



Commercial Kitchen Equipment Parts

TRAULSEN G313XX

Service Manual

Provided by PartHubz

parthubz.com

833-700-8006 | support@parthubz.com



Quality Refrigeration



G-Series Reach-In & Pass Thru Refrigerator & Freezer Service Manual

This manual is applicable for all models using R-450a and R448a
Refrigerants.

2018-2023

TR35731

Table of Contents

1.	Introduction	4
1.1	The Serial Tag	4
1.2	Serial Tag & Location:.....	5
1.2.1	Reading the Serial Tag:.....	5
1.3	Understand G-Series Model Numbers	6
1.4	Reading Traulsen Serial Number.....	6
1.5	Refrigerants.....	7
1.5.1	Terminology:	7
1.5.2	R-450A Refrigerant.....	7
1.5.3	R-488A Refrigerant.....	9
1.6	Specifications:	11
2.	Preventative Maintenance.....	15
2.1	Inspect and Clean Unit:	15
2.2	Inspect and Clean Door Gasket:.....	15
2.3	Clean Condenser Coil:	16
3.	Doors & Hardware	18
3.1	Hinges.....	18
3.1.1	Removing the Doors and Hardware:.....	18
3.2	Adjustments	22
3.3	Gaskets.....	23
3.4	Locks.....	24
3.4.1	Door lock assembly exploded view:.....	24
3.4.2	Door lock replacement instructions.....	25
4.	Controls.....	28
4.1	Understanding the display	28
4.2	Unlocking the display	29
4.3	Change the Setpoint.....	29
4.4	Initiate a Defrost	29
4.5	Decode Alphabet.....	31
4.6	Understanding the Menu System	32
4.7	Defrost Settings.....	33
4.8	Defrost Setpoint.....	34
4.9	Defrost Mode	34

4.10	Defrost Interval	35
4.11	Diagnostic Menu	36
4.12	Control Cover Removal & Components	39
4.12.1	Removing the Display:.....	39
4.12.2	Installing the Display:	39
4.12.3	Accessing the Power Module (Control Board):.....	40
4.13	Power Module Connections Overview	41
4.14	Power module Led's & Reset Button Overview:.....	42
5.	Sensor Location	44
5.1	Sensor Control Value Test.....	46
5.2	Sensor Resistance Test.....	47
6.	Troubleshooting	48
6.1	Condensate Overflow Troubleshooting	48
6.1.1	Condensate Overflow:	48
6.2	Compressor Troubleshooting.....	49
6.2.1	Terminology:	49
6.2.2	Accessing the Compressor:	50
6.2.3	Compressor Not Running:.....	51
6.2.4	Testing the Windings of the Compressor.....	51
6.2.5	Resistance and Amp Values of G-Series Compressors:.....	51
6.2.6	Troubleshooting External Overload Protector:.....	51
6.2.7	Measuring for Excessive Voltage Drop:	52
6.2.8	Troubleshooting Potential Relay:.....	52
6.2.9	Troubleshooting Start Capacitor (Black Plastic Casing):	52
6.2.10	Troubleshooting Run Capacitor (Metal Casing):	52
6.2.11	Locked Up Compressor:	53
6.2.12	Current Climbs Above RLA:	53
6.2.13	Replacing the Compressor:	54
6.2.14	Compressor Wiring Schematics:	55
6.2.15	Compressor Short Cycles on Overload Protection:.....	57
6.2.16	Compressor not Trying to Start:.....	58
6.3	Evaporator Fan Troubleshooting:	59
6.3.1	Steps for troubleshooting G-series Evaporator Fan.....	59
6.4	Condenser Fan Troubleshooting.....	63

6.4.1	Troubleshooting the Condenser Fan Motor on G-Series:	63
6.4.2	Motor Bearing Failure:	64
6.4.3	Replacing the Condenser Fan Motor:	66
6.5	Troubleshooting Thermostatic Expansion Valve	66
6.5.1	Three Pressures	67
6.5.2	Non-Bleed Type	67
6.5.3	Maximum Operating Pressure	67
6.5.4	Measuring Superheat	67
6.5.5	Restrictions	68
6.5.6	Replacing the TXV	68
6.6	Removing the Refrigeration System	69
6.6.1	Condenser Assembly :	69
6.6.2	Defrost Troubleshooting	70
7.	General Wiring Diagrams	72
7.1	Refrigerator (Off-Cycle Defrost) 115 Volt	72
7.2	Refrigerator Electric Defrost/ Freezer 115 Volt	73
7.3	Lighting Circuits	74
7.4	3-Section Freezer 208-230/115 Volt	75
8.	TRAULSEN EQUIPMENT WARRANTY	76
8.1	U.S. Domestic Warranty	76

1. Introduction

Traulsen provides this manual as an aid to the service technician in installation, operation, and maintenance. When used properly, this service manual can help the service technician maintain, troubleshoot, and diagnose the majority of issues that may occur. While we believe that most aspects of service are covered in this manual; should you encounter a condition not addressed, please contact:

ITW Refrigeration

Traulsen

4401 Blue Mound Road Fort Worth, TX 76106

Attn: Service Department

Call for Technical Support: (800) 825-8220 Option 1, and then option 3

Fax: (817) 740-6757

service@traulsen.com

p19parts@traulsen.com

IMPORTANT: To improve your service communication experience; be sure to have the following available when contacting technical support:

- ✓ **Serial number**
- ✓ **Model number**
- ✓ **A detailed description of the problem**

1.1 The Serial Tag

		4401 Blue Mound Rd. Ft. Worth, TX 76106 800-825-8220	
MODEL: MODELO: MODELE:			
S/N:			
SCAN FOR SERVICE INFO			
REFRIGERANT / REFRIGERANTE / RÉFRIGÉRANT			
SYS1 (REFM):	R-450A	8.4oz	238.1 g (238, 1 g)
Hi Press. (PRESH):		330psi	2.28g (2.28 Mpa)
Lo Press. (PRESL):		150 psi	1.03g (1.03 Mpa)
SYS2 (REFA):	R-448A	12.5oz	354.4g (354, 4g)
Hi Press. (PRESH):		500psi	3.45MPa (3.45MPa)
Lo Press. (PRESL):		250psi	1.72Mpa (1.72Mpa)
Input Power (ELIN) - FOR INDOOR USE ONLY			
115-208/230V ~ 60Hz 8.0A (8.0A)			
(Symbol 1) (Alt. Safety / Other 1)	(Symbol 2) (Alt. San / Other 2)	(Symbol 3) (Alt. En. / Other 3)	(Symbol 4) (WEEE)
(Symbol 5) (Safety)	(Symbol 6) (Sanitation)	(Symbol 7) (Energy)	(Symbol 8) (Customer QR Code / Other 4)
Device/Part Number: PartNum		(UL/NSF Notes)	
COMPONENTS / COMPOSANTS / COMPONENTES			
COMP AMPS:		EVAP FAN AMPS:	
COND FAN AMPS:		LIGHT WATTS:	
DEF HTR AMPS:		CTRL AMPS:	
DOOR HTR AMPS:		MIN AMPS:	
MAX AMPS:			
379-60297-00 REV A 11/20/14			

Figure 1 Sample serial tag

1.2 Serial Tag & Location:

The serial tag is a permanently affixed label on which is recorded vital electrical and refrigeration data about your Traulsen product, as well as the model and serial number. This tag is in the upper left interior compartment on all G-Series refrigerator and freezer models.

1.2.1 Reading the Serial Tag:

Model = The model # of your Traulsen unit

(S/N) Serial Number = The permanent ID# of your Traulsen unit

Refrigerant SYS1 = System 1 Refrigerant type used and refrigerant charge

Design Pressure = System 1 High and Low Pressure

Refrigerant SYS2 = System 2 Refrigerant type used and refrigerant charge

Design Pressure = System 2 High and Low Pressure

Volts = Voltage

Hz = Cycle

PH = Phase

Total Current = Maximum amp draw

Min Circuit Amps = Minimum circuit ampacity

Lights = Light wattage

Agency Labels = Designates agency listings

Components = Component Ratings

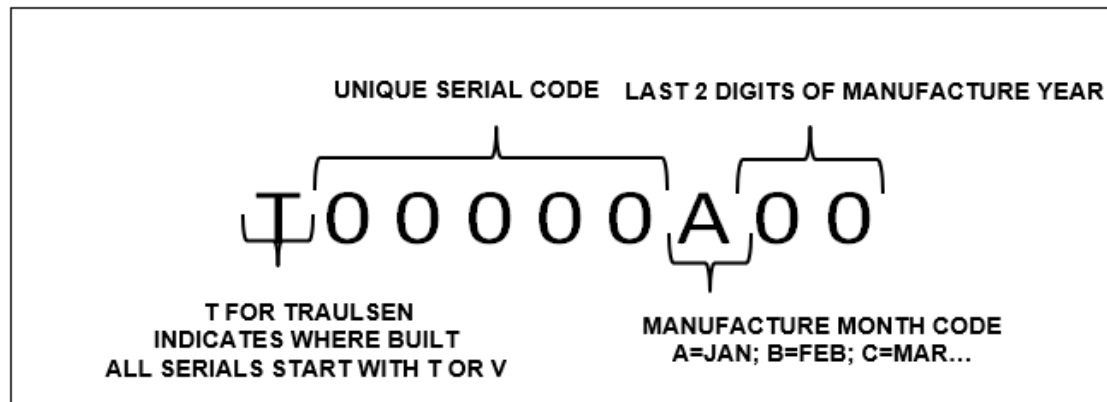
Note: Design Pressure is the maximum pressure system components can handle and **NOT** the operating pressure.

1.3 Understand G-Series Model Numbers

SERIES (1)	SECTIONS (2)	REFRIGERATOR/ FREEZER/HEATED (3)	VOLTAGE (4)	DOOR HEIGHT (5)	HINGING (6)	PASS THRU (7)	REFRIGERATION SYSTEM (8)	REFRIGERANT TYPE (9)	LIGHTS (10)
G	1	0 = Solid Door Ref 1 = Glass Door Ref 2 = Solid Door Freezer 3 = Glass Door Freezer 4 = Hot Food 6 = Solid Front Door / Glass Rear Door Ref 7 = Glass Front Door / Solid Rear Door Ref	0 = 115/60/1 1 = 220/50/1 3 = 208-230/115/60/1	1 = Full 0 = Half	Refer to Price Book or AutoQuotes	Pass Thru (P)	0 = Self Contained	4 = R450A 5 = R448A	3 = LED
G	2	0 = Solid Door Ref 1 = Glass Door Ref 2 = Solid Door Freezer 3 = Glass Door Freezer 4 = Hot Food 6 = Solid Front Door / Glass Rear Door Ref 7 = Glass Front Door / Solid Rear Door Ref	0 = 115/60/1 1 = 220/50/1 3 = 208-230/115/60/1	1 = Full 0 = Half	Refer to Price Book or AutoQuotes	Pass Thru (P)	0 = Self Contained	4 = R450A 5 = R448A	3 = LED
G	3	0 = Solid Door Ref 1 = Freezer 2 = Glass Door Ref	0 = 115/60/1 1 = 220/50/1 3 = 208-230/115/60/1	1 = Full 0 = Half	Refer to Price Book or AutoQuotes	Pass Thru (P)	0 = Self Contained	4 = R450A 5 = R448A	3 = LED

Figure 2: R450 & R448 G-Series Reach-In Model Numbers

1.4 Reading Traulsen Serial Number



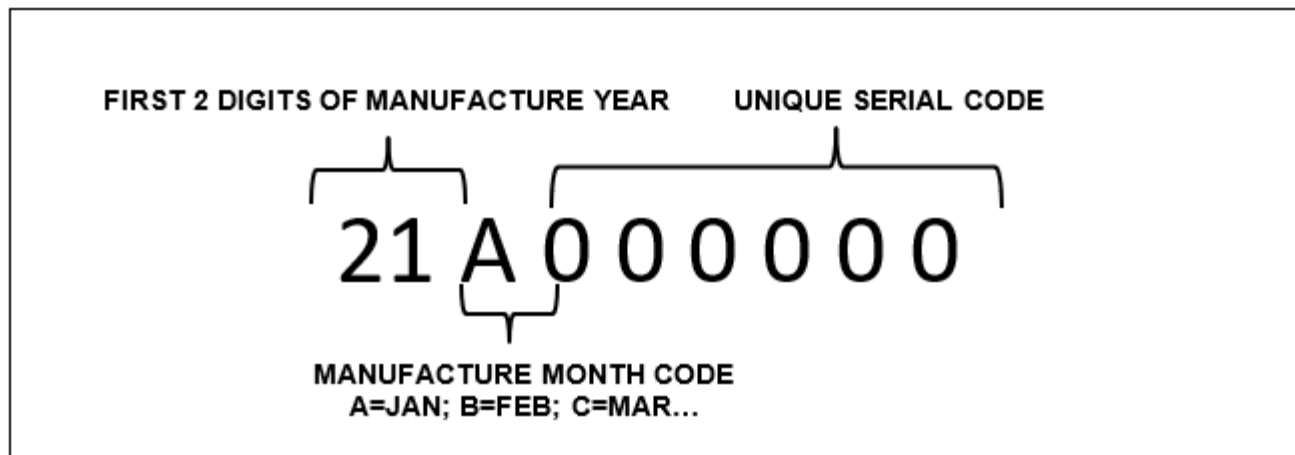


Figure 3: Understanding Traulsen Serial Number

1.5 Refrigerants

1.5.1 Terminology:

Zeotropic Blend – A mixture of two or more refrigerants that have different boiling points that evaporate or condense at different temperatures. All 400 Series Refrigerants are zeotropic blends.

Azeotropic Blend – A mixture of two or more refrigerants that boil at the same temperature so that they evaporate and condense together. All 500 Series Refrigerants are azeotropic blends.

Temperature Glide – The temperature difference between the starting and ending temperature of a refrigerant phase change within a system at a constant pressure. This can be seen on a Pressure Temperature chart as the difference between bubble and dew temperatures.

Fractionation of Refrigerant – The change in composition of a blend because one or more of the components is lost or removed faster than the others.

Bubble Point – The temperature at which the liquid of a refrigerant blend starts to boil.

Dew Point – The temperature at which the vapor of a refrigerant blend starts to condense.

Superheat – The heat added to a refrigerant after its saturation point. Or in other words, heat added to a refrigerant after it boils.

Subcooling – The removed from a refrigerant after its saturation point. Or in other words, heat removed from a refrigerant after it condenses.

1.5.2 R-450A Refrigerant

R-450 Refrigerant is a refrigerant Traulsen uses in medium temperature applications. This refrigerant is technically a zeotropic blend but has such a small temperature glide that it could be considered a near azeotropic blend.

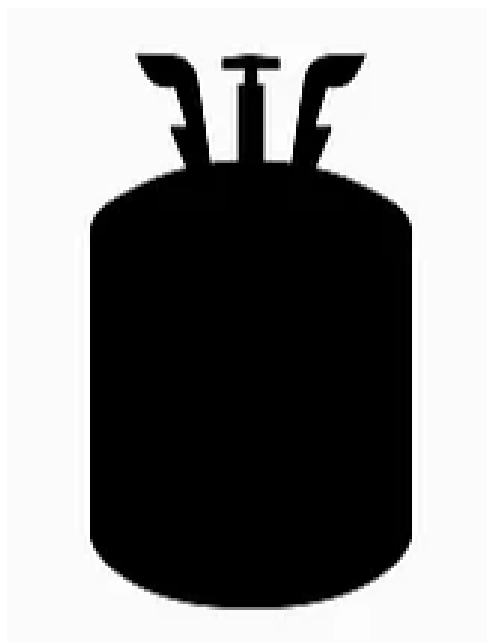


Figure 4: R-450 Blend

58%	R134A
42%	R1234ZE

Table 1 R-450 Refrigerant Composition

When charging any G-Series Refrigerator with R-450A refrigerant care should be taken to weigh the proper amount of liquid refrigerant into the system according to the data plate. It is important to charge with refrigerant in a liquid state to avoid fractionating.

1.5.2.1 Pressure/ Temperature Chart for R-450A Refrigerant

Pressure	Dew	Bubble
10 PSIG	13.2°F	12.9°F
15 PSIG	21.7°F	20.6°F
20 PSIG	29.2°F	28.0°F
25 PSIG	35.8°F	34.7°F
30 PSIG	41.8°F	40.7°F
35 PSIG	47.4°F	46.2°F
40 PSIG	52.5°F	51.4°F

45 PSIG	57.3°F	56.2°F
50 PSIG	61.8°F	60.7°F
55 PSIG	66.1°F	64.9°F
60 PSIG	70.1°F	68.9°F
65 PSIG	73.9°F	72.7°F
70 PSIG	77.5°F	76.4°F
75 PSIG	81.0°F	79.9°F
80 PSIG	84.4°F	83.2°F
85 PSIG	87.6°F	86.4°F
90 PSIG	90.6°F	89.5°F
95 PSIG	93.6°F	92.5°F
100 PSIG	96.5°F	95.3°F
105 PSIG	99.3°F	98.1°F
110 PSIG	102.0°F	100.8°F
115 PSIG	104.6°F	103.4°F

Table 2 R-450 Refrigerant Pressure & Temperature Chart

Note: Use the Dew temperatures when calculating superheat and bubble temperatures when calculating subcooling.

1.5.3 R-488A Refrigerant

R-448A Refrigerant is a refrigerant Traulsen uses in low temperature applications. This refrigerant is a zeotropic blend with a large temperature glide.



Figure 5 R-448A Blend

R-32	26%
R-125	26%
R-134A	21%
R-1234yf	20%
R-1324ze	7%

Table 3 R-448 Refrigerant Composition

When charging any G-Series Freezer with R-448A refrigerant care should be taken to weigh the proper amount of liquid refrigerant into the system according to the data plate. It is important to charge with refrigerant in a liquid state to avoid fractionating.

1.5.3.1 Pressure/ Temperature Chart for R-448 A Refrigerant

Pressure	Dew	Bubble
5 PSIG	-28.8°F	-39.8°F
10 PSIG	-19.7°F	-30.6°F
15 PSIG	-12.0°F	-22.8°F
20 PSIG	-5.23°F	-15.9°F
25 PSIG	0.8°F	-9.8°F
30 PSIG	6.3°F	-4.3°F
35 PSIG	11.3°F	0.8°F
40 PSIG	16.0°F	5.5°F
50 PSIG	24.4°F	14.5°F
60 PSIG	31.9°F	21.6°F
70 PSIG	38.7°F	28.5°F
80 PSIG	44.8°F	34.8°F
90 PSIG	50.5°F	40.6°F
100 PSIG	55.8°F	45.9°F
110 PSIG	60.8°F	51.0°F
130 PSIG	69.8°F	60.2°F
140 PSIG	74.0°F	64.5°F
150 PSIG	78.0°F	68.6°F
160 PSIG	81.3°F	72.5°F
170 PSIG	85.4°F	76.2°F
180 PSIG	88.9°F	79.8°F
190 PSIG	92.3°F	83.3°F
200 PSIG	95.5°F	86.6°F
210 PSIG	98.7°F	89.8°F
220 PSIG	101.7°F	93.0°F
230 PSIG	104.6°F	96.0°F
240 PSIG	107.5°F	99.0°F

250 PSIG	110.2°F	102.0°F
260 PSIG	112.9°F	104.6°F
270 PSIG	115.5°F	107.2°F

Table 4 R-448 Refrigerant Pressure & Temperature Chart

Note: Use the Dew temperatures when calculating superheat and bubble temperatures when calculating subcooling.

1.6 Specifications:

SPECIFICATIONS			
DIMENSIONS	1 Section Cabinet	2 Section Cabinet	3 Section Cabinet
Height–Overall on 6" casters	83- 7/16" (211.9cm)	83- 7/16" (211.9cm)	83- 7/16" (211.9cm)
Width	29- 7/8" (75.9cm)	52- 1/8" (132.4cm)	76- 5/16" (193.8cm)
Depth	35" (88.8cm)	35" (88.8cm)	35" (88.8cm)
Net Capacity cu. ft.	23.37	46.5	69.1

