Hillphoenix®

A DOVER™ COMPANY

REACH-IN DOOR MERCHANDISER
INSTALLATION & OPERATIONS MANUAL

ORZ-PV/ORZH-PV
ONRZ-PV/ONRZH-PV

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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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V.1
03/13

REVISION HISTORY

VERSION 1 (03/12)

- New manual

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.

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 ORZ-PV, ORZH-PV, ONRZ-PV and ONRZH-PV reach-in door 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. 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 line. Spot properly leveled shim packs at each basehorse location. For narrow cases (ONRZ-PV and ONRZH-PV), place shim packs under both the basehorses and kickplate supports (Fig. 1).

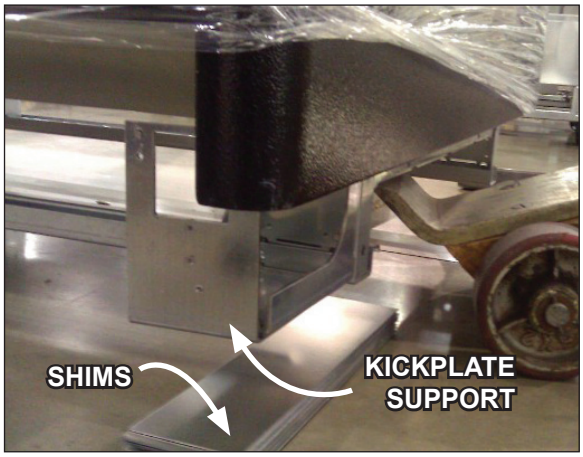


Fig. 1 Kickplate support

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 assemblies (Fig. 2) and lower the basehorse on to the shim packs. Repeat at other end.

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.

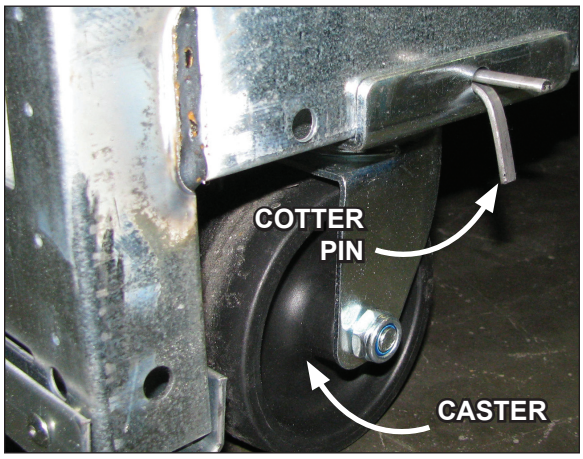


Fig. 2 Removing the casters is an easy process. Simply flatten and remove the cotter pins that are holding the casters in place. Then lift the case with a “J” bar and slide the caster assemblies out. The dismantled casters can now be discarded.

2. Once the basehorse is properly placed on the shim packs, check the horizontal level by placing a bubble level on the front sill. For the vertical plumb, repeat this process by placing the bubble level on the case frame. Add/remove shim packs as needed. ***NOTE: DO NOT use doors as plumb reference - doors have a designed setback. Use case frame for measurement.***

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. 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. Apply the foam tape gasket (supplied) and beads of butyl or silicone sealant to one of the adjoining case ends (Fig. 3). Remove the caster assemblies.
4. When the last casters are removed, pipe-rollers may be used to help move the case. While the case is still in a raised position, position the pipe-roller(s) near an interior vertical support of the baseframe assembly, then lower the case onto the pipe-roller(s). Be certain that both the front and back baserails are resting on the pipe-roller(s) - failure to do so may result in case damage.
5. Push the case to within 3-4 inches of the adjoining case. Once the case is properly positioned, lift it at the opposite end with the “J” bar in order to remove the piperoller(s).

6. Push the cases tightly together, then lightly bolt them together through the holes that are provided (Fig. 3). Tighten all the joining bolts until all margins are equal. Be careful not to over tighten.
7. Repeat steps 2-6 of this sequence for all remaining cases. Be certain to properly level all cases.
8. *If seismic brackets were ordered, see **Appendix G** for detailed installation instructions.*

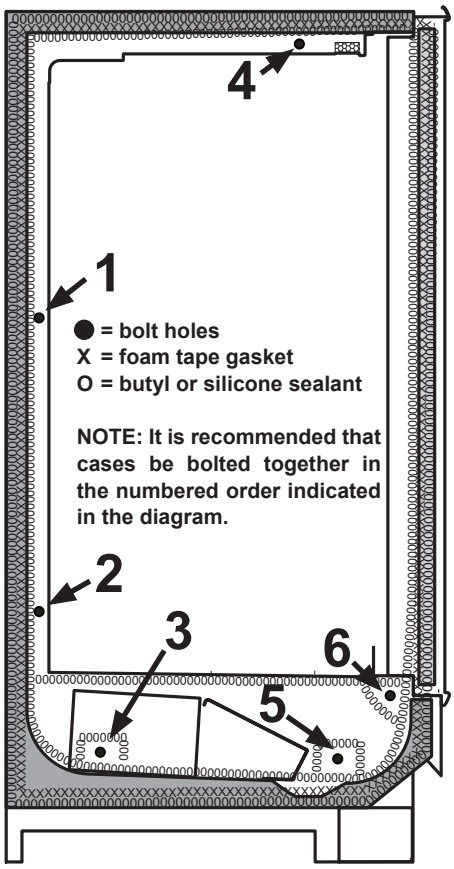


Fig. 3 Bolt holes, foam tape gasket and sealant

TRIM OUT

1. 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 penetrating the case joint.
2. Install the non-insulated plexiglass partitions (if ordered). *For detailed installation instructions, see **Appendix I**.*
3. Re-install shelves.
4. Install the front panel joint trim (Fig. 5). If bumper track is installed, loosen the screws in the track - work outward from the gap between front panels - to provide the space needed for installing the front panel trim. Once installed, secure the front panel underneath with a #8 Tek screw.

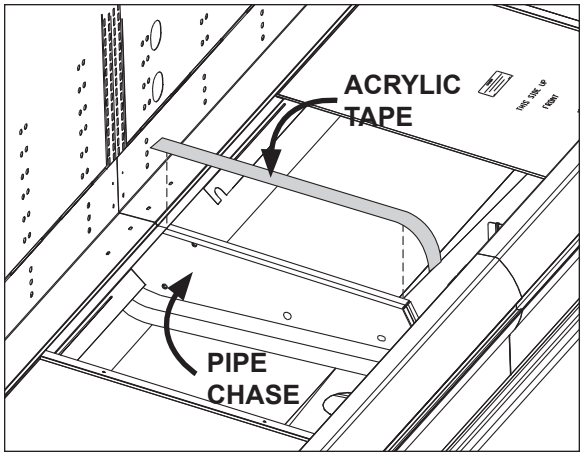


Fig. 4 Sealing the pipe chase

5. Install the lower front panel trim (Fig. 6) with a #8 Tek screw.
6. Inside the case, use the supplied sex bolts to close the gap between the frames (Fig. 7). On the outside, run a thin bead of caulk along the case-to-case seam, then carefully push the T-Bar case frame joint trim into the space between the frames (Fig. 8).

Fig. 5 Front panel joint trim

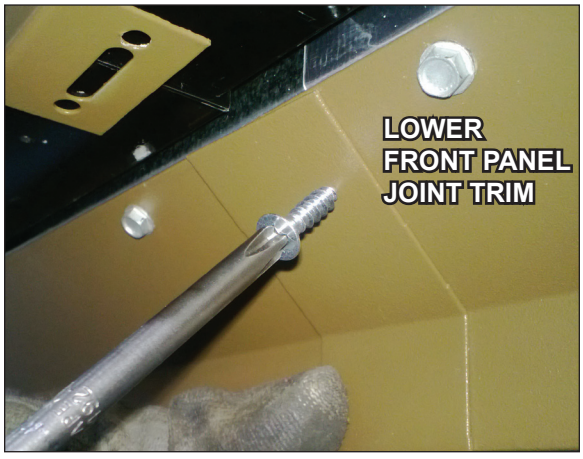


Fig. 6 Secure lower front panel joint trim

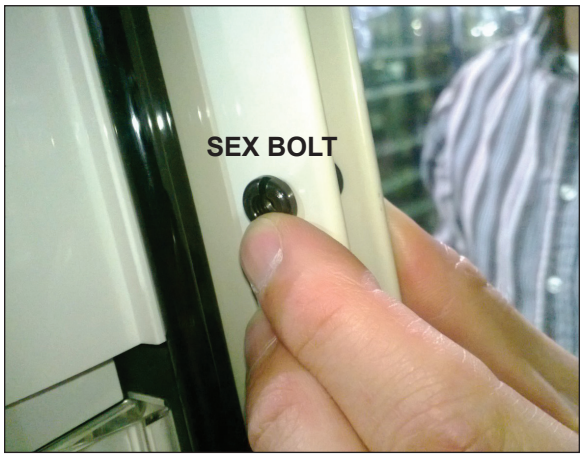


Fig. 7 Sex bolts for closing case frame gap

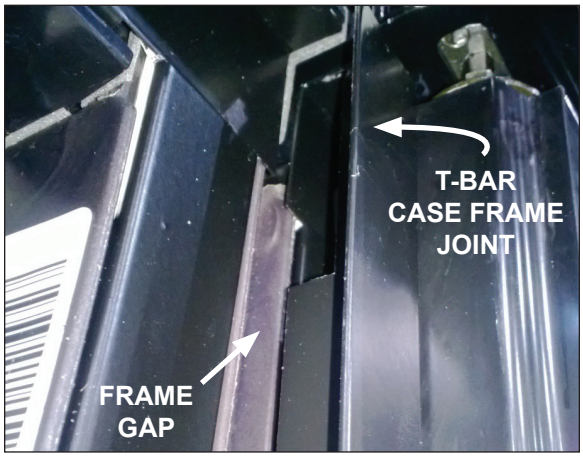


Fig. 8 T-Bar case frame joint trim seals case frame gap

7. Install the front sill joint trim (Fig. 9), then the cornice joint trim (Fig. 10).
8. Using the screws provided, install the upper kickplate retainer and the "J" rail, both of which are shipped loose in the case (Fig. 11). The kickplate brackets are pre-installed at the factory.

Fig. 9 Front sill joint trim

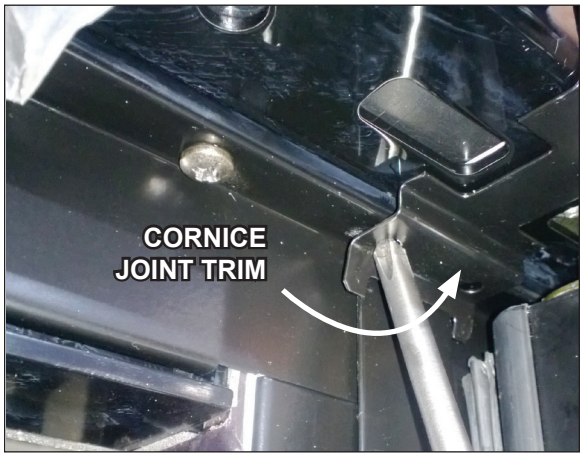


Fig. 10 Cornice joint trim

9. Insert top of kickplate into the kickplate retainer. Slide the kickplate up into the retainer, then down onto the “J” rail (Fig. 11). Be certain that the bottom of the kick-plate is fitted over extruding "lip" of the "J" rail.
10. Install end kickplates with screws provided and insert plug buttons.
11. Insert front panel bumper (if ordered) into the factory-installed bumper channel along the entire lineup, then cut away any excess bumper for final fit and finish. Be certain to use an appropriate cutting tool (tubing- or PVC-cutter) to ensure a smooth cut.

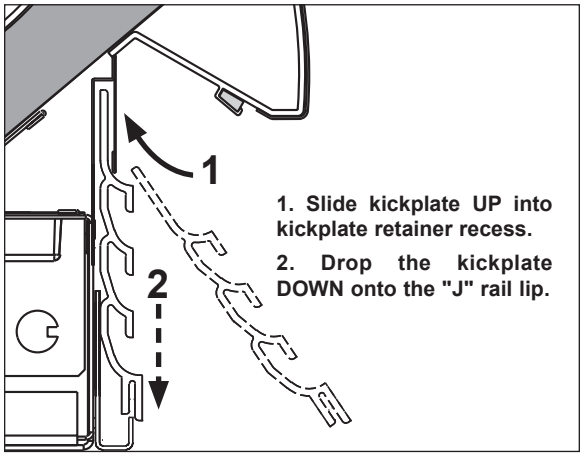


Fig. 11 Kickplate installation

REFRIGERATION

There are three available refrigeration piping options: standard, rear, and top-piping.

