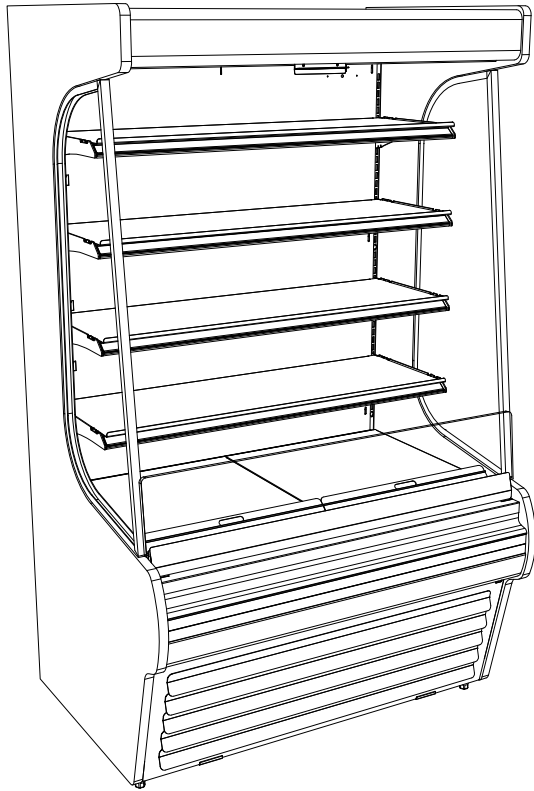




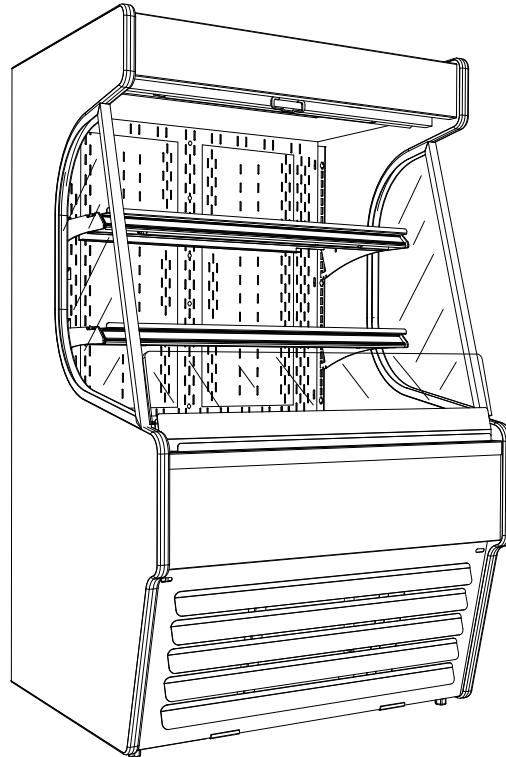
# INSTALLATION AND OPERATING MANUAL

PN 99477

## REFRIGERATED SELF-SERVICE MERCHANDISER

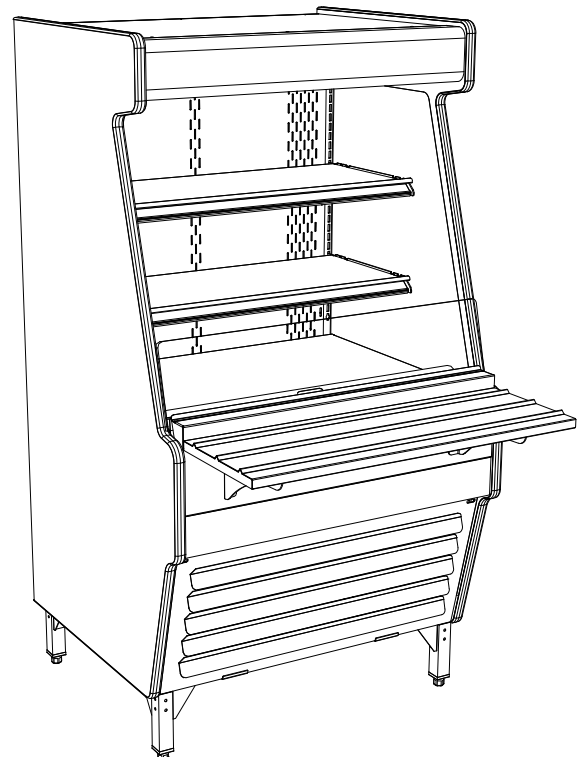


Model CO4778R Shown Above



←  
Model CO3660R  
(With Optional Rear  
Doors Outline Shown  
At Rear Plenum)  
for Illustrative  
Purposes Only  
←

→  
Model CO3660RT  
(with Optional Tray  
Slide System)  
→



CO3660R & CO3660RT.....	36 1/4" L* x 38 1/4" D~ x 60" H
CO3678R.....	36 1/4" L* x 38 1/4" D~ x 78" H
CO4760R & CO4760RT.....	47 1/4" L* x 38 1/4" D~ x 60" H
CO4778R.....	47 1/4" L* x 38 1/4" D~ x 78" H
CO5960R & CO5960RT.....	59 1/4" L* x 38 1/4" D~ x 60" H
CO5978R.....	59 1/4" L* x 38 1/4" D~ x 78" H
CO7160R & CO7160RT.....	71 1/4" L* x 38 1/4" D~ x 60" H
CO7178R.....	71 1/4" L* x 38 1/4" D~ x 60" H
CO7178R.T2.....	71 1/4" L* x 38 1/4" D~ x 78" H

\*Includes end panels.

~Depth is approx. 34 3/4" without removable spacers (at case rear)



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

## TABLE OF CONTENTS

SHIPMENT CONDITION / DAMAGE DURING DELIVERY or UNCRATING / SHORTAGES .....	3
OVERVIEW AND WARNINGS .....	4
CASE REMOVAL FROM SKID (LEVELERS OR CASTERS) .....	5
SET-UP.....	6
START-UP .....	7
SECURITY COVER (OPTIONAL) .....	8
NIGHT AIR CURTAIN OPERATING INSTRUCTIONS (OPTIONAL) .....	9
ROLL DOOR TENSION ADJUSTMENT INSTRUCTIONS .....	10
TRAY SLIDE SYSTEM (OPTIONAL) .....	11
MAINTENANCE FUNDAMENTALS .....	12-18
REFRIGERATION FUNDAMENTALS .....	19-21
SERIAL LABEL & LOCATION / TECHNICAL INFORMATION / ADDITIONAL INFORMATION .....	22
ILLUSTRATED PARTS BREAKDOWN .....	23-24
PARTS LIST.....	25
PREVENTIVE MAINTENANCE (TO BE PERFORMED BY TRAINED SERVICE PROVIDER .....	26-27
TROUBLESHOOTING .....	28
CLEANING SCHEDULE .....	29
CAREL® TEMPERATURE CONTROLLER INFORMATION .....	30-32
TECHNICAL SERVICE CONTACT INFORMATION & WARRANTY INFORMATION .....	33

## **1.Shipment Condition**

- Before and during unloading check all equipment for damage.

## **2.Damage Discovered During Delivery**

- 3rd Party Carrier: Describe damage on freight bill and obtain signature of driver. Carrier will supply necessary claim forms. If these steps are not taken, carrier may refuse your claim.
- Prepaid and Add: Contact carrier (and follow same procedure as with 3rd party carrier). Also contact Structural Concepts at 1-800-433-9489.

## **3.Damage Discovered After Uncrating**

- 3rd Party Carrier: Contact carrier within 10 days of delivery for their procures; retain all packaging. If these steps are not taken, carrier may refuse your claim.
- Prepaid and Add: Contact carrier (and follow same procedure as with 3rd party carrier). Also contact Structural Concepts at 1-800-433-9489 within 10 days of delivery.

## **4.Shortages**

- If a shortage exists (and it is the responsibility of Structural Concepts) call 1-800-433-9489. Structural Concepts will acknowledge shortages within 10 days from receipt of equipment.
- If a shortage involves the carrier, notify carrier immediately and request an inspection.

### OVERVIEW

- \*The Structural Concepts Oasis refrigerated service cases are designed to merchandise packaged bakery products at 5° Celsius / 41° Fahrenheit or less product temperatures.
- These cases should be installed and operated according to the following instructions to insure proper performance.
- These units are designed for the display of products in ambient store conditions where temperatures and humidity are maintained at:
  - ☞ a maximum of 24°C / 75°F and 55% relative humidity for non-T2 units.
  - ☞ a maximum of 27°C / 80°F and 60% relative humidity for T2 units.



**WARNING**  
Risk of Electric Shock.  
Disconnect Power Before Servicing Unit



**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**  
Evaporator Tray is Hot

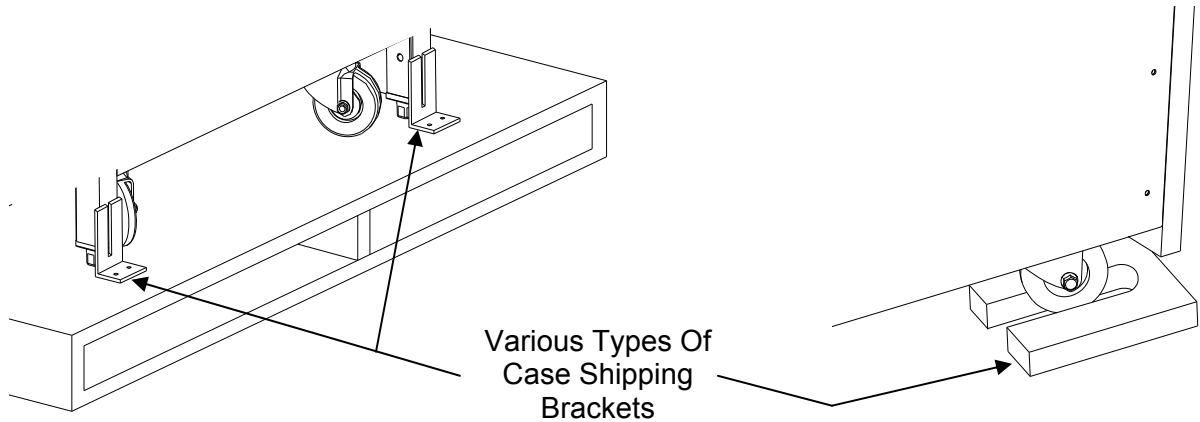


**CAUTION**  
Lamps have been treated to resist breakage and must be replaced with a  
similarly treated lamp.

## CASE REMOVAL FROM SKID (LEVELERS OR CASTERS)

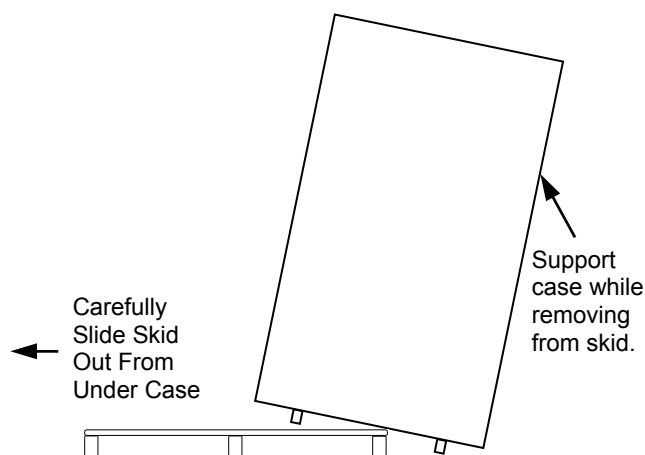
### **1. Removing Case Shipping Brackets That Are Attached To Skid**

- Remove screws holding Case Shipping Brackets to skid.
- Remove Case Shipping Brackets from Skid.
- See illustrations below. Note: Shipping Brackets will vary in size, shape, material and location depending upon case type and model.



