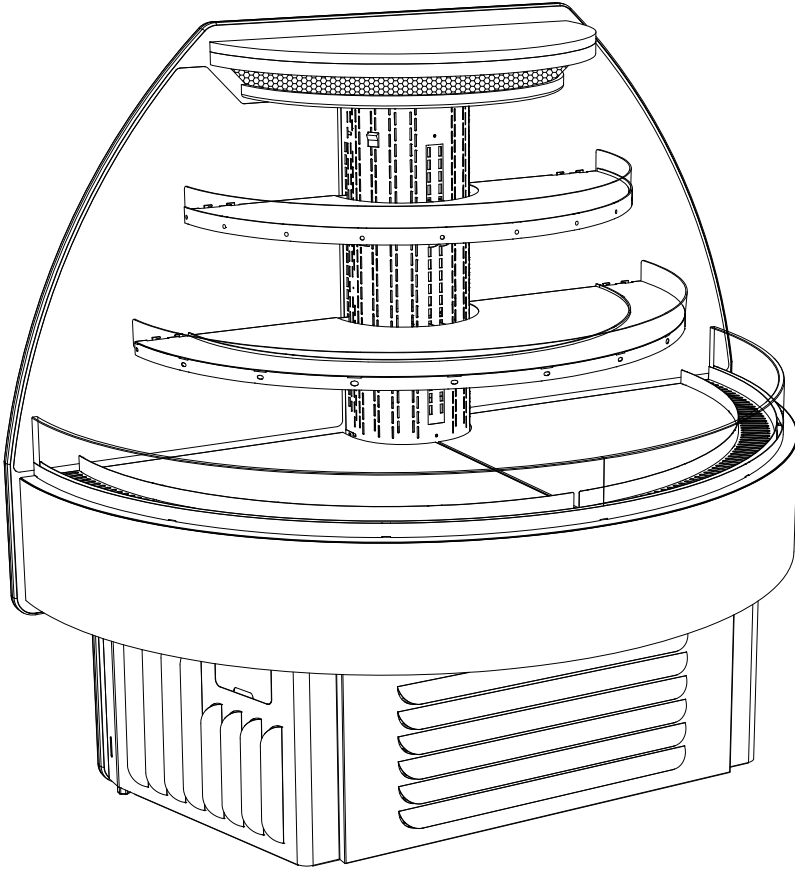




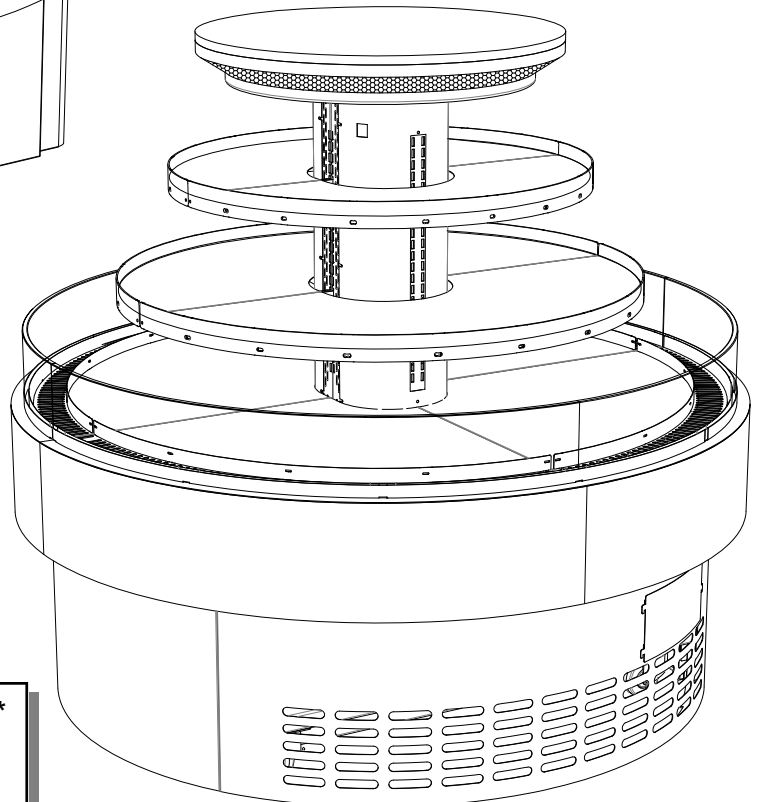
INSTALLATION & OPERATING MANUAL

PN 55112

MULTI-PURPOSE SELF-SERVICE REFRIGERATED MERCHANDISER



Model FSE65R



Model FSI65R

Model FSE65R.....69" Long x 34" Deep x 60" High*
Model FSI65R.....66 1/4" Dia." x 60" High*

*Levelers extended 1 5/8" below base frame



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OVERVIEW AND WARNINGS

OVERVIEW

- These Structural Concepts Oasis® service cases are designed to merchandise packaged products at 5°C / 41°F or less product temperatures.
- These cases should be installed and operated according to this operating manual's instructions to insure proper performance. Improper use will void warranty.

This unit is designed for the display of products in ambient store conditions where temperatures and humidity are maintained within a specific range.

- For NSF® Type 1 Conditions (most cases): ambient conditions are to be at 55% max. humidity / 75°F.
- For NSF® Type 2 Conditions: ambient conditions are to be at 60% maximum humidity / 80°F.
- If unsure if your case is Type 1 or Type 2, contact Structural Concepts Technical Service (see Technical Service section in this manual for phone number).

Caution: Do not allow air conditioning, electric fans, open doors or windows to create air currents around display case as this may detrimentally affect proper case temperatures and operation.



**ATTENTION
INSTALLER**

ATTENTION INSTALLER
This equipment must be installed in compliance with all applicable NEC, federal, state and local plumbing codes.

WARNING

ELECTRICAL
HAZARD



WARNING
Risk of electric shock.
Disconnect power before servicing unit

WARNING

KEEP HANDS
CLEAR



WARNING
Hazardous moving parts. Do not operate unit with covers removed.
Fan blades may be exposed when deck panel is removed.
Disconnect power before removing deck panel.

WARNING

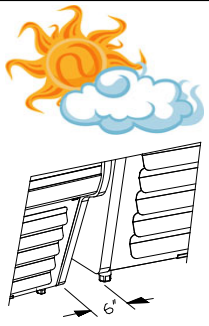
HOT
SURFACE



WARNING
For Self-Contained Cases: Evaporator Pan is Hot!
Disconnect and allow to cool before cleaning or removing from case.

CAUTION

CAUTION
Lamps have been treated to resist breakage
and must be replaced with similarly treated lamps.



WARNING! ADVERSE CONDITIONS / SPACING ISSUES

- Performance issues caused by adverse conditions are NOT covered by warranty.
- End panels are to be at least 6-inches away from structures to prevent condensation.
- Unit must be kept at least 15-feet from exterior doors, overhead HVAC vents or any air curtain disruption to maintain proper temperatures.
- Unit must not be exposed to direct sunlight or any heat source (ovens, fryers, etc.).
- Tile floors, low ceilings or small rooms will increase noise level. Whisper Cool compressor blanket or remote unit may resolve noise level issues.
- Keep at least 8-inch clearance above unit for air discharge (self-contained units only).

1. Remove Unit From Skid

For your safety, the equipment is furnished with a properly grounded cord connector. Do not attempt to defeat the grounded connector.

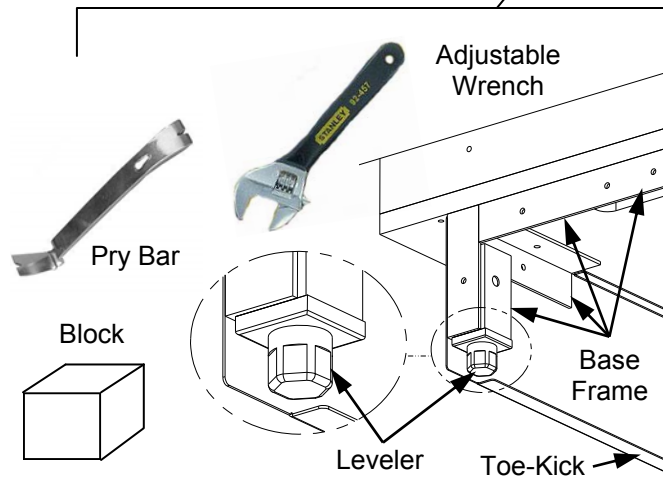
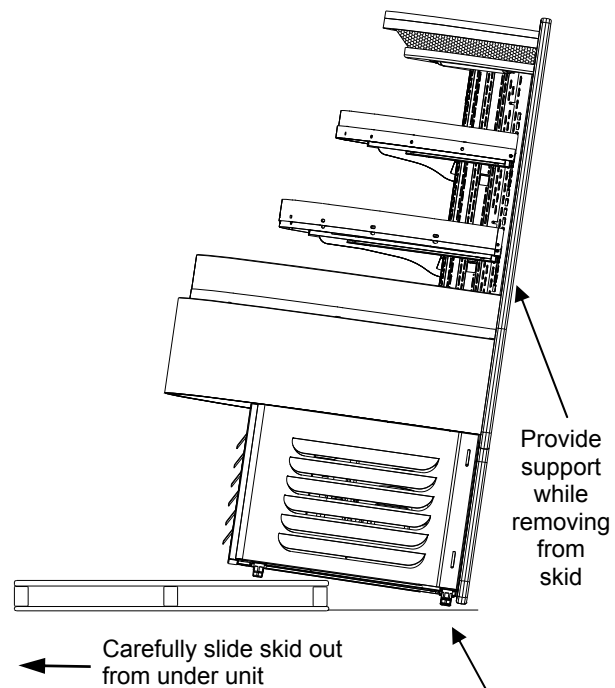
- Remove case from skid and place in proper location.
- Plug cord into certified electrical outlet with a ground.

