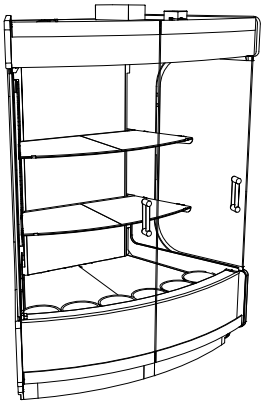
READ AND SAVE THESE INSTRUCTIONS

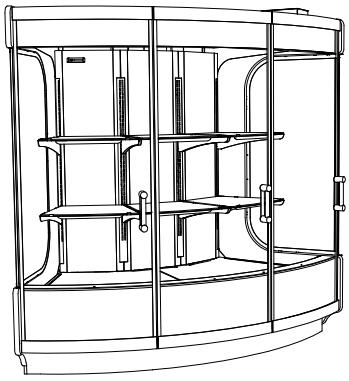
INSTALLATION & OPERATING MANUAL

PN 54254

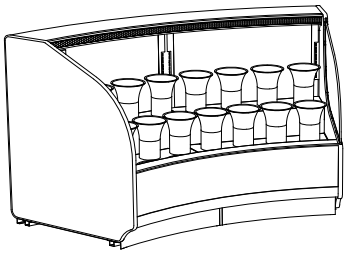
SELF-SERVICE REFRIGERATED FLORAL CONCAVE / CONVEX / STRAIGHT MERCHANDISERS



Model F2CX
(Convex Upright w/Doors)

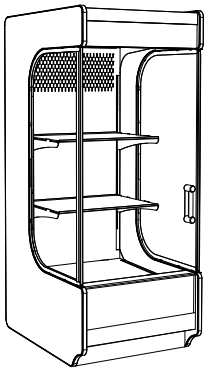


Model F3CX
(Convex Upright w/Doors)



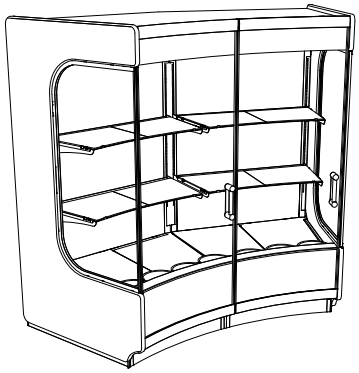
Model FLPCC45
(Concave Open Low Profile)

Model FLPCC22
(Concave Open Low Profile)

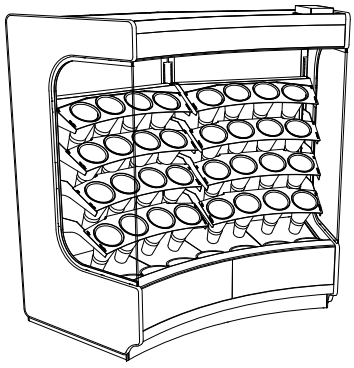


Model F[L]
(Straight Upright With Door[s])

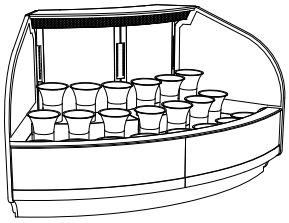
Model FLP[L]
(Straight Open Low Profile)



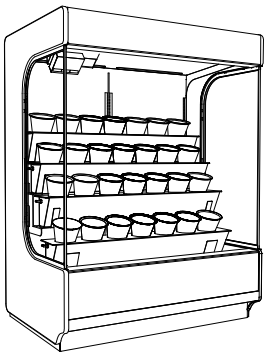
Model F2CC
(Concave Upright w/Doors)



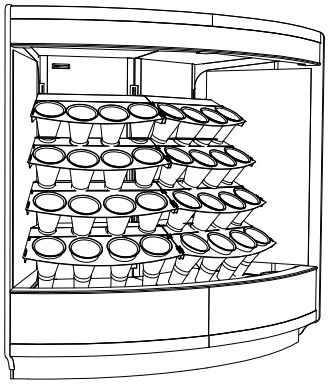
Model FRCC45
(Concave Open Upright)



Model FLPCX67
(Convex Open Low Profile)



Model FR[L]
(Straight Open Upright)



Model FRCX67^
(Convex Open Upright)

Model F1 (Straight Unit)
Model F2 (Straight Unit)
Model F3 (Straight Unit)
Model F4 (Straight Unit)
Model F2CC (Concave Unit)
Model F2CX (Convex Unit)
Model F3CX (Convex Unit)
Model FLPCC22 (Concave Unit)
Model FLPCC45 (Concave Unit)
Model FLPCC67 (Concave Unit)
Model FLPCX45 (Convex Unit)
Model FLPCX67 (Convex Unit)
Model FMPCX67 (Convex Unit)
Model FMPCX90 (Convex Unit)
Model FR3 (Straight Unit)
Model FR4 (Straight Unit)
Model FR5 (Straight Unit)
Model FR6 (Straight Unit)
Model FR8 (Straight Unit)
Model FR10 (Straight Unit)
Model FRCC22 (Concave Unit)
Model FRCC45 (Concave Unit)
Model FRCX67^ (Convex Unit)
Model FRCX90^ (Convex Unit)
Model FLP3 (Straight Unit)
Model FLP5 (Straight Unit)
Model FLP6 (Straight Unit)

<u>Note</u>: See *Case Dimensions* page in manual for specific dimensions.

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

TABLE OF CONTENTS

CASE DIMENSIONS

Model F1 (Straight Unit)……..32 1/2”L x 45 1/16”D x 85 13/16”H**
Model F2 (Straight Unit)……..62 7/8”L x 45 1/16”D x 85 13/16”H**
Model F3 (Straight Unit)……..93 1/8”L x 45 1/16”D x 85 13/16”H**
Model F4 (Straight Unit)……..123 3/8”L x 45 1/16”D x 85 13/16”H**

Model F2CC (Concave Unit)……..93 3/4”L x 43 1/4”D x 85 11/16”H**
Model F2CX (Convex Unit)……..63 1/8”L x 43 1/4”D x 85 11/16”H**
Model F3CX (Convex Unit)……90 5/8”L x 43 1/4”D x 85 11/16”H**

Model FLPCC22 (Concave Unit)……..50”L x 44 3/16”D x 50 9/16”H*
Model FLPCC45 (Concave Unit)……..94 5/8”L x 44 3/16”D x 50 9/16”H*
Model FLPCC67 (Concave Unit)……..136 1/8”L x 44 3/16”D x 50 9/16”H*

Model FLPCX45 (Convex Unit)……..64 7/8”L x 44 3/16”D x 50 9/16”H*
Model FLPCX67 (Convex Unit)……..90 3/4”L x 44 3/16”D x 50 9/16”H*
Model FLPCX90 (Convex Unit)……..114 1/4”L x 44 3/16”D x 50 9/16”H*
Model FMPCX67 (Convex Unit)……..90 3/4”L x 44 3/16”D x 65 ”H*

Model FR3 (Straight Unit)……..32 1/2”L x 43 1/4”D x 85 13/16”H**
Model FR4 (Straight Unit)……..50 1/4”L x 43 1/4”D x 85 13/16”H**
Model FR5 (Straight Unit)……..62 7/8”L x 43 1/4”D x 85 13/16”H**
Model FR6 (Straight Unit)……..74 1/4”L x 43 1/4”D x 85 13/16”H**
Model FR8 (Straight Unit)……..93 1/8”L x 43 1/4”D x 85 13/16”H**
Model FR10 (Straight Unit)……..123 3/8”L x 43 1/4”D x 85 13/16”H**

Model FRCC22 (Concave Unit)……..48 13/16”L x 43 1/4”D x 85 13/16”H**
Model FRCC45 (Concave Unit)……..94”L x 43 1/4”D x 84 1/8”H**

Model FRCX67^ (Convex Unit)……..90 1/2L x 43 1/4”D x 85 11/16”H**
Model FRCX90^ (Convex Unit)……..114 1/4L x 43 1/4”D x 85 11/16”H**

Model FLP3 (Straight Unit)……..62 7/8”L* x 44 3/16”D x 50 9/16”**
Model FLP5 (Straight Unit)……..32 1/2”L* x 44 3/16”D x 50 9/16”**
Model FLP6 (Straight Unit)……..74 1/4”L* x 44 3/16”D x 50 9/16”**

**** Includes end panels. **Height increases if unit is self-contained.***
^ Model FRCX67 and FRCX90 have self-contained option of refrigeration package atop unit. See section in manual pertaining to this feature.

OVERVIEW

- These Structural Concepts merchandisers are designed to merchandise packaged products at 41 °F [5 °C] or less product temperatures.
- Cases should be installed and operated according to this operating manual's instructions to insure proper performance.
- Improper use will void warranty.

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

COMPLIANCE

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

WARNINGS

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

PRECAUTIONS and WIRING DIAGRAMS

- See next page for ***PRECAUTIONS*** and ***WIRING DIAGRAM*** information.

COMPLIANCE

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

WARNING

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

WARNING

Hazardous moving parts. Do not operate unit with covers removed.
Fan blades may be exposed when deck panel is removed.
Disconnect power before removing deck panel.

WARNING

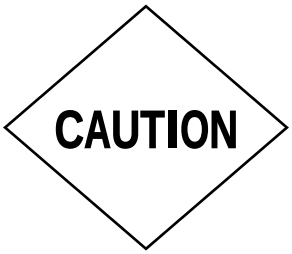
Condenser Pan is Hot!
Disconnect and allow to cool before cleaning or removing from case.

PRECAUTIONS

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

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.



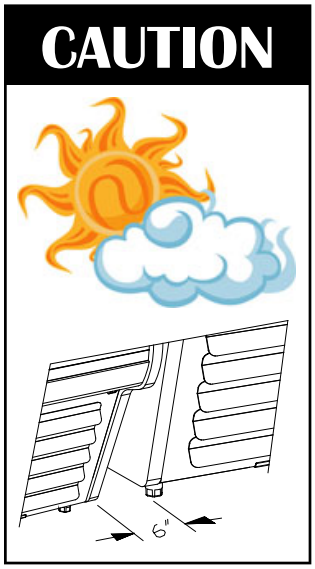
CAUTION! LAMP REPLACEMENT GUIDELINES

LED lamps 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 RECOMMENDATION

If N.E.C. (National Electric Code) or your local code requires GFCI (Ground Fault Circuit Interrupter) protection, the use of a GFCI breaker is strongly recommended.



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 6-inches away from any structure to prevent condensation.**
- **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 (ovens, fryers, etc.).**
- **Tile floors, low ceilings or small rooms will increase noise level. Whisper Cool compressor blanket or remote unit may resolve noise level issues.**
- **Keep at least 8-inch clearance above unit for air discharge (self-contained units only).**

CAUTION! CHECK EVAPORATOR PAN POSITION AND PLUG

Water on flooring can cause extensive damage!

