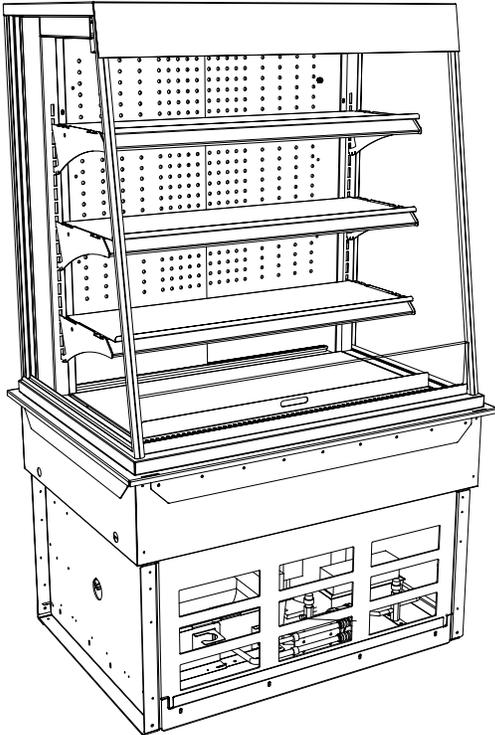




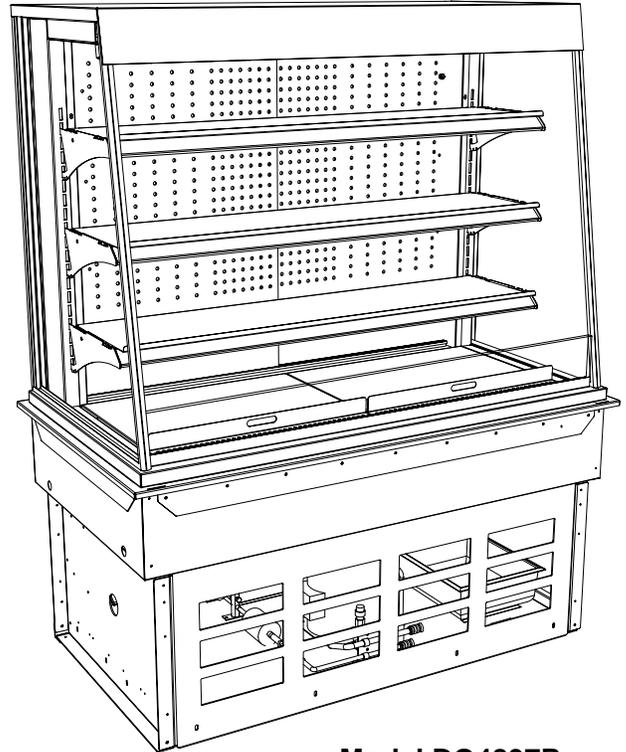
# INSTALLATION & OPERATING MANUAL

PN 99574

## SERVICE DROP-IN REFRIGERATED MERCHANDISER



Model DO3637R



Model DO4837R

<b>Model DO3637R</b>	<b>38 1/8" L x 28 5/8" D x 37 1/4" H</b> ( <i>Upper Display Case Only</i> )
	<b>38 1/8" L x 28 5/8" D x 61 1/8" H</b> ( <i>Upper Display Case + Drop-In Refrigeration Unit</i> )
<b>Model DO4837R</b>	<b>50 1/8" L x 28 5/8" D x 37 1/4" H</b> ( <i>Upper Display Case Only</i> )
	<b>50 1/8" L x 28 5/8" D x 61 1/8" H</b> ( <i>Upper Display Case + Drop-In Refrigeration Unit</i> )
<b>Model DO3623R</b>	<b>38 1/8" L x 28 5/8" D x 23 1/4" H</b> ( <i>Upper Display Case Only</i> )
	<b>38 1/8" L x 28 5/8" D x 47 1/8" H</b> ( <i>Upper Display Case + Drop-In Refrigeration Unit</i> )
<b>Model DO4823R</b>	<b>50 1/8" L x 28 5/8" D x 23 1/4" H</b> ( <i>Upper Display Case Only</i> )
	<b>50 1/8" L x 28 5/8" D x 47 1/8" H</b> ( <i>Upper Display Case + Drop-In Refrigeration Unit</i> )

**Note 1.** Internal counter height must be at least 28" for refrigeration and proper air flow space.  
**Note 2.** *Model DO3637R & 3623R:* Service Top Cutout dimensions must be 27.15" Wide x 36.65" Long (with a minimum 1.42" perimeter) for proper clearance and fit of Drop-In Refrigerated Merchandiser. These combined dimensions require a 30" minimum counter top space for cutout.  
**Note 3.** *Model DO4837R & DO23R:* Service Top Cutout dimensions must be 27.15" Wide x 48.65" Long (with a minimum 1.42" perimeter) for proper clearance and fit of Drop-In Refrigerated Merchandiser. These combined dimensions require a 30" minimum counter top space for cutout.



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## TABLE OF CONTENTS

OVERVIEW AND WARNINGS .....	3
CUSTOMER CABINET PROVISIONS.....	4
CLEARANCE AND AIR FLOW .....	5
VENTING INSTRUCTIONS FOR AIR INTAKE / EXHAUST - DO3637R .....	6
VENTING INSTRUCTIONS FOR AIR INTAKE / EXHAUST - DO4837R .....	7
VENTING INSTRUCTIONS FOR AIR INTAKE / EXHAUST - DO3623R .....	8
INSTALLATION .....	9
START-UP AND OPERATION .....	10
MAINTENANCE FUNDAMENTALS .....	11-13
REFRIGERATION FUNDAMENTALS .....	14
REFRIGERATION SLIDE-OUT EXPLODED PICTORIAL .....	15
TECHNICAL INFORMATION SHEET - MODEL DO3637R .....	16
TECHNICAL INFORMATION SHEET - MODEL DO4837R .....	17
TECHNICAL INFORMATION SHEET - MODEL DO3623R .....	18
TECHNICAL INFORMATION SHEET - MODEL DO4823R .....	19
TROUBLESHOOTING .....	20-21
CLEANING SCHEDULE .....	22
CPC® ESC3 CONTROLLER OVERVIEW .....	23
CPC® ESC3 CONTROLLER OPERATION .....	24
CPC® ESC3 SET POINT CHANGING INSTRUCTIONS .....	25
WARRANTY .....	26
TECHNICAL SERVICE .....	27



## OVERVIEW AND WARNINGS

### OVERVIEW

- The Structural Concepts® Oasis® refrigerated self-service cases are designed to merchandise packaged products at 5° Celsius / 41° Fahrenheit or less product temperatures.
- These cases should be installed and operated according to the following instructions to insure proper performance.
- This unit is designed for the display of products in ambient store conditions where temperatures and humidity are maintained at a maximum of 24°C / 75°F and 55% relative humidity.



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



**WARNING**  
Hazardous Moving Parts.  
Do Not Operate unit with covers removed.  
Fan blades may be exposed when deck panel is removed. Disconnect  
power before removing deck panel.



**WARNING**  
Evaporator Tray is Hot



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

## CUSTOMER CABINET PROVISIONS

### Customer Cabinet Provisions

- Customer provided cabinet must adhere to the minimum requirements in ANSI/UL Std. 471 and ANSI/NSF Std. 7.
- Among the factors that are to be taken into consideration when judging the acceptability of a cabinet or similar enclosure are mechanical strength, resistance to impact, moisture-absorptive properties, flame resistance, resistance to distortion at temperatures to which the material may be subjected under conditions of use, and resistance to corrosion.
- Customer provided cabinet or similar enclosure shall have the strength and rigidity necessary to resist conditions of intended use without increasing the risk of fire or injury to persons due to total or partial collapse. Cabinet or similar enclosure must be strong enough to hold weight of cabinet and intended product load. Dry weight (no product in case) exceeds 500 pounds.
- A nonmetallic cabinet or similar enclosure (or part of an enclosure) shall have a flame spread index of not more than 200 when tested in accordance with the Standard for Tests for Surface Burning Characteristics of Building Materials, UL 723.
- The cabinet or similar enclosure shall be constructed and assembled to reduce the risk of fire due to the emission of molten metal, burning insulation, flaming particles, or the like, through openings onto flammable material, including the surface over which the refrigeration is mounted.
- A sheet metal cabinet or similar enclosure is to be judged for acceptability with respect to its size, shape, metal thickness. Sheet metal such as galvanized or stainless shall be 0.30 inch (22 gage) or greater.
- Steel enclosures shall be protected against corrosion by metallic or nonmetallic coatings, such as plating or painting.
- The refrigeration access panel/door shall be arranged so that main power switch, refrigeration controller and refrigeration package are accessible without removing parts other than access panel/door.
- A hinged or pivoted panel shall be positioned or arranged so that when it is in an open position falling or swinging due to gravity or vibration will not cause injury to persons.
- For electrical protection when installed in its intended manner, louvers and other openings in the enclosure shall be constructed and located to reduce the risk of unintentional contact with moving, live or hot parts such as fan blades and condensate trays. The minor dimension of such openings shall not exceed 3 inches—See Table 6.1 for Clearance from Openings. Tools are required to remove covers, panels or grilles unless interlock is provided.
- Ventilation openings/louvers shall be free of sharp edges and burrs and have spaces large enough to allow for easy cleaning. Louvers that may be subject to splashes, spills, and overhead drips shall be of a drip-deflecting design.



