

Dimplex

Thermal Solutions

Open System Model ***HWO2-7500-2P-NF-L-M-R407C***

Operation and Installation *Manual*



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INSTALLATION AND START-UP

- 1) Make sure unit is placed, on a flat, level, hard surface, in a location where adequate air circulation is provided; also allowing room for servicing. Do not place in a mezzanine, near a ceiling or in an enclosed room without consulting factory. The build-up of high ambient temperatures can cause compressor and or machine damage. As a general guideline, keep the unit at least 3 ft. away from walls and allow at least an 8 foot clearance above the unit.
- 2) Connect the fluid lines to the proper piping marked "*FLUID INLET TO CHILLER*" and "*FLUID OUTLET FROM CHILLER*". Make sure that the flow of fluid to and from the unit can not be shut off or blocked while the chiller is in operation, and the pipe size is large enough to match pump flow conditions.
- 3) The equivalent linear feet of total piping which may be installed external to the chiller is 400' using 1-1/2" plumbing. This is total piping which includes the feed and return to the LCC cabinet.

Standard Fitting Losses in Equivalent Feet of Pipe

<i>1-1/2" 90° Standard Elbow:</i>	<i>4.0'</i>
<i>1-1/2" 90° Street Elbow:</i>	<i>6.3'</i>
<i>1-1/2" 45° Standard Elbow:</i>	<i>2.1'</i>
<i>1-1/2" 45° Street Elbow:</i>	<i>3.4'</i>
<i>1-1/2" Globe Valve</i>	<i>43.0'</i>
<i>1-1/2" Gate Valve</i>	<i>1.8'</i>
<i>1-1/2" Angle Valve</i>	<i>18.0'</i>

NOTE: If the equivalent piping exceeds 400' please contact the factory for assistance. 1-800-YOU-KOOL

- 4) Check building power to ensure it matches the chiller rated voltage and current. Voltage and circuit ampacity of the unit can be found on the data tag which is located on the front of the electrical enclosure or the electrical drawings. Connect power leads to main disconnect. Wiring should match chiller disconnect size and power requirements in accordance with local codes.
- 5) If a remote display is provided with the unit, install the provided communications cable between the chiller electrical enclosure to the remote display location.

CAUTION: Chillers installed with a crankcase heater require the electrical enclosure disconnect to be in the "ON" position for a minimum of **8 hours** before start-up of unit. Leaving Disconnect in the "ON" position, maintains power to the compressor crankcase heater, preventing refrigerant migration and possible damage to system. Power can be off for 30 minutes for service without observing the 8 hour pre-heat requirement.

- 6) Units are shipped with refrigeration service valves in the open (back-seated) position and do not require any adjustments. Service valves should only be adjusted by a certified technician.
- 7) Connect fluid supply to proper piping ports on chiller unit. Fill the reservoir through the fill/sight glass. You will know it is properly filled when water level remains between the two black level markers located on the sight glass.
- 8) Once chiller reservoir has been filled, proceed to turn the chiller unit on from the electrical controls provided. Chiller pump should start. Stop chiller and immediately check rotation. Verify rotation agrees with the rotation arrow sticker located on housing of pump motor of units supplied

with pump(s). Direction can be observed by viewing the fan on the rear side of the pump motor. All motors are synchronized for correct rotation. If direction is reversed switch 2 legs of three phase incoming power. Do NOT use condenser fan rotation as a guide for rotation.

CAUTION: Do not allow the fluid pumps to run dry. This will damage the pump seals and will not be covered under warranty.

- 9) If pump motors do not start, check incoming power for correct sequence. If incoming power is present, check any faults on the temperature controller. Reset any faults which may be present..
- 10) Proceed to run chiller pump for five minutes or more to allow any air in the system to be vented. Open tanks (rectangular type) will vent through an air breather. Check fluid level after air is purged from the piping. Fill reservoir as needed.
- 11) Check controller for fault messages. Clear faults that may have occurred during start-up procedure. If faults do no re-occur, the system is ready for continuous duty.
- 12) See controller operation guide for operation of temperature controller.

CHILLER COMPONENTS

WATER TREATMENT

Dimplex Thermal Solutions recommends that an inhibited ethylene glycol or inhibited propylene glycol solution be used in its chillers. Inhibited ethylene glycol solutions will prevent rust in ferrous material systems and it will keep algae and bacteria from growing inside the system. Use 40-50% glycol for freeze protection. If low toxicity glycol is desired or required, use an inhibited propylene glycol.

CAUTION: Do not mix brand names or types of glycol as this may result in the inhibitors precipitating out of solution.

CAUTION: Galvanized pipe is not recommended because the zinc will react with the inhibitor in the fluids, causing precipitate formation, depletion of the inhibitor package, and removal of the protective zinc coating, particularly above 100°F. Precipitation can also lead to localized corrosion.

CAUTION: Do not use automotive antifreeze in the chiller unit as it can cause extensive damage to the cooling system. The use of automotive anti-freeze can affect the heat transfer of the system, fluid flow and attack the pump seals.

Always refer to the original equipment manufacturer's water quality treatment requirements to which the chiller is connected before treating water.

Dimplex Thermal Solutions offers its own brands of inhibited ethylene glycol called "K-Kool E" and "K-Kool P" as a service to its customers. Call 1-800-968-5665 (1-800-YOU-KOOL) and ask for the parts department for more information.

If you have any other questions regarding the use of glycol or other water treatment issues for your Dimplex Thermal Solutions chiller, please contact the factory at the 800 number listed above and ask for the service department.

MAINTENANCE

The following maintenance procedures should be completed every 4 – 6 months:

CONDENSERS

In order for the refrigeration system to perform to its rated capacity, it is very important to keep the condensing temperature from getting too hot. This usually happens when the condenser is not kept properly cleaned. The air cooled condensers are supplied with cleanable aluminum air filters, and it is very important that they be cleaned as necessary to maintain good airflow. Failing to do so will result in poor unit performance and possible compressor damage.

To clean the filters a wire brush, compressed air or washed out with water. Be sure to dry before re-installing air filter. To clean the condenser coil, use compressed air not greater than 120 psi and blow in the opposite direction of the air flow when chiller is in operation.

ELECTRIC MOTORS

Maintenance for electric motors is required only when these motors are furnished with grease fittings so they can be greased. If this is the situation, we recommend greasing every 6 months.

Maintenance as you can see is minimal, but should you have a problem or situation not being described above, please call our service department for assistance at **(269) 349-6800**.

CHECK WATER QUALITY / TEST GLYCOL MIXTURE

System fluid should be clean and free of contaminants. Check the inlet and outlet pressure on the unit for normal pressures. These can be found under the “CHILLER SPECIFICATIONS” section. Test the glycol level to insure levels are within the rated conditions.

INSPECT FLUID SYSTEM FOR LEAKS OR LOOSE CONNECTION

Visually check fluid connections for any potential leaks in the system. Ensure there are no plumbing parts that show any significant wear including chaffing or cracking.

CHECK ALL WIRING FOR LOOSE CONNECTIONS, CHAFFING OR DAMAGE

Turn off the main disconnect. Check all wiring inside of electrical enclosure and inside the chiller unit for loose or damaged wires. Tighten any loose wires and replace any damaged wires.

INSPECT AND TEST REFRIGERATION SYSTEM FOR LEAKS

Inspect the inside of the chiller unit for any visual evidence of a refrigerant leak. Spots of oil on the inside of the unit or on the refrigeration lines may signify a potential leak. Have a certified refrigeration technician inspect the unit for proper operation.

CHILLER SPECIFICATIONS

Model Number: HWO2-7500-2P-NF-L-M-R407C

Chiller Capacity: 15 Tons
@ 44°F Water 188,000 BTU's/hr
55 KW
Designed flow: 30 gpm @ 40 psi
Ambient Rating: -20°F - 104°F

Dimensions

Height: 67"
Width: 34.4"
Depth: 118"

Mechanical

Compressor: 7.5 hp x 2
Pump: 1.5 hp x 2
Fan ½ hp x 4
Inlet: 1-1/2" MPT
Outlet: 1-1/2" MPT
Reservoir: 70 gallons
Weight: 2000lbs – dry
2600lbs – operation

Electrical

Voltage: 230V/3/60Hz 460V/3/60Hz
Disconnect Fuse: 100A 50A
FLA 89A 43A
Compressor FLA 34.6A 16.5A
Compressor LRA 228A 84A
Pump FLA 7A 3.5A
Fan FLA 2.4A 1.2A
Listings UL1995, CSA (Special Order)

Controller Operation

The pCOxs is the main device that controls the operation of the chiller while displaying the status of the chiller on a 4x20 character LCD display. All inputs, outputs and alarms are monitored and controlled through the pCOxs. A detailed step-by-step operation of the controller is given below:

Section 1.01 Controller Connections

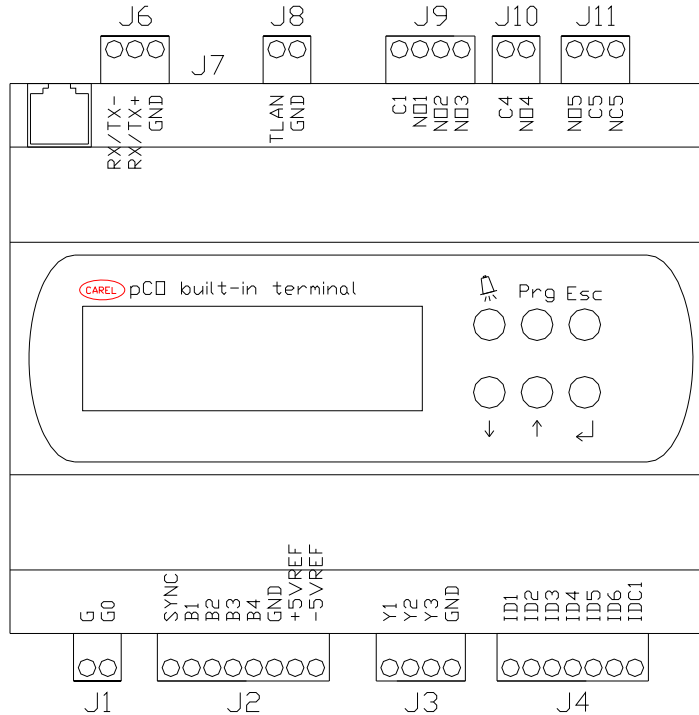


Figure 4: pCOxs Controller with Built-In Display

The pCOxs controller shown in Figure 1 has terminal block connections for the analog inputs, analog outputs, digital inputs and digital outputs. The terminal block connections are as follows:

- J1 Controller Power (24Vac/24Vdc)
- J2 Analog Inputs (1,2,3,4)
- J3 Analog Outputs (1,2,3)
- J4 Digital Inputs (1,2,3,4,5,6)
- J6 Not Used
- J7 Not Used
- J8 Not Used
- J9 Digital Output (1,2,3)
- J10 Digital Output (4)
- J11 Digital Output (5)

**See Electrical Drawings for Chiller Connections to Controller*

Controller Push Button Functions:

There are six push buttons located on the face of the controller which perform specific functions to view the status and operate the chiller (Refer to Figure 1 for location of buttons). The functions of each button are given below:



Alarms:
Shortcut to view current and previous alarms.



