Hillphoenix®

A DOVER™ COMPANY

MULTI-DECK FROZEN FOOD MERCHANDISER

INSTALLATION & OPERATIONS MANUAL

05Z

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To ensure proper functionality and optimum performance, it is STRONGLY recommended that Hillphoenix display cases be installed/serviced by qualified technicians who have experience working with commercial refrigerated display merchandisers and storage cabinets. For a list of Hillphoenix-authorized installation/service contractors, please visit our Web site at www.hillphoenix.com.

NSF COMPONENT c UL us

P053623E
Rev. 8
11/13

ELECTRICAL DATA

O5Z

Electrical Data

Case Length	Fans[1] Per Case				High-Efficiency Fans		Anti-Condensate[2] Heaters		Defrost[3] Heaters			
					120 Volts		120 Volts		208 Volts		240 Volts	
	Pri.	Sec.	Amb.	Total	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
6'	4	2	2	8	1.47	124	2.25	270	9.99	3600	11.53	4794
8'	5	3	2	10	1.84	155	3.10	344	13.32	4800	15.37	6390
12'	7	4	3	14	2.57	217	4.18	493	20.00	7200	23.06	9585

Lighting Data

Case Length	Lights Per Row	Light Length	Clearvoyant LED Lighting (Per Light Row)			
			Standard Power (Cornice or Shelf)		High Power (Cornice)	
			120 Volts		120 Volts	
			Amps	Watts	Amps	Watts
6'	2	3'	0.14	16.6	0.25	29.8
8'	2	4'	0.20	23.8	0.36	43.0
12'	3	4'	0.30	35.7	0.54	64.5

Guidelines & Control Settings

Front Sill Heights	[4]BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge[5] Air Velocity (FPM)		
	Conventional	Parallel				Pri.	Sec.	Amb.
22"	1902	1787	3-5	-17	-5	650	425	275
28"	1865	1752	3-5	-17	-5	650	425	275

Defrost Controls

Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost	
		Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
3	13 - 15	34	50	- - -[6]	- - -	24	60

1 Pri. = Primary; Sec. = Secondary; Amb. = Ambient

2 Cases equipped with windowed ends add 1.85 amps per end.

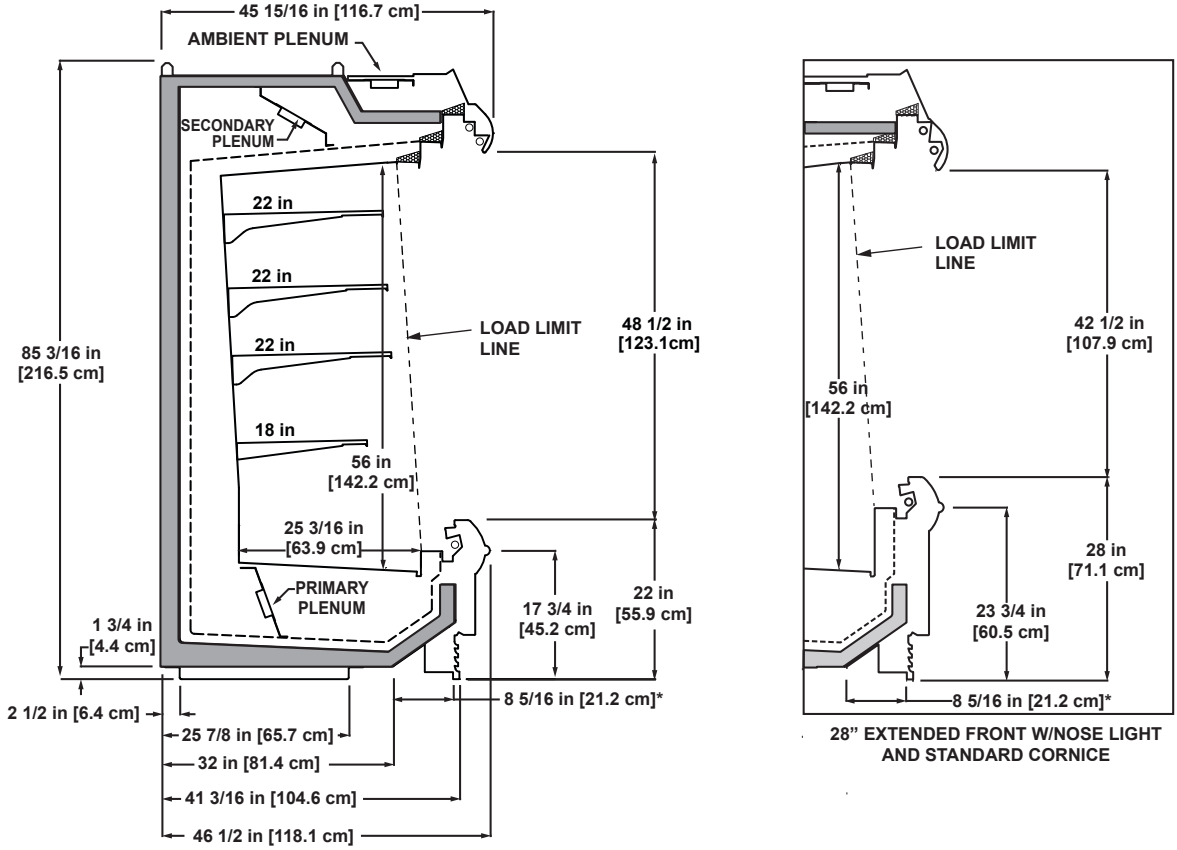
3 3-phase load. Figure given is maximum amps per phase.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

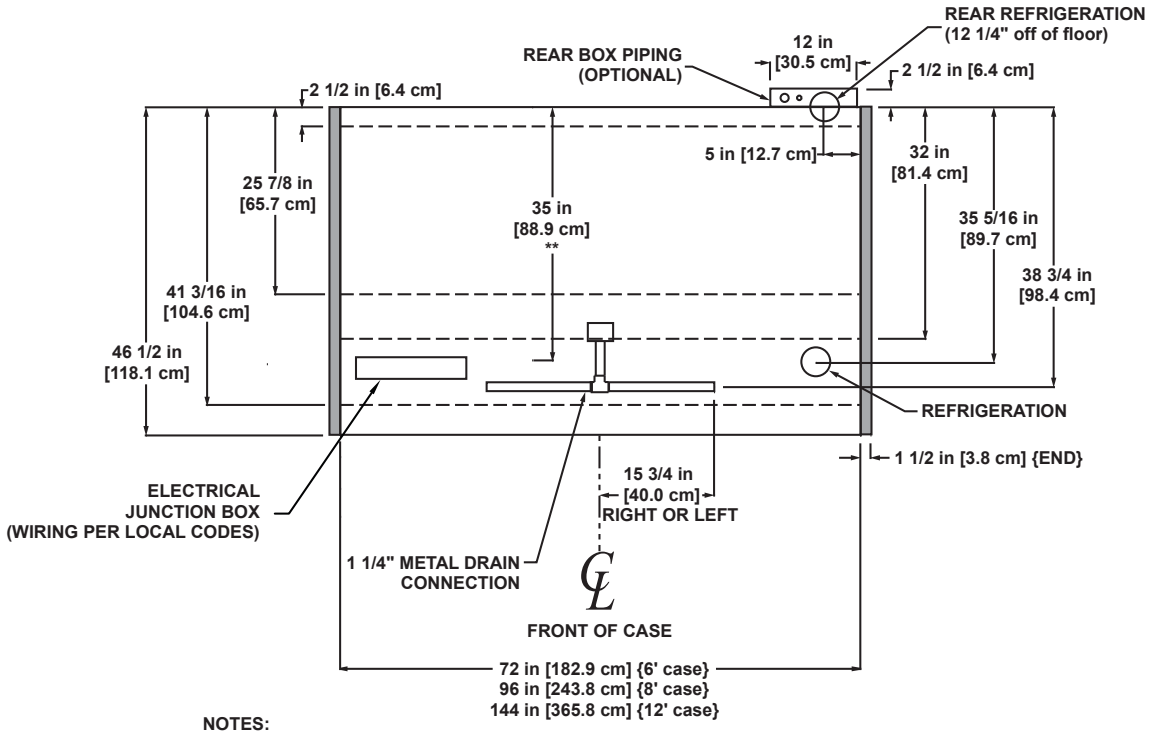
5 Average discharge air velocity at peak of defrost.

6 NOTE: "- - -" indicates that feature is not an option on this case model.

CASE DIMENSIONS



28" EXTENDED FRONT W/NOSE LIGHT AND STANDARD CORNICE



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 18" & 22"
- RECOMMENDED CONFIGURATION IS 3 - 22" SHELVES ON TOP AND 1 - 18" SHELF ON THE BOTTOM
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

GENERAL INFORMATION

Thank you for choosing Hillphoenix for your food merchandising needs. This handbook contains important technical information and will assist you with the installation and operation of your new Hillphoenix display cases. By closely following the instructions, you can expect peak performance; attractive fit and finish; and long case life.

We are always interested in your suggestions for improvements (e.g. case design, technical documents, etc.). Please feel free to contact our Marketing Services group at the toll-free number listed below. Thank you for choosing Hillphoenix, and we wish you the very best in outstanding food merchandising.

Hillphoenix
1925 Ruffin Mill Rd.
Colonial Heights, VA 23834
Mon.-Fri. (8 a.m to 5 p.m EST)
Tel: 1-800-283-1109
Fax: 804-526-7450
Web site: www.hillphoenix.com

CASE DESCRIPTION

O5Z multi-deck frozen food merchandiser.

ELECTRICAL DATA & DIMENSIONAL DRAWINGS

Electrical data and dimensional drawings for the O5Z can be found on pages 2–3.

STORE CONDITIONS

Hillphoenix cases are designed to operate in an air-conditioned store that maintains a 75°F (24°C) store temperature and 55% (max) relative humidity (CRMA conditions). Case operation will be adversely affected by exposure to excessively high ambient temperatures and/or humidity.

REFRIGERATION SYSTEM OPERATION

Air-cooled condensing units require adequate ventilation for efficient performance. Machine-room temperatures must be maintained at a minimum of 65°F in winter and a maximum of 95°F in summer. Minimum condensing temperatures should be no less than 70°F.

RECEIVING CASES

Examine fixtures carefully and in the event of shipping damage and/or shortages, please contact the Service Parts Department at 1-800-283-1109.