**Table 6.1**  
**Clearance from openings**

Minor dimension of opening <sup>a,d</sup>		Minimum distance from opening to moving part <sup>c</sup>	
inches	(mm)	inches	(mm)
1/4	6.4	3/8	9.5
3/8	9.5	1-1/4	31.8
1/2	12.7	2	50.8
3/4	19.1	3-5/8	92.1
1	25.4	5-1/4	133.4
1-1/2	38.1	8-3/8	212.7
2	50.8	11-5/8	295.3
Over 2 <sup>b</sup>	Over 50.8	30	762.0

<sup>a</sup> Openings less than 1/4 inch (6.4 mm) are not to be considered.

<sup>b</sup> But not more than 3 inches (76.2 mm). See 6.3.9.

<sup>c</sup> Also applies to hot parts. See 6.3.11 and 6.3.12.

<sup>d</sup> For fan blade guards that have openings with minor dimensions less than 1 inch, see 6.3.8.

**Service Top Cutout Dimensions**

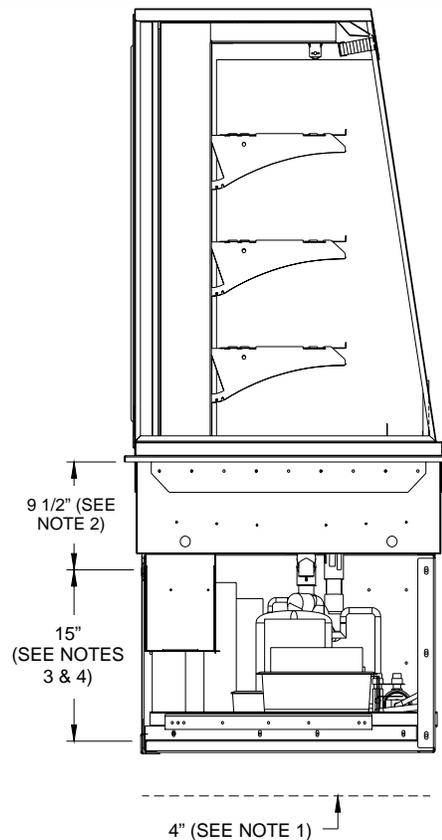
Note: See Manual Cover for DO3637R, DO4837R, DO3623R & 4823R Service Top Cutout Dimensions.

**Clearance Dimensions**

The Refrigerated section must maintain airflow clearance. Dimensions are as follow.

1. 4" Minimum Spacing from bottom of refrigeration frame to bottom of cabinet or floor required for adequate air flow.
2. 9 1/2" Countertop / Facia enclosure space on cabinets or counter to allow for pullout system slide-out.
3. 15" Minimum opening in back of cabinet or counter (to pull out refrigeration system).
4. Back of counter / cabinet must be vented at specific sizes to allow for proper air intake and air exhaust. See Venting Instructions sections for specifics.
5. Obstruction or restriction of air can void warranty.

**Note: See Venting Instructions sections (next two pages) for more specific Air Intake and Air Exhaust clearance dimensions for Models DO3637R & DO4837R.**



ABOVE ILLUSTRATION APPLIES TO BOTH MODELS DO3637R AND DO4837R

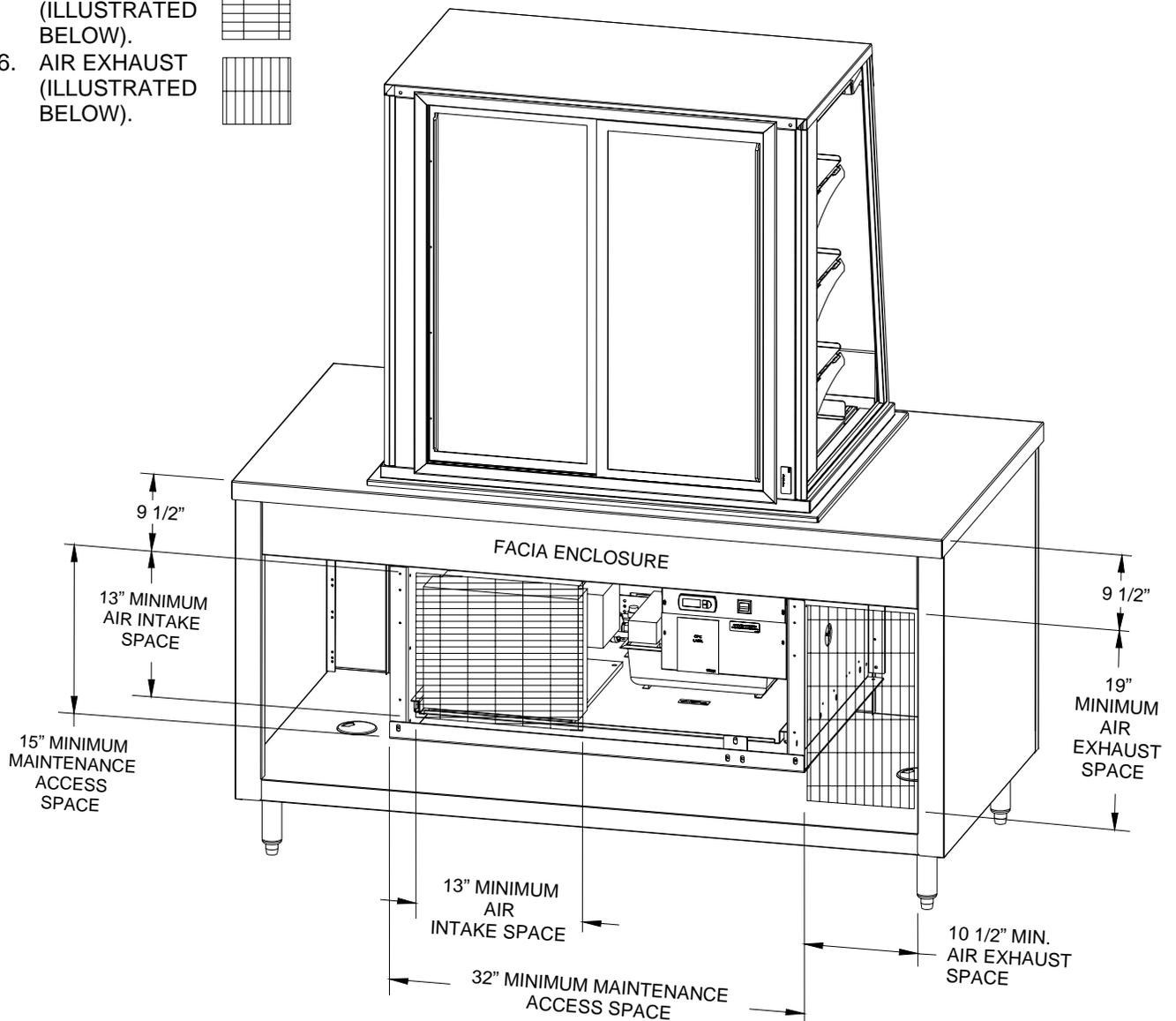
**BACK VIEW OF CABINET  
AFTER POSITIONED ON  
CUSTOMER-SUPPLIED COUNTER/BASE**

**Warning: The minimum intake and exhaust areas must be allowed (as illustrated below) or case temperatures may fluctuate beyond safe parameters.**

NOTES:

1. BACK OF CABINET MUST BE VENTED A MINIMUM OF 13" x 13" FOR AIR INTAKE.
2. BACK OF CABINET MUST BE VENTED A MINIMUM OF 10 1/2" x 19" FOR AIR EXHAUST.
3. BACK OF CABINET MUST PROVIDE A MINIMUM OF 15" x 32" FOR MAINTENANCE ACCESS. THIS AREA (AS DIMENSIONED BELOW) WILL ALLOW SERVICE TO SLIDE OUT CONDENSING UNIT.
4. SEE REFRIGERATION FUNDAMENTALS FOR VIEW OF CONDENSING UNIT AFTER SLIDE-OUT.

