

PROCESS WATER CHILLER

8015C TO 8111C, 8015CL TO 8111CL



UNITROL ELECTRONICS, INC.
702 LANDWEHR ROAD
NORTHBROOK, IL 60062

WARRANTY

PARTS: Unitrol warrants this chiller to be free of defects in *materials* that effect operation, for a period of one year from date of shipment from factory, if said equipment has not been altered or abused by customer and is being used for the purpose that the equipment was designed for. Parts will be shipped, FOB Northbrook, Illinois. Defective parts will be returned to Unitrol at customer's expense when so requested by Unitrol.

LABOR: Necessary warranty labor is covered for a period of 90 days from the date of shipment from factory, if said equipment has not been altered or abused by customer and is being used for the purpose that the equipment was designed for. Parts will be replaced or repaired, at manufacturer's option on any parts found to be defective. Unitrol shall not, without its prior written approval, be liable for any costs involved in field repairs. Transportation of equipment to or returning from Unitrol shall be at customer's expense.

Alternately, Unitrol may elect to send a local refrigeration contractor to do warranty service. In this case, Unitrol will pay contractor directly.

To be covered by this warranty, please follow the following procedure:

1. Contact the Unitrol service department at 847-480-0115 to discuss the problem you are having with this chiller.
2. If Unitrol concurs that this is a warranty issue, and the chiller is more than 90 days from date of factory shipment, a Unitrol representative will either arrange to have a replacement part shipped, or authorize a locally purchased replacement at a pre-agreed price that will be reimbursed by Unitrol.
3. If Unitrol concurs that this is a warranty issue, and the chiller is less than 90 days from date of factory shipment, a Unitrol representative will have a factory approved service technician dispatched to make repairs under the above terms. Alternately, the Unitrol representative will direct that the chiller be returned to the factory for repairs.

No other warranty, either written or implied, shall cover this equipment, and Unitrol shall not be liable for any damage caused to other equipment or personnel due to failure of this product. Unitrol reserves the right to change specifications at any time.

UNITROL PROCESS WATER CHILLER

Thank you for purchasing this Unitrol process water chiller. It was manufactured with pride in our Northbrook, Illinois factory. Unitrol also manufactures the Unitrol line of RESISTANCE WELDING CONTROLS. This line includes controls that include safety systems to protect the welding machine operator, as well as quality control features that allow you to produce a large volume of weldments that will match the highest quality requirements.

This Unitrol water chiller has been designed to operate under the most severe industrial conditions. Please observe the installation instructions to be sure that this chiller will provide years of superior service.

MODEL NUMBER:

SERIAL NUMBER:

DATE OF MANUFACTURE:

REFRIGERANT:

PUMP: 1HP. 20GPM @35PSI Max.

DIRECTION BOOK DATE: 5.10.22

OPTION:

CHILLER MODEL	NOMINAL CAPACITY AT 90°F AMBIENT	LINE VOLTAGE AND PHASE
8012C, 8012CL	6,000BTU/HR	115/1
8015C, 8015CL	6,000BTU/HR	230/1
8025C, 8025CL	8,000 BTU/HR	230/1
8026C, 8026CL	8,000 BTU/HR	115/1
8050C, 8050CL	12,000 BTU/HR	230/1
8051C, 8051CL	12,000 BTU/HR	460/3
8053C, 8053CL	12,000 BTU/HR	115/1
8055C, 8055CL	18,000 BTU/HR	230/1
8075c, 8075CL	18,000 BTU/HR	230/3
8076C, 8076CL	18,000 BTU/HR	460/3
8100C, 8100CL	24,000 BTU/HR	230/1
8101C, 8101CL	24,000 BTU/HR	230/3
8102C, 8102CL	24,000 BTU/HR	460/3
8110C, 8110CL	40,000 BTU/HR	460/3
8111C, 8111CL	40,000 BTU/HR	230/3

MAINTENANCE RECORD

[illegible]

TABLE OF CONTENTS

Installation.....	1
Wire and Fuse size chart.....	2
Plumbing	
Pipe Insulation.....	3
Pipe Size Chart.....	3
Makeup Water.....	4
Installing Y-Strainer.....	4
Initial Startup.....	5
Setting Temperature Controller.....	6
Temperature Controller Operation.....	6
Bypassing Chiller During Service.....	6
Plumbing Installation Drawing.....	7
Diagnostic Lights	
Low Water Flow.....	8
Low Freon Fault.....	8
High Freon Fault.....	8
Low Water Tank Level.....	0
Preventative Maintenance.....	11
Schematic Drawings	
8015C, 8025C, 8055C, 8100C, 208/230-1Øwith 230V controller.	12
8015C, 8025C, 8055C, 8100C, 208/230-1Øwith 230V control, with 2 water pumps.....	13
8015C, 8025C, 8055C, 8100C, 208/230-1Øwith 115V controller.	14
8075C, 8101C, 8111C, 208/230-3Ø with 230V controller.....	15
8075C, 8101C, 8111C, 208/230-3Øwith 115V controller.....	16
8051C, 8076C, 8102C, 8111C, 480-3Ø.....	17
8012C, 8025C, 8053C, 115V.....	18
OPTIONS	
DEW POINT PROTECTION option 8001-03.....	19
Setting temperature controller.....	20
FLOOD WATER COOLING OPTION 8001-30.....	22
Maintenance Parts List.....	23

INSTALLATION AND STARTUP

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

THIS CHILLER IS DESIGNED FOR INSIDE INSTALLATION. ONLY CHILLERS PURCHASED WITH THE –OS (OUTSIDE) KIT CAN BE INSTALLED OUTSIDE IN AREAS WHERE THE AIR TEMPERATURE CAN FALL BELOW 45°F, AND SUCH INSTALLATION WILL VOID THE WARRANTY.

1. Carefully uncrate chiller components and inspect for external damage. If any damage is seen, do not continue until a representative of the freight company views the damage, and a claim to the freight company has been filed.
2. Install the chiller in a location that will keep the air intake (front of chiller with air filter) and air exhaust (back of chiller with expanded metal plate) **at least 36"** from the nearest wall. This is required to allow maximum air movement over the condenser coil.

FAILURE TO ALLOW MINIMUM WALL CLEARANCE WILL RESULT IN HIGH FREON TEMPERATURES AND WILL VOID WARRANTY.

3. Bolt the chiller in place using the four mounting pads at the end of the round legs.
4. Remove the right-side outer panel.
5. Remove the water tank cover and untie the water float. Leave the water tank cover off for now.
6. Remove the front service panel (to the left of the controls). A copy of the electrical schematic is glued to the back of the service panel inside the chiller. A copy is also located in this direction book.
7. Run conduit or covered flexible cable from the service hole on underside of the lower chassis pan near the right front corner to an outside fused disconnect. The fused disconnect should be no more than 36" from the point of entry to the chiller.

INSTALLATION AND STARTUP

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

8. **WIRE SIZE AND FUSES:** Install slow blow (time delay) fuses in the fused disconnect and use connecting wire per the chart below:

CHILLER MODEL	LINE AND PHASE	FUSE SIZE TIME DELAY	MINIMUM WIRE GAUGE
8012C, 8012CL	115/1	35A	10
8015C, 8015CL	230/1	15A	14
8025C, 8025CL	230/1	20A	14
8026C, 8026CL	115/1	35A	10
8050C, 8050CL	230/1	20A	14
8051C, 8051CL	460/3	10A	14
8053C, 8053CL	115/1	35A	10
8055C, 8055CL	230/1	25A	12
8075C, 8075CL	230/3	15A	14
8076C, 8076CL	460/3	10A	14
8100C, 8100CL	230/1	30A	12
8101C, 8101CL	230/3	20A	14
8102C, 8102CL	460/3	15A	14
8110C, 8110CL	460/3	20A	12
8111C, 8111CL	230/3	35A	10

9. For 1Ø chillers, connect 2 power wires to the black terminal marked L1, L2, G. Connect the two power wires in any order to terminals L1 and L2.
10. For 3Ø models connect 3 power wires to terminals marked L1, L2, and L3. The phase sequence will be adjusted in a step below. **Check the nameplate to be sure that the line voltage matches the incoming service.** Note that a chiller marked 480V will operate on 430V – 500V. A chiller that is marked 230V will operate on 208V – 240V.

