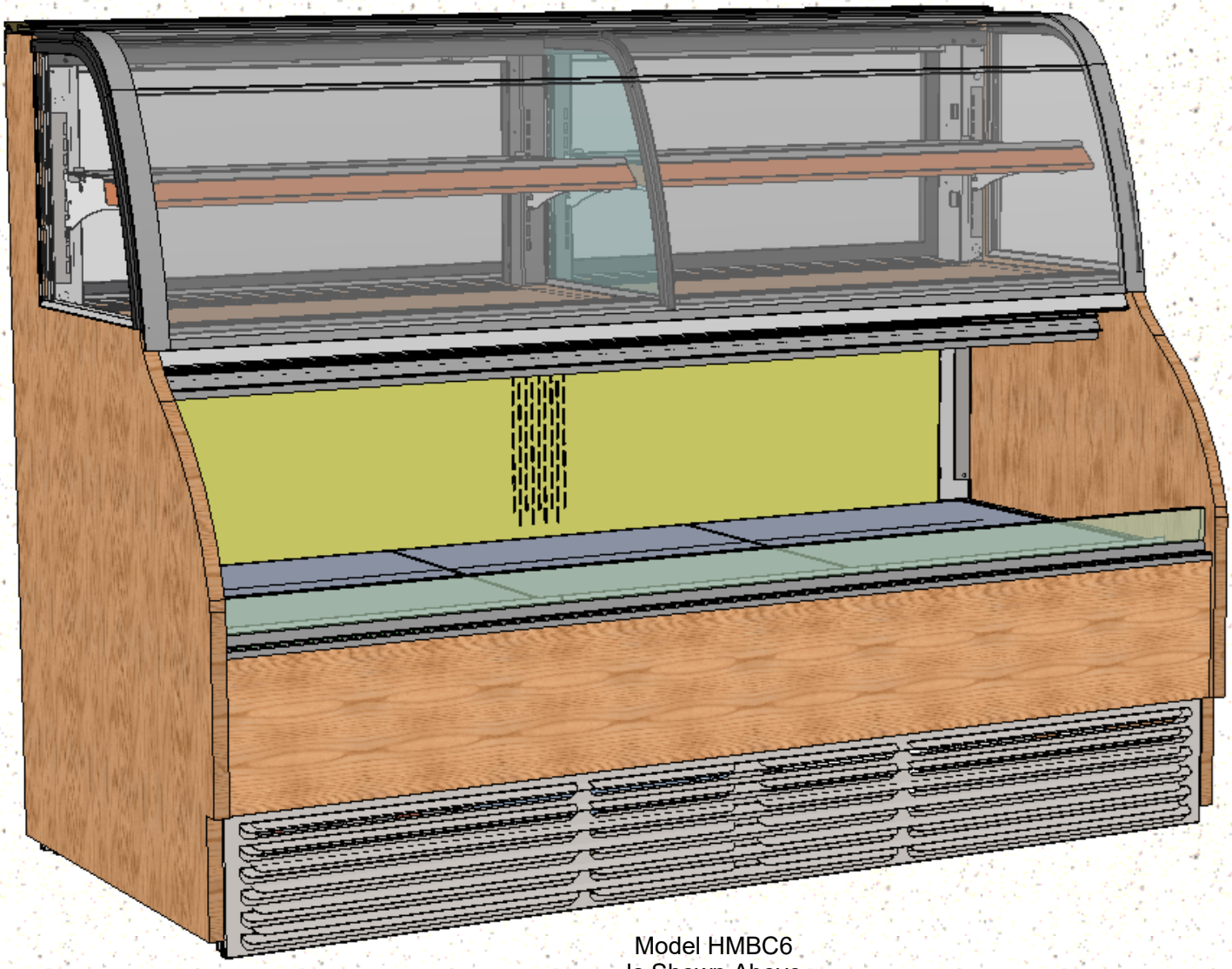
HARMONY USER MANUAL

SCC P/N 54383

34" DEEP COMBINATION CONVERTIBLE SERVICE ABOVE REFRIGERATED SELF-SERVICE CASE

PLEASE NOTE THE FOLLOWING:

1. **THIS OPERATING MANUAL IS APPLICABLE TO MODELS HMBC2, HMBC3, HMBC4, HMBC5 AND HMBC6 (AND POSSIBLY OTHER MODELS).**
2. **YOUR SPECIFIC MODEL NUMBER IS LOCATED ON THE SERIAL LABEL ON CASE REAR (NEAR MAIN POWER SWITCH).**



Model HMBC6
Is Shown Above

Note 1: HMBC2 and HMBC3 have an undivided upper section.
Note 2: HMBC4, HMBC5, HMBC6 have an divided upper section (as shown above).

Structural Concepts® Structural Concepts Corp. · 888 E. Porter Rd · Muskegon, MI 49441 Phone: 231.798.8888 Fax: 231.798.4960 · www.structuralconcepts.com

TABLE OF CONTENTS

OVERVIEW

- These Structural Concepts cases are designed to merchandise packaged products at 41 °F (5 °C) or less product temperatures (unless custom cases with wire rack shelving).
- Product must be pre-chilled to 41 °F (5 °C) or less before being placed in merchandiser.
- Cases should be installed and operated according to this operating manual's instructions to ensure proper performance. Improper use will void warranty.

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.

- Type 1 conditions: ambient conditions are to be 55% max. humidity and 75 °F (24 °C) max. temperature.
- Type 2 conditions: ambient conditions are to be 60% max. humidity and 80 °F (27 °C) max. temperature.
- If unsure if unit is 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 page contains important warnings to prevent injury or death. Please read carefully!

PRECAUTIONS and WIRING DIAGRAMS

- See next page for ***PRECAUTIONS*** 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.

WARNING
This product can expose you to chemicals, including Urethane (Ethyl Carbamate), which are known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to P65Warnings.ca.gov.

WARNING
Condensate pan and overflow condensate pans are HOT!
Disconnect and allow to cool before cleaning or removing from case.

PRECAUTIONS

- Following are important precautions to prevent damage to unit or merchandise. Read carefully!
- See previous page for specifics on ***OVERVIEW, CONDITION TYPE, COMPLIANCE*** and ***WARNINGS***.

WIRING DIAGRAM

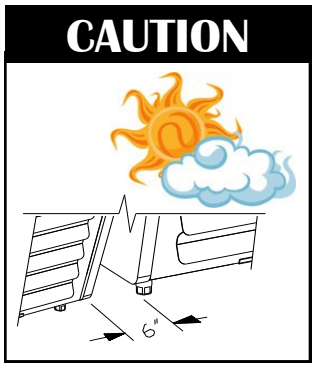
- Each case has its own wiring diagram folded and in its own packet. It may be placed near ballast box, field wiring box, raceway cover, or other related location.

REFRIGERANT DISCLOSURE STATEMENT

- This equipment is prohibited from use in California with any refrigerants on the "List of Prohibited Substances" for that specific end-use, in accordance with California Code of Regulations, title 17, section 95374.
- This disclosure statement has been reviewed and approved by Structural Concepts and Structural Concepts attests, under penalty of perjury, that these statements are true and accurate.

CAUTION! GFCI BREAKER 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! ADVERSE CONDITIONS / SPACING ISSUES

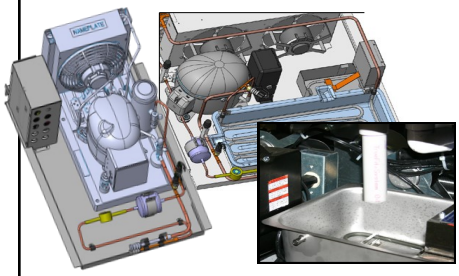
- **Performance issues caused by adverse conditions are NOT warranted.**
- **To prevent damage to end panels due to condensation, apply industrial grade silicone sealant and tightly join to opposite end panels. When not adjoining cases, keep end panels at least 6" away from walls/structures. Rear panels must also be kept at least 6" from walls and structures.**
- **Case must not be exposed to direct sunlight or any heat source.**
- **To maintain proper case temperature, keep case at least 15-feet from exterior doors, overhead HVAC vents or any air curtain disruption.**
- **Self-contained case clearance: 6" min. air intake / 6" min. air discharge.**

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! DO NOT RELY ON THERMOMETERS OR THERMOSTATS FOR PRODUCT (FOOD) TEMPERATURES.

- **Thermometers & thermostats reflect air temperatures ONLY.**
- **For ACTUAL product (food) temperatures, use a calibrated food probe thermometers ONLY.**
- **For accurate readings, DO NOT use infrared food thermometers.**



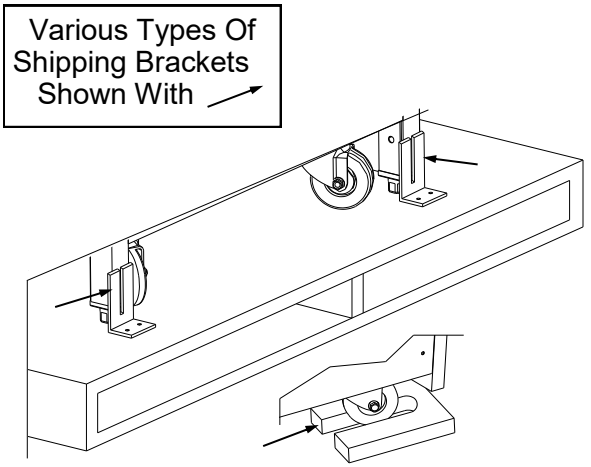
CAUTION! CHECK CONDENSATE PAN, ITS POSITION & PLUG!

Water on flooring can cause extensive damage!

- **Before powering up case, check that condensate pan is positioned directly under case's condensate drain.**
- **Before powering up case, check that condensate pan's electrical plug is SECURELY connected to condensate system's receptacle.**
- **If wicking material is used in condensate pan, check that it is secure.**

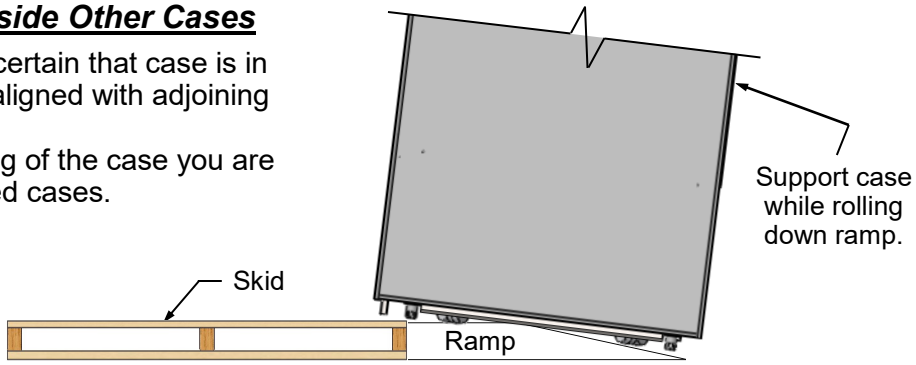
1. Remove Shipping Brackets & Toe-Kicks

- Remove shipping brackets securing case to skid.
- Remove front and rear toe-kicks (if still attached to the case during shipment); this will prevent them from buckling or bending during case removal from skid.
- *Important! Case is shipped with levelers in the **DOWN** position (for stability). To prevent damage to the case, all levelers must be raised **ALL THE WAY UP** before moving unit off skid and into position.*
- After levelers are raised all the way up, place ramp up against skid (to allow case to smoothly roll off from skid).
- Maintain support of case at all times or center of gravity may cause case to fall.
- Roll unit to rear of skid. Roll down ramp and off skid.



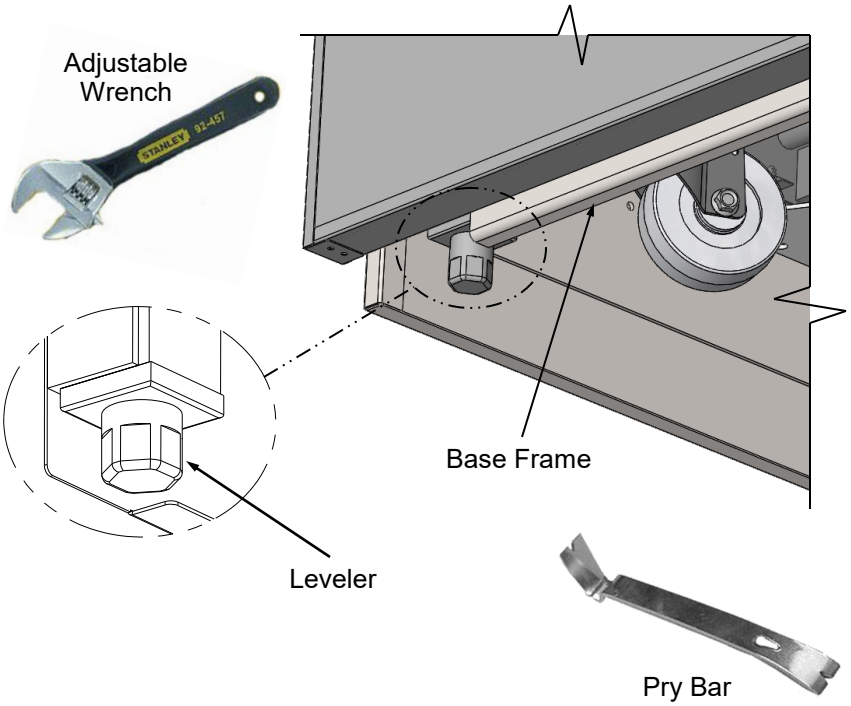
2. Position & Align Case Alongside Other Cases

- Before adjusting levelers, make certain that case is in proper position and, if required, aligned with adjoining case.
- This may require the repositioning of the case you are installing or the already positioned cases.