Standard piping penetration is located at the front-right area of the case, fully visible in front of the fan plenum. Rear piping penetration is located at the rear-right area, consisting of a pre-cut access punch-out, exposing the foam material that must be penetrated prior to pipe joining (Fig. 12). If top piping is utilized, piping stub-outs are located at the top-back-right of the case.

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 two left-hand deck pans (lifting the fan plenum is not required).

Before operating the case, be certain to remove the shipping blocks (Fig. 13) 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.

ATTENTION!

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

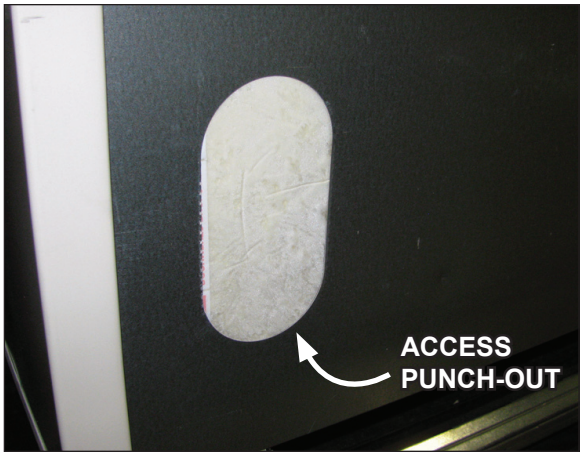


Fig. 12 Penetrate foam as needed to access piping

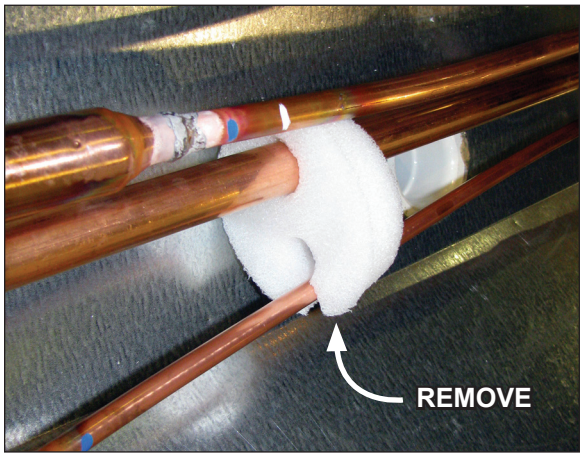
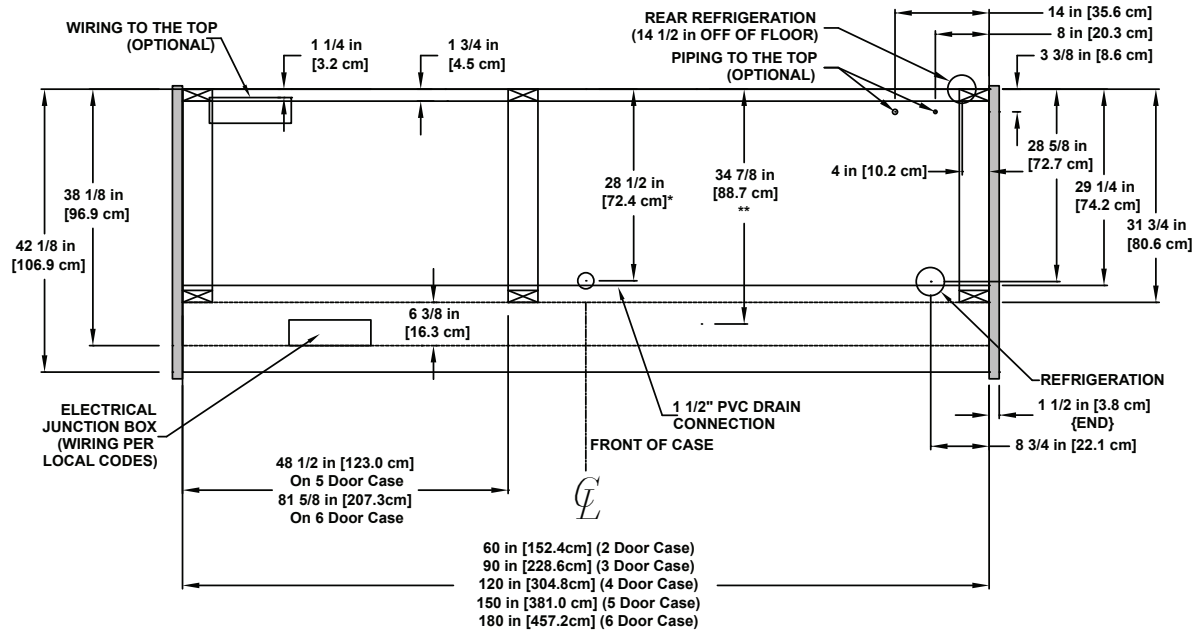


Fig. 13 Remove the shipping blocks

ORZ -PV

(ORZ -PV shown. For piping locations for other case models, see Appendices A-D.)



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. 14). Care should be given to ensure that all connections are water-tight and sealed with the appropriate PVC or ABS cement.

Fig. 14 "P" trap

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*).

ELECTRICAL

Electrical hookups are made to a junction box located either at the bottom-front-left of the case (Fig. 15), at the top-rear-left of the case (Fig. 16) or to the raceway running along the bottom-front of the case.

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**.*

LIGHTING

Lighting for reach-in door cases is pre-installed during the manufacturing process. For any questions or service needs, please contact our Case Division Customer Service Department toll-free at 1-800-283-1109.

Fig. 15 Junction box beneath case

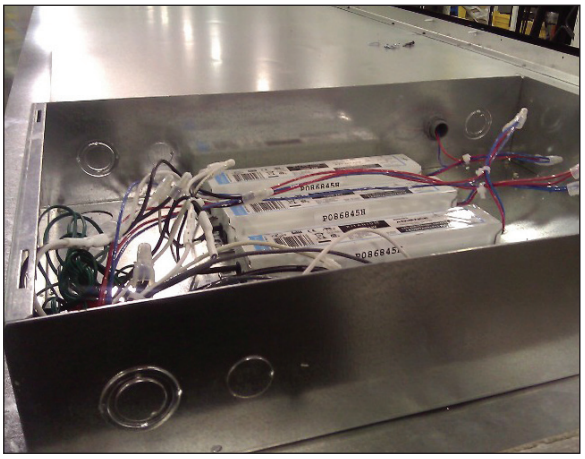


Fig. 16 Junction box on top of case

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!

When T-8 lighting is used, be certain that fluorescent bulbs are properly seated before energizing the case. Failure to do so may result in diminished operation and/or failure of lights.

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. 6)**
- ☐ **Have you sealed any tank penetrations? (see pg. 6)**
- ☐ **Have you cleared the case of any loose packaging or case materials? (see pg. 7)**

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 - overloading will cause malfunction and the loss of proper temperature levels, particularly when discharge and return air sections are covered. Please keep products within the load limit line shown on the diagram below (Fig.17).

DEFROST & TEMPERATURE CONTROLS

Hillphoenix cases utilize electric, hot gas, or timed-off defrost. All low-temperature reach-in cases have local defrost controls that terminate defrost cycles in individual cases, as well as rack-system controls for circuit termination. The primary components are the various defrost termination sensors, which work to terminate the defrost cycle. 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 (*see **Appendix H***). 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.

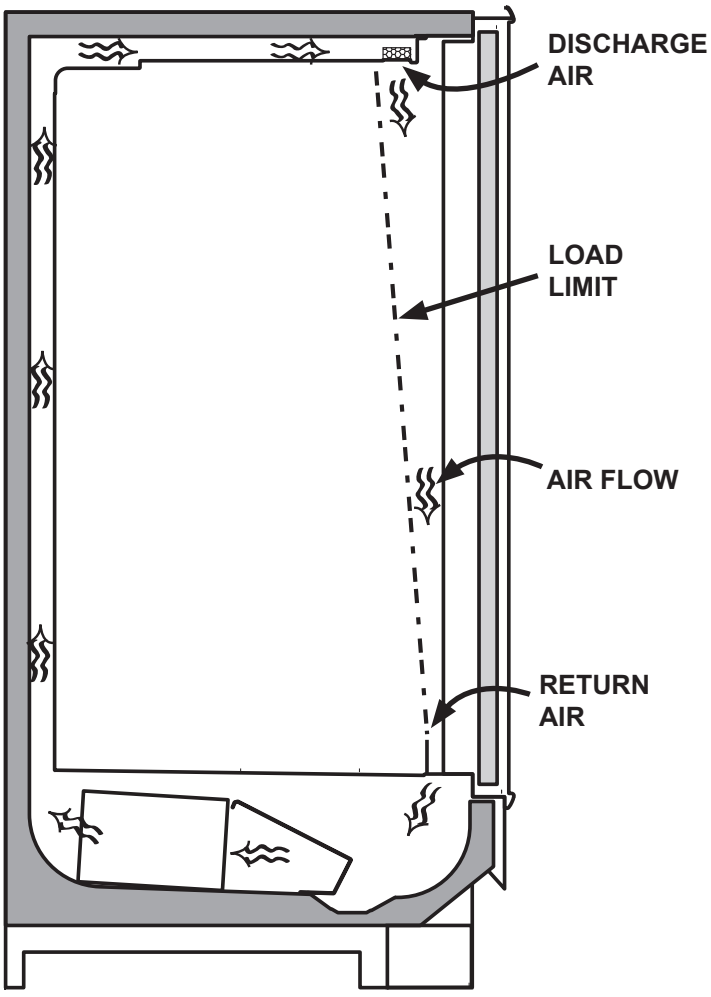


Fig. 17 Airflow

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 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. 18).
2. Using the suction pressure reading, convert pressure to temperature using temperature pressure chart (*see **Appendix F***).
3. Finally, subtract the converted temperature reading from the actual temperature reading for superheat setting.

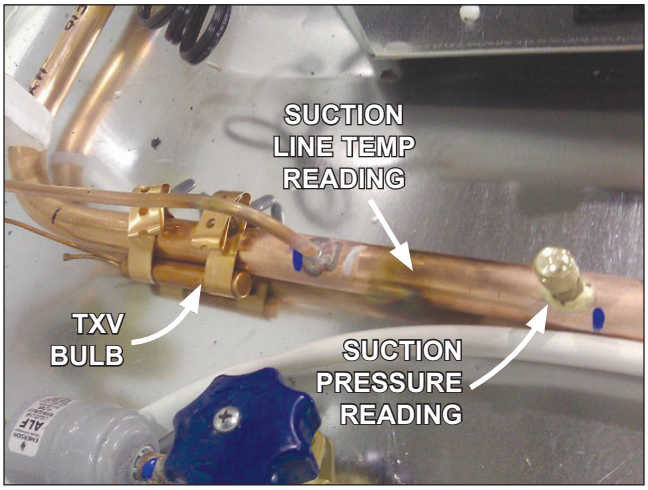


Fig. 18 Obtain pressure and temperature readings

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 LED luminaires, shut off the lights in the case, then wipe the luminaires down with a soft, damp cloth. Avoid using harsh or abrasive cleaners as they may damage the lights. Be certain that the luminaires 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.

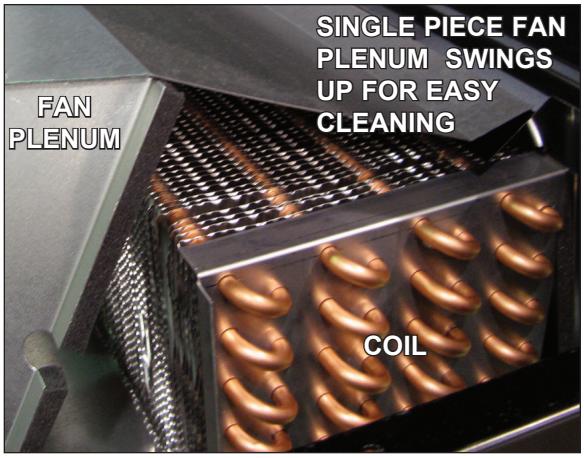


Fig. 19 Single-piece fan plenum and coil cover

FANS

EBM Papst fans have 8” fan blades with a factory-set blade pitch. Fans are pre-set for 1800 RPMs; if an airflow adjustment is required, replacement fans with a different RPM set-point may be ordered.

