

Hillphoenix®

A **DOVER**™ COMPANY



SINGLE-DECK ISLAND MERCHANDISER INSTALLATION & OPERATIONS MANUAL

OWIZ-OWEZ OWIZV-OWEZV

Clearv[®]yant™
LED SYSTEM₂

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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.



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REV.	DATE	CHANGE DESCRIPTION	AUTHOR
V1.00	02/21/12	Initial manual release (new format)	B. Moody
V1.01	04/30/12	Removed Dual Temp (Fans Off) wiring diagram (Appendix E)	B. Moody
V1.02	07/02/12	Correct TOC errors	B. Moody
V1.03	08/03/12	Updated Wiring Diagrams (Appendix E)	B. Moody
V1.04	10/15/12	Updated Electrical Data (Appendices A–D)	B. Moody
V1.05	12/19/12	Updated Electrical Data (Appendices A–D)	B. Moody
V1.06	07/03/13	Added Glycol notice to Important Notices section Added Parts List (Appendix H)	B. Moody
V1.07	03/14/14	Added Clearvoyent logos to cover page Updated page headers Added Parts logo to General Information page Updated Important Notices section Updated Connections & Piping section Added Lighting Systems section Updated Air Quality Control page Added Fresh Thinking/Responsible Solutions logo to back page	B. Moody

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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 designate important information 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.



ATTENTION!

Indicates important information that is critical to proper case performance.



CAUTION!

Indicates the potential threat of injury if all instructions are not followed carefully.



DANGER!

Indicates an immediate threat of serious injury or death if all instructions are not followed carefully.

SERVICE NOTICE

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

LIABILITY NOTICE

For Cases with Shelf Lighting Systems

Hillphoenix shelf lighting systems—as well as display cases with shelf lighting systems—are **not** designed to withstand 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 instructions and procedures set forth in the Hillphoenix Second Nature Medium Temperature Secondary Refrigeration Installation Manual, available online for download here: <http://goo.gl/JIWd77>

Additionally, Hillphoenix uses and recommends Dow glycol-based coolants, which contain specially formulated industrial inhibitors that help to prevent corrosion in our display cases. 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, available online for download 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.

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

We are always interested in your suggestions for improvements to Hillphoenix products and accessories—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.

CASE MODELS

OWIZ, OWEZ, OWIZV, OWEZV single-deck island merchandisers.

OPERATING DATA & DIMENSIONAL DRAWINGS

Operating data and dimensional drawings for the cases listed in this manual can be found in **Appendices A–D**.

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 bottom-right side.*

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



See **Appendix H** for a detailed parts list and illustration.

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

FLOOR PREP

1. Ask the general contractor if your current copy of the building dimensions are the most recently issued. Also, ask for the points of reference from which you should take dimensions to locate the cases.
2. Using chalk lines or a laser transit, mark the floor where the cases are to be located for the entire lineup. The lines should coincide with the outside edges of the case feet.
3. Leveling is necessary to ensure proper case alignment and to avoid potential case damage. Locate the highest point on the positioning lines as a reference for determining the proper height of the shim-pack levelers. A laser transit is recommended for precision and requires just one person.
4. Locate basehorse positions along the chalk lines. Spot properly leveled shim packs at each basehorse location.

LINE-UP & INSTALLATION

Single Case

1. Roll the case into position, leaving a minimum of 2" between the wall and back of case. Using a "J" bar, raise the end of the case (under cross support), remove the caster assembly (Fig. 1) and lower the basehorse on to the shim packs. Repeat on the other end of the case.
2. Once the basehorse is properly placed on the shim packs, check the vertical plumb of the case by placing

a bubble level on the shelf standard. Add/remove shim packs as needed. For the horizontal level, repeat this process after placing the bubble level on the front sill.

Multi-Case

1. Remove any shelves (discard the shelf clips) and/or loose items (e.g. shipping braces, mirror assemblies, etc) from the cases that may interfere with case joining. Keep all loose items as they will be used later in the installation process.
2. Follow the single-case installation instructions for the first case, then position the next case in the line-up approximately 3' away. Remove the casters on the end that is closest to the first case.
3. Apply the foam tape gasket (supplied) and a bead of butyl or silicone sealant to the end of the first case (Fig. 2). From the opposite end, push the second case to a position that is approximately 6" from the first case, then remove the remaining casters and position case on the shim packs.
4. Push the cases tightly together, then lightly bolt them together through the holes that are provided (Fig. 2). Tighten all the joining bolts until all margins are equal. Be careful not to over tighten.
5. Repeat steps 3-6 of this sequence for all remaining cases. Be certain to properly level all cases.
6. See **Appendix G** for seismic bracket installation instructions.

TRIM OUT

1. If master bumpers are included, slide master bumper joint trim in between adjoining master bumpers.
2. Slide the master bumpers left or right (after loosening or removing screws) to close the seams as required, working outwards from the center of the line-up to the ends.
3. Close the seam where the bumper joins the case end. The bumper joint closes the seam that may develop if the master bumper is moved away from the end to close the case-to-case joint seam.
4. Install top sill covers over case-to-case joint seams. The top sill joint is shipped loose with the case. Secure with fasteners (supplied).
5. Seal the case-to-case joints with caulk (supplied), then apply acrylic tape (supplied) over the pipe-chase seam (Fig. 4). The tape acts as a watershed preventing water from settling in the case joint.
6. Install the front panel joint trim (ships loose).

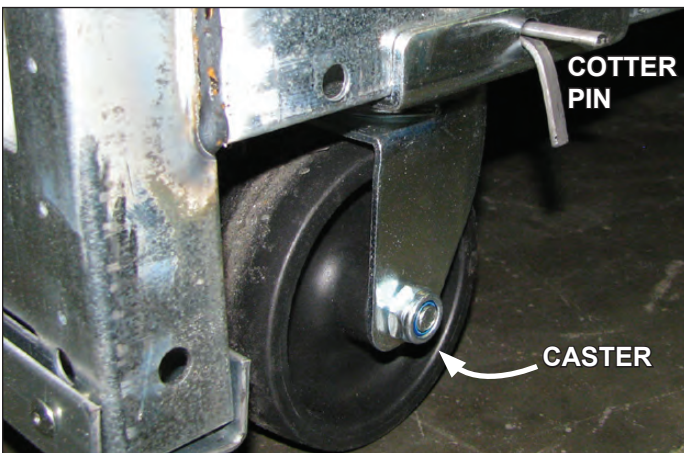


Fig. 1 Removing the casters is an easy process. Simply flatten and remove the cotter pins that are holding the casters in place. Then lift the case with a "J" bar and slide the caster assemblies out. The dismantled casters can now be discarded.



CAUTION!

Be certain that your hands and feet are out of the way before lowering the case after the removal of the casters. Failure to do so may result in serious injury.

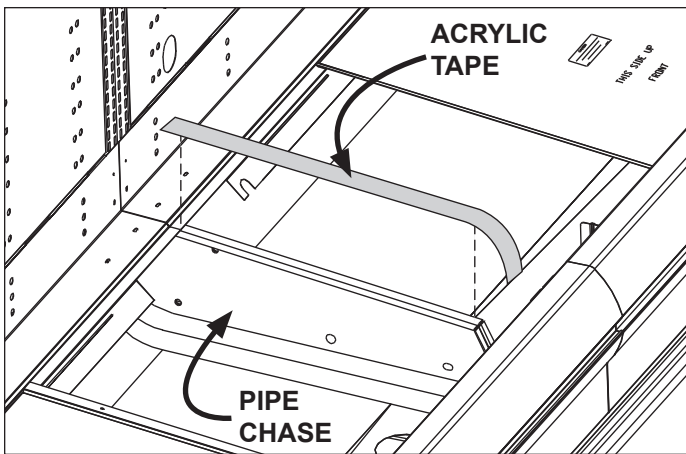


Fig. 2 Sealing the pipe chase

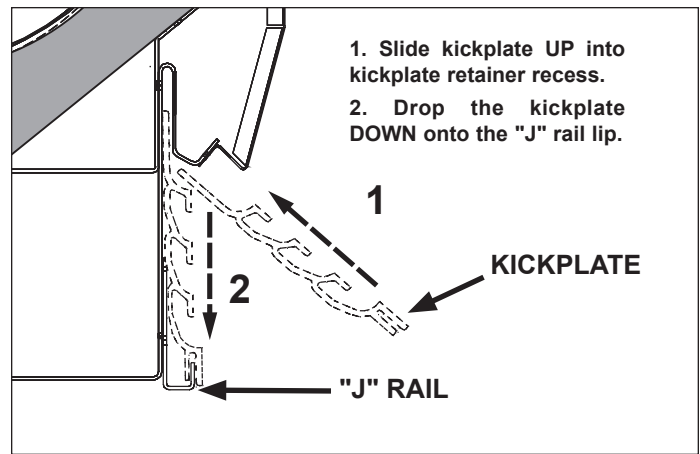


Fig. 3 Kickplate installation

7. Attach the "J" rail with the supplied screws (Fig. 2).
8. Insert top of kickplate into the kickplate retainer. Slide the kickplate up into the retainer, then down onto the "J" rail (Fig. 3). Be certain that the bottom of the kickplate is fitted over extruding "lip" of the "J" rail.
9. If the case is outfitted with a polymer bumper, insert the nose bumper into the open bumper channel, up to 96 feet. Hillphoenix recommends leaving an additional 6 inches of nose bumper at the ends to allow for shrinkage during the first 24–48 hours following case start-up—after sufficient time has passed, cut away the excess bumper for final fit and finish. Be certain to use an appropriate cutting tool (tubing- or PVC-cutter) to ensure a smooth cut.

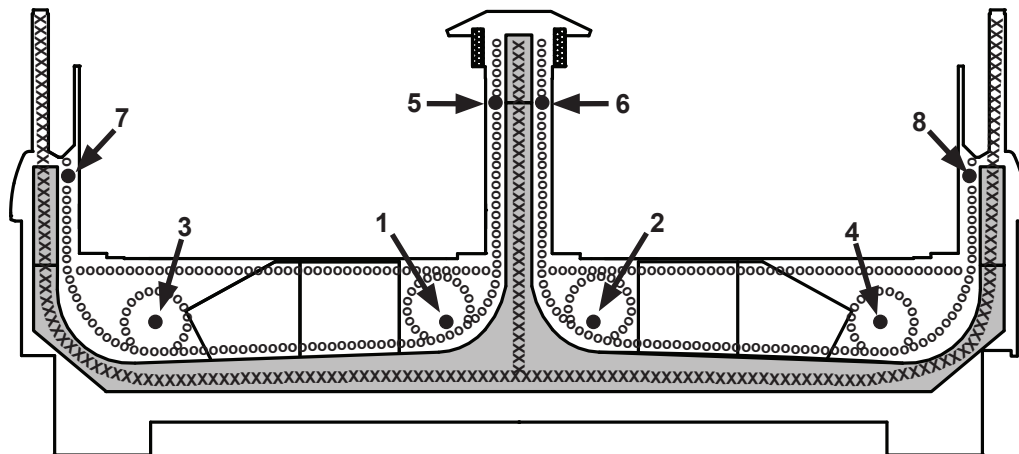


Fig. 4 Bolt holes locations; foam gasket and sealant

- = bolt holes
- X = foam tape gasket
- O = butyl or silicone sealant

NOTE: It is recommended that cases be bolted together in the numbered order that is indicated in the diagram.



ATTENTION!

Connections are illustrated in dimensional drawings found in **Appendices A–D**.

REFRIGERATION

The refrigeration piping penetration is located beneath the case in the front-right area, fully visible in front of the fan plenum.

If hot gas defrost is used, suction lines to each case in the circuit should be of equal distance from the main suction line. Expansion valves and other controls—located on the left-hand side of the cases (both sides for the OWIZ and OWIZV)—are accessed by lifting the two left-hand deck pans (lifting the fan plenum is not required).

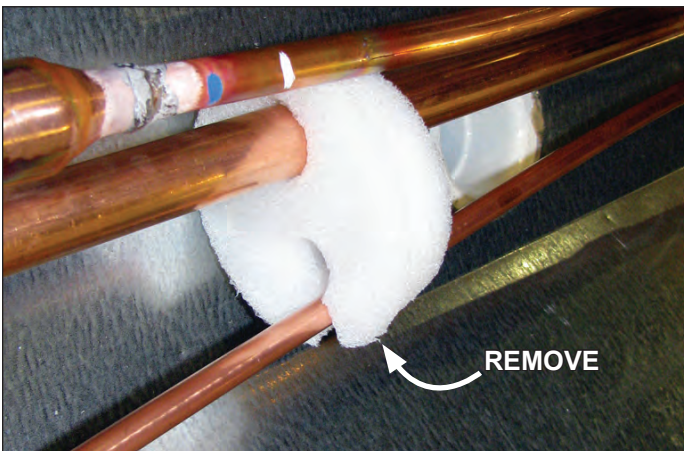


Fig. 5 Remove the shipping blocks

Before operating the case, be certain to remove the shipping blocks that protect the refrigeration lines during shipping (Fig. 5). If it becomes necessary to penetrate the case tank in any area, be certain to seal any open gaps afterwards with canned-foam sealant and white RTV.

PLUMBING

The drain outlet is specially molded out of PVC material and is located in the front-center of the case for convenient access. The “P” trap, furnished with the case, is constructed of schedule 40 PVC pipe (Fig. 6). Care should be given to ensure that all connections are water-tight and sealed with the appropriate PVC or ABS cement.