Program:
Not Used



Escape:
Returns to previous screen or home page.



Arrow Keys:
To scroll through pages and editing values



Enter:
To select a menu or editing values

Chiller Logic:

- 1) Turn the system on through the controller or remote display (PGD). To turn on the system, go to the home page, press the enter key to move the cursor over the System Status and change from “OFF” to “ON”.
- 2) If the pump switch (located under the SETTINGS menu) is on pump #1, pump #1 will be activated and run unless a pump overload occurs.
- 3) If the pump switch is on pump #2, pump #2 will be activated and run unless a pump overload occurs.
- 4) If the pump switch is in auto, the pump with the lowest run hours will be activated. If a flow fault occurs or the pump overload trips the other pump will be activated.
- 5) Once a pump starts, a timer is activated. Once the timer expires the cooling demand of the unit is calculated. The cooling demand is calculated by comparing the setpoint with the outlet (or inlet) temperature. See FIGURE 1 below for staging of compressors. This chart will not apply if the control type is changed from Prop (Proportional Control) to P+I (Proportional and Integral Control). The integral correction factor will affect the demand percentage based on time and error.
- 6) Once the demand percentage reaches 50% the first stage is activated. The compressor with the lowest run time will be started.
- 7) If the compressor faults out while running, the compressor will be shut-down and the second compressor will be started.
- 8) If the demand percentage reaches 100% the second stage is activated if no compressor faults exist and the anti short-cycle timer is not active.
- 9) When a compressor is started the pump out relay is activated and a low pressure bypass timer is activated. This is used for outdoor units to bypass the low pressure switch on cold days.
- 10) The compressors will run until the cooling demand is lowered. If both compressors are running and the demand reaches 50% the first compressor that was activated will be shut-down (FIFO Control). If the demand reaches 0% the remaining compressor will be shut-down.
- 11) Before the compressors are shut down the pump out relay closes which in turn closes the liquid line solenoid.

- 12) A pump out timer is activated once the pump out relay closes. This timer is used to protect the compressor from running itself into a vacuum. The compressor will either shut down if the timer has timed out and compressor is still running or the low pressure switch opens.
- 13) Once the compressor is turned off an anti short-cycle timer is activated to prevent a quick stop and start of the compressor.

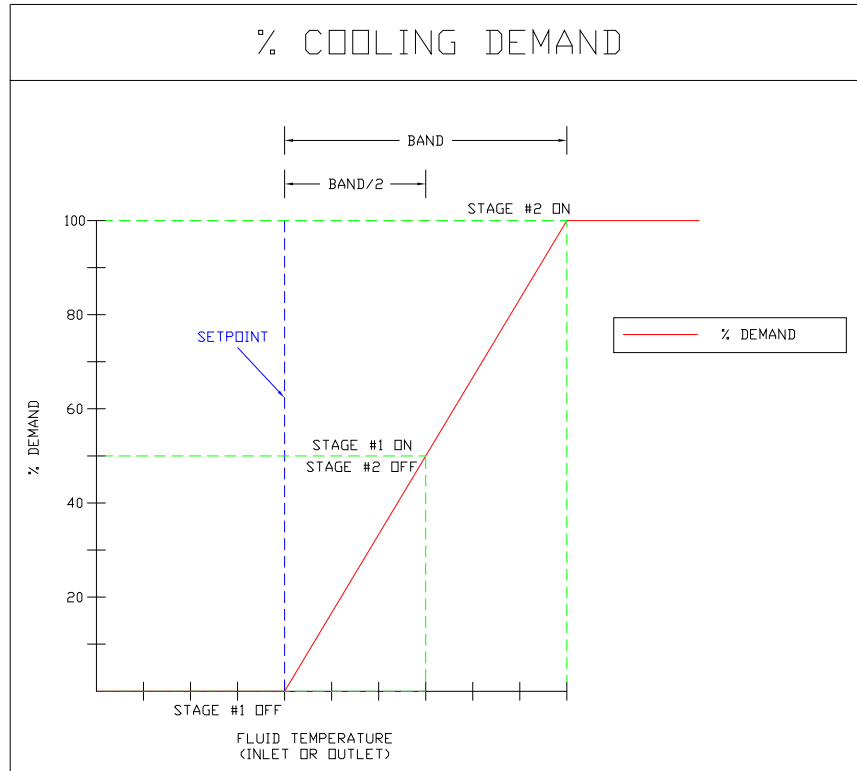


Figure 5. Cooling Demand Chart

Controller Menus:

Once power is connected, the controllers will go through a quick self-test to insure all internal controller components are functional. Once the controller completes its self-test the main screen will display Dimplex Thermal Solutions and program number (This page will only be displayed on initial start-up). Press Enter to proceed to the main menu page. The main menu page contains all of the links to individual status/setpoints pages of the controller. A typical main menu page is shown below:

```

>   HOME PAGE   <
    PUMP STATUS
    COMP #1 STATUS
    COMP #2 STATUS
    
```

The arrows designate which page is selected. To view additional pages press the arrow buttons till the next page is displayed. The next page will look similar to the page below:

```
>  SETPOINTS  <
  CHILLER STATUS
  SERVICE INFO
```

Once the arrows select the page to be viewed, press the Enter button.

HOME PAGE:

The home page is the main page that contains the status of the chiller and setpoint. To return back to the main menu press the Escape button. The Home Page will look very similar to the page displayed below if the ambient tracking option is *not* selected:

```
HOME PAGE
SYSTEM STATUS:  ON
FLUID TEMP:    56.4°F
SETPOINT:     53.0°F
```

```
PUMPS:          #1
COMPRESSOR #1:  OFF
COMPRESSOR #2:  ON
CHILLER OK:     YES
```

```
WATER SWITCH:  NO
```

PUMP STATUS:

The pump status page contains all the information regarding the plumbing side of the chiller. All items in this menu can only be viewed. To return back to the main menu press the Escape button. A sample PUMP STATUS page will look very similar to the page displayed below (chiller may contain more/less features than shown).

```
PUMP #1 STATUS
PUMPS #1:      ON
OVERLOAD:      OK
RUN TIME:      000,001hrs
```

```
PUMP #2 STATUS
PUMPS #2:      ON
OVERLOAD:      OK
RUN TIME:      000,000hrs
```

```
TANK LEVEL:      K  
FLUID FLOW:      K
```

COMPRESSOR STATUS:

The compressor status page contains all the information regarding the refrigeration side of the chiller. All items in this menu can only be viewed. To return back to the main menu press the Escape button. A sample COMP #1 STATUS and COMP #2 STATUS pages will look very similar to the page displayed below (chiller may contain more/less features than shown).

```
COMPRESSOR #1 STATUS  
COMPRESSOR #1:    N  
PO SOL #1:        PEN  
RUN TIME: 000,000hrs
```

```
LOW PRESSURE:      K  
HIGH PRESSURE:     K  
LP #1 BYPASS:      FF
```

```
COMPRESSOR #2 STATUS  
COMPRESSOR #2:    N  
PO SOL #2:        PEN  
RUN TIME: 000,000hrs
```

```
LOW PRESSURE:      K  
HIGH PRESSURE:     K  
LP #2 BYPASS:      FF
```

SETPOINTS:

The setpoints page contains sub-pages that link to different parameters and settings that can be changed. Some pages are password protected to prevent anyone to make changes that significantly change the operation of the chiller. To return back to the main menu press the Escape button. The SETPOINTS page will look very similar to the page displayed below (chiller may contain more/less features than show):

```
> TEMP SETPOINTS <  
  TIMER SETTINGS  
  ALARM SETPOINTS  
  CONVERSIONS
```

TEMP SETPOINTS:

The temp setpoints page contains the setpoint of the fluid, control type and settings for control of the compressors. To change any of the settings press enter until the cursor is flashing on the value

you wish to change. Then press the arrow keys till desired value is reached and press enter again to store new value (*Note: If enter is not pressed after changing the setting, the new value will not be stored). To return back to the Temp Setpoints page press the Escape button. The TEMP SETPOINTS menu should look similar to the menu shown below:

```
TEMP SETTINGS
REGULATION:      Prop
```

```
SETPOINT:        53.0°F
COOL BAND:       6.0°F
INTEGRAL         240s
```

TIMER SETTINGS:

****This page is password protected and should only be accessed by a qualified technician. Misuse of the items on these pages can cause damage to the chiller and void any warranty.****

The timer settings page contains the settings for the timers that control the anti-short cycle of the compressors, compressor staging, pump out timeout, low pressure bypass time, minimum on/off time of the compressors and alarm fault timers. These values are set during factory testing and should not be changed unless causing functionality problems with the chiller. This page is password protected. To change any of the settings press enter and a password screen will appear. Type in the password found at the end of this paragraph. Once the password is accepted press Escape to return to the temperature settings page. Then press enter until the cursor is flashing on the value you wish to change. Then press the arrow keys till desired value is reached and press enter again to store new value (*Note: If enter is not pressed after changing the setting, the new value will not be stored). To return back to the Temp Setpoints page press the Escape button. The TEMP SETPOINTS menu should look similar to the menu shown below: PASSWORD: 26250A

```
COMPRESSOR TIMERS
PUMP OUT LIMIT:  005s
MIN OFF SAME:    180s
MIN OFF BTW:     060s
```

```
MIN ON TIME:     120s
MIN OFF TIME:    030s
PUMP DELAY:      020s
LP BYPASS:       090s
```

```
ALARM TIMERS
EXP OFFLINE:     020s
LOW PRESSURE:    010s
LOW FLOW:        020s
```

```
PHASE MONITOR: 005s
```

ALARM SETPOINTS:

The alarm setpoints page contains the settings for the overtemp and undertemp alarms. Press enter until the cursor is flashing on the value you wish to change. Then press the arrow keys till desired value is reached and press enter again to store new value (*Note: If enter is not pressed after changing the setting, the new value will not be stored). To return back to the Temp Setpoints page press the Escape button. The TEMP SETPOINTS menu should look similar to the menu shown below:

```
UNDERTEMP ALARM  
DEVIATION: -10.0°F  
HYSTERESIS: 02.0°F
```

```
OVERTEMP ALARM  
DEVIATION: 10.0°F  
HYSTERESIS: 02.0°F
```

CONVERSIONS:

The conversions page allows the temperatures to be displayed in Celsius or Fahrenheit.

```
CONVERSIONS
TEMPERATURE:    °F
PRESSURE:       psi
```

CHILLER STATUS:

```
CHILLER STATUS
SYSTEM STATUS:  ON
PUMPS:         #1
CHILLER OK:    YES
```

```
FLUID TEMP:    56.4 °F
SETPPOINT:    53.0 °F
COOL DEMAND:   56.0%
```

```
COMP REQUIRED:   1
COMP ACTIVE:   1
COMP AVAILABLE: 2
COMP OK:       2
```

```
COMPRESSOR #1:  ON
ALARM #1:       NO
COMPRESSOR #2:  OFF
ALARM #2:       NO
```

SERVICE INFO:

The service info page contains the information to contact Koolant Koolers for service. This will have Koolant Koolers and the service phone number which is 1-800-YOU-KOOL. It will also contain the program number and date. Please refer the program number and date to the service technician when contacting the service department.