3. Adjust Levelers

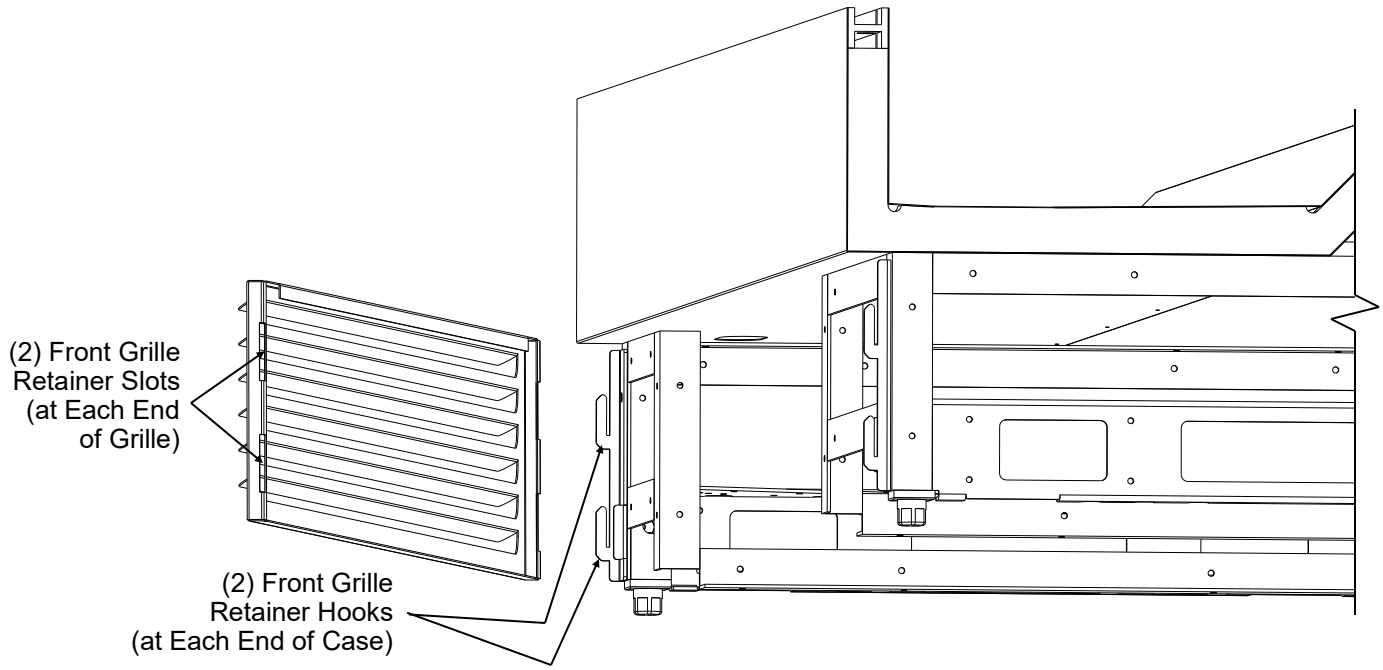
- *Important! After case is in proper position, levelers must then be **LOWERED** to floor.*
- Adjust levelers so the case is level and plumb.
- You may need to remove front and/or rear toe-kick to access levelers.
- Use adjustable wrench to adjust leveler.
- Depending upon case weight it may be necessary to use a pry bar to accomplish this task.
- Do not use pry bar on toe-kick as it may buckle.
- Do not use pry bar on end panel as it may chip.
- Use pry bar ONLY on base frame to avoid damaging case.
- See illustrations at right.



INSTALLATION: LOWER FRONT GRILLE and LOWER REAR PANEL REMOVAL / REPLACEMENT

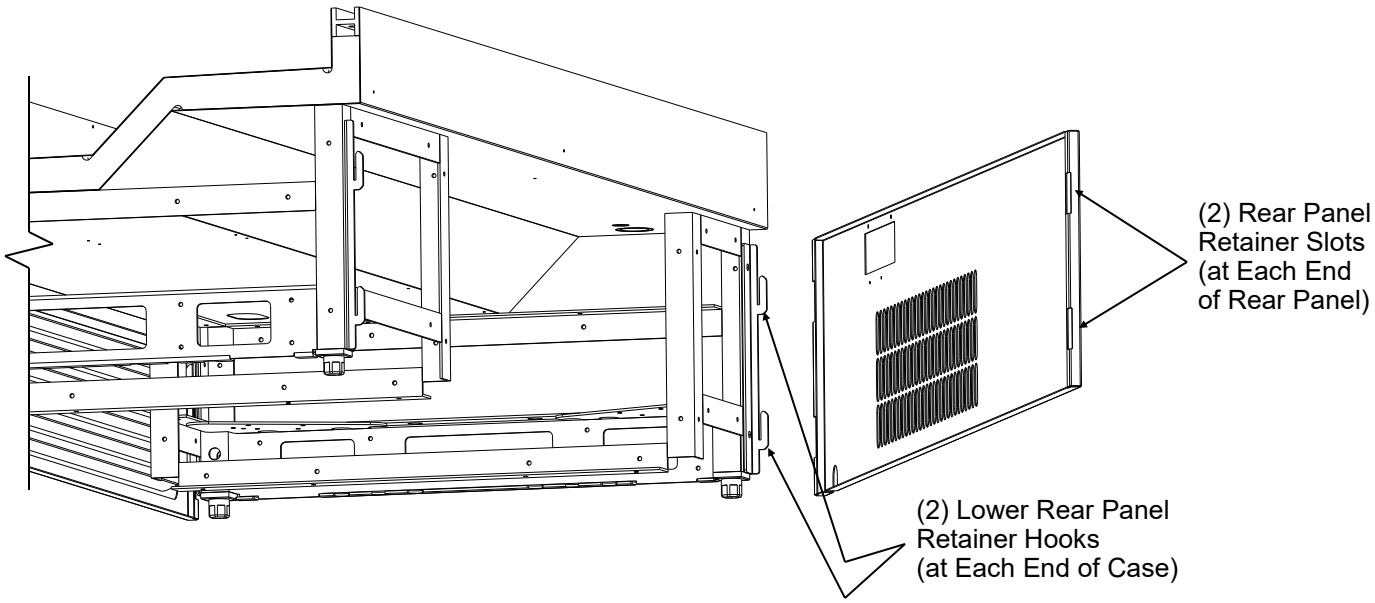
4. Removing Lower Front Grille

- No screw removal is required to remove grille.
- Front grille has retainer slots at each end of grille.
- Case has retainer hooks at each end.
- Simply lift lower front grille up and off retainer hooks (at each end of case).
- Replace in same manner.
- View below is shown is disassembled for illustrative purposes only.



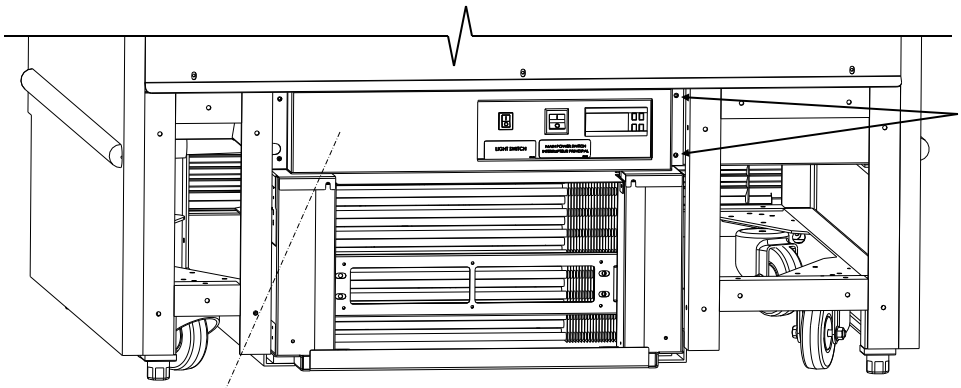
5. Removing Lower Rear Panel

- No screw removal is required to remove panel.
- Rear panel has retainer slots at each end of grille.
- Case has retainer hooks at each end.
- Simply lift lower rear panel up and off retainer hooks (at each end of case).
- Replace in same manner.
- View below is shown is disassembled for illustrative purposes only.



6. Electrical Connections

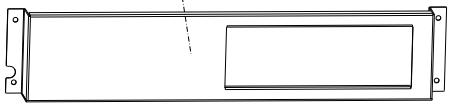
- **Ballast Box**: Remove 4 screws from the thermostat/ballast cover. Remove screws holding ballast cover to base.
- Knockouts are located on side and rear of box for making electrical connections.
- **Note:** Standard 120V or 220V (depending upon case chosen), single phase connections are required for self contained refrigeration units and must be performed by a certified electrician.



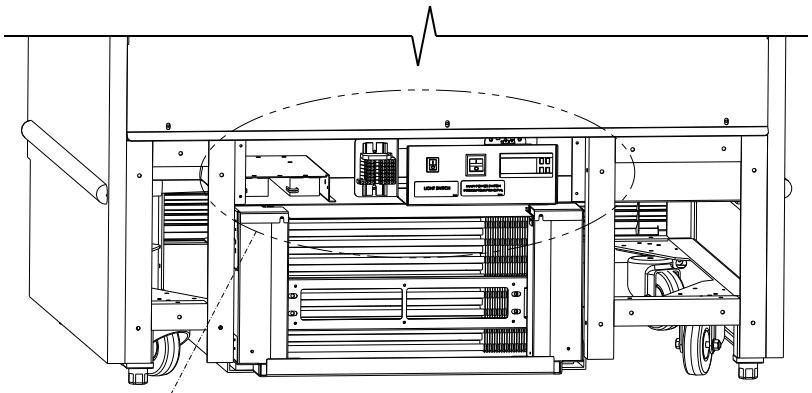
Remove two (2) screws at each end of cover to remove thermostat/ballast cover.

View of case with thermostat/ballast cover intact

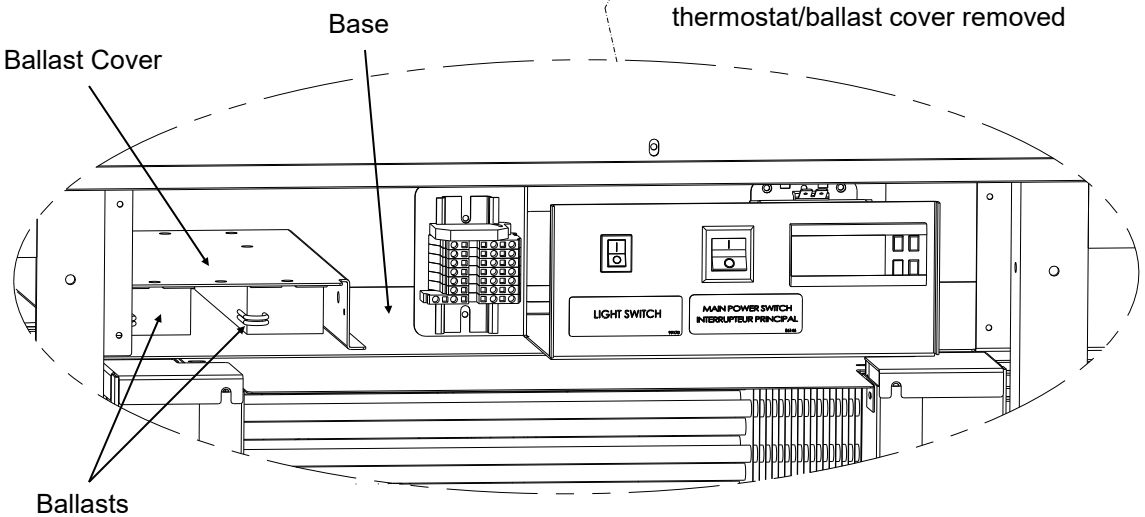
Note: Illustrations shown with rear grille removed for illustrative purposes only.



Thermostat/Ballast Cover



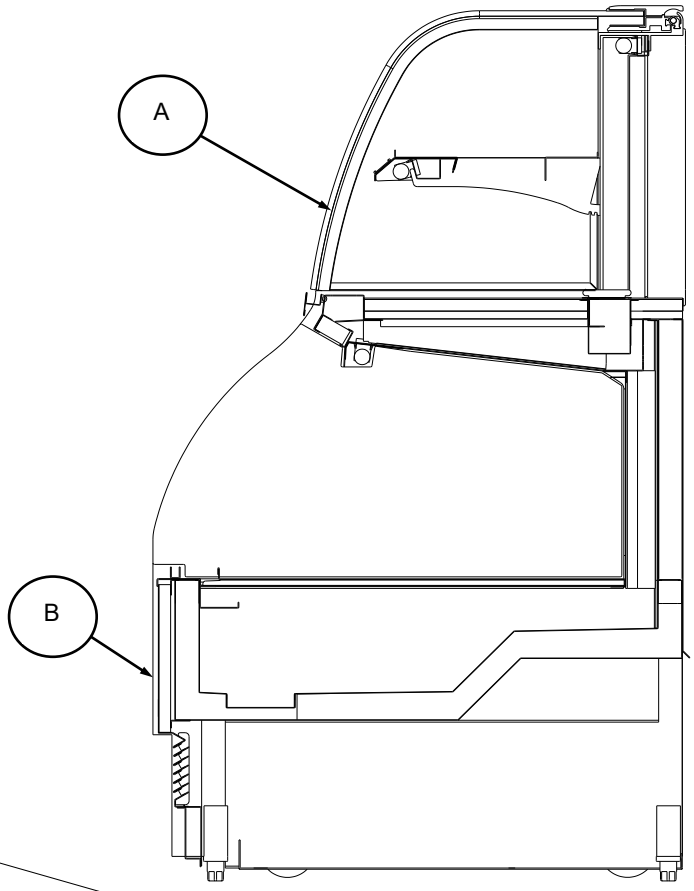
View of case with thermostat/ballast cover removed



Enlarged view of thermostat/ballast area

7. Position and Aligning Units

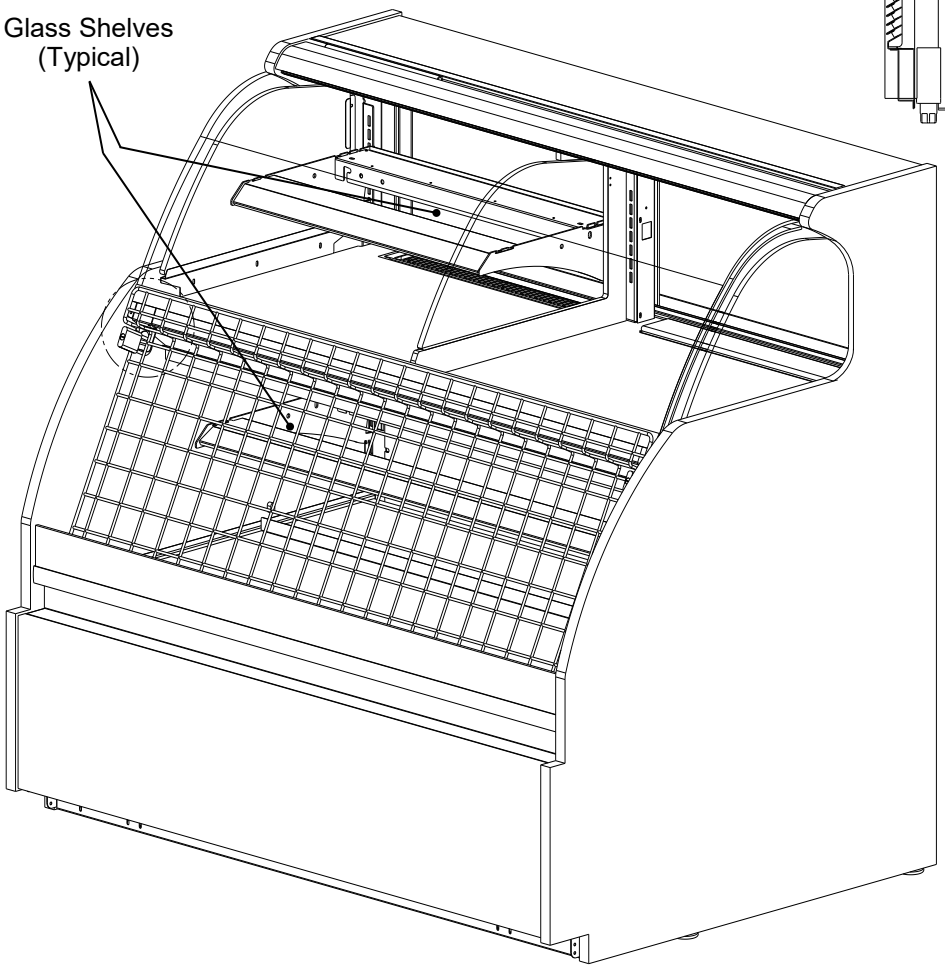
Position Units. Align multiple units carefully in areas A & B shown at right.