The drain lines can be run left or right of the tee, with the proper pitch to satisfy local drainage requirements. Since the kickplate is shipped loose with the case, you should have open access to the drain line area during installation. If the kickplate has been installed, you will find it easy to remove: simply lift the kickplate up from the “J” rail and

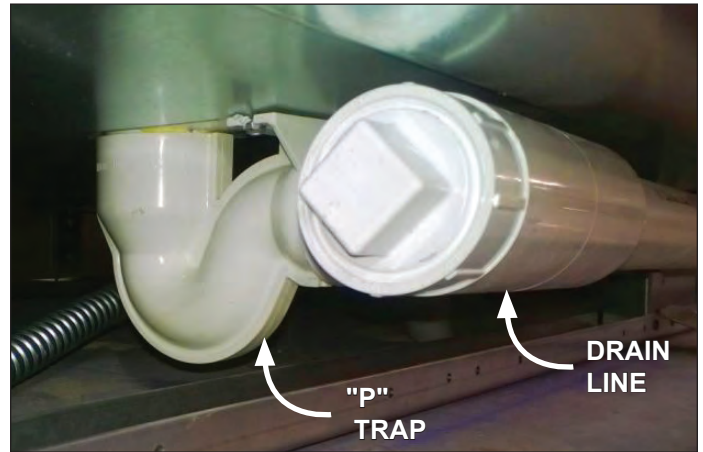


Fig. 6 “P” trap; drain line

pull the bottom out, away from the case—see **Trim Out** instructions on pages 4–5.

ELECTRICAL

Electrical connections are made in the continuous raceway (Fig. 7) that is located at the bottom-front of OWIZ and OWIZV cases and all sides of the OWEZ and OWEZV end caps. This continuous raceway helps to easily facilitate case-to-case wiring.



Fig. 7 Raceway electrical wiring

For case-to-case wiring, run conduit between the junction boxes or run wiring through the raceway. When connecting to the junction box on the bottom-left side of the case, field wiring should exit box from the right side (furthest away from case wiring) to allow more room inside for wiring connections. For more detailed electrical wiring information, see **Appendix E**.



ATTENTION!

If brazing is necessary, place wet rags around the area to avoid tank damage.

Before powering-up the case, be certain that all of the steps listed below have been completed to ensure proper case functionality, safety and compliance with warranty terms.

- ☐ Have you thoroughly examined the case for shipping damage? (see pg. 2)
- ☐ Have you removed and discarded the casters? (see pg. 3)
- ☐ Have you checked the vertical plumb of the case? The horizontal level? (see pg. 3)
- ☐ Have you applied the foam tape gasket and sealant between adjoining cases? (see pg. 3)
- ☐ Have you sealed the case-to-case joints by applying caulk and acrylic tape to the pipe-chase seam? (see pg. 4)
- ☐ Have you removed the shipping blocks from the refrigeration lines? (see pg. 5)
- ☐ Have you sealed any tank penetrations? (see pg. 5)

**ATTENTION!**

Be certain to clear the case of any loose packaging or case materials before energizing the case. Failure to do so may result in case damage or malfunction.

**ATTENTION!**

Be certain that all piping and electrical connections comply with local codes.

**ATTENTION!**

Installation of 3rd-party materials may result in diminished case performance.

**DANGER!****SHOCK HAZARD**

Always disconnect power to case when servicing or cleaning. Failure to do so may result in serious injury or death.

Hillphoenix cases may be equipped with either T-8 lights or LED luminaires. Depending on case configuration, T-8 electronic ballasts or LED power supplies operate both the canopy lights and shelf lights and are located in the cornice area, above the light reflectors.

**CAUTION!**

During replacement of ballasts/power supplies, always confirm that the new ballasts/power supplies are the correct replacement parts. Failure to do so may result in damage to the LED system or the luminaires, leading to poor performance and increased risk of safety issues.

Both lighting systems have an ON/OFF switch that is located in the upper left-hand corner of the lighting assembly. Once cases have been properly positioned in the store and an electrician has connected the lighting circuit, the lights may be turned on to verify that they are connected and functioning properly.

To ensure peak performance, it is advisable to run the lighting systems only when the store climate control is on and case refrigeration is started. NOTE: it is highly recommended that the ambient store temperature **not** exceed 80°F.

REPLACING T-8 LIGHTS

1. Simultaneously pull down at both ends of the old T-8 light to remove from the lamp holder (Fig. 8). Remove the lamp caps and plastic shield from the old light, then discard the light.

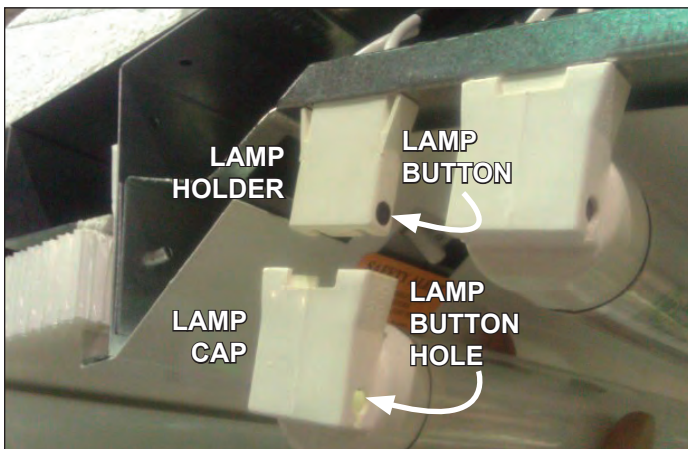


Fig. 8 Remove old T-8

2. Attach the lamp caps and plastic shield to the new T-8 lamp.
3. Push the new T-8 lamp into place on the lamp holder. When the T-8 is properly seated, the lamp button - which secures the T-8 to the lamp holder - will be clearly visible through the lamp button hole (Fig. 9).

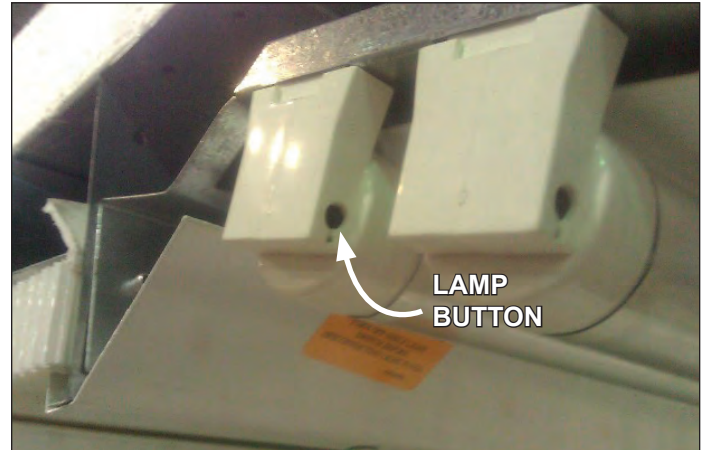


Fig. 9 Align new T-8 with plug button to secure

REPLACING SHELF LED LUMINAIRES

1. Unplug the LED luminaire (Fig. 10).
2. Pinching the latching clips inward at the ends of the luminaire, rotate luminaire down at each end until hooks are free, then remove (Fig. 11).
3. To install the new luminaire, place hook into shelf roll at shelf front and rotate rear of luminaire toward the shelf.
4. Depress the rear clip so that luminaire can finish rotation and until clip engages the shelf bracket.



Fig. 10 Unplug the LED luminaire



Fig. 11 Remove the old LED luminaire

REPLACING NON-SHELF LED LUMINAIRES

1. Squeeze plastic clips on the four-pin connector at the end of the luminaire, then pull free of the receptacle (Fig. 12).
2. At the other end, slide the luminaire to the opening and disengage from the metal housing slot (Fig. 13).



Fig. 12 Squeeze the latching clips and pull the luminaire free



Fig. 13 Slide the other end to the opening in the sheet metal and disengage

3. To install the new luminaire, simply reverse the previous steps.

ACCESSING BALLASTS/POWER SUPPLIES

Ballasts or power supplies are housed beneath the case in the slide-out electrical tray and may be removed easily by following these instructions:

4. Remove the lower front panel (if necessary for access to raceway).
5. Unscrew the kickplate and lift up from the "J" rail. Pull the bottom edge of the kickplate out and away from the case to remove.
6. Pull out the slide-out electrical tray that is visible in the raceway. Ballasts/power supplies will now be visible (Fig. 14).



Fig. 14 Power supply in the slide-out tray beneath the case.

AIR FLOW & PRODUCT LOAD

Do not overload the food product display so that it impinges on the air flow pattern—doing so will result in diminished performance and loss of proper temperature levels, particularly when the discharge honeycomb and return air grille are covered. Please keep products within the load limit line shown on the diagram below (Fig. 15).

DEFROST & TEMPERATURE CONTROLS

Hillphoenix cases utilize electric, hot gas, or timed-off 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, etc).

If electric defrost is used, the defrost termination sensor will be located either behind the rear baffle or mounted to the coil. If hot gas defrost is used, the defrost termination sensor will be mounted to the dump line—the sensor should always be mounted on the coil-side of the check valve or solenoid valve. Finally, if timed-off defrost is used, the refrigeration cycle is simply turned off by the case controls for a specified amount of time; therefore, there are generally no active defrost components utilized.

1. DISCHARGE AIR	3. AIR CURTAIN
2. LOAD LIMIT	4. RETURN AIR

OWIZV shown. Airflow is similar for other case models.

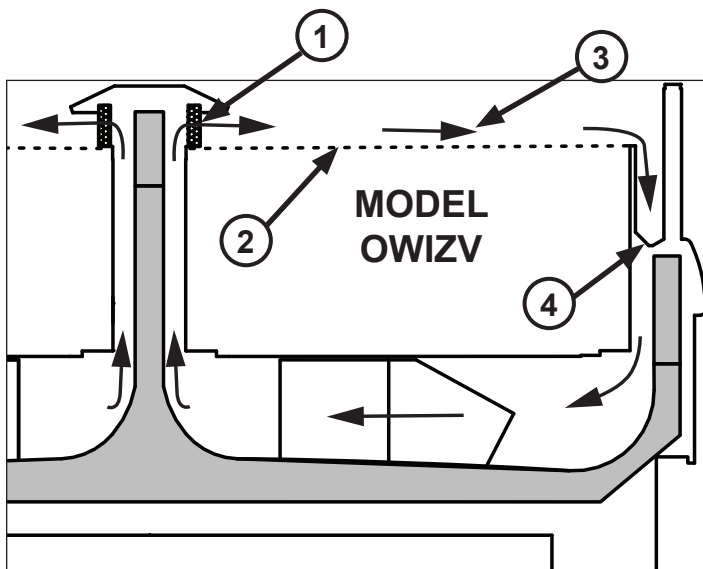


Fig. 15 Airflow

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.

For more detailed information on suggested defrost times and settings, see **Appendices A–D**. Further adjustment may be required depending on store conditions.

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 the TXV bulb at the outlet of the evaporator coil (Fig. 16).
2. Using the suction pressure reading and the Sporlan® temperature-pressure chart (see **Appendix F**), 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.

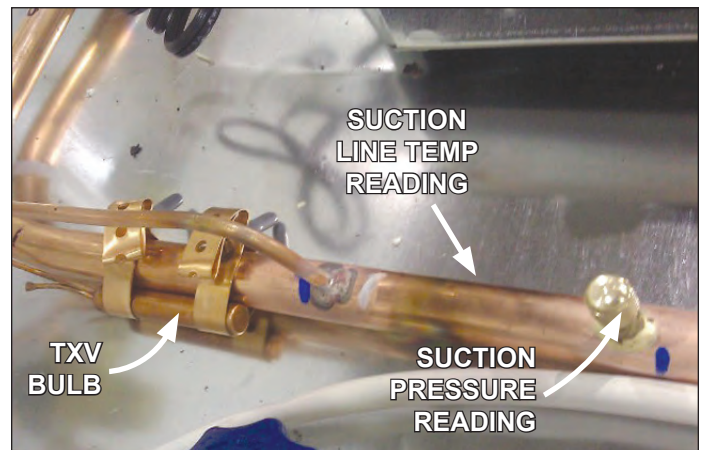


Fig. 16 Obtain pressure and temperature readings

**DANGER!****SHOCK HAZARD**

Always disconnect power to case when servicing or cleaning. Failure to do so may result in serious injury or death.

**CAUTION!**

Exercise extreme caution when working in a case with the coil cover removed. The coil contains many sharp edges that can cause severe cuts to the hands and arms.

FANS

Fan blade pitch is set during manufacturing. It is important that the blade pitch be maintained as specified. **Do not attempt a field modification by altering the blades.**

Fan assemblies may be changed with an easy two-step process without lifting up the plenum, thereby avoiding the necessity to unload the entire product display to change the fan assembly:

1. Unplug the fan motor (Fig. 17), easily accessible outside the plenum. Be certain to push the power cord back through the plenum opening to avoid damage to the power cord.
2. Remove fasteners, then lift out the entire fan basket.

Reverse procedure when re-installing fan basket.

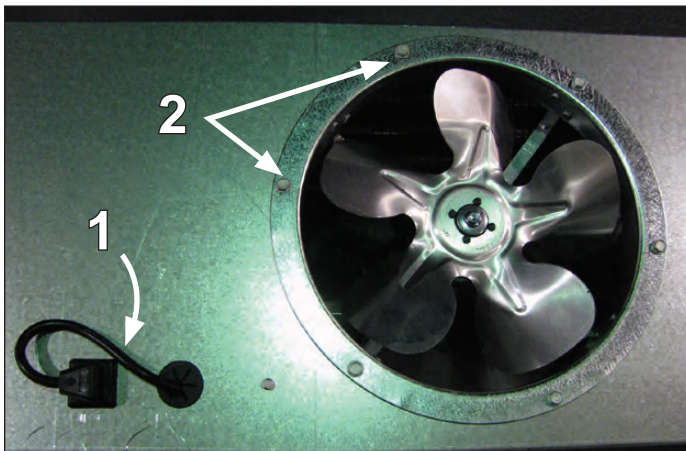


Fig. 17 Fan basket

**ATTENTION!**

Power cord must be pushed back through the plenum opening before removing the fan basket. Failure to do so may result in damage to the power cord.

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.

