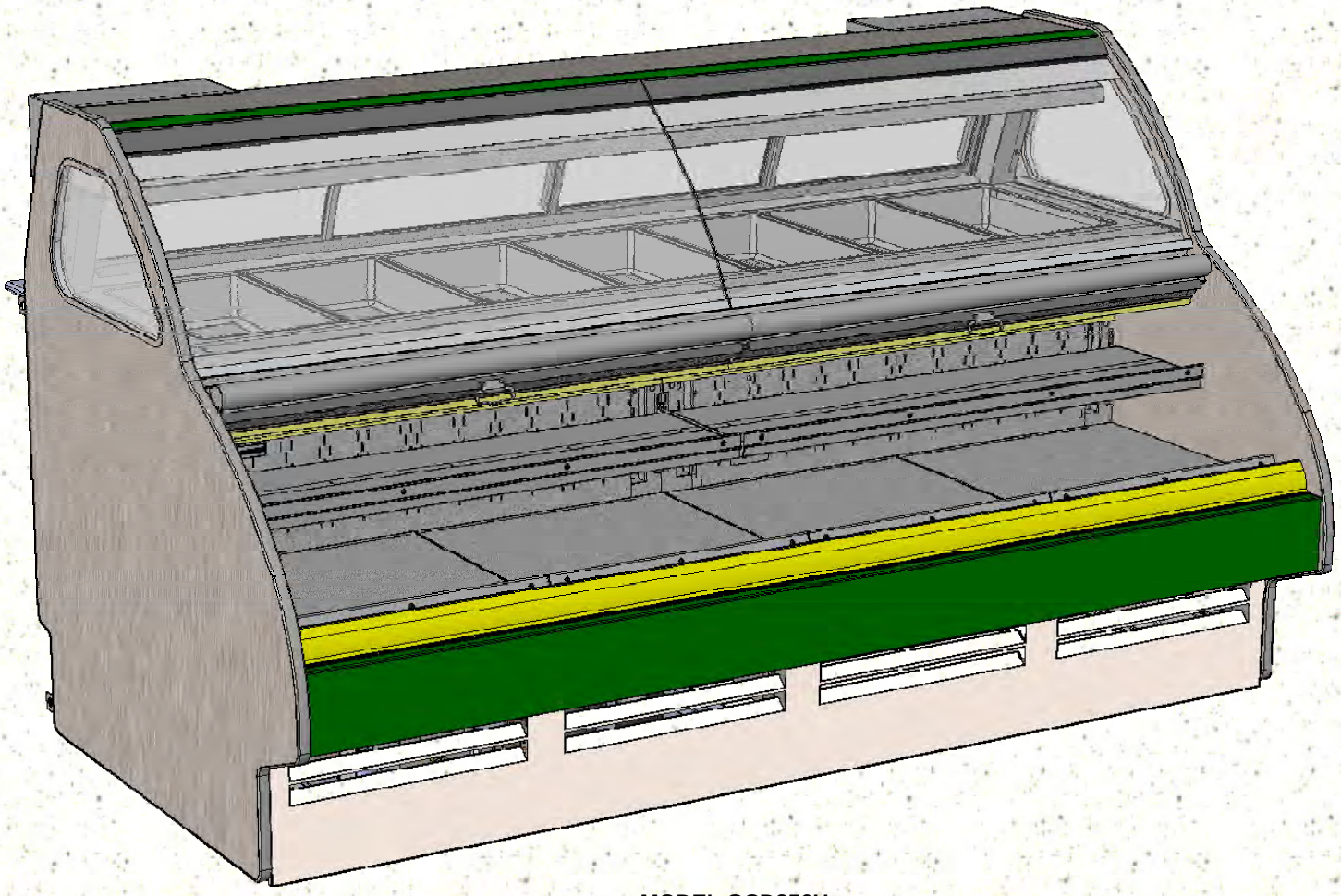
READ AND SAVE THESE INSTRUCTIONS

G-SERIES INSTALLATION AND OPERATING MANUAL

SCC P/N 20-27143

SERVICE/SELF-SERVICE COMBINATION MERCHANDISER:

- > SERVICE HEATED UPPER
- > SELF SERVICE REFRIGERATED LOWER
- > SELF-CONTAINED REFRIGERATION
- > NON-REFRIGERATED REAR STORAGE
- > SCALE STANDS WITH CAT 5 RECEPTACLE & DUAL RECEPTACLES



MODEL GCD856H
(SHOWN WITH OPTIONAL NIGHT CURTAINS)

Structural Concepts Corporation · 888 E. Porter Road · Muskegon, MI 49441 Phone: 231.798.8888 Fax: 231.798.4960 · www.structuralconcepts.com

TABLE OF CONTENTS / MODEL LENGTH, DEPTH & HEIGHT

OVERVIEW

- Caution: This case should be installed and operated according to this operating manual's instructions to ensure proper performance. Improper use will void warranty.

TEMPERATURE SETTINGS - UPPER SECTION

- **Upper Section**: This section is to merchandise unpackaged product at a wide range of temperatures.
- Food must be cooked to an internal temperature of at least 165 °F (74 °C) before placing in case.
- ***Caution: You must use a food probe to determine actual product temperatures.***
- See ***CASE START-UP: HEATED SECTION / SCC HEATED TEMPERATURE CONTROLS*** section in this manual for instructions on adjusting temperature settings.

TEMPERATURE SETTINGS - LOWER SECTION

- **Lower Section**: This section is to merchandise packaged product at 41 °F (5 °C) or less temperatures.

TYPE 1 vs. TYPE 2 CONDITIONS

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

- For Type 1 Conditions (most cases): ambient conditions are to be at 55% maximum humidity and maximum temperatures of 75 °F (24 °C).
- For Type 2 Conditions: ambient conditions are to be at 60% maximum humidity and maximum temperatures of 80 °F (27 °C).
- If unsure if unit is designed for Type 1 or 2, see tag next to serial label. See ***SERIAL LABEL LOCATION & INFORMATION LISTED / TECH INFO & SERVICE*** section in this manual for sample serial labels.

COMPLIANCE

- Performance issues when in violation of applicable NEC, federal, state and local electrical and plumbing codes are not covered by warranty.
- See below compliance guideline.

WARNINGS

- This sheet contains important warnings to prevent injury or death.
- Please read carefully!

PRECAUTIONS, CORD/PLUG MAINTENANCE & WIRING DIAGRAM INFORMATION

- See next page for ***PRECAUTIONS, CORD/PLUG MAINTENANCE*** and ***WIRING DIAGRAM*** information.

COMPLIANCE

This equipment MUST be installed in compliance with all applicable NEC, federal, state and local electrical and plumbing codes.

WARNING

Risk of electric shock. Disconnect power before servicing unit.
CAUTION! More than one source of electrical supply is employed with units that have separate circuits.
Disconnect ALL ELECTRICAL SOURCES before servicing.

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.

PRECAUTIONS

- This sheet contains important precautions to prevent damage to unit or merchandise.
- Please read carefully!
- See previous page for specifics on ***OVERVIEW, CONDITION TYPE, COMPLIANCE*** and ***WARNINGS***.

WIRING DIAGRAM

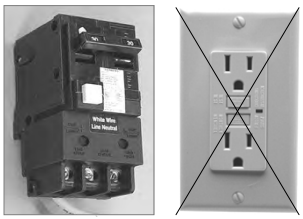
- Wiring diagram is folded and in its own packet.
- Wiring diagram placement may vary; it may be placed near ballast box, field wiring box, raceway cover, or other related location.

POWER CORD AND PLUG MAINTENANCE

- Caution! Risk of electric shock.
- If cord or plug becomes damaged, replace only with cord and plug of same type.

CAUTION! LAMP REPLACEMENT GUIDELINES

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

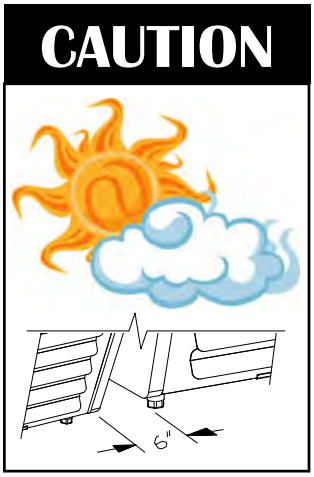


CAUTION! GFCI BREAKER USE REQUIREMENT

If N.E.C. (National Electric Code) or your local code requires GFCI (Ground Fault Circuit Interrupter) protection, you MUST use a GFCI breaker in lieu of a GFCI receptacle.

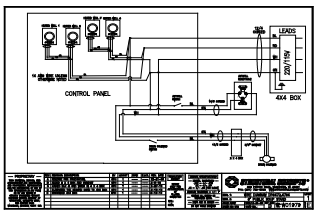
CAUTION! POWER CORD AND PLUG MAINTENANCE

Risk of electric shock. If cord or plug becomes damaged, replace only with cord and plug of same type.



CAUTION! ADVERSE CONDITIONS / SPACING ISSUES

- **Performance issues caused by adverse conditions are NOT warranted.**
- **End panels must be tightly joined or kept at least <u>6-inches</u> away from any structure to prevent condensation.**
- **Unit must be kept at least <u>15-feet</u> 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/small rooms increase noise level. Whisper Cool compressor blanket or remote unit may resolve noise level issues.**
- **Keep at least <u>8-inch</u> clearance above unit for air discharge (self-contained units only).**



WIRING DIAGRAM FORMAT & LOCATION

- **Each case has its own wiring diagram folded & in its own packet.**
- **Wiring diagram placement may vary; it may be placed near ballast box, field wiring box, raceway cover, or other related location.**

INSTALLATION: REMOVAL FROM SKID / ADJUSTING LEVELERS

1. Remove Case From Skid (Via Casters)

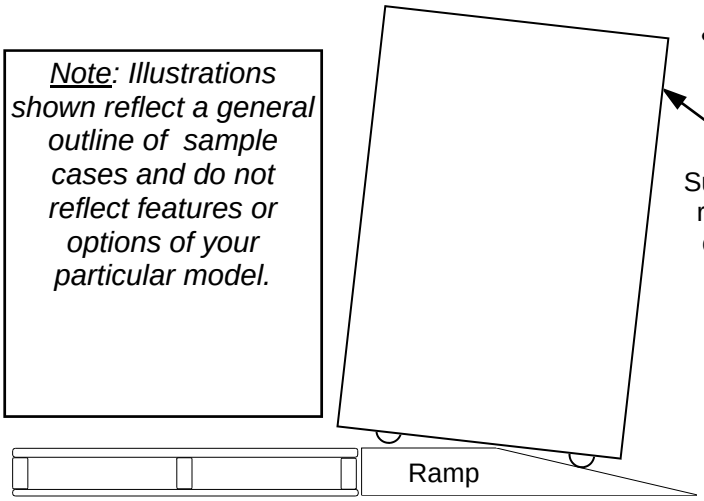
Remove shipping brackets that may be securing casters to skid

- Place ramp up against skid (to allow case to smoothly slide off from skid).
- Maintain support of case at all times or center of gravity may cause case to fall.
- Unlock Casters. Roll unit to rear of skid.
- Roll down ramp and off from skid.

2. Adjust Levelers

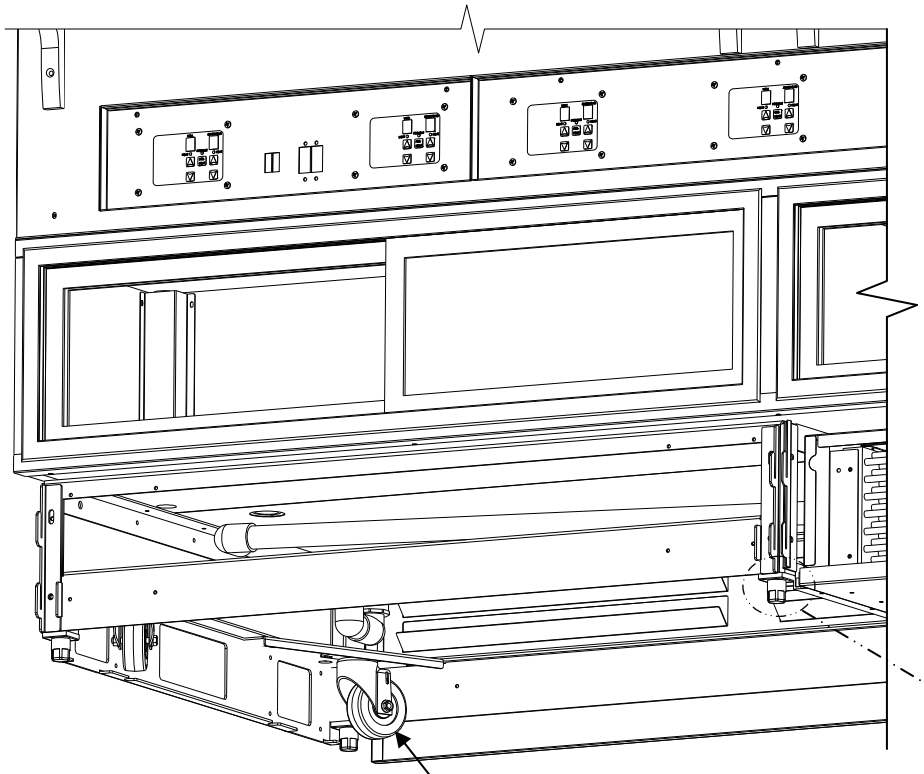
- After case is in position, adjust case so it is level and plumb.
- You may need to remove front and/or rear toe-kick to access levelers.
- Use adjustable wrench (and/or a pry bar) to adjust leveler.
- Do not use Pry Bar on Toe-Kick. It may buckle.
- Do not use Pry Bar on End Panel. It may chip.
- Use Pry Bar ONLY on Base Frame to avoid damaging case.
- See illustrations at lower-right.

Note: Illustrations shown reflect a general outline of sample cases and do not reflect features or options of your particular model.