8. Glass Shelving

Glass shelving will be packed separately.

- Caution! Carefully remove from packaging.
- Grasp firmly and carefully install.
- *Caution! Check that plastic edging is intact before placing glass shelving onto brackets!*
- Plastic edging must NOT be removed from glass shelves. Contact Structural Concepts for replacement edging (see *TECHNICAL SERVICE CONTACT INFORMATION* section).
- Check that glass shelving is in proper position before placing product in case.
- See illustration below.



9. Merchandiser Setup: Self Contained Units

- Remove lower front grille (if attached to case).
- Insure that the condenser pan is installed under the PVC condensate drain trap spout.
- Insure that the condenser pan is plugged into the receptacle inside base.
- Return front grille to case.
- See ***DRAIN, HOSE AND BRACKET PLACEMENT ILLUSTRATIONS*** section in this operating manual for details.

A. Self-contained units w/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 a certified electrical outlet with ground.

B. Self-contained units without power cord

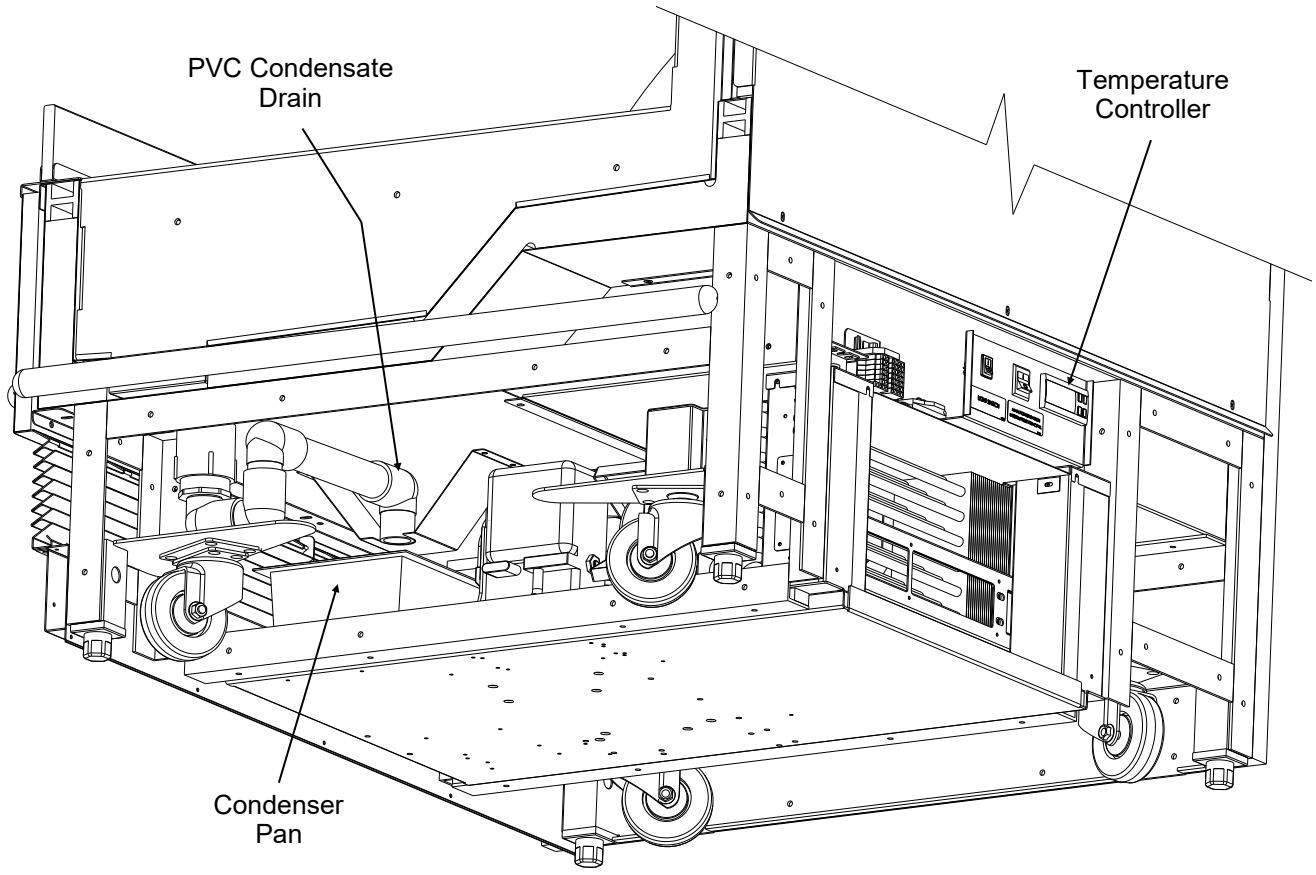
- Remove the rear lower grille required).
- *Note: The compressor/condenser assembly can be slid out to facilitate maintenance.*
- Electrical leads are provided inside the base exiting the ballast box.
- Leads are labeled for identification.

C. Self-contained units with CleanSweep®

- Self-contained units with optional CleanSweep® condenser coil cleaning system must have **TWO** plugs connected to outlet!

D. Self-Contained Temperature Controller

- See below for location.
- See Temperature Controller section for additional information.



Above view shown with rear panel and end panel removed for illustrative purposes only.

10. Merchandiser Setup: Remote Units

Remote Refrigeration System

Note: Service to be accomplished by refrigeration / electrical contractor.

A. Electrical leads

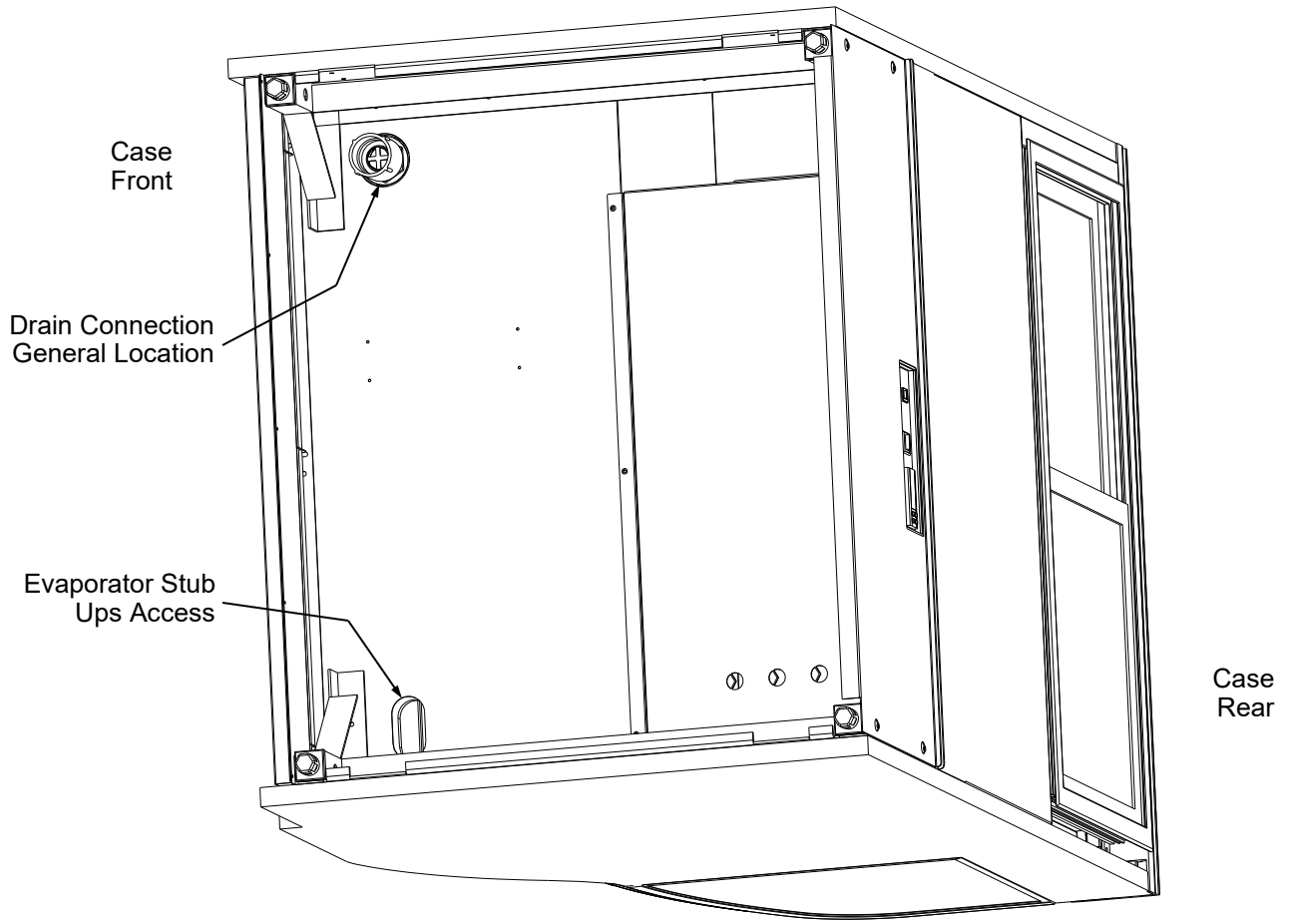
- Remove screws from rear wire-way cover to access electrical leads.
- Wiring may run case to case.
- Knockout is provided in bottom of wireway for stub-up connection.
- Separate leads for lights that are labeled accordingly.

B. Refrigerant Connection

- Remove the front panel.
- Refrigerant stub-up access opening is at the front on the left hand side of the base.
- Route refrigerant lines thru access hole.
- Remove tube caps from stub-up connections
- Sweat the high and low pressure connections.
- Fill access hole with suitable filler to insure watertight integrity of tub.

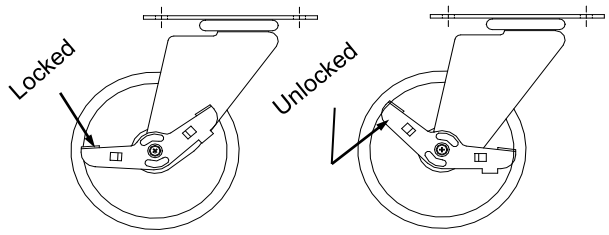
C. Drain Connection

- 1” male PVC stub-up connection is under the case on the right hand side.
- Remove the front panel.
- Remove the rear panel (optional).
- Connect tub drain to floor drain. Maintain 1/4” fall per foot to provide proper drainage.
- Below illustration may not exactly reflect every feature or option of your case.



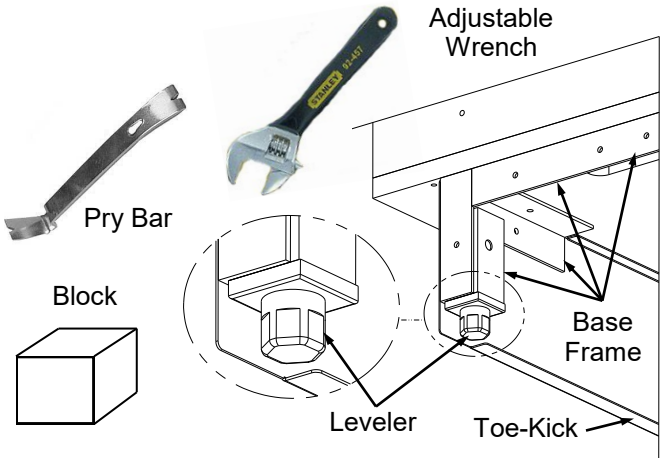
11. Cases With Casters: Lock and Unlock

- To lock casters, press down on lever.
- To unlock casters, pull lever up.
- See illustration at right.



12. Cases With Levelers: Adjust Levelers

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

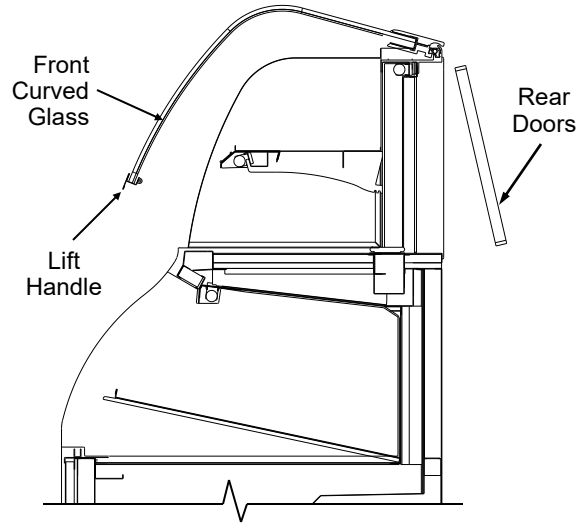


13. Raising the Curved Glass

- To raise the curved glass, grab the lift handle extrusion on the bottom edge of the front curved glass and lift up.
- Gas cylinders hold the glass open for hands free access to the interior of the case.

14. Removing the Rear Doors

- Move rear doors toward center of the case.
- Individually lift each door up toward the top of the case; pivot the bottom of the door out.

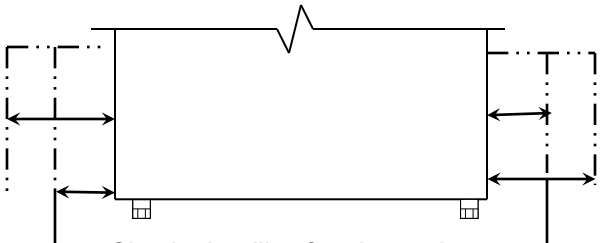


15. Electrical Wiring Diagram

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

16. Ventilation and Clearance

- **Self-Contained** refrigerated cases must maintain airflow clearance of 6” (minimum) to 12” (recommended) at front and rear.
- Restriction of air can void warranty.
- See illustration at right.



Check air grilles for obstructions.
Maintain airflow clearance of 6” (min.)
to 12” (recommended) at front & rear.

17. Main Power Switch

- Turn main power switch on.
- Case will power up and temperature controller will begin operating.
- See illustration at top-right for location.

18. Light Switch

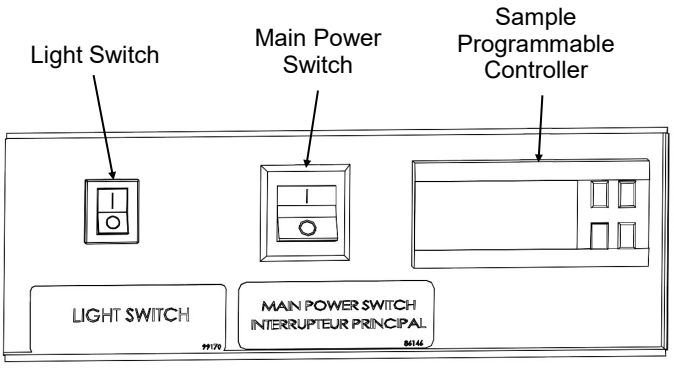
- Turn lights on. Light switch is at case rear. See illustration at top-right for location.