- Be certain that all electricity to the case 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.
- All surfaces pitch downward to a deep-drawn drain trough, funneling liquids and other debris to the waste outlet. Check waste outlet before starting the cleaning process to insure it is unclogged. Avoid introducing water faster than the case drain can carry it away.
- Lift the fan plenum to gain access to the coil for cleaning and maintenance (Fig. 18).

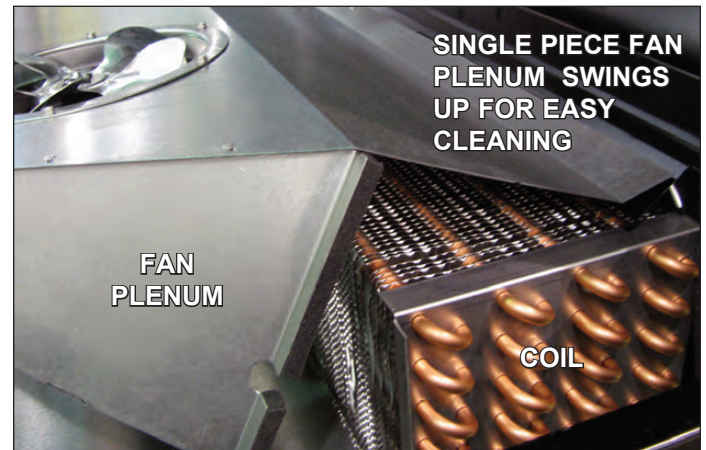


Fig. 18 Single-piece fan plenum and coil cover

- To clean the lights, shut off the lights in the case, then wipe them down with a soft, damp cloth. Avoid using harsh or abrasive cleaners as they may damage the lights. Be certain that the lights are completely dry before re-energizing.
- If any potentially harmful cleaners are used, be certain to provide a temporary separator (e.g., cardboard, plastic wrap, etc.) between those cases that are being cleaned and those that may still contain product.
- Avoid spraying cleaning solutions directly on electrical connections.
- Allow cases to be turned off long enough to clean any frost or ice from coil and pans.
- Remove kickplate and clean underneath the case with a broom and a long-handled mop. Use warm water and a disinfecting cleaning solution when cleaning underneath the cases.

A	OWIZ OPERATING DATA & CASE DIMENSIONS
B	OWEZ OPERATING DATA & CASE DIMENSIONS
C	OWIZV OPERATING DATA & CASE DIMENSIONS
D	OWEZV OPERATING DATA & CASE DIMENSIONS
E	ELECTRICAL WIRING
F	SPORLAN PRESSURE-TEMPERATURE CHART
G	SEISMIC BRACKETS
H	PARTS LIST

A.1 OPERATING DATA

OWIZ

Electrical Data

Case Length	Fans Per Case	High Efficiency Fans				Drain Heaters		Defrost ¹ Heaters			
		Open Case		Sliding Doors							
		120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
8'	4	0.29	16	0.18	11	0.26	30	11.54	2400	13.31	3195
12'	6	0.44	24	0.28	17	0.26	30	17.31	3600	19.98	4795

Anti-Condensate Heater Data

Case Length	Solid ² Front		Glass Front		Glass ³ Cap		Glass Wrap ⁴ End		Super Structure	
	120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
8'	2.62	314	3.02	362	0.50	60	0.68	82	0.50	60
12'	3.96	475	4.38	526	0.74	89	0.68	82	0.76	91

Lighting Data

Case Length	Shelf Depth	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
8'	Super Structure/All Shelves	4	4ft	0.40	47.6	0.72	86.0
12'	Super Structure/All Shelves	6	4ft	0.60	71.4	1.08	129.0

Guidelines & Control Settings

Application	Case Type	⁴ BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge ⁵ Air Velocity (FPM)
		Conventional	Parallel				
Frozen Food	Open	610	587	3 - 5	-12	-6	180
	Doors	339	326	3 - 5	-10	-4	106
Ice Cream	Open	719	692	3 - 5	-22	-16	180
	Doors	399	384	3 - 5	-20	-14	106
Medium Temp.	Open	456	450	6 - 8	17	27	180

Defrost Controls

Application	Case Type	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)
Frozen Food	Open	1	13-15	60	49	- - - ⁷	- - -	20	60
Ice Cream	Doors	1	13-15	30	49	- - -	- - -	10	60
Medium Temp.	Open	1	13-15	35	49	- - -	- - -	20	60

1 Defrost data for one side °F case only.

2 Solid wraparound ends have no anti-condensate heaters.

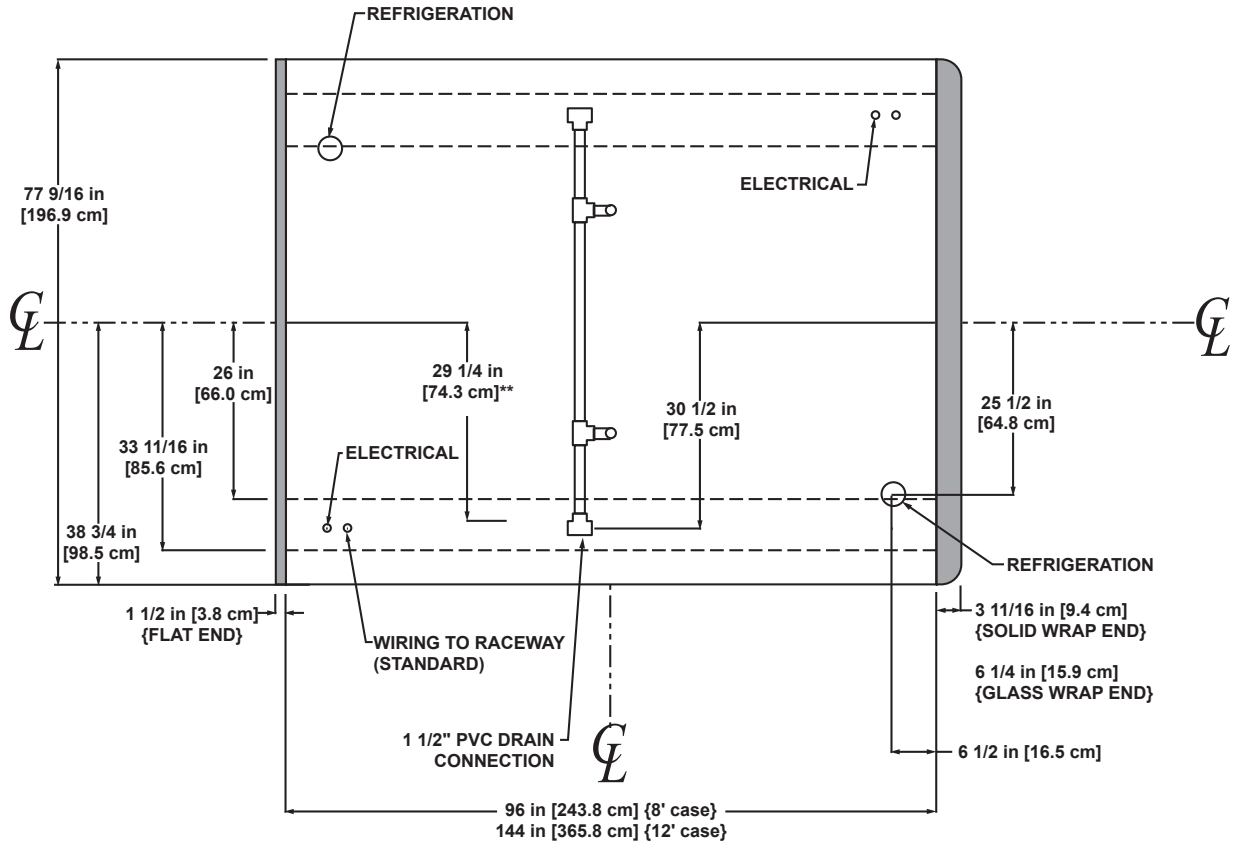
3 Glass cap heater for stainless steel glass cap option only.

4 Data given is for one glass wraparound end.

5 Standard fans (see Appendix C) increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

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



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

B.1 OPERATING DATA

OWEZ

Electrical Data

Fans Per Case	High Efficiency Fans				Drain Heaters		Defrost Heaters			
	Open Case		Sliding Doors							
	120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
2	0.30	17	0.19	12	0.13	15	8.65	1800	9.98	2394

Anti-Condensate Heater Data

Solid Front		Glass Front		Glass ¹ Cap	
120 Volts		120 Volts		120 Volts	
Amps	Watts	Amps	Watts	Amps	Watts
0.42	51	1.96	235	0.51	61

Guidelines & Control Settings

Application	Case Type	²BTUH/ft				Superheat Set Point @ Bulb (°F)	Evaporator (°F)		Discharge Air (°F)		Discharge³ Air Velocity (FPM)	
		Solid Front		Glass Front			Solid Front	Glass Front	Solid Front	Glass Front	Solid Front	Glass Front
		Conventional	Parallel	Conventional	Parallel							
Frozen Food	Open	1726	1689	2769	2663	3 - 5	-10	-12	-6	-6	110	200
	Doors	959	938	1538	1479	3 - 5	-8	-10	-4	-4	65	118
Ice Cream	Open	1956	1900	3429	3298	3 - 5	-22	-22	-17	-16	110	200
	Doors	1087	1056	1905	1832	3 - 5	-20	-20	-15	-14	65	118
Medium Temp.	N/A	1038	1008	2196	2150	6 - 8	28	27	31	27	110	200

Defrost Controls

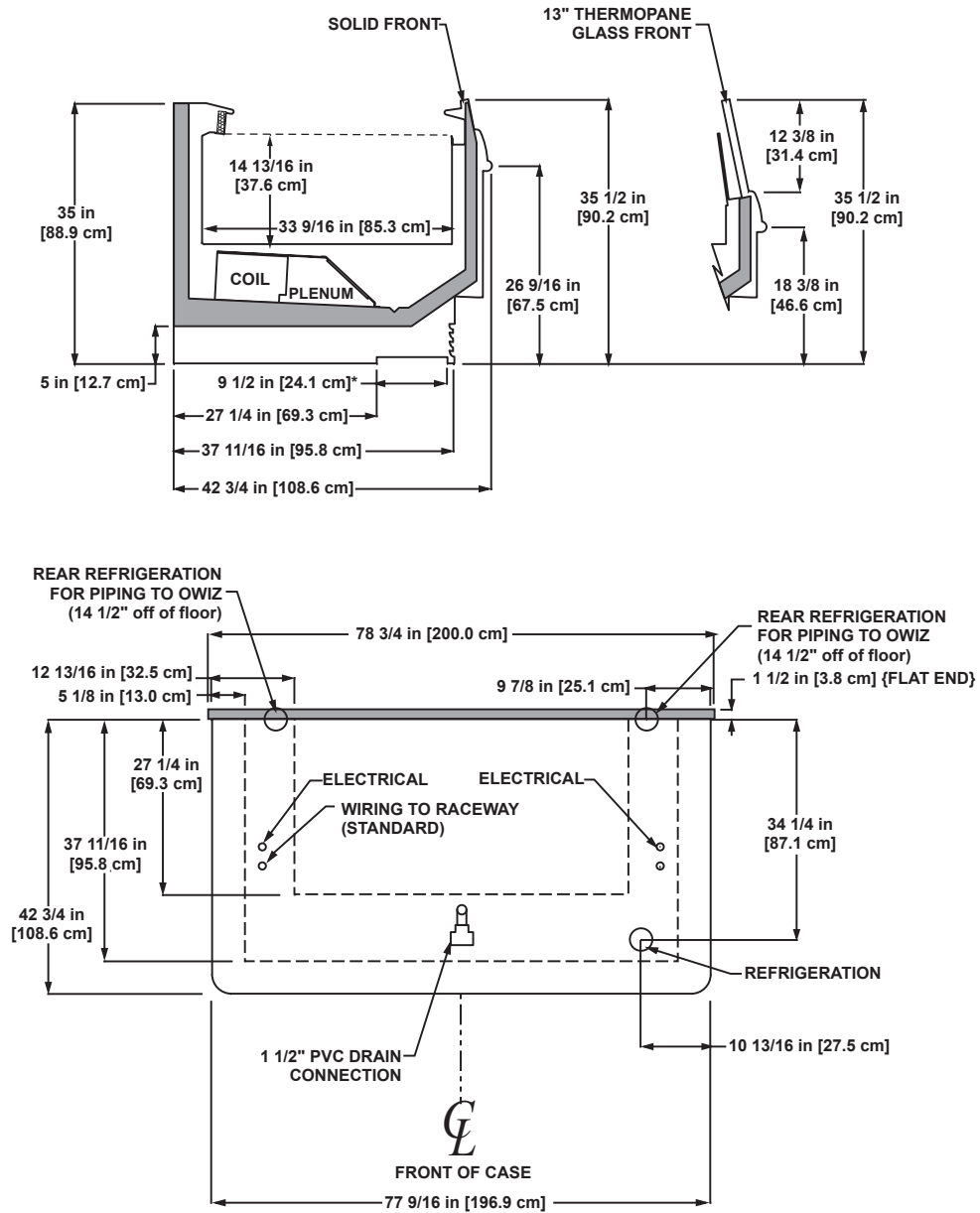
Application	Case Type	Defrosts Per Day	Run-Off Time (min)		Electric Defrost		Timed-Off Defrost		Hot Gas Defrost	
			Electric	Hot Gas	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
Frozen Food Ice Cream	Open	1	5	13 - 15	60	48	- - - ⁴	- - -	20	60
	Doors	1	5	13 - 15	30	48	- - -	- - -	10	60
Medium Temp.	Open	1	5	13 - 15	35	48	35	42	20	60

¹ Glass cap heater for stainless steel glass cap option only.

² Standard fans (see Appendix C) increase refrigeration load by 96 BTUH/fan.

³ Average discharge air velocity at peak of defrost.

⁴ NOTE: "- - -" indicates that feature is not an option on this case model.