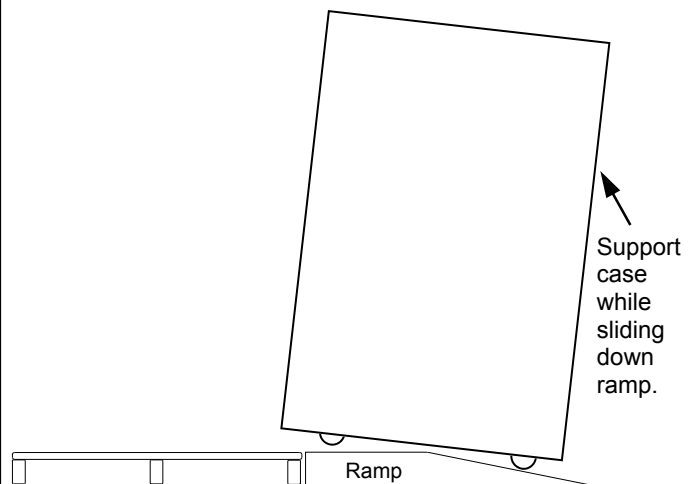
### **2. Remove Case (With Levelers) From Skid**

- To prevent damage, support case while sliding it toward edge of skid.
- When case is at edge of skid, carefully lower to floor (so two levelers rest on floor).
- Carefully slide skid out from under case.
- After removal of case from skid, place into position.
- Note: Illustration below reflects general outline of sample case and does not reflect any particular model or options).



### **3. Remove Case (With Casters) From Skid**

- A. Place ramp up against skid (to allow case to smoothly slide off from skid).
- B. Maintain support of case at all times or center of gravity may cause case to fall.
- C. Unlock Casters. Slide unit to rear of skid. Slide down ramp and off from skid.
- Note: Illustrations reflect general outline of sample case and may not reflect your particular model or options).



## Merchandise Set-Up

- Remove the appropriate lower grille, (rear grille if unit has front serviceable refrigeration, and the front grille if the unit's refrigeration is serviceable from the rear).
- Insure that the manufacture provided evaporator pan is installed under the PVC condensate drain trap.
- Insure evaporator pan is plugged into the receptacle inside base.
- Reinstall the grille by inserting screws into locations provided.

## Electrical Set-Up

- **With Power Cord:**
  - ***For your safety, equipment is furnished with a properly grounded cord connector. Do not attempt to defeat the grounded connector.***
- Plug cord into certified electrical outlet with ground.
- **Without Power Cord:**

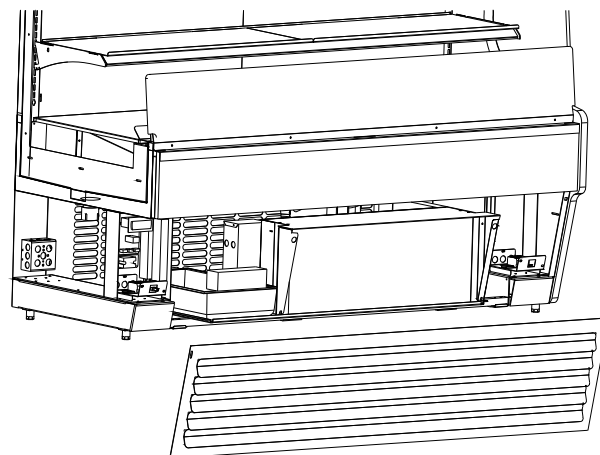
**Note:** Servicing to be accomplished by a certified electrical contractor.

  - **Electrical Leads**
    - Remove 4 x 4 cover from the left lower rear of the unit.

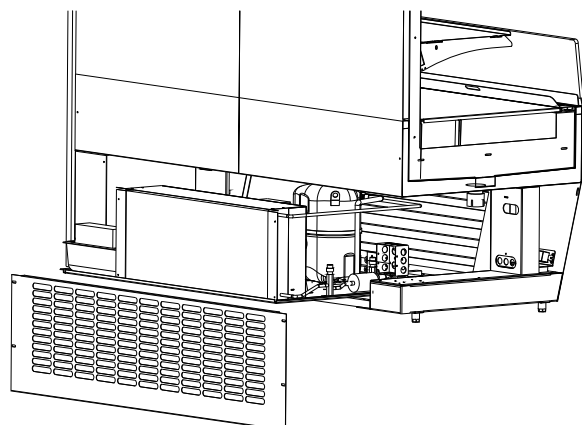
Electrical leads connections are provided in the junction box.

**Remote Refrigeration System. Note:** The Servicing of this unit is to be accomplished by a refrigeration / electrical contractor.

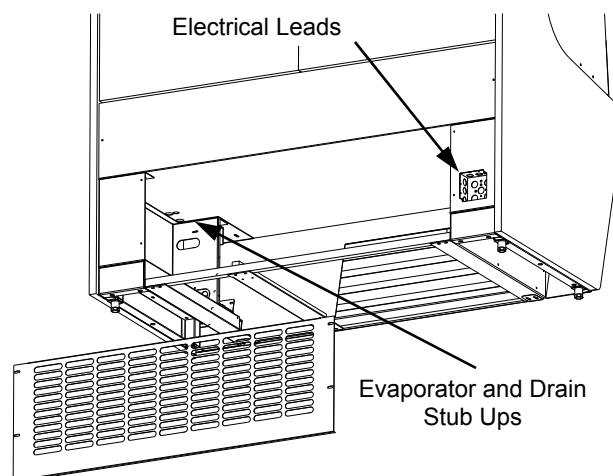
- **Electrical leads**
  - Remove lower rear and/or front panel.
  - 110V electrical lead connections are located on the left side of the unit behind the terminal block.
- **Refrigeration stub ups**
  - Refrigeration stub up connections are provided on underside of the tub inside the base of the unit.
  - Remove lower rear and/or front panel.
  - The evaporator stub up connections are located on the right hand side of the unit.



Front Refrigeration Service



Rear Refrigeration Service

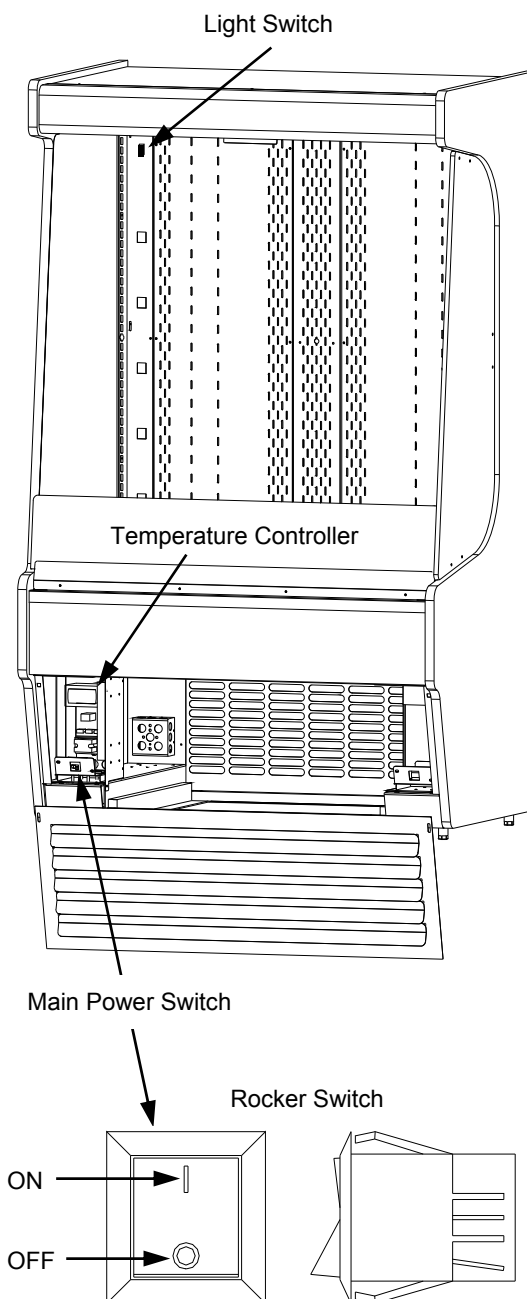


### Merchandiser Start-Up

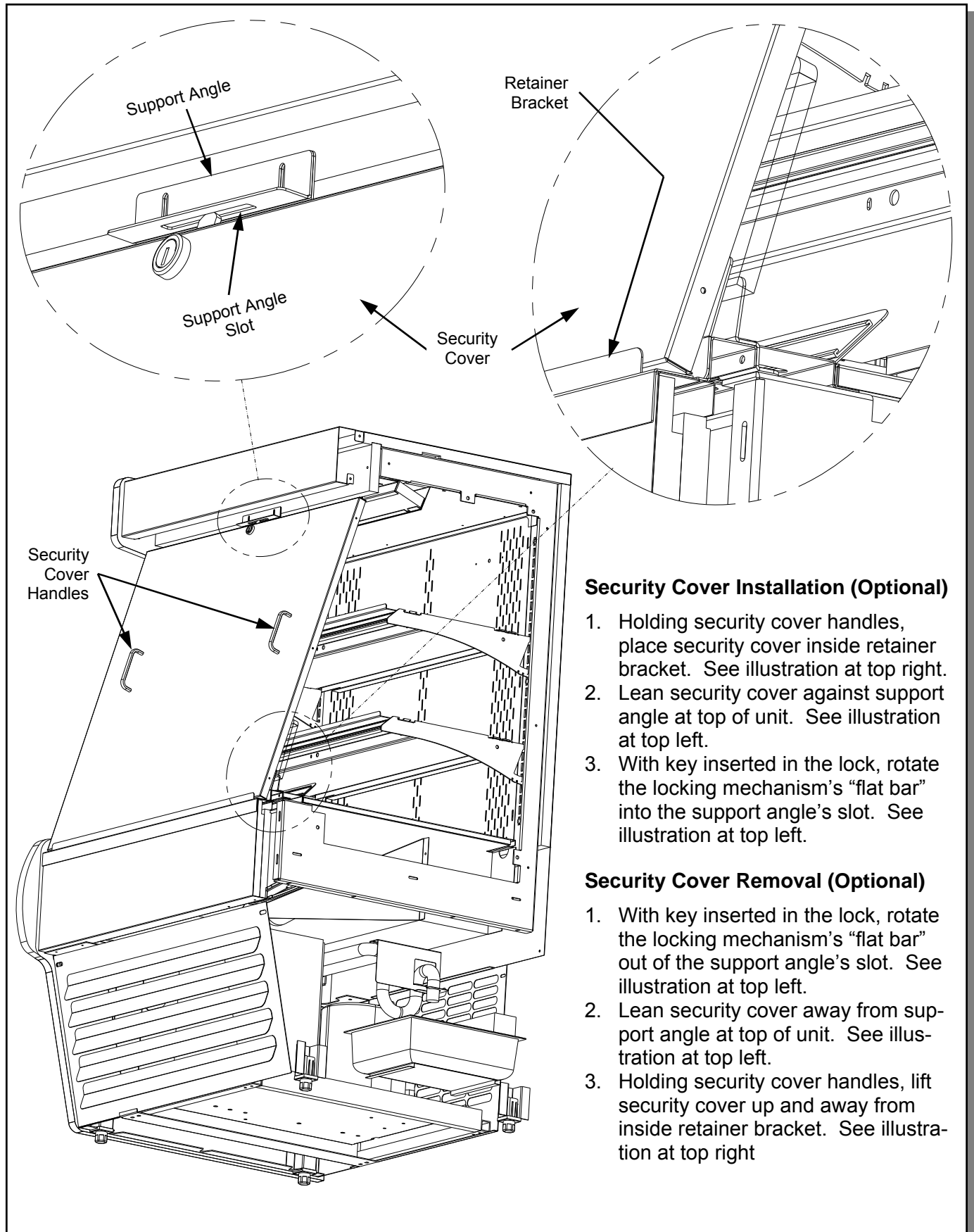
- Turn on the main power. Remove the front grill by removing the thumb screws located in each of the upper corners. Switch is on the left hand side of base. Supply power will start evaporator coil fans, and compressor motor (for units with self contained refrigeration).
- From the front of the case, raise the deck pans and check to see that the coil fans are all functioning properly.
- Replace front grille by inserting lower edge into the lower grille support tabs and insert thumb screws into the upper corner locations provided.
- Turn on the lights. Light switch is in the interior of the case above and to the left side of the top shelf. All of the 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.

### Temperature Settings

- The case temperature is set at the factory, ( Supply air is set for a case temp at 5° Celsius / 41° Fahrenheit), as determined by the case size.
- The temperature is controlled by a thermostat.
- If a temperature setting change is required, refer to temperature control access in Refrigeration Fundamentals.



## OPTIONAL SECURITY COVER - INSTALLATION AND REMOVAL



### Security Cover Installation (Optional)

1. Holding security cover handles, place security cover inside retainer bracket. See illustration at top right.
2. Lean security cover against support angle at top of unit. See illustration at top left.
3. With key inserted in the lock, rotate the locking mechanism's "flat bar" into the support angle's slot. See illustration at top left.