2. Positioning Unit

- Place unit into desired location before leveling.

3. Cases With Levelers: Adjust Levelers

- After case is in position, adjust case so it is level and plumb (see illustration at right).
- You may need to remove front and/or rear Toe-Kick to access levelers.
- Use adjustable wrench (and possibly a pry bar) to adjust leveler.
- Do not use pry bar on toe-kick (it may buckle).
- Do not use pry bar on end panel (it may chip).
- Use pry bar ONLY on base frame to avoid damaging case.
- Use a block to reach base frames with pry bar.
- See illustrations at right.



Note: Illustrations are shown **WITHOUT** the refrigeration package (to allow unobstructed views).

Field Wiring

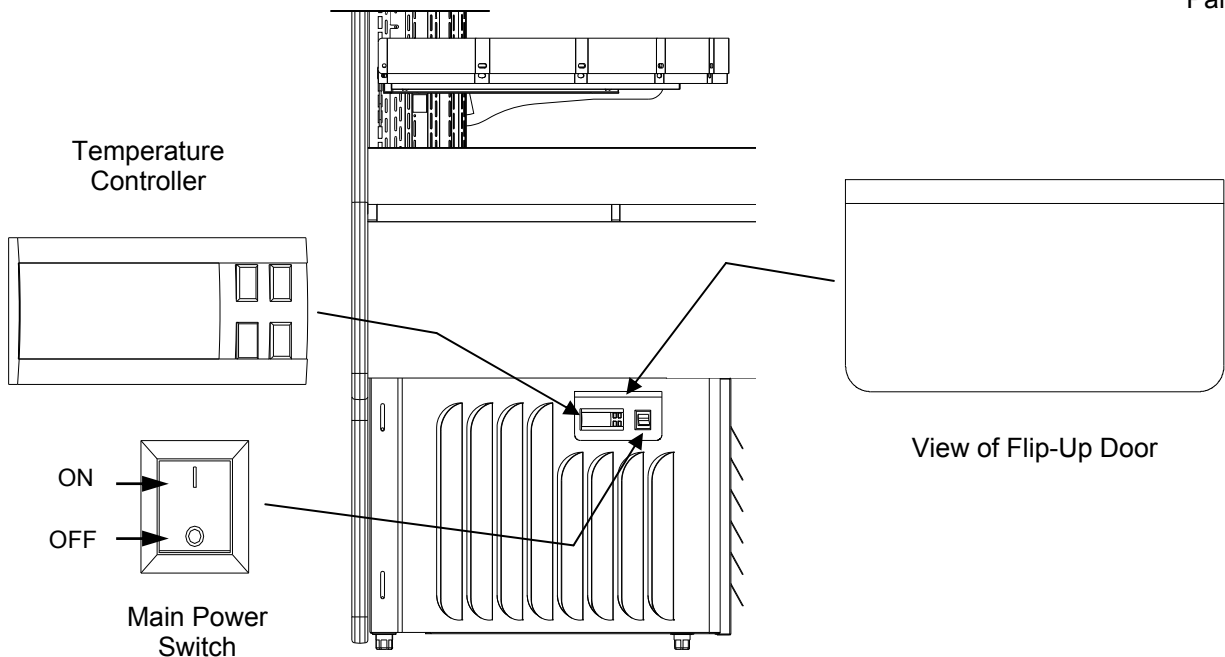
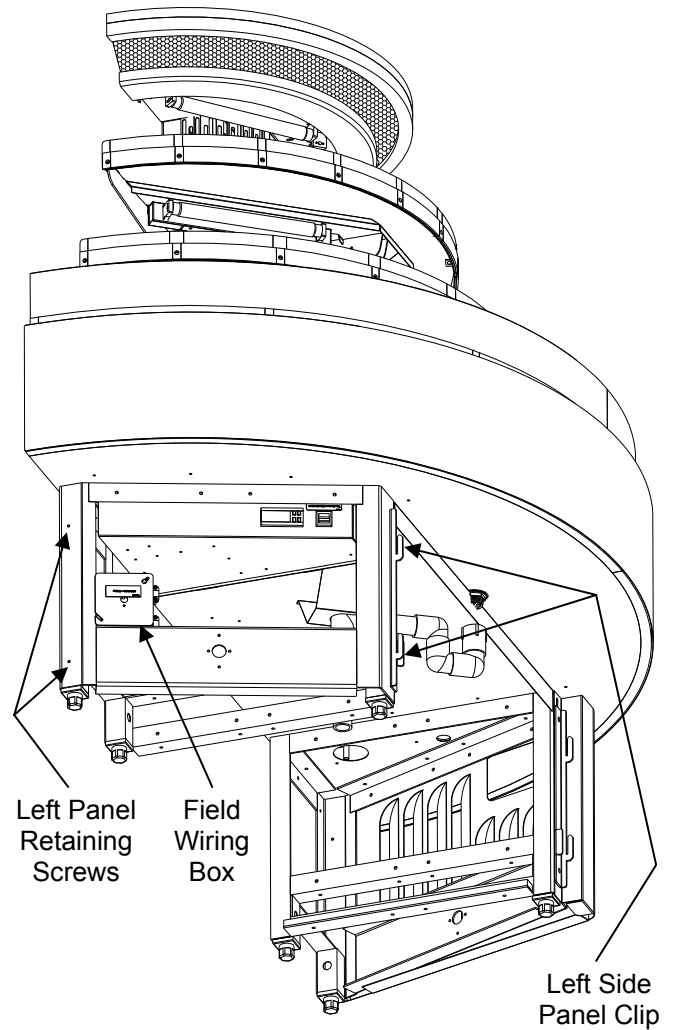
- **Access to Field Wiring Box to be accomplished by licensed electrical contractor.**
- To access field wiring box, remove front panel by simply lifting up and off (no screw removal required).
- Then remove Left Side Panel Clip (by removing three screws). See illustration at right for location.
- Remove two (2) Left Panel Retaining Screws (see illustration at right for location).

Main Power Switch

- Flip-Up Door is at left side of case (as shown below).
- Turn Main Power Switch on to energize case (see below for illustration).

Temperature Controller

- Temperature Controller is at left of Main Power Switch.
- See illustration below.
- See the **Carel Temperature Controller Operating Instructions** section of this manual for additional details.



FIELD WIRING / MAIN POWER SWITCH / BALLAST BOX [MODEL FSI65R ONLY]

Note 1: Illustration shown is remote unit [no refrigeration package at underside of case].

Note 2: Illustration shown has oval toe-kick removed for illustrative purposes.