Table 5 Traulsen Cabinets specifications

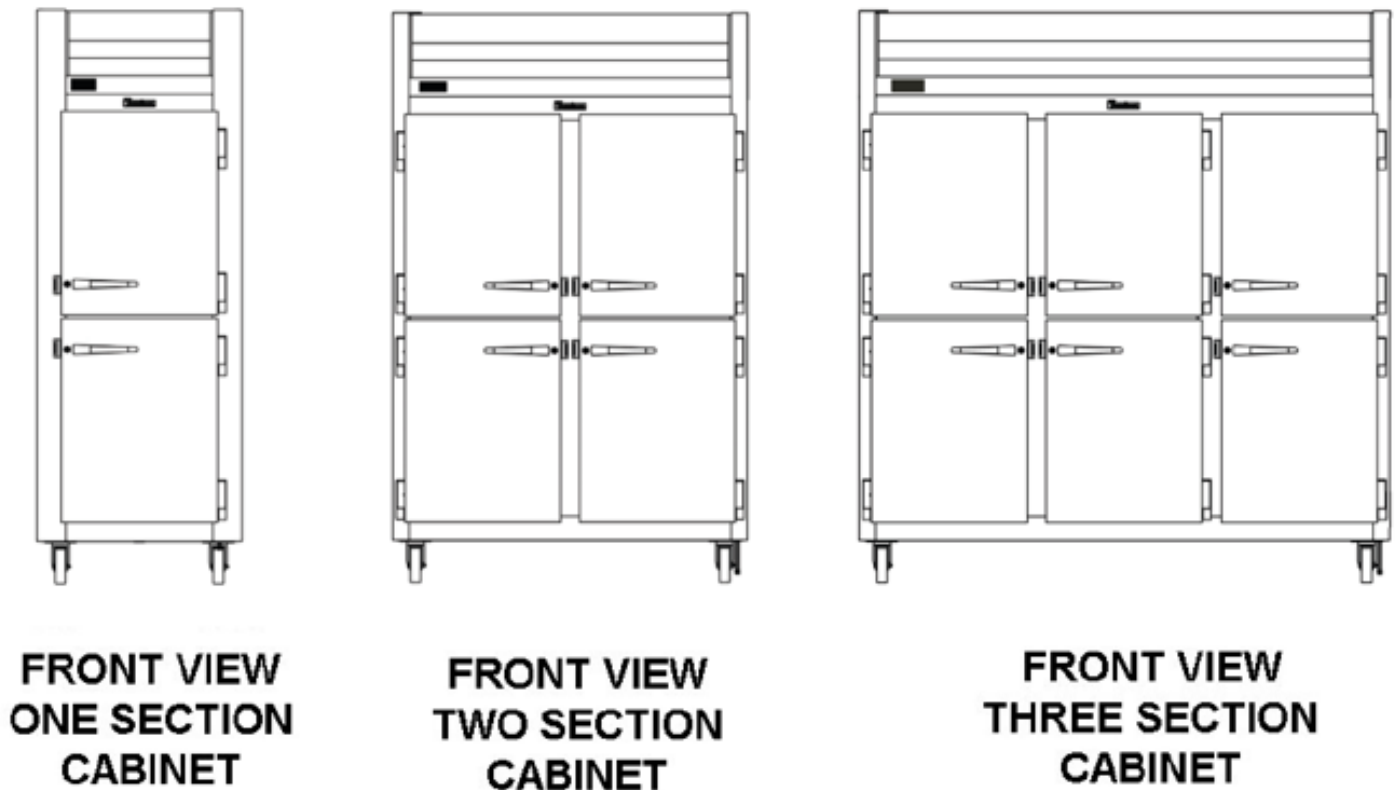


Figure 6 Front view of cabinets

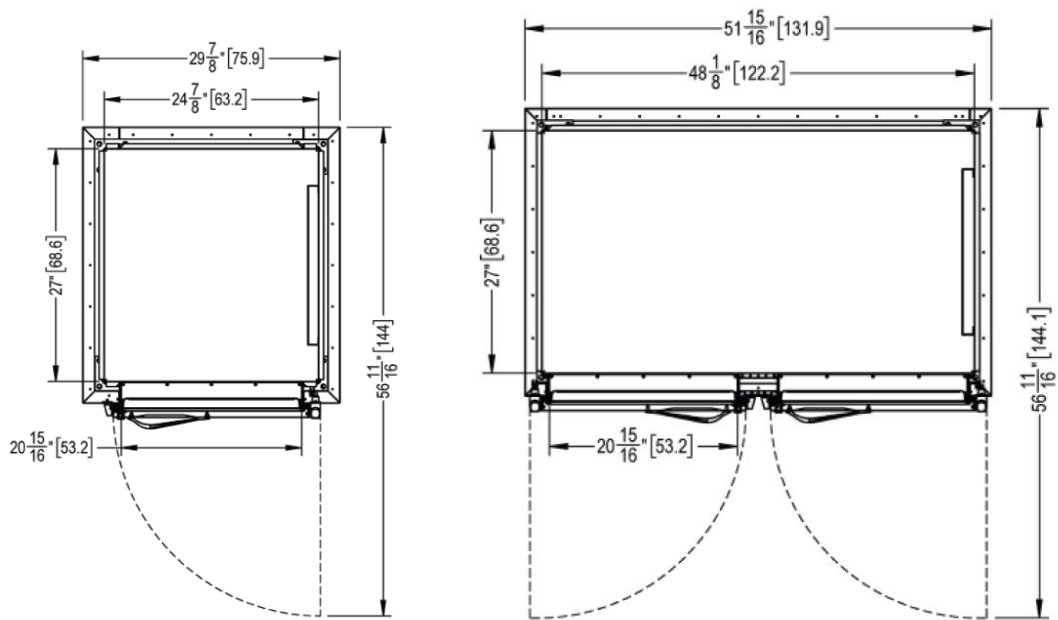


Figure 7 Top view of 1 & 2 section cabinets

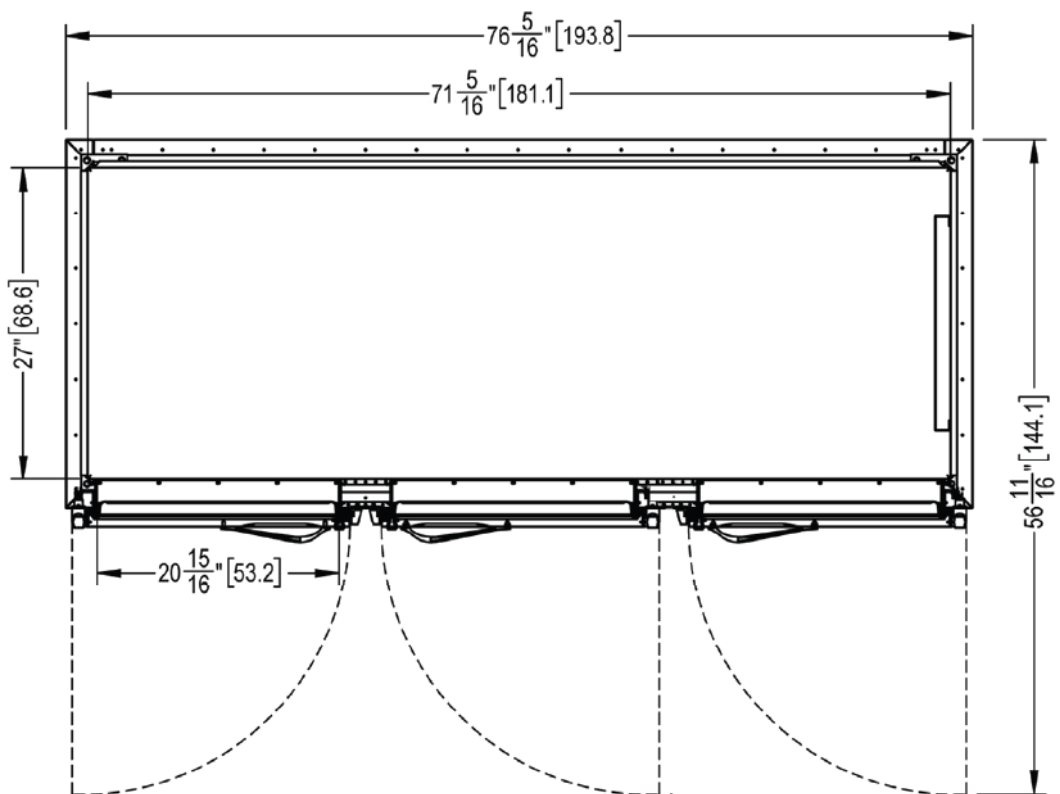


Figure 8 Top view of 3 section cabinets

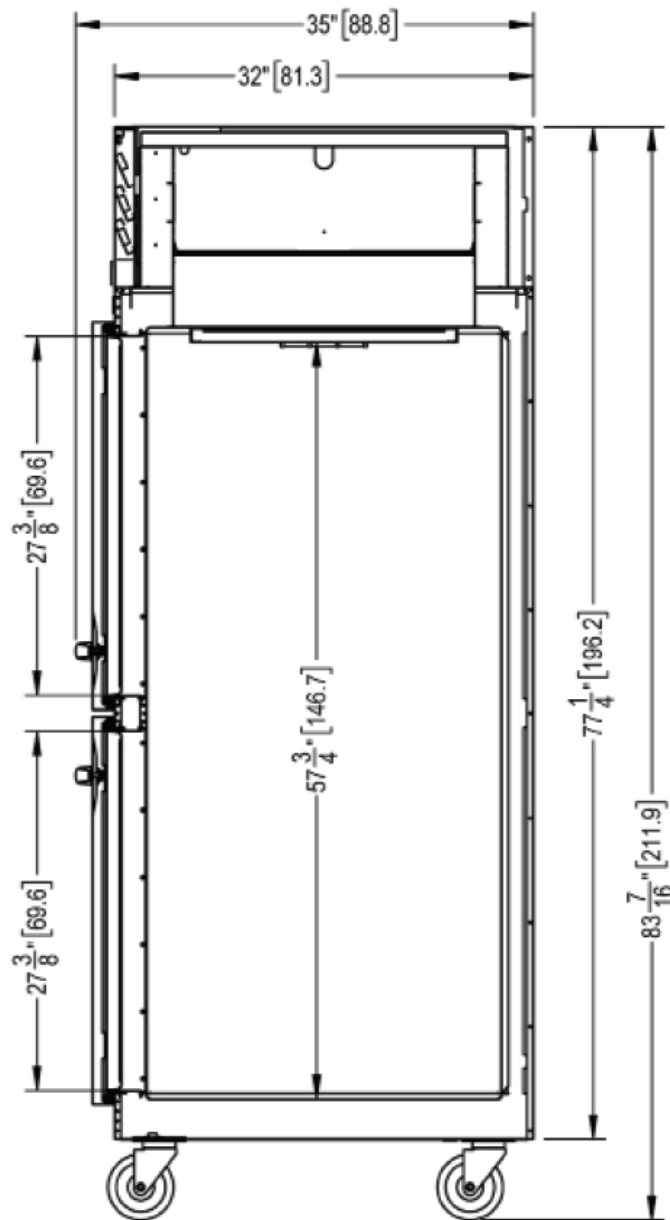


Figure 9 Side view of Reach-in cabinets

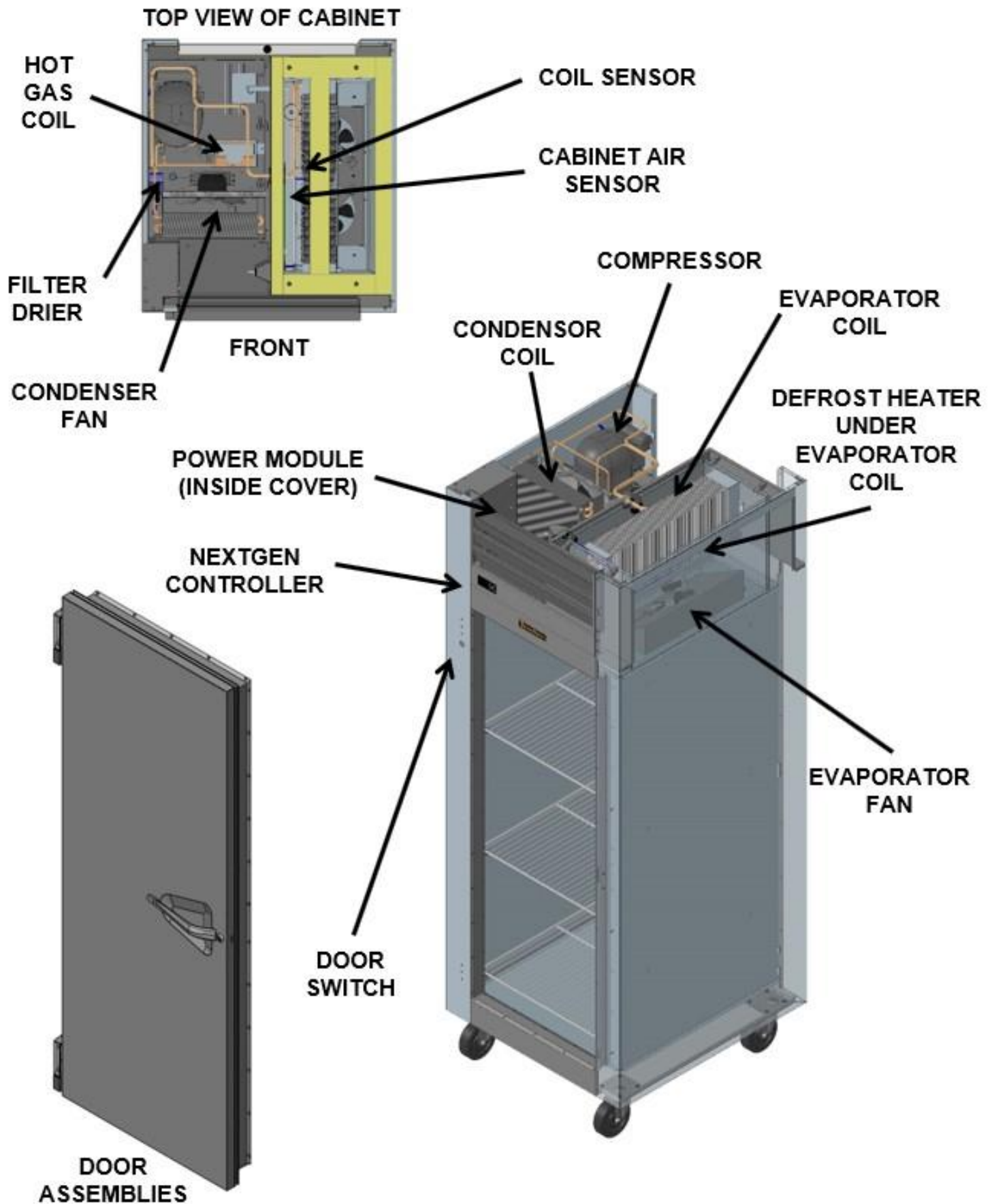


Figure 10 Reach-in cabinet Components

2. Preventative Maintenance

This section is to inform the recommended preventative maintenance (PM) procedures. Depending on application, PM schedule may vary.

2.1 Inspect and Clean Unit:

Why	Sanitation and prolong cabinet life	
Frequency	Daily	
Time required	3 minutes to prepare	3 minutes to complete
Preparation	Have a Soft Cloth. Baking soda and water mixed to a 1 TBSP (15mL) baking soda to 1-pint (473.2mL) water ratio.	
Cleaning	Apply with a dampened cloth, wipe in the direction of the metal grain. (Avoid the use of strong detergents and gritty, abrasive cleaners as they may tend to mar and scratch the surface. Do NOT use cleansers containing chlorine; this may promote corrosion of the stainless steel.)	
Inspection	Visually inspect the unit for signs of wear that may require repair.	

Table 6 Cleaning PM Procedure

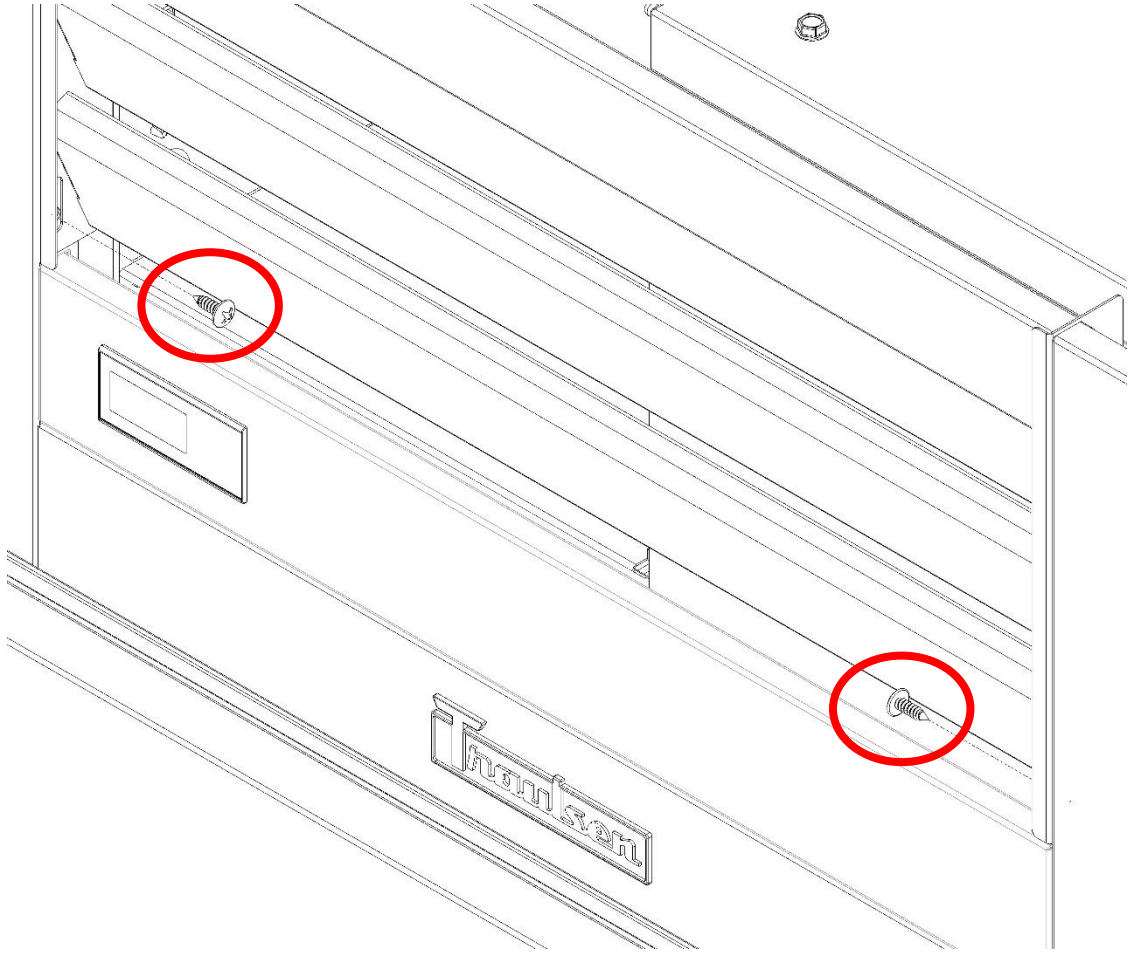
2.2 Inspect and Clean Door Gasket:

Why	Long reliable service life
Frequency	Every 3 Months
Time required	10 minutes to complete
Inspection	Open cabinet door (s) to inspect gasket. Pull gasket with hand and visually inspect gasket for tears, dirt, mold or worn gasket. Clean with mild soap and water. Do not use cleaners containing chlorine or chlorides. Replace as needed. 341-60256-00 Full Height Gasket 341-60257-00 Half Height Gasket

Table 7 Door Gasket Cleaning PM Procedure

2.3 Clean Condenser Coil:

⚠ WARNING Disconnect electrical power supply before cleaning any parts of the unit.

Why	Long reliable service life, extended compressor life.	
Frequency	Every 3 Months	
Time required	5 minutes to prepare	15 minutes to complete
Preparation		

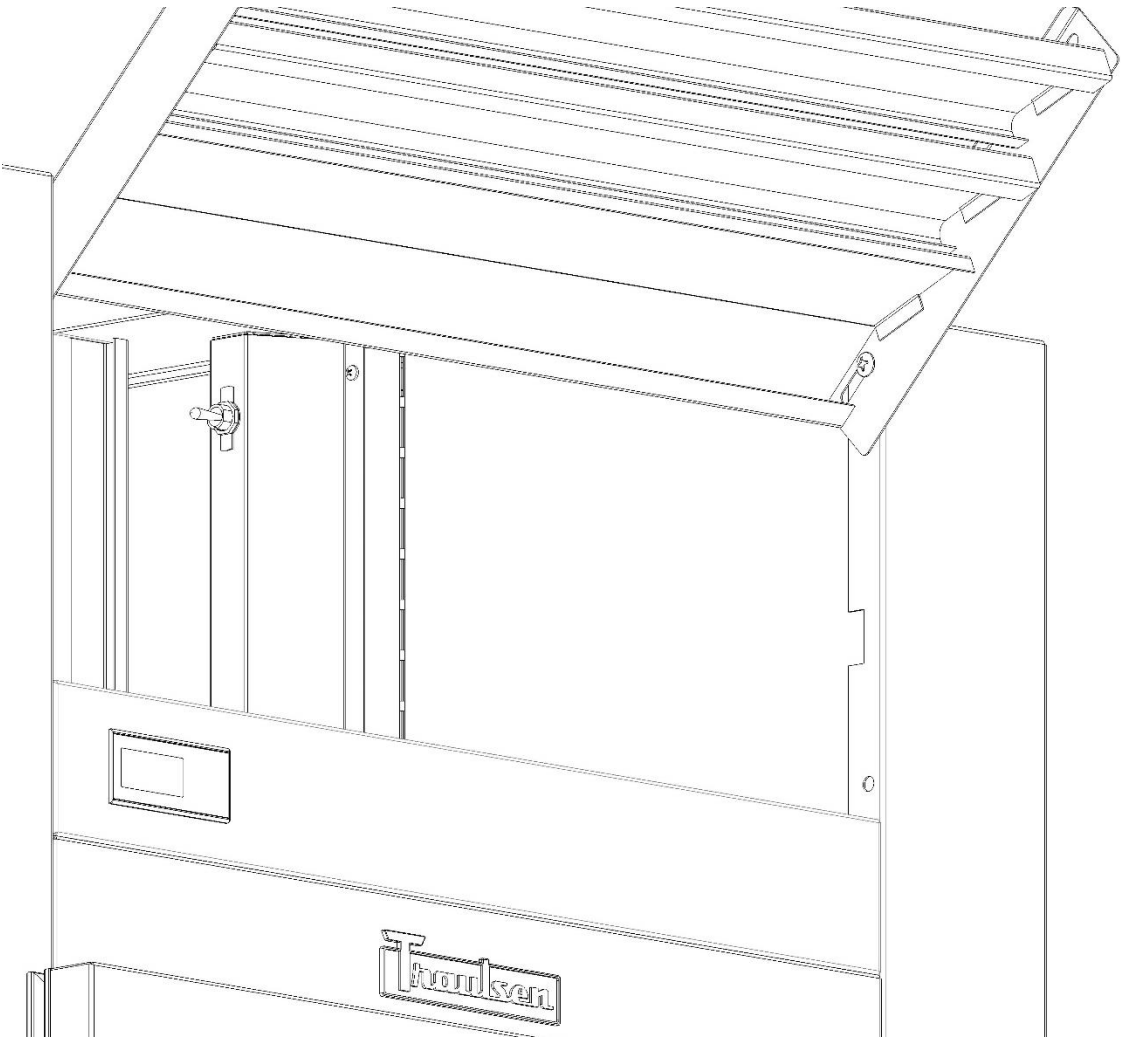
	 <p>To clean the condenser, first disconnect electrical power to the cabinet and lift the front louver assembly. To lift this, remove the two screws located on both sides at the bottom of the louver assembly (see Figure 5). Once the screws are removed, the panel can be pivoted upwards allowing full access to the front facing condenser</p>
Cleaning	<p>Use a soft bristle brush to remove any dirt, lint or dust from the finned condenser coil, around the compressor and other cooling system parts as indicated. Be sure to brush in the direction of the fins to prevent damage. If significant dirt is clogging the condenser fins, use compressed air to blow this clear. When finished reverse the louver removal process as instructed above. Compressor warranty claims will not be paid for units with dirty condensers.</p>

Table 8 Condenser Coil Cleaning PM Procedure

3. Doors & Hardware

3.1 Hinges

3.1.1 Removing the Doors and Hardware:

To fit through narrow (less than 35") doorways, it may be necessary to remove the door(s), and/or hinges. To remove any solid door, begin by removing the safety screw at the bottom of the top hinge which secures the door in place. Remove this with a #2 Phillips screwdriver and the door can then be lifted off the hinges. After removing the door, it may be necessary to remove the hinge assembly and hardware from the door itself. If it is necessary to remove the hinge hardware from the cabinet, begin by removing the three Phillips head screws which hold it in place. Set these components aside for later reassembly. Pay special attention not to lose the door switch actuator button.

The lock keeper may also require removal to reduce the overall cabinet depth to 32".

First remove the lock keeper strike plate by removing the two Phillips head screws which secure it in place exposing the adjustment screws. Then remove both adjustment screws from the mounting plate to remove. See figure 11. To re-install the door and/or hinges, please reverse the appropriate sections of the preceding procedure.

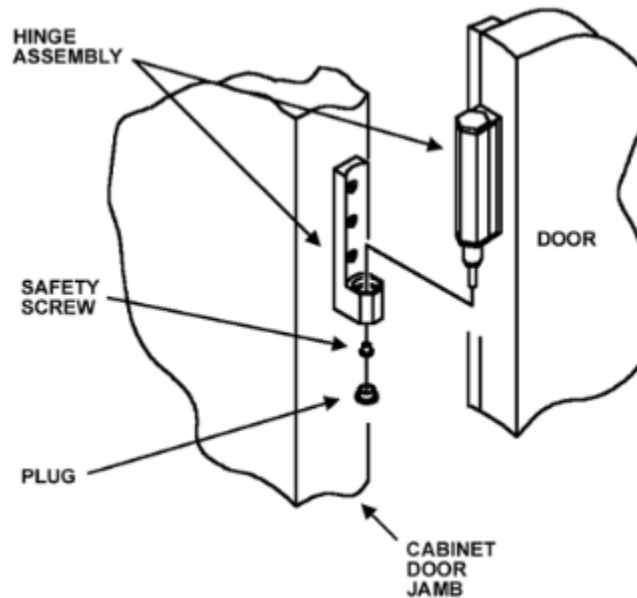


Figure 11 Hinge assembly

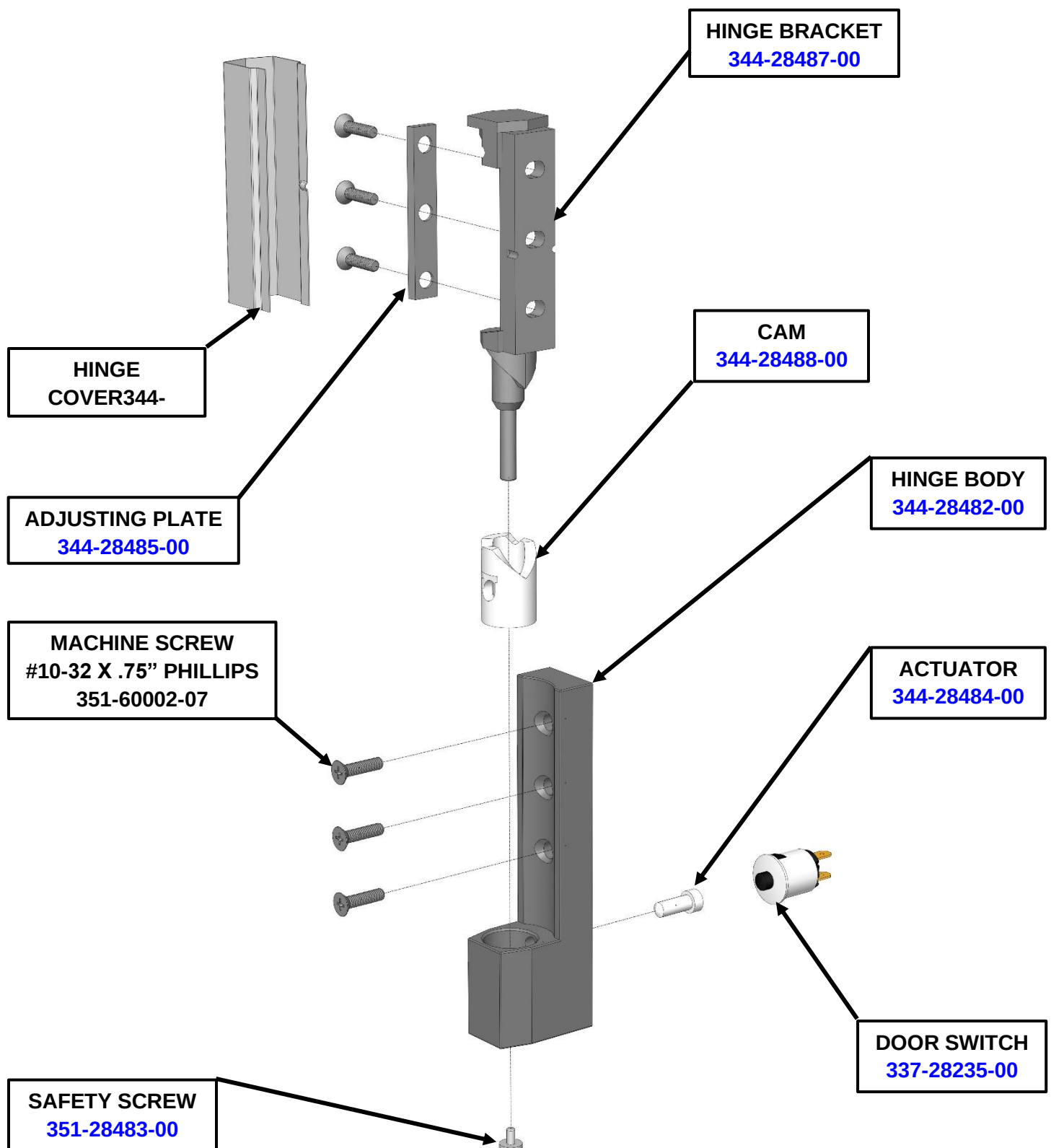


Figure 12 Hinge Exploded view.

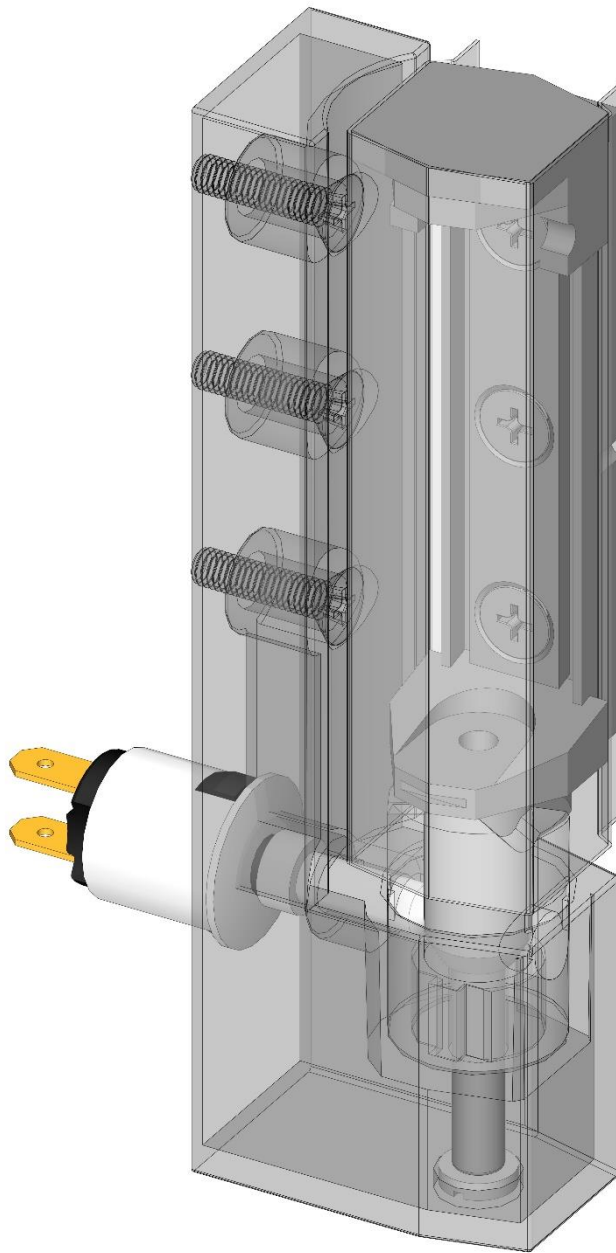


Figure 13 Hinge position when door is closed

Closing the Door: The Hinge Bracket travels along the Cam and the thicker portion of the Hinge Bracket Stem pushes the Actuator into the Door Switch; opening the circuit.

- Light turns off.
- Fans come back on (if board is calling for fans)

Opening the Door: The Hinge Bracket travels along the Cam, exposing the thinner Hinge Bracket Stem and the Door Switch pushes the Actuator out; closing the circuit.

- Light turns on.
- Fans turn off (this helps prevent ice accumulating on evaporator coil from ambient air moisture)

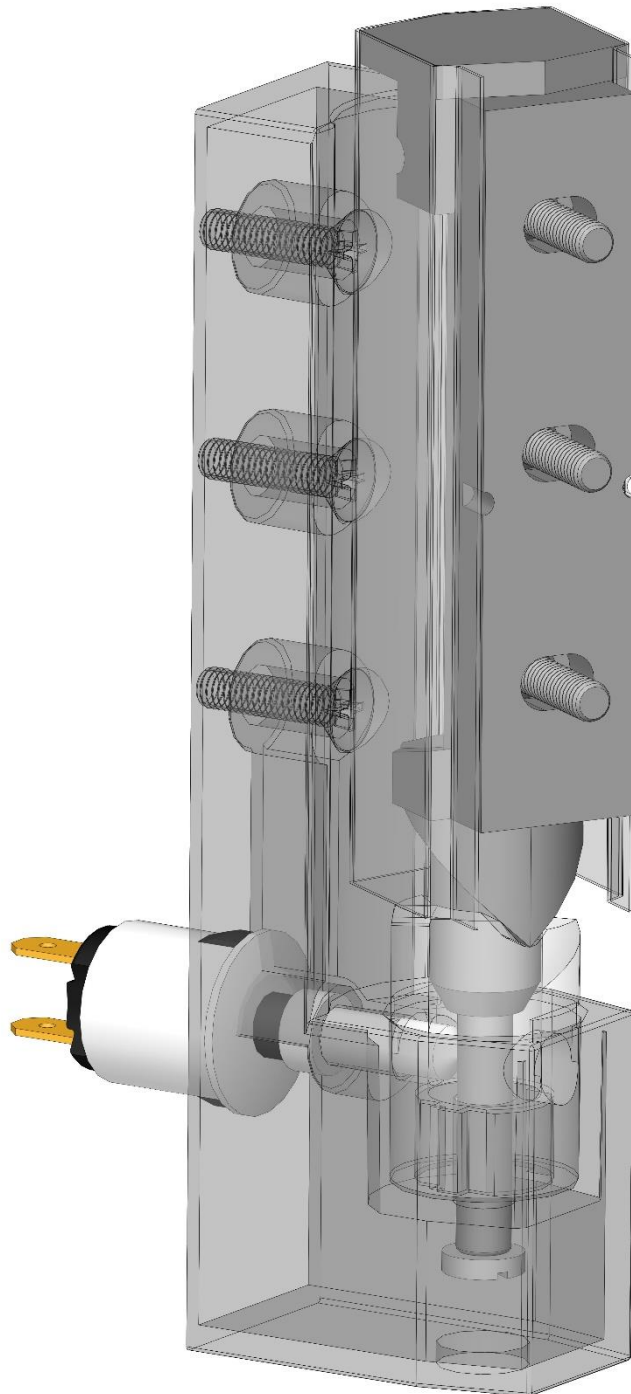


Figure 14 Hinge position when door is open.