CASE DAMAGE

Claims for obvious damage must be 1) noted on either the freight bill or the express receipt and 2) signed by the carrier's agent; otherwise, the carrier may refuse the claim. If damage becomes apparent after the equipment is unpacked, retain all packing materials and submit a written request to the carrier for inspection within 14 days of receipt of the equipment.

LOST/MISSING ITEMS

Hillphoenix equipment is carefully inspected before shipping to insure the highest level of quality. Any claim for lost/missing items must be made to Hillphoenix within 48 hours of receipt of the equipment.

SERVICE/TECHNICAL SUPPORT

For service or technical questions, please contact our Case Division Customer Service Department at 1-800-283-1109. For questions regarding our refrigeration systems or electrical distribution centers, please contact our Systems Division Customer Service Department at 1-770-388-0706.

PARTS ORDERING

If you need to contact Hillphoenix regarding specific fixtures or parts, please call 1-800-283-1109 and ask for a Service Parts Representative. Provide the following information about the part you are ordering:

- Model number and serial number* of the case for which the part is intended.
- Length of the part (if applicable).
- Color of part (if painted) or color of polymer part.
- Whether part is for left- or right-hand application.
- Quantity

**Serial plate is located inside the case on the upper-flue panel.*

If the parts are to be returned for credit, ask the Parts Department to furnish you with a Return Material Authorization Number.

IMPORTANT NOTICES

PRECAUTIONARY NOTICES

At Hillphoenix®, the safety of our customers and employees, as well as the ongoing performance of our products, are top priorities. To that end, we call out important messages in all Hillphoenix installation and operations handbooks with an accompanying alert symbol. All of these notices are meant to provide information about potential dangers to personal health and safety—as well as risks of case damage—if the instructions are not carefully followed.

SERVICE NOTICE

To ensure proper functionality and optimum performance, it is strongly recommended that Hillphoenix display cases be installed/serviced by qualified technicians who have experience working with commercial refrigerated display merchandisers and storage cabinets. For a list of Hillphoenix-authorized installation/service contractors, please visit our Web site: **www.hillphoenix.com**

LIABILITY NOTICE

For Cases with Shelf Lighting Systems

Hillphoenix does NOT design any of its shelf lighting systems or any of its display cases with shelf lighting systems for direct or indirect exposure to water or other liquids. The use of a misting system or water hose on a display case with a shelf lighting system, resulting in the direct or indirect exposure of the lighting system to water, can lead to a number of serious issues (including, without limitation, electrical failures, fire, electric shock, and mold) in turn resulting in personal injury, death, sickness, and/or serious property damage (including, without limitation, to the display itself, to the location where the display is situated [e.g., store] and to any surrounding property).

DO NOT use misting systems, water hoses or other devices that spray liquids in Hillphoenix display cases with lighted shelves. If a misting system or water hose is installed or used on a display case with a shelf lighting system, then Hillphoenix shall not be subject to any obligations or liabilities (whether arising out of breach of contract, warranty, tort [including negligence], strict liability or other theories of law) directly or indirectly resulting from, arising out of or related to such installation or use, including, without limitation, any personal injury, death or property damage resulting from an electrical failure, fire, electric shock, or mold.

P079211M, REVO

R-744 (CO2) NOTICE

For Systems Utilizing R-744 (CO2) Refrigerant

For refrigeration units that utilize R-744 (CO2), pressure relief and pressure-regulating relief valves may need to be installed based on the system capacity. The valves need to be located such that no stop valve is positioned between the relief valves and the parts or section of the system being protected.

When de-energizing refrigeration units containing R-744 (CO2), venting of the R-744 (CO2) refrigerant may occur through the pressure regulating relief valves. These valves are located on the refrigeration system and not on the case model. If venting does occur, the valve must not be defeated, capped, or altered by any means.

GLYCOL NOTICE

For Systems Utilizing Glycol Refrigerant

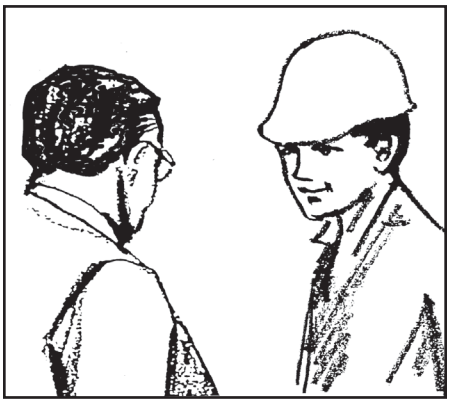
Use of glycol as a secondary refrigerant must be carried out in accordance with the procedures that have been set forth in the Hillphoenix Second Nature Medium Temperature Secondary Refrigeration Installation Manual, available for download here: **http://goo.gl/JlWd77**

Additionally, Hillphoenix uses and recommends Dow glycol-based coolants, which contain specially formulated industrial inhibitors that help to prevent corrosion in our display merchandisers. Over time, the effectiveness of these inhibitors deteriorates, increasing the chance for corrosion. We recommend testing of glycol solutions annually through the Dow lab. The service is free for systems containing over 250 gallons of glycol coolants, while the cost is approximately $100 for smaller systems. For more information, see Dow's DOWFROST and DOWFROST HD Guide here: **http://goo.gl/v6i1iQ**

CAUTION!

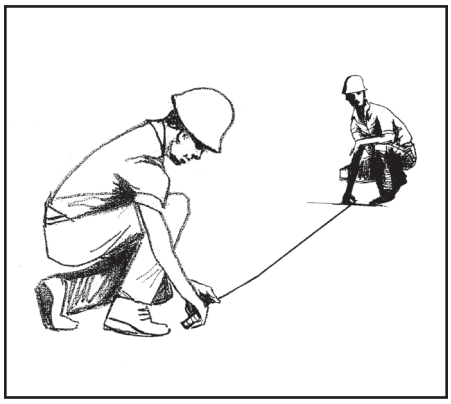
Under no circumstance should any component be replaced or added without consulting Hillphoenix Field Service Engineering. Utilizing improper components may result in serious injury to persons or damage to the refrigeration system.

LINE UP



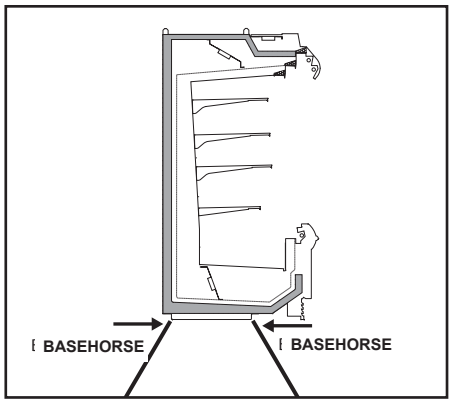
Consult With General Contractor

Ask the general contractor if there have been changes in the building dimensions since the print you are using was issued. Also, ask the points of reference from which you should take dimensions to locate the cases.



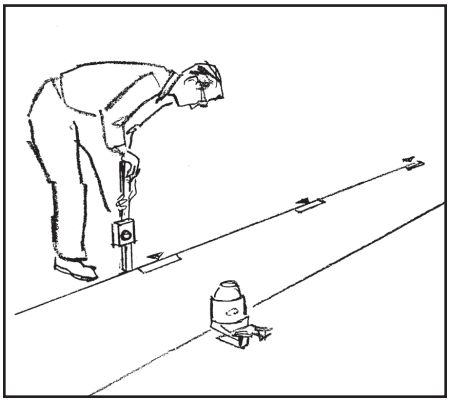
Snap Chalk Lines

Mark floor where cases are to be located for the entire lineup.



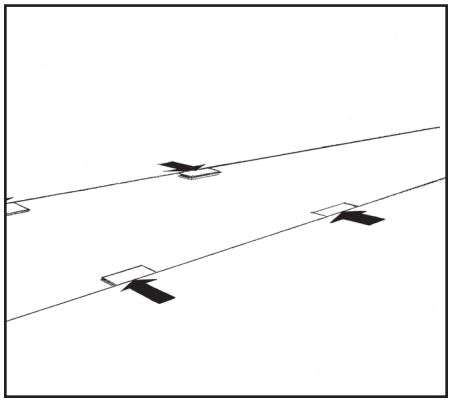
Snap Lines On Base Rail Locations

Snap lines where basehorse is positioned, not the front or back edges of the cases. See case cross section drawing (page 3) for basehorse location dimensions.



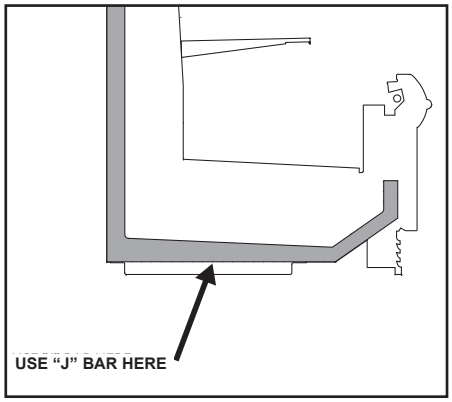
Level Floor. Use Laser Transit

Leveling is necessary to assure proper case alignment. Locate highest point on chalk line as reference for determining height of shim-pack levelers. A laser transit is recommended for precision and requires just one person.



Set Shims On Joint Locations

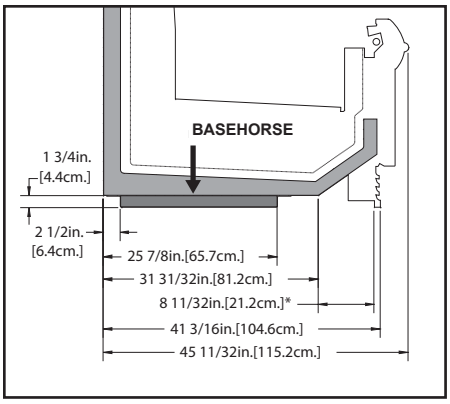
Locate case joint positions along chalk lines. Spot shim packs at each joint location and at each basehorse between the joints.



Position First Case In Lineup

Move first case into position. Raise case from end, as shown above, using “J” bar. [CAUTION! Keep hands from underneath case] Level case on shims.

