READ AND SAVE THESE INSTRUCTIONS

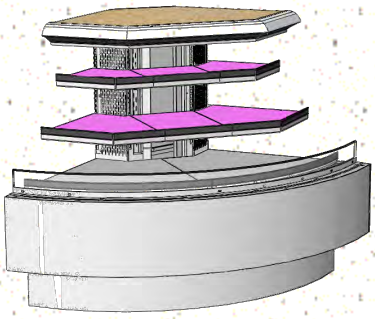
G-SERIES INSTALLATION & OPERATING MANUAL

PN 20-18548

G-SERIES REFRIGERATED SELF-SERVICE MEDIUM VOLUME MERCHANDISERS*

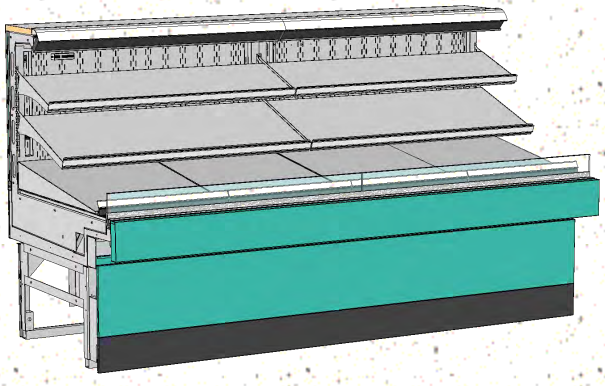
PLEASE NOTE THE FOLLOWING:

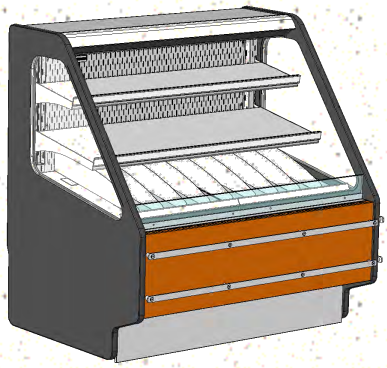
1. **YOUR SPECIFIC MODEL NUMBER IS LOCATED ON THE SERIAL LABEL (USUALLY AT CASE REAR). HOWEVER, LABEL LOCATIONS MAY VARY DEPENDING UPON MODEL.**
2. **SEE *SERIAL LABEL LOCATION & INFORMATION* SECTION IN THIS MANUAL FOR SAMPLE LABELS.**
3. **CASES SHOWN IN THIS MANUAL MAY REFLECT FULL OR OPEN END PANELS / STRAIGHT OR ANGLED BASES. YOURS MAY DIFFER.**



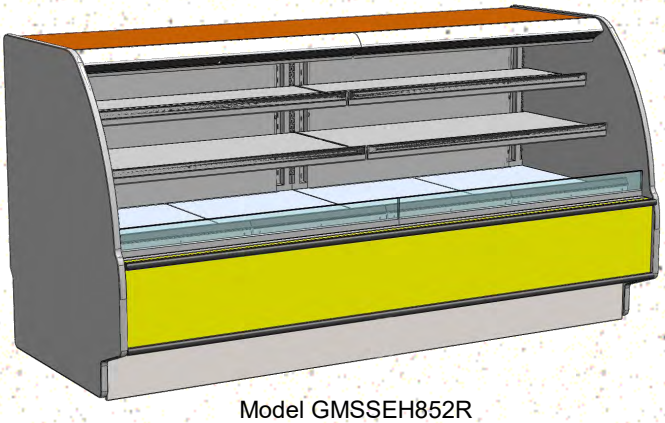
Model GMSSEHX952R

Model GLDSS856R.6959D With Straight Back, Narrow Header and Removable Angled Decks

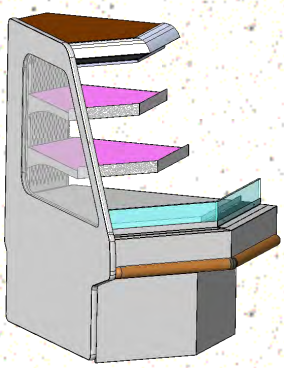




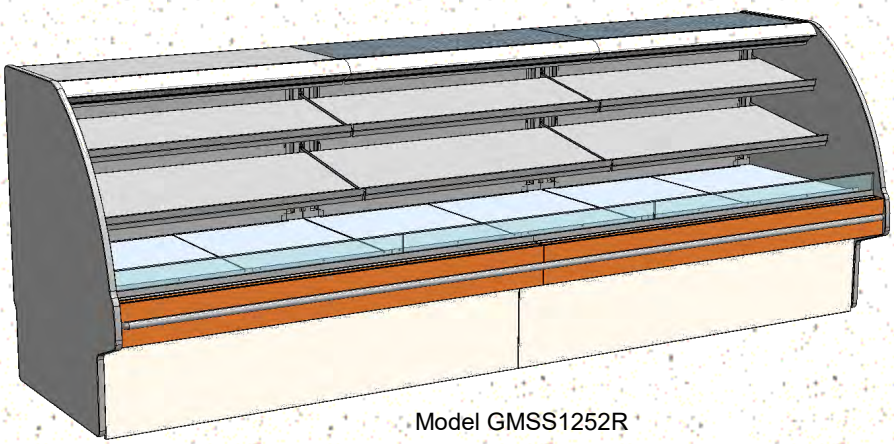
Model GMSSNHS452R.6935A With Angled Deck & Stainless Steel Dividers



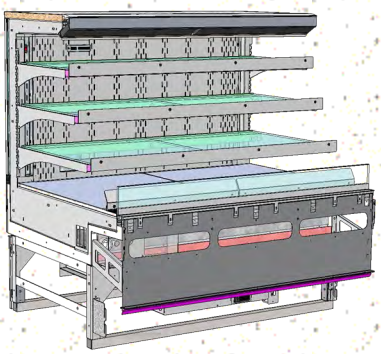
Model GMSSEH852R



Model GMSSX452R



Model GMSS1252R



Model GMSSV452R.6750A (Pre-Assembly Condition)

**For a detailed list models that are represented by this manual, see next page.*

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TABLE OF CONTENTS

The Following Models* Are Represented By This Manual:

GLDSS856R.6959D, GLDSS1056R.6959E, GMSS452R, GMSS552R, GMSS652R, GMSS852R, GMSS852R.6802D, GMSS1052R, GMSSEH852R, GMSSEHX952R, GMSS1052R, GMSS1252R, GMSS1252R.6029E, GMSSEH1252R, GMSSNHS452R.6935A, GMSSV452R GMSSV452R.6750A, GMSSV452R.7215,GMSSV652R.7215 GMSSV1052R.6750E and GMSSX452R.

*Note: This manual may also be used for models not listed above.

OVERVIEW

- These Structural Concepts merchandisers are designed to merchandise packaged products at 41 °F (5 °C) or less product temperatures.
- 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.

CONDITION TYPE

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

- For Type 1 Conditions (these cases): ambient conditions are to be at 55% maximum humidity and maximum temperatures of 75 °F (24 °C).
- For Type 2 Conditions: ambient conditions are to be at 55% maximum humidity and maximum temperatures of 80 °F (27 °C).
- If unsure if Type 1 or 2, see tag next to serial label.

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!

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.

PRECAUTIONS

- See next page for ***PRECAUTION*** 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.

PRECAUTIONS

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

POWER CORD AND PLUG MAINTENANCE

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

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 ballast box, field wiring box, raceway cover, or other related location.

CAUTION! LAMP REPLACEMENT GUIDELINES

LED lamps, they must reflect specific size, shape and overall design. Any replacements must meet factory specifications.

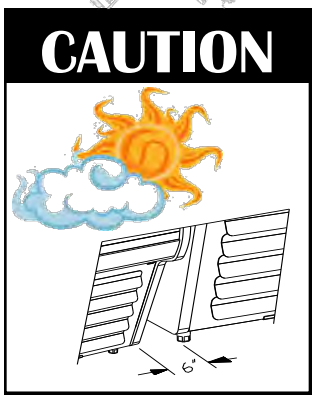
Fluorescent lamps have been treated to resist breakage and must be replaced with similarly treated lamps.

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.

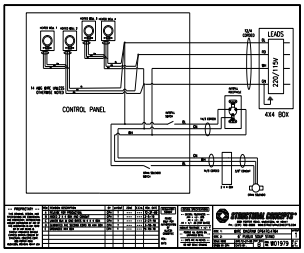
CAUTION! POWER CORD AND PLUG MAINTENANCE

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 covered by warranty.**
- **End panels must be tightly joined or kept at least <u>6-inches</u> away from any structure to prevent condensation.**
- **Unit must be kept at least <u>15-feet</u> from exterior doors, overhead HVAC vents or any air curtain disruption to maintain proper temperatures.**
- **Unit must not be exposed to direct sunlight or any heat source (ovens, fryers, etc.).**



WIRING DIAGRAM FORMAT & LOCATION

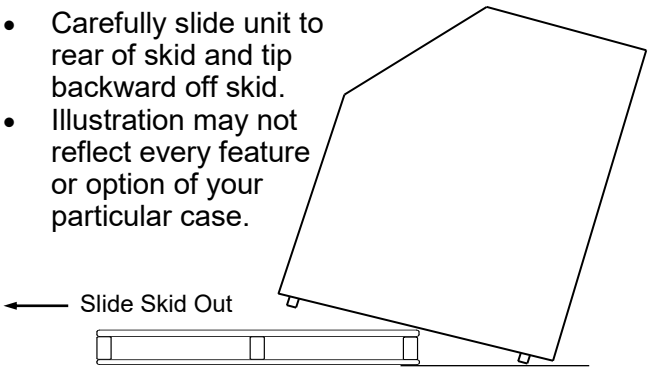
- **Each case has its own wiring diagram folded and in its own packet.**
- **Wiring diagram placement may vary; it may be placed near ballast box, field wiring box, raceway cover, or other related location.**
- **See sample wiring diagram at left (for illustrative purposes only).**

INSTALLATION: SKID REMOVAL, POSITIONING AND LEVELING CASE

Note: Units shown may not depict an exact representation of your particular unit being installed.

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.

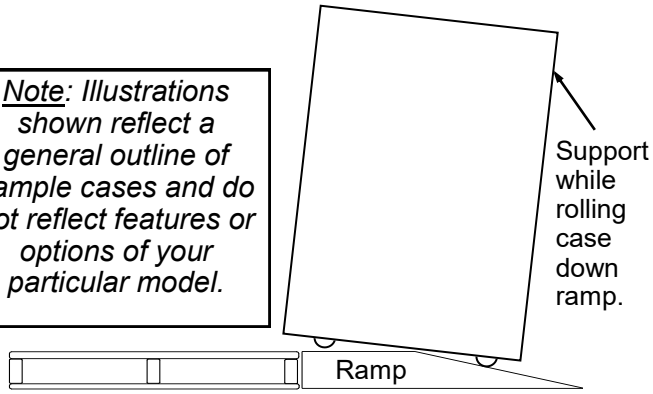
2. Remove Case From Skid (Casters)

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.

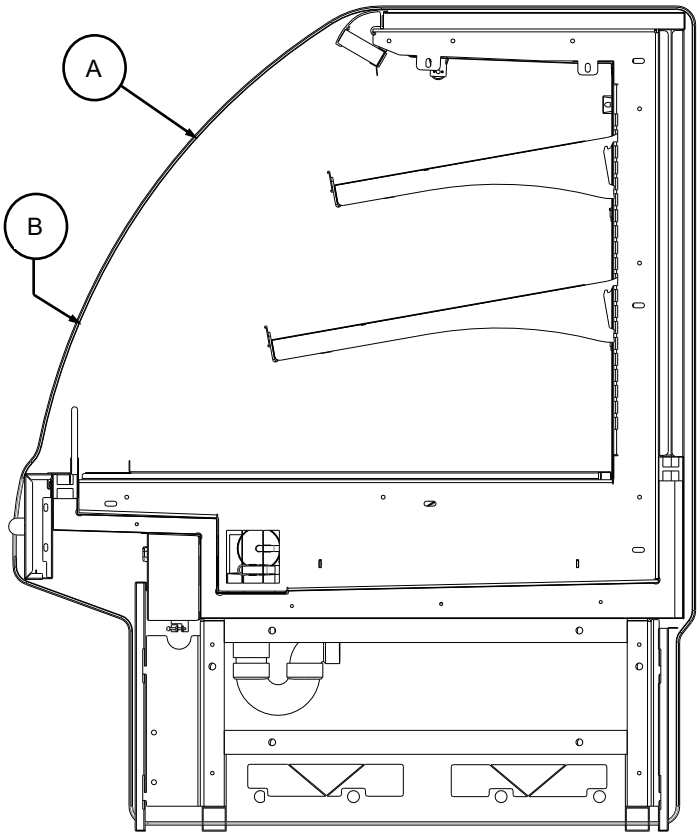
Roll down ramp and off from skid.