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

- Check that compressor symbol light is on.
- After case has run for a few minutes, check that temperature starts to drop.
- If temperature controller does not begin cooling (in a few minutes) see temperature controller section in this operating manual for instructions.
- Remote units (without temperature controller on case): Verify that refrigeration requirements listed on serial label (found on the case) are being met.
- See ***Programmable Controller*** section in User Manual for additional information.

20. 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.



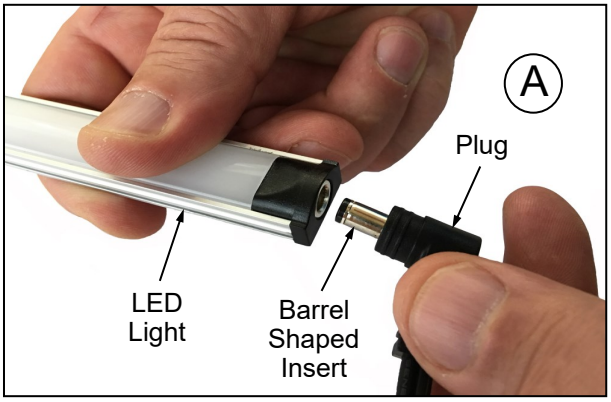
------- View from rear of case -------

21. LED Style Light Fixtures

Removal of Faulty LED Lights:

- Contact Structural Concepts' Technical Service Department for replacement LED lights.
- Turn off LED light switch.
- To remove faulty LED light, follow these steps:
  A. Disconnect plug from LED light.
  B. Using both hands, grasp LED light assembly (with its magnetic mounting clips). Pull downward and off its shelf (or header).
  C. Remove magnetic mounting clips from LED light by pressing against flange part of clip with thumb.

>> Note: Mounting clips MAY be riveted to shelf or header. In such instances, simply remove LED light from mounting clips by pressing against flange part of clips with thumb.

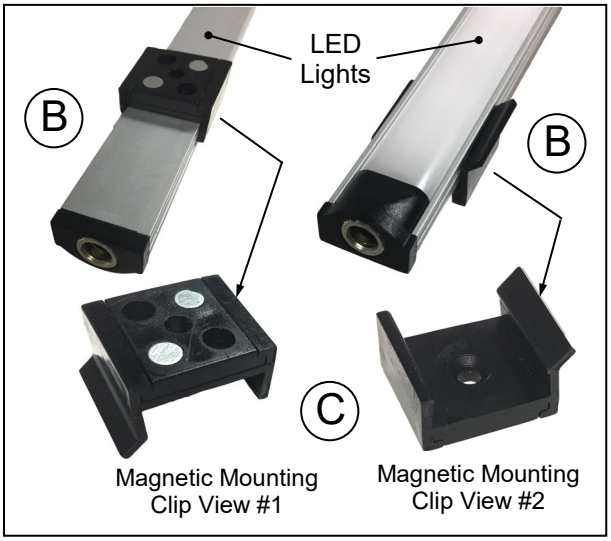


Replacement of LED lights:

- Attach magnetic mounting clips onto LED light.
- Adjust magnetic mounting clips so they are equally spaced on LED light.
- Reattach LED light assembly to its shelf/header.
- Position properly in shelf/header.

>> Note: If mounting clips are riveted to shelf (or header), attach by placing LED in base of clip and then snapping into clip at FLANGE SIDE.

- Press plug's barrel-shaped insert deep into LED light.
- Important: If plug is not inserted ALL THE WAY IN the LED light's orifice, the light may not energize. See **"BAD"** vs. **"GOOD"** insertion illustrations at mid-right.
- Turn LED light switch back on.

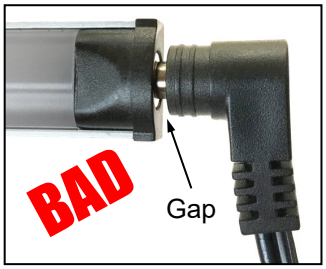


22. Fluorescent Style Light Fixtures

Light fixture can be located on the underside of each shelf assembly and at the top inside of case.

A. Removal of lamp:

- Firmly pull one end of lamp outward to disengage pins/contacts from lamp mounting sockets.
- After the one end has been removed, carefully dis-engage from opposite end of bulb.
- Take care to not bump bulb into shelves or end panels as it is possible to shatter bulb.
- See accompanying photo.



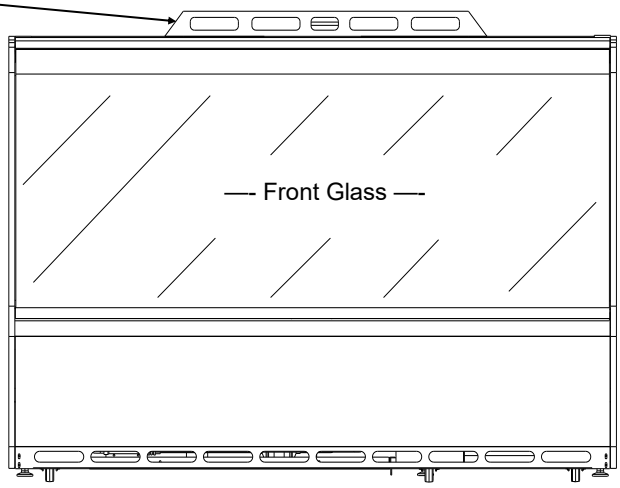
B. Installation of lamp:

- Align pins with slot.
- Insert pins into socket. Press pins firmly into slots. Wiggle back and forth to assure that pins are secure.
- See accompanying photo.

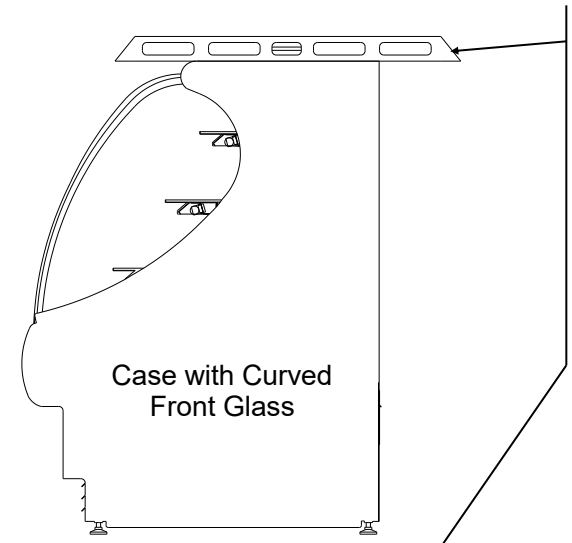
23. Front Glass Alignment & Adjustment via Levelers (For Curved and Flat Front Glass)

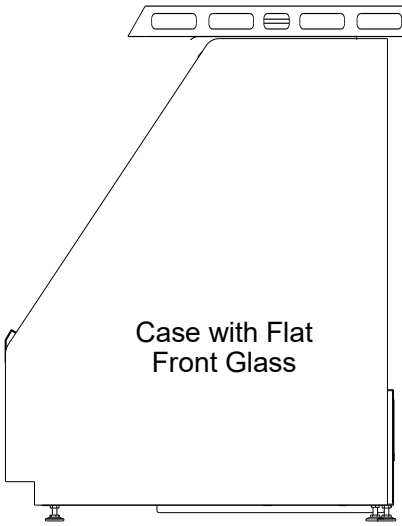
- Proper alignment of the front glass is important to create and maintain a seal inside the case.
- Improper alignment can cause air leaks; this can compromise the environment inside the case and create condensation.
- Follow the five steps listed below to assure proper front glass alignment.

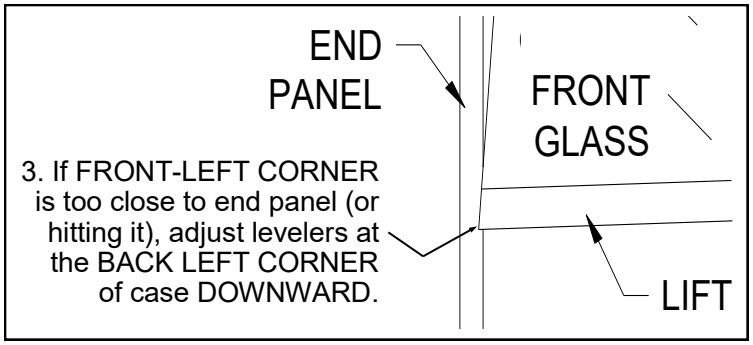
1. Side-to-Side Leveling: Place a level on top of display case (parallel to the front glass). Raise or lower either side of the case by rotating levelers to center the level bubble.

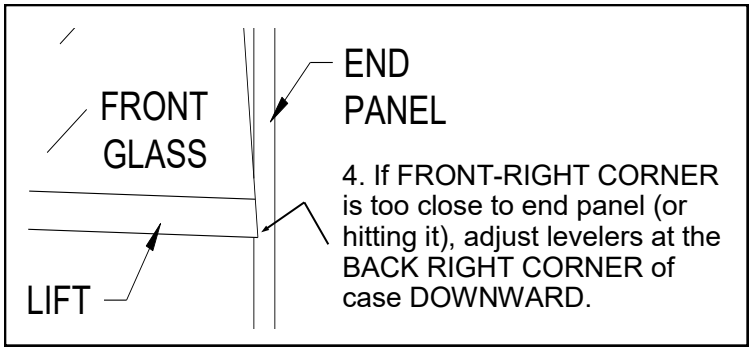


2. Front-to-Back Leveling: Place a level on top of case, perpendicular to front glass. Raise or lower either side of case by rotating levelers to center the level bubble. Double-check the side-to-side level.









5. Verification: After inserting shims (or adjusting levelers), open and shut the front glass to confirm proper fit.
- Verify (again) that front glass is properly aligned at left-hand and right-hand side of the case.
- If not, repeat the shimming procedure (or leveler adjustment) until the front glass is properly aligned along both sides of the case.

24. Baffles - Ambient vs. Refrigerated

Certain sections of the case can be either ambient or refrigerated (depending upon type of product being displayed).

A dual-purpose (convertible) baffle is provided to facilitate desired condition. It is accessible through operator side (rear) of case.

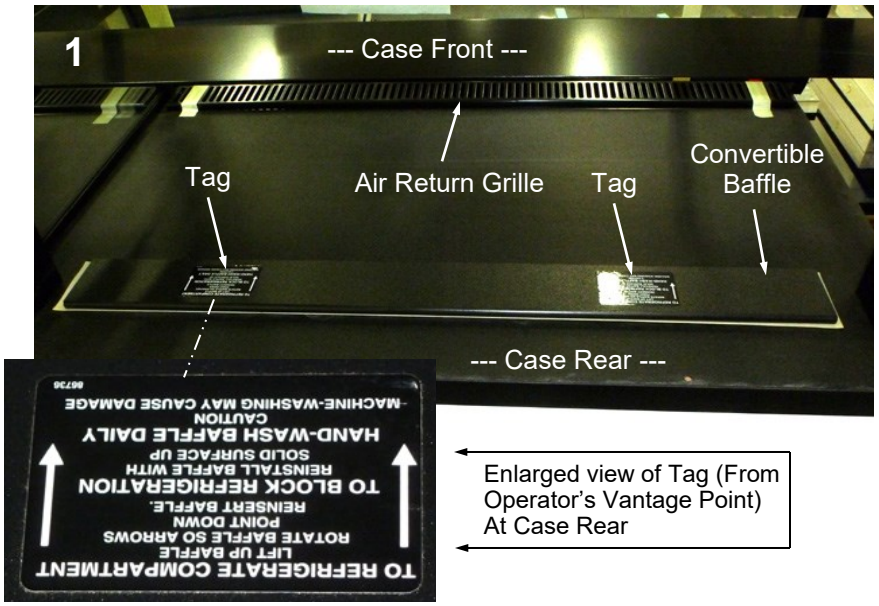
The baffle will prevent (or allow) refrigerated air circulation through the display area and returning through the air return grille.

1. ***For ambient (non-refrigerated) conditions, position baffle flat against upper deck of case to block airflow. See photo #1.***
2. ***To switch from ambient to refrigerated condition, lift baffle up and out of air chamber. Rotate baffle 90° toward front of case so that arrows on the tag point down and Sanalite air block (and tag) is nearest to case front. Baffle may now be lowered down into air chamber. See photo #2.***
3. ***For refrigerated conditions, baffle is completely lowered into air chamber. Air now circulate through convertible baffle, upper display area and circulates through air return grille. See photo #3.***

>> See ***CLEANING SCHEDULE: TO BE PERFORMED BY STORE PERSONNEL*** section in operating manual for convertible baffle cleaning specifics.

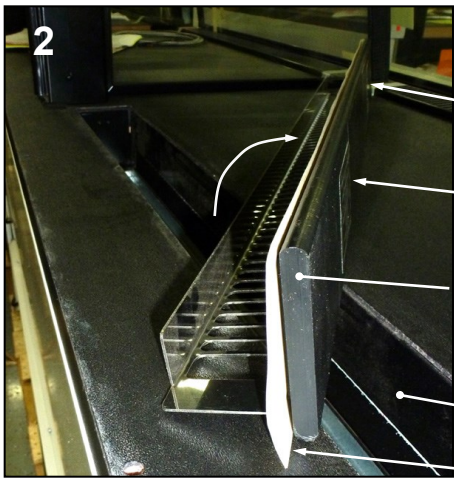
>> Depending upon model, options and features chosen, photos may not exactly reflect every aspect of your particular case.

