Hillphoenix®

A DOVER™ COMPANY

SINGLE-DECK ISLAND MERCHANDISER

INSTALLATION & OPERATIONS MANUAL

0MZ / 0MZD
02MZD / 02.75MZD

Table of Contents

NSF COMPONENT c UL us

P061173B
V.1
02/13

REVISION HISTORY

VERSION 1 (02/13)

- new manual format

PRECAUTIONARY NOTICES

At Hillphoenix®, the safety of our customers and employees, as well as the ongoing performance of our products, are top priorities. To that end, we call out important messages in all Hillphoenix installation and operations handbooks with an accompanying alert symbol paired with the words "DANGER!", "WARNING!", or "ATTENTION!". All of these important messages will inform you of potential hazards and dangers to personal safety and health - as well as risks of case damage - if the instructions are not carefully followed.

ATTENTION!

Indicates an important point of information that is key to ensuring that case equipment functions properly.

CAUTION!

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

DANGER!

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

SERVICE NOTICE

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

LIABILITY NOTICE

For Cases with Shelf Lighting Systems

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

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

P079211M, REVO

R-744 (CO2) NOTICE

For Systems Utilizing R-744 (CO2) Refrigerant

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

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

WARNING: UNDER NO CIRCUMSTANCES 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 system.

GENERAL INFORMATION

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

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

CASE DESCRIPTION

This manual covers OMZ, OMZD, O2MZD and O2.75MZD single-deck merchandisers (*for operational data and case dimensions, see **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

Equipment has been carefully inspected 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 regarding display cases, please contact our Case Division Customer Service Department at the toll-free number listed below. 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/parts, 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 top-right panel.*

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

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

ATTENTION!

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

FLOOR PREP

1. Verify the building dimensions with the general contractor. Ask for the points of reference from which to take dimensions for setting 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 line. 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.

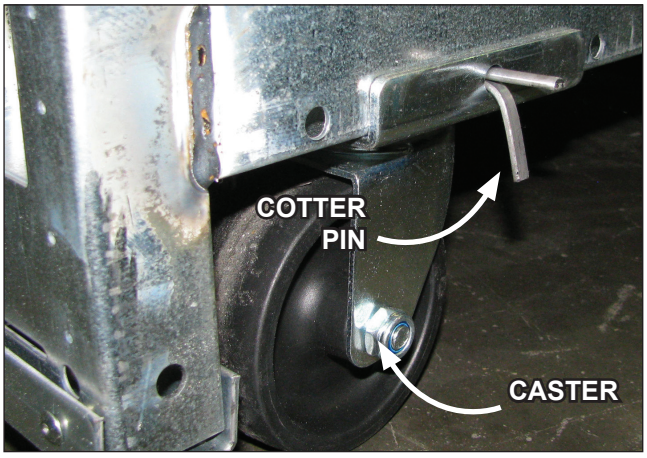


Fig. 1 Removing the casters is an easy process. Simply flatten and remove the cotter pins that are holding the casters in place. Then lift the case with a "J" bar and slide the caster assemblies out. The dismantled casters can now be discarded.

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.

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 rear wall. 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 materials, 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. Remove the return air grill at the case joint. The grill lifts out without fasteners and may be easily removed to gain clear access to the case-to-case joining bolts.
3. 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.
4. 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.
5. 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.
6. Repeat steps 3-6 of this sequence for all remaining cases. Be certain to properly level all cases.

*7. If seismic brackets were ordered, see **Appendix G** for detailed installation instructions.*

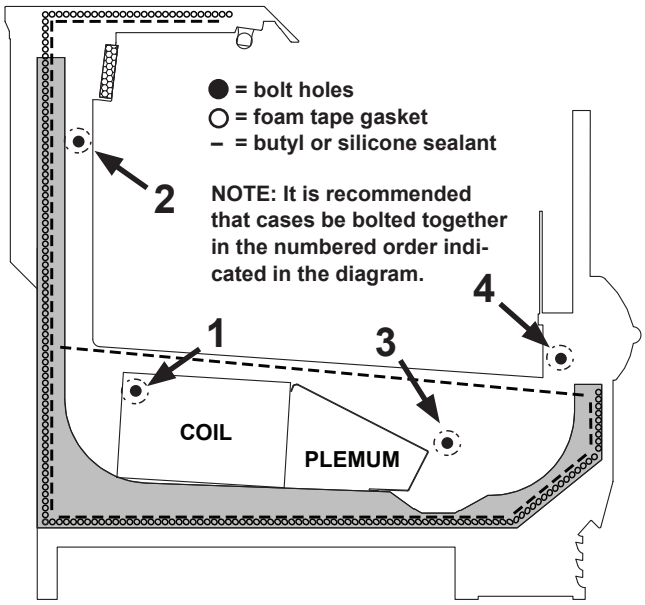


Fig. 2 Bolt holes, foam tape gasket and sealant
(O2MZD shown. Bolt hole locations in other models may vary.)

TRIM OUT

1. To align the master bumpers, slide master bumper joint trim in between adjoining master bumpers. (Fig. 3). Slide the master bumpers left or right to close the seams as required, working outwards from the center of the line-up to the ends.

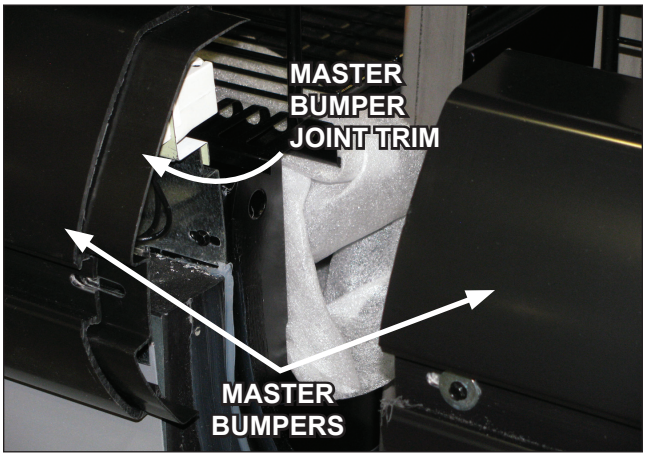


Fig. 3 Master bumpers and joint trim

2. 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.
3. Seal the interior 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.
4. Properly align the front panels as needed, then install the front panel trim (supplied).
5. Install rear sill joint trim (if applicable).
6. The “J” rail may be pre-installed at the factory or shipped loose with the case. If it is pre-installed, simply loosen the screws holding the “J” rail in place to allow it to slide down and fit flush with the floor. Re-tighten screws. If it is shipped loose, attach the “J” rail to the base horse with the screws provided.
7. Install lower front panel or upper kickplate retainer (if included). Insert top of kickplate into the kickplate retainer. Slide the kickplate up into the retainer, then down onto the “J” rail (Fig. 5). The bottom of the kick-plate fits over the extruding "lip" of the "J" rail.
8. Install end kickplates with screws provided and insert plug buttons.
9. Insert nose bumper into master bumper channel. Roll nose bumper into channel along entire lineup, up to 96’. We recommend leaving an additional 6" of nose bumper at the ends to allow for shrinkage during the first 24-48 hours following case start-up.

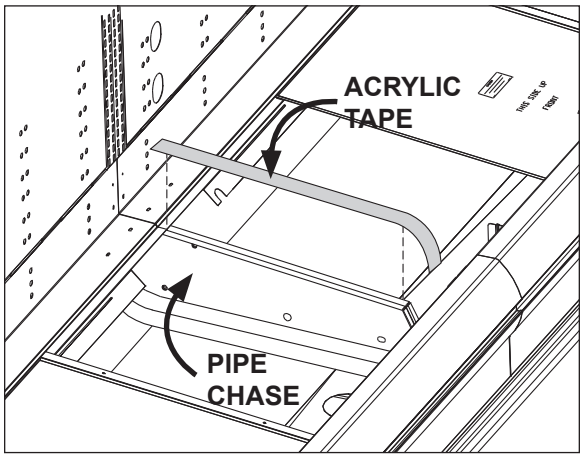


Fig. 4 Sealing the pipe chase

10. After sufficient time has passed to allow for bumper shrinkage, 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.

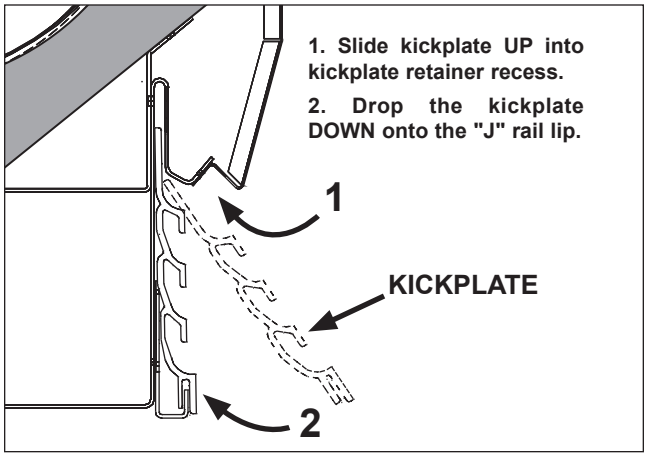


Fig. 5 Kickplate installation

11. Install case shelves. Be aware that differing shelf configurations will affect energy consumption and case performance.