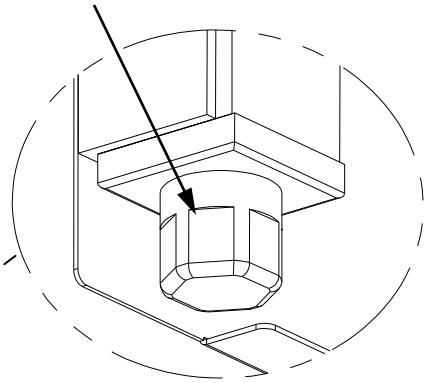


Adjustable Wrench

Pry Bar



Leveler (Typical)

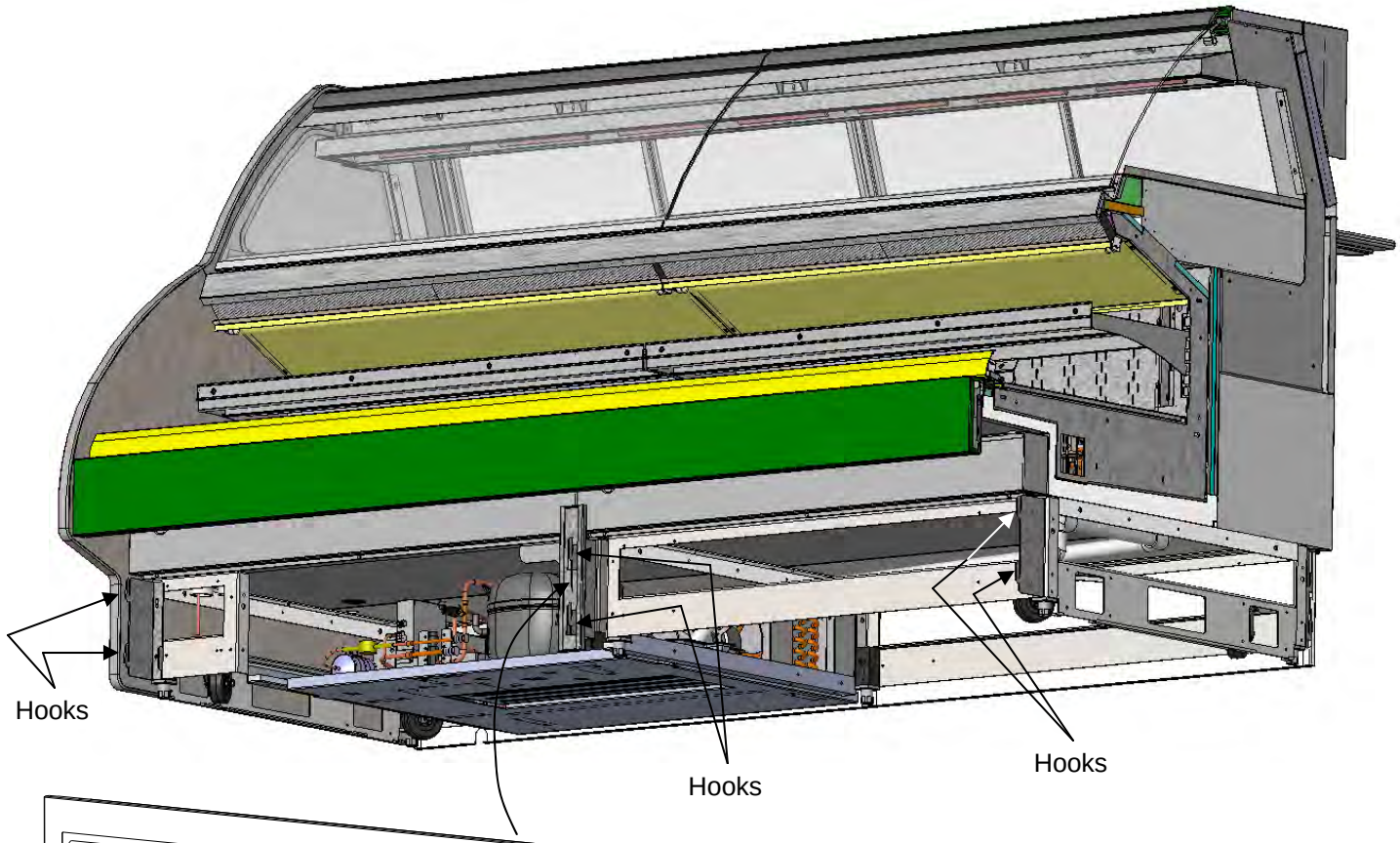


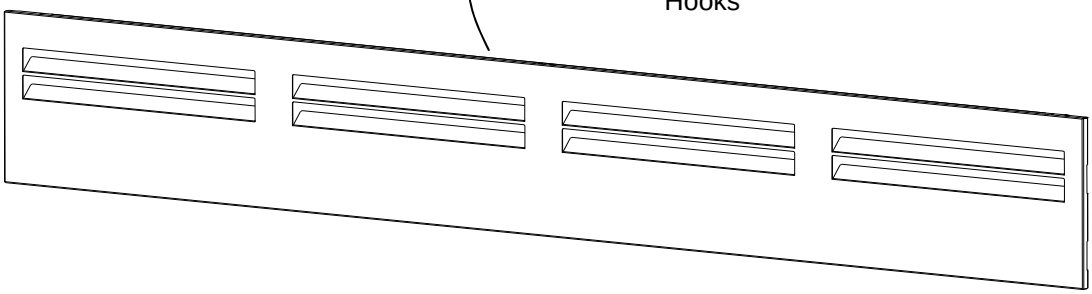
Leveler (Typical)

3. Removing Lower Front Panel

Removing Lower Front Panel

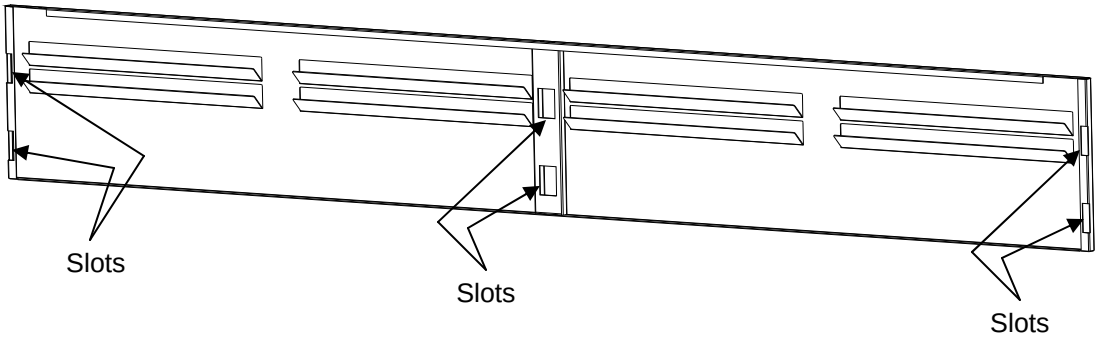
- No screw removal is required to remove lower front panel.
- Simply lift lower front panel slots up and off case hooks.
- Replace in same manner it was removed.





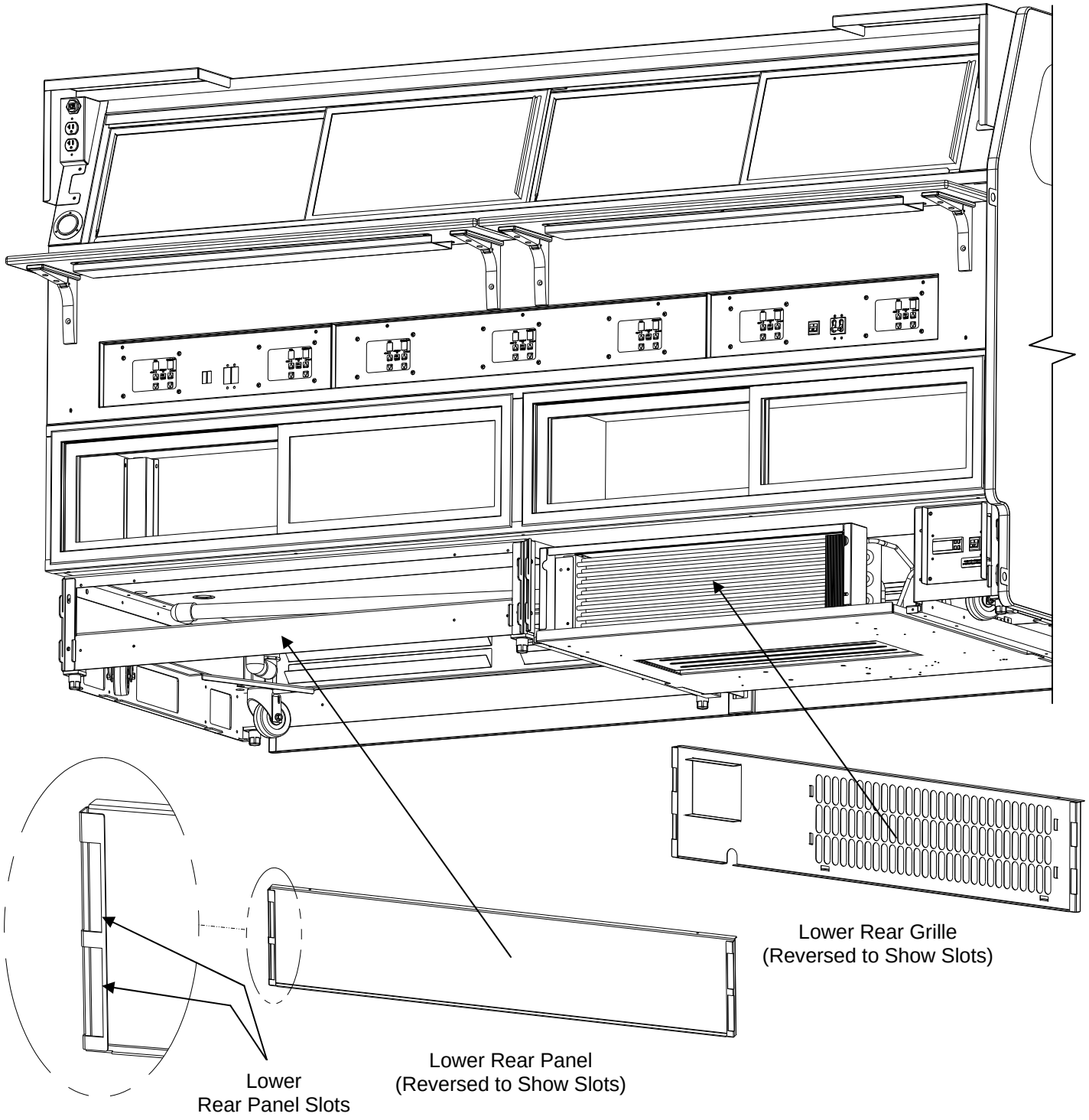
Lower Front Panel

Lower Front Panel (Shown Reversed For View of Slots)



4. Removing Rear Panel and Grille

- No screw removal is required.
- Lift lower rear panel and/or grille slots up and off case hooks.
- Replace in same manner they was removed.
- See illustration below.



5. Aligning, Bolting and Caulking Units Together

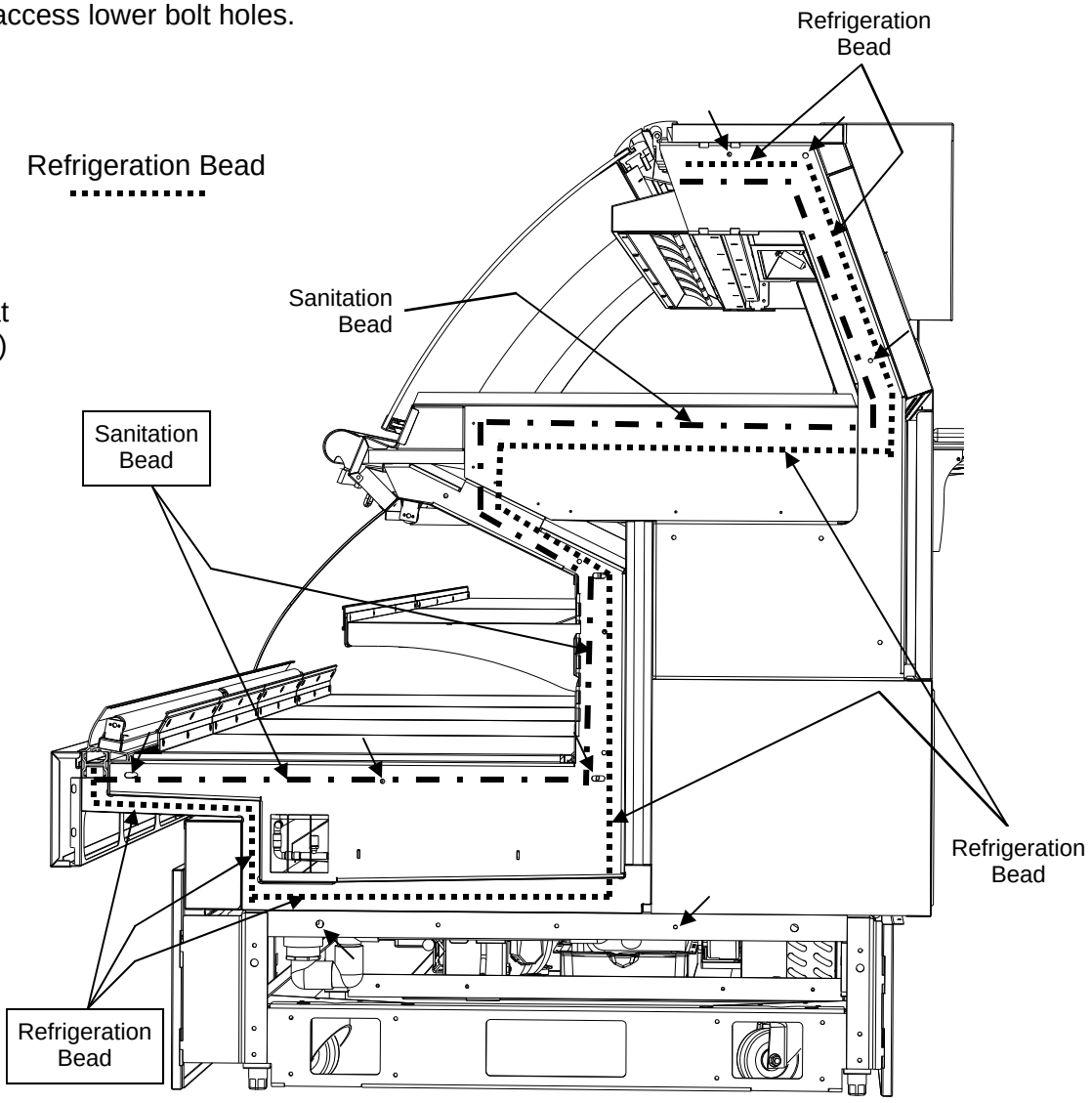
Follow these steps to assure a secure, level lineup.

A. Begin lineup leveling from highest point of floor.
B. After the 'first' case is level, apply industrial grade butyl caulk on non-visible areas (at case end). Use industrial grade silicone sealant on visible areas (at case end). See caulk/silicone illustrations at lower-left.
C. Form Two (2) Caulk/Sealant Lines: Sanitation and refrigeration lines are shown in below illustration.
D. Line up 'second' case bolt-hole to bolt-hole to 'first' case.
E. Using SCC-supplied bolts (and/or screws) found in installation packet, insert bolts in bolt hole locations (shown below). You may need to remove decking to access lower bolt holes.
F. Caution! Front of cases MUST be flush with each other! After leveling, cases are to be same height.
G. Using SCC-supplied nuts & bolts, **lightly tighten** each of the 5 to 8 bolts in a cross-wise pattern. Work your way around the pattern, tightening more firmly at each pass. Do not firmly tighten one bolt and then start on the next!
H. After the cases are bolted together, level the 'second' case. Repeat this process for each case to be adjoined.
I. After all lined-up cases are level, seal all seams with industrial grade silicone sealant.