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



3. Position and Level Units

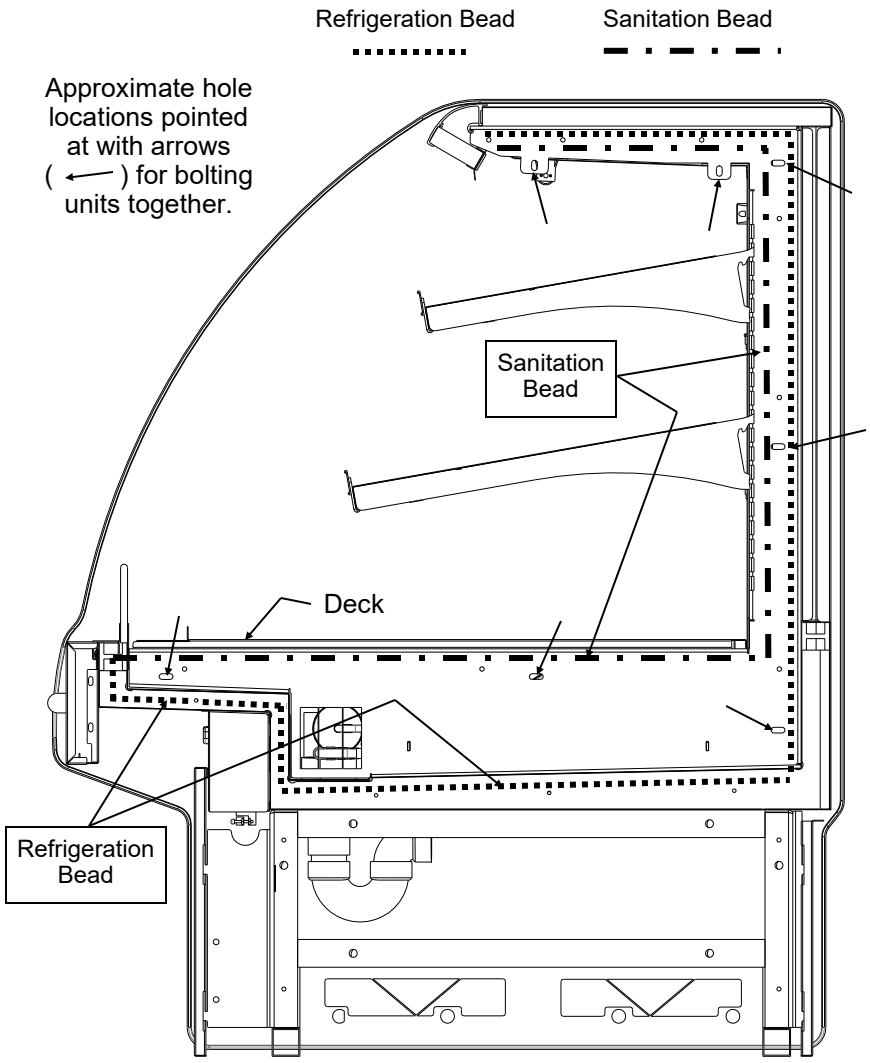
- Move case into position. Or, if case has casters, roll into position.
- Align multiple units carefully in areas A & B.
- See next page for bolting and caulking instructions (for case adjoinment purposes).



4. 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 installation packet or inserted in holes), insert bolts in bolt hole locations (shown at 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.



INSTALLATION, CONTINUED: FRAME SUPPORT RAIL SHIMMING

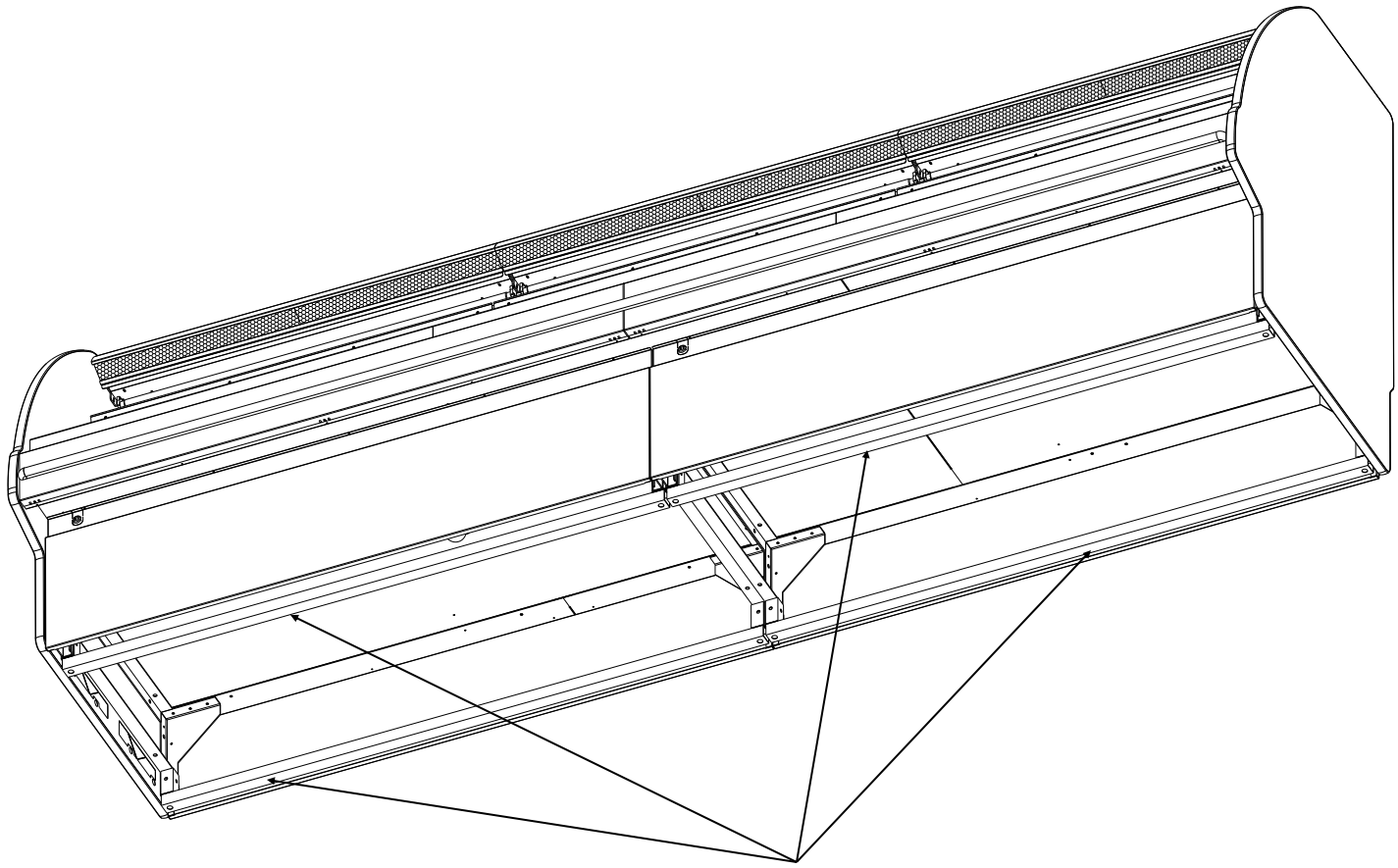
Note: Units shown may not depict an exact representation of your particular unit being installed.

1. Position & Align Case Alongside Other Cases (See Previous Page For Instructions)

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

2. Frame Support Rails Must Be Shimmed

- Illustration below 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.***



Frame
Support Rails

--- View of GMSS1252R Shown / Your Model May Vary ---

ELECTRICAL CONNECTIONS / FIELD WIRING BOX / LIGHT BALLASTS / TERMINAL STRIP

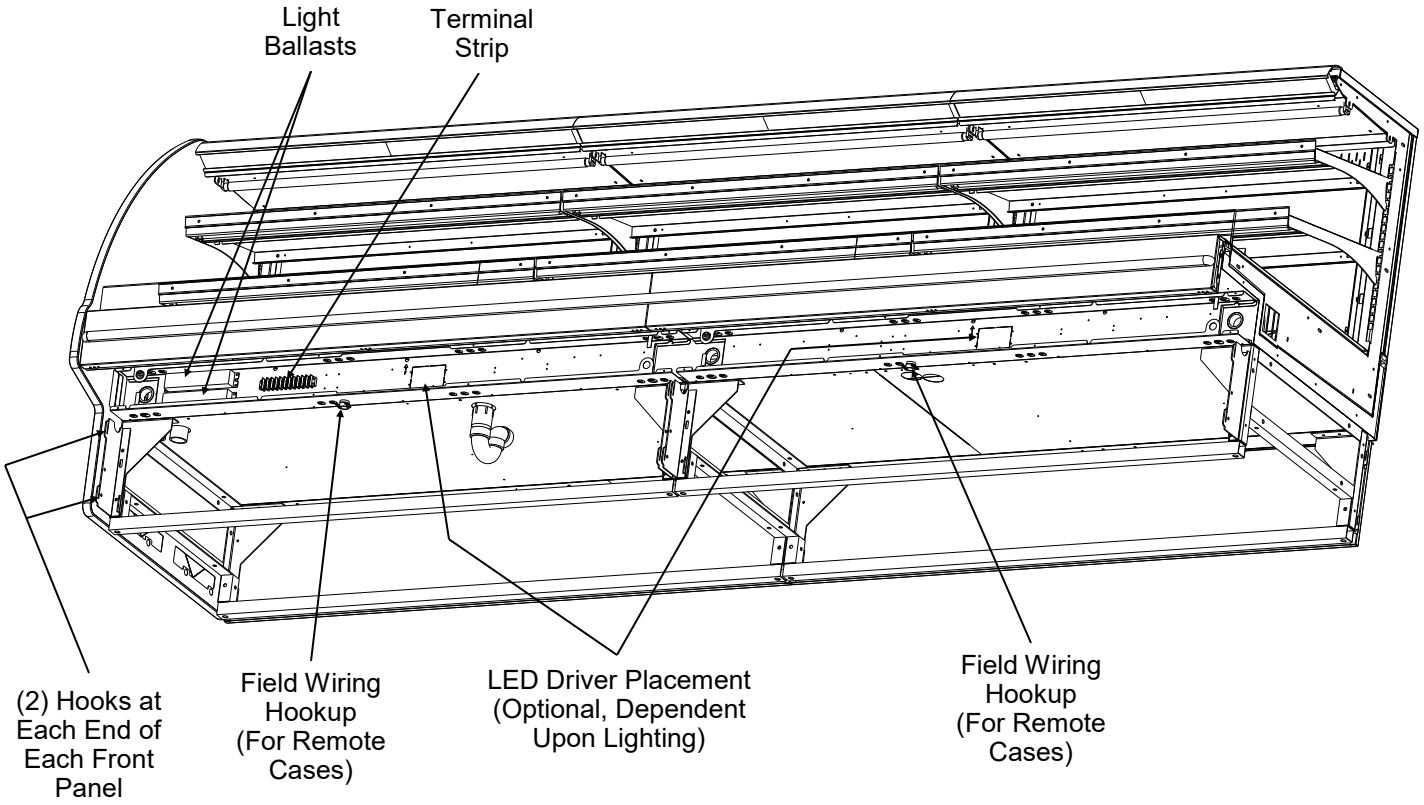
1. Electrical Connections

- Field wiring hook-up / electrical access locations are shown in illustrations below (though they may not exactly reflect your particular unit).
- Single phase leads are provided.
- See Technical Information Sheet for more information.
- Remote Units (Standard Cases): This case is hard-wired. When power is supplied, case will power-up.