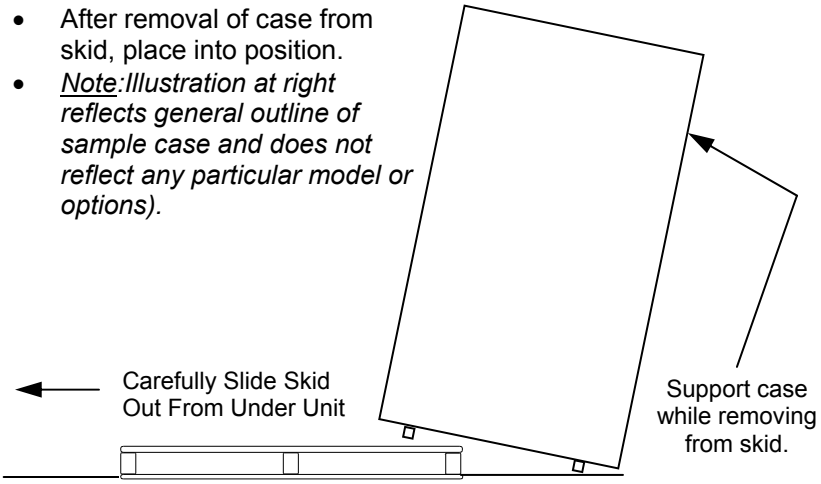
Before powering up unit, check the following:

- **Evaporator pan MUST BE positioned directly under condensate drain.**
- **Evaporator pan plug MUST BE securely plugged into receptacle.**

SKID REMOVAL, TRANSPORTING, POSITIONING

1. Remove Unit From Skid

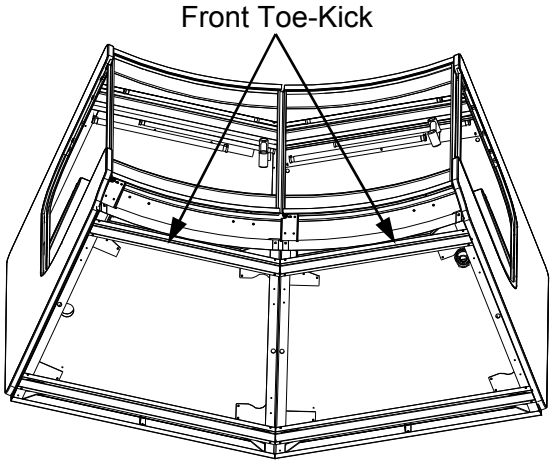
- To prevent damage, support case while sliding skid out from under case.
- After removal of case from skid, place into position.
- *Note:Illustration at right reflects general outline of sample case and does not reflect any particular model or options).*



Case can be repositioned with pallet truck from front or rear. Front access requires the removal of the lower panel. Blocking may be necessary to obtain adequate height.

2. Transporting Case

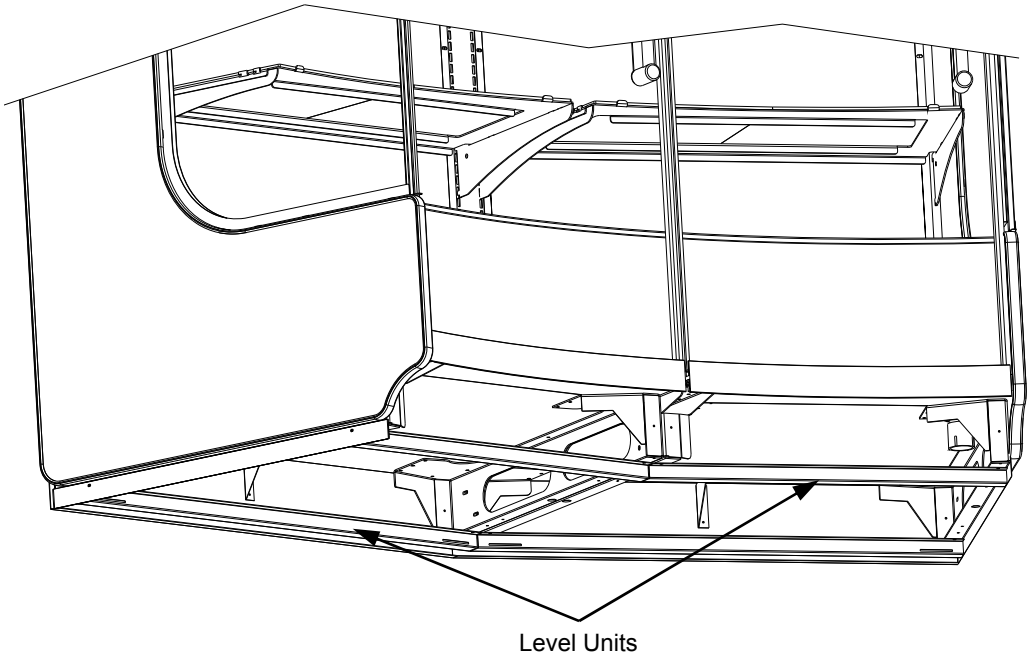
Remove **front** toe-kick and position pallet truck in front center of case being careful to avoid drain and refrigeration fittings.



Underside of Case

3. Position and Level Units

- Position Units. Level unit with shims (3" x 3" x 1/16") provided by the manufacturer.
- ***Note: Leveling the Case is critical to insuring that the doors will line up and remain straight and flush.***
- Note: Illustration below is shown with front toe-kick removed for viewing purposes.



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

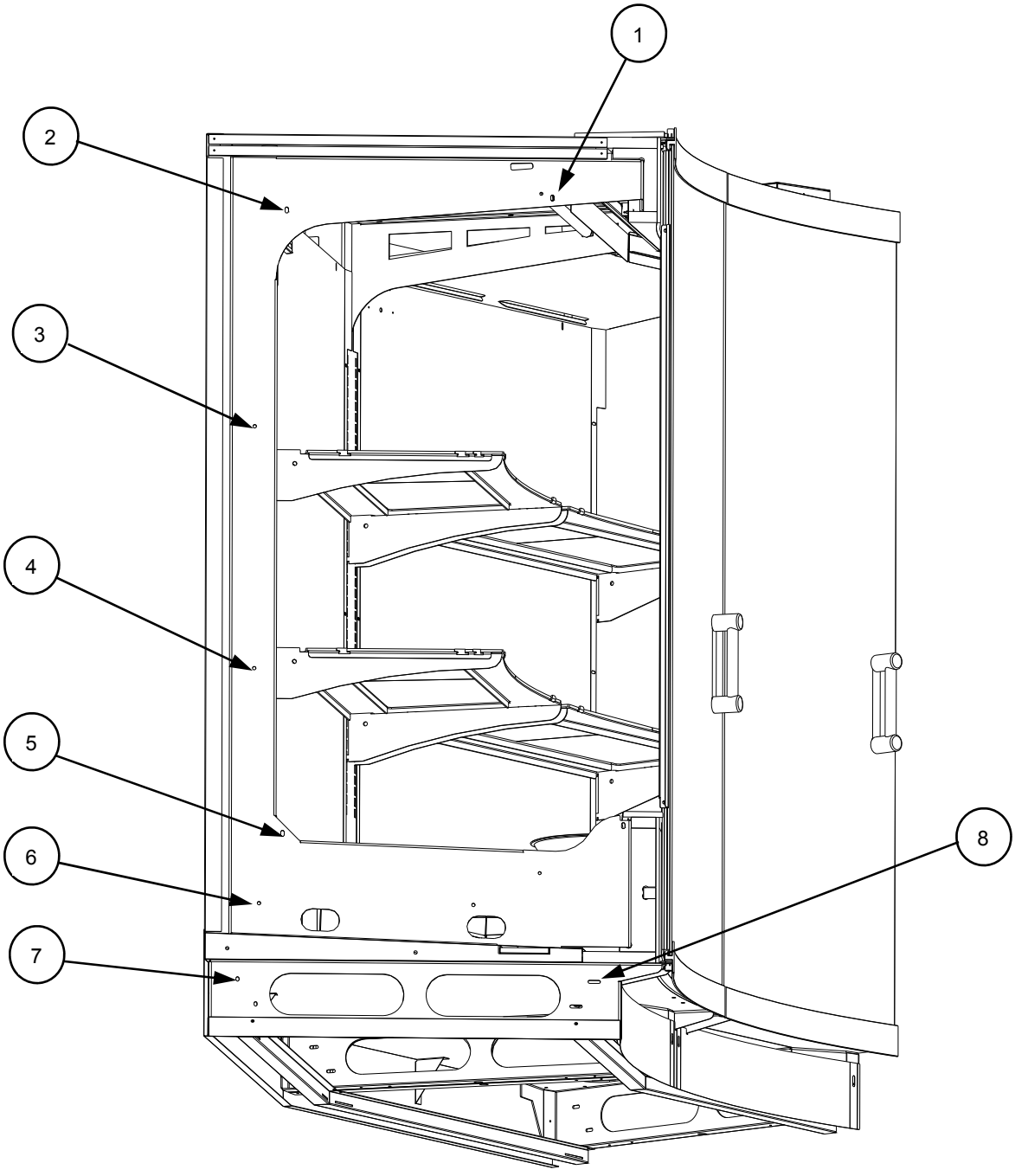
Bolting Units Together

Bolt units together at holes indicated.

Access bolt holes at 4 locations

- Use SCC-Supplied 1/4-20 bolts for adjoining.
- Location #1 is near upper lamp assembly.
- Remove decks to access bolt holes 7 and 8.
- Note: Both F2CC and F2CX Units have similar bolt patterns.

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



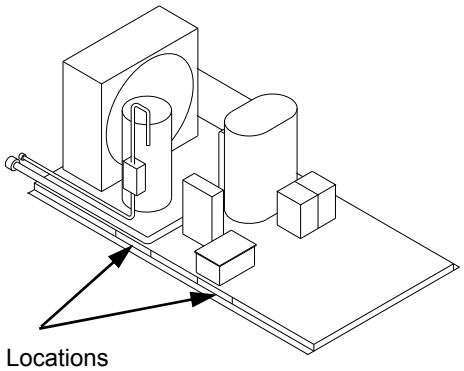
1. Remote Refrigeration Case Connections

Note: Standard single phase connections are required and should be performed by a certified electrician.

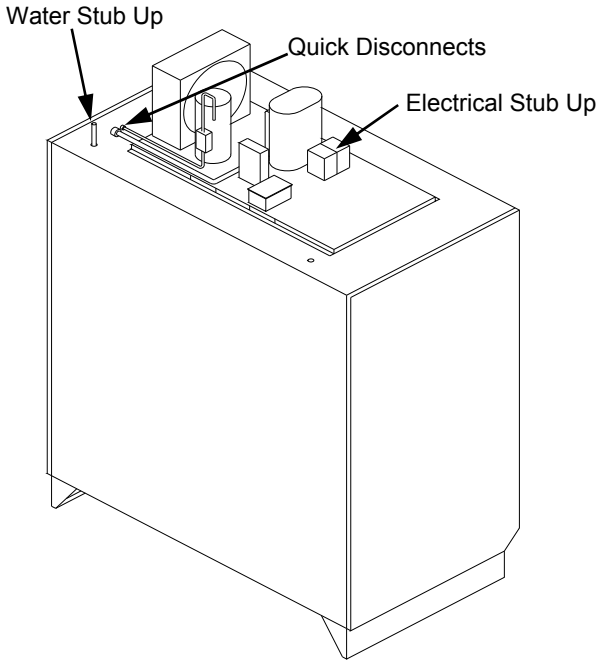
- Refrigeration system.
  Refrigeration stub up connections are provided on the rear side at either the top or base of case per customer request.
- Water System
  A 3/4" female connection is provided for the supply watering system on the rear side at the top of case.
- Electrical system
  A 120 volt electrical stub up connection is provided on the rear side at either the top or base of case per customer request.

2. Adding Refrigeration Condenser

Using a forklift or other suitable lifting device, place refrigeration unit atop case.
Note: Base of refrigeration unit is designed to accommodate forklift forks.



Fork Locations



3. Refrigeration Connections

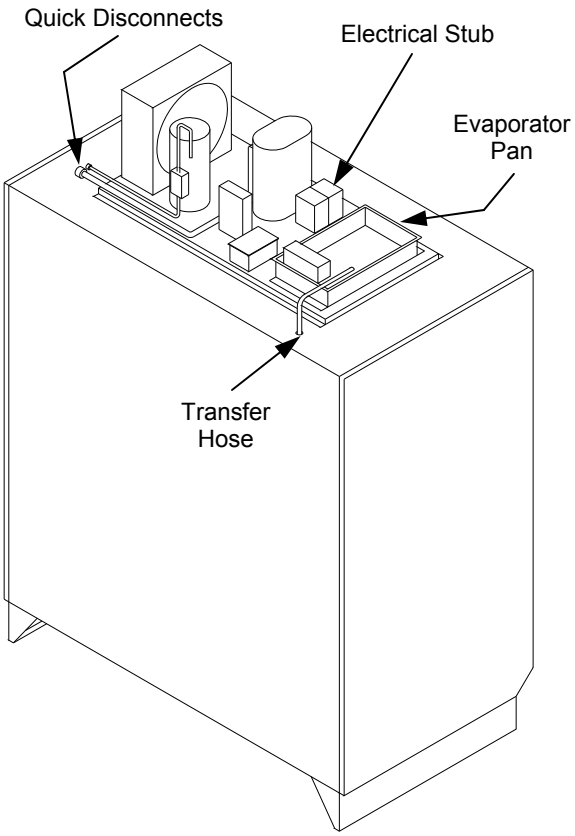
Note: Assembly or disassembly and servicing to be accomplished by licensed refrigeration contractor.