--- Convertible Baffle in Ambient (Non-Refrigerated) Position ---



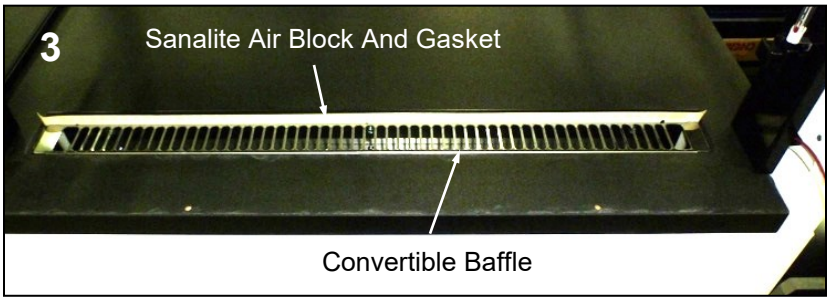
Enlarged view of Tag (From Operator's Vantage Point) At Case Rear

--- Convertible Baffle Rotated 90° So Sanalite Piece Faces Front of Case ---



--- Baffle Inserted Into Air Chamber (Sanalite Piece Faces Case Front) ---

--- Case Front ---

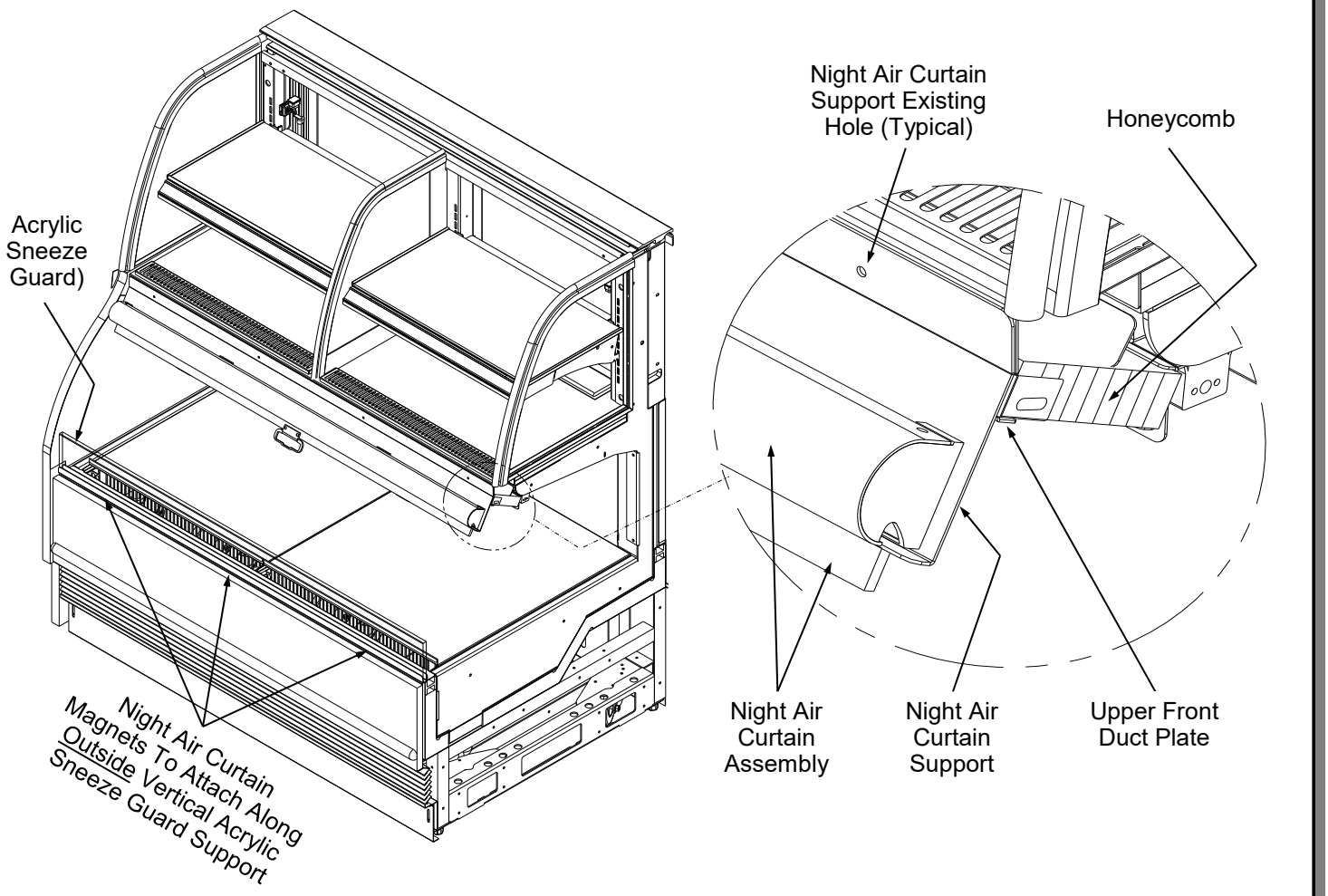


--- Case Rear ---

Night Air Curtain Installation & 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 the SCC-supplied retrofit kit, the night air curtain support must first be attached to the existing upper front duct plate (see illustration below). To attach, use the night air curtain support (as a template) by placing it along the front duct plate. Mark locations of existing Ø.20" hole onto upper front duct plate. Drill clearance holes for #10 screws at these points.
3. Place night air curtain support into position and use the SCC-supplied screws to attach it to the upper front duct plate (where pilot holes were just drilled).
4. Night air curtain assembly may now be placed on the night air curtain support. Carefully positioned magnets will keep in place. Grasp the handle and pull downward to desired location (see illustration below).
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. *Note: Due to ONLY the magnets keeping night air curtain assembly in place, it may be removed at any time by firmly lifting up and off night air curtain support.*

NOTE: THE BELOW ILLUSTRATION MAY NOT EXACTLY REFLECT EVERY PARTICULAR CASE'S FEATURES OR OPTIONS.



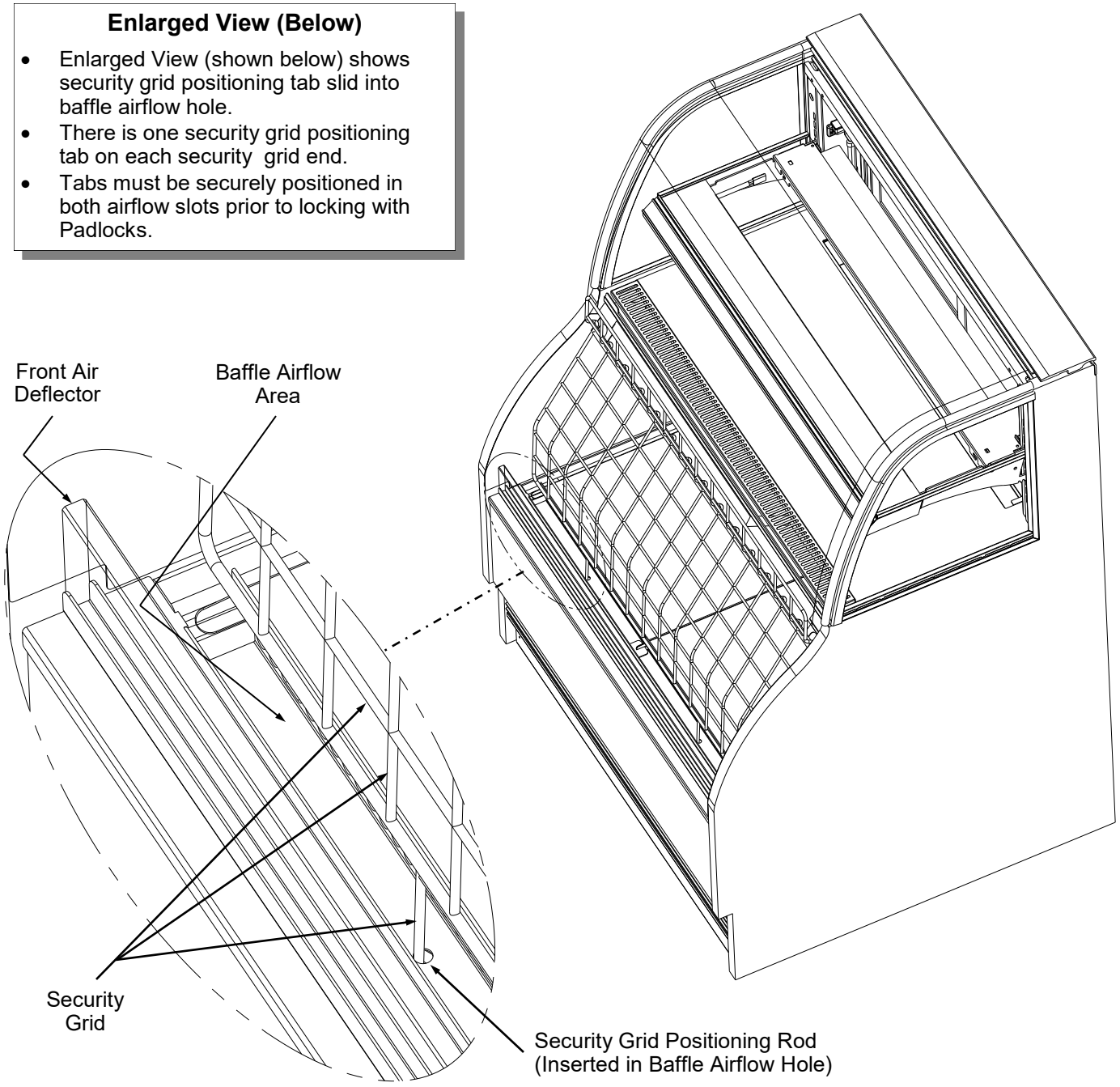
Initial Positioning and Installation of Security Grid

1. Due to weight and size, Security Grid installment may require two (2) people.
2. After hoisting the Security Grid directly over Front Air Deflector, drop the (2) Security Grid Positioning Rods into the Baffle Airflow Slots (see below).
3. After securely positioned in the Baffle Airflow Holes, carefully and slowly lean the Security Grid back against the two Security Brackets.
4. The next page in this manual will show how to secure the top of the Security Grid to the Security Brackets.

NOTE: ILLUSTRATIONS MAY NOT EXACTLY REFLECT EVERY PARTICULAR CASE'S FEATURES OR OPTIONS.

Enlarged View (Below)

- Enlarged View (shown below) shows security grid positioning tab slid into baffle airflow hole.
- There is one security grid positioning tab on each security grid end.
- Tabs must be securely positioned in both airflow slots prior to locking with Padlocks.



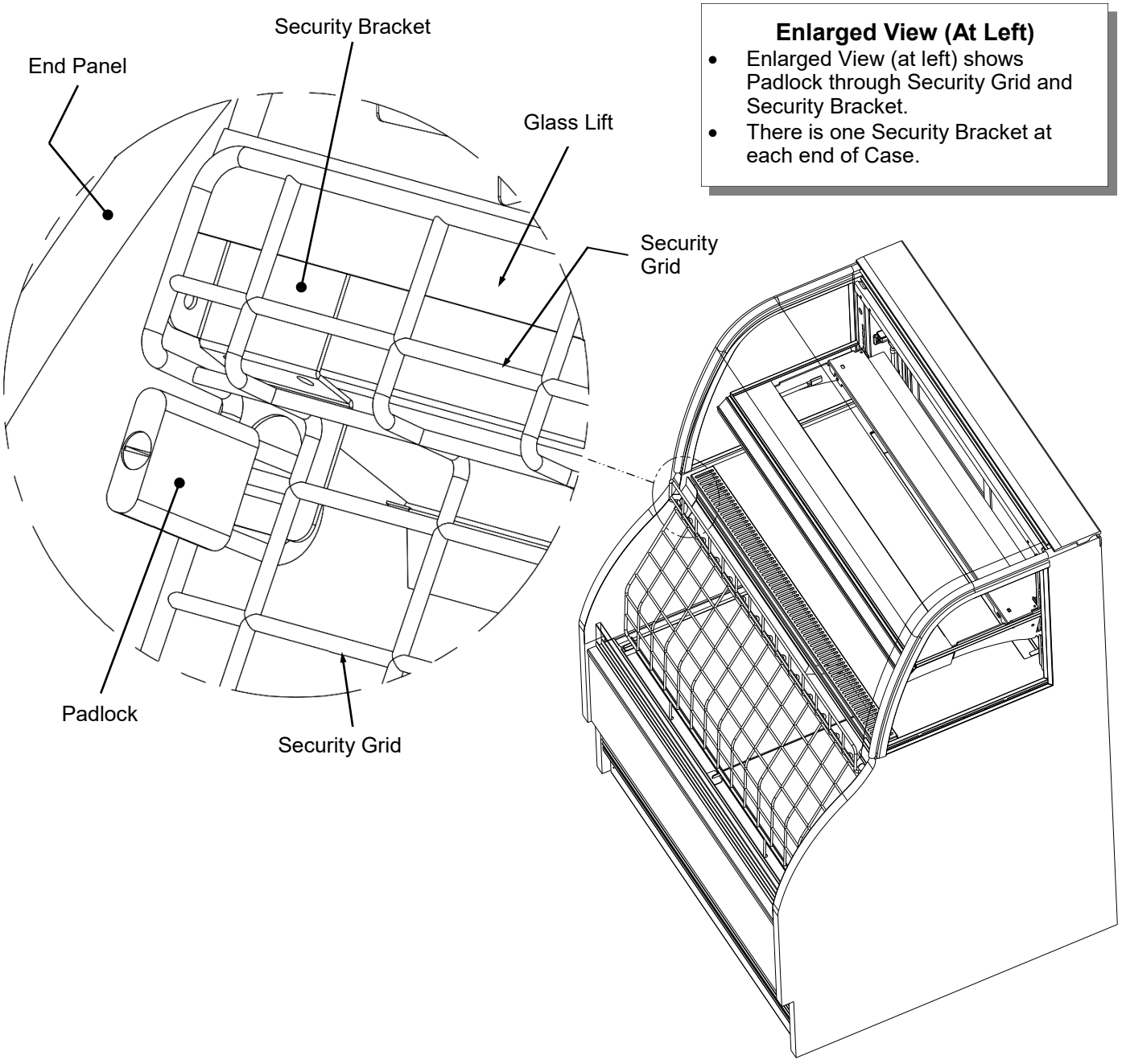
Securing Security Grid Into Place and Locking

1. After leaning the security grid back against the two security brackets, slide the (two) padlocks through the security grid and the security brackets.
2. Securely lock the padlocks (one key fits both padlocks).

Removing and Storing Security Grid and Locks

1. Due to weight and size, security grid removal requires two (2) people.
2. Unlock and remove padlocks. Lean security grid forward. Lift upward and out of baffle airflow slots.
3. Store security grid, padlocks and keys in a secure location to prevent theft or damage.

NOTE: ILLUSTRATIONS MAY NOT EXACTLY REFLECT EVERY PARTICULAR CASE'S FEATURES OR OPTIONS.



Enlarged View (At Left)

- Enlarged View (at left) shows Padlock through Security Grid and Security Bracket.
- There is one Security Bracket at each end of Case.

DRAIN, HOSE AND BRACKET PLACEMENT ILLUSTRATIONS

NOTE: BELOW ILLUSTRATIONS MAY NOT EXACTLY REFLECT EVERY PARTICULAR CASE'S FEATURES

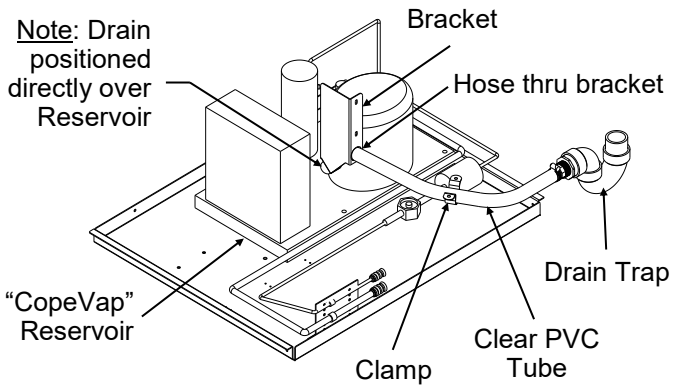
Three Condenser Systems Are Illustrated Below:

***Illustration #1*: Hot Gas "CopeVap" Condenser System. "Copevap" is built into Compressor Unit.**

***Illustration #2:* Hot Gas Condenser System.**

***Illustration 3A/3B* : Electrical Heat Rod Condenser System. Note: Separate Condenser Pan.**

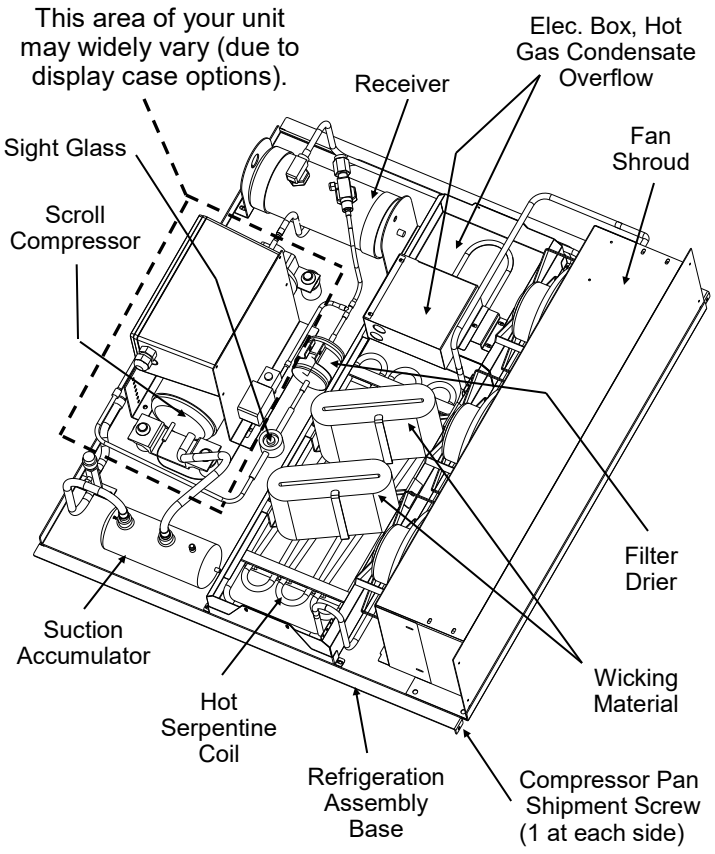
Warning! Regardless of Condenser, the Hose and Drain Trap MUST BE secured and positioned over Condenser Pan to prevent water seepage / spillage. When sliding out Condenser Unit, be careful that drain is not pulled from proper position.