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. 20), easily accessible outside the plenum. Be certain to push power cord back through plenum opening.

2. Remove the fasteners, then lift out the entire fan basket.
Reverse procedure when re-installing fan basket.

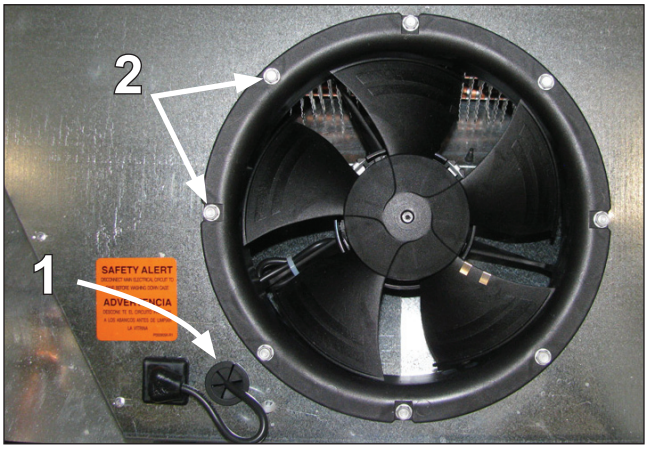


Fig. 20 Fan basket

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.

ELECTRICAL DATA

ORZ-PV

Electrical Data

Doors	Fans Per Case	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Tank[1] Heater 120 Volts Amps	Tank[1] Heater 120 Volts Watts	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters[2] (3-Phase) 208 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 208 Volts Watts	Defrost Heaters[2] (3-Phase) 240 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 240 Volts Watts
2-door	2	0.6	50	1.3	152	7.5	1552	8.6	2068	6.5	1552	7.5	2068
3-door	3	1.0	75	1.5	171	10.9	2274	12.6	3018	9.5	2274	10.9	3018
4-door	4	1.3	100	1.9	226	14.3	2984	16.6	3992	12.4	2984	14.4	3992
5-door	5	1.6	125	2.3	275	17.5	3640	20.2	4840	15.1	3640	17.4	4840
6-door	6	1.9	150	2.7	320	20.3	4224	23.4	5624	17.6	4224	20.3	5624

Lighting Data

Doors	LED Lighting Optimax Pro[4] 120 Volts Amps	LED Lighting Optimax Pro[4] 120 Volts Watts	LED Lighting GE IMMERSION 120 Volts Amps	LED Lighting GE IMMERSION 120 Volts Watts
2-door	0.3	39	0.3	32
3-door	0.5	58	0.4	48
4-door	0.6	77	0.5	64
5-door	0.8	96	0.7	80
6-door	1.0	115	0.8	96

Anti-Condensate Heater Data

Doors	PureView[5] Standard Heat[6] 120 Volts Amps	PureView[5] Standard Heat[6] 120 Volts Watts	PureView[5] Low Heat[7] 120 Volts Amps	PureView[5] Low Heat[7] 120 Volts Watts
2-door	1.49	178	1.03	123
3-door	2.23	267	1.54	185
4-door	2.97	356	2.05	246
5-door	3.71	446	2.56	308
6-door	4.46	535	3.08	369

Guidelines & Control Settings

Application	Door	BTUH/door Conventional	BTUH/door Parallel	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Discharge[8] Air Velocity (FPM)
Frozen	Standard Heat	1044	1014	-7	3 - 5	-3	400
	Low Heat	988	960	-7	3 - 5	-3	400
Ice Cream	Standard Heat	1091	1060	-15	3 - 5	-10	400
	Low Heat	1027	998	-15	3 - 5	-10	400

Defrost Controls

Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (°F)	Timed-Off Defrost Fail-Safe (min)	Timed-Off Defrost Termination Temp (°F)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (°F)
1	13 - 15	46	60[9]	- - -[10]	- - -	24	73[11]

1 Tank heater and fan motors share the same circuit (seperate cycles). Be certain that the circuit wiring is properly sized to handle the higher current draw of the tank heater.

2 3-phase load is unbalanced.

3 Figure given is maximum line amperage per phase.

4 Low-power lights. High-power option available.

5 Door frames are heated.

6 Door rails are heated; door glass is heated. Case is designed to operate in ambient store conditions of 75ºF and 65% relative humidity or less.

7 Door rails are heated; no heat on door glass. Case is designed to operate in ambient store conditions of 75ºF and 55% relative humidity or less.

8 Average discharge air velocity at peak of defrost.

9 Electric defrost sensor location is top-center of coil, 8” from left-hand coil end, beneath provided access hatch. If using a discharge air temperature sensor to terminate defrost, utilize a 55ºF termination temp.

10 NOTE: “- - -” indicates that the feature is not an option with this case model.

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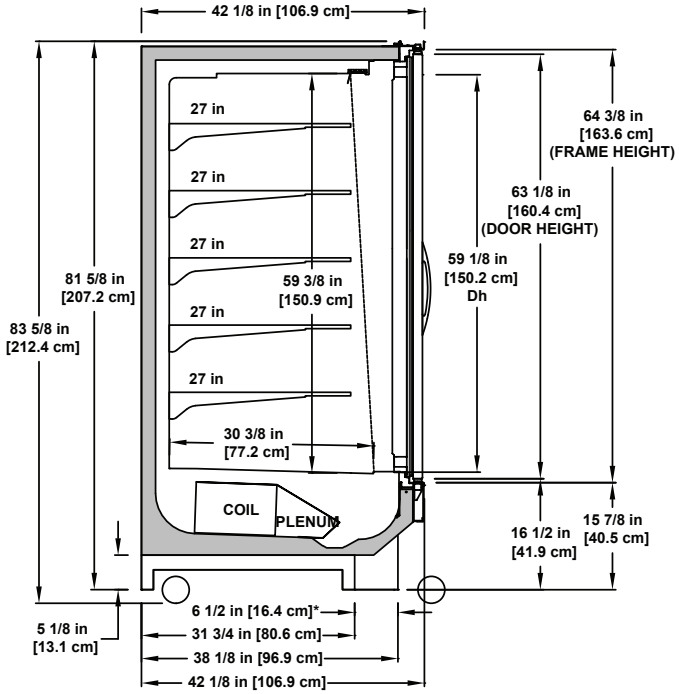

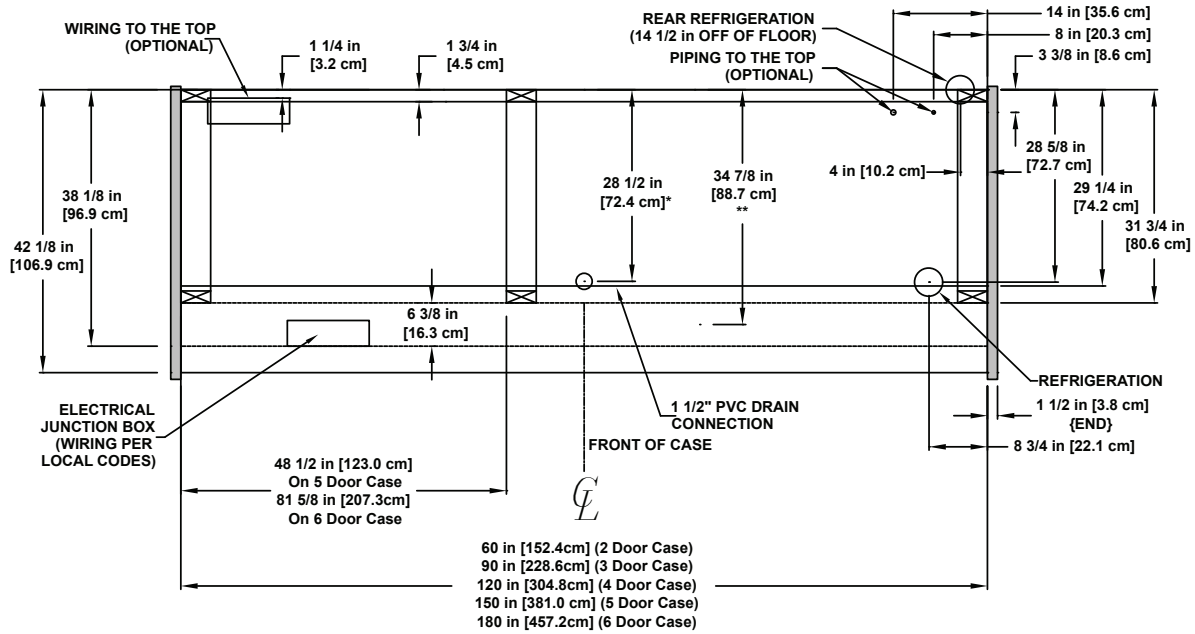

NOTES :
* : STUB-UP AREA
** : RECOMMENDED STUP-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING TO THE TOP ADDS APPROXIMATELY 4 INCHES TO CASE HEIGHT
- A 2 INCHES MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (2DR & 3DR) - 5/8", SUCTION LINE (4DR, 5DR, & 6DR) - 7/8"
- LIQUID LINE WITH HOT GAS DEFROST(ALL LENGTHS) - 3/8"
- LIQUID LINE (ALL LENGTHS) - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22" & 23 1/2" ,SOLID SHELVES 18", 20", 22", 24, & 27"
- RECOMMENDED CONFIGURATION IS 5-27" SHELVES BELOW TOP SHELF

ELECTRICAL DATA

ORZH-PV

Electrical Data

Doors	Fans Per Case	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Tank[1] Heater 120 Volts Amps	Tank[1] Heater 120 Volts Watts	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters[2] (3-Phase) 208 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 208 Volts Watts	Defrost Heaters[2] (3-Phase) 240 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 240 Volts Watts
2-door	2	0.6	50	1.3	152	7.5	1552	8.6	2068	6.5	1552	7.5	2068
3-door	3	1.0	75	1.5	171	10.9	2274	12.6	3018	9.5	2274	10.9	3018
4-door	4	1.3	100	1.9	226	14.3	2984	16.6	3992	12.4	2984	14.4	3992
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4-door	0.6	77	0.5	64
5-door	0.8	96	0.7	80
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Anti-Condensate Heater Data

Doors	PureView[5] Standard Heat[6] 120 Volts Amps	PureView[5] Standard Heat[6] 120 Volts Watts	PureView[5] Low Heat[7] 120 Volts Amps	PureView[5] Low Heat[7] 120 Volts Watts
2-door	1.55	185	1.05	125
3-door	2.32	278	1.57	188
4-door	3.09	371	2.09	251
5-door	3.86	464	2.61	314
6-door	4.64	556	3.14	376

Guidelines & Control Settings

Application	Door	BTUH/door Conventional	BTUH/door Parallel	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Discharge[8] Air Velocity (FPM)
Frozen	Standard Heat	1044	1014	-7	3 - 5	-3	400
	Low Heat	988	960	-7	3 - 5	-3	400
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	Low Heat	1027	998	-15	3 - 5	-10	400

Defrost Controls

Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (°F)	Timed-Off Defrost Fail-Safe (min)	Timed-Off Defrost Termination Temp (°F)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (°F)
1	13 - 15	46	60[9]	- - -[10]	- - -	24	73[11]

