

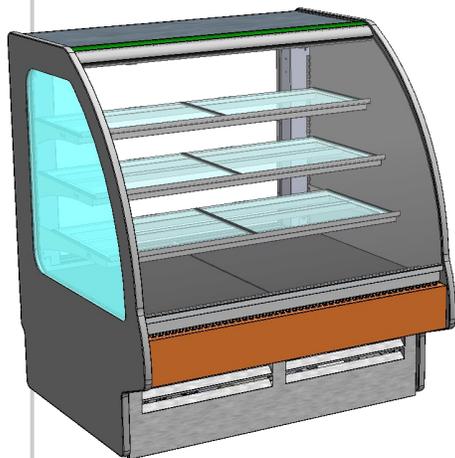
FUSION USER MANUAL

SCC P/N
5-0172

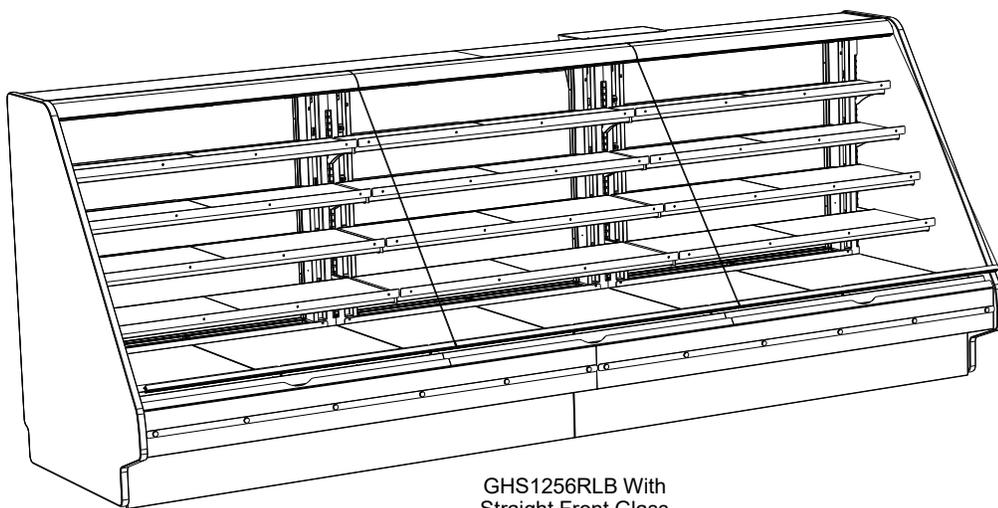
FUSION SERVICE REFRIGERATED DISPLAY CASES (SELF-CONTAINED & REMOTE UNITS)

PLEASE NOTE THE FOLLOWING:

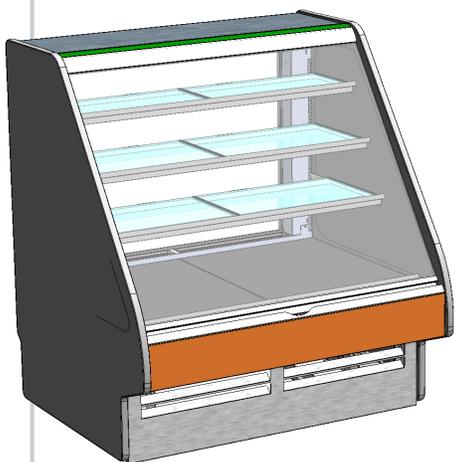
1. YOUR SPECIFIC MODEL NUMBER IS LOCATED ON THE SERIAL LABEL (USUALLY AT CASE REAR). HOWEVER, LABEL LOCATIONS MAY VARY DEPENDING UPON MODEL.
2. SEE *SERIAL LABEL LOCATION & INFORMATION* SECTION IN MANUAL FOR SAMPLE LABELS.
3. CASES SHOWN IN THIS MANUAL REFLECT FULL & OPEN END PANELS / STRAIGHT OR ANGLED BASES. YOUR MAY PARTICULAR MODEL DIFFER.
4. THIS USER MANUAL DISPLAYS A VARIETY OF MODELS TO SHOWCASE A VARIETY OF FEATURES AND OPTIONS (WHICH MAY NOT BE REFLECTED ON YOUR PARTICULAR MARCHANDISER).
5. THIS USER MANUAL MAY ALSO BE APPLICABLE TO MODELS NOT DISPLAYED HEREIN.



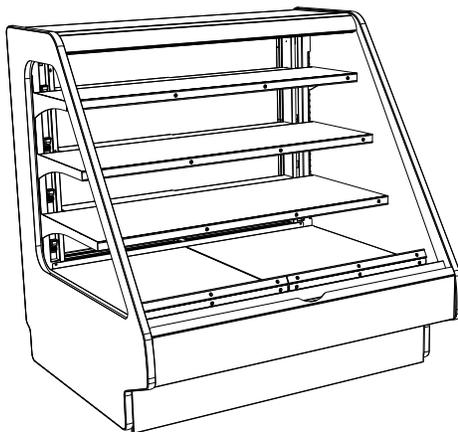
GHS456R With
Curved Front Glass



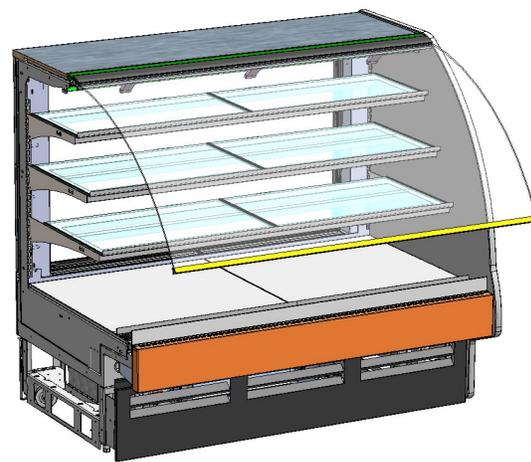
GHS1256RLB With
Straight Front Glass



GHS456R With
Straight Front Glass



GHS452RLB With
Straight Front Glass



GHS556R With Curved Front Glass Raised And End
Panel Removed For Illustrative Purposes Only

Structural Concepts®

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TABLE OF CONTENTS

TABLE OF CONTENTS	2
OVERVIEW / TYPE / COMPLIANCE / WARNINGS / PRECAUTIONS / WIRING / PLUGS	3-4
INSTALLATION: REMOVAL FROM SKID, REMOVING LOWER FRONT PANELS	5
INSTALLATION: REMOVING VERTICAL LOWER FRONT PANELS (SLOTS/HOOKS/MAGNETS)...	6
INSTALLATION: ADJUSTING FRONT PANELS / ADJOINING UNITS / GLASS SHELVING	7
INSTALLATION: ELECTRICAL CONNECTIONS / LED DRIVER BOX	8
INSTALLATION: FRONT FAN ACCESS	9
INSTALLATION: FRAME SUPPORT RAILS / SEALING TO FLOOR / LOCKING CASTERS / LEVELERS.....	10
INSTALLATION: MODEL GHSEH452R.6235 - BASE PANELS / LEVELERS / SEALING PROCESS	11
INSTALLATION: FRONT GLASS ALIGNMENT & ADJUSTMENT - RAILS / LEVELERS	12
INSTALLATION: REFRIG. LINES / STUB-UPS / DRAINS / WIRING DIAGRAMS / VENTILATION ...	13
START-UP & OPERATION: CASE / LIGHTS / THERMOSTAT / SST	14
SCALE STAND AND OUTLETS / THERMO-SIMPLE 2 (TS.2) DIGITAL THERMOMETER ALARM ...	15
THERMO-SIMPLE 2 (TS.2) DIGITAL ALARM	16-17
DRAIN, HOSE AND BRACKET PLACEMENT ILLUSTRATIONS	18
MAINTENANCE FUNDAMENTALS - FLUORESCENT LIGHT FIXTURES	19
MAINTENANCE FUNDAMENTALS - LED LIGHT FIXTURES	20
MAINTENANCE FUNDAMENTALS - REAR SLIDING DOORS / THERMOMETER	21
MAINTENANCE FUNDAMENTALS - DRAIN / TXV / REFRIGERATION LINES / SHUT-OFF VALVE .	22
MAINTENANCE FUNDAMENTALS - HINGED REAR DOORS	23
MAINTENANCE FUNDAMENTALS - WEDGE UNITS: NON-ADJUSTABLE SHELVING	24
GENERAL CLEANING (TO BE PERFORMED BY STORE PERSONNEL)	25
TROUBLESHOOTING (TO BE PERFORMED BY STORE PERSONNEL)	26
GENERAL CLEANING (TO BE PERFORMED BY TRAINED SERVICE PROVIDERS ONLY)	27
TROUBLESHOOTING (TO BE PERFORMED BY TRAINED SERVICE PROVIDERS ONLY)	28-30
TROUBLESHOOTING - CONDENSING SYSTEM (BY TRAINED SERVICE PROVIDERS ONLY)	31
TROUBLESHOOTING - EVAPORATOR SYSTEM (BY TRAINED SERVICE PROVIDERS ONLY)	32
PREVENTIVE MAINTENANCE (TO BE PERFORMED BY TRAINED SERVICE PROVIDER).....	33
SERIAL LABEL INFORMATION & LOCATION	34
PROGRAMMABLE CONTROLLER INFORMATION.....	35
TECHNICAL SERVICE CONTACT INFORMATION / WARRANTY INFORMATION	36

OVERVIEW

- These Structural Concepts merchandisers 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 prior to 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.

NSF/ANSI TYPE I vs. II ENVIRONMENTAL CONDITIONS

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

- NSF/ANSI Type I Conditions: Product is displayed in store conditions with maximum ambient temperature of 75 °F (24 °C) and maximum relative humidity of 55%.

- NSF/ANSI Type II Conditions: Product is displayed in store conditions with maximum ambient temperature of 80 °F (27 °C) and maximum relative humidity of 55%.
- If you are unsure if your unit is classified as NSF/ANSI Type I or Type II, see tag next to serial label on your case.

COMPLIANCE

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

WARNINGS

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



ATTENTION CONTRACTORS

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
 Condensate Pan is Hot!
 Electric condensate pan must be disconnected and allowed to cool before cleaning or removing from case.



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.

PRECAUTIONS

- Following are important precautions to prevent damage to unit or merchandise. Please read carefully!

WIRING DIAGRAM

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

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.



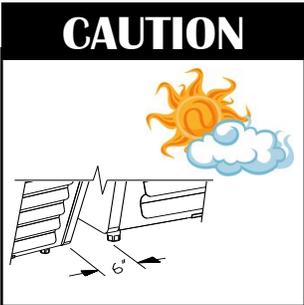
CAUTION! LAMP REPLACEMENT GUIDELINES
 LED lamps reflect specific size, shape and overall design. Any replacements must meet factory specifications.
 Fluorescent lamps have been treated to resist breakage and must be replaced with similarly treated lamps.



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

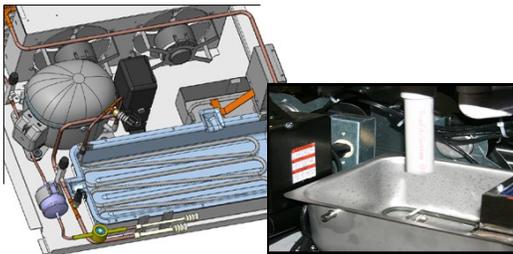


CAUTION! POWER CORD AND PLUG MAINTENANCE
 Risk of electric shock. If cord or plug becomes damaged, replace only with cord and plug of same type.



CAUTION! ADVERSE CONDITIONS / SPACING ISSUES

- Performance issues caused by adverse conditions are **NOT** warranted.
- Keep end panels tightly joined or at least 6" away from structures to prevent condensation. Keep rear panel at least 6" from wall/structure.
- Unit must be kept at least 15-feet from exterior doors, overhead HVAC vents or any air curtain disruption to maintain proper temperatures.
- Unit must not be exposed to direct sunlight or any heat source.
- Self-contained unit clearance: 6" min. air intake / 6" min. air discharge.



CAUTION! CHECK CONDENSATE PAN POSITION & PLUG
 Water on flooring can cause extensive damage!
 Before powering up unit, check that:

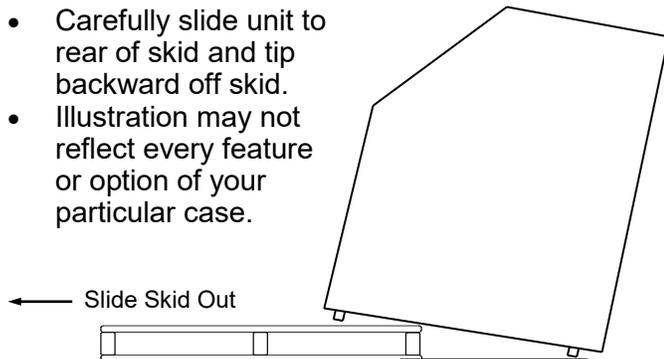
- Condensate pan is **DIRECTLY UNDER** condensate drain.
- Condensate overflow pan is connected and operational.
- Condensate pan plug is securely plugged into receptacle.

SEAL FLOOR-MOUNTED UNITS TO FLOOR
 Thoroughly clean floor to assure a secure seal! Fixed (non-removable) base frames, cladding or panels must be sealed to floor with silicone that meets or exceed food grade NSF/ANSI Standard 51.

INSTALLATION: REMOVAL FROM SKID, REMOVING VERTICAL LOWER FRONT PANELS

1. Remove From Skid (Rails or Levelers)

- Remove shipping brace that may be securing case to skid.
- Support case to prevent tipping.
- **Caution! Frame Support Rails (or levelers) can be damaged if case hits floor with heavy force!**
- Carefully slide unit to rear of skid and tip backward off skid.
- Illustration may not reflect every feature or option of your particular case.

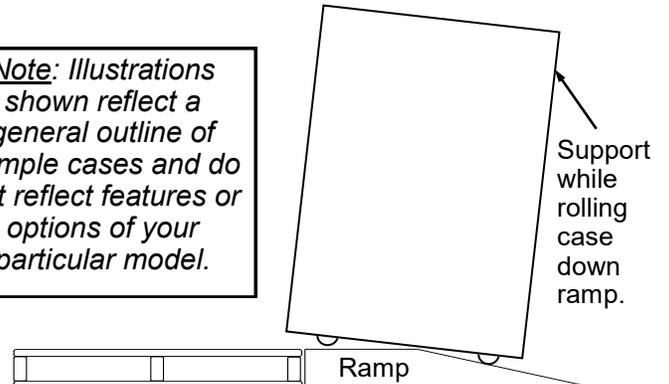


Note: Case can be repositioned with pallet truck when front lower panel is removed. Blocking may be necessary to obtain adequate height.