11. GROUNDING:

- a. For 1Ø chillers, connect a separate ground wire to the black terminal marked G next to L1, and L2. This wire should be sized to handle at least 50% of the nameplate amperage.
- b. For 3Ø chillers, connect a separate ground wire to the ground terminal mounted on the base pan in the component section behind the service panel at the front. This wire should be sized to handle at least 50% of the nameplate amperage.

DANGER: DO NOT OPERATE THIS CHILLER WITHOUT AN ADEQUATELY SIZED GROUND WIRE CONNECTED TO THE PROPER LUG OR TERMINAL AS DIRECTED ABOVE.

CONDUIT OR BX IS NOT A PROPER GROUND.

INSTALLATION AND STARTUP

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

PLUMBING

PIPE INSULATION

ALL PIPES FROM THE CHILLER AND RETURNING TO THE CHILLER MUST BE INSULATED. COMMERCIAL SNAP-ON FOAM INSULATION IS SUFFICIENT FOR THIS PURPOSE.

REASON #1: DURING WARM WEATHER THE INSULATION WILL PREVENT CONDENSATION FROM THE PIPES.

REASON #2: EVERY SQUARE INCH OF ALL PIPES IN THE SYSTEM WILL ACT AS AN EXCHANGE SURFACE FOR THE CHILLER. IN OTHER WORDS, THE CHILLER WILL TRY TO AIR CONDITION THE FACTORY. THE ENERGY USED IN THIS WAY IS WASTED AND MIGHT LOWER THE ENERGY ABILITY OF THE CHILLER TO A POINT LOWER THAN THAT REQUIRED FOR THE MACHINE LOADS.

PIPE SIZING CHART

CHILLER MODEL	MINIMUM HEADER SIZE	MINIMUM DOWN RUNS
8012C - 8076	1"	$\frac{3}{4}$ "
8100C - 8116	1-1/2"	$\frac{3}{4}$ "

Note: On chillers with the letter "L" at the end of the model number, pipe size may be reduced for low flow applications. Consult Unitrol for sizing assistance.

INSTALLATION AND STARTUP

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

Check the plumbing hookup diagram at the back of this book that matches the model number of this chiller to do the following:

1. **MAKEUP WATER:** Install a water line to the **AUTO REFILL MAKEUP WATER** port. A ¼" pipe or hose is sufficient for this purpose. This will be used to keep the internal water tank filled if there are any leaks in the outside water system. A float valve is provided in the water tank.
Because this same pipe will be used to circulate water to the machinery if the chiller is taken out of service, the pipe size should be at least 1". Install a TEE and shut off valve as shown in the plumbing diagram to allow the chiller to be isolated for service purposes.
2. **Y-STRAINER FILTER:** A ¼ turn valve (C) has been factory installed on the Y-strainer flush port. Opening of this valve will allow easy flush out of dirt trapped in the filter without the need to turn off the system. It is not necessary to connect this valve to a drain.
3. Install the black "Y" filter supplied with this chiller to the 1" brass bulkhead marked **WATER RETURN**.

**WARRANTY IS VOID IF THE Y-STRAINER
WATER FILTER IS NOT INSTALLED
ON THIS CHILLER**

4. Install a shutoff valve, 4, on the input side of this "Y" filter to allow isolation of the return line if the chiller is to be taken off the outside plumbing for major maintenance.
5. Install a TEE and second valve connected to a drain as shown on the plumbing diagram. This will allow use of the chiller on city water during major maintenance.
6. Connect a return pipe from the machinery being chilled to the input of the TEE of step 5 above as shown in the plumbing diagram.
7. Connect a valve to the black 1" bulkhead fitting marked **WATER OUT** as shown on the plumbing diagram.
8. Install a TEE to the other side of this valve with a valve between this TEE and a TEE from the water makeup line per the plumbing diagram.
9. Set outside water valves as follows: **TURN ON VALVES #3, #4, and M. TURN OFF VALVES: #1, and #2**
10. Turn water on and the tank should fill until the water float valve closes. Be sure that the fill point is below the overflow bulkhead fitting on the tank. Adjust as necessary for the maximum fill point without overflow. **For chillers with the 8001-01 MANUAL WATER REFILL option, fill the tank until the water is up to the FULL level on the sight glass.**

INSTALLATION AND STARTUP

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

INITIAL STARTUP

1. Turn the ON/OFF switch to OFF.
2. Turn the fused disconnect ON.
3. POWER UP PROCEDURE:
 - a. **FOR 3Ø CHILLERS:**
 - i. Station one person with a flashlight looking at the back of the water pump motor on the rear side of the chiller
 - ii. Briefly turn the control switch to **ON** and then turn it **OFF**.

If the pump motor rotates **CLOCKWISE** as viewed from the rear of the motor, the 3Ø power is connected properly.

If the pump motor rotates **COUNTERCLOCKWISE** as viewed from the rear of the motor, turn the fused disconnect OFF, reverse incoming power wires **L1** and **L2** on the white input terminal, and repeat the motor rotation test again. Be sure that the pump motor is rotating **CLOCKWISE** as viewed from the rear of the pump motor before proceeding further.

CAUTION: RUNNING THE COMPRESSOR IN THE WRONG ROTATION FOR 10 MINUTES OR MORE CAN DESTROY THE COMPRESSOR. WARRANTY DOES NOT COVER COMPRESSOR BURNOUT CAUSED BY OPERATION IN REVERSE ROTATION.

- b. **FOR 1Ø CHILLERS:** No special phase rotation check is required.
4. Turn the control switch to the **ON** position. The temperature controller should turn on, and the water pump should start operating. Because you will be filling all of the outside pipes, it is possible that the water tank will drain down. If this happens, stop the chiller until the makeup valve has filled the tank. Continue to do this until the water tank remains full.
 - a. If water does not flow freely back into the tank and the pressure gage stays on 0 psi, the pump might need to be primed. First try to turn the chiller OFF and ON 8 or 10 times quickly.
 - b. If the water still is not flowing, remove the right-side outer panel and locate a bleed screw located on the face of the water pump. With the chiller turned OFF, unscrew this bleed screws about 4 turns until air starts to bleed out of the pump housing. When water starts to squirt out, tighten the bleed screw.
 - c. Start the chiller and water should start to flow properly.

DO NOT ALLOW THE PUMP TO GO DRY. OPERATING A CHILLER PUMP WITHOUT AT LEAST 8" OF WATER DEPTH IN THE WATER TANK CAN BURN OUT THE PUMP SEALS.

INSTALLATION AND STARTUP

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

SETTING TEMPERATURE CONTROLLER

NOTE: If this chiller has the 8001-03 DEW POINT PROTECTION option, go to page 20 for information on setting the temperature controller.

The temperature displayed on the temperature controller is the water tank temperature.

1. Push the **SEL** button on the TEMPERATURE CONTROLLER once. The display will show **SP**.
2. Press the **SEL** button again and the SP value will be displayed.
3. Push the ▲ or ▼ to select the desired turn-on temperature for the chiller. Note that this chiller has been factory set to allow a minimum temperature of 55°F.
4. Push and release the **SEL** button. This will lock in the new setting.
5. Then push the ▼ button and **SEL** button at the same time.
6. Release both buttons. The display will briefly show 00, and then the tank temperature.

TEMPERATURE CONTROLLER OPERATION

1. When the water tank is at least 3°F above the **SP** (customer set point), the compressor will start operating. At this time, a small red square light marked **OUT** located just above the **SEL** button on the controller will glow.
2. When the water tank temperature reaches the **SP** value, the compressor will turn off and the red **OUT** light will stop glowing.