### Security Cover Removal (Optional)

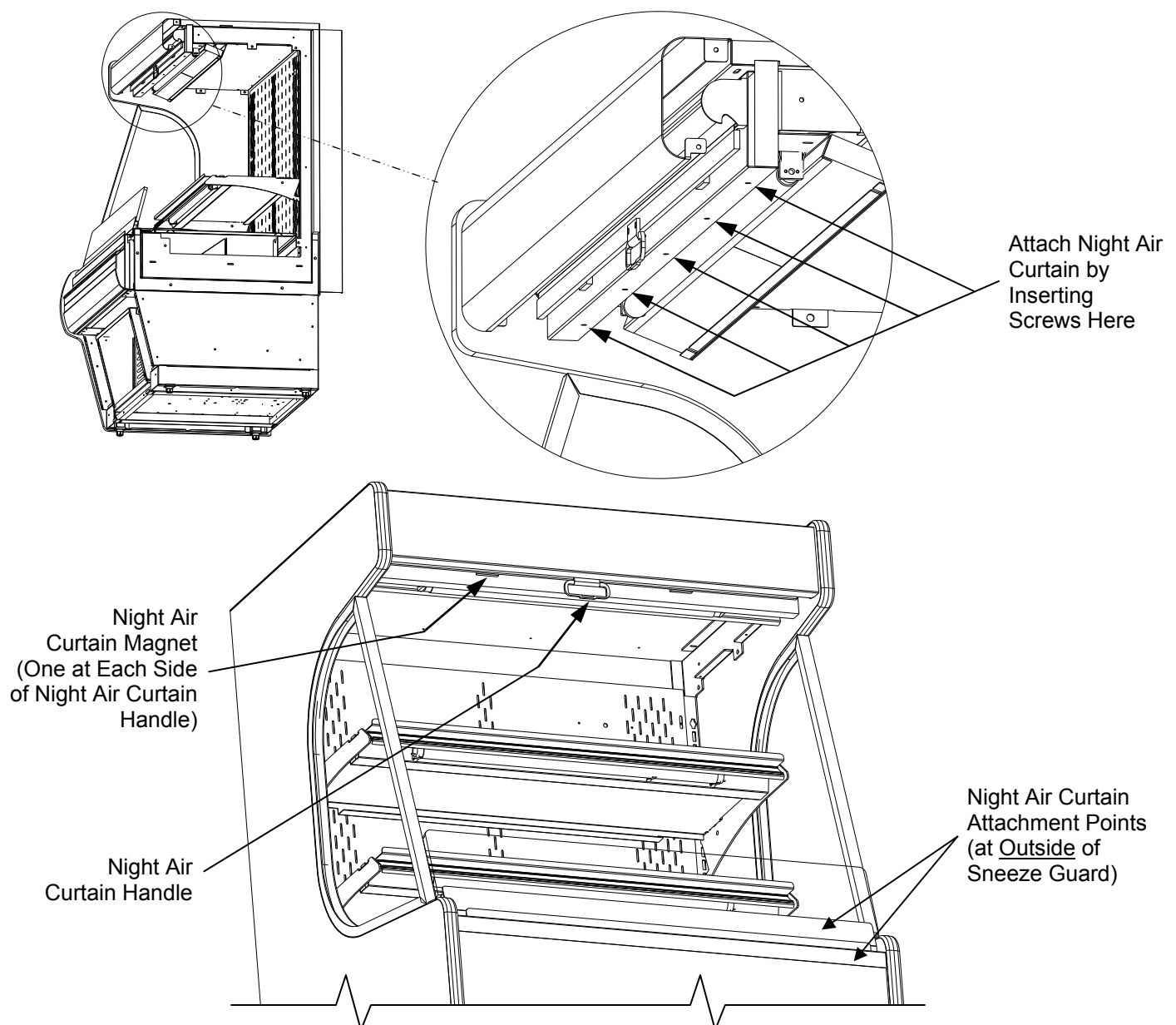
1. With key inserted in the lock, rotate the locking mechanism's "flat bar" out of the support angle's slot. See illustration at top left.
2. Lean security cover away from support angle at top of unit. See illustration at top left.
3. Holding security cover handles, lift security cover up and away from inside retainer bracket. See illustration at top right.



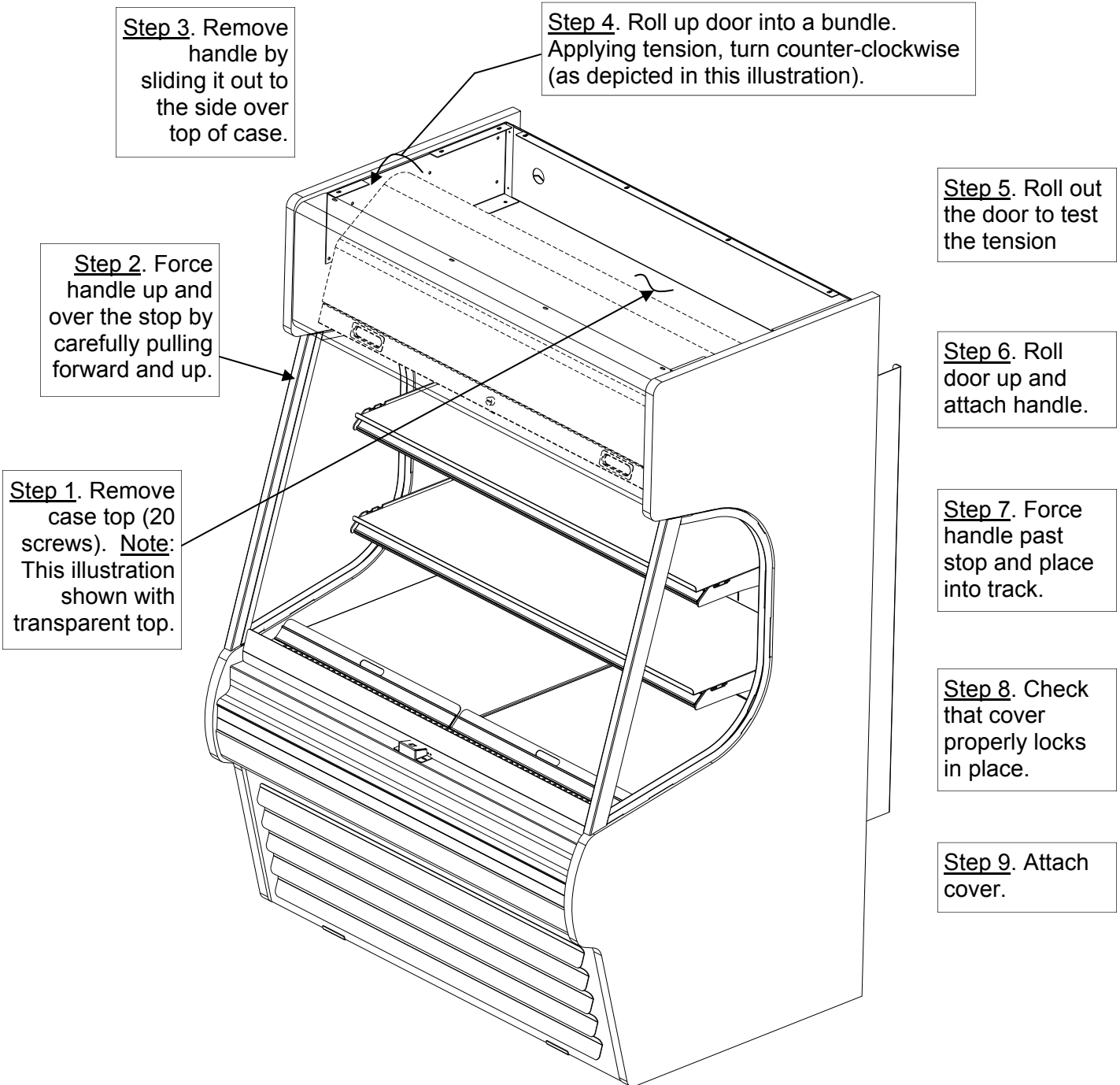
### Night Air Curtain Operating Instructions

1. Use caution when handling Night Air Curtain.
2. Display case may come with Night Curtain already attached. If not, a retrofit kit will be provided. If using SCC-supplied retrofit kit, attach to display case by inserting screws at top-underside of display case (see illustration below).
3. Grasp the handle and pull downward to desired location (see illustration below).
4. Magnets will hold Night Air Curtain in place.
5. To return Night Air Curtain to its retracted position, grasp handle, lift up and away from its magnetic attachment and carefully wind Night Air Curtain back into roll.
6. **Caution!** Do not allow spring-loaded Night Air Curtain to freely snap back into roll. Doing so can eventually destroy Night Air Curtain's tension and retractability.
7. To entirely detach Night Air Curtain from case, slide Night Air Curtain toward rear of case, freeing it from its 'keyhole' slots. Lift upward and away from case.

**NOTE: MODEL CO4760R IS SHOWN BELOW (WITH SHELVES & BRACKETS REMOVED). BELOW ILLUSTRATION MAY NOT EXACTLY REFLECT EVERY PARTICULAR CASE'S FEATURES OR OPTIONS.**



## ROLL DOOR TENSION ADJUSTMENT INSTRUCTIONS



Model CO4760R Shown Above  
Roll Down Door Shown  
In Dashed Lines At Top Of Case

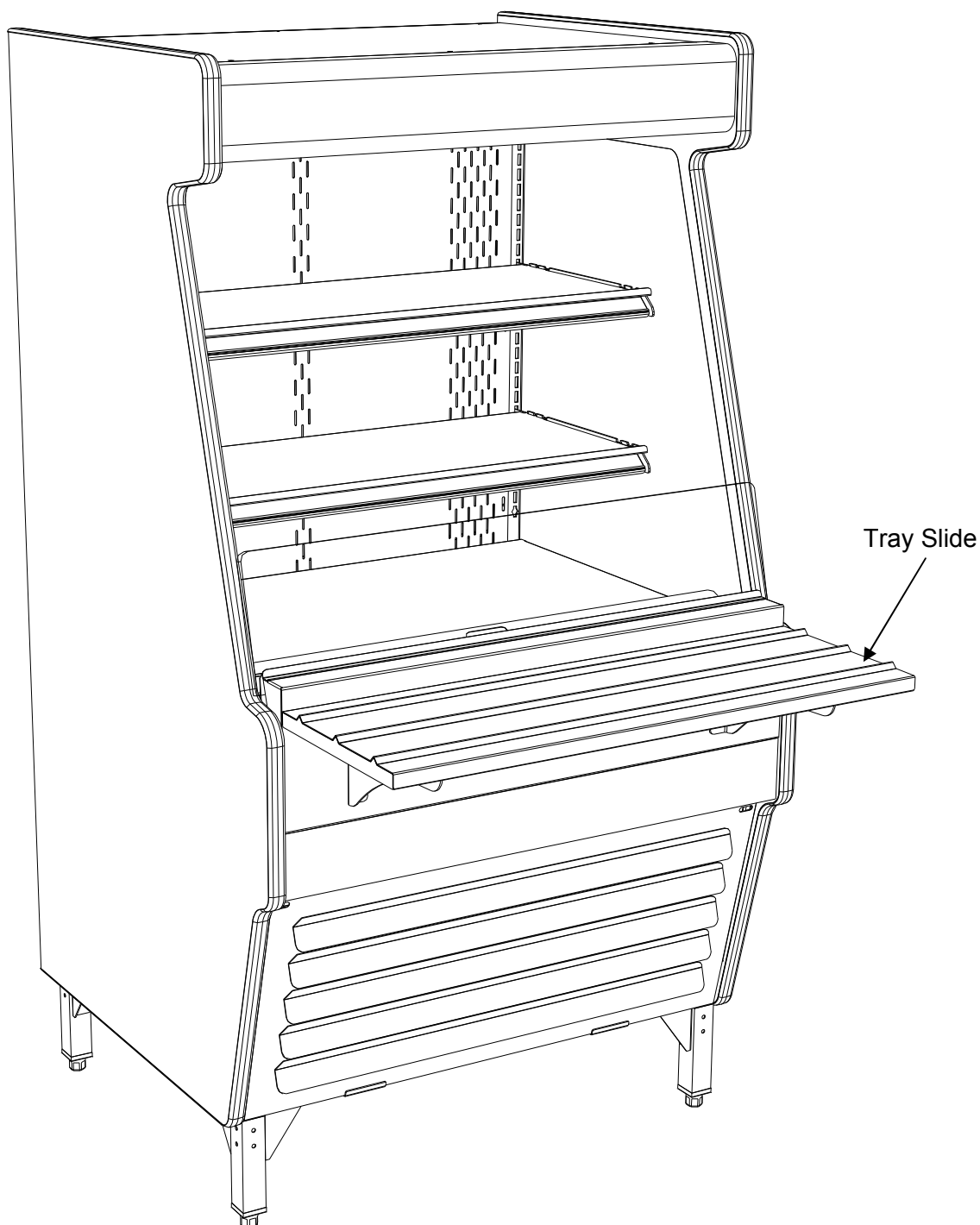
## OPTIONAL TRAY SLIDE SYSTEM (SHOWN ON MODEL CO3660RT)

Note 1:

Illustration may not exactly reflect your particular case. However, general layout of optional tray slide system will be similar between all cases.