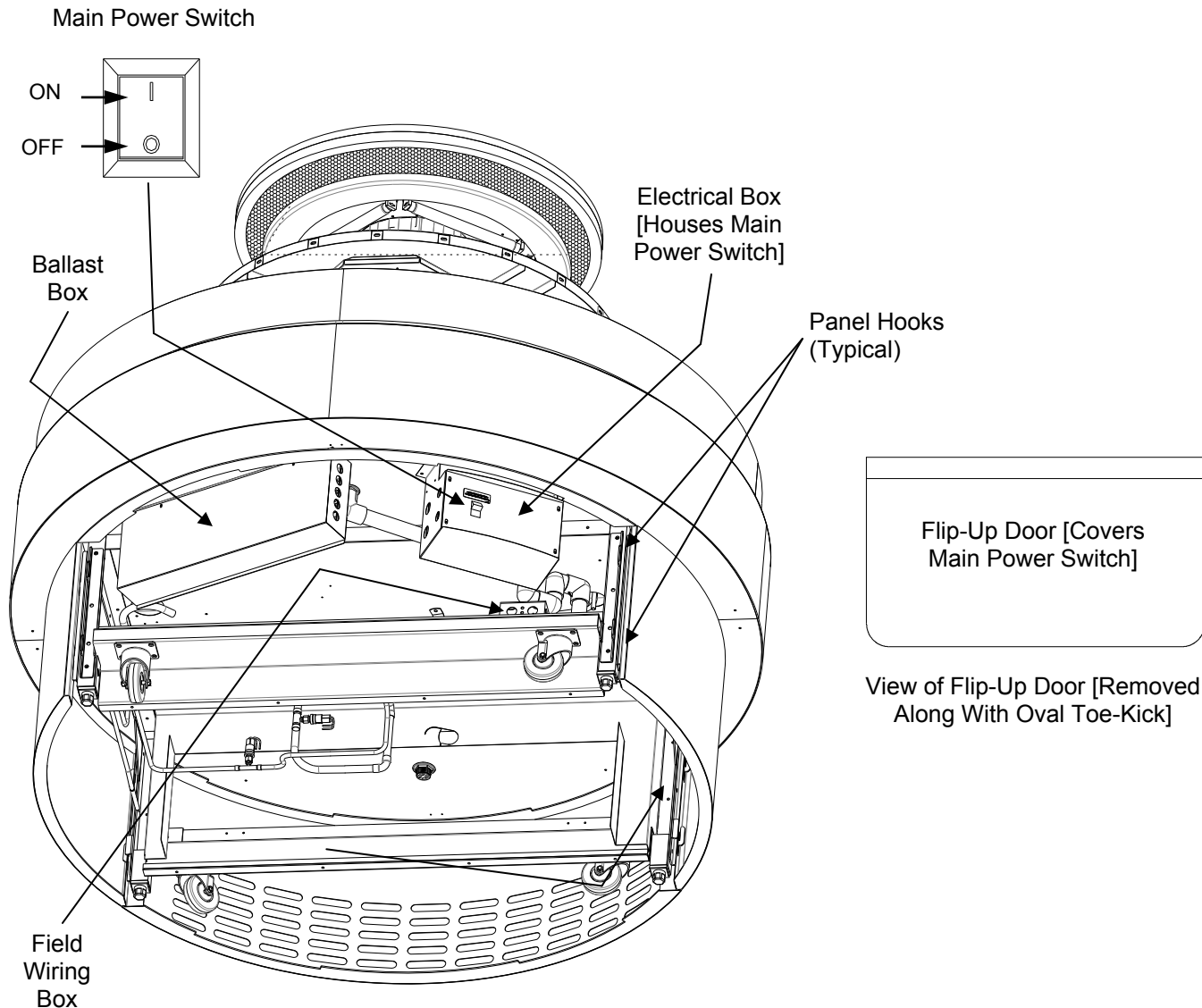
Field Wiring Box

- **Access to Field Wiring Box is to be accomplished by a licensed electrical contractor.**

- To access field wiring box, remove oval toe-kick by simply lifting up and off (no screw removal required).

Main Power Switch

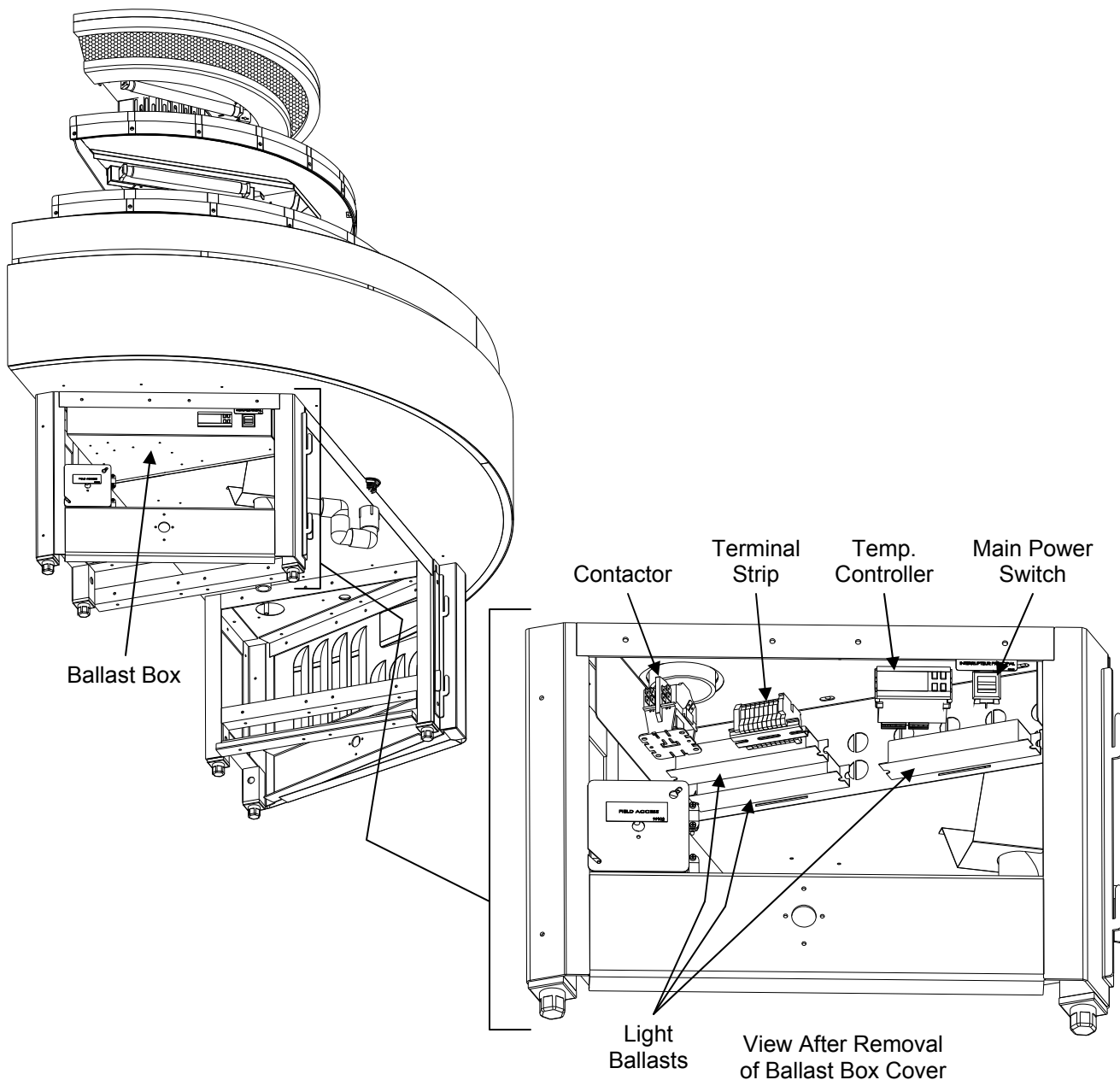
- Flip-up door is on oval toe-kick (view shown below has oval toe-kick removed for illustrative purposes only).
- Turn Main Power Switch on to energize case (see below for illustration).



BALLAST BOX ACCESS [MODEL FSE65R]