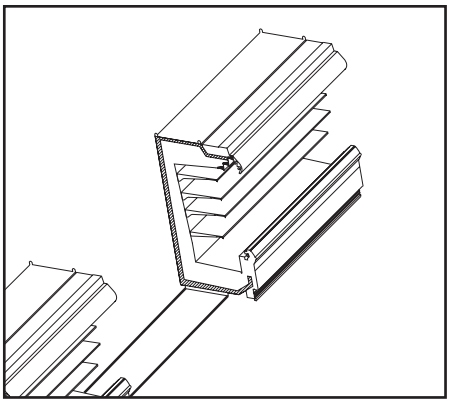
LINE UP



Check Riser Location

7

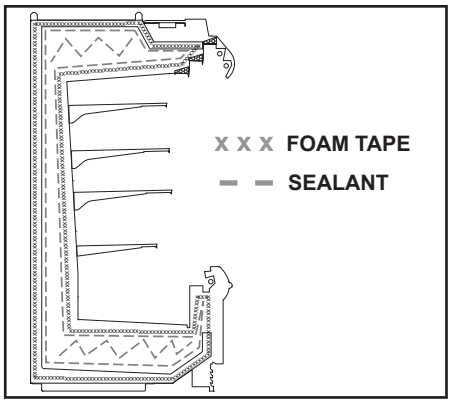
If case is to be set on risers make certain that the risers are located under each basehorse.



Position Next Case In Line Up

8

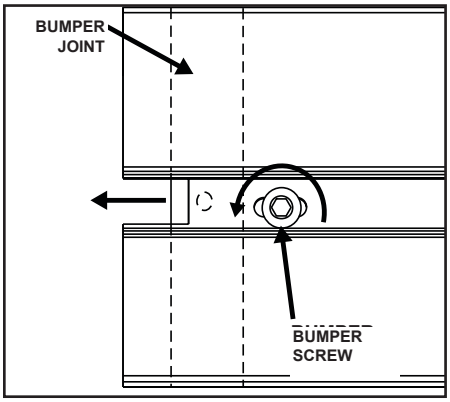
Line up the basehorse of the next case with the chalk lines on the floor.



Prepare Cases for Joining

9

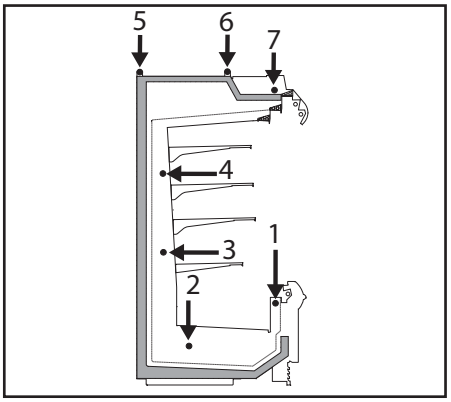
Remove anything from case that may interfere with case joining (eg. shipping braces). Apply foam tape (supplied) and sealant as per the above diagram.



Loosen Bumper and Cornice

10

Loosen screws in master bumper. Move the bumper joint to a position for sliding between adjoining case bumper.



Bolt Cases Together Using Bolt Holes Provided

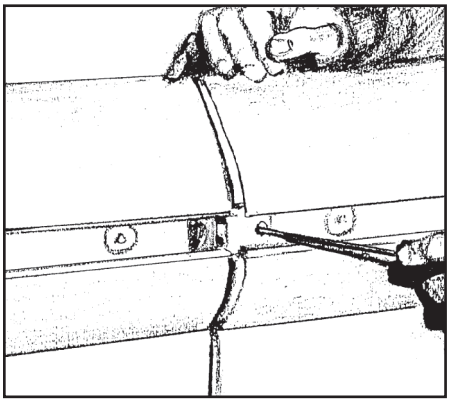
11

Push cases tightly together. Bolt cases together through the seven holes provided. Tighten until all margins are equal; do not over tighten.

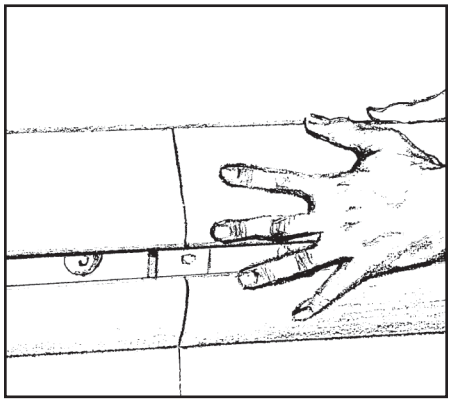
Ask about our case installation video available by request through your local Hillphoenix Sales or Field Service Representative.

TRIM OUT

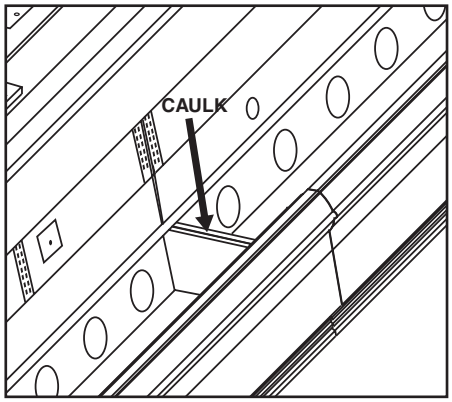
Now that cases have been positioned and leveled, you may proceed to trim-out the case line-up. Trim parts have been designed to be applied easily with only a small number of fasteners required. Most external parts are adjustable to achieve snug-fitting joints and a visually appealing fit and finish.



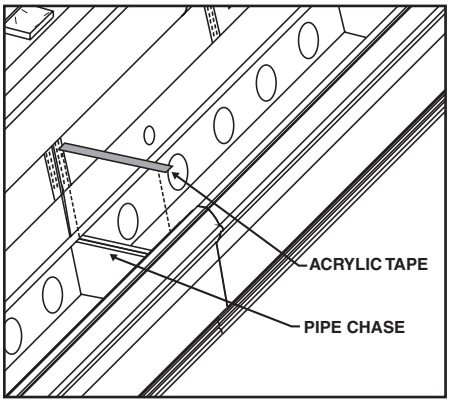
Adjust polymer master bumper joints. First loosen bumper screws. Slide bumper joint to center of joint between the two cases. Use screw driver in hole provided.



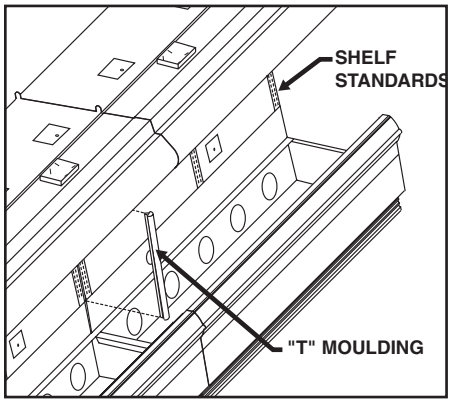
Slide bumper left or right to close seam as required. Bumper joint neatly finishes any gap that may remain.



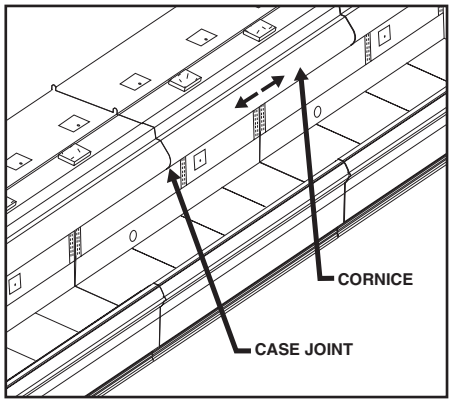
Seal joints along pipe chase seam with the caulk provided



Apply acrylic tape over pipe chase seam. Tape is found with the ship loose items and acts as a watershed preventing water from settling in case joint.

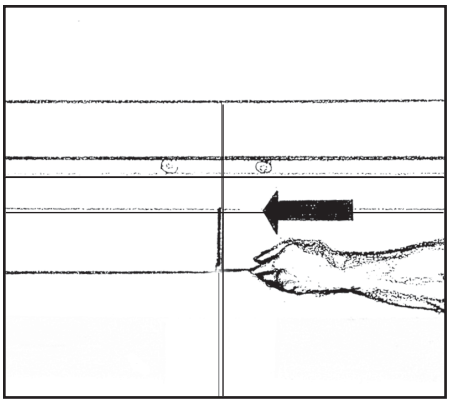


Insert “T” moulding into the gap between the shelf standards to neatly finish the joint.



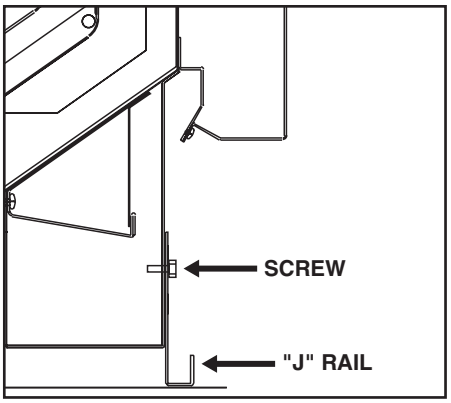
Center the cornices on each case by loosening the screws on top of the cornice and sliding left or right. Slide the interior cornice joint to the center of the case joint.

TRIM OUT



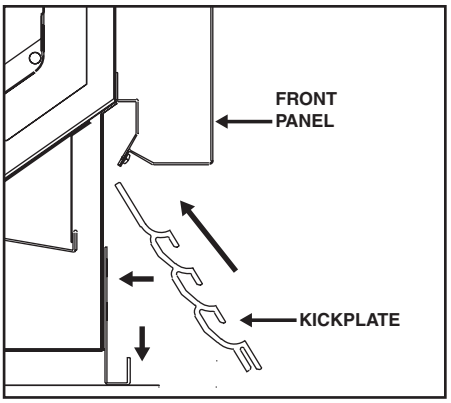
Close joints of color band or front panel by sliding the panels together. The color band and front panel are slotted to allow adjustment as required

7



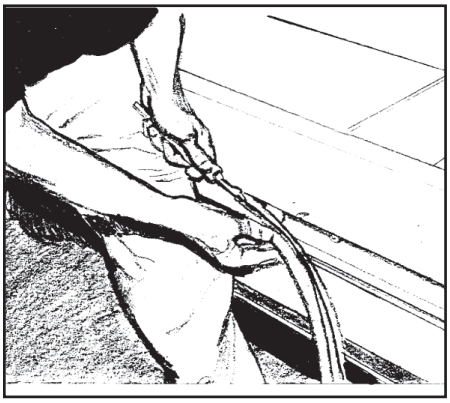
Adjust the “J” Rail by loosening the screws and pushing the “J” rail flush to the floor.

8



Install the kickplate by inserting the top section into the channel behind the front panel, push in and then down onto the “J” rail.

