

**C. PANEL CHECKS
 (POWER ON - BOTH UNIT SWITCH OFF)**

1. Apply 3-phase power and verify its value. Voltage imbalance should be no more than 2% of the average voltage.
2. Apply 120VAC and verify its value on the terminal block in the Power Panel. Make the measurement between terminals 5 and 2 of CTB2. The voltage should be 120VAC +/- 10%
3. Program/verify the Cooling Setpoints, Program Setpoints, and Unit Options. Record the values below.

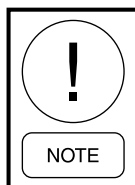
OPTIONS	
Display Language	ENGLISH
Sys 1 Switch	ON
Sys 2 Switch	ON
Chilled Liquid	GLYCOL
* Ambient Control	LOW AMBIENT
Local/Remote Mode	LOCAL
Control Mode	LEAVING LIQUID
Display Mode	IMPERIAL
* Lead/Lag Control	SYS #1 MAN. LEAD
* Fan Control	DISCHARGE PRESS.
Manual Override	OFF
Current Feedback	NONE
** Soft Start	NONE
** Unit Type	LIQUID CHILLER
** Refrigerant Type	R-410A
** Expansion Valve Type	THERMOSTATIC
COOLING SETPOINTS	
Cooling Setpoint	45F
Range	2.5F
EMS-PWM Max. Setpoint	55F
PROGRAM	
Discharge Pressure Cutout	575 PSIG
Suct. Pressure Cutout	70 PSIG
Low Amb. Temp. Cutout	20F
Leaving Liquid Temp. Cutout	36F
Anti-Recycle Time	600 SEC
Fan Control On Pressure	425 PSIG
Fan Differential Off Pressure	125 PSID
Total # of Compressors	4
* Number of Fans/System	2
* Unit/Sys Voltage	2.5 VOLTS
Unit ID	0

* Not on all models. ** Viewable only.

4. Put the unit into Service Mode and cycle each condenser fan to ensure proper rotation.
5. Prior to this main step, turn system 2 off. Connect a manifold gauge to system 1 suction and discharge service valves.
 Place the Unit Switch in the control panel to the "ON" position. As each compressor cycles on, ensure that the discharge pressure rises and the suction pressure decreases. If this does not occur, the compressor being tested is operating in the reverse direction and must be corrected. After verifying proper compressor rotation, turn the Unit Switch to "OFF"

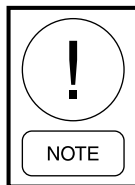


The chilled liquid setpoint may need to be temporarily lowered to ensure all compressors cycle "ON".



This unit uses scroll compressors which can only operate in one direction. Failure to observe this will lead to compressor failure.

6. YCAL0043 – YCAL0066 units only – Turn system 1 "OFF" and system 2 "ON"
 Place the Unit Switch in the control panel to the "ON" position. As each compressor cycles "ON", ensure that the discharge pressure rises and the suction pressure decreases. If this does not occur, the compressor being tested is operating in the reverse direction and must be corrected. After verifying proper compressor rotation, turn the Unit Switch to "OFF"



This unit uses scroll compressors which can only operate in one direction. Failure to observe this will lead to compressor failure.

D. CHECKING SUPERHEAT AND SUBCOOLING

The subcooling temperature of each system can be calculated by recording the temperature of the liquid line at the outlet of the condenser and subtracting it from the liquid line saturation temperature at the liquid stop valve (liquid line saturation temp. is converted from a temperature/pressure chart).

Example:

$$\begin{aligned} &\text{Liquid line pressure} = \\ &325 \text{ PSIG converted to temp. } 101 \text{ }^\circ\text{F} \\ &\text{Minus liquid line temp. } -86 \text{ }^\circ\text{F} \\ &\text{Subcooling} = 15 \text{ }^\circ\text{F} \end{aligned}$$

The subcooling should be adjusted to 15 °F at design conditions.

- Record the liquid line pressure and its corresponding temperature, liquid line temperature and subcooling below:

	SYS 1	SYS 2	
Liq Line Press =	<u>323</u>	<u>317</u>	PSIG
Saturated Temp =	<u>101.0</u>	<u>99.7</u>	°F
Liq Line Temp =	<u>80.0</u>	<u>79.0</u>	°F
Subcooling =	<u>21.0</u>	<u>20.7</u>	°F

@ **43°F OAT**

After the subcooling is verified, the suction superheat should be checked. The superheat should be checked only after steady state operation of the chiller has been established, the leaving water temperature, and the unit is running in a fully loaded condition. Correct superheat setting for a system is 10°F - 15°F (5.56°C - 8.33 °C) 18" (46 cm) from the heat exchanger.

Superheat should typically be set for not less than 10°F with only a single compressor running on a circuit. The superheat is calculated as the difference between the actual temperature of the returned refrigerant gas in the suction line entering the compressor and the temperature corresponding to the suction pressure as shown in a standard pressure/temperature chart.

Example:

$$\begin{aligned} &\text{Suction Temp} = 46 \text{ }^\circ\text{F} \\ &\text{minus Suction Press} \\ &105 \text{ PSIG converted to Temp } -34 \text{ }^\circ\text{F} \\ &\text{Superheat} = 12 \text{ }^\circ\text{F} \end{aligned}$$

When adjusting the expansion valve (TXV only), the adjusting screw should be turned not more than one turn at a time, allowing sufficient time (approximately 15 minutes) between adjustments for the system and the thermal expansion valve to respond and stabilize. Assure that superheat is set at a minimum of 10°F (5.56 °C) with a single compressor running on each circuit.

- Record the suction temperature, suction pressure, suction saturation temperature, and superheat of each system below:

	SYS 1	SYS 2	
Suction Temp =	<u>45.0</u>	<u>41.0</u>	°F
Suction Pressure =	<u>104</u>	<u>99</u>	PSIG
Saturation Temp =	<u>33.4</u>	<u>31.0</u>	°F
Superheat =	<u>11.6</u>	<u>10.0</u>	°F

E. LEAK CHECKING

Leak check compressors, fittings, and piping to ensure no leaks.

If the unit is functioning satisfactorily during the initial operating period, no safeties trip and the compressors cycle to control water temperature to setpoint, the chiller is ready to be placed into operation.