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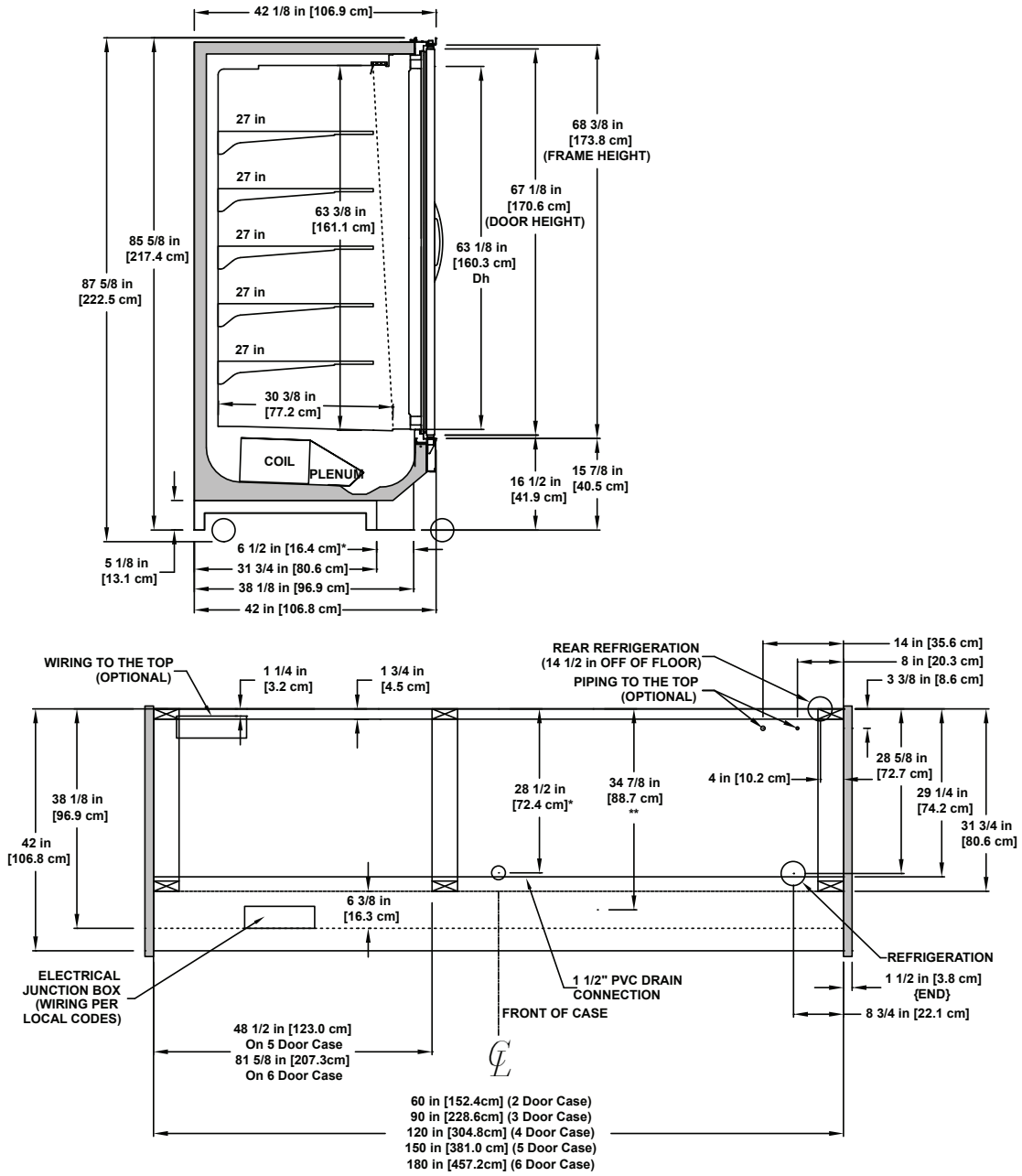

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- LIQUID LINE (ALL LENGTHS) - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22" & 23 1/2" ,SOLID SHELVES 18", 20", 22", 24, & 27"
- RECOMMENDED CONFIGURATION IS 5-27" SHELVES

ELECTRICAL DATA

ONRZ-PV

Electrical Data

Doors	Fans Per Case	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Tank[1] Heater 120 Volts Amps	Tank[1] Heater 120 Volts Watts	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters[2] (3-Phase) 208 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 208 Volts Watts	Defrost Heaters[2] (3-Phase) 240 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 240 Volts Watts
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2-door	0.3	39	0.3	32
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4-door	0.6	77	0.5	64
5-door	0.8	96	0.7	80
6-door	1.0	115	0.8	96

Anti-Condensate Heater Data

Doors	PureView[5] Standard Heat[6] 120 Volts Amps	PureView[5] Standard Heat[6] 120 Volts Watts	PureView[5] Low Heat[7] 120 Volts Amps	PureView[5] Low Heat[7] 120 Volts Watts
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Defrost Controls

Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (°F)	Timed-Off Defrost Fail-Safe (min)	Timed-Off Defrost Termination Temp (°F)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (°F)
1	13 - 15	46	60[9]	- - -[10]	- - -	24	73[11]

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2 3-phase load is unbalanced.

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9 Electric defrost sensor location is top-center of coil, 8” from left-hand coil end, beneath provided access hatch. If using a discharge air temperature sensor to terminate defrost, utilize a 55ºF termination temp.

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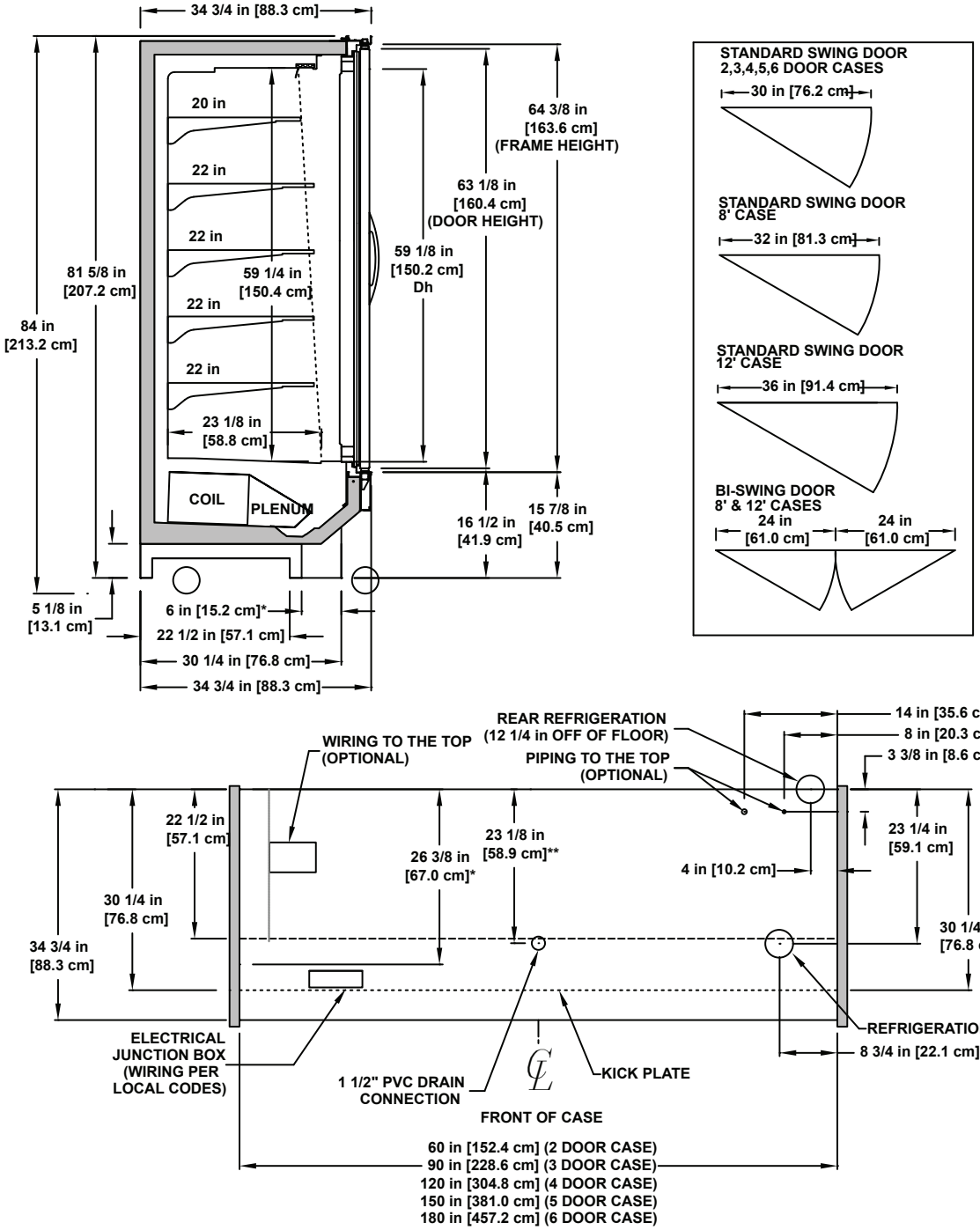

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- SUCTION LINE: (ALL CASES) - 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE W/HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", & 22" SOLID SHELVES 18", 20", & 22"
- (TOP SHELF MUST BE 20" OR SHORTER.
- RECOMMENDED CONFIGURATION IS 20" SHELF AND (4) 22" SHELVES BELOW TOP SHELF)
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

ELECTRICAL DATA

ONRZH-PV

Electrical Data

Doors	Fans Per Case	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Tank[1] Heater 120 Volts Amps	Tank[1] Heater 120 Volts Watts	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters[2] (3-Phase) 208 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 208 Volts Watts	Defrost Heaters[2] (3-Phase) 240 Volts Amps[3]	Defrost Heaters[2] (3-Phase) 240 Volts Watts
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Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (°F)	Timed-Off Defrost Fail-Safe (min)	Timed-Off Defrost Termination Temp (°F)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (°F)
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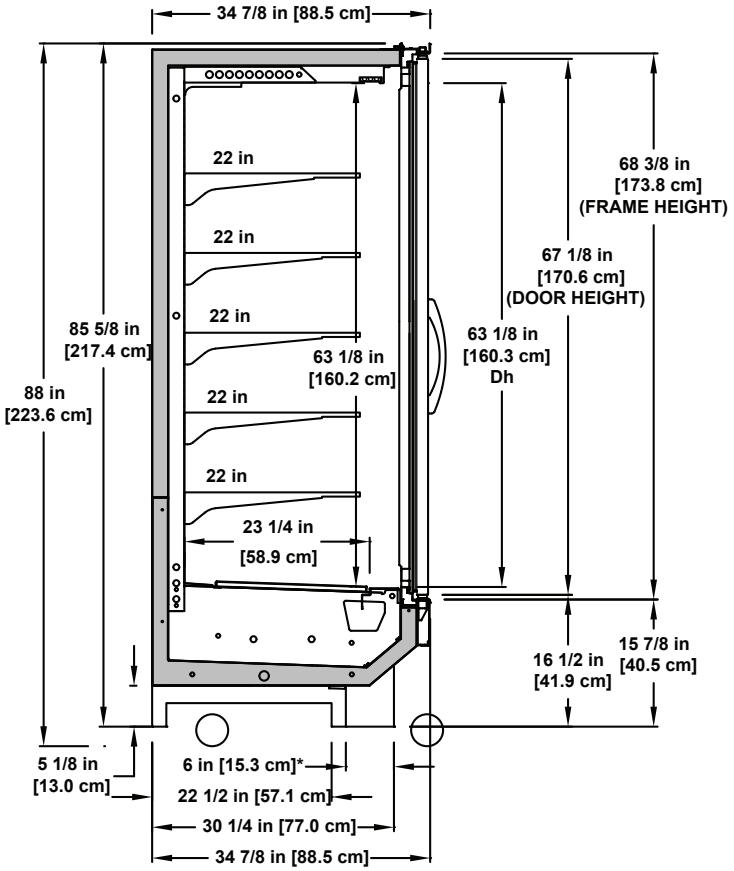

