FROZEN FOOD

CASES

MODEL: OSIOZA

ORIGIN^2™

INSTALLATION & OPERATION

HANDBOOK

Hill PHOENIX®
EXCELLENCE

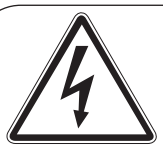
A DOVER™ COMPANY

P055597K

Rev. 9 7/03

DANGER

Electrical Shock Hazard
Always disconnect power to
case when servicing or cleaning.



WARNING

disconnect power to the fans
before cleaning case.

WARNING

Some surfaces may be hot when
case is in operation.

WARNING

Always turn off power to lights
before servicing.

CAUTION

Do not walk or put heavy
objects on top of case.

Welcome to the ORIGIN^2 display case family. We're very pleased you joined us.

This installation and operation handbook has been especially prepared for everyone involved with ORIGIN^2 display cases – owners, managers, installers and maintenance personnel.

You'll find this book different than traditional manuals. The most dramatic difference is the use of many more illustrated instructions to make it easier to read and to help you get the most from this innovative new design. When you follow the instructions you should expect remarkable performance, attractive fits and finish, and long case life.

We are interested in your suggestions for improvement both in case design and in this handbook. Please call/write to:

Hill PHOENIX
Marketing Services Department
1925 Ruffin Mill Rd.
Colonial Heights, VA 23834
Tel: 804-526-4455
Fax: 804-526-7450
or visit our web site at
www.hillphoenix.com

We wish you the very best in outstanding food merchandising and a long trouble-free operation.

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GENERAL INFORMATION

DESCRIPTION OF CASES: The refrigerated display cases described in this handbook are part of the ***Hill PHOENIX***, Origin^2 design series. Specifically covered in this manual is model OSIOZA-4' self service frozen food merchandiser.

STORE CONDITIONS: ***Hill PHOENIX*** cases are designed to operate in an air conditioned store with a system that can maintain 75°F (24°C) store temperature and 55 percent (maximum) 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 ventilation for efficient performance of condensers. Machine room temperatures must be 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 for shipping damage and shortages. For information on shortages contact the Service Parts Department at 1-800-283-1109.

APPARENT DAMAGE: A claim for obvious damage must be noted on the freight bill or express receipt and signed by the carriers agent, otherwise the carrier may refuse the claim.

CONCEALED DAMAGE: If damage is not apparent until after the equipment is unpacked, retain all packing materials and submit a written request to the carrier for inspection within 15 days of receipt of equipment.

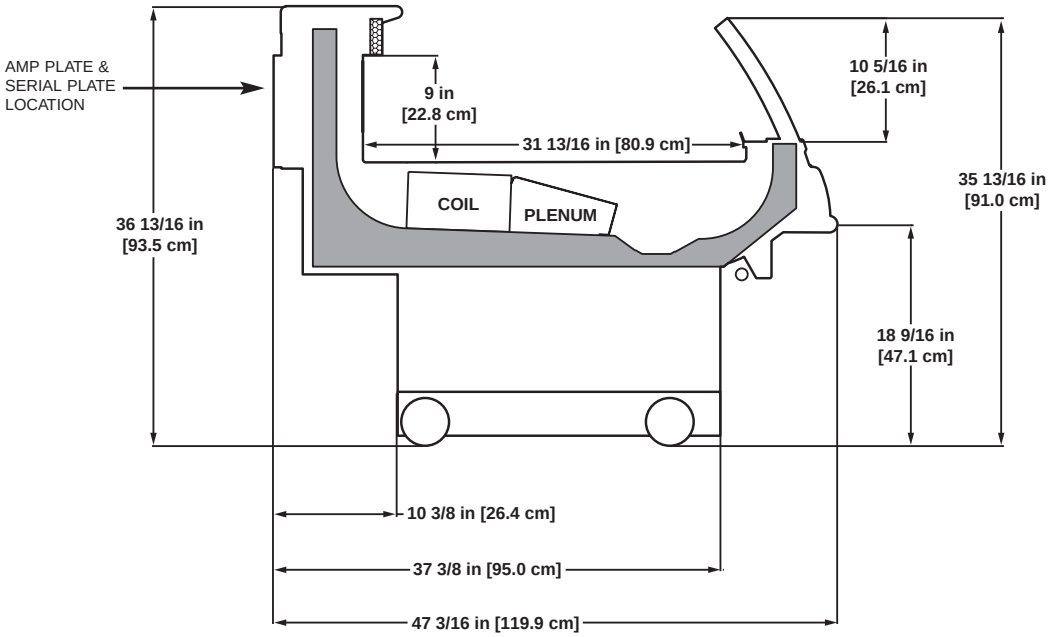
LOST ITEMS: This equipment has been carefully inspected to insure the highest level of quality. Any claim for lost items must be made to ***Hill PHOENIX*** within 48 hours of receipt of equipment.

TECHNICAL SUPPORT: If any technical questions arise regarding a refrigerated display case contact our Customer Service Department in Richmond at 1-804-526-4455. For any questions regarding our refrigeration systems or electrical distribution centers contact our Customer Service Department in Conyers at 1-770-285-3200.

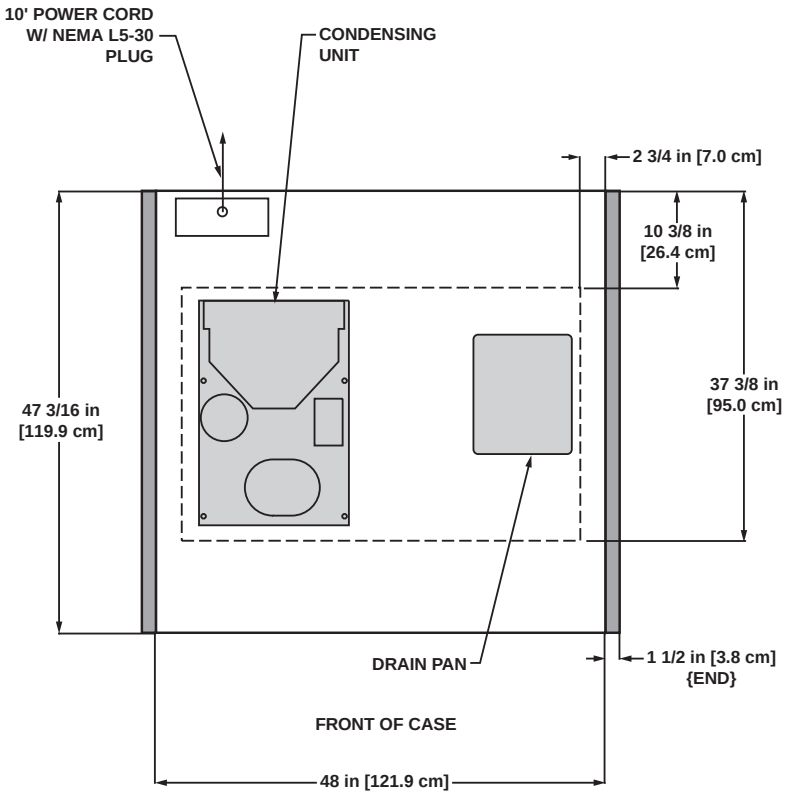
CONTACTING FACTORY: Should you need to contact ***Hill PHOENIX*** regarding a specific fixture, be sure to know the case model number and serial number. This information is on the serial plate located on the back of the case (see next page for details). Ask for a Service Parts Representative at 1-804-526-4455.