5. AIR INTAKE  
(ILLUSTRATED  
BELOW).
6. AIR EXHAUST  
(ILLUSTRATED  
BELOW).

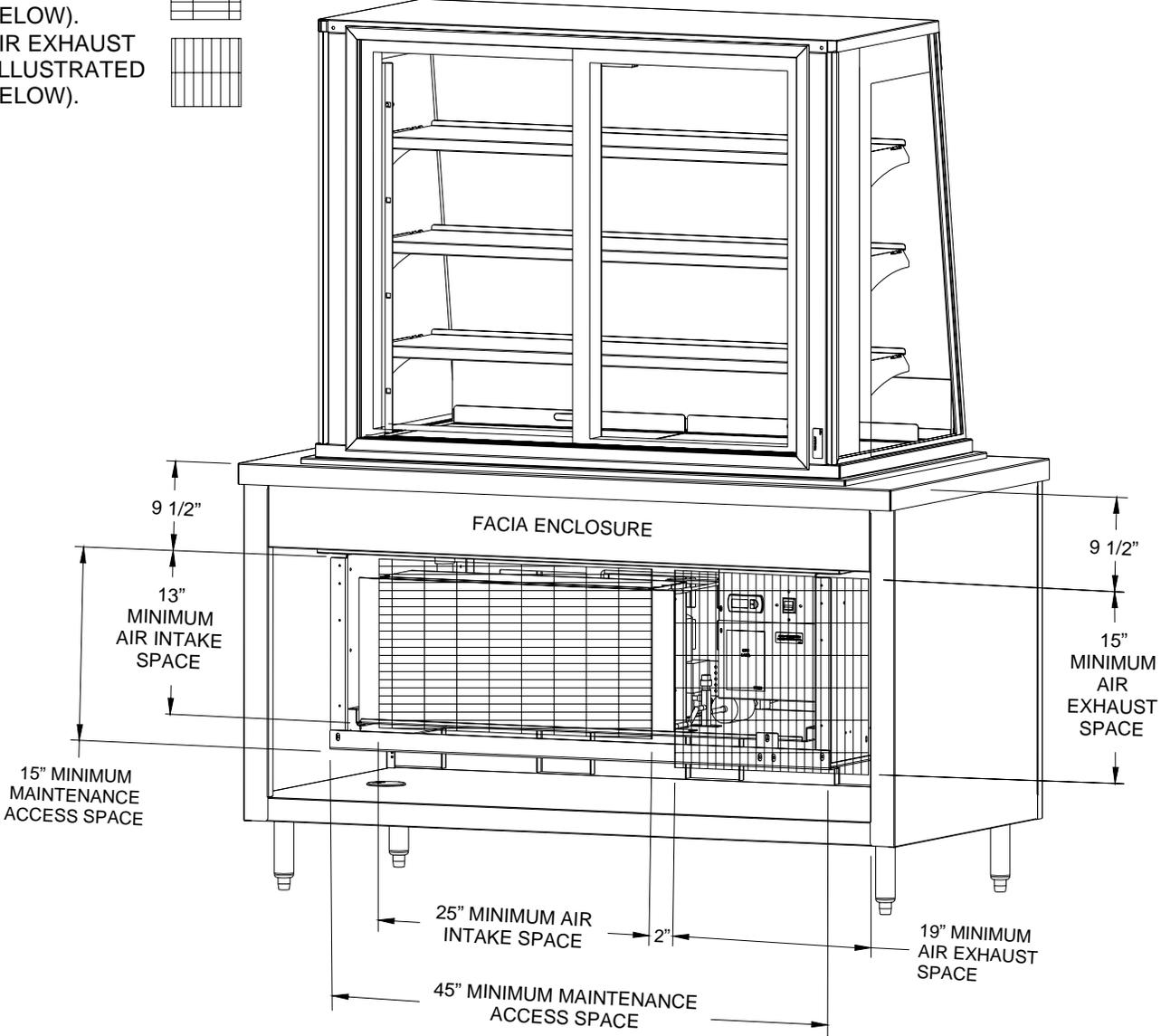


**BACK VIEW OF CABINET  
AFTER POSITIONED ON  
CUSTOMER-SUPPLIED COUNTER/BASE**

**Warning: The minimum intake and exhaust areas must be allowed (as illustrated below) or case temperatures may fluctuate beyond safe parameters.**

**NOTES:**

1. BACK OF CABINET MUST BE VENTED A MINIMUM OF 13" x 25" FOR AIR INTAKE.
2. BACK OF CABINET MUST BE VENTED A MINIMUM OF 19" x 21" FOR AIR EXHAUST.
3. BACK OF CABINET MUST PROVIDE A MINIMUM OF 15" x 45" FOR MAINTENANCE ACCESS. THIS AREA (AS DIMENSIONED BELOW) WILL ALLOW SERVICE TO SLIDE OUT CONDENSING UNIT.
4. SEE REFRIGERATION FUNDAMENTALS FOR VIEW OF CONDENSING UNIT AFTER SLIDE-OUT.
5. AIR INTAKE (ILLUSTRATED BELOW). 
6. AIR EXHAUST (ILLUSTRATED BELOW). 

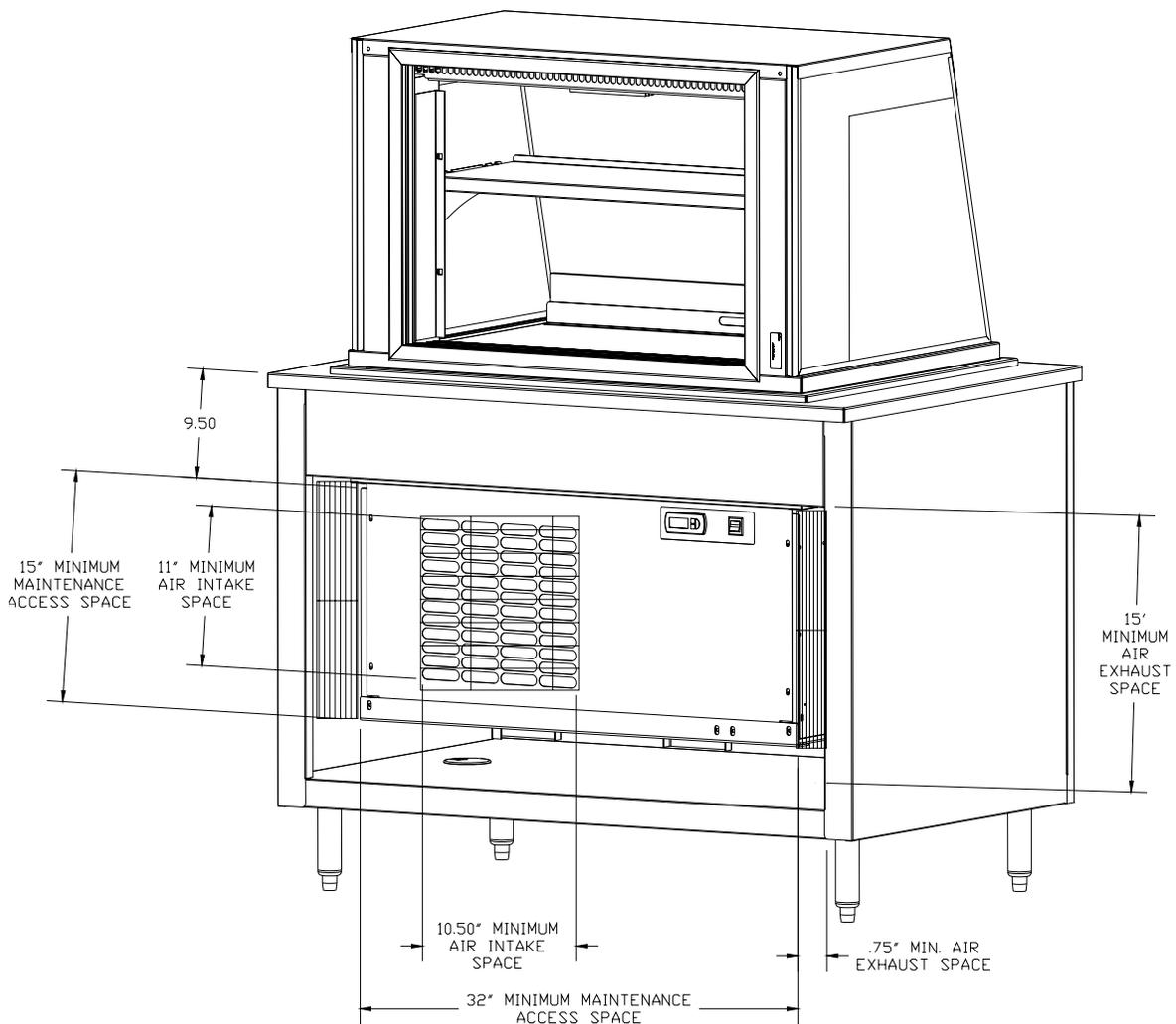


**BACK VIEW OF CABINET  
AFTER POSITIONED ON  
CUSTOMER-SUPPLIED COUNTER/BASE**

**Warning: The minimum intake and exhaust areas must be allowed (as illustrated below) or case temperatures may fluctuate beyond safe parameters.**

**NOTES:**

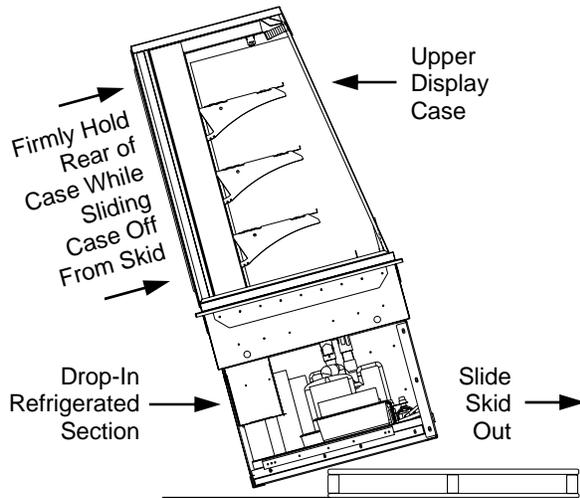
1. BACK OF CABINET MUST BE VENTED A MINIMUM OF 10 1/2" x 11" FOR AIR INTAKE.
2. BACK OF CABINET MUST BE VENTED A MINIMUM OF 3/4" x 15" FOR AIR EXHAUST.
3. BACK OF CABINET MUST PROVIDE A MINIMUM OF 15" x 32" FOR MAINTENANCE ACCESS. THIS AREA (AS DIMENSIONED BELOW) WILL ALLOW SERVICE TO SLIDE OUT CONDENSING UNIT.
4. SEE REFRIGERATION FUNDAMENTALS FOR VIEW OF CONDENSING UNIT AFTER SLIDE-OUT.
5. AIR INTAKE (ILLUSTRATED BELOW). 
6. AIR EXHAUST (ILLUSTRATED BELOW). 