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.

REFRIGERATION

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

If hot gas defrost is utilized, suction lines to each case in the circuit should be of equal distance from the main suction line. The expansion valve and other controls - located on the left-hand side of the case - are accessible by lifting the deck pans (lifting the fan plenum is not required).

Before operating the case, be certain to remove the shipping blocks (Fig. 6) that protect the refrigeration lines during shipping. 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.

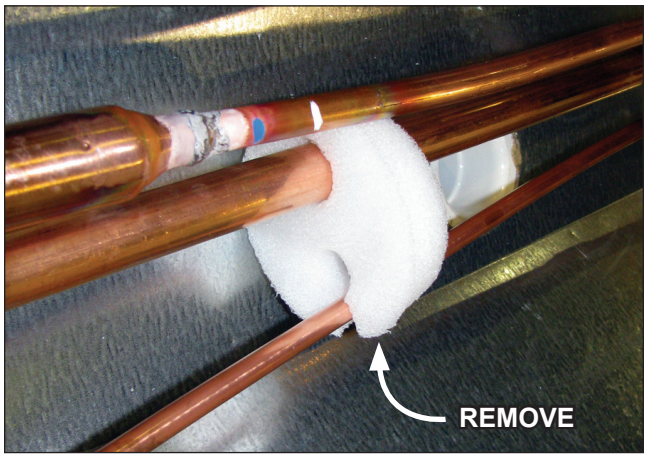


Fig. 6 Remove the shipping blocks

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. 7). Care should be given to ensure that all connections are watertight 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 very easy to remove. Simply lift the kickplate up from the "J" rail and pull it out, away from the case (*see **Trim Out** section*).

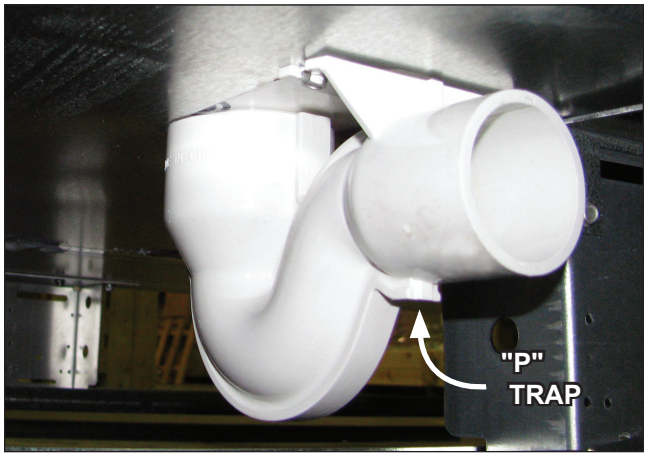


Fig. 7 "P" trap

ELECTRICAL

Electrical hookups are made to the electrical junction box or raceway running along the bottom-front of the case (Fig. 8).

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**.*

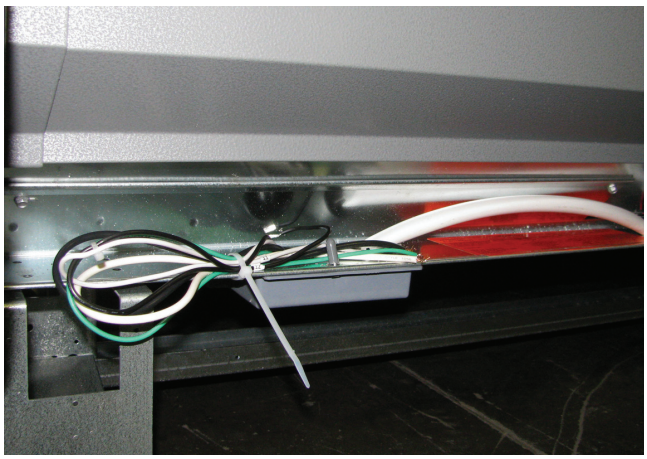


Fig. 8 Raceway

ATTENTION!

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

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 cleared the case of any loose packaging or case materials? (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)**

AIR FLOW & PRODUCT LOAD

It is important that you do not overload the food product display so that it impinges on the air flow pattern. Please keep products within the load limit line shown on the diagram below (Fig.9). Overloading will cause malfunction and the loss of proper temperature levels, particularly when discharge and return air sections are covered.

DEFROST & TEMPERATURE CONTROLS

In accordance with customer preference, 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 be mounted with the electrical controls of the case - i.e., in the electrical junction box, 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.

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 proper superheat settings, complete the following:

1. Obtain suction pressure from access port; obtain suction line temperature from area near TXV bulb at the outlet of evaporator coil (Fig. 10).
2. Using the suction pressure reading, convert pressure to temperature using temperature pressure chart (*see **Appendix F***).
3. Subtract the converted temperature reading from the actual temperature reading for superheat setting.

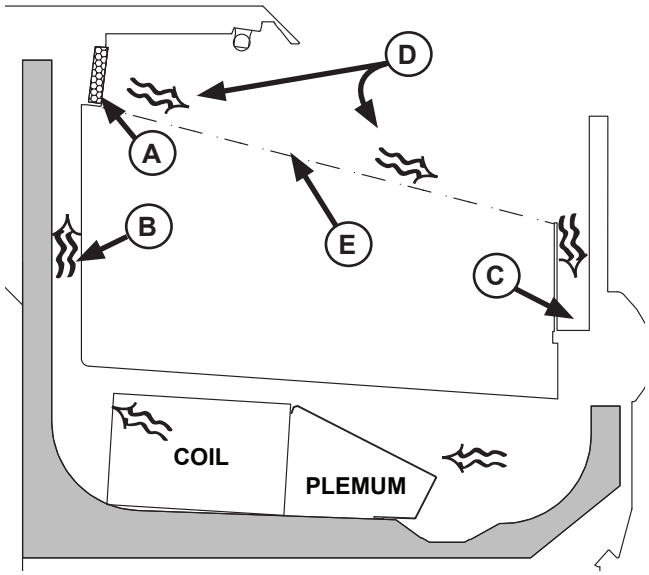


Fig. 9 Airflow; probe, sensor locations

A. DISCHARGE AIR
B. REAR BAFFLE
C. RETURN AIR
D. AIRFLOW
E. LOAD LIMIT

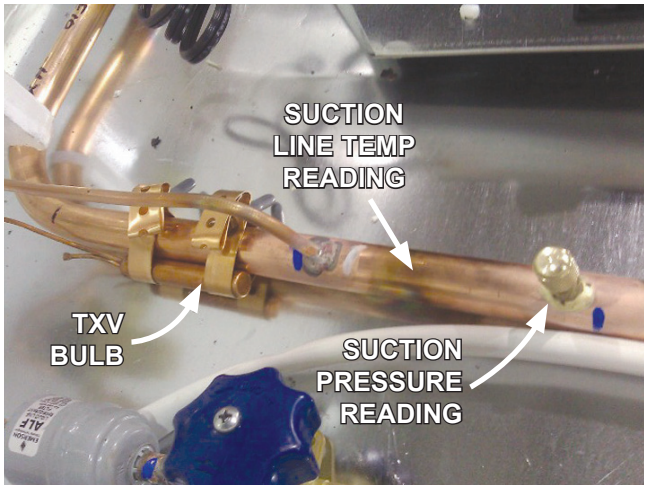


Fig. 10 Obtain pressure and temperature readings

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 shock hazard, be sure all electrical power is turned off before cleaning. In some installations, more than one disconnect switch may have to be turned off to completely de-energize the case.
- All surfaces pitch downward to a deep-drawn drain trough, funneling liquids and other debris to the front of the case where the waste outlet is located for easy access. Check waste outlet to insure it is not clogged before starting the cleaning process and avoid introducing water faster than the case drain can carry it away.
- 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.

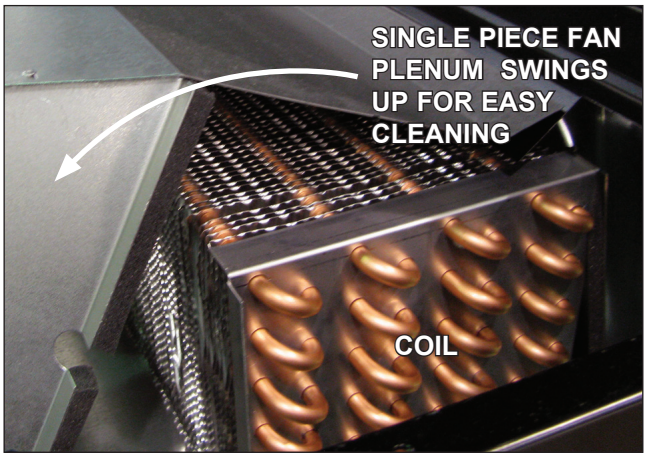


Fig. 11 Single-piece fan plenum and coil cover

FANS

The 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 motors 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 make a change:

1. Unplug the fan motor (Fig. 12), easily accessible outside the plenum. Be certain to push power cord back through plenum opening to avoid damage to power cord

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

Reverse procedure when re-installing fan basket.