Sanitation Bead

Refrigeration Bead

Approximate hole locations pointed at with arrows (←) for bolting units together.



Butyl is to be used on non-visible areas.

Silicone is to be used on visible areas.

Case Start-Up

1. Main Power Switch

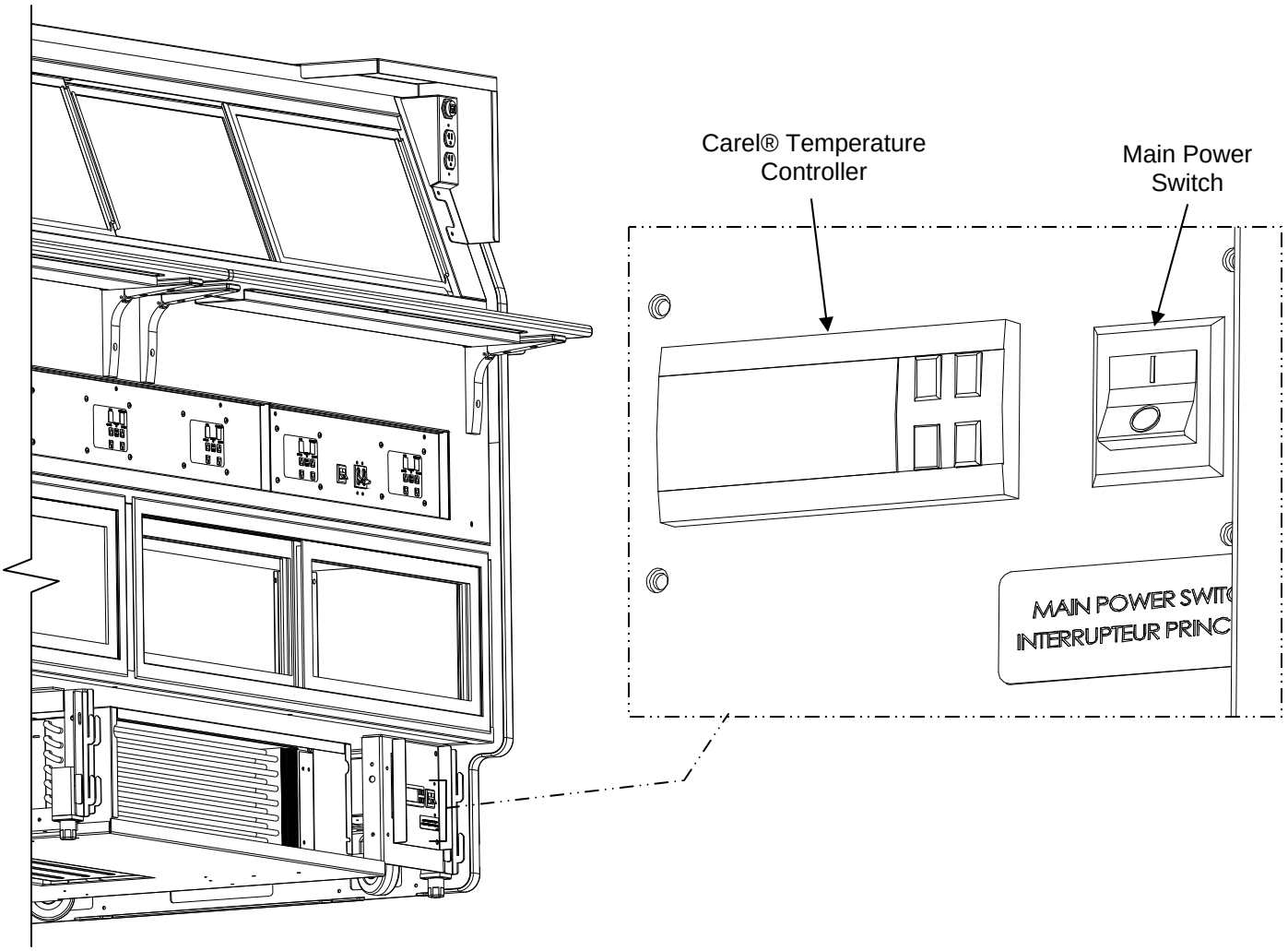
- Case must be properly field wired or plugged into receptacle for it to energize.
- Main power switch is located at lower-right of case rear. See illustration below-right.
- Turn on main power switch.

2. Temperature Controller (All Self-Contained Units and some Remote Units)

- Check that temperature controller symbol light (shown at right) is on.
- After case has run for a few minutes, check that temperature has started to drop.
- If temperature controller does not begin cooling in a few minutes see ***TEMPERATURE CONTROLLER - CAREL®*** section in this manual for additional information
- Verify that refrigeration requirements listed on the serial label (found on the case) are met.

3. Saturated Suction Temperature (Remote Units)

- See serial label on case for suction temperature requirements and BTU requirements.
- See serial label on case for defrost schedule and temperature termination parameters.



4. Thermometer Location & Purpose

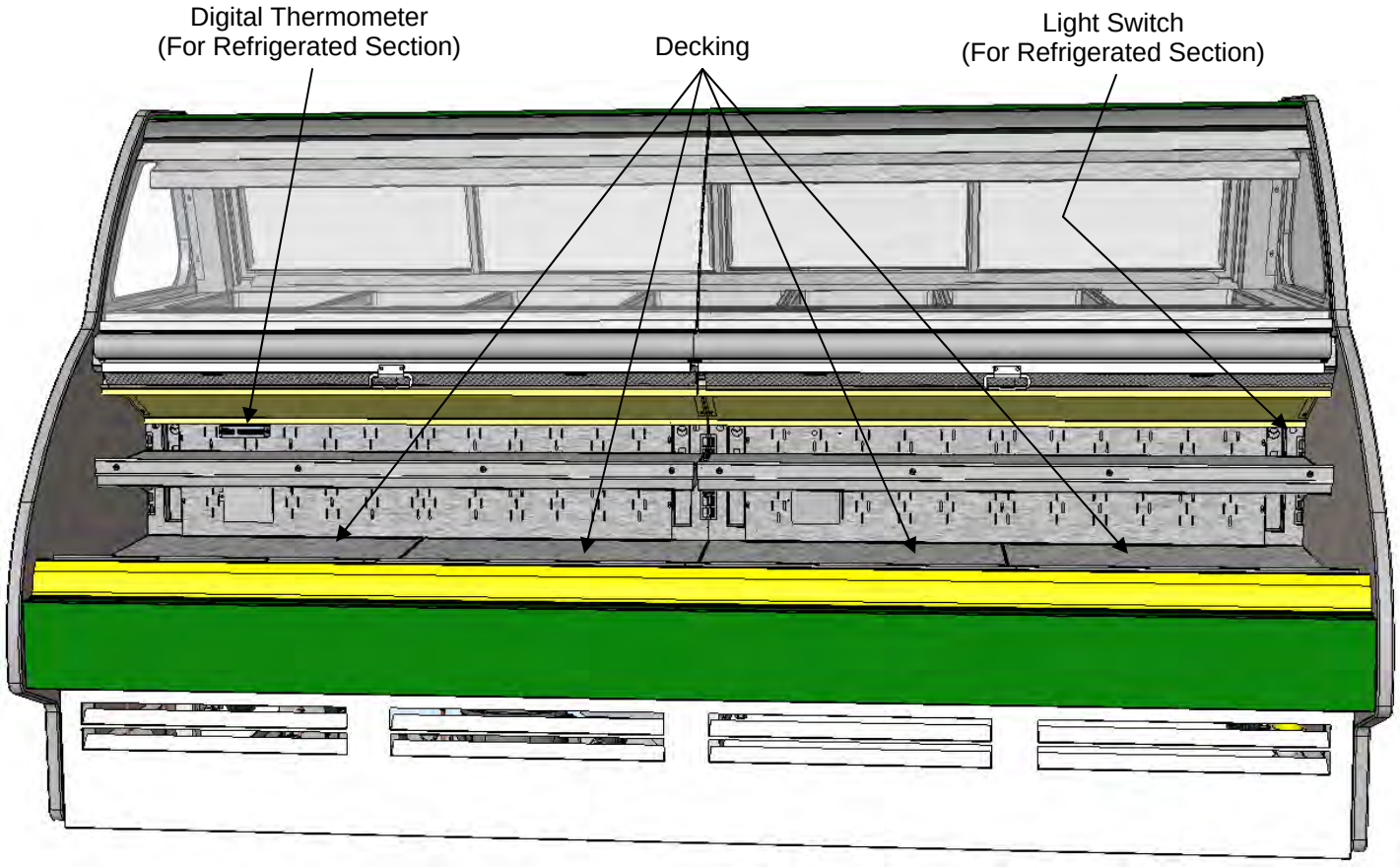
- Thermometers is located customer left, on rear plenum.
- Thermometers is digital and reflects internal air temperature only (not actual food temperature).
- Use probe thermometers to determine actual product temperatures.

5. Light Switch Location & Purpose

- Light switch is located at customer right on rear plenum.
- See illustration below for location.
- Note: Main power switch MUST be turned on for lights to illuminate.

6. Decking

- Lift decking up just enough to verify that evaporator fans are rotating.
- This will confirm that refrigeration unit is running properly.
- Caution! Do not raise decking ALL THE WAY UP, as rotating fans are at underside.



7. Main Power Switch / Overhead Lights

- Case must be field wired.
- When power is supplied, throw main power switch and case will power-up.
- Heated overhead light switch is at case rear, right side (see illustration below).

8. Product Heating Temp. Controllers

- Well and overhead ceramic heaters are controlled by ***Structural Concepts Temperature Controllers***.
- *These controllers are* located on rear wireway cover.
- To set temperatures, follow these steps:
  - ⇒ *Press preheat as soon as main power switch is turned on. LED indicator will come on. When unit is preheated, it will shut off automatically.*
  - ⇒ *Wells / overhead are set at a factory default of "5".*
  - ⇒ *To raise temperature, press "UP" key .*
  - ⇒ *To lower temperature, press "DOWN" key.*
  - ⇒ *If controller is set to "0", relays will de-energize.*
  - ⇒ *Setting "1" is minimum heat.*
  - ⇒ *Setting "9" is maximum heat.*
  - ⇒ *The HEAT LED indicates that the relay is energized and heater is "On".*
  - ⇒ *After unit is adjusted, the control will automatically save the user setting approximately 5 seconds after user stops adjusting the setting.*
  - ⇒ *When case is turned off, its last settings are kept in memory. When turned back on, case will come back up at last temperature saved on each.*
  - ⇒ *Note: During peak usage, slightly higher settings may be required to maintain recommended product heating temperatures.*

9. Case Temperature

- Well temperature is dependent upon both the waterless well temperature and the overhead ceramic heater temperatures.
- Preheat to 170 °F (77 °C) on case temperature dial (photo shown below-left) before placing food into case.
- ***Caution Temperature reflects internal case temperature ONLY (not product temperature). Use a food probe to determine ACTUAL product temperatures!***

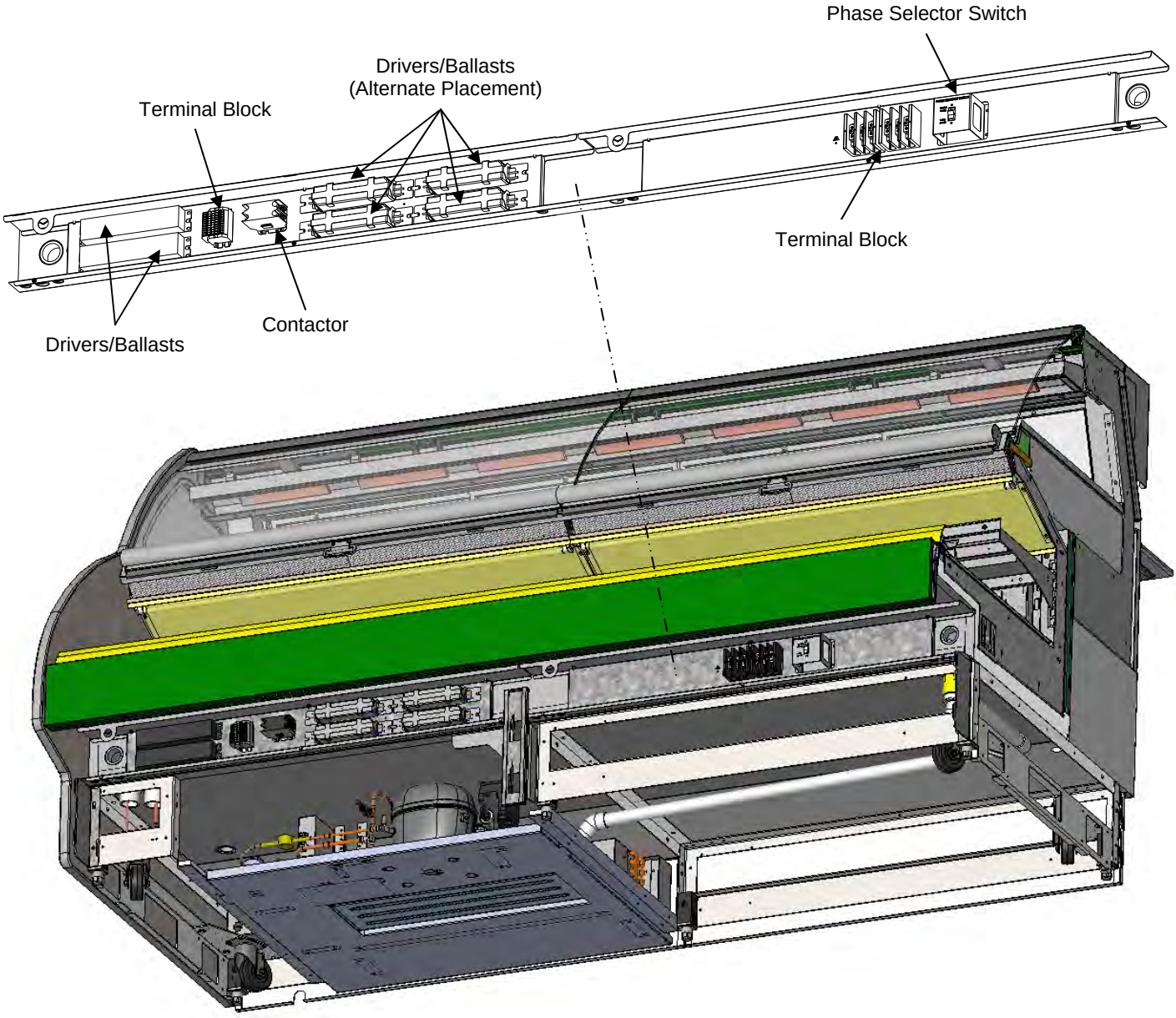
Case Temperature Dial

1. Drivers, Ballasts and T-Block, Etc.

- Electrical raceways contain various electrical components.
- Access to these components can be made simply by removing raceway cover (screws must be removed during process).
- See illustrations below for general layouts.
- ***Caution!*** ***Only certified electricians are to access electrical components!***
- Return raceway to case after access.