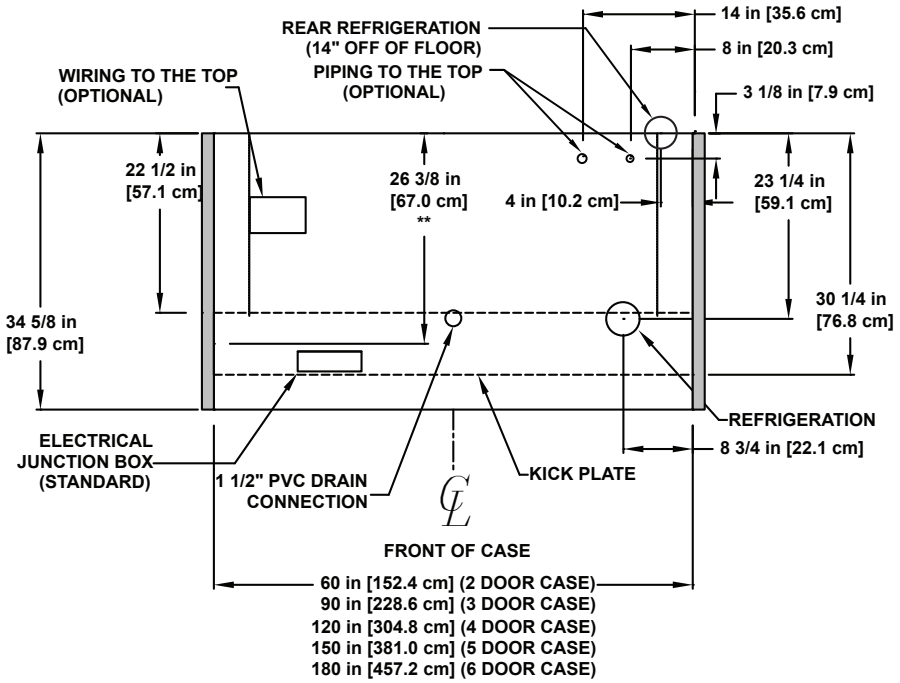

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ATTENTION
ELECTRICIAN

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

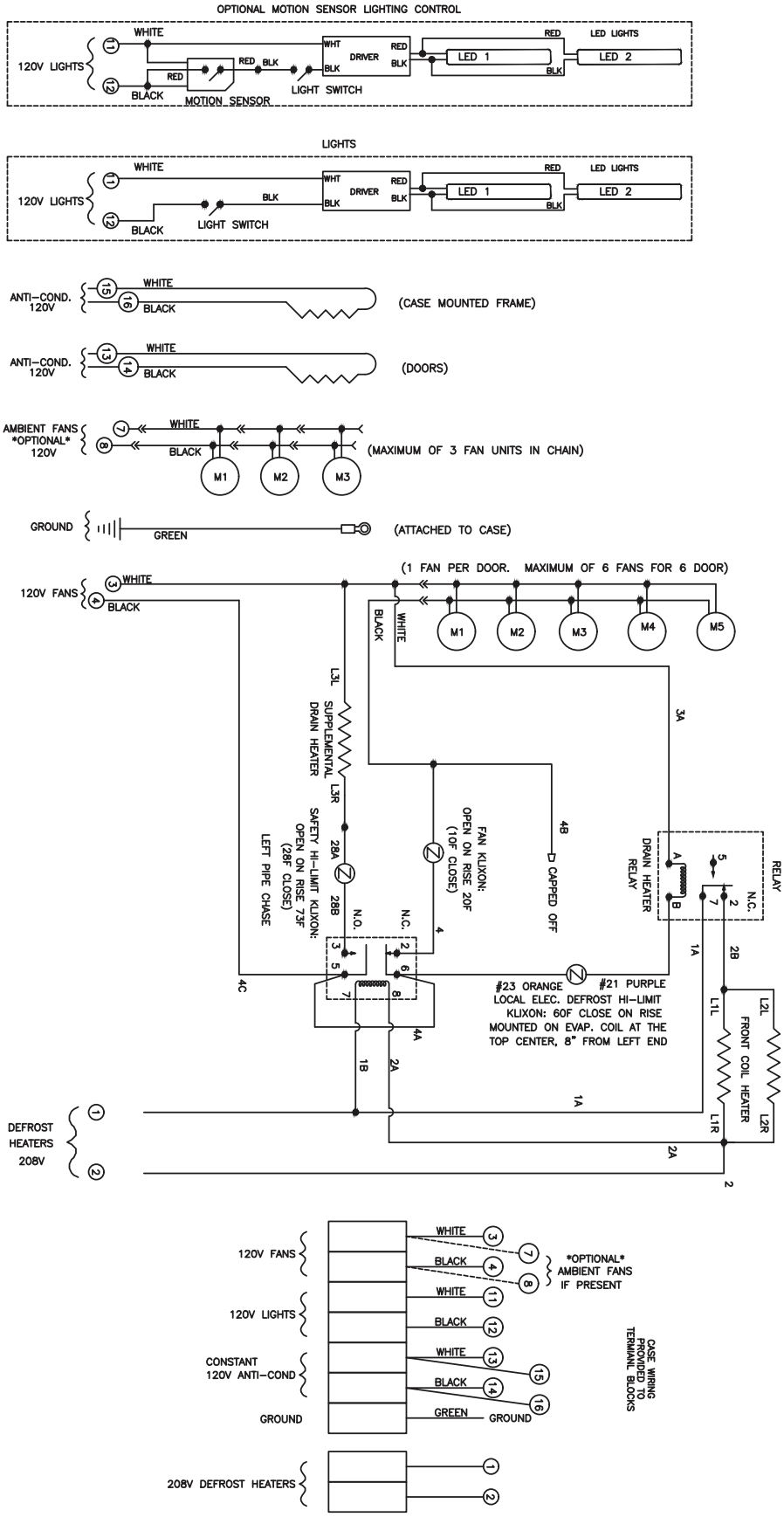
:CAUTION

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

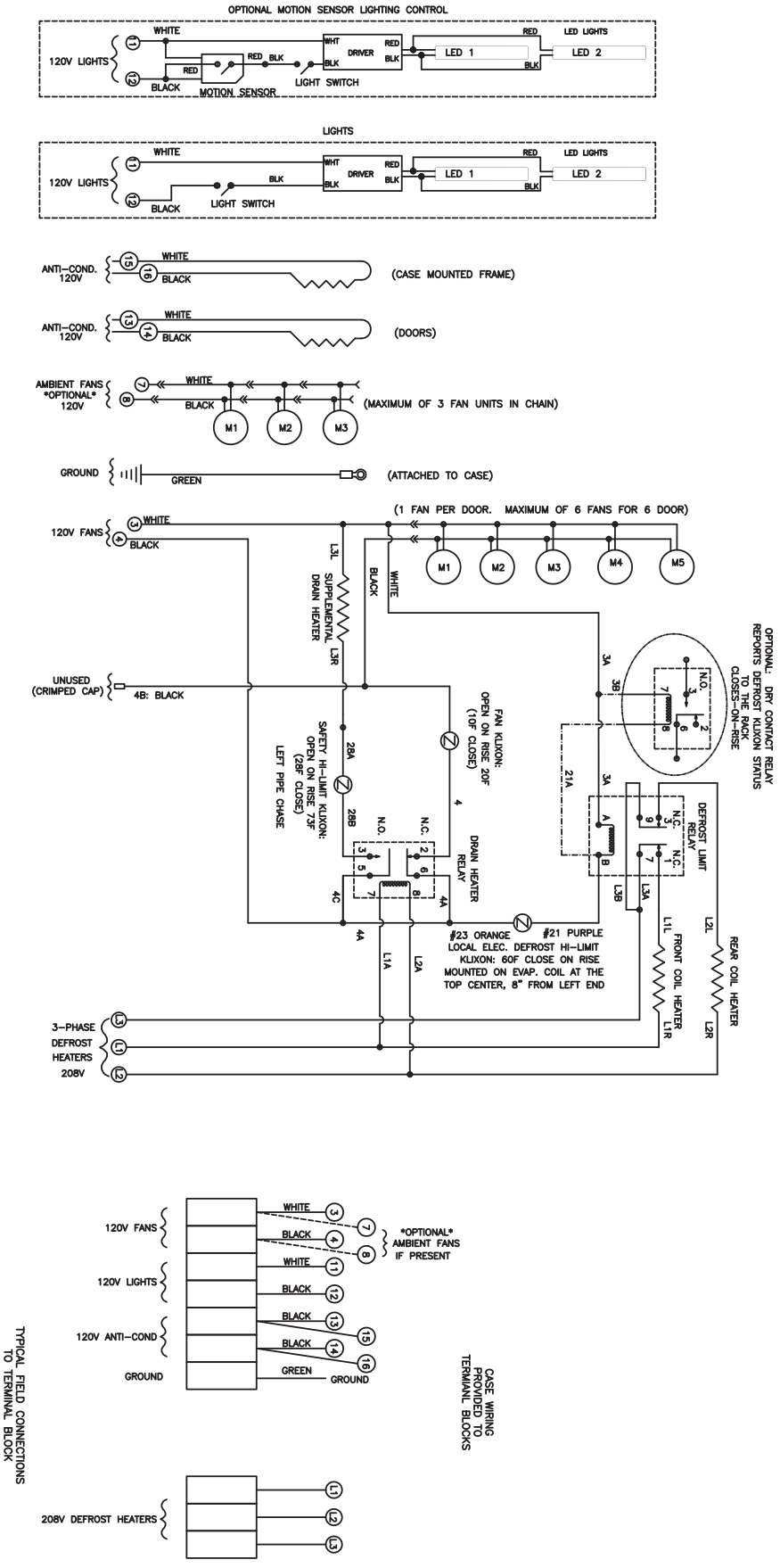
P901598E - R4

ELECTRIC DEFROST: 1-PHASE

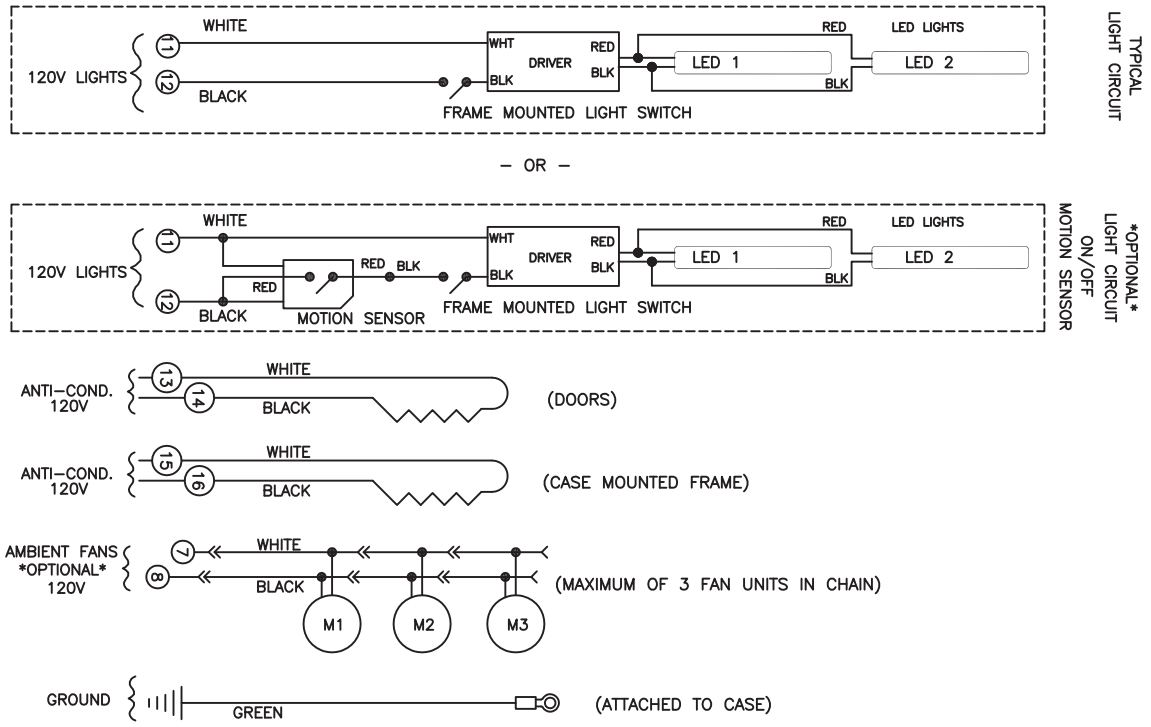


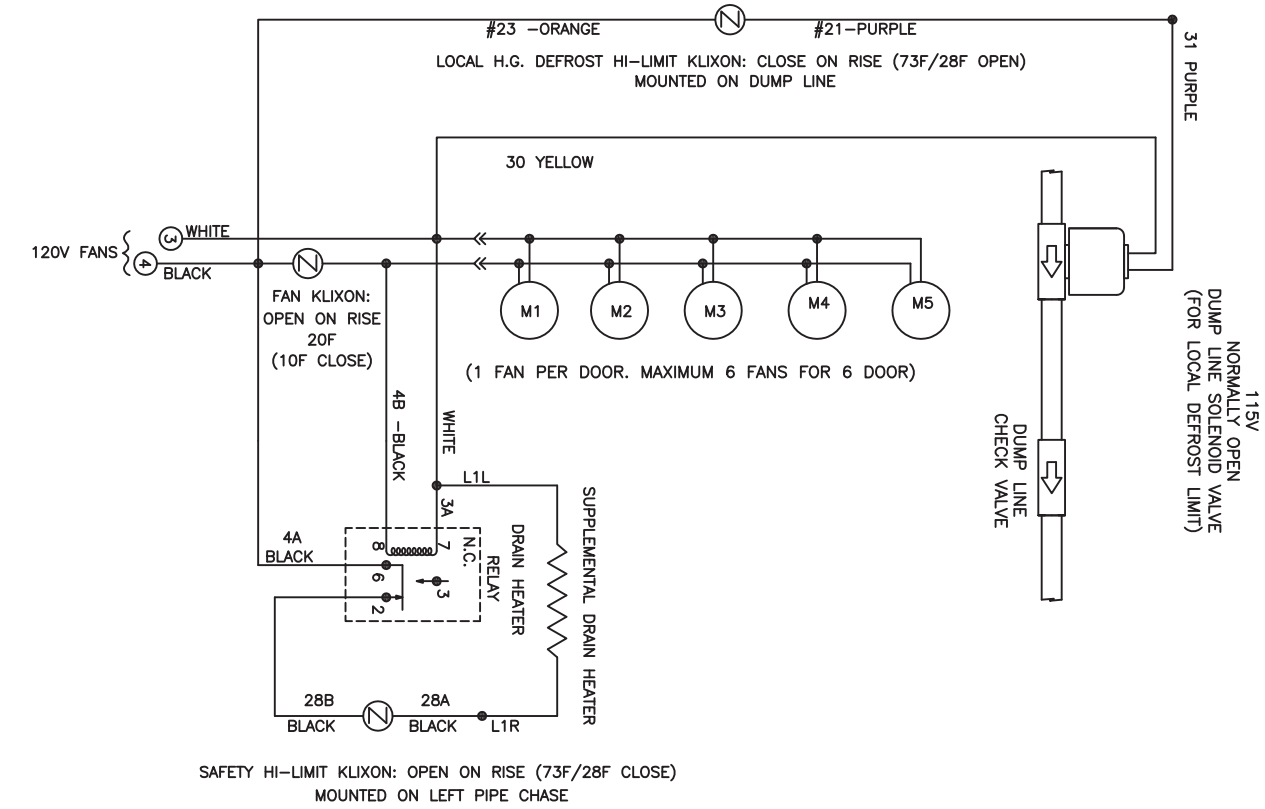
WIRING DIAGRAM

ELECTRIC DEFROST: 3-PHASE



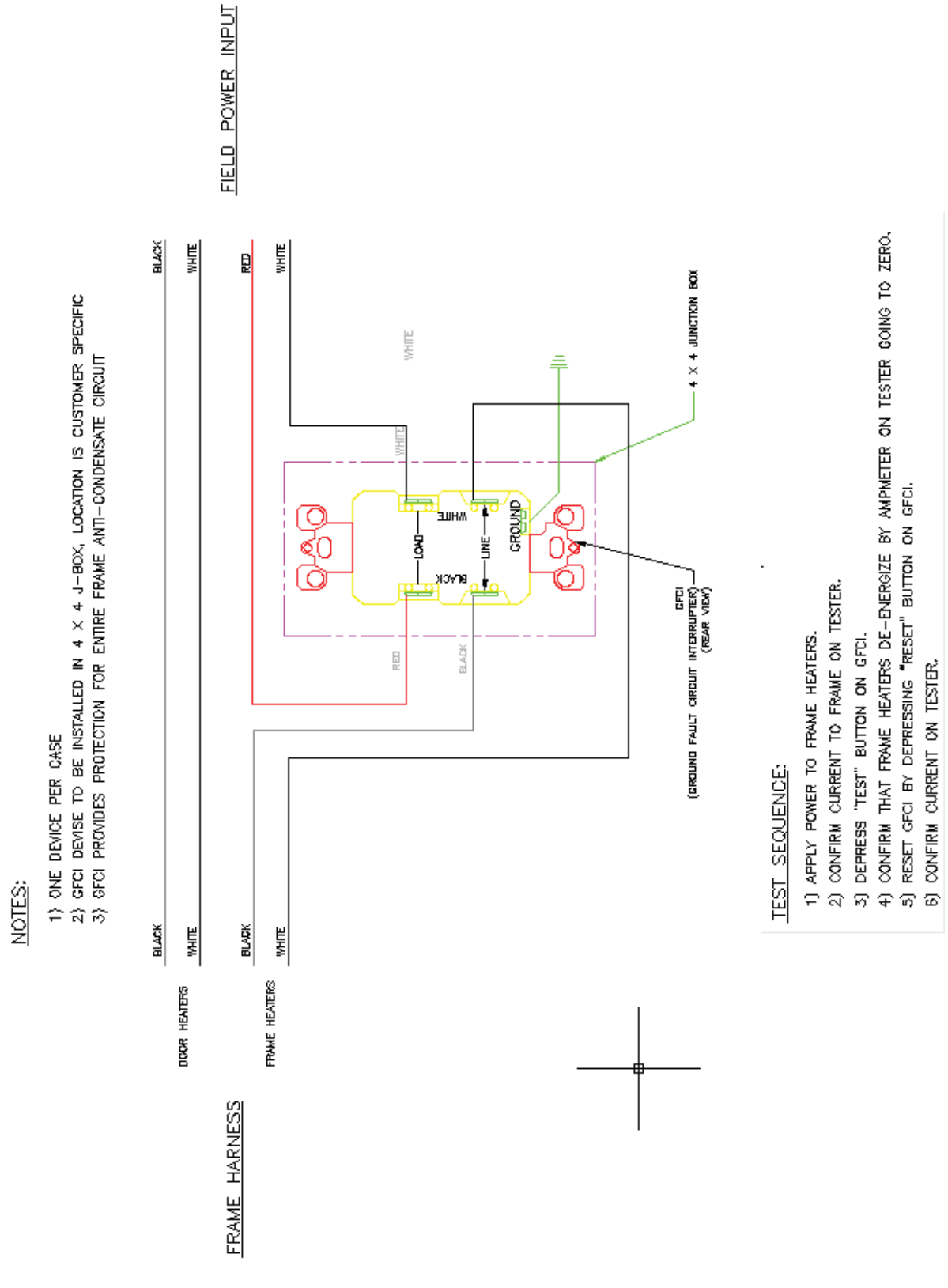
HOT GAS DEFROST





WIRING DIAGRAM