9



Insert nose bumper into master bumper channel. Roll nose bumper into channel along entire lineup (up to 96’). We recommend that the nose bumper be left in the store 24 hours before installing. DO NOT STRETCH the bumper during installation as it will shrink to its original length and leave a gap.

10

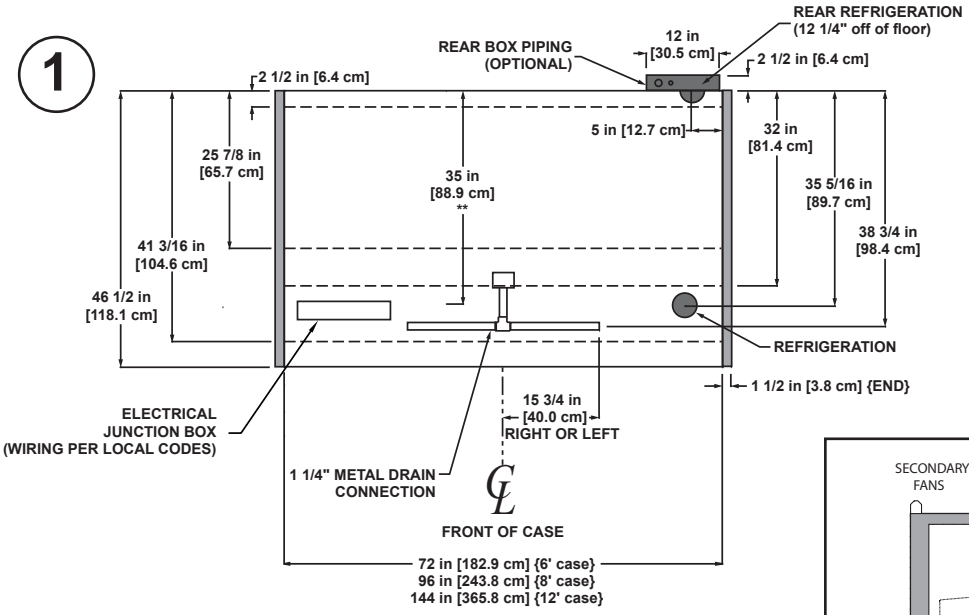
NOTE: An easy technique for one person is to press against nose bumper with leg as you guide bumper into channel with a screen spline. Insert bottom first.

REFRIGERATION PIPING

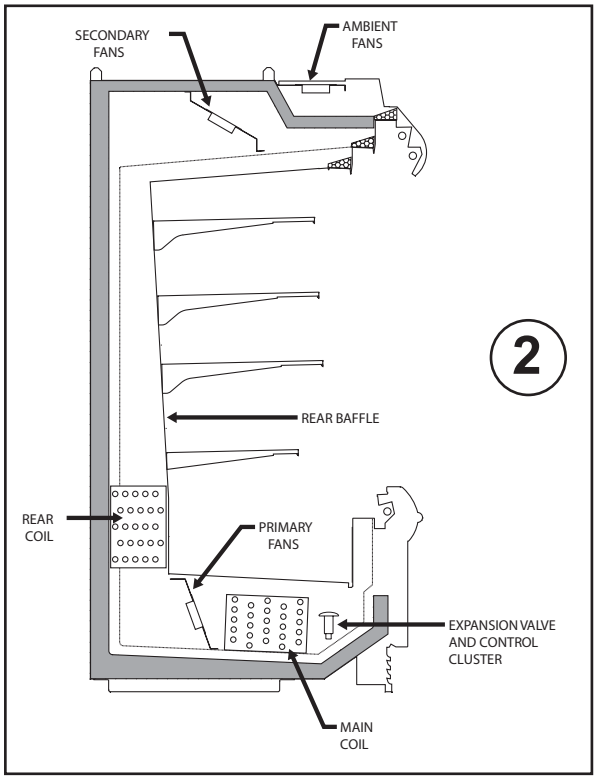
The refrigeration components and the coil outlet hole for the O5Z are located to provide the best access for installation and maintenance. As diagram **1** below indicates, the coil outlet hole is positioned forward on the right hand side of the case and the optional piping-up-the-rear-box is located on the right rear of the case.

The expansion valve and other controls are located on the left hand side of the case and are easily accessible by lifting the left hand deck pan. The rear coil, located behind the rear baffle, is piped to the main coil in the tank bottom. Both coils are fed by one set of controls (see diagram **2**).

If it becomes necessary to penetrate the tank bottom be sure to reseal the hole after installation, using a canned foam sealant and white RTV.



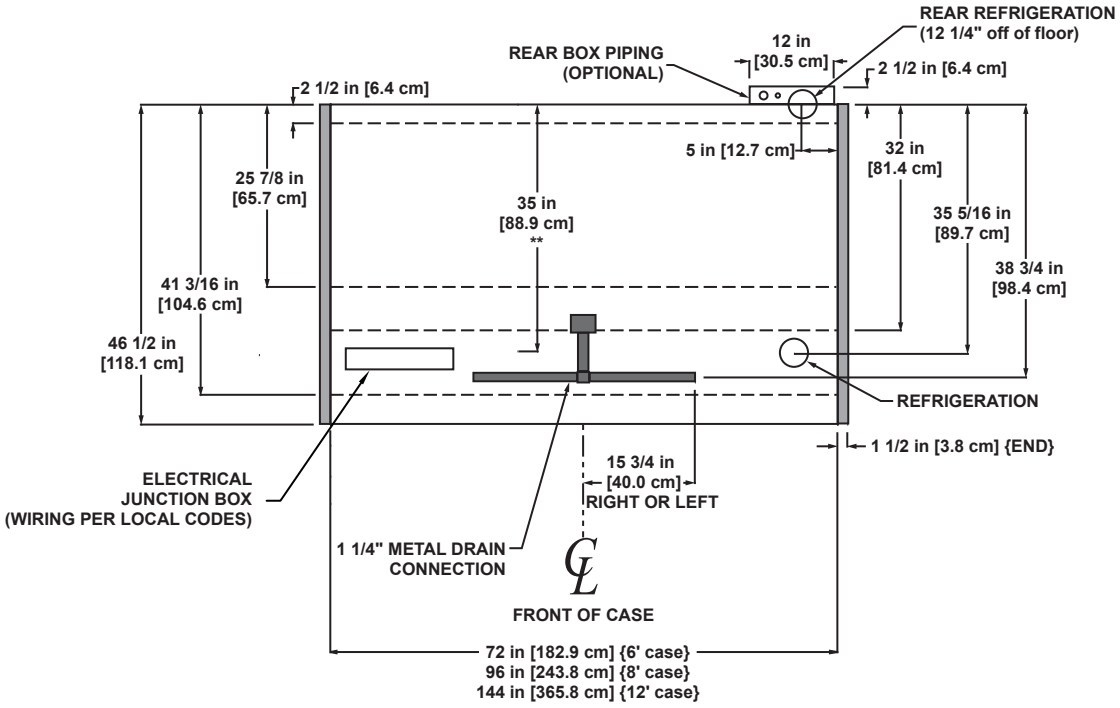
MODEL
O5Z

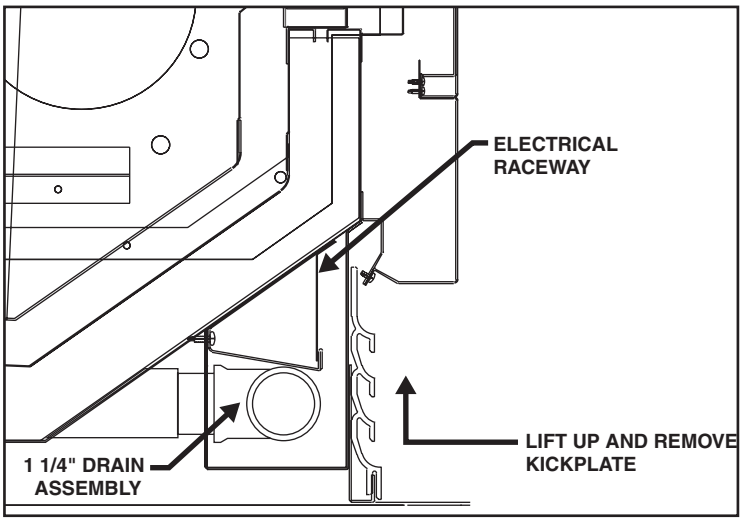


PLUMBING

The case drain is located front and center for convenient access. The case drain is cast metal and is attached to a galvanized pipe and tee. The drain trap is formed from 1-1/4" galvanized pipe and is shipped loose with the case. Care should be taken to assure all connections are water tight and sealed with the appropriate pipe dope.

Access to the drain area can be easily obtained by removing only the kickplate. The kickplate is shipped loose with the case but can be easily removed if it has been installed at the store. See the diagram below or the Trim Out section of this manual on page 9.





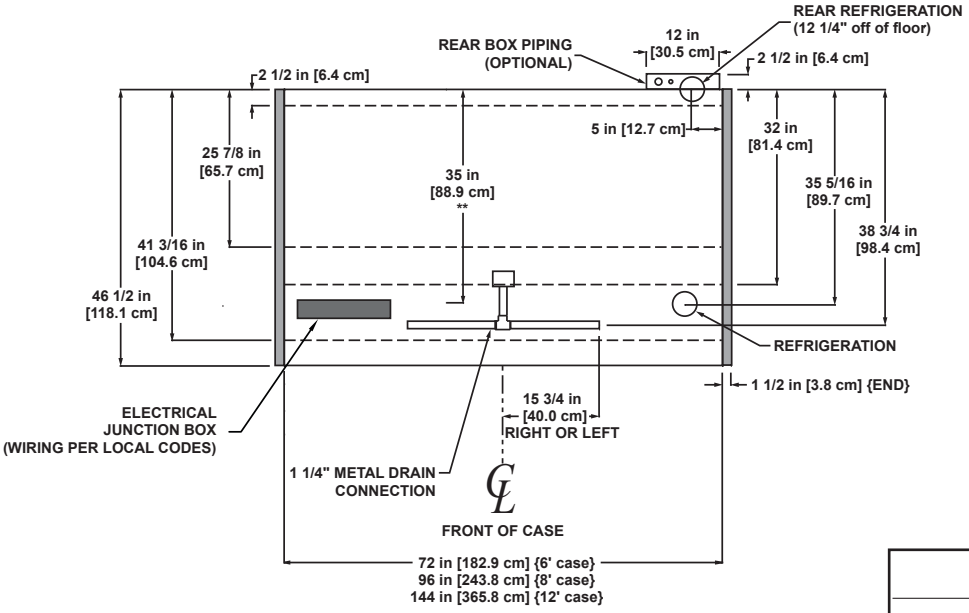
MODEL
O5Z

DRAIN LOCATION AND KICKPLATE REMOVAL

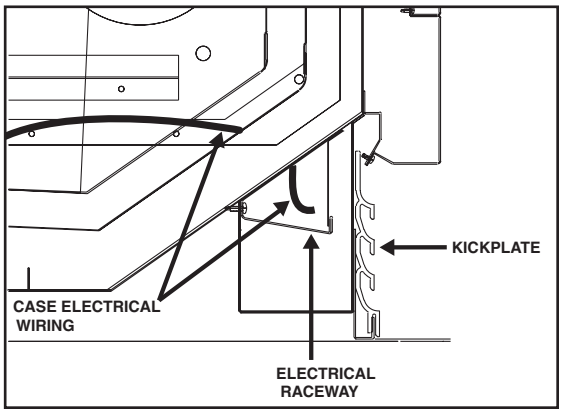
ELECTRICAL HOOKUP

All electrical hook ups are made on the lower left hand side of the case, as shown in the diagram below. The wiring is run to a raceway that extends the length of the case.