2. Phase Selector Switch

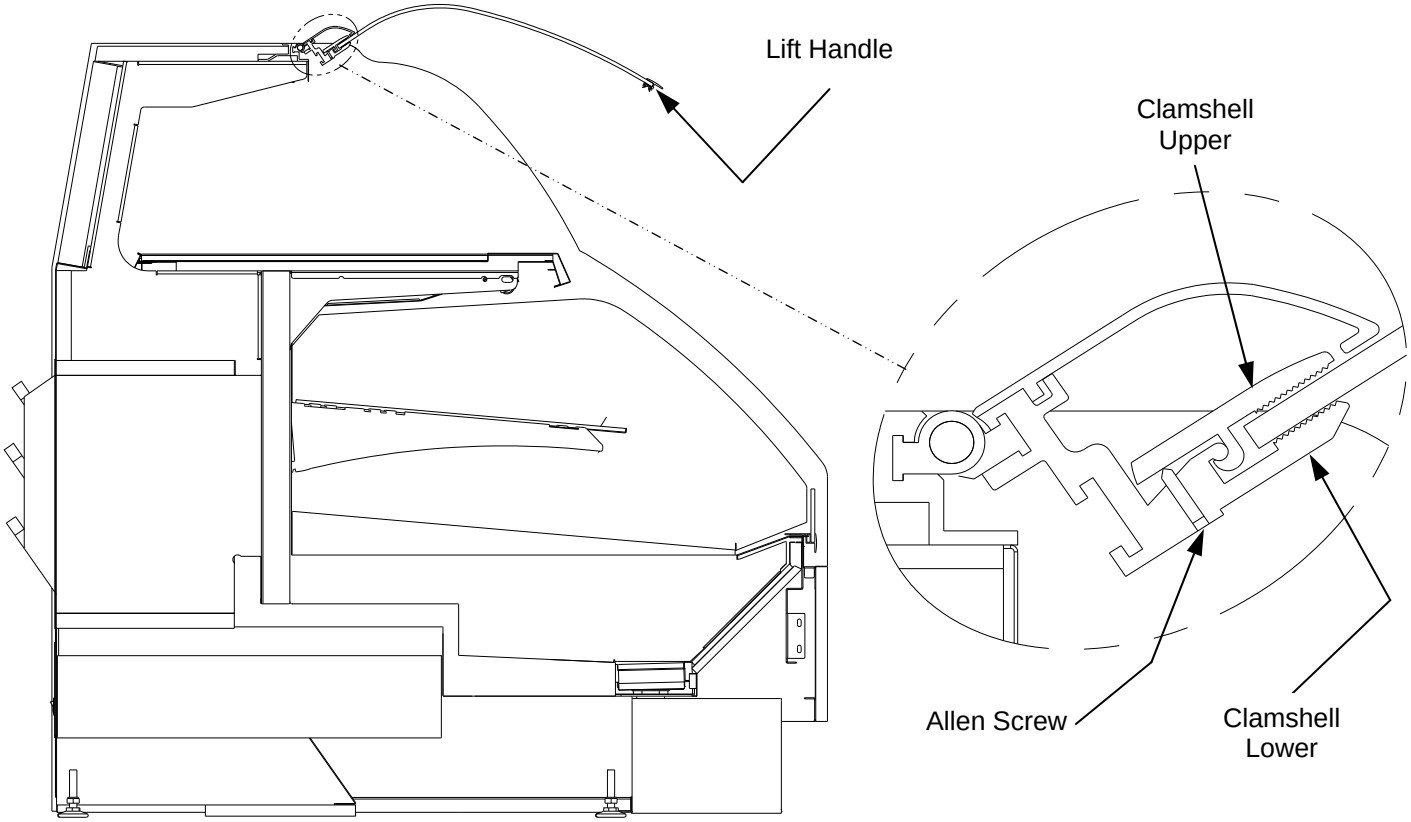
- See ***PHASE SELECTOR SWITCH (SINGLE-PHASE VS. THREE-PHASE) / PAN PLACEMENT IN WELLS*** section in operating manual for specifics.



3. Front Glass Alignment & Adjustment via Clamshell

Caution! Glass is extremely heavy! Two people may be required to perform this task.

- Make certain case is level and plumb.
- Lift glass to maximum upright position.
- Determine which side requires realignment.
- While maintaining tight grip on glass, loosen the Allen screws nearest to misaligned side.
- Adjust the glass until properly positioned.
- Allen screws may now be tightened (taut, but not overly tightened lest glass breakage occur).
- If other side needs alignment, repeat steps while maintaining grip on glass.



Note: Above Illustration May Not Depict An Exact Representation Of Your Particular Unit Being Installed.

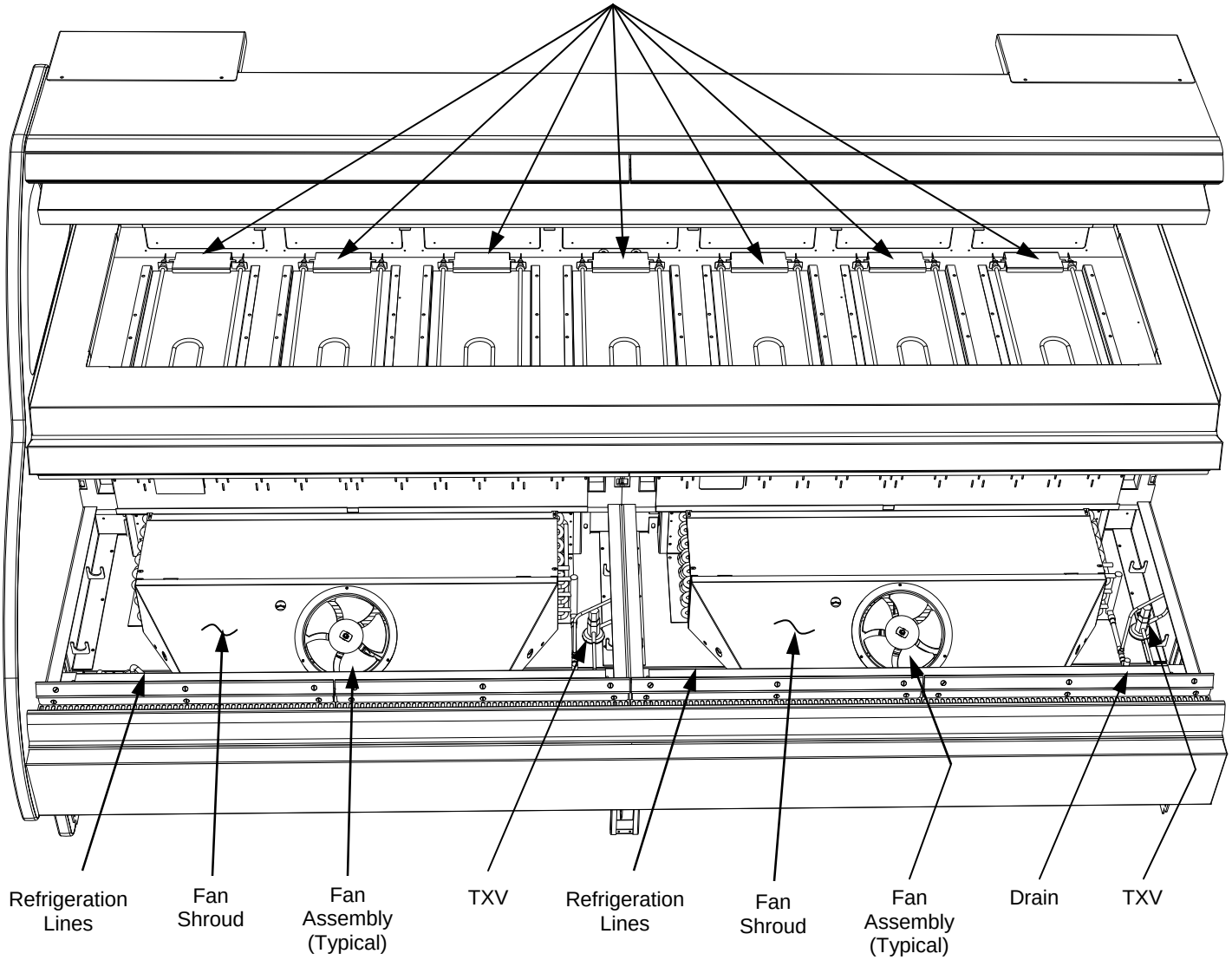
4. Evaporator Coil Units / Refrigeration Lines / Stub-Ups / Drain, TXV , Etc.

- Upper section is warmed by heater rods.
- Lower section is refrigerated.
- One (1) trough drain is in case.

5. Heater Rod Assemblies

- Heated wells are each controlled with individual heater rods.
- View below is disassembled for illustrative purposes only.

Heater Rod Assembly (Typical) Shown Disassembled
For Illustrative Purposes Only



--- Model GCD856H Shown Disassembled For Illustrative Purposes Only ---

6. Drain Route

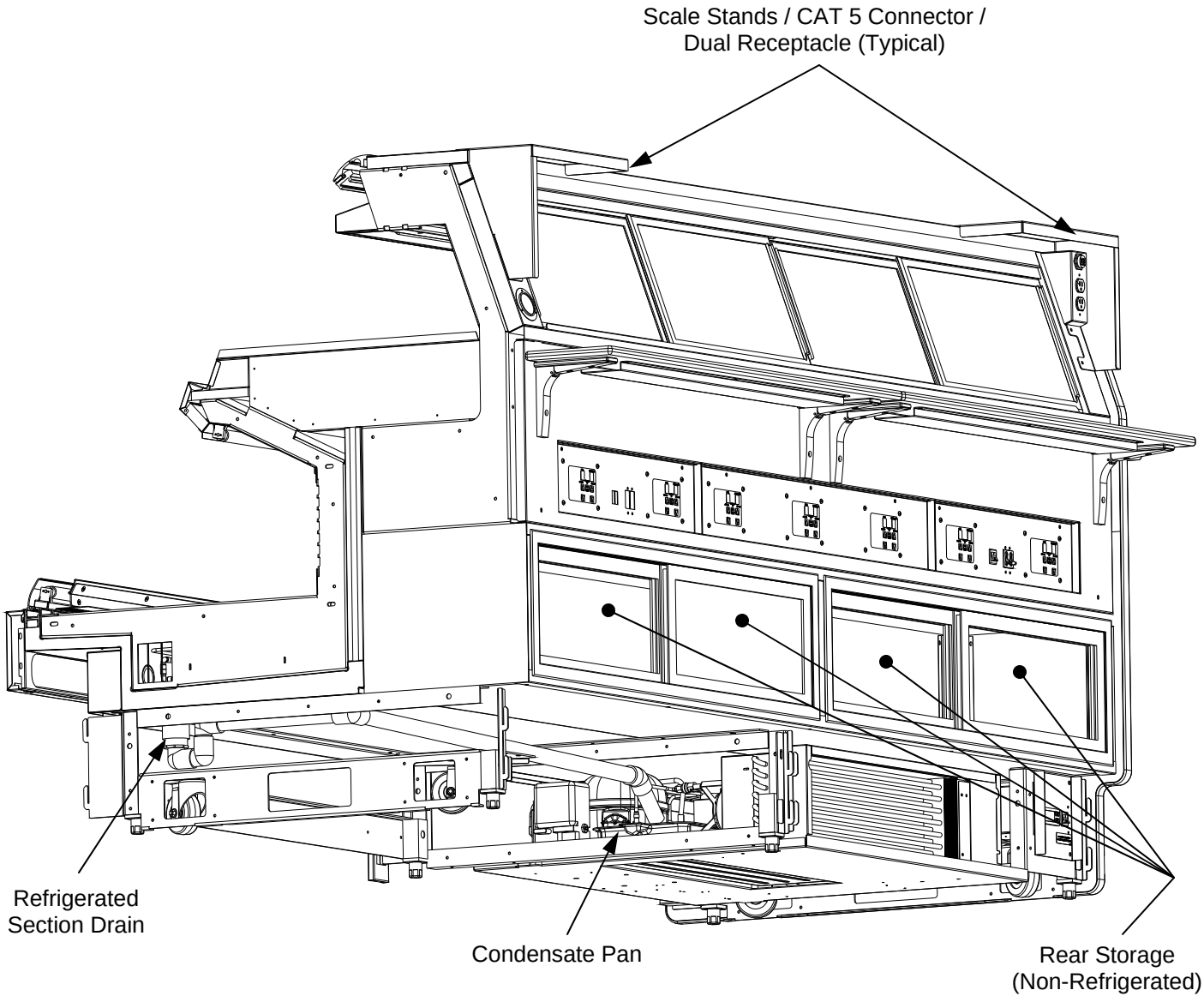
- Front refrigerated section has single drain.
- It routes directly to condensate pan.
- See illustration below.
- For remote cases, connect drain to floor drain. Maintain 1/4”-fall per foot to provide proper drainage.

7. Scale Stands

- Scale stands are at both ends of case.
- Each scale stand has CAT 5 connector and dual receptacle.
- See illustration below.

8. Rear Storage Areas (Non-Refrigerated)

- Illustrations below show rear storage areas.
- Rear storage area is NOT heated or refrigerated.
- Rear sliding doors provide access.