Note 2:

See sheet attached to tray slide for instructions on attaching tray slide to case.



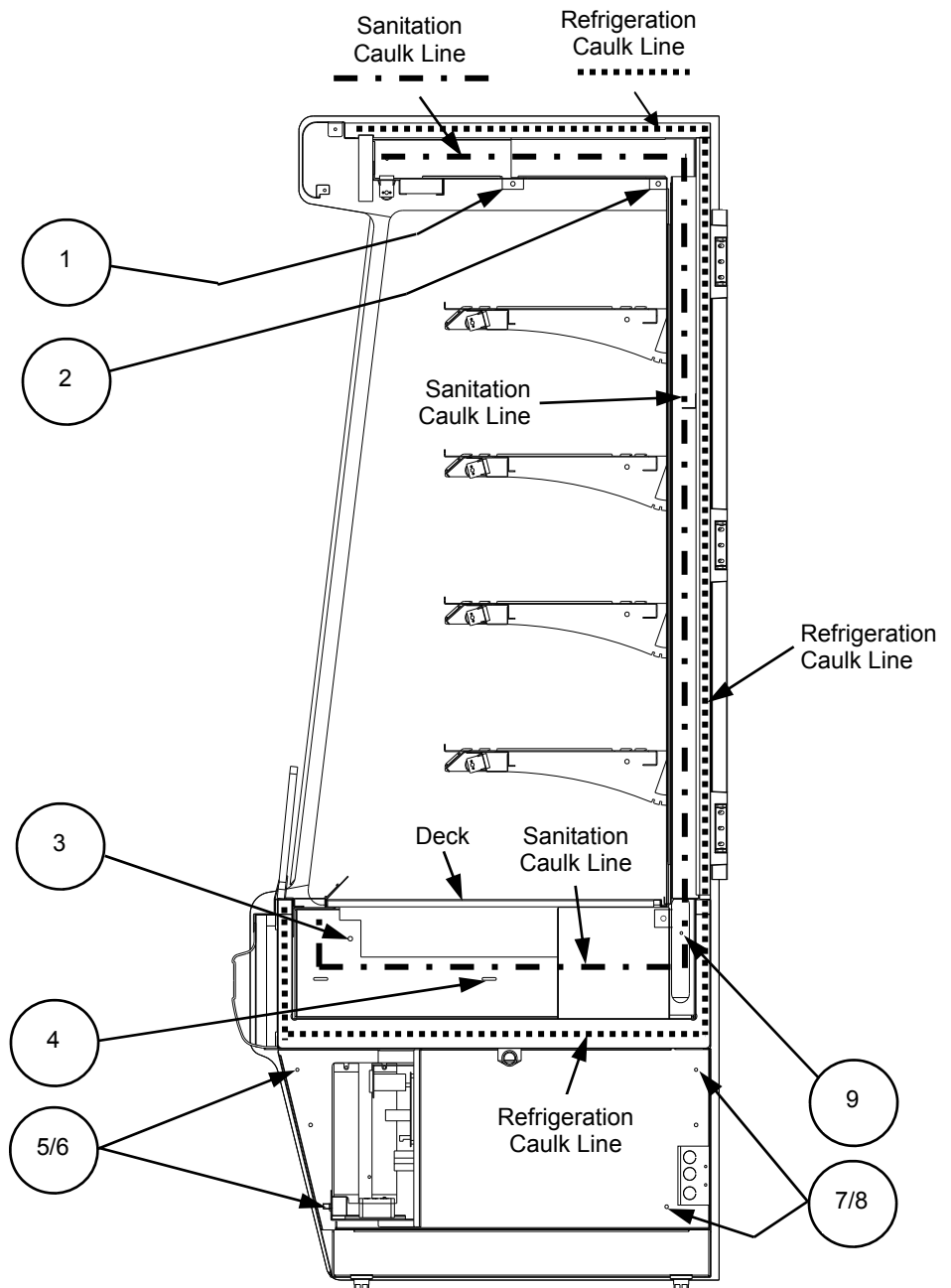
## Caulking and Bolting Adjoined Units (Sample Model Is Shown below). Your model's features or options may slightly vary.

Warranty will be voided if improper sealant is used. Lay a generous bead of caulk/sealant as specified below.

- Use Industrial grade butyl caulk on non-visible areas.
- Use industrial grade silicone sealant on visible areas.
- Form Two (2) Caulk/Sealant Lines: Sanitation and Refrigeration (see illustrations below).
- Caulking/sealing tub prevents air from escaping thru seams between cases (which may cause condensa-

tion problems and reduced refrigeration efficiency).

- Caulking/sealing also prevents water from seeping between cases to the floor.
- Note: Place thicker bead of caulk around drain.
- Bolt Holes are at 9 locations:
- Use 1/4-20 x 1.00" bolts and accompanying nuts for holes 1-4 and 9.
- Use #8-32 x .37" bolts and accompanying nuts for holes 5-8.
- Remove deck pan assembly to access holes 3, 4, 9.



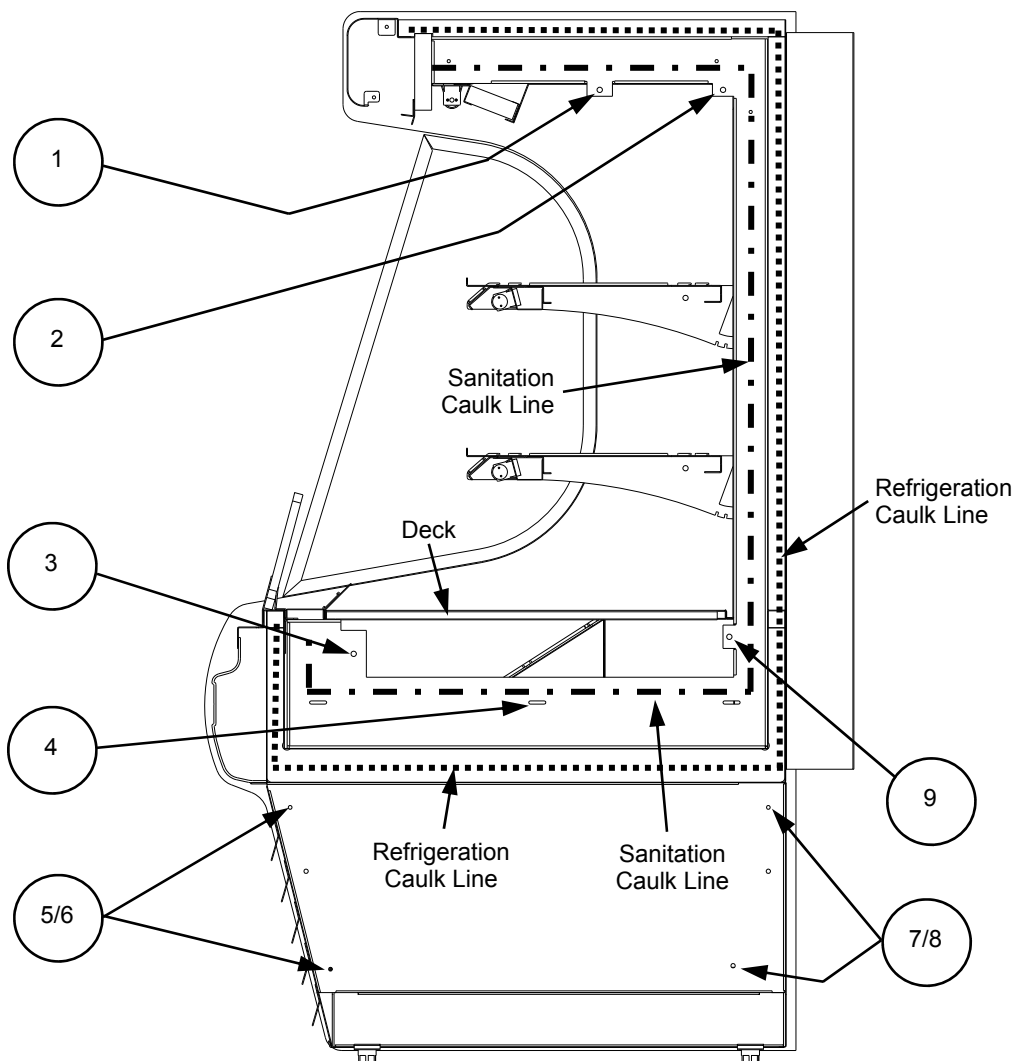
## MAINTENANCE FUNDAMENTALS, CONTINUED

### Caulking and Bolting Adjoined Units (Sample Model Shown Below).

Units are to be secured together at locations indicated. Level and align units.

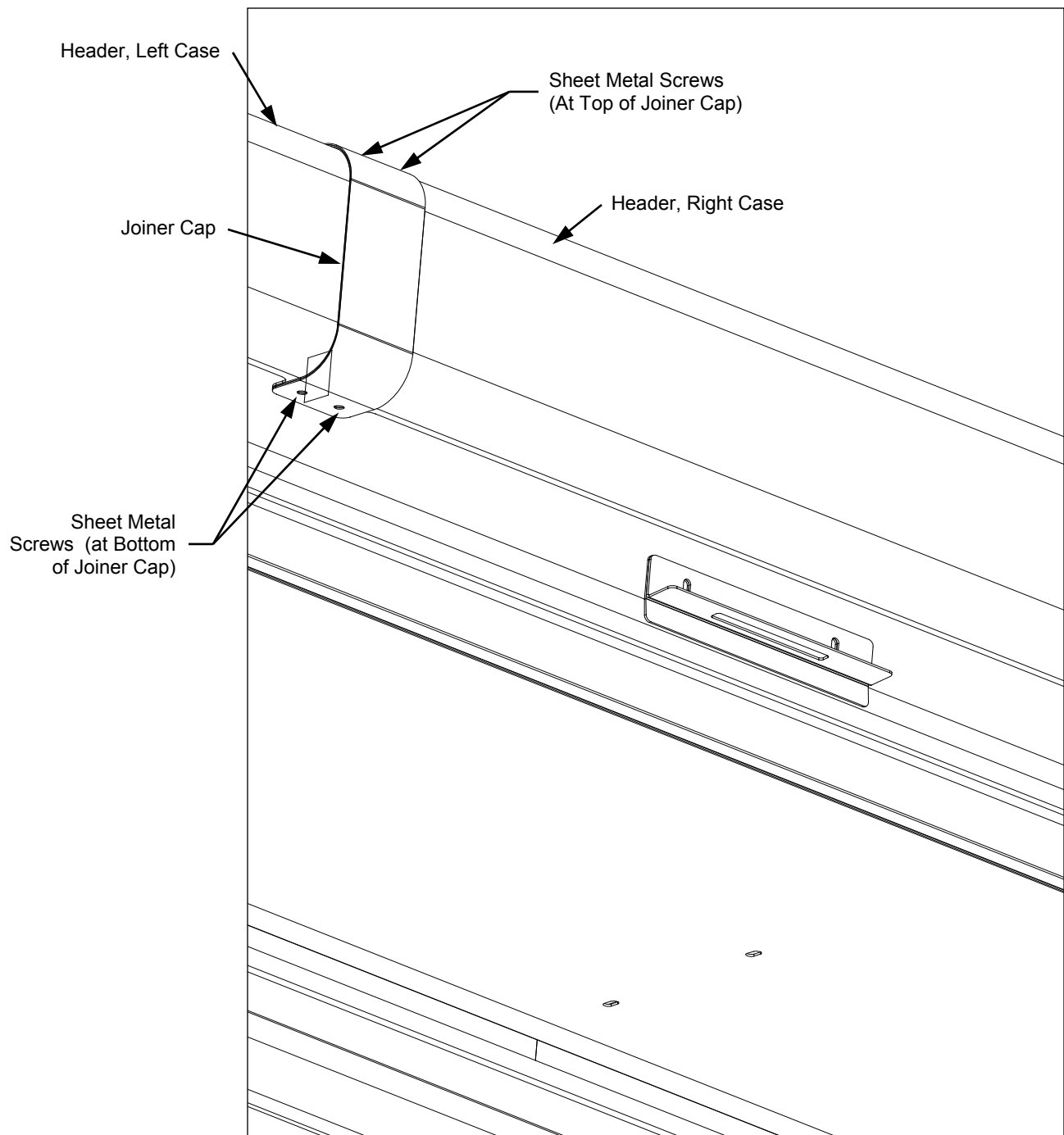
Warranty will be voided if improper sealant is used. Lay a generous bead of caulk/sealant as specified below.