2. Remove Case From Skid (Casters)

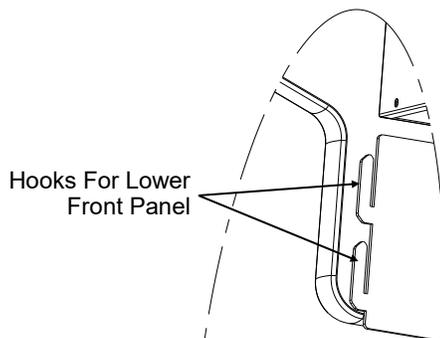
- Remove shipping brackets that may be securing casters to skid
- Place ramp up against skid (to allow case to smoothly slide off from skid).
 - Maintain support of case at all times or center of gravity may cause case to fall.
 - Unlock Casters. Roll unit to rear of skid. Roll down ramp and off from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

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



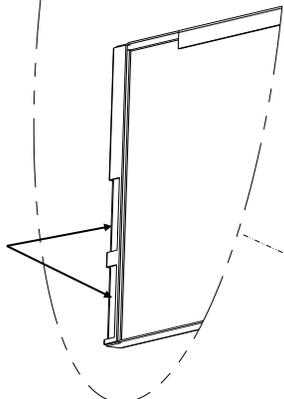
3. Removing Vertical Lower Front Panels (Slot/Hook Method)

Note: No screw removal required: Simply lift lower front panel up (off hooks) and out (away from case).

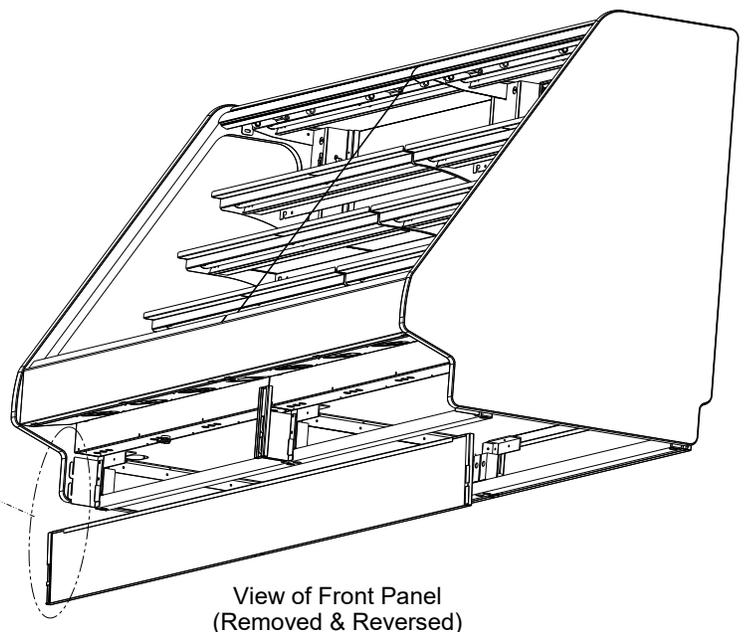


Note
Lower Front Panel
Removed & Reversed
For Illustrative
Purposes Only

Slots For Lower
Front Panel



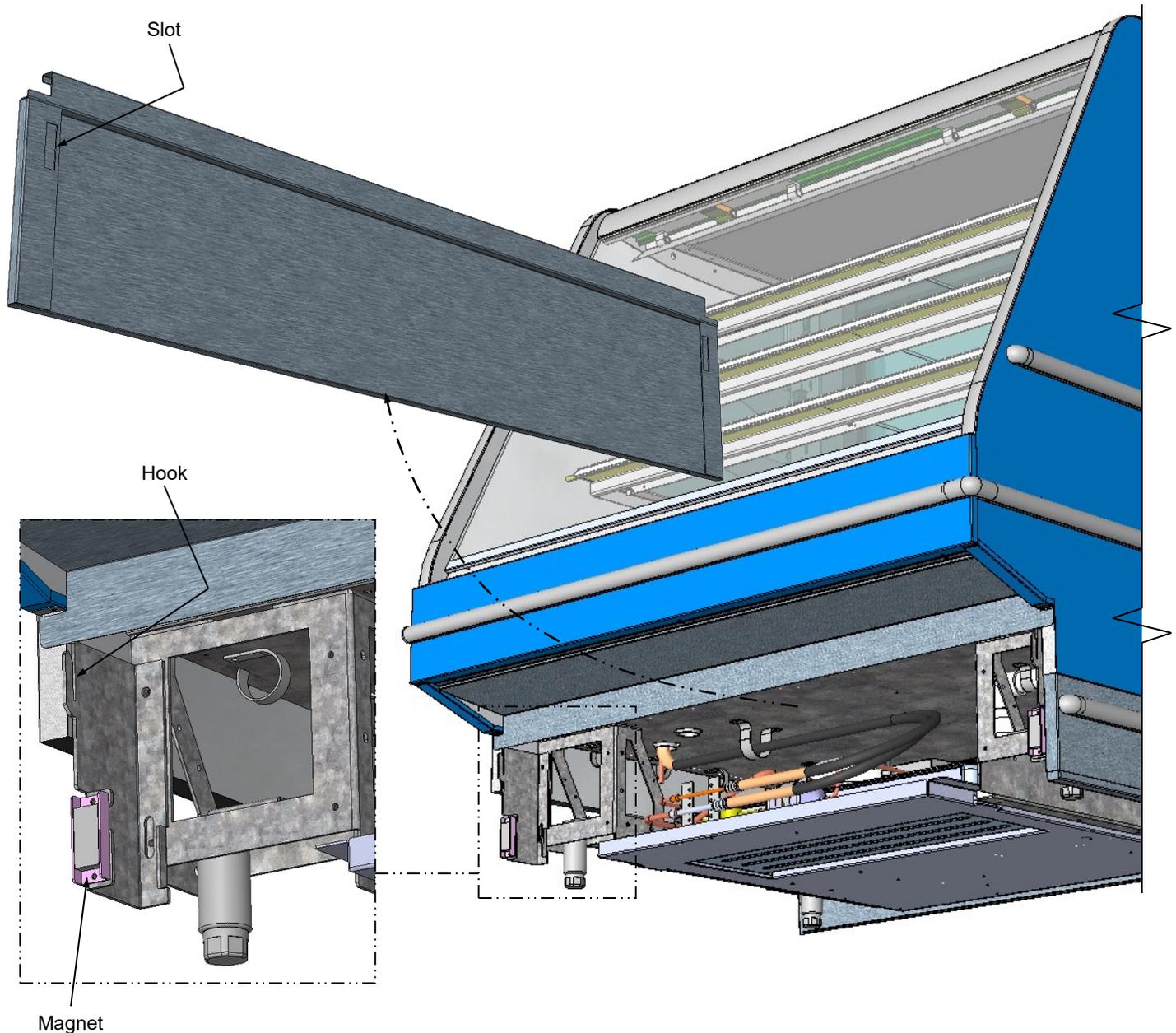
Note: Illustration below reflects flat front glass (optional). Your case may have curved front glass. General slots/hooks design is the same.



INSTALLATION: REMOVING VERTICAL LOWER FRONT PANELS (SLOT/HOOK/MAGNET METHOD)

4. Removing Vertical Lower Front Panels (Slot/Hook/Magnet Method)

Note: Simply lift lower front panel up (off hooks and magnets) out (away from case).

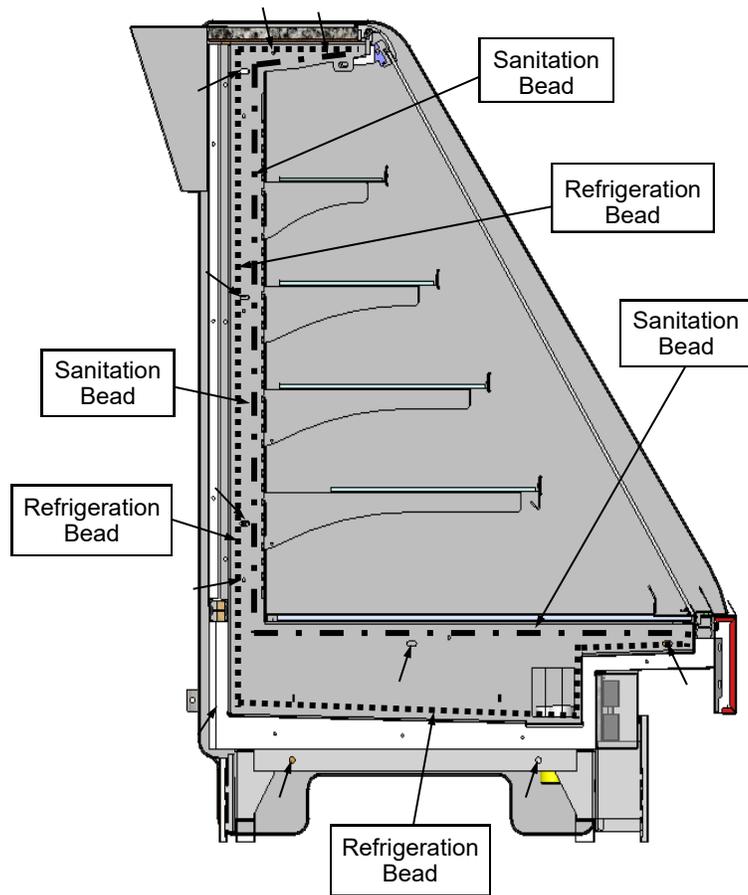


5. Bolting and Caulking Units Together

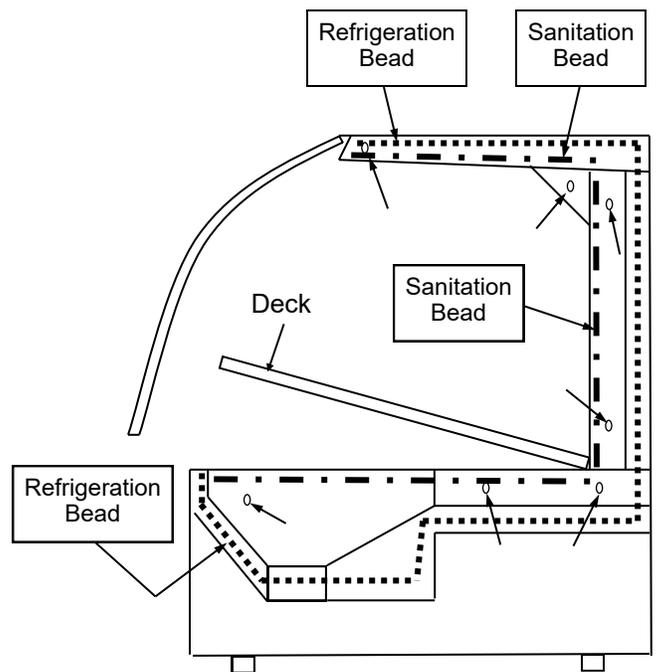
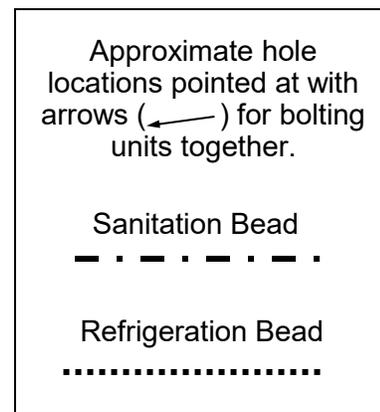
Follow these steps to assure a secure, level lineup.

- A. Begin all lineups leveling from highest point of floor.
- B. After the 'first' case is level, apply industrial grade butyl caulk on non-visible areas (at case end). Use industrial grade silicone sealant on visible areas (at case end).
- C. Form Two (2) Caulk/Sealant Lines: (Sanitation and Refrigeration). See illustration at mid-right for outline of caulk/sealant lines.
- D. Line up 'second' case bolt-hole to bolt-hole to 'first' case.
- E. Using SCC-supplied bolts (found in hole locations OR in installation packet), insert bolts in bolt hole locations (shown at top-right). You may need to remove decking to access lower bolt holes.
- F. Caution! Front of cases **MUST** be flush with each other! After leveling, all cases to be same height.

- G. Using SCC-supplied nuts & bolts, **lightly tighten** each of the 5 to 8 bolts in a cross-wise pattern. Work your way around the pattern, tightening more firmly at each pass. **Do not** firmly tighten one bolt and then start on the next!
- H. After the cases are bolted together, level the 'second' case. Repeat this process for each case to be adjoined.
- I. After all lined-up cases are level, seal all seams with industrial grade silicone sealant.



--- Sample Flat Glass Unit ---



--- Sample Curved Glass Unit ---

6. Glass Shelving

Certain models have glass shelving. Glass shelving will be packed separately for shipment.

- 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 illustrations at right showing both curved and flat front glass (optional).

- Knockouts are on the underside of ballast box / LED driver box making electrical connections.
- Voltage rating is on serial label at case rear.
- Note: Wiring process must be performed by certified electrician only.