Alarms:

On the front of the electrical box there is a red light labeled chiller fault. This is lit up when a fault is activated. Some faults may cause the chiller or certain components of the chiller to shut down while other faults are just warnings. To view the alarms press the alarm button. The following screen will be displayed on the controller:


```
*****ALARM PAGE*****  
>PREVIOUS ALARM LOG<  
  CURRENT ALARMS  
*****
```

The previous alarm log will display the recorded alarms along with the date and time. The alarm log can store up to 100 alarms. To clear the log hold down the Prg + Esc key simultaneously. Then follow the instructions to return back to the alarm menu. The alarm log will look similar to the page shown below:

```
11:01 06/20/07  
ALARM #: 001  
PUMP #1 OVERLOAD  
(USE ARROW KEYS)
```

The current alarms page will display the alarms which have not been reset. If an alarm is present the following page will be displayed when entering the current alarms page.

```
!!!! SYSTEM FAULT!!!!  
  
PRESS DOWN ARROW  
TO VIEW ALARMS
```

Press the down arrow to scroll through the alarms. Some alarms shown may be inactive alarms that need to be cleared. Scroll down to the last page, which will look similar to the page shown below:

```
***END OF ALARMS**  
HIT ENTER TO CLEAR  
ALL INACTIVE ALARMS  
HIT ESC FOR HOME PG
```

Press Enter to clear all inactive alarms. Once the inactive alarms are cleared, press the alarm button and down arrow again to view all current alarms. Press the Escape button to return back to the Home Page. The following is a list of alarms that may occur while chiller is on (*some alarms may not be available for certain options*):

- HIGH PRESSURE FAULT #1 – Shuts down compressor #1, Activates Alarm
 - HIGH PRESSURE FAULT #2 – Shuts down compressor #2, Activates Alarm
 - LOW PRESSURE FAULT #1 – Shuts down compressor #1, Activates Alarm
 - LOW PRESSURE FAULT #2 – Shuts down compressor #2, Activates Alarm
 - PUMP #1 OVERLOAD FAULT – Shuts down pump #1 (triggers switch-over if 1st pump), Activates Alarm
 - PUMP #2 OVERLOAD FAULT – Shuts down pump #2 (triggers switch-over if 1st pump), Activates Alarm
 - PHASE MONITOR FAULT – Shuts down chiller, Activates Alarm
 - FLUID FLOW FAULT #1 – Shuts down pump #1 and triggers pump switch-over, Activates Alarm
 - FLUID FLOW FAULT #2 – Shuts down pump #2 and triggers pump switch-over, Activates Alarm
- (note: If pump is running due to a flow fault switch-over, the second pump will continue to run until fault is reset)
- COMPRESSOR #1 OVERLOAD FAULT – Shuts down compressor #1, Activates Alarm
 - COMPRESSOR #2 OVERLOAD FAULT – Shuts down compressor #2, Activates Alarm

LOW TANK LEVEL FAULT – Disables pump start-up, Activates Alarm
CHILLER OVERTEMP FAULT – Activates Alarm
CHILLER UNDERTEMP FAULT – Activates Alarm
I/O MODULE #1 OFFLINE FAULT – Activates Alarm

THIS SECTION OF THE OPERATION MANUAL IS FOR SERVICE PERSONNEL ONLY!!!!

To reach a service menu press and hold the Program and Escape buttons. A menu similar to the one below will appear:

```
> DIGITAL INPUTS <
  ANALOG INPUTS
  DIGITAL OUTPUTS
  ANALOG OUTPUTS
```

```
> DINS OVERRIDE <
  DOUTS OVERRIDE
  RUN TIME RESET
  TIME SETTINGS
```

DIGITAL INPUTS:

The digital inputs page contains the status of all the digital inputs. It will be displayed as opened “OP” or closed “CL”. The digital inputs are labeled DI#1 through DI#6.

(a) ANALOG INPUTS:

The analog inputs page contains the status of all the analog inputs. The inputs will be displayed as a temperature if it is the Carel NTC sensor. The inputs are labeled AI#1 through AI#4.

DIGITAL OUTPUTS:

The digital outputs page is the same as the digital inputs menu except it contains the status of all the digital outputs. (Refer to DIGITAL INPUTS section)

ANALOG OUTPUTS:

The analog outputs page contains the status of all the analog inputs. The outputs will be displayed as a voltage from 0-10Vdc. The inputs are labeled AO#1 through AO#3.

DINS OVERRIDE:

****This page is password protected and should only be accessed by a qualified Koolant Koolers service technician. Misuse of the items on these pages can cause damage to the chiller and void any warranty****

The dins override pages allows the ability to override the status of the inputs. There are six pages, one for each input. The pages will look similar to the one shown below:

```
DIGITAL INPUT #1
DI#1 OVERRIDE:    NO
OVERRIDE STATUS:  OPEN
```

To override the input hit enter to move the cursor to the DI#1 override line. Press the up/down arrow to select YES. Once this is done the override status shown on the next line will be the current status of the input instead of the physical input. To change between the open and close status of the input press enter to move to the next line and use the arrow keys to select between OPEN and CLOSE.

DOUITS OVERRIDE:

****This page is password protected and should only be accessed by a qualified Koolant Koolers service technician. Misuse of the items on these pages can cause damage to the chiller and void any warranty****

The doubts override pages allows the ability to override the status of the outputs. There are five pages, one for each output. The pages will look similar to the one shown below:

```
DIGITAL OUTPUT #1
DO#1 OVERRIDE:    NO
OVERRIDE STATUS:  OPEN
```

To override the output hit enter to move the cursor to the Do#1 override line. Press the up/down arrow to select YES. Once this is done the override status shown on the next line will be the current status of the output instead of the output from the logic of the program. To change between the open and close status of the input press enter to move to the next line and use the arrow keys to select between OPEN and CLOSE.

RUN TIME RESET:

The run time reset allows a user to reset the timers which correspond to the run time of the compressors and pump.

TIME SETTINGS:

The time settings page allow a user to set the time which is stored in the clock card. This is used for time stamping alarms in the alarm log.

REMOTE PGD DISPLAY SETUP (IF APPLICABLE):

If there is a remote PGD display, the address of the display needs to be set-up. When everything is downloaded and connected the PGD display should be lit but not have anything displayed. On the display press the three right buttons simultaneously and hold (up arrow, down arrow, enter). After a few seconds there should be the following displayed:

```
Display address  
Setting..... 32  
  
I/O Board address: --
```

Hit the enter key so the cursor is over the number 32, then arrow down till the address is 00 and hit enter. The correct text should be shown on the display



GLOSSARY OF TERMS

A

ALARM SETPOINTS – Page which contains the settings for the chiller and ambient overtemp and undertemp

C

CHILLER FAULT – Active if an alarm occurs

CHILLER STATUS – Status of the on/off switch

COMP. MIN OFF – The minimum time the compressor must remain off

COMPRESSOR – Status of the compressor

COMPRESSOR STATUS – Page displaying the refrigeration side status

COMPRESSOR OL – Status of the compressor overload contact

D

DEVIATION – Deviation from a setpoint which an alarm or module is activated

F

FLUID TEMP – Temperature of fluid

FLUID FLOW – Status of the flow switch

H

HOME PAGE – Page displaying general information of the chiller

HIGH PRESSURE – Status of the high pressure switch

HYSTERESIS – Amount of change to change status of alarm/device

L

LOW PRESSURE – Status of low pressure switch

LP BYPASS – Status of low pressure bypass timer or time that low pressure switch is bypassed for start-up

M

MIN OFF TIME – Status of timer for minimum off time of compressor

MIN ON TIME – Status of timer for minimum on time of compressor

O

P

PUMP STATUS – Page that displaying plumbing side status

PO SOLENOID – Status of liquid line solenoid and hot gas regulator solenoid (if available)

PUMP – Status of pump

PUMP OVERLOAD – Status of pump overload contact

PUMP OUT LIMIT – Maximum time unit will pump out

R

RUN TIME – Number of hour's device is running

S

SETPOINTS – Page where all setpoints can be modified

SERVICE INFO – Service information and program number

SYSTEM STATUS – Status of the on/off switch

SETPOINT – The current chiller setpoint

T

TANK LEVEL – Status of tank level switch

TIMER SETTINGS – Page where timer settings can be modified

TROUBLESHOOTING SERVICE GUIDE

SYMPTOMS

POSSIBLE CAUSE

Selector switch is in the "ON" position and the pump will not start.

1. Open Disconnect Switch
2. Blown Fuse
3. Tripped overloads
4. Phase monitor fault

Pump is rotating but no pressure is established.

1. Improper Rotation
2. No water in reservoir
3. Valves not open
4. No back pressure
5. Pump suction blocked
6. Pump seal leaking

Pump runs properly, but compressor does not start.

1. Compressor is not getting Energized.
2. flow switch not activated

Compressor hums, but will not start

1. Low line voltage
2. Motor windings shorted to ground
3. Internal compressor damage
4. Improperly wired

Compressor will not start (no hum)

1. Open disconnect or blown fuse
2. Thermal overload open
3. Relay not closing to start compressor
4. Bad motor windings
5. Loss of refrigerant charge

Unit short cycles

1. Low refrigerant charge
2. Defective expansion valve
3. Low heat load to chiller

Temperature controller indicating a fault

See Below:

High refrigerant pressure fault

1. Refrigerant overcharge
2. Dirty condenser
3. Malfunction of fan motor
4. Excessive ambient air temperature

Low refrigerant pressure fault

1. Extreme low ambient temperature
2. Refrigerant leak
3. Lack of fluid flow through heat exchanger
4. Liquid line solenoid valve stuck or not opening.
5. Expansion valve stuck or lost bulbwell charge.