## INSTALLATION

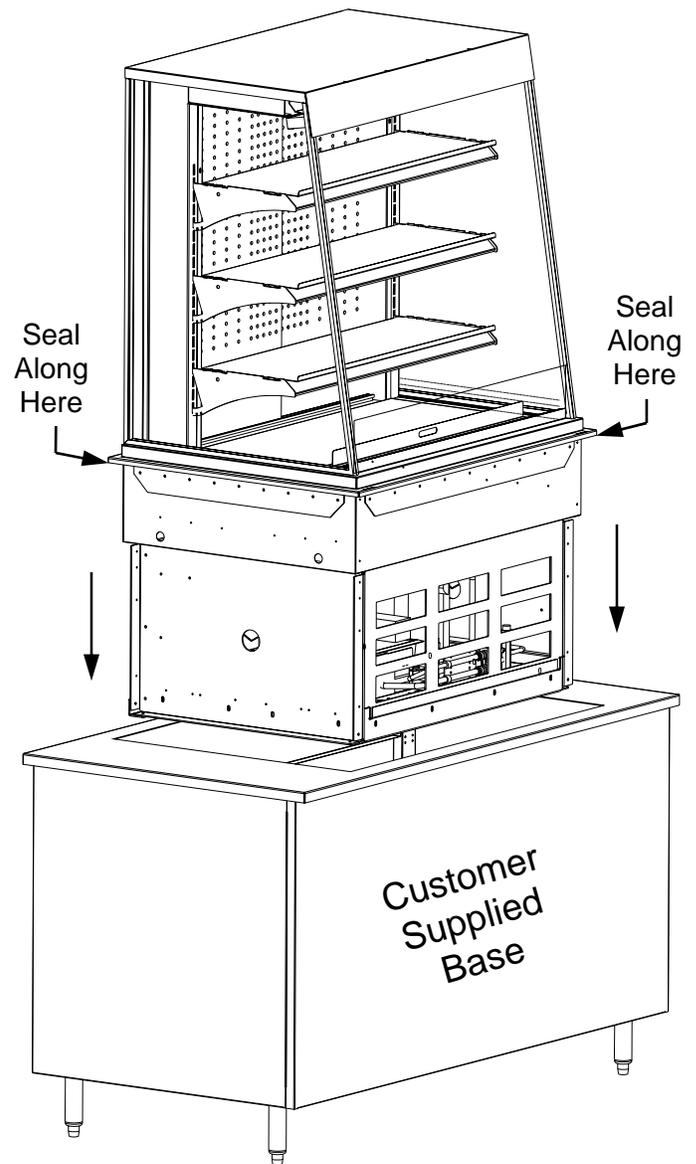
### 1. Remove Case From Skid

Caution: Case must always remain supported or center of gravity may allow case to fall. Slide to rear of skid and tip backward off skid while maintaining support. See illustration below.



### 2. Display Case Setup

- SCC® Service Drop-In Refrigerated Merchandiser Case consists of two sections: The Upper Display Case and Drop-In Refrigerated Section.
- As both sections make up one conjoined unit, it is both large and heavy. A team effort is required for lowering Case into the Customer Supplied Base.
- After lowering into Base, adjust into position allowing Case to gingerly rest on Counter Top without marring.



### 3. Seal Upper Display Case to Base

- NSF® Listed Industrial Grade Silicone Sealant is recommended.
- Clip tip to allow approximately 1/8" to 3/16" diameter hole.
- Beginning at case rear, run a consistent, solid bead of silicone around entire perimeter.



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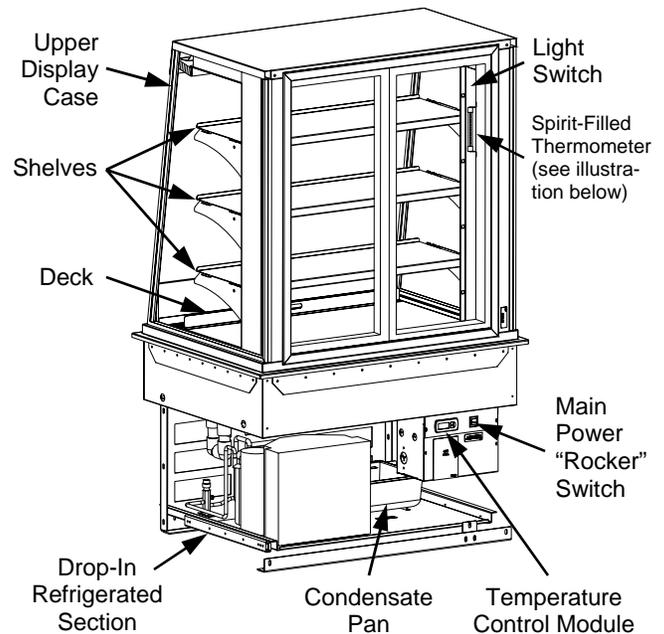
## START-UP AND OPERATION

### Case Start-Up

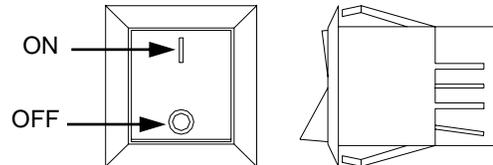
- Plug cord into a certified electrical outlet with ground.
- Turn on the Main Power Switch. Switch is in the Drop-In Refrigerated Section on the rear right hand side of base.
- The Temperature Control Module (LED) will illuminate. Evaporator coil fans and the compressor motor should turn on.
- From the front of the case, raise the deck to confirm that the coil fans are functioning properly.
- Turn on the lights. Light Switch is in the Upper Display interior of the case at rear right side (see illustration at right).
- First time lighting may require a short warm up period for the bulbs. Slightly dim or a flickering of new bulbs is normal.

### Temperature Settings

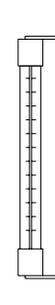
- This case has been tested to maintain a temperature at or below 5° Celsius / 41° Fahrenheit.
- When the merchandiser is in a start up mode or has been idle for a long period of time, the unit will require 30 minutes in order to pull-down to temperature.
- Spirit-Filled Thermometer located in refrigerated compartment is for monitoring warmest air temperature in accordance with NSF® Std. 7 (see illustration at right).
- The temperature is controlled by a Temperature Control Module. It is located at the lower-right area (from the case rear) of the Drop-In Refrigerated Section. See top-right illustration for general location.
- If a temperature setting change is required, refer to the instructions for the **CPC® (ESC3)** Temperature Control Programming operating section of this manual
- Note: See Technical Data section of this manual for proper settings to maintain product temperature per model.



— Upper Display Case & Drop-In Refrigeration Section —



— Main Power "Rocker" Switch —



— Spirit-Filled Thermometer —



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**Adjustable Shelf**

- Adjustment of the angle of the shelves can be made by pivoting the lower portion of the shelf bracket in the upright.
- The shelves can be adjusted to an angle of: 0, 5, and 10 degrees.
- See illustration at right.

**Shelf Assembly Removal**

- Shelves can be removed for cleaning or adjustments
- For lighted shelving, turn off power, unplug the light cord.
- Lift shelf straight up to separate from brackets.
- Remove brackets. Note it may be necessary to remove the nylon shipping bracket retainer. Pliers will be required to accomplish this task.

**Light Fixtures**

Light fixtures are located at the top inside of case (from the front) and may be provided on the underside of each shelf assembly

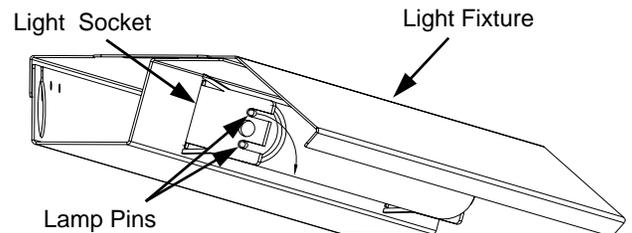
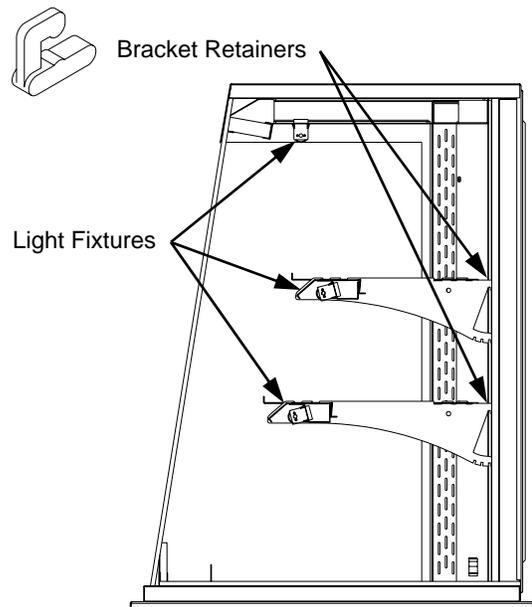
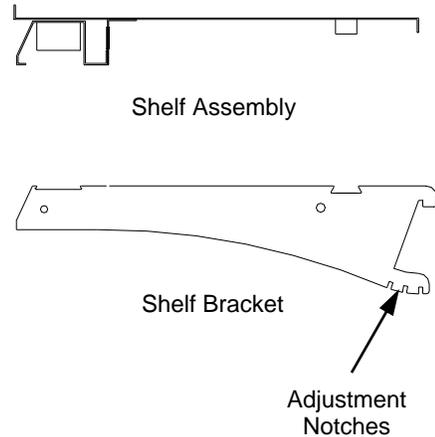
Removal of lamp:

- Rotate lamp (1/4 turn) so that pins are aligned in slots and remove bulb.