NOTES:

* STUB-UP AREA

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

• SUCTION LINE - 7/8", LIQUID LINE - 3/8"

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

C.1 OPERATING DATA

OWIZV

Electrical Data

Case Length	Fans per Case	High Efficiency Fans				Drain Heaters		Anti-Condensate Heaters						Defrost ³ Heaters			
		Open Case		Sliding Doors				Solid ¹ Front		Glass Front		Glass Wrap ² End					
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
6'	4	0.29	16	0.17	11	0.26	30	1.08	129	1.93	232	0.68	82	8.70	1800	10.00	2400
8'	4	0.29	16	0.17	11	0.26	30	1.82	218	2.55	306	0.68	82	11.54	2400	13.31	3195
10'	6	0.44	24	0.26	17	0.26	30	2.40	288	3.31	397	0.68	82	14.42	3000	16.64	3994
12'	6	0.44	24	0.26	17	0.26	30	2.85	343	4.06	487	0.68	82	17.31	3600	19.98	4795

Lighting Data (Superstructure)

Case ⁴ Length	Lights Per Row	Light Length	Fluorescent Lighting (Per Light Row)		Clearvoyant LED Lighting (Per Light Row)			
					Standard Power (Cornice or Shelf)		High Power (Cornice)	
					120 Volts		120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts
6'	4	3'	0.74	88	0.28	33.2	0.50	59.6
8'	4	4'	0.94	112	0.40	47.6	0.72	86.0
10'	6	3'(4) / 4' (2)	1.20	144	0.48	57	0.86	102.6
12'	6	4'	1.44	168	0.60	71	1.08	129.0

Guidelines & Control Settings

Application	Case Type	BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge ⁵ Air Velocity (FPM)
		Conventional	Parallel				
Frozen Food	Open	610	587	3 - 5	-12	-6	180
	Doors	335	322	3 - 5	-11	-8	70
Ice Cream	Open	719	692	3 - 5	-22	-16	180
	Doors	345	332	3 - 5	-20	-15	70
Med. Temp.	Open	458	450	6 - 8	17	27	180

Defrost Controls

Application	Case Type	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)
Frozen/ Ice Cream	Open	1	13 - 15	60	49	---	---	20	60
	Doors	1	13 - 15	30	49	---	---	10	60
Med. Temp	Open	1	13 - 15	35	49	---	---	20	60

1 Solid wraparound ends have no anti-condensate heaters.

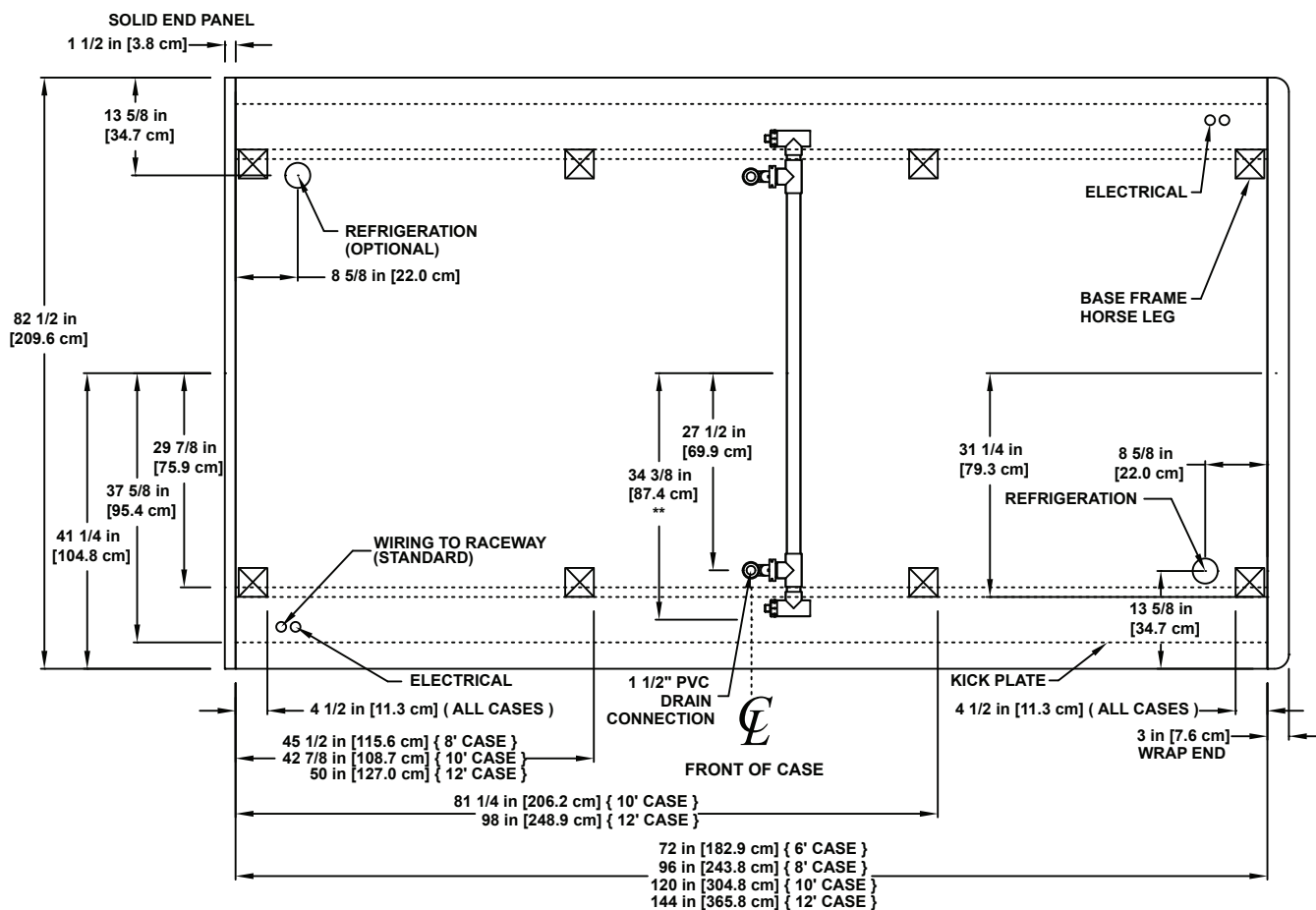
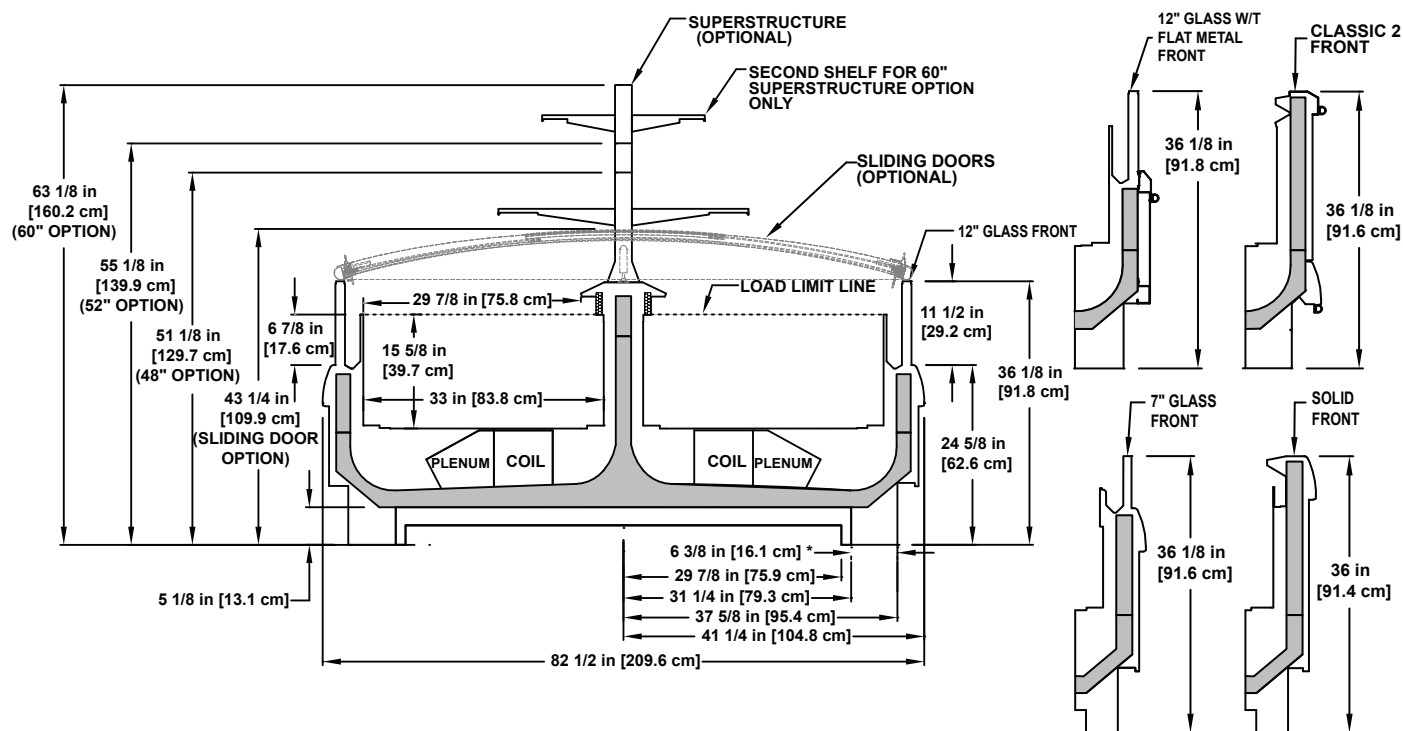
2 Data given is for one glass wraparound end.

3 Defrost data for one side °F case only.

4 Light values represent both sides °F superstructure.

5 Average discharge air velocity at peak of defrost.

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



NOTES:

* STUB-UP AREA

**** RECOMMENDED STUP-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS**

SUCTION LINE - 7/8", LIQUID LINE - 1/2"

D.1 OPERATING DATA

OWEZV

Electrical Data

Fans per Case	High Efficiency Fans				Drain Heaters		Anti-Condensate Heaters				Defrost Heaters			
	Open Case		Sliding Doors				Solid Front		Glass ¹ Front					
	120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
2	0.15	8	0.09	6	0.13	15	0.81	98	1.48	178	8.65	1800	9.98	2394

Guidelines & Control Settings

Application	Case Type	BTUH/case				Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
		Solid Front		Glass Front					
		Conventional	Parallel	Conventional	Parallel				
Frozen Food	Open	1726	1689	2769	2663	3 - 5	-12	-6	200
	Doors	959	938	1538	1479	3 - 5	-10	-4	118
Ice Cream	Open	1956	1900	3429	3298	3 - 5	-22	-16	200
	Doors	1087	1056	1905	1832	3 - 5	-20	-14	118
Medium Temp.	Open	1038	1008	2196	2150	6 - 8	17	27	200

Defrost Controls

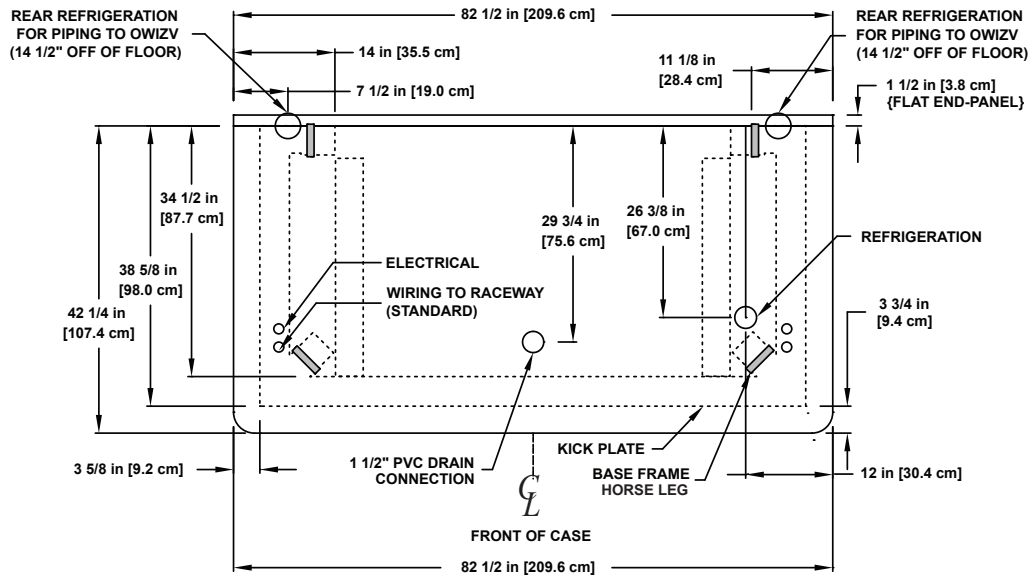
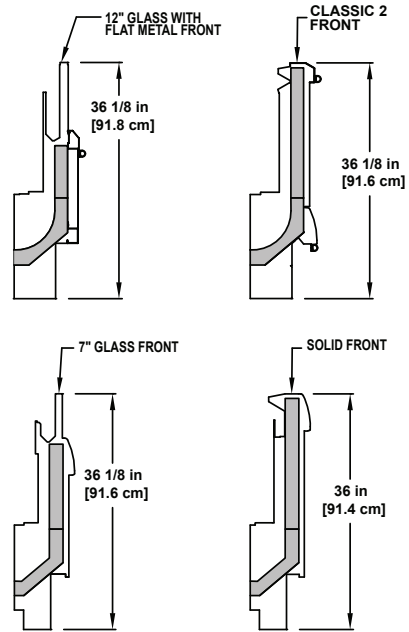
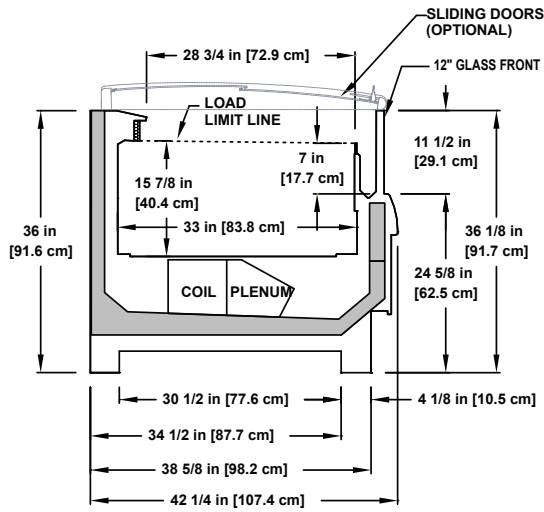
Application	Case Type	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost	
				Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
Frozen Food Ice Cream	Open	1	13 - 15	60	49	- - - ⁴	- - -	20	60
	Doors	1	13 - 15	30	49	- - -	- - -	10	60
Med. Temp	Open	1	13 - 15	35	49	- - -	- - -	20	60