ORIGIN^2™

GENERAL INFORMATION



MODEL
OSIOZA-4'



NOTES:

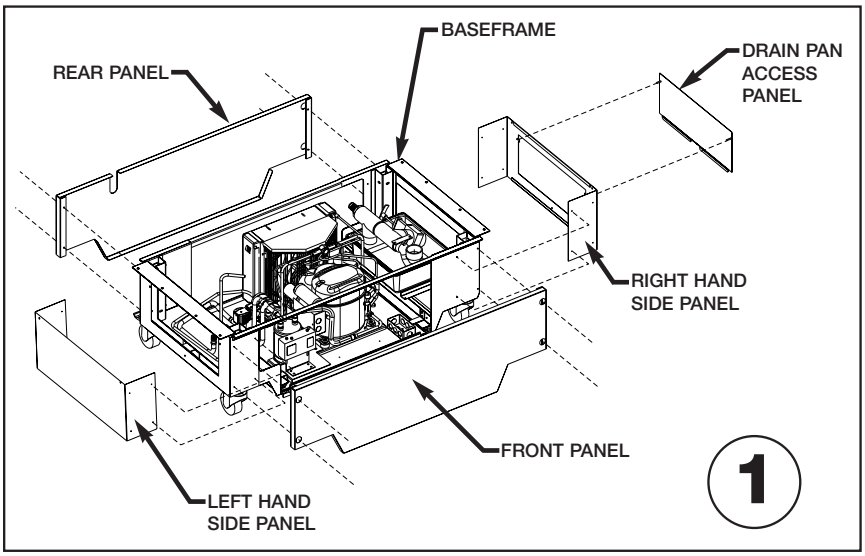
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

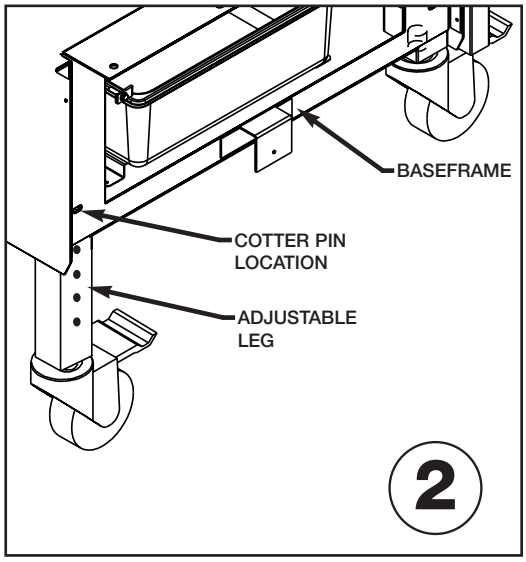
INSTALLATION

Do not locate the case next to an area of measurable air flow. Examples of these locations would be directly under an air vent or near a main entrance or exit. If the cases are set against a wall, be sure to allow a one foot spacing between the rear sill and the wall to provide sufficient airflow to the condenser.

All of the exterior panels are shipped attached to the case. If access to the area directly under the tank is required, the panels are easily removed in the following manner. The front and rear panels are screwed on and the screws are located under the 1" plug buttons in the face of each panel. The front and rear panels must be removed in order to remove the side panels, which are also screwed on. A drain pan access panel is located in the right hand side panel and is attached with quarter turn bolts. See diagram **1** below for details on panel attachment.

The case height can be adjusted by removing the side panels and lowering the adjustable legs. Simply lift up the side of the case with a johnson bar, pull out the cotter pin holding the leg in place, adjust leg to desired height, and replace the cotter pin through the frame and leg, see diagram **2** below

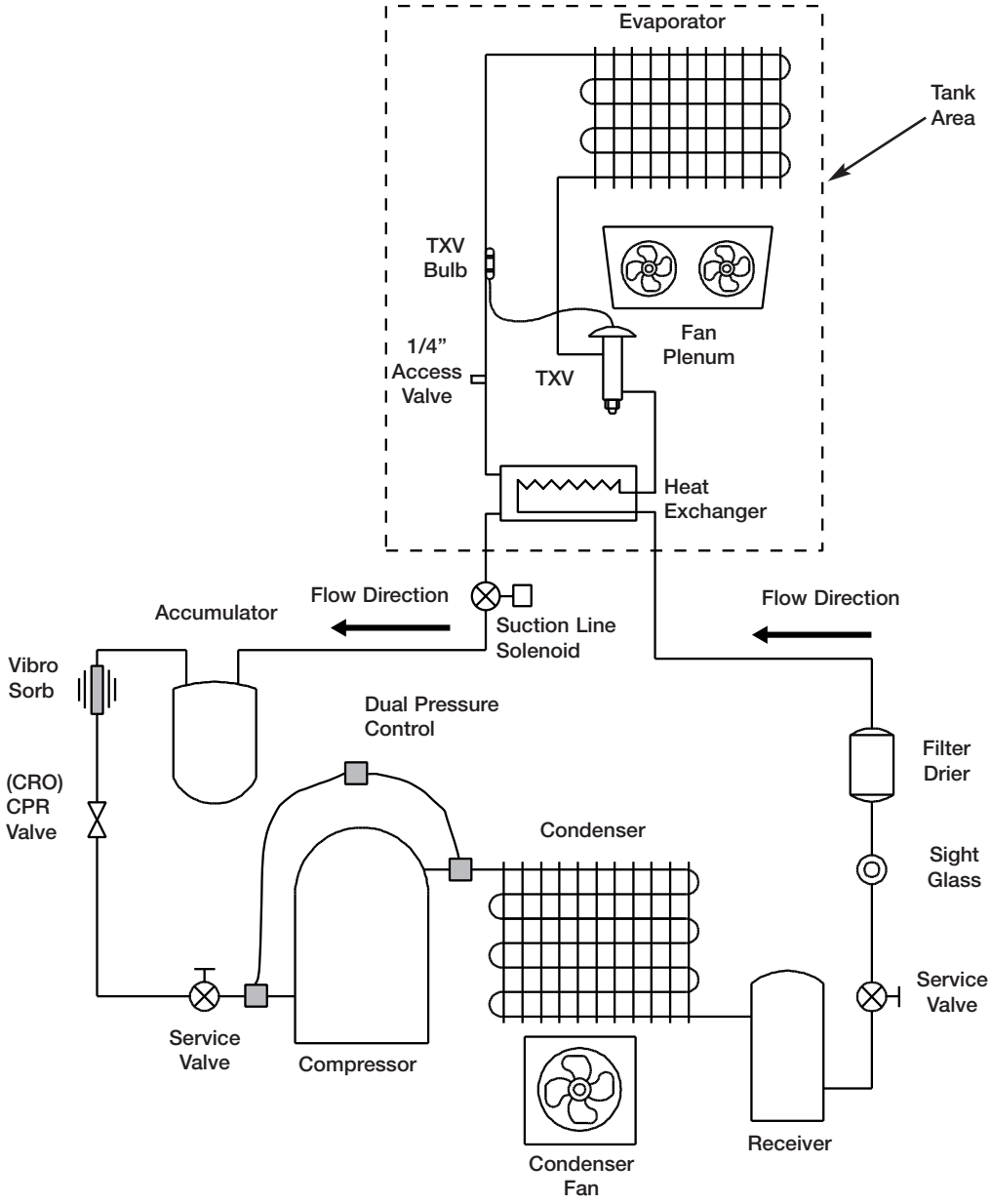




REFRIGERATION COMPONENTS

Refrigeration components for the OSIOZA-4' self service frozen food case are easily accessible in the tank and underneath the case. The expansion valve, suction line 1/4" access valve, and the heat exchanger are all located in the front of the tank and are accessible without lifting the fan plenum. These components may be reached by lifting *only* the left hand deck pan which minimizes the need to remove product.