Installation of lamp:

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

See illustration at lower right.



**Warning, disconnect power before providing maintenance and service to unit. Assembly or disassembly and servicing to be accomplished by licensed electrical contractor.**

**Evaporator Coil Fans Access and Removal**

- Fans may be accessed by removing Deck (covering Fan Shroud, Fan Housing and Coil). See illustrations at right.

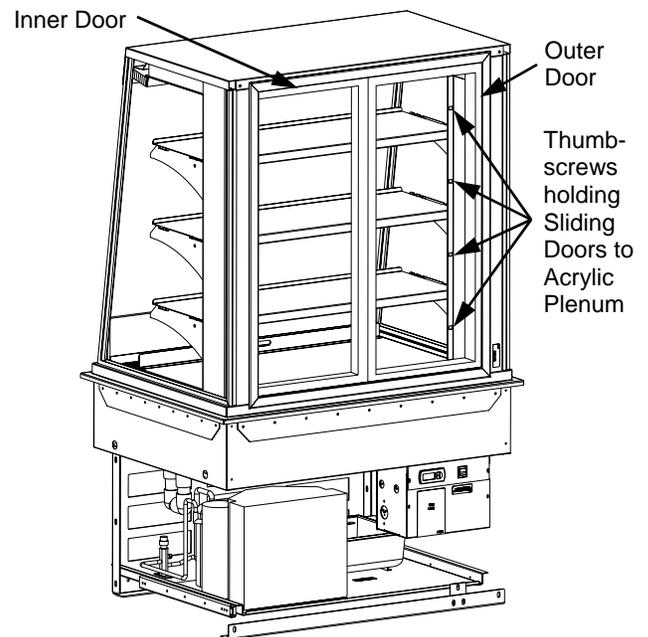
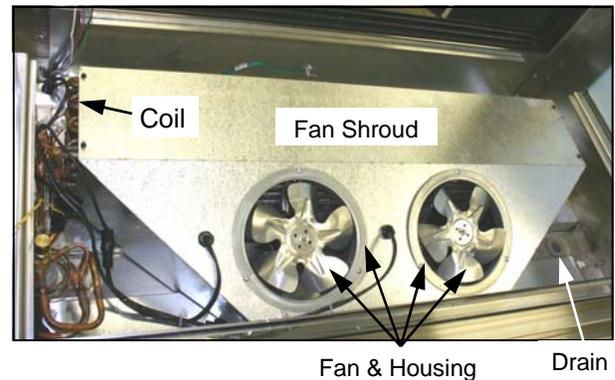
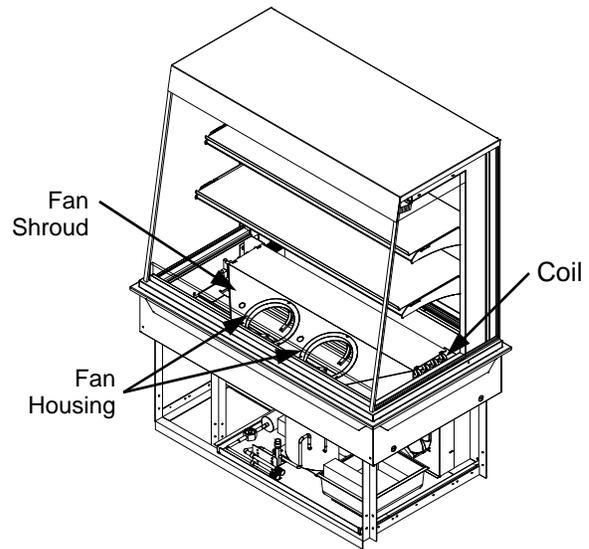
**Light Ballast Access**

Light ballast is located inside the Electrical J-Box. Electrical J-Box is located at lower-right side (from the rear) of the Drop-In Refrigerated Section. See below right illustration for general location.

Electrical J-Box is assembled with Phillips screws. To disassemble, simply use Phillips screwdriver to remove screws.

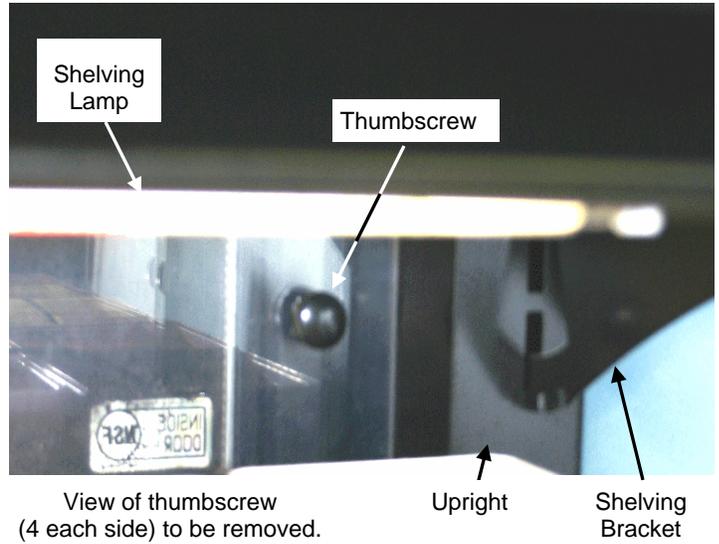
**Removing Rear Doors and Perforated Acrylic Plenum.**

- **Note: Doors are not interchangeable.**
- There is an Outer and Inner Door. The Outer door is the right hand door (from case rear). It can be identified by a stop located at the lower right hand corner to the inside of the case.
- The Inner Door is the left hand door (from case rear).
- See next page for specifics on access to and removal of thumbscrews, doors and perforated acrylic plenum.



### Removing the Rear Doors

- Remove Thumbscrews (4 each side). Thumbscrew removal will allow Rear Doors to be removed.
- See illustration on this page for locations of Thumbscrews, Nuts, Perforated Acrylic Plenum, etc.
- Move the doors toward the center of the case.
- Starting with the Outer Door (right hand door from rear of the case), individually lift each door up toward top of the case and pivot the bottom of door out.
- Rear Doors (both Outer and Inner) must be replaced in the same manner in which they are removed.



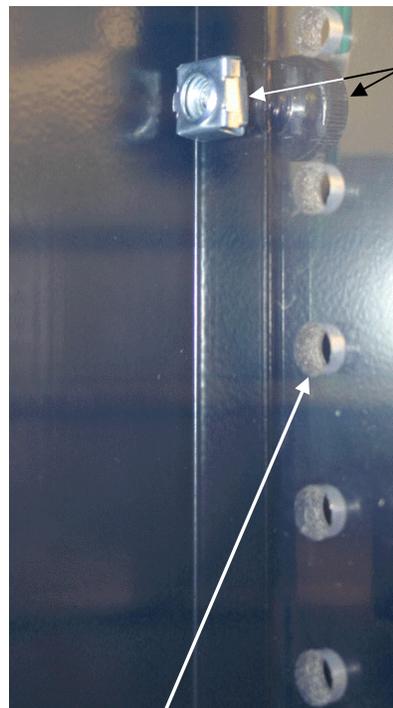
View of thumbscrew (4 each side) to be removed.

Upright

Shelving Bracket

### Removing Perforated Acrylic Plenum

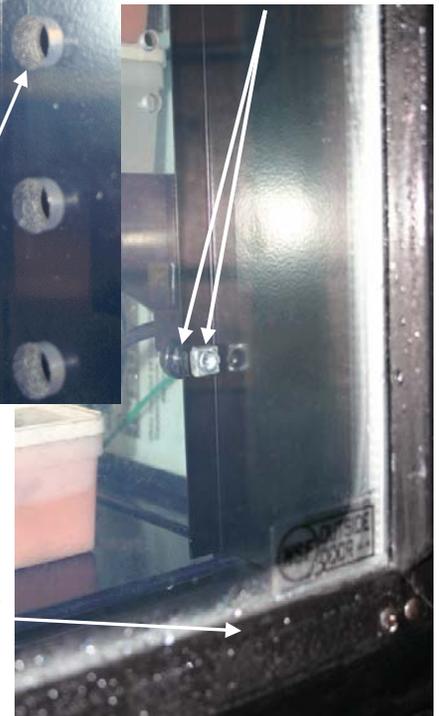
- After Outer and Inner Doors are removed, the Perforated Acrylic Plenum pieces can now be removed.
- Slide the Plenum toward the center of the case.
- Starting with the right hand Plenum, lift up toward the top of the case and pivot the bottom Plenum out.
- Perforated Acrylic Plenum pieces must be replaced in the same manner in which they are removed.