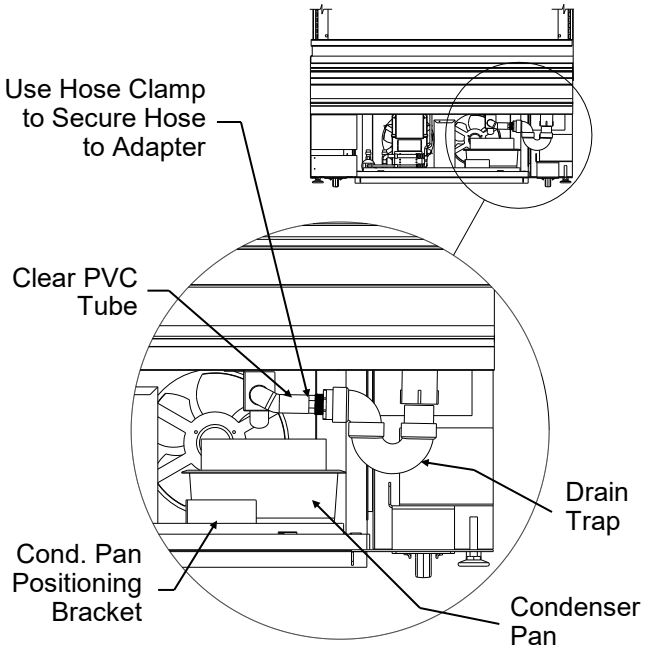


1. *Hot Gas "CopeVap" Evaporator System.*

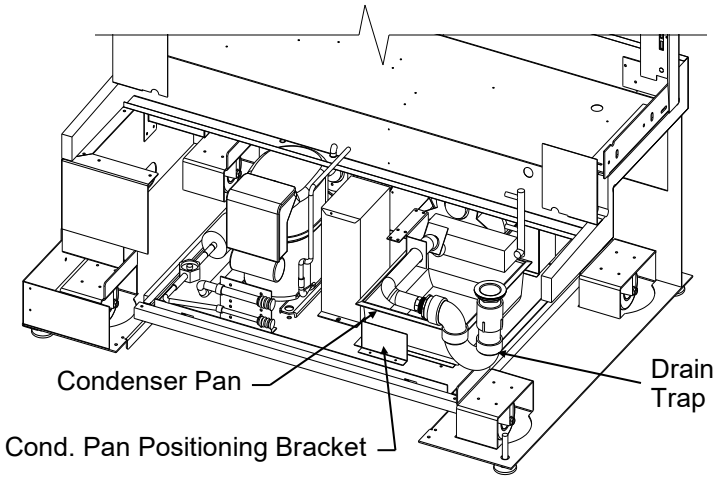
2. Hot Gas Condenser System.

- Hot gas serpentine coil is routed through a condensate reservoir allowing water to be heated. This system uses a wicking material (partially submersed) with warm condenser air passing through it for evaporation.
- Also incorporates an overflow reservoir with heating element to ensure complete condensate removal.





3A. Front View of
Electrical Heat Rod Evaporator System

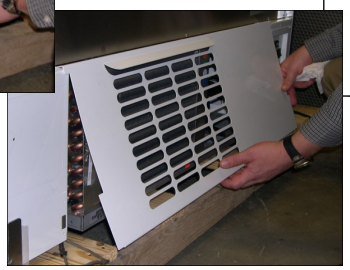


3B. Isometric View of
Electrical Heat Rod Condenser System

CLEANING SCHEDULE: TO BE PERFORMED BY STORE PERSONNEL

FREQ.	INSTRUCTIONS
Daily	**<u>All Glass / Mirrors</u>:** Clean side glass, front glass, glass shelves, and mirrors with household or commercial glass cleaner. Clean out door track with moist cloth.
Daily	**<u>Rear Sliding Door Exterior Glass</u>:** Clean with household or commercial glass cleaner.
Daily	**<u>End Panels, Front Panel, Toe-Kick, etc.</u>:** Wipe off all surfaces with warm water and mild soap solution and non-abrasive cloth.
Daily	**<u>Decks</u>:** Wipe off decks with moist cloth dipped in mild soap and water solution.
Weekly	**<u>Wood, Laminate and Painted Surfaces</u>:** Clean with mild soap and water solution and a soft cloth .
Weekly	**<u>Acrylic Sneeze Guard</u>:** Clean with warm water, mild soap solution and soft cloth; acrylic cleaning solutions are also available. Caution! Never use ammonia-based cleaners on acrylic. Incorrect cleaning agents or abrasive cleaning cloths cause surface to 'cloud' over time. See photo on next page.
Weekly	**<u>Magnetic Air Filter and Condensing Coil</u>:** Clean condenser coil filter and condenser coil fins. See corresponding photos a, b, c and d below. a. Remove magnetic air filter. Remove dust, dirt, smoke and grease stains by rinsing with hot water and multipurpose dish soap at sink. b. Lift rear grille up and off (after removing screws). c. Vacuum (or brush off) dust and dirt from condenser coil fins. ***Warning! Do not use metallic objects to poke or insert into condenser coil area!*** d. Return rear grille and magnetic filter to case. **Caution**: Make certain that magnetic filter completely covers all rear grille openings.
Monthly	**<u>Under Case Cleaning</u>:** 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.

a.



b.

c.

d.

TROUBLESHOOTING (TO BE PERFORMED BY STORE PERSONNEL)

CONDITION	TROUBLESHOOTING
Case Is Not Level	See ***ALIGNING CASE / FRAME SUPPORT RAIL SHIMMING / ADJUSTING LEVELERS*** section in this manual for additional info.
Case Not Lining Up	See Installation Section for instructions on properly aligning case (alongside other cases) and adjusting levelers (or rails).
Water Is On The Floor	Call service provider.
Fan Emits Excessive Noise	Call service provider.
Case Lights Are Not Working	Check that light switch is in the *on* position.
	Check that ALL of the light cords and plugs are properly connected. See ***MAINTENANCE: REAR SLIDING DOORS/LIGHT FIXTURES (PERFORMED BY STORE PERSONNEL)*** section in manual.
	If case lights still do not come on, call service provider.
Case is Not Holding Proper Temperature	If a large amount of warm product was added to the case, it will take time for the temperature to adjust. Product must be pre-chilled before placing in case.
	Check that the case is not in the sun or near a heat or air-conditioning vent. See ***OVERVIEW / NSF® TYPE / COMPLIANCE / WARNINGS / PRECAUTIONS*** section in this manual for specifics.
	If case is located near front doors, temperature fluctuation can hinder unit's ability to maintain temperature.
	Check that air filter and condenser coil has been cleaned. • See ***GENERAL CLEANING (TO BE PERFORMED BY STORE PERSONNEL)*** section in this manual for specifics.
	Check air return grilles (area at front of decking) for obstructions. DO NOT set product on air grilles as this will prevent proper airflow!
	If case still is not holding proper temperature, call service provider.

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

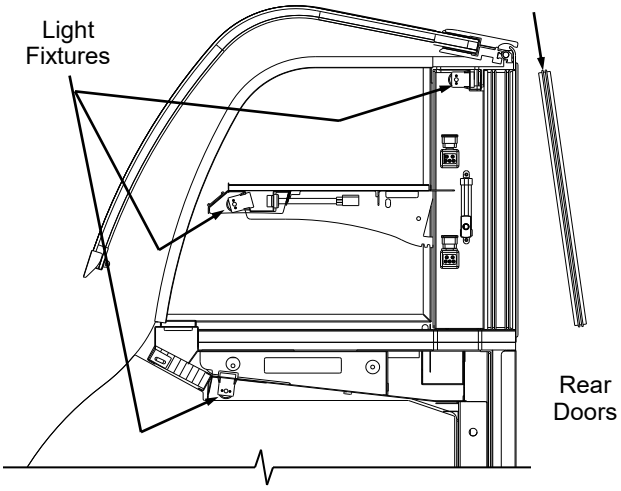
***Caution*: Lamps are treated to resist breakage and must be replaced with similarly treated lamps.**

***Note*: Warranty will be void if claims arise from negligence, misuse of goods, extreme environmental conditions or improper maintenance. See Overview And Warnings section in manual.**

1. Rear Sliding Doors

Note: Doors are not interchangeable. There is an inner and outer door. Outer door must be removed first and replaced last. See illustration at top-right.

- 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.

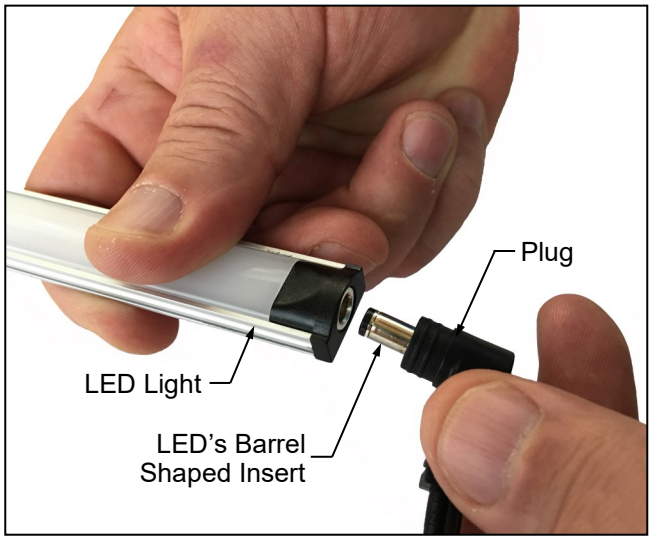


2. Power Cord and Plug

- Power cord and plug (for LED lights) locations vary depending upon model.
- Caution! You must plugged in an approved outlet!

3. LED Lights

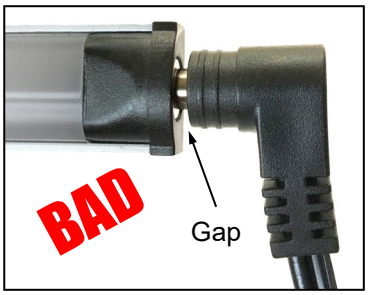
- LED lights are usually located at both header and shelving of case; placement on your merchandiser may differ.
- Check that ALL of the light plugs are properly connected to the LED light.
- Plug must be inserted ALL THE WAY into the LED light orifice (with no gap) to work properly.
- See ***TROUBLESHOOTING*** section in manual if LED lights malfunction.



4. LED Style Light Fixtures

Removal of faulty LED light:

- LED lights rarely require change-out.
- To remove faulty LED light, simply grasp light near retainer and carefully pull it away from its. Disconnect plug from LED's socket.
- Contact Structural Concepts' Technical Service Department for replacement parts (see Technical Service section of this manual for information).



Replacement of LED light:

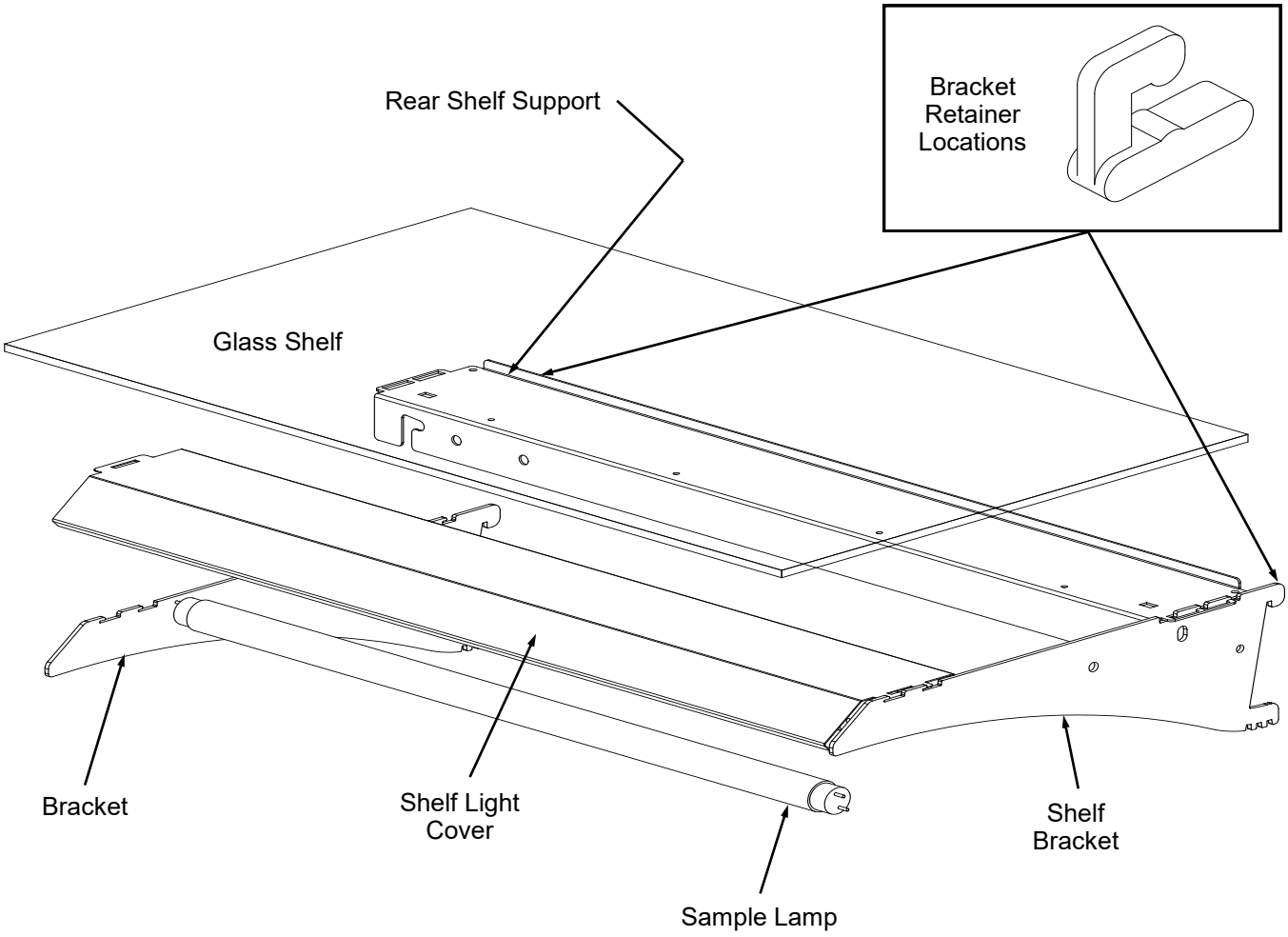
- To replace LED light fixture, simply insert new LED light at proper position (socket must be near plug). Carefully snap into metal springs so LEDs are held firmly in place.
- Note: LED light and plug must be connected in a specific manner or they will not work. Plug must be pushed all the way in.