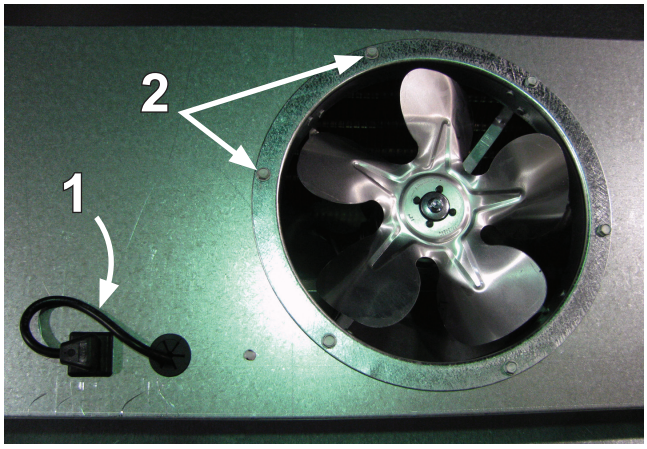


Fig. 12 Fan basket

DANGER!

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 result in severe cuts to the hands and arms.

APPENDIX

OPERATIONAL DATA

OMZ

Electrical Data

Case Length	Fans Per Case	High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
4'	2	0.23	14	0.60	72	3.85	800	4.43	1064
6'	2	0.23	14	0.90	108	5.77	1200	6.65	1596
8'	2	0.23	14	0.96	115	7.69	1600	8.88	2130
12'	3	0.35	21	1.83	220	11.54	2400	13.33	3200

Lighting Data

Case Length	Lights Per Row	Light Length	Clearvoyant LED Lighting (Per Light Row)			
			Standard Power (Cornice or Shelf)		High Power (Cornice)	
			120 Volts		120 Volts	
			Amps	Watts	Amps	Watts
4'	1	4'	0.10	11.9	0.18	21.5
6'	2	3'	0.14	16.6	0.25	29.8
8'	2	4'	0.20	23.8	0.36	43.0
12'	3	4'	0.30	35.7	0.54	64.5

Guidelines & Control Settings

[1]BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge[2] Air Velocity (FPM)
Conventional	Parallel				
592	526	3 - 5	-22	-10	220

Defrost Controls

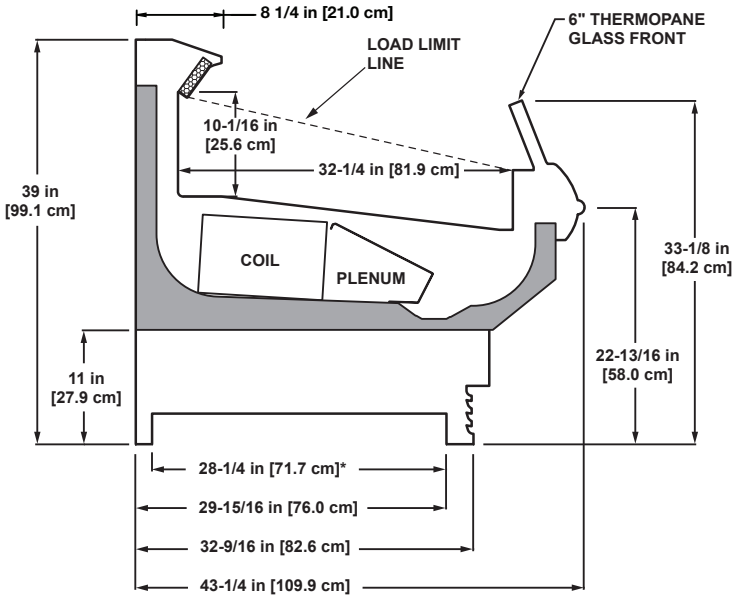
Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
4	13 - 15	45	47	- - -[3]	- - -	20	60	- - -	- - -

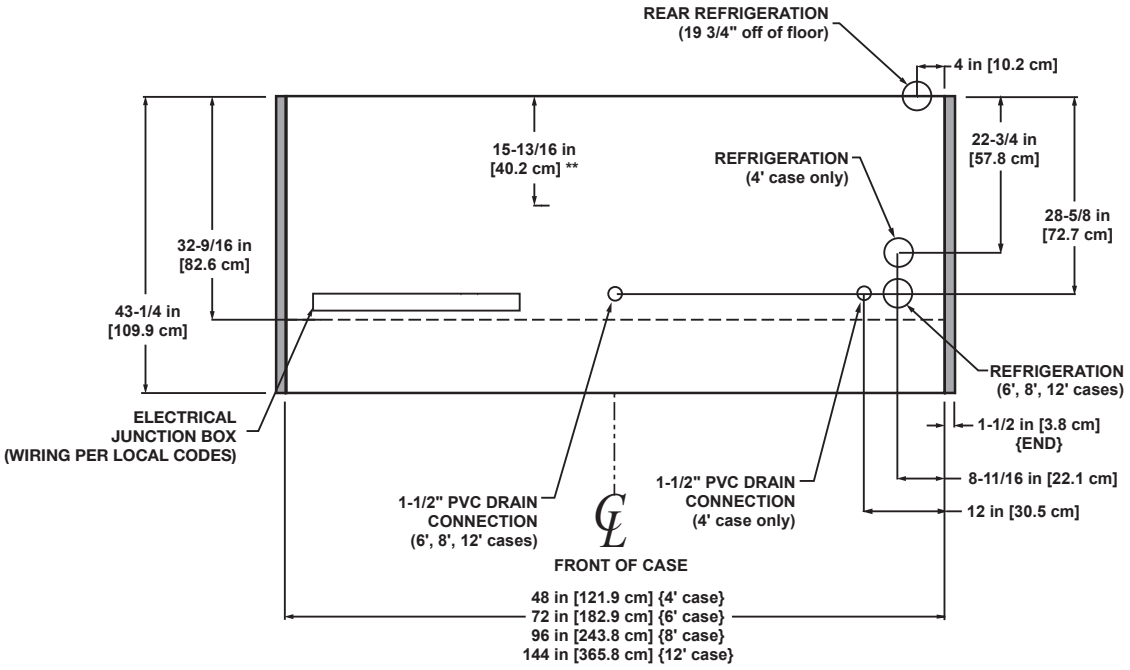
1 BTUH/ft notes:

- Standard fans (*see Appendix C*) increase refrigeration load by 96 BTUH/fan.
- Listed BTUH/ft indicate unlighted shelves. For LED lighting, add 36 BTUH per 4' lighted shelf and 27 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case. For T8 lighted shelves (*see Appendix D*) and 3rd row lighting, add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case.

2 Average discharge air velocity at peak of defrost.

3 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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE

OPERATIONAL DATA

OMZD

Electrical Data

Case Length	Fans Per Case	High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
4'	2	0.30	22	1.14	137	7.69	1600	8.88	2130
6'	2	0.30	22	1.28	154	11.54	2400	13.31	3195
8'	2	0.45	33	1.45	174	15.38	3200	17.76	4261
12'	3	0.60	44	2.59	311	23.08	4803	26.64	6395

Lighting Data

Case Length	Lights Per Row	Light Length	Clearvoyant LED Lighting (Per Light Row)			
			Standard Power (Cornice or Shelf)		High Power (Cornice)	
			120 Volts		120 Volts	
			Amps	Watts	Amps	Watts
4'	1	4'	0.10	11.9	0.18	21.5
6'	2	3'	0.14	16.6	0.25	29.8
8'	2	4'	0.20	23.8	0.36	43.0
12'	3	4'	0.30	35.7	0.54	64.5

Guidelines & Control Settings

Application	[1]BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge[2] Air Velocity (FPM)
	Conventional	Parallel				
Frozen Food	463	424	3 - 5	-17	-8	240
Ice Cream	484	444	3 - 5	-27	-18	240

Defrost Controls

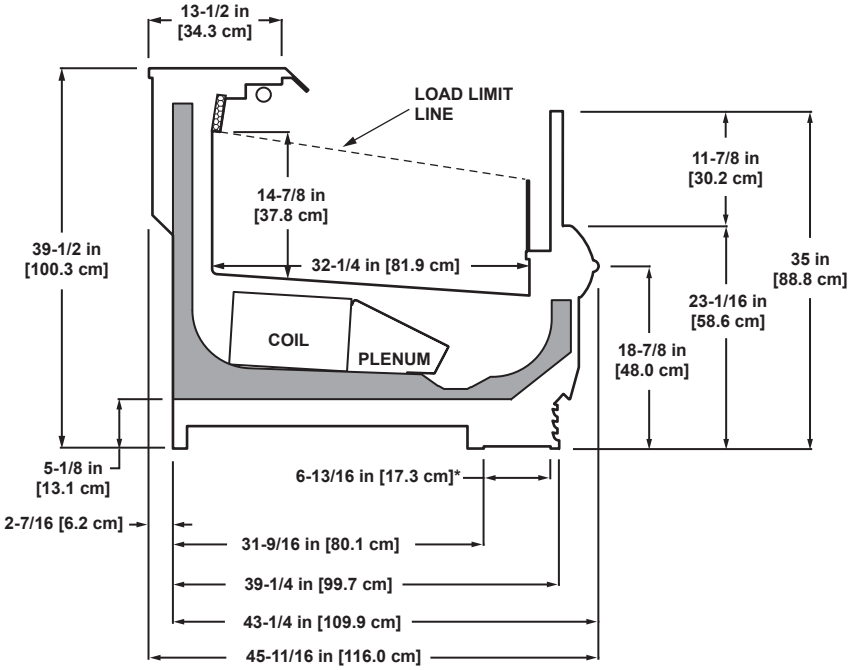
Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
3	13 - 15	45	50	- - -[3]	- - -	20	60	- - -	- - -