Fluid flow fault

1. Pump not running
2. System no completely filled

Pump Overload Fault

3. Air in the system
4. Flow switch paddle stuck

Compressor starts, but trips on
overload protector

1. Overload setting incorrect
2. Bad motor windings
3. Restriction in piping

Phase Monitor Fault

1. High suction or discharge pressure
2. Low line voltage
3. Defective overload protector
4. Bad motor windings

Low Tank Level Fault

1. Incorrect line phasing
2. Low/High incoming voltage
3. Voltage imbalance between phases

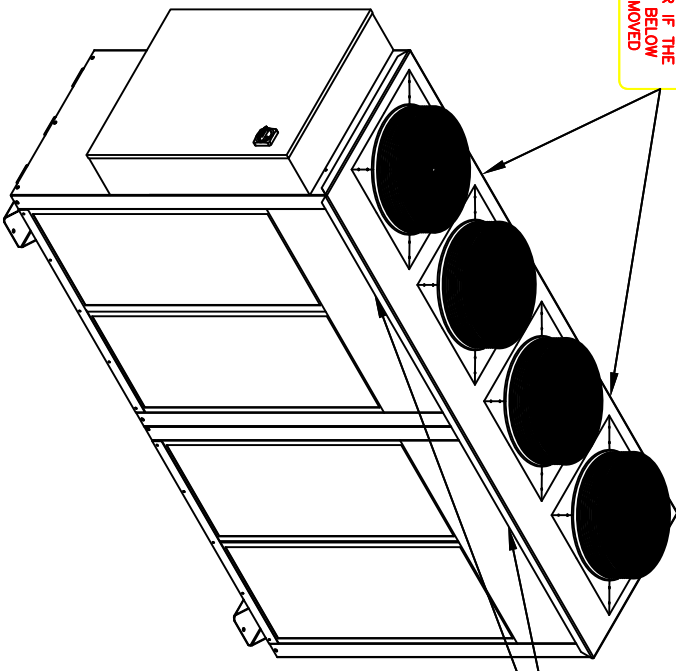
I/O Module #1 Offline Fault

1. Low/no fluid in chiller reservoir
2. Float switch stuck in the open position

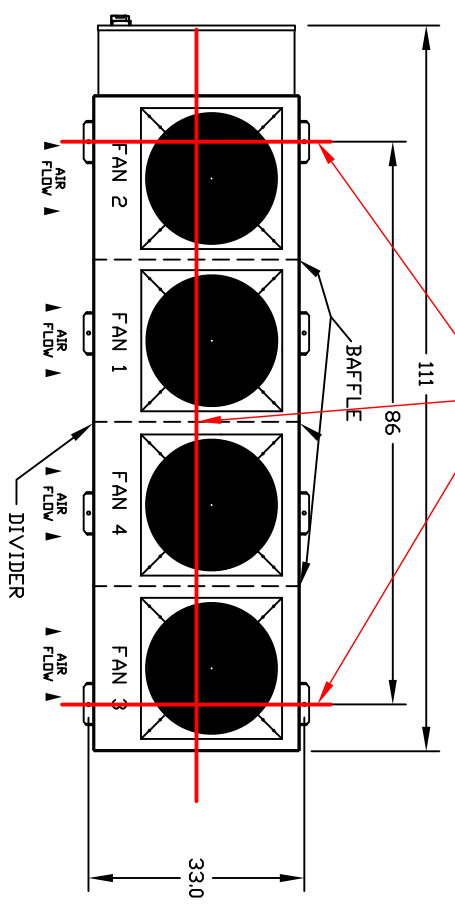
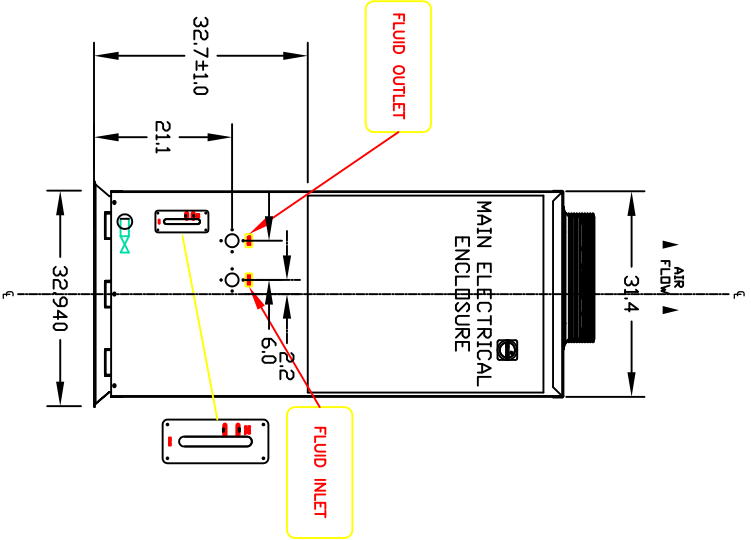
1. Loose TLAN wire between main controller and I/O Module

CHILLER DRAWINGS

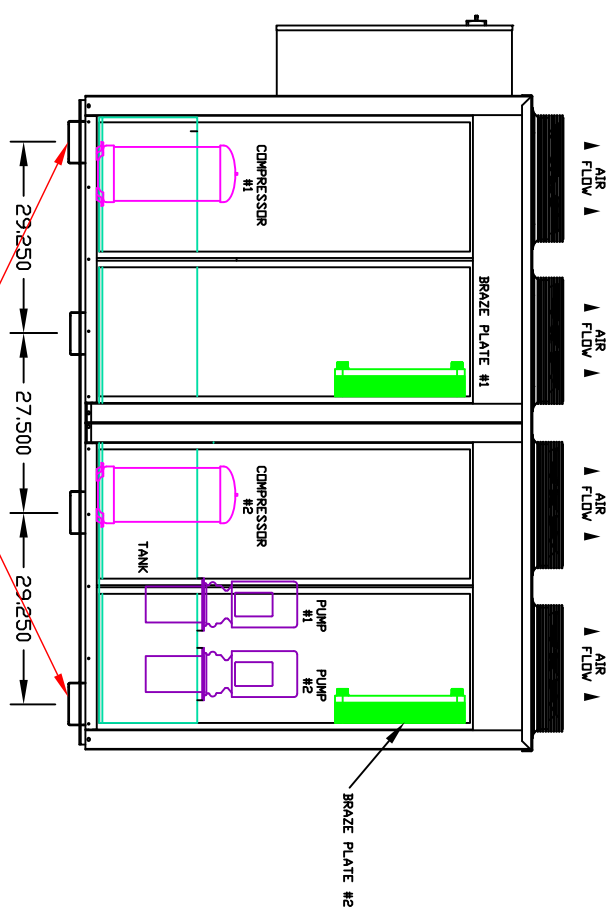
DO NOT OPERATE CHILLER WITH THIS PANEL REMOVED
DO NOT OPERATE CHILLER IF THE PANEL BELOW IS REMOVED



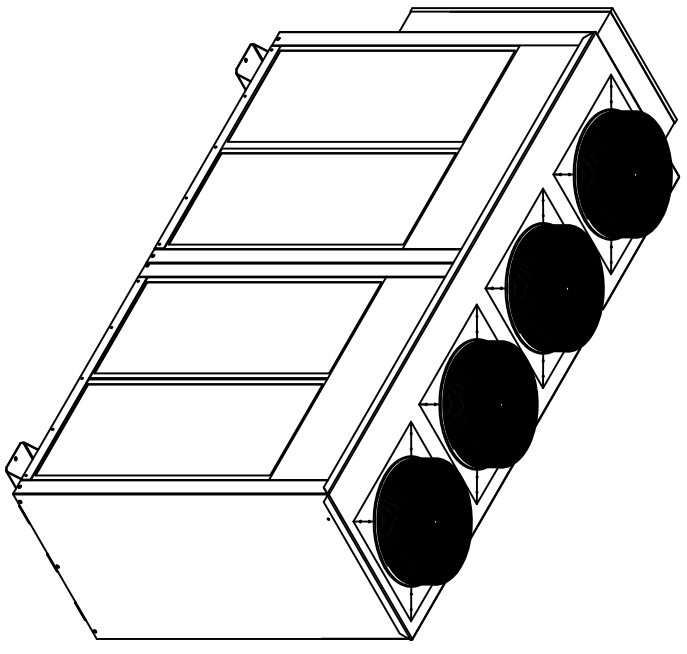
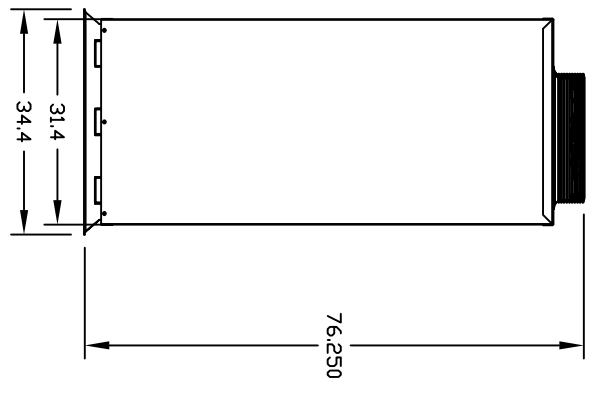
LIFT FILTER UP AND PULL OUT



LIFT MACHINE USING STRAPS THROUGH OUTSIDE FEET. BE SURE TO USE SPREADER BAR.



LIFT MACHINE USING STRAPS THROUGH OUTSIDE FEET. BE SURE TO USE SPREADER BAR.