Field connections can be made through the bottom of the raceway on the left hand side. Case to case wiring can be run in the continuous raceway and is easily accessible behind the kickplate.



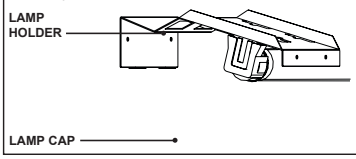
MODEL
O5Z



WIRING NUMBERS AND COLORS

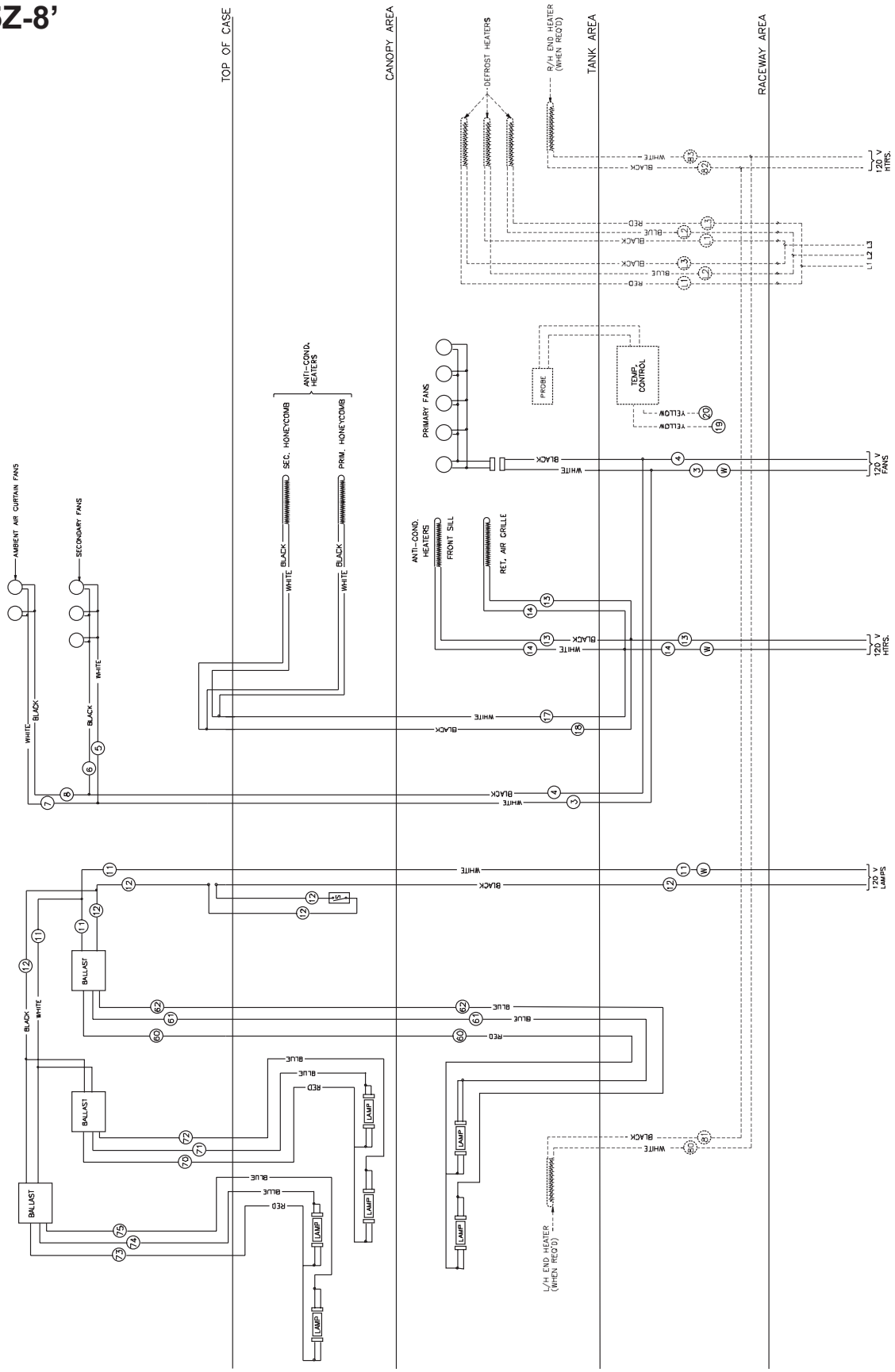
COMPONENT	WIRE NUMBER	COLOR CODING
EVAPORATOR FANS, 120 VOLT	3	WHITE
	4	BLACK
LIGHTS, 120 VOLT	11	WHITE
	12	BLACK
ANTI-CONDENSATE HEATERS, 120 VOLT	13	WHITE
	14	BLACK
DEFROST HEATERS, 208/240 VOLTS	L1	RED
	L2	BLUE
DEFROST HEATERS, 120 VOLT (AIR DEFROST)	17	WHITE
	18	BLACK
EQUIPMENT GROUNDING CONDUCTOR	-	GREEN

Note: When re-installing any lamp (cornice, shelf, nose, etc.) be sure the lamp cap is seated completely on to the lamp holder.



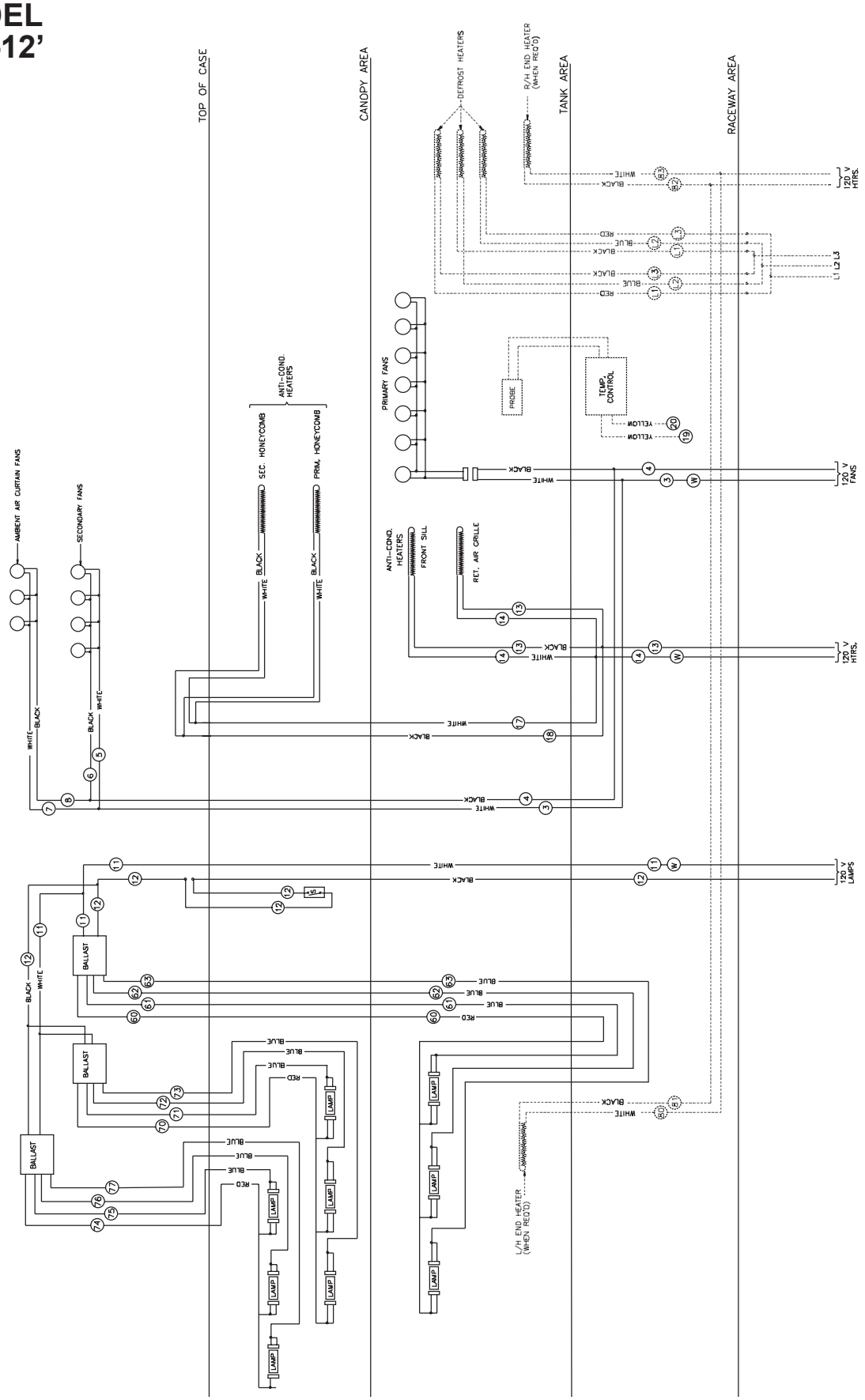
WIRING DIAGRAMS

MODEL
O5Z-8'