- Use Industrial grade butyl caulk on all areas not visible.
- Use industrial grade silicone sealant on visible areas.
- Form Two (2) Caulk/Sealant Lines: Sanitation and Refrigeration (see illustration below).
- Caulking/sealing tub prevents air from escaping thru seams between cases (and may cause condensation problems and reduced refrigeration efficiency).
- Caulking/sealing also prevents water from seeping between cases to the floor.
- Note: Place thicker bead of caulk around drain.
- Bolt Holes are at 9 locations:
- Use 1/4-20 x 1.00" bolts and accompanying nuts for holes 1-4 and 9.
- Use #8-32 x .37" bolts and accompanying nuts for holes 5-8.
- Remove deck pan assembly to access holes 3, 4, & 9.



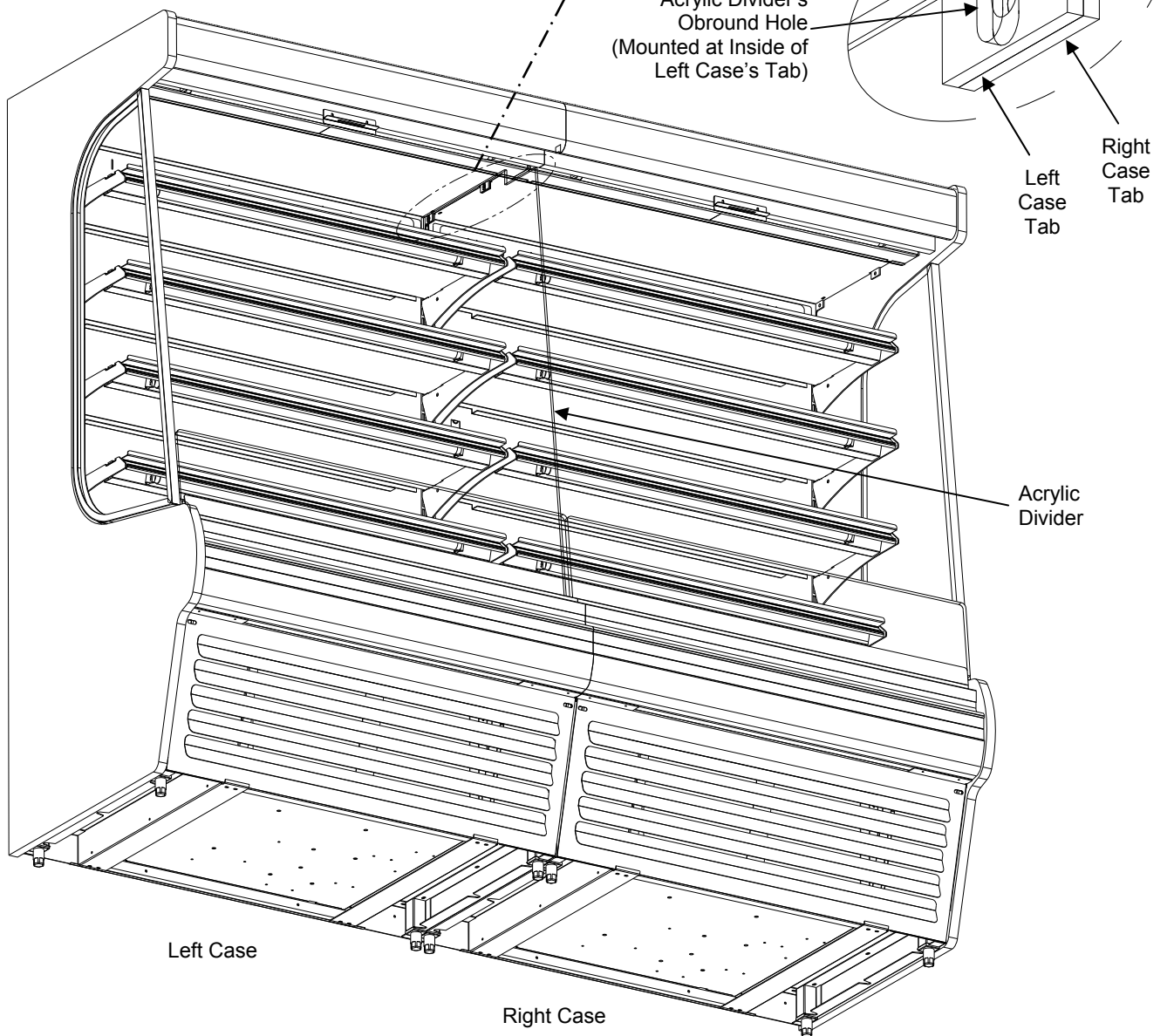
### Joiner Cap & Screws Installation

- Install the Joiner Cap at connection area between Cases (illustrated below).
- Sheet metal screws are to be used to secure Joiner Cap in place.
- Make certain that screw heads are flush with Joiner cap.
- Illustration below may not be exact representation of every option or feature.



### Acrylic Divider Installation (Self-Contained Cases Only)

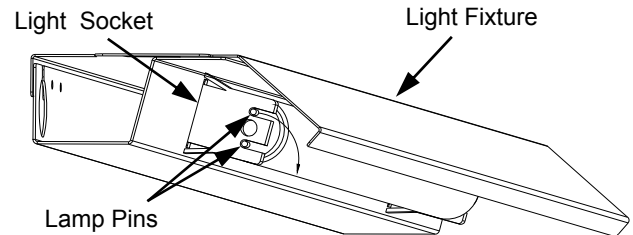
- The Acrylic Divider Kit contains the Acrylic piece, 1/4-20 screws and washers.
- The Acrylic Divider is to be installed on the Left Case (when facing cases). When properly installed, it will be flush with inside edge of left Case tab, to allow for seamless adjoining of Cases.
- Note: Enlarged views at right show proper placement of Acrylic Divider.



### Light Fixture

#### Removal of lamp:

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

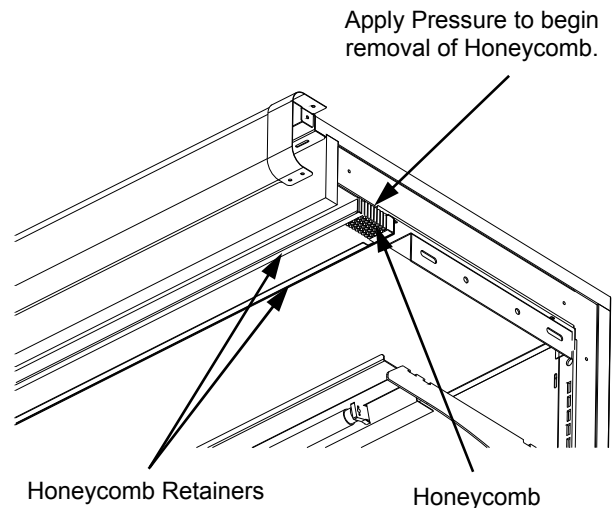


#### Installation of lamp:

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

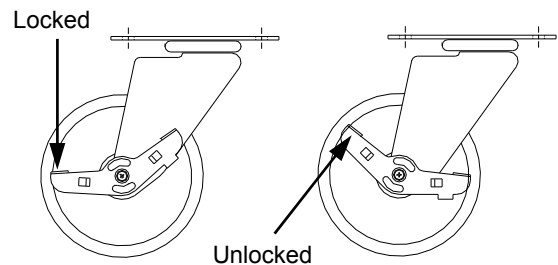
### Honeycomb Air Diffuser Removal

- Obtain a nonmetallic device of suitable strength such as a ballpoint pen.
  - *Use care not to damage or remove the heating element wire that prevents condensation on the assembly.*
- Wedge the instrument between the honeycomb and the top cap closure/end panel.
- Apply pressure to collapse the honeycomb and pry downward and away from the honeycomb retainer.
- Pull honeycomb out fully by grasping with fingers and pulling downward.



### Honeycomb Air Diffuser Installation

- Insert honeycomb up into top cap first.
- Apply suitable pressure to collapse the honeycomb up into the honeycomb retainer.



### Caster locking operation

- To lock casters push down on lever, to unlock pull up the lever all the way.



## Shelf Assembly Removal

- Shelves can be removed for maintenance, cleaning or adjustments
- Slide shelf back about 1/8 inch and rotate front up while lifting shelf assembly.
- For lighted shelving, unplug the light cord.
- Slide light assembly back about 1/8 inch and rotate front up while lifting light assembly.
- Remove brackets. Note it may be necessary to remove the nylon shipping bracket retainer. Pliers will be required to accomplish this task.

## Adjustable Shelves

- Adjustment of the angle of the shelf can be made, not the position.
- Adjustments to the shelves can be made by pivoting the lower portion of the shelf bracket in the upright.
- The shelves can be adjusted to an angle of: 0, 5, and 10 degrees.

## Light Fixture

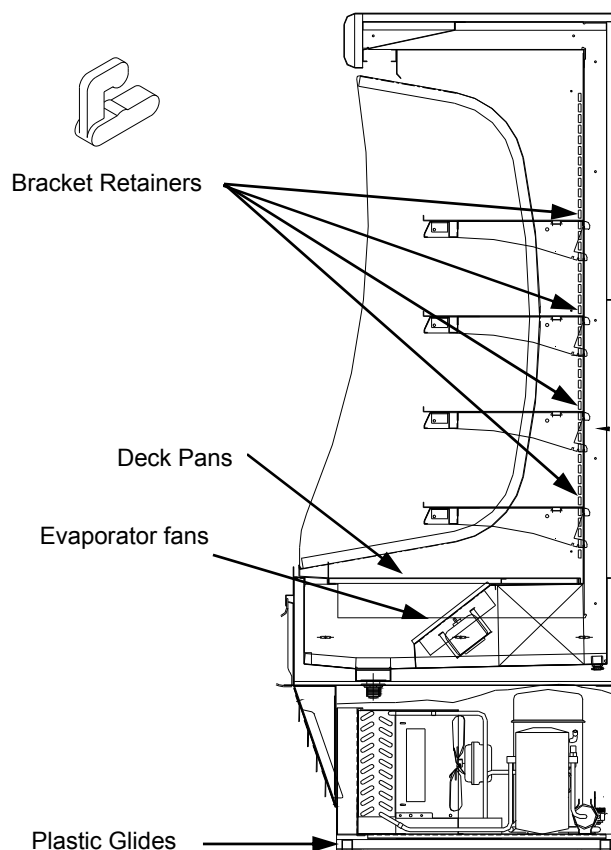
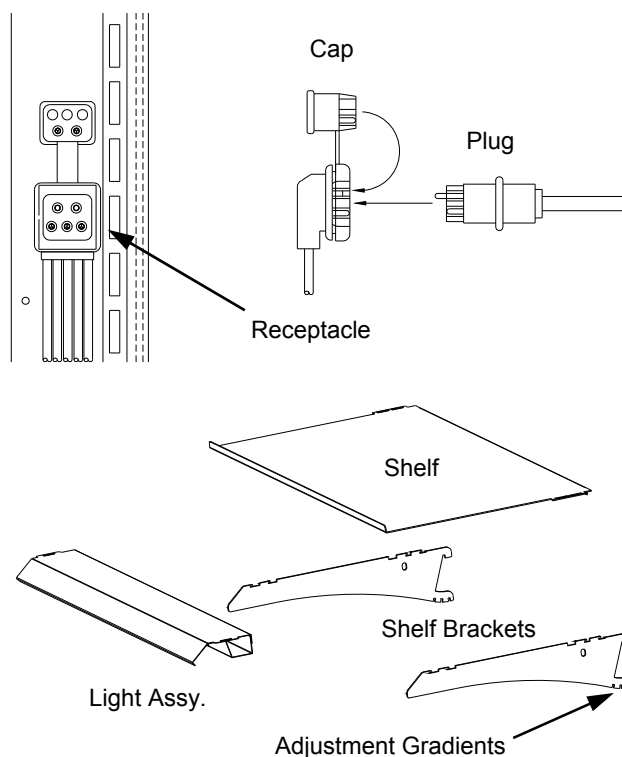
Fixtures are located on the underside of each shelf assembly and at the top inside of case.