1 Data applies to both 7" & 12" glass fronts.

2 NOTE: "TBD" = "to be determined".

3 Average discharge air velocity at peak of defrost.

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



NOTES:

- * STUB-UP AREA
- ** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- FLAT END-PANEL REQUIRED WHEN CASE IS STANDALONE

E.1 ELECTRICAL WIRING

WIRE IDENTIFICATION

WIRE IDENTIFICATION	BLACK	WHITE	BLUE	RED	YELLOW	PURPLE	ORANGE	GREEN
DEFROST HEATERS (1-PHASE)	1,2							
DEFROST HEATERS (3-PHASE)	L1		L3	L2				
ANTI-CONDENSATE HEATERS	14	13						
	16	15						
	18	17						
AISLE WARMER	10	9						
DRAIN HEATER	36	37						
PRIMARY FANS	4	3	40					
SECONDARY FANS	6	5						
AMBIENT FANS	8	7						
LIGHTS	12	11						
BELL	60,62							
TEMPERATURE CONTROL					19,20			
DEFROST TERMINATION CONTROL	22					21	23	
DEFROST SAFETY CUT-OUT CONTROL	28					27	29	
LIQUID LINE SOLENOID					30	31		
SUCTION LINE SOLENOID					38	39		
CASE/CONTROLLER POWER	42	41						
TRANSFORMER	24	25						
CAPACITOR	34		35					
RECEPTACLE	32	33						75
SYSTEM NEUTRAL (3-PHASE)		N						
POWER CORD (SELF-CONTAINED)	58	57						
SERVICE LIGHT (HI-PRESSURE)	53,54							
HIGH PRESSURE SWITCH			49,50					
DUAL PRESSURE SWITCH	51,52							
CONDENSING UNIT POWER	48	47		44 220V				
CONDENSING UNIT FAN		45	46					
IG RECEPTACLE	26	43						77
GFI RECEPTACLE	56	55						79
HUMIDIFIER	70	71						
REFRIGERATED PAN SOLENOID	65 220V	65				64		
REFRIGERATED PAN BYPASS SOLENOID	67 220V	67	66					
AIR HEATER DEFROST SOLENOID	69 220V	69					68	
MAIN SECONDARY FLUID SOLENOID	73 220V	73		72				
AIR DEFROST FAN	74	59						
SECONDARY COOLANT PUMP	76	61						
TANK FLUSH SOLENOID	87 220V	87						86
MISTING SOLENOID	89 220V	89			88			
DRIP DOWN TIMER					90			
REAR STORAGE BOX FANS	94	95						
GROUND TO EXTERIOR/FRAME								81
GROUND TO INTERIOR LINER								83
GROUND TO JUNCTION BOX								85
GROUND TO LIGHTS								97

ATTENTION: ELECTRICIAN

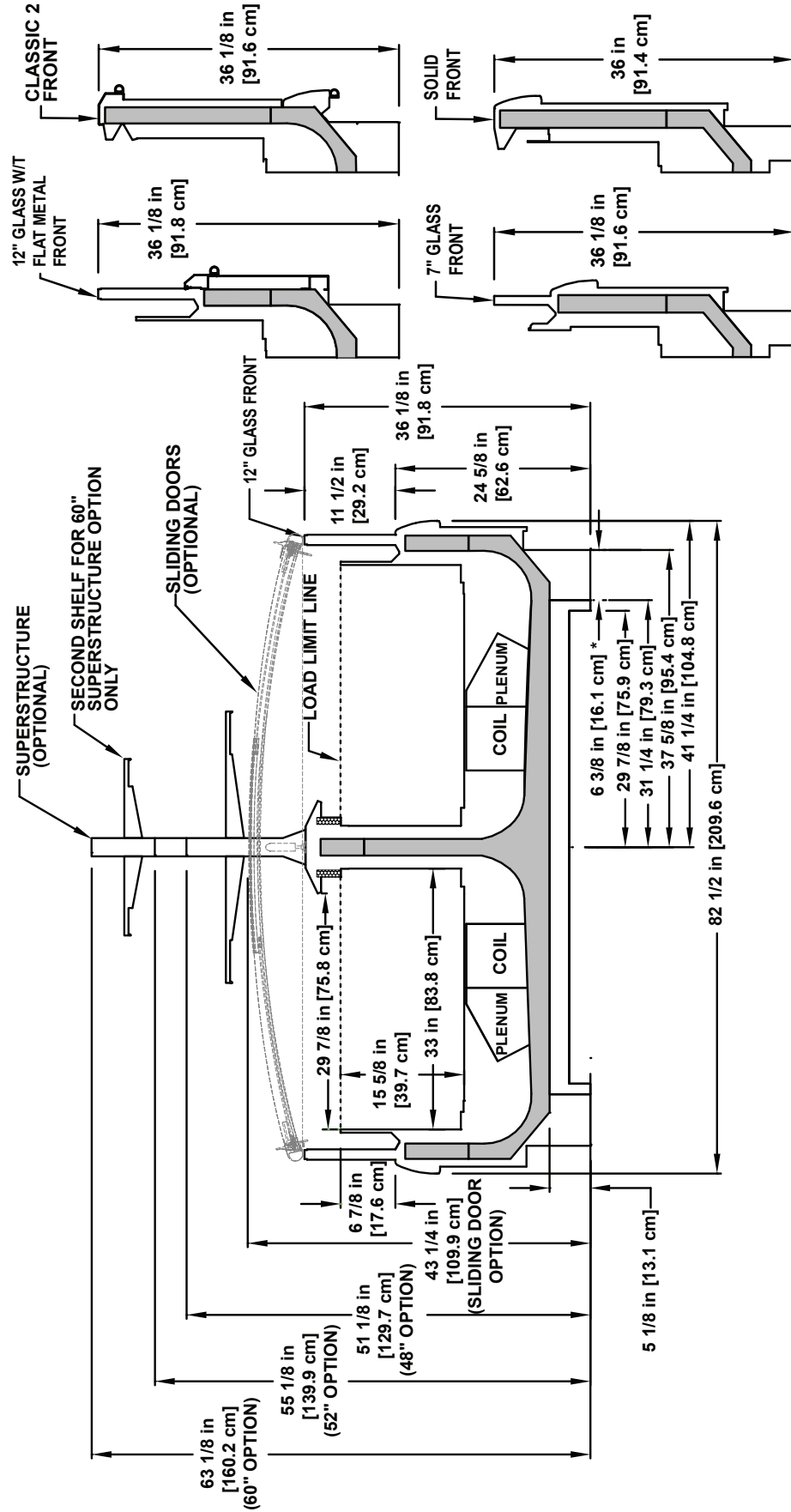
For safety and code compliance, ground fixture at the time of installation.

CAUTION

Risk of electric shock. More than one power supply.
Disconnect all power supplies before servicing.