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07-29-11	RED FOLDER	BKS
06/14/11	UPDATED DIMS IN LAYOUT	MAR
	DESCRIPTION OF REVISION	APPROVED BY

DESIGN BY: MAR
DATE: 05/25/10

DRAWN BY: MAR
PAGE 1 OF 1

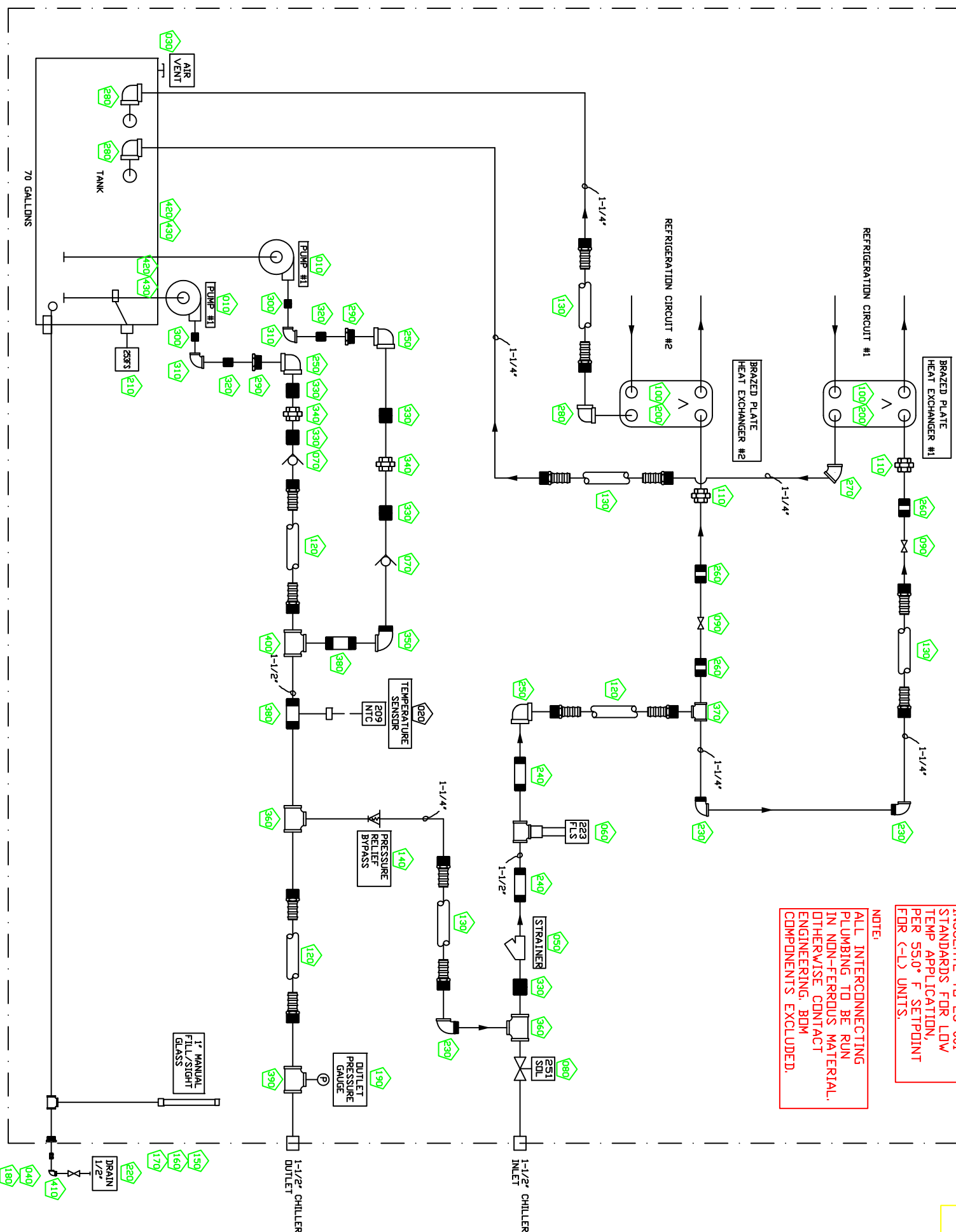
W02-7500-2P-NF-L-M-407C

LAYOUT

3C Dimplex
Thermal Solutions
KALAMAZOO, MI
PH (800) 968-5665
WWW.DIMPLEXTHERMAL.COM

SCHNEIDER
CHILLERS
DRAWING NO. 445157

CHILLER INTERNAL



NOTE:
INSULATE TO ES-001
STANDARDS FOR LOW
TEMP APPLICATION,
PER 55.0° F SETPOINT
FDR (-L) UNITS.

NOTE:
ALL INTERCONNECTING
PLUMBING TO BE RUN
IN NON-FERROUS MATERIAL.
ENGINEERING, BDM
COMPONENTS EXCLUDED.

NOTICE-
MAINTAIN WATER/GLYCOL
MIXTURE AT NO MORE THAN
50% GLYCOL

* PARTS NOT SHOWN ON
DRAWING DETAIL

NO.	1D/DESCRIPTION	K, K PART #	QTY	TYPE
001	1/2" BRASS VALVE	0445216	2.0	PC
010	1/2" BRASS VALVE	1785003	2.0	PC
020	1/2" SENSOR ASSEMBLY FOR CABEL	0611318	1.0	ASSEM
010	1/2" SENSOR ASSEMBLY FOR CABEL	4801215	1.0	PC
020	1/2" SENSOR ASSEMBLY FOR CABEL	0611318	1.0	ASSEM
030	1/2" SENSOR ASSEMBLY FOR CABEL	4801215	1.0	PC
040	1/2" SENSOR ASSEMBLY FOR CABEL	0611318	1.0	ASSEM
050	1/2" SENSOR ASSEMBLY FOR CABEL	4801215	1.0	PC
060	1/2" SENSOR ASSEMBLY FOR CABEL	0611318	1.0	ASSEM
070	1/2" SENSOR ASSEMBLY FOR CABEL	4801215	1.0	PC
080	1/2" SENSOR ASSEMBLY FOR CABEL	0611318	1.0	ASSEM
090	1/2" SENSOR ASSEMBLY FOR CABEL	4801215	1.0	PC
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1000	1/2" SENSOR ASSEMBLY FOR CABEL	0611318	1.0	ASSEM

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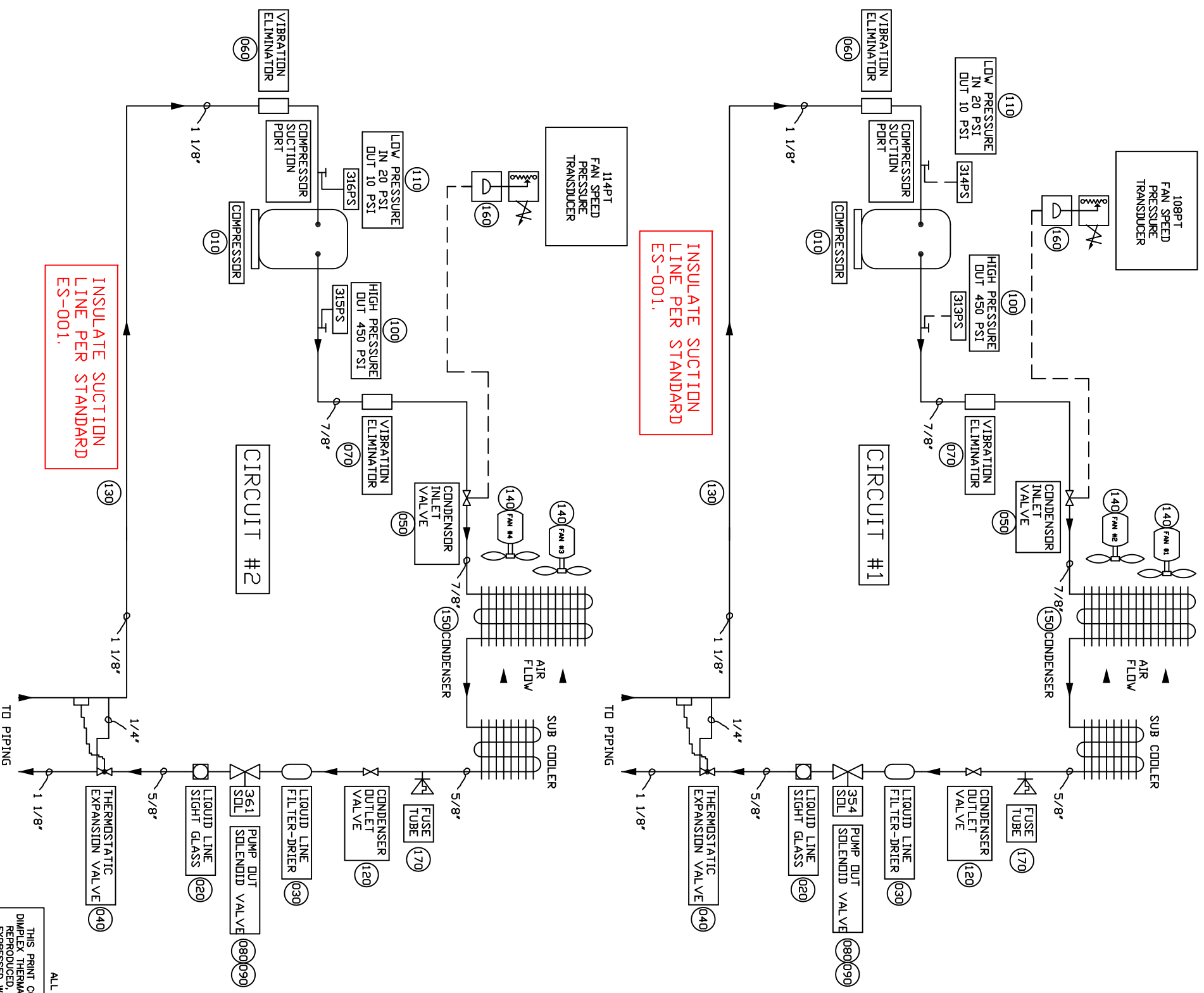
DATE	DESCRIPTION OF REVISION	APPROVED BY
10/17/11	ADD TANK INSULATION	MARCD2392
07-09-11	RED FOLDER	BRS
05/03/11	ADD PUMP RISER AND GASKETS	MARCB1701
6/23/10	ADDED FITTINGS FROM PROTOTYPE	CHN
		APPROVED BY