BYPASSING CHILLER DURING SERVICE

The chiller can be inspected and adjusted with all exterior panels removed. However if it is required that the chiller be taken off line, and water flow is still required, set the water valves (as shown on the plumbing diagram) as follows:

TURN OFF VALVES: #3, #4, and M

TURN ON VALVES: #1 and #2

To reconnect chiller to water system after service,

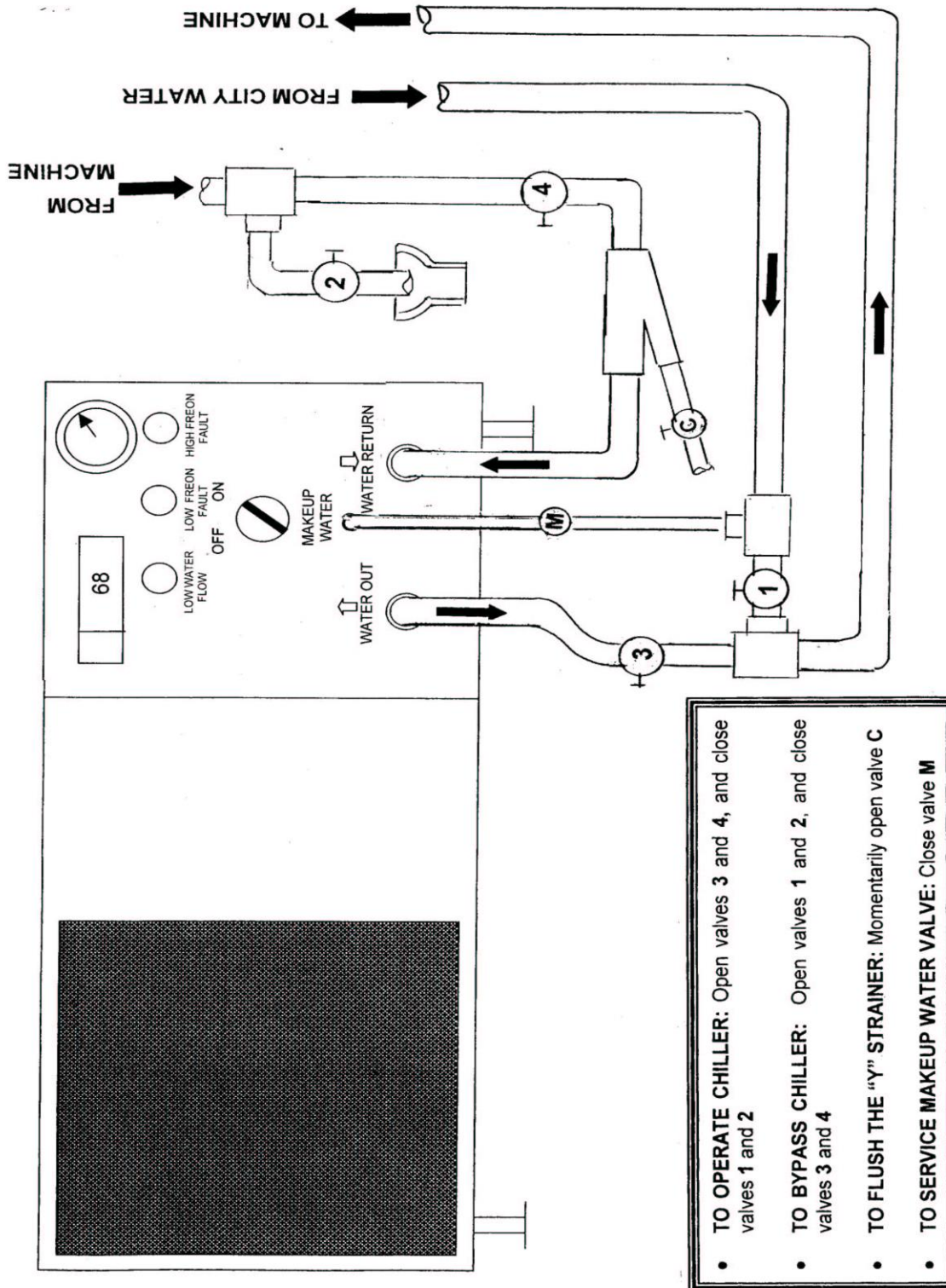
TURN ON VALVES #3, #4, and M

TURN OFF VALVES: #1, and #2

If any problems are incurred during this installation, contact the Unitrol service department at 847-480-0115. Please have the model number and serial number ready.

INSTALLATION AND STARTUP

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL



DIAGNOSTIC LIGHTS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

LOW WATER FLOW:

The WATER FLOW SAFETY SWITCH, located just inside the black WATER OUT bulkhead, is detecting water flowing through the evaporator of the chiller at a flow rate (gpm) *below* the setting on the WATER FLOW SAFETY SWITCH.

WHY THE LOW WATER FLOW SAFETY SWITCH IS IMPORTANT

If the water flowing through the evaporator (chilling component) of the refrigeration system is too low, the water deep in the evaporator can easily reach temperatures below freezing.

When this happens, the evaporator can eventually crack from the expanding ice. This will cause a break between the water system and the refrigeration Freon system destroying the evaporator.

When this happens, the Freon will blow out of the system through the water tank, and water will enter the refrigeration section. Permanent damage can easily occur to the compressor at this point.

DO NOT DEFEAT THE WATER FLOW SAFETY SWITCH!

When this red light glows, the compressor will not operate even if the tank temperature is higher than the **SP** value, but the water pump will continue operation. It can be caused by several conditions:

1. The water pump is not operating correctly. This can be caused by
 - a. A motor failure on the pump
 - b. An internal broken pump impeller
 - c. A 3Ø pump motor operating in the incorrect rotation
2. A foreign object has been sucked into the water pump intake port (bulkhead at bottom of tank).
3. A problem with the MOTOR STARTER contactor K1.
 - a. The overload on the water pump MOTOR STARTER K1 has tripped. The reset button on the overload can be pushed to reset the contactor. However the cause should be found and corrected. Otherwise this contactor will continue to trip. Tripping of the overload can be caused by one of the following conditions:
 - i. The setting on the overload is too low. Check the pump motor nameplate for amperage and set the rotary switch on the overload to a value about 25% higher.
 - ii. Contacts on contactor K1 are arched causing an imbalance of voltage, especially for 3Ø chillers.

DIAGNOSTIC LIGHTS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

4. LOW WATER FLOW FAULT:

- a. Contacts on the motor starter are not closing due to a defective contactor or burned-out contactor coil. Water pump is not operating.
- b. The flow in the machinery is not sufficient to satisfy the minimum setting of the water flow safety switch. Check to be sure that water valves and solenoid valves on the equipment being chilled are open. An internal bypass has been factory installed to allow even a minimum of outside flow.
- c. Note that on models with the letter **L**, a much larger internal bypass has been installed to allow the chiller to operate with virtually no outside water flow.

LOW FREON FAULT:

The Freon pressure in the sealed refrigeration system has fallen below the setting on the LOW FREON safety switch. The water pump will continue to operate, but the refrigeration system will not turn on.

This is usually caused by a Freon leak in the system. A certified refrigeration technician can check the system, locate the Freon leak, repair and recharge the system.

A LOW FREON fault can sometimes clear by itself for a short time, but will come back rapidly. You may hear the compressor turning ON and OFF rapidly. In this case, turn the chiller off to prevent damage to the system and consult a certified refrigeration technician.

This problem can also be caused by a faulty expansion valve (TXV). This component controls the flow of Freon in the evaporator.

HIGH FREON FAULT:

The Freon pressure in the sealed refrigeration system has gone above the setting on the HIGH FREON safety switch. When this switch trips, the chiller will reset in 5 minutes or more.

DIRTY AIR INTAKE FILTER: If the airflow across the condenser coil is below a minimum requirement, the ability for heat to be removed from this coil will be greatly reduced. The temperature of the Freon in this coil will continue to rise until the set pressure value has been exceeded. This filter should be cleaned with soapy water once per week for normal factory conditions, or more frequently for factories that have a large dust or grinding dust content in the air.

DIRTY CONDENSER COILS: If dirt has been trapped on the surfaces of the condenser coil's fins, the ability for these surfaces to transfer air to the passing air stream will be greatly reduced. See the maintenance section for coil cleaning directions.

LOW AIR FLOW ACROSS THE CONDENSER CAUSED BY INSTALLATION OF CHILLER TOO CLOSE TO A WALL: If the air intake (air intake filter) is less than 36" from a wall, or the air exhaust grill on the back of the chiller is less than 36" from a wall, air flow will be restricted and will reduce the ability of this air to remove heat from the condenser coil. The chiller has to be moved to eliminate this problem.

LOW WATER TANK LEVEL: In chillers with Manual refill option, water level in tank is below sensor switch. Check incoming refill water, or replace level switch.