Ballast Box Access

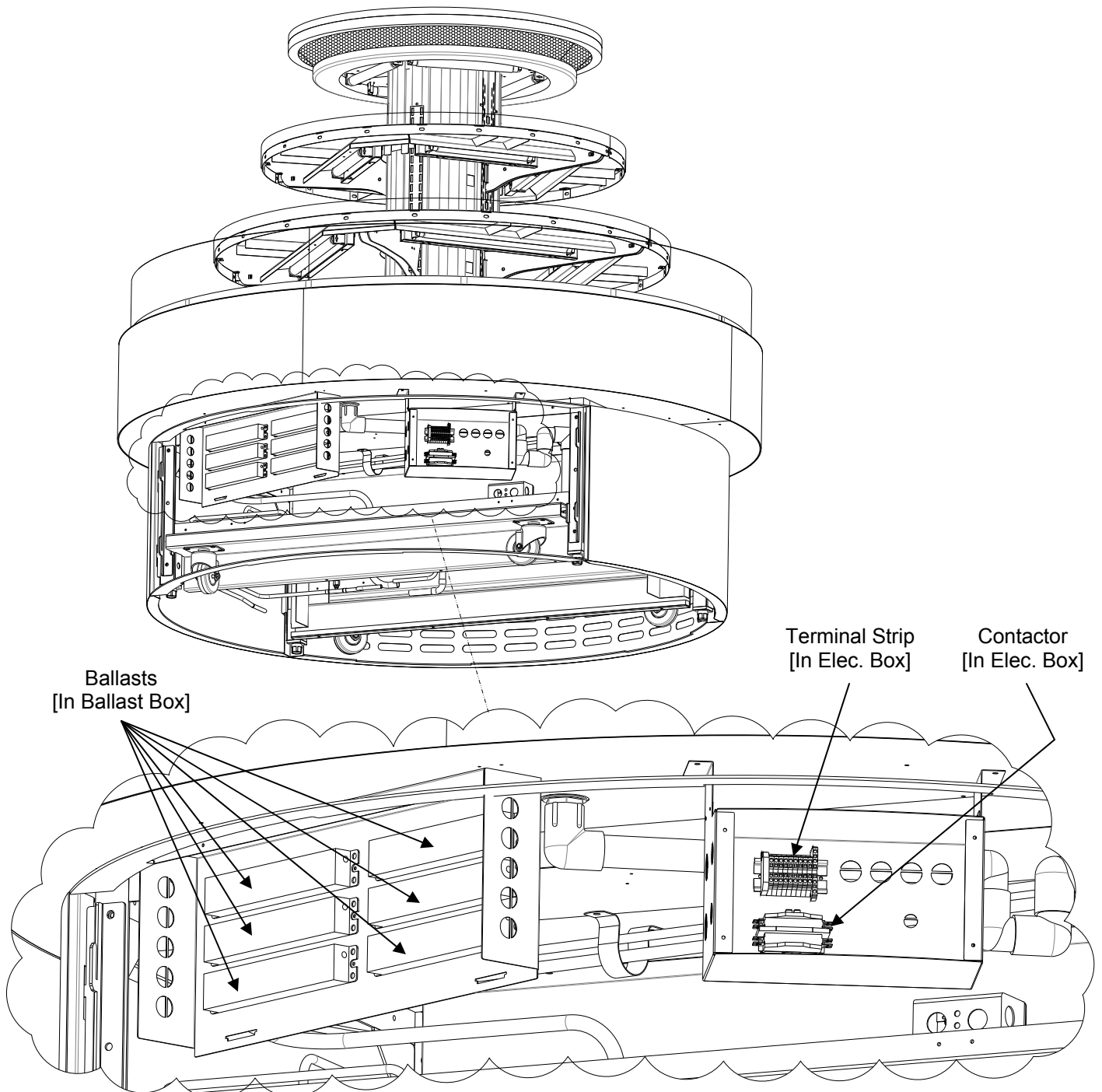
- **Warning! Turn power off and/or disconnect power before providing maintenance and service to unit.**
- **Assembly or disassembly and servicing to be accomplished by licensed electrical contractor.**
- To access field wiring box, remove front panel by lifting up and off (no screw removal required).
- Remove Left Side Panel Clip (by removing three screws). See illustration below for location.
- Remove two (2) Left Panel Retaining Screws (see illustration below for location).
- Ballast is located on left side of case (see illustration below)
- Remove four (4) screws and ballast box will drop down allowing access.
- Return all pieces and parts to unit after access.



BALLAST BOX / ELECTRICAL BOX ACCESS [MODEL FSI65R]

Ballast Box / Electrical Box Access

- **Warning! Turn power off and/or disconnect power before providing maintenance and service to unit.**
- **Assembly or disassembly and servicing to be accomplished by licensed electrical contractor.**
- To access field wiring box, remove front panel by lifting up and off (no screw removal required).
- Access ballasts, terminal strip and contactor by removing four (4) screws and covers.
- Return all pieces and parts to unit after access.



1. Power-Up Check

After power has been supplied, evaporator coil fans and compressor motor will be operational.

- To verify fans are operational, lift up deck pans; check to see that the coil fans are all functioning properly.

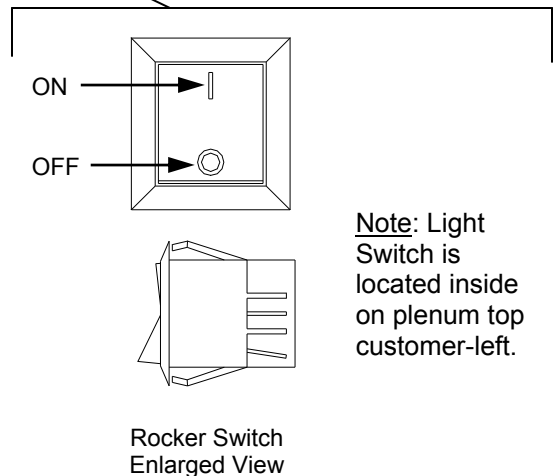
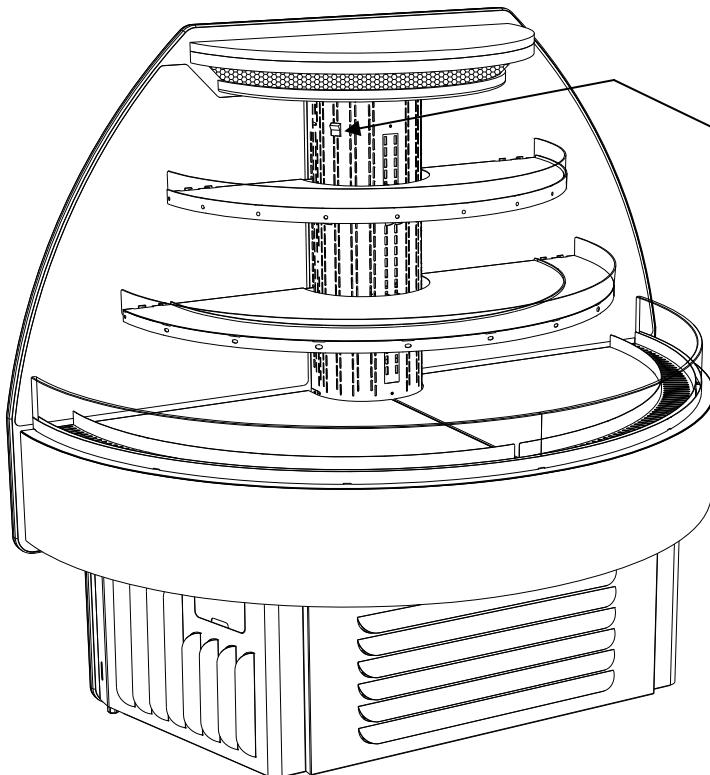
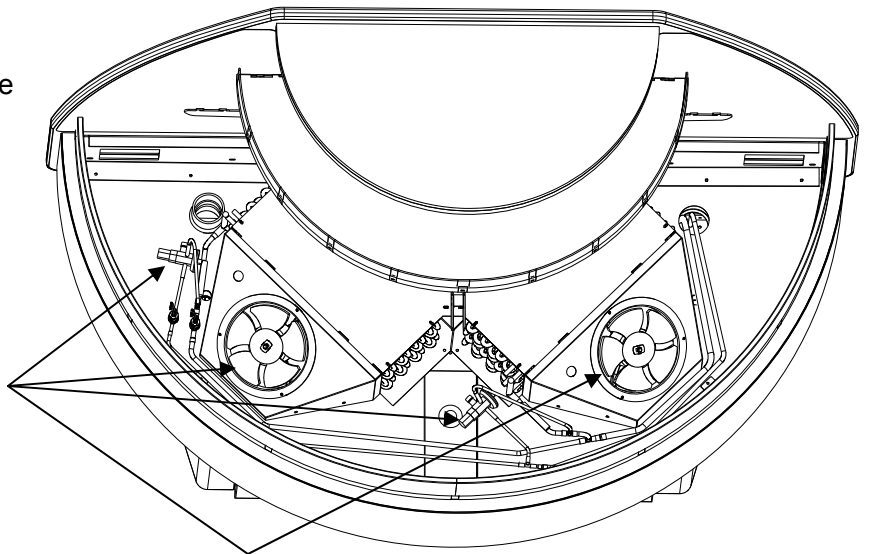
2. Lights

- Light switch is located inside on the plenum top toward back of the unit (see illustration below).

Note: All lights should come on at the same time.

- First time lighting may require a short warm up period for the bulbs.
- Slightly dim or a flickering of new bulbs is normal.
- If lights do not turn on, check all of the plug connections.
- See next page for additional information on light fixtures.

View of evaporator coil fans and TXV valves after decks have been removed.



Shelf Assembly Removal

- Shelving removable and adjustable on 1" centers.
- Lift shelf up & out OR lift shelf up and tip downward from uprights.
- See illustration at right.

Light Fixtures (Florescent Bulbs)

- See previous location for light switch location.
- Light fixtures are located in the shelves front and sides and at the top inside of case. See photo below.