Removal of lamp:

- Rotate lamp (1/4 turn) and remove bulb.

Installation of lamp:

- Align pins with slot.
- Insert pins into socket and rotate 1/4 turn to secure pin contacts in socket.

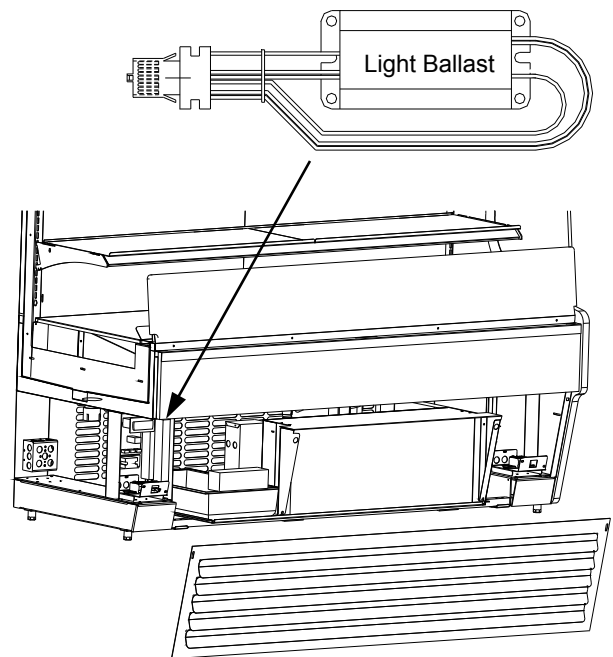


### Ballast Access

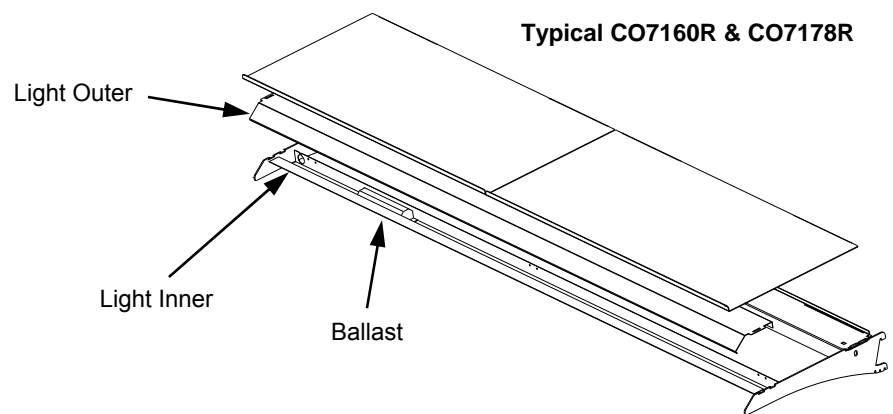
- ***Assembly or disassembly and servicing is to be accomplished by a licensed electrical contractor.***
- Remove the front grille by removing the thumb screws located in each of the upper corners.
- Ballast are mounted inside the electrical box on the lower left side of the case.

Note: Models CO7160R & CO7178R have ballasts located in each shelf light assembly.

- For models CO7160R & 7178R see shelf assembly removable.
- Disassemble shelf light for access to ballast.
  - Remove screws from the back of shelf assembly.
  - Separate the light outer from the light inner.

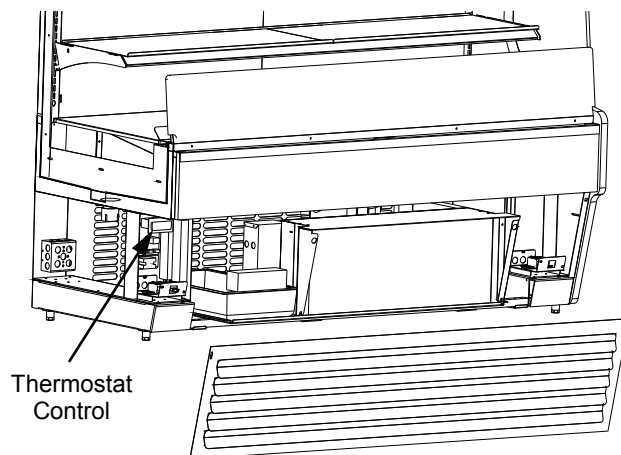


Depending upon model, above illustration may slightly differ from your particular case.



### Refrigeration: Access, Connections & Servicing

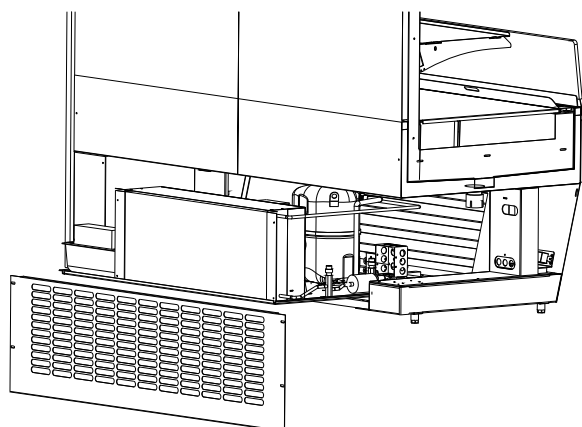
- ***Assembly or disassembly and servicing to be accomplished by licensed electrical / refrigeration contractor.***
- Remove the appropriate front or rear grille.
- *Refrigerant lines are flexible to facilitate access maintenance.*
- Plastic glides are mounted to the unit base to assist in sliding the condenser out for access.
- Slide condenser unit out approximately twelve inches for servicing.



Front Refrigeration Service

### Temperature Control Access

- ***Assembly or disassembly and servicing to be accomplished by licensed electrical / refrigeration contractor.***
- Remove the front grille by removing the thumb screws located in each of the upper corners.
- Thermostat control is mounted inside the electrical box on the lower left side of the case.
- If a temperature setting change is required, refer to the **Carel® Controller** section in this operating manual.



Rear Refrigeration Service

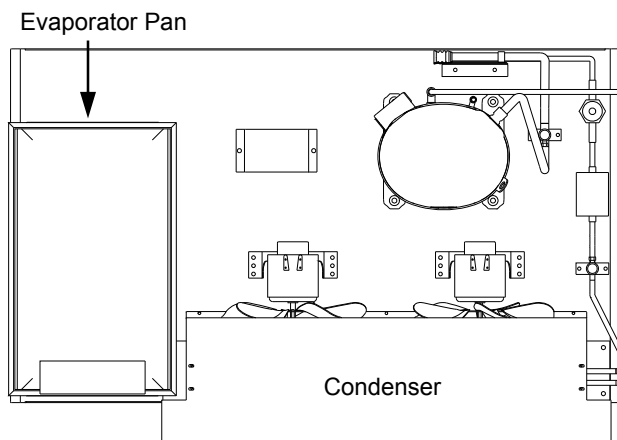
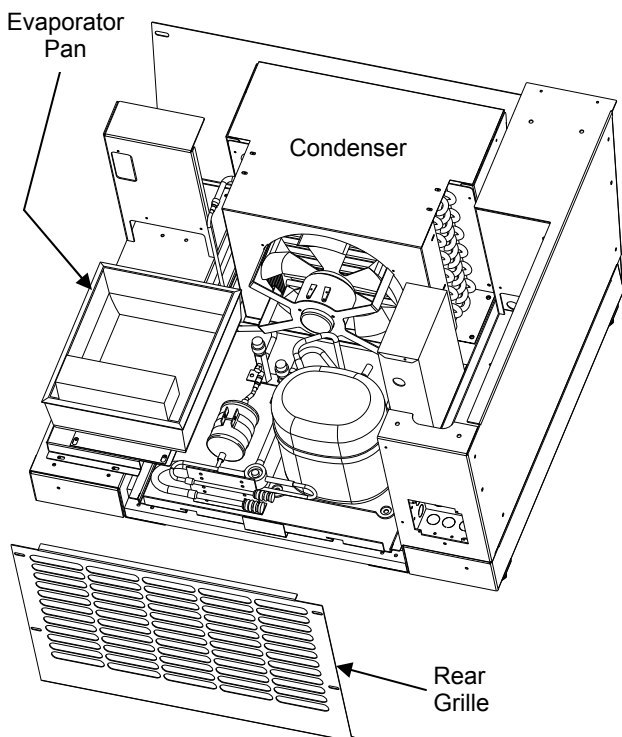
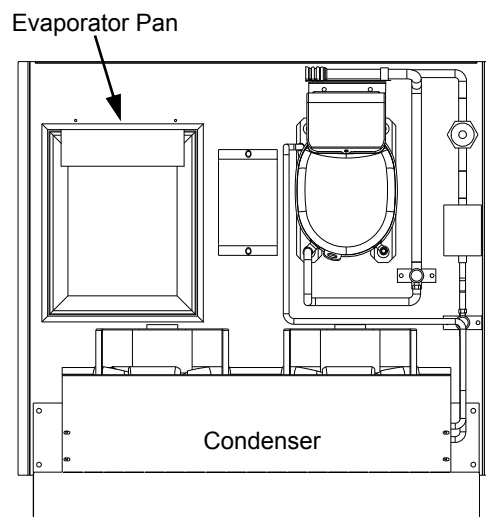
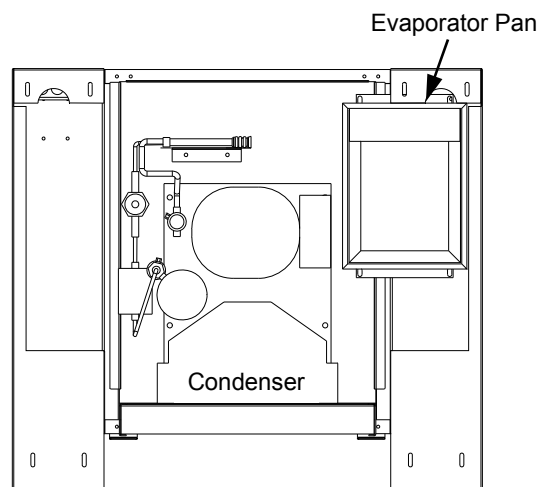
### Evaporator Coil Fans Access

- Remove all product.
- Remove display steps.
- Remove deck pan for coil fans access.

### Evaporator Pan Access and Removal

- Remove the appropriate lower grille:
  - ~ Remove the Rear Grille if the refrigeration unit has front serviceable refrigeration.
  - ~ Remove the Front Grille if the refrigeration unit is serviceable from rear.
- Insure evaporator pan is unplugged at the 220V Receptacle inside base.
- **Check temperature of pan prior to handling.**
- Empty evaporator pan contents into a suitable container.
- Return Evaporator Pan to original position.
- Note: On certain models (such as CO3660R), Evaporator Pan may not be removable.