2. Field Wiring Box / Light Ballasts / Optional LED Driver Location / Terminal Strip

- Ballast (or optional LED driver) and terminal strip is also located behind front electrical cover (shown removed for illustrative purposes).
- Screws hold front electrical cover in place. Unscrew and drop electrical cover down & out.
- ***Caution! Only certified electricians are to access electrical components!***

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



--- View of GMSS1252R With Front Panel and Electrical Cover Removed ---

REFRIGERATION LINES / STUB-UPS / DRAINS (REMOTE UNITS ONLY)

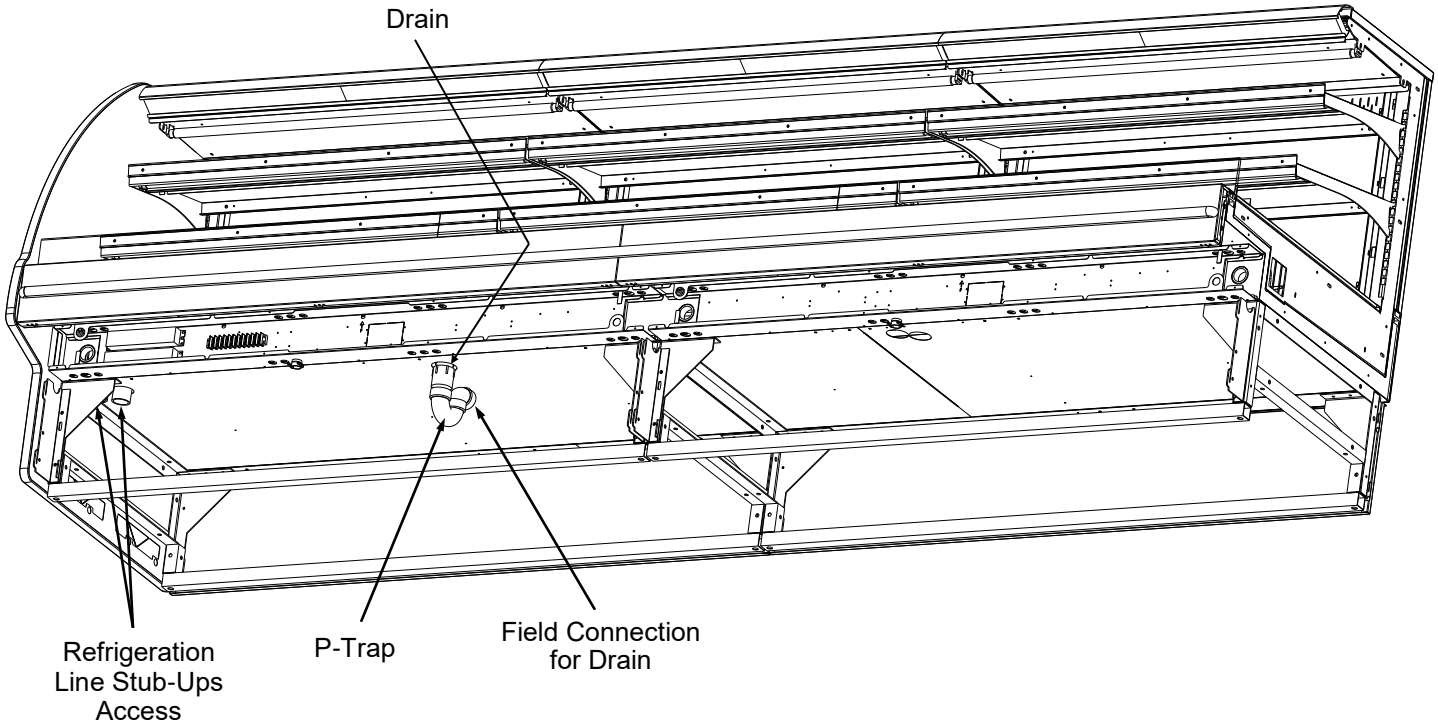
1. Refrigration Line Stub-Up Connections

- Refrigerant stub-up access is at underside of case.
- Stub-up connections are accessed by removing front or rear panel (no screws required).
- 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.
- Note: Illustration below may not reflect every feature or option of your particular case.

2. Drains

- Depending upon model, cases have drains at left and right hand sides.
- Model shown below (GMSS1252R) has a single drain (as shown below).
- Drain field connection is as shown below. See ***MAINTENANCE FUNDAMENTALS - DRAIN / SHUT-OFF VALVE / BALANCE VALVE ACCESS*** section in this manual for illustration of Balance Valve, Shut-Off Valve, Drain, Refrigeration Line Stub-Ups Access, etc.
- 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 case.
- Connect tub drain to floor drain. Maintain 1/4”-fall per foot to provide proper drainage.

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

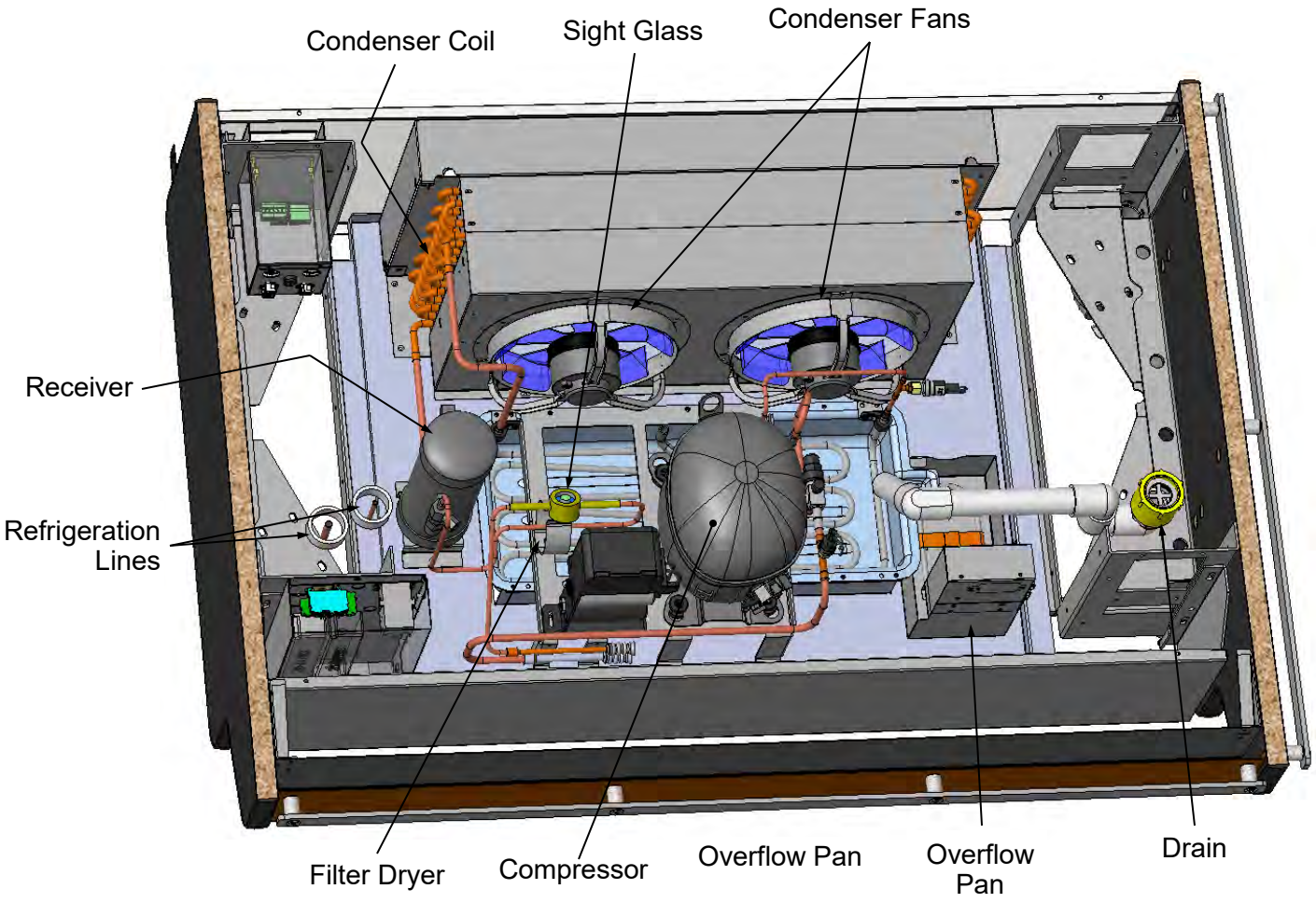


Model GMSS1252R is Shown Above.
Your Case May Differ.

Condenser Package (Self-Contained Units Only)

- Illustration below shows condenser package (in sectioned case).
- Condenser package is accessible at case rear. At initial access, remove shipment screws.
- Caution! Only authorized refrigeration contractors should access condenser package!

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



Model GMSSNHS452R.6935A is Shown Above. Your Case May Differ.

1. Electrical Connections

Field Access Boxes, Electrical Outlets, LED Drivers, Circuit Board, Transformer, Terminal Strips, Dixell® Temperature Controller, Etc.

> Note: Rear panel is shown transparent.

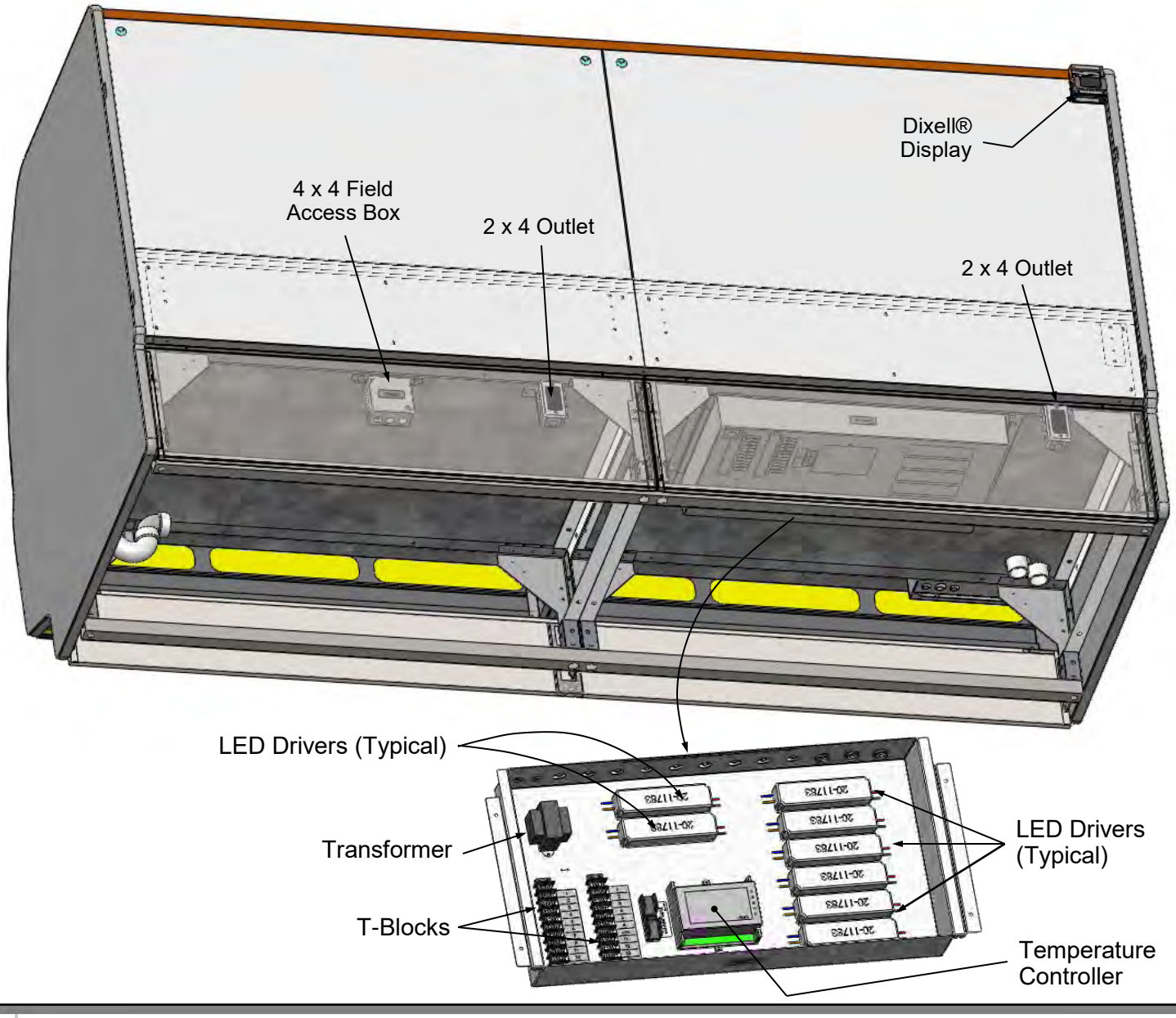
- Access to field access box is at case rear with rear panel removed (no screw removal required).
- Note: Wiring process must be performed by certified electrician only.
- When case is properly field-wired, it will energize (no main power switch required).

2. Dixell® Thermostat Controller

- Dixell® thermostat controller is in the pull-out electrical box (accessible at case rear).
- Dixell® display is also at case rear (as shown at upper-right below).
- See your Dixell® operating instructions for more information.

3. Model Illustration Compatibility

- Model shown is GMSSEH852R.
- Your model may slightly differ.



1. Electrical Connections

Field Access Box, LED Drivers, Circuit Board, Transformer, Terminal Strips, Dixell® Temperature Controller, Etc.

> Note: Front panel is shown lifted up and off (no screw removal required).