DESIGN BY: AWK
DRAWN BY: AWK
DATE: 05/28/10
PAGE 1 OF 1

3C Dimplex
Thermal Solutions

KALAMAZOO, MI
PH (800) 968-5665
WWW.DIMPLEXTHERMAL.COM

W02-7, 500-2P-NF-L-M-407C
230/460V - PLUMBING 445216



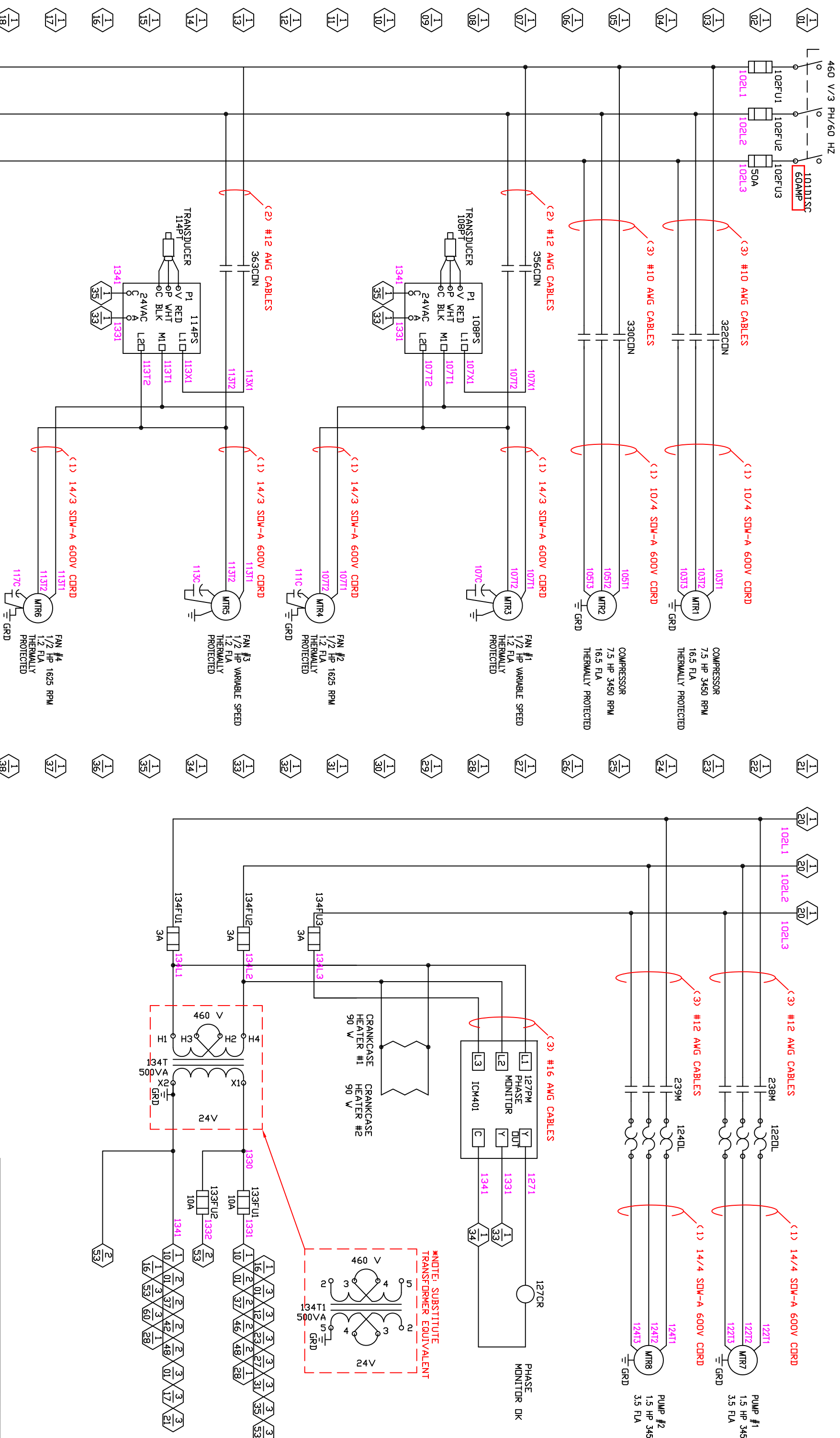
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DATE	DESCRIPTION OF REVISION	APPROVED BY
07-29-11	RED FOLDER	BKS
5/18/11	ADDED FUSE TUBES	WTF 1759

NO.	DESCRIPTION	K. K. PART #	QTY	TYPE
001	110/DESCRIPTION			
010	HME-7300-LM REFRIG 460/3/60	0445215	2.0	ASSEM
020	COMPRESSOR 7.5 TON 460/3/60 R-407C	0612003	2.0	ASSEM
030	C-SG603HRK COMP 7.5 460/3/60 407C	1450077	1.0	PC
040	440/460 INCLUDES MOUNTING KIT			
050	COMPRESSOR CODE #809 183 88, USED WITH R407C, HAS PVE OIL SANVD	1298032	1.0	PC
060	018-0095-05 CRANKCASE HEATER FITS ZR18-81 480 VAC, 70 WATTS 48 LEADS, COPELAND (11/06/09) DLD PART NUMBER 018-0072-05)	2760004	2.0	PC
070	SA-155 SIGHT GLASS 5/8" DJF SPORLAN C-1655 FILTER DRIER 5/8" SPORLAN SNE-8-C VALVE EXPANSION	2730006	2.0	PC
080	8/12" CHANGED DESCRIPTION SVE-8-C VALVE ANGLE REFRIG 7/8"	2760005	2.0	PC
090	VALVE ANGLE REFRIG 7/8"	3980003	2.0	PC
100	VAF-9 VIBRATION ELIMINATOR 1-1/8" 1-8 X 13 (UL P5) PACKLESS 7/8 VAF-9 VIBRATION ELIMINATOR	2980009	2.0	PC
110	1-8 X 13 (UL P5) PACKLESS 7/8 11-1/2 (UL P-87) PACKLESS	2980008	2.0	PC
120	E105250 VALVE SOLENOID 5/8" REQUIRES MKC-2E COIL SPORLAN MKC-2E 24VAC 50-60 HZ COIL ASSEMBLY MKC-2E SOLENOID COIL 24V AC 50/60HZ ASSEMBLY WITH CABLE IS 0608319 SPD PLAN	2710006	2.0	PC
130	12205 CONNECTOR: DIN 43650 18MM W/ 5 METER GRAY PVC CABLE AC/DC 0-230 V 18 GA WIRE, UL RECOGNIZED E176930 MURRELEKTRONIK NEW PART NUMBER 7000-18081-2160500	0608319	2.0	ASSEM
140	SWITCH HIGH PRESSURE 450 MANUAL VENDOR PART NUMBER: YK-03H 0110-45 0R350Z(KW) ENCAPSULATED WITH A 9 FT OF COIL - OPENS HIGH MANUAL RESET OPENS 450 PSI 407C/404A HP SWITCH, RESURGE DISTRIBUTION	2710113	1.0	PC
150	RESURGE DISTRIBUTION 10/20 LOW PRESSURE SWITCH 10/20 SWITCH 10/20 CUT IN 20 PSI, CUT OUT 1.10 PSI CAN BE USED AS LP FOR 134 A FORMERLY 10/32 SWITCH, JOHNSON CONTROLS P100AP-201C(P100AA-1) RE SOURCE DISTRIBUTION YK-03L 0110-010 E020E	3640006	2.0	PC
160	VALVE ANGLE REFRIG 5/8" WITH ACCESS PORT	3980002	2.0	PC
170	INSULATION TAPE GASKET .25 X 2 X 50 NITRILE/PVC BLEND, CLOSED CELL SPD NGE RUBBER, TEMPERATURE RANGE: -20 TO 160F, INTERMITTENT 220F, CAN BE USED AT 200F CONTINUOUS PER GR. R RUBBER PRODUCTS	4449009	1.0	PC
180	FAN ASSEMBLY 18"-5/8" 1PH OUTDOOR 1 PHASE WEATHER PROOF MOTOR WITH 5/8 KEYS SHAF V-SPEED APPL GATION 0881701 IN MOTOR 1/2" HP 178, 5/8 KEY ED SHAFT, SEALED DN SHAF 1.48 FRAM E, END, LFC, 60 DEG U, 1629 RPM, SAM PLE MODEL #SV4881701A, CAT # 13395A 1.60 HZ, 1/2 HP, 173 HP 1425 RPM 1/9 0-230/380/1 MARATHON (6/708 DLD # 04 8A170F1B CHANGE REV LEVEL) 5/12/20 10 208V HAS BEEN ADDED TO NAME PLATE 61142601 FAN BLADE 18 5/8 KEY ED HUB 28 DEG CV F08Y18-1828 5/8 DN DISCHARGE 3/16 KEY WAY LAU Fo r 1/2" hub use adapter 4500052 FAN GUARD MOUNT 18 DWG #101515 1.5 INCH TALL RENFRD FRANKLIN FAN GUARD FULL 18 DWG #101515 4.5 INCH TALL RENFRD FRANKLIN VENTURE 18 GALVANIZED DWG #201678 18 GA MERMHS METAL CAP 5/8 DIA X 1-1/2 VINYL C100 PER PKG) ANAEROBIC THRD LOCKER (VIBRA-TITES) 10 ML PURPLE 9803000 SILICONE SEALANT CLEAR 4508976 CS-A S1007 ANTI-SEIZE 4021324 COPPER BASED, IN 1 LB CANS FEL-PRD BLSO LOCKNUT 1/2 TIGER GRIP STEEL APPLETON CG-5050S CORD STRAIN RELIEF 3800471 0.500-0.625 CABLE 1/2 ST HUB APPL ETON WIRE 14/3 SDW/SDDW 600V BLACK 1000' REEL 3807095 COIL 7.5-10TON 42 X 41.5 APPROX 110 LBS. KK DWG 408737. 7/1 1/10 ALL CLEARANCE HOLES TO BE .50" P266SNR-1C TRANSUDGER 3646036 P266SNR-1C TRANSUDGER 3646036 ELECTRONIC PRESSURE TRANSDUCER - 35 BAR CO, 10 908 PSID TOTAL RANGE 1/4 1/4 IN SAE FEMALE FLARE CONNE CTION AND A 2 METER (3.1 FT) CABLE FUSE TUBE COPPER/SOLDER 7399201 SOLDER MELTS @ 280 DEG F 2.0 PC REFRIGERANT R407C IN A 115LB CYL 2990030 36.0 PC			