GROUND-FAULT CIRCUIT INTERRUPT WIRING



Vacuum-Inches of Mercury
Bold Italic Figures

TEMPERATURE PRESSURE CHART - at sea level

Pressure-Pounds Per
Square Inch Gauge

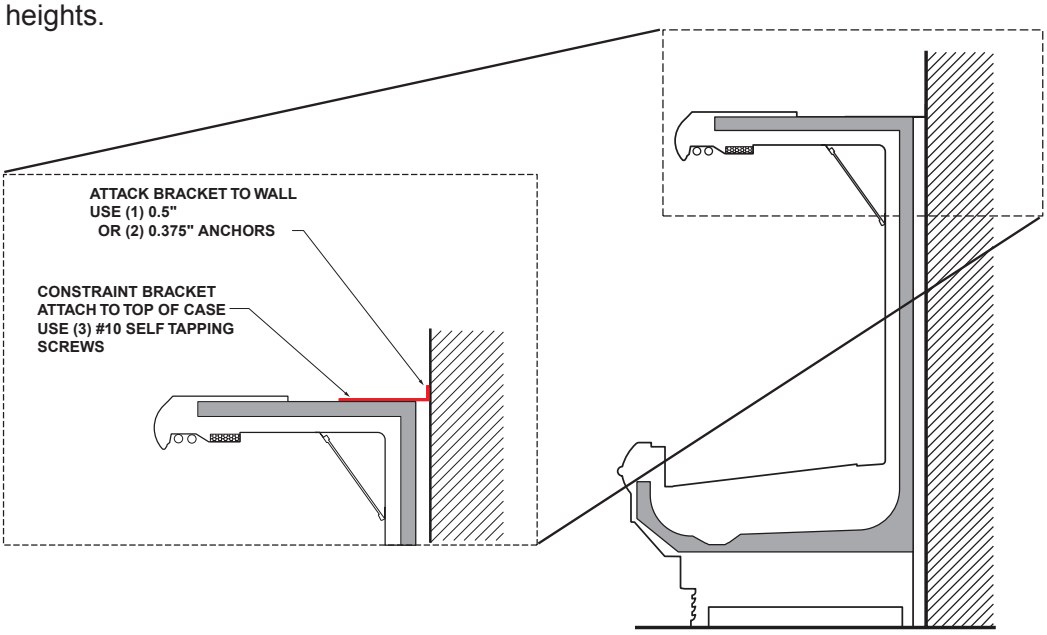
TEMPERATURE		REFRIGERANT (SPORLAN CODE)				
(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2
-60	-51.1	21.8	7.3	5.8	18.6	79.9
-55	-48.3	20.3	3.9	2.2	16.6	91.1
-50	-45.6	18.7	0.1	0.9	14.3	103.4
-45	-42.8	16.9	2.0	3.0	11.7	116.6
-40	-40.0	14.8	4.3	5.4	8.8	131.0
-35	-37.2	12.5	6.8	8.1	5.4	146.5
-30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