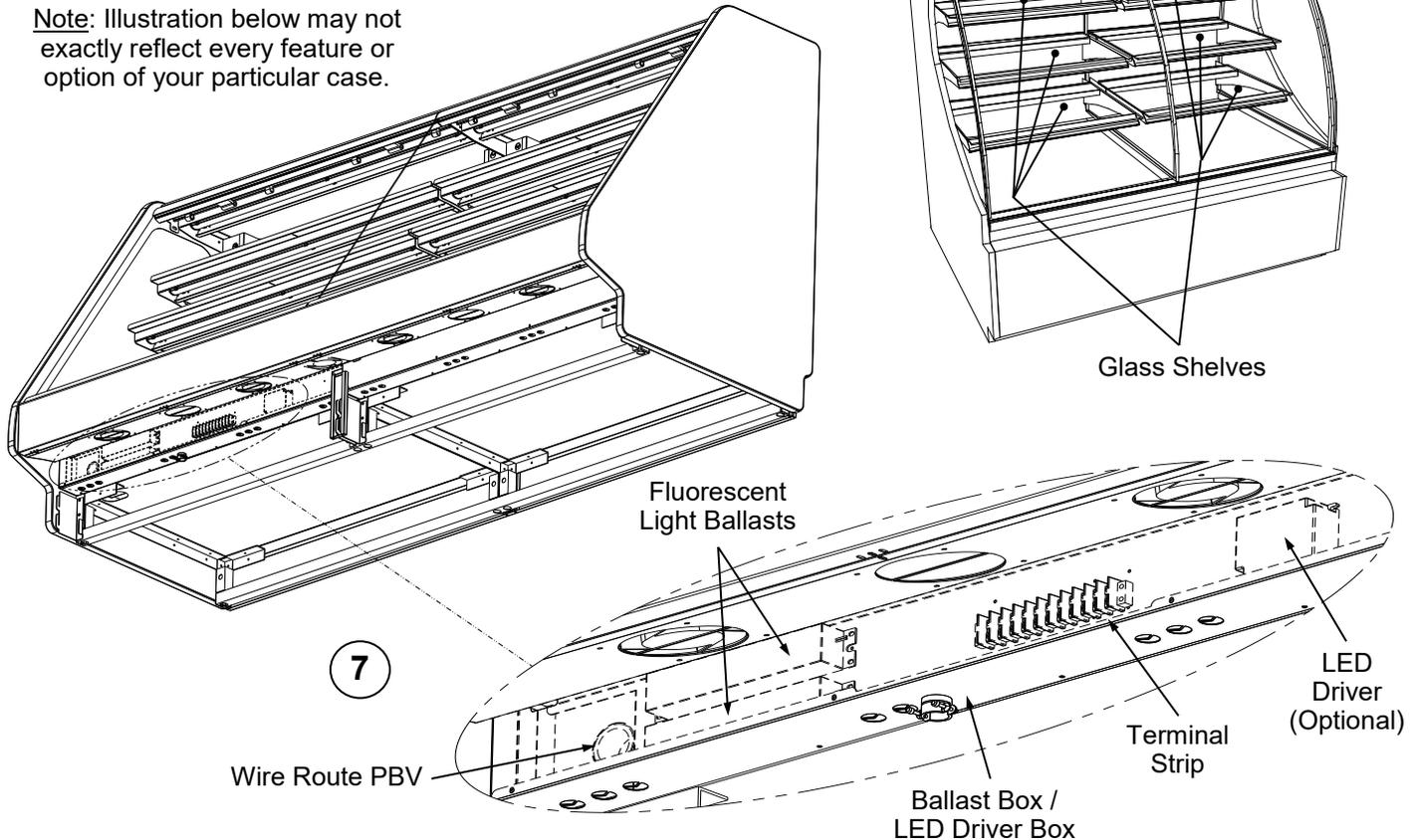
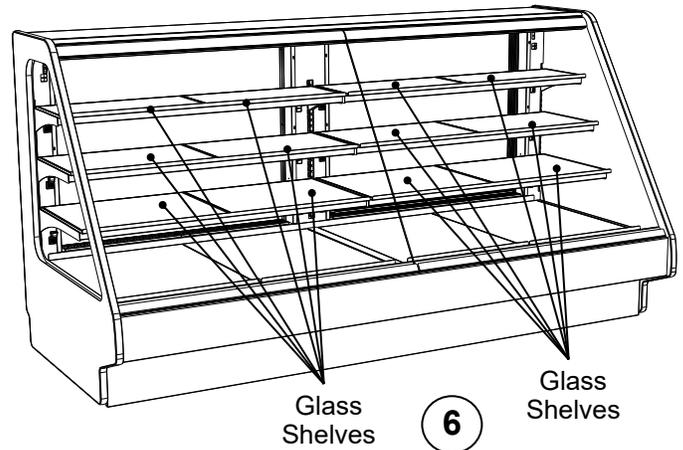
7. Electrical Layout

Front Ballast Box or LED Drive Box (Optional)

Remove front panel. See **INSTALLATION: REMOVAL FROM SKID, REMOVING VERTICAL LOWER FRONT PANELS** section in this manual.

- Stub-up connections are in ballast box.
- Remove ballast box / LED driver box cover.

Note: Illustration below may not exactly reflect every feature or option of your particular case.



INSTALLATION: FRONT FAN ACCESS

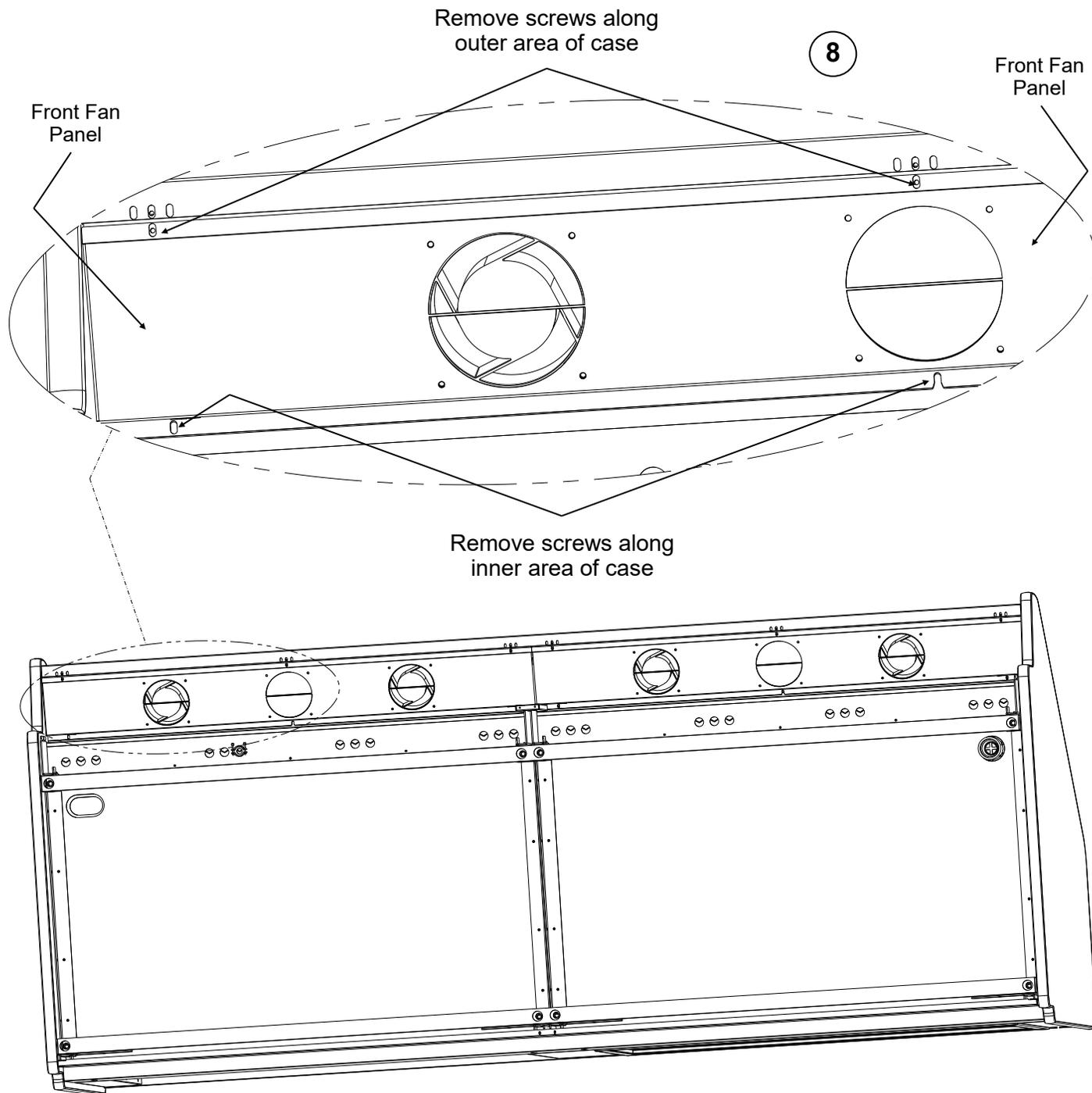
8. Front Fan Access

Front Ballast Box

- Remove screws along outer area of case.
- Remove screws along inner area of case.
- Drop Front Fan panel down.

- Repair/replace fans.
- Replace in reverse order it was removed.
- Voltage rating is on serial label at case rear.

Note: Wiring process must be performed by certified electrician only.



9. Cases With Frame Support Rails: Shim

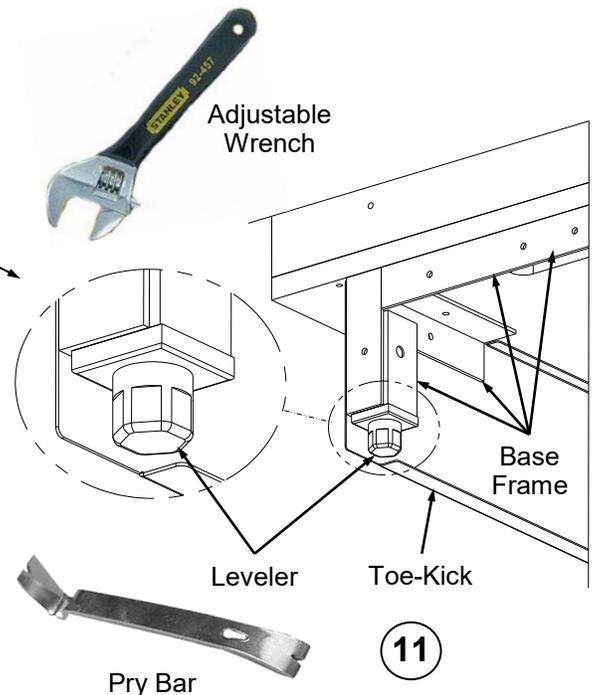
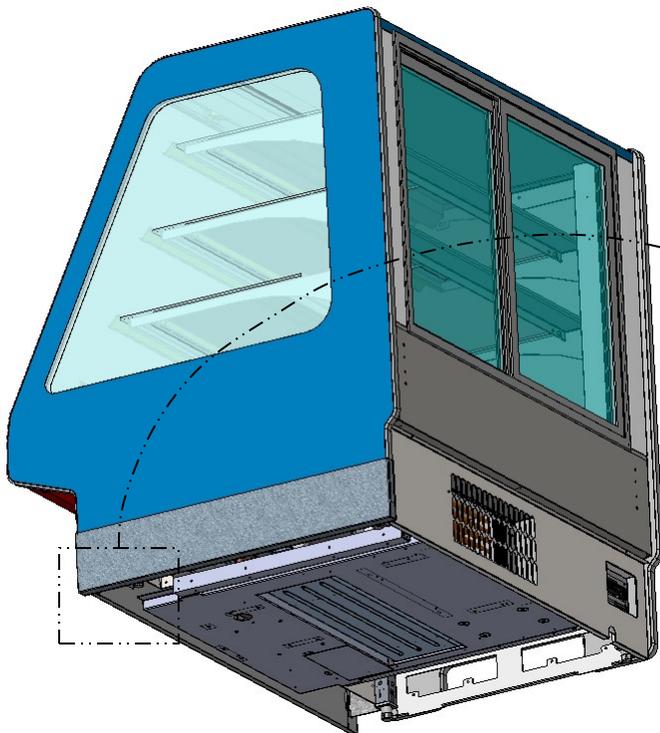
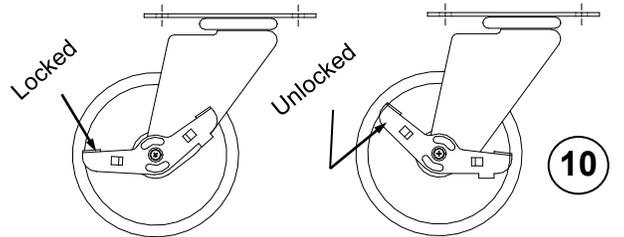
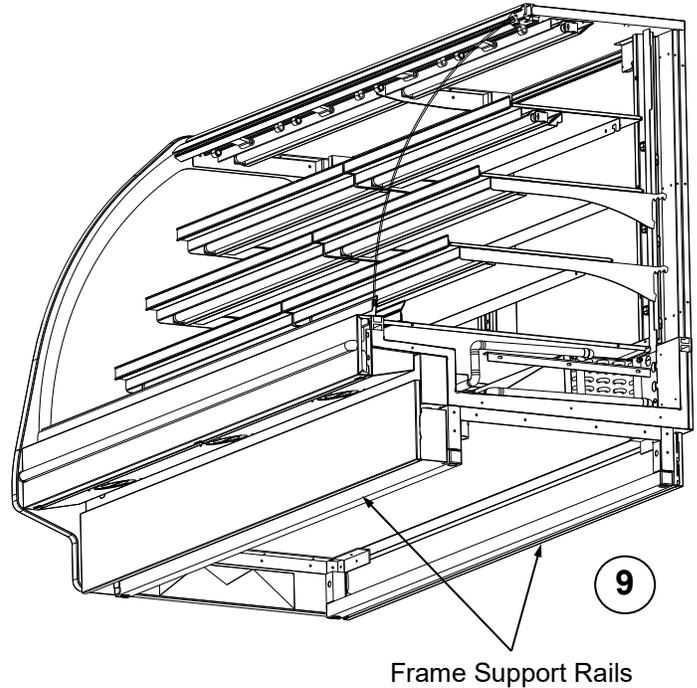
- Partially disassembled illustration at right shows case with frame support rails.
- Shims will be provided with all cases that have frame support rails.
- Use shims to level case.
- **Note: After case is in position, it must be sealed to floor to prevent entry or leakage of liquid or moisture.**

10. Cases With Casters: Lock and Unlock

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

11. Cases With Levelers: Adjust

- After case is in position, adjust case so it is level and plumb (see illustration below-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 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 sample model GHSEH452R.6235 below for general leveler illustration.



12. Remove Front Panel

- Front panel is removable via slot/hook/magnet method.
- See illustration below.

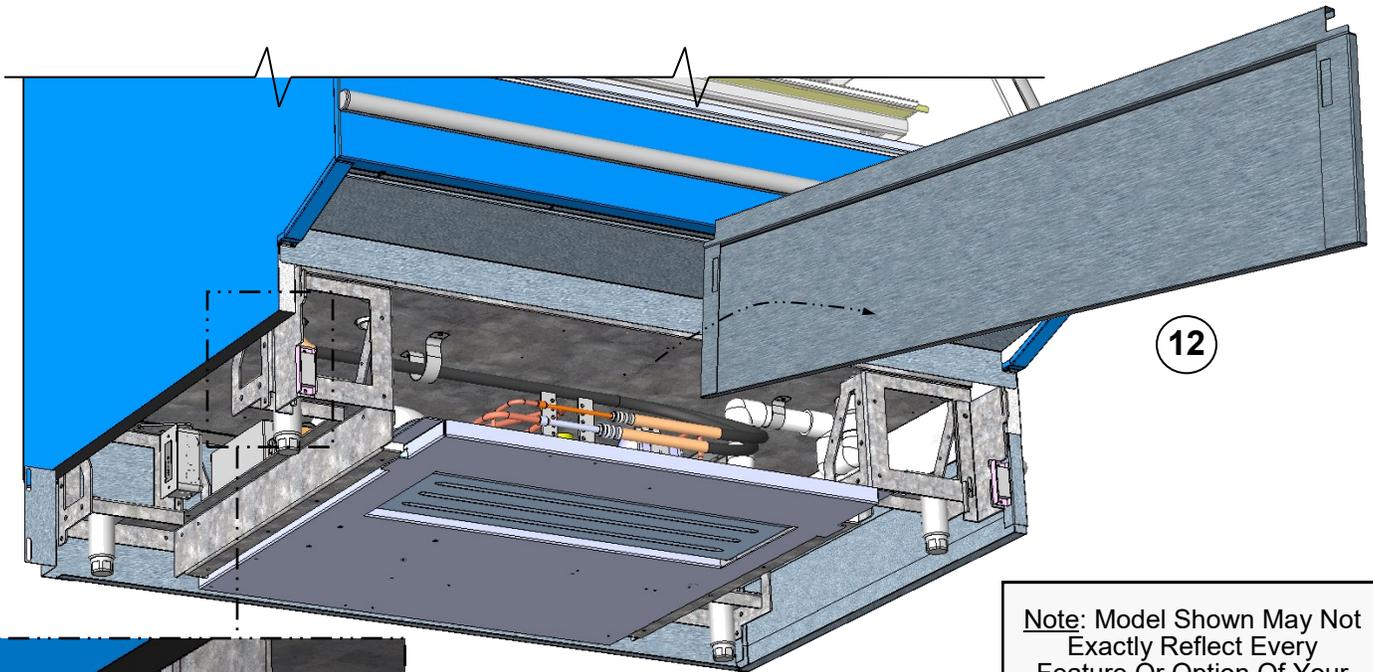
13. Adjust Levelers

- After rear base panels are removed, adjust levelers so the case is level and plumb.