The diagram below illustrates all of the refrigeration components in the OSIOZA-4' self service frozen food case. The components surrounded by the box are located within the case tank. Basic definitions of these components are listed on the following page.



COMPONENT DEFINITIONS

Access Valve **-** Access port on the evaporator that allows service personnel to check system pressure.

Accumulator **-** A device installed on the suction line that is used to boil off small amounts of liquid refrigerant so liquid does not reach the compressor.

Compressor **-** An electrically driven piston pump that pumps vapor refrigerant from a low pressure level to a higher pressure level.

Condenser **-** The component in a refrigeration system that transfers the heat that was absorbed by the refrigerant in the evaporator and the heat of compression from the system by condensing the refrigerant.

Condenser Fan **-** Fan that forces air through the air cooled condenser to aid heat transfer.

(CRO) CPR Valve **-** A device that protects the compressor from electrical overload by regulating system pressure.

Dual Pressure Control **-** A device that protects the compressor from low charge and high pressure.

Evaporator **-** The component of the refrigeration system that absorbs heat from the air by boiling liquid refrigerant to vapor.

Evaporator Fans **-** Fans that circulate air through the case and force air through the evaporator to aid heat transfer.

Filter Drier **-** A device installed on the liquid line of a refrigeration system that removes water and other impurities from the refrigerant in the lines during initial start-up.

Heat Exchanger **-** A device that transfers heat between the suction and liquid lines to increase efficiency.

Receiver **-** The component in a refrigeration system that stores liquid refrigerant that is not being used by the system in low load conditions or when the system is shut down.

Service Valve **-** A manually operated valve in the refrigeration system that is used for various service operations such as isolating the high or low sides of the system.

Sight Glass **-** A device installed on the liquid line of a refrigeration system that is used to determine if there is water or vapor in the lines by visual inspection.

Suction LIne Solenoid **-** A device that prevents liquid from entering the compressor.

Thermostatic Expansion Valve (TXV) **-** A valve that controls the flow of liquid refrigerant to the evaporator coil and also separates the high pressure side of the system from low pressure side of the system.

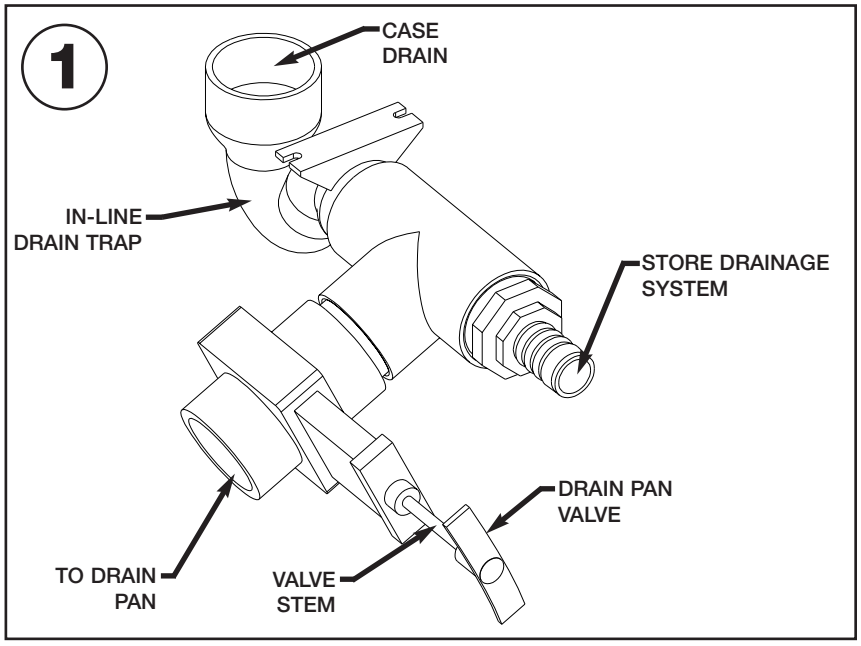
Thermostatic Expansion Valve (TXV) Bulb **-** A bulb that is attached to the suction line of the evaporator that controls the TXV. Inside the bulb is a charge that reacts to temperature and regulates the flow of refrigerant through the expansion valve.

Vibro Sorb **-** A device that protects the system piping from compressor vibration.

PLUMBING

The "P" trap assembly is attached to the case at the factory so no assembly is required. The standard drain assembly, as shown in diagram **1**, is designed to allow two options for case run off. The drain valve directs the case drainage either to the drain pan or the store drainage system. The drain pan valve is accessed through the right hand side panel, see diagram on page 5, and has a two-way slide actuator. Remove red lock on the valve stem, slide plunger down and twist to close off valve to evaporator pan. Twist the valve stem, pull plunger up, and clip red plastic lock back onto the valve stem to open drain to evaporator pan.

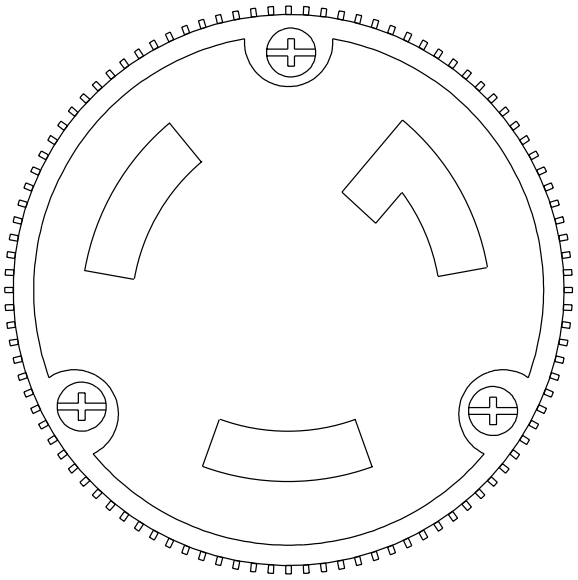
The case drain is located front and to the right of the case for convenient access. Should any future maintenance issues arise it is important to note the outlet is especially molded of PVC material and the "P" trap is constructed of PVC. Care should be given to make certain that all connections are water tight, sealed with appropriate PVC primer and PVC cement. Make sure case is correctly leveled to assure proper drainage.