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

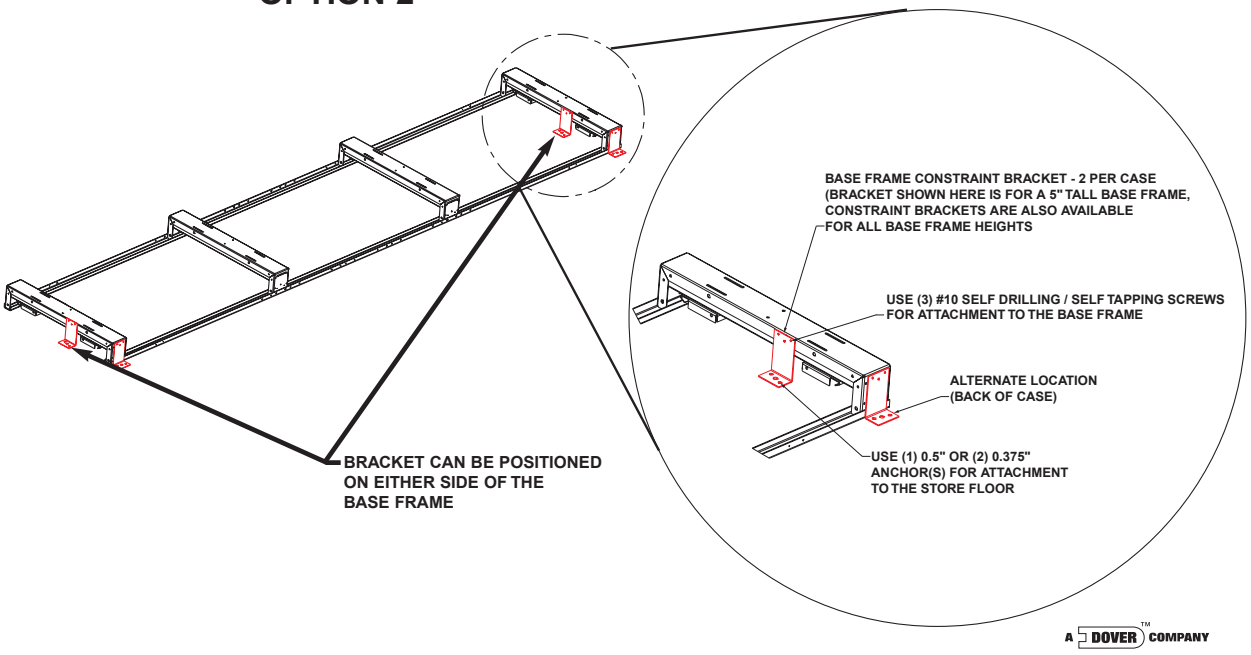
CONSTRAINT BRACKET INSTALLATION

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



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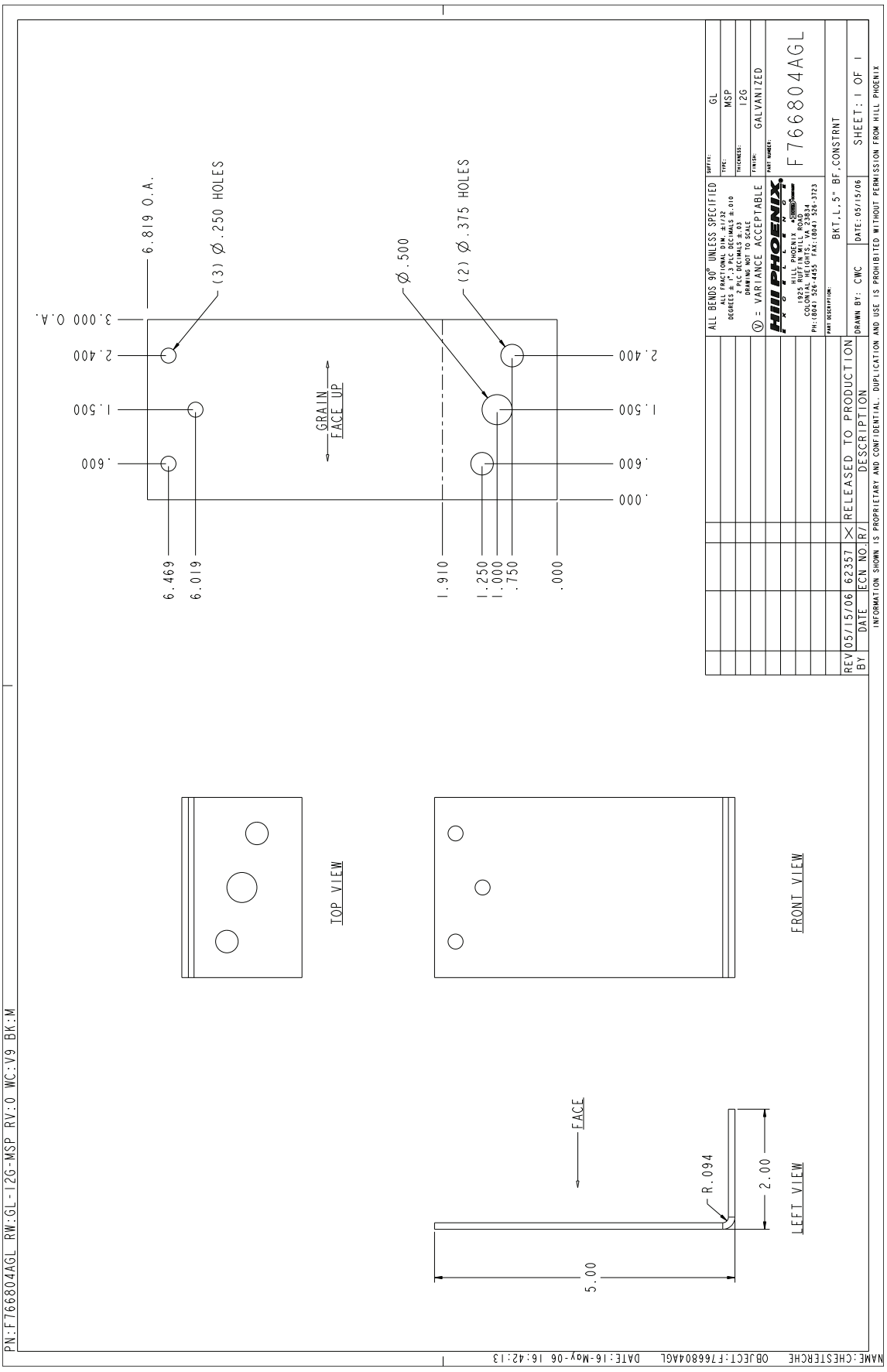
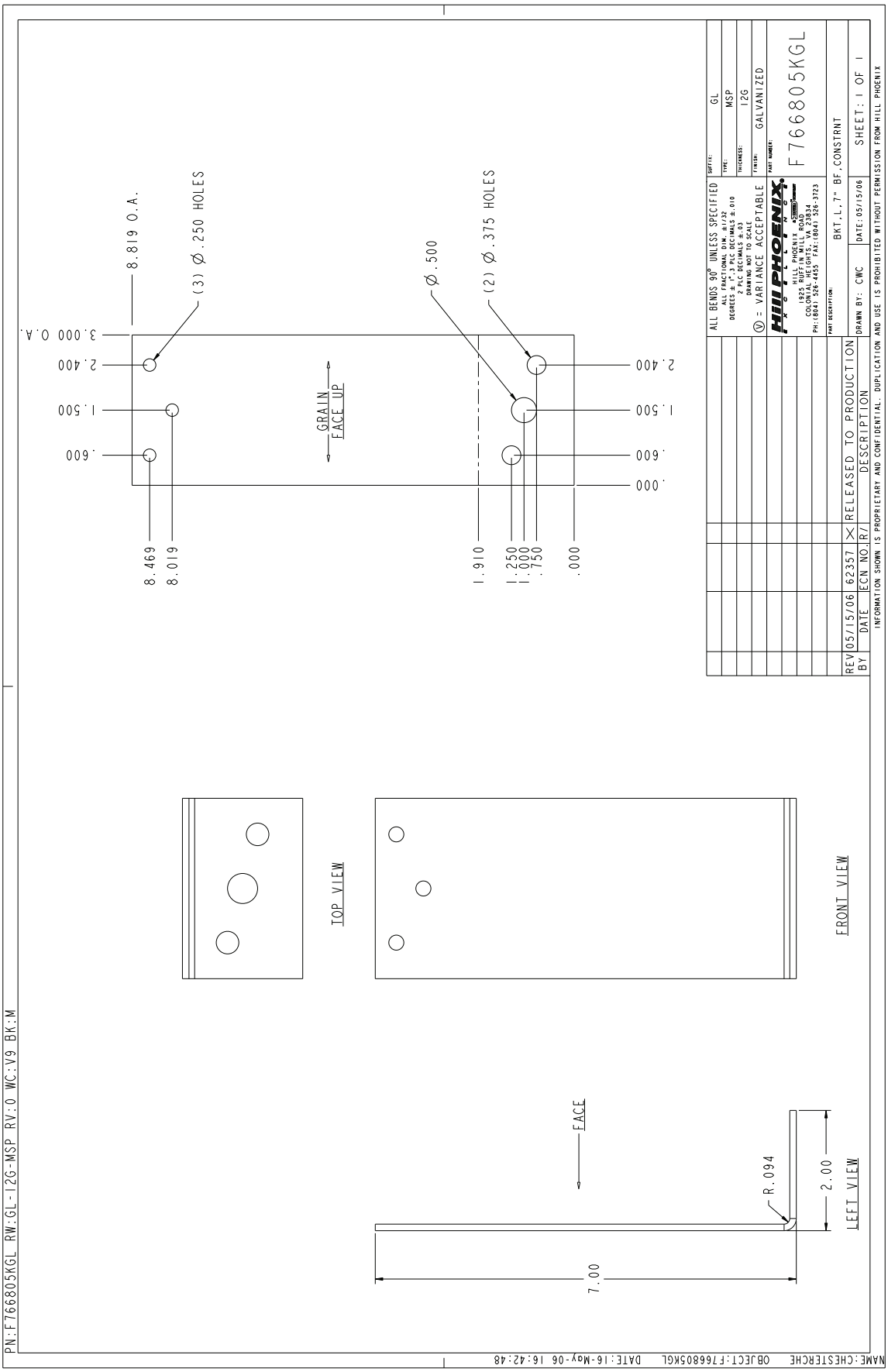
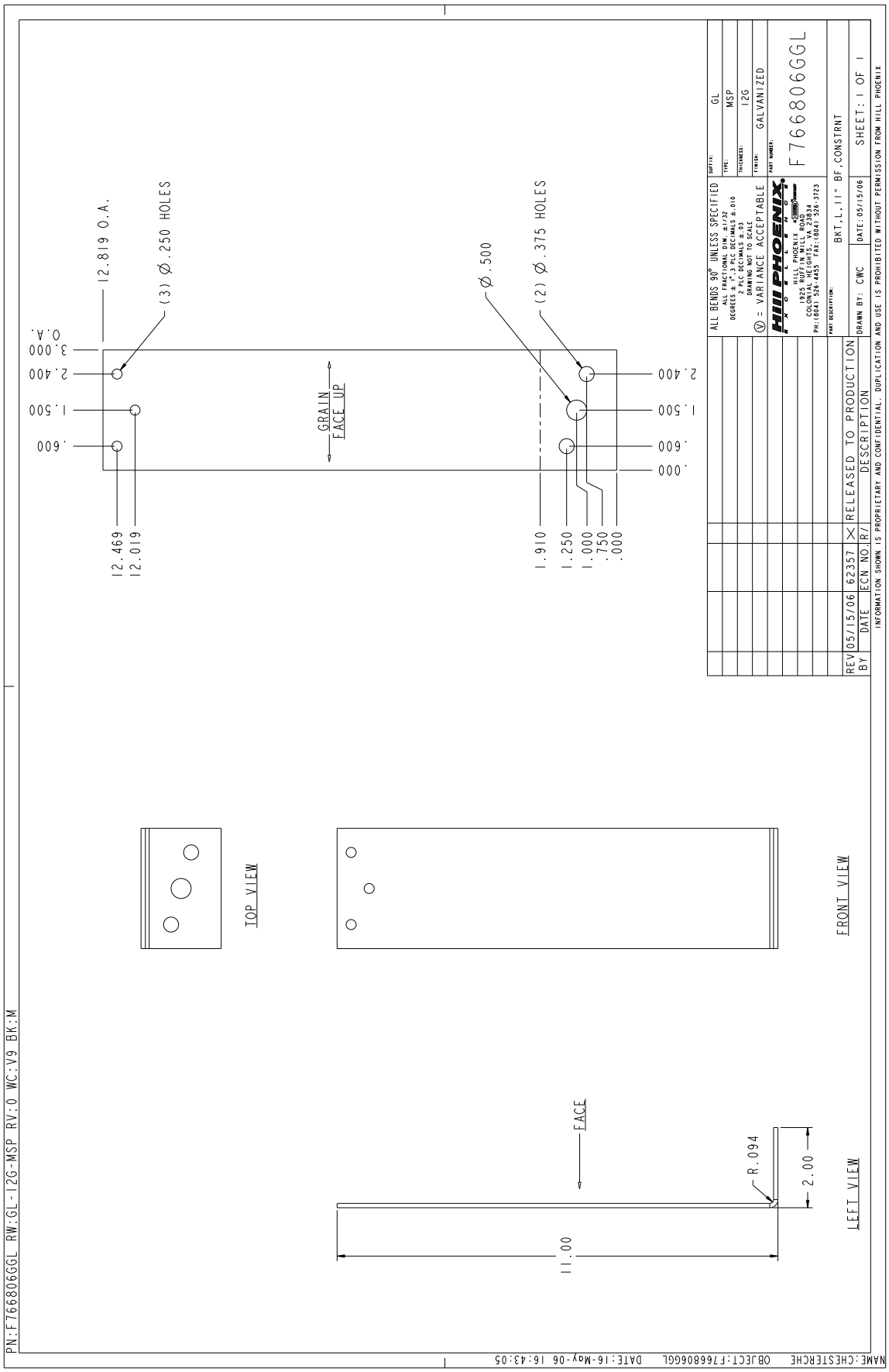

PN:F766804AGL RW:GL-12G-MSP RV:0 WC:V9 BK:M
NAME:CHESTERCHE OBJECT:F766804AGL DATE:16-May-06 16:42:13
6.819 O.A.
(3) Ø.250 HOLES
Ø.500
(2) Ø.375 HOLES
3.000 O.A.
2.400
1.500
.600
.000
GRAIN
FACE UP
6.469
6.019
1.910
1.250
1.000
.750
.000
TOP VIEW
FRONT VIEW
FACE
R.094
2.00
5.00
LEFT VIEW
ALL BENDS 90° UNLESS SPECIFIED
ALL DIMENSIONAL TOLERANCES ± .32
DEGREES ± 1°, 3 PLC DECIMALS ± .010
2 PLC DECIMALS ± .03
DRAWING NOT TO SCALE
Ⓥ = VARIANCE ACCEPTABLE
HILL PHOENIX
HILL PHOENIX
1825 RUFFIN MILL ROAD
COLUMBIA, SOUTH CAROLINA 29234
PH:(803) 526-4455 FAX:(803) 526-3723
SUFFIX: GL
TYPE: MSP
THICKNESS: 12G
FINISH: GALVANIZED
PART NUMBER: F766804AGL
PART DESCRIPTION: BKT,L.5" BF,CONSTRNT
REV BY 05/15/06 62357 X RELEASED TO PRODUCTION
DATE ECN NO. R/ DESCRIPTION
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

SEISMIC BRACKET (7”)