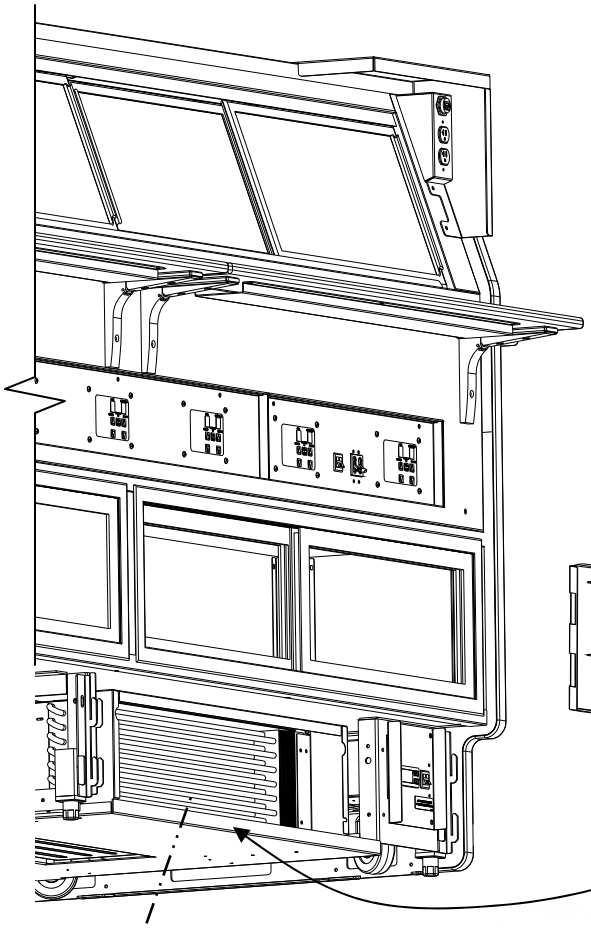


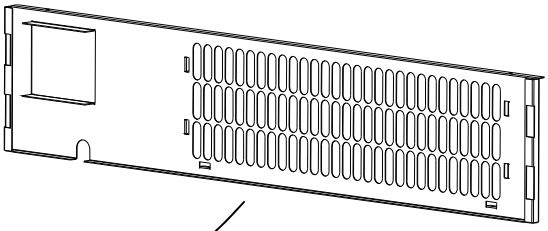
Condensing Unit Access & Components

Assembly/disassembly and servicing to be performed by licensed refrigeration contractor.

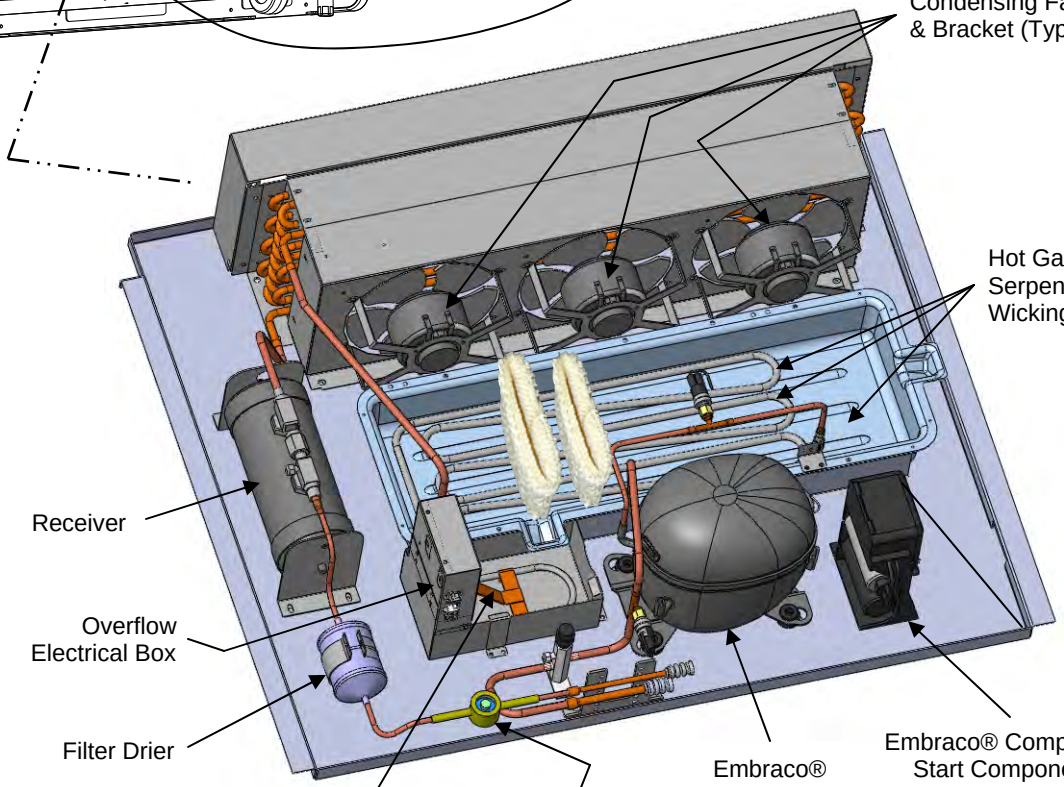
Pulling Out Refrigeration Package

- Rear grille must be removed (no screw removal required).
- Initial access may require removal al shipment retaining screws.
- Illustration below shows refrigeration package rotated and detailed.



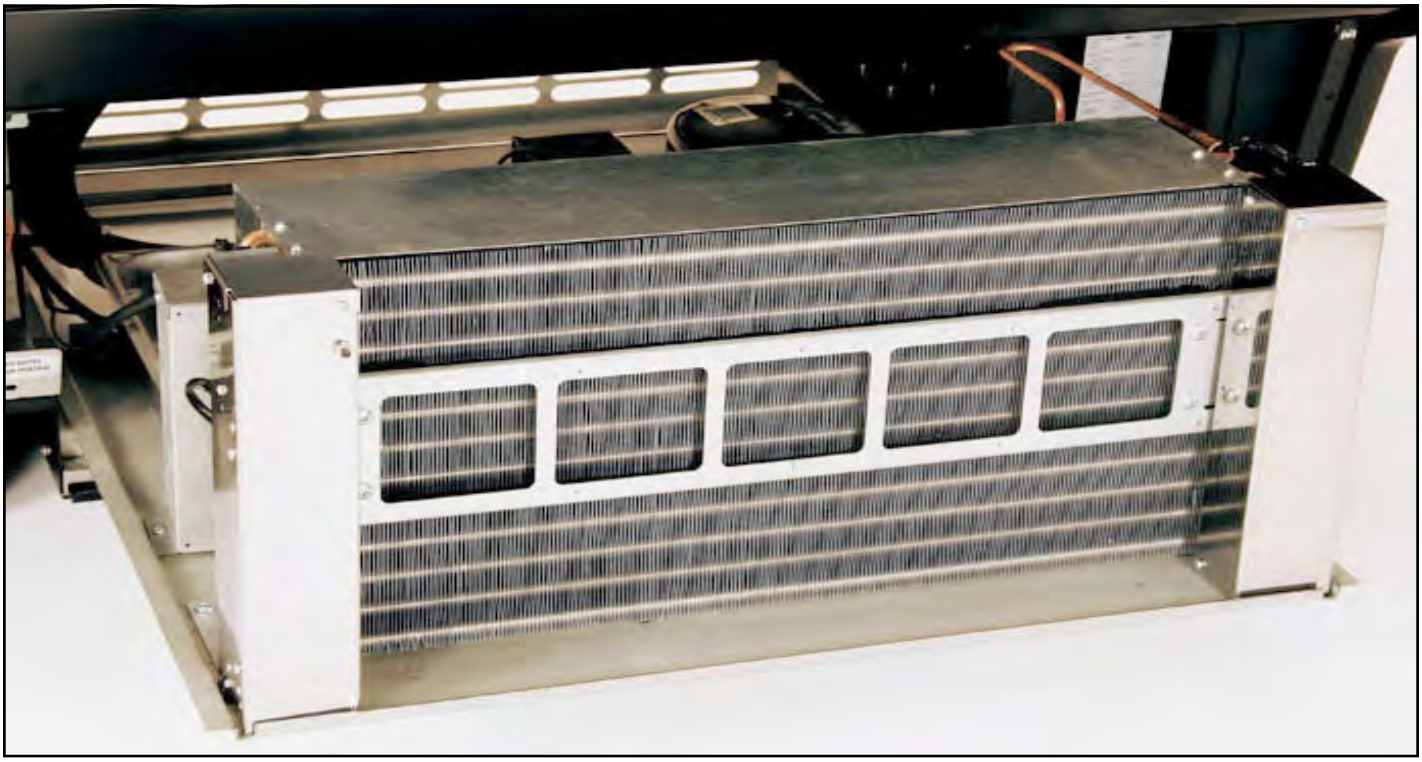


Lower Rear Grille (Reversed to Show Slots)



Optional Clean Sweep Condensing Coil Cleaning System

- Clean Sweep Condensing Coil (photo below) is accessible by removing rear grille.
- See *Preventive Maintenance (To Be Performed By Trained Service Provider)* for the cleaning instructions.
- Photo below is after rear grille has been removed case.
- See ***ILLUSTRATED PARTS BREAKDOWN*** for view of Refrigeration Assembly without the Clean Sweep Condensing Cleaning System.



***Warning*! Disconnect power before providing maintenance and service to unit.**

***Caution*: Lamps are treated to resist breakage and must be replaced with similarly treated lamps.**

***Note*: Warranty will be void if claims arise from negligence, misuse of goods, extreme environmental conditions or improper maintenance. See OVERVIEW / TYPE / COMPLIANCE / WARNINGS / PRECAUTIONS / WIRING / PLUGS section in this operating manual.**

1. Upper Rear Sliding Doors

Note: Doors are not interchangeable. There is an inner and outer door. Outer door must be removed first and replaced last.

- The outer door is the right hand door (from the service side or rear of case).
- Move doors toward the center of the case.
- Individually lift each door up toward the top of the case; pivot the bottom of the door out.
- Replace rear sliding doors in reverse order they were removed.

2. Light Fixtures

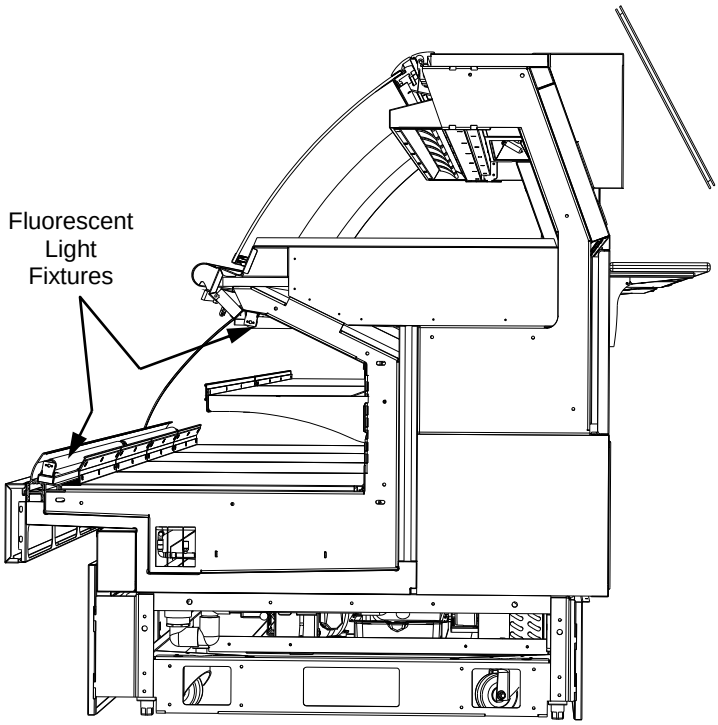
Note: Depending upon model and options, light fixtures can have either single or dual lamps.

Light fixtures are located on underside of shelf assemblies and at the top inside of case. See illustration at upper right for locations.

- Light switch is located at case front-right, against rear plenum.
- Turn lights on.
- All lights should come on at the same time.
- First time lighting may require a short warm-up period.
- Slightly dim / flickering of new bulbs is normal. If lights do not turn on, check raceway plugs.
- Lighting is wired in series so **all lights must be plugged in or receptacles capped** for case lights to be on. See illustration below right.

Removal of lamps:

- Rotate lamp (1/4-turn) to disengage (upper or lower) pins/contacts from mounting sockets.
- Remove bulb by applying even pressure from back side at the bulb ends and pulling the remaining contact from sockets.
- See illustrations at mid and lower-right.



End Panel Removed
For Illustrative Purposes Only

Installation of lamps:

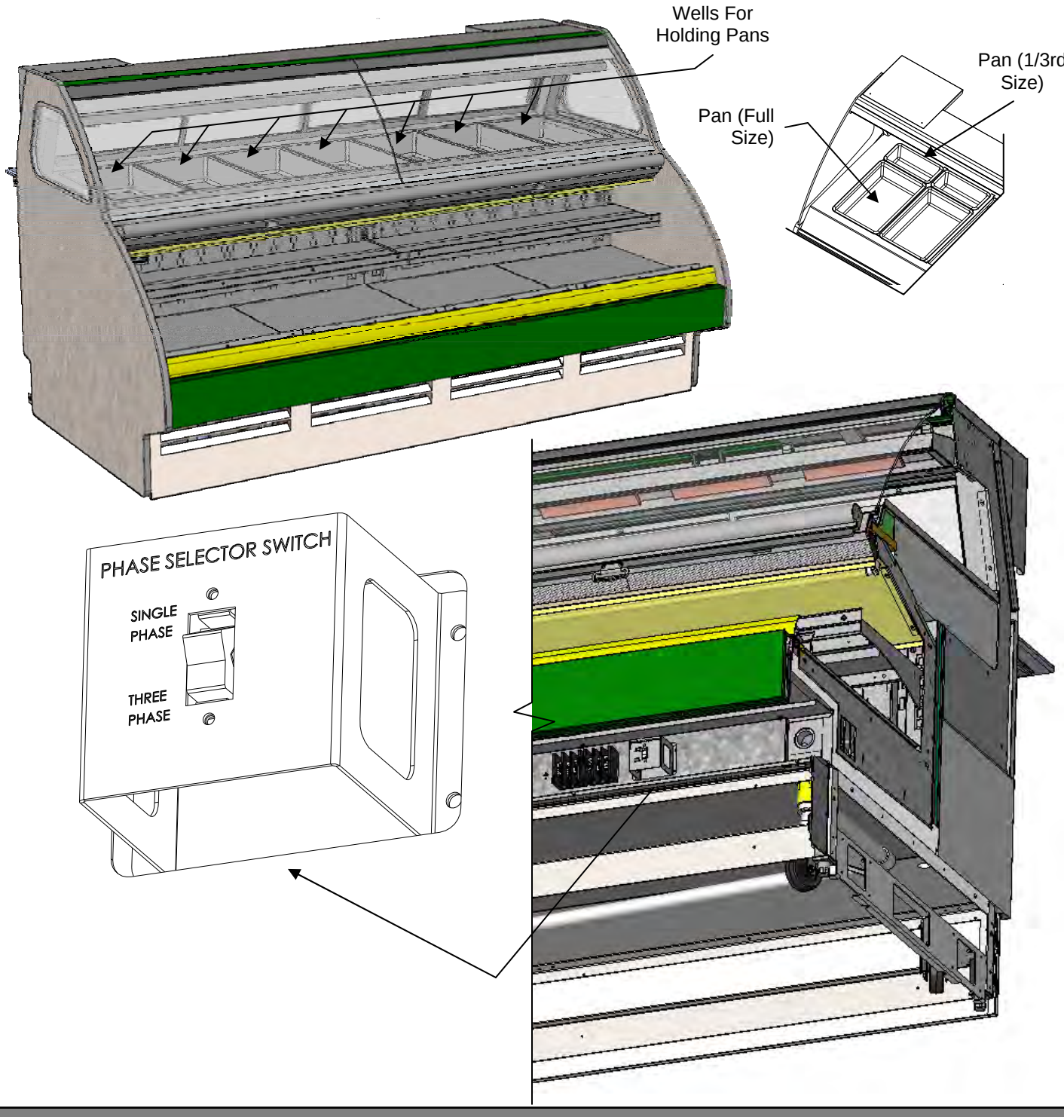
- Align pins with slot.
- Insert pins into socket by rotating the bulb 1/4-turn to secure either the (upper or lower) pin contacts into the sockets.
- Rotate remaining bulb contacts (1/4-turn) into remaining lamp mounting socket contacts.
- See illustrations at right.