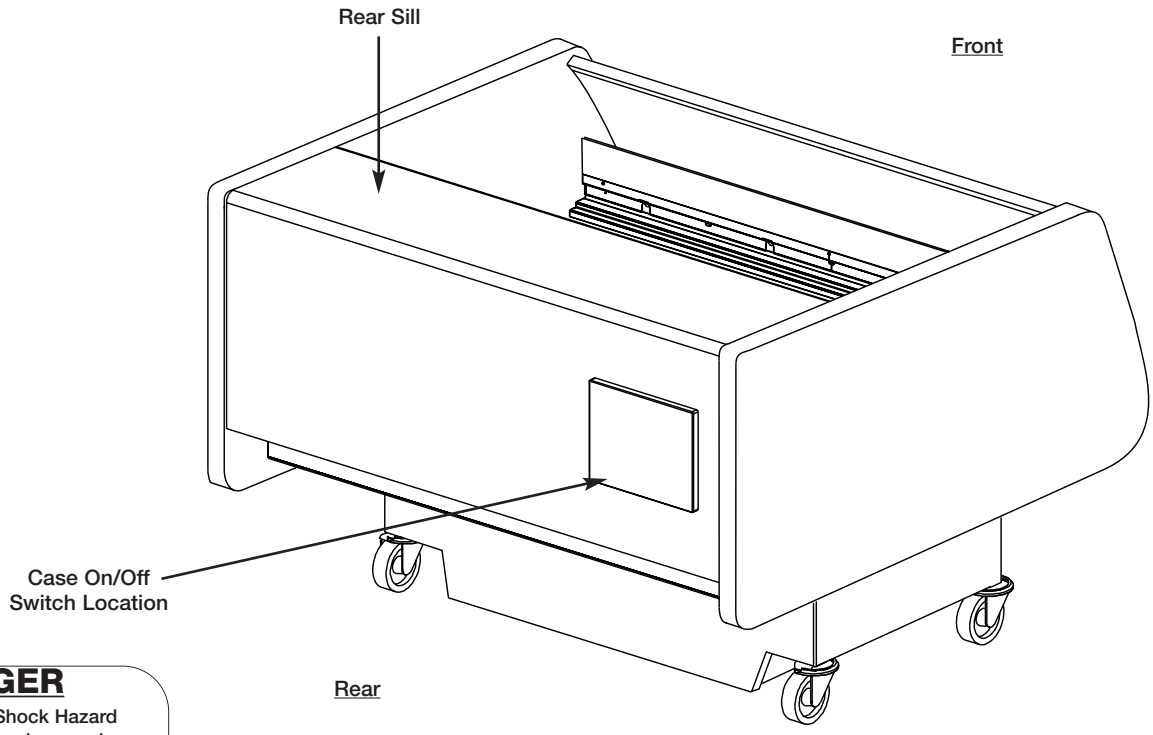
ELECTRICAL HOOKUP

The case comes pre-wired with a 120 volt, three prong connection, as shown in the diagram below, that can be plugged into any 30 amp NEMA L5-30 locking receptacle.

The ON/OFF switch for the case is located on the right, rear of the case in the control box as shown below.



30 Amp Receptacle Face



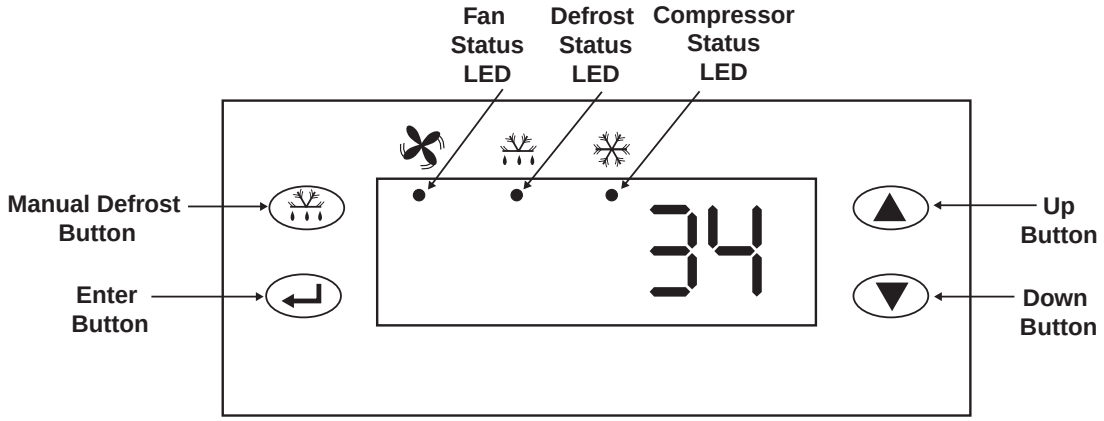
DANGER

DANGER HIGH VOLTAGE

Electrical Shock Hazard
Always disconnect power to case when servicing or cleaning.

CONTROL SETTINGS

Johnson Controls



Factory Control Settings

Parameter	Description	Factory Settings OSIOZA
	Setpoint	-18
HY	Hysteresis (differential) [1 to 9°F/°C]	3
LL	Setpoint Low Limit [67°F (55°C) to HL]	-25
HL	Setpoint High Limit [LL to 99°F/°C]	73
CC	Anti-Short Cycling Timer [0 to 9 min.]	1
Co	Deep Freeze Cycle Time [0 to 99 min.]	60
AH	High Temperature Alarm Value (degrees above setpoint) [0 to 55°F/°C]	50
AL	Low Temperature Alarm Value (degrees below setpoint) [-50 to 0°F/°C]	-20
Ad	Alarm Differential [1 to 9°F/°C]	1
At	Alarm Time Delay [0 to 99 min.]	99
dF	Defrost Type (0-electrical; 1-hot gas)	0
dE	Defrost End Mode (0-timed defrost; 1-temperature terminated defrost)	1
dt	Defrost Termination Temperature [32°F to 68°F (0°C to 20°C)]	45
di	Defrost Interval [0 to 99 hours]	12
dd	Maximum Defrost Duration [1 to 99 min.]	45
dC	Dripping Time After Defrost [0 to 99 min.]	0
dU	Initial Defrost Interval (time before first defrost after startup) [0 to 99 min.]	99
dP	Defrost Display (0-displays last value before defrost; 1-displays setpoint)	0
dr	Display Delay After Defrost [1 to 99 min.	20
iF	Digital Input Type (0-no digital input; 1-if digital input open, compres. off w/alarm on: 2-if digital input open, alarm on (contacts closed); 3-if digital input open, fan off w/alarm on)	0
id	Digital Input Time Delay [0 to 99 sec.]	0
FF	Fan Function (0-fan runs parallel with compressor; 1-fan on)	1
Fd	Fan Start-Up Delay (after defrost) [0 to 99 min.]	5
Fr	Fan Start-Up Temp. [-22°F to 41°F/-30°C to 5°C]	40
SF	Sensor Failure Operation (0-compressor off; 1-compressor on; 2-compressor on/off based on last 4 cycles)	1
So	Temperature Sensor Offset [-20° to 20°F/°C]	0
Un	Units Used (0-°C; 1-°F)	1
PU	Display Refresh Rate [1 to 99 sec.]	1

Error Code		System Status
F1	Indicates an open or shorted temperature sensor. Cycle Power to reset control.	Alarm output on compressor runs according to the sensor failure mode selected (parameter sf)
F2	Indicates an open or shorted evaporator sensor. Correct problem to reset control.	Alarm output on defrost cycle is controlled by parameters di (defrost initiation) and dd (defrost duration)
A1	Digital input was open for longer than time delay (id) and digital input option (if) 1 is selected.	Compressor off Alarm output on
A2	Digital input is closed and digital input option (if) 1 is selected.	Alarm output is on
A3	Digital input is open for longer than time delay (id) and digital input option (if) 3 is selected.	Fan output is off Alarm output is on
HI	Temperature has exceeded the high temp. alarm value (AH).	Alarm output is on
LO	Temperature has fallen below the low temp. alarm value (AL).	Alarm output is on
EE	Program failure: control must be replaced.	Alarm output is on Other outputs off

To program parameters:

1. Hold the “Enter” button down for about 10 seconds. The display will change to “Hy.”

2. Press the “Up” and “Down” button until the desired parameter is shown

3. Press the “Enter” button. The parameter’s current value will be shown.

4. Press the “Up” and “Down” button until the desired value is shown.

5. Press the “Enter” button to save the new value. After 10 seconds of inactivity, the display will return to its normal function.