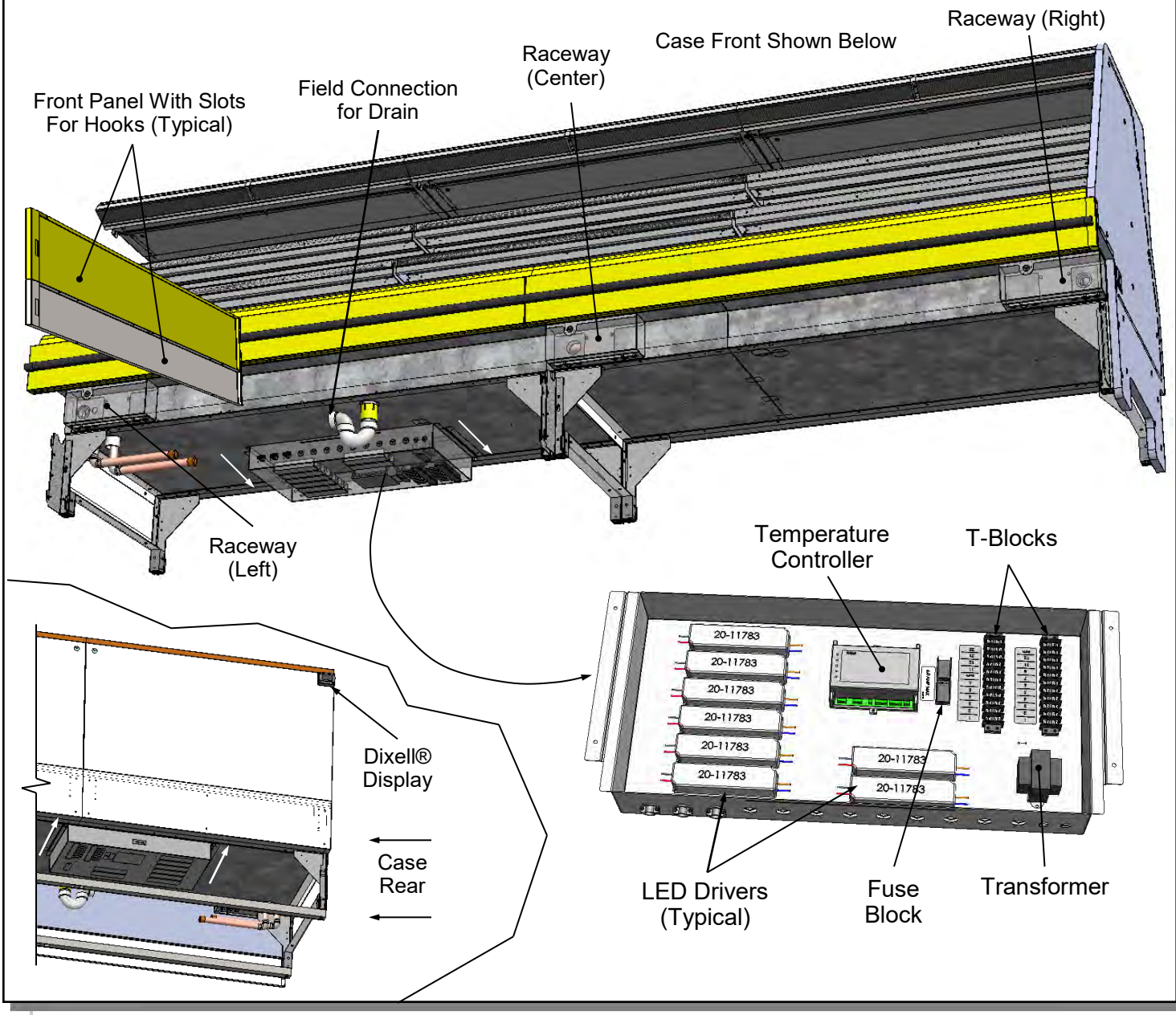
- Access to field access box is at case rear with rear panel removed after screw removal (as shown in lower-left breakaway illustration).
- Note: Wiring process must be performed by certified electrician only.
- When case is properly field-wired, it will energize (no main power switch required).

2. Dixell® Thermostat Controller

- Dixell® thermostat controller is in the pull-out electrical box (accessible at case rear), as shown in illustration at lower-left of page.
- Dixell® display is also at case rear.
- See your Dixell® operating instructions for more information.

3. Model Illustration Compatibility

- Model shown is GMSSEH1252R.
- Your model may slightly differ.



1. Electrical Connections

Field Access Box, Field Sensor Box, Raceway, LED Drivers, Circuit Board, Transformer, Terminal Strips, Dixell® Temp. Controller, Etc.

> Note: Front panel is shown lifted up and off (no screw removal required).

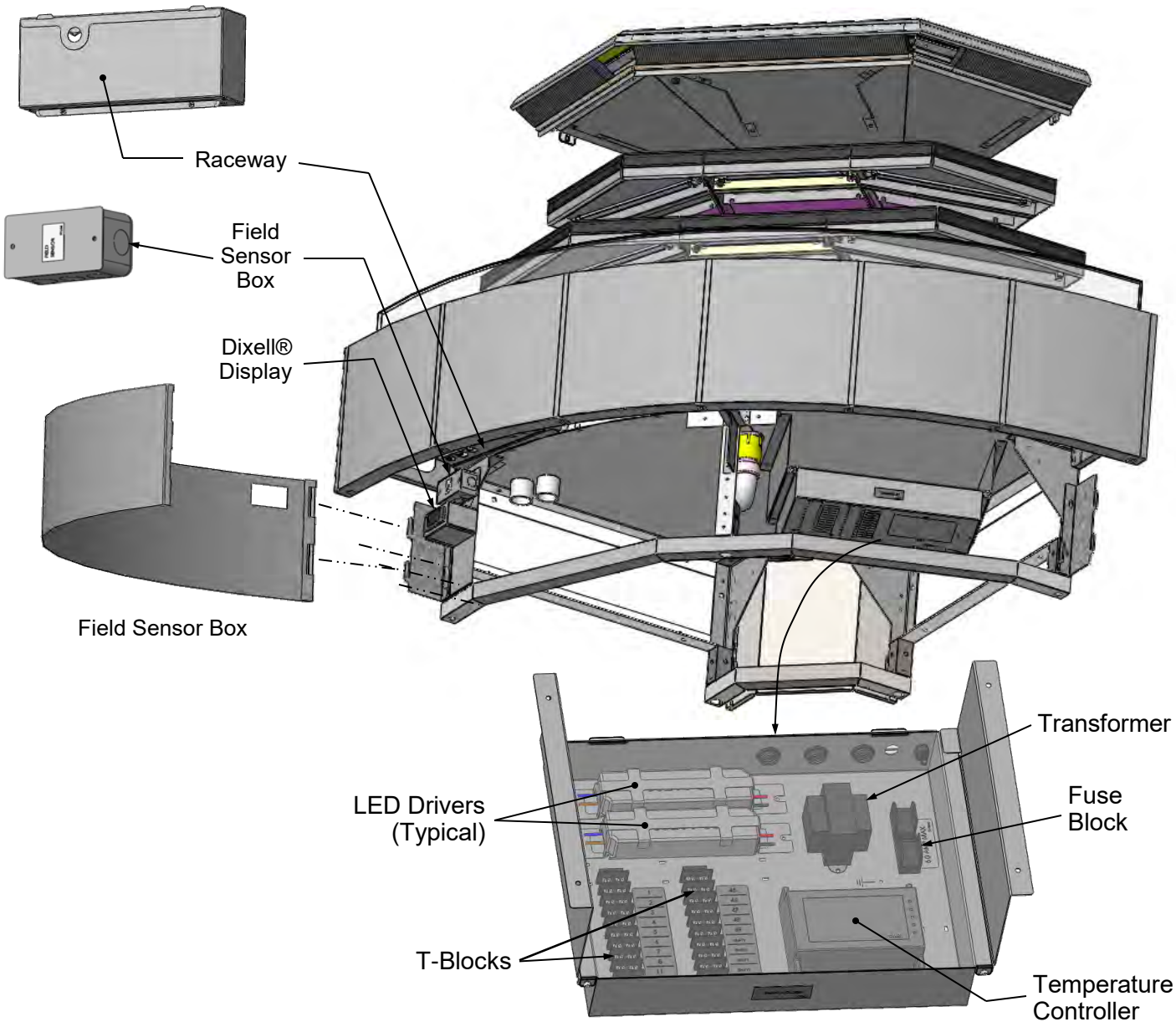
- Access to field access box is at case front with front panel removed (as shown in below-left illustration). No screw removal is required.
- Note: Wiring process must be performed by certified electrician only.
- When case is properly field-wired, it will energize (no main power switch required).

2. Dixell® Thermostat Controller

- Dixell® thermostat controller is in the pull-out electrical box (accessible at case front as shown in illustration below).
- Dixell® display, field sensor box and raceway is also at case front (as shown below).
- See your Dixell® operating instructions for more information.

3. Model Illustration Compatibility

- Model shown is GMSSEHX952R.
- Your model may slightly differ.



THERMOSTAT / MAIN POWER SWITCH, ETC. (SELF-CONTAINED UNITS ONLY)

1. Electrical Components

LED Drivers, Terminal Block, Contactor , Carel® Thermostat, Etc.

> Note: Front panel is shown either removed or transparent for illustrative purposes only.

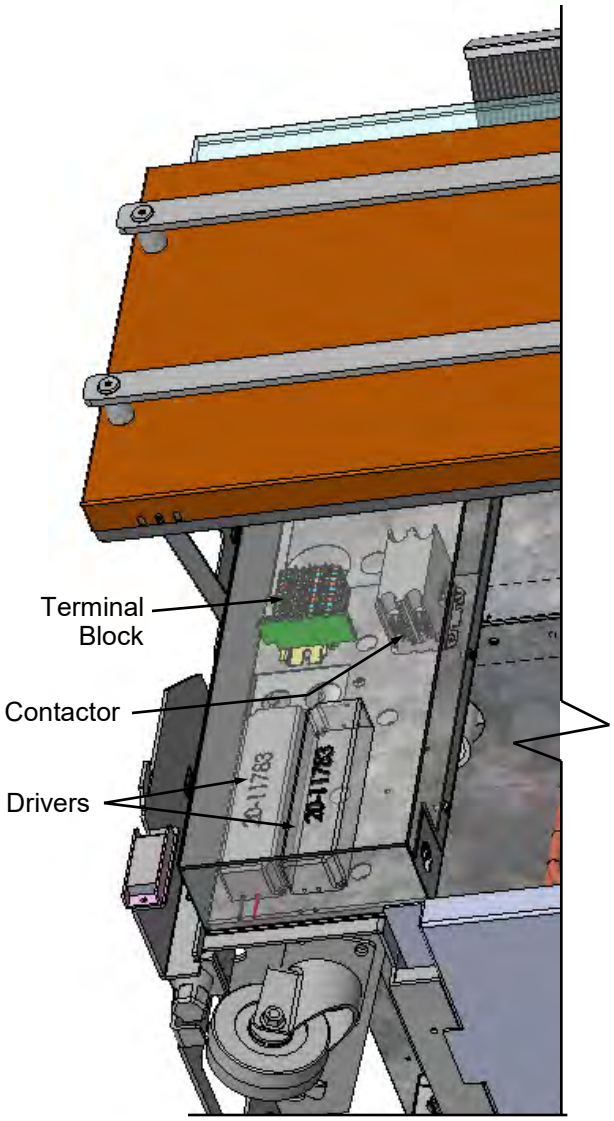
- Note: Wiring process must be performed by certified electrician only.
- When case is properly field-wired (or plugged in), it will energize (no main power switch required).