DIAGNOSTIC LIGHTS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

USE OF AN INTAKE AIR FILTER DURING EXTREMELY HOT DAYS: If the room temperature exceeds 90°F, it is possible that the small reduction caused by even a clean intake air filter will cause the system to overheat and trip the HIGH FREON safety switch. Remove the air filter and replace it when air temperature falls below 90°F.

THE NEED FOR MORE AIR FLOW OVER THE CONDENSER COIL: In extreme cases of high room temperature and restricted air flow around the chiller, it might be necessary to use an additional fan to force air across the condenser coil. This can be done using a commercial fan blowing air into the front of the coil (where air filter is located), or by installing a factory fan booster kit. Consult the Unitrol service department on this.

PREVENTIVE MAINTENANCE

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

**ONLY A CERTIFIED REFRIGERATION TECHNICIAN SHOULD BE ALLOWED TO SERVICE
THE SEALED REFRIGERATION SECTION OF THIS CHILLER**

CLEAN THE CONDENSER: Inspect the evaporator coil fins (behind the air intake filter) every 3 months of operation. If there is evidence of dirt or grease buildup, clean the evaporator fins using a water hose from the outside. Flush as much of the trapped debris as possible from between the fins.

If there is too much buildup for reasonable cleaning, use a commercially available aluminum fin spray solvent such as Nonacid condenser coil cleaner, W.W. Grainger #5W403. Follow directions on the product label.

WATER TANK CLEANING: Remove the cover of the water tank once every 6 months and inspect to see if there is a large buildup of material in the water. Remove as much material as possible. Clean the water float.

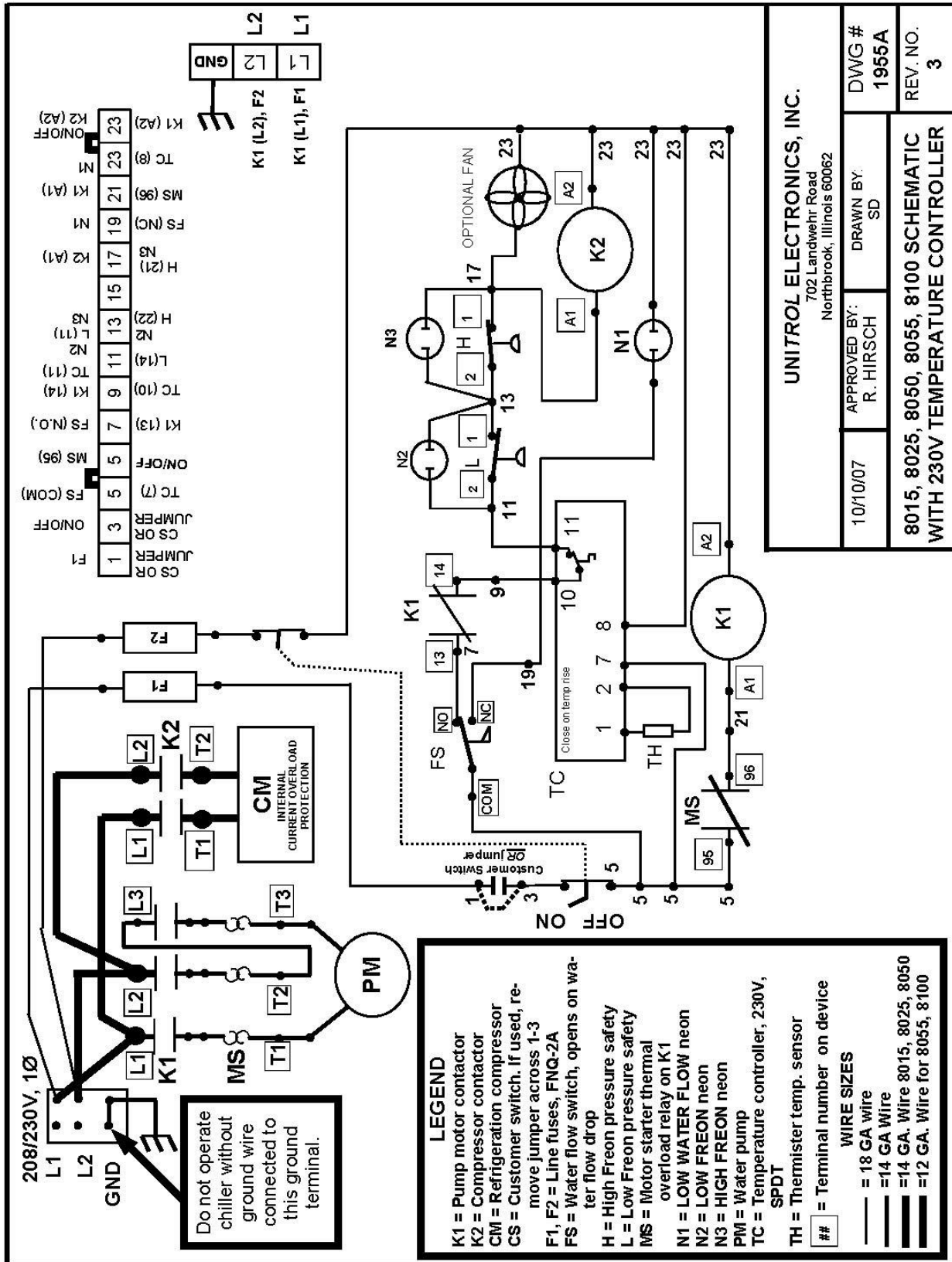
OTHER MAINTENANCE:

Bearings on the water pump are sealed and do not require periodic oil or grease.

There are no other periodic service components in the system.

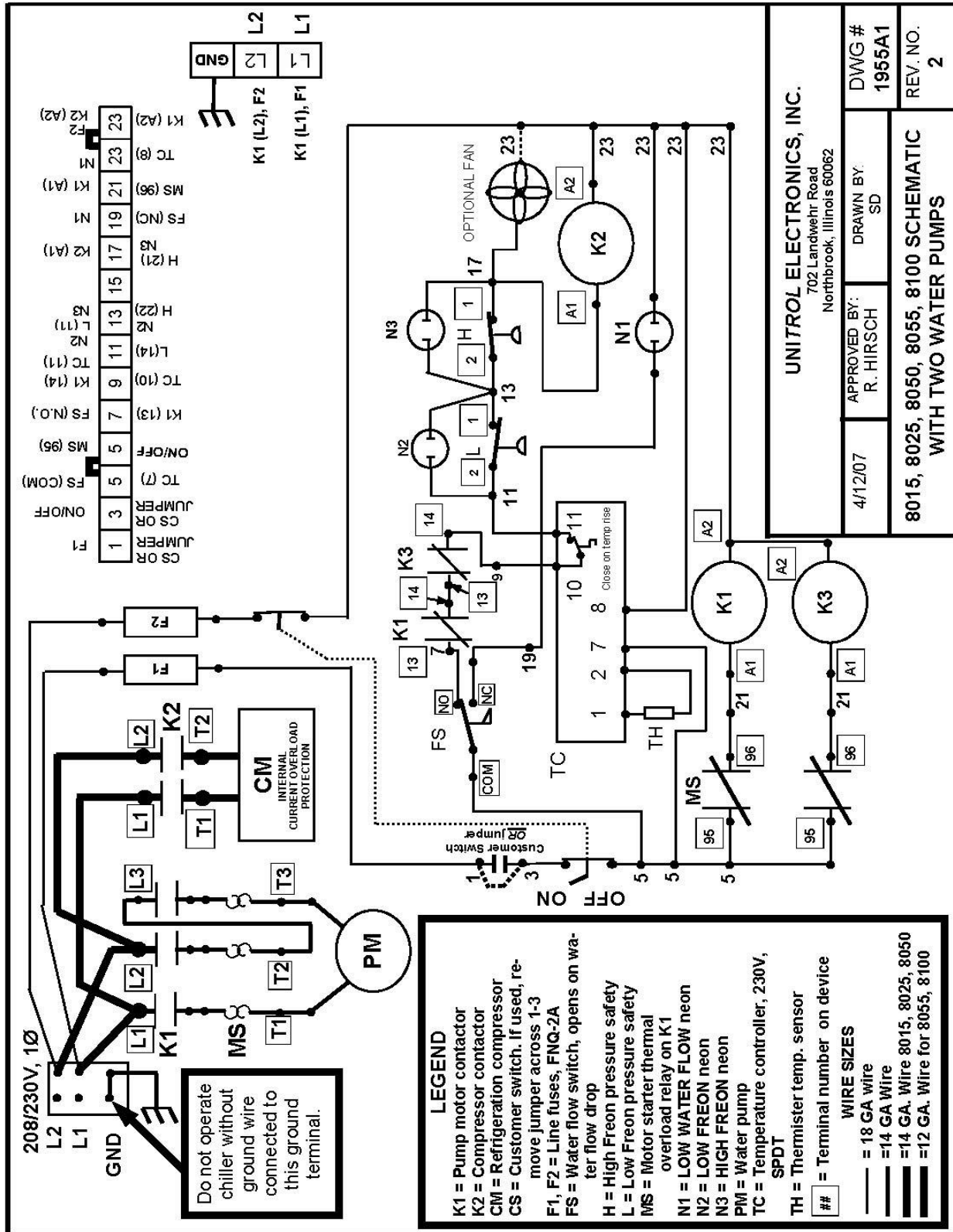
SCHEMATIC DRAWINGS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL



SCHEMATIC DRAWINGS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL

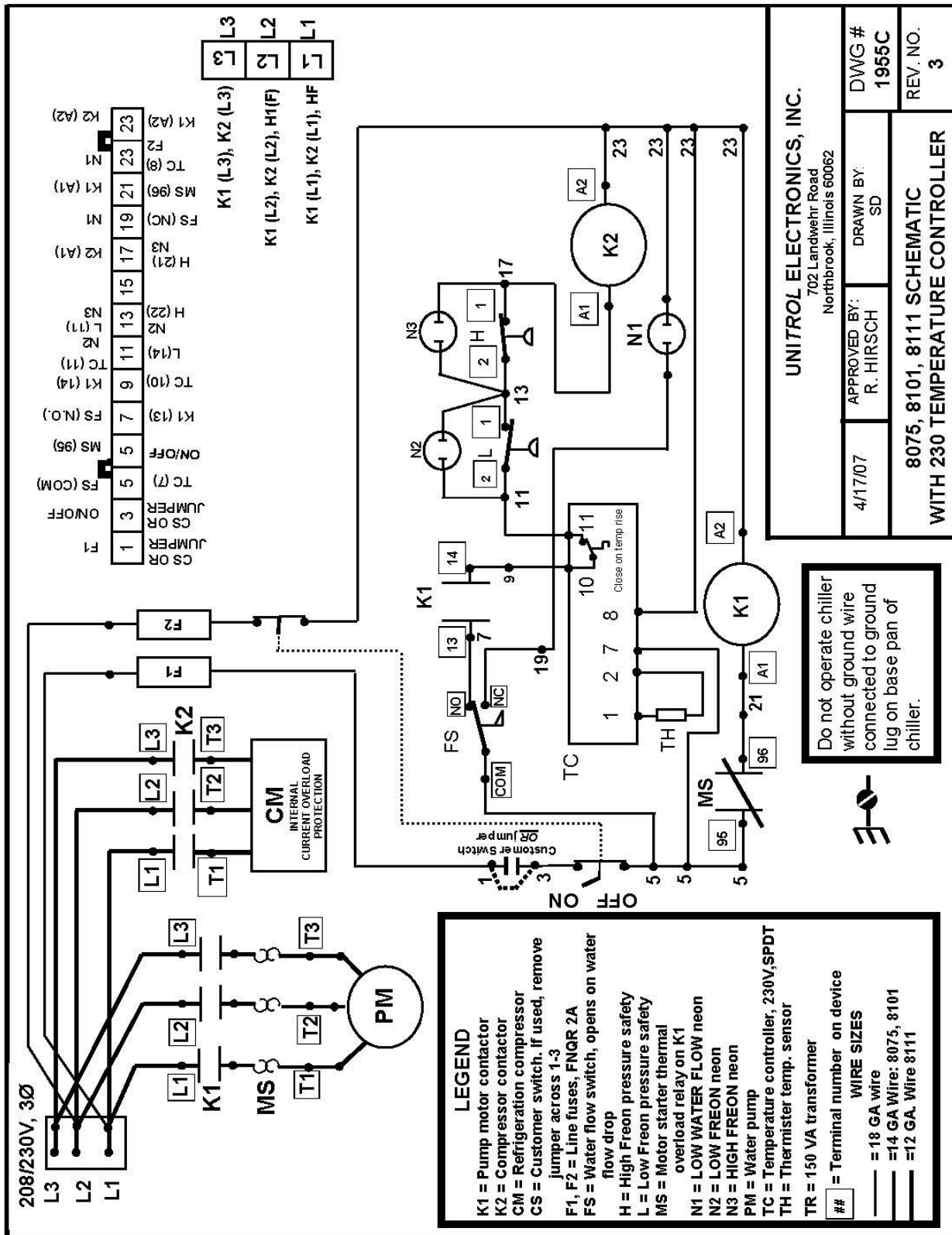


UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL



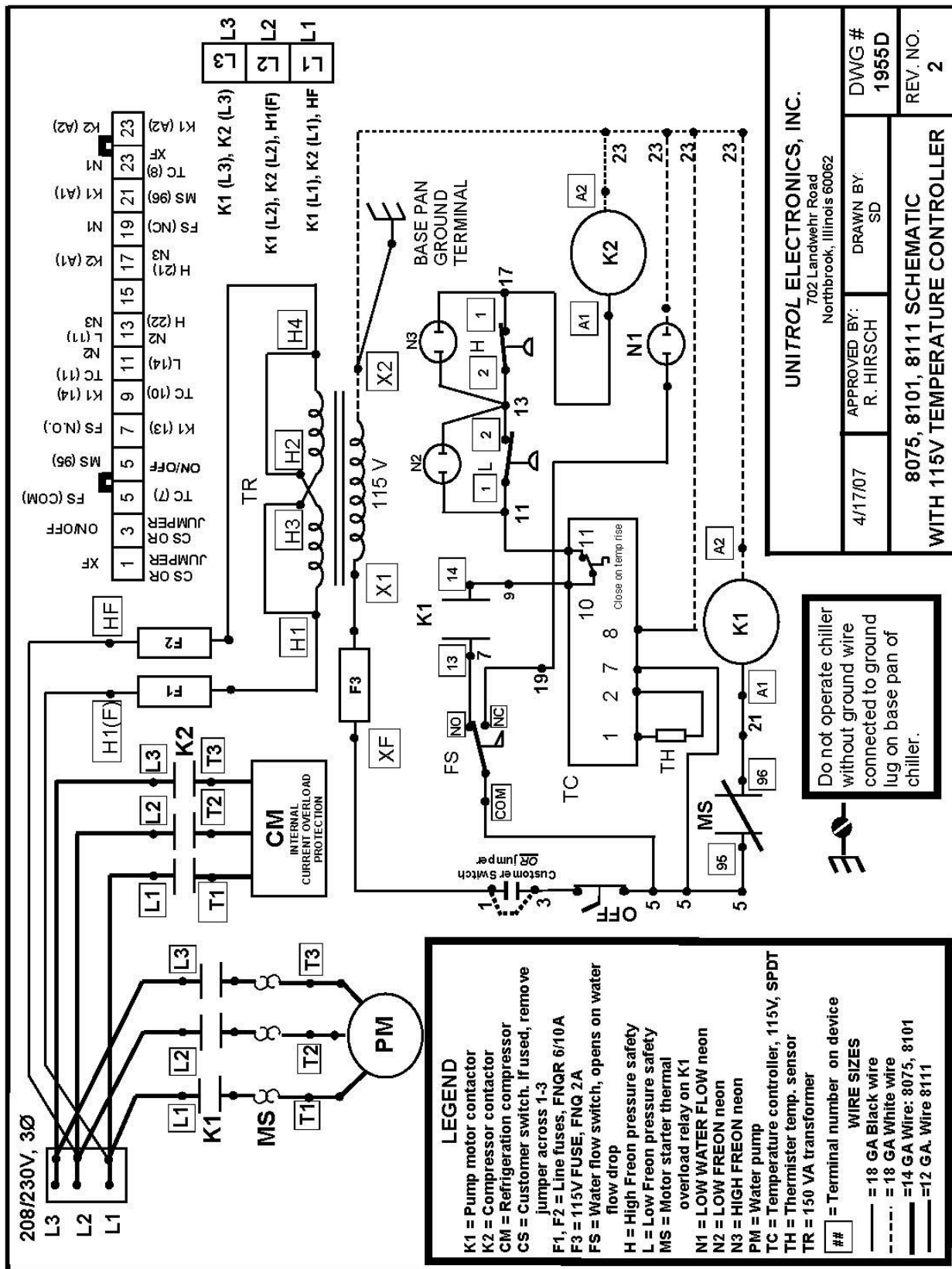
SCHEMATIC DRAWINGS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL



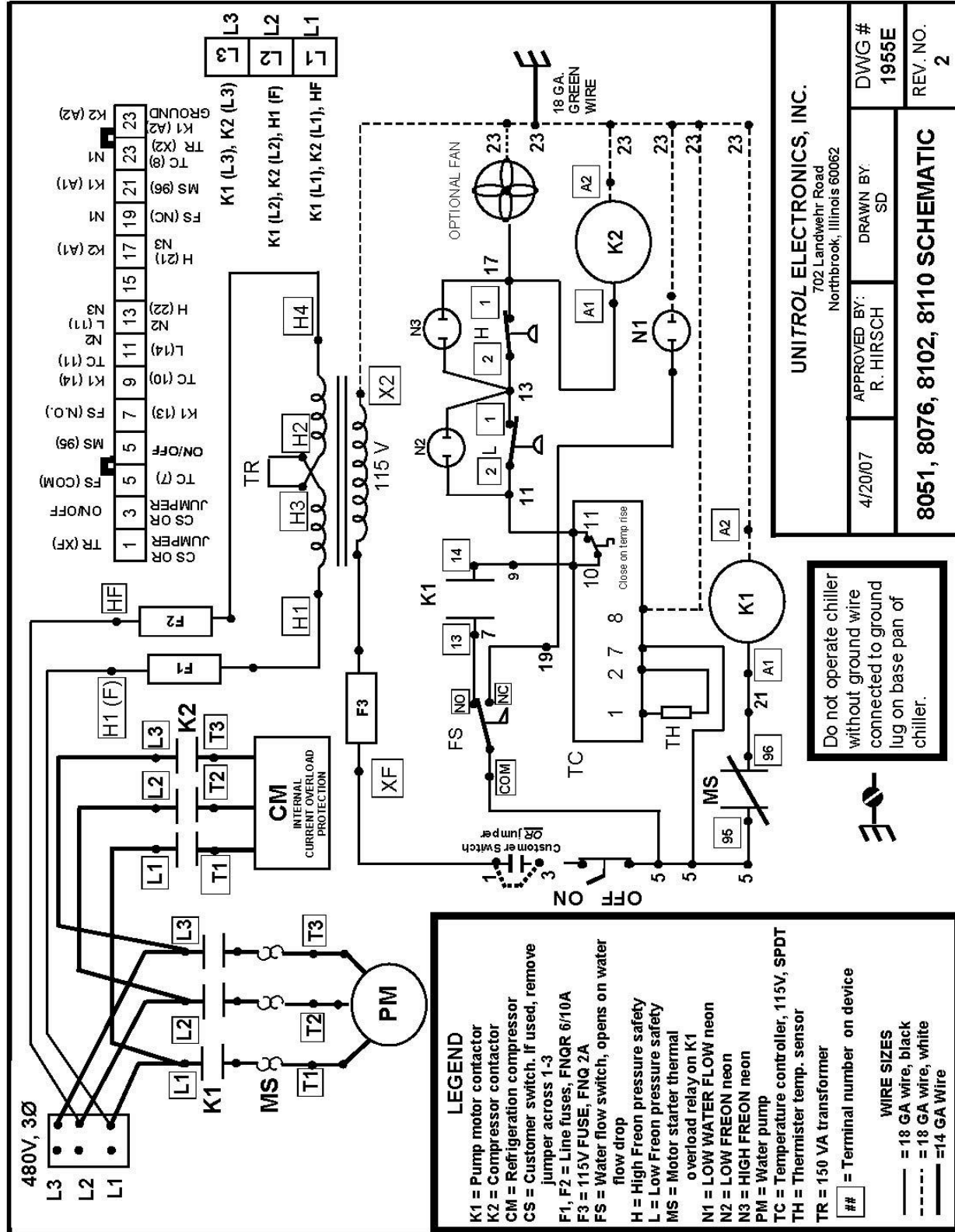
SCHEMATIC DRAWINGS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL



SCHEMATIC DRAWINGS

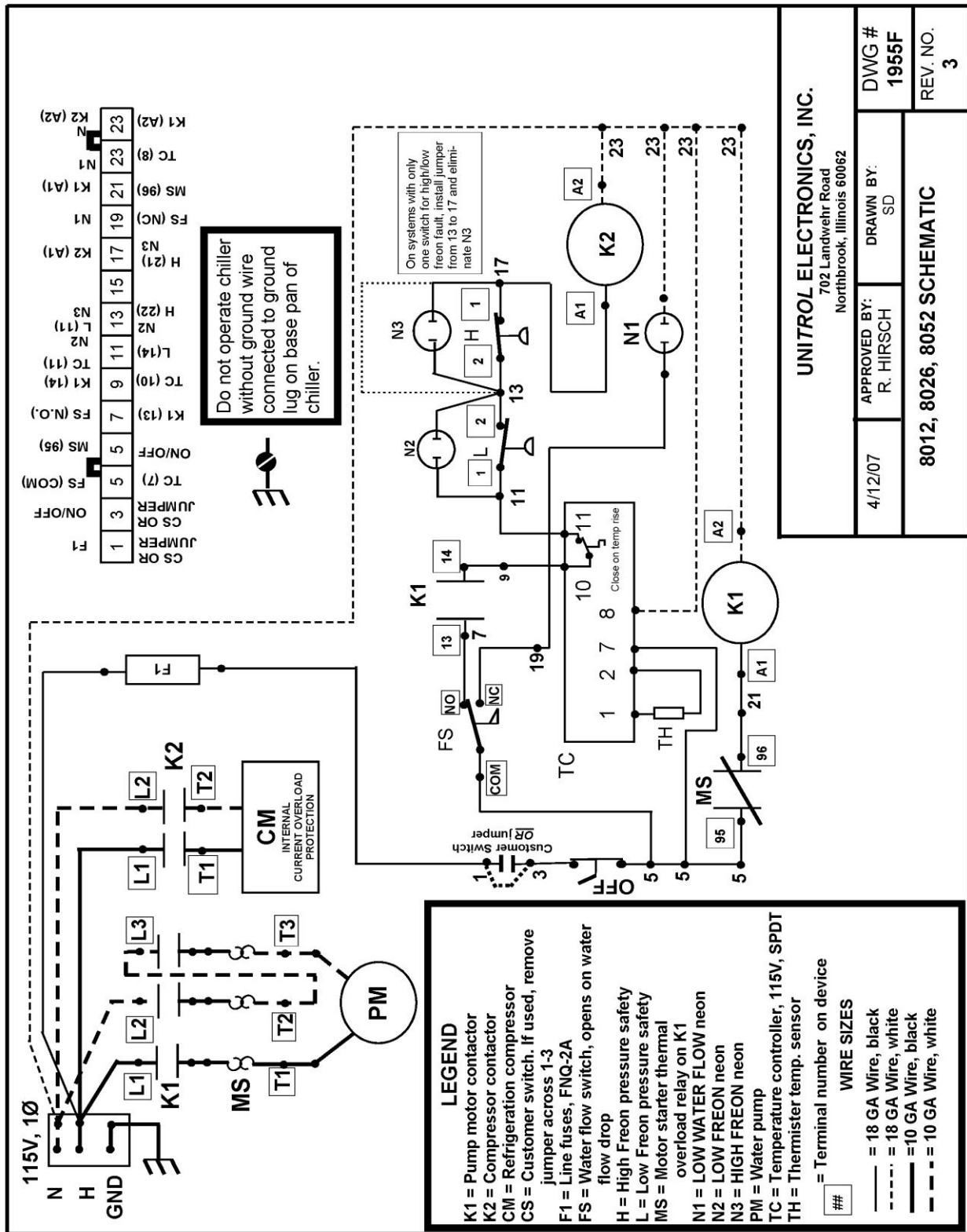
UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL



pub/schematics/1955E

SCHEMATIC DRAWINGS

UNITROL MODELS #8012C – #8111C, #8012CL – #8111CL



DEW POINT OPTION 8001-03

FUNCTION: This option prevents the tank temperature from being chiller below the DEW POINT of the factory air. Water that is below the dew point can cause condensation inside water-cooled welding transformers that can, over time, damage or destroy the welding transformer.