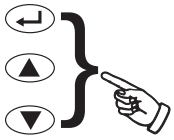
To change setpoint:

1. Hold down the “Enter” button down for 3 seconds. The display will change to show the setpoint.

2. Press the “Up” or “Down” button until you reach the new setpoint.

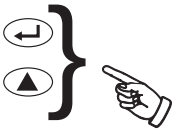
3. Press the “Enter” button to save the new setpoint.

To lock and unlock the unit:



Press the “Enter,” the “Up,” and the “Down” buttons in sequence and hold them all down until “- - -” is displayed. Hold for about 10 seconds until the current temperature is displayed.

To Initiate a deep freeze cycle:

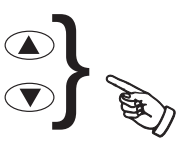


Press and the “Enter” and “Up” buttons in sequence and hold for five seconds. The compressor status LED will light.

To Initiate Manual Defrost:

Hold the Defrost button down for 3 seconds.

To Initiate Self-Test:



IMPORTANT: <u>Disconnect loads before beginning self test.</u> <u>Cycle power to resume operation.</u>

Press the “Up” and the “Down” buttons in sequence and hold for 5 seconds.

CONTROL SETTINGS

ESC3 Controls

Operation

Temperature Control
Temperature control in the ESC3 is accomplished by comparing the temperature reading of the case temperature probe against the temperature setpoint. The compressor output is used to control the temperature. If the temperature is above the temperature setpoint (L1) + the hysteresis setpoint (rd), the compressor output is turned on (subject to the conditions described in the compressor operation sec-tion). If the temperature is below the temperature setpoint – the hysteresis set-point, the compressor output is turned off. Note that the compressor output can also be used to control a refrigeration solenoid to regulate the temperature in a case.

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
The compressor power on delay set-point (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
If the temp sensor fails, the ESC3 can be programmed to cycle the compressor ON for a fixed amount of time, followed by a 15-minute OFF time, until the probe failure is fixed. You may also specify the compressor be fully ON or OFF during probe failure.

Fan Control
The fan output is controlled by the ESC3 based on the current operating mode (defrost, cooling, etc.) and the setpoints which affect fan operation. It may be set to run only when required based on case temperature, or it may be set to be always ON regardless of temperature. In addition to these two basic modes, you may also turn the fans OFF during defrost, specify the fan will be ON only when the compressor is running, and delay fan activation after defrost drip time.

Defrost Control
The ESC3 can control the defrost function of a case. The ESC3 executes defrost cycles at a user-defined time interval. Electric, Off Cycle and Hot Gas defrost types are supported.

The ESC3 features a number of options to customize operation and termination of a defrost cycle. A defrost cycle can be terminated based on time or temperature. When termination by temperature is used, a minimum and maximum defrost time can be specified.

You may also program the ESC3 to begin a defrost cycle after power-up (after a user-defined delay time) and initiate a defrost manually (see the description for “Defrost Key” on this page).

Alarm Control
The ESC3 has several alarm functions. In addition to alarms based on high and low air temperatures, it will alarm if a probe failure is detected. If you are using defrost, the ESC3 will also generate an alarm when the defrost cycle did not terminate as expected (such as when the ESC3 is programmed to terminate at a temperature set point and the set point was never reached).

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.

Three keys on the front panel provide an indication of operating status as well as allowing setpoints to be changed.

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 setpoints 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 setpoint to be modified and to change the value of the setpoint.

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 setpoint.

Alarm Operation

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. Other two-character messages may appear on the screen to indicate changes of state or alarm conditions. Values shown in Table 1.

Viewing and Changing the Temperature Setpoint
The temperature setpoint is the comparison point for the control temperature input. To change the set point value:

1. Press the *Alarm* key for more than 5 seconds until the setpoint is displayed and blinking.
2. Press the *Compressor* key and Defrost keys to raise/lower the value.
3. Press the *Alarm* key again to accept the new value.

Changing Other Setpoints
There are two levels of setpoints in the ESC3. The first level does not require a password to change (unless the buttons are locked out). The setpoints that can be changed in this manner are identified in Table 1 (back side) as a USER setpoint. All other setpoint do require a password to change and are identified in Table 2 (back side) as an OEM setpoint. To change USER-level setpoints:

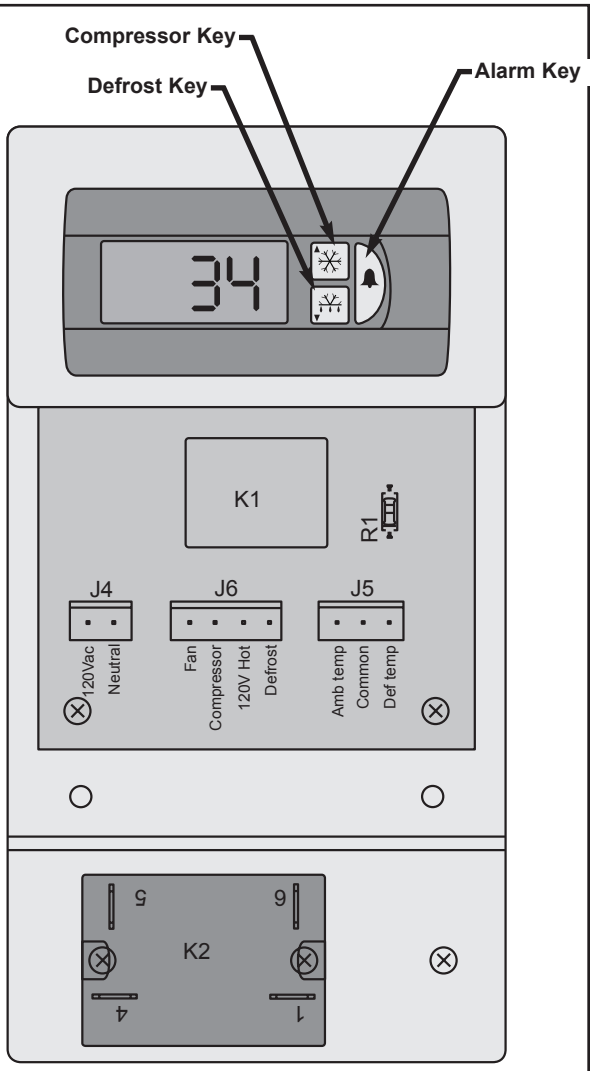
1. Press the *Alarm* key and hold it until the letters PS are displayed.
2. Use the *Compressor* and *Defrost* key to scroll through the codes for the different set points (see Table 1 and Table 2).
3. When the code is displayed for the setpoint you wish to change, press the *Alarm* key. The value for that setpoint 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 setpoint. To accept the changes, press and hold the *Alarm* key until the display stops flashing. To change OEM-level setpoints, the password must be entered. To do this press and hold the *Alarm* key until the letters PS are displayed. When PS is displayed release the alarm key and 0 will be displayed. Press the *Compressor* or *Defrost* keys to enter the password (22 is the default) then press the *Alarm* key. PS will be displayed again. At this point, pressing the *Compressor* or *Defrost* key will scroll through the legend for all setpoints. To change the setpoints, use the identical procedure that is used to change a USER setpoint.