****INSTALL TEW WIRE****

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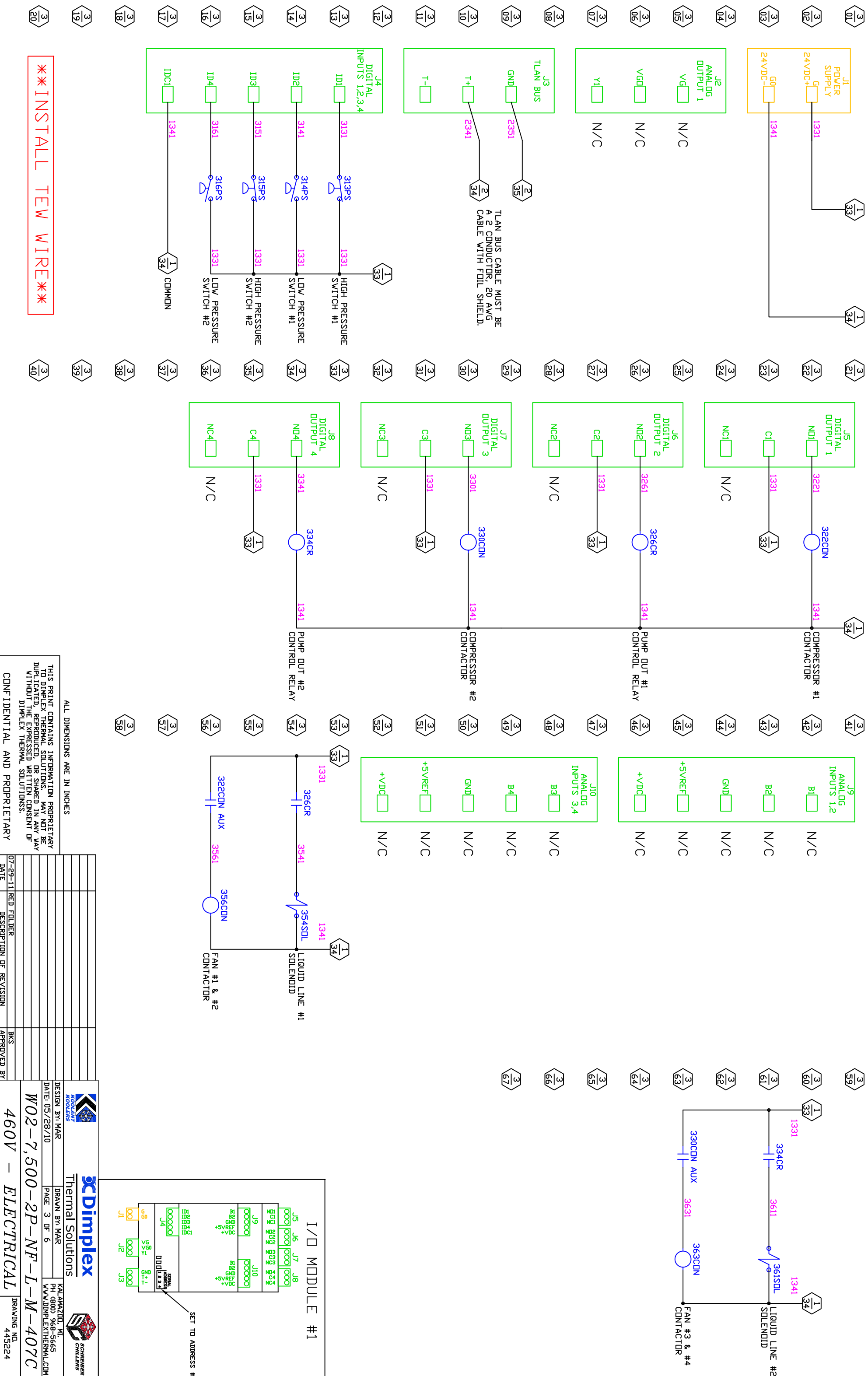
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DATE	07-29-11	RED FOLDER	DESCRIPTION OF REVISION	BKS	APPROVED BY
DATE	05/28/10	DESIGN BY	MAR		
DATE	05/28/10	DRAWN BY	MAR		

W02-7,500-2P-NF-L-M-407C
 460V - ELECTRICAL

KALAMAZOO, MI
 PH (800) 968-5665
 WWW.DIMPLEXTHERMAL.COM

DRAWING NO. 445222



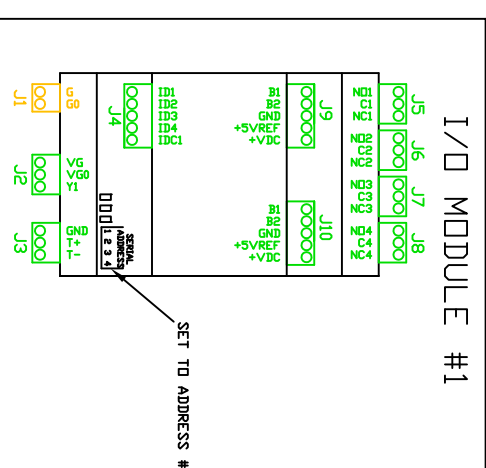
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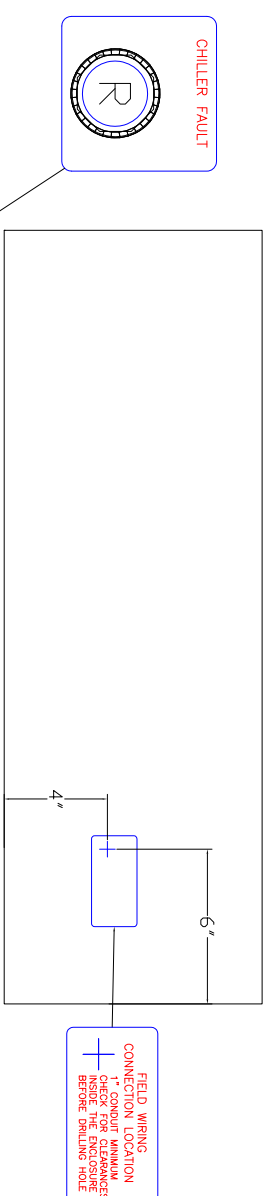
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DATE	RED FOLDER	DESCRIPTION OF REVISION	BKS	APPROVED BY
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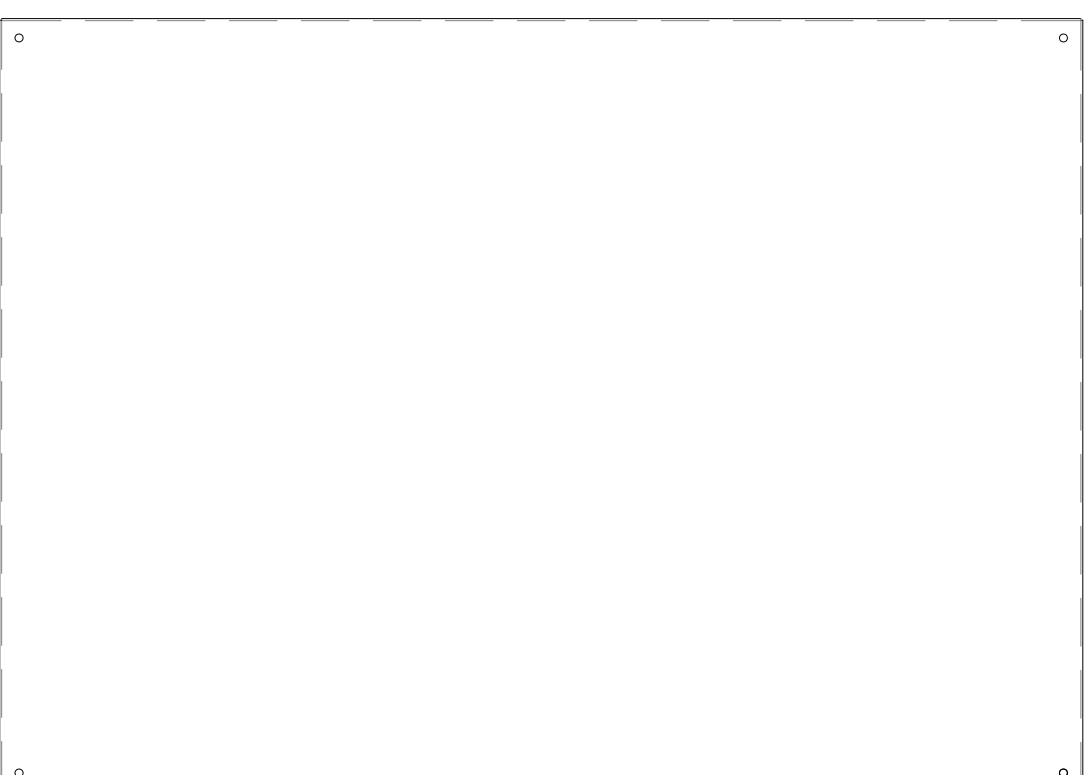
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 DRAWN BY: MAR
 DATE: 05/28/10
 PAGE 3 OF 6
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W02-7,500-2P-NF-L-M-407C
 460V - ELECTRICAL
 DRAWING NO. 445224



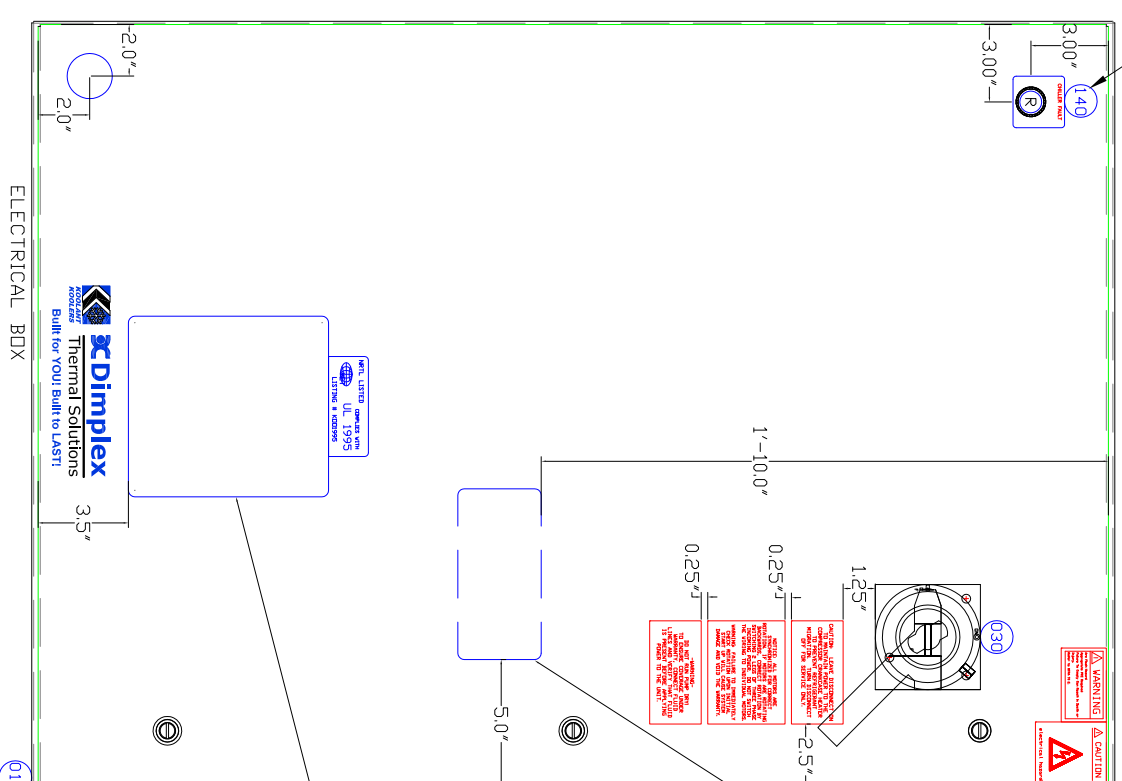
TOP VIEW OF ENCLOSURE



REAR VIEW OF ENCLOSURE



FRONT VIEW OF ENCLOSURE



REPLACE ONLY WITH
TIME DELAY FUSES

102FU1-3	50A	600V
134FU1-3	3A	600V
133FU1	10A	250V
133FU2	10A	250V

* INSTALL ON REAR SIDE OF ELECTRICAL ENCLOSURE DOOR



Dimplex Thermal Solutions
2625 Emerald Drive
Kalamazoo, Michigan 49001-4542
Phone: (269) 349-6800 Fax: 349-8951
Model: W02-7,500-2P-NF-L-M-407C
Serial:

480 VOLTS 3 PH 60 Hz
H.P. F.L.A.(amps) L.S.A.(amps)
Compressors 7.5 16.5 34
2 Chiller Pumps 1.5 3.5 4
4 Fans 0.5 1.2

Minimum Circuit Ampacity: 47A
Maximum Overcurrent Protection: 60A

TYPE & ENCLOSURE REFRIGERATION INSULATED 4082-70
SIZE 30A REFRIGERATION POUNDS 2 X 18
High Side Pressure Design Pressure
Outdoor Unit
Outdoor Unit
Outdoor Unit

WARNING: RISK OF ELECTRICAL SHOCK. CAN CAUSE INJURY OR DEATH. DISCONNECT ALL REMOVE ELECTRICAL POWER SUPPLIES BEFORE SERVICING.