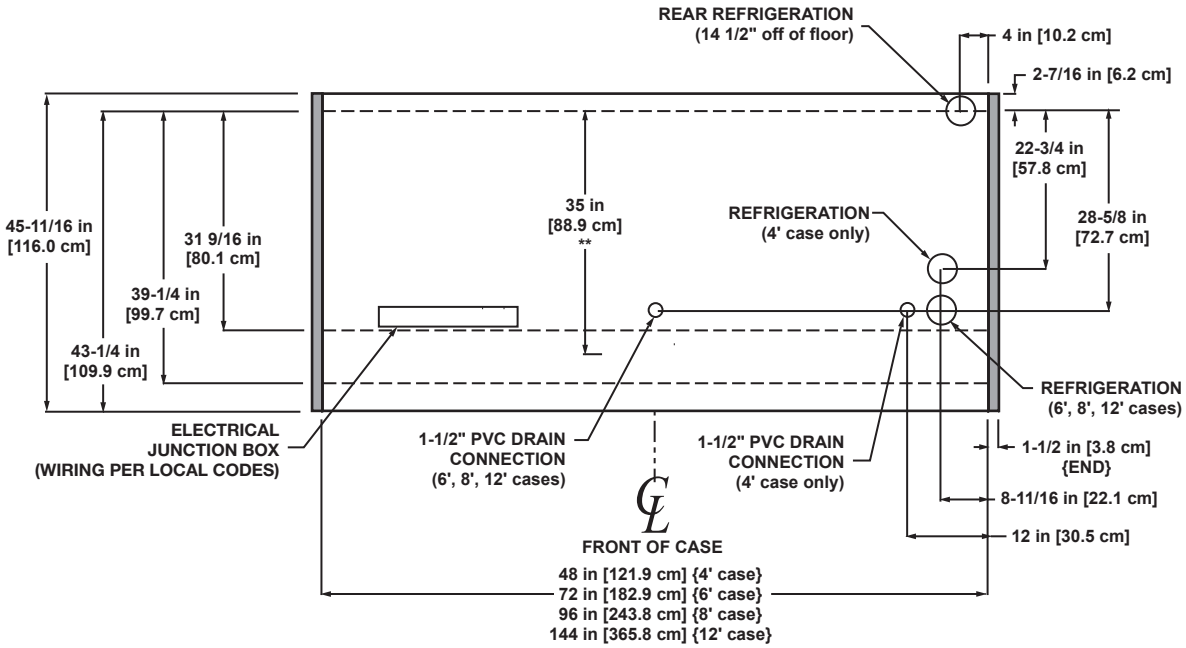
1 BTUH/ft notes:

- Standard fans (*see Appendix C*) increase refrigeration load by 96 BTUH/fan.
- Listed BTUH/ft indicate unlighted shelves. For LED lighting, add 36 BTUH per 4' lighted shelf and 27 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case. For T8 lighted shelves (*see Appendix D*) and 3rd row lighting, add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case.

2 Average discharge air velocity at peak of defrost.

3 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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE (4') - 1/2", SUCTION LINE (6' & 8') - 5/8", SUCTION LINE (12') - 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE

OPERATIONAL DATA

O2MZD

Electrical Data

Case Length	Fans Per Case	High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
4’	2	0.30	22	0.30	36	7.7	1600	8.9	2130
6’	2	0.30	22	0.50	60	8.7	1800	10.0	2400
8’	2	0.30	22	0.67	82	11.5	2400	13.3	3195
12’	3	0.45	33	1.00	120	17.3	3600	20.0	4795

Lighting Data

Case 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		120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts
4’	1	4’	0.47	56	0.10	11.9	0.18	21.5
6’	2	3’	0.74	88	0.14	16.6	0.25	29.8
8’	2	4’	0.94	112	0.20	23.8	0.36	43.0
12’	3	4’	1.44	168	0.30	35.7	0.54	64.5

Guidelines & Control Settings

Model	[2]BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge[3] Air Velocity (FPM)
	Conventional	Parallel				
O2MZD-F[1]	587	562	3 - 5	-17	-5	155
O2MZD-C[1]	600	582	3 - 5	-27	-14	155

Defrost Controls

Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost	
		Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
2	13-15	60	55	- - -[4]	- - -	30	70

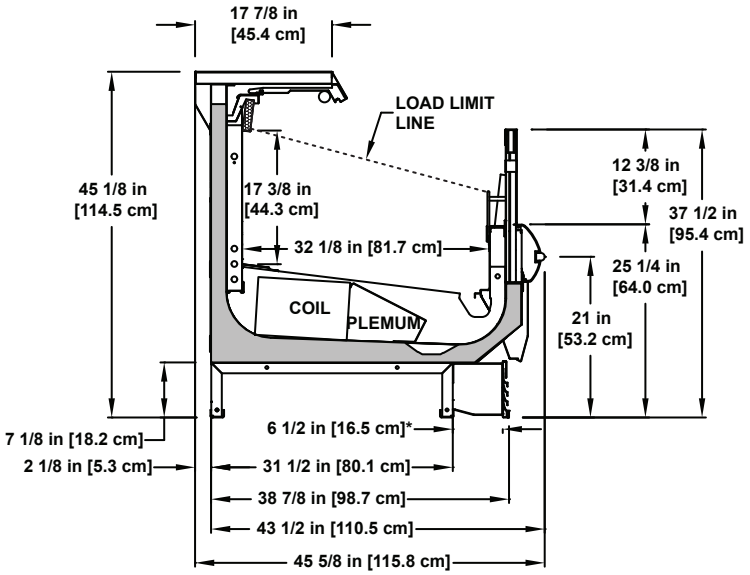
1 F=frozen food, C=ice cream.

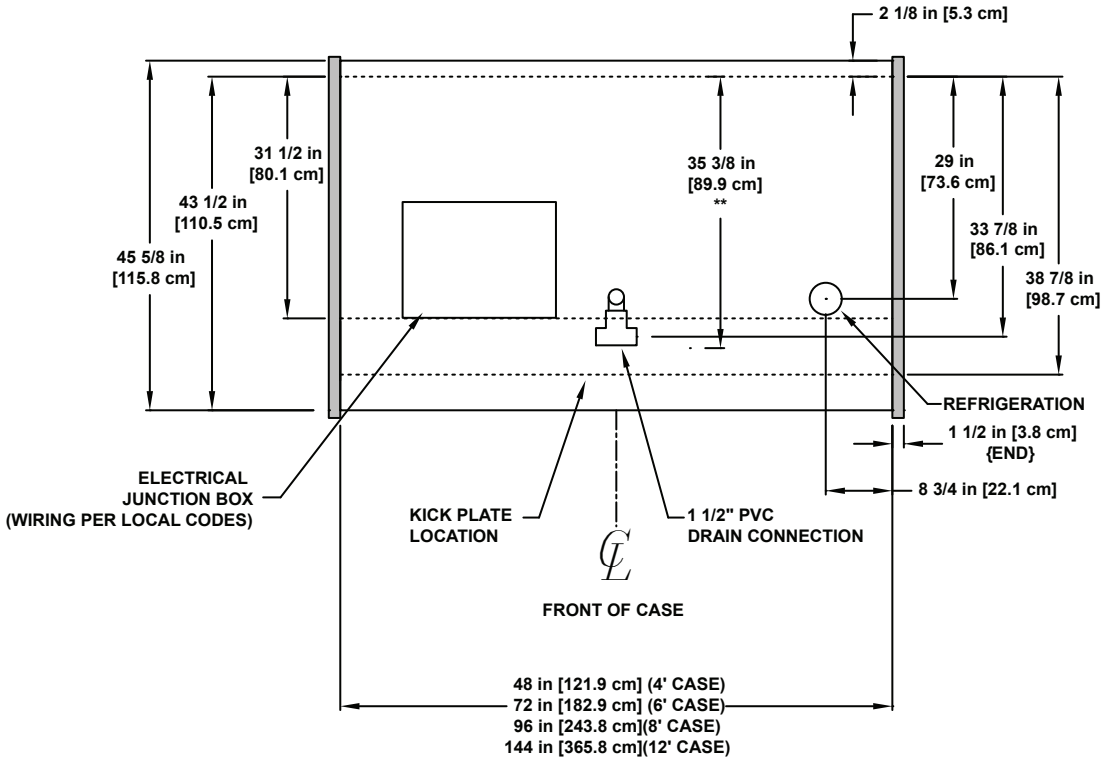
2 BTUH/ft notes:

