

REACH-IN DOOR MERCHANDISER INSTALLATION & OPERATIONS MANUAL



JNRZH

ACCULINE™

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

Hillphoenix®

A DOVER COMPANY



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06/23

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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 several 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, damages, 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

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.

GLYCOL NOTICE

For Systems Utilizing Glycol Refrigerant

Use of glycol as a secondary refrigerant must be carried out in accordance with the instructions and procedures set forth in the Hillphoenix Second Nature Medium Temperature Secondary Refrigeration Installation Manual, available online for download here: <http://goo.gl/JIWd77>

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

IMPORTANT

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 include important warning messages in all Hillphoenix installation and operations handbooks, accompanied by an alert symbol paired with the word "DANGER", "WARNING", or "CAUTION".

All warning messages will inform you of the potential hazard; how to reduce the risk of case damage, personal injury or death; and what may happen if the instructions are not properly followed.

DANGER

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

CAUTION

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

ATTENTION

Indicates an important point of information that is key to ensuring proper case functionality.

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 specialty 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 number listed below. Thank you for choosing Hillphoenix, and we wish you the very best in outstanding food merchandising.

CASE DESCRIPTION

This manual specifically covers the JNRZH reach-in door merchandisers.

STORE CONDITIONS

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

REFRIGERATION SYSTEM OPERATION

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

RECEIVING CASES

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

CASE DAMAGE

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

LOST/MISSING ITEMS

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

SERVICE & TECHNICAL SUPPORT

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

PARTS ORDERING

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

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

**Serial plate is located inside the case on the top-left side.*

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



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

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

FLOOR PREP

1. Ask the general contractor if your current copy of the building dimensions are the most recently issued. Also, ask for the points of reference from which you should take dimensions to locate the cases.
2. Using chalk lines or a laser transit, mark the floor where the cases are to be located for the entire lineup. The lines should coincide with the outside edges of the case feet.
3. Leveling is necessary to ensure proper case alignment and to avoid potential case damage. Locate the highest point on the positioning lines as a reference for determining the proper height of the shim-pack levelers. A laser transit is recommended for precision and requires just one person.
4. Locate basehorse positions along the chalk line. **Place 2X of the 6" length shims next to each other (Fig 1). They should be placed under the basehorse and kickplate supports (Fig 1). Stack shims until floor is leveled.**

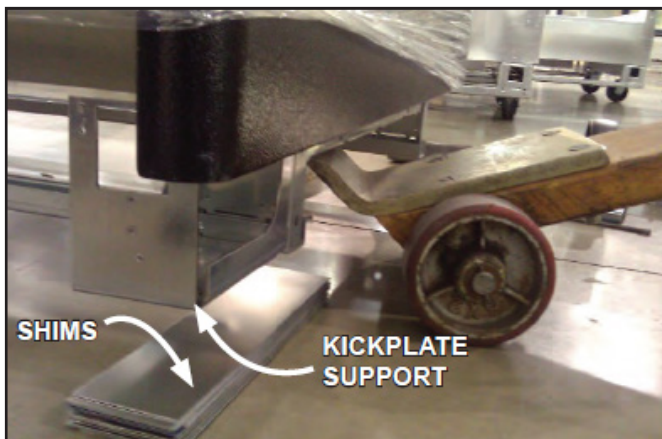


Fig. 1: Kickplate support

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.

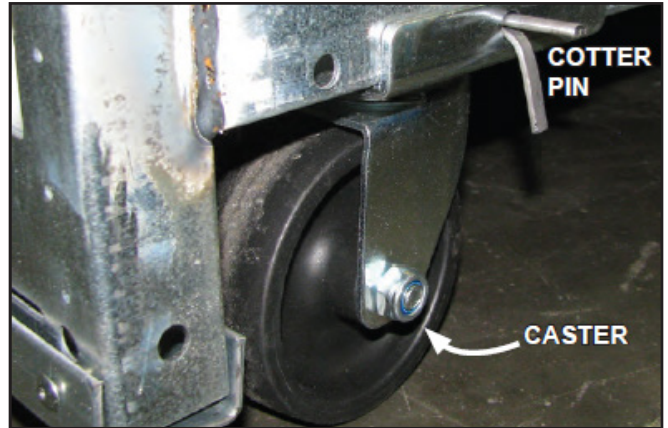


Fig. 2: Removing the casters is an easy process. Simply flatten and remove the cotter pins that are holding the casters in place. Then lift the case with a "J" bar and slide the caster assemblies out. The dismantled casters can now be discarded.