WIRING DIAGRAMS

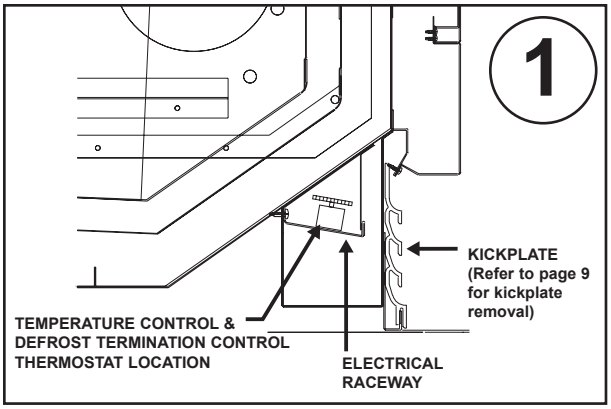
MODEL
O5Z-12'

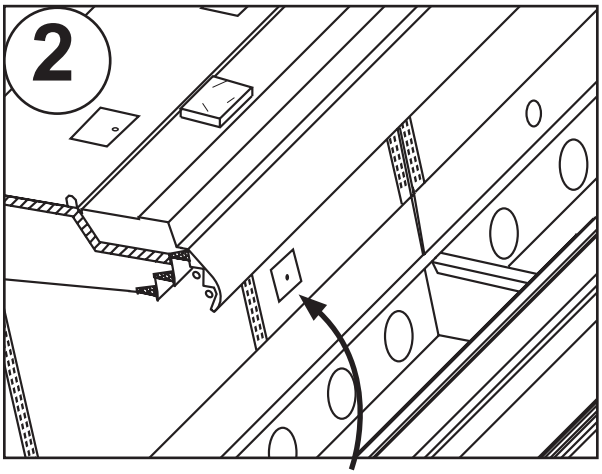


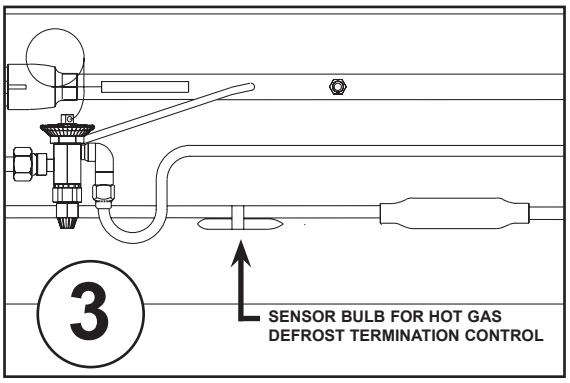
DEFROST & TEMPERATURE CONTROLS

O5Z cases utilize electric or hot gas defrost. The primary components used for the defrost cycle are the various defrost termination sensors, which work to terminate the defrost cycle in the case. These controls may include 1) a Klixon® thermostat, 2) a sensor probe, or 3) a dial-type thermostat with sensor bulb—the thermostat will always be mounted with the electrical controls of the case, either in an electrical junction box or in the electrical raceway (**Fig. 1**).

If electric defrost is used, the defrost termination sensor will be located either behind the rear baffle (**Fig. 2**) or mounted to the coil. If hot gas defrost is used, the defrost termination sensor will be mounted to the dump line (**Fig. 3**)—the sensor should always be mounted on the coil-side of the check valve or solenoid valve. The discharge air probe monitors the temperature of the discharge air and may be used as the defrost termination sensor. The probe can generally be found behind the rear baffle, in the upper baffle, or in front of the honeycomb. **NOTE: if the discharge air probe is used for defrost termination, none of the termination sensors listed earlier will be installed in the case.**



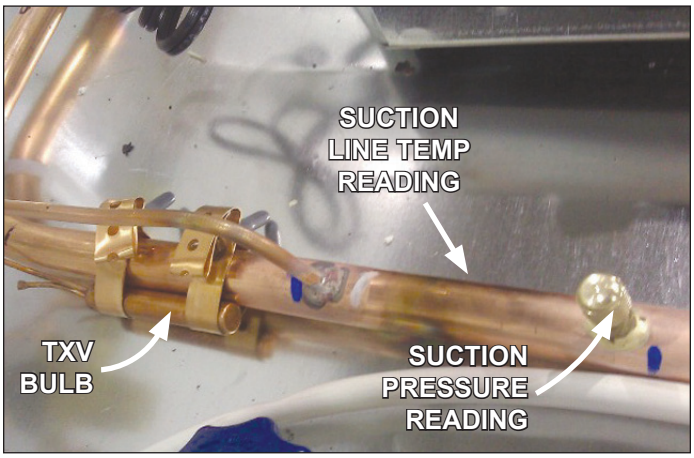




DETERMINING SUPERHEAT

To identify the correct superheat settings, complete the following steps:

1. Obtain suction pressure from the access port. Obtain the suction line temperature from the area near theT-XV bulb at the outlet of the evaporator coil (below).
2. Using the suction pressure reading and the Sporlan® temperature-pressure chart (page 16), convert pressure-to-temperature.
3. Finally, subtract the converted temperature reading from the actual temperature reading. The resulting number is the superheat setting—once this has been determined, adjust the TXV as needed to obtain the proper setting.



OBTAIN PRESSURE AND TEMPERATURE READINGS FOR SETTING SUPERHEAT

Vacuum-Inches of Mercury
Bold Italic Figures

TEMPERATURE PRESSURE CHART - at sea level

Pressure-Pounds Per Square Inch Gauge

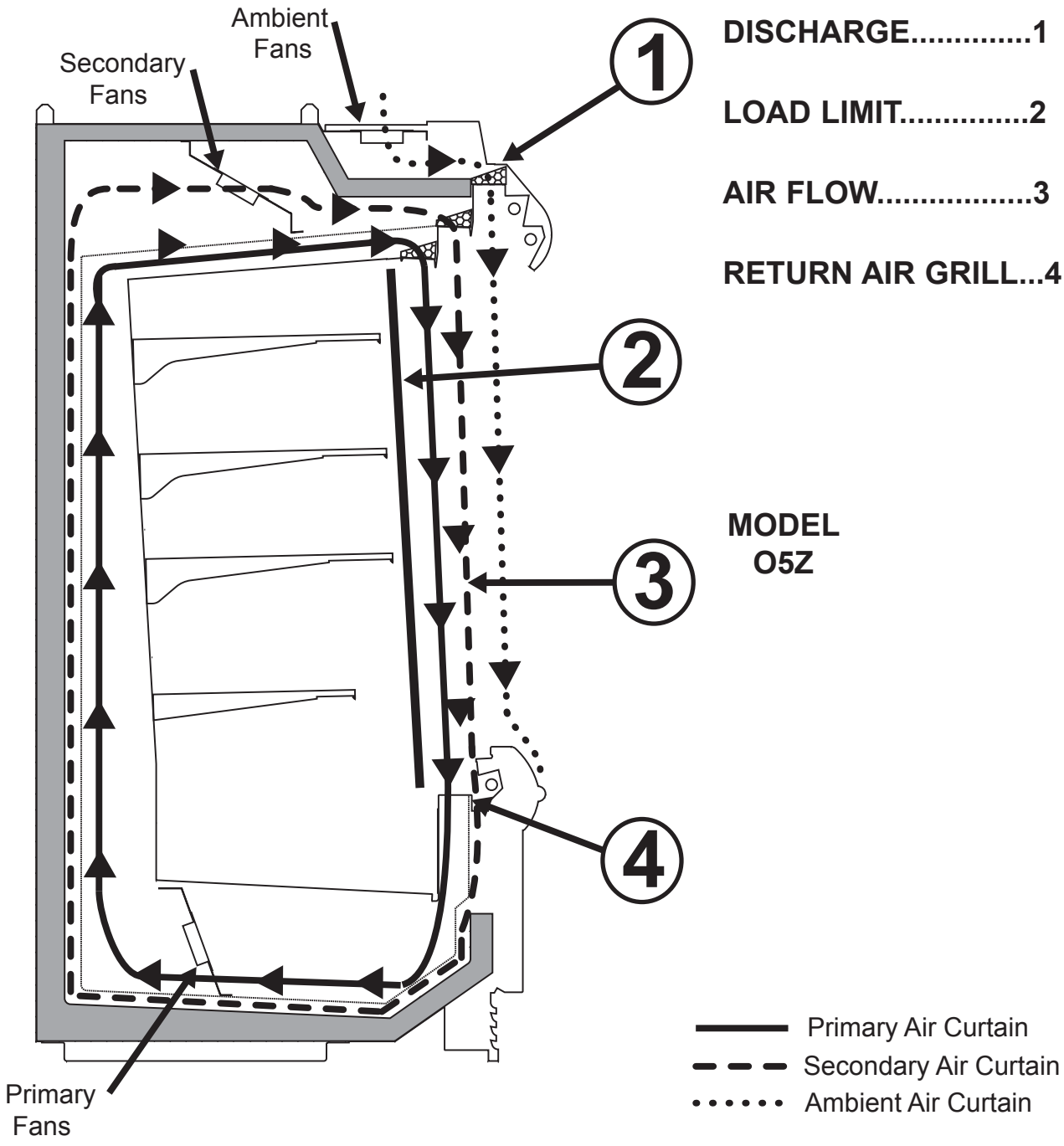
TEMPERATURE		REFRIGERANT (SPORLAN CODE)				
(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2
-60	-51.1	21.8	7.3	5.8	18.6	79.9
-55	-48.3	20.3	3.9	2.2	16.6	91.1
-50	-45.6	18.7	0.1	0.9	14.3	103.4
-45	-42.8	16.9	2.0	3.0	11.7	116.6
-40	-40.0	14.8	4.3	5.4	8.8	131.0
-35	-37.2	12.5	6.8	8.1	5.4	146.5
-30	-34.4	9.8	9.6	11.0	1.6	163.1
-25	-31.7	6.9	12.7	14.1	1.3	181.0
-20	-28.9	3.7	16.0	17.6	3.6	200.2
-18	-27.8	2.3	17.4	19.1	4.6	208.3
-16	-26.7	0.8	18.9	20.6	5.6	216.5
-14	-25.6	0.4	20.4	22.2	6.7	225.0
-12	-24.4	1.1	22.0	23.8	7.8	233.8
-10	-23.3	1.9	23.6	25.5	9.0	242.7
-8	-22.2	2.8	25.3	27.3	10.3	251.9
-6	-21.1	3.6	27.0	29.1	11.5	261.3
-4	-20.0	4.6	28.8	30.9	12.9	271.0
-2	-18.9	5.5	30.7	32.8	14.3	280.9
0	-17.8	6.5	32.6	34.8	15.7	291.0
1	-17.2	7.0	33.6	35.8	16.4	296.2
2	-16.7	7.5	34.6	36.9	17.2	301.5
3	-16.1	8.0	35.6	37.9	18.0	306.8
4	-15.6	8.5	36.6	39.0	18.8	312.1
5	-15.0	9.1	37.7	40.1	19.6	317.6
6	-14.4	9.6	38.7	41.1	20.4	323.1
7	-13.9	10.2	39.8	42.3	21.2	328.6
8	-13.3	10.8	40.9	43.4	22.1	334.2
9	-12.8	11.3	42.0	44.5	22.9	339.9
10	-12.2	11.9	43.1	45.7	23.8	345.7
11	-11.7	12.5	44.3	46.9	24.7	351.5
12	-11.1	13.1	45.4	48.1	25.6	357.4
13	-10.6	13.8	46.6	49.3	26.5	363.4
14	-10.0	14.4	47.8	50.5	27.5	369.5
15	-9.4	15.0	49.0	51.8	28.4	375.6
16	-8.9	15.7	50.2	53.0	29.4	381.8
17	-8.3	16.4	51.5	54.3	30.4	388.0
18	-7.8	17.0	52.7	55.6	31.4	394.3
19	-7.2	17.7	54.0	56.9	32.4	400.7
20	-6.7	18.4	55.3	58.3	33.5	407.2
21	-6.1	19.1	56.6	59.6	34.6	413.8
22	-5.6	19.9	58.0	61.0	35.7	420.4
23	-5.0	20.6	59.3	62.4	36.8	427.1
24	-4.4	21.3	60.7	63.8	37.9	433.8
25	-3.9	22.1	62.1	65.3	39.0	440.7
26	-3.3	22.9	63.5	66.7	40.2	447.6
27	-2.8	23.7	64.9	68.2	41.4	454.6
28	-2.2	24.5	66.4	69.7	42.6	461.7
29	-1.7	25.3	67.8	71.2	43.8	468.8
30	-1.1	26.1	69.3	72.7	45.0	476.1
31	-0.6	26.9	70.8	74.3	46.3	483.4
32	0.0	27.8	72.4	75.9	47.6	490.8
33	0.6	28.6	73.9	77.5	48.9	498.3
34	1.1	29.5	75.5	79.1	50.2	505.8
35	1.7	30.4	77.1	80.7	51.6	513.4
36	2.2	31.3	78.7	82.4	52.9	521.2
37	2.8	32.2	80.3	84.1	54.3	529.0
38	3.3	33.1	82.0	85.8	55.7	536.9
39	3.9	34.1	83.7	87.5	57.2	544.8
40	4.4	35.0	85.4	89.2	58.6	552.9
41	5.0	36.0	87.1	91.0	60.1	561.0
42	5.6	37.0	88.8	92.8	61.6	569.3
43	6.1	38.0	90.6	94.6	63.1	577.6
44	6.7	39.0	92.4	96.5	64.7	586.0
45	7.2	40.1	94.2	98.3	66.3	594.5
46	7.8	41.1	96.0	100.2	67.9	603.1
47	8.3	42.2	97.9	102.1	69.5	611.7
48	8.9	43.2	99.8	104.1	71.1	620.5
49	9.4	44.3	101.7	106.0	72.8	629.3
50	10.0	45.4	103.6	108.0	74.5	638.3
55	12.8	51.2	115.3	118.3	83.4	684.4
60	15.6	57.4	126.0	129.2	92.9	733.1
65	18.3	64.0	137.3	140.7	103.2	784.2
70	21.1	71.1	149.3	153.0	114.2	838.1
75	23.9	78.7	162.0	165.9	125.9	894.9
80	26.7	86.7	175.4	179.6	138.4	954.9
85	29.4	95.2	189.5	194.1	151.8	1018
90	32.2	104.3	204.5	209.3	166.1	**
95	35.0	113.9	220.2	225.4	181.2	**
100	37.8	124.2	236.8	242.3	197.3	**
105	40.6	135.0	254.2	260.1	214.4	**
110	43.3	146.4	272.5	278.8	232.5	**
115	46.1	158.4	291.8	298.5	251.6	**
120	48.9	171.2	312.1	319.2	271.9	**
125	51.7	184.6	333.3	340.9	293.3	**
130	54.4	198.7	355.6	363.8	315.8	**
135	57.2	213.6	379.1	387.8	339.6	**
140	60.0	229.2	403.7	413.0	364.7	**
145	62.8	245.7	429.6	439.5	391.0	**
150	65.6	262.9	456.8	467.4	418.7	**
155	68.3	281.0	485.5	497.0	447.8	**