3.2 Adjustments

Performing a Door Adjustment:

These instructions are intended to aid the technician in the field perform hinge adjustments and may not cover all situations that may arise. Final diagnosis of field-based equipment is the sole responsibility of the technician performing any work required.

1. Remove the hinge safety screw.
2. Remove the door and gently lay it on the floor to slide hinge cover off the hinge bracket.
3. Loosen the (3) bolts securing the hinge bracket to the door.
4. Install door without hinge covers.
5. Position adjusting plate to desired fit and tighten the screws and replace hinge covers.

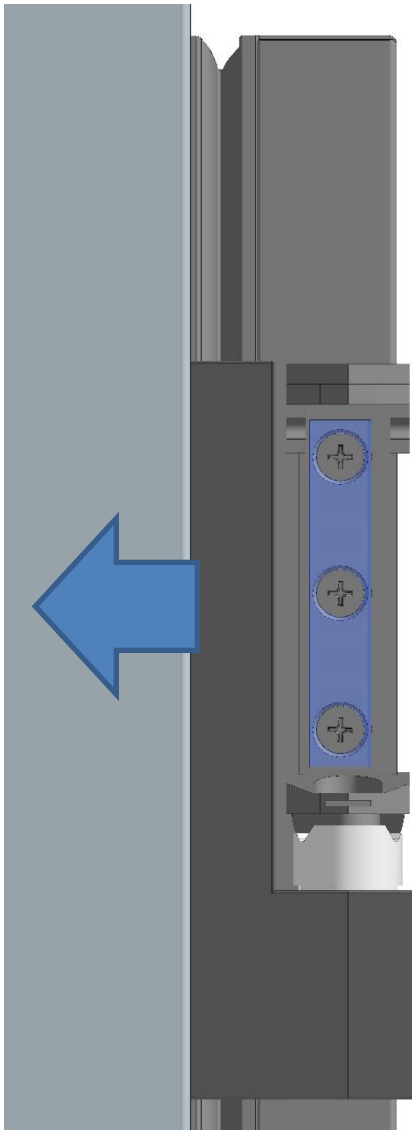


Figure 15 Door Adjustment inward.

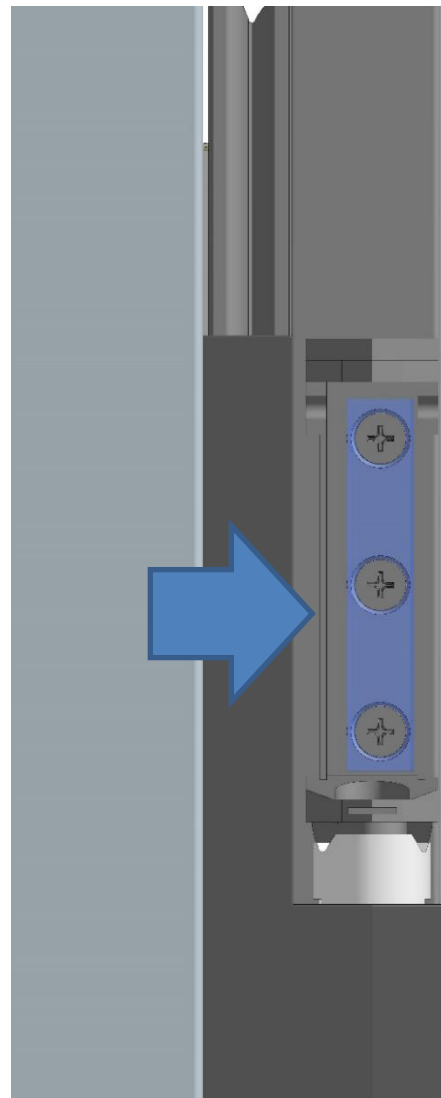


Figure 16 Door Adjustment outward.

3.3 Gaskets

DOOR GASKET REPLACEMENT: Remove an old gasket by grasping it firmly by one corner and pull it out. Install the new gasket by inserting all four corners first then after the corners are properly inserted, work your way towards the center from both ends pushing the dart into the retainer until the gasket is completely seated in place. Check for proper seal all the way around the door.

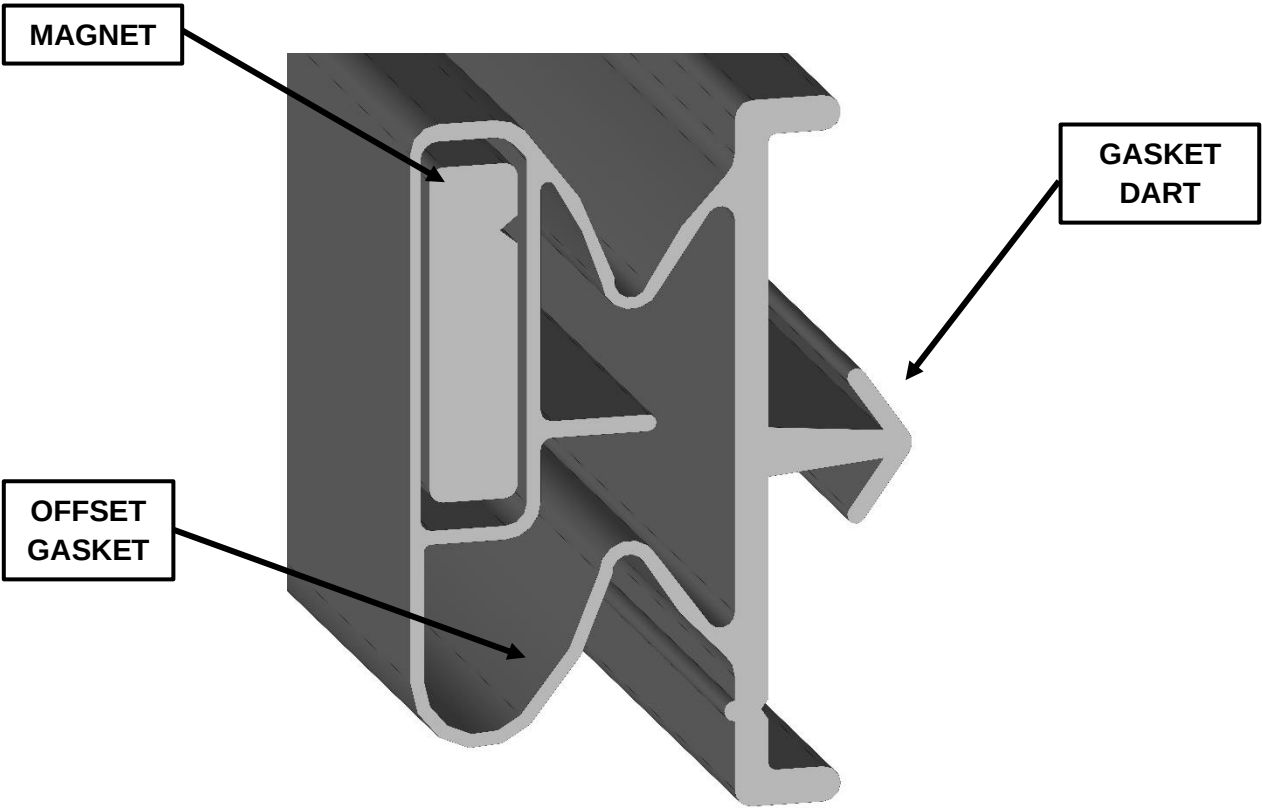


Figure 17 Gasket Section View

Description	Part Number
Half-Height Door Gasket (22.814" X 29.5")	SVC-60257-00
Full-Height Door Gasket (22.814" X 59.75")	SVC-60256-00

Table 9 Door Gasket Part Numbers

3.4 Locks

3.4.1 Door lock assembly exploded view:

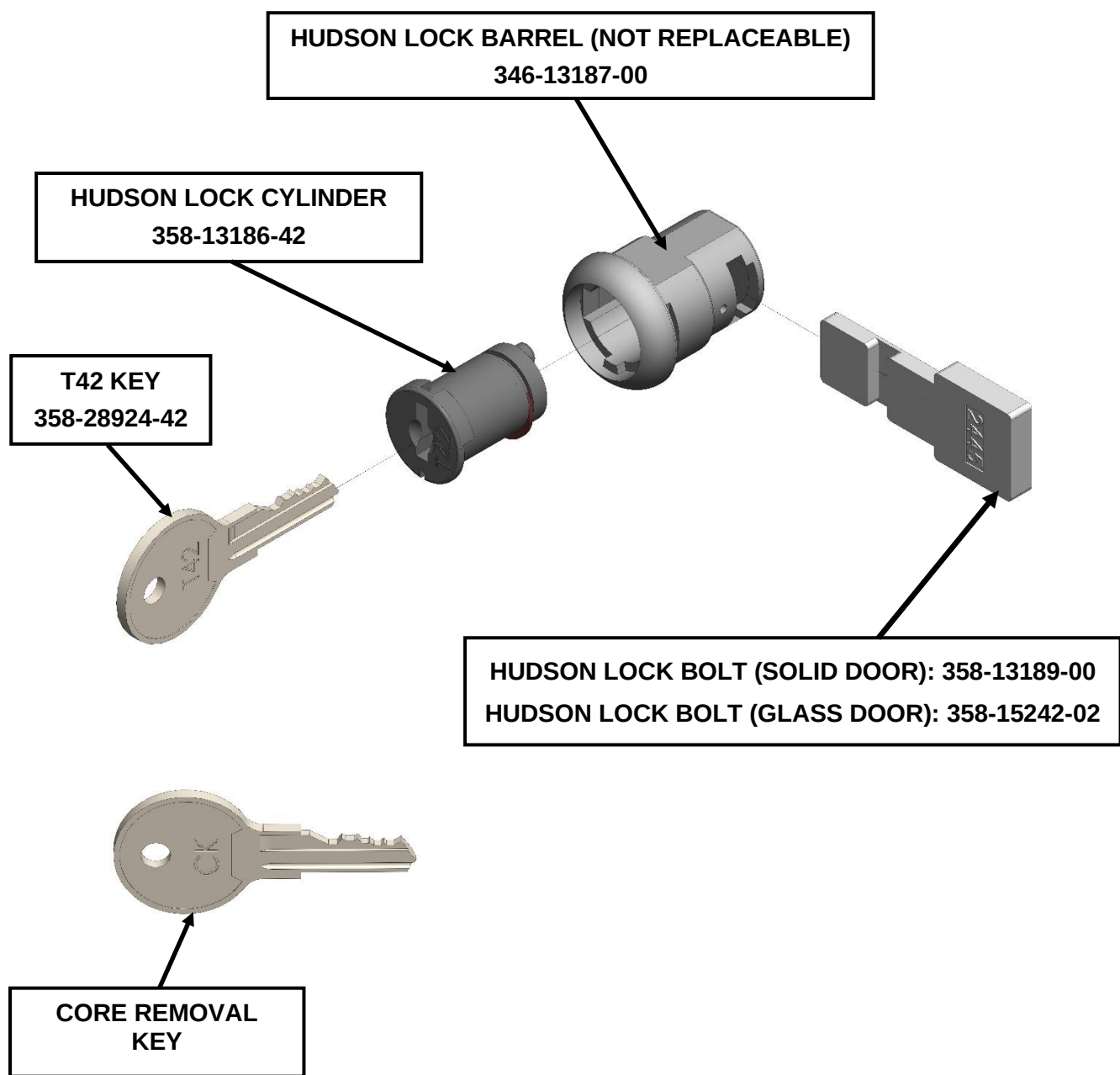


Figure 18 Door lock exploded view.

NOTE: Core removal key should only be used to remove door lock assembly. A damaged Hudson Lock Barrel will require door replacement.

Service Kit Numbers:

Solid Door Lock Kit	SER-13186-42
Glass Door Lock Kit	358-13186-02

Table 10 Door lock service kit part numbers

3.4.2 Door lock replacement instructions

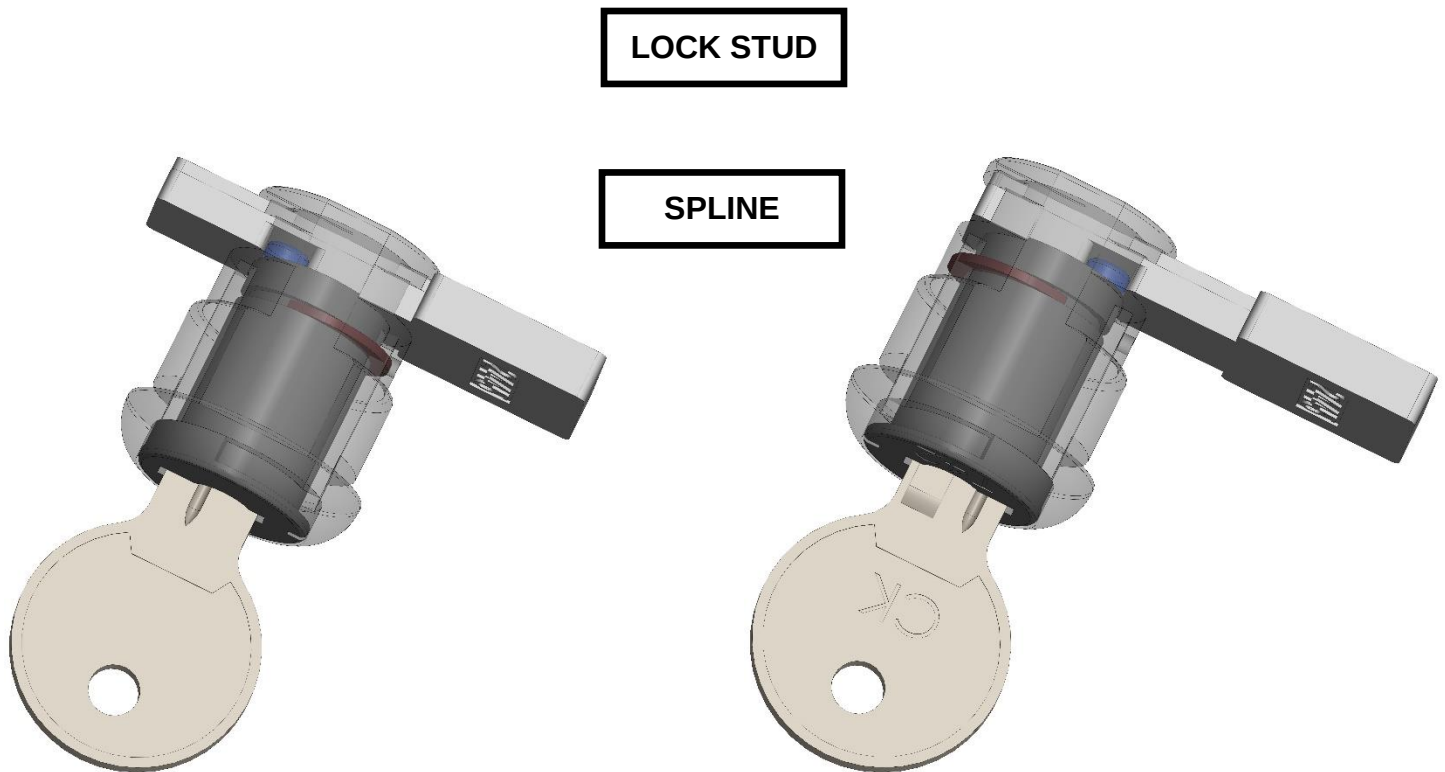


Figure 19 Unlock position

Figure 20 Lock Position

3.4.2.1 Disassembly of lock:

To remove the lock cylinder for replacement, insert the Core Removal Key into the lock, causing the Spline to lower so the lock cylinder can be removed. Move the key up and down, then pull backwards; the core key will pull the lock cylinder along with it. The Lock Bolt is now free to slide out of the Lock Barrel for replacement (if applicable).

3.4.2.2 Assembly of lock:

Insert the Lock Bolt into the Lock Barrel until the groove in the bolt is approximately in the locked position. Insert the Core Removal Key into the Lock Cylinder (causing the Spline to lower) and insert the Lock Cylinder into the Lock Barrel (**NOTE: Lock Stud must be lined up with Lock Bolt groove**). Use one hand to firmly hold the Lock Cylinder in place, then remove the Core Key with the other (causing Spline to rise and securing Lock Cylinder).

NOTE: Lock Barrel is assembled to the door during production at the factory. A damaged Lock Barrel requires door replacement.

Core Removal Key should only be used for lock replacement. Use of Core Removal Key to lock and unlock the door will cause the Lock Cylinder to fall out.

3.4.2.3 *Lock keeper exploded view:*

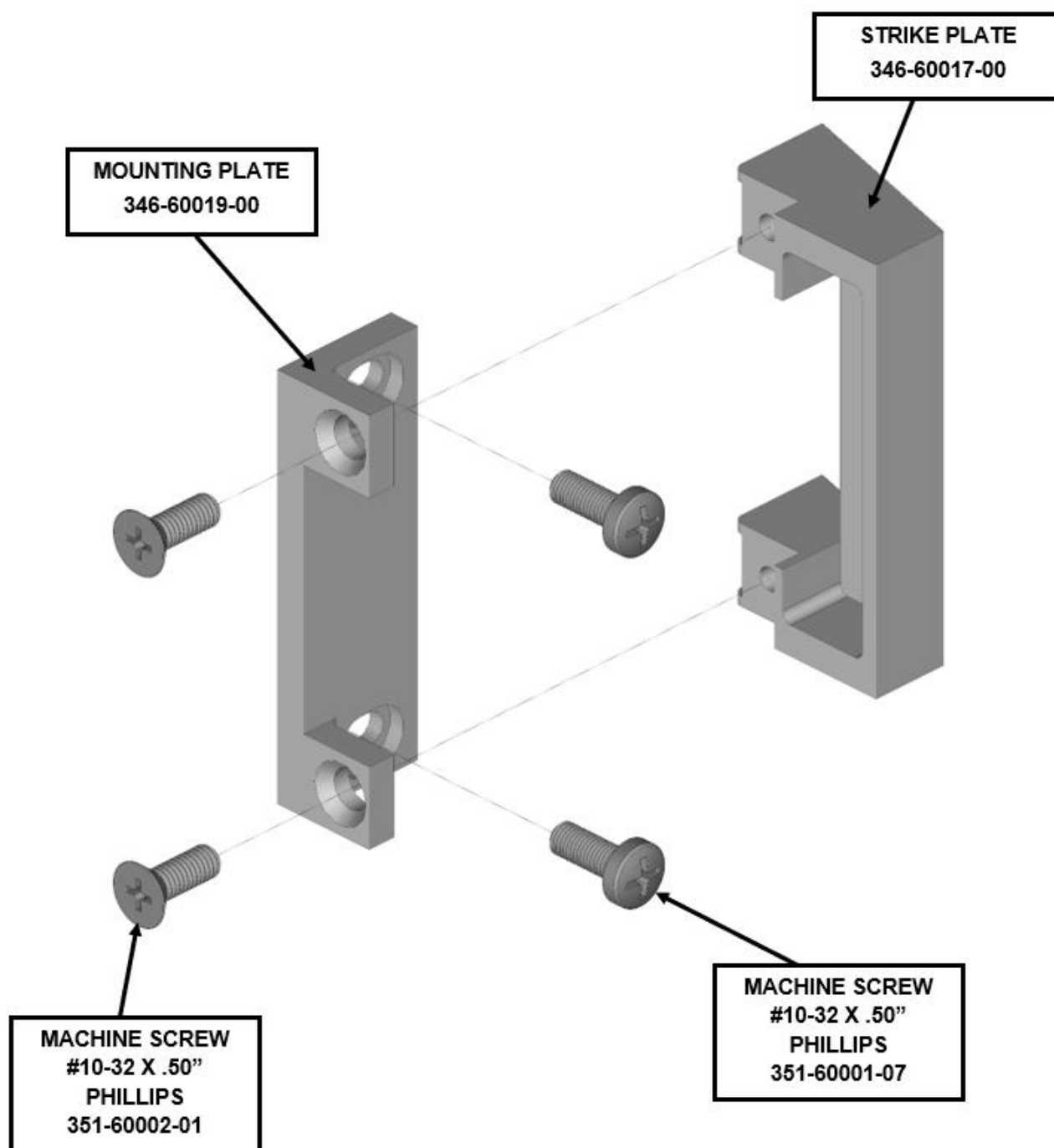


Figure 21 Lock keeper exploded view.

LOCK KEEPER ADJUSTMENT



ADJUSTED INWARD



ADJUSTED OUTWARD

Figure 22 Lock keeper Adjustment

Adjusting the Lock Keeper

1. Remove the (2) machine screws holding the strike plate to the mounting plate using a #2 Phillips screwdriver.
2. Remove the strike plate.
3. Loosen the (2) machine screws holding the mounting plate to the cabinet.
4. Adjust the mounting plate (left or right) Until:
 - a. The lock keeper does not interfere with the door opening or closing.
 - b. The lock bolt extends far enough in the locked position to be stopped by the strike plate, locking the door.

4. Controls

4.1 Understanding the display

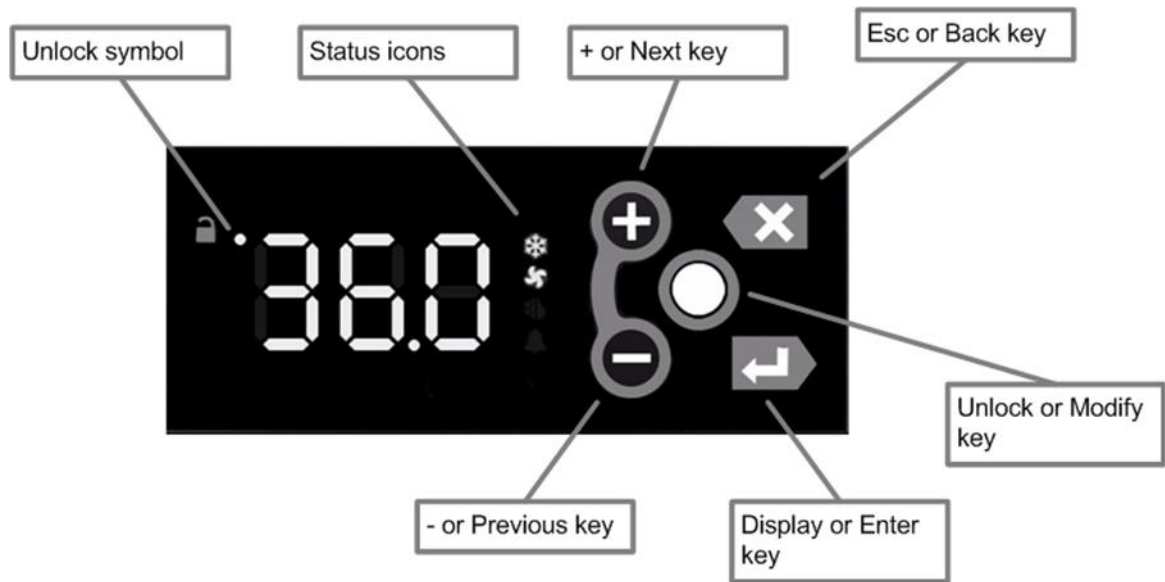


Figure 23 Traulsen Display

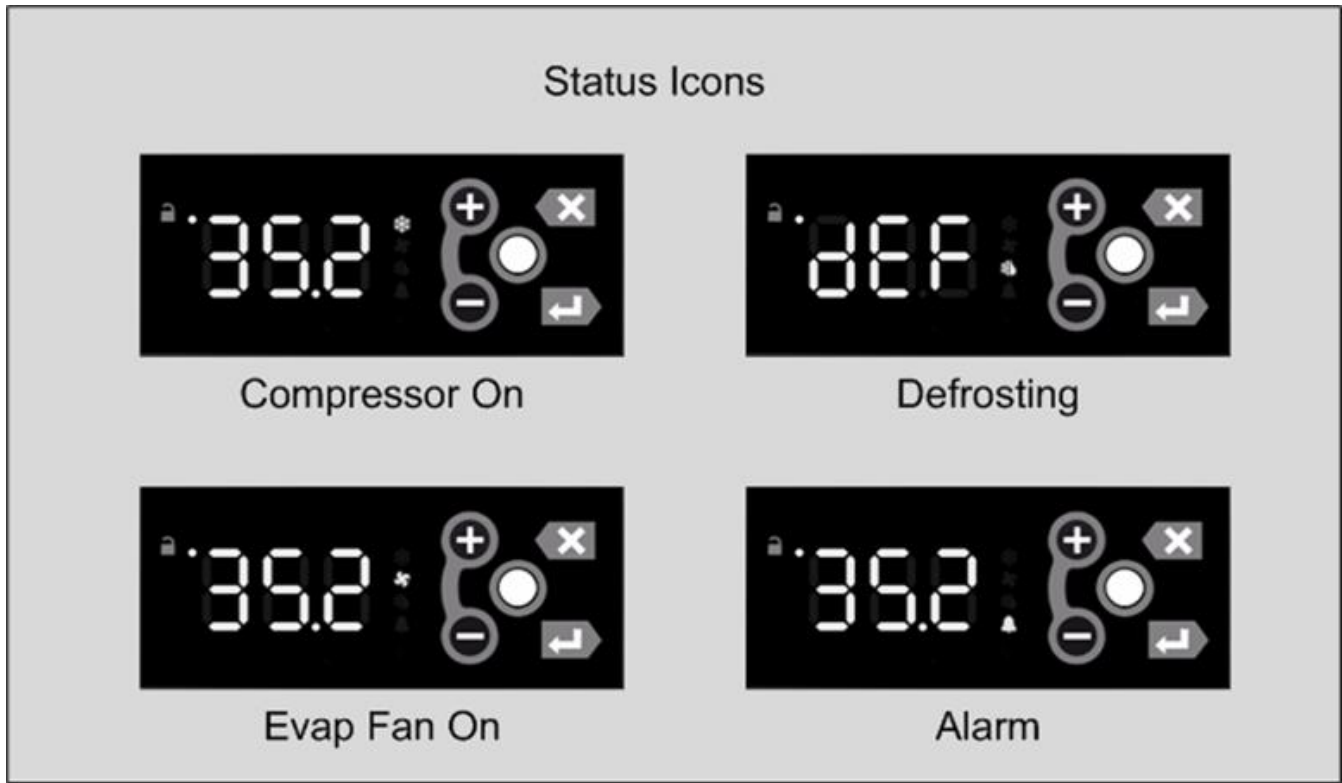


Figure 24 Display Status Icons

4.2 Unlocking the display

The **Unlock Key** is a white dot on the right side of the display, centered between the other 4 keys. Press the Unlock key twice within a second to unlock the keypad (think “tap-tap”). The **Keypad Unlocked LED** will turn on to indicate the keypad is now live. The keypad will stay unlocked until 3 minutes of inactivity have passed, at which time it will automatically lock the keypad.



Figure 25 Unlocking the display

There are 2 operations the user can perform without having to enter a password: Change the temperature setpoint • Initiate a defrost operation.

4.3 Change the Setpoint

The setpoint to the unit can be changed simply by pressing the **Plus or Minus Key**. There will be a slight delay at first to prevent an accidental change, so it will be necessary to hold the key for 3-4 seconds until the value starts to flash. The flashing value indicates the setting is being modified. To raise the setpoint, press the **Plus Key** to increment to the setpoint you want. Similarly, press the **Minus Key** to lower the setpoint. When the desired value is reached, press the **Enter/Display Key** to lock in the value. Pressing the **Esc Key** will abort the process and keep the original setpoint. The keypad must be unlocked to change the setpoint using the shortcut method.

4.4 Initiate a Defrost

To initiate a manual, defrost for troubleshooting purposes, press the **Minus Key** and the **Esc Key** simultaneously and hold for 5 seconds.