1. Phase Selector

- Remove front panel to access.
- Phase selector switch MUST match your field wiring (either single-phase or three-phase).
- Authorized electrician MUST make determination.
- See illustrations below.

2. Pan Placement

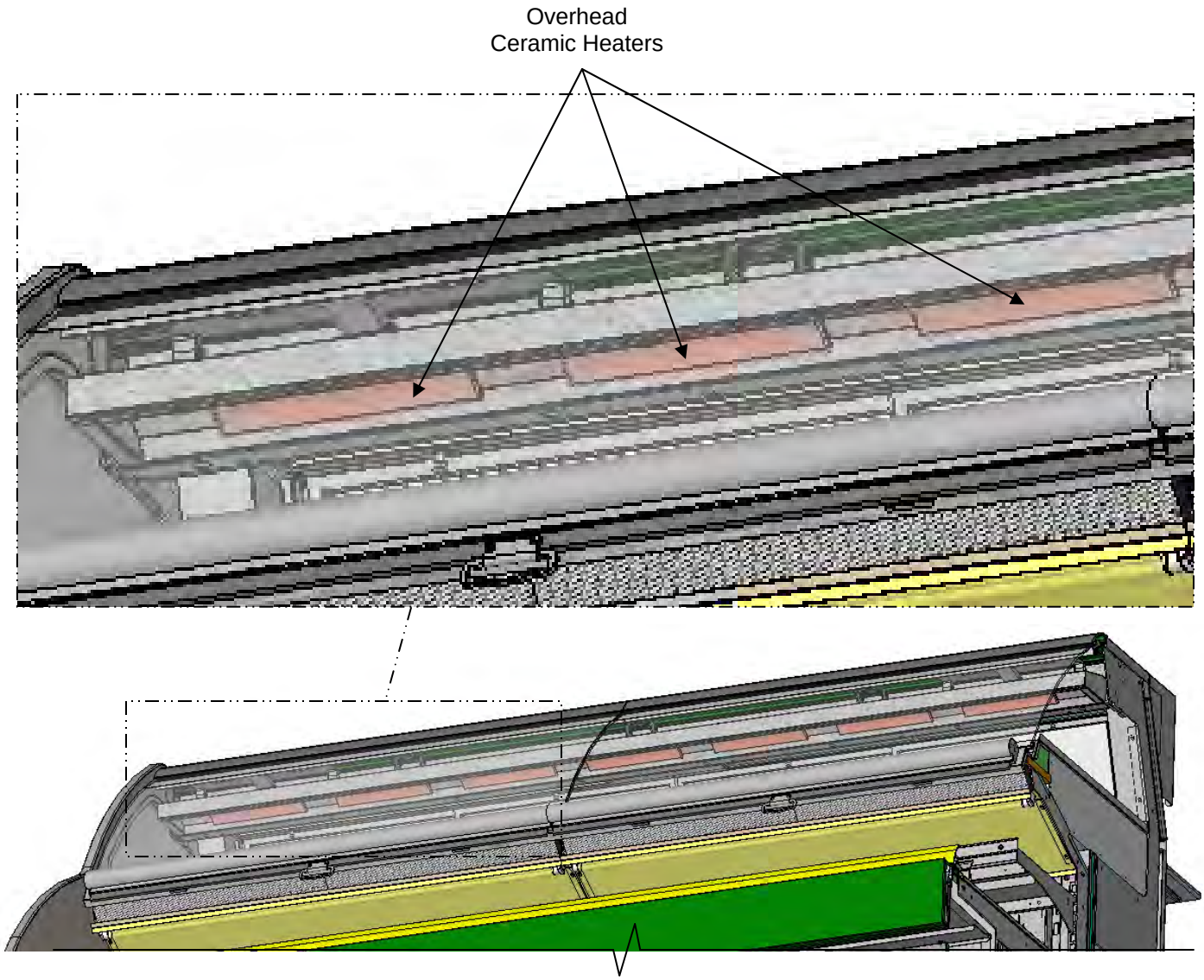
- Case is designed to hold several pan sizes.
- Either 1/3rd wells or full wells may be placed at either front or rear of case.
- See illustration immediately below for 1/3rd size and full-size pans in heated wells.



Overhead Ceramic Heater Guidelines and Settings

- Each overhead ceramic heater operates independently of each other.
- Previous page provides step-by-step procedures for attaining proper temperature settings.

Below Illustration May Not Exactly Reflect Every Feature or Option of Your Particular Case

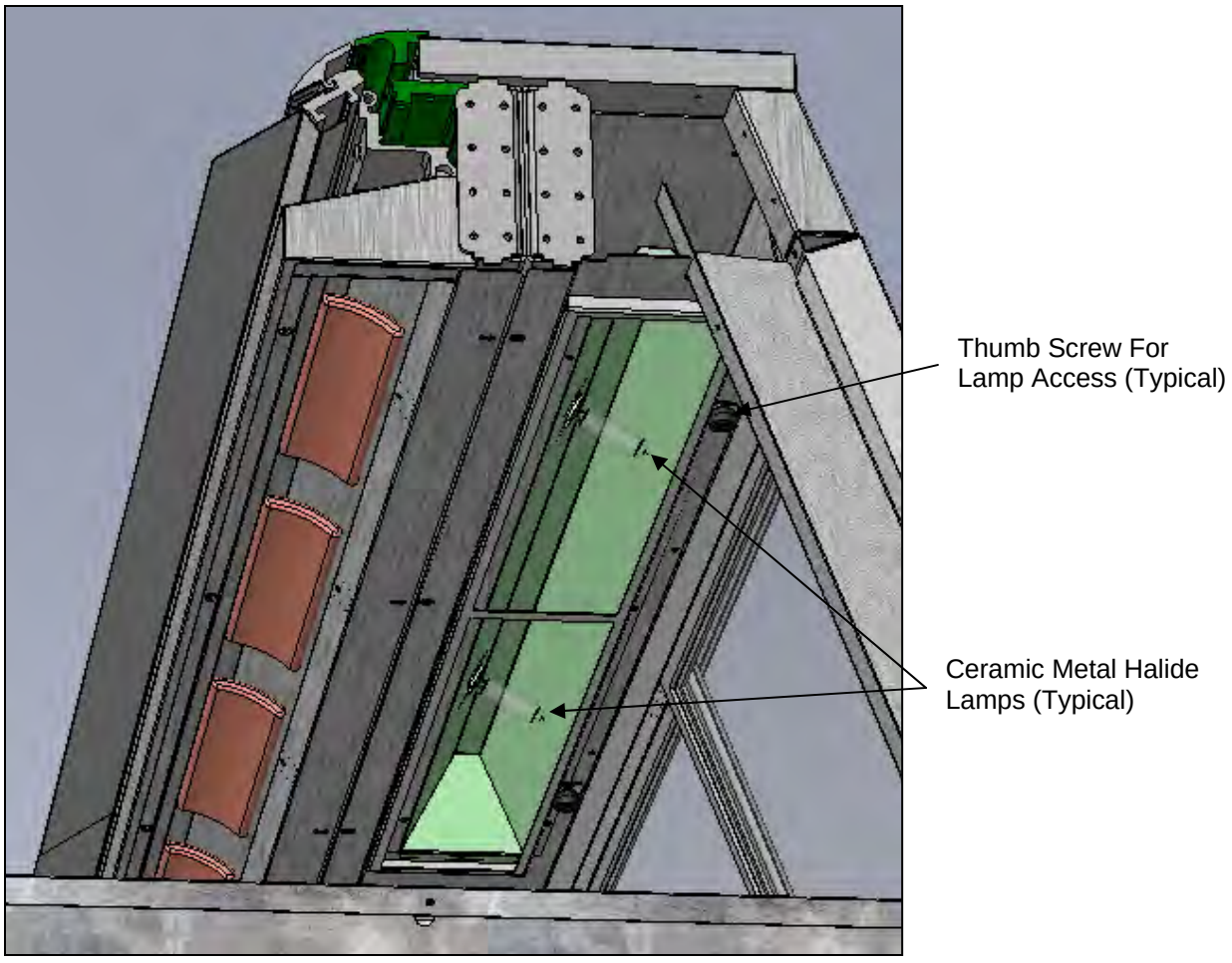


Ceramic Metal Halide Light Fixtures

- *Warning! Disconnect power before providing maintenance & service to unit.*
- *Warning! Lamps are NOT manufactured to resist breakage. Replace with same wattage ceramic metal halide lamps (similarly manufactured). If uncertain of wattage, refer to label near rear sliding doors for specifics.*
- *Warning! As ceramic heaters may also heat up light fixture area, make certain that entire area has been allowed to cool before touching light fixtures.*

- As ceramic metal halide lamps may take up to 15 minutes to gain full illumination, turn on lamps BEFORE loading product into case. This will allow proper time for proper illumination.
- Find overhead light switch location on ***START-UP / LIGHTING / CASE TEMP. / PRODUCT HEATING / SCC TEMPERATURE CONTROLLERS*** section in manual.
- Light switch turns on lamps to entire overhead section of case.
- To access light fixtures, remove fasteners.
- Then, slide overhead lamp housing toward case center (allowing screw to housing slot) and lower housing down from case.
- Replace light fixtures as necessary.

Below Illustration May Not Exactly Reflect Every Feature or Option of Your Particular Case



1. Shelving Bracket Retainer Removal

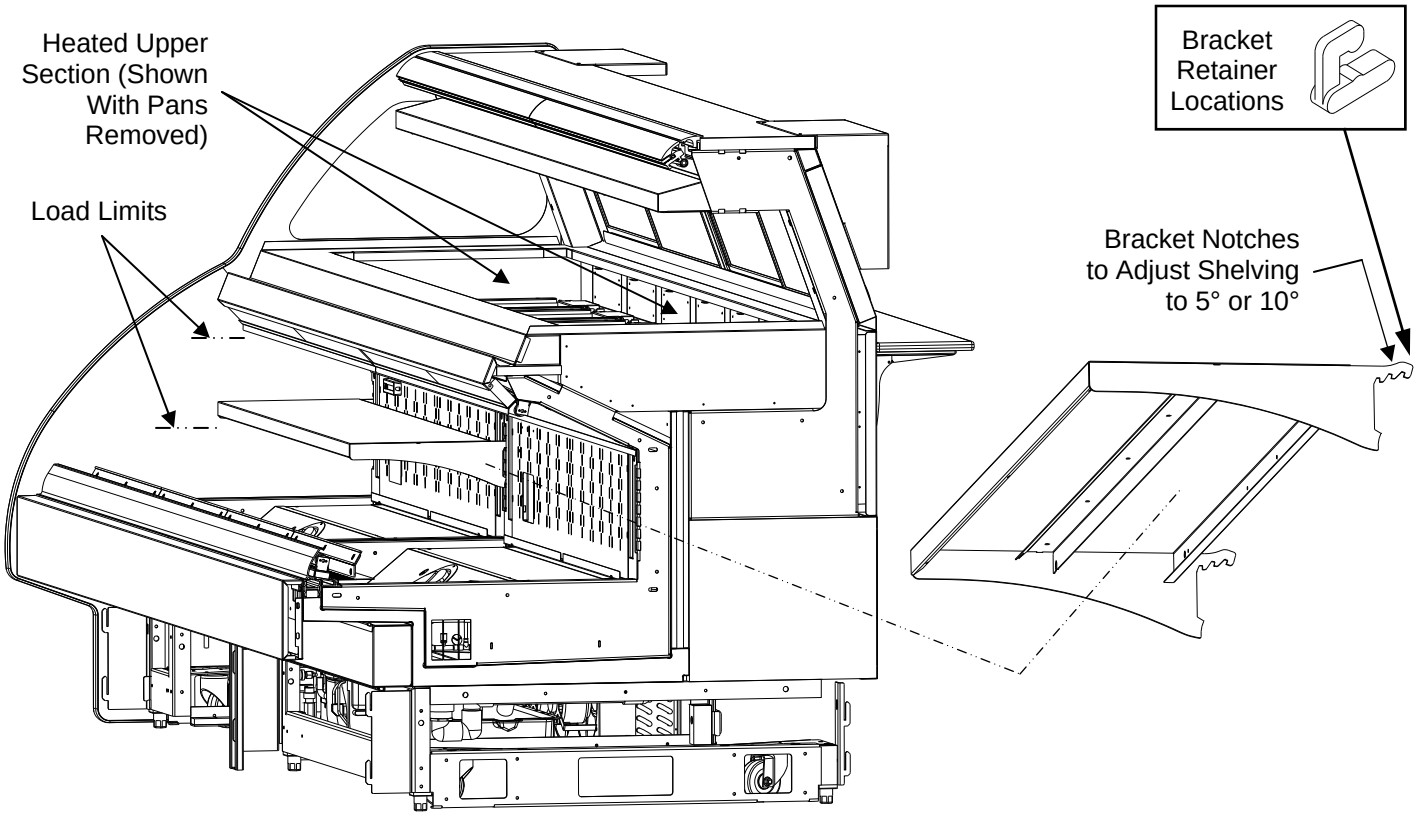
- To remove brackets, it may be necessary to remove the nylon shipping bracket retainers.
- Pliers will be required to accomplish this task.
- See illustration at top-right for location of bracket retainers.

2. Shelf Assembly Adjustment or Removal

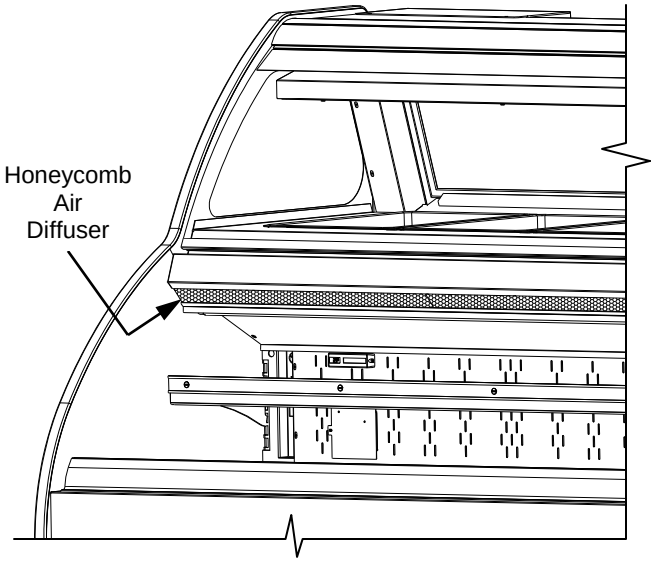
- Shelf can be set at 0°, 5° or 10°.
- To adjust shelving, lift upward and rotate to desired angle.
- To remove, unplug the light cord and lift up and out.
- See illustrations at right and below.