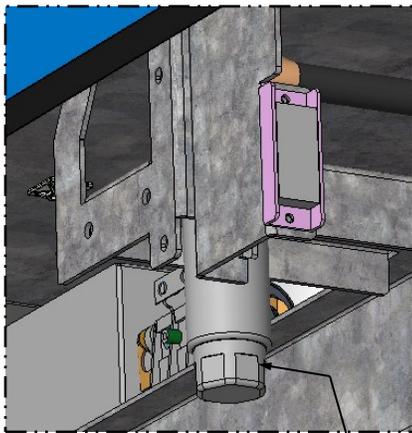
- Depending upon case weight, installer may use a wrench and/or pry bar to accomplish this task.

14. Seal Adjustable Close-Off To Floor

- Adjustable close-off is gravity-based. No screws are required to hold it in place.
- Apply sealant to underside of adjustable close-off and seal it to floor.



Note: Model Shown May Not Exactly Reflect Every Feature Or Option Of Your Particular Merchandiser.

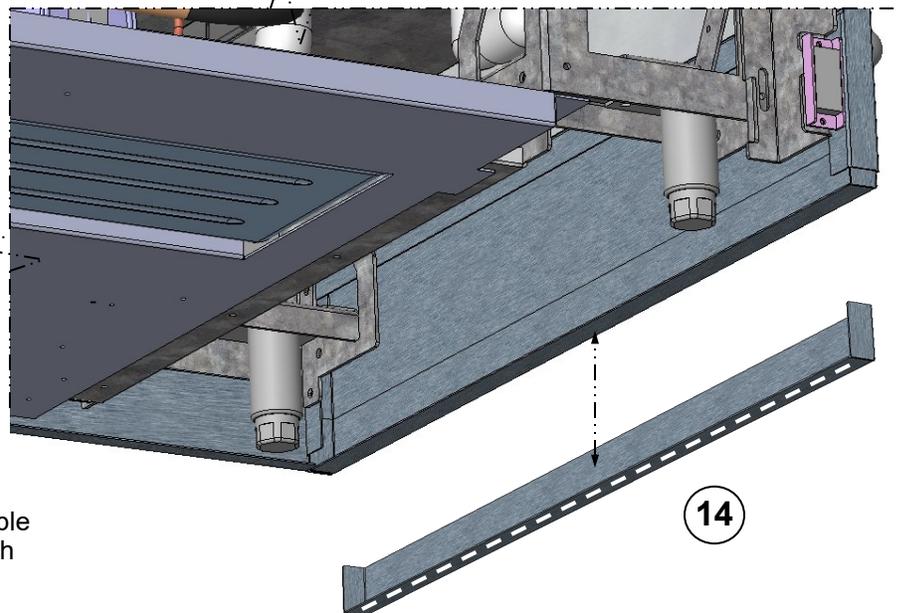


Leveler



Pry Bar

Adjustable Wrench

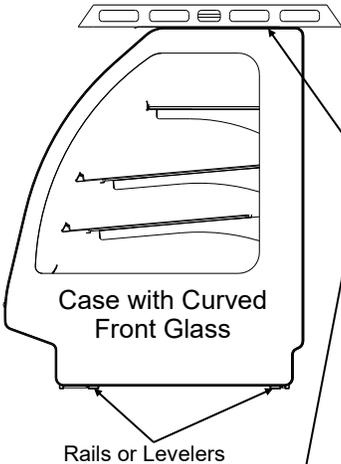


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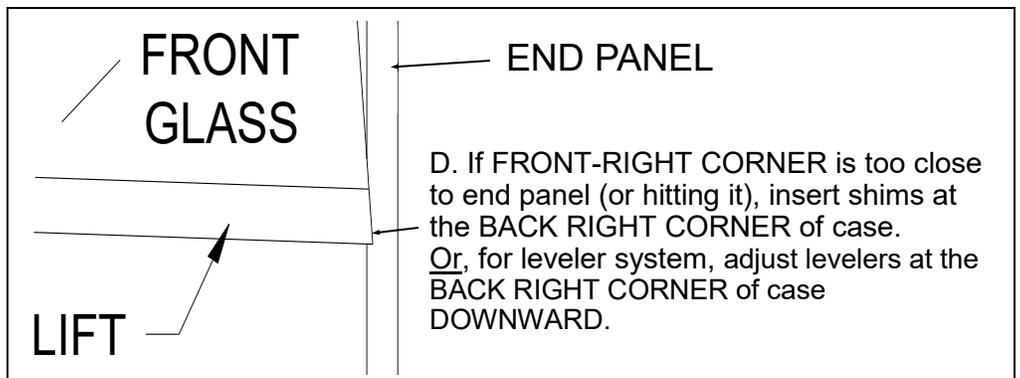
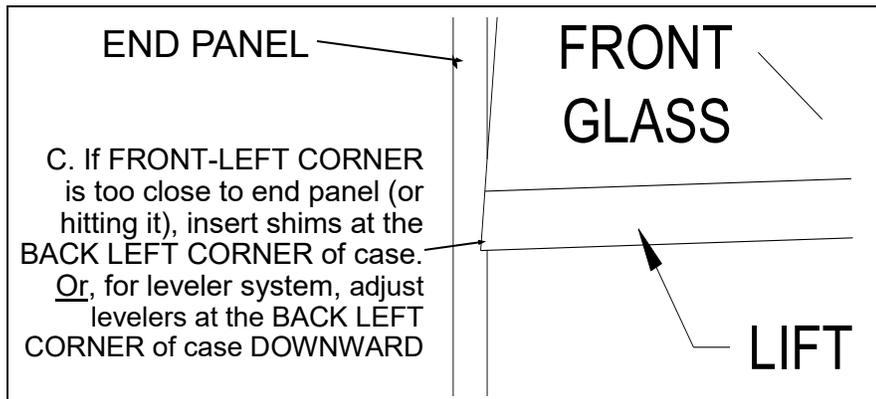
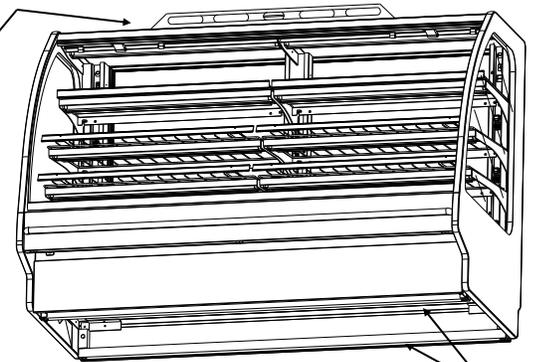
15. Front Glass Alignment & Adjustment via Rails / Levelers (For Curved / Flat Front Glass)

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

A. Side-to-Side Leveling: Place a level on top of display case (parallel to front glass). Level the case by inserting shims under the rails (or, for levelers, rotating either clockwise or counter-clockwise). Follow steps 3 and 4 below for specifics.



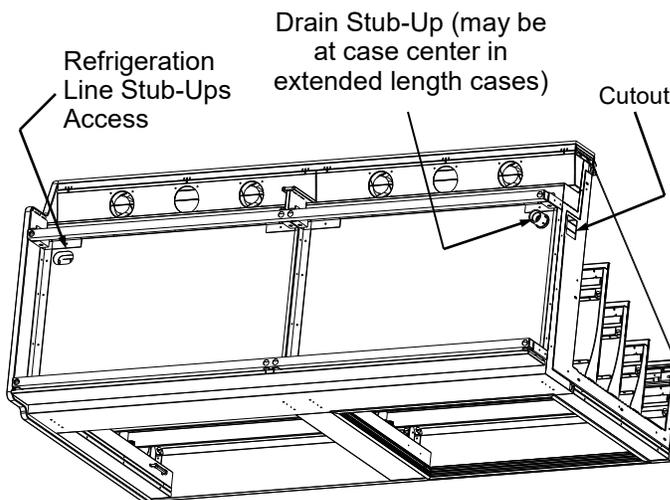
- B. Front-to-Back Leveling:**
- Place a level on top of case, perpendicular to the front glass.
 - Raise or lower either side of case by shimming under the rails or adjusting levelers (following steps 3 & 4 below).
 - Double-check the side-to-side level.



- E. Verification:**
- After inserting shims (or adjusting levelers), open and shut the front glass.
 - 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.

16. Refrigeration Line Stub-Up Connections (Remote Units)

- Remove front panel.
- Refrigerant stub-up access opening is at the front on the left hand side of the base (see illustration at top-right).
- Stub-up connections are accessed from inside the case.
 - Remove interior decks.
 - Remove fan shroud assembly.
- Line connections are in the tub front, on the left hand side
- Remove foam material from the entry hole provided in the tub drain trough.
- Route refrigerant lines through access hole.
 - Run case-to-case connections through cutouts in base.
 - Sweat the high and low pressure



connections.

- Fill access hole with suitable filler to insure watertight integrity of tub.
- Illustration at top-right may not reflect every feature or option of your particular case.

17. Refrigeration Drain Connection (Remote Units)

- Depending upon drain access needs, either front or rear panel may be removed to gain access to drain stub-up.
- 1.5" male PVC stub-up connection is under the case on the right hand side.
- Drain stub-up may be at case center in extended length cases.
- Connect tub drain to floor drain. Maintain 1/4"-fall per foot to provide proper drainage.
- Illustration at top-right may not reflect every feature or option of your particular case.

18. Condensate Pan / Drain Position (Self-Contained Units)

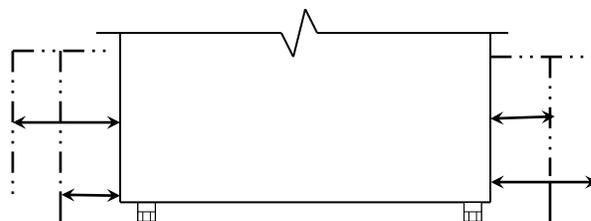
- Remove the Rear Panel by lifting up & out.
- Slide the Condenser Unit out from case.
- Condenser Unit access is now available.
- Insure that the condensate pan is installed under the PVC condensate drain trap.
- Insure that the condensate pan is plugged into the receptacle inside base.
- Lower rear panel back into place.
- See **Drain, Hose and Bracket Placement** section in Operating Manual for details.

19. 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.

20. 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.
- Illustration below may not reflect every feature or option of your particular case.



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

1. Display Case Start-Up

A. Case

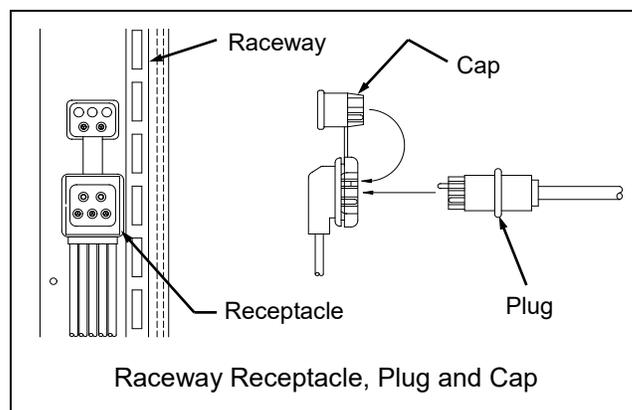
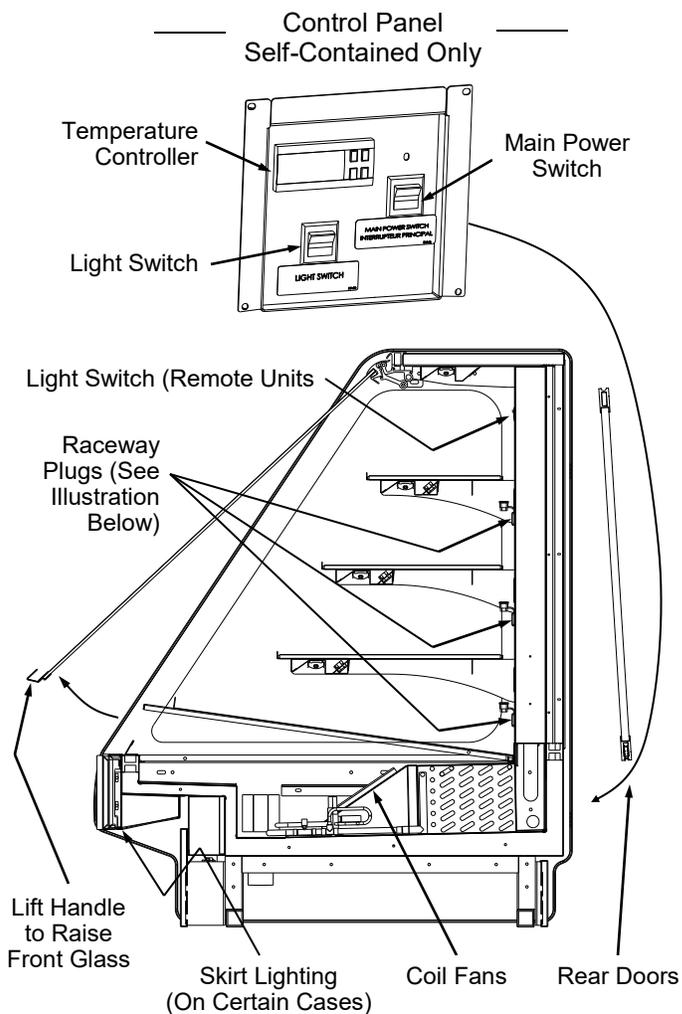
- Remote: Case will power-up when properly field wired (or plugged in).
- Self-Contained: Turn main power on.
- After case is powered up, lift curved or flat front glass by grasping lift handle and raising (see illustration at right).
- **Note:** Illustration at right reflects flat front glass (optional). Yours may have curved front glass.
- Lift deck to check that coil fans are running.
- Coil fans (and in self-contained units, compressor motor) should turn on.