View of Perforated Acrylic Plenum

View of Thumbscrew and Nut from Case Rear. **Note:** Thumbscrews are only accessible from front of case.

Additional view of Thumbscrew and Nut from Case Rear.



View of Rear Outer Door

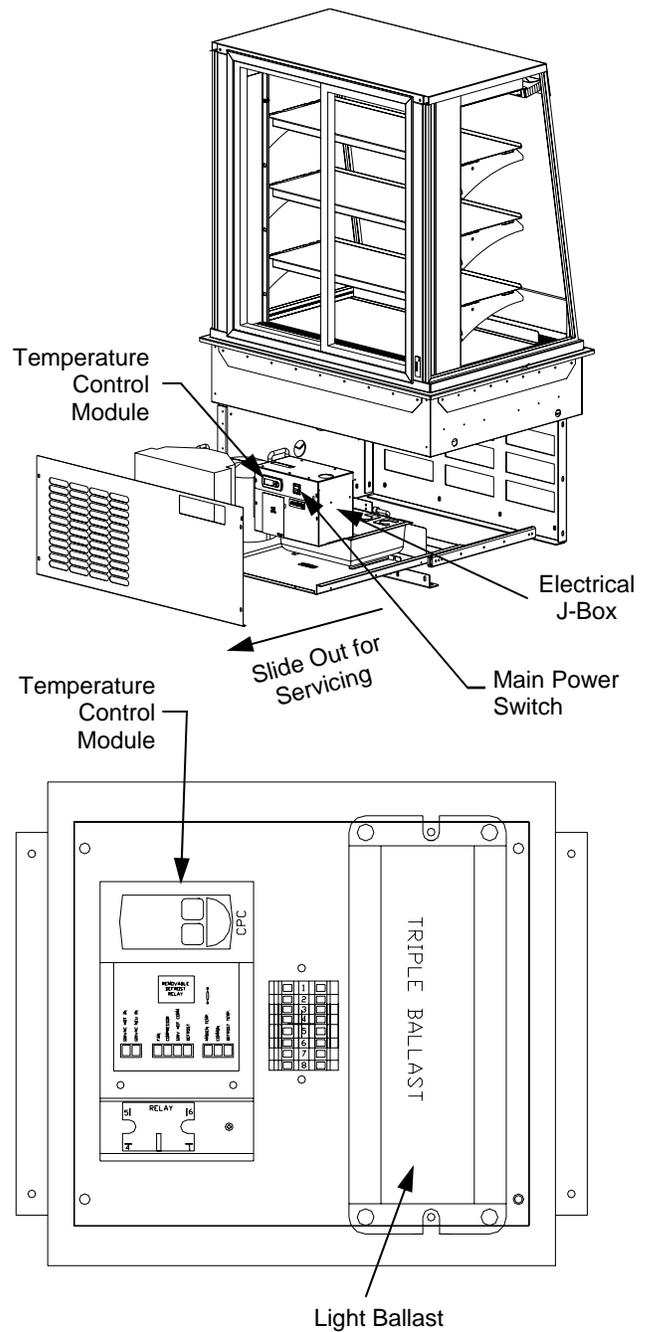
## Refrigeration Access, Connections & Servicing

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

- Refrigeration Unit slides directly out from lower section to allow for servicing.
- Service connections are located in the Refrigeration Slide-Out (shown at right).
- Refrigeration Unit is equipped with evaporator pan for case condensation. Insure evaporator pan is plugged in 110V receptacle inside base, and positioned under PVC drain and on base frame.
- When pulling or pushing unit in or out under the case, use caution to avoid damage to copper refrigeration lines, hoses and cable.
- Insure that the flexible drain hose is fully inserted into the slot of hose support for proper drainage. See illustration on next page for general location and specifics.

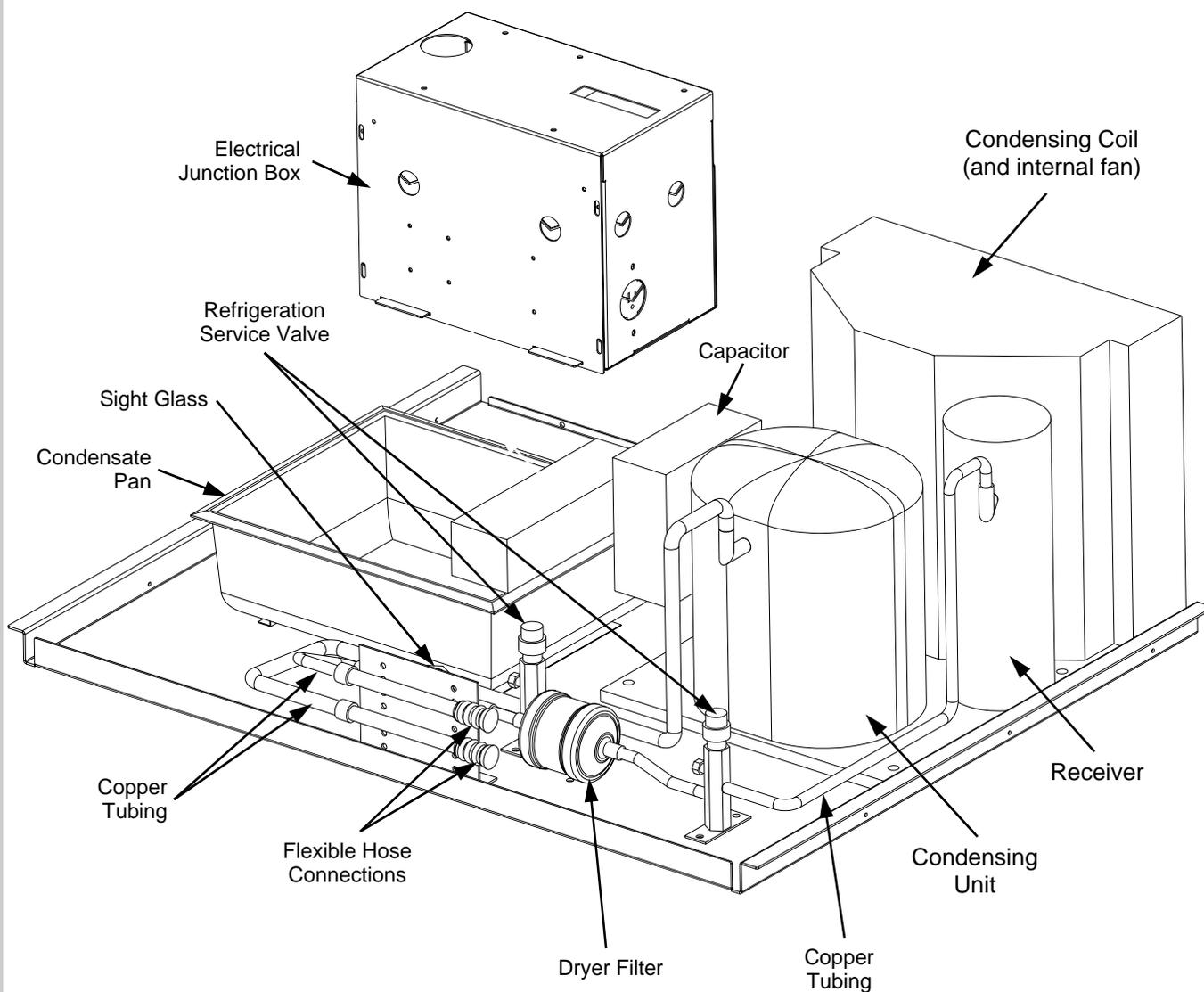
### Temperature Control Module

- Temperature Control Module is located in the Electrical J-Box.
- The temperature is controlled by the Temperature Control Module. It is located at lower-right area (from the rear) of the Drop-In Refrigerated Section. See top-right illustration for general location.
- If a temperature setting change is required, refer to the instructions for the **CPC®** (ESC3) Temperature Control Programming operating section of this manual
- Note: See Technical Data section of this manual for proper settings to maintain product temperature per model.



## REFRIGERATION SLIDE-OUT EXPLODED PICTORIAL

The following images show the various parts pertaining to the Refrigeration Unit (that is slid directly out from lower section) to be serviced.



# TECHNICAL INFORMATION SHEET - MODEL DO3637R

Model DO3637R

Shipping Weight: 600#  
(Based on standard crated model)

Intended Use of Display Area: Packaged/unpackaged refrigerated products

Integrated Product Temperature (IPT): 41°F

Intended Environment: Designed to operate in ambient conditions of 75°F / 55% relative humidity.

## ELECTRICAL

CIRCUIT	INCOMING SUPPLY**	MIN. CIR. AMP	AMP	MAX. WATT	HOOK-UP
S/Contained Pullout	230/115-3 wire plus ground/1/60	15.0	11.12	1448	Cord w/NEMA 14-20 P
Remote	120/1/60	7.0	6.22	743	Leads

\*\* Operating range for 120 volt rating is 110-120 volts; operating range for 220 volt rating is 208-230 volts.

## LIGHTING

STANDARD/OPTIONS	LAMP QTY	LAMP TYPE
Standard Lighting	4	F17 T8

## REFRIGERATED SYSTEM

SYSTEM	REFRIGERANT	DISPLAY VOL (Ft <sup>3</sup> )	BTUH	SST
S/Contained Pullout	R404A	12.32	4010	20
Remote	As Specified	12.32	3550	20

## CONTROL-ELECTRONIC CONTROLLER - S/CONTAINED

Set Point	SP	24	Ambient Probe Calibration	/c	0
Regulator Differential (Hysteresis)	rd	4	Time Interval between defrost cycles	dl	4
End Defrost Temperature	dt	45	Maximum Defrost Duration	dP	45
Dripping Time After Defrost	dd	0	Alarm Delay After Defrost	d8	1
Temperature Defrost Probe Display	d/	null	Low Temperature Alarm	AL	0
High Temperature Alarm	AH	0	Fan Power On Temperature	F1	5
Fan Delay After Def. Drip Time	Fd	1	External Parameter programming key	T	0
I.D. Code for Program Key	H5	0			

## CONTROL-MECHANICAL - S/CONTAINED

PRESSURE	SETTING	SETTING
CUT IN	CI	32
High Side Cut Out	Ho	425
Cut Out	CO	10
High Side Cut In	Hi	325
SUPERHEAT	SETTING	SETTING
Superheat	SH	8-10°F

## CONTROL-MECHANICAL - REMOTE

DEFROST	SETTING	SETTING
Defrost Interval (time between defrost in hours)	di	4
Defrost Duration (minutes)	dd	30 min
SUPERHEAT	SETTING	SETTING
Superheat	SH	8-10°F

## CONTROL-THERMOSTAT - REMOTE

Differential (in degree F°)	Df	4	Set Point (in degree F°)	SP	24
Set Point Temperature (Supply Air)	SP	24	Differential Temperature	Dif	4
Anti-short Cycle Delay	ASd	0	Temperature Offset	OFS	0
Sensor Failure Operation	SF	1	Fahrenheit or Celsius Scale	F or C	F

## REGULATORY APPROVALS

ETL Listed Conforms to UL 471 in process	ETL Sanitation Conforms to NSF 7 in process
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# TECHNICAL INFORMATION SHEET - MODEL DO4837R

Model DO4837R

Shipping Weight: 700#  
(Based on standard crated model)

Intended Use of Display Area: Packaged refrigerated products

Integrated Product Temperature (IPT): 41°F

Intended Environment: Designed to operate in ambient conditions of 75°F / 55% relative humidity.

## ELECTRICAL

CIRCUIT	INCOMING SUPPLY**	MIN. CIR. AMP	AMP	MAX. WATT	HOOK-UP
S/Contained	230/115-3 wire plus ground/1/60	20.0	13.57	2698	Cord w/NEMA 14-20 P
Remote	120/1/60	15.0	10.57	1268	Leads

\*\* Operating range for 120 volt rating is 110-120 volts; operating range for 220 volt rating is 208-230 volts.

## LIGHTING

STANDARD/OPTIONS	LAMP QTY	LAMP TYPE
Standard Lighting	4	F25 T8

## REFRIGERATED SYSTEM

SYSTEM	REFRIGERANT	DISPLAY VOL (Ft³)	BTUH	SST
S/Contained R404A	R404A	16.66	4900	20
Remote	As Specified	16.66	4512	20

## CONTROL-ELECTRONIC CONTROLLER - S/CONTAINED

Set Point	SP	24	Ambient Probe Calibration	/c	0
Regulator Differential (Hysteresis)	rd	4	Time Interval between defrost cycles	dl	4
End Defrost Temperature	dt	45	Maximum Defrost Duration	dP	45
Dripping Time After Defrost	dd	0	Alarm Delay After Defrost	d8	1
Temperature Defrost Probe Display	d/	NULL	Low Temperature Alarm	AL	0
High Temperature Alarm	AH	0	Fan Power On Temperature	F1	5
Fan Delay After Def. Drip Time	Fd	1	External Parameter programming key	T	0
I.D. Code for Program Key	H5	0			

## CONTROL-MECHANICAL - S/CONTAINED

PRESSURE	SETTING	SETTING
CUT IN	CI	32
High Side Cut Out	Ho	425
Cut Out	CO	10
High Side Cut In	Hi	325
SUPERHEAT	SETTING	SETTING
Superheat	SH	8-10°F

## CONTROL-MECHANICAL - REMOTE

DEFROST	SETTING	SETTING
Defrost Interval (time between defrost in hours)	di	4
Defrost Duration (minutes)	dd	30 min
SUPERHEAT	SETTING	SETTING
Superheat	SH	8-10°F

## CONTROL-THERMOSTAT - REMOTE

Differential (in degree F°)	Df	4	Set Point (in degree F°)	SP	24
Set Point Temperature (Supply Air)	SP	24	Differential Temperature	Dif	4
Anti-short Cycle Delay	ASd	0	Temperature Offset	OFS	0
Sensor Failure Operation	SF	1	Fahrenheit or Celsius Scale	F or C	F

## REGULATORY APPROVALS

ETL Listed Conforms to UL 471 in process	ETL Sanitation Conforms to NSF 7 in process
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**STRUCTURAL CONCEPTS**

888 Porter Rd. Muskegon, MI 49441 Phone: 231.798.8888 Fax: 231.798.4960 www.structuralconcepts.com

# TECHNICAL INFORMATION SHEET - MODEL DO3623R

Model DO3637R

Shipping Weight: 600#  
(Based on standard crated model)

Intended Use of Display Area: Packaged/unpackaged refrigerated products  
 Integrated Product Temperature (IPT): 41°F  
 Intended Environment: Designed to operate in ambient conditions of 75°F / 55% relative humidity.

## ELECTRICAL

CIRCUIT	INCOMING SUPPLY++	MIN. CIR. AMP	AMP	MAX. WATT	HOOK-UP
S/Contained Pullout	230/115-3 wire plus ground/1/60	15.0	12.56	2158	Cord w/NEMA 14-20 P
Remote	120/1/60	3	2.06	243	Leads

++ Operating range for 120 volt rating is 110-120 volts; operating range for 220 volt rating is 208-230 volts.

## LIGHTING

STANDARD/OPTIONS	LAMP QTY	LAMP TYPE
Standard Lighting	4	F17 T8

## REFRIGERATED SYSTEM

SYSTEM	REFRIGERANT	DISPLAY VOL (Ft³)	BTUH	SST
S/Contained Pullout	R404A	12.32	5010	20
Remote	As Specified	12.32	4358	20

## CONTROL-ELECTRONIC CONTROLLER - S/CONTAINED

Set Point	SP	24	Ambient Probe Calibration	/c	0
Regulator Differential (Hysteresis)	rd	4	Time Interval between defrost cycles	dl	4
End Defrost Temperature	dt	45	Maximum Defrost Duration	dP	45
Dripping Time After Defrost	dd	0	Alarm Delay After Defrost	d8	1
Temperature Defrost Probe Display	d/	null	Low Temperature Alarm	AL	0
High Temperature Alarm	AH	0	Fan Power On Temperature	F1	5
Fan Delay After Def. Drip Time	Fd	1	External Parameter programming key	T	0
I.D. Code for Program Key	H5	0			

## CONTROL-MECHANICAL - S/CONTAINED

PRESSURE	SETTING	SETTING
CUT IN	CI 32	Cut Out CO 10
High Side Cut Out	Ho 425	High Side Cut In Hi 325
SUPERHEAT	SETTING	SETTING
Superheat	SH 8-10°F	

## CONTROL-MECHANICAL - REMOTE

DEFROST	SETTING	SETTING
Defrost Interval (time between defrost in hours)	di 4	Defrost Duration (minutes) dd 30 min
SUPERHEAT	SETTING	SETTING
Superheat	SH 8-10°F	

## CONTROL-THERMOSTAT - REMOTE

Differential (in degree F°)	Df 4	Set Point (in degree F°)	SP 24
Set Point Temperature (Supply Air)	SP 24	Differential Temperature	Dif 4
Anti-short Cycle Delay	ASd 0	Temperature Offset	OFS 0
Sensor Failure Operation	SF 1	Fahrenheit or Celsius Scale	F orC F

## REGULATORY APPROVALS

ETL Listed Conforms to UL 471 in process	ETL Sanitation Conforms to NSF 7 in process
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# TECHNICAL INFORMATION SHEET - MODEL DO4823R

Model DO4823R

Intended Use of Display Area: Packaged/unpackaged refrigerated products

Integrated Product Temperature (IPT): 41°F

Intended Environment: Designed to operate in ambient conditions of 75°F / 55% relative humidity.

## ELECTRICAL

CIRCUIT	INCOMING SUPPLY++	MIN. CIR. AMP	AMP	MAX. WATT	HOOK-UP
S/Contained	120/1/60	20.0	15.77	1719	Cord w/NEMA 5-20 P

++ Operating range for 120 volt rating is 110-120 volts; operating range for 220 volt rating is 208-230 volts.

## LIGHTING

STANDARD/OPTIONS	LAMP QTY	LAMP TYPE
Standard Lighting	2	F25 T8

## CONTROL-ELECTRONIC CONTROLLER - S/CONTAINED

Set Point	SP	22	Ambient probe calibration	/c	0
Regulator Differential (Hysteresis)	rd	11	Time interval between defrost cycles	dl	4
End Defrost Temperature	dt	45	Maximum defrost duration	dP	45
Dripping Time After Defrost	dd	0	Alarm delay after defrost	d8	1
Temperature Defrost Probe Display	d/	NULL	Low temp alarm	AL	0
High Temperature Alarm	AH	0	Fan power on temperature	F1	0
Fan Delay after def. drip time	Fd	1	External parameter programming key	T	NULL
ID code for program key	H5	NULL			

## CONTROL-MECHANICAL - S/CONTAINED

PRESSURE	SETTING	SETTING
CUT IN	CI	32
High Side Cut Out	Ho	425
		High Side Cut In
		Hi
		325
SUPERHEAT	SETTING	SETTING
Superheat	SH	8-10 F

## REGULATORY APPROVALS

ETL Listed Conforms to UL 471 in process	ETL Sanitation Conforms to NSF 7 in process
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## TROUBLESHOOTING

<b>Product is Drying Out</b>	Check the relative humidity in the store.
<b>Water on the Floor</b>	Check that all of the hoses are connected. Check that the drain trap is free of debris.
<b>Excessive Fan Noise</b>	Check that the case is aligned properly. Check that nothing is obstructing the blade rotation. Check that the fan shroud is properly secured.
<b>System is not Operating</b>	Confirm the utility power is on. Check that the MAIN power switch is on. Check that the unit is properly plugged in. Check the circuit breaker box for tripped circuits.
<b>Fans Not Working</b>	Check that the MAIN power switch is on. Determine if there is ice build up blocking the fan.
<b>Case Lights Not Working</b>	Check bulbs for proper installation and connection. Check for burned out bulbs. Clean dirt and dust from the bulbs to prevent flickering.
<b>Condensing Unit Not Operating.</b>	<i>LED dF</i> flashing, Controller is in defrost mode (not an alarm). Compressor is running in a normal condition. Check that the power is turned on. Review factory time settings on the CPC controller.



**TROUBLESHOOTING, CONTINUED**

<b>Alarm Going Off, CPC ESC3</b>	<i>E0</i> flashing, Air probe has failed.
	<i>E1</i> flashing, Defrost termination or product probe has failed.
	<i>L0</i> flashing, Low temperature alarm.
	<i>H1</i> flashing, High temperature alarm.
	<i>Ed</i> flashing, Defrost timeout has occurred (did not terminate correctly).
	<i>dF</i> flashing, Controller is in defrost mode (not and alarm). Compressor is running is a normal condition.
<b>Not Holding Temperature.</b>	If a large amount of warm product was added to the case, it will take time for the temperature to adjust.
	The temperature will change during defrost mode but will return to normal.
	Check that the discharge air is not disrupted or blocked by product (Product is above load limit level).
	Check that the case is not in the sun or near a heat or air-conditioning vent.
	Is case located near front doors.
	Check the evaporator coil for ice build up (can be viewed from fan shroud inspection cover).



## CLEANING SCHEDULE

Cleaning	Daily	Weekly	Monthly	Task
Clean Case Exterior	X			Clean outside surface of front curved glass with a household or commercial glass cleaner.
	X			Clean wood, laminate and painted surfaces with a mild soap and water solution and a soft cloth .
			X	Remove rear panel. Clean under case with vacuum.
Clean Case Interior	X			Shelves may be cleaned with a household or commercial glass cleaner.
		X		Remove the decks and clean with soap and water.
		X		Remove rear doors and clean with a household or commercial cleaner
		X		Vacuum tub under deck if necessary. To flush out the tub, disconnect power to the case. Remove the deck and the fan shroud. Direct drain to floor drain or a bucket. Run hose into the drain to flush out debris. Hose out the tub.
		X		Keep drains clean and free of debris which could clog the drain and rob the case of needed refrigeration.
			X	Using air pressure if available, or an industrial strength vacuum, clean the dust and dirt that collects on the condenser coil. (Be careful not to damage the fins on the coil.)
			X	Slide out Refrigeration Unit and use a vacuum with a hose attachment to clean area.



### **Controller Overview**

The CPC® ESC3 series is an electronic refrigeration controller that provides control of compressor, fan and defrost management. The ESC3 provides control of a compressor (or solenoid) valve in response to temperature variations.

### **Temperature Control**

Temperature control in the ESC3 is accomplished by comparing the temperature reading of the case temperature probe against the temperature set point. The compressor output is used to control the temperature. If the temperature is above the temperature set point (LI) + the hysteresis set point (rd), the compressor output is turned on. If the temperature is below the temperature set point - the hysteresis set point, the compressor output is turned off.

### **Compressor Control**

Several setpoints are available that allow the operation of the compressor output to be tailored to match individual needs.

### **Min ON/Off Times and Minimum Cycle Time**

Minimum ON/OFF compressor times can be specified, as well as a minimum time delay between compressor cycles. These parameters help prevent short cycling.

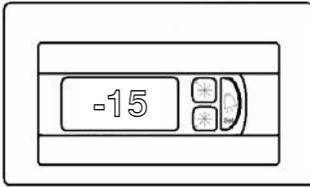
### **Compressor Power On Delay**

Compressor power on delay setpoint (c0) allows the user to specify a delay after the power-up of the controller. The compressor output will not come on regardless of the temperature reading until this amount of time has expired.

### **Compressor Safety Cycle**

The Compressor Safety Cycle setpoint (c4) specifies a cycle time that the compressor is to be cycled if the temperature sensor used for control fails. If this setpoint is 0, the compressor will be off. If this setpoint is 100, the compressor will be on. Any value between 1 and 99 will result in the compressor being on for that period of time. At the end of this time, the compressor will be shut off for approximately 15 minutes.





**Interface** - The ESC3 features a 3 digit LED display that shows the case temperature. Alternately, the display can be configured to display the product temperature if a product temperature probe is connected. The temperature can be displayed in either °C or °F.



**Alarm Key** - The Alarm key illuminates when the controller has detected an alarm condition. This key is also used to reset an alarm condition and to enter the setup mode (allowing set points to be changed).



**Compressor Key** - The Compressor key illuminates when the compressor output is on. When the ESC3 is in setup mode, this key is used to select a set point to be modified and to change the value of the set point.



**Defrost Key** - The Defrost key illuminates when the ESC3 is in defrost mode. Press the defrost key for 5 seconds to go into manual defrost mode. The key is also used in setup mode to select a setpoint to be modified and to change the value of the set point.

**Alarm Operation** - The ESC3 has several alarm functions. In addition to alarms based on air temperatures, it will alarm if a probe failure is detected.

**Indications on the Display**

If the defrost, or compressor key blinks. It means that the corresponding function is delayed by a timing routine or inhibited.

<b>Code</b>	<b>Meaning</b>
<i>E0</i>	Air probe has failed.
<i>E1</i>	Defrost termination or product probe has failed.
<i>L0</i>	Low temperature alarm.
<i>H1</i>	High temperature alarm.
<i>Ed</i>	Defrost timeout has occurred (did not terminate correctly).
<i>dF</i>	Controller is in defrost mode (not an alarm).



### **Viewing and Changing the Temperature Set Point**

The temperature set point is the comparison point for the control temperature input. To change the set point value:

1. Press the Alarm key for 3 seconds, until the set point is displayed and blinking.
2. Press the compressor key or defrost key to raise/lower the value.
3. Press the Alarm key again to accept the new value.

### **Changing Other Set Points**

There are two levels of set points in the ESC3. The first level does not require a password to change (unless the buttons are locked out). The set points that can be changed in this manner are identified in table 1 as a USER set point. All other set points do require a password to change and are identified in table 2 as an OEM set point.

*Note: Table 2 can be obtained from OEM upon request.*

### **To change USER set points:**

1. Press the alarm key and hold it until the letters PS are displayed.
2. Use the compressor and defrost keys to scroll through the codes for the different set points (see Table 1).
3. When the code is displayed for the set point you wish to change, press the alarm key. The value for that set point will be displayed.
4. Press the compressor or defrost key to change the value.
5. Press the alarm key to go back to the code.

At this point you must press the alarm key to accept the change or press the compressor or defrost key to scroll to the next USER set point. To accept the changes, press and hold the alarm key until the display stops flashing.

## WARRANTY

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

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

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

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

Except as expressly stated herein, SCC makes no warranty, express, implied, statutory or otherwise as to any parts or goods not manufactured by SCC. SCC shall warrant such parts or Goods only (I) against such defects, (II) for such periods of time, and (III) with such remedies, as are expressly warranted by the manufacturer of such parts 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 its obligations under this Agreement without prior written consent of SCC. This Agreement shall be binding upon and inure to the benefit of SCC and Purchaser and each of their legal representatives, successors and assigns.

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

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

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

All claims must contain the following information: (1) the model and serial code number of the 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.



**TECHNICAL SERVICE DEPARTMENT**

**1.800.433.9489**