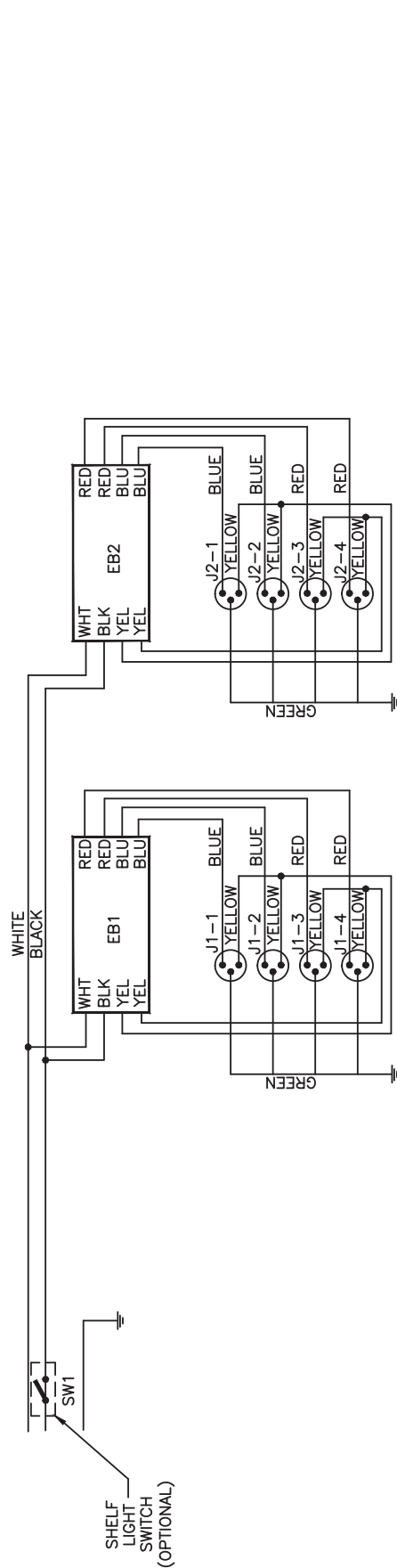
P901598E - R4

OWIZ/OWIZV WIRING



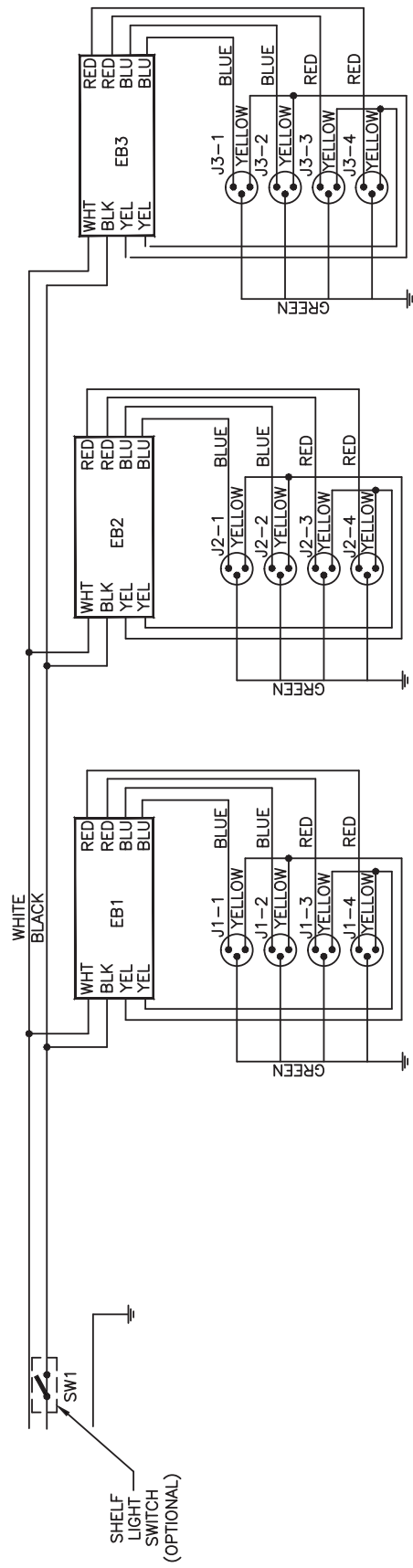
SOL IN END DANEI

OWIZV LIGHTING



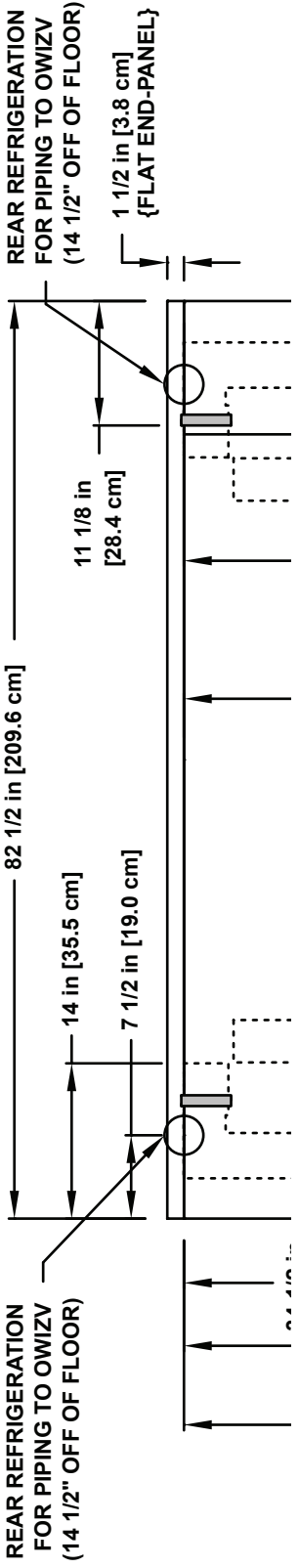
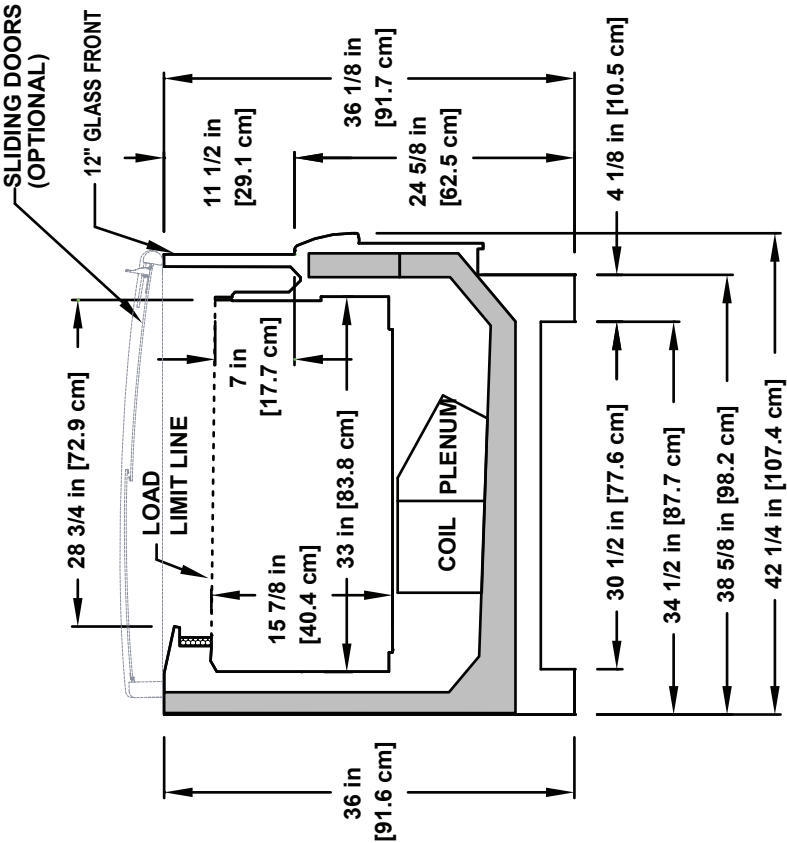
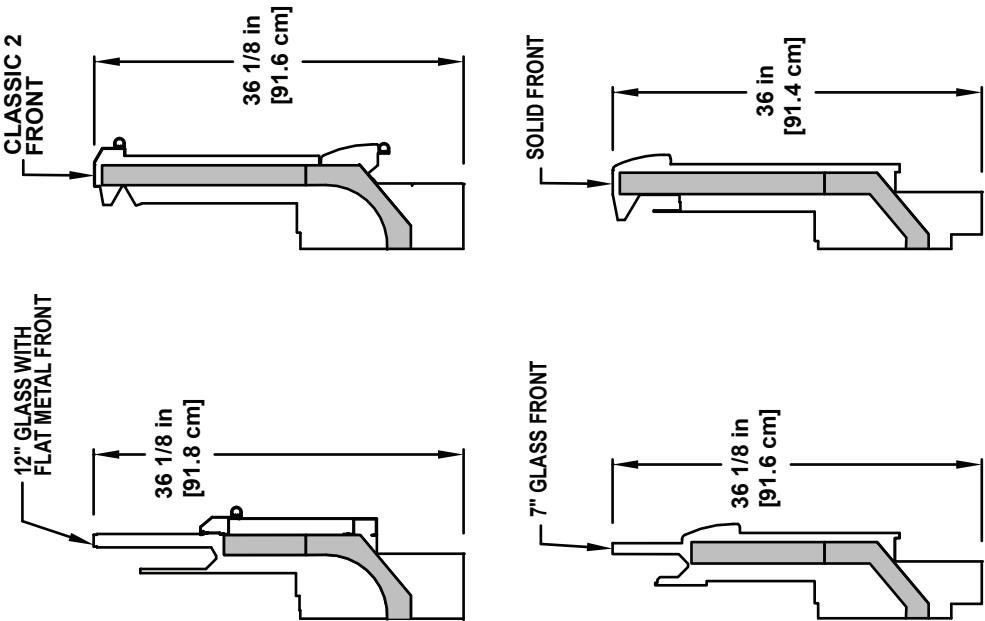
2 BALLAST SETUP

NOTE: USE DUMMY PLUGS IN ALL UNUSED SHELF RECEPTACLES.

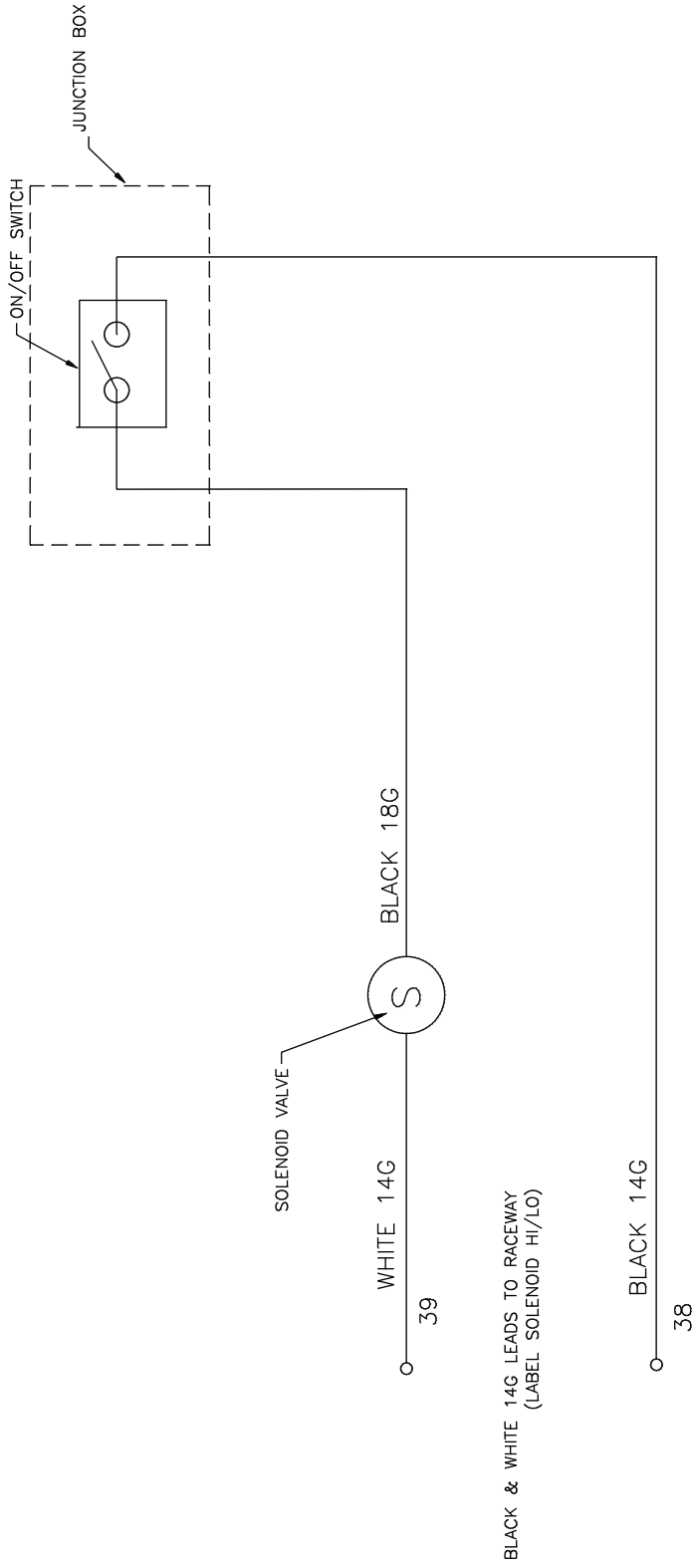


3 BALLAST SETUP

OWIZ/OWIZV WIRING



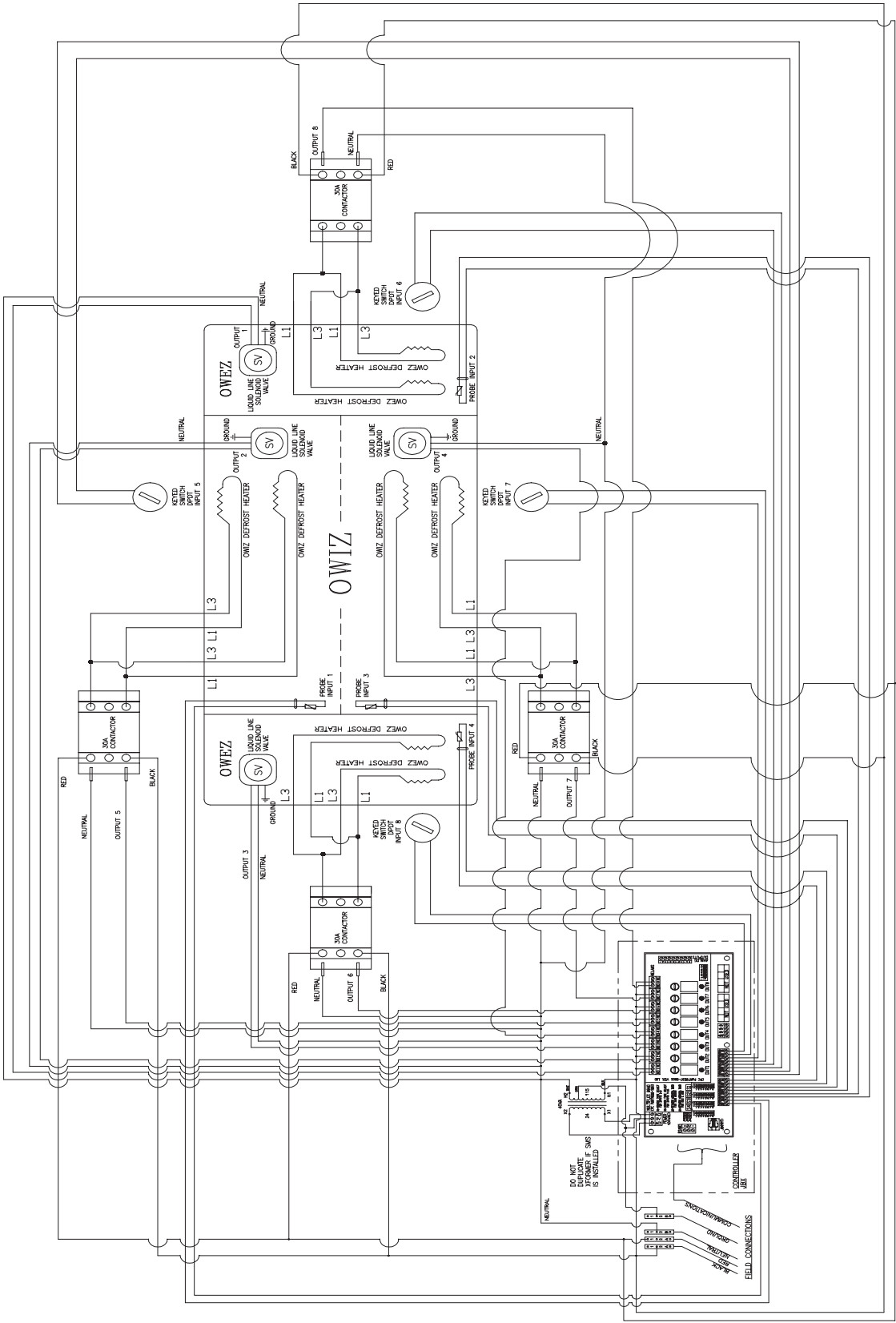
DUAL TEMP WIRING



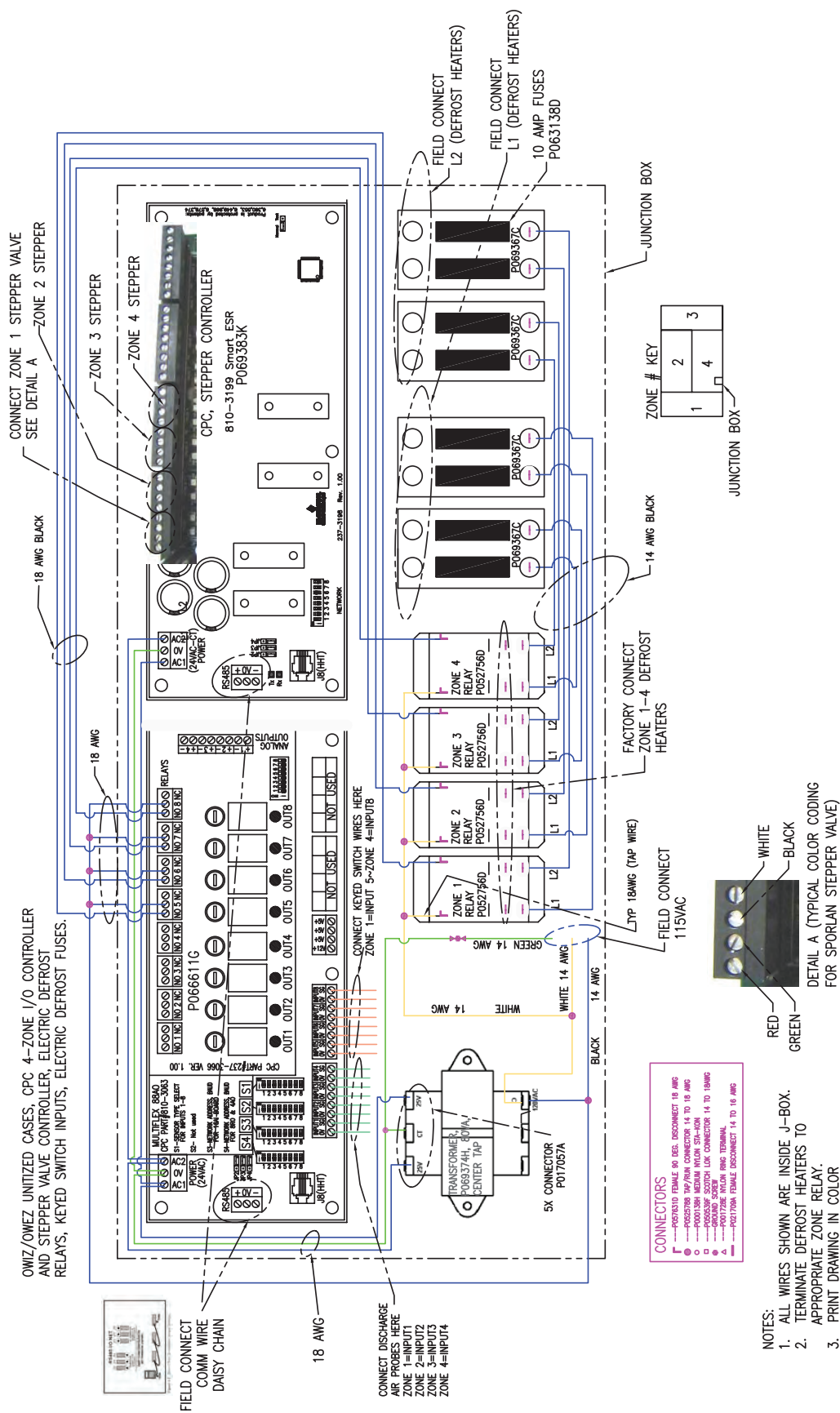
BLACK & WHITE 14G LEADS TO RACEWAY
(LABEL SOLENOID HI/LO)