- Listed BTUH/ft indicate unlighted shelves. For T8 lighted shelves and 3rd row lighting, add 80 BTUH per 4’ lighted shelf and 60 BTUH per 3’ lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case. For LED lighting, add 36 BTUH per 4’ lighted shelf and 27 BTUH per 3’ lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case.
- Standard fans 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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE (4")-1/2", (6' & 8')-5/8" , (12')7/8".
- LIQUID LINE (ALL LENGTHS)- 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK PLATE

OPERATIONAL DATA

O2.75MZD

Electrical Data

Case Length	Fans Per Case	High Efficiency Fans		Anti-Condensate[1] Heaters		Defrost Heaters			
		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
6'	2	0.30	22	1.15	138	11.54	2400	13.32	3196
8'	2	0.30	22	1.40	168	15.38	3200	17.75	4260
12'	3	0.45	33	2.14	257	23.08	4800	26.63	6390

Lighting Data

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

Guidelines & Control Settings

Application	[2]BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge[3] Air Velocity (FPM)
	Conventional	Parallel				
Frozen Food	1068	949	3-5	-22	-8	340
Medium Temp.	633	620	6 - 8	17	27	340

Defrost Controls

Application	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
Frozen Food	4	13 - 15	45	65	- - -[4]	- - -	20	60	- - -	- - -
Medium Temp.	1	13 - 15	35	49	- - -	- - -	20	60	- - -	- - -

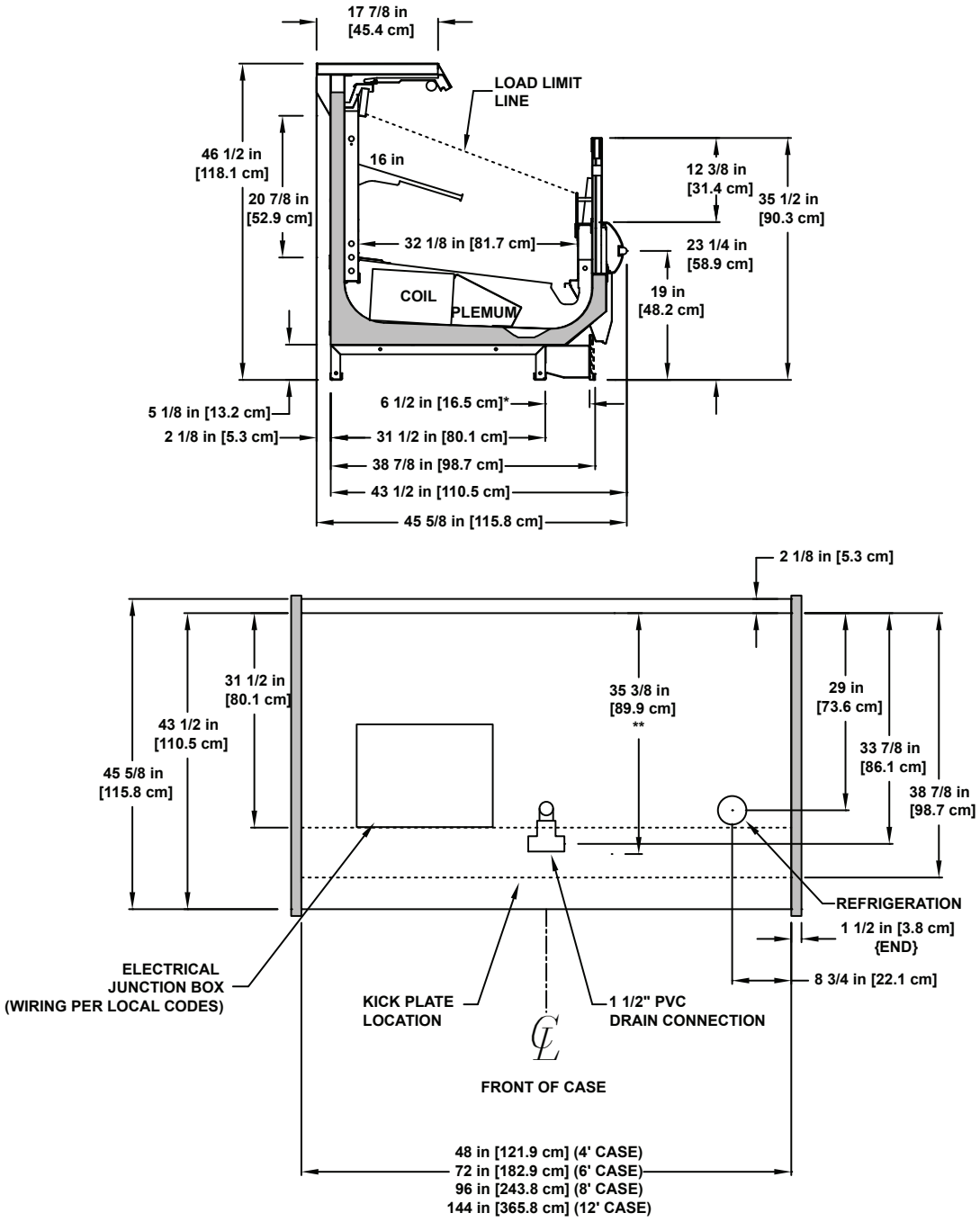
1 Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

2 BTUH/ft notes:

- Standard fans (see Appendix C) increase refrigeration load by 96 BTUH/fan.
- Listed BTUH/ft indicate unlighted shelves. For LED lighting, add 36 BTUH per 4' lighted shelf and 27 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case. For T8 lighted shelves (see Appendix D) and 3rd row lighting, add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load, then divide the Total Lighting BTUH Load by the length of the case.

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE (4")-1/2", (6' & 8')-5/8" , (12')7/8".
- LIQUID LINE (ALL LENGTHS)- 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK PLATE

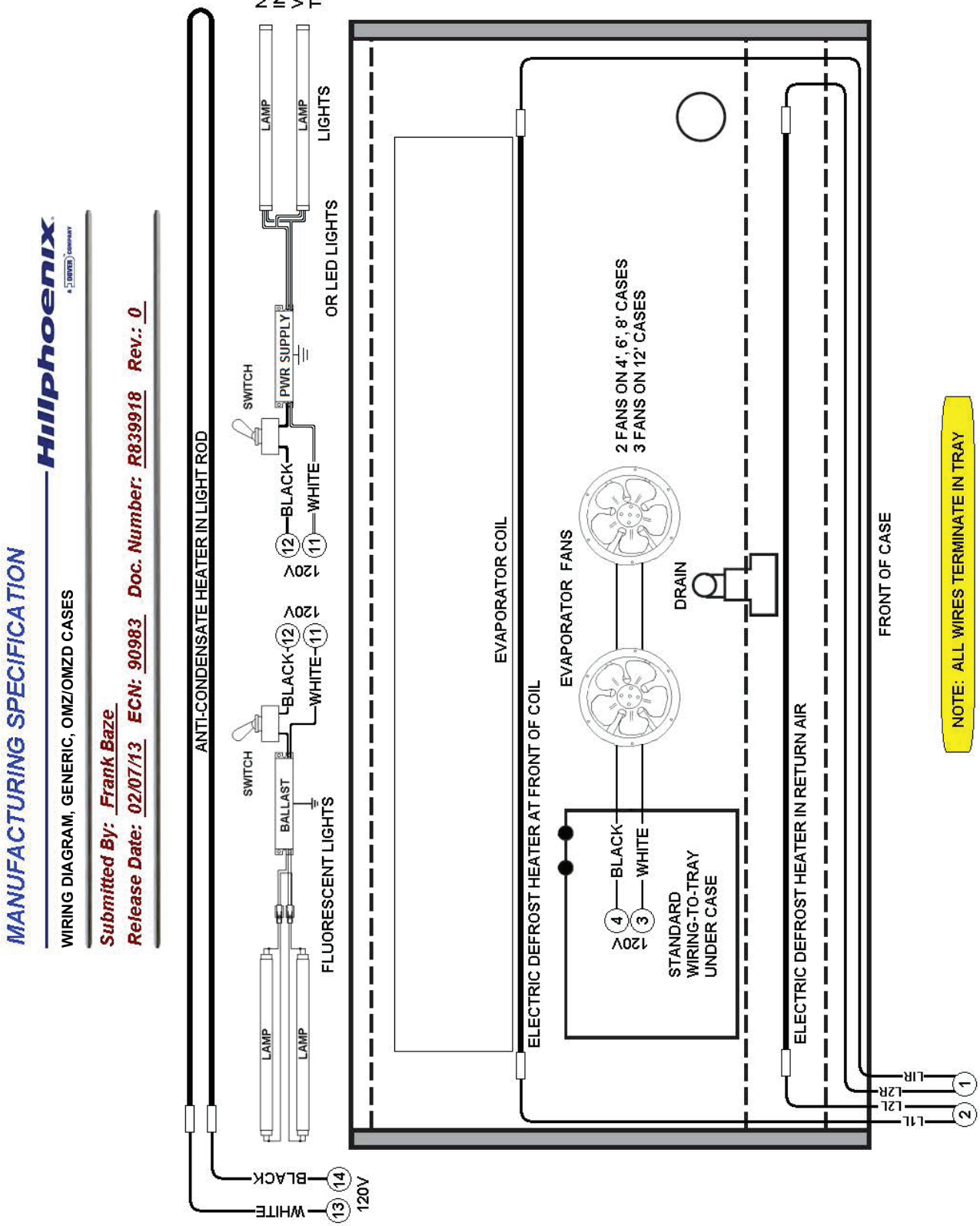
ATTENTION
ELECTRICIAN

:FOR SAFETY AND CODE COMPLIANCE GROUND FIXTURE AT TIME OF INSTALLATION

:CAUTION

RISK OF ELECTRIC SHOCK. MORE THAN ONE POWER-SUPPLY. DISCONNECT ALL POWER-SUPPLIES BEFORE SERVICING.