12.819 O.A.
(3) Ø.250 HOLES
3.000 O.A.
2.400
1.500
.600
12.469
12.019
GRAIN FACE UP
Ø.500
(2) Ø.375 HOLES
2.400
1.500
.600
.000
1.910
1.250
1.000
.750
.000
TOP VIEW
FRONT VIEW
LEFT VIEW
FACE
R.094
2.00
11.00
ALL BENDS 90° UNLESS SPECIFIED
ALL ANGULAR DIM. ± .5°
DEGREES ± .13 PLC DECIMALS ± .010
2 PLC DECIMALS ± .03
DRAWING NOT TO SCALE
Ⓥ = VARIANCE ACCEPTABLE
HILL PHOENIX
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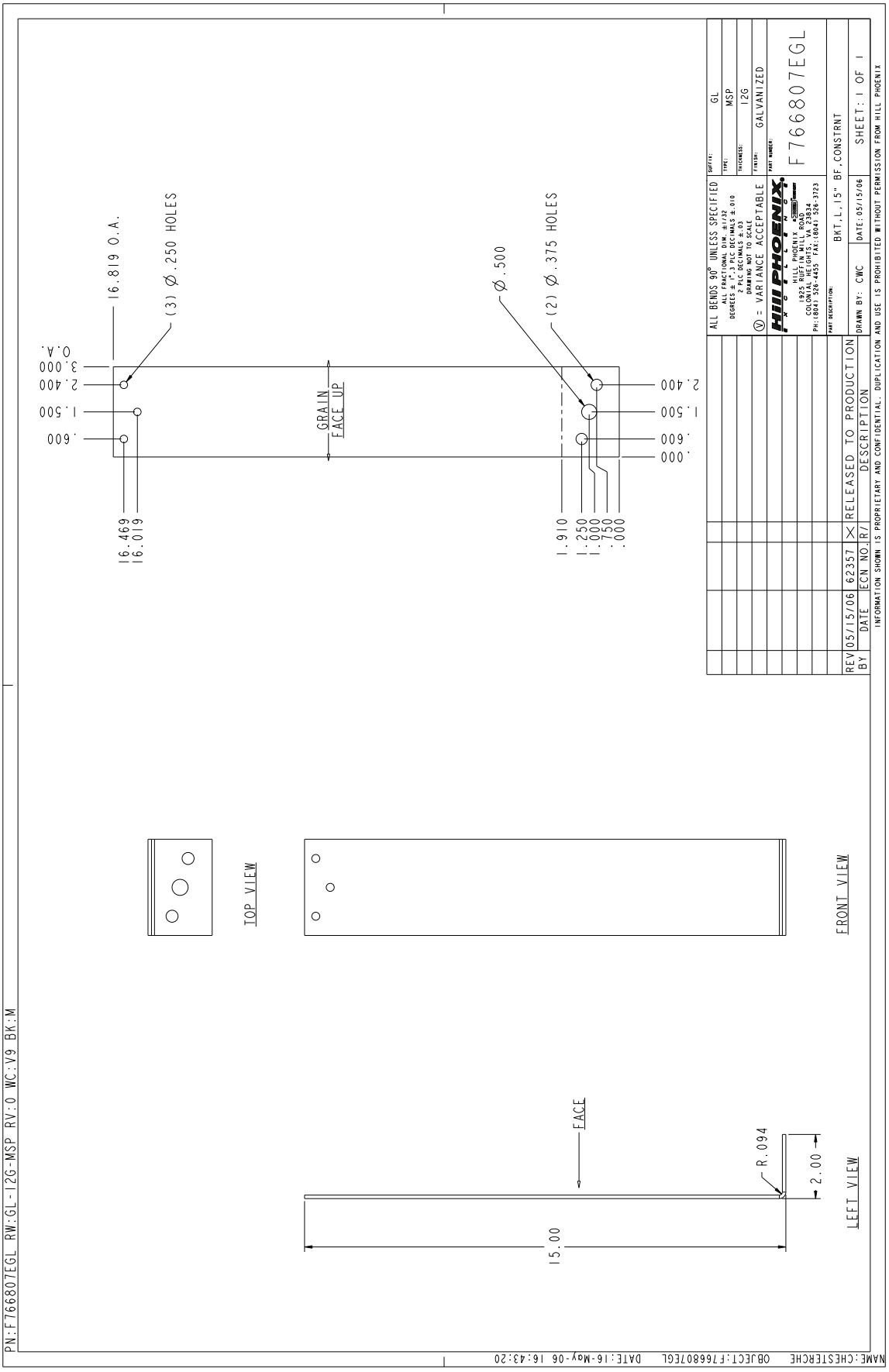
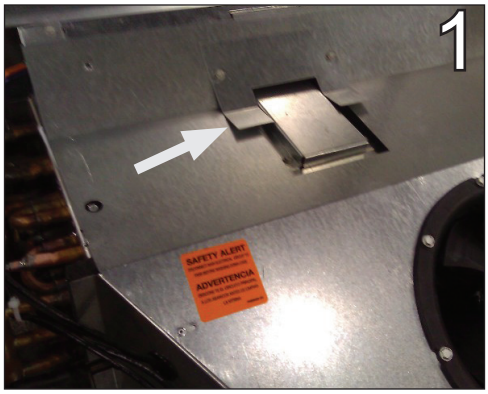
1925 RUFFIN MILL ROAD
COLUMBIA, SOUTH CAROLINA 29234
PH:(8041 526-4455 FAX:(8041 526-3723
PART DESCRIPTION: BKT,L,11" BF,CONSTRNT
DRAWN BY: CWC
DATE: 05/15/06
SHEET: 1 OF 1
SHAPE: GL
TYPE: MSP
THICKNESS: 12G
FINISH: GALVANIZED
PART NUMBER: F766806GGL
REV BY
05/15/06 62357 X RELEASED TO PRODUCTION
DATE ECN NO. R/ DESCRIPTION
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX
PN:F766806GGL RW:GL-12G-MSP RV:0 WC:V9 BK:M
NAME:CHESTERCHE OBJECT:F766806GGL DATE:16-May-06 16:43:05

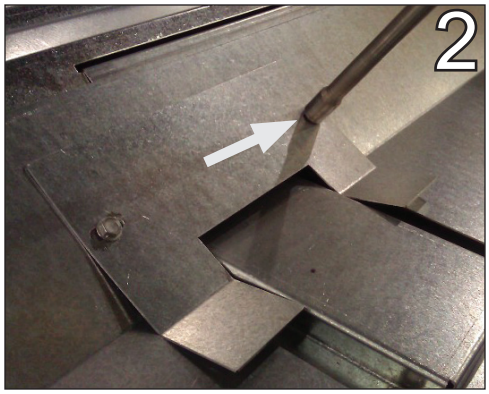
SEISMIC BRACKET (15”)



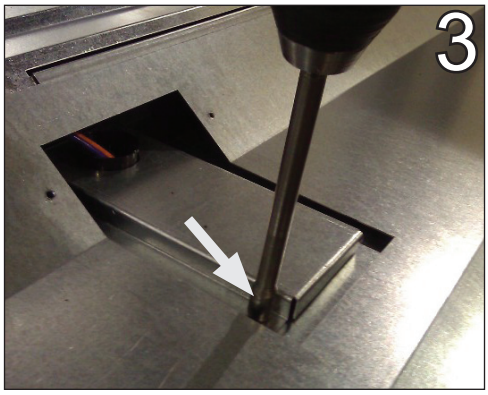
DEFROST SENSOR ACCESS PANEL



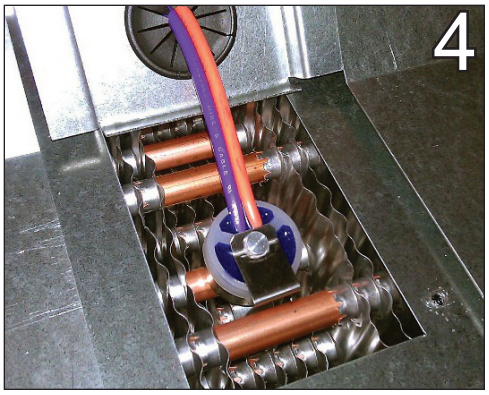
Access panel is located on the left-hand side of the fan plenum .



Unscrew top access panel and remove.



Unscrew sub-panel and lift up, being careful to avoid damage to wiring.



Access to coil-mounted Klixon and/ or defrost termination sensor is now available.

Use the following instructions to install Hillphoenix non insulated partitions. It is recommended that all shelves and deck pans from both sides of the partition be removed to avoid any potential damage or injury.

STEP 1 Mount the two vertical retainer brackets to the shelf standard (figures 1 & 2) using the supplied tek screws (8-18x3/4). The rectangular cutouts in the retainers must align with the rectangular slots in the shelf standard. Vertical Retainer Bracket #1 should be located below the 3rd slot from the top and Vertical Bracket #2 should be located above the 6th slot from the bottom. The grooves in the vertical retainer brackets must be centered on the case to case joint. The tek screws are to be drilled through the pre-drilled holes in the retainer brackets as shown in figure 3. Note that the vertical and horizontal retainer brackets are identical.

STEP 2 Slide the Plexiglas partition into the vertical retainer brackets. Use the supplied retainer bolts and nuts (8-32x1/2) to secure the Plexiglas partition to the vertical retainer brackets as shown in figure 3. Drill additional holes in the Plexiglas if the pre-drilled holes in the Plexiglas do not line up with the holes in the retainer brackets.

STEP 3 Slide Horizontal Retainer Bracket #2 onto the bottom of the Plexiglas partition as shown in figure 2. Align the partition parallel to the pipe chase and secure the bracket by drilling directly into the pipe chase using the supplied tek screws. Slide Horizontal Retainer Bracket #1 onto the top of the Plexiglas partition and secure it to the top flue of the case using the supplied tek screws. Secure the partition using the retainer bolts and nuts in the horizontal retainer brackets as done in step 2.

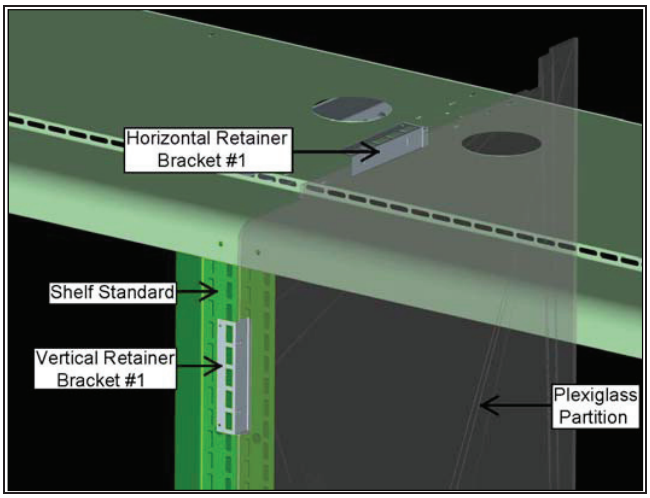


Figure 1: Top of Plexiglas Partition

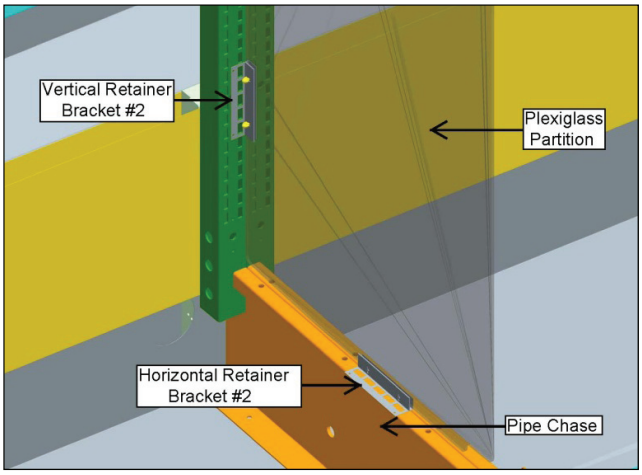


Figure 2: Bottom of Plexiglas

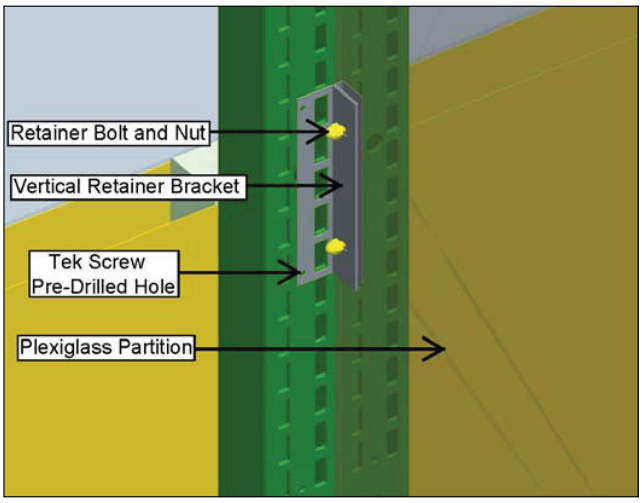


Figure 3: Vertical Retainer Bracket Installation

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WARRANTY

HEREINAFTER REFERRED TO AS MANUFACTURER

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

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

The fourteen month warranty shall not apply:

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

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

3. Outside the continental United States.

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

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

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

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

The Warranties are Expressly in Lieu of All Other Warranties, Express 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