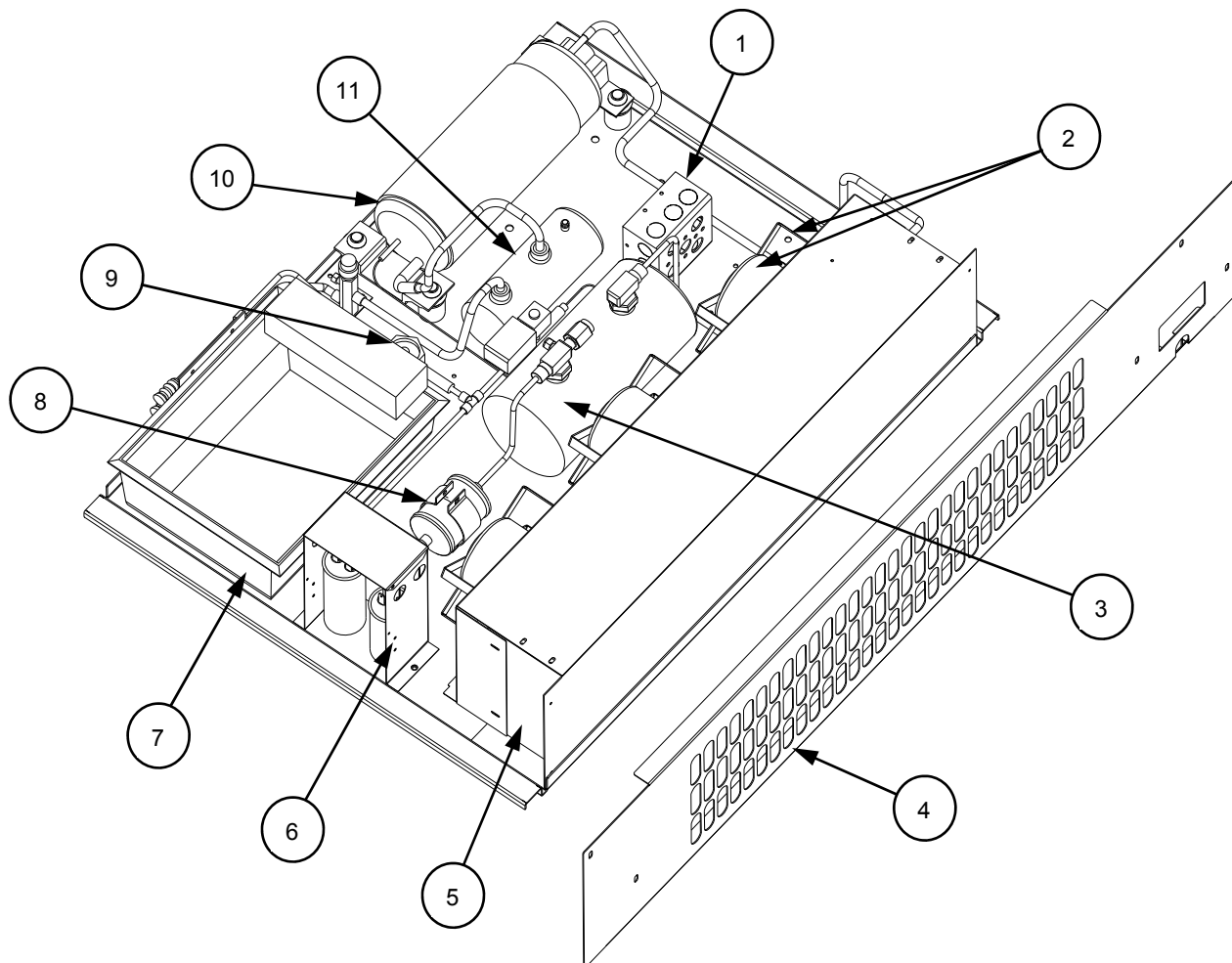
Typical configurations are shown below.  
See next page for Scroll Compressor.



## Typical Configurations, Continued


- Note: Scroll Compressor Unit is shown in illustration below.
- Your particular compressor may have slightly different arrangements.
- General Access and Removal instructions (on previous sheet) also apply to cases with Scroll Compressor units.

1	4 x 4 Electrical Box	7	Condensate Evaporator Pan
2	Fan Motor & Fan Shroud	8	Filter / Drier
3	Receiver	9	Sight Glass
4	Grille, Rear	10	Compressor
5	Condenser Coil	11	Suction Accumulator
6	Electrical Box, Compressor		



### 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.



**Structural Concepts**  
888 E. Porter Rd · Muskegon, MI 49441

**FOR PARTS AND SERVICE**  
CALL 1-800-433-9489

**ENCORE<sup>®</sup>** MODEL HV74RSS SCROLL  
SERIES SERIAL NO.



3048256  
CONFORMS TO UL STD 471  
CONFORMS TO NSF STD 7  
CERTIFIED TO CAN/CSA  
STD C22.2 NO 120

ELECTRICAL RATING	120/1/60 24A
REFRIGERANT	R404A AMOUNT ?? OZ
DESIGN PRESSURE	HIGH 450 LOW 200
MINIMUM CIRCUIT	30A
MAXIMUM OVERCURRENT	30A

Super Heat Temp

BTUH Requirements


Defrost

8-10°F

9,738 BTUH @ 20° F SST


6 defrosts per day, 45° F termination, 45 min. failsafe

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



**Structural Concepts**  
888 E. Porter Rd · Muskegon, MI 49441

**Addenda<sup>®</sup>** PC5682 txtRemote  
txtSerialNumber



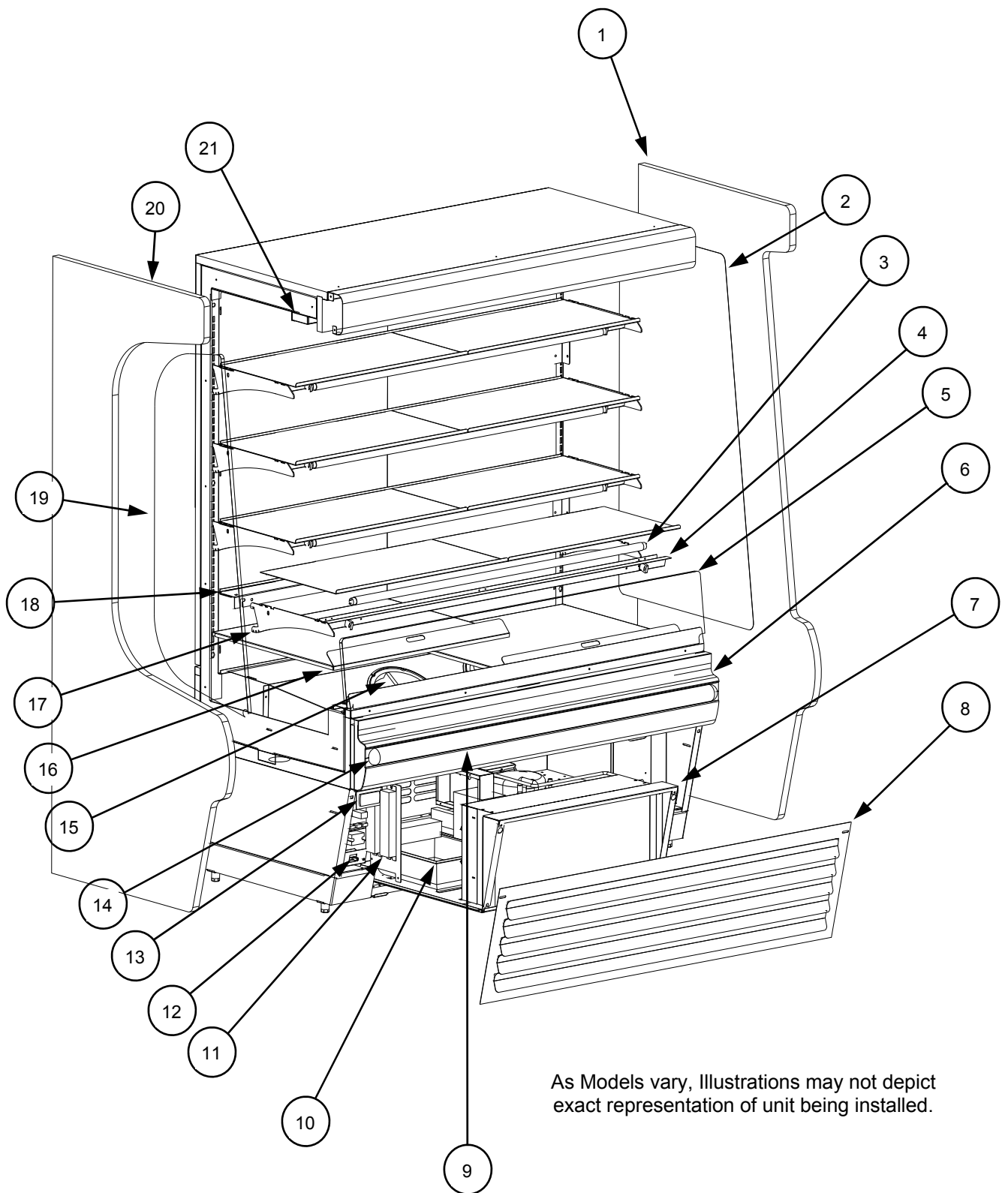
3048256  
CONFORMS TO UL STD 65  
CERTIFIED TO CAN/CSA  
STD C22.2 NO 120

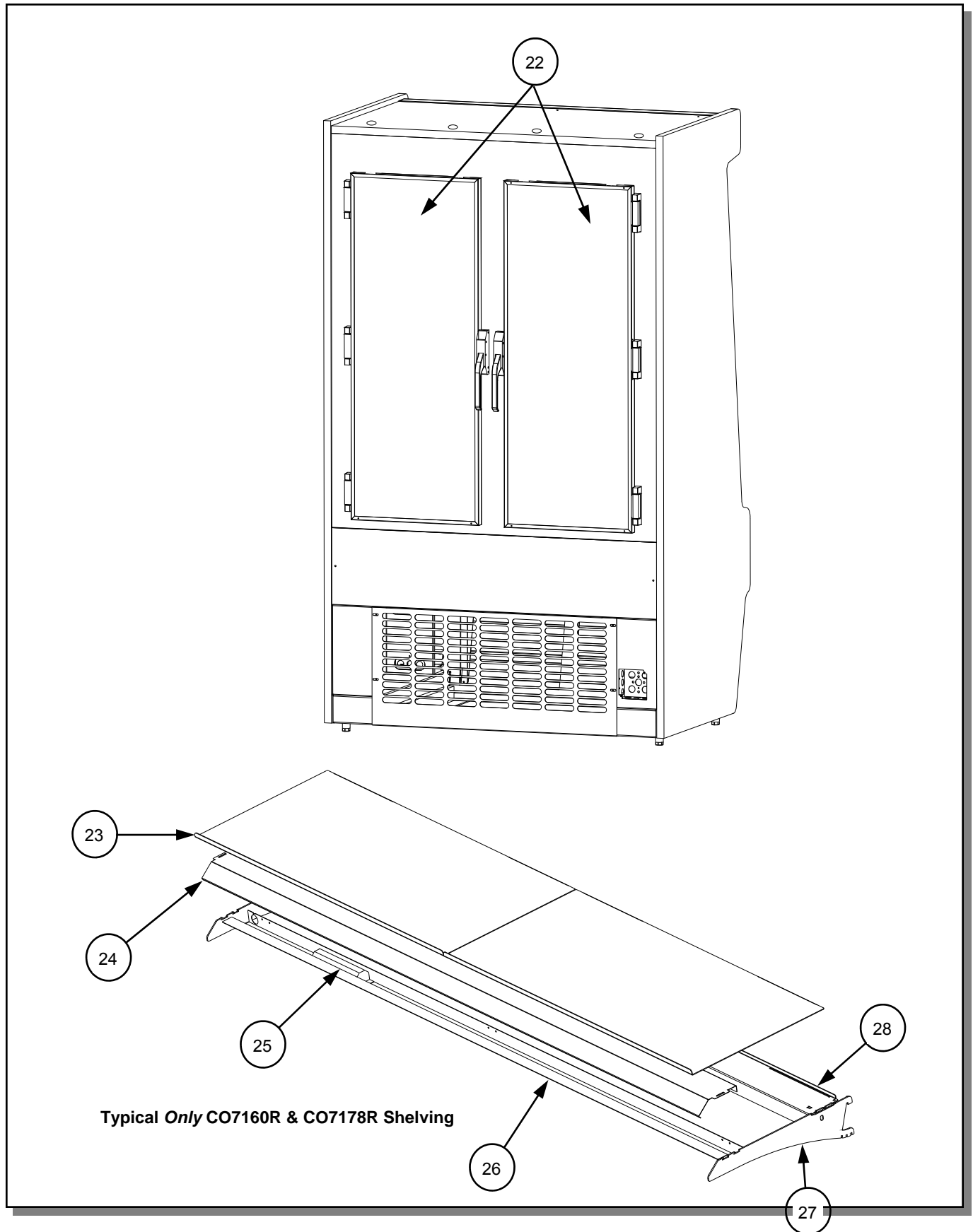
120 VOLTS 60 HZ SINGLE PHASE 1.84AMP

FOR PARTS OR SERVICE CALL  
STRUCTURAL CONCEPTS  
AT  
1-800-433-9489

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

ILLUSTRATED PARTS BREAKDOWN (ILLUSTRATION MAY NOT APPLY TO ALL CASES)