Figure 26 Defrost Icon illuminates in Electric Defrost ONLY

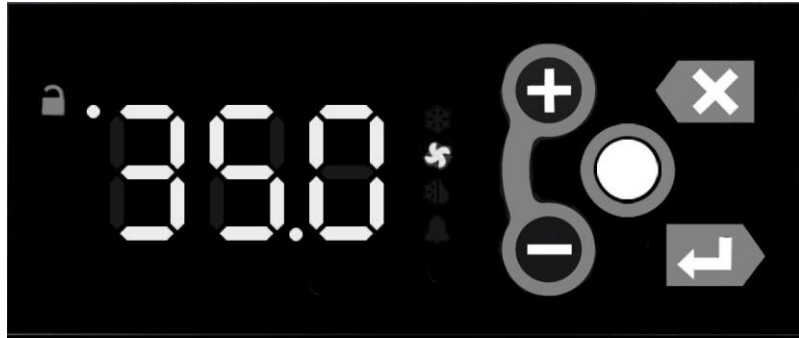


Figure 27 ONLY Fan Icon Illuminates with Off Cycle Defrost

Electric Defrost	Off-Cycle Defrost
Compressor Icon Off	Compressor Icon Off
Fan Icon Off	Fan Icon On
Defrost Icon On	Defrost Icon Off

Table 11 Electric defrost vs. Off-Cycle Defrost

Compressor



Evaporator Fan



Defrost Heat Icon



4.5 Decode Alphabet

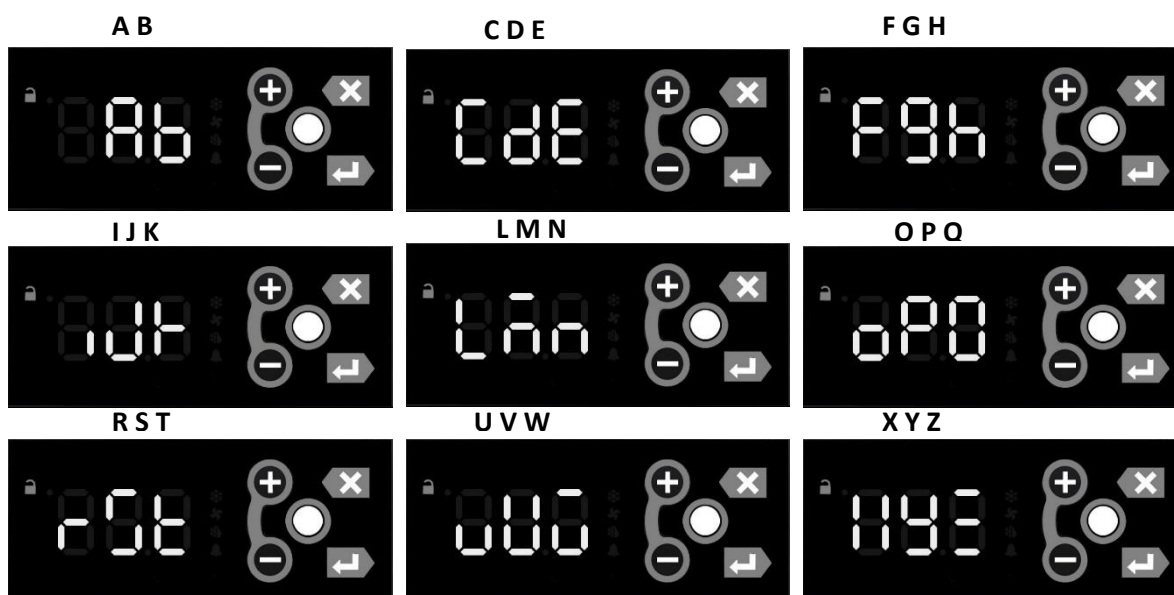


Figure 28 Decoding display Alphabet

4.6 Understanding the Menu System

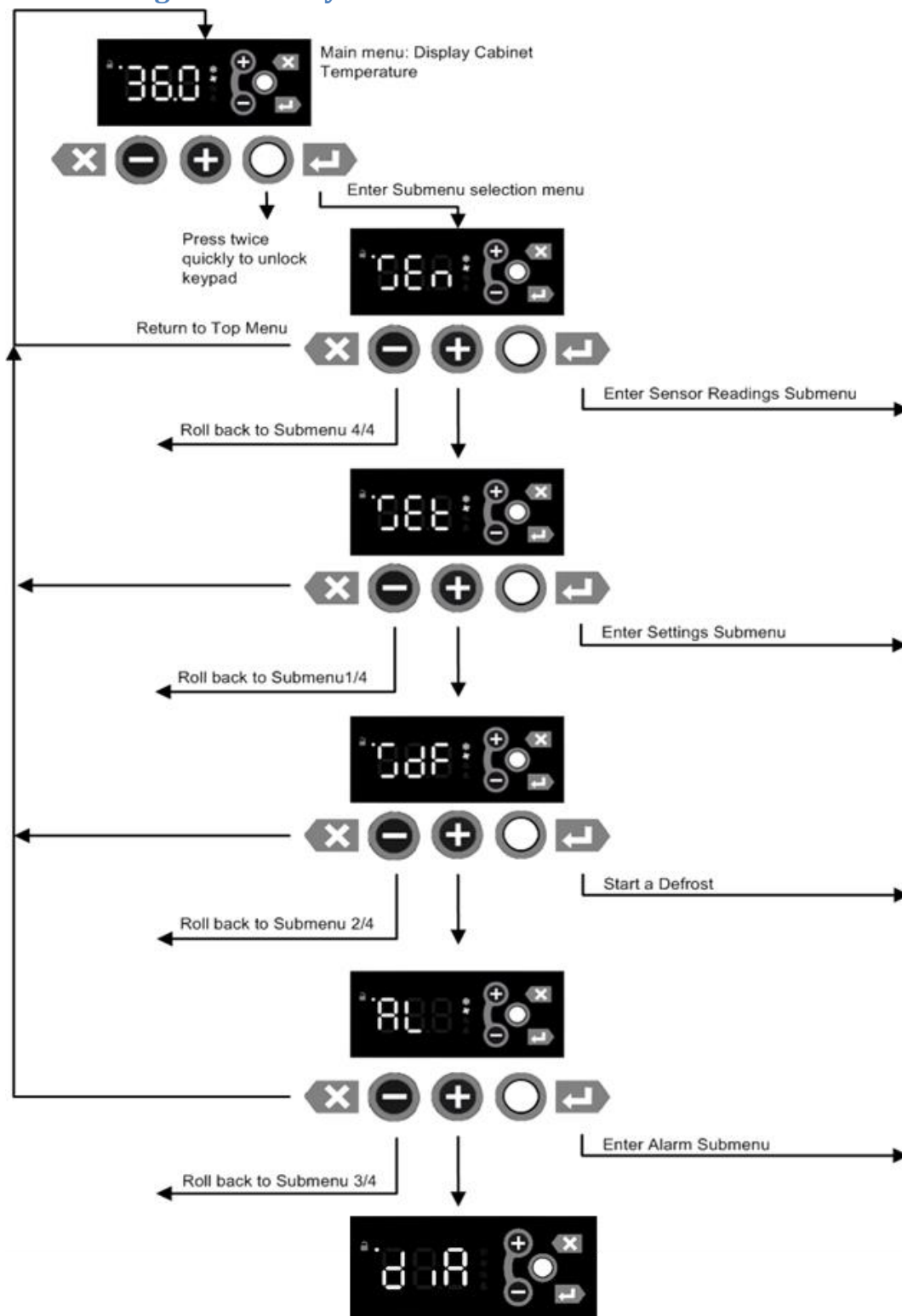


Figure 29 Control Menu

4.7 Defrost Settings

Display Cabinet Temperature



Tap lightly two times to unlock.

Press Enter

Sensor Submenu



Settings Submenu



Enter Technician Passcode

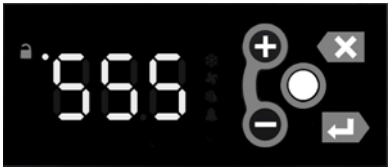
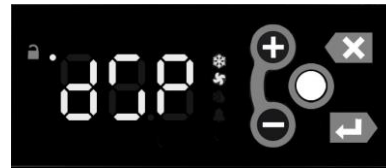


Figure 30 Defrost settings

4.8 Defrost Setpoint

Defrost Setpoint = Evaporator Coil Temperature at Defrost heat Termination

Defrost Setpoint



Press enter to view setting.

1. Freezer Setting



2. Refrigerator Setting



Figure 31 Defrost setpoint

4.9 Defrost Mode

Defrost Mode = Determines how defrost is initiated.



Optimize = Control is set to Optimize at the factory. This mode takes into consideration the dewpoint, door openings, and Defrost Interval Setting when deciding when to start a defrost.

1. Optimize



Time = When defrost mode is set to Time defrost is initiated based strictly on the Defrost Interval Setting.

2. Time

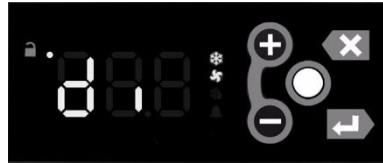


Figure 32 Defrost mode

4.10 Defrost Interval

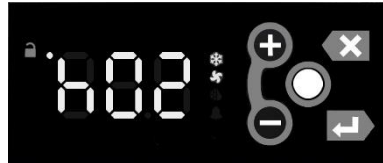
Defrost Interval = Determines how many hours between each defrost.

Defrost Interval



Refrigerator Off-Cycle Defrost

Off-Cycle Defrost = Defrost Interval set to h02 for Refrigerators utilizing Off-Cycle Defrost



Freezer Electric Defrost

Freezer Electric Defrost = Defrost Interval set to h04 for freezers utilizing Electric Defrost



Refrigerator Electric Defrost

Refrigerator Electric Defrost = Defrost Interval set to h08 for Refrigerators utilizing Electric Defrost



Figure 33 Defrost Interval

4.11 Diagnostic Menu

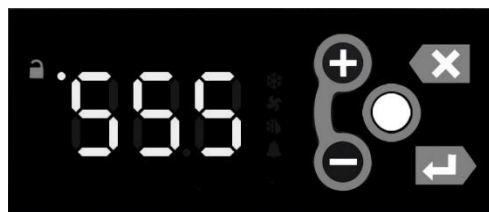


Press white circle
twice quickly to
unlock keypad

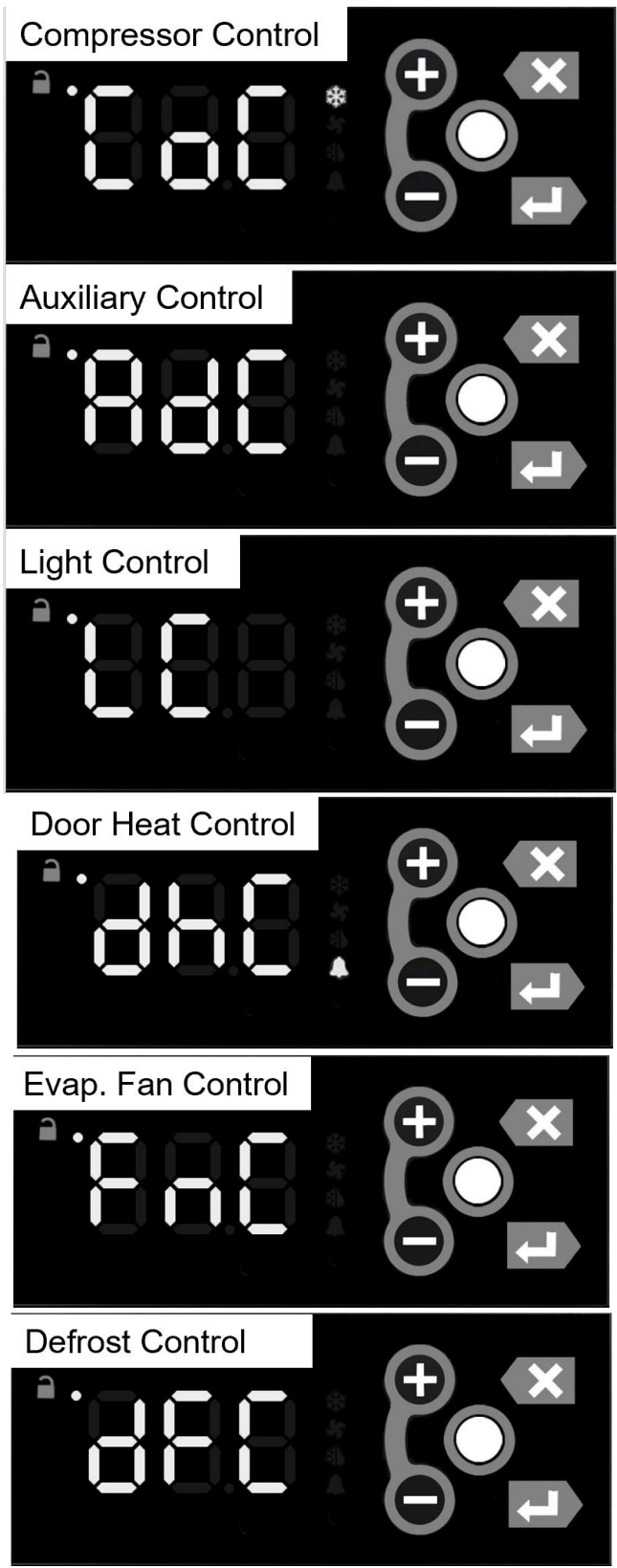
Enter Submenu Selection Menu



Press Enter



Enter Technician Passcode 555



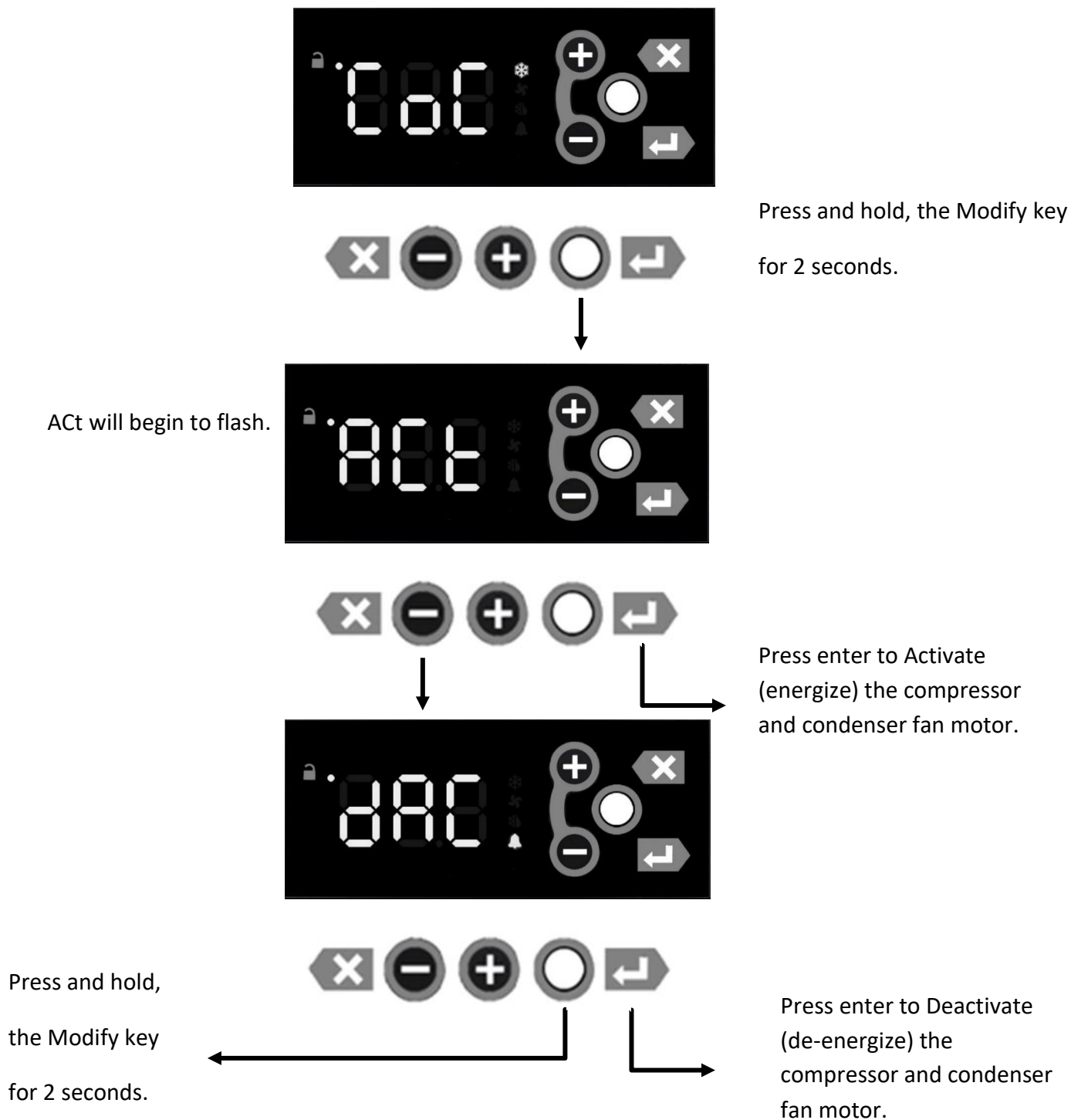


Figure 34 Dianostic Menu

4.12 Control Cover Removal & Components

4.12.1 Removing the Display:

Remove bottom louver screws and rotate louver up out of the way. Disconnect cable from the back of the controller. Lastly, squeeze the (4) tabs holding on the back side of the display and push outward to remove the display. See Figure 35.

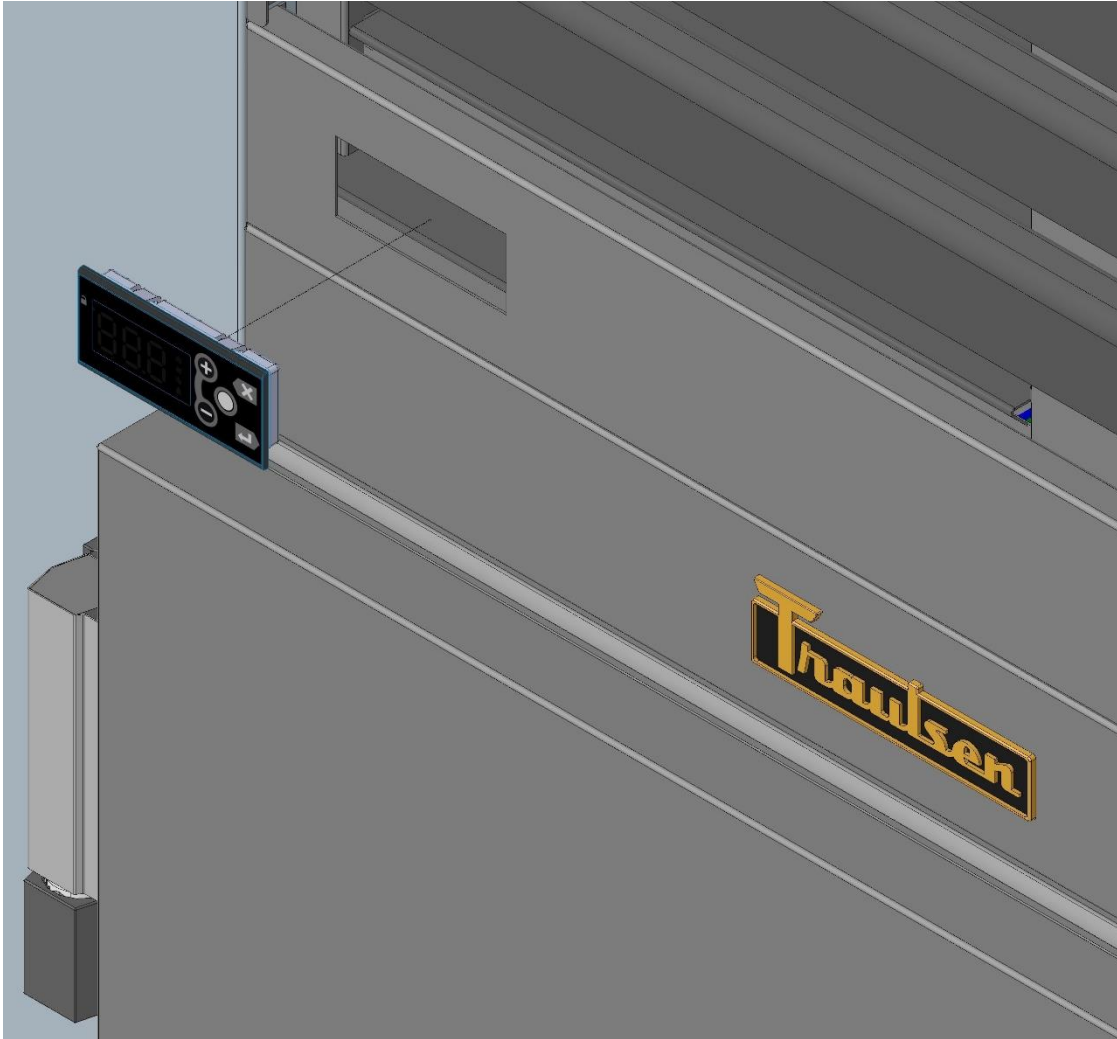


Figure 35: Display Removal

Part Number: [950-60510-00](#)

4.12.2 Installing the Display:

Line up the display with the cutout on the cabinet. Firmly press 4 outside corners (do not press in the center) controller to cabinet until the (4) tabs click in place. Make sure to reconnect the cable to the display.

NOTE: Do not press on the center of the display during installation to avoid damaging it.

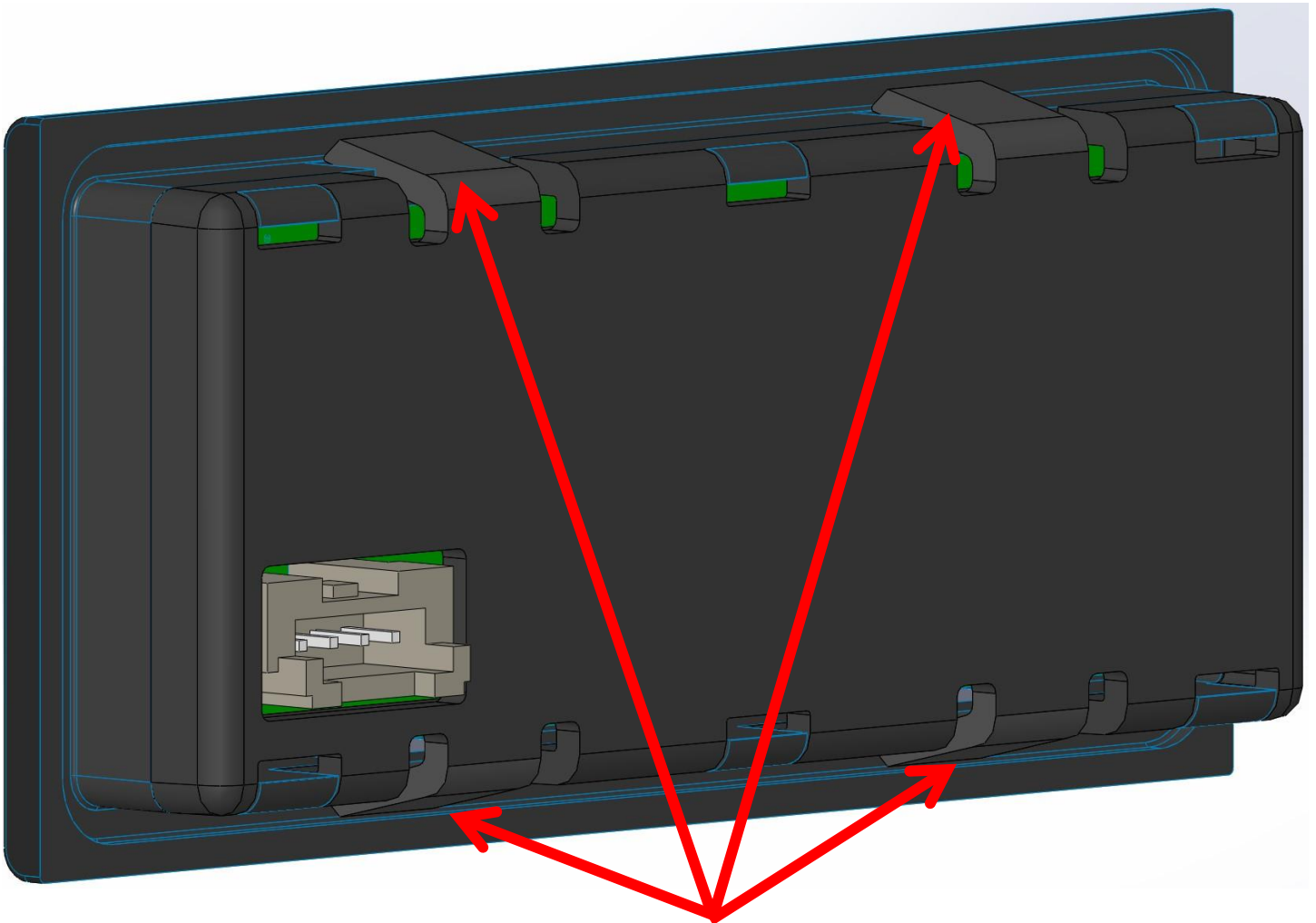


Figure 36: DISPLAY INSTALL

4.12.3 Accessing the Power Module (Control Board):

Use a #2 Phillips screwdriver to remove the (3) screws (See Figure 42) and lift on bracket.

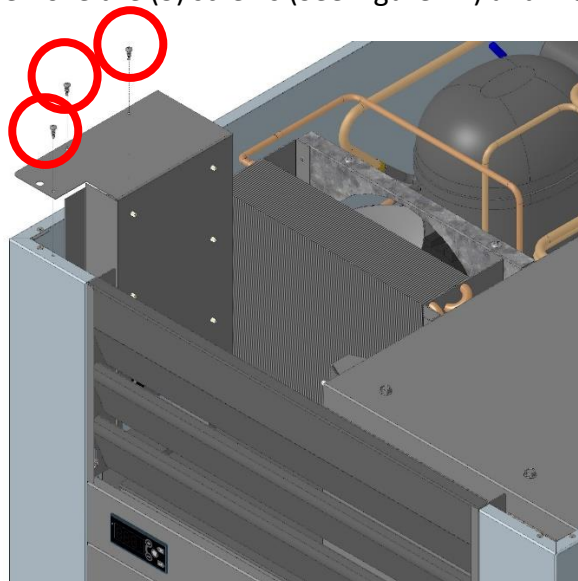


Figure 37: POWER MODULE ACCESS (Control Board)

4.13 Power Module Connections Overview

Part Number: [950-60509-01](#) (NOTE: Serial & Model #'s Necessary for Power Module Replacement Due to Programming) Picture below illustrates input/output connection points.