B. Lights

- Turn lights on.
 - > **Self-Contained Units:** Switch is likely at rear of case (as shown at top-right) or at rear plenum (as shown at mid-right).
 - > **Remote Units:** Switch is likely at rear plenum. If not, there may be NO SWITCH (lights will come on when case powers up).
- All lights should come on at the same time. If bulbs are fluorescent, first time lighting may require a short warm-up period. LEDs have no warm-up period.
- Slightly dim / flickering of new bulbs is normal. If lights do not turn on, check raceway plugs.
- Lighting is wired in series so **all lights must be plugged in or receptacles capped** for case lights to be on. See illustration at right.
- LED Lights may have single or dual rows (depending upon model).
- **Note:** If lights do not come on, check that plug is properly inserted into socket.

C. Thermostat (All Self-Contained Units and Some Remote Units)

- Check that compressor symbol light is on.
- Compressor will likely be identified with:
 - ⊗ Compressor symbol (common in programmable controllers).
 - 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.



D. Saturated Suction Temperature (Remote)

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

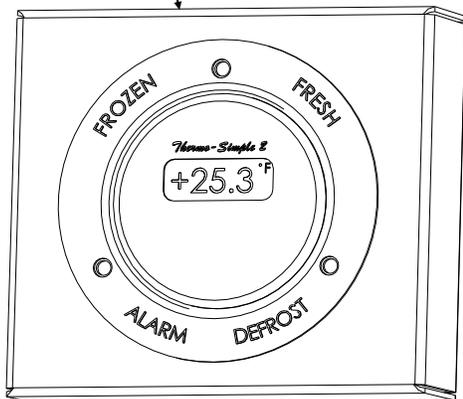
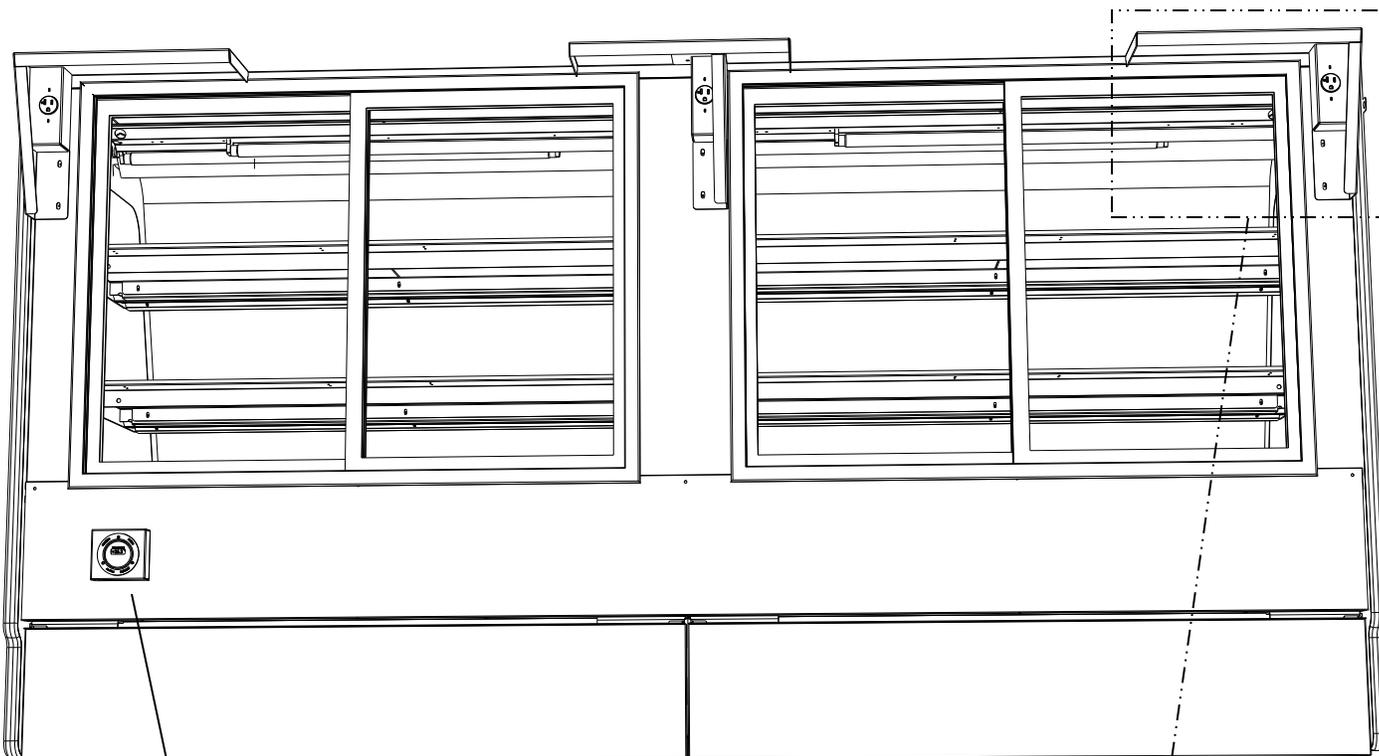
1. Scale Stands and Outlets

Scale Stands and Outlets

- Scale stands and outlets are mainly found on Model GHSAC852. However, they may also be on other models.
- There are three (3) scale stands and outlets.
- Only use 110V plugs that are compatible with scale stand outlets.

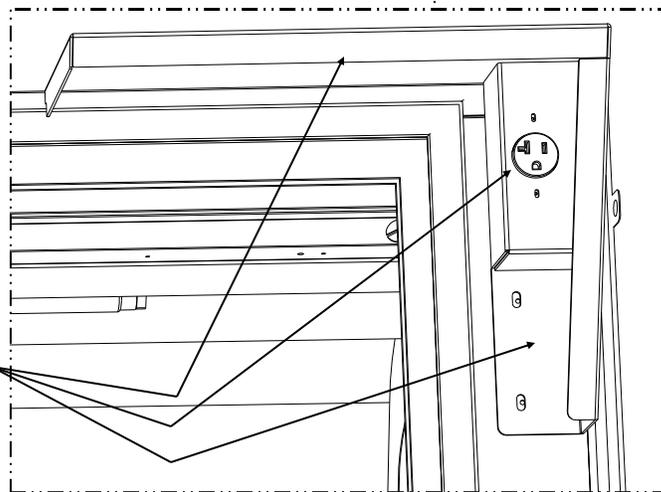
2. Thermo-Simple 2 (TS.2) Digital Thermometer Alarm

- Thermo-Simple 2 digital thermometer alarm is mainly found on Model GHSAC852. However, it may also be on other models.
- See next two pages for specifics on the Thermo-Simple 2 digital thermometer alarm.



Thermo-Simple 2 (TS.2) Digital Thermometer Alarm

Scale Stand and Receptacle (Typical)



Thermo-Simple 2 (TS.2)

The Thermo-Simple 2 (TS.2) is an advanced communicating digital thermometer alarm with preprogrammed settings for many low, medium and hot temperature applications. Alert functionality can be as simple as “no light, no problem” to full color display effects for conditions such as defrost, frozen, fresh, normal operation, high temperature alarm, freeze warning and hot food case alarms.

Thermo-Simple 2 (TS.2) Colors Schemes / Flashing / Alarm Status

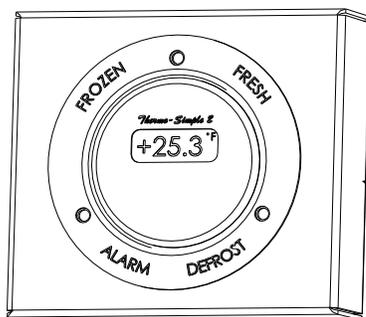
The general LED states are solid and flashing colors. Please note that there are slight differences in LED color schemes at different set-points. For more detail refer to the Set-points section.

Solid color states mean good status (whether it is for frozen product (Blue) or for fresh product (Green)). Solid color states also indicate the state of the case using various colors (i.e. case in defrost cycle).

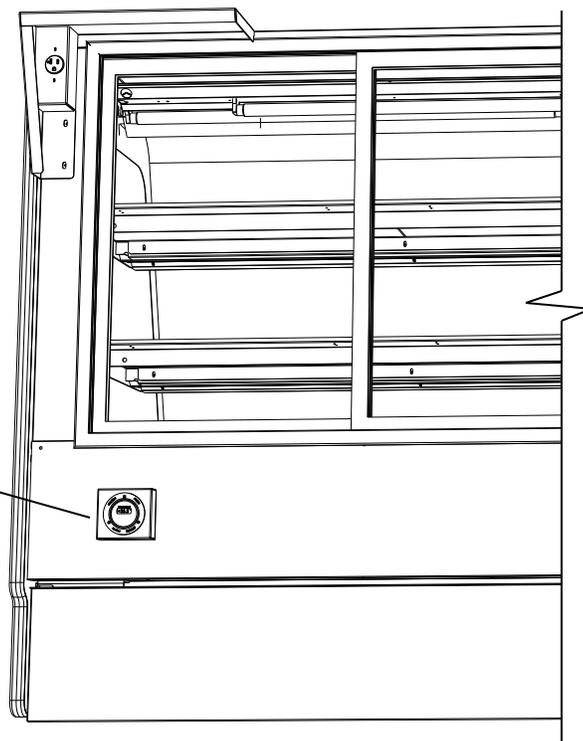
Flashing LED states indicate an alarm status, where attention is needed. Flashing blue signifies that the case temperature has dipped below the freezing set point (33.5°F freeze alarm). Flashing amber/yellow signifies that the case has been above set point temperature for at least 60 minutes (70 minutes for walk-in cooler set-points). Flashing red signifies that the case has been above set point temperature for at least 120 minutes (140 minutes on walk-in cooler set-points).

NOTE: THESE TWO PAGES PROVIDE A GENERAL OVERVIEW OF THE **Thermo-Simple 2 (TS.2)** DIGITAL THERMOMETER ALARM.

SEE THE **Thermo-Simple 2 (TS.2)** Manual (SCC P/N 20-16086) FOR MORE SPECIFIC INFORMATION.

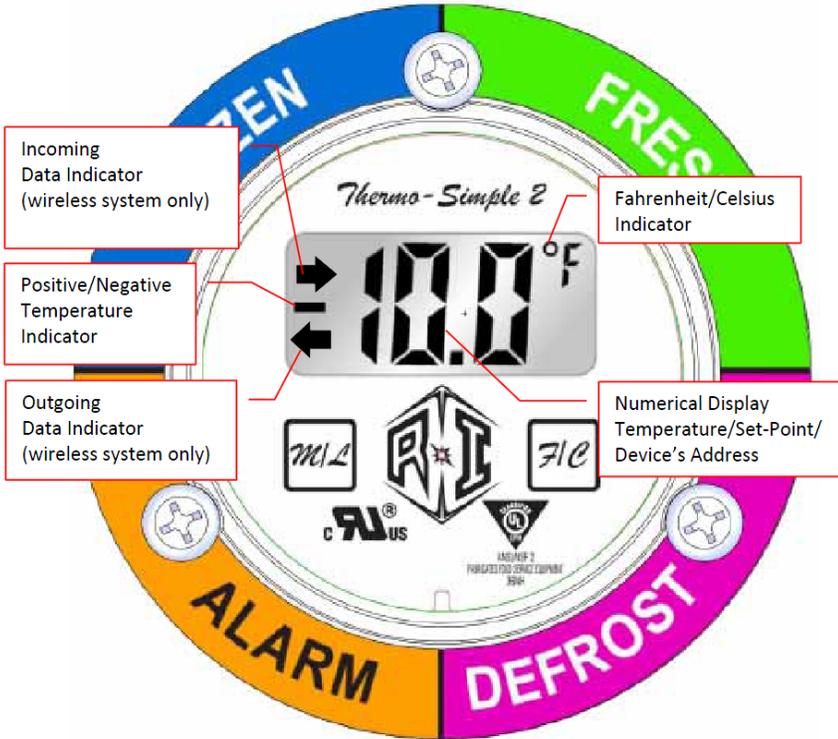


Thermo-Simple 2 (TS.2) Digital Thermometer Alarm
(Note: Alarm is Not on All Cases)



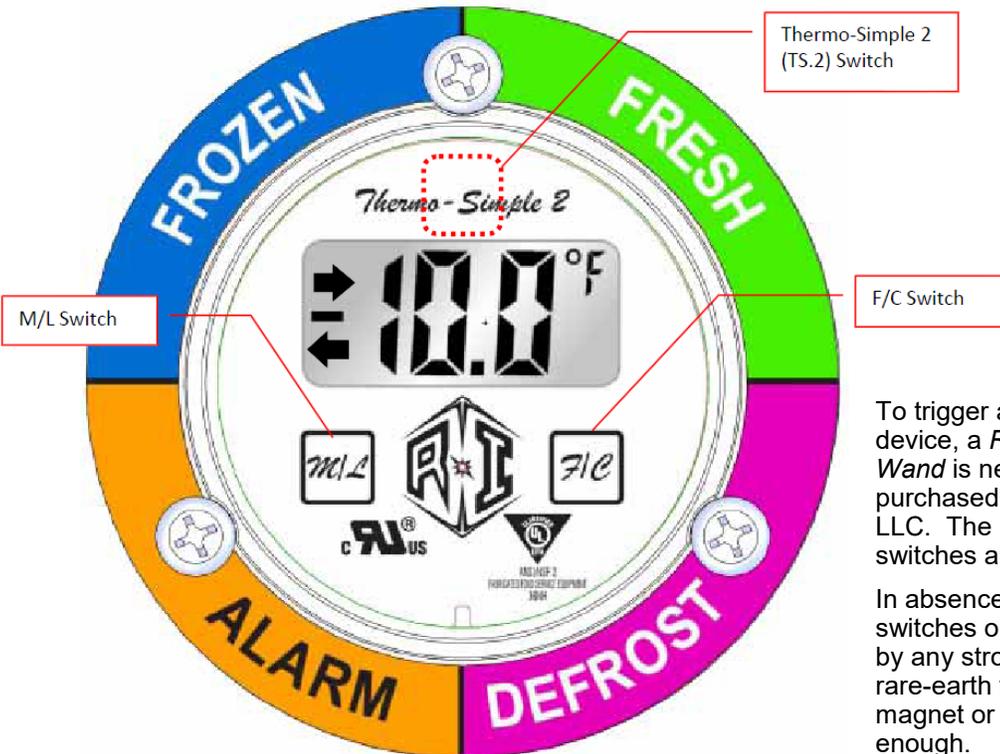
--- Model GHSAC852R Shown Above ---

Thermo-Simple 2 (TS.2) Display



NOTE: THESE TWO PAGES PROVIDE A GENERAL OVERVIEW OF THE *Thermo-Simple 2 (TS.2)* DIGITAL THERMOMETER ALARM. SEE THE *Thermo-Simple 2 (TS.2)* Manual (SCC P/N 20-16086) FOR MORE SPECIFIC INFORMATION.

Thermo-Simple 2 (TS.2) Magnetic Switches



To trigger a magnetic switch on the TS.2 device, a *Refrigeration Innovation Magik Wand* is needed. The Magik Wand can be purchased from Refrigeration Innovation, LLC. The Magik Wand will ensure that the switches are triggered properly.