3. Load Limits

- See labels along sides of case stating load limits.
- Do not allow product to exceed these limits.
- Doing so will prevent proper airflow, causing product temperature to warm.
- For upper section, keep ice in trays. Do not allow ice to spill over onto door tracks or behind trays.



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



1. Honeycomb Air Diffuser Removal

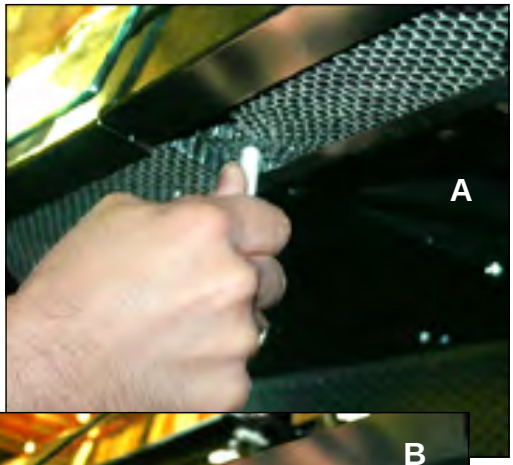
A. Wedge non-metallic device of suitable strength (such as a ballpoint pen) between honeycomb and end panel. Caution! Use care not to dislodge the heating wire (that prevents condensation on the lamp assembly).
B. Apply pressure to collapse the honeycomb to allow it to be pulled out of honeycomb retainer.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

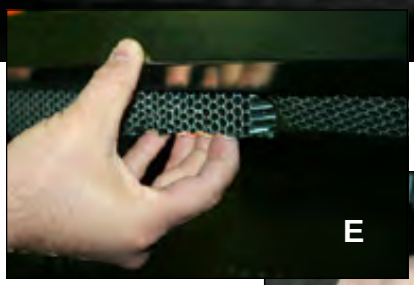
Clean honeycomb with warm water and soap solution. Submerse if necessary. Use brush to dislodge stubborn or sticky residue. Dry by using vacuum's 'blow mode'.

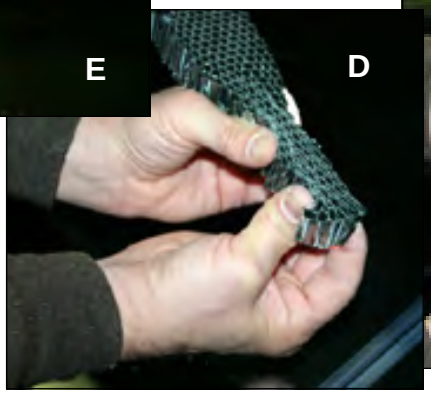
2. Honeycomb Air Diffuser Installation

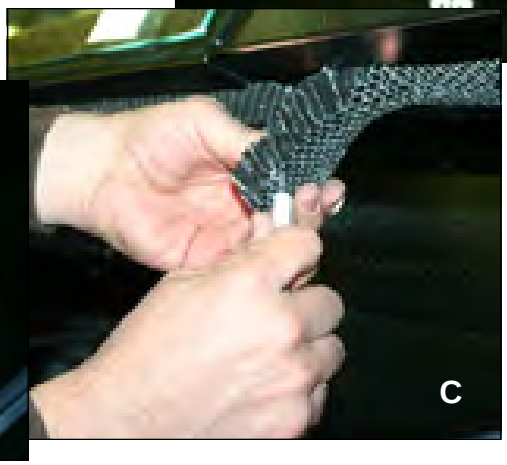
D. Squeeze honeycomb into the honeycomb retainer.
E. Carefully slide honeycomb into place.
F. Adjust honeycomb so that it fits flat against retainer. Honeycomb must not be wavy or out of position.

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





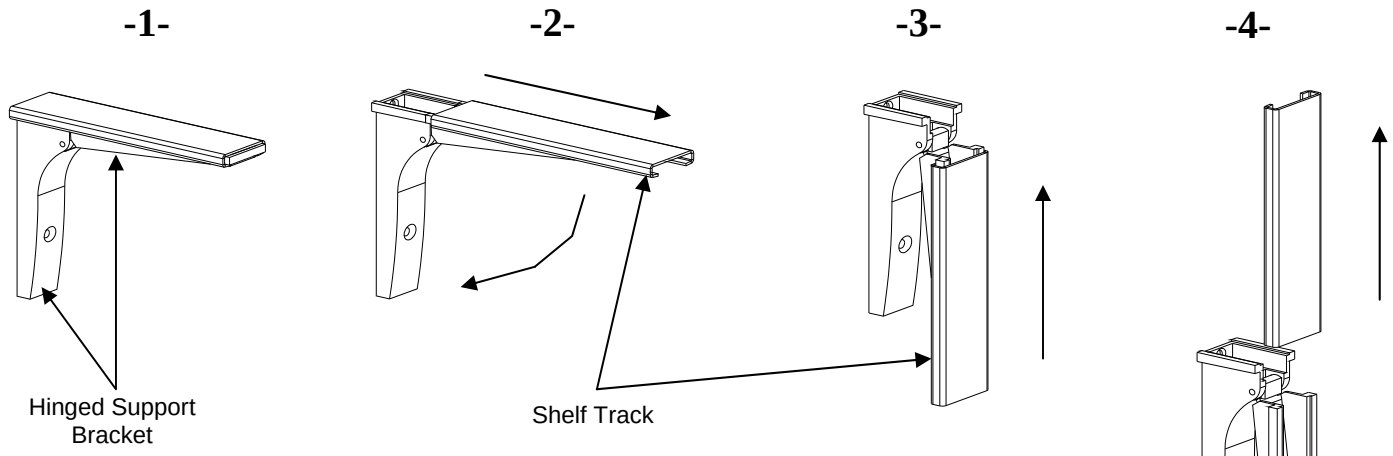




3. Cutting Board / Rear Ledge Removal Steps

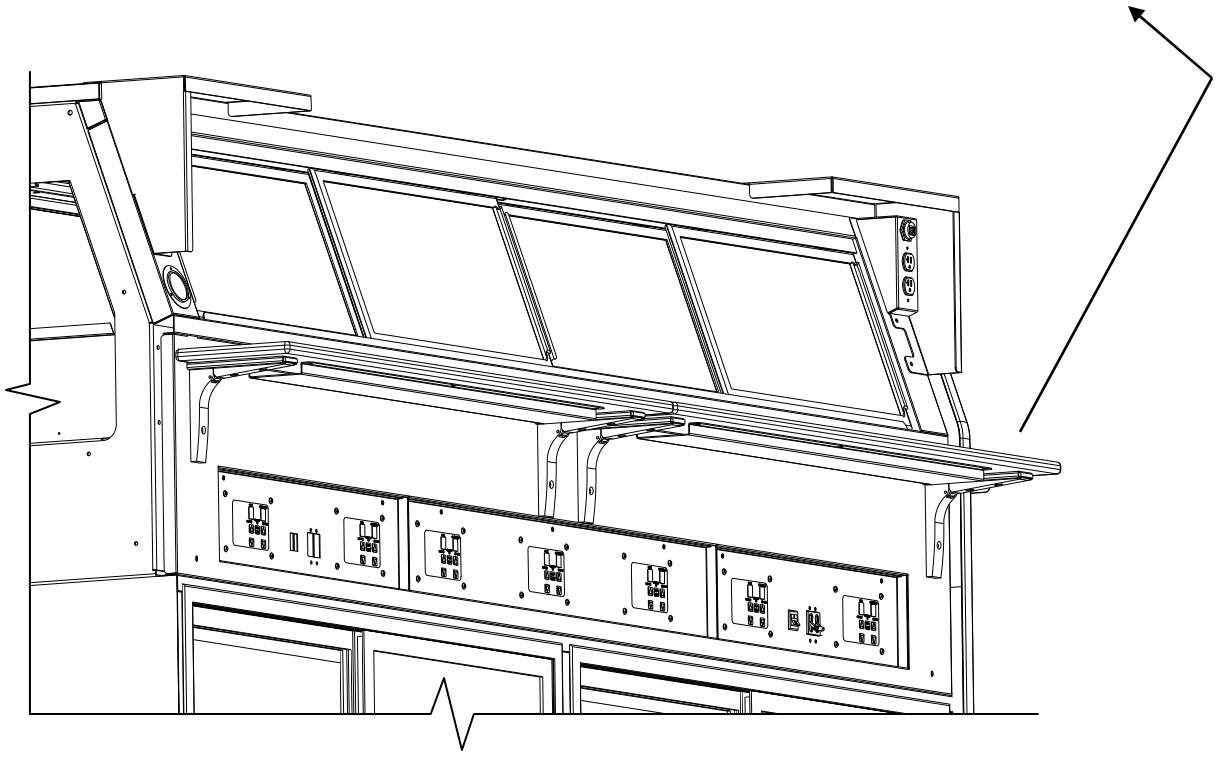
Illustrations below reflect step-by-step removal method.

1. Hinged support bracket is shown in its standard upright position.
2 & 3. While upright, rear ledge must be slid away from case and then rotated downward to vertical position.
3 & 4. From the shelf's lowered position, lift from bottom edge upward to disengage shelf track (and attached rear ledge) from bracket.

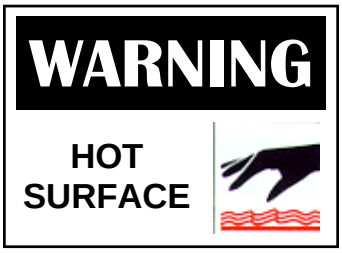


Rear Ledge Removal Steps

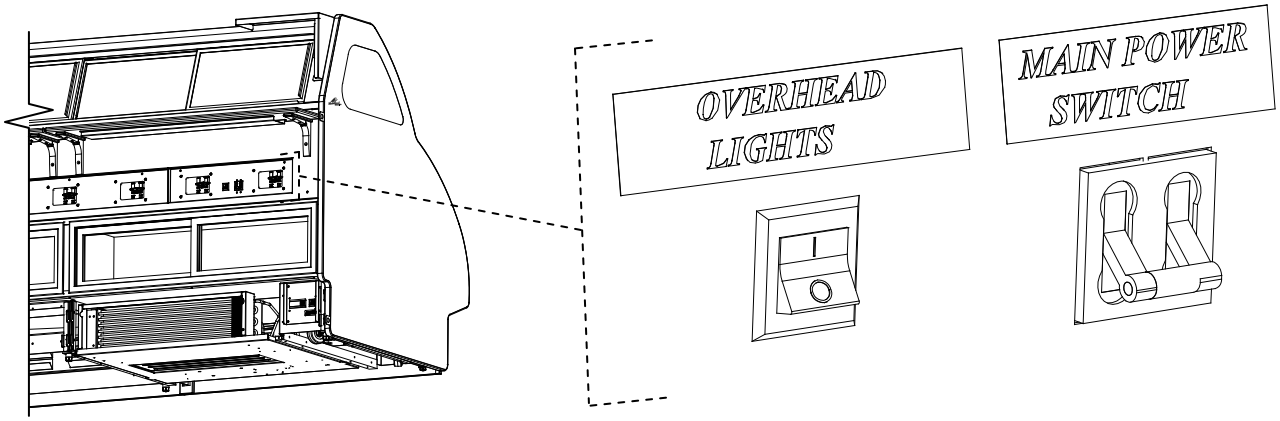
Note: For clarity, only Shelf Track is shown being removed. Rear Ledge is attached to Shelf Track.



Caution! ***TURN MAIN POWER SWITCH TO "OFF"*** and allow case to cool at least 45 minutes before cleaning upper case heated interior!



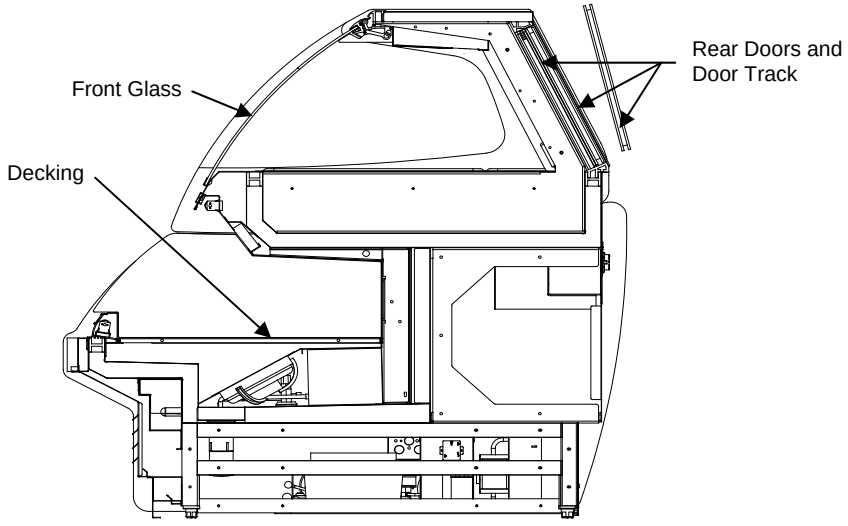
AREA	FREQ.	INSTRUCTIONS
Interior	**Daily**	**Upper Heated Section Pans & Dividers:** Remove pans (residing in heated wells) and dividers. ***Warning! Do not access pans while unit is hot. Turn main power switch (next to "Overhead Lights" label to OFF (see illustration below). Allow wells to cool to room temperature before cleaning***. • Pans: Remove, submerse in and wash with soap and water. If pans are Teflon® coated, do not use wire "brillo" pads, or other abrasive pads that could scratch the coating. Rinse dry. • Dividers: Remove, submerse in and wash with soap and water. • After cleaning, replace all items in reverse order they were removed.
	Daily	**Upper Case Area:** While upper pans are being cleaned, wipe down upper section (around pan area) with hot water solution and anti-bacterial soap solution. • Do NOT use wire Brillo® pads, or any coarse, abrasive brush or pads on top surface. • Rinse thoroughly.
	Daily To Weekly	**Decks:** Wipe off decks with moist cloth dipped in mild soap and water solution.