NOTE: ON=LOW TEMP
OFF=MEDIUM TEMP

CPC CONTROLLER W/ MULTI-FLEX BOARD

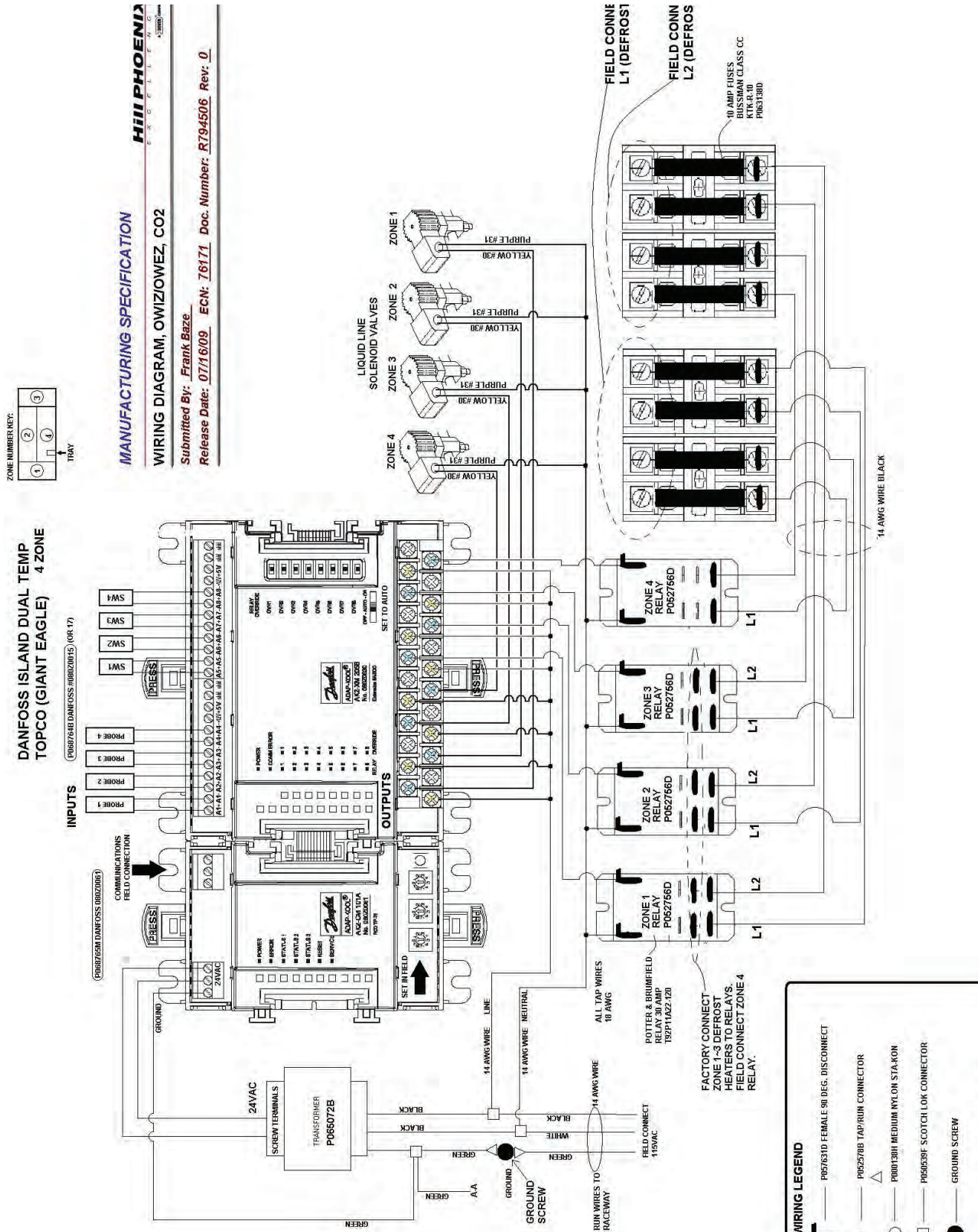


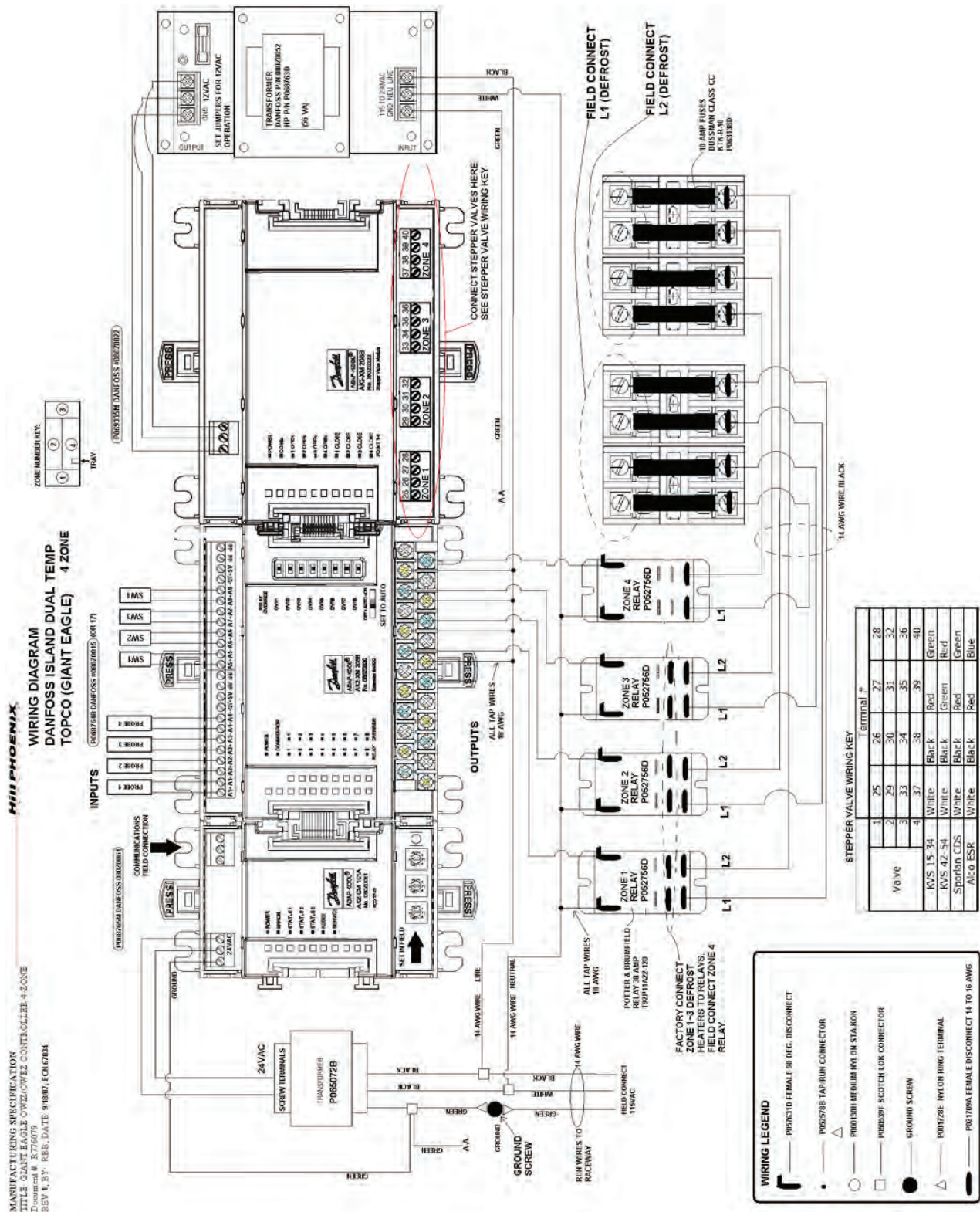
CPC CONTROLLER W/ STEPPER CONTROL (DX)



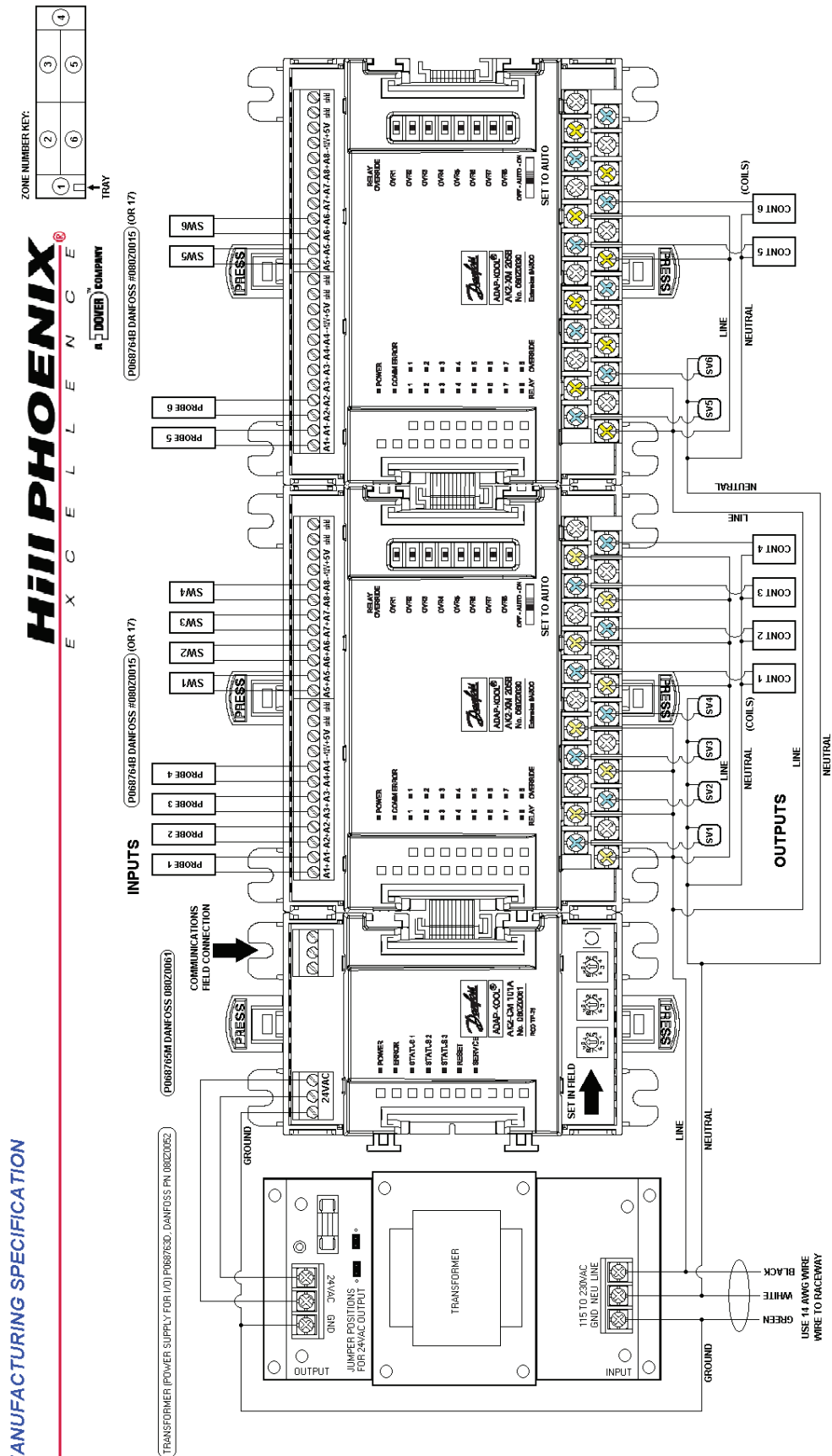
- NOTES:
1. ALL WIRES SHOWN ARE INSIDE J-BOX.
 2. TERMINATE DEFROST HEATERS TO APPROPRIATE ZONE RELAY.
 3. PRINT DRAWING IN COLOR

DANFOSS (CO₂)





DANFOSS (5-8 ZONE)



**WIRING DIAGRAM
DANFOSS ISLAND DUAL TEMP
TOPCO (GIANT EAGLE)**

We will lead the markets we serve with innovative products, solutions and technological advances in a relentless pursuit to exceed customer expectations. We will create a culture that promotes teamwork, integrity and respect for our customers, our suppliers, our employees, and ourselves. We are endeavoring to achieve continuous improvement as a way of life. As a result, HILL PHOENIX will enhance the success of our customers, the return to our shareholders, and the satisfaction of our employees."