In absence of a Magik Wand, the magnetic switches on a TS.2 device can be triggered by any strong magnet (Neodymium rare-earth type). A typical refrigerator door magnet or whiteboard magnet is not strong enough.

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

DRAIN, HOSE AND BRACKET PLACEMENT ILLUSTRATIONS

Three Condensate Systems Are Illustrated Here:

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

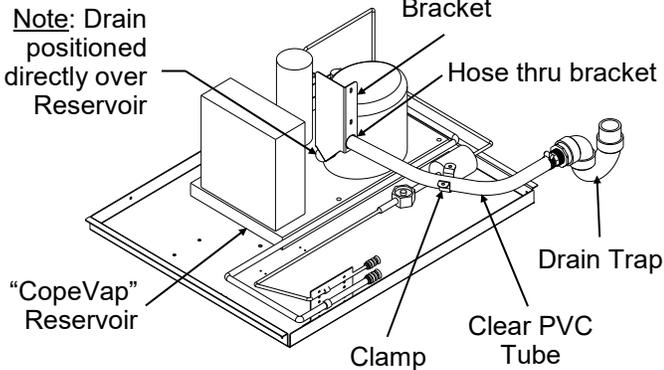
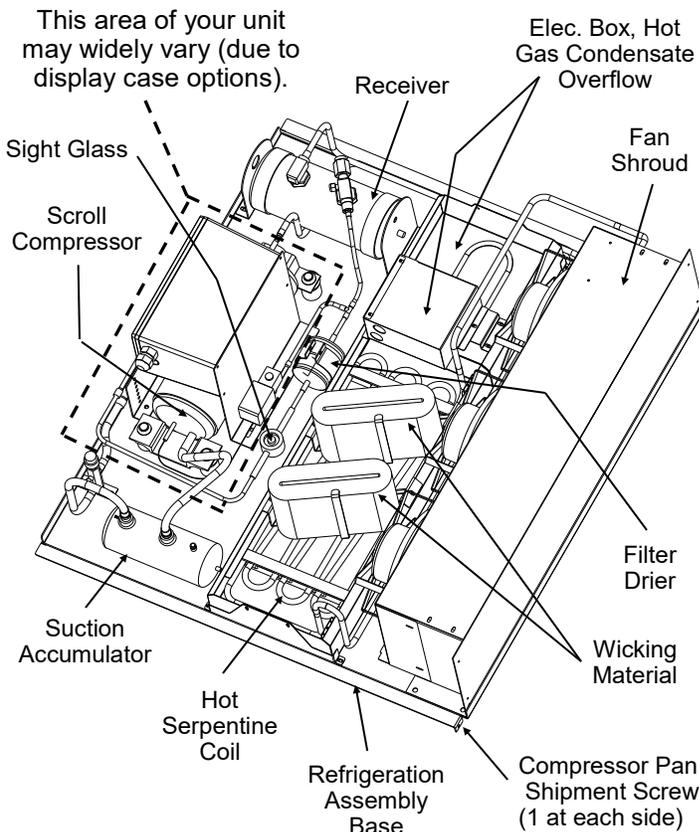
Illustration #2: Hot Gas Condensate System.

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

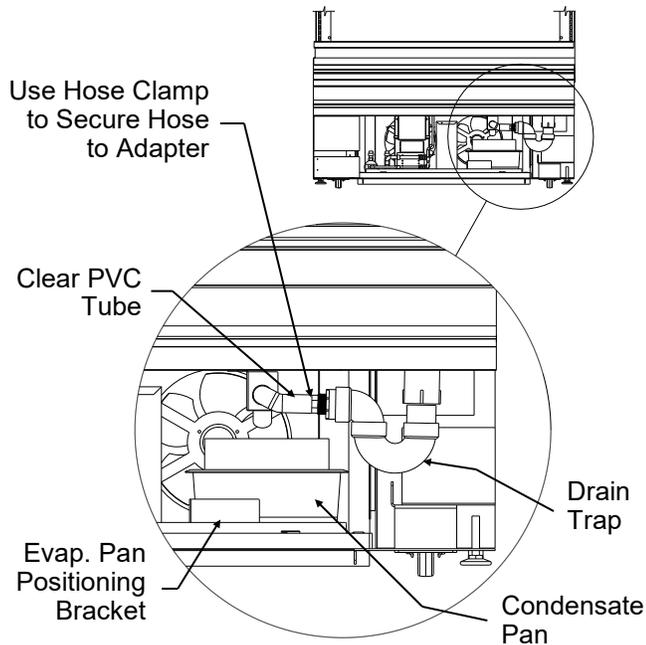
Warning! Regardless of Condensate System, the Hose & Drain Trap **MUST BE** secured & positioned over Condensate Pan to prevent water on floor. When sliding out Condenser Unit, be careful that drain is not pulled from proper position.

2. Hot Gas Condensate System.

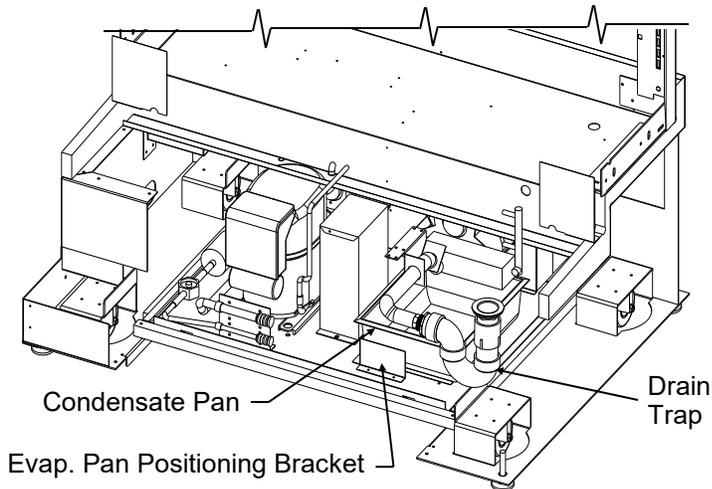
- Hot gas serpentine coil is routed through a condensate reservoir allowing water to be heated. This system uses a wicking material (partially submersed) with warm condenser air passing through it for evaporation.
- Also incorporates an overflow reservoir with heating element to ensure complete condensate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



1. Hot Gas "CopeVap" Condensate System.



3A. Front View of Electrical Heat Rod Condensate System



3B. Isometric View of Electrical Heat Rod Condensate System

Note: See *INSTALLATION* section in this manual for the following:

- *Front Panel adjustment and removal*
- *Angled Base adjustment and removal*
- *Vertical Base adjustment and removal*

1. Fluorescent Light Fixtures

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

Caution: Lamps have been 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 this operating manual.

Light fixtures are located on underside of shelf assemblies, at underside of top board (inside of case). See illustration at top-right.

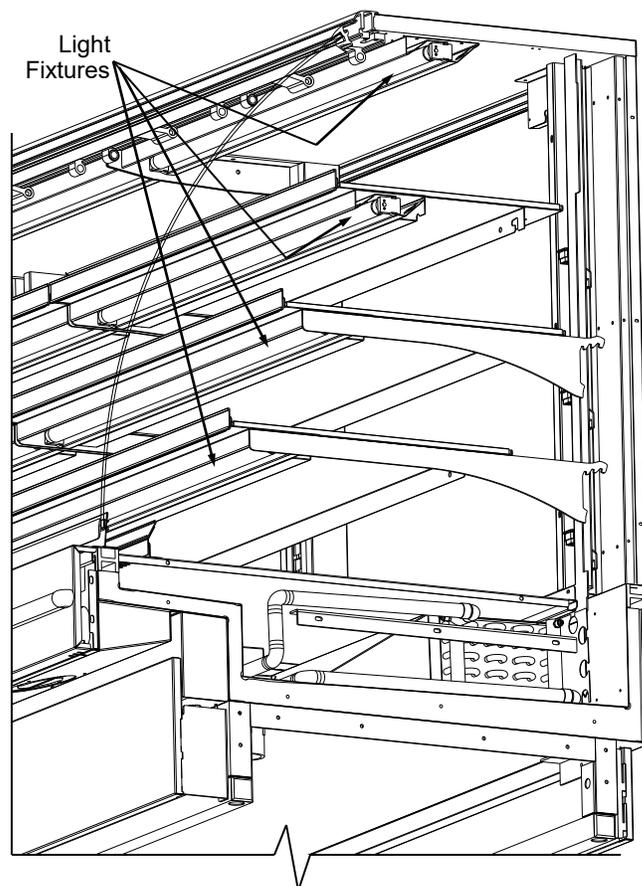
Removal of lamp:

- 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 back side at the bulb ends and pulling the remaining contact from sockets.
- See illustrations at mid and lower-right.

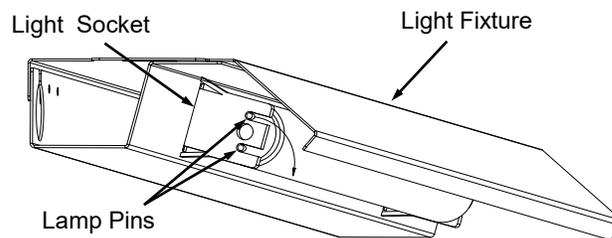
Installation of lamp:

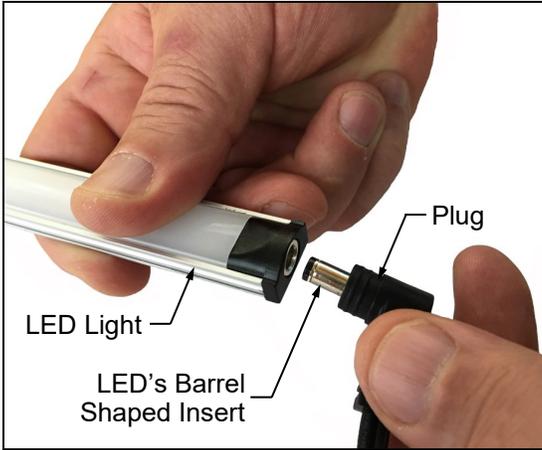
- Align pins with slot.
- Insert pins into socket by rotating the bulb 1/4-turn to secure either the (upper or lower) pin contacts into the sockets.
- Rotate remaining bulb contacts (1/4-turn) into remaining lamp mounting socket contacts.
- See illustrations at right.

See next page for LED Light Fixture information



Above illustration has end panel removed for illustrative purposes only.





2. LED Light Power Cord and Plug

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

3. LED Light Locations

- LED lights are located at both header, shelving and under front nose of case.
- 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

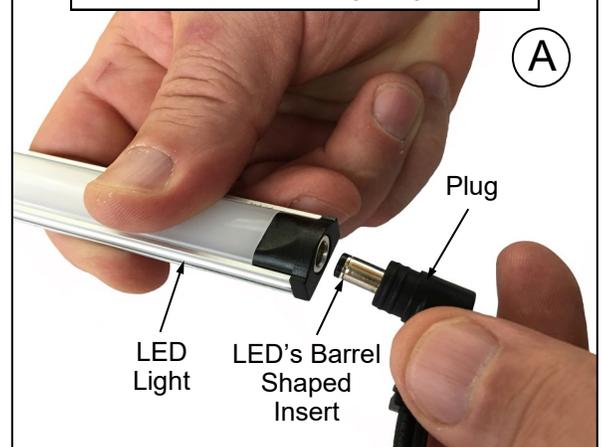
Removal of faulty LED light:

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

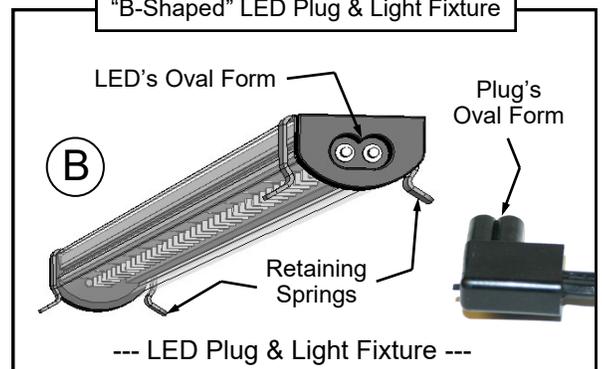
Replacement of LED light:

- 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.
- A. Certain plug designs ("barrel type") merely require that plug be pushed all the way in.
- B. Other plugs require "oval edge" of plug to connect to oval edge of LED light.
- See illustrations at right.

"Barrel-Shaped" LED Plug & Light Fixture



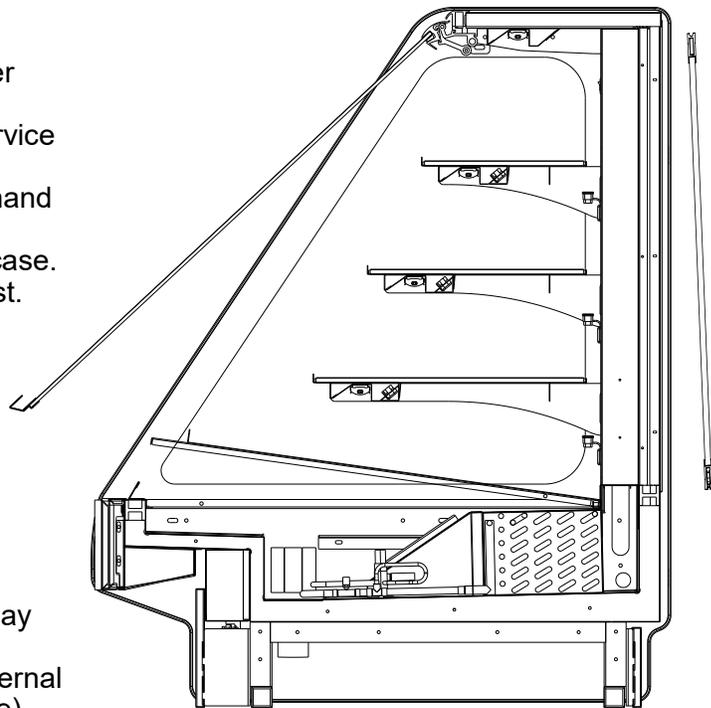
"B-Shaped" LED Plug & Light Fixture



5. Rear Sliding Doors

Note: Doors are not interchangeable. There is an inner and outer door.