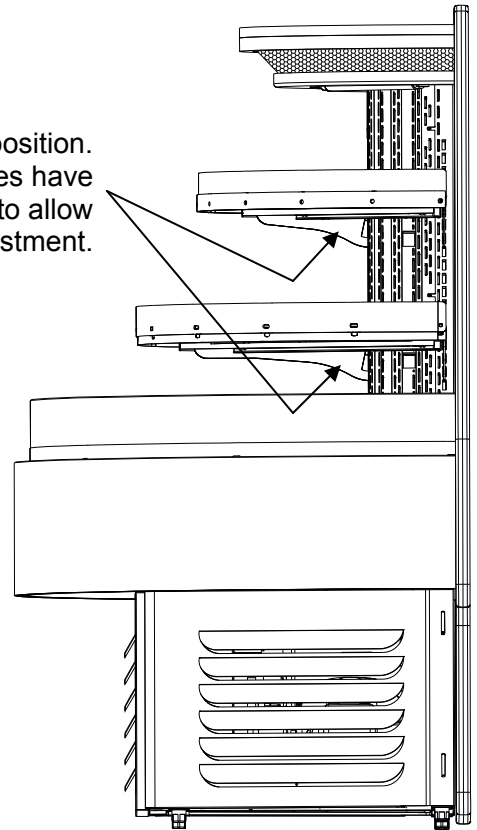
Removal of lamps:

- Grasp lamp firmly and carefully pull downward and out from socket.
- See photos below-right.

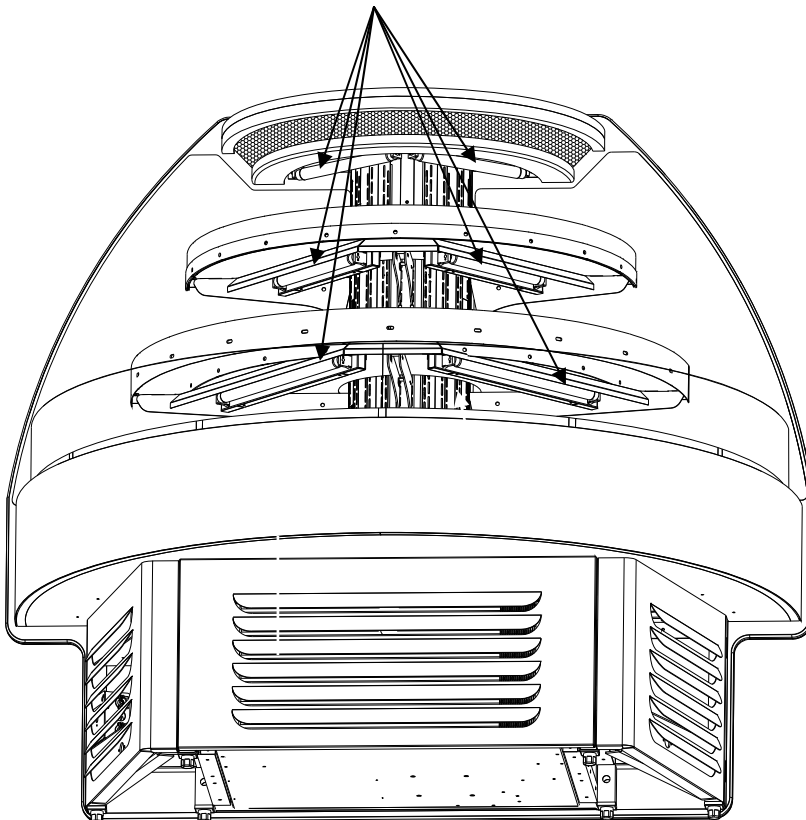
Installation of lamp:

- Align pins with slot.
- Insert pins into socket and push upward into place.
- See photos below-right.

View of shelf position.
Note: Wires have sufficient slack to allow for shelf adjustment.



Note: Lights bulbs and fixtures



Above Photo Illustrations show removal of Fluorescent Bulb .

Preventive maintenance should be performed every 30 days unless conditions warrant a more frequent replacement cycle.

Honeycomb Air Diffuser Removal

- A. Wedge non-metallic device of suitable strength (such as a ballpoint pen) between honeycomb and end panel. Caution! Use care not to dislodge the heating wire (that prevents condensation on the lamp assembly).
- B. Apply pressure to collapse the honeycomb to allow it to be pulled out of honeycomb retainer.
- C. Pry downward and away from honeycomb retainer.

Clean honeycomb with warm water and soap solution. Submerge if necessary. Use brush to dislodge stubborn or sticky residue. Dry by using vacuum's 'blow mode'.

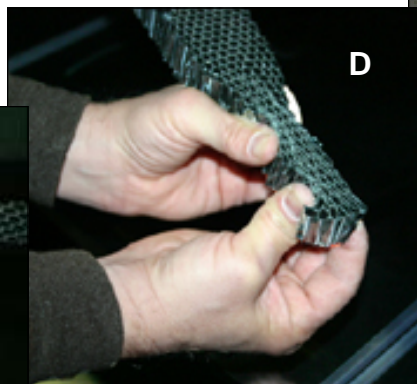
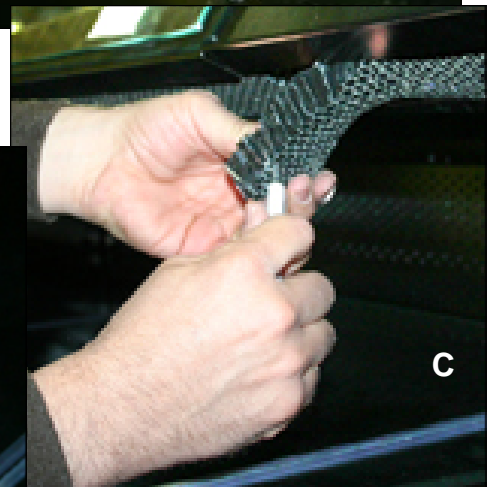
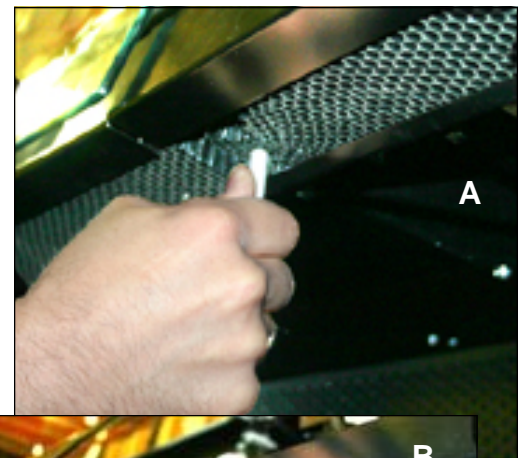
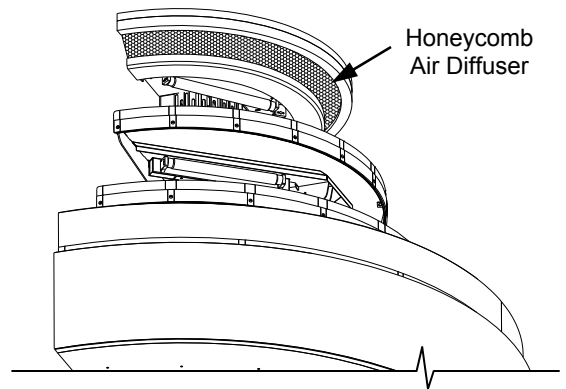
Honeycomb Air Diffuser Installation

- D. Squeeze honeycomb into the honeycomb retainer.
- E. Carefully slide honeycomb into place.
- F. Adjust honeycomb so that it fits flat against retainer. It must not be wavy or out of position.

Note: For honeycomb air diffusers in other locations, these same general instructions apply.

Air Duct - Upper Section (see illustration at top-right)

- Depending upon model, Upper Section Air Duct may be removable for cleaning. If so, simply lift Air Duct up and out of chamber to access area to clean.
- If Upper Section Air Duct is not removable from case, Honeycomb removal will allow access to area.
- Clean with brush or vacuum with brush attachment.
- Wipe down with moist cloth.



CLEANING SCHEDULE - TO BE PERFORMED BY STORE PERSONNEL

AREA	FREQ.	INSTRUCTIONS
Exterior	Weekly	Front and Side Panels, Wood, Laminate and Painted Surfaces: Clean with mild soap and water solution and a non-abrasive soft cloth .
	Weekly	Acrylic: Clean with warm water, mild soap solution and soft cloth; acrylic cleaning solutions are also available. Caution! Never use ammonia-based cleaners on acrylic. Incorrect cleaning agents or abrasive cleaning cloths cause surface to 'cloud' over time.
	Monthly	Condensing Coil: Remove front grille. Vacuum or brush grille area; clean dust and dirt collecting on condenser coil. Avoid damaging fins.
	Monthly	Under Case Cleaning: Remove front toe-kick (or rear grille). Vacuum under case to remove all dust and dirt. Replace front toe-kick (or rear grille) when complete.
Interior	Weekly	Decks: Wipe off decks with moist cloth dipped in mild soap and water solution.
	Monthly	Tub and Drain: Keep clean and free of debris which could clog tub and drain. To access drain area, remove the deck and fan shroud. <ul style="list-style-type: none"> • Vacuum tub under deck. • Direct the drain to a floor drain or a bucket. • Run hose into drain to flush out debris. Carefully hose out the tub. • Caution! Avoid splattering water over the case and surrounding areas!
	Monthly	Air Return Grille and Fan Shroud Area: 1) Turn off power. 2) Remove decks from case. 3) Clean with moist cloth.
	Monthly	Honeycomb Air Diffuser: See MAINTENANCE FUNDAMENTALS - HONEYCOMB AIR DIFFUSERS section in this manual for cleaning instructions.
	Monthly	Air Duct - Upper Section: See MAINTENANCE FUNDAMENTALS - HONEYCOMB AIR DIFFUSERS / UPPER SECTION AIR DUCT section for specifics.