OPERATION: When the control is chilling the water, if the water temperature drops below the DEW POINT at that moment:

1. The “snowflake” light on the controller will stop flashing
2. The refrigeration compressor will stop operation
3. The display will alternately display the tank temperature and the code: **Dpl** (dew point lockout). This will continue until the tank temperature rises 3°F above the dew point temperature of the room.
4. If the set point (SP) that was entered into the controller is below the water temperature, the compressor will come on and chill the water down to the dew point.

EXAMPLE:

1. Controller is customer-set for 60°F (SP setting on the controller)
2. The DEW POINT of the room at that moment is 62°F
3. The water temperature in the tank is 66°F
4. The “snowflake” on the controller is flashing
5. The compressor is operating to chill the water
6. The water temperature in the tank now drops to 62°F (the DEW POINT)
7. The “snowflake” on the controller stops flashing
8. The compressor stops operation, but the water pump continues to operate

9. The display alternately shows the tank water temperature and

dPL

TEMPERATURE CONTROL SYSTEM AND SETUP: This option uses a different temperature setting procedure than is used with this option is not installed on the chiller.

FIRST TURN ON: When the chiller is first turned on, the display will briefly show:

888

then

- -

DEW POINT OPTION 8001-03

Then for about 30 seconds

E O

Then

dPL

Then

0 0

and finally the tank water temperature

Once this initial procedure has been completed, the compressor will turn on if the temperature is at least 3°F above the **SP** number as customer-set in the next section.

SETTING TEMPERATURE SET VALUE (SP):

1. Press the **SEL** button once on the control to display the current **SP** (Set Point target temperature). The compressor will operate if the water tank temperature is at least 3°F above this **SP** temperature and the water tank temperature is above the DEW POINT at that moment.
2. If you want to change this number, press the **SEL** button **a second time** and then use the ▲ or ▼ button to increase or decrease the **SP** temperature.
3. When you are finished, press the **SEL** button to lock this number.
 - a. NOTE: If you do not push the **SEL** button after changing the **SP** temperature value, the system will go back to the original **SP** temperature (will not change the target temperature). If you want to go back to display the tank water temperature, press the ▲ or ▼ button **at the same time** twice and the tank water temperature will be displayed.
4. If you want to view the DEW POINT (**d P**), relative humidity (**r H**), room temperature (**r T**), or tank water temperature (**t t**), push the ▼ button until you see the symbol for the value you want to view. Then push the **SEL** button. When you are finished, push the ▲ or ▼ button **at the same time** twice and the tank water temperature will be displayed.
5. Note that if you do not push the ▲ AND ▼ button **at the same time twice**, the display will go back to the tank water temperature automatically in about 5 minutes.

DEW POINT OPTION 8001-03

FAULTS: This DEW POINT controller monitors three measurements and responds as follows when a fault is detected:

1. **TANK WATER SENSOR FAILURE:** If the control detects temperature, as sampled by the thermister sensor in the water tank, that is below 20°F or above 100°F, the display will show:

ALt

The alarm will sound, and a pilot-duty dry contact between terminals **C5** and **NO5** on the Dew Point controller will close. At the same time, a contact between **C5** and **NC5** will open. These contacts can be used to monitor a control fault by an outside system.

If this fault is displayed, **the control will turn off the compressor** even if the water temperature is 3°F or more above the **SP** temperature.

2. **HUMIDITY SENSOR FAILURE:** The room humidity sensor is located inside the white control box near the ON/OFF switch on the control panel. This indicates that this sensor is feeding a value to the main control of a relative humidity lower than 0°F and above 105°F. This would happen if this humidity sensor has failed. The display will show:

ALH

The alarm will sound, and a pilot-duty dry contact between terminals **C5** and **NO5** on the Dew Point controller will close. At the same time, a contact between **C5** and **NC5** will open. These contacts can be used to monitor a control fault by an outside system.

If this fault is displayed, **the control will not turn off the compressor, but Dew Point protection will not be active.**

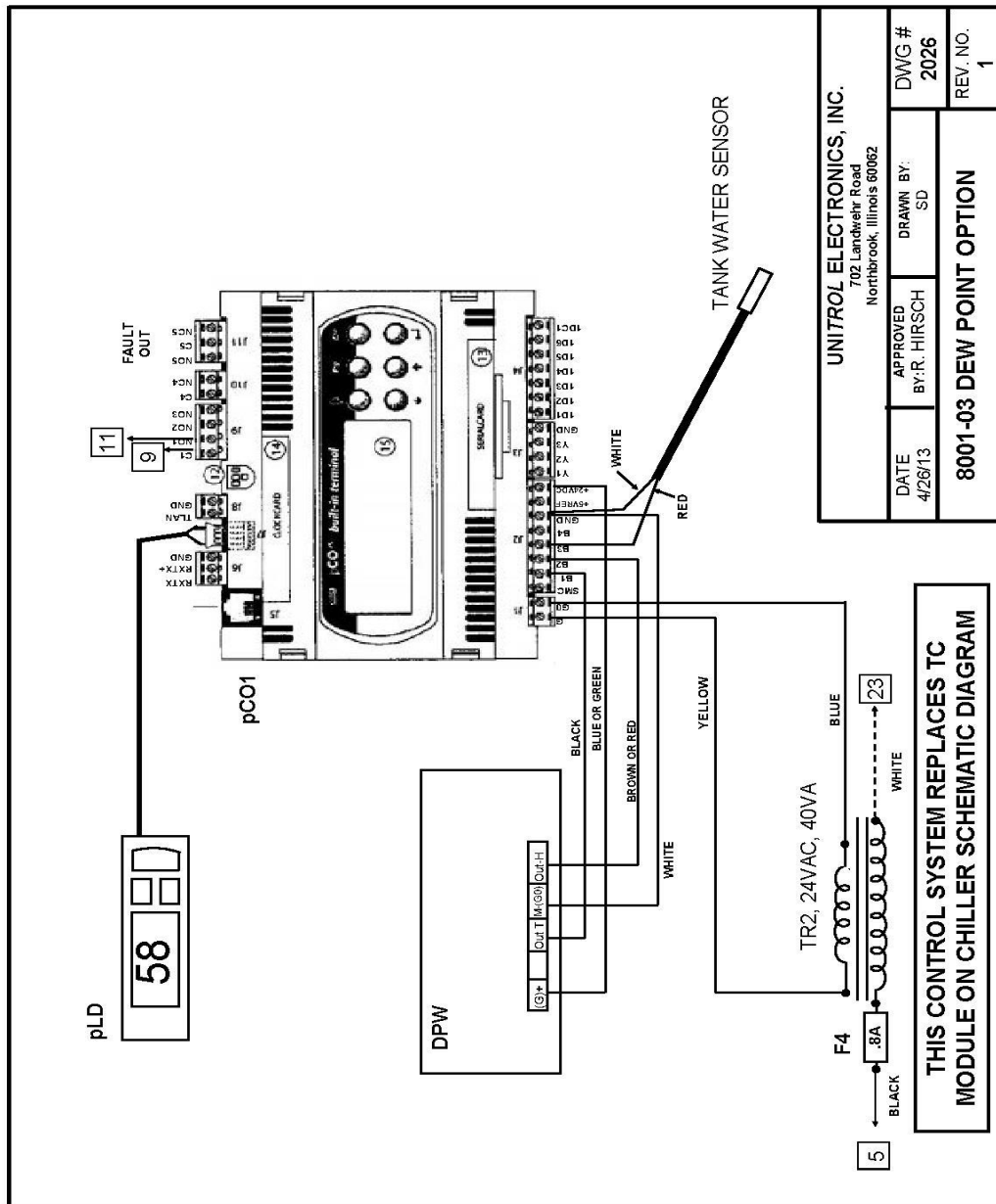
3. **ROOM TEMPERATURE SENSOR FAILURE:** The room temperature sensor is located inside the white control box near the ON/OFF switch on the control panel. This indicates that this sensor is feeding a value to the main control of a relative humidity lower than 30°F and above 120°F. This would happen if this temperature sensor has failed. The display will show:

ALr

The alarm will sound, and a pilot-duty dry contact between terminals **C5** and **NO5** on the Dew Point controller will close. At the same time, a contact between **C5** and **NC5** will open. These contacts can be used to monitor a control fault by an outside system.