2. Carel® Thermostat

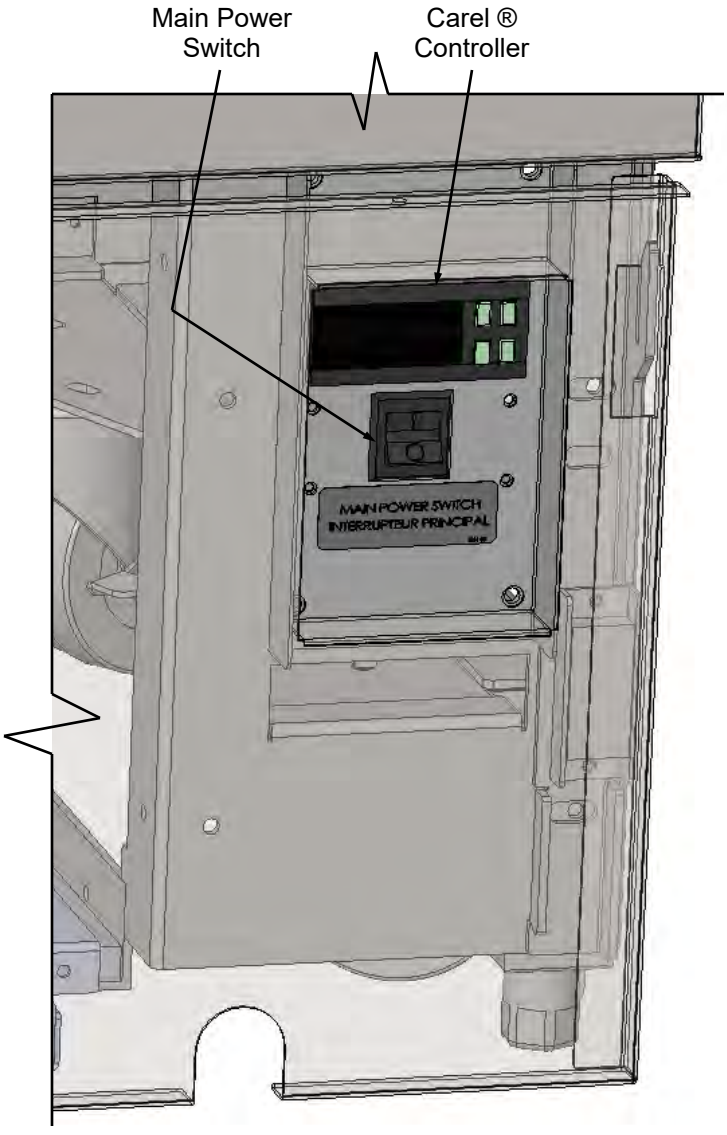
- Carel® thermostat is in the electrical box (accessible at case rear as shown in illustration below).
- See Carel® controller section later in this manual for more information.

3. Model Illustration Compatibility

- Model shown is GMSSNHS452R.6935A.
- Your model may slightly differ.



Front-Left View: Carel Temperature Drivers / Contactor / Terminal Block



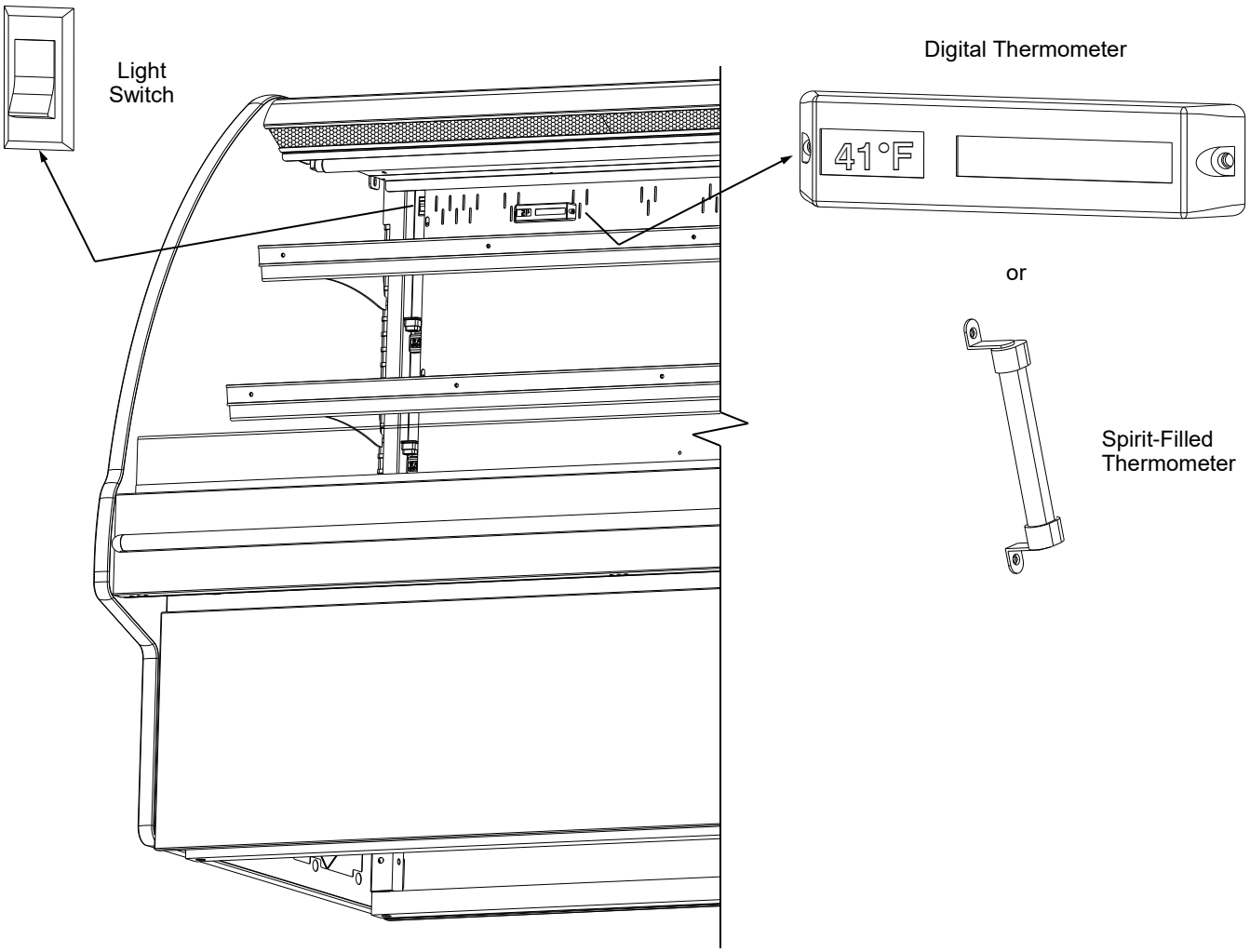
Rear-Right View: Carel Temperature Controller / Main Power Switch

1. Merchandiser Start-Up

- Unit will energize when properly field wired.
- Evaporator coil fans will automatically turn on. From the front of the case, lift glass and remove the decking; check to see that the coil fans are all functioning properly.
- Lights switch is accessible at case front-left, near upright. See illustration below.
- Turn light switch on. All lights should come on at the same time. First time lighting may require a short warm up-period for the bulbs.
- Slightly dim or a flickering of new bulbs is normal.
  - If lights do not turn on, check all raceway plugs. The lighting is wired in series so **all lights must be plugged in or receptacles capped** in order for the case to light.
  - See next page for illustration of scale stand receptacles.

2. Thermometers - Location and Function

- Refrigeration section has been tested to maintain temperature at or below 5° Celsius / 41° Fahrenheit.
- Spirit-filled and/or digital thermometers are usually found at case rear near light switch.
- Thermometers are for monitoring warmest air temperature.
- Thermometers reflect internal air temperature only (not actual food temperature).
- Use probe thermometers to determine actual product temperatures.



1. Standard 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.

Light fixtures are to be located on underside of shelf assembly, at the top inside of case, and lower front nose of case.

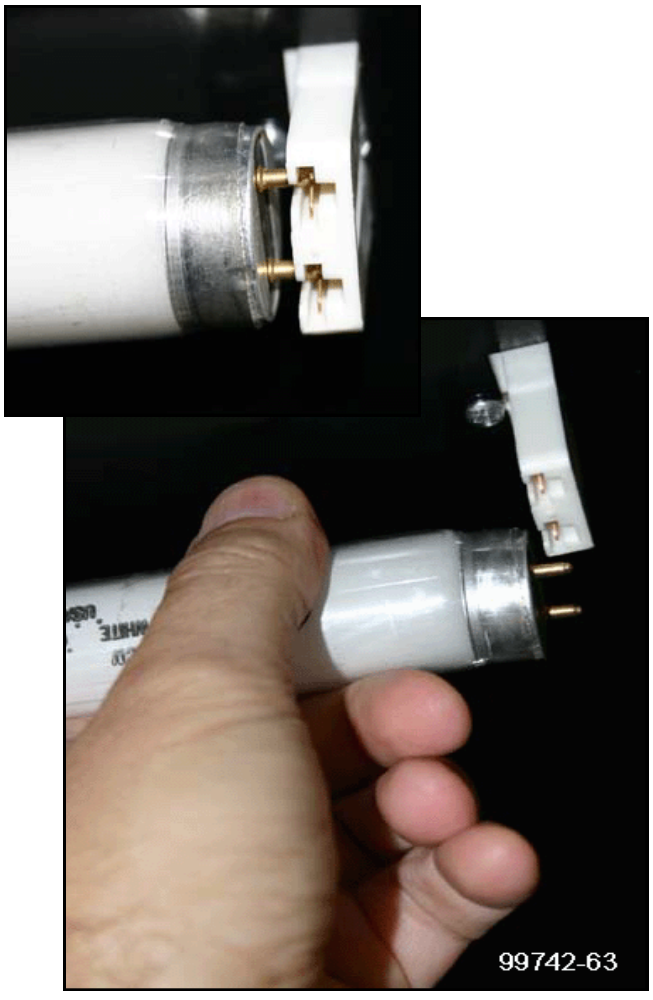
Removal of lamp:

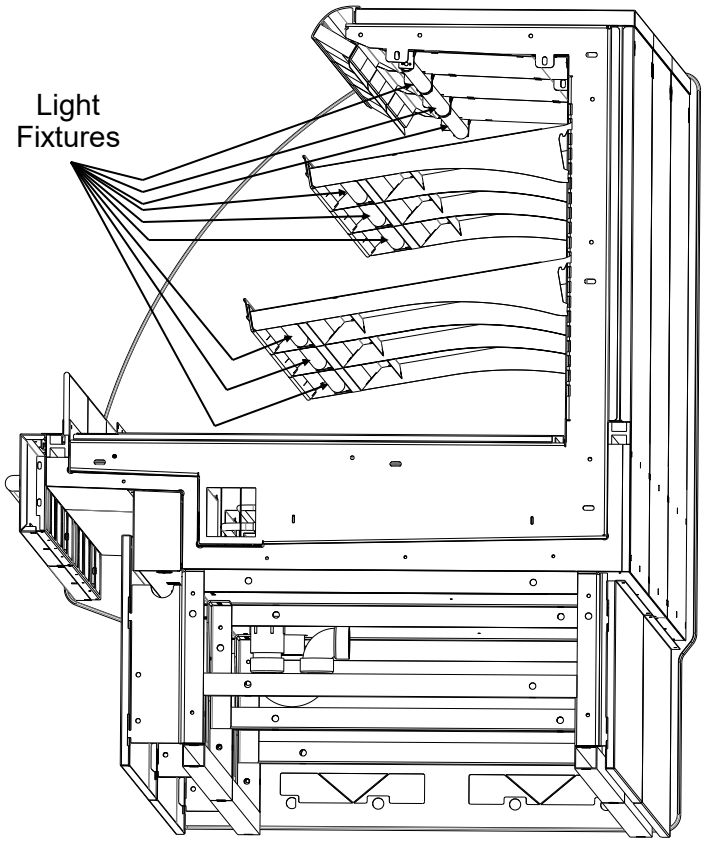
- Rotate lamp (1/4-turn) either direction to disengage (upper or lower) pins/contacts from lamp-mounting sockets.
- Remove bulb by applying even pressure from back side at bulb ends and pulling the remaining contact from sockets.

Installation of lamp:

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

>> See illustrations below.

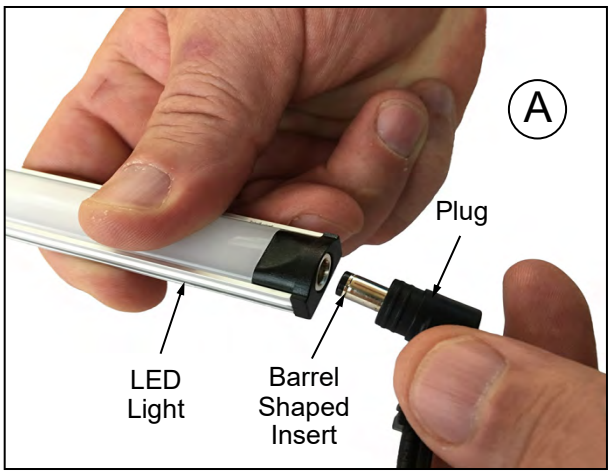


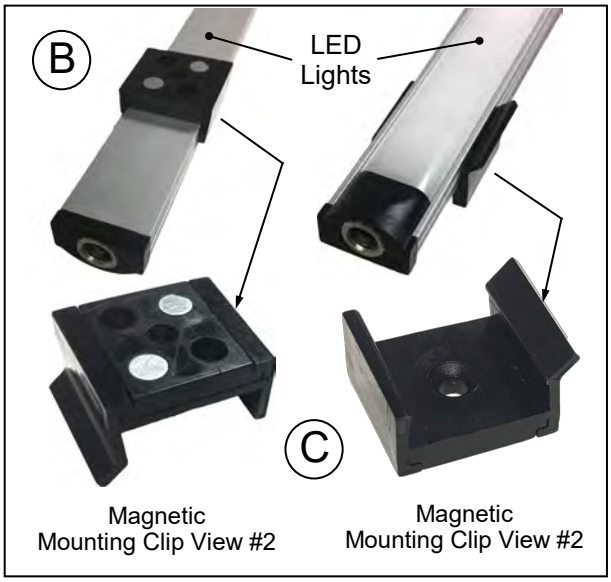


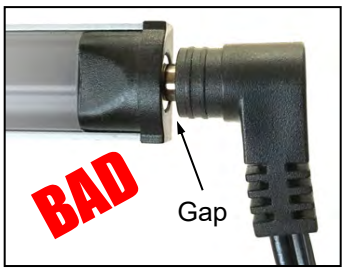
2. LED Style Light Fixtures

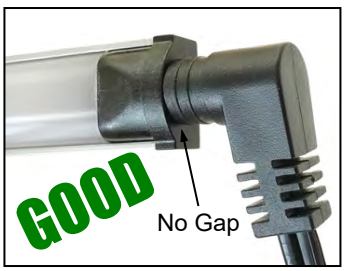
Removal of Faulty LED Lights:

- LED lights rarely require change-out.
- 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.