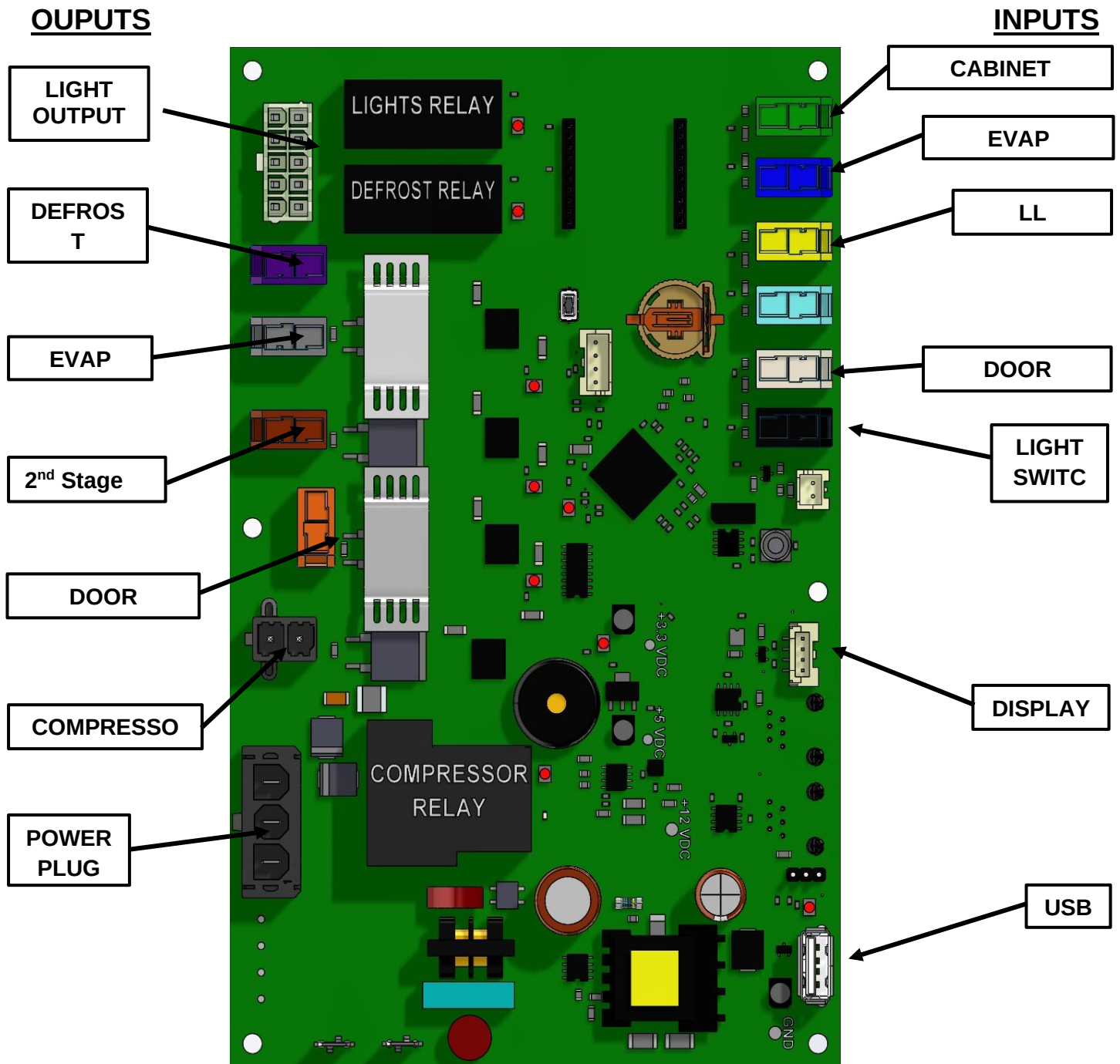


Figure 38: Power Module access (Control Board)

4.14 Power module LED's & Reset Button Overview:

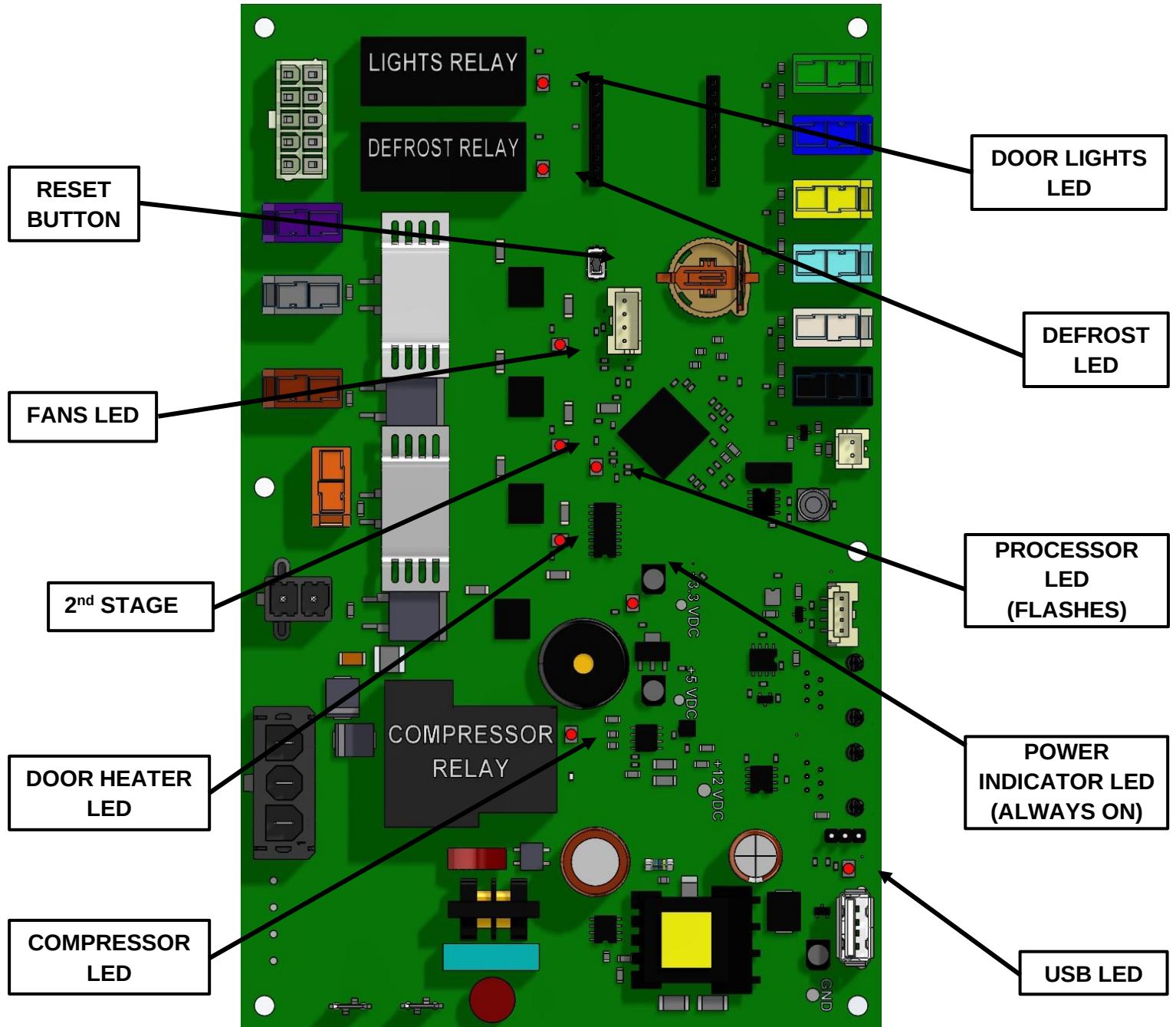


Figure 39: Power Module Led and reset button Overview.

NOTE: To reboot the board, press the reset button (See above Figure) for 5 seconds or until all the LED lights flash, shut off and then come back on again.

The reset button does not restore programming back to factory settings.

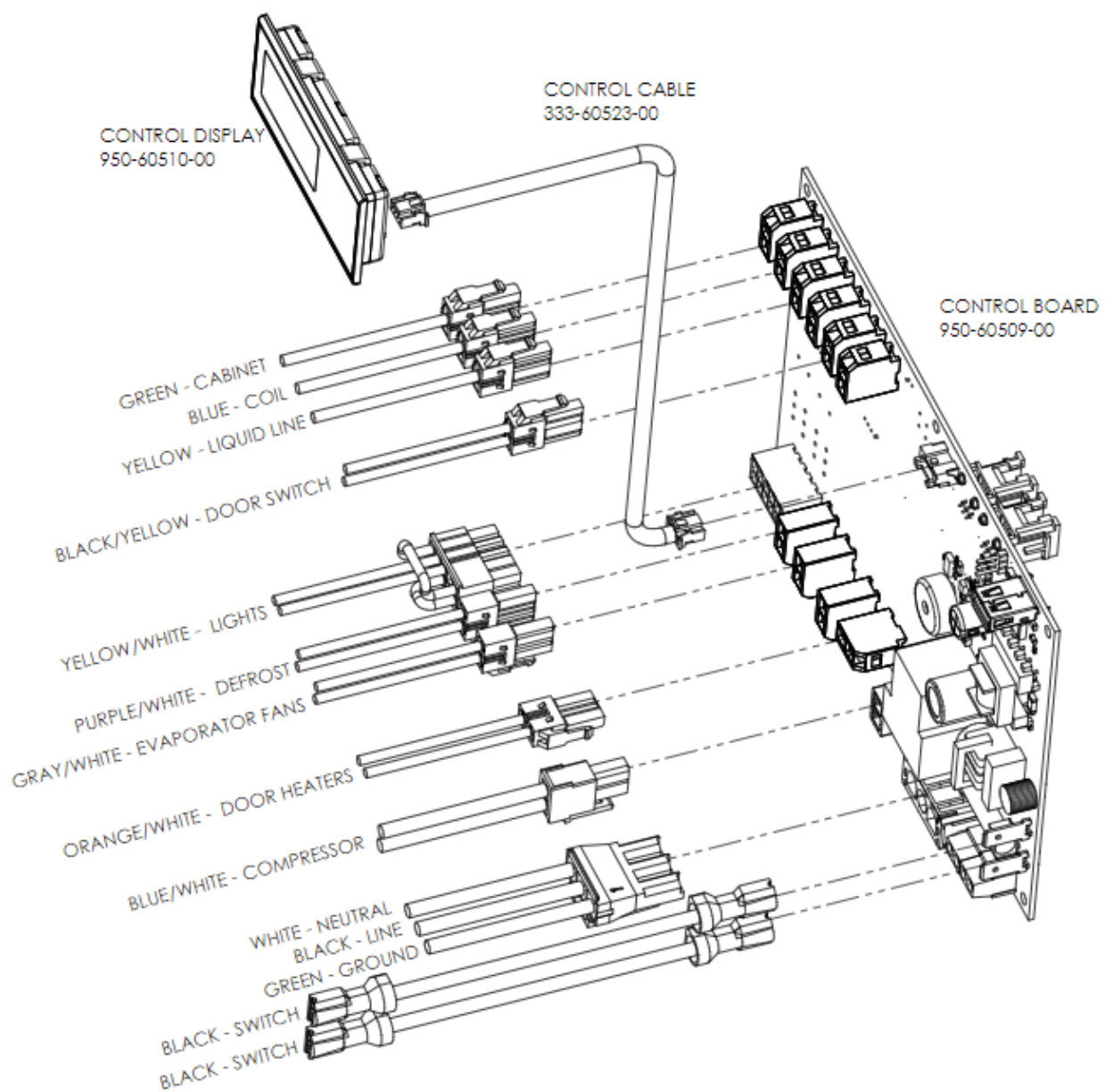


Figure 40: Power Module & display schematics

5. Sensor Location

This section describes about the sensor locations at various locations in the cabinet.

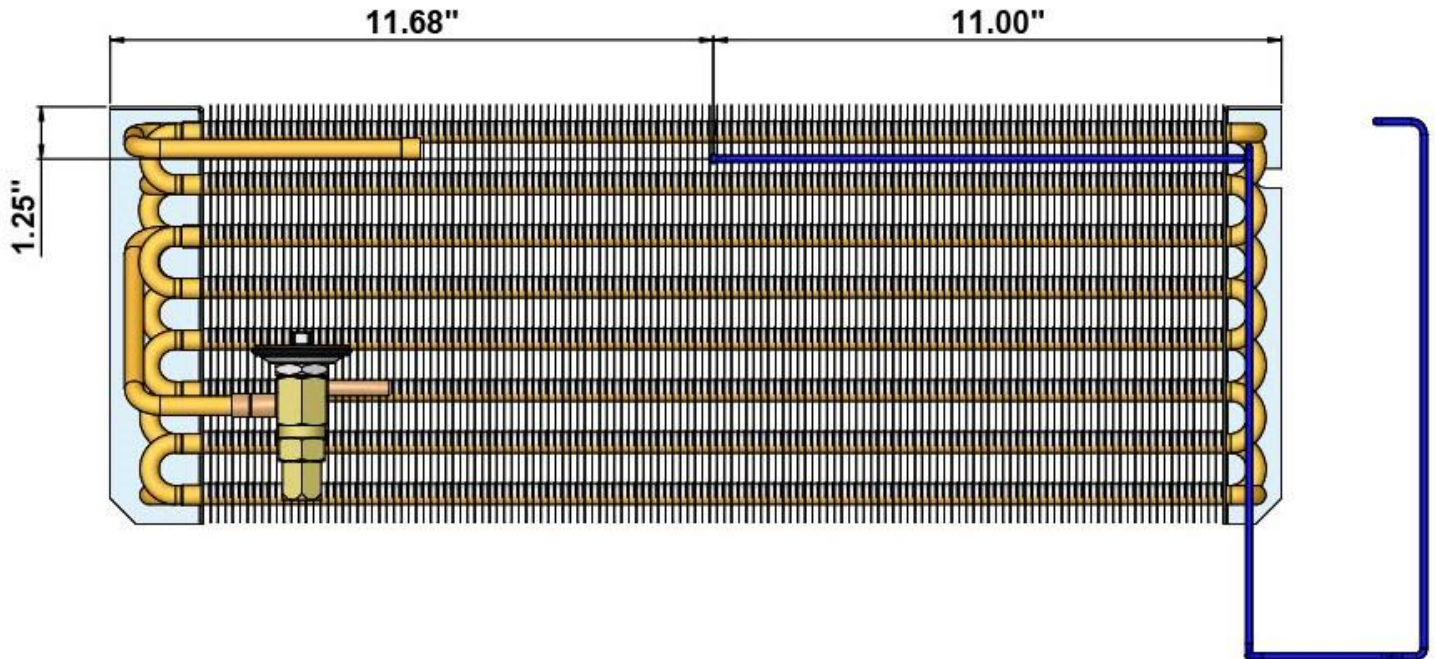


Figure 41 Freezer Sensor Location

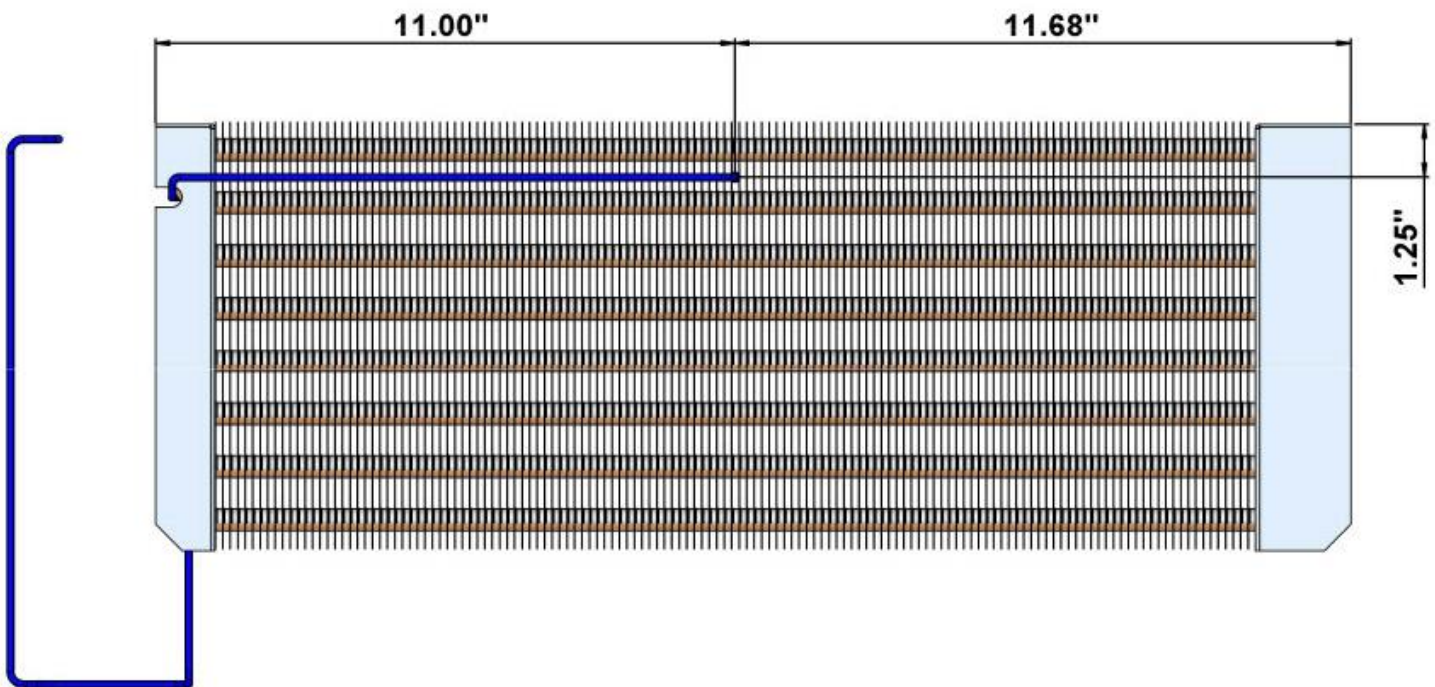


Figure 42 Refrigerator (electric defrost-with heater) Sensor Location.

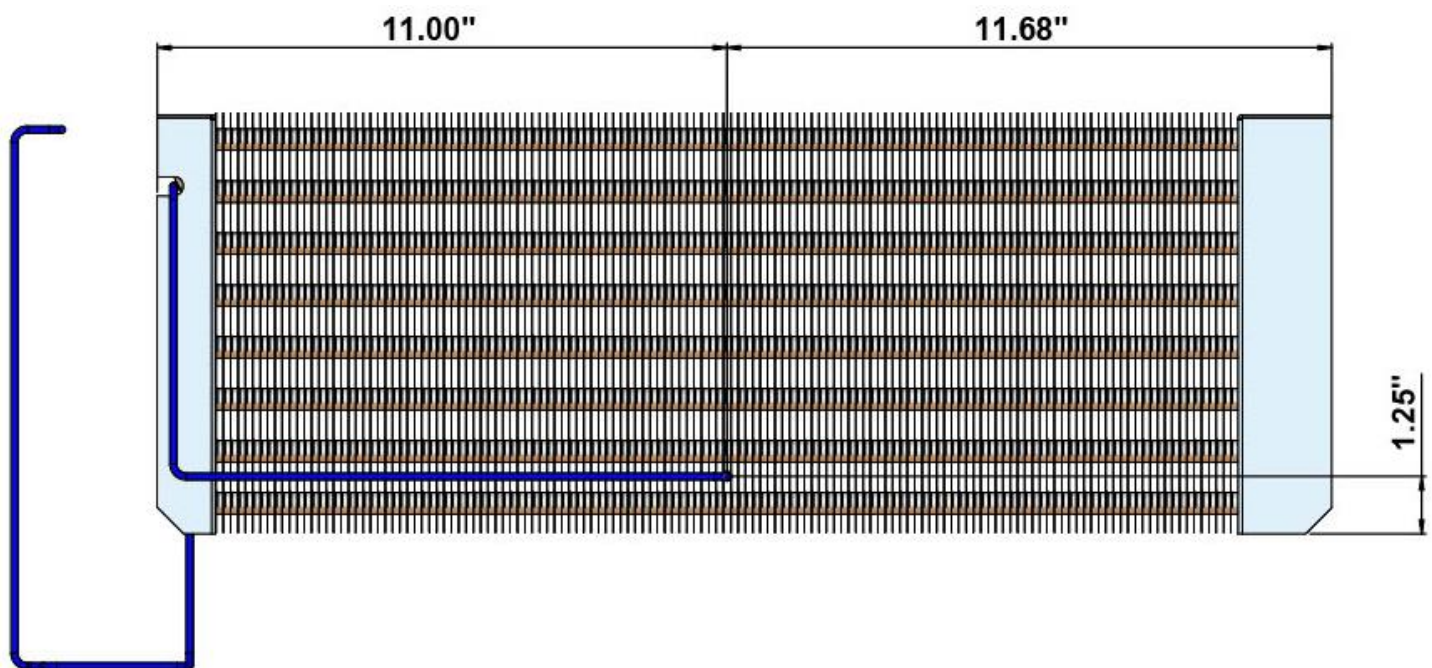


Figure 43 Refrigerator (off cycle defrost-no heater) Sensor Location.

5.1 Sensor Control Value Test

1. Submerge sensor Bulb into a 32°F Ice Bath.
2. Follow steps below to view control value.

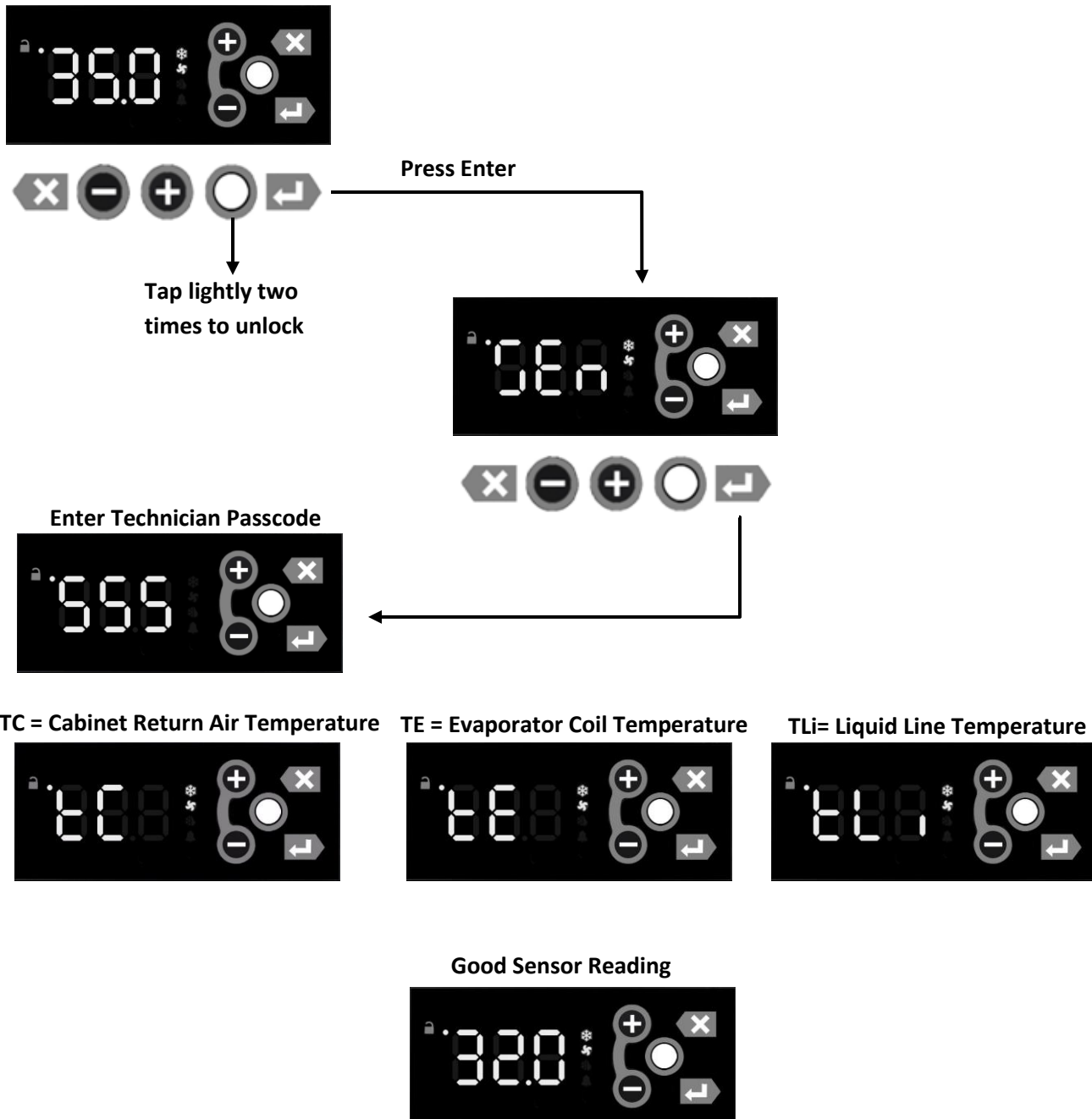


Figure 44 Sensor Control Value Test

5.2 Sensor Resistance Test

To check the if sensor is reading accurately,

- Place sensor bulb in a glass of ice with a little bit of water in it (32°F)
- Use Ohm meter to test resistance. At 32°F resistance should be 32.7KΩ.

Resistance Curve:

Temp C	Resistance K Ohms	Resistance Ohms	Temp F
-40.0	OL	OL	-40.0
-20.5	99.900	99000.0	-5.0
-17.7	85.200	85200.0	0.0
-15.0	72.900	72900.0	5.0
-12.2	62.400	62400.0	10.0
-9.4	53.700	53700.0	15.0
-6.7	46.200	46200.0	20.0
-3.9	39.900	39900.0	25.0
-1.1	34.600	34600.0	30.0
0.0	32.700	32700.0	32.0
1.7	30.100	30100.0	35.0
4.4	26.100	26100.0	40.0
7.2	22.800	22800.0	45.0
10.0	19.900	19900.0	50.0
12.8	17.400	17400.0	55.0
15.6	15.300	15300.0	60.0
18.3	13.500	13500.0	65.0
21.1	11.900	11900.0	70.0
23.9	10.500	10500.0	75.0
26.7	9.3100	93100.0	80.0
29.4	8.2500	82500.0	85.0
32.2	7.3400	73400.0	90.0
35.0	6.5300	65300.0	95.0
37.8	5.8200	58200.0	100.0
100.0	0.6790	679.0	212.0

Figure 45 Resistance Test curve

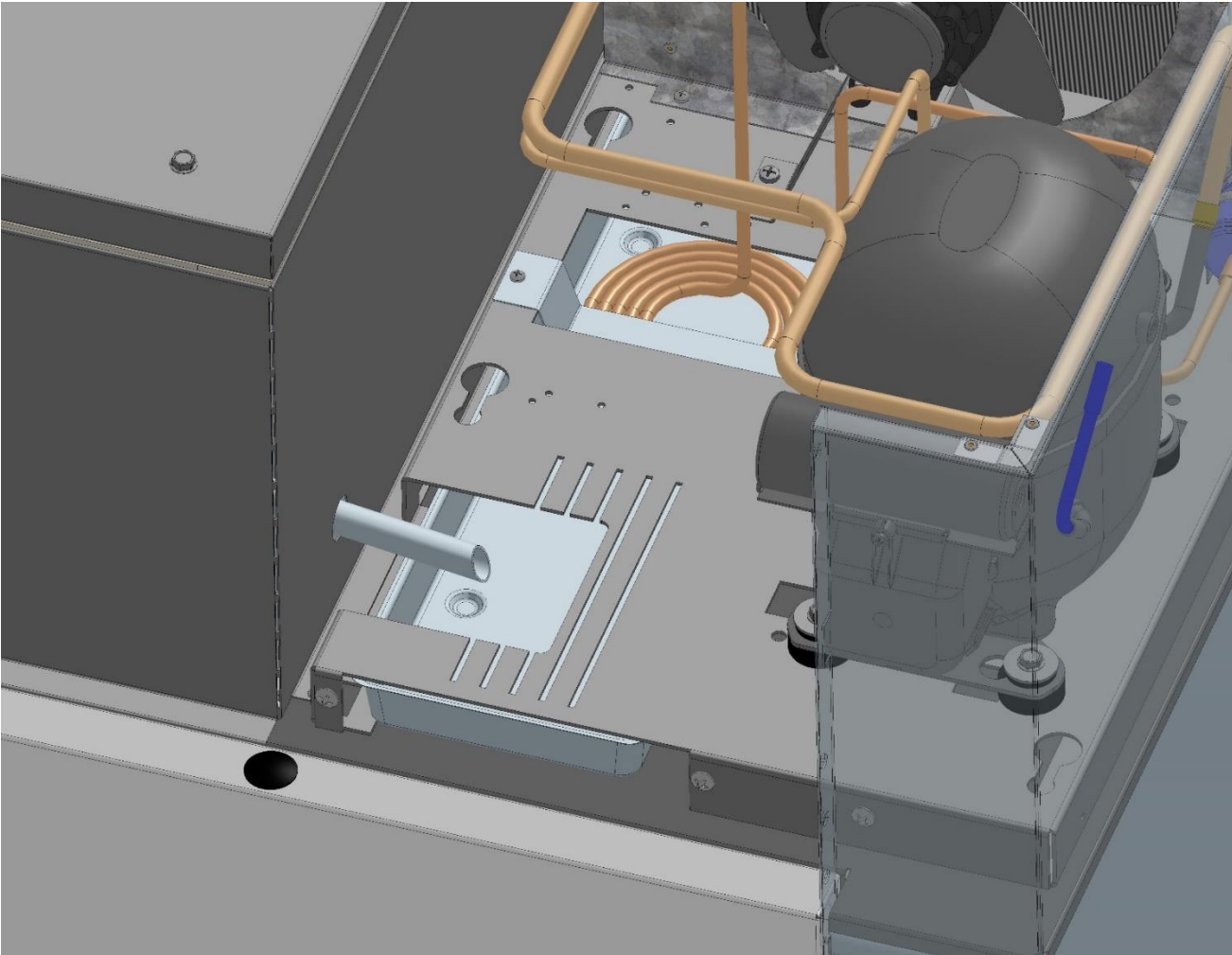
6. Troubleshooting



⚠ WARNING Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power and follow lockout / tagout procedures, attach test equipment and reapply power to test.