CONDITION	TROUBLESHOOTING
Water Is On The Floor	<p>Caution! Water on flooring can cause much damage! Until cause is determined (and repaired), follow these procedures:</p> <ul style="list-style-type: none"> • Use wet-dry vacuum (or mop & bucket) to remove standing water. • Use 'catch pans' for water to drain into. Swap out regularly until case has completely drained.
	Check that the drain trap is free of debris.
	Check that the drain hose is correctly positioned over evaporator pan (or floor drain, for remote units).
	Check store conditions. To prevent condensation in NSF® Type 1 environments, maximum conditions are to be 55% humidity / 75° Fahrenheit. For NSF® Type 2, maximum conditions are to be 60% humidity / 80° Fahrenheit. See serial label (at case rear near main power switch) for NSF® Type of your case.
	Check evaporator pan float for proper operation (Heat Rod Evaporator System only).
	Check that evaporator pan is plugged in.
	<p>Caution! Evaporator pan may be malfunctioning (Electrical Heat Rod Evaporator system). If so, water will overflow pan and seep onto flooring causing damage! Until evaporator pan is functioning (or is replaced), following these procedures:</p> <ul style="list-style-type: none"> • Use wet-dry vacuum (or mop & bucket) to remove standing water. • Use 'catch pans' for water to drain into. Swap out regularly until case has completely drained.
	<p>Caution! Disruption of power can cause water to overflow pan and seep onto flooring causing damage! Check that power to case is constant. Until power is restored, following these procedures:</p> <ul style="list-style-type: none"> • Use wet-dry vacuum (or mop & bucket) to remove standing water. • Use 'catch pans' for water to drain into. Swap out regularly until evaporation of case is complete (or until power is restored). <p>When power to case is restored, evaporator pan should function properly and water will no longer overflow onto flooring.</p>

CONDITION	TROUBLESHOOTING
Fan Emits Excessive Noise	Check that the case is aligned, level and plumb.
	Check evaporator fan for cleanliness.
	Unplug fan motors; check motor shaft for excessive bearing wear.
	Check that fan motors are securely mounted in brackets.
	Verify that fan blades are securely mounted to fan motor.
	Check that nothing is preventing blade rotation.
	Check that the fan shroud is properly secured.
Fans Are Not Working	Check that the MAIN power switch (if present) is on.
	Check that fans are plugged in to fan shroud.
	Check for foreign material obstructing fan performance.
	Check that fan blades freely rotate within fan shrouds.
	Check that power is going to fans.
	Check that fan wiring is connected on terminal blocks.
System Is Not Operating	Check that the utility power is on.
	Check the circuit breaker box for tripped circuits.
Case Is Not Holding Temperature	If a large amount of warm product was added to the case, it will take time for the temperature to adjust.
	Check Temperature Controller section in this manual.
	Check that the case is not in the sun or near a heat or air conditioning vent.
	If case is located near outside doors, temperature fluctuation can hinder unit's ability to maintain temperature.
	Check air grilles for obstructions. Maintain airflow clearance of 6" (minimum) to 12" (recommended) at front and sides of case.
	Check sight glass for flashing and/or low charge.
	Check Set Point Temperature; it may be adjusted too high.

CONDITION	TROUBLESHOOTING
Case Lights Are Not Working	Check that Light switch is in the ON position.
	Check for burned out bulbs. Turn lights off & replace.
	Clean dirt and dust from the bulbs to prevent flickering.
	Check to insure voltage at ballasts. If voltage is entering but not exiting the ballast, ballast is faulty.
	Check that ALL lights are plugged in and receptacles capped.
Control Display Is Flashing	Check Temperature Controller section in this manual.
Condensing Unit Is Not Operating (Self-Contained Units Only)	Check Temperature Controller section in this manual.
	Check that the power is turned on.
	Review Temperature Controller's Settings for accuracy.

TROUBLESHOOTING - CONDENSING SYSTEM (QUALIFIED SERVICE TECHNICIANS ONLY)

CONDITION	TROUBLESHOOTING
Head Pressure Too High	Check that the Condensing Coil is not dirty or covered.
	Check that Condensing Fans are working.
	Check that the refrigeration system is not overcharged.
	Check that case is free of non-condensables.
	Check that the Liquid Line Drier Filter is not plugged.
	Check Set Point temperature; it may be adjusted too high.
	Check System Operating temperatures.
	Check that Store Ambient temperature isn't above maximum allowed. See <i>Overview and Warnings</i> Section.
Head Pressure Too Low	Check that Refrigerant Charge isn't too low.
	Check that Suction Pressure isn't too low.
	Check to verify that Compressor Valves aren't faulty.

TROUBLESHOOTING - EVAPORATOR SYSTEM (QUALIFIED SERVICE TECHNICIANS ONLY)

CONDITION	TROUBLESHOOTING
Low Suction Pressure	Check for low refrigerant.
	Check that Expansion Valve isn't restricted.
	Check that Liquid Line or Filter isn't restricted.
	Check that Evaporator Motors are working.
	Check for Superheat setting.
	Check that the Thermostatic Element charge isn't depleted.
	Check that the Coil is not iced up.
High Suction Pressure	Check that Refrigerant Charge isn't too high.
	Check that Compressor Valves aren't faulty.
	Check that there is no air seepage around Condensing Coil.
	Check that the Cooling Load isn't high.
	Check that Superheat adjustment isn't low.
	Check TXV Bulb Installation a. Poor thermal contact. b. Warm location.
	Check Compressor: Low capacity means it is undersized for its application.




PREVENTIVE MAINTENANCE (TO BE PERFORMED BY TRAINED SERVICE PROVIDER)

WARNING! TURN OFF CASE BEFORE PERFORMING PREVENTIVE MAINTENANCE!




PREVENTIVE MAINTENANCE	FREQUENCY	INSTRUCTIONS
Case Exterior	Monthly	<p><u>Condensing Coil:</u> <i>Note:</i> The vacuum 'blow mode' is to be used when cleaning the condenser coil. Follow these steps:</p> <ol style="list-style-type: none"> Remove front panel and slide unit out from under case; use vacuum and brush to dislodge and remove dust on and in coil. Place damp rags around condensing fan motor brackets to collect airborne dust. Using vacuum (in 'blowing' mode), blow air through condenser coils and into fans. Make certain to blow entire surface of condensing coils to assure that all entrenched dust is removed. Caution! Coil fins are sharp. Handle with care! Replace Rear Grille to case (4 screws).
	Quarterly	<p><u>Evaporator Pan:</u> <i>Caution! Disconnect from receptacle box.</i></p> <ul style="list-style-type: none"> Remove mounting screws from base. Use de-scaling solution (such as CLR® that will prevent corrosion, lime and rust) to clean pan. Rinse thoroughly; do not submerge in water. Reattach pan to case with same mounting screws. Reconnect power cord to receptacle box.
	Quarterly	<p><u>Compressor Area:</u> <i>Caution! Be certain to disconnect power from case before cleaning Compressor Area!</i></p> <ul style="list-style-type: none"> After removing front panel, slide/roll compressor package out from under case. Use moist cloth to wipe off dust & debris that collects on various parts. Slide/roll compressor package back under case.
	Quarterly	<p><u>Under Case Cleaning:</u> Once refrigeration package is clear of unit, vacuum under case to remove all dust and dirt that may collect under case.</p>
Case Interior	Quarterly	<p><u>Tub, Coil, Drain, Fan Blades, Motors, Brackets:</u> <i>Disconnect power from the case before cleaning the Tub, Coil, Fan, Motor and Drain Area!</i></p> <ul style="list-style-type: none"> Remove Decking, Sub-Deck and Fan Shroud. Use vacuum to clean Evaporator Coils. Clean Tub, Coil and Drain with warm water, clean cloth, brush and mild soap solution. Remove any debris that may clog drain. Clean Fan Blades, Motors and Brackets by wiping down with moist cloth.