1. Connect the refrigerant quick disconnect connections that are on the rear side at the top of case.
2. Secure the refrigeration unit with the provide No. 10 self drilling screws **after connecting** quick disconnects. Starter holes are located at each corner of condenser base.
3. Connect the light ballast and heating element receptacle to the case plug.
4. Connect the thermostat receptacle of compressor to case plug.

4. Drain Connections - Standard System - Self Contained

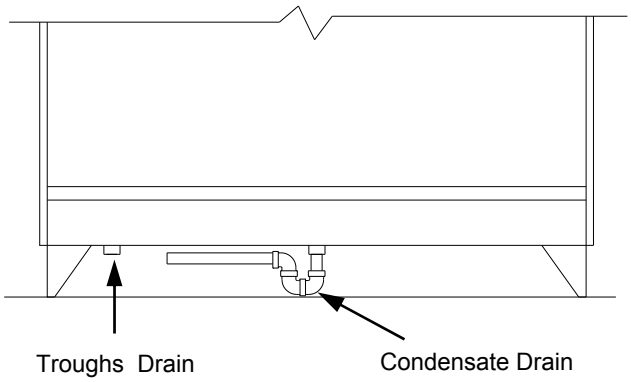
Self-Contained systems:

- The electrical stub up connection is provided on the refrigeration assembly on top of case.
- Refrigeration quick disconnect connections are provided at case rear at top of case.
- A 1/2" flex reinforced hose is provided to evacuate condenser water from condensate pump pan to an evaporator pan placed on the top of case.
- A 1 1/2" male PVC drain connection is provided for condensate drainage. It is at the center of the base for cases FR72 & FR96.



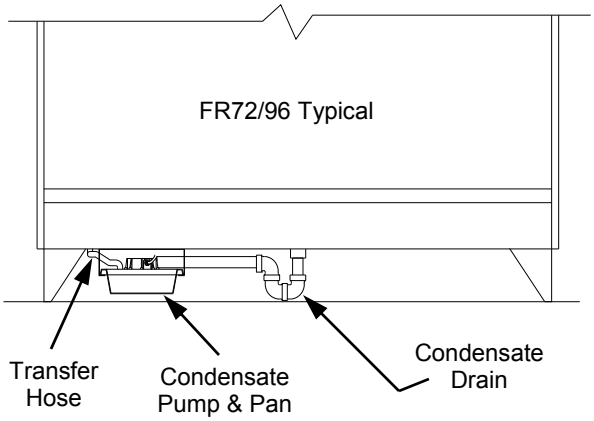
5. Drain Connections - Watering System Units

- A 1 1/2" male PVC drain connection is provided for condensate at center base.
- A 2" male PVC drain connection is provided for the troughs at the left base.



Important! For Proper Drain Operation, Each Drain Is To Be Piped Independently. Do Not "TEE" Drains Together!

Note: Above (and below) illustrations may not reflect exact case specifications.



6. Access and Connections

Self-Contained refrigeration with power cord.

- ***For your safety, equipment is furnished with a properly grounded cord connector. Do not attempt to defeat the grounded connector.***
- Plug cord into certified electrical outlet w/ground.

7. Self-Contained Refrigeration Without Power Cord

Note: Standard single phase connections required and are to be performed by certified electrician.

- A 220 volt electrical stub up connection is provided on the refrigeration assembly.
- Remove screws from 4X4 box provided for field hook up.
- Leads are labeled for identification.

8. Temperature Settings

- The case temperature Set Point is set at the factory, as determined by the case size and sensor probe location.
- The temperature is controlled by a thermostat.
- If a temperature setting change is required, refer to the Temperature Controller section of this manual for instructions on changing setpoint.

9. Remote Refrigeration Systems

Note: Servicing to be accomplished by refrigeration contractor.

- Refrigeration stub up connections are provided on the rear side at either the top or base of case per customer request.

10. Water System

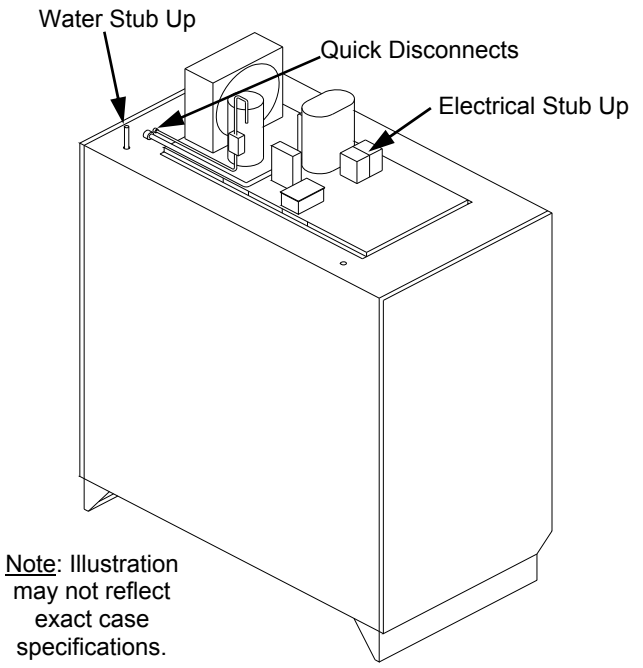
- A 3/4" female connection is provided for supply watering system on rear side at the top of case.
- Check fitting, under pressure, for leakage prior to installing either front toe kick or rear grille.

11. Condensation Drain Connection

- The condensate drain exits the base of tub assembly.
- Removing rear grille will expose access to the drain connections. See Drain Access in Refrigeration & Watering Fundamentals section.

12. Electrical Leads

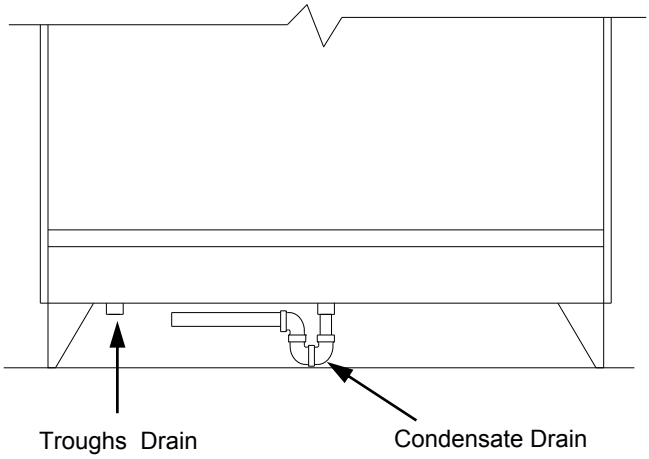
- **Note:** Standard single phase connections are required and must be performed by a certified electrician.
- 120 volt electrical stub up connections are provided on the rear side at either the top or base of case per customer request.



Note: Illustration may not reflect exact case specifications.

Drain Connections

- A 1 1/2" male PVC drain connection is provided for condensate at the center base.
- A 2" male PVC drain connection is provided for the troughs at the left base.



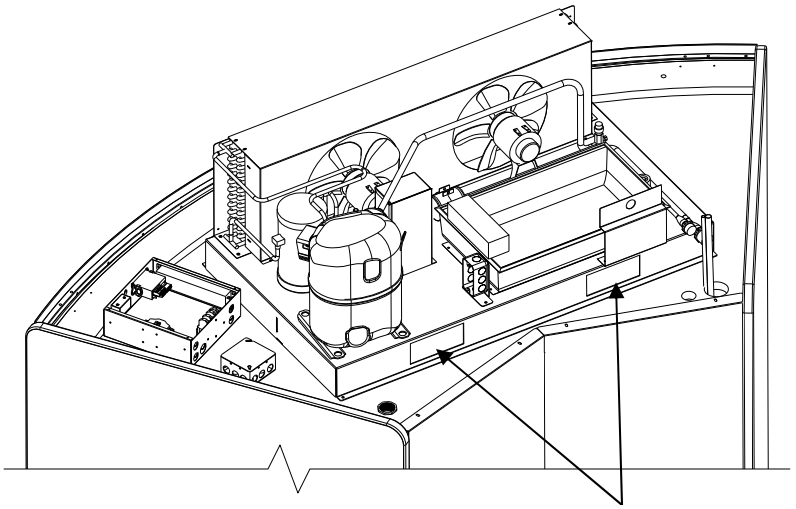
Important! For Proper Drain Operation, Each Drain Is To Be Piped Independently. Do Not "TEE" Drains Together!

1. Electrical Specifications

- See ***Technical Information Sheet*** in this operating manual.

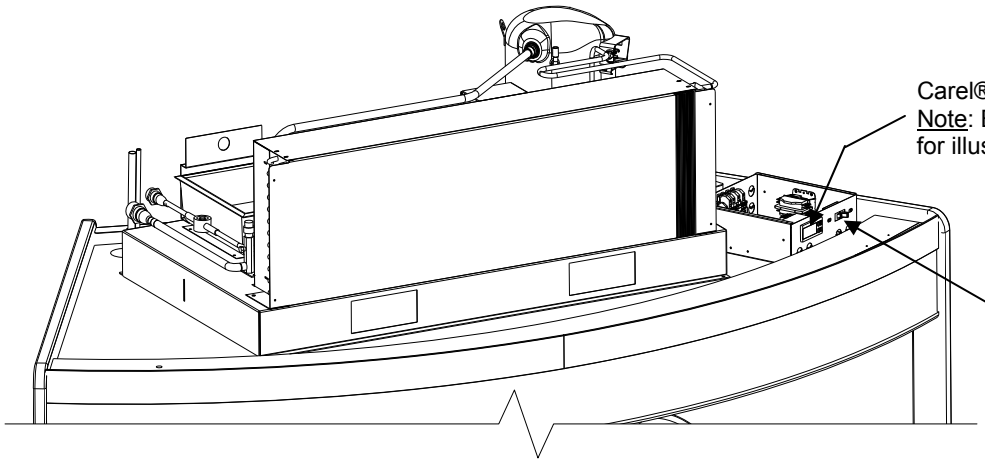
2. Refrigeration Package

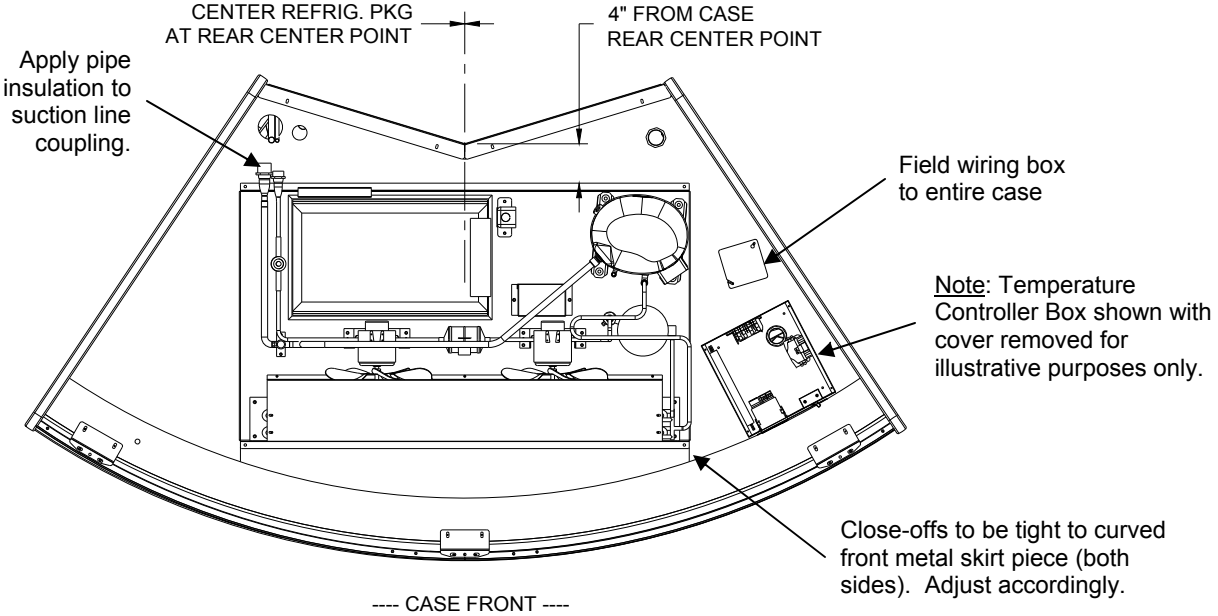
- Note: Refrigeration package must be raised by fork lift and placed on case from rear.
- Fork lift openings are shown in illustration at right.
- Apply pipe insulation to suction line coupling. See illustration below.