Table 1

Code	Meaning
E0	Air probe has failed
E1	Defrost termination or product probe has failed
LO	Low temperature alarm
HI	High temperature alarm
Ed	Defrost timeout has occurred (did not terminate correctly)
dF	Case is in defrost (not an alarm)

ESC3 Case Controller



Control Input	0.39 A, 120 Vac, 60 Hz
Common Input	11.2 A, 120 Vac, 60 Hz
Fan Output	1 FLA, 6 LRA, 120 Vac, 60 Hz
Compressor Output (K2)	1.5 HP @ 120 Vac (external relay #841-S-1A-D by Song Chuan)
Defrost Output	10.0 A, 120 Vac, Resistive, 60 Hz (P/N 850-3500 only)

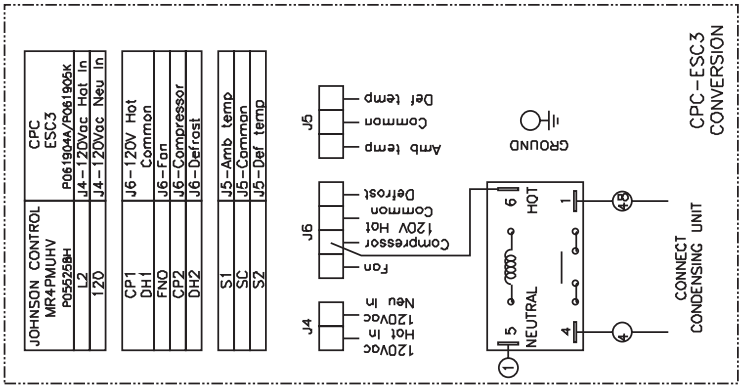
CONTROL SETTINGS

User Level Setpoints - OSIOZA-4'

Code	Parameter Name	Min	Max	Units	OSIOZA
	Setpoint			°C/°F	-17
PS	Password	0	199		22
/C	Offset for air temp sensor (in tenths of a degree: i.e. a value of "1" adds 0.1° to value)	-127	127	°C/°F	0
rd	Regulator differential (superheat) set point (a "0" in this field = 0.5°C or 0.5°F)	0	19	°C/°F	1
dI	Time between defrost cycles (defrost interval)	0	199	hours	12
dt	Defrost temperature termination set point	-50	127	°C/°F	45
dP	Max duration of defrost if using electric or hot gas defrost, or the actual duration of defrost if doing timed defrost	1	199	min	45
dd	Drip time	0	15	min	0
d8	Alarm delay after defrost	0	15	hours	1
d/	Defrost probe reading (read-only)			°C/°F	
AL	Low temperature alarm differential (subtract this value from the temperature set point to get low alarm temperature set point) (0 = no low temp alarming)	0	127	°C/°F	-20
AH	High temperature alarm differential (add this value to the temperature set point to get high alarm temperature set point) (0 = no high temp alarming)	0	127	°C/°F	50
F1	Fan on at temperature set point (used if F0 = 1)	-50	199	°C/°F	5
Fd	Fan delay after defrost drip time for each F0 value	0	15	min	1
H5	ID code for programming key	-99	+		18
T	External parameter programming	-99	199		

WIRING DIAGRAM-

MODEL OSIOZA-4'



CASE OPERATION

International Style Self-Contained Mobile Dual-Temp. Merchandisers
OSIOZA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOZA	120	1	60	NEMA L5-30	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOZA	25.0	12-14	3-4	-24	-6	-10	220

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
OSIOZA	115	1	60	3/4	10.9	85.5	R404A	3.75

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOZA	2	45	45	- - -[4]	- - -	- - -	- - -	- - -	- - -

[4] NOTE: - - - not an option on this case model.

Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

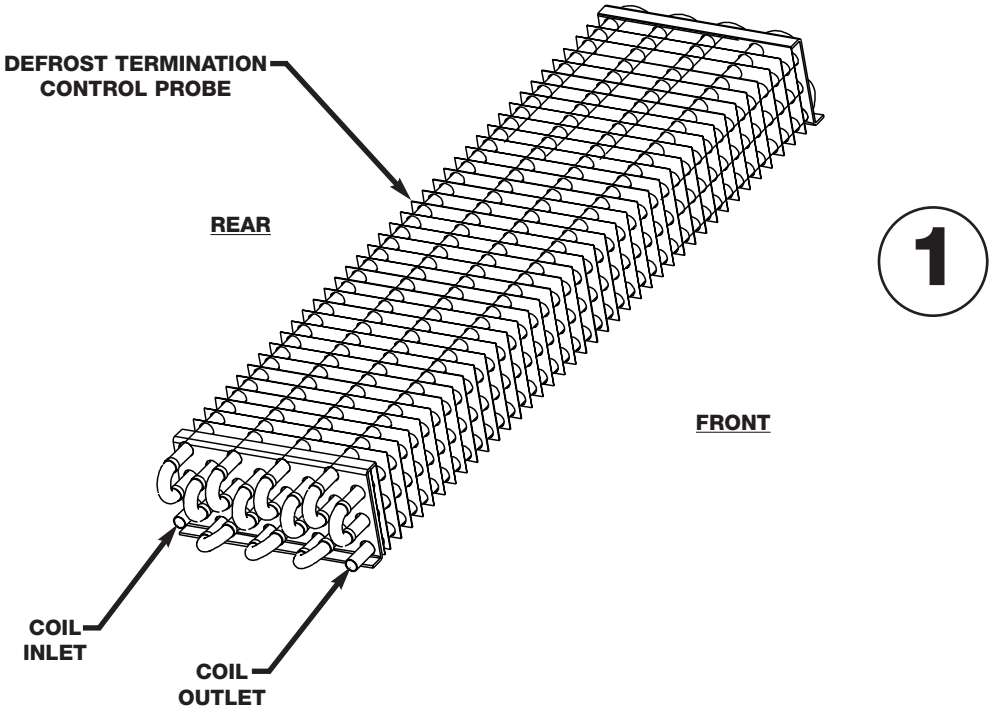
** Or immediately after store closing hour

All measurements are taken per CRMA specifications.