Serial Label Location & Information Listed / Technical Information & Service

- Serial labels are located near the electrical access on your case.
- Serial labels contain electrical, temperature & refrigeration information, as well as regulatory standards to which the case conforms.
- For additional technical information and service, see the *TECHNICAL SERVICE* page in this manual for instructions on contacting Structural Concepts' Technical Service Department.
- See images below for samples of both refrigerated and non-refrigerated serial labels.

 <p>888 E. Porter Rd · Muskegon, MI 49441</p>		 <p>MODEL HV74RSS SCROLL SERIAL NO.</p>	
<p>FOR PARTS AND SERVICE CALL 1-800-433-9489</p>			
 <p>3048256</p>		<p>ELECTRICAL RATING</p>	<p>120/1/60 24A</p>
<p>CONFORMS TO UL STD 471</p>		<p>REFRIGERANT</p>	<p>R404A AMOUNT ?? OZ</p>
<p>CONFORMS TO NSF STD 7</p>		<p>DESIGN PRESSURE</p>	<p>HIGH 450 LOW 200</p>
<p>CERTIFIED TO CAN/CSA STD C22.2 NO 120</p>		<p>MINIMUM CIRCUIT</p>	<p>30A</p>
		<p>MAXIMUM OVERCURRENT</p>	<p>30A</p>
<p>Super Heat Temp</p>		<p>8-10°F</p>	
<p>BTUH Requirements</p>		<p>9,738 BTUH @ 20° F SST</p>	
<p>Defrost</p>		<p>6 defrosts per day, 45° F termination, 45 min. failsafe</p>	

----- Sample Serial Label For Refrigerated Case -----

 <p>888 E. Porter Rd · Muskegon, MI 49441</p>		 <p>PC5682 txtRemote txtSerialNumber</p>	
 <p>3048256</p>		<p>120 VOLTS 60 HZ SINGLE PHASE 1.84AMP</p>	
<p>CONFORMS TO UL STD 65</p>		<p>FOR PARTS OR SERVICE CALL</p>	
<p>CERTIFIED TO CAN/CSA</p>		<p>STRUCTURAL CONCEPTS</p>	
<p>STD C22.2 NO 120</p>		<p>AT</p>	
		<p>1-800-433-9489</p>	
		<p>N/A</p>	

SAMPLE ONLY

----- Sample Serial Label For Non-Refrigerated Case -----

CAREL

ir33 platform

Integrated Electronic
Microprocessor Controller



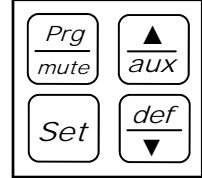
Programming The Instrument

To Modify The Setpoint

Set Press and hold the "SET" key for at least 1 second.

▲/aux **def/▼** 2. Use arrow keys ▲ ▼ on temperature controller to increase (or decrease) the setpoint.

Set 3. Quickly press and release the "SET" key again.



To Modify Defrost, Differential or Other Parameters

Prg/mute **Set** 1. Press & hold "Prg" & "SET" keys together for five (5) seconds; display will flash "0", representing password prompt.

Set 2. Confirm by pressing "SET" key.

▲/aux **def/▼** 3. Press ▲ or ▼ to reach the category to be modified.

Set 4. Press "SET" to modify this selected parameter.

▲/aux **def/▼** 5. Increase or decrease the value using the ▲ or ▼ button respectively.

Set 6. Press the "SET" key to temporarily save the new value and return to the display of the parameter.

Prg/mute 7. Press & hold the "Prg" key for at least 5 seconds to save changes. This action will also mute the audible alarm (buzzer) & deactivate the alarm relay.

How To Change Reading From Fahrenheit (°F) To Celsius (°C)

Prg/mute **Set** 1. Press and hold "Prg" and "SET" keys together for at least 5 seconds; display will show "0", representing password prompt.

Set 2. Confirm by pressing "SET" key.

▲/aux **def/▼** 3. Press ▲ or ▼ until reaching the parameter "15".

Set 4. Press "SET" to modify this selected parameter.

▲/aux **def/▼** 5. Press ▲ or ▼ to change value to desired setting: "0" for Celsius (°C) or "1" for Fahrenheit (°F).

Set 6. Press "SET" key to temporarily save the new value and return to the display of the parameter.

Prg/mute 7. Press & hold "Prg" key for at least 5 seconds to save changes. **Note! All values will automatically convert to new scale. No conversion is required.**

Warning! Save Your Parameter Settings!

1. To store the new parameter values, PRESS and HOLD the "Prg" key for at least 5 seconds.
2. All modifications made to parameters will be lost if you do NOT press a button within 60 seconds. Should this "timeout" occur, normal operational settings (prior to modifications being made) will resume.
3. If the instrument is switched off before pressing the "Prg" key, all modifications to parameters will be lost.

def/▼ **To Activate Manual Defrost**
Press and hold the "def" key for at least 5 seconds.

▲/aux **To Activate / Deactivate Auxiliary Output**
Press and hold the "aux" key for 1 second.

Prg/mute **▲/aux** **To Reset Any Alarms With Manual Reset**
Press and hold the "Prg" and "aux" key for at least 1 second.

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User Interface - Display

ICON	FUNCTION	DESCRIPTION	Normal operation			Start up
			ON	OFF	BLINK	
	COMPRESSOR	ON when the compressor starts. Flashes when the activation of the compressor is delayed by safety times.	Compressor on	Compressor off	awaiting activation	
	FAN	ON when the fan starts. Flashes when the activation of the fan is prevented due to external disabling or procedures in progress.	Fan on	Fan off	awaiting activation	
	DEFROST	ON when the defrost is activated. Flashes when the activation of the defrost is prevented due to external disabling or procedures in progress.	Defrost in progress	Defrost not in progress	awaiting activation	
	AUX	Flashes if the anti-sweat heater function is active, ON when the auxiliary output (1 and/or 2) selected as AUX (or LIGHT in firmware version 3.6) is activated.	AUX auxiliary output active (version 3.6 light auxiliary output active)	AUX auxiliary output not active	Anti-sweat heater function active	
	ALARM	ON following pre-activation of the delayed external digital input alarm. Flashes in the event of alarms during normal operation (e.g. high/low temperature) or in the event of alarms from an immediate or delayed external digital input.	Delayed external alarm (before the time 'A7' elapses)	No alarm present	Alarms in norm. operation (e.g. High/low temperature) or immediate or delayed alarm from external digital input	
	CLOCK	ON if at least one timed defrost has been set. At start-up, comes ON for a few seconds to indicate that the Real Time Clock is fitted.	If at least 1 timed defrost event has been set	No timed defrost event set	Alarm clock	ON if real-time clock present
	LIGHT	Flashes if the anti-sweat heater function is active, ON when the auxiliary output (1 and/or 2) selected as LIGHT is activated (in firmware version 3.6 it does not flash in anti-sweat heater mode and comes on when the dead band output is active).	Light auxiliary output on (version 3.6 dead band auxiliary output active)	Light auxiliary output off	Anti-sweat heater function active (version 3.6 does not flash in anti-sweat heater mode)	
	SERVICE	Flashes in the event of malfunctions, for example E2PROM errors or probe faults.		No malfunction	Malfunction (e.g. E2PROM error or probe fault). Contact service	
	CONTINUOUS CYCLE	ON when the CONTINUOUS CYCLE function is activated. Flashes if the activation of the function is prevented due to external disabling or procedures in progress (E.g.: minimum compressor OFF time).	CONTINUOUS CYCLE operation activated	CONTINUOUS CYCLE function not activated	CONTINUOUS CYCLE operation requested	

Summary Table of Alarm and Signals: Display, Buzzer and Relay

Code	Icon on the display	Alarm relay	Buzzer	Reset	Description
rE	flashing	on	on	automatic	virtual control probe fault
E0	flashing	off	off	automatic	room probe S1 fault
E1	flashing	off	off	automatic	defrost probe S2 fault
E2	flashing	off	off	automatic	probe S3 fault
E3	flashing	off	off	automatic	probe S4 fault
E4	flashing	off	off	automatic	probe S5 fault
'	No	off	off	automatic	probe not enabled
LO	flashing	on	on	automatic	low temperature alarm
HI	flashing	on	on	automatic	high temperature alarm
AFr	flashing	on	on	manual	antifreeze alarm
IA	flashing	on	on	automatic	immediate alarm from external contact
dA	flashing	on	on	automatic	delayed alarm from external contact
dEF	on	off	off	automatic	defrost running
Ed1	No	off	off	automatic/manual	defrost on evaporator 1 ended by timeout
Ed2	No	off	off	automatic/manual	defrost on evaporator 2 ended by timeout
Pd	flashing	on	on	automatic/manual	maximum pump down time alarm
LP	flashing	on	on	automatic/manual	low pressure alarm
AtS	flashing	on	on	automatic/manual	autostart in pump down
cht	No	off	off	automatic/manual	high condenser temperature pre-alarm
CHT	flashing	on	on	manual	high condenser temperature alarm
dor	flashing	on	on	automatic	door open too long alarm
EE	flashing	off	off	automatic	E2prom error, unit parameters
EF	flashing	off	off	automatic	E2prom error, operating parameters
ccb	Signal				start continuous cycle request
ccE	Signal				end continuous cycle request
dFb	Signal				start defrost call
dFE	Signal				end defrost call
On	Signal				switch ON
off	Signal				switch OFF
rES	Signal				reset alarms w/manual reset / reset HACCP alarms / reset temp. monitoring