Submitted By: Frank Baze
Release Date: 08/15/07



Vacuum-Inches of Mercury
Bold Italic Figures

TEMPERATURE PRESSURE CHART - at sea level

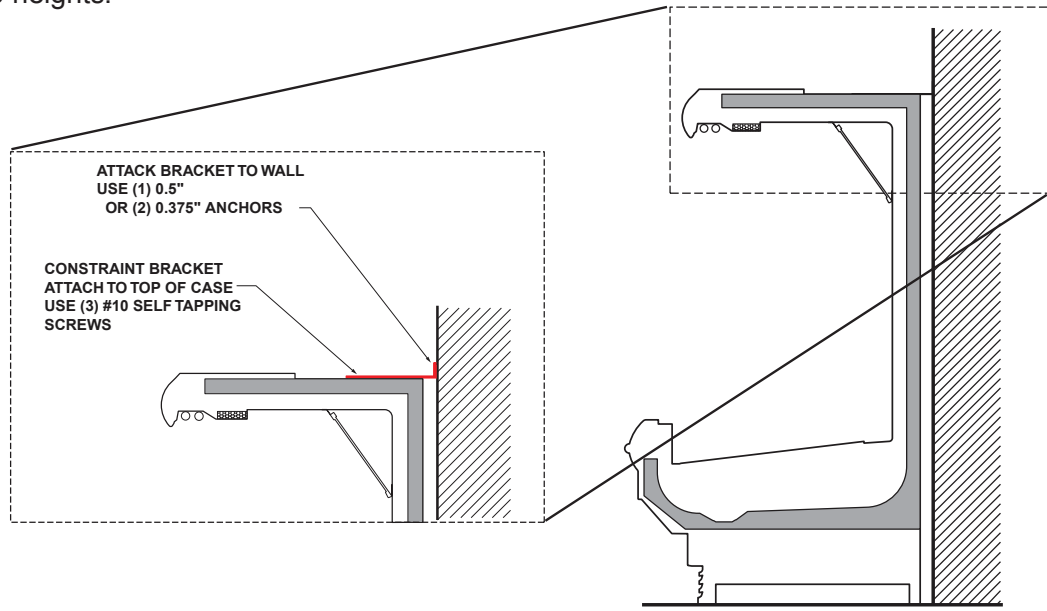
Pressure-Pounds Per
Square Inch Gauge

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

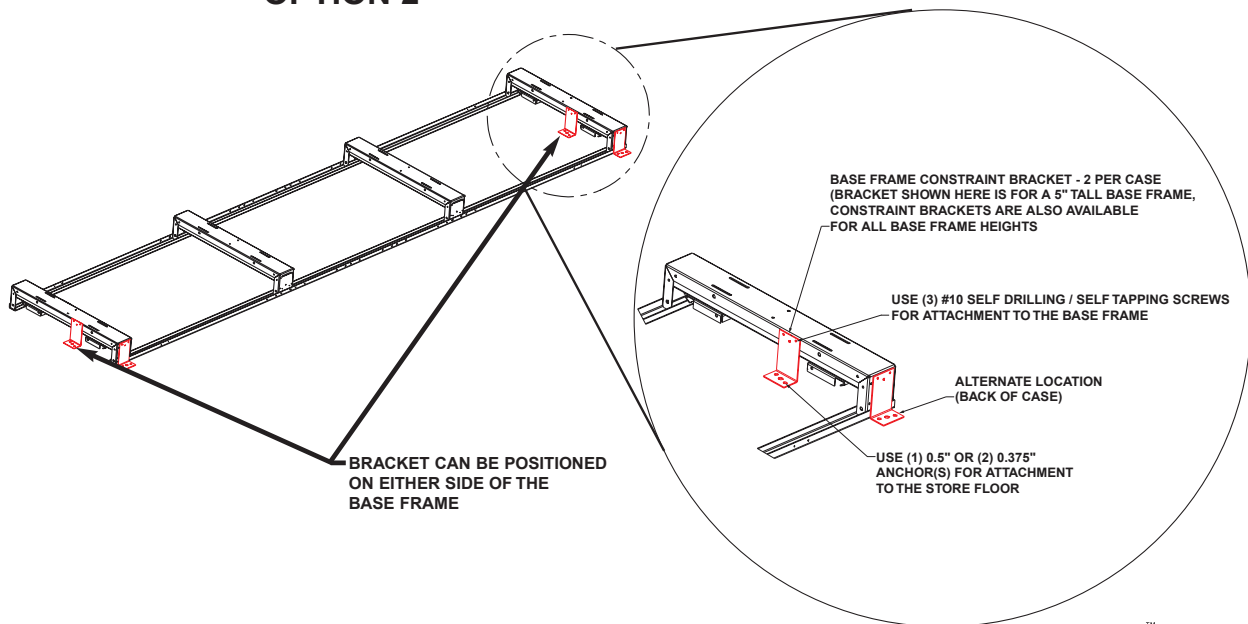
To determine subcooling for R-404A use BUBBLE POINT values (Temperatures above 50°F — Gray Background); to determine superheat for R-404A, use DEW POINT values (Temperatures 50°F and below).
** = exceeds critical temperature

The case constraint brackets can be installed in 2 ways. Option 1 can be used on multi-deck cases and uses an "L" bracket to attach the case to a vertical wall, as shown below. Option 2 can be used on multi-deck cases or on cases that do not have a canopy. Attach the "L" brackets to the base frames in either of the locations shown below. Brackets are available for all base frame heights.

OPTION 1



OPTION 2

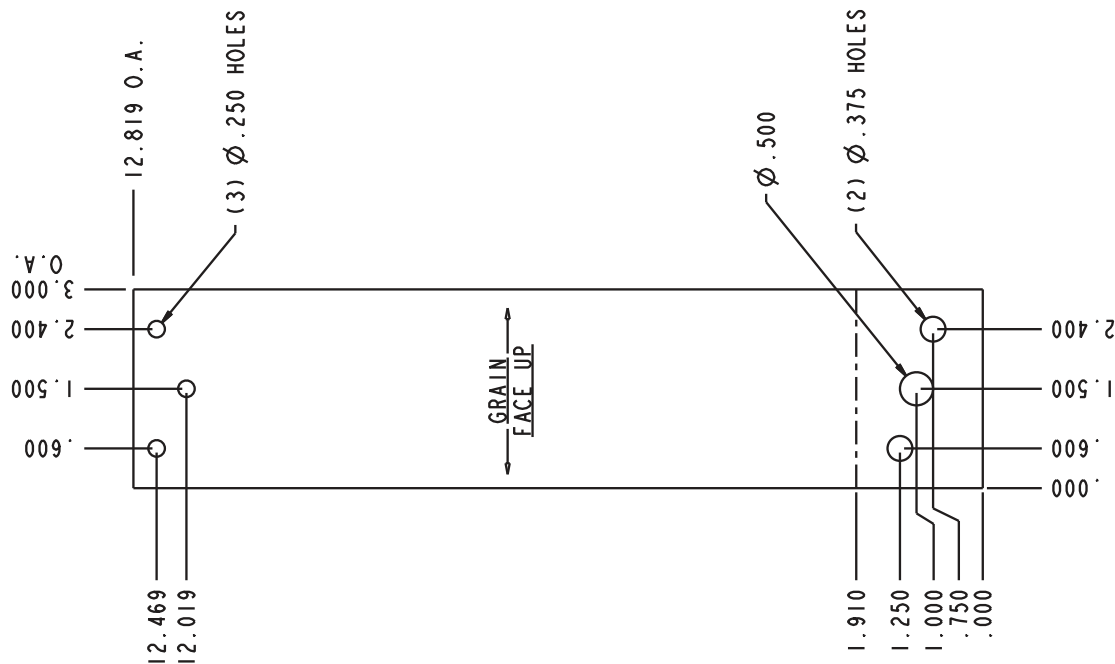


5" BRACKETS



DATE	ECN NO. (17)	DESCRIPTION
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX		

Technical drawing of a mechanical part, likely a shaft or rod. The part is a long, thin cylinder with a diameter of 2.00. The length is 11.00. The right end is rounded with a radius of R.094. The left end is labeled "FACE" with an arrow pointing to it.



TOP VIEW

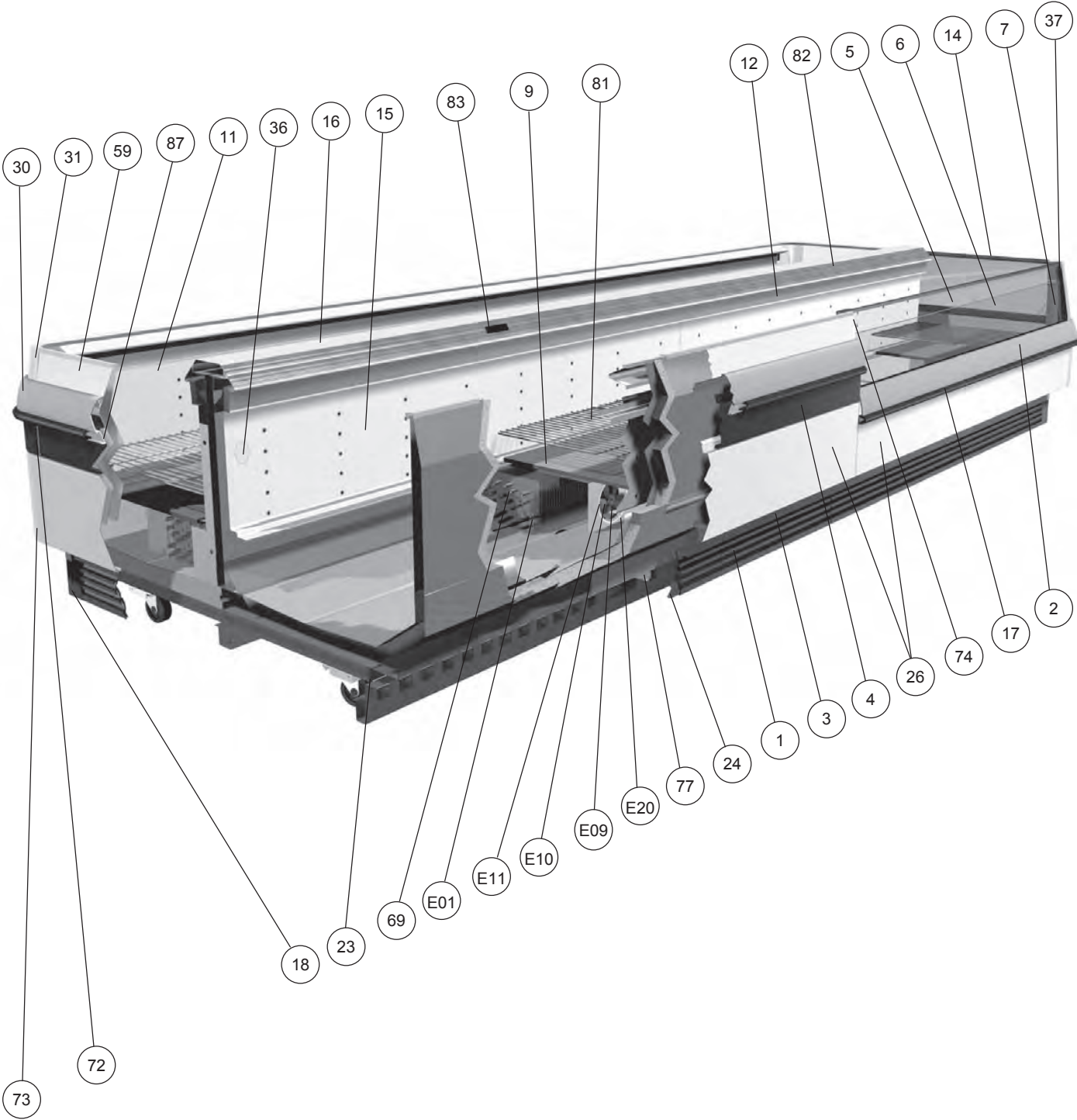
LEFT VIEW

FRONT VIEW

ALL BENDS 90° UNLESS SPECIFIED	SUPPLER:	GL
ALL FRACTIONAL DIM. \pm 1/32	TYPE:	MSP
DEGREES \pm 1° 3 PLC DECIMALS \pm .010	THICKNESS:	12G
2 PLC DECIMALS \pm .03	FINISH:	GALVANIZED
DRAWING NOT TO SCALE	PART NUMBER:	F766806GGL
Ⓢ = VARIANCE ACCEPTABLE		
Hill PHOENIX <small>HILL PHOENIX • 2000 •</small> 1925 RUFFIN MILL ROAD COLUMBIA, SC 29234 PH: (804) 526-4455 FAX: (804) 526-3723		
PART DESCRIPTION:		
BKT, L, 1" BF, CONSTRNT		
DRAWN BY: CWC	DATE: 05/15/06	SHEET: 1 OF 1

INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX

H.1 PARTS LIST



Location Number	Part Descriptions
1	Kickplate , Storm Grey
2	Master Bumper , Featherstone, Smoke, White, French Vanilla, Black
3	Lower Front Panel , Painted
4	Color Band , Painted
5	Thermopane , Front Sill Glass
6	Flue Glass
7	Flue Glass Bracket
9	Deck Pan , Painted, Unpainted
11	Front Baffle , Painted
12	Honeycomb
14	Glass Cap , for Solid Panel and Glass Front Extensions
15	Rear Baffle
16	Sill Cap , Center
17	Nose Bumper , Polymer Custom Color
18	Pedestal , Painted
23	Electrical Junction Box
24	“J” Rail , for Kickplate
26	Front Panel , Painted
30	Corner Bumper , Featherstone, Smoke, White, French Vanilla, Black
31	Corner Casting , for Solid Panel and Glass Front Extensions
36	Plug Button
37	Corner Glass Support
59	Upper Front Extension Panel , Painted
69	Coil
72	Color Band Corner
73	Front Panel Corner
74	Glass Joint Trim
77	P-Trap
81	Wire Rack
82	Tag Moulding
83	Thermometer , and Bracket
87	End Assembly , Wraparound (Shown), Solid Flat End
E01	Defrost Heater
E02	Anti-Condensate Heater (Not Shown)
E03	Thermostats , Temperature and Defrost Termination Control, (Not Shown)
E09	Fan Motor - STATE HIGH EFFICIENCY OR STANDARD
E10	Fan Blade
E11	Fan Basket , 6”
E20	Fan Cord-Set - High Efficiency or Standard (Not Shown)

NOTES

NOTES

NOTES



A  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 electricity to the case 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
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

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