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


MANUFACTURING SPECIFICATION
Hillphoenix
WIRING DIAGRAM, GENERIC, OMZ/OMZD CASES
Submitted By: Frank Baze
Release Date: 02/07/13 ECN: 90983 Doc. Number: R839918 Rev.: 0
ANTI-CONDENSATE HEATER IN LIGHT ROD
WHITE
BLACK
13
14
120V
LAMP
LAMP
BALLAST
SWITCH
BLACK
WHITE
12
11
120V
FLUORESCENT LIGHTS
PWR SUPPLY
SWITCH
12
BLACK
WHITE
11
120V
LAMP
LAMP
NUMBER OF LAMPS IN LIGHT ROD VARIES ACCORDING TO SIZE OF CASE
LIGHTS OR LED LIGHTS
EVAPORATOR COIL
ELECTRIC DEFROST HEATER AT FRONT OF COIL
EVAPORATOR FANS
2 FANS ON 4', 6', 8' CASES
3 FANS ON 12' CASES
DRAIN
4
3
BLACK
WHITE
120V
STANDARD WIRING-TO-TRAY UNDER CASE
ELECTRIC DEFROST HEATER IN RETURN AIR
FRONT OF CASE
NOTE: ALL WIRES TERMINATE IN TRAY
L1R
L2R
L2L
L1L
1
2
ELECTRIC DEFROST
208/240V

Vacuum-Inches of Mercury
Bold Italic Figures

TEMPERATURE PRESSURE CHART - at sea level

Pressure-Pounds Per
Square Inch Gauge

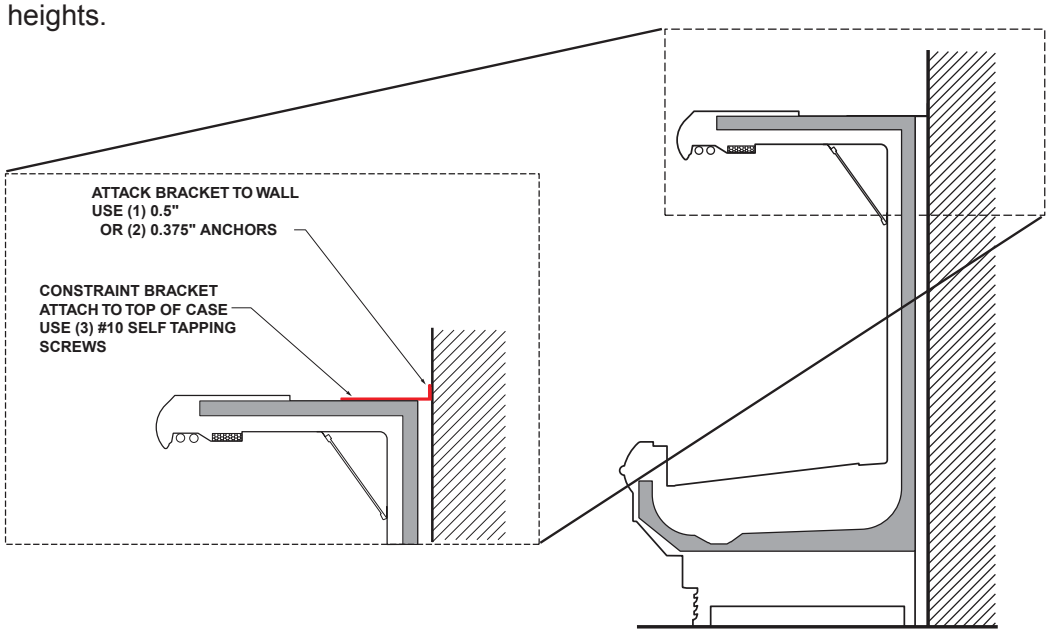
TEMPERATURE		REFRIGERANT (SPORLAN CODE)					TEMPERATURE		REFRIGERANT (SPORLAN CODE)					TEMPERATURE		REFRIGERANT (SPORLAN CODE)				
(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2	(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2	(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2
-60	-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