If this fault is displayed, **the control will not turn off the compressor, but Dew Point protection will not be active.**

DEW POINT OPTION 8001-03



pub/schematics/2026 DEW POINT OPTION 8001-03 for 1 stage

FLOOD COOLING OPTION 8001-30

This option is used to chill flood cooling water that is externally pumped into the chiller and is sent out using the same external water pressure to flood nozzles on a SEAM WELDER. The option includes an internal fluid-to-fluid exchanger that utilizes part of the main chilled water system in the chiller. Connect hoses to bulkhead ports marked FLOOD WATER IN and FLOOD WATER OUT. This option upsizes the water pump to handle the extra flow requirements. An internal ¼-turn valve can be adjusted for more cooling if needed.

Model number 8001-30/# indicates that the capacity of the flood water heat exchanger is the # number in tons.

DEW POINT OPTION 8001-03

MAINTENANCE PARTS LIST

DIRECTION BOOK: 8000-50= Direction book

WATER COMPONENTS:

8000-14=Water Flow safety switch, for 1" Tee

8000-20 = Water pump and motor, 1HP. Specify chiller model for correct voltage & phase

8000-20A = Water Pump seal kit, 1HP

8000-30 = Water float valve, 1/4"

8000-30A= Water float valve, 1/2" high flow

8000-40 = 15-gallon water tank with fittings. Specify chiller model

ELECTRICAL COMPONENTS:

8000-02A=Temperature controller, 115V. Check chiller to match voltage

8000-02B=Temperature controller, 220V. Check chiller to match voltage

8000-02C= DEW POINT temperature controller processor pCO1

8000-02D= DEW POINT display module pLD

8000-02E= DEW POINT humidity and room temperature monitor DP

8000-07A=ON/OFF switch, 2 position, SPST, for 460V chillers

8000-07B= ON/OFF switch, 2 position, DPST, for 230V chillers

8000-11 = 3-pole contactor, 115V, for compressor, for 460v chillers

8000-11A= 3-pole contactor, 230V, for compressor, for 230v chillers

8000-12 = 3-pole contactor for water pump, 115V, for 460V chillers

8000-12A =3-pole contactor for water pump, 230V, for 230V chillers

8000-13A = water pump contactor overload relay, specify chiller model

8000-16 = Red panel neon, 115V, for 460V chillers

8000-16A =Red panel neon, 230V, for 230V chillers

8000-17 = 150VA transformer with fuse blocks and fuses, for 460V chillers

FILTERS:

8025CFR = Washable air intake filter, 33" X 25"

MAINTENANCE PARTS LIST

REFRIGERATION COMPONENTS:

Note: Unitrol will only sell refrigeration components to certified refrigeration technicians

COMPRESSORS:

80RF-02 = 1/2HP, 230/1, 8015C, 8015CL
80FR-03 = 3/4HP, 230/1, 8025C, 8025CL
80FR-04 = 3/4HP, 115V, 8026C, 8026CL
80FR-05 = 1HP, 230/1, 8050C, 8050CL
80FR-06 = 1HP, 460/3, 8051C, 8051CL
80FR-07 = 1HP, 115V, 8053C, 8053CL
80FR-08 = 1-1/2HP, 230/1, 8055C, 8055CL
80FR-09 = 1-1/2HP, 230/3, 8075C, 8075CL
80FR-10 = 1-1/2HP, 460/3, 8076C, 8076CL
80FR-11 = 2HP, 230/1, 8100C, 8100CL
80FR-12 = 2HP, 230/3, 8101C, 8101CL
80FR-13 = 2HP, 460/3, 8102C, 8102CL
80FR-14 = 3-1/4HP, 460/3, 8110C, 8110CL
80FR-15 = 3-1/4HP, 230/3, 8111C, 8111CL

EVAPORATORS:

80RF-31 = Brazed plate only, 8015C, 8015CL
80RF-31A = Brazed plate assembly with expansion valve and equalizer tube brazed, 8015C, 8015CL
80RF-32 = Brazed plate only, 8025C, 8025CL, 8026C, 8026CL
80RF-32A = Brazed plate assembly with expansion valve and equalizer tube brazed, 8025C, 8025CL, 8026C, 8026CL
80RF-33 = Brazed plate only, 8050C, 8050CL, 8051C, 8051CL, 8053C, 8053CL
80RF-33A = Brazed plate assembly with expansion valve and equalizer tube brazed, 8050C, 8050CL, 8051C, 8051CL, 8053C, 8053CL
80RF-34 = Brazed plate only, 8055C, 8055CL, 8075C, 8075CL, 8076C, 8076CL
80RF-34A = Brazed plate assembly with expansion valve and equalizer tube brazed, 8055C, 8055CL, 8075C, 8075CL, 8076C, 8076CL
80RF-35 = Brazed plate only, 8100C, 8100CL, 8101C, 8101CL, 8102C
80RF-35A = Brazed plate assembly with expansion valve and equalizer tube brazed, 8100C, 8100CL, 8101C, 8101CL, 8102C
80RF-36 = Brazed plate only, 8110C, 8110CL, 8111C, 8111CL
80RF-36A = Brazed plate assembly with expansion valve and equalizer tube brazed, 8110C, 8110CL, 8111C, 8111CL

EXPANSION VALVES:

80RF-41 = 8015C, 8015CL

MAINTENANCE PARTS LIST

80RF-42 = 8025C, 8025CL, 8026C, 8026CL
80RF-43 = 8050C 8050CL, 8051C, 8051CL, 8053C, 8053CL
80RF-44 = 8055C 8055CL, 8075C, 8075CL, 8076C, 8076CL
80RF-45 = 8100C, 8100CL, 8101C, 8101CL, 8102C
80RF-46 = 8110C, 8110CL, 8111C, 8111CL

REFRIGERATION LIQUID LINE FILTER/DRIER:

80RF-41 = Sealed, for standard installation, 8015C, 8015CL
80RF-41A = Replicable core, for burn-out installation, includes 2 cores, 8015C, 8015CL
80RF-42 = Sealed, for standard installation, 8025C, 8025CL, 8026C, 8026CL
80RF-42A = Replicable core, for burn-out installation, includes 2 cores, 8025C, 8025CL, 8026C, 8026CL
80RF-43 = Sealed, for standard installation, 8050C 8050CL, 8051C, 8051CL, 8053C, 8053CL
80RF-43A = Replicable core, for burn-out installation, includes 2 cores, 8050C 8050CL, 8051C, 8051CL, 8053C, 8053CL
80RF-44 = Sealed, for standard installation, 8055C 8055CL, 8075C, 8075CL, 8076C, 8076CL
80RF-44A = Replicable core, for burn-out installation, includes 2 cores, 8055C 8055CL, 8075C, 8075CL, 8076C, 8076CL
80RF-45 = Sealed, for standard installation, 8100C, 8100CL, 8101C, 8101CL, 8102C
80RF-45A = Replicable core, for burn-out installation, includes 2 cores, 8100C, 8100CL, 8101C, 8101CL, 8102C
80RF-46 = Sealed, for standard installation, 8110C, 8110CL, 8111C, 8111CL
80RF-46A = Replicable core, for burn-out installation, includes 2 cores, 8110C, 8110CL, 8111C, 8111CL

REFRIGERATION SIGHT GLASS:

80RF-61 = 8015C, 8015CL
80RF-62 = 8025C, 8025CL, 8026C, 8026CL
80RF-63 = 8050C 8050CL, 8051C, 8051CL, 8053C, 8053CL
80RF-64 = 8055C 8055CL, 8075C, 8075CL, 8076C, 8076CL
80RF-65 = 8100C, 8100CL, 8101C, 8101CL, 8102C
80RF-66 = 8110C, 8110CL, 8111C, 8111CL

UNITROL ELECTRONICS, INC.

702 LANDWEHR ROAD

NORTHBROOK, IL 60062

847-480-0115

techsupport@unitrol-electronics.com