CLEANING SCHEDULE - TO BE PERFORMED BY STORE PERSONNEL (EXTERIOR)

Caution! Front Glass must be raised and lowered very carefully. When closing, weight of glass can pinch fingers between Front Glass and Case. Raise front curved glass. Clean inside cavity at both ends of the hinged top cap with a mild soap and water solution.

AREA	FREQ.	INSTRUCTIONS
Exterior	**Daily**	**All Glass / Mirrors:** Clean side glass, curved front glass, glass shelves, and mirrors with household or commercial glass cleaner. Clean out door track with moist cloth.
	Daily	**Rear Sliding Door Exterior Glass:** Clean with household or commercial glass cleaner.
	Daily	**End Panels, Front Panel, Toe-Kick, Rear Ledge Cutting Board, etc.:** Wipe off all surfaces with warm water and mild soap solution and non-abrasive cloth. Dry thoroughly.
	Daily	**Stainless Steel Surfaces:** • Wash with a solution of hand dishwashing liquid detergent and water; or a solution of baking soda and water. Rinse and polish dry with paper towel or soft cloth. • Never use scouring powders or steel wool as they will scratch stainless steel. • Brighten by polishing with a cloth dipped in vinegar or in ammonia; sprinkle baking soda on sponge and rub gently; rinse. Polish dry with paper towel. • Remove streaks or heat stains from stainless steel by rubbing with club soda.
	Weekly	**Heated Rear Doors:** Remove from case; clean doors and door tracks with a household or commercial cleaner.
	Weekly	**Wood, Laminate and Painted Surfaces (Including Rear Storage Area):** Clean with mild soap and water solution and a soft cloth .
	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.



CLEANING SCHEDULE - TO BE PERFORMED BY TRAINED SERVICE CONTRACTORS ONLY

Caution! Front Glass must be raised and lowered very carefully. When closing, weight of glass can pinch fingers between Front Glass and Case. Raise front curved glass. Clean inside cavity at both ends of the hinged top cap with a mild soap and water solution.

AREA	FREQ.	INSTRUCTIONS
Exterior	**Monthly**	**Honeycomb Air Diffuser:** See ***MAINTENANCE FUNDAMENTALS - HONEYCOMB AIR DIFFUSERS*** section in this manual for cleaning instructions.
	Monthly	**Tub / Drain / Fan Shroud / (Refrigerated Section Only):** Keep clean and free of debris which could clog tub and drain. • To access drain area, remove the deck and fan shroud. Vacuum tub under deck or flush with water if necessary • Direct the drain to a floor drain or a bucket. • To flush out, run hose into drain. Carefully hose debris out the tub. • Make sure drain does NOT have residue clogging it. • ***Caution! Avoid splattering water over the case and surrounding areas!***
	Quarterly	**Condenser Package (At Underside of Case):** ***Warning! Disconnect Power!*** • Remove rear grille. • Slide out Condenser Package from case rear. • Using air pressure or an industrial strength vacuum, clean dust and dirt that may collect on condenser coil. Be careful not to damage fins on coil. • Thoroughly clean condensate pan with de-scaling solution such as CLR® or other similar cleanser. Rinse thoroughly. DO NOT submerse in water. • Using a warm soap and water solution and a soft cloth, wipe down all fans, motors, refrigeration lines, cords, knobs, sight glass, connectors and all other surfaces. • Wipe dry. • Reconnect evaporator pan to evaporator pan base. • Reattach mounting screws to evaporator pan base. • Slide back under case. • Replace rear grille.

TROUBLESHOOTING - GENERAL ISSUES (PAGE 1 of 4)

CASE ISSUES	TROUBLESHOOTING METHOD
Product temperature deviates outside of acceptable range (product either overheating or too cool)	• Probe thermometer may be faulty. Use a stainless steel stem-type thermometer with dial of at least a 1-inch internal diameter and test product. Accuracy to within 1.8 °F / 1 °C is acceptable. ***Authorized Personnel Only:*** Adjust temperature control settings: See ***START-UP, CONTINUED: HEATED SECTION / SCC HEATED TEMPERATURE CONTROLS*** section in this manual for instructions.
System is not operating at all	Check that unit is properly plugged in.
	Confirm that the MAIN power switch is on.
	If power cord is used, confirm that it is plugged into outlet.
	Authorized Personnel Only: Confirm that the utility power is on.
	Authorized Personnel Only: Check the circuit breaker box for tripped circuits.
	Authorized Personnel Only: GFCI may be required. If N.E.C. (National Electric Code) or your local code requires GFCI (Ground Fault Circuit Interrupter) protection, you MUST use a GFCI breaker in lieu of a GFCI receptacle.
Product is not heating at all	Heating elements may be malfunctioning. • Call Structural Concepts Technical Service (at last page of this manual). • Move product to separate location until unit is repaired.
Ceramic metal halide lights are not working	***Caution! Case is extremely hot hot! Turn off main power switch and allow case to cool for 45 minutes before touching light bulbs.*** • Be sure **ALL** lights are screwed in properly. • Check that bulbs are not burned out.

CONDITION	TROUBLESHOOTING
Case Not Lining Up	See ***INSTALLATION, CONTINUED: ALIGNING, BOLTING & CAULKING UNITS TOGETHER*** section in this manual for instructions on properly aligning case (alongside other cases).
Water Is On The Floor	***Caution!*** Water on flooring can cause much damage! Until cause is determined (and repaired), following these procedures: • 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. • Contact Structural Concepts Technical Service. See telephone number on final page in this manual.
	Authorized Personnel Only: Check that the drain trap is free of debris.
	Check that the drain hose is correctly positioned over condensate pan or floor drain.
	Check store conditions. To prevent condensation in Type 1 environments, maximum conditions are to be 55% humidity / 75 °Fahrenheit. For Type 2 environments, maximum conditions are to be 60% humidity / 80 °Fahrenheit. See serial label (at case rear near main power switch) for Type of your case.

TROUBLESHOOTING - GENERAL ISSUES (PAGE 3 of 4)

CONDITION	TROUBLESHOOTING
Fan Emits Excessive Noise	***Authorized Personnel Only:*** Check that the case is aligned, level and plumb.
	Authorized Personnel Only: Check evaporator fan for cleanliness.
	Authorized Personnel Only: Unplug fan motors; check motor shaft for excessive bearing wear.
	Authorized Personnel Only: Check that fan motors are securely mounted in brackets.
	Authorized Personnel Only: Verify that fan blades are securely mounted to fan motor.
	Authorized Personnel Only: Check that nothing is preventing blade rotation.
	Authorized Personnel Only: Check that the fan shroud is properly secured.
Fans Are Not Working	Check that the MAIN power switch (if present) is on.
	Authorized Personnel Only: Check that fans are plugged in to fan shroud.
	Authorized Personnel Only: Check for foreign material obstructing fan performance.
	Authorized Personnel Only: Check that fan blades freely rotate within fan shrouds.
	Authorized Personnel Only: Check that power is going to fans.
	Authorized Personnel Only: Check that fan wiring is connected on terminal blocks.
System Is Not Operating	Check that the utility power is on.
	Authorized Personnel Only: 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. Product should be pre-chilled before placing in display case.
	Check that the case is not in the sun or near a heat or air conditioning vent. See "**OVERVIEW…"** section in operating manual for more information.
	Check Set Point Temperature; it may be adjusted too high.

CONDITION	TROUBLESHOOTING
Case Lights Are Not Working	Check that light switches are in the ***ON*** position.
	Check for burned out bulbs. Turn lights off & replace.
	Clean dirt and dust from the bulbs to prevent flickering.
	Authorized Personnel Only: 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.

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.

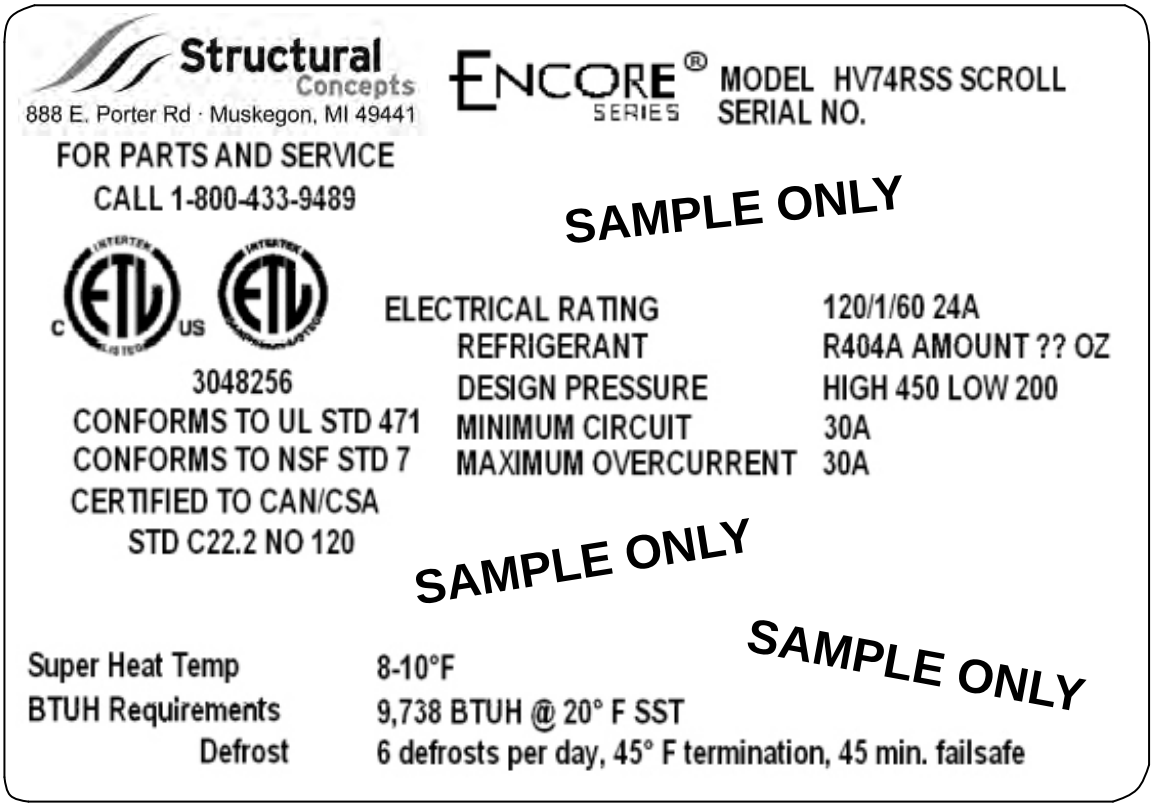
PREVENTIVE MAINTENANCE (TO BE PERFORMED BY TRAINED SERVICE PROVIDER)

WARNING! TURN OFF CASE BEFORE PERFORMING PREVENTIVE MAINTENANCE!

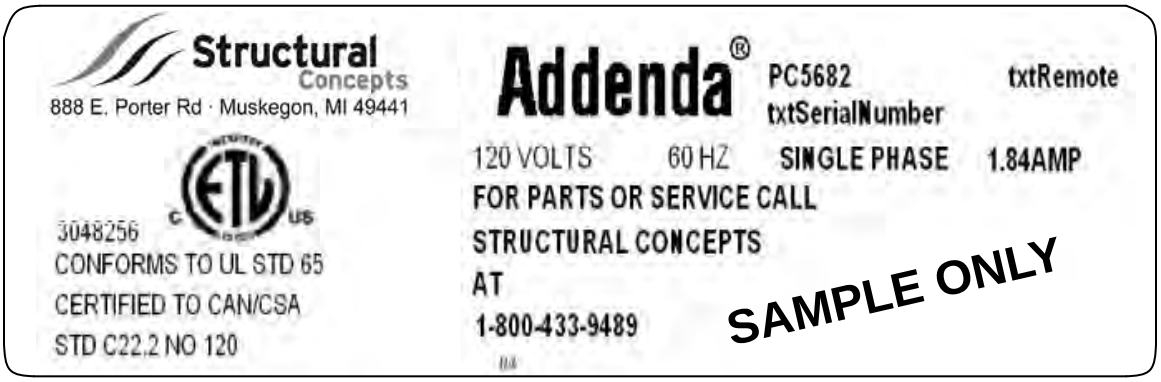
PREVENTIVE MAINTENANCE	FREQUENCY	INSTRUCTIONS
Case Exterior	**Quarterly**	**<u>Under Case Cleaning</u>:** Once refrigeration package is clear of unit, vacuum under case to remove all dust and dirt that may collect under case.
Case Interior	**Quarterly**	**<u>Tub, Coil, Drain, Fan Blades, Motors, Brackets</u>:** *Disconnect power from the case before cleaning the Tub, Coil, Fan, Motor and Drain Area!* • 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.



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

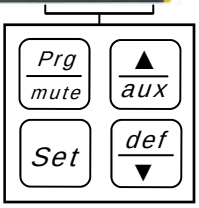


----- Sample Serial Label For Non-Refrigerated Case -----

CAREL

ir33 platform

Integrated Electronic Microprocessor Controller



Programming The Instrument

To Modify The Setpoint

Set 1. 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, 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" (password prompt).

Set 2. Confirm by pressing "SET" key.

▲ aux def ▼ 3. Press ▲ or ▼ until reaching the parameter "/ 5".

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 "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.

Oper Manuals - PUB\Templates\Carel Controller\Carel Controller IR33.pub
This data derived from Carel Material: ir33 +030220441 - rel. 2.0 - 01.05.2006

CAREL

ir33 platform

Integrated Electronic Microprocessor Controller

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	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

CAREL

ir33 platform

Integrated Electronic Microprocessor Controller

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

LIMITED WARRANTY

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. The limit of liability of SCC toward the exchange cost of the original compressor motor (and/or any other components) is one year parts and labor. If any Goods are found to be of faulty material or workmanship within one year of the original F.O.B. unit shipment, SCC will, at its option (after inspection by an authorized representative), replace or pay the reasonable cost of replacement of the faulty Goods. If warranty claim is not made within this one year time period, SCC is not bound to warrant Goods. A motor-compressor (and/or any other components) replaced during the warranty shall not exceed manufacturer's current established wholesaler’s exchange price. If replacement motor-compressor (and/or other components) is available via storage facility, parts truck, etc., SCC mandates that readily accessible replacement components be used toward repair of Goods; in such instances, SCC will replace such equipment (at its own expense) after confirmation of its use/placement on defective unit. SCC shall not be charged an additional fee, up-charge or expense for such replacement Goods. If SCC is unable to repair or replace the defective Goods, SCC shall issue a credit to the Purchaser for full or partial purchase price, as SCC shall determine. The replacement or payment in the manner described above shall be the sole and exclusive remedy to 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 this 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.

One Year Limit of Liability. After SCC's one-year parts and labor warranty on the original F.O.B. unit has expired, SCC is not liable for either the equipment or labor costs of repairing or replacing the motor compressor, nor any other components that were included in the original F.O.B. unit.