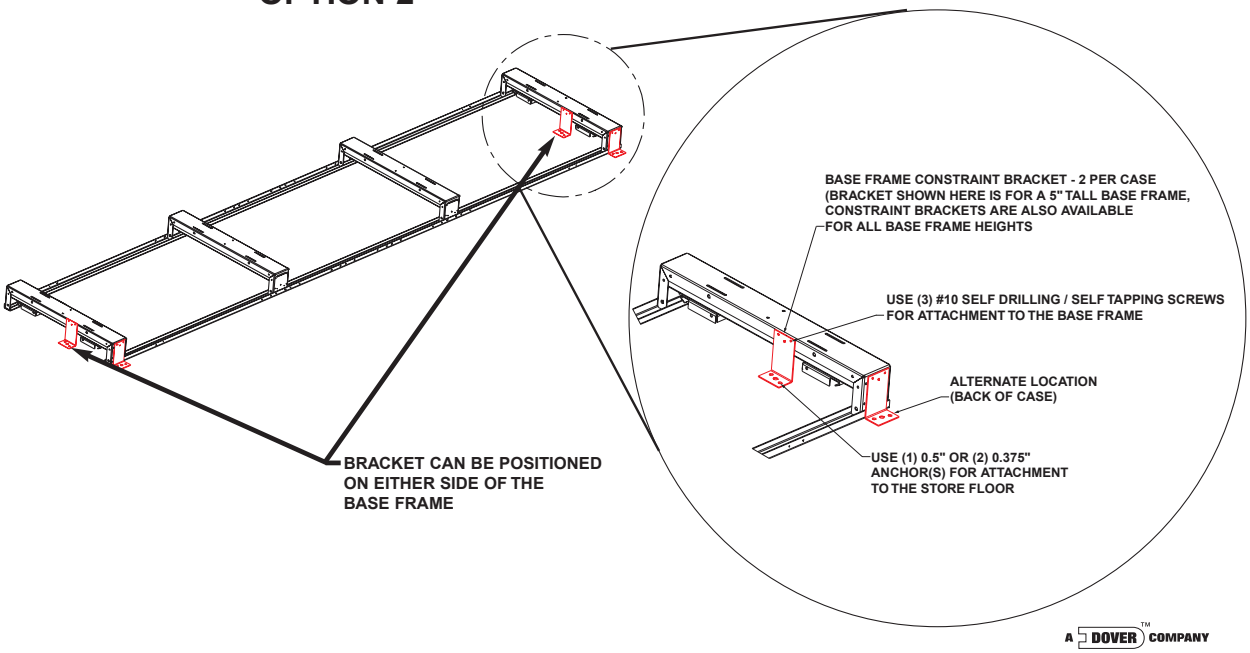
CONSTRAINT BRACKET INSTALLATION

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



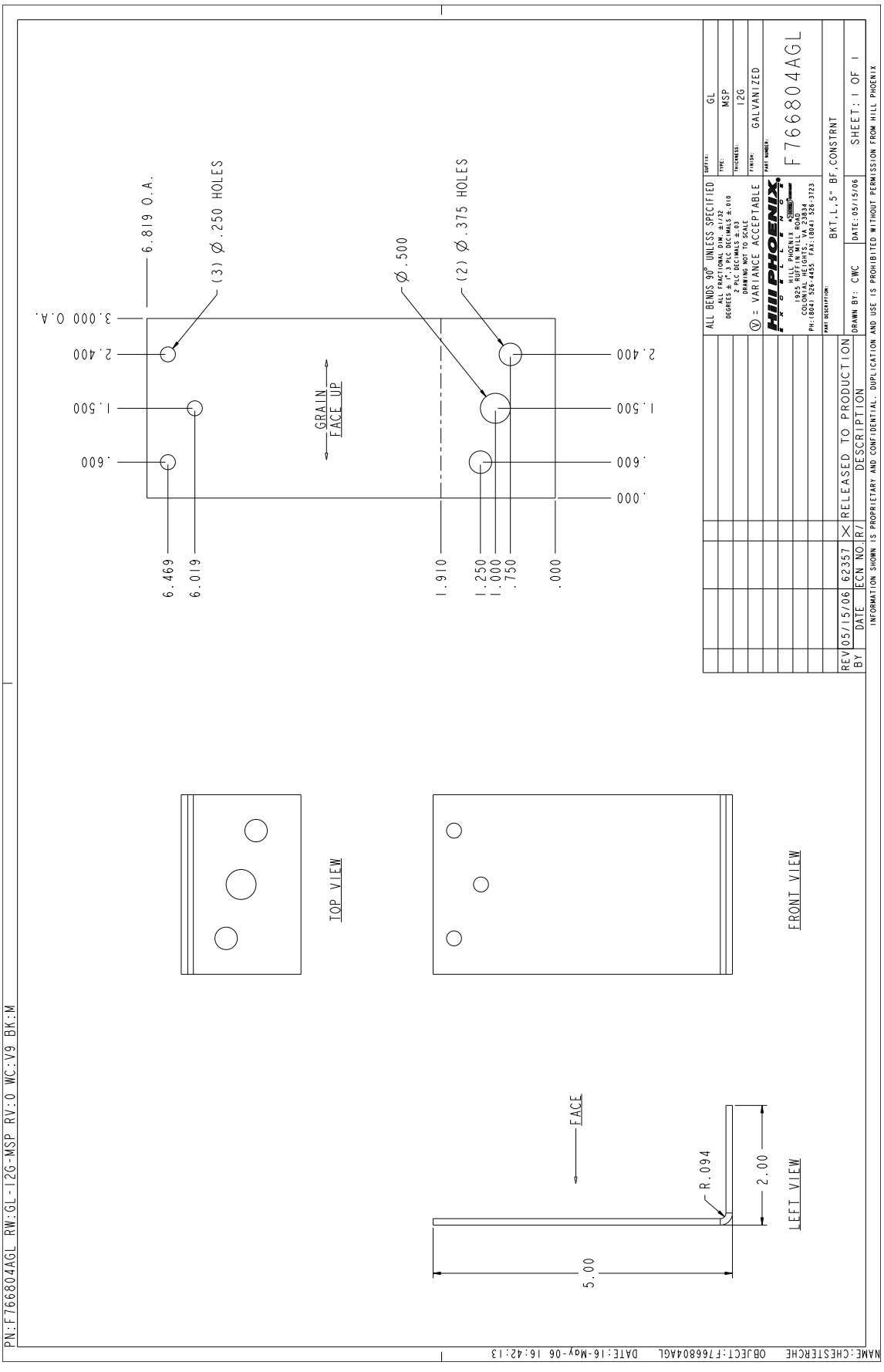
OPTION 2

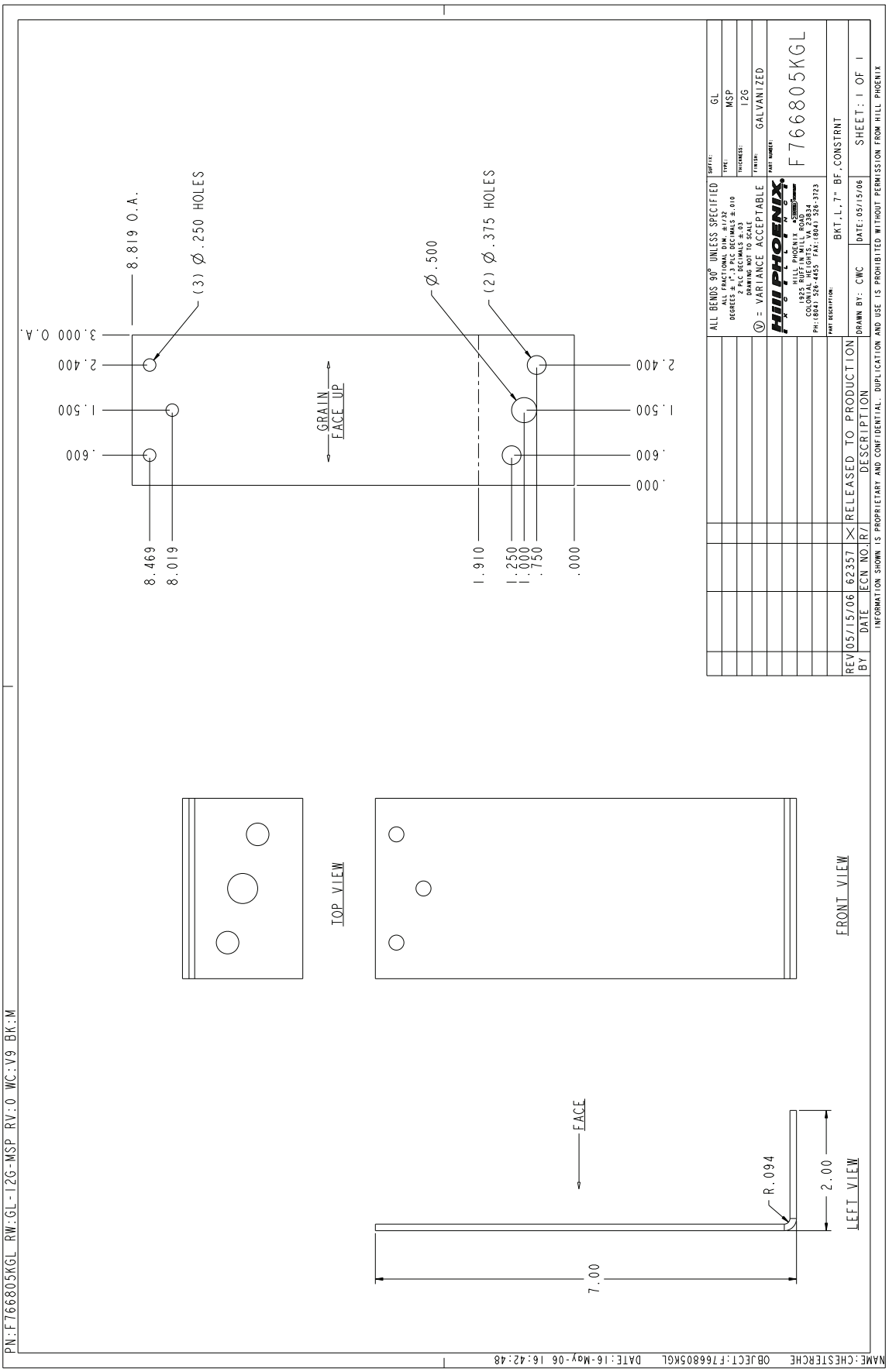


A DOVER™ COMPANY

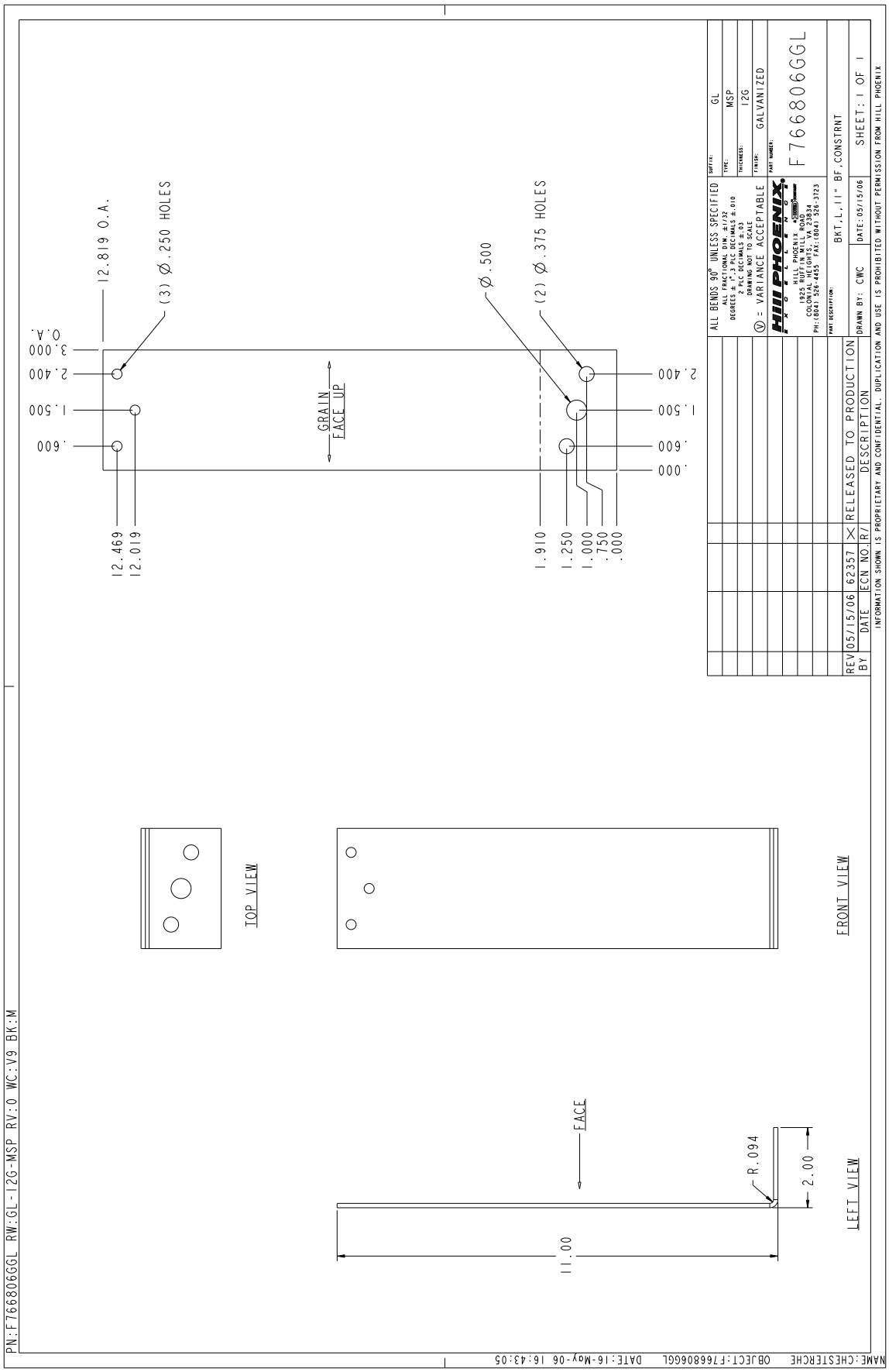
11/05

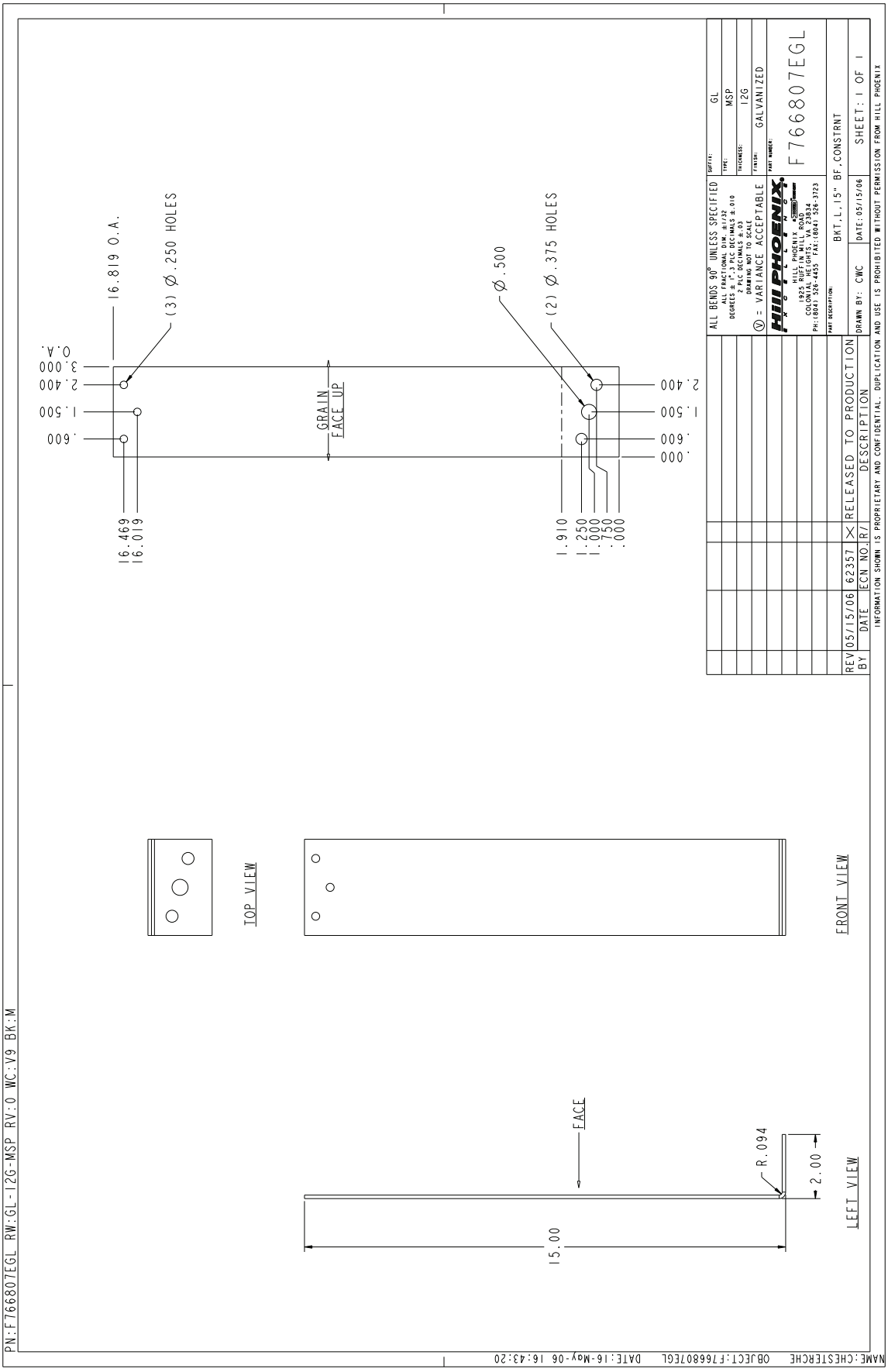
SEISMIC BRACKET (5”)




8.819 O.A.
(3) Ø.250 HOLES
Ø.500
(2) Ø.375 HOLES
3.000 O.A.
2.400
1.500
.600
GRAIN
FACE UP
8.469
8.019
1.910
1.250
1.000
.750
.000
TOP VIEW
FRONT VIEW
FACE
R.094
2.00
7.00
LEFT VIEW
ALL BENDS 90° UNLESS SPECIFIED
ALL ANGULAR DIM. ±1/2°
DECIMALS: 3 PLC DECIMAL ±.010
2 PLC DECIMALS ± .03
DRAWING NOT TO SCALE
Ⓥ = VARIANCE ACCEPTABLE
HILL PHOENIX
HILL PHOENIX
1825 RUFFIN MILL ROAD
COLUMBIA, SOUTH CAROLINA 29234
PH:(8041 526-4455 FAX:(8041 526-3723
PART DESCRIPTION: BKT.L,7" BF.CONSTRNT
DRAWN BY: CWC
DATE: 05/15/06
SHEET: 1 OF 1
SHAPE: GL
TYPE: MSP
THICKNESS: 12G
FINISH: GALVANIZED
PART NUMBER: F766805KGL
REV BY 05/15/06 DATE 62357 ECN NO. R/ RELEASED TO PRODUCTION DESCRIPTION
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX
PN:F766805KGL RW:GL-12G-MSP RV:0 WC:V9 BK:M
NAME:CHESTERCHE OBJECT:F766805KGL DATE:16-May-06 16:42:48

SEISMIC BRACKET (11”)




PN:F766807EGL RW:GL-12G-MSP RV:0 WC:V9 BK:M
NAME:CHESTERCHE OBJECT:F766807EGL DATE:16-May-06 16:43:20
16.819 O.A.
(3) Ø.250 HOLES
Ø.500
(2) Ø.375 HOLES
O.A.
3.000
2.400
1.500
.600
GRAIN
FACE UP
16.469
16.019
1.910
1.250
1.000
.750
.000
TOP VIEW
FRONT VIEW
LEFT VIEW
FACE
R.094
2.00
15.00
ALL BENDS 90° UNLESS SPECIFIED