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 shelves and discard the shelf clips.
2. Remove any loose items (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.
3. 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.
4. 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.
5. 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), since failure to do so may result in case damage.
6. 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).

CASE INSTALLATION

7. 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.
8. Repeat steps 2-6 of this sequence for all remaining cases. Be certain to properly level all cases.
9. If seismic brackets were ordered, see Appendix E for detailed installation instructions.

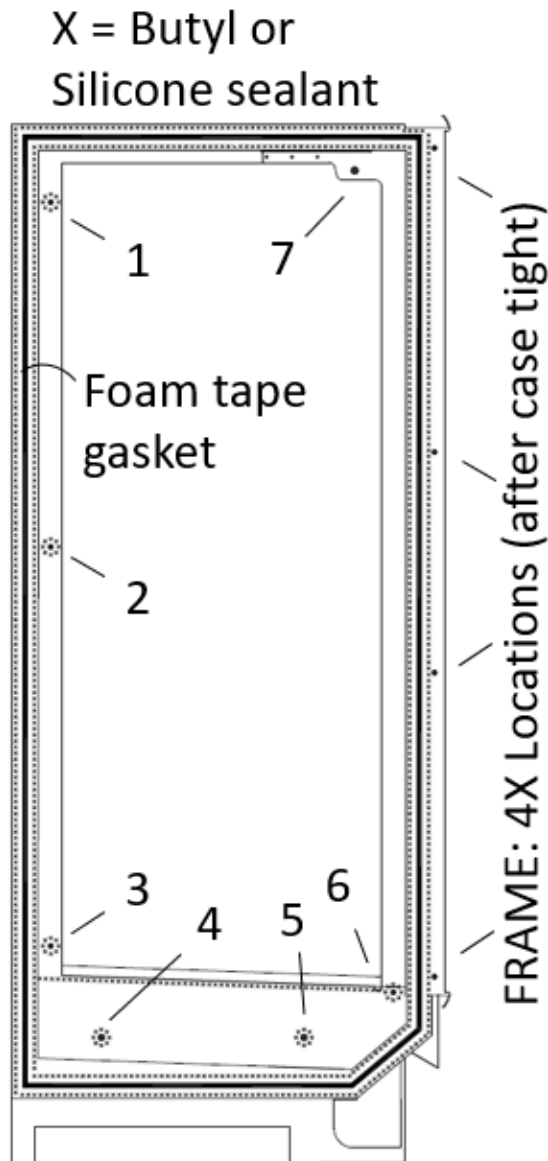


Fig. 3: Bolt holes, foam tape gasket and sealant

TRIM OUT

1. Seal the interior case-to-case joints with caulk (supplied), then apply acrylic tape (supplied) over the pipechase seam (Fig. 4). The tape acts as a watershed preventing water from settling in the case joint.

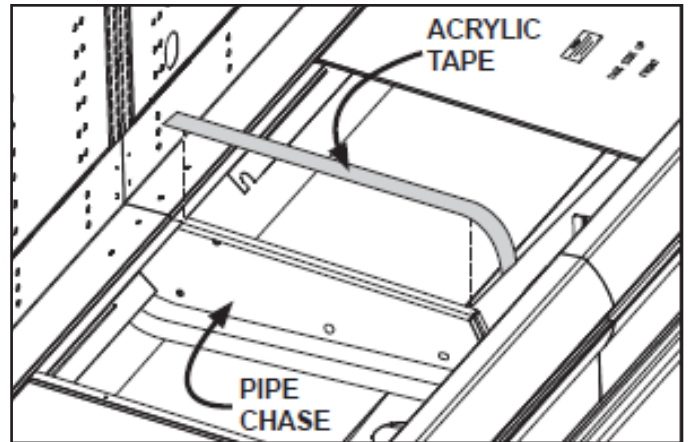


Fig. 4: Sealing the pipe chase

2. Re-install shelves (or peg hook assemblies if applicable). Be aware that differing shelf configurations will affect energy consumption and case performance. If peg hook assemblies are included, see Appendix F for installation instructions.
3. Properly align the front panels as needed, then install the front panel trim (Fig. 5).



Fig. 5: Front panel joint trim

4. Fasten the door-frame joints to the adjoining door frames using the supplied T-bolts.

KICKPLATE INSTALLATION

1. Using the screws provided, install the upper kickplate retainer and the "J" rail, both of which are shipped loose in the case (Fig. 6). The kickplate brackets are pre-installed at the factory.

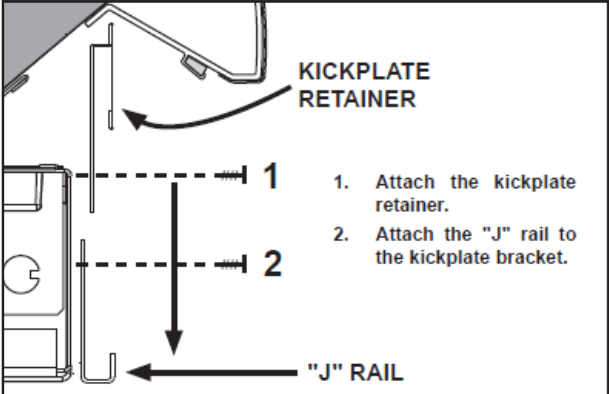


Fig. 6: "J" rail installation

2. Insert top of kickplate into the kickplate retainer. Slide the kickplate up into the retainer, then down onto the "J" rail (Fig. 7). Be certain that the bottom of the kickplate is fitted over extruding "lip" of the "J" rail.

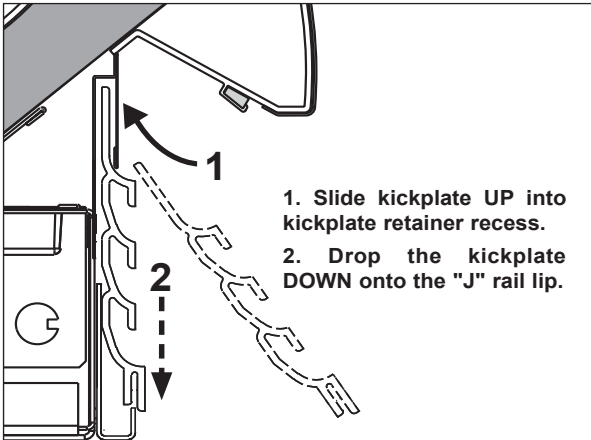


Fig. 7: Kickplate installation

3. Install end kickplates with screws provided and insert plug buttons.
4. Insert nose bumper into streamlyne 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.
5. 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.
6. If a case top fascia is included, see **Appendix C** for installation instructions.

CASE CONNECTIONS

REFRIGERATION

Top-piping is the standard configuration for the JNRZH case.

Rear piping penetration is an optional configuration and located at the rear-right area of the case (Fig. 8). 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 are located on the left-hand side of the case and are accessible by lifting the two left-hand deck pans—lifting the fan plenum is not required.

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.

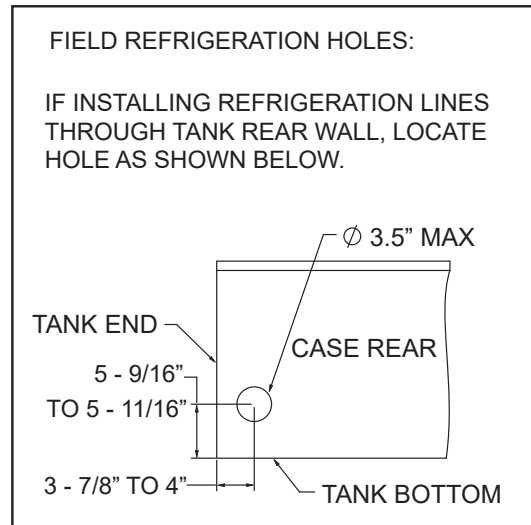