To determine subcooling for R-404A use BUBBLE POINT values (Temperatures above 50°F — Gray Background); to determine superheat for R-404A, use DEW POINT values (Temperatures 50°F and below).
** = exceeds critical temperature

AIR FLOW & PRODUCT LOADING

Cases have been designed to provide maximum product capacity within the refrigerated air curtain. It is important that you do not overload the food product display so that it blocks the air flow pattern.

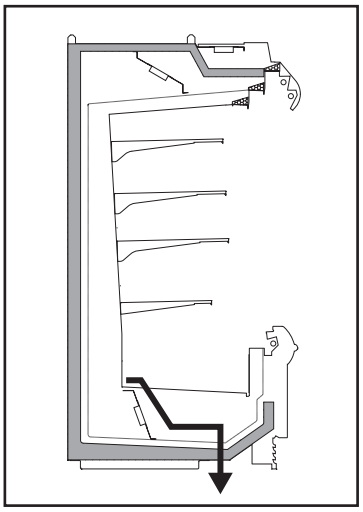
Overloading will cause malfunction and the loss of proper temperature levels, particularly when discharge and return air sections are covered. Please keep products below the load limit lines shown on these diagrams.



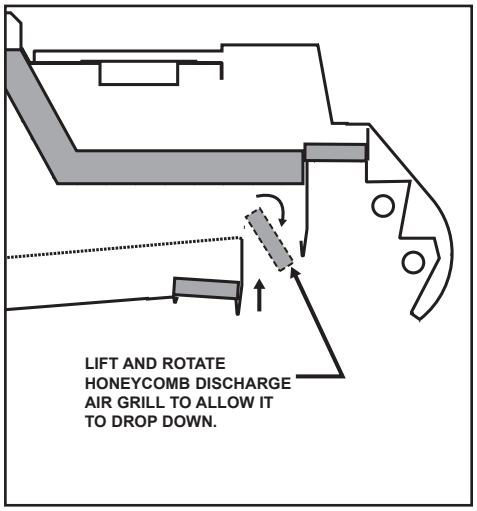
USE & MAINTENANCE

CASE CLEANING

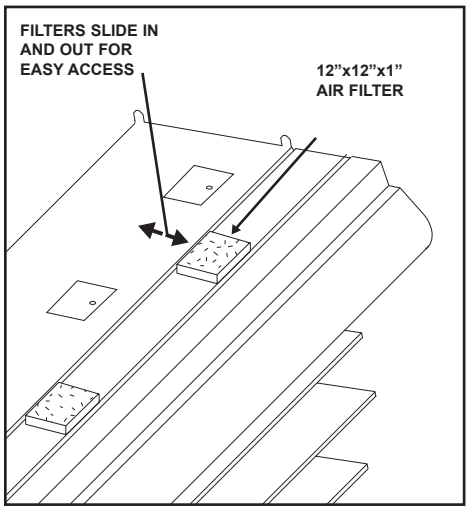
The case is designed to facilitate cleaning. All surfaces pitch to a drain trough that angles toward the front, center of the case where the 1 1/4" waste outlet is located. The drain is positioned outside the fan plenum for easy access.



POSITIVE DRAIN OFF



CLEAN HONEYCOMB



AMBIENT AIR FAN FILTER

CLEANING PROCEDURES

- A periodic cleaning schedule should be established to maintain proper sanitation, insure maximum operating efficiency, and avoid the corrosive action of food fluids left on metal parts for long periods of time. We recommend cleaning at least once a week.
- To avoid shock hazard, be sure all electrical power is turned off before cleaning. In some installations, more than one disconnect switch may have to be turned off to completely de-energize the case.
- Check waste outlet to insure it is not clogged before starting the cleaning and avoid introducing water faster than drip pipe can carry it away.
- Avoid spraying cleaning solutions directly on fans or electrical connections.
- Allow cases to be turned off long enough to clean any frost or ice from coil and flue areas.
- To clean the honeycomb discharge grill (see above) use a soft, long bristle brush and a mild detergent. It may be necessary to remove the honeycomb and use a spray detergent.
- Replace the filters on ambient air curtain fans, see above, at least every three months. The filters are available at any local hardware store.
- Use mild detergent and warm water. When necessary, water and baking soda solution will help remove case odors. Avoid abrasive scouring powders or pads.
- For difficult stains that may appear on polymer exterior bumper parts, the following specialty cleaning products are recommended:

  3M brand© Stainless Steel Cleaner and Polish
  Revere© aluminum powder for tank liner
  Armor All© for polymer parts

USE & MAINTENANCE

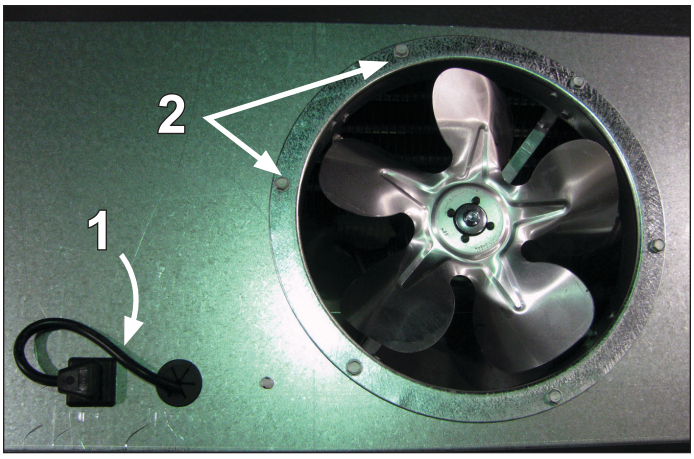
FANS

The primary evaporator fans are equipped with 16 watt fan motors, 1550 RPM's, counter-clockwise rotation (when viewed from shaft end). The blades are 8" diameter and pitched according to the chart below. The secondary and ambient standard fans are equipped with 5 watt motors with 7" blades pitched according to the chart below. The secondary and ambient high efficiency fans are equipped with 4 watt fan motors and 7" blades also pitched according to the chart below. **It is important that the blade pitch be maintained as specified. Do not attempt a field modification by altering the blades.**

The primary fans are easily accessible under the deck pans and may be changed with an easy two step process:

1. Unplug the fan motor, easily accessible outside the plenum.

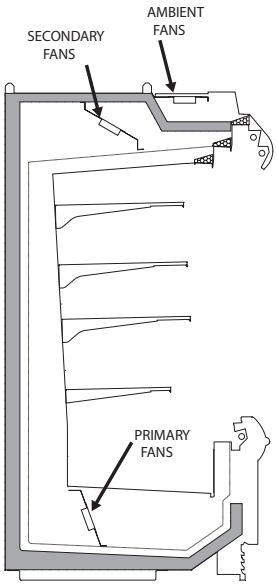
2. Remove three fasteners, then lift out the entire fan basket.