5. Bracket Retainer Removal

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

6. Shelf Assembly Removal

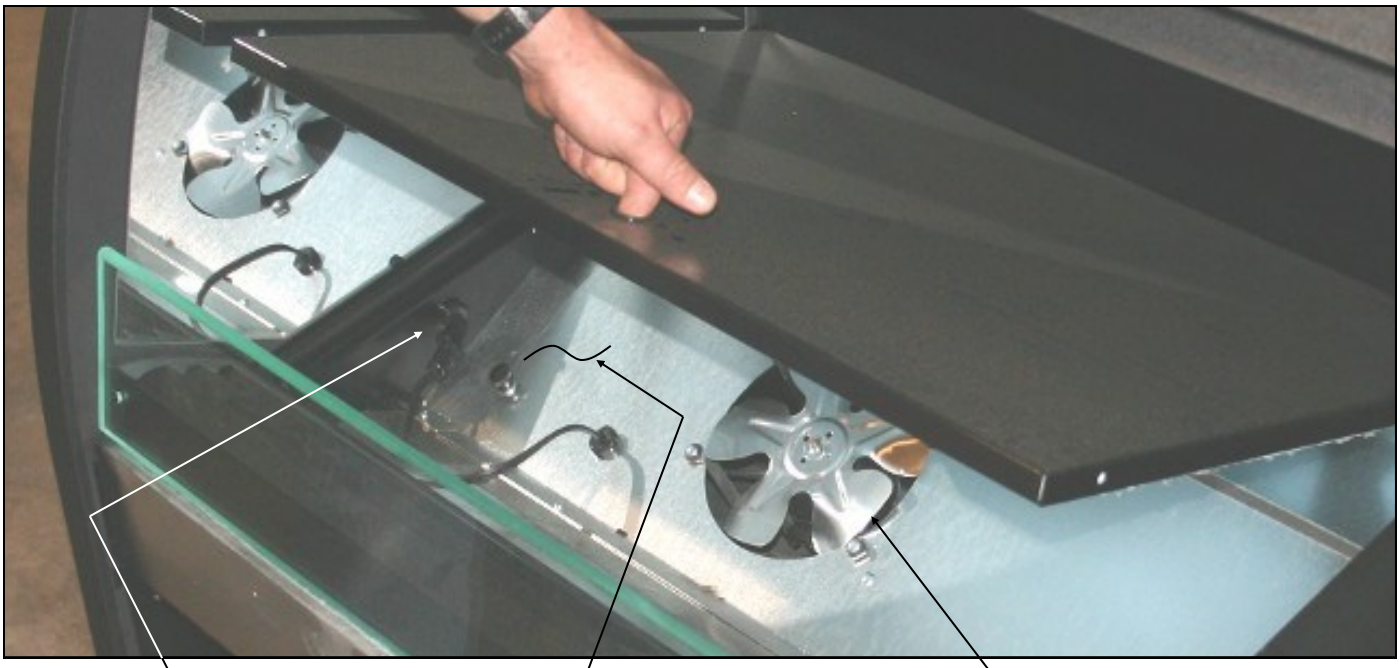
- Remove glass shelves
- For lighted shelving, unplug the light cord.
- Remove rear shelf support.
- Remove shelf light cover from brackets.
- Lift brackets up and out.



MAINTENANCE (BY TRAINED SERVICE PROVIDERS ONLY): TUB/EVAPORATOR COIL AREA ACCESS

1. Tub / Evaporator Coil Area Access

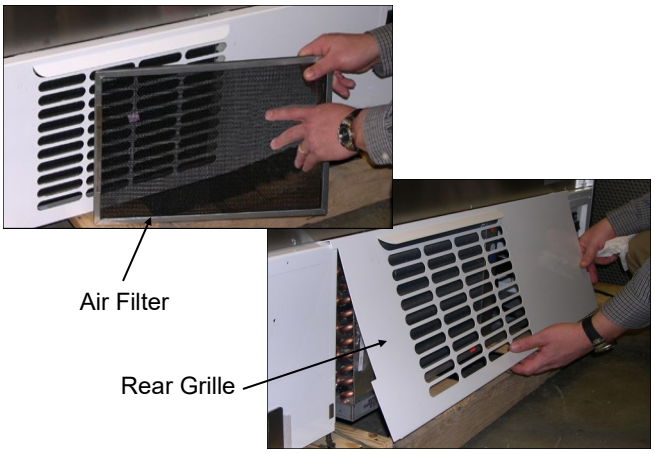
- The drain and expansion valve are both accessible from the front of the case.
- Depending upon case, you may need to unplug fan and remove fasteners from the access panel.
- If no access panel to remove, the drain and expansion valve (TXV) are directly below the decking and sub-deck.



2. Condenser Package Access

A. Magnetic Air Filter

- Magnetic filter adheres to rear grille.
- See ***CLEANING SCHEDULE: TO BE PERFORMED BY STORE PERSONNEL*** section in manual for cleaning instructions.
- See illustrations at top-right.



B. Slide Out Condenser Package

- Remove the rear grille. Grille may be slid upward and out or removal of screws may be required.
- Note: At initial slide-out, it may be necessary to remove compressor pan shipment screws (see illustration at right for location).
- *Refrigerant lines are flexible to facilitate rear access maintenance.*
- Plastic glides are mounted at base to assist in sliding the condenser out for access.
- Service connections are at the left of compressor.
- Slide condenser unit out 12 to 18 inches to access high pressure service connection.

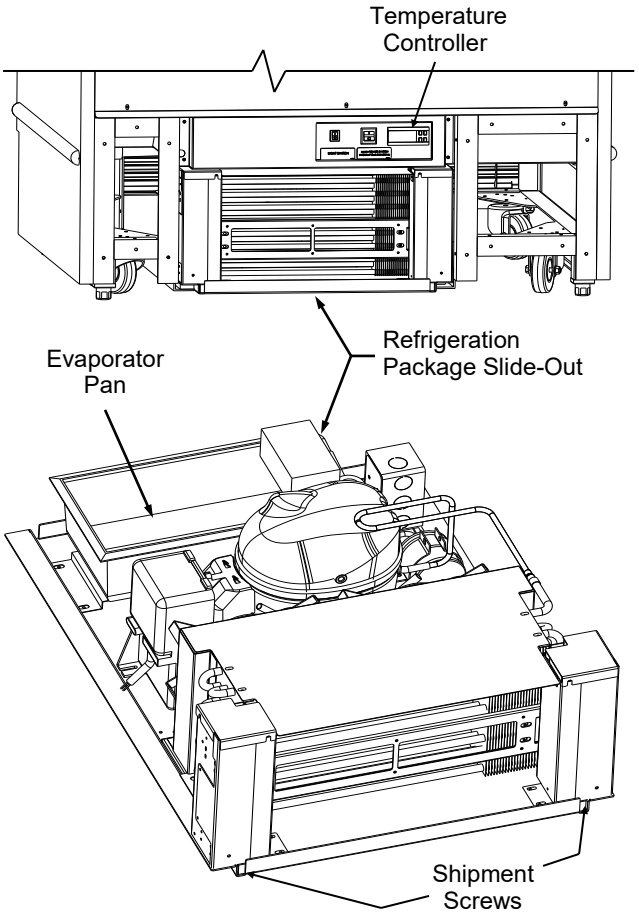
C. Condenser Pan Access / Removal

- **WARNING! Condenser Pan May Be Hot!** Check temperature of pan prior to handling.
- Withdraw condenser pan from the right side behind electrical box.
- Unplug condenser pan from the electric outlet.
- Empty condenser pan contents into suitable container. Replace rear panel when completed.

D. Temperature Controller (Self-Contained Units Only)

- Temperature controller is located in the ballast box.
- Temperature / defrost control settings are programmable from these locations.
- Case temperature set point is set at the factory, as determined by case size & sensor probe location.
- Temperature is controlled by thermostat.
- If a temperature setting change is required, follow instructions regarding temperature control programming steps in the technical information section of this operating manual.
- If service is required to the temperature control unit, call Structural Concepts Corporation. Maintenance should be performed by a certified technician.
- The toll-free number is listed in the Technical Service section of this manual.
- See Temperature Controller section in this manual.

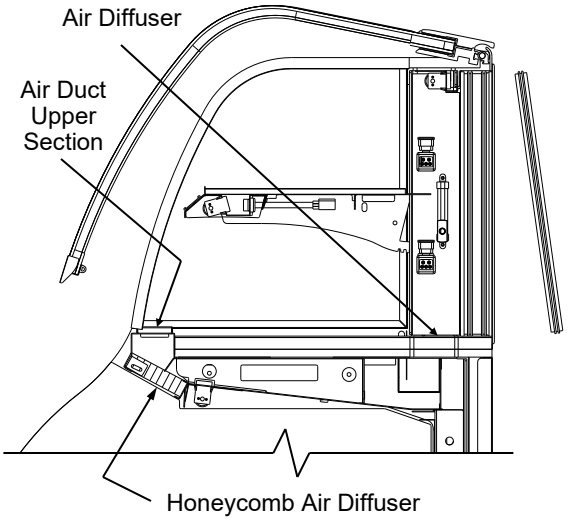
NOTE: Spirit-filled thermometers located in the refrigerated compartment are for monitoring warmest air temperature in accordance with NSF Std. 7.



Note: Illustrations shown may not reflect every feature or option of your particular case.

MAINTENANCE (BY TRAINED SERVICE PROVIDERS ONLY): HONEYCOMB AIR DIFFUSER

Preventive maintenance should be performed every 90 days (unless conditions warrant a more frequent replacement cycle).



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

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

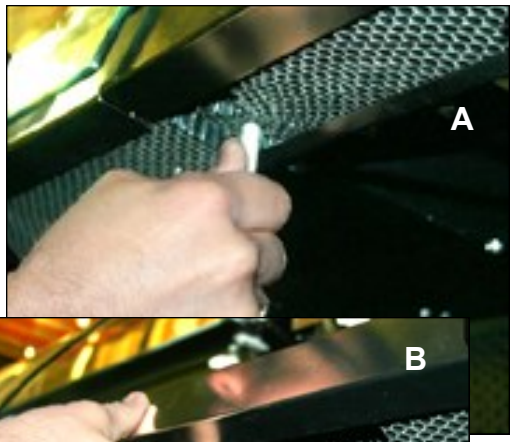
Honeycomb Air Diffuser Removal

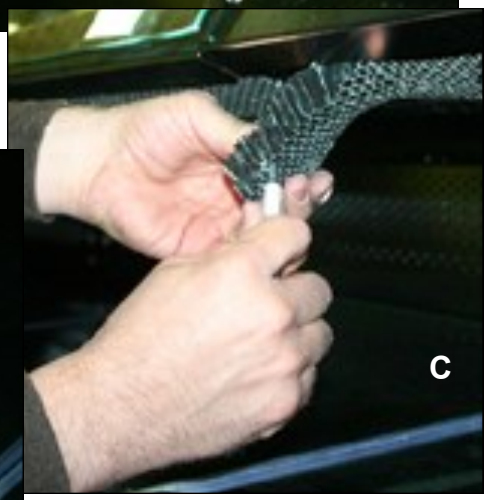
A. Wedge non-metallic device of suitable strength (such as a ballpoint pen) between honeycomb and end panel. Caution! Use care not to dislodge the heating wire (that prevents condensation on the lamp assembly).
B. Apply pressure to collapse the honeycomb to allow it to be pulled out of honeycomb retainer.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

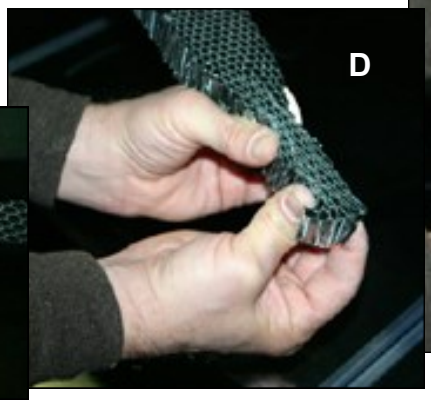
Clean honeycomb with warm water and soap solution. Submerse if necessary. Use brush to dislodge stubborn or sticky residue. Dry by using vacuum's 'blow mode'.

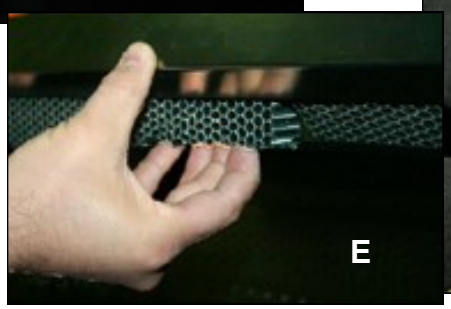
Honeycomb Air Diffuser Installation

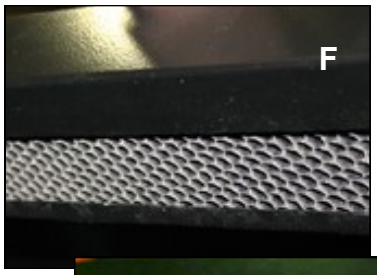
D. Squeeze honeycomb into the honeycomb retainer.
E. Carefully slide honeycomb into place.
F. Adjust honeycomb so that it fits flat against retainer. It must not be wavy or out of position.