3. Field Wiring Hookup

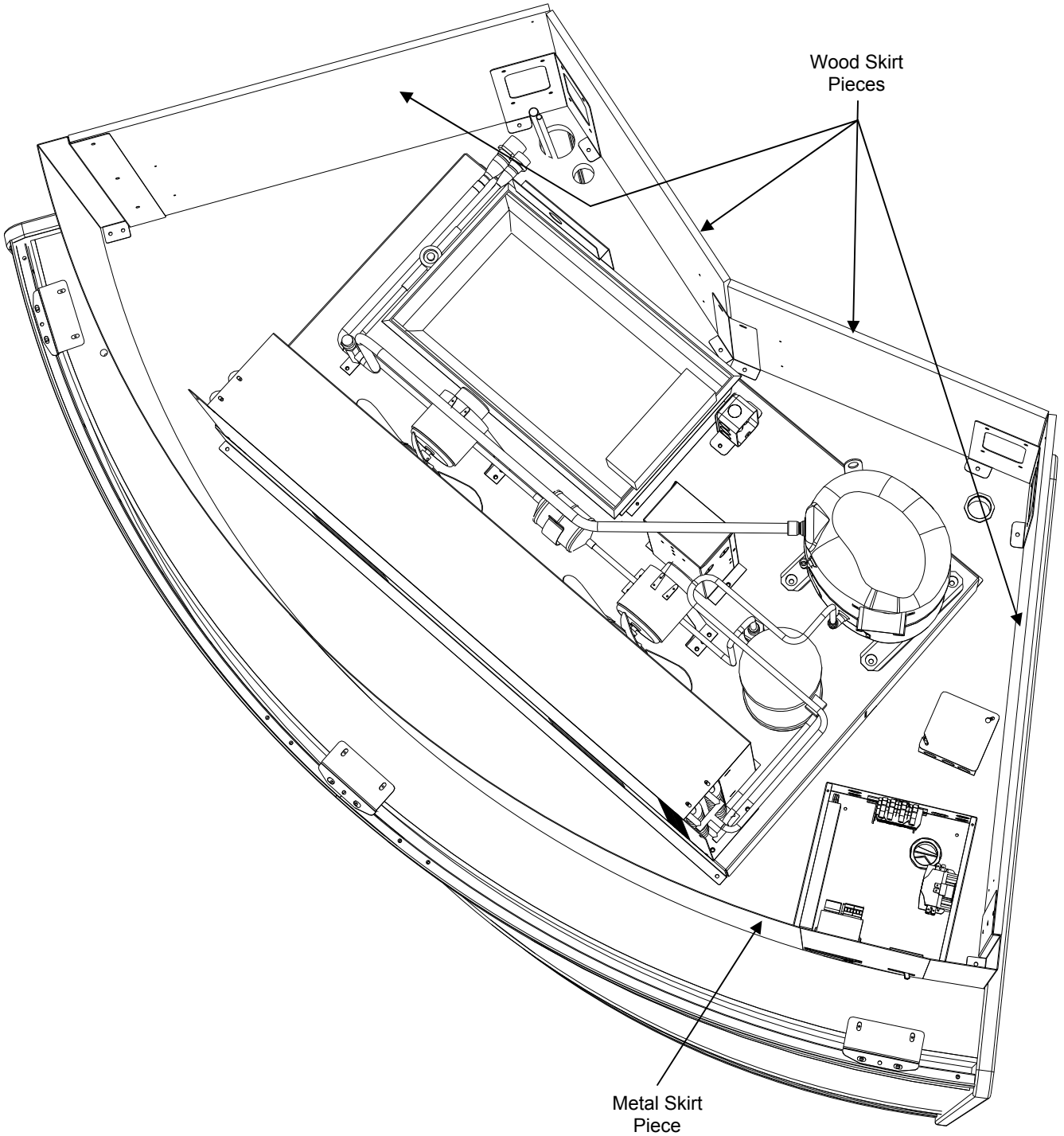
- See Illustration at right and below.





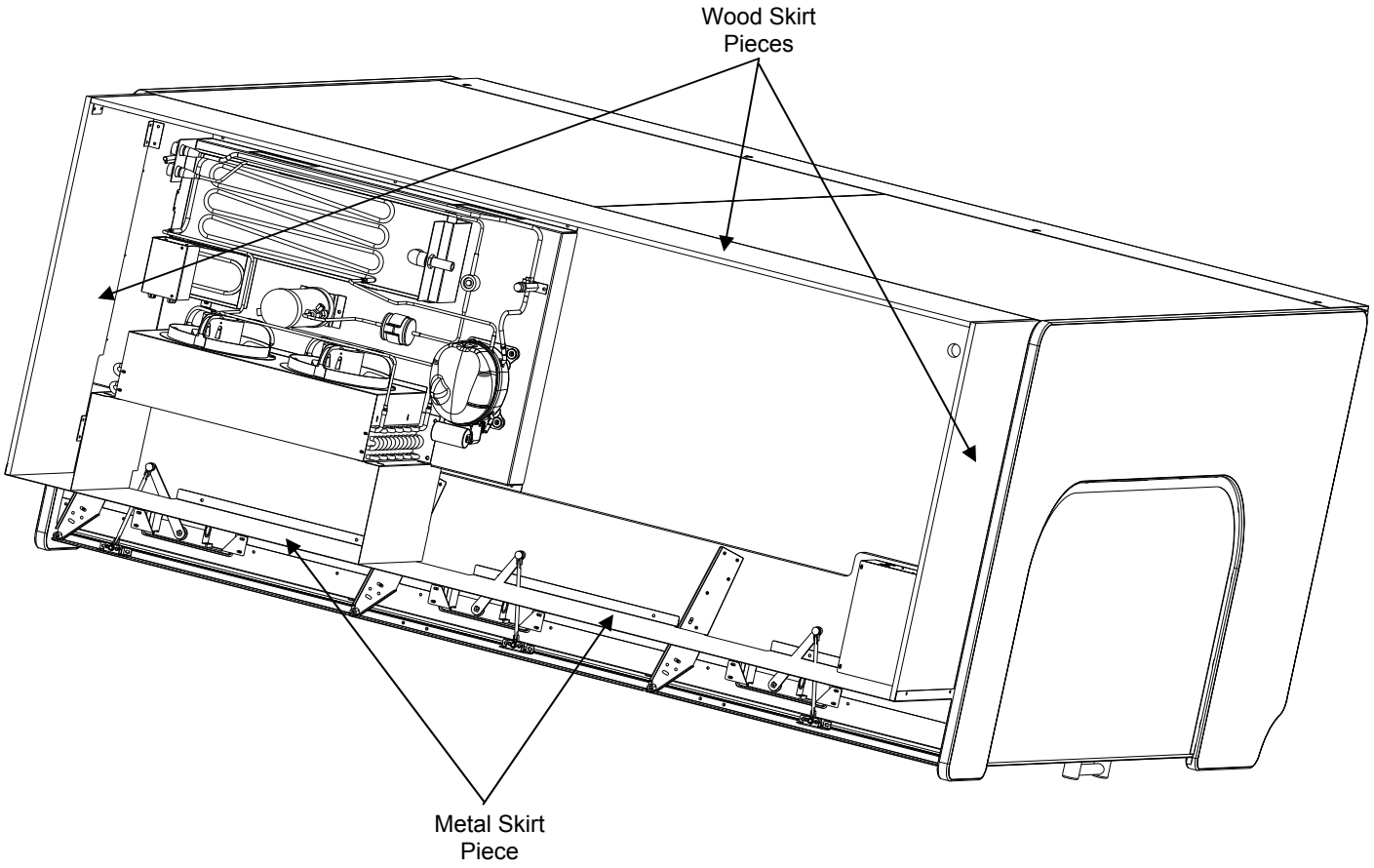
4. Skirt Specifics

- Skirt is held in place with brackets
- Brackets are attached to skirt from factory; holes are symmetrical.
- Brackets are to be attached to top of case (as shown in illustration below)
- There are four wood skirt pieces and one metal skirt piece to be placed atop case.
- See illustration below.



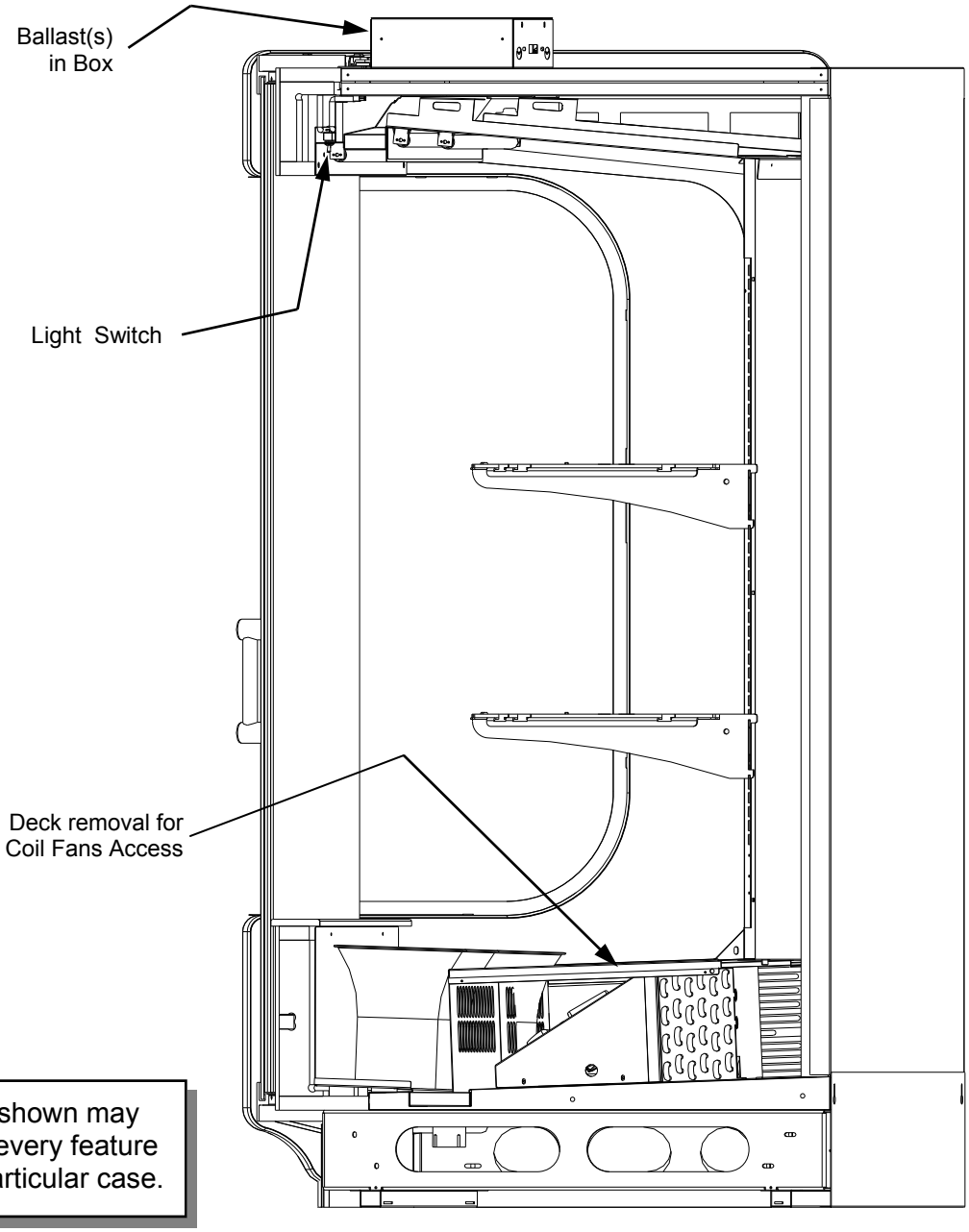
5. Skirt Specifics

- Skirt is held in place with brackets
- Brackets are attached to skirt from factory; holes are symmetrical.
- Brackets are to be attached to top of case (as shown in illustration below)
- There are four wood skirt pieces and one metal skirt piece to be placed atop case. See below.



