Prop 65 requires manufacturers to provide a clear and reasonable warning to residents of California about chemicals used in products that they purchase that are included on the Prop 65 Chemical List. The chemicals included on the list are chemicals that are known to the State of California to cause cancer, birth defects, or other reproductive harm. One such chemical is Vinyl Chloride, a compound used to produce Polyvinyl Chloride (PVC). The AmeriWater system you have purchased may contain PVC or stainless steel parts.

While warnings are only required in the State of California, AmeriWater has initiated the use of Prop 65 labeling for all products to ensure compliance with California regulations. Please note that the above warning does not necessarily mean that the product that you have purchased is unsafe. Products that have been cleared for market by FDA have been determined to be safe and effective by the United States Food and Drug Administration. The warning is simply a requirement by the State of California. If you wish to obtain additional information, please visit: p65warnings.ca.gov. You may also contact your AmeriWater representative if you have any questions.

Thank you for your understanding and we look forward to continuing to serve you.