CONDITION	TROUBLESHOOTING
Case Not Lining Up	See Installation Section for instructions on properly aligning case (alongside other cases) and adjusting levelers.
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. ***Note:*** See *Drain, Hose and Bracket Placement Illustrations* sheet in this manual for views of different evaporator systems used in display cases.
	Check that the drain trap is free of debris.
	Check that the drain hose is correctly positioned over evaporator pan (or floor drain, for remote units).
	Check store conditions. To prevent condensation: • For NSF® Type 1 environments, maximum conditions are to be 55% humidity / 75° Fahrenheit. • For NSF® Type 2, maximum conditions are to be 60% humidity / 80° Fahrenheit. • See serial label (at case rear near main power switch) for NSF® Type of your case.
	Check evaporator pan float for proper operation (heat rod evaporator system only).
	Check that evaporator pan is properly plugged in or connected.
	Caution! Evaporator pan may be malfunctioning (electrical heat rod evaporator system). If so, water will overflow pan and seep onto flooring causing damage! Until evaporator pan is functioning (or is replaced), following these procedures: • 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.
	Caution! Disruption of power can cause water to overflow pan and seep onto flooring causing damage! Check that power to case is constant. Until power is restored, following these procedures: • Use wet-dry vacuum (or mop & bucket) to remove standing water. • Use 'catch pans' for water to drainage. Swap out regularly until evaporation of case is complete (or until power is restored). When power to case is restored, evaporator pan should function properly and water will no longer overflow onto flooring.
	Caution! Wicking material may be dirty or worn and need replacement (hot gas evaporator system only). • Slide refrigeration system out from under unit. • After refrigeration system has been carefully slid out from under unit, replace wicking material with new. If wicking material is not available, contact Structural Concepts. See toll-free number at last page of this operating manual.

CONDITION	TROUBLESHOOTING
Fan Emits Excessive Noise	Check that the case is aligned, level and plumb.
	Check evaporator fan for cleanliness.
	Unplug/power off fan motors. Check motor shaft for bearing wear.
	Check that fan motors are securely mounted in brackets.
	Verify that fan blades are securely mounted to fan motor.
	Check that nothing is preventing blade rotation.
	Check that the fan shroud is properly secured.
Fans Are Not Working	Check that the MAIN power switch is on.
	Check that fans are plugged in at the fan shroud.
	Check for foreign material obstructing fan performance.
	Check that fan blades freely rotate within fan shrouds
	Check that power is going to fans
	Check that fan wiring is connected on terminal blocks.
Digital Control Display Is Blank	Check that the MAIN power switch is on.
	Check the circuit breaker box for tripped circuits.
System Not Operating	Check that the utility power is on.
	Check that the MAIN power switch is on.
	Check the circuit breaker box for tripped circuits.
Case Is Not Holding Temperature	If a large amount of warm product was added to the case, it will take time for the temperature to adjust. Unit needs product to be pre-chilled.
	Temperature changes during defrost mode but will return to normal. Fourth LED will indicate defrost cycle in progress.
	Check that case is not in sun or near a heat or air-conditioning vent. See ***OVERVIEW AND WARNINGS*** section in manual for adverse conditions/spacing issue parameters.
	If case is located near front doors, temperature fluctuation can hinder unit's ability to maintain temperature. See ***OVERVIEW AND WARNINGS*** section in manual for adverse conditions/spacing issue parameters.
	Check that magnetic air filter (attached to rear grille) has been cleaned. See ***GENERAL CLEANING (TO BE PERFORMED BY STORE PERSONNEL)*** section in operating manual for instructions.
	Check that condenser coil has been cleaned.
	Check air return grilles for obstructions.
	Check sight glass for flashing and/or low charge.
	Check Set Point Temperature; it may be adjusted too high.

CONDITION	TROUBLESHOOTING
Control Display Is Flashing	*See your case's serial label for your model's specified settings. See* ***SERIAL LABEL LOCATION & INFORMATION LISTED / TECH INFO & SERVICE*** for label location, etc.
Condensing Unit Is Not Operating	Check that the power is turned on.
	Determine if temperature controller settings are properly set. *See your case's serial label for your model's specified settings. See* ***SERIAL LABEL LOCATION & INFORMATION LISTED / TECH INFO & SERVICE*** *section in manual* for label location, etc.
Case Lights Are Not Working	Check that light switch is in the *on* position.
	Check that **ALL** of the light cords and plugs are properly connected.
	Service Technicians Only: Check voltage at LED drivers. If voltage is entering but not exiting, LED driver may be faulty.

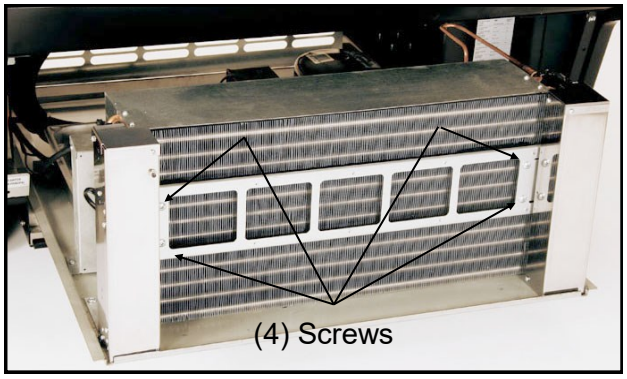
TROUBLESHOOTING - CONDENSING SYSTEM (BY TRAINED SERVICE PROVIDERS ONLY)

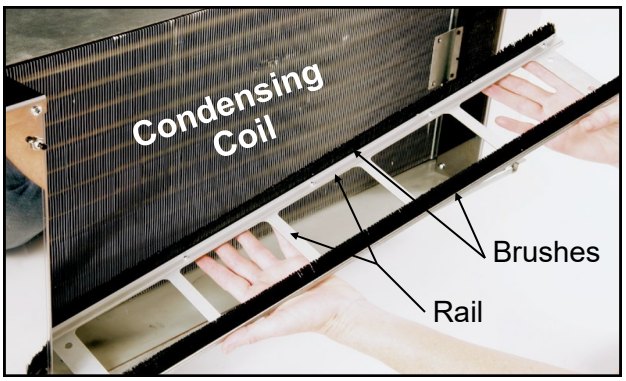
CONDITION	TROUBLESHOOTING
Head Pressure Too High	Check that the condensing coil is not dirty or covered.
	Check that condensing fans are working.
	Check that refrigerant is not overcharged.
	Perform sub-cooling check and verify that no contaminates are in system.
	Check that liquid line filter dryer is not plugged.
	Check that close-offs are intact (around condensing coil) and that air is not recirculate.
	Check that store ambient temperature isn't above maximum allowed. See ***OVERVIEW / TYPE / COMPLIANCE / WARNINGS / PRECAUTIONS / WIRING / PLUGS*** section in this manual.
Head Pressure Too Low	Check if sight glass is flashing or showing low charge.
	Check that suction pressure isn't too low.
	Check that compressor reed valves aren't bad. Look for high suction/low head pressure. Perform pump-down.

TROUBLESHOOTING - EVAPORATOR SYSTEM (BY TRAINED SERVICE PROVIDERS ONLY)

CONDITION	TROUBLESHOOTING
Low Suction Pressure	Check if sight glass is flashing or showing low charge.
	Check that expansion valve (TXV) isn't restricted. Check element charge.
	Check that liquid line or filter isn't restricted. Check that refrigeration lines and/or hoses are not kinked on either high or low sides.
	Check that evaporator fan motors are working.
	Check that superheat is between 6 °F to 8 °F.
	Check that there is no air recirculation around evaporator coil.
	Check that evaporator coil is not iced up.
High Suction Pressure	Check for refrigerant overcharge.
	Check that compressor reed valves aren't bad. Look for high suction/low head pressure. Perform pump down.
	Check that the "cooling load" isn't high. Product must be pre-chilled before placing in refrigerated section of case.
	Check that case is at least 15-feet from exterior doors, overhead HVAC vents or any air curtain disruption.
	Check that unit is not exposed to direct sunlight via windows or any other heat source (ovens, fryers, etc.).
	Check that superheat adjustment isn't low.
	Check TXV bulb installation a. Poor thermal contact. b. Warm location.

PREVENTIVE MAINTENANCE	FREQ.	INSTRUCTIONS
Case Exterior	**Monthly**	**<u>Condensing Coil</u>:** <u>Note</u>: The vacuum 'blow mode' is to be used when cleaning the condenser coil. Follow these steps: a. Remove grille; use vacuum and brush to dislodge and remove dust on and in coil b. Place damp rags around condensing fan motor brackets to collect dust. c. Using vacuum (in 'blowing' mode), blow air through condenser coils and into fans. Make certain to blow entire surface of condensing coils to assure that all entrenched dust is removed. ***Caution! Coil fins are sharp. Handle with care!*** a. Replace Rear Grille to case.
	Quarterly	**<u>Clean Sweep™ Condensing Coil</u>:** *Disconnect power from case before cleaning Clean Sweep™ Condenser Coil!* • Remove Rear Grille (by removing 4 screws). • Slide/Roll out condensing unit assembly. • Remove the four (4) screws holding the Clean Sweep™ rails intact. • Remove the Clean Sweep™ rail. • Wash rails' brushes in hot water and mild soap solution. • If brushes are worn, they must be replaced. Call Technical Service Department to replace. Toll-Free number is listed at end of manual. • Clean Condensing Coil: Use air pressure or industrial strength vacuum; clean the dust and dirt that may collect on the Condenser Coil. • ***Caution! Coil fins are sharp. Handle with care!*** • Reattach Clean Sweep rail to condensing unit (4 screws). • Slide/Roll Condensing Unit Assembly back under case. • Replace Rear Grille to case (4 screws). • See photos below.
	Quarterly	**<u>Honeycomb Air Diffuser & Air Duct Upper Section</u>:** See ***MAINTENANCE FUNDAMENTALS: UPPER SECTION AIR DUCT / HONEYCOMB AIR DIFFUSERS*** section in this manual for cleaning instructions.





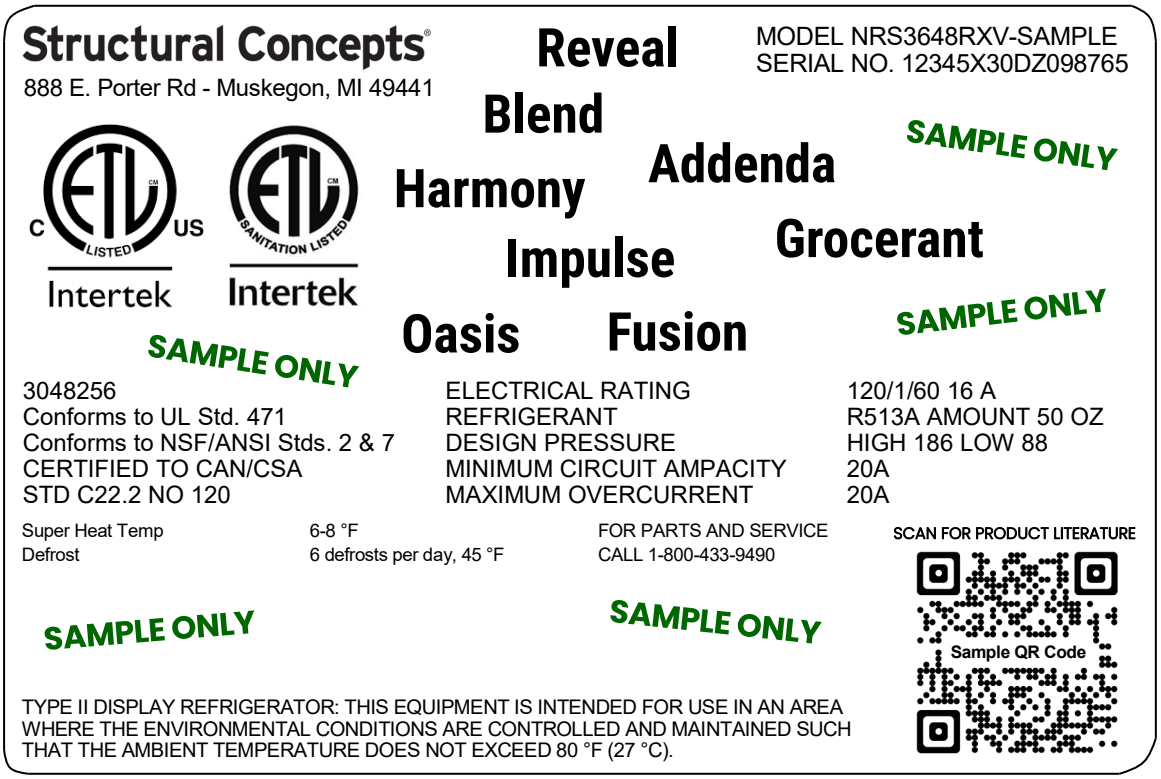
--- Above photos are taken after rear grille has been removed from case ---

WARNING! TURN OFF CASE BEFORE PERFORMING PREVENTIVE MAINTENANCE!

PREVENTIVE MAINTENANCE	FREQUENCY	INSTRUCTIONS
Case Exterior	**Quarterly**	**Condenser Pan:** *Caution! Disconnect from receptacle box.* • Remove mounting screws from base. • Use de-scaling solution (such as CLR® that will prevent corrosion, lime and rust) to clean pan. • Rinse thoroughly; do not submerse in water. • Reattach pan to case with same mounting screws. • Reconnect power cord to receptacle box.
	Quarterly	**Compressor Area:** *Caution! Be certain to disconnect power from case before cleaning Compressor Area!* • Slide/Roll compressor package out from under case. • Use moist cloth to wipe off dust & debris that collects on various parts. • Slide/Roll compressor package back under case.
	Quarterly	**Under Case Cleaning:** Once refrigeration package is clear of unit, vacuum under case to remove all dust and dirt that may collect under case.
Case Interior	**Quarterly**	**Tub, Coil, Drain, Fan Blades, Motors, Brackets:** *Disconnect power from the case before cleaning 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 affixed at a wide range of places (on the header, near thermostat, at case rear, behind panels/toe-kicks, on electrical boxes, etc.).
- Serial labels contain electrical, temperature and refrigeration information, as well as regulatory standards to which the case conforms.
- Sample serial label shown below.
- For additional technical information and service, see the *TECHNICAL SERVICE* page in this manual for instructions on contacting Structural Concepts' Technical Service Department.



--- Sample Serial Label For Refrigerated Cases ---

Determine Which Programmable Controller Is On Your Case (Controllers That Are Commonly Used By Structural Concepts Are Shown Below). Your Particular Programmable Controller May Differ.

Carel® PJEZ Platform

Carel® ir33 Platform

Carel® iJF Platform

Dixell® XM670K-XM679K Platform

To Access Information About The Programmable Controller That Is Used On Your Case, Follow These Instructions:

> If Viewing This Document on Smart Phone, Tablet or Computer, Select/Click On The QR Code at Right.

> If Viewing This Document In Print (Hard Copy), Scan The QR Code at Right With Your Smart Phone or Tablet.

Structural Concepts®

TECH SERVICE/WARRANTY CONTACT INFO:
1 (800) 433-9490 / EXTENSION 1

DAYS/HOURS AVAILABLE:
MONDAY - FRIDAY (CLOSED HOLIDAYS)
8:00 a.m. TO 5:00 p.m. EST

YOU MUST HAVE THE FOLLOWING INFO AVAILABLE BEFORE CONTACTING STRUCTURAL CONCEPTS:

SERIAL NO. / MODEL NO. / STORE NO. / STORE ADDRESS / DETAILS (PHOTOS, LEAK LOCATIONS, DAMAGE, STORE'S AMBIENT CONDITIONS, ETC.)

To Access The Limited Warranty To Your Case, Follow These Instructions:

> If Viewing This Document on Smart Phone, Tablet or Computer, Select/Click On The QR Code at Right.

> If Viewing This Document In Print (Hard Copy), Scan The QR Code at Right With Your Smart Phone or Tablet.

Structural Concepts®