Merchandiser Start-Up

- Case must be properly field wired to be energized.
- Turn on main power circuit breaker. Coil fans should turn on. From the front of the case, remove the deck for access to coil fans.
- Check to see that the coil fans are all functioning properly.
- When the case is in a start up mode or has been idle for a long period of time, the unit will require 75 minutes in order to pull down temperature.
- Turn lights on (see illustration at top-right for location). 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.



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

Merchandiser Start-Up

Fresh Flow Automatic Watering System
— Control Panel Operating Instructions —

ON/OFF POWER:

- Switch to "off" position to halt water cycles during periodic cleaning of the Fresh Flow system. Switch back to "on" position to continue the automatic system operation.

15-MINUTE REFILL TIMER:

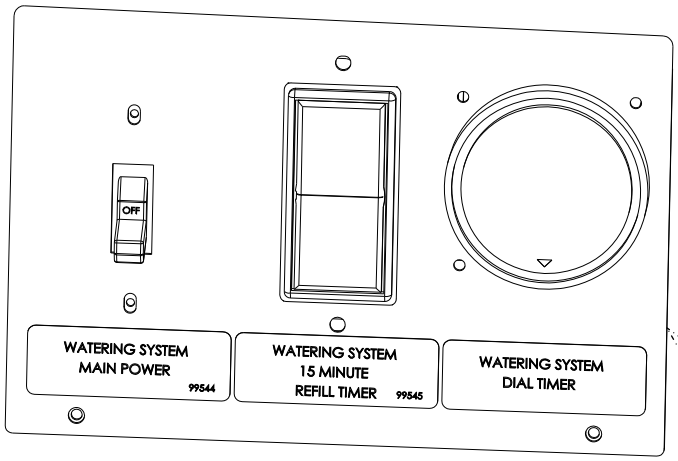
- In order to refill the trough(s) after cleaning, touch this switch (one time) to start the cycle. This will allow a 15-minute fill cycle to occur. An audible alarm will sound just prior to the cycle completion.
- **To Cancel Fill Cycle**, touch refill timer twice in one second.

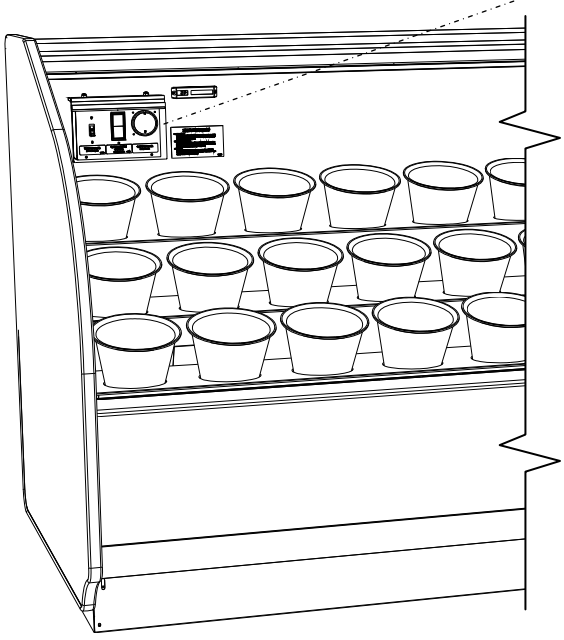
DIAL TIMER:

- Set timer switch for (2) 15-minute cycles per day by pushing (2) actuator pins toward the center of the timer switch. The visible orange areas indicate the switched-on periods.

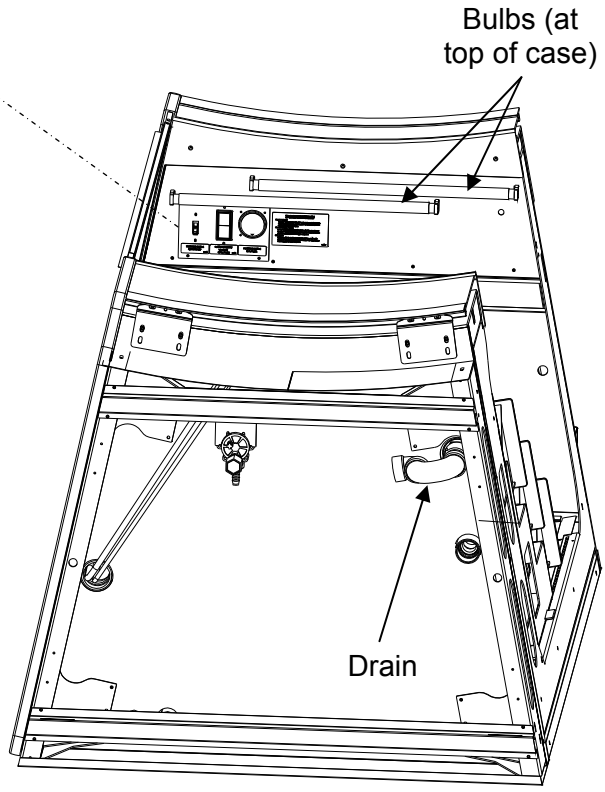
Thermostat Control

The case temperature is set at the factory, as determined by the case size. The temperature is controlled by a thermostat. If a temperature setting change is required, refer to the Temperature Controller section of this manual for instructions on changing the set point.





Watering System Control Panel Location
(FLP Models)



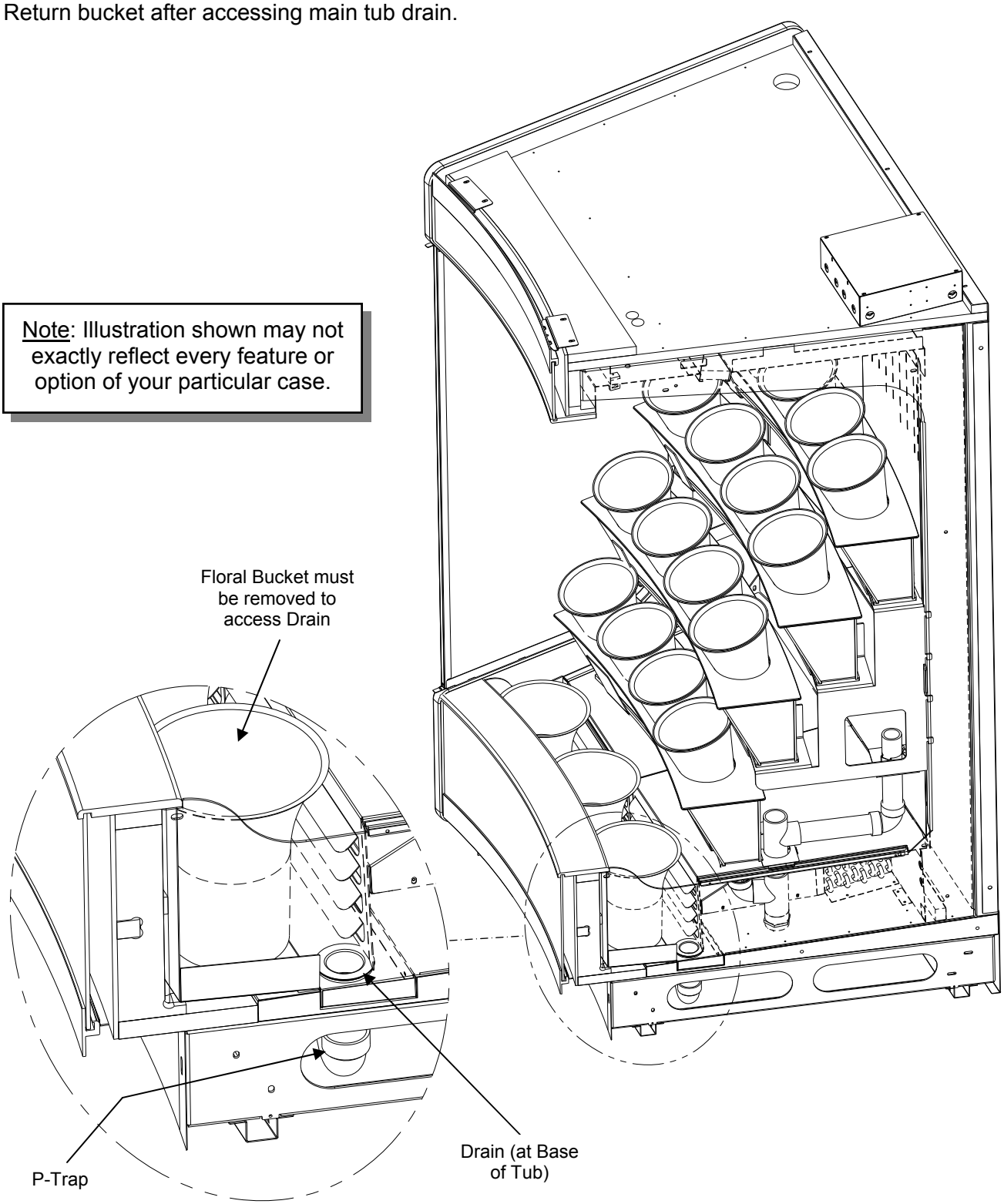
Watering System Control Panel Location
(Most Models)

MAIN TUB DRAIN ACCESS (OPTIONAL WATERING SYSTEMS ONLY)

Main Tub Drain Access

- Remove lower front bucket to access main tub drain.
- Drain will be on customer-right of case, located on tub.
  - Illustration below shows drain location.
  - Return bucket after accessing main tub drain.