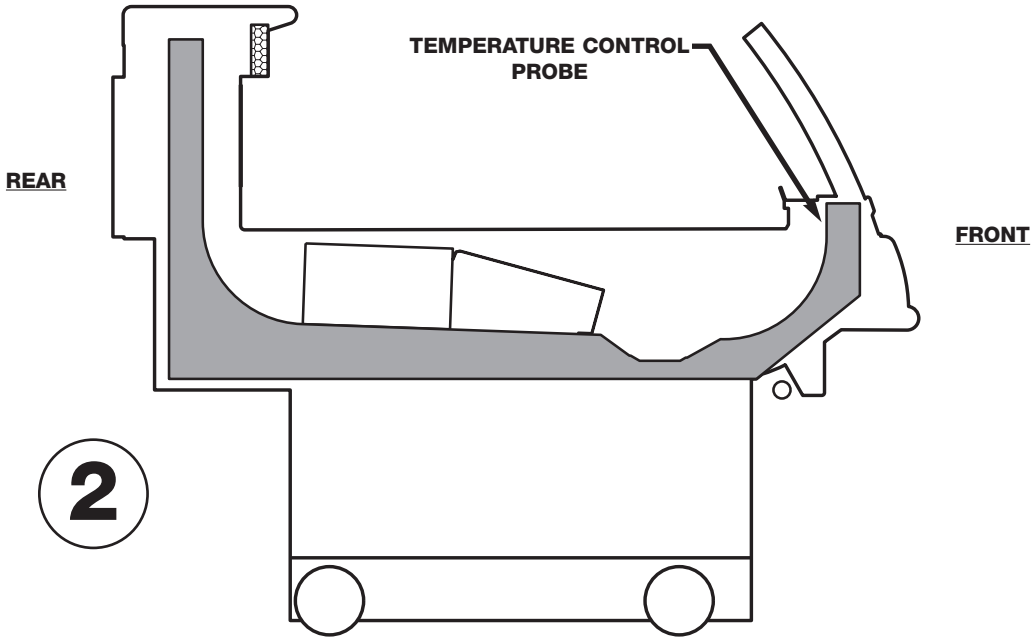
DEFROST AND TEMP CONTROL

The self service frozen food mobile self contained case is equipped with an electric defrost system. The electric defrost termination control probe is located in the rear, center of the coil as shown in diagram **1** below.

The temperature control probe is located just below the return air grill in the front of the case, as shown in diagram **2** below. Both of these probes are wired to the case controller mounted on the rear of the case.



1

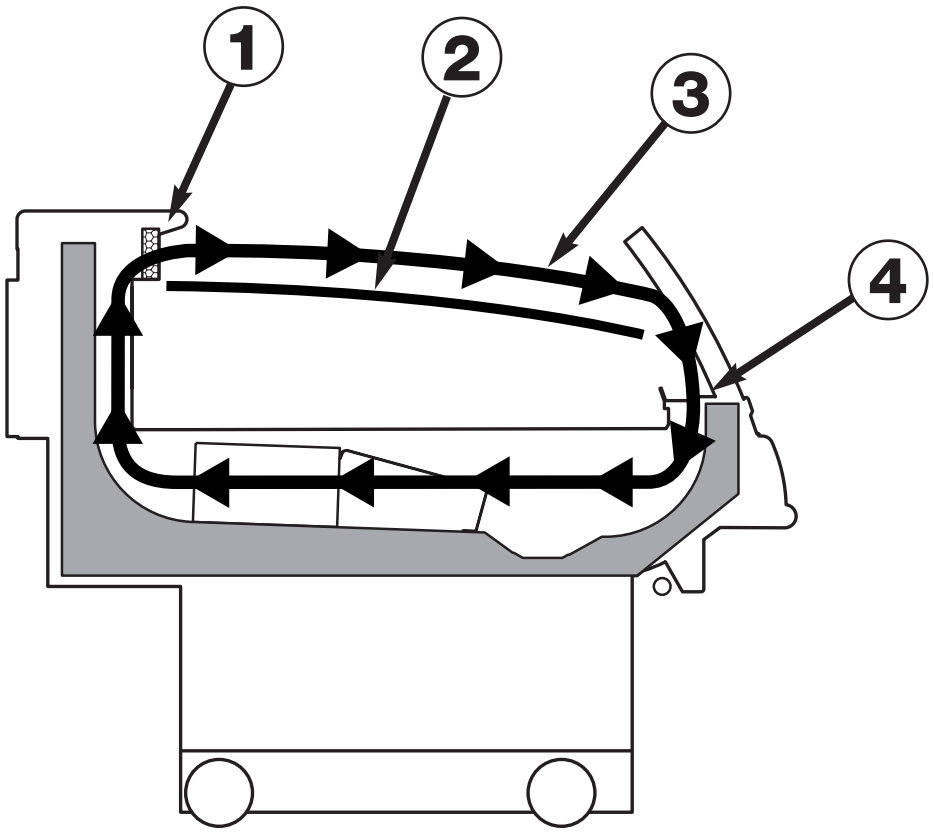


2

AIR FLOW AND PRODUCT LOADING

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

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



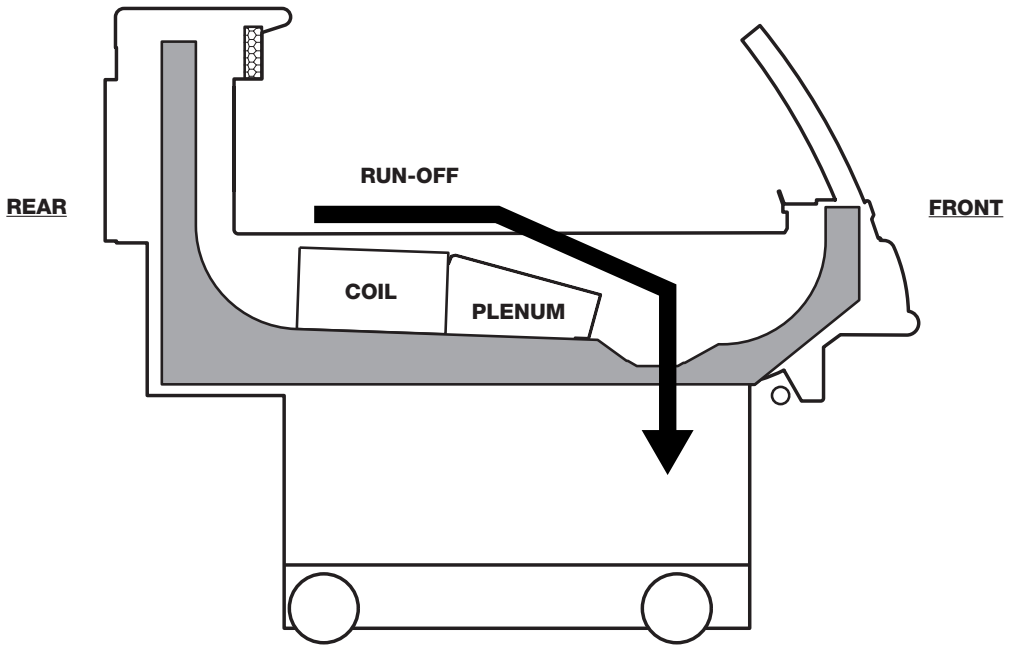
USE AND MAINTENANCE

CASE CLEANING

These cases are designed to facilitate cleaning. There is a wide radius formed on the front and back of the inside bottom that helps accelerate liquid flow and eliminates difficult to clean sharp corners. All surfaces pitch to a deep-drawn drain trough that angles toward the front and center of the case where the waste outlet is located for easy access.

The coil is covered to keep food fluids from entering, but the cover lifts up easily when coil cleaning is desired. Pay attention to the area around the ends of the coil and be cautious of any product lodged in this area. The fan plenum also lifts up for cleaning, exposing a major portion of the inside bottom. Make certain coil cover is completely closed after cleaning to avoid air leaks

In order to keep the unit running at peak design efficiency the air intake grill and the condenser coil should be cleaned at least once a month.



POSITIVE DRAIN OFF

USE AND MAINTENANCE

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 on metal parts that are left on for long periods of time. We recommend cleaning once a week.