6.1 Condensate Overflow Troubleshooting

6.1.1 Condensate Overflow:



The condensate pan generally does not overflow unless there is an excess of ambient air infiltrating the cabinet.

Figure 46: Troubleshooting Condensate Pan Overflow

- Hump Cover not Sealed Properly. i.e., torn, or missing Foam Tape
- The door is not sealed properly.
- Door not self-closing (see door section)
- Putty not fully sealing refrigeration lines penetrating evaporator compartment.
- On refrigerators with electric defrost shorting the time between defrost may help to reduce the amount of water (see control section)

6.2 Compressor Troubleshooting

6.2.1 Terminology:

- **OEM** – Original Equipment Manufacturer – Refers to the manufacturer of a piece of equipment or component.
- **RLA** – Rated Load Amps – The OEM test conditions amperage rating (does not necessarily indicate the normal running amperage as conditions and applications can vary from OEM test conditions)
- **LRA** – Locked Rotor Amps – The OEM test condition lock rotor amperage rating indicating the expected amperage at which a motor does not turn when power is applied.
- **Microfarad** – This is a unit of measure for capacitance; the symbol for **Microfarad** is μF .
- **Current** – The flow of electrons in an electrical circuit measured in Amps with an Amp Meter.
- **Resistance** – The opposition to the flow of electrical current measured in Ohms with an Ohm Meter; the symbol for ohms is Ω .
- **Back EMF** – The voltage generated by the start winding once the compressor runs which is higher than line voltage.
- **Pick-up Voltage** – The back EMF value at which the normally closed contacts of a potential relay open.

First verify that the Call for Cooling LED on the display is illuminated. See Control Section.

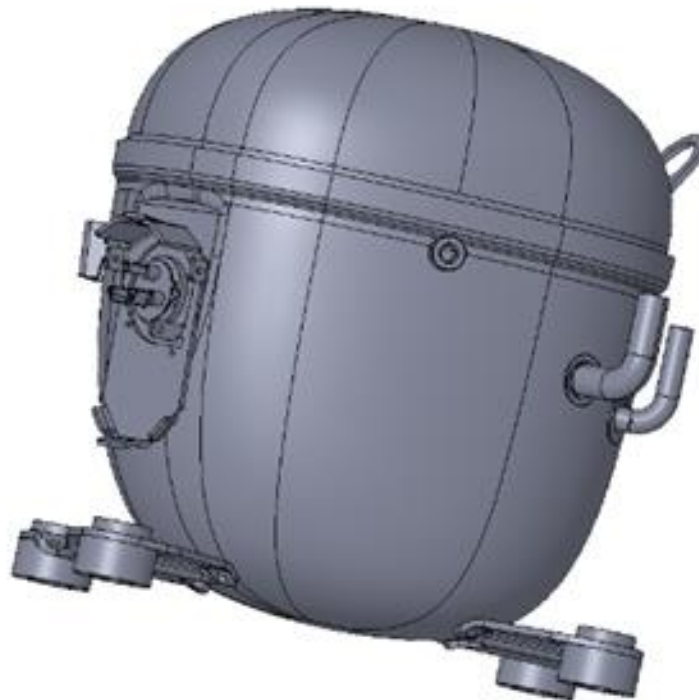


Figure 47: Compressor

6.2.2 Accessing the Compressor:

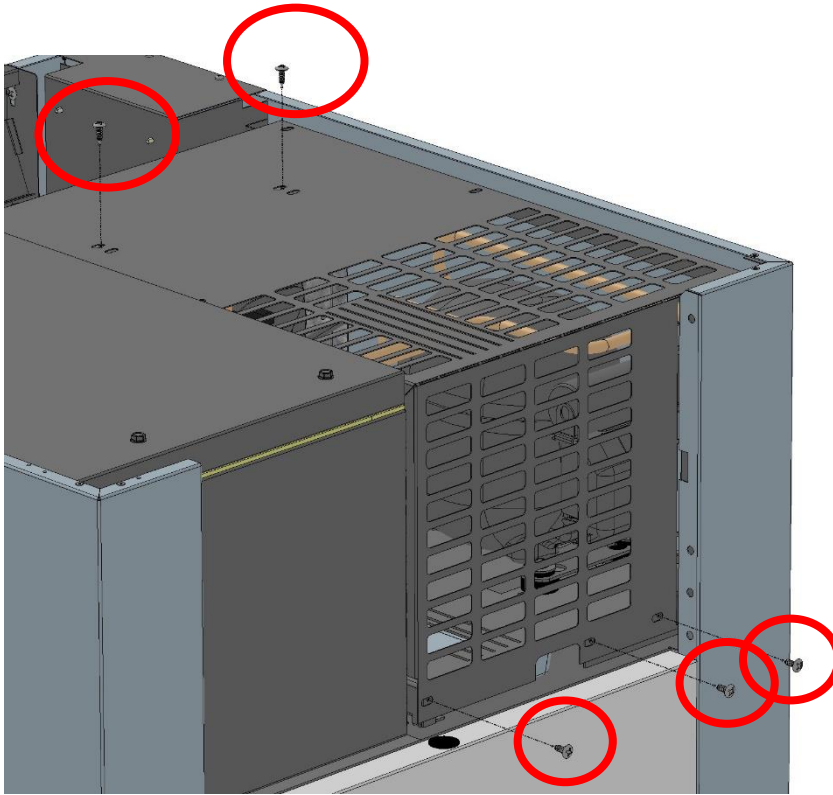


Figure 48: Remove (5) Screws

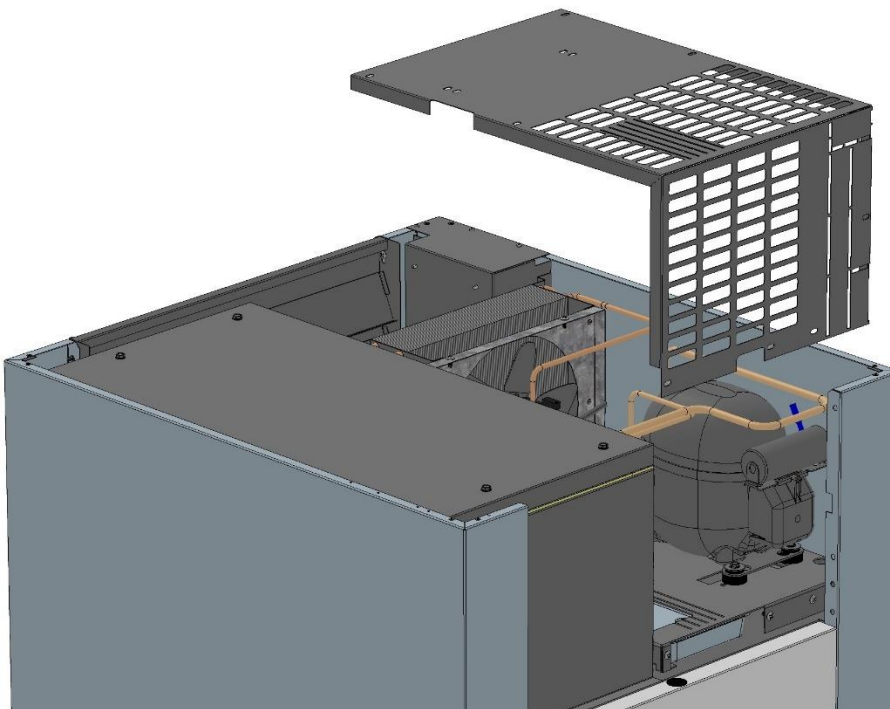


Figure 49: Remove Condenser Housing

6.2.3 Compressor Not Running:

If the condenser fan motor is running but not the compressor, the compressor may be overheated. Carefully place your hand on the dome of the compressor. If the compressor is very hot, the external overload protector may be open. Disconnect power to the unit and give the compressor ample time to cool.

6.2.4 Testing the Windings of the Compressor

After compressor has been sufficiently cooled. Remove all the start components from the compressor. Now use an ohm meter to measure the resistance of the windings, comparing the resistance values measured with the values given in **Table 12**. Be careful when measuring resistance to make a good connection to each terminal with your meter lead. Take several measurements to ensure you are consistently getting the same values. If the resistance values are consistent, but do not match the values given below, replace the compressor with OEM replacement.

6.2.5 Resistance and Amp Values of G-Series Compressors:

Compressor Information			Resistance		Current	
Traulsen Part Number	Embraco Model	Copeland Model	Start Winding	Run Winding	RLA	LRA
321-60203-10	NEK6160Z	ARE25C4E-IAA	6.14Ω	1.24Ω	4.9	28.5
321-60204-10	NEK2150GK	AFE17C4E-CAA	4.5Ω	.77Ω	7.8	41.5
321-60204-20	NEU2155GK	AFE20C5E-CAA	5.99Ω	1.10Ω	6.3	40
321-60205-10	NEK6187Z	ARE34C4E-IAA	6.1Ω	0.96Ω	4.6	37
321-60206-10	NT2178GKV	RFT26C1E-CAA	2.6Ω	.40Ω	10.8	66
321-60215-10	NT6217ZV	RRT64C1E-CAA	2.62Ω	.51Ω	11	45
321-60244-10	NT2212GKV	RFT42C1E-PFA	1.10Ω	.35Ω	15.5	81

Table 12: Resistance and Amp Values

6.2.6 Troubleshooting External Overload Protector:

If the windings of the compressor match the values given above, the overload can be tested with an ohm meter for continuity. A closed switch should have continuity indicative of a complete circuit. If the external overload will not close after cooling, replace the overload protector. If compressor starts and runs while the current is at or below the RLA, but the overload still opens, replace the external overload protector with OEM replacement.

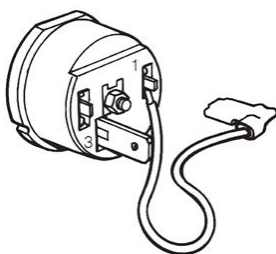


Figure 50: Overload

6.2.7 Measuring for Excessive Voltage Drop:

Now that the compressor has cooled down, measure the voltage supplied to the cabinet while the compressor is trying to start. If the voltage drops below 104 volts, you may have a problem with the power supply, try a different circuit.

6.2.8 Troubleshooting Potential Relay:

Disconnect power supply, remove wires and measure for continuity between pins 1 & 2 (Normally Closed Contacts) of Potential Relay. If continuity is not detected replace potential relay. See **Table 14** for part number.

Clamp amp probe onto blue wire connected to pin number 1 of the Potential Relay. Apply power and measure the current. If the current does not drop out after compressor starts, then the contacts between pins 1 and 2 are stuck in the closed position. In this case the potential relay must be replaced. See **Table 14** for part number.

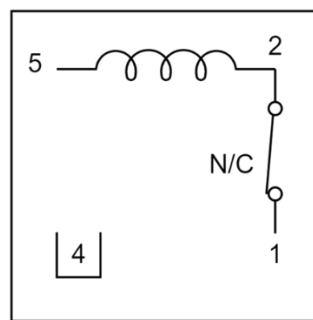


Figure 51: Potential Relay Schematic

6.2.9 Troubleshooting Start Capacitor (Black Plastic Casing):

If the voltage measures 115 Volts +/- 10% but the compressor doesn't start, measure the current with your amp meter at the common terminal of the compressor. If the current spikes very high but the compressor doesn't start, disconnect power so that you can remove all the start components for testing. Start capacitors can be tested with a microfarad tester. For the most accurate measurement remove the resistor from the start capacitor. **(The start capacitor should never be used without the resistor as this will damage the start relay.)** If microfarads measured do not match values in table below, replace start capacitor. See **Table 13** for specs and part number for start capacitor.

6.2.10 Troubleshooting Run Capacitor (Metal Casing):

If the compressor starts and runs with an amp draw higher than the RLA and the compressor is a capacitance run compressor (which means it requires a run capacitor), disconnect power so that you can remove the run capacitor from the circuit for testing with a microfarad tester. Connect the microfarad tester across both terminals of the run capacitor. See **Table 13** for specs and part numbers for run capacitors. If the microfarads measured do not match specs given, replace the run capacitor.

Note: If the run capacitor is swollen or leaking fluid, replace run capacitor.

Specs for Capacitors:

Compressor	Start Capacitor		Run Capacitor	
Traulsen Part Number	Spec	PN	Spec	PN
321-60203-10	145-175µf 185vac	334-60411-14	n/a	n/a
321-60204-10	189-227µf 165vac	334-60411-28	30µF 440VAC	334-60412-01
321-60204-20	189-227µf 250vac	334-60411-05	25µF 370VAC	334-60412-01
321-60205-10	189-227µf 165vac	334-60411-27	n/a	n/a
321-60206-10	243-292µf 165vac	334-60095-05	35µF 440VAC	334-60412-05
321-60215-10	243-292µf 250vac	334-60411-13	35µF 440VAC	334-60412-05
321-60244-10	340-408µf 250vac	334-60411-26	85µF 440VAC	334-60412-08

Table 13: Capacitor Specs

G-Series Start Component Part Numbers:

Compressor	Start Components				
Traulsen Part Number	Start Capacitor PN	Run Capacitor PN	Relay	Overload	Start Kit Includes all 4 Components
321-60203-10	334-60411-14	n/a	334-60416-21	334-60417-13	n/a
321-60204-10	334-60411-28	334-60412-01	334-60096-06	334-60417-14	SER-60695-15
321-60204-20	334-60411-05	334-60412-01	334-60409-02	334-60417-41	SER-60695-16
321-60205-10	334-60411-27	n/a	334-60416-23	334-60416-23	
321-60206-10	334-60095-05	334-60412-05	334-60096-06	334-60417-29	SER-60695-18
321-60215-10	334-60411-13	334-60412-05	334-60409-05	334-60417-36	SER-60695-21
321-60244-10	334-60411-26	334-60412-08	334-60409-14		

Table 14: G-Series start component part numbers.

6.2.11 Locked Up Compressor:

After all start components have been properly tested and determined to be good and the proper voltage has been verified, the compressor does not start while the current spikes up to the LRA, this could be indicative of an internal mechanical problem within the compressor. If so, replace the compressor with OEM replacement. See **Table 12** for Traulsen part number and OEM model number.

6.2.12 Current Climbs Above RLA:

See section on Troubleshooting Run Capacitor first. If the amps start out at RLA but climb higher until the external overload protector opens, this could be an indication of poor air circulation through the condenser coil resulting in higher head pressure. The solution could be as simple as cleaning the condenser coil or a problem with the condenser fan motor, such as tight bearings or a fan blade that has been installed backwards. If none of the above, this could also be a symptom of an internal mechanical problem within the compressor. If so, replace the compressor with OEM replacement. Note: *When a system is overcharged, the compressor current may be above RLA.*

6.2.13 Replacing the Compressor:

If you have taken all the proper steps outlined above to troubleshoot the compressor, and therefore have determined the compressor has failed, **be sure to replace the liquid line filter drier along with the compressor (Traulsen Part Number 325-60103-00)**. Traulsen recommends that you use a nitrogen flow regulator to purge with low pressure nitrogen as you braze all connections. After you have brazed all connections and have checked thoroughly for leaks, change the oil in your vacuum pump before connecting to system with a micron gauge. Pull a deep vacuum of 200 microns to remove moisture from the system.

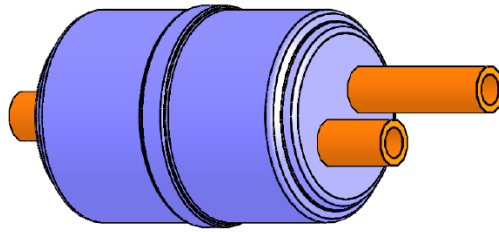


Figure 52: Filter Drier

6.2.14 Compressor Wiring Schematics:

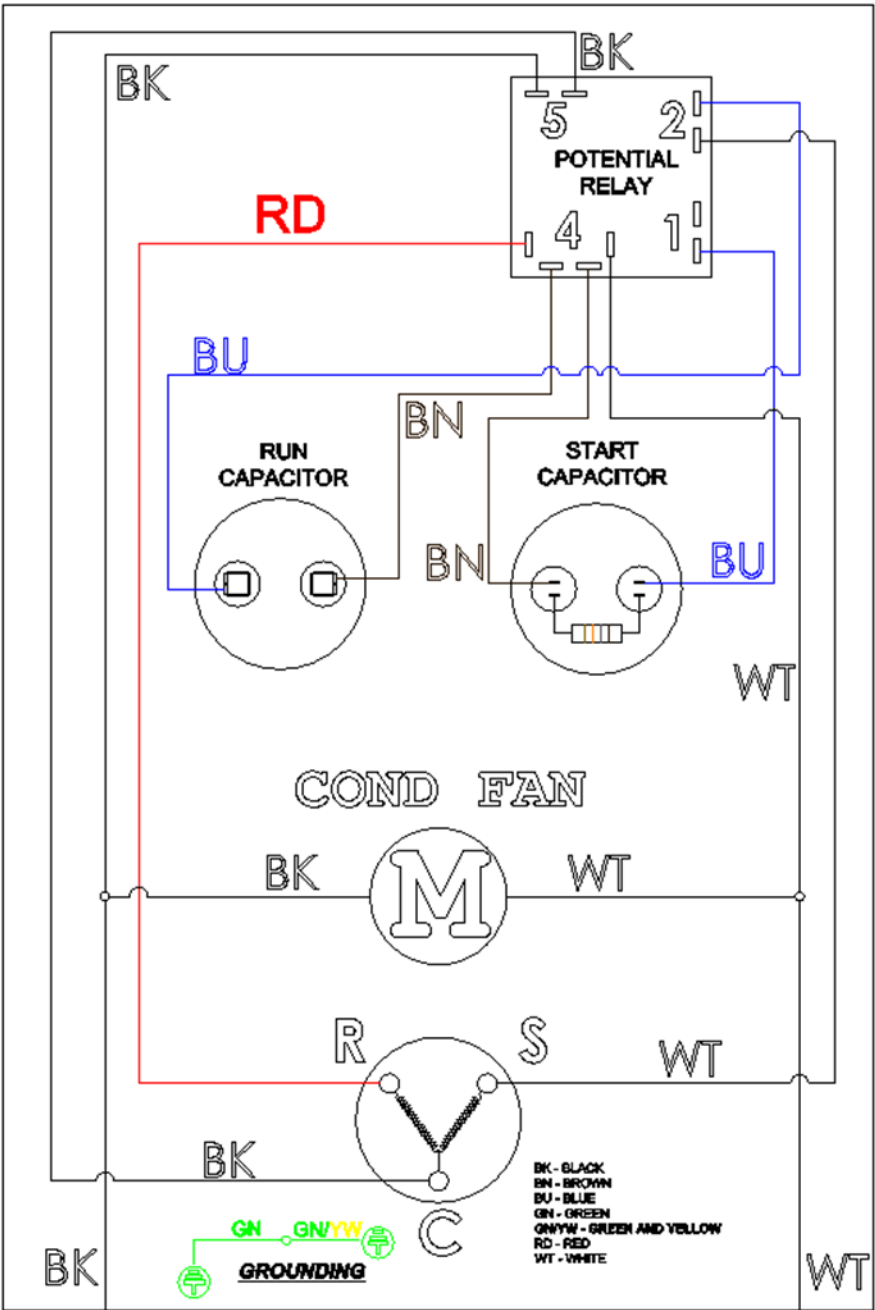


Figure 53: Capacitor Run/ Capacitor Start Compressors

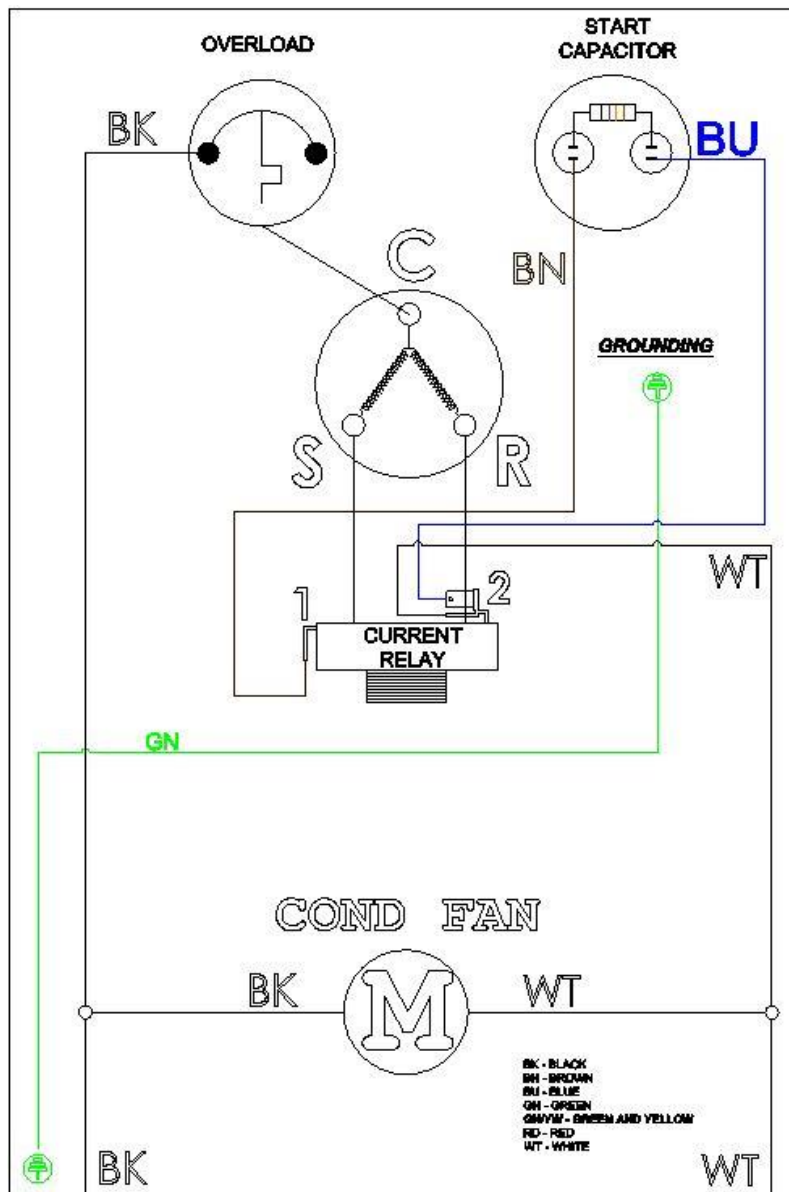
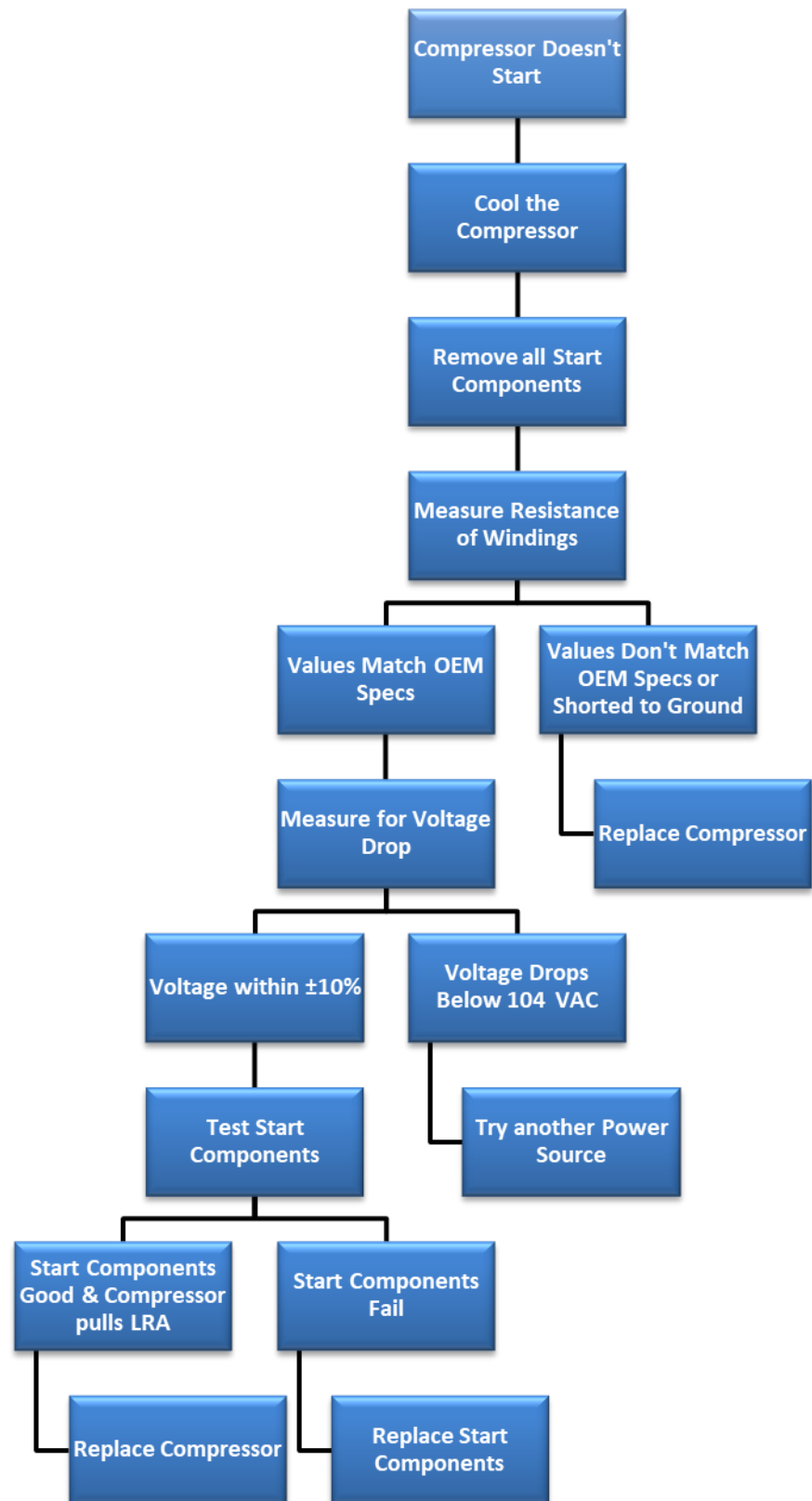
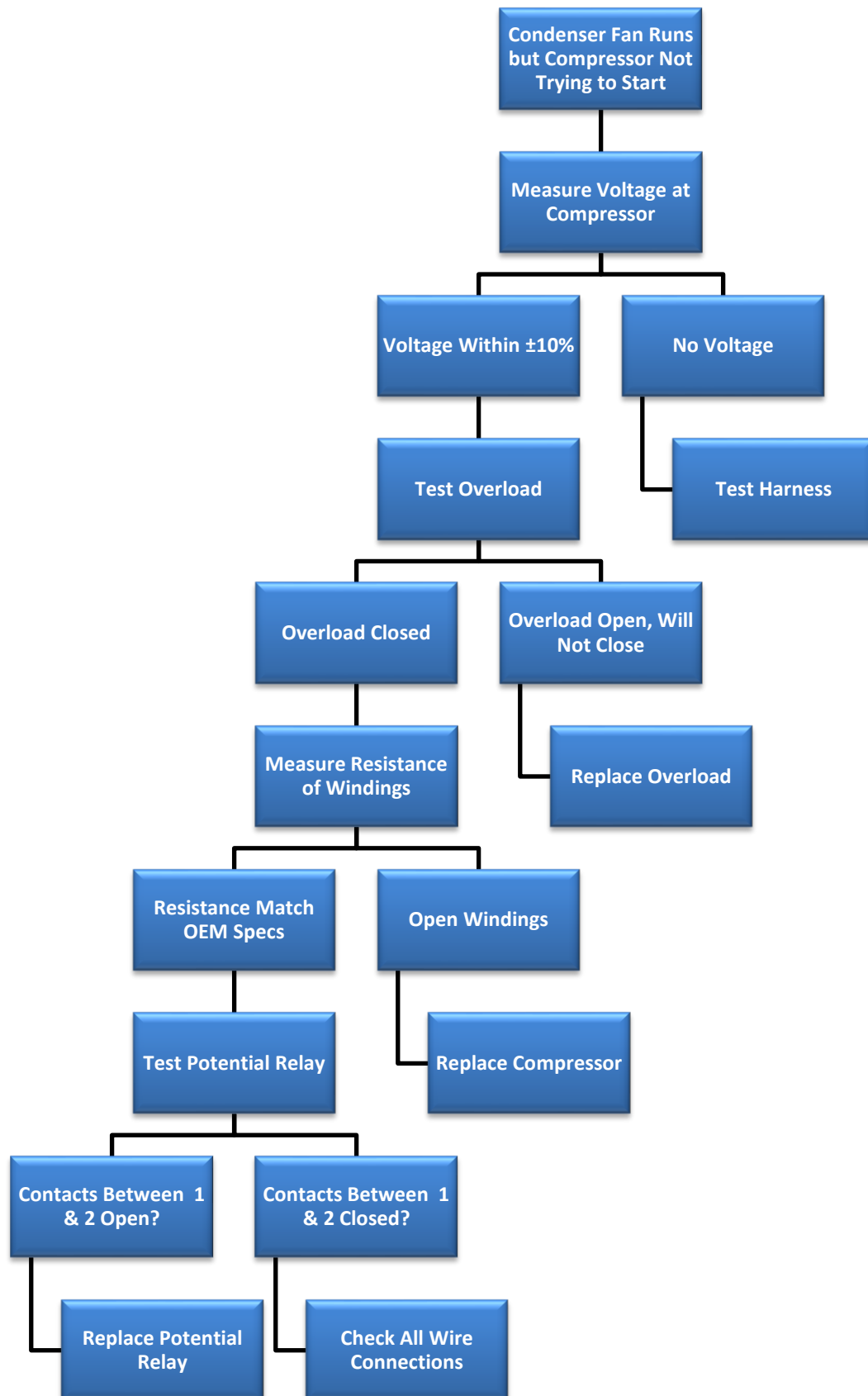


Figure 54: Induction Run Capacitor Start Compressors

6.2.15 Compressor Short Cycles on Overload Protection:



6.2.16 Compressor not Trying to Start:



6.3 Evaporator Fan Troubleshooting:

6.3.1 Steps for troubleshooting G-series Evaporator Fan

1. First verify fan icon is illuminated on the display indicating a call for the evaporator fan. (Remember the fan will shut off when door is opened so if you want to open the door to physically check to see if fan is running you will need to disconnect white door switch connector from control board.)