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



1. Shelf Assembly Removal

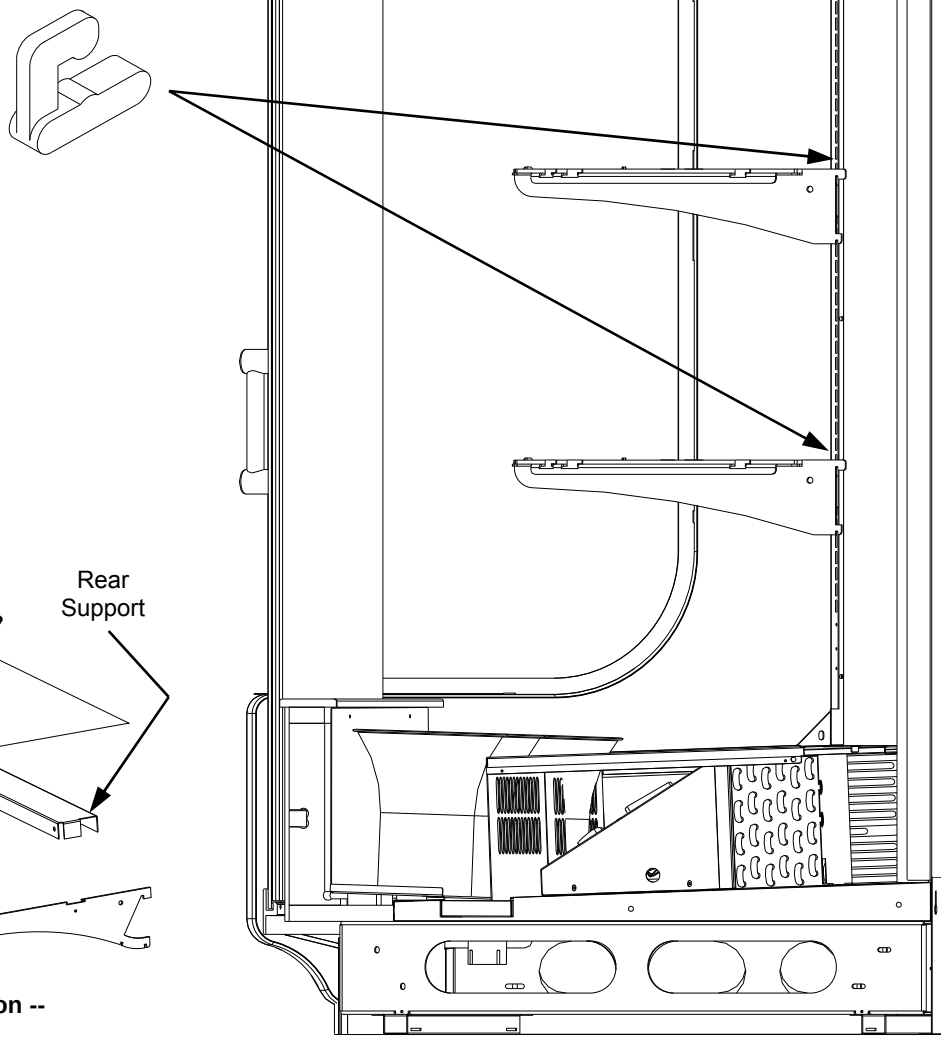
Shelving can be removed for cleaning or adjustments.

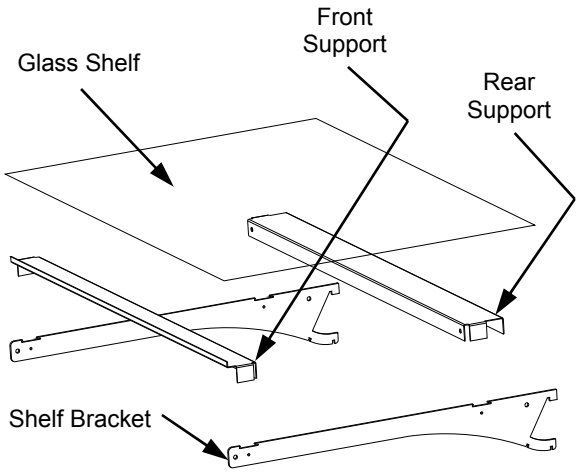
- Note: It may be necessary to remove the nylon shipping bracket retainer. Pliers will be required to accomplish this task.

2. Floral Glass Shelving

- Remove the glass shelving and carefully set aside.
- Remove shelf supports.
  Push the shelf supports backward to disengage locking and rotate front edge up. Pull forward to separate from brackets.
- Remove brackets from slots.

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





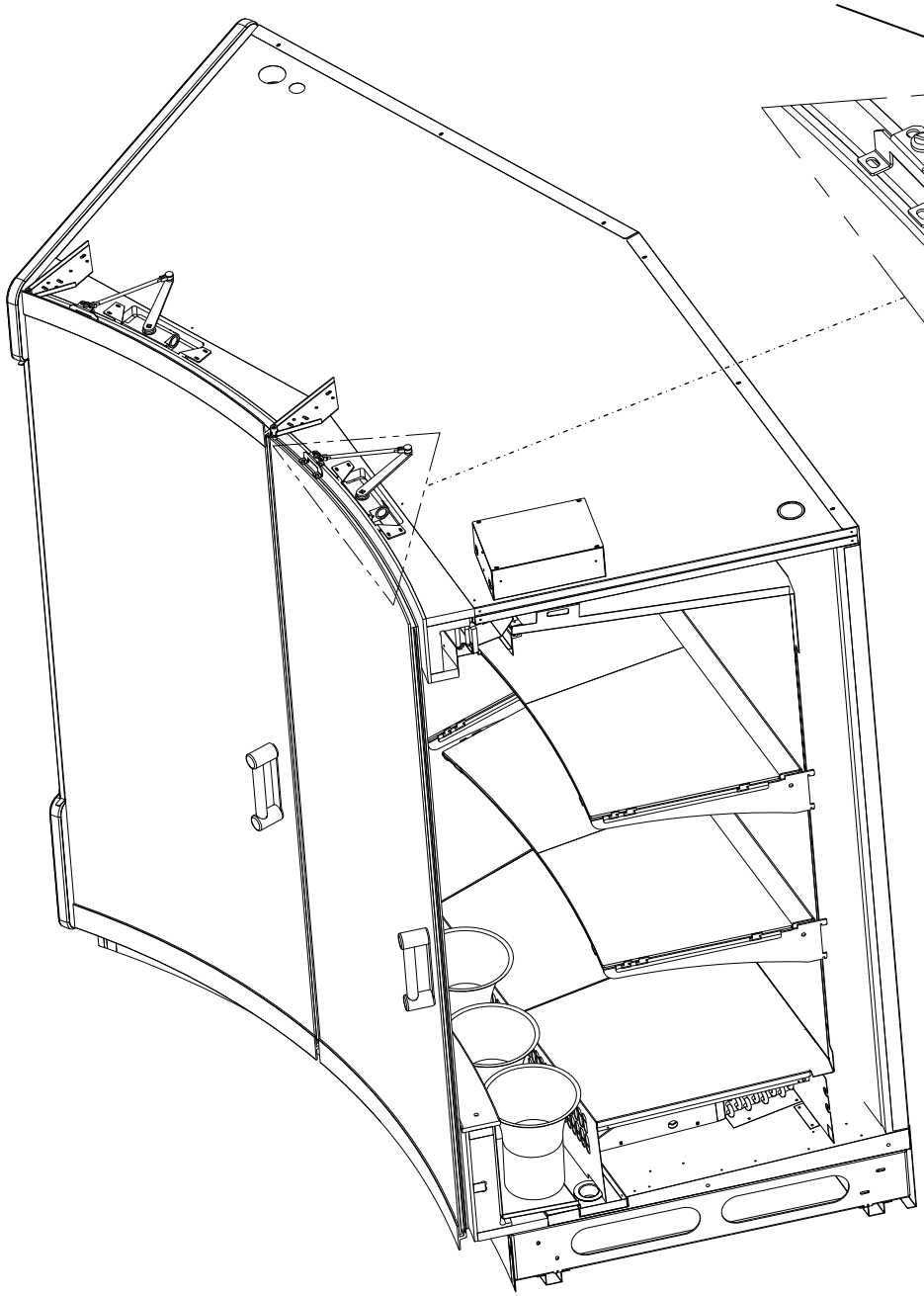
-- Glass Shelving Illustration --

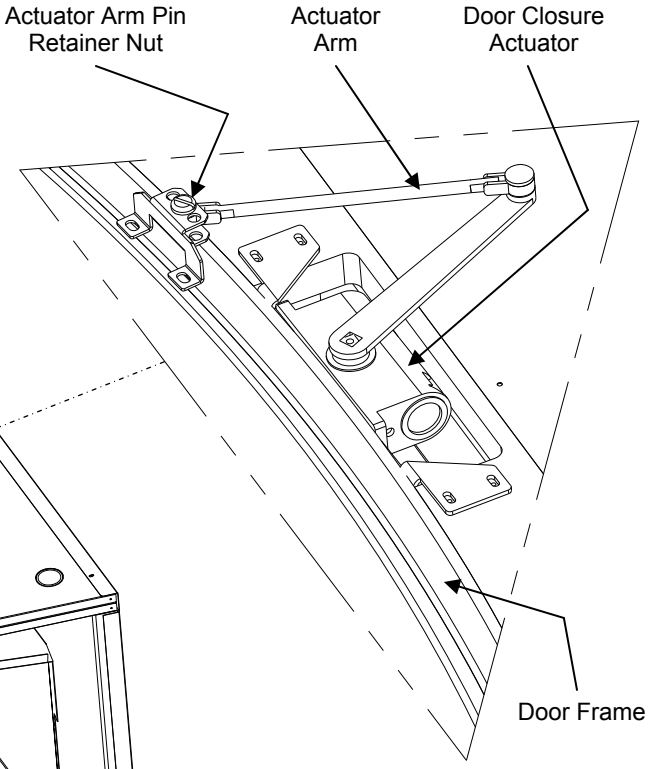
Door Closure Actuators

Actuators are enclosed in a mounting box at the base of the case.

- **Actuator Removal**
  - Open the applicable door.
  - Remove the retainer nut from the actuator arm pin at the base of the door frame.
  - Pull on arm assembly to relieve the tension on the screw pin.
  - Remove actuator arm pin.
  - Remove screws from Actuator.
  - Remove Actuator.

- **Actuator Installation**
  - Reverse the removal order to install.





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

1. Electrical Access and Connections

Note: Standard single phase connection is required and should be performed by a certified electrician.

2. Remote Refrigeration

- A 110 Volt electrical stub up connection is provided on the top of case (as shown in below illustration). However, stub-ups can also be at rear side at either the top or base of case per customer request.
- Remove screws from 4 X 4 box provided for field hook up.

3. Light Ballast Access

- Ballast is located atop case (see illustration).

4. Light Bulb Access

Bulbs are just inside the doors at the top of the case. See illustration below.

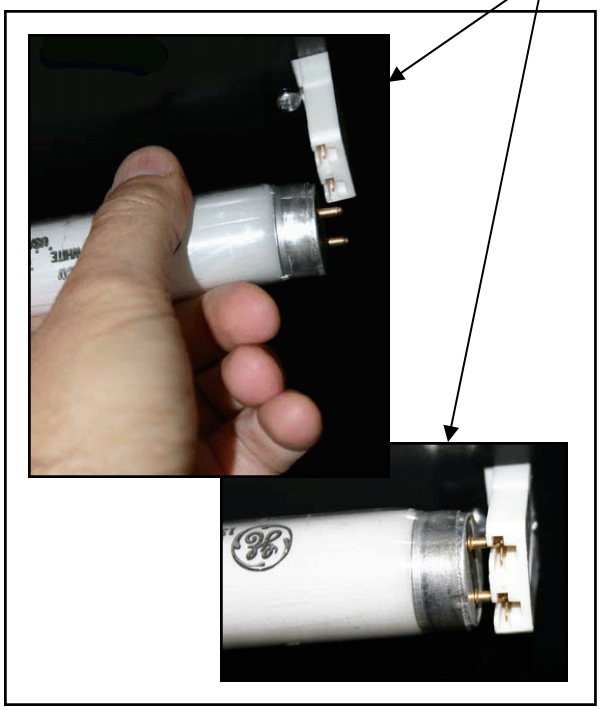
5. Removal of Lamp

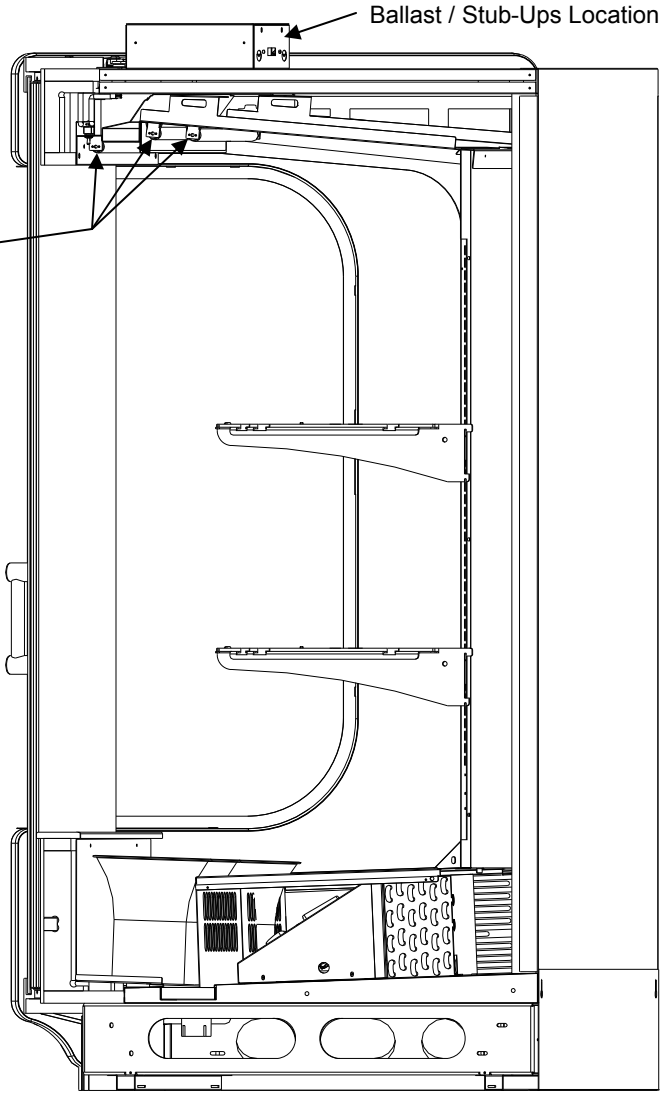
- Rotate lamp (1/4 turn) so that one set pins will disengage from the aligned slots of sockets.
- Pull bulb down to release the remaining pins to remove bulb.