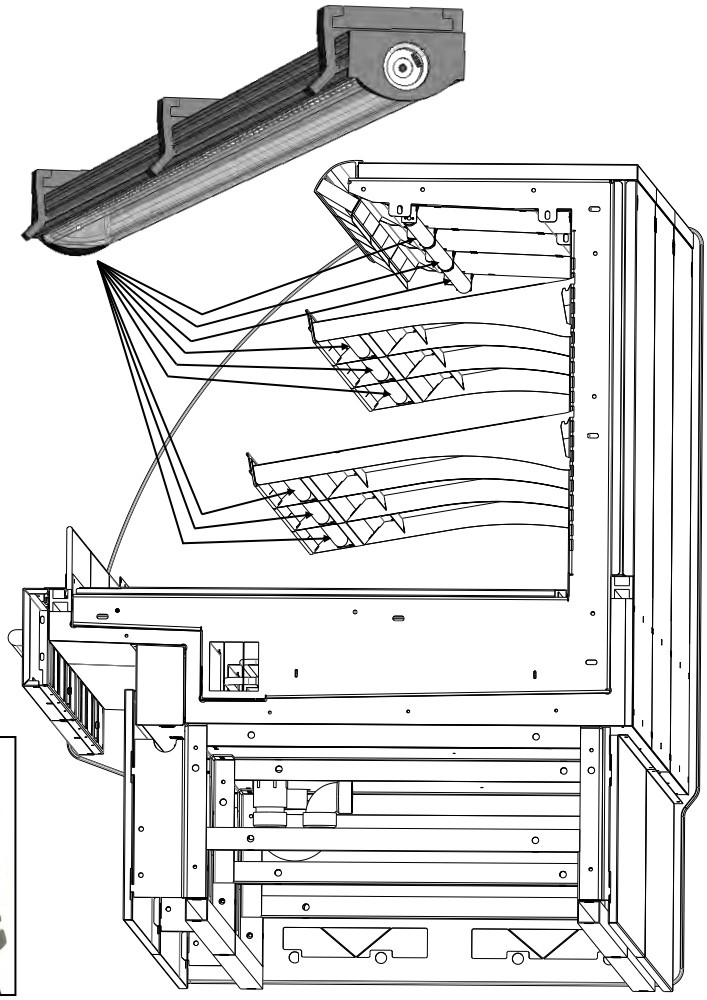
>> Note: Mounting clips MAY be riveted to shelf or header. In such instances, simply remove LED light from mounting clips by pressing against flange part of clips with thumb.

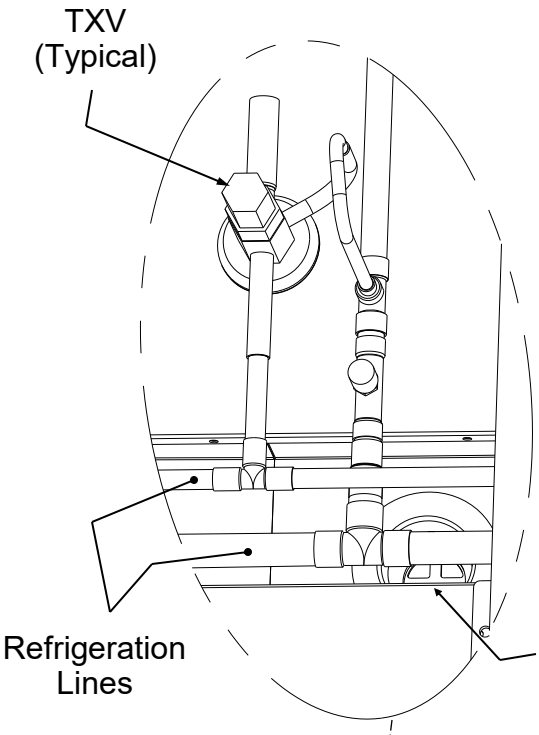
Replacement of LED lights:

- 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 all the way 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 below.
- Turn LED light switch back on.



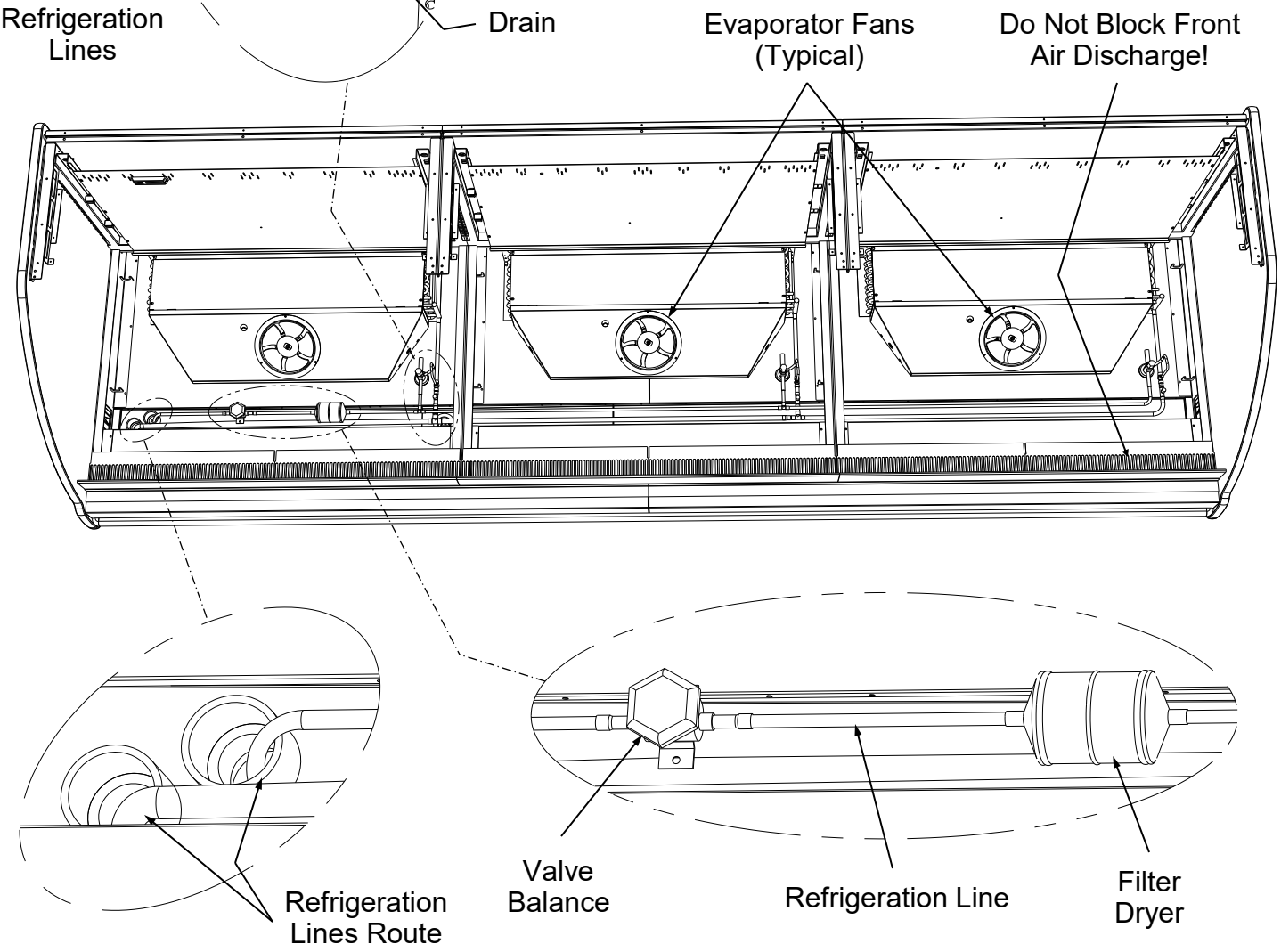


3. Evaporator Fan, Shroud, TXV, Drain, Access

- Caution! Turn main power switch off and/or disconnect from outside power source.
- Remove decking and sub-deck
- Perform maintenance, service or cleaning as required.
- Return decking and sub-deck to unit in reverse order in which they were removed.
- Note: Model GMSS1252R is illustrated below. Your case may not exactly reflect every feature option as unit shown.

4. Front Air Discharge

- Do not set product or utensils on air discharge.
- Proper airflow and temperature will be compromised if airflow is blocked.
- See illustration below.



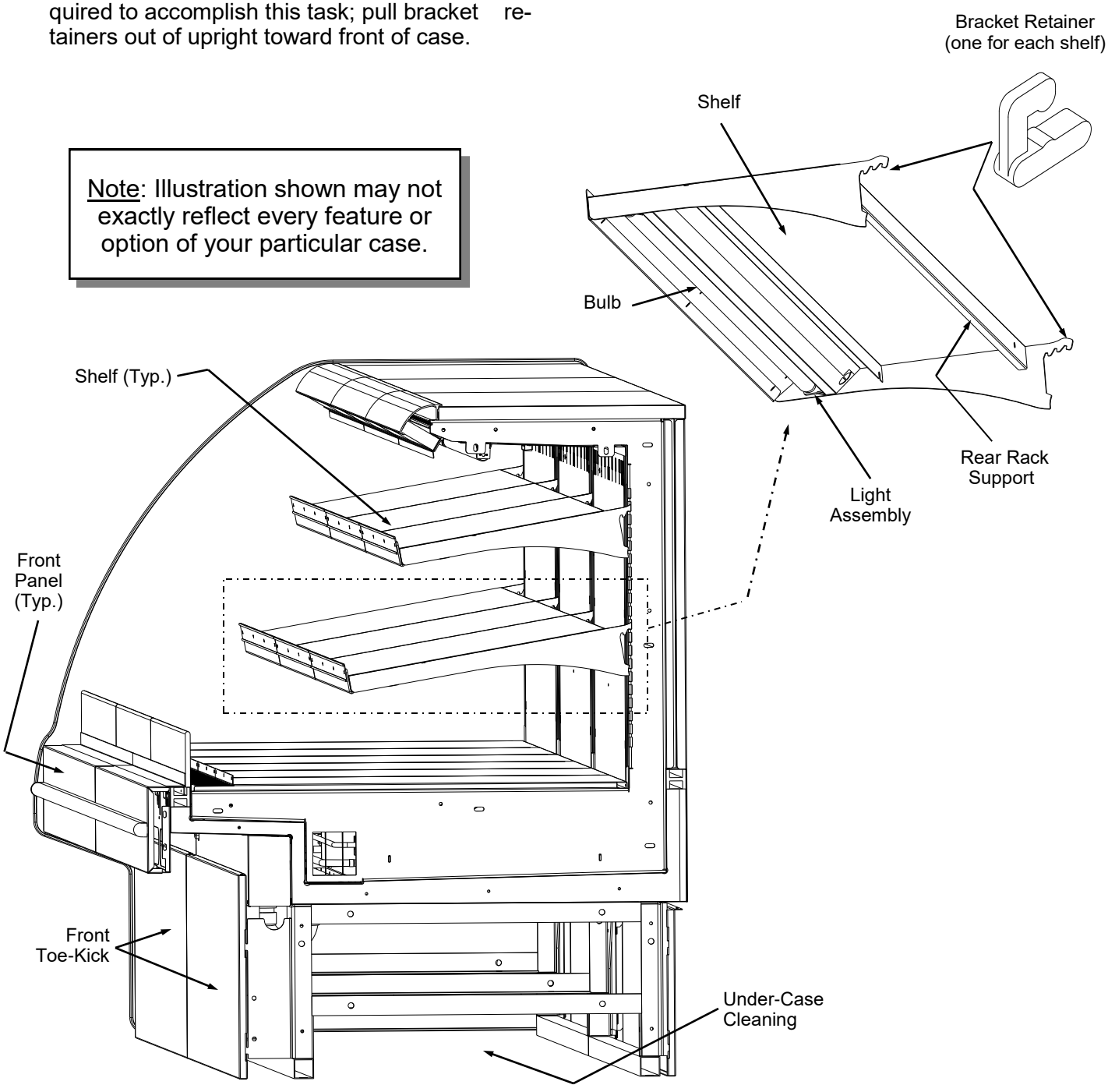
5. Shelf Assembly Removal

- Remove and set aside metal shelves.
- For lighted shelving, unplug the light cord and detach from the rear shelf support.
- Slide light assembly back to unlock, then rotate up to separate from brackets.
- Slide rear support back to unlock and rotate up to separate from brackets.
- Remove brackets. **Note: It may be necessary to remove the bracket retainer.** Pliers will be required to accomplish this task; pull bracket retainers out of upright toward front of case.