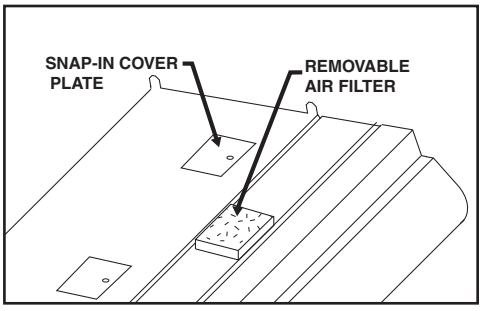
REMOVABLE FAN BASKET FOR PRIMARY FANS

The secondary fans can be accessed by removing the snap-in cover plate on top of the case (see illustration). The ambient fans can be accessed by removing the air filter which sits directly over the ambient fan assembly. Both sets of fans can be changed in the same way as the primary fans.

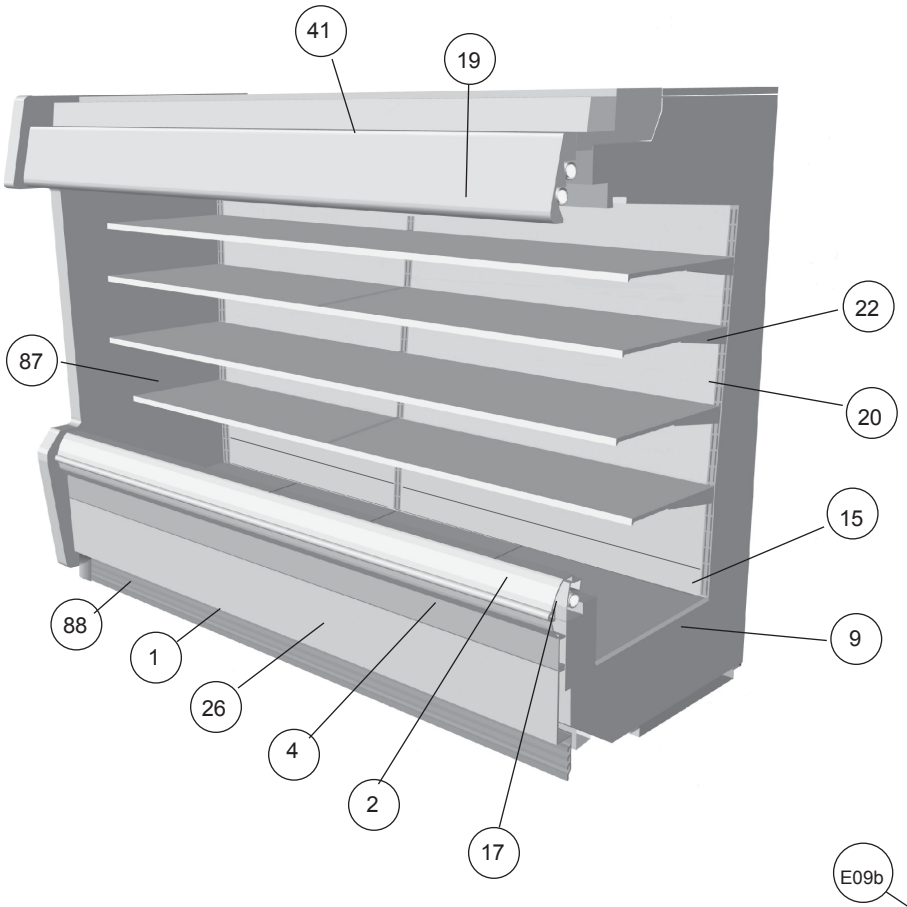
FAN PLENUM LOCATIONS



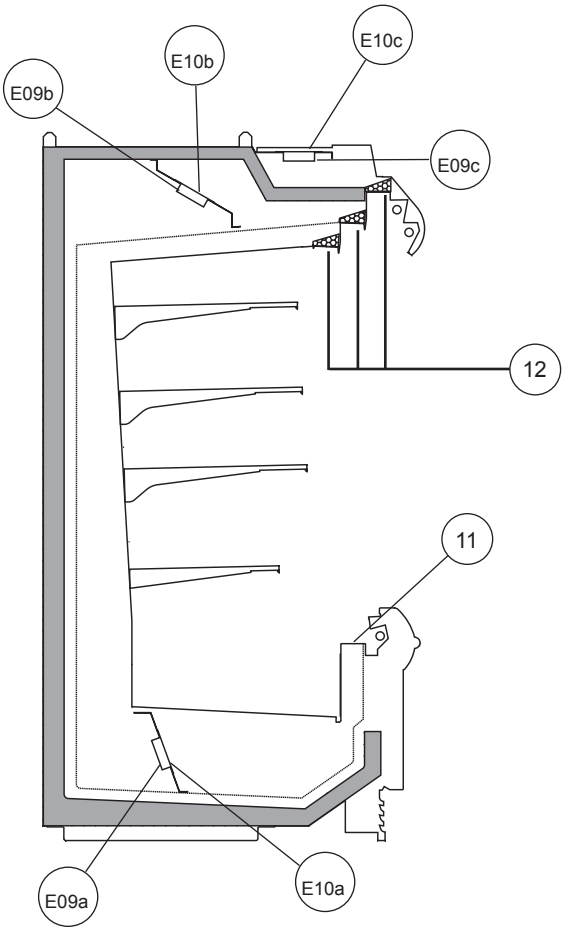
SECONDARY AND AMBIENT FAN ACCESS



PARTS ORDERING



MODEL
O5Z



PARTS ORDERING

Location Number	Part Descriptions
1	**Kickplate**, Polymer Extrusion, Storm Grey
2	**Master Bumper**, Featherstone, Smoke, White, French Vanilla
4	**Color Band**, Painted
9	**Deck Pan**, Painted, Unpainted
11	**Front Baffle**, Aluminum, Painted
12	**Honeycomb**, Discharge Air Grille
15	**Lower Rear Baffle,** Painted
17	**Nose Bumper**, Polymer Custom Color
19	**Cornice**, Painted
20	**Rear Baffle,** End or Center, Aluminum, Painted
22	**Shelf**, Painted (specify size)
26	**Front Panel**, Painted
41	**Ballast Cover**, Painted
87	**End**, Specify Right Hand or Left Hand
88	**End Kickplate**, Storm Grey
E09	**Fan Motor - STATE HIGH EFFICIENCY OR STANDARD** **a) Primary b) Secondary c) Ambient**
E10	**Fan Blade,** 6” **a) Primary b) Secondary c) Ambient**

NOTES

NOTES

NOTES

Hillphoenix

A DOVER COMPANY

WARRANTY

HEREINAFTER REFERRED TO AS MANUFACTURER

FOURTEEN MONTH WARRANTY. MANUFACTURER'S PRODUCT IS WARRANTED TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP UNDER NORMAL USE AND MAINTENANCE FOR A PERIOD OF FOURTEEN MONTHS FROM THE DATE OF ORIGINAL SHIPMENT. A NEW OR REBUILT PART TO REPLACE ANY DEFECTIVE PART WILL BE PROVIDED WITHOUT CHARGE, PROVIDED THE DEFECTIVE PART IS RETURNED TO MANUFACTURER. THE REPLACEMENT PART ASSUMES THE UNUSED PORTION OF THE WARRANTY.

This warranty does not include labor or other costs incurred for repairing, removing, installing, shipping, servicing, or handling of either defective parts or replacement parts.

The fourteen month warranty shall not apply:

1. To any unit or any part thereof which has been subject to accident, alteration, negligence, misuse or abuse, operation on improper voltage, or which has not been operated in accordance with the manufacturer's recommendation, or if the serial number of the unit has been altered, defaced, or removed.

2. When the unit, or any part thereof, is damaged by fire, flood, or other act of God.

3. Outside the continental United States.

4. To labor cost for replacement of parts, or for freight, shipping expenses, sales tax or upgrading.

5. When the operation is impaired due to improper installation.

6. When installation and startup forms are not properly complete or returned within two weeks after startup.

THIS PLAN DOES NOT COVER CONSEQUENTIAL DAMAGES. Manufacturer shall not be liable under any circumstances for any consequential damages, including loss of profit, additional labor cost, loss of refrigerant or food products, or injury to personnel or property caused by defective material or parts or for any delay in its performance hereunder due to causes beyond its control. The foregoing shall constitute the sole and exclusive remedy of any purchases and the sole and exclusive liability of Manufacturer in connection with this product.

The Warranties are Expressly in Lieu of All Other Warranties, Express or Implied and All Other Obligations or Liabilities on Our Part. The Obligation to Repair or Replace Parts or Components Judged to be Defective in Material or Workmanship States Our Entire Liability Whether Based on Tort, Contract or Warranty. We Neither Assume Nor Authorize Any Other Person to Assume for Us Any Other Liability in Connection with Our Product.

MAIL CLAIM TO:

Hillphoenix
Display Merchandisers
1925 Ruffin Mill Road
Colonial Heights, VA 23834
1-800-283-1109

Hillphoenix
Refrigeration Systems &
Electrical Distribution Products
709 Sigman Road
Conyers, GA 30013
770-285-3200

Warning
Servicing & Case Care

When servicing or cleaning cases, observe the following procedures to avoid case damage or injury:

Be certain that all electric power is turned off before servicing or cleaning to avoid electrical shock. In some cases, more than one switch may need to be turned off to completely de-energize the case.

Do not spray cleaning solution or water directly on fan motors or any electrical connections.

All lighting components must be dried thoroughly before installation and before re-energizing the lighting circuit.

Please refer to the Case Cleaning section of this installation manual.

Hillphoenix
A DOVER COMPANY

Phone: 1-800-283-1109

1925 Ruffin Mill Road, Colonial Heights, VA 23834