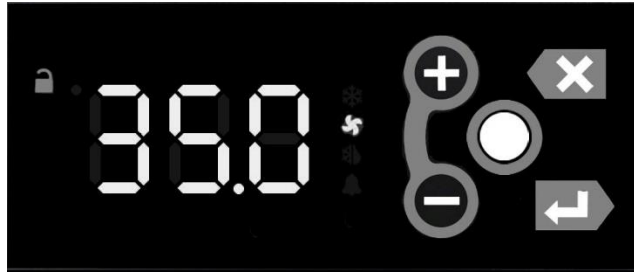


Figure 55: Evaporator Fan Icon on Display

2. Next use an amp meter to prove the evaporator fan motor is running.
3. If fan motor is not running use voltage meter to measure the voltage at fan motor if measurement within $\pm 10\%$ of rated voltage replace the fan motor.

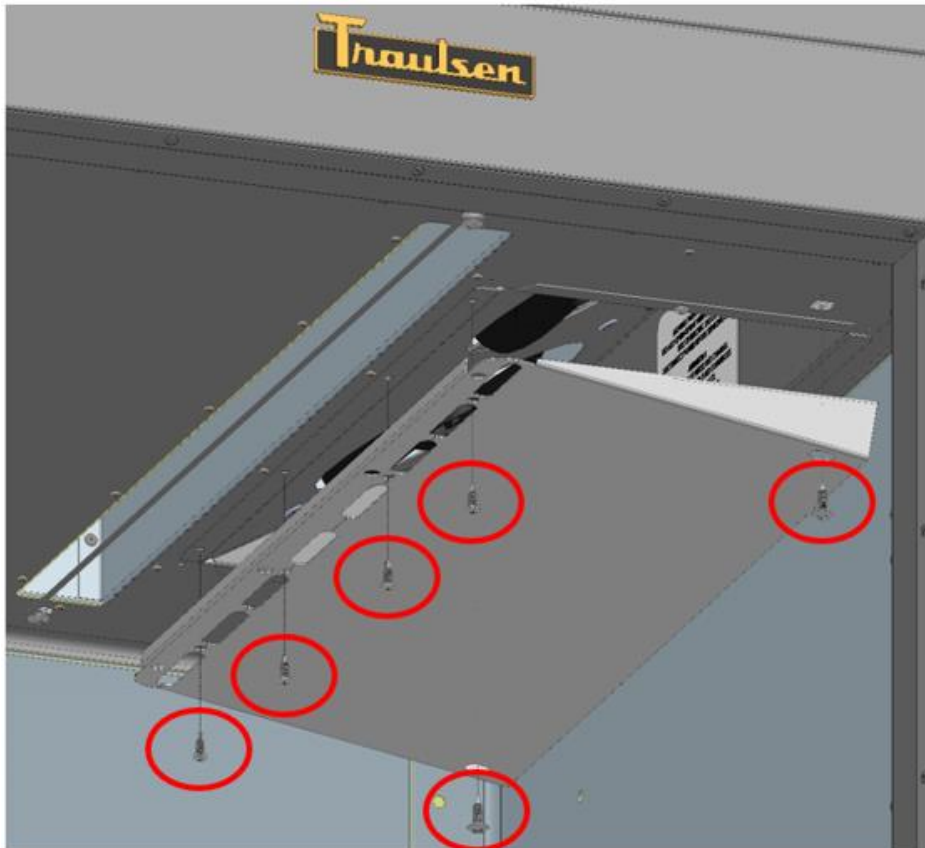


Figure 56: Duct removal

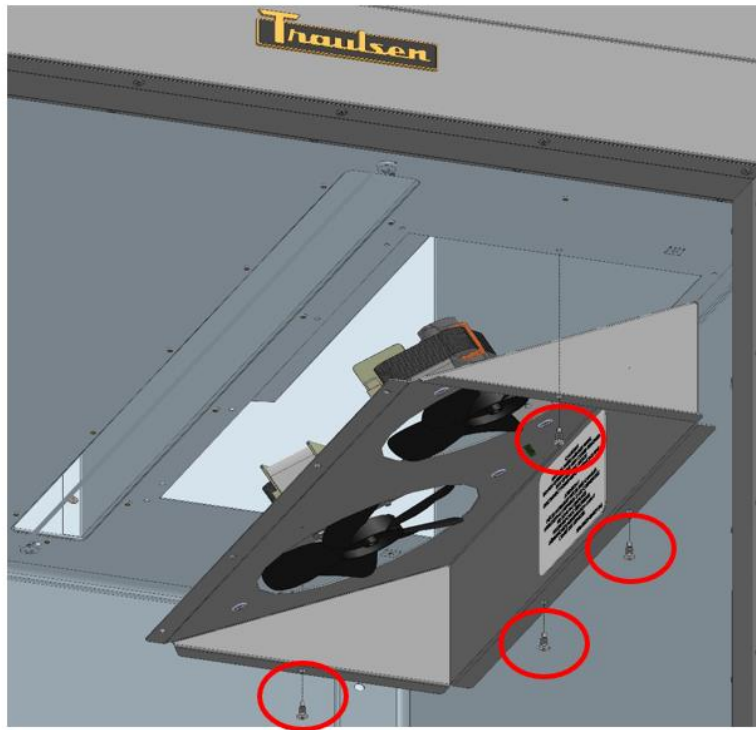


Figure 57: Evaporator Fan Assembly Removal

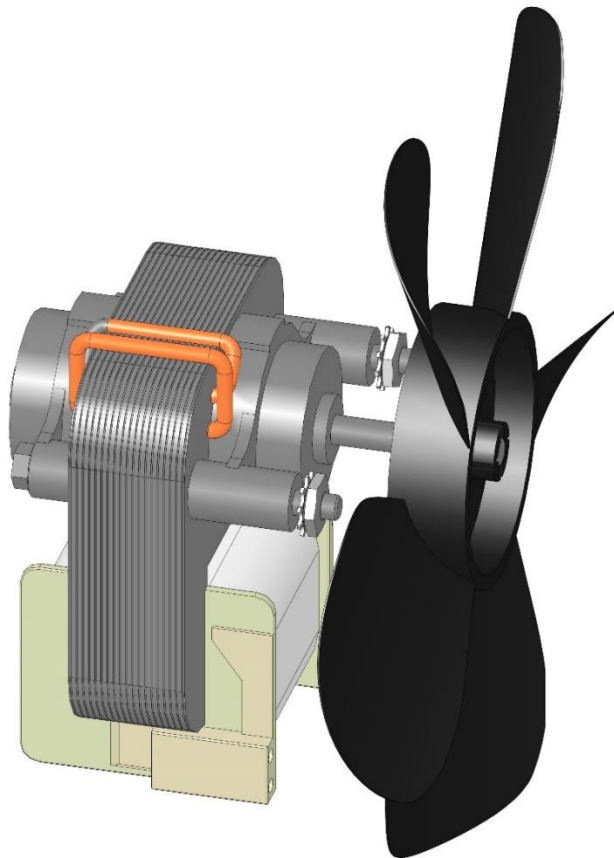


Figure 58: C-Frame (Shaded Pole) Fan Motor

C-Frame Fan motor: [338-60054-00](#)

DESCRIPTION/ SPECIFICATION	MANUFACTURER	
	FASCO INDUSTRIES, INC.	BAY MOTOR PRODUCTS, INC.
PART No.	7102-2992	5A141-94
AMPS	0.63A	0.5A
VOLTAGE	115VAC	115VAC
FREQUENCY	60 Hz	60Hz
SPEED	3000 RPM	3000 RPM
ROTATION	CW	CW

Table 15: C-Frame Fan Motor Specs

Evaporator Fan Blade: [325-60240-10](#)

EVAPORATOR FAN BLADE SPECIFICATIONS	
COLOR	BLACK
BALANCE	.008 INCH-OZ MAX
AXIAL RUNOUT	.056 INCH I.R. MAX
RADIAL RUNOUT	.056 INCH I.R. MAX
MATERIAL	UL94-HB UNFILLED POLYPROPYLENE PP 828, 3208, OR APPV'D EQUIV
INSERTION FORCE	15 – 40 LBF
SHAFT DIMENSION	.181 ROUND

Table 16: Evaporator Fan Blade Specifications

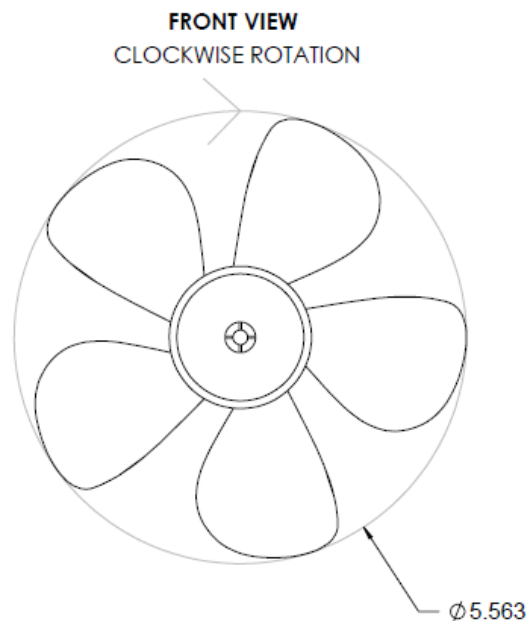


Figure 59: Evaporator Fan Blade

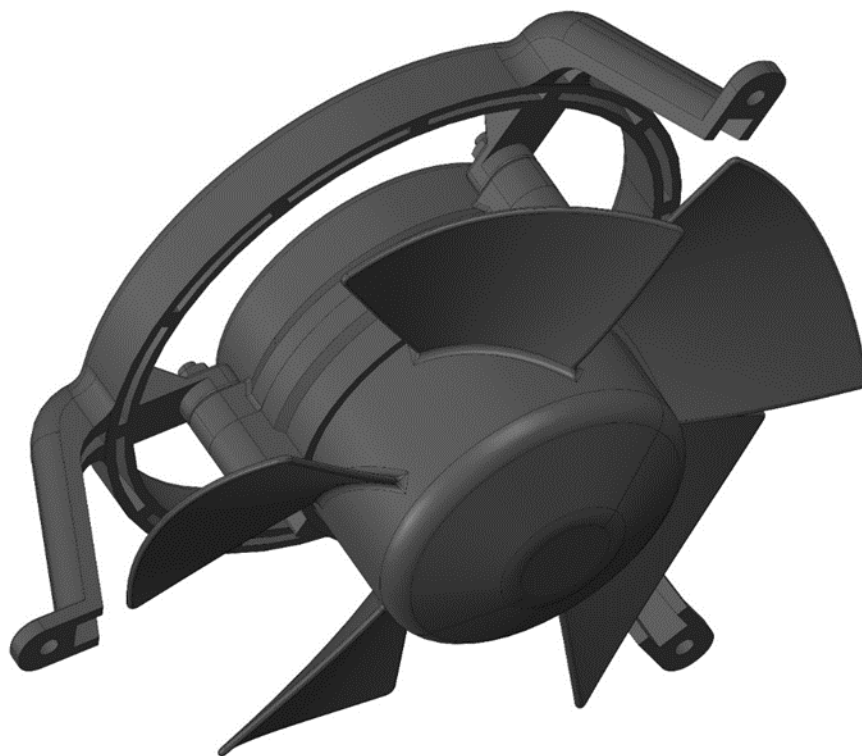


Figure 60: ECM Fan Motor CW from Lead End

ECM Fan Motor: [338-60066-00](#)

DESCRIPTION/ SPECIFICATION	MANUFACTURER
PART No.	EXRi50-154F-B-2400-M01
OUTPUT	8 WATTS
AMPS	0.07
VOLTAGE	120/230 VAC
FREQUENCY	50/60 Hz
SPEED	2400 RPM
ROTATION	CW
AIR FLOW	168 CFM

Table 17: ECM Fan Motor Specs

6.4 Condenser Fan Troubleshooting

6.4.1 Troubleshooting the Condenser Fan Motor on G-Series:

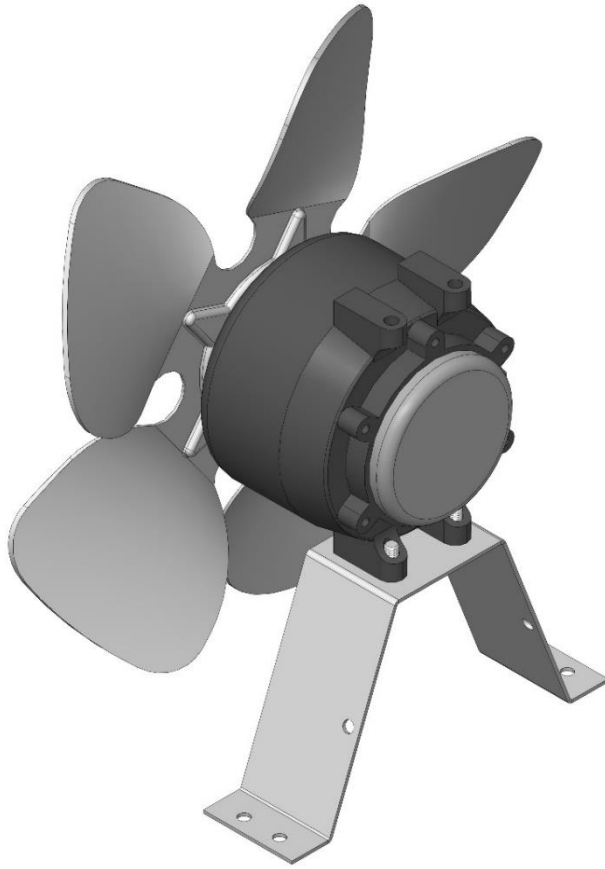


Figure 61: CFM Assembly View

First verify that the Call for Cooling LED on the display is illuminated.



Figure 62: LED Display

If the compressor is running but not the condenser fan motor, you should measure voltage at the condenser fan motor. If you measure, +/- 10% of rated voltage but motor doesn't run, replace the fan motor.

6.4.2 Motor Bearing Failure:

Problems with motor bearings can be easily overlooked as the motor will run while the cabinet drops in temperature until the motor overheats. Once the motor overheats it will shut off on the internal overload until motor cools sufficiently. If the condenser fan motor is making a loud grinding noise, leaking oil from the bearings, and pulling excessive current the motor, bearings have failed. If the condenser fan motor exhibits these motor bearing failure symptoms, replace the fan motor.

Cast Iron 9 Watt Condenser Motor: [338-60049-00](#)

DESCRIPTION/ SPECIFICATION	MANUFACTURER	
	MORRILL MOTORS, INC.	ELECTRIC MOTORS
MODEL	SP-B9HUS1	SPFBE91T
PART No.	12365	E128044
OUTPUT	9 WATT	9 WATT
AMPS	0.53A	0.6A
VOLTAGE	115VAC	115VAC
FREQUENCY	50/60 Hz	60Hz
SPEED	1550 RPM	1550 RPM
ROTATION	CW	CW

Table 18: Condenser Fan Motor

6.4.2.1 Access and Remove the Condenser Fan Motor:

Step 1:

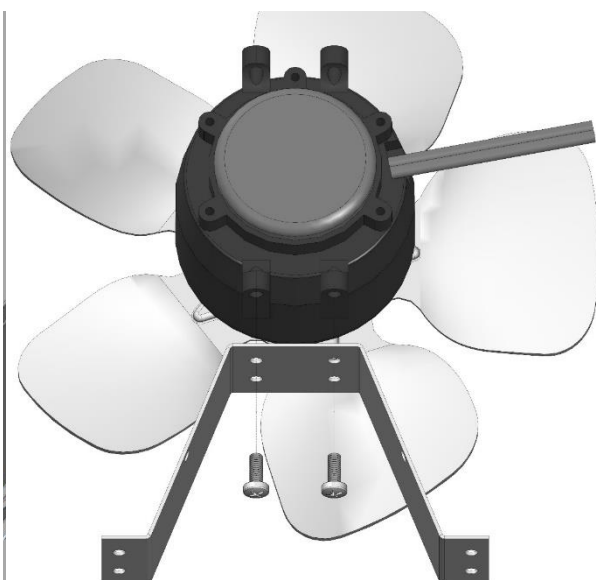


Figure 63: Remove *Fan Mounting Bolts*

Step 3:

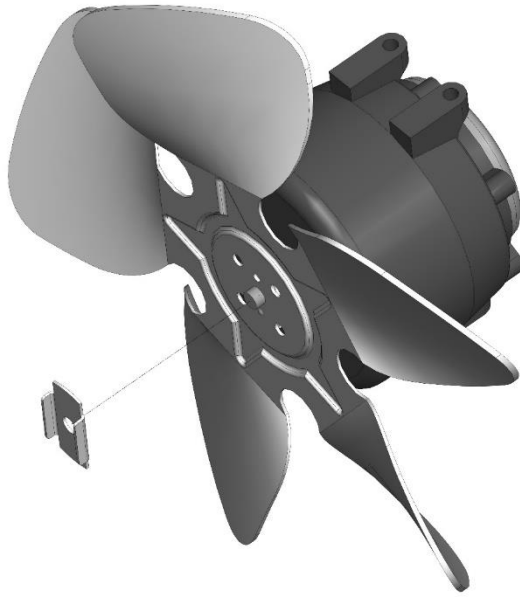


Figure 64: Remove Speed Nut

Step 4:



Figure 65: Remove Fan Blade

6.4.3 Replacing the Condenser Fan Motor:

Description	Traulsen Part Number
9-Watt 115 Volt CW Shaded Pole	338-60049-00
9-Watt 230 Volt CW Shaded Pole	338-60049-01
9-Watt 115 Volt CW ECM	338-60049-02

Table 19: Condenser Fan Motor Traulsen Part Number

When replacing the motor, be sure to note the direction of air flow as well as the position of the fan blade. The motor is designed to pull air through the condenser coil. The fan blade should be installed with the concave toward the motor using speed nut included with motor. The vibration washer, which is supplied with motor, must be installed between motor and fan blade. Torque speed nut to 10 IN-LB.

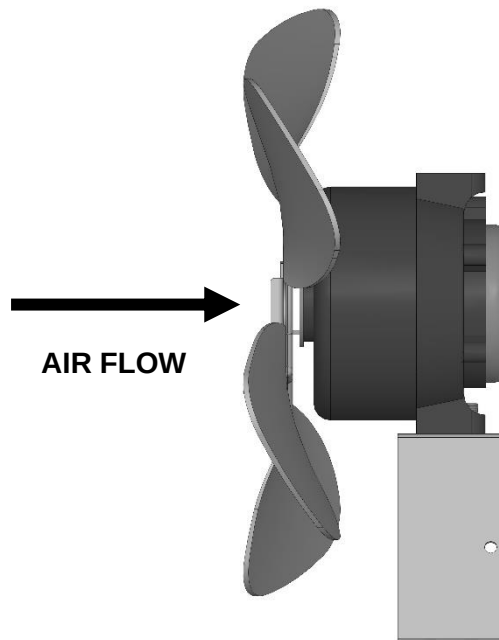


Figure 66: Fan blade orientation

Refer above figure 66 to confirm the fan blade orientation when mounted on the bracket.

6.5 Troubleshooting Thermostatic Expansion Valve

All Traulsen G-Series Refrigerators and Freezers are equipped with a Thermostatic Expansion Valve or TXV. The TXV is a type of metering device that meters liquid refrigerant into the evaporator coil. A TXV is superior to a capillary tube metering device as it can respond to load changes. The TXV is designed to control the superheat value of the refrigerant leaving the evaporator coil. This control of superheat is accomplished by a sensing bulb that is secured to the outlet of the evaporator coil at the suction line. When the temperature of the suction line increases at the sensing bulb (which is charged with refrigerant) the pressure in sensing bulb increases opening the valve. This is the only opening force upon the valve so if the refrigerant charge is lost in the sensing bulb (powerhead) the TXV will close starving the evaporator coil. If the sensing bulb is not attached to the suction line properly the valve will likely open too much, flooding the evaporator.

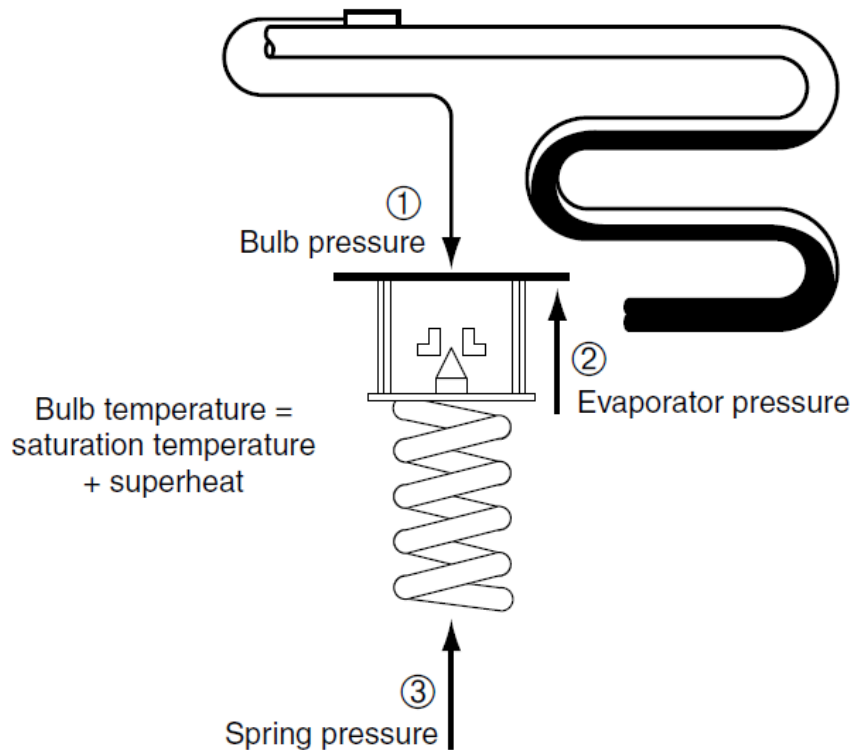


Figure 67: TXV 3 Pressures

6.5.1 Three Pressures

There are three pressures at work on a TXV, (1) The bulb pressure which is the only opening force. (2) The evaporator pressure which is a closing force. (3) The spring pressure which is a closing force. All the TXV's used on Traulsen G-Series models are internally equalized, which means that the evaporator pressure closing force is applied internally from the inlet of the evaporator. The spring pressure is technically adjustable, but it should not be necessary to adjust any TXV on Traulsen equipment as the superheat will be properly adjusted by Traulsen.

6.5.2 Non-Bleed Type

The TXV used on Traulsen G-Series Equipment is a non-bleed or hard shut off type of TXV which means that the pressures do not equalize during the off cycle.

6.5.3 Maximum Operating Pressure

The TXV used on Traulsen G-Series Equipment is a MOP valve with Maximum Operating Pressure. The MOP valve is designed to limit the suction pressure from rising above the MOP value. Therefore, you will never see the suction pressure rise above the MOP value not even during a hot pull down or after a defrost cycle.

6.5.4 Measuring Superheat

When troubleshooting a TXV it may become necessary to measure superheat this can be done without connecting pressure gauges. All G-Series Traulsen refrigeration systems are sealed without access for pressure

test. Installing pressure test access valves should be the last resort. Superheat can be measured with two thermometers securely attached to refrigerant lines. (T1) Measure the temperature at the inlet of the evaporator coil after the TXV valve body. (T2) Measure the temperature at the outlet of the evaporator coil after the TXV sensing bulb. Subtracting (T1) from (T2) will equal the superheat. The superheat should measure somewhere between four to twelve degrees Fahrenheit.

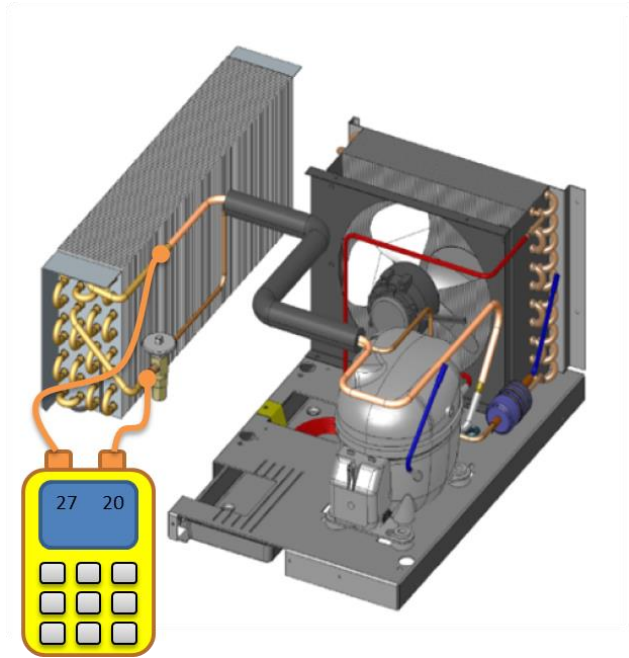


Figure 68: Measuring Superheat

6.5.5 Restrictions

If the flow of refrigerant becomes restricted at the TXV the valve will be very cold to the point of freezing, but the evaporator coil will be warm with high superheat and subcooling. Both Low side and high side pressures will drop. Although if refrigerant is added to the system the high side pressure will rise but the low side will not.