* CENTER TAG ON DOOR.

NOTE: MOUNT P266 CONTROLLERS INSIDE CHILLER UNIT.

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DATE: 05/28/10
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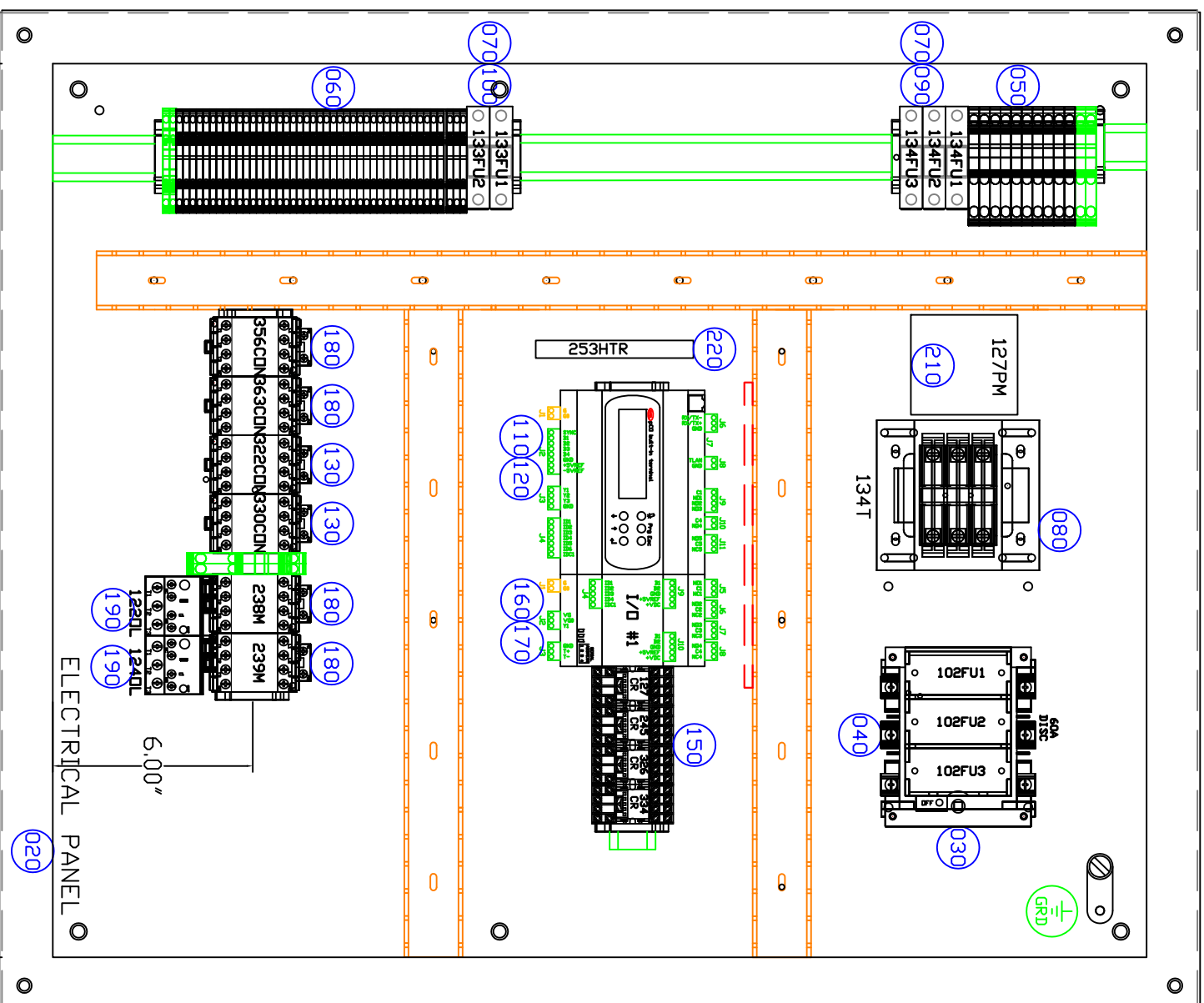
SCDIMPLEX Thermal Solutions

SCHNEIBER CHILLERS

W02-7,500-2P-NF-L-M-407C

460V - ELECTRICAL

DRAWING NO: 445225




ELECTRICAL PANEL

ALL DIMENSIONS ARE IN INCHES


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W02-7,500-2P-NF-L-M-407C

460V – ELECTRICAL

DRAWING NO.
445226


TAGGING INSTRUCTIONS

- A) MANUALS MUST SHIP WITH MACHINE OR MACHINE DOES NOT SHIP.
- B) PLACE ADDITIONAL TAGS INSIDE THE MACHINE.
- C) PLACE ADDITIONAL TAGS INSIDE THE ELECTRICAL ENCLOSURE MOUNTED ON TAG RAILS WHICH ARE RIVETED TO THE PANEL. ADD NOTE TO ELECTRICAL PRINTS.
- D) TAGS OUTSIDE AND OUTSIDE THE ELECTRICAL ENCLOSURE NEED TO BE RIVETED.
- E) TAGS INSIDE THE MACHINE NEED TO BE RIVETED.
- F) SEQUENCE OF OPERATION TAG REQUIRED
- G) INLET AND OUTLET TAGS ONLY TO BE RIVETED.
- H) SPECIAL LANGUAGE TAGS ARE REQUIRED.
 - FRENCH GERMAN
 - SPANISH OTHER (SEE SPECIAL INSTRUCTIONS)


SPECIAL INSTRUCTIONS:

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NO.	1D/DESCRIPTION	K. K. PART#	QTY	TYPE
001	HW2-7500-2P-NF-L-M-407C	0717007502963	1	PC
010	HW2-7500-2P-NF-L-M-407C LAYOUT	0445157	1	PC
020	WD TANK 70 GALLON PHILLIPS	0445212	1	ASSEN
020	TANK END	0445212-2	1	ASSEN
030	TANK BOTTOM AND LEFT	0445212-3	1	ASSEN
040	TANK TOP AND RIGHT	0445212-4	1	ASSEN
050	TANK PUMP BRACE	0445212-5	1	ASSEN
060	TANK CROSS BRACE	0445212-6	2	ASSEN
030	HW2-7500 BLOCKER FOR 70" SIDES	0434289	2	ASSEN
010	BLOCKER	0434289-1	1	ASSEN
020	BLOCKER RAIL	0434289-2	1	ASSEN
040	HW2-7500 MIDDLE SIDE	0438088	1	ASSEN
050	HW2-7500 BACK SIDE V/DRAIN	0438089	1	ASSEN
060	15 MED BASE *****NDT RAIN*****	0433094	1	ASSEN
070	15 MED HAT SUPPORTS	0433097	3	ASSEN
080	15 MED LID	0433090	3	ASSEN
090	HW2-7500 CUBERS	0434287	1	ASSEN
010	HW2-7500 CUBERS	0434287-1	1	ASSEN
020	LOWER COIL SIDE	0434287-2	1	ASSEN
020	FLYER SIDE	0434287-3	1	ASSEN
100	7-1/2-13 TON LOWER COIL SUPPORT	0307053	2	ASSEN
110	7500-10 TON COIL SIDE SUPPORTS	0425857	2	ASSEN
120	15 MED MOUNTING FEET	0433095	4	ASSEN
130	7500-10000 REAR LID SUPPORT	0426053	2	ASSEN
140	HW2-7500 42X30 E-BOX SIDE	0445192	1	ASSEN
150	HW2-7500 DDORS FOR 70" SIDES	0434288	2	ASSEN
160	KV 7500-10 TON GALV DDOR RAILS	0360390	2	ASSEN
010	FRONT DDOR RAIL	0360390-1	1	ASSEN
020	BACK DDOR RAIL	0360390-2	1	ASSEN
170	BRAZEPLATE BRACE 2200507	0437841	2	ASSEN
010	BRAZEPLATE BRACE BACKPLATE 2200507	0437841-1	1	ASSEN
020	BRAZEPLATE BRACE COVER 2200507	0437841-2	1	ASSEN
180	7500U.10 TON UPPER COIL SUPPORT	0425855	2	ASSEN
190	M BRACKET S. S.	0437442	2	ASSEN
200	PIPING MOUNT	0360375	2	ASSEN
210	KV 3 - 5 AND 7 1/2 TON DDOR STOP	0414090	2	ASSEN
220	COMPRESSOR RISER	0306495	2	ASSEN
230	HW2-7500-LN REFRIG 460/3/60	0495215	1	ASSEN
240	HW2-7500-2P-NF-L-M MCHNL	0445216	1	ASSEN
010	BP INSULATION FOR KIOS FRONT	0441224-1	1	PC
020	BP INSULATION FOR KIOS MIDDLE	0441224-2	1	PC
030	BP INSULATION FOR KIOS BACK	0441224-3	1	PC
250	WD2-7500-2P-NF-L-M-407C PUG	0445227	1	ASSEN
260	PHILLIPS PRE-CUT WIRE KIT (WD2-7500)	0612304	1	ASSEN
270	***MACHINE EBOX EXTERIOR***	PAINT003	0	PC
280	WHITE, FAST PRODUCTION ENAMEL	45008139	1	PC
290	FILTER 21-3/4 X 57	4300123	4	PC
300	***SHIP LOOSE ITEMS***	1-SHIP	1	PC
310	SHIP SCREEN + CORD LOOSE SEE ELECT	11-SHIP	1	PC
320	***END OF SHIP LOOSE ITEMS***	SHIP002	1	PC
330	PHILLIPS PACKAGING	0612162	1	ASSEN



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SCHNEIDER
Schalters

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