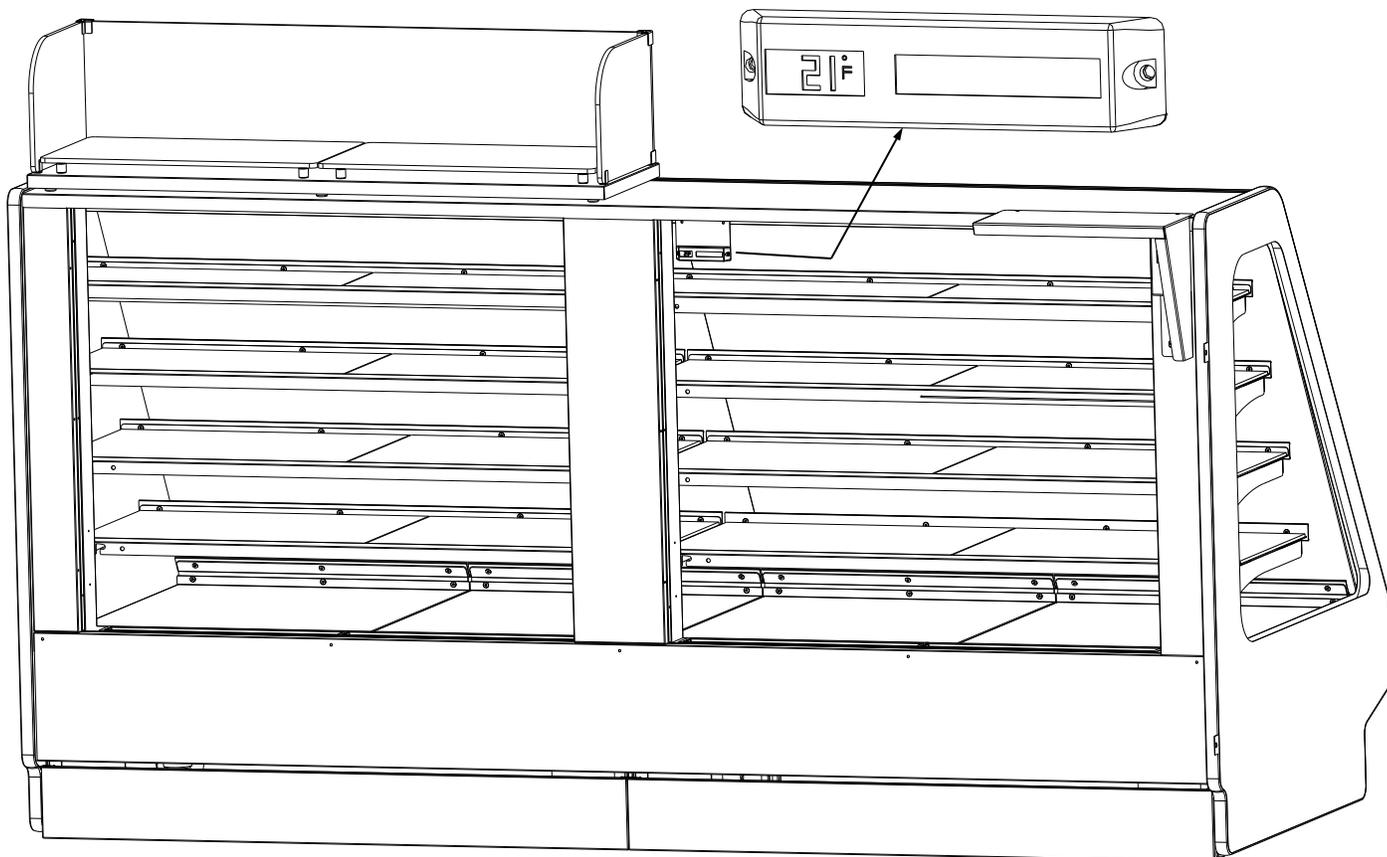
- The outer door is the right hand door (from the service side or rear of case).
- It is identified by a stop located at the lower right hand corner to the inside of the case.
- To remove, move doors toward the center of the case.
- Outer door must be removed first and replaced last.
- Individually lift each door up toward the top of the case; pivot the bottom of the door out.
- Carefully set rear sliding doors down to prevent them from falling.
- Replace rear sliding doors in reverse order they were removed.



Case With Single Set of Rear Sliding Doors

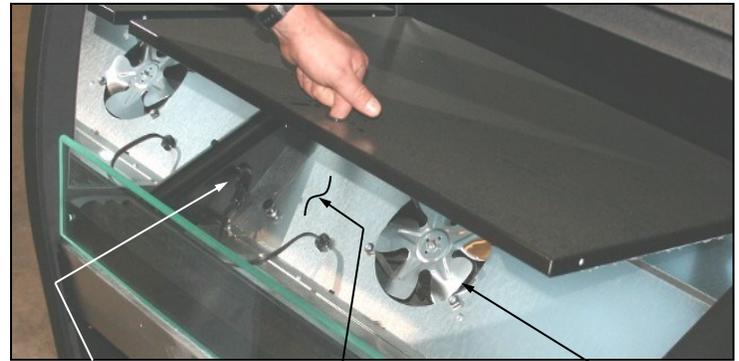
6. Thermometer (Placement and Function)

- Thermometers are found at varying locations. Illustration below shows rear placement. Yours may vary.
- Thermometers provided with equipment reflect internal air temperature only (NOT actual food temperature).
- Use probe thermometers to determine actual product temperatures.



7. Drain and Expansion Valve Access

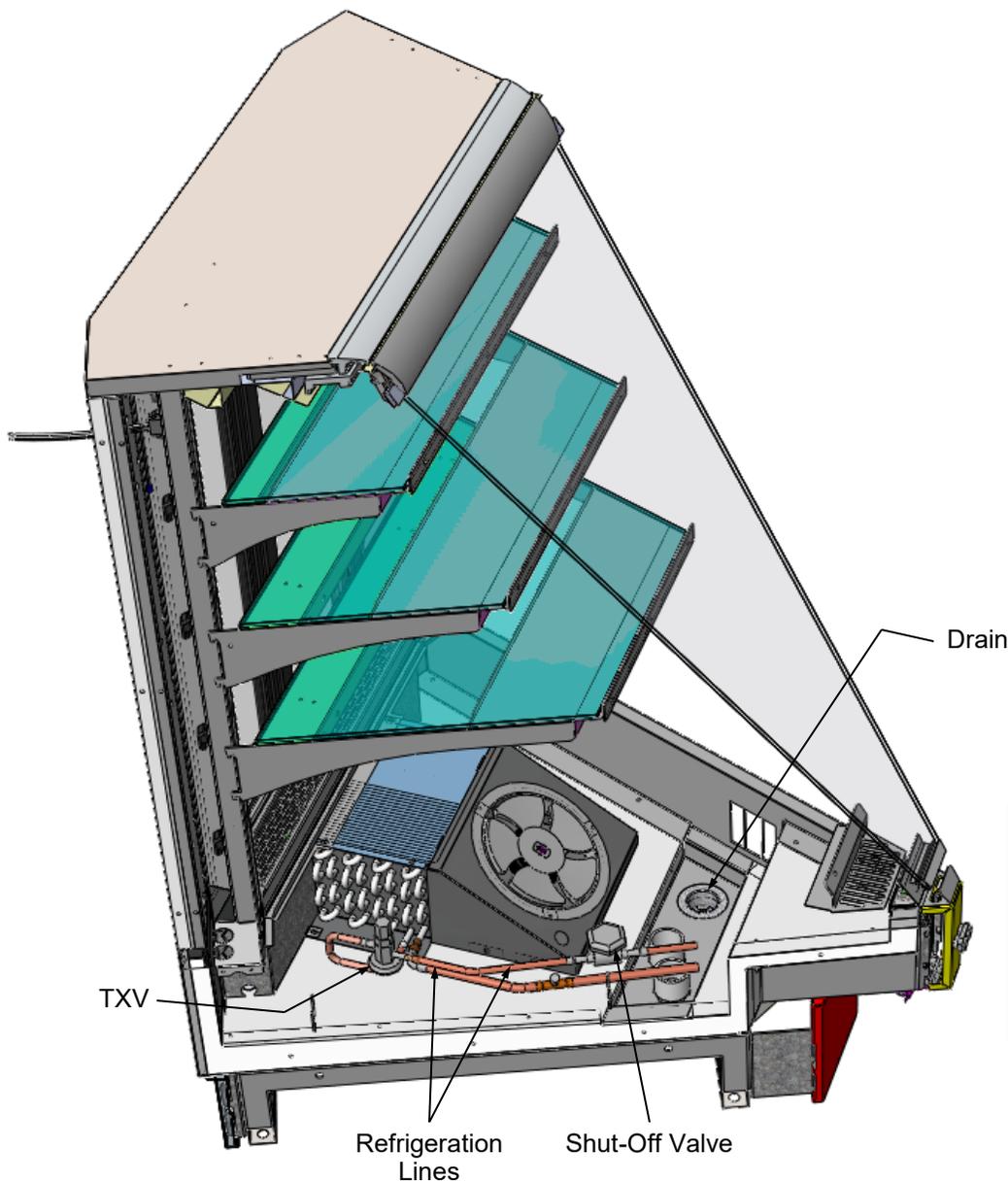
- The drain and expansion valve are both accessible from the front of the case.
- Unplug the fans (one plug per side) and remove the fastener from the access panel in the front right (or left) corner of the unit (as shown in illustration at right).
- The drain, thermostatic expansion valve (TXV) and shut-off valve (optional, depending upon model) are directly below the access panel.
- See illustration below for partially disassembled model depicting shut-off valve, drain, refrigeration lines, TXV, etc.



Fan Plug

TXV Access Panel

Evaporator Fan



TXV

Refrigeration
Lines

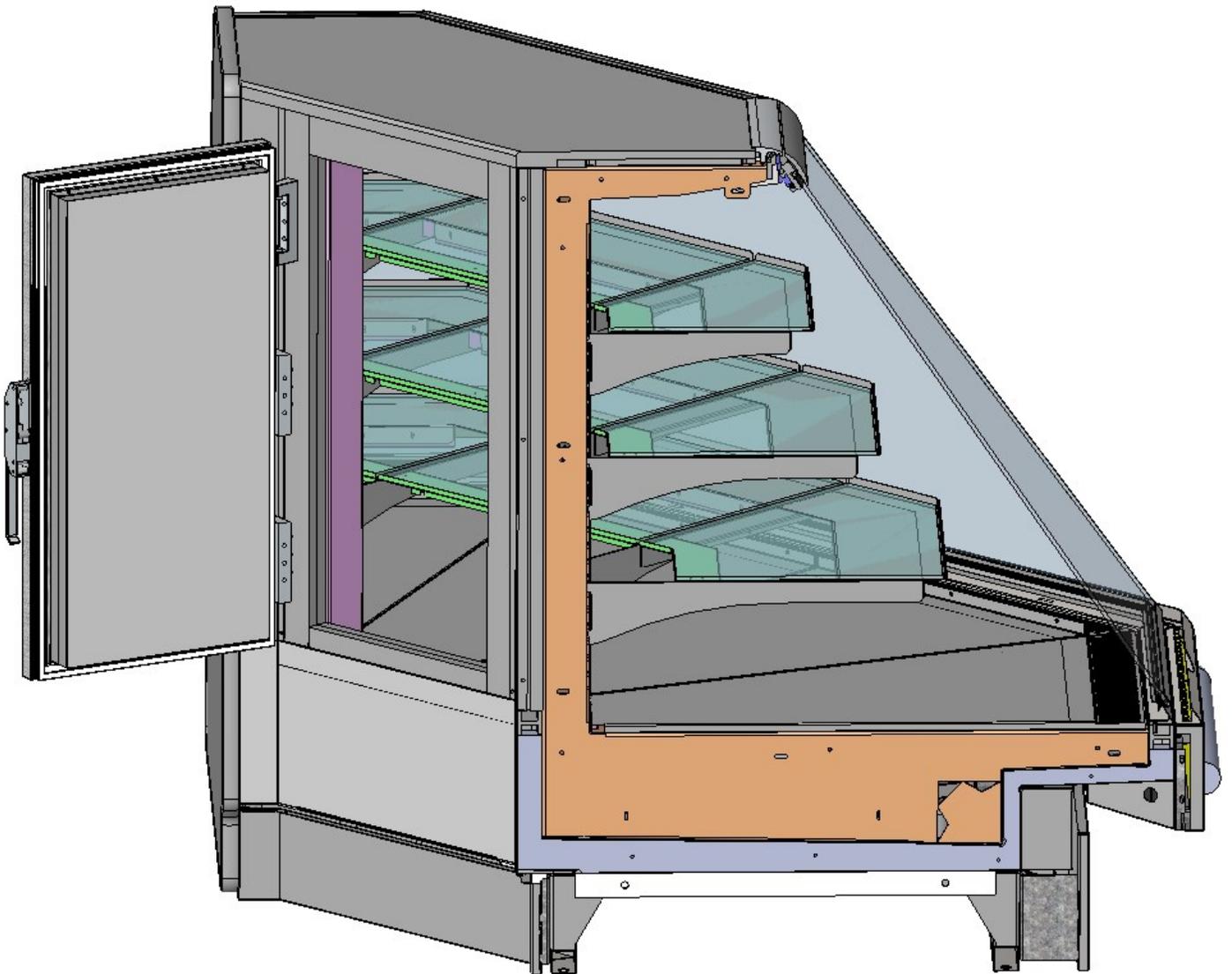
Shut-Off Valve

Drain

Note: Model GHSN456RLB 45° Inside Wedge (Shown at Left) May Not Exactly Reflect Every Feature or Option of Your Particular Case)

8. Hinged Rear Doors (Model GHSX952RLB, Etc.)

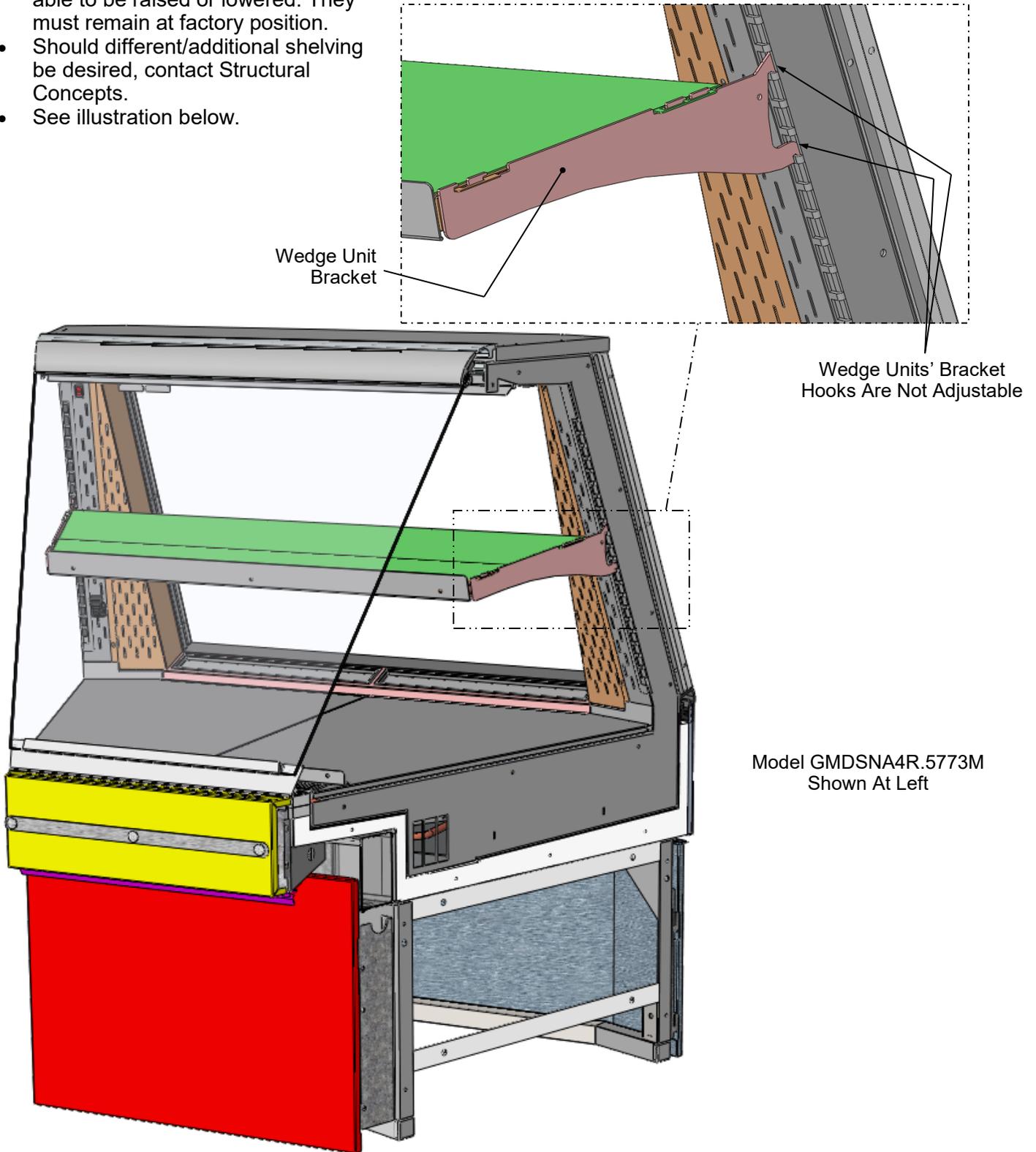
- Caution! Do not open door BEYOND hinge its stopping point. Doing so can weaken or break door hinges.
- Door handle mechanism must latch securely to maintain proper temperature in merchandiser.
- See illustration below.



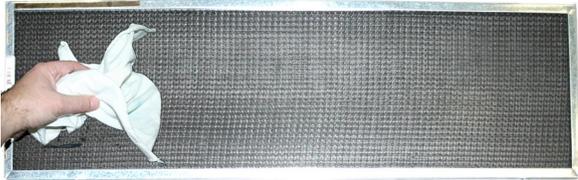
Model GHSX952RLB Shown Above
With Rear Door Opened

9. Wedge Units With Non-Adjustable Shelving (Model GMSNA4R.5773M, Etc.)

- Wedge unit dimensional variance at each notch prevent adjustable shelving (either up or down) .
- Thus, wedge unit shelving is NOT able to be raised or lowered. They must remain at factory position.
- Should different/additional shelving be desired, contact Structural Concepts.
- See illustration below.



GENERAL CLEANING (TO BE PERFORMED BY STORE PERSONNEL)

AREA	FREQ.	INSTRUCTIONS
Exterior	Daily	Acrylic (Air Deflectors/Storage Areas): Clean any acrylic surfaces with a mild soap and water solution and a soft cloth. Caution! Never use ammonia-based cleaners on acrylic. Incorrect cleaning agents or abrasive cleaning cloths cause surface to 'cloud' over time.
	Daily	Glass / Mirrors / Shelving (Including Sliding Door Glass): Clean side glass, glass shelves, and mirrors with a household or commercial glass cleaner. Clean out door track with moist cloth.
	Daily	Shelves/Decking: Non-glass shelves and decking can be cleaned with a warm soap and water solution and soft cloth.
	Daily	End Panels, Front Panel, Toe-Kick, Scale Stands, etc.: Wipe off all surfaces with warm water and mild soap solution and non-abrasive cloth.
	Weekly	Wood, Laminate and Painted Surfaces: Clean with mild soap and water solution and a soft cloth.
	Weekly	<p>Magnetic Condenser Coil Filter (Self-Contained Units Only):</p> <ul style="list-style-type: none"> • This filter helps prevent dust particles from entering condenser coil. • It is accessible at case rear. • Clean magnetic condenser coil filter by following either of these steps: <ol style="list-style-type: none"> 1. As magnetic condenser coil filter is dishwasher safe, remove from case (no screw removal required) and use a rag or soft-bristled brush to wipe off excess dust particles from filter. Run in normal dishwasher cycle. Remove from dishwasher. Dry with soft cloth or paper towel. Return to case. 2. If not using dishwasher, remove magnetic condenser coil filter from case. Use a rag or soft-bristled brush to wipe off excess dust particles from filter. Submerge in warm, soapy water. Use soft-bristled brush to remove dust, dirt, grease and grime that may collect on filter. Rinse thoroughly.
		
Interior	Daily	Shelves/Deck: Shelves/Deck can be cleaned with a warm soap and water solution. For stubborn stains/residue, decks can be removed and cleaned with soap and water solution or submersed in hot, soapy water solution. Rinse thoroughly. Dry. Return to case.
	Weekly	<p>Shelving Brackets / Air Return Grilles / Decking</p> <ul style="list-style-type: none"> • Wipe off shelving brackets, air return grilles and decking with moist cloth. • Shelving brackets can be removed for more thorough cleaning. • Air return grilles can be removed for more thorough cleaning. • Decking is NOT to be removed by store personnel.
	Monthly	Condenser Coil: Vacuum or brush grille condenser coil at case front. Use metal or fiber brush to remove dust and dirt that can collect on condenser coils. Be careful not to damage the fins on the coil. See INSTALLATION section in manual for side panel removal information.

TROUBLESHOOTING (TO BE PERFORMED BY STORE PERSONNEL)

CONDITION	TROUBLESHOOTING
Case Not Lining Up	See INSTALLATION section in this manual 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 <i>on</i> position.
	Check that ALL of the light cords and plugs are properly connected. See MAINTENANCE FUNDAMENTALS - STANDARD LIGHT FIXTURES or MAINTENANCE FUNDAMENTALS - LED LIGHTS 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 / TECHNICAL INFORMATION / WARNINGS 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.

GENERAL CLEANING (TO BE PERFORMED BY TRAINED SERVICE PROVIDERS ONLY)

AREA TO CLEAN	FREQUENCY	INSTRUCTIONS
Case Interior	Monthly	<p><u>Evaporator Fan Shroud Area (Under Decking):</u> <i>Caution! Due to rotating fans in area, turn off case and disconnect plug from wall outlet before beginning fan shroud (and surrounding tub area) cleaning!</i> 1) Turn off power. 2) Remove decks from case. 3) Clean fan shroud area (and surrounding tub area) with moist cloth.</p>
	Quarterly	<p><u>Tub & Drain:</u> <i>Caution! Due to rotating fans in area, turn off case and disconnect plug from wall outlet before beginning tub & drain cleaning!</i> Vacuum tub under decks. Clean with soap and water solution. Wipe dry with clean cloth. Keep drain free of debris to prevent clogging.</p>

CONDITION	TROUBLESHOOTING
Case Not Lining Up	See INSTALLATION section in this manual for instructions on properly aligning case (alongside other cases) and adjusting levelers.
Water Is On The Floor	<p>Caution! Water on flooring can cause much damage! Until cause is determined (and repaired), following these procedures:</p> <ul style="list-style-type: none"> • Use wet-dry vacuum (or mop & bucket) to remove standing water. • Use 'catch pans' for water to drain into. Swap out regularly until case has completely drained. <p>Note: See <i>Drain, Hose and Bracket Placement Illustrations</i> sheet in this manual for views of different condensate systems used in display cases.</p>
	Check that the drain trap is free of debris.
	Check that the drain hose is correctly positioned over condensate pan (or floor drain, for remote units).
	<p>Check store conditions.</p> <ul style="list-style-type: none"> • To prevent condensation in NSF/ANSI Type I environments, maximum conditions are to be 55% relative humidity / 75° Fahrenheit. • For NSF/ANSI Type II environments, maximum conditions are to be 55% relative humidity / 80° Fahrenheit. • If you are unsure if your unit is classified as NSF/ANSI Type I or Type II, see tag next to serial label on your case.
	Check condensate pan float for proper operation (heat rod condensate system only).
	Check that condensate pan is properly plugged in or connected.
	<p>Caution! Condensate pan may be malfunctioning (electrical heat rod condensate system). If so, water will overflow pan and seep onto flooring causing damage! Until condensate pan is functioning (or is replaced), following these procedures:</p> <ul style="list-style-type: none"> • Use wet-dry vacuum (or mop & bucket) to remove standing water. • Use 'catch pans' for water to drain into. Swap out regularly until case has completely drained.
	<p>Caution! Disruption of power can cause water to overflow pan and seep onto flooring causing damage! Check that power to case is constant. Until power is restored, following these procedures:</p> <ul style="list-style-type: none"> • Use wet-dry vacuum (or mop & bucket) to remove standing water. • Use 'catch pans' for water to drainage. Swap out regularly until evaporation of case is complete (or until power is restored). <p>When power to case is restored, condensate pan should function properly and water will no longer overflow onto flooring.</p>
	<p>Caution! Wicking material may be dirty or worn and need replacement (hot gas condensate only).</p> <ul style="list-style-type: none"> • 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.

CONDITION	TROUBLESHOOTING
Case Lights Are Not Working	Check that Light switch is in the <i>on</i> position.
	Check that ALL of the light cords and plugs are properly connected. See MAINTENANCE - LIGHT FIXTURES (LED LIGHT FIXTURES) section.
	Service Technicians Only: Check voltage at LED drivers. If voltage is entering but not exiting, LED driver may be faulty.
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.
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.
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.

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 contaminants 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 <u>15-feet</u> 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 <ul style="list-style-type: none"> a. Poor thermal contact. b. Warm location.

PREVENTIVE MAINTENANCE (TO BE PERFORMED BY TRAINED SERVICE PROVIDER)

WARNING! TURN OFF CASE BEFORE PERFORMING PREVENTIVE MAINTENANCE!

PREVENTIVE MAINTENANCE	FREQ.	INSTRUCTIONS
Case Exterior	Quarterly	<p>Condensing Coil:</p> <ul style="list-style-type: none"> • Remove panel to access area by lifting up and off or by screw removal (depending on case). • Use air pressure or industrial strength vacuum; clean dust and dirt that may collect on the Condenser Coil. • Caution! Airborne dust can contaminating food! Use wet rags to cover area where air pressure is blowing. • Warning! Coil fins are sharp. Handle with care! • Return panel to case.
	Quarterly	<p>Refrigeration Package/Compressor Area: <i>Caution! Be certain to disconnect power from case before cleaning Refrigeration Package!</i></p> <ul style="list-style-type: none"> • <i>Warning! Condensate Pan Is HOT! Disconnect power from case and allow to cool before cleaning condensate pan!</i> • Slide/Roll compressor package out from under case. • See REFRIGERATION FUNDAMENTALS section for in-depth instructions on accessing the condensate pan. • Use a scrub-brush and a non-corrosive de-scaling solution (to prevent corrosion, lime and rust). Follow instructions as to proper dilution, safety precautions and scrubbing method. • Electric heater coil condensate pans can be removed and cleaned. • After thoroughly cleaning pan with scrub-brush and solution, rinse thoroughly with clean water (in spray bottle) and wipe dry with sponge or paper towel. • Use moist cloth to wipe off dust & debris that collects on various parts (fans, sight glass, overflow pan, etc.). • Slide refrigeration assembly back under case. • Replace front panel and lower grille via hooks (no screws required).
	Quarterly	<p>Under Case Cleaning: Once refrigeration package is clear of unit, vacuum under case to remove dust and dirt that may collect under case.</p>
Case Interior	Quarterly	<p>Tub Area (Evaporator Coil, Drain, Fans, Brackets):</p> <p>Caution! Disconnect power from the case before cleaning tub, coil, fan, motor and drain area!</p> <ul style="list-style-type: none"> • Use vacuum to clean entire area. • After vacuuming, clean area with warm water, clean cloth, and mild soap solution. • Remove any debris that may clog drain. • Wipe down fan blades, motors and brackets 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 is shown. A variety of models is displayed on serial label for illustration purposes only. Your case's serial label will reflect only one model.
- For additional technical information and service, see the *TECHNICAL SERVICE* page in this manual for instructions on contacting Structural Concepts' Technical Service Department.

Structural Concepts®		Fusion	MODEL NRS3648RXV-SAMPLE
888 E. Porter Rd - Muskegon, MI 49441			SERIAL NO. 12345X30DZ098765
		Blend	SAMPLE ONLY
Intertek	Intertek	Addenda	
		Harmony	
		Impulse	
		Oasis	SAMPLE ONLY
		Reveal	
		Grocerant	
3048256		ELECTRICAL RATING	120/1/60 16 A
Conforms to UL Std. 471		REFRIGERANT	R513A AMOUNT 50 OZ
Conforms to NSF/ANSI Stds. 2 & 7		DESIGN PRESSURE	HIGH 186 LOW 88
CERTIFIED TO CAN/CSA		MINIMUM CIRCUIT AMPACITY	20A
STD C22.2 NO 120		MAXIMUM OVERCURRENT	20A
Super Heat Temp	6-8 °F	FOR PARTS AND SERVICE	SCAN FOR PRODUCT LITERATURE
Defrost	6 defrosts per day, 45 °F	CALL 1-800-433-9490	
SAMPLE ONLY	SAMPLE ONLY	SAMPLE ONLY	Sample QR Code
SAMPLE ONLY	SAMPLE ONLY	SAMPLE ONLY	

--- 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



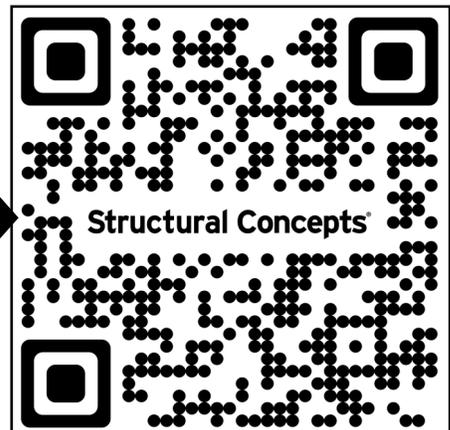
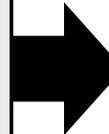
Carel® iJF Platform



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 TECHNICAL SERVICE CONTACT INFORMATION & LIMITED WARRANTY

TECH SERVICE/WARRANTY CONTACT INFO:

1 (800) 433-9490 / EXTENSION 1

DAYS/HOURS AVAILABLE:

**MONDAY - FRIDAY (CLOSED HOLIDAYS)
8:00 A.M. TO 8:00 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.