6. Installation of Lamp

- Align pins with slots of sockets.
- Secure the pins into socket by applying even upward pressure and rotating 1/4 turn in either direction, than the opposite direction to secure pins into the contacts of the socket.

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





LED LIGHT FIXTURES (MODEL F3 SHOWN / YOUR CASE MAY VARY)

1. Case Shown / Variances

- Model F3 is illustrated.
- Your case may vary.

2. LED Light Fixtures

- Light fixtures are located on the sides of each door assembly, both sides (just inside doors).
- Illustration at right is shown with case disassembled for illustrative purposes only.

3. LED Light Fixture Removal

Removal of lamp:

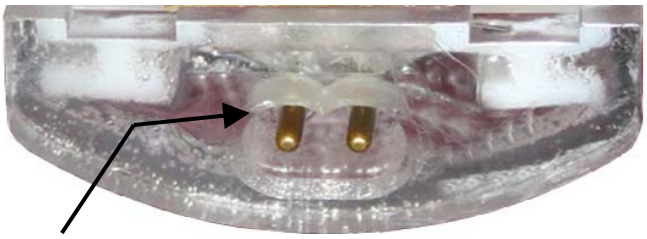
- This case is provided with LED lights which will rarely require change-out.
- Contact Structural Concepts' Technical Service Department for replacement parts (see Technical Service section of manual).

Replacement of lamp:

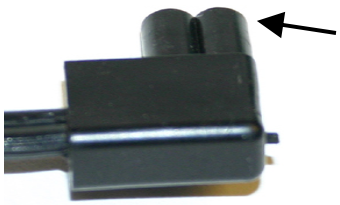
- To replace LED Light Fixture, disconnect the existing LED light from its brackets and self-adhesive tape. Replace.
- Note: LED Plug must be connected in specific manner or they will not work.
- Oval form of plug must connect to oval form of LED light. See photos below.

4. LED Power Supply Access

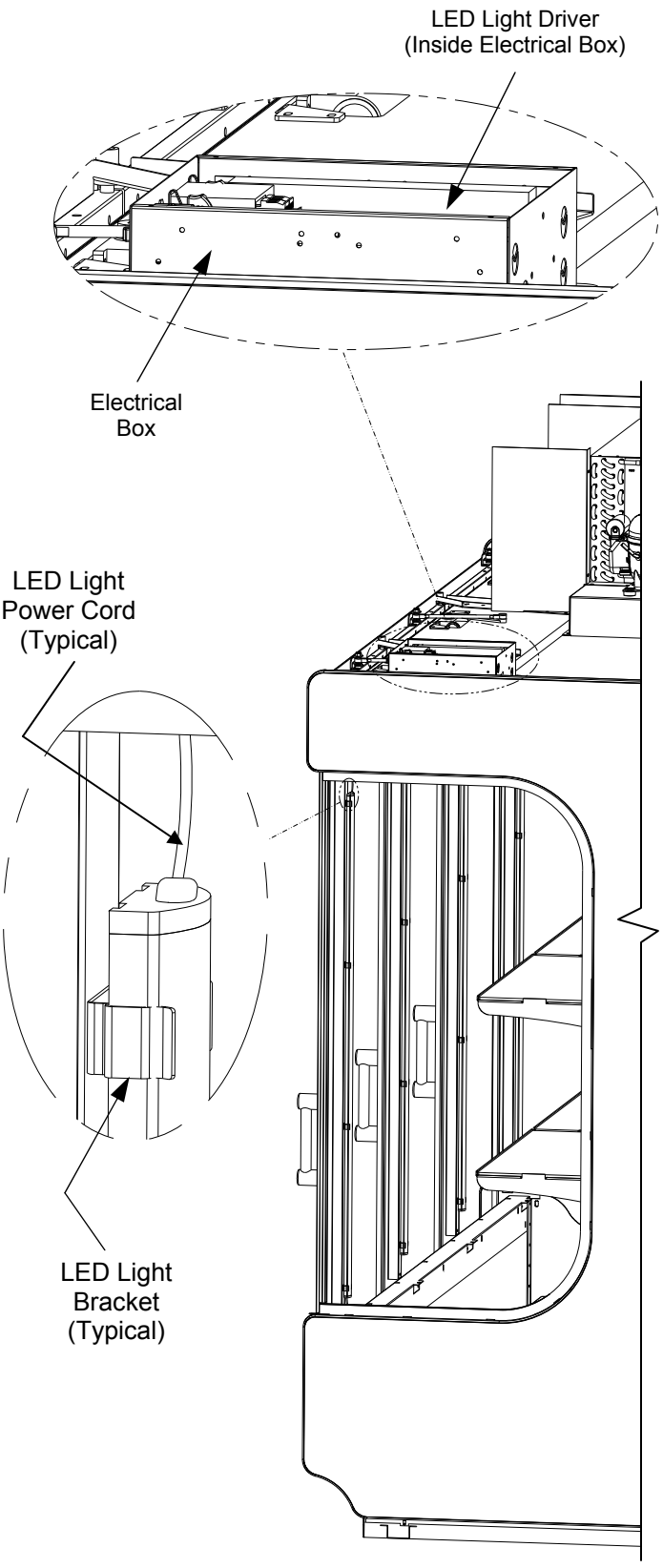
- Disconnect electrical power from unit.
- Remove electrical box cover.
- Access LED power supply and/or LED driver.
- After access/repair, return electrical box cover and restore power.



LED's Oval Form



Plug's Oval Form



1. Remote Systems

- Refrigeration stub up connections are provided on the rear side at either the top or base of case per customer request.
- A 1-1/2" PVC drain connection is provided for condensate at the customer-right side of base. See illustration below.

2. Expansion Valves Access

Expansion valves are accessible from the front of the case.

- Remove the lower deck.
- Remove the access panels.
- The expansion valves (TXVs) are directly below the access panel.

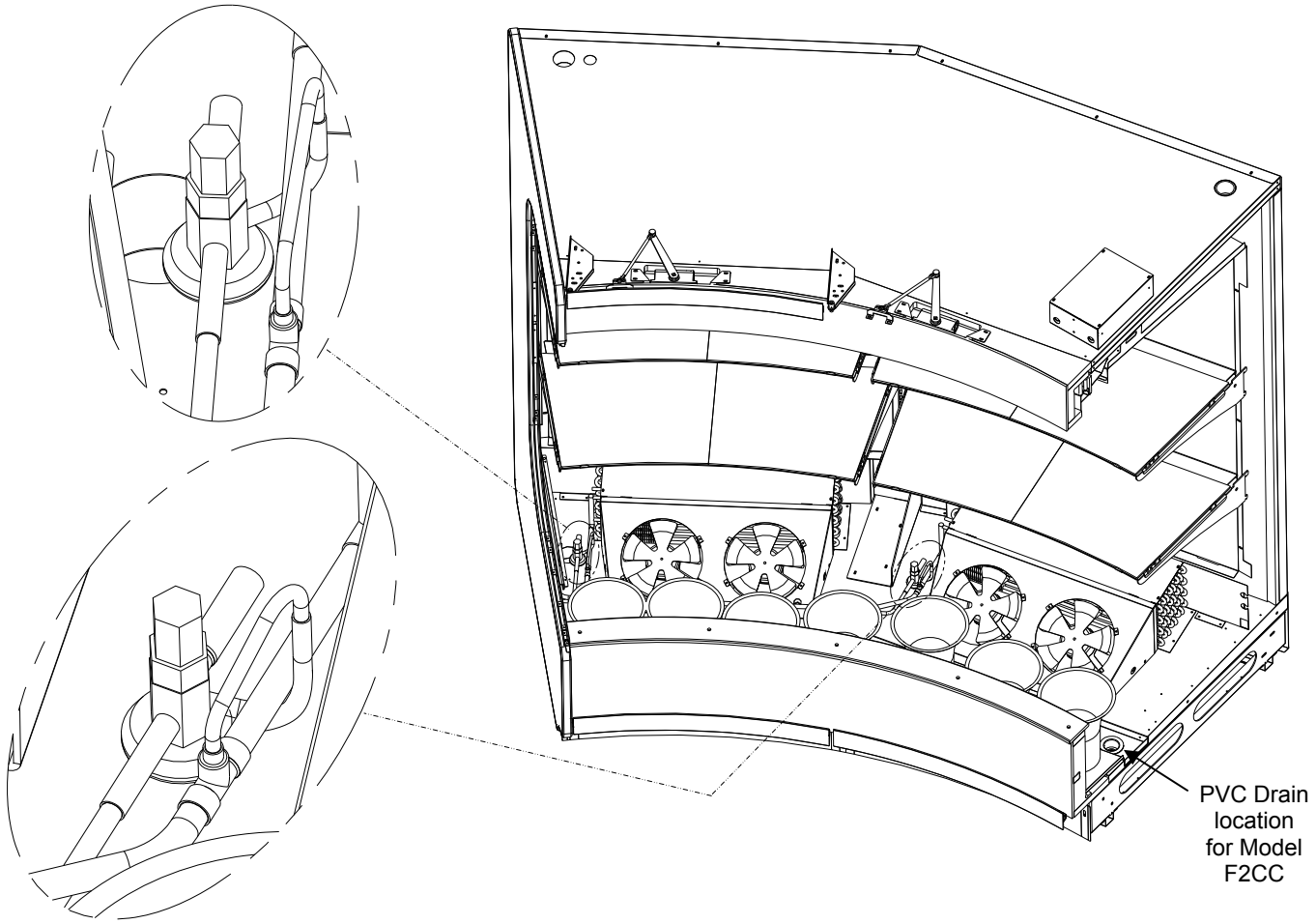
3. Condensate Drain Access

The drain is accessible from the front of the case (see illustration below).

- Remove lower shelving as necessary.
- Remove the lower decking.
- Unplug the fans at the fan shroud support (one plug per fan).
- Remove the knob fasteners from both sides of the fan shroud panel.
- Lift the shroud assembly out carefully to avoid damage to doors and other structure.