ALL FRACTIONAL DIMS ± 1/32
DEGREES ± 1° DECIMALS ± .010
2 PLC DECIMALS ± .03
DRAWING NOT TO SCALE
Ⓥ = VARIANCE ACCEPTABLE
HILL PHOENIX
HILL PHOENIX
925 RUFFIN MILL ROAD
COLONIAL HEIGHTS, VA 23834
PH:(804) 526-4455 FAX:(804) 526-3723
SUFFIX: GL
TYPE: MSP
THICKNESS: 12G
FINISH: GALVANIZED
PART NUMBER: F766807EGL
PART DESCRIPTION: BKT,L,15" BF,CONSTRNT
DRAWN BY: CWC
DATE:05/15/06
SHEET: 1 OF 1
REV 05/15/06 62357 X RELEASED TO PRODUCTION
BY DATE ECN NO. R/ DESCRIPTION
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX

NOTES

NOTES

NOTES

Hillphoenix

A DOVER COMPANY

WARRANTY

HEREINAFTER REFERRED TO AS MANUFACTURER

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

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

The fourteen month warranty shall not apply:

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

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

3. Outside the continental United States.

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

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

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

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

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

MAIL CLAIM TO:

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

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

Warning
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 components 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.

Hillphoenix
A DOVER COMPANY

Tel: 1-800-283-1109

1925 Ruffin Mill Road, Colonial Heights, VA 23834