6.5.6 Replacing the TXV

If it becomes necessary to replace the TXV, care should be taken to replace it with the exact OEM part. When brazing the TXV into the system care should be taken not to overheat the valve. This is best accomplished by wrapping the valve with a cold wet rag. A dry nitrogen purge of 10 SCFH should be used to displace the oxygen to prevent the creation of an oxidized film inside the piping which could lead to system contamination or a restriction. Too much nitrogen pressure will blow back through the joint and cause pinholes. After replacing the TXV be sure to pull a deep vacuum of 200 microns.

6.6 Removing the Refrigeration System

6.6.1 Condenser Assembly:

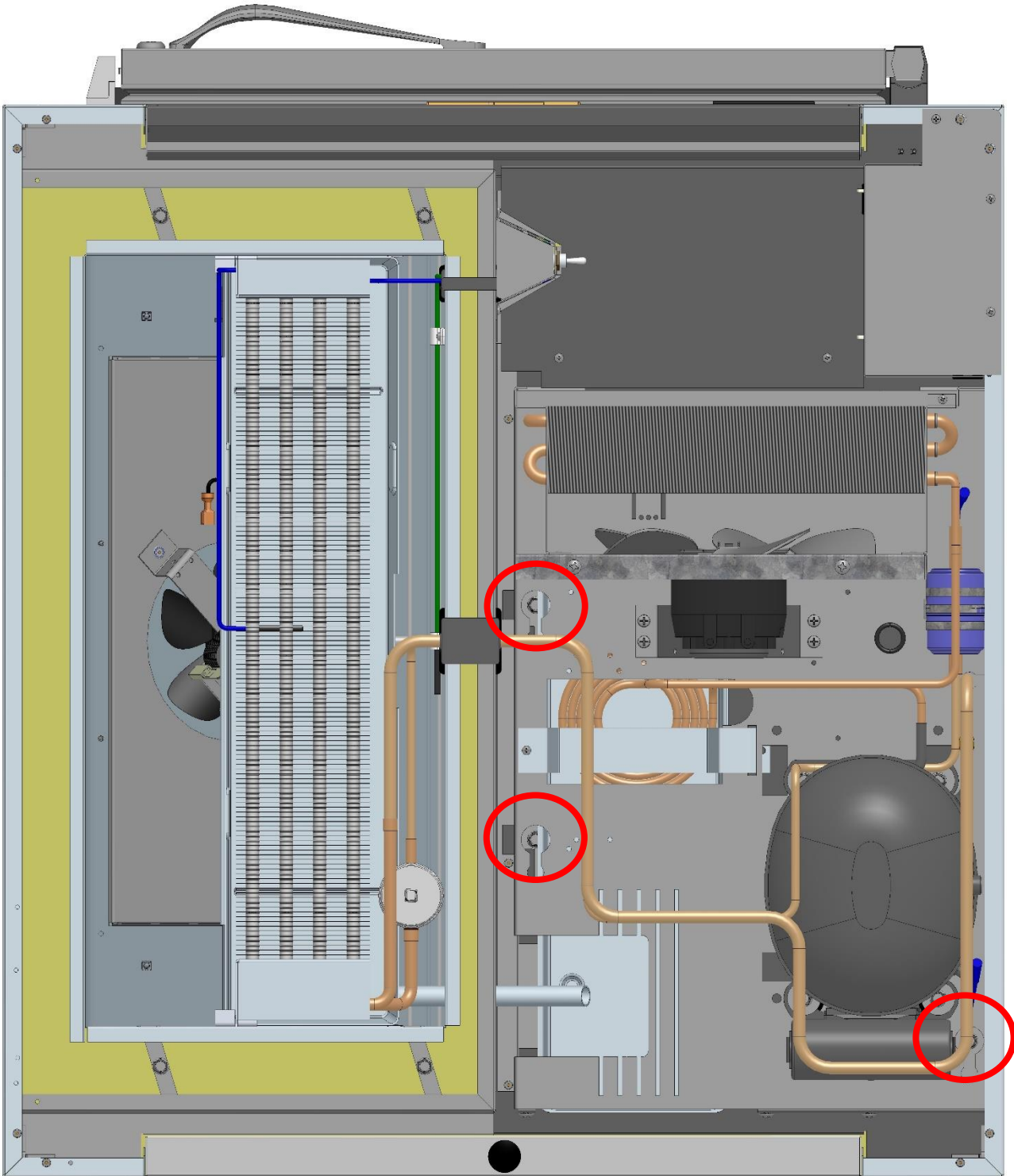


Figure 69: Fastener Locations

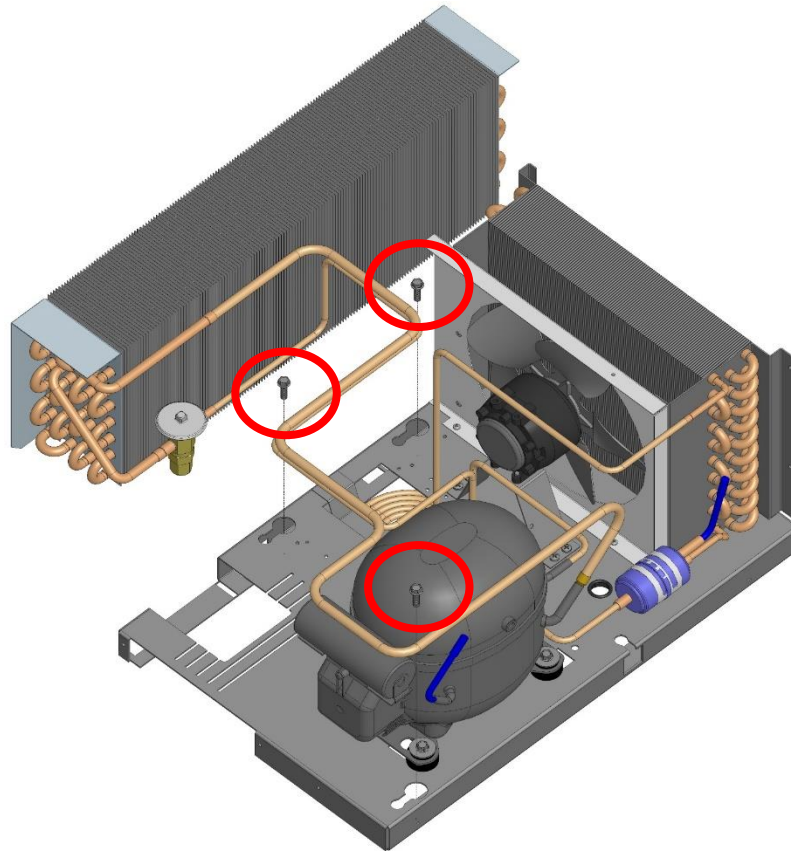


Figure 70: Remove Fastener Locations

6.6.2 Defrost Troubleshooting

Traulsen uses two different types of defrost on the **G-Series Refrigerators**. The last cabinet temperature before the defrost started will be displayed throughout the entire defrost cycle.

1. **Off-Cycle Defrost-** The off-cycle defrost is really an air over defrost. In otherwords we shut off the compressor but continue to run the Evaporator Fan Motor. During an off-cycle defrost the melting snowflake does not illuminate but instead the fan icon. This type of defrost is time initiated every two hours but then temperature terminated when the Evaporator Coil reaches 40 degrees fahrenheit or a maxium of 30 minutes. After the coil reaches the defrost termination temperature two minutes of drip time will begin before the compressor is energized.

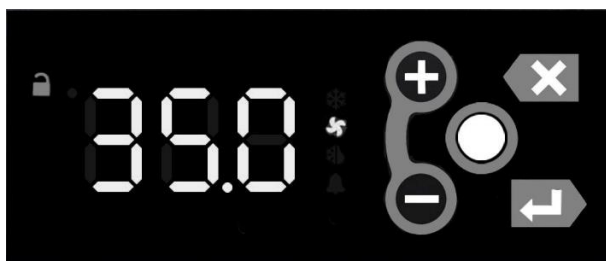


Figure 71: Display During Off-Cycle Defrost

- 2. Electric Defrost-** During an electric defrost we shut off the compressor and the Evaporator Fan Motor but energize an electric heating element at which time the melting snowflake is illuminated.. The electric defrost is initiated by time every eight hours on G-Series Refrigerators but then terminated when the Evaporator Coil Temperture reaches 40 degrees fahrenheit or a maximum of 25 minutes. After the defrost heat is terminated a drip time begins during the drip time the coil temperature will continue to rise until the two minutes of drip time is completed at which time the compresor is energized. Once the Evaporator coil temperature drops to 30 degrees fahrenheit the Evaporator Fan Motor will be energized.



Figure 72:Display During Electric Defrost

On **G-Series Freezers** Traulsen only uses one type of defrost.

Electric Defrost- During an electric defrost we shut off the compressor and the Evaporator Fan Motor but energize an electric heating element at which time the melting snowflake is illuminated on the display. The electric defrost is initiated by time every four hours on G-Series Freezers but then terminated when the Evaporator Coil Temperture reaches 45 degrees fahrenheit or a maximum of 30 minutes. After the defrost heat is terminated a drip time begins during the drip time the coil temperature will continue to rise until the four minutes of drip time is completed at which time the compresor is energized. Once the Evaporator coil temperature drops to 35 degrees fahrenheit the Evaporator Fan Motor will be energized.



Figure 73:Display During Electric Defrost

7. General Wiring Diagrams

7.1 Refrigerator (Off-Cycle Defrost) 115 Volt

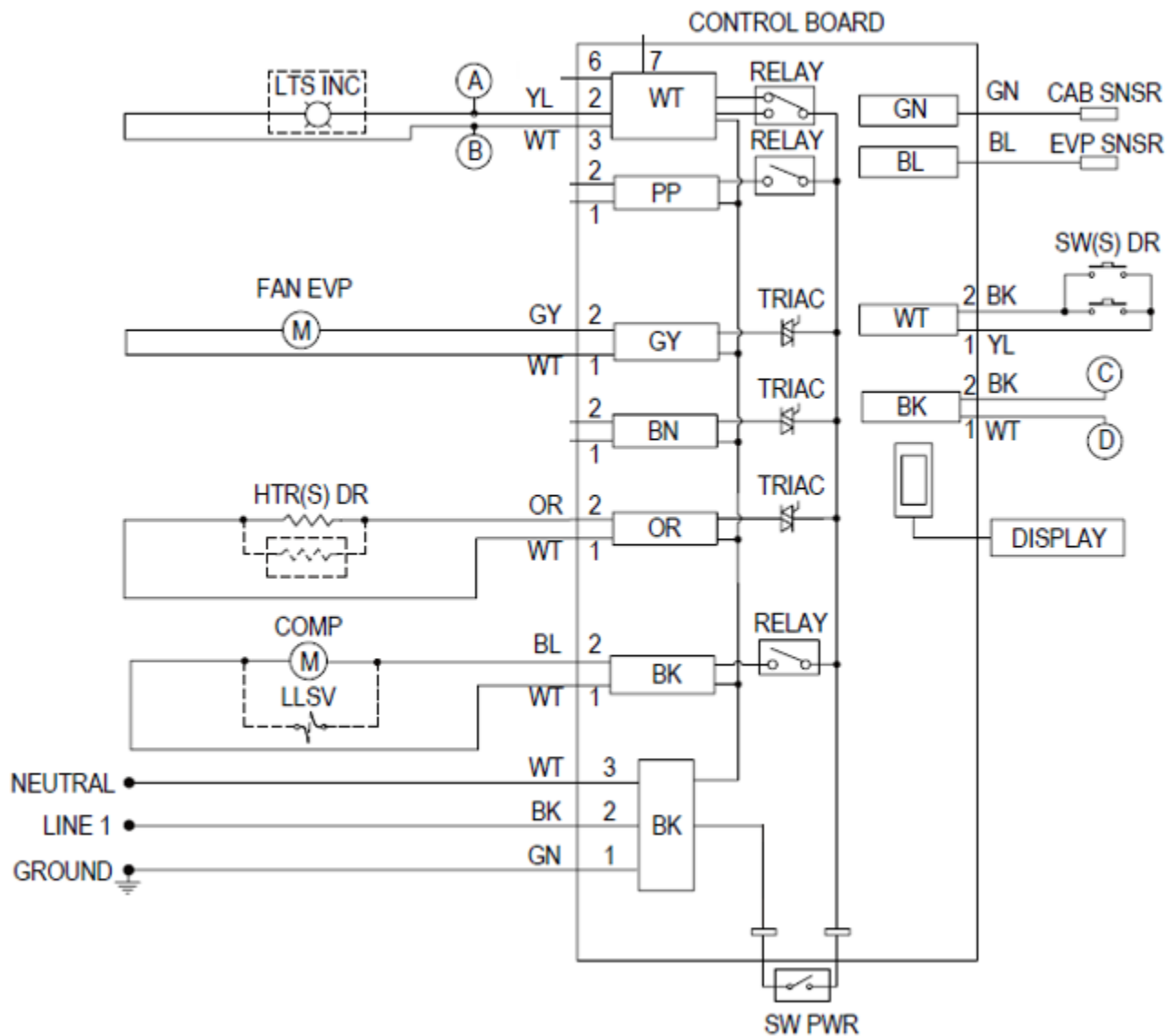


Figure 74: Refrigerator Off Cycle Defrost 115V.

7.2 Refrigerator Electric Defrost/ Freezer 115 Volt

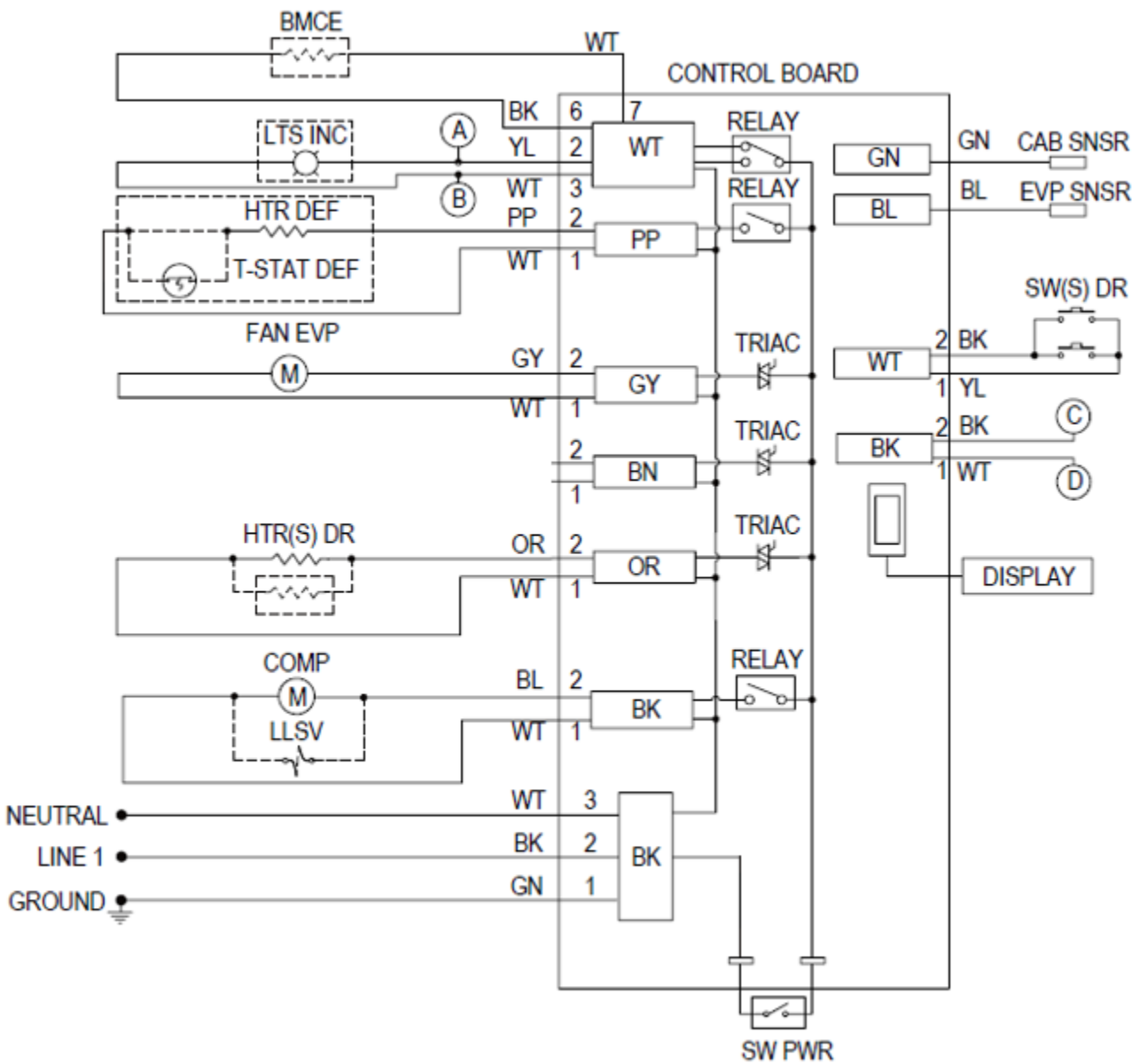


Figure 75: Refrigerator Electric Defrost/ Freezer 115 Volt

7.3 Lighting Circuits

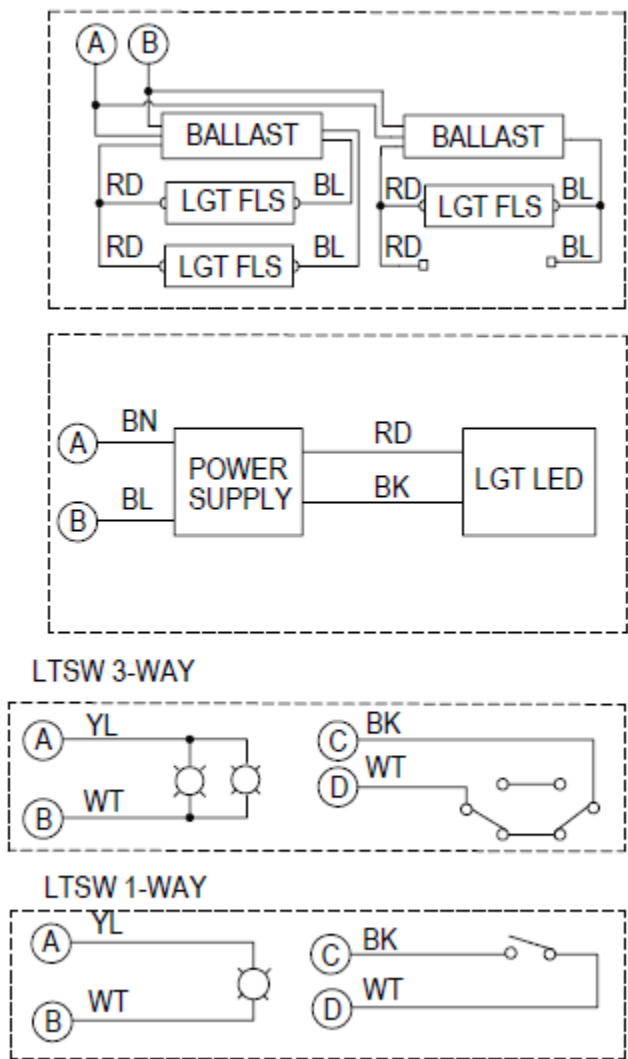


Figure 76: Lighting Circuits

7.4 3-Section Freezer 208-230/115 Volt

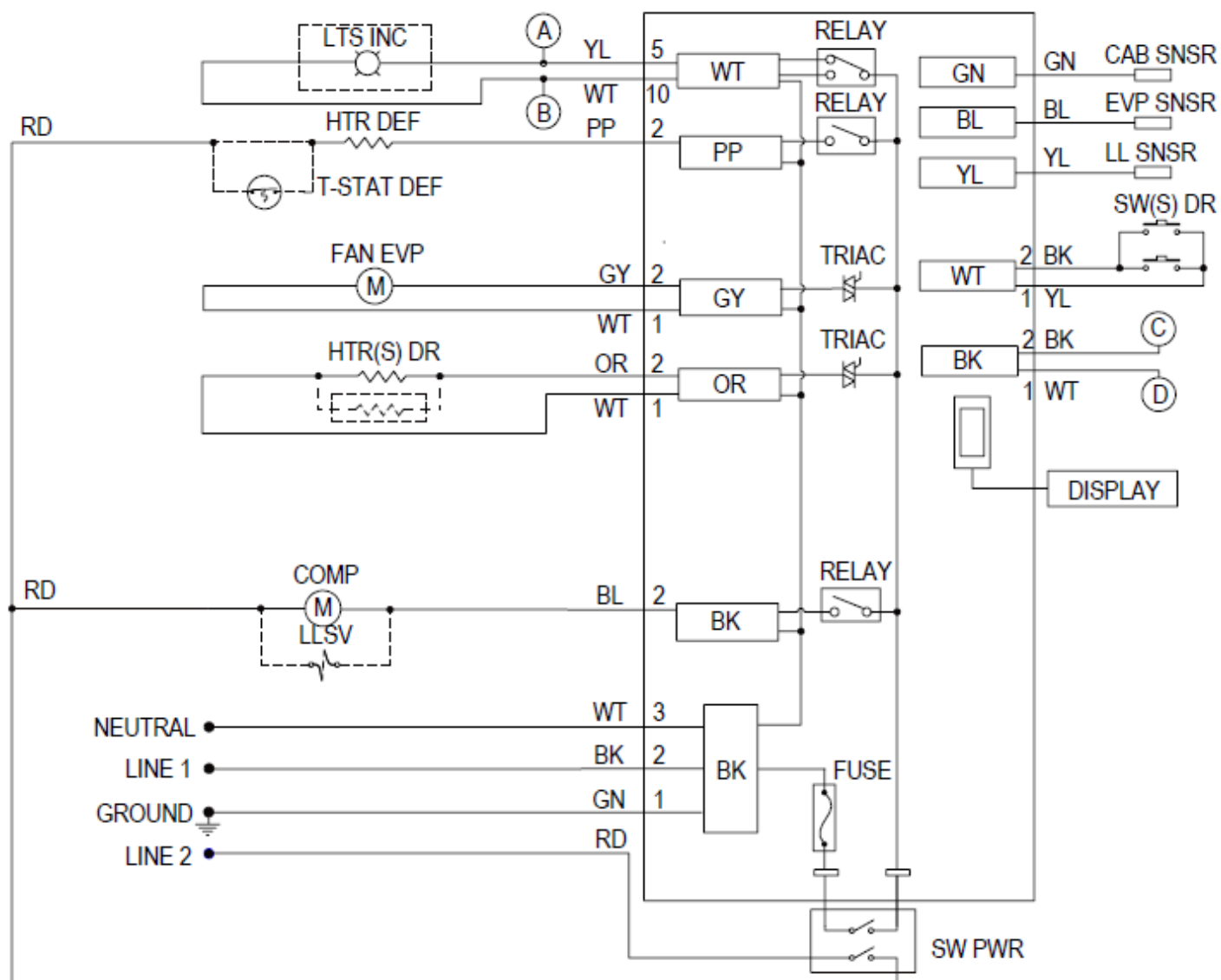


Figure 77: 3-Section Freezer 208-230/115 Volt

8. TRAUlsen EQUIPMENT WARRANTY

v. 100215 P/N 375-60359-00 (REV. B)

8.1 U.S. Domestic Warranty

For sales of Traulsen refrigeration equipment (“Equipment”) within the United States, Traulsen warrants to the original purchaser of the Equipment (“Purchaser”) that Traulsen will convey the Equipment free and clear of all liens, security interests, and encumbrances created by, through or under Traulsen. Traulsen further warrants that for a period of three (3) years from the later of either (a) the date of delivery to the common carrier or (b) the date of installation (the “Domestic Warranty Period”) but in no event, shall the Domestic Warranty Period commence later than 3 months from the date of delivery to the common carrier unless otherwise agreed upon by the parties in writing, under normal use and given proper installation and maintenance as determined by Traulsen, the Equipment: (a) will conform to the specifications as provided by Traulsen (“Specifications”) and (b) will be free from substantial defects in material and workmanship.

The warranty period for compressors shall extend for an additional two (2) years beyond the Domestic Warranty Period. In the case of a nonconforming compressor, Traulsen shall provide a replacement compressor; however, all installation, recharging, and repair costs shall be the responsibility of Purchaser. In the case of a nonconforming part, Purchaser must return the part to Traulsen within 30 days from the date of repair. Failure to return a claimed defective part to Traulsen within the 30 days will waive the right to the warranty claim.

Additionally, Traulsen provides a lifetime warranty on the housing of cam-lift hinges and the workflow handles. In the case of a non-conforming housing for cam-lift hinge or workflow handle, Traulsen shall provide a replacement part; however, Purchaser shall be responsible for any other replacement costs, including but not limited to installation and labor.

The Domestic Warranty does not apply to: (a) consumable components or ordinary wear items; (b) components that are removable without the use of tools including but not limited to gaskets, shelf pins, and light bulbs; (c) use of the Equipment components or parts not supplied by Traulsen or specified by Traulsen in the Operator’s Manual as set forth on Traulsen’s website; or (d) damage resulting from fire, water, burglary, accident, abuse, misuse, transit, acts of God, terrorism, power surges, improper installation, or repairs or installation by unauthorized third parties. Additionally, the Equipment is intended only for commercial use and should not be used by consumers or households or in any non-commercial application. This Domestic Warranty does not apply to, and shall not cover, any Equipment that is installed or used in any way in any residential or non-commercial application. No warranties, express or implied, are provided to any residential, consumer or non-commercial purchaser or owner of the Equipment.

For Traulsen units purchased for use with a condenser provided by a third-party, this standard warranty will apply only to those components contained within the unit to the point of connection of the refrigeration lines leading to the third-party condenser. In the event of a breach of the warranties set forth above (the “Domestic Warranty”), Traulsen will, at Traulsen’s option and as Purchaser’s sole remedy, repair or replace, including labor costs, any nonconforming Equipment, provided that (a) during the Warranty Period Traulsen is promptly notified in writing upon discovery of the nonconformance with a detailed explanation of any alleged deficiencies; (b) Traulsen is given a reasonable opportunity to investigate all claims; and (c) Traulsen’s examination of any alleged defective part confirms such alleged deficiencies and that the deficiencies were not caused by misuse, neglect, improper installation, unauthorized alteration or repair or improper testing. Traulsen reserves the right to, at its request, require Purchaser shall ship the alleged defective part to Traulsen for inspection and confirmation of defect. No Equipment may be returned without Traulsen’s approval.

Purchaser is solely responsible for determining if Equipment is fit for a particular purpose and suitable for Purchaser’s application. Accordingly, and due to the nature and manner of Traulsen’s Equipment, Traulsen is not responsible for the results or consequences of use, misuse, or application of its Equipment.

THIS DOMESTIC WARRANTY SETS FORTH THE EXTENT OF TRAUlsen’S LIABILITY FOR SALES WITHIN THE UNITED STATES. EXCEPT AS SET FORTH ABOVE, TRAUlsen MAKES NO WARRANTY OR REPRESENTATION OF ANY KIND, EXPRESS OR IMPLIED (INCLUDING NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE). IN NO EVENT WILL TRAUlsen’S LIABILITY IN CONNECTION WITH THE AGREEMENT OR SALE OF THE EQUIPMENT EXCEED THE PURCHASE PRICE OF THE EQUIPMENT AS TO WHICH THE CLAIM IS MADE. IN NO EVENT SHALL TRAUlsen BE LIABLE FOR ANY LOSS OF USE, LOSS OF PRODUCT, LOSS OF PROFIT, OR ANY OTHER INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THIS WARRANTY EVEN IF TRAUlsen HAS BEEN NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.



HOURS OF OPERATION:

Monday thru Friday 7:30 am - 4:30 pm CST

Traulsen

4401 Blue Mound Road Fort Worth, Texas
76106 Phone: (800) - 825 - 8220

TR35731



Commercial Kitchen Equipment Parts

Find more Traulsen equipment resources at

parthubz.com/equipment/traulsen

Need parts or service?

Call 833-700-8006

support@parthubz.com

parthubz.com