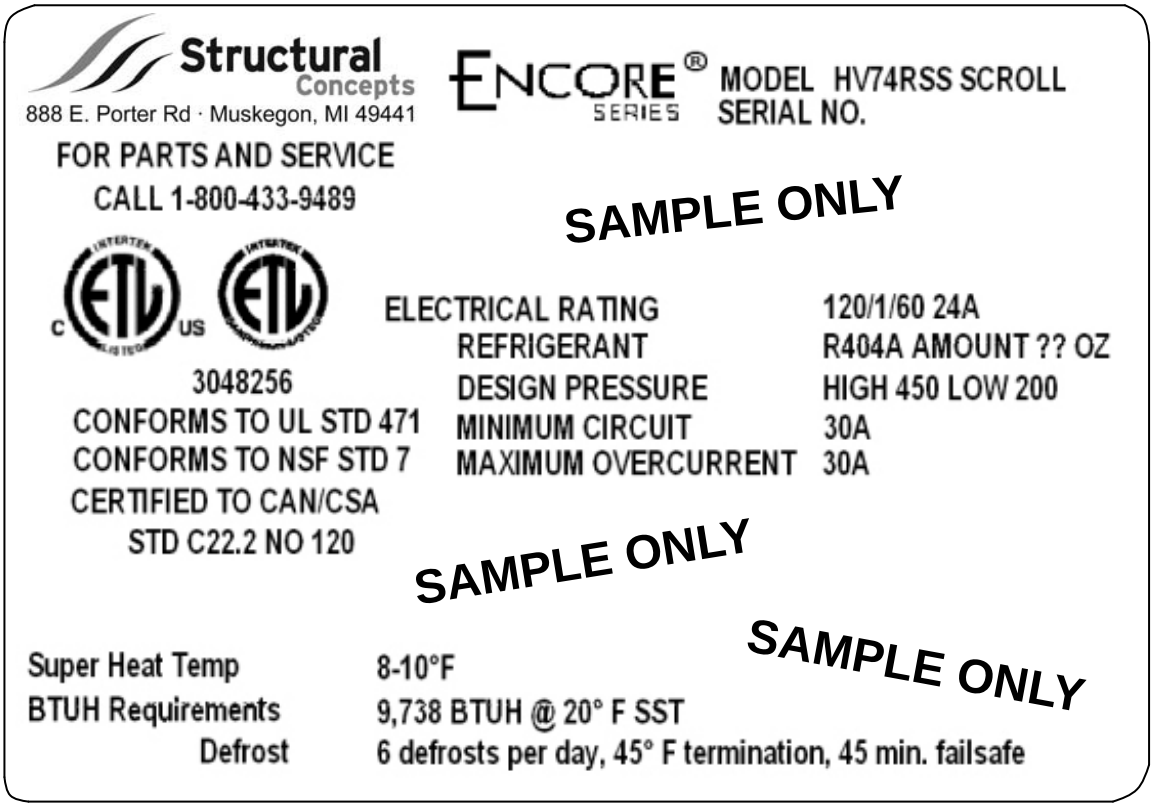
4. Fans and Evaporator Coil Access

- Remove power from case.
- Remove lower shelving as necessary.
- Remove the lower decking.
- Unplug the fans at the fan shroud support (one plug per fan).
- Remove the knob fasteners from both sides of the fan shroud panel.
- Lift the shroud assembly out carefully to avoid damage to doors and other structure.
- See Model F2cc illustrated below. Your model may slightly differ in features or options.

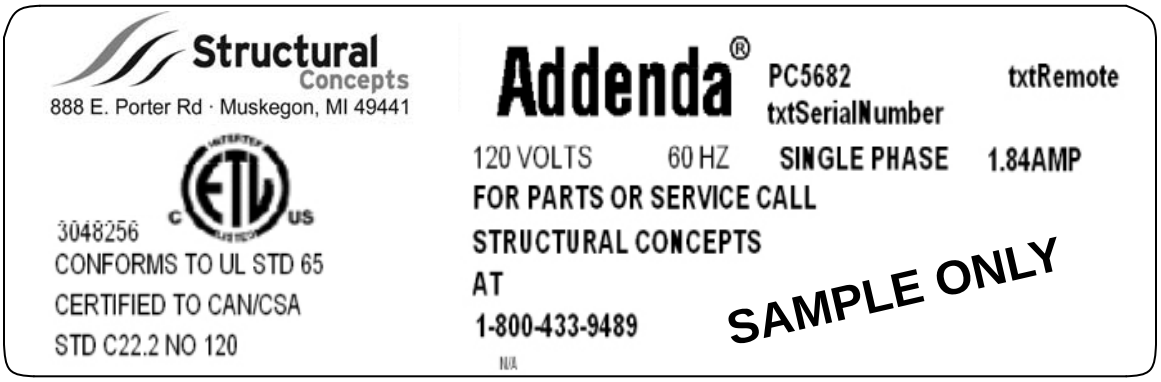


Serial Label Location & Information Listed / Technical Information & Service

- 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 -----

Product is drying out	Check the relative humidity in the store.
Water on the floor	Check that all of the hoses are connected.
	Check that the drain trap is free of debris.
	Check that the trough filter is free of debris.
	Check that the overflow tube is free of debris.
Water runs continuously	Check that the time clock is set correctly. See ***START-UP AND OPERATION - WATERING SYSTEM*** section in manual for setting timer.
	Check that water supply solenoid is operating correctly.
Buckets do not fit in trough	Check trough cover for proper installation. Holes should be offset to front of case
Trough does not maintain Water level	Check that the overflow tube is installed correctly.
Excessive fan noise	Check that the case is aligned, level and plumb.
	Check that nothing is obstructing the blade rotation.
	Check that the fan shroud is properly secured.
System is 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.
Fans not working	Check that the power is on.
	Check that the fans are plugged in at the fan shroud.
	Determine if there is ice build up blocking the fan.
Case lights not working	Check bulbs for proper installation and connection.
	Check for burned out bulbs.
	Clean dirt and dust from the bulbs to prevent flickering.
Condensing unit not operating (self contained unit)	Check that the power is turned on.
	Check the reset button on top of the pressure control.

Not holding temperature	Check that the coil fans are working.
	Check that the inlet air is not disrupted or blocked by product.
	If a large amount of warm product was added to the case, it will take time for the temperature to adjust.
	Check the coil for ice build up.
	Check that the condenser coil is clean (self contained unit).
	Check that the case is not in the sun or near a heat or air-conditioning vent.
	Case temperature will rise during defrost mode but will return to normal.
	Is case located near front doors.
	Thermostat setting is too high. Refer to the Temperature Controller section in this manual.

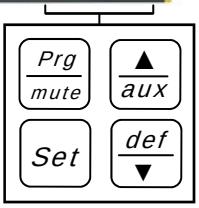
CLEANING SCHEDULE (DAILY / WEEKLY / MONTHLY / QUARTERLY)

Cleaning	D	W	M	Q	Task
Clean Case Exterior	X				Clean all case exterior surfaces with a household or commercial glass cleaner and a soft cloth.
Clean Case Interior	X				Clean the interior case deck and trough surfaces with a warm water and mild soap solution.
		X			Keep drains clean and free of debris which could clog the drain and rob the case of needed refrigeration. Vacuum tub under deck or flush with water if necessary.
		X			Remove the decks. Clean with soap and water solution.
		X			Remove buckets. Clean with soap & water solution.
			X		*<u>Watering System Units Only</u>: Remove the trough covers and clean interior of covers and troughs with soap and water.*
Self-contained Units only. Clean Condensing Coil			X		Using air pressure if available, or an industrial strength vacuum, clean the dust & dirt that collects on condenser coil. (Be careful not to damage fins on coil.)
Self-contained Units only. Clean Condensing Unit (Including Evaporator Pan)				X	Clean Condensing Unit (Including Evaporator Pan) ***<u>Warning</u>: Evaporator pan may be hot. Allow Evaporator Pan to cool approximately 30-minutes before cleaning.*** 1. Remove Rear Lower Panel. 2. Turn off power. Disconnect case from power source. 3. Remove Rear Grille by removing 4 screws. 4. Disconnect Evaporator Pan electrical connection from Receptacle Box. 5. Remove Evaporator Pan mounting screws from the Compressor Pan. 6. After Evaporator Pan has cooled, remove from unit. 7. Thoroughly clean Evaporator Pan with hot soap and water solution and firm bristle brush. *DO NOT* submerse in water. 8. For stubborn residue, use a de-scaling solution such as **CLR®**. Rinse thoroughly. *DO NOT* submerse in water. 9. Use clean towel dipped in soap and water solution to wipe down all fans, motor, refrigeration lines, cords, knobs, sight glass, connectors and all other surfaces. 10. Wipe dry. 11. Reposition Evaporator Pan on Compressor Pan. 12. Reattach mounting screws to Evaporator Pan. 13. Reconnect Evaporator Pan electrical connections. 14. Slide back under case. 15. Replace Rear Grille. 16. Replace Rear Lower Panel.

CAREL

ir33 platform

Integrated Electronic Microprocessor Controller



Programming The Instrument

To Modify The Setpoint

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

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

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

To Modify Defrost, Differential, Other Parameters

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

Set 2. Confirm by pressing "SET" key.

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

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

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

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

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

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

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

Set 2. Confirm by pressing "SET" key.

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

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

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

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

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

Warning! Save Your Parameter Settings!

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

def ▼ ***To Activate Manual Defrost***

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

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

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

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

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

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

CAREL

ir33 platform

Integrated Electronic Microprocessor Controller

User Interface - Display

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

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

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

CAREL

ir33 platform

Integrated Electronic Microprocessor Controller

Summary Table of Operating Parameters

CODE	PARAMETER	UOM*	TYPE	MINIMUM	MAXIMUM	DEFAULT
/5	Select Celsius (°C) or Fahrenheit (°F)	flag	C	0	1	For Case Specific Defaults See Serial Label Located Near Electrical Access On Your Case. For Additional Technical Information Call Structural Concepts Technical Service Dept. at 1(800) 433.9489
/c1	Calibration of probe 1	°C/°F	C	-20	20	
/c2	Calibration of probe 2	°C/°F	C	-20	20	
St	Temperature set point	°C/°F	F	r2	r1	
rd	Control delta	°C/°F	F	20	0.1	
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 CORPORATION TECHNICAL SERVICE
PHONE NUMBER: 1.800.433.9489 or For Your Master Service Agent See
WWW.STRUCTURALCONCEPTS.COM/Contact/Master_Service_Agents.asp

LIMITED WARRANTY

(Note: Standard Limited Warranty can be found at www.StructuralConcepts.com)

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

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

Warranty; Remedies; Limitations. SCC warrants that if any Goods are found by an authorized representative of SCC not to be of good material or workmanship within one year of the date of shipments SCC will, at its option after inspection by an authorized representative, replace any defective Good or pay the reasonable cost of replacement for any such defective Goods, provided that written notice of the defect is given to SCC within 30 days of the appearance of such defect. If notice is not given within such period, any claim for breach of warranty shall be conclusively deemed to have been waived and SCC shall not be liable under this warranty. If SCC is unable to repair or replace the defective Goods, SCC shall issue a credit to the Purchaser for all or part of the purchase price, as SCC shall determine. The replacement or payment in the manner described above shall be the sole and exclusive remedy of Purchaser for a breach of this warranty. If any Goods are defective or fail to conform to this warranty, SCC will furnish instructions for their disposition. No Goods shall be returned to SCC without its prior consent.

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

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

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

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

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

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

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

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

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

Miscellaneous. If any provision of this Agreement is found to be invalid or unenforceable under any law, the provision shall be ineffective to that extent and for the duration of the illegality, but the remaining provisions shall be unaffected. Purchaser shall not assign any of its rights nor delegate any of this obligations under this Agreement without prior written of SCC. This Agreement shall be binding upon and inure to the benefit of SCC and Purchaser and each of their legal representatives, successors and assigns.

SCC warrants its products to be free of defects in materials and workmanship under normal use and service for a period of one (1) year from the date of delivery.

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

General Conditions. All service labor and/or parts charges are subject to approval by SCC. Contact the Customer Service Department in writing or call 231-798-8888.

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

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

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

Limit of Liability. The limit of liability of SCC toward the exchange cost of the original condensing unit, F.O.B. SCC, Norton Shores, MI, of each motor-compressor assembly replaced during the warranty shall not exceed manufacturer's current established wholesaler's exchange price and in no case shall the labor of removing or replacing the motor-compressor or parts thereof be the responsibility of SCC.