6. Under Case Cleaning

- Sufficient under case cleaning is accessible by hand or 1-1/2 inch diameter cleaning tool such as a vacuum hose.
- Extensive cleaning can be done by removing the front panel and / or the rear toe-kick.
  See ***MAINTENANCE FUNDAMENTALS*** section in manual (under *Light Ballast Access/Removal*) for in depth instructions on removing front panel.

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



7. Honeycomb Air Diffuser Removal

See ***PREVENTIVE MAINTENANCE (TO BE PERFORMED BY TRAINED SERVICE PROVIDER)*** section in this manual for cleaning frequency.

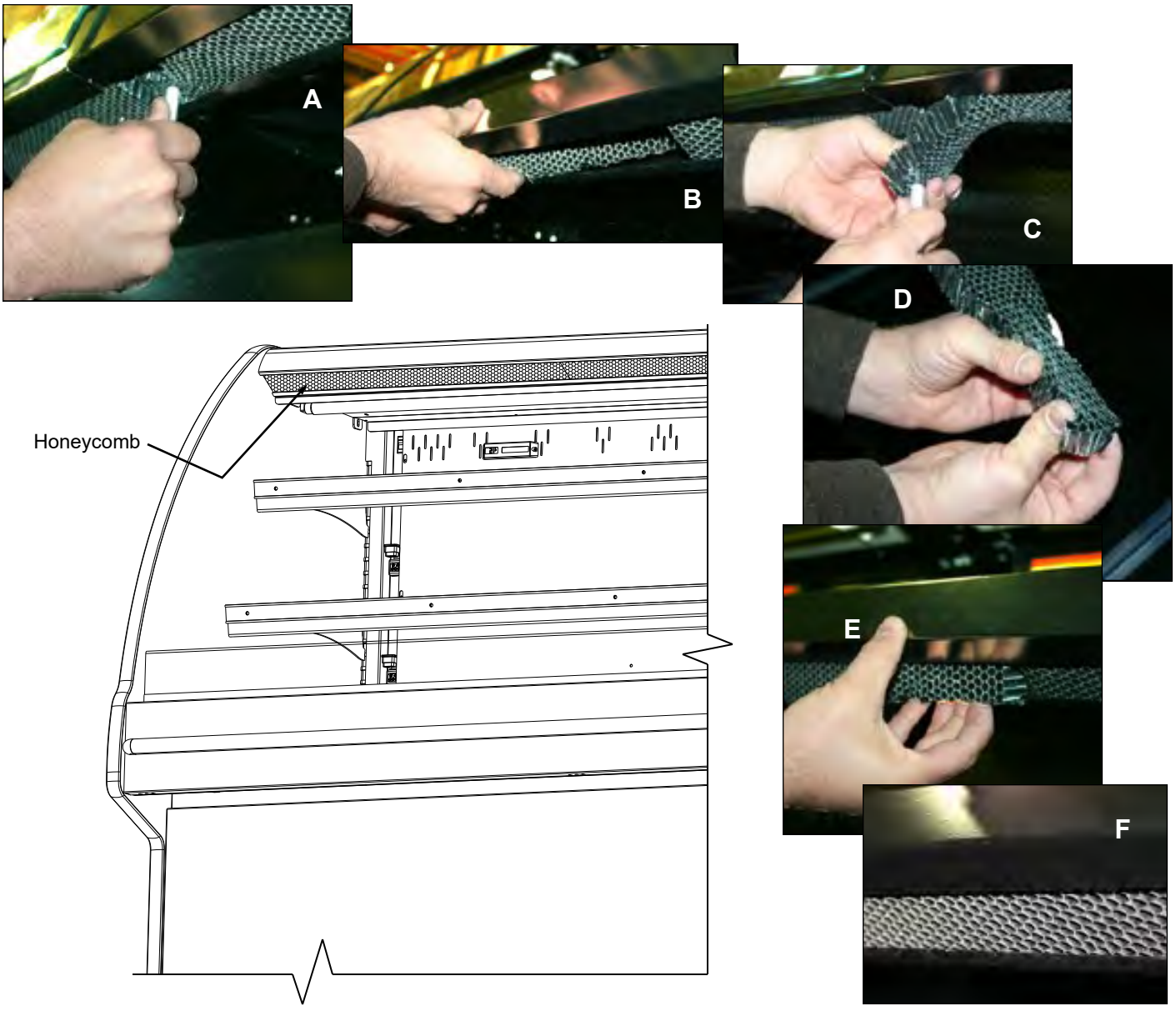
A. Wedge a non-metallic device of suitable strength (such as a ballpoint pen) between the honeycomb and the end panel.
Caution! Use care not to dislodge the heating wire (that prevents condensation on the lamp assembly).
B. Apply pressure to collapse the honeycomb to allow it to be pulled out of honeycomb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

Honeycomb Air Diffuser Installation

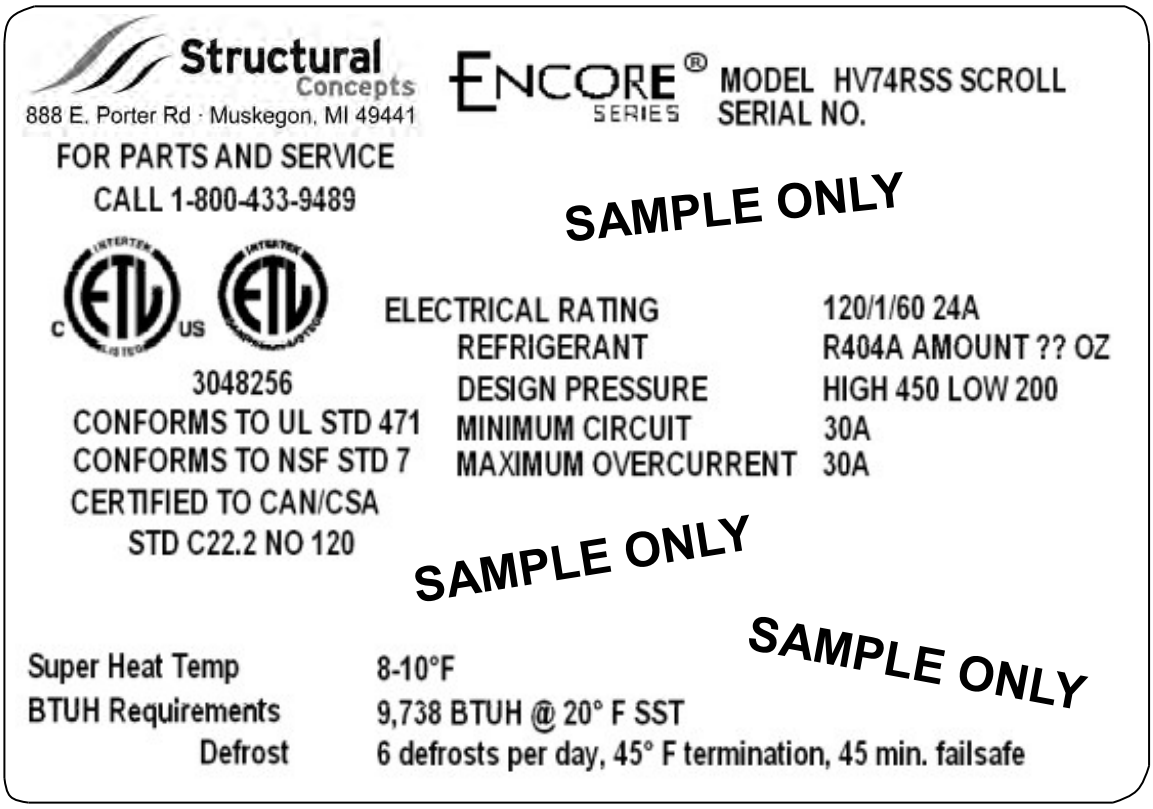
D. Squeeze honeycomb to allow it to fit into the honeycomb retainer.
E. Carefully slide honeycomb into place.
F. Adjust honeycomb so that it fits flat against retainer. It must not be wavy or out of position.

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

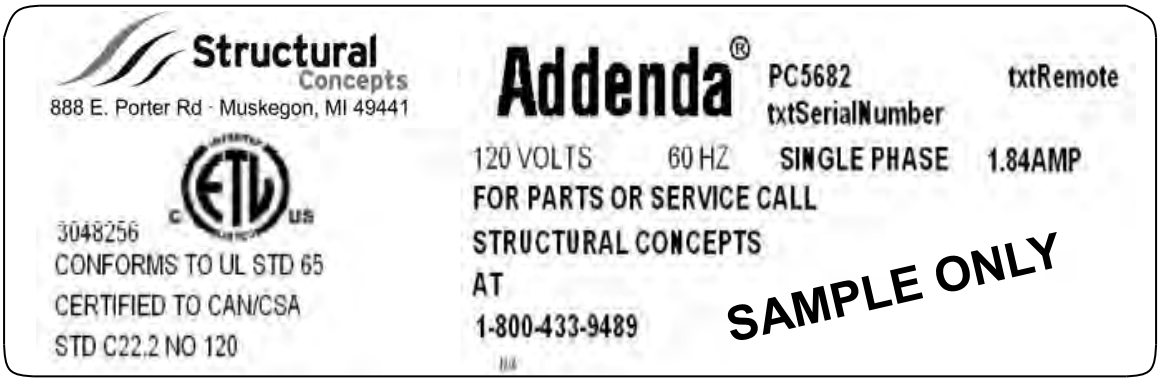


Serial Label Location & Information Listed / Technical Information & Service

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



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



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

CLEANING SCHEDULE TO BE PERFORMED BY STORE PERSONNEL* - PAGE 1 of 2

*** UNLESS SPECIFIED OTHERWISE**

FREQ.	INSTRUCTIONS
Weekly	**Decks:** Wipe off decks with moist cloth dipped in mild soap and water solution. • For stubborn or caked on stains, remove decks from case, submerse in warm, soapy water and use soft-bristled brush to remove residue.
Daily	**Acrylic Air Deflector:** Clean with a warm water and mild soap solution and soft cloth. Never use regular glass cleaner or ammonia-based cleaners on acrylic.
Daily	**All Glass / Mirrors:** Clean side glass, front glass and mirrors with household or commercial glass cleaner. Clean out door track with moist cloth.
Daily	**End Panels, Front Panel, Toe-Kicks, etc.:** Wipe with warm water & mild soap solution and non-abrasive cloth. Dry with soft, clean cloth or paper towel.
Weekly	**Stainless Steel Dividers (On Decks):** • Wipe down with warm water and mild soap solution and non-abrasive cloth. • Should additional cleaning be necessary, remove from case and clean thusly: A. As dividers are dishwasher safe, they may be cleaned in store dishwasher. B. Submerse in warm/hot soapy water and wipe down with soft-bristled brush to remove hardened residue.
Weekly	**Wood, Laminate and Painted Surfaces:** Clean with mild soap, water solution and a soft cloth.
Weekly	**Magnetic Condenser Coil Filter (For Self-Contained Units):** • This filter helps prevent dust particles from entering condenser coil. • It is accessible by opening rear hinged door (and is positioned over louvers). • Clean magnetic condenser coil filter by following either of these steps: 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. Submerse in warm, soapy water. Use soft-bristled brush to remove dust, dirt, grease and grime that may collect on filter. Rinse thoroughly. Dry with soft cloth or paper towel. Replace.
Monthly	***Tub, Drain, Evap. Fans, Fan Brackets, Fan Shroud, Motors, TXV, Filter Dryer, Etc.:** Keep clean and free of debris which could clog tub and drain. To access drain area, remove the deck and fan shroud. • Vacuum tub under deck. • Run hose into drain to flush out debris. Carefully hose out the tub. • Wipe down components (listed above) with moist cloth dipped in mild soap and water solution. • ***Caution! Avoid splattering water over the case and surrounding areas!*** • See ***MAINTENANCE FUNDAMENTALS: EVAPORATOR FANS, REFRIGERATION LINES, TXV & DRAIN ACCESS*** section in operating manual for illustrations.