- **To avoid hazard of shock, be sure all electrical power is turned off and unplug the power cord before cleaning**. In some installations, more than one 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 process and avoid introducing water faster than the drip pipe can carry it away. It is recommended for the cleaning process that the drain valve be set for outflow as shown on page 6 of this manual.

- Check the condensate drain pan on a regular basis for pieces of product that may be resting on the drain pan heater. If the heaters are energized with product material on them it will cause odor and burning

- Avoid spraying cleaning solutions directly on fans or electrical connections.

- When cleaning the tank start from the back and work forward toward the drain to prevent material from becoming lodged in the coil. Avoid using high pressure water to flush the tank. A hose without a nozzle should provide enough pressure for cleaning purposes. Always use cold water.

- Allow cases to be turned off long enough to clean any frost or ice from coil and flue areas.

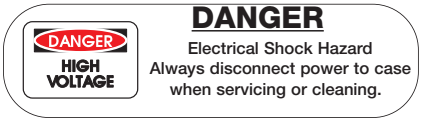
- Flush rear discharge air grill with cold, low pressure water to remove built up sediment on rear tank wall. Be careful not to soak this area heavily, due to location of electrical wiring. To clean the discharge air grill use a soft, long bristle brush and a mild detergent.

- When washing the floor around the cases avoid splashing water up into the condensing unit underneath the case.

- Use mild detergent and warm water. When necessary, water and baking soda solution will help remove case odors. Avoid abrasive scouring powders or pads.

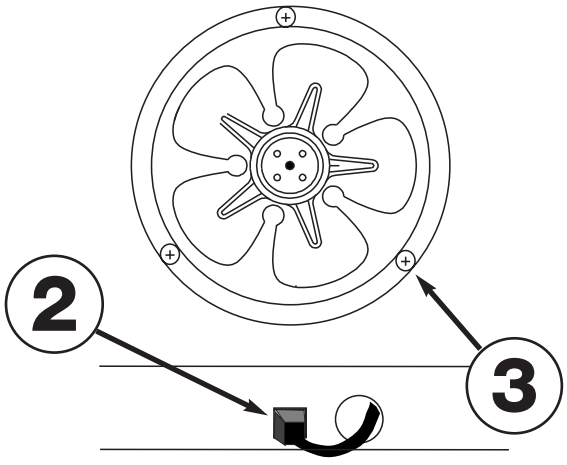
- For difficult stains that may appear the following specialty cleaning products are recommended:

3M brand© Troubleshooter Cleaner
3M brand© Sharpshooter, Extra Strength No Rinse Cleaner
Revere© aluminum powder for tank liner
Armor All© for polymer parts



FANS

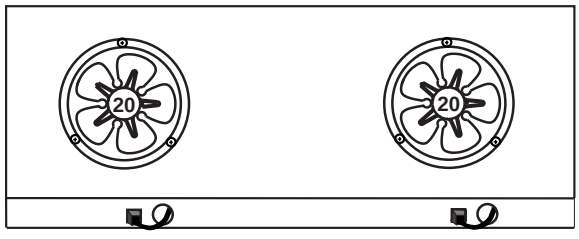
The evaporator fans are equipped with 5 watt fan motors, 1550 RPM's. The motors have a counter clockwise rotation when viewed from the shaft end. The fan blade is 6" in diameter and is pitched as shown on the chart below. **It is important that the blade pitch be maintained as specified. Do not attempt a field modification by altering the blades.**



The fan motors may be changed with an easy three-step process without lifting up the plenum, thereby avoiding the necessity to unload the entire product display to make a change:

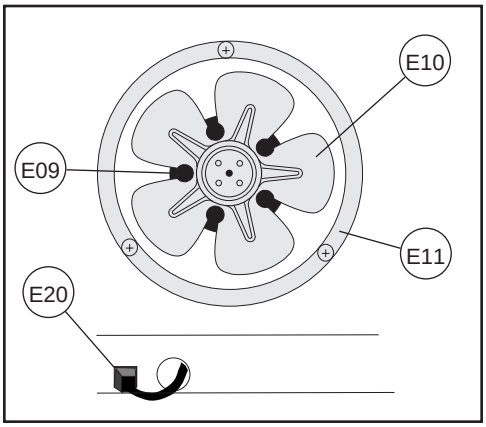
1. **Disconnect power to the case.**
2. **Unplug the fan motor, easily accessible out side the plenum.**
3. **Remove three fasteners, then lift out the entire fan basket.**

Model	OSIOZA-4'
No. Fans	2
Blade Pitch	20°



Model OSIOZA-4'

PARTS ORDERING



MODELS OSIOZA-4'

LOCATION NUMBER	PART DESCRIPTIONS
2	**Master Bumper**, Polymer, Featherstone, Smoke, White, French Vanilla, Black
5	**Front Glass**, Fixed
9	**Deck Pan**, Painted White or Custom Color, Stainless Steel
11	**Front Baffle**, 4' Aluminum, Painted White or Custom Color, Stainless Steel
12	**Honeycomb**, Discharge, 1" x 4" x 48"
14	**Glass Cap**, Polymer
15	**Rear Baffle**, Painted White or Custom Color, Stainless Steel
17	**Nose Bumper**, Polymer, Custom Color
26	**Front Panel**, Curved, Painted Custom Color
11	**Front Baffle**, 4' Aluminum, Painted White or Custom Color, Stainless Steel
48	**Rear Sill**, specify laminated (shown), sanalite, or stainless steel
69	**Coil**
71	**Louvered Front Panel**, Painted Custom Color
75	**Drain Pan**, Stainless Steel (Not Shown, located under case)
81	**Bottom Wire Racks**, (Not Shown)
83	**Thermometer**, and Bracket (Not Shown)
87	**End Assembly**, left hand or right hand, full view or solid
88	**End Panel**, Painted Custom Color
E01	**Defrost Heater**
E02	**Anti-Condensate Heaters**, Front and Rear Sill
E09	**Fan Motor** - STATE HIGH EFFICIENCY OR STANDARD
E10	**Fan Blade**
E11	**Fan Basket**
E20	**Fan Cord-Set**, High Efficiency or Standard

PARTS ORDERING

Procedure

1. Contact the Service Parts Department

Hill PHOENIX
1925 Ruffin Mill Road
Colonial Heights,Virginia 23834
Tel: 800-283-1109
Fax: 804-526-3897

2. Provide the following information about the part you are ordering:

- Model number and serial number* of the case which the part is needed for.
- Length of part, if applicable.
- Color of part if painted, or color of polymer part.
- Whether part is for left hand or right hand application.
- Whether shelves are with or without lights.
- Quantity.

*Serial plate is located on the right hand side of the case on the back panel (see illustration on page 4).

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

NOTES

NOTES

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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 of 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:

Hill PHOENIX
Display Merchandisers
1925 Ruffin Mill Road
Colonial Heights, VA 23834
804-526-4455

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

A DOVER™ COMPANY

Warning
Maintenance & Case Care

When cleaning cases the following must be performed PRIOR to cleaning:

To avoid electrical shock, be sure all electric power is turned off before cleaning. In some installations, more than one switch may have 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 receptacles must be dried off prior to insertion and re-energizing the lighting circuit.

Please refer to the Use and Maintenance section of this installation manual.

804-526-4455

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1925 Ruffin Mill Road, Colonial Heights, VA 23834