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Summary Table of Operating Parameters

CODE	PARAMETER	UOM*	TYPE	MINIMUM	MAXIMUM	DEFAULT
/5	Select Celsius (°C) or Fahrenheit (°F)	flag	C	0	1	For Case Specific Defaults See Serial Label Located Near Electrical Access On Your Case. For Additional Technical Information Call Structural Concepts Technical Service Dept. at 1(800) 433.9489
/c1	Calibration of probe 1	°C/°F	C	-20	20	
/c2	Calibration of probe 2	°C/°F	C	-20	20	
St	Temperature set point	°C/°F	F	r2	r1	
rd	Control delta	°C/°F	F	20	0.1	
dl	Interval between defrosts	hours	F	0	250	
dt1	End defrost temperature, evaporator	°C/°F	F	-50	200	
dP1	Maximum defrost duration, evaporator	min	F	1	250	
d6	Display on hold during defrost	-	C	0	2	
dd	Dripping time after defrost	min	F	0	15	
d/1	Display of defrost probe 1	°C/°F	F	-	-	

* Unit Of Measure

STRUCTURAL CONCEPTS CORPORATION TECHNICAL SERVICE
PHONE NUMBER: 1.800.433.9489 or For Your Master Service Agent See
WWW.STRUCTURALCONCEPTS.COM/Contact/Master_Service_Agents.asp

WARRANTY INFORMATION

(Note: Standard Limited Warranty can be found at www.Structuralconcepts.com)

All sales by Structural Concepts Corporation (SCC) are subject to the following limited warranty. "Goods" refers to the product or products being sold by SCC.

Warranty Scope: Warranty is for equipment sold in the United States, Canada, Mexico and Puerto Rico. Equipment sold elsewhere may carry modified warranty.

Warranty; Remedies; Limitations. SCC warrants that if any Goods are found by an authorized representative of SCC not to be of good material or workmanship within one year of the date of shipments SCC will, at its option after inspection by an authorized representative, replace any defective Good or pay the reasonable cost of replacement for any such defective Goods, provided that written notice of the defect is given to SCC within 30 days of the appearance of such defect. If notice is not given within such period, any claim for breach of warranty shall be conclusively deemed to have been waived and SCC shall not be liable under this warranty. If SCC is unable to repair or replace the defective Goods, SCC shall issue a credit to the Purchaser for all or part of the purchase price, as SCC shall determine. The replacement or payment in the manner described above shall be the sole and exclusive remedy of Purchaser for a breach of this warranty. If any Goods are defective or fail to conform to this warranty, SCC will furnish instructions for their disposition. No Goods shall be returned to SCC without its prior consent.

SCC's liability for any defect in the Goods shall not exceed the purchase price of the Goods. SCC SHALL HAVE NO LIABILITY TO PURCHASE FOR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, PERSONAL INJURY, PROPERTY DAMAGE, LOST PROFITS, OR OTHER ECONOMIC INJURY DUE TO ANY DEFECT IN THE GOODS OR ANY BREACH OF SCC. SCC SHALL NOT BE LIABLE TO THE PURCHASER IN TORT FOR ANY NEGLIGENT DESIGN OR MANUFACTURE OF THE GOODS, OR FOR THE OMISSION OF ANY WARNING THEREFROM.

SCC shall have no obligation or liability under this warranty for claims arising from any other party's (including Purchaser's) negligence or misuse of the Goods or environmental conditions. This warranty does not apply to any claim or damage arising for or cause by improper storage, handling, installation, maintenance, or from fire, flood, accidents, structural defects, building settlement or movement, acts of God, or other causes beyond SCC's control.

Except as expressly stated herein, SCC makes no warranty, express, implied, statutory or otherwise as to any parts or goods not manufactured by SCC. SCC shall warrant such parts or Goods only (I) against such defects, (II) for such periods of time, and (III) with such remedies, as are expressly warranted by the manufacturer of such parts of Goods. Notwithstanding the foregoing, any warranty with respect to such parts of Goods and any remedies available as a result of a breach thereof shall be subject to all of the procedures, limitations, and exclusions set forth herein.

THE WARRANTIES HEREIN ARE IN LIEU OF ALL WARRANTIES, EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE. IN PARTICULAR, SCC MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No representative, agent or dealer of SCC has authority to modify, expand, or extend this Warranty, to waive any of the limitations or exclusions, or to make any different or additional warranties with respect to Goods.

Period of Limitations. No claim, suit or other proceeding may be brought by Purchaser for any breach of the foregoing warranty or this Agreement by SCC or in any way arising out of this Agreement or relating to the Goods after one year from the date of the breach. In the interpretation of this limitation on action for a breach by SCC, it is expressly agreed that there are no warranties of future performance of the goods that would extend that period of limitation herein contained for bringing an action.

Indemnifications. Purchaser agrees to indemnify, hold harmless, and defend SCC if so requested, from any and all liabilities, as defined herein, suffered, or incurred by SCC as a result of, or in connection with, any act, omission, or use of the Goods by Purchaser, its employees or customers, or any breach of this Agreement by Purchaser. Liabilities shall include all costs, claims, damages, judgments, and expenses (including reasonable attorney fees and costs).

Remedies of SCC. SCC's rights and remedies shall be cumulative and may be exercised from time to time. In a proceeding or action relating to the breach of this Agreement by Purchaser, Purchaser shall reimburse SCC for reasonable costs and attorney's fees incurred by SCC. No waiver by SCC of any breach of Purchaser shall be effective unless in writing nor operate as a waiver of any other breach of the same term thereafter. SCC shall not lose any right because it has not exercised it in the past.

Applicable Law. This Agreement is made in Michigan and shall be governed by and interpreted according to Michigan law. Any lawsuit arising out of this Agreement or the Goods may be handled by a federal or state court whose district includes Muskegon County, Michigan, and Purchaser consents that such court shall have personal jurisdiction over Purchaser.

Miscellaneous. If any provision of this Agreement is found to be invalid or unenforceable under any law, the provision shall be ineffective to that extent and for the duration of the illegality, but the remaining provisions shall be unaffected. Purchaser shall not assign any of its rights nor delegate any of its obligations under this Agreement without prior written of SCC. This Agreement shall be binding upon and inure to the benefit of SCC and Purchaser and each of their legal representatives, successors and assigns.

SCC warrants its products to be free of defects in materials and workmanship under normal use and service for a period of one (1) year from the date of delivery.

This warranty is extended only to the original purchaser for use of the Goods. It does not cover normal wear parts such as plastic tongs, tong holders, tong cables, bag holders, or acrylic dividers.

General Conditions. All service labor and/or parts charges are subject to approval by SCC. Contact the Customer Service Department in writing or call 231-798-8888.

All claims must contain the following information: (1) model & serial code number of equipment; (2) the date and place of installation; (3) the name and address of the agency which performed the installation; (4) the date of the equipment failure; and (5) a complete description of the equipment failure and all circumstances relating to that failure.

Once the claim has been determined to be a true warranty claim by SCC's Customer Service Department, the following procedure will be taken: (1) replacement parts will be sent at no charge from SCC on a freight prepaid basis; (2) reimbursement for service labor will be paid if the following conditions have been met— (a) prior approval of service agency was awarded from the Customer Service Department; and (b) an itemized statement of all labor charges incurred is received by the Customer Service Department. The cost of the service labor reimbursement will be based on straight time rates and reasonable time for the repair of the defect.

If problems occur with any compressor, notify SCC's Customer Service Department immediately. Any attempt to repair or alter the unit without prior consent from the Customer Service Department will render any warranty claim null and void. This warranty and protection plan does not apply to any condensing unit or any part thereof which has been subject to accident, negligence, misuse, or abuse, or which has not been operated in accordance with the manufacturer's recommendations or if the serial number of the unit has been altered, defaced, or removed.

Limit of Liability. The limit of liability of SCC toward the exchange cost of the original condensing unit, F.O.B. SCC, Norton Shores, MI, of each motor-compressor assembly replaced during the warranty shall not exceed manufacturer's current established wholesaler's exchange price and in no case shall the labor of removing or replacing the motor-compressor or parts thereof be the responsibility of SCC.