***This Service Is To Be Performed By Trained Service Providers Only**

*** UNLESS SPECIFIED OTHERWISE**

FREQ.	INSTRUCTIONS
Quarterly	**Under Case Cleaning (Remote Units):** Caution! Do not clean flooring in a manner that causes dust to be circulated into the air! Remove rear toe-kick and clean underside of case with broom or vacuum with extended hose. Replace rear toe-kick to case. **Under Case Cleaning (Self-Contained Units):** Caution! Do not clean flooring in a manner that causes dust to be circulated into the air! Remove rear grille. Remove condenser package shipment screws. Carefully slide condenser package out from under case. Remove toe-kick. Clean underside of case with broom or vacuum with extended hose. Carefully slide condenser package back under case. Return rear grille and front toe-kick to case.
Quarterly	**Condenser Coil Cleaning:** Remove rear condenser grille. Using an industrial strength vacuum with bristled brush, clean the dust and dirt that collects on the condenser coil. Caution! Be careful not to damage the fins on the coil.
Quarterly	***Clean Condensing Unit (including Evaporator Pan):** ***Warning! Hot gas loop coil may be hot. Allow to cool 15-minutes before cleaning.*** Note: See ***CONDENSER PACKAGE (SELF-CONTAINED UNITS ONLY)*** section in this manual for illustration. 1. Turn off refrigeration main power switch (or disconnect case from power source). 2. Remove rear grille (by lifting up and off). Remove shipping screws (if still attached). 3. Slide condenser package out from case rear. 4. Thoroughly clean evaporator pan area with de-scaling solution, such as **CLR®**. Rinse thoroughly. 5. Use clean towel dipped in soap and water solution to wipe down fan motor, fan blades, refrigeration lines, cords, knobs, sight glass, filter dryer, receiver, connectors, etc. 6. Wipe dry. 7. Slide condenser package back under case. There is no need to reattach shipping screws (if any). 8. Replace rear grille. 9. Turn power back on (or reconnect power) to merchandiser.
Quarterly	***Honeycomb:** See ***MAINTENANCE FUNDAMENTALS - HONEYCOMB AIR DIFFUSERS*** section in this manual for removal, replacement and cleaning instructions.

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TROUBLESHOOTING - GENERAL

CONDITION	TROUBLESHOOTING
Case Not Lining Up	See Installation Section for instructions on properly aligning case (alongside other cases) and adjusting levelers.
Product is Drying Out	Check the relative humidity in the store.
Water Is On The Floor	Check that the drain trap is free of debris.
	Check that the drain hose is correctly positioned over the floor drain.
	Check store conditions. Conditions should be 55% humidity / 75° Fahrenheit to prevent condensation.
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 excessive bearing wear.
	*Check that fan motors are securely mounted in brackets.
	*Verify that fan blades are securely mounted to fan motor.
	*Check that nothing is preventing blade rotation.
	*Check that the fan shroud is properly secured.
Fans Are Not Working	*Check that 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.
	Check that MAIN power switch (if any) is turned on.
	*Check if there is ice build up blocking the fan.
System Is Not Operating	Check that the utility power is on.
	Check the circuit breaker box for tripped circuits.
	Check that the MAIN power switch (if any) is turned on.
	Check that unit is properly plugged in (self contained units).

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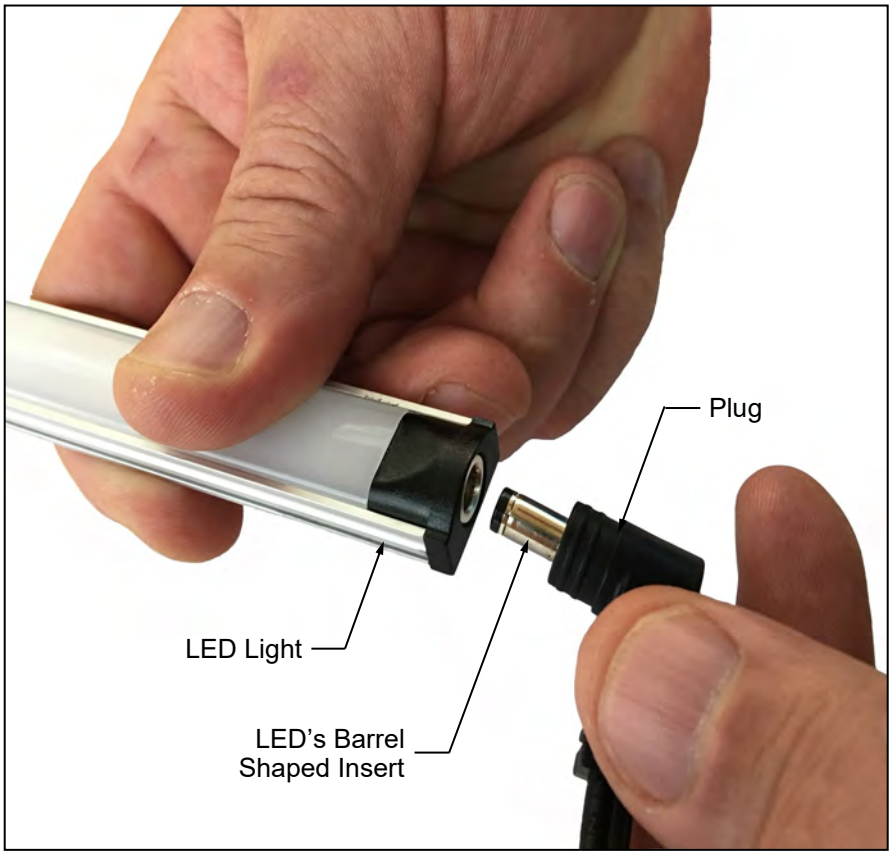
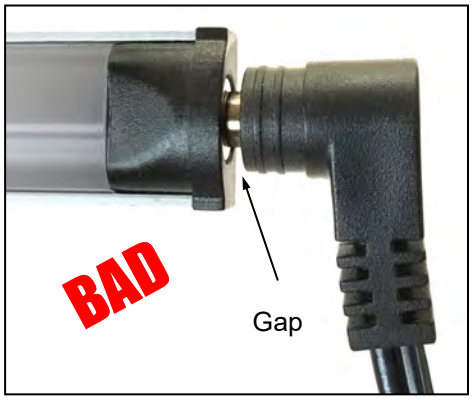
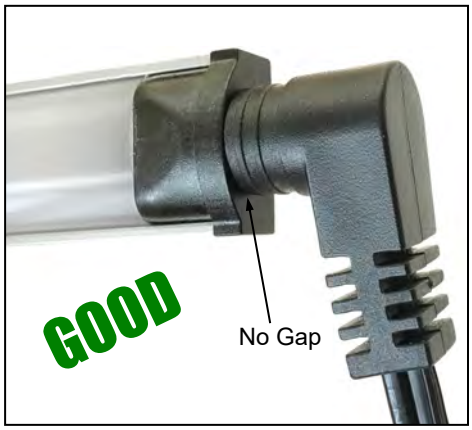
CONDITION	TROUBLESHOOTING
Case Is Not Holding Temperature	If a large amount of warm product was added to the case, it will take time for the temperature to adjust. Unit needs product to be pre-chilled.
	Check that the discharge air grille is not disrupted or blocked by product.
	Check that the case is not in the sun or near a heat or air-conditioning vent.
	If case is located near front doors, temperature fluctuation can hinder unit's ability to maintain temperature. See Overview ***OVERVIEW / CONDITION TYPE / COMPLIANCE / WARNINGS / PRECAUTIONS / WIRING*** section in this manual for specifics.
Case Lights Are Not Working	Check that light switch is in the *on* position.
	LED Lights: Check plugs and lights for proper connection (illustrated below).
	Check for burned out bulbs. If so, turn lights off & replace.
	Fluorescent Lights: Clean dirt and dust from the bulbs to prevent flickering.
	Trained Service Providers Only: Check to insure voltage at ballasts. If voltage is entering but not exiting ballast, ballast is faulty.







TROUBLESHOOTING - CONDENSING SYSTEM*

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 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 / WARNINGS / PRECAUTIONS / WIRING DIAGRAM*** section in this manual.
	Liquid line filter dryer may be plugged and need to be replaced.
Head Pressure Too Low	Check if sight glass is flashing or showing low charge.
	Check that suction pressure isn't too low.
	Compressor reed valves may be faulty. Check for high suction pressure /low head pressure. If pressure is out of range, perform pump down.

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TROUBLESHOOTING - EVAPORATOR SYSTEM*

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 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.
	Compressor reed valves may be faulty. Check for high suction pressure / low head pressure. If pressure is out of range, 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 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.

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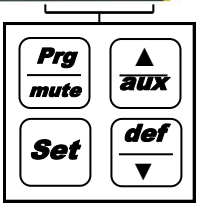
Integrated Electronic Microprocessor Controller

Programming The Instrument



To Modify The Setpoint

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

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

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

To Modify Defrost, Differential, Other Parameters

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

Set 2. Confirm by pressing "SET" key.

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

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

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

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

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

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

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

Set 2. Confirm by pressing "SET" key.

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

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

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

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

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

Warning! Save Your Parameter Settings!

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

def ***To Activate Manual Defrost***

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

▲ aux ***To Activate / Deactivate Auxiliary Output***

Press and hold the "aux" key for 1 second.

Prg mute ▲ aux ***To Reset Any Alarms With Manual Reset***

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

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

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User Interface - Display

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

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

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

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Summary Table of Operating Parameters

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

* Unit Of Measure

STRUCTURAL CONCEPTS 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 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.)

LIMITED WARRANTY

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

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

Warranty; Remedies; Limitations: The limit of liability of SCC toward the exchange cost of the original compressor motor (and/or any other components) is one year parts and labor. If any Goods are found to be of faulty material or workmanship within one year of the original F.O.B. (free on board) unit shipment, SCC will, at its option (after inspection by an authorized representative), replace or pay the reasonable cost of replacement of the faulty Goods. If warranty claim is not made within this one year time period, SCC is not bound to warrant Goods. A motor-compressor (and/or any other components) replaced during the warranty shall not exceed manufacturer's current established wholesaler's exchange price. If replacement motor-compressor (and/or other components) is available via storage facility, parts truck, etc., SCC mandates that readily accessible replacement components be used toward repair of Goods; in such instances, SCC will replace such equipment (at its own expense) after confirmation of its use/placement on defective unit. SCC shall not be charged an additional fee, up-charge or expense for such replacement Goods. If SCC is unable to repair or replace the defective Goods, SCC shall issue a credit to the Purchaser for full or partial purchase price, as SCC shall determine. The replacement or payment in the manner described above shall be the sole and exclusive remedy to Purchaser for a breach of this warranty. If any Goods are defective or fail to conform to this warranty, SCC will furnish instructions for their disposition. No Goods shall be returned to SCC without its prior consent.

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

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

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

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

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

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

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

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

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

LED Lighting Components Within Lighting System: Supermarket: 5-year LED warranty from date of shipment. Foodservice: 2-year LED warranty from date of shipment. After one year, warranty does not include labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing, or handling of either defective part or replacement parts. Remedy of repair or provision of a replacement part without charge shall be the exclusive remedy for any warranty claim. The replacement LED and/or power supply assumes the unused portion of warranty remaining on unit(s). A 90-day warranty will apply for any LED sold as a service part. Warranty claim must include serial and model number of unit as well as date code on defective LED lighting component(s). Manufacturer may request return of defective part(s) at customer's expense to initiate claim.

Glass Material: Glass (UV-bonded glass, glass sneeze guards, glass enclosures, glass held in place via posts, etc.) is only warranted to FIRST POINT OF DELIVERY.

Miscellaneous: If any provision of this Agreement is found to be invalid or unenforceable under any law, the provision shall be ineffective to that extent and for the duration of the illegality, but the remaining provisions shall be unaffected. Purchaser shall not assign any of its rights nor delegate any of these obligations under this Agreement without prior written consent of SCC. This Agreement shall be binding upon and inure to the benefit of SCC and Purchaser and each of their legal representatives, successors and assignees. SCC warrants its products to be free of defects in materials and workmanship under normal use and service for a period of one (1) year from the date of delivery.

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

General Conditions: All service labor and/or parts charges are subject to approval by SCC. Contact Customer Service Dept. in writing, by phone, fax or email.

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

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

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

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