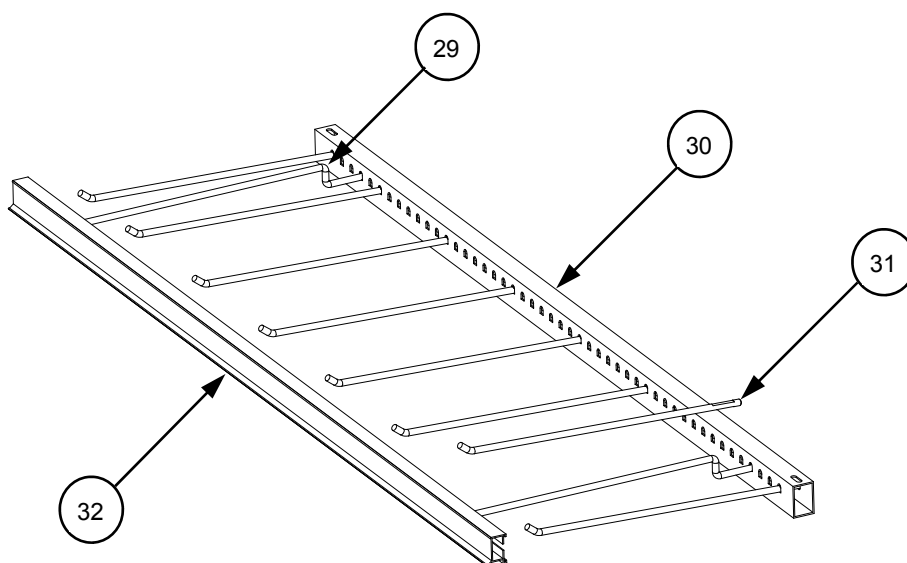




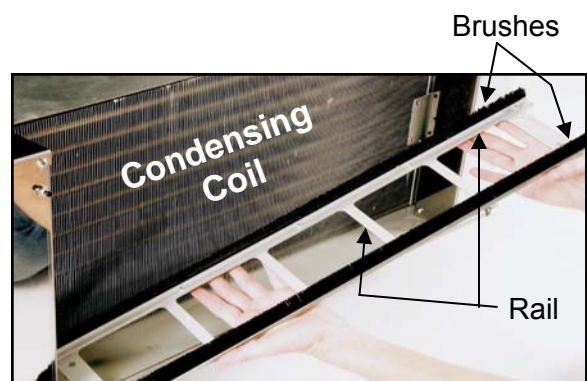
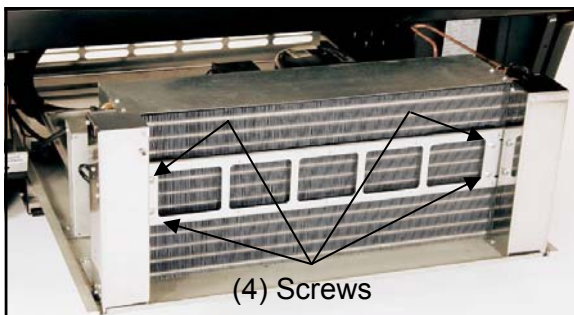


## PARTS LIST

1	End Panel, Full	18	Shelf
2	Mirror	19	End Glass
3	Bulb	20	End Panel, Cutaway Shown
4	Rack Light Assembly	21	Honeycomb
5	Acrylic Front Air Deflector	22	Rear Doors (Optional)
6	Front Panel, ABS Shown	23	Shelf
7	Refrigeration Assy., Slide Out Front	24	Light Outer
8	Front Lower Grill	25	Ballast
9	Bumper Insert	26	Light Inner
10	Evaporator Pan	27	Shelf Bracket
11	Ballast	28	Rear Rack Support
12	Rocker Switch, Main Power	29	Channel ID Support
13	Thermostat Control	30	Magna Bar
14	Bumper End Cap	31	Peg 12"
15	Evaporator Fan & Motor	32	Channel ID
16	Deck Pan		
17	Shelf Bracket		



PREVENTIVE MAINTENANCE	FREQUENCY	INSTRUCTIONS
Case Exterior	Monthly	<p><b><u>Condensing Coil:</u></b></p> <ul style="list-style-type: none"> <li>Remove Rear Grille (by removing 4 screws).</li> <li>Use air pressure or industrial strength vacuum; clean dust and dirt that may collect on the Condenser Coil. See illustration below.</li> <li><b>Caution! Coil fins are sharp. Handle with care!</b></li> <li>Replace Rear Grille to case (4 screws).</li> <li>See illustration below.</li> </ul>
	Quarterly	<p><b><u>Clean Sweep™ Condensing Coil (Optional):</u></b> <i>Disconnect power from case before cleaning Clean Sweep™ Condenser Coil!</i></p> <ul style="list-style-type: none"> <li>Remove Rear Grille (by removing 4 screws).</li> <li>Slide/Roll out condensing unit assembly.</li> <li>Remove the four (4) screws holding the Clean Sweep™ rails intact.</li> <li>Remove the Clean Sweep™ rail.</li> <li>Wash rails' brushes in hot water and mild soap solution.</li> <li>If brushes are worn, they must be replaced. Call Technical Service Department to replace. Toll-Free number is listed at end of manual.</li> <li>Clean Condensing Coil: Use air pressure or industrial strength vacuum; clean the dust and dirt that may collect on the Condenser Coil.</li> <li><b>Caution! Coil fins are sharp. Handle with care!</b></li> <li>Reattach Clean Sweep rail to condensing unit (4 screws).</li> <li>Slide/Roll Condensing Unit Assembly back under case.</li> <li>Replace Rear Grille to case (4 screws).</li> <li>See photos below.</li> </ul>



--- Above photos are taken after rear grille has been removed from case ---

**WARNING! TURN OFF CASE BEFORE PERFORMING PREVENTIVE MAINTENANCE!**

PREVENTIVE MAINTENANCE	FREQUENCY	INSTRUCTIONS
Case Exterior	Quarterly	<p><b><u>Compressor Area:</u></b> <i>Disconnect power from case before cleaning Condenser Coil!</i></p> <ul style="list-style-type: none"> <li>• Slide/Roll out from under case.</li> <li>• Use moist cloth to wipe off dust &amp; debris that collects on various parts.</li> </ul>
	Quarterly	<p><b><u>Evaporator Pan:</u></b> Disconnect from receptacle box. Remove mounting screw(s) from base. Use a descaling solution (such as CLR® that will prevent corrosion, lime and rust) to clean pan. Rinse thoroughly; do not submerge in water.</p>
	Quarterly	<p><b><u>Under Case Cleaning:</u></b> 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><b><u>Tub, Coil, Drain, Fan Blades, Motors, Brackets:</u></b> <i>Disconnect power from the case before cleaning the Tub, Coil, Fan, Motor and Drain Area!</i></p> <ul style="list-style-type: none"> <li>• Remove Decking, Sub-Deck and Fan Shroud.</li> <li>• Use vacuum to clean Evaporator Coils.</li> <li>• Clean Tub, Coil and Drain with warm water, clean cloth, brush and mild soap solution.</li> <li>• Remove any debris that may clog drain.</li> <li>• Clean Fan Blades, Motors and Brackets by wiping down with moist cloth.</li> </ul>
	Quarterly	<p><b><u>Honeycomb:</u></b> Remove the honeycomb. Vacuum, then clean with warm water and soap. See instructions in case operation section of this manual.</p>

## TROUBLESHOOTING

<b>Product is Drying Out</b>	Check the relative humidity in the store.
<b>Water on the Floor</b>	Check that all of the hoses are connected.
	Check that the drain trap is free of debris.
	Is the evaporator pan positioned correctly under drain?
	Is the evaporator pan plugged in and heating properly?
	Check the evaporator pan float for proper operation.
<b>Excessive Fan Noise</b>	Check that the case is aligned, level and plumb.
	Check that nothing is obstructing the blade rotation.
	Check that the fan shroud is properly secured.
<b>System is not Operating</b>	Check that the utility power is on.
	Check that the MAIN power switch is on.
	Check the circuit breaker box for tripped circuits.
<b>Fans Not Working</b>	Check that the fans are plugged in at the fan shroud.
	Determine if there is ice build up blocking the fan.
<b>Case Lights Not Working</b>	Check bulbs for proper installation and connection.
	Check for burned out bulbs.
	Clean dirt and dust from the bulbs to prevent flickering.
<b>Not Holding Temperature</b>	Check that the coil fans are working.
	Check that the discharge air is not disrupted or blocked by product.
	If a large amount of warm product was added to the case, it will take time for the temperature to adjust.
	Check the coil for ice build up.
	Check that the condenser coil is clean.
	Check that the case is not in the sun or near a heat or air conditioning vent.
	Case temperature will rise during defrost mode but will return to normal. Proper product temperature will be maintained.
	Is case located near outside doors? Wide temperature fluctuation can take place in such an environment.
<b>Condensing Unit Not Operating</b>	DEF flashing, Controller is in defrost mode (not an alarm). Compressor is running in a normal condition.
	Check that the power is turned on.
	Review factory time settings on the temperature controller. See the Carel® Controller section of this manual.
<b>Various Alarms Going Off</b>	See the Carel® Controller section of this manual.

## CLEANING SCHEDULE

Cleaning	Daily	Weekly	Monthly	Task
Clean Case Exterior	X			The acrylic must be cleaned with a mild soap and water solution and a soft cloth ( <b>Never use a household cleaner on acrylic</b> ).
Clean Case Interior	X			Shelves and decks can be cleaned with a warm soap and water solution.
		X		Remove decks. Clean with soap and water.
		X		Vacuum tub under deck. Clean with soap and water. Wipe dry with clean cloth.
		X		Keep drains clean and free of debris which could clog the drain and rob the case of needed refrigeration.
			X	Clean Honeycomb. See Maintenance Fundamentals section for specifics on removal and replacing.
				<p>Clean Condensing Unit (including Evaporator Pan)</p> <p><b>Warning: Evaporator pan may be hot. Allow Evaporator Pan to cool approximately 30-minutes before cleaning.</b></p> <ol style="list-style-type: none"> <li>1. Turn off power. Disconnect case from power source.</li> <li>2. Remove front panel.</li> <li>3. Disconnect Evaporator Pan electrical connection from Receptacle Box.</li> <li>4. Remove Evaporator Pan mounting screws from Compressor Pan.</li> <li>5. Remove Evaporator Pan from unit.</li> <li>6. Thoroughly clean evaporator pan with de-scaling solution, such as <b>CLR®</b>. Rinse thoroughly. <b>DO NOT</b> submerge in water.</li> <li>7. Use clean towel dipped in soap and water solution to wipe down all fans, motor, refrigeration lines, cords, knobs, sight glass, connectors and all other surfaces.</li> <li>8. Wipe dry.</li> <li>9. Reposition Evaporator Pan on Compressor Pan.</li> <li>10. Reattach mounting screws to Evaporator Pan.</li> <li>11. Reconnect Evaporator Pan electrical connections.</li> <li>12. Slide back under case.</li> <li>13. Replace front panel.</li> </ol>
Clean Condensing Coil		X		Clean the condenser coil.
			X	Using air pressure if available, or an industrial strength vacuum, clean the dust and dirt that collects on the condenser coil. (Be careful not to damage the fins on the coil.)

# CAREL

**ir33 platform**  
Integrated Electronic  
Microprocessor Controller



## Programming The Instrument

### How To Modify The Setpoint

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

### How To Modify The Defrost, Differential Or Other Parameters

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

**Set** 2. Confirm by pressing "SET" key.

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

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

**▲** **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.

### 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** How To Activate Manual Defrost

**▼** Press and hold the "def" key for at least 5 seconds.

### How To Activate / Deactivate Auxiliary Output

**▲** **aux** Press and hold the "aux" key for at least 1 second.

### How To Reset Any Alarms With Manual Reset

**Prg** **▲** **aux** Press and hold the "Prg" and "aux" key for at least 1 second.

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

**Prg** **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.

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

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

**▲** **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.**

**CAREL****ir33 platform****Integrated Electronic  
Microprocessor Controller****User Interface - Display**

ICON	FUNCTION	DESCRIPTION	ON	Normal operation OFF	BLINK	Start up
	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

**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



## TECHNICAL SERVICE CONTACT INFORMATION & WARRANTY INFORMATION

**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](http://WWW.STRUCTURALCONCEPTS.COM/Contact/Master_Service_Agents.asp)**

### **WARRANTY INFORMATION (Note: Standard Limited Warranty is at [www.Structuralconcepts.com](http://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; 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 from or caused 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 or 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 consent 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.



**Structural  
Concepts**

888 E. Porter Road · Muskegon, MI 49441 Phone: 231.798.8888 Fax: 231.798.4960 [www.structuralconcepts.com](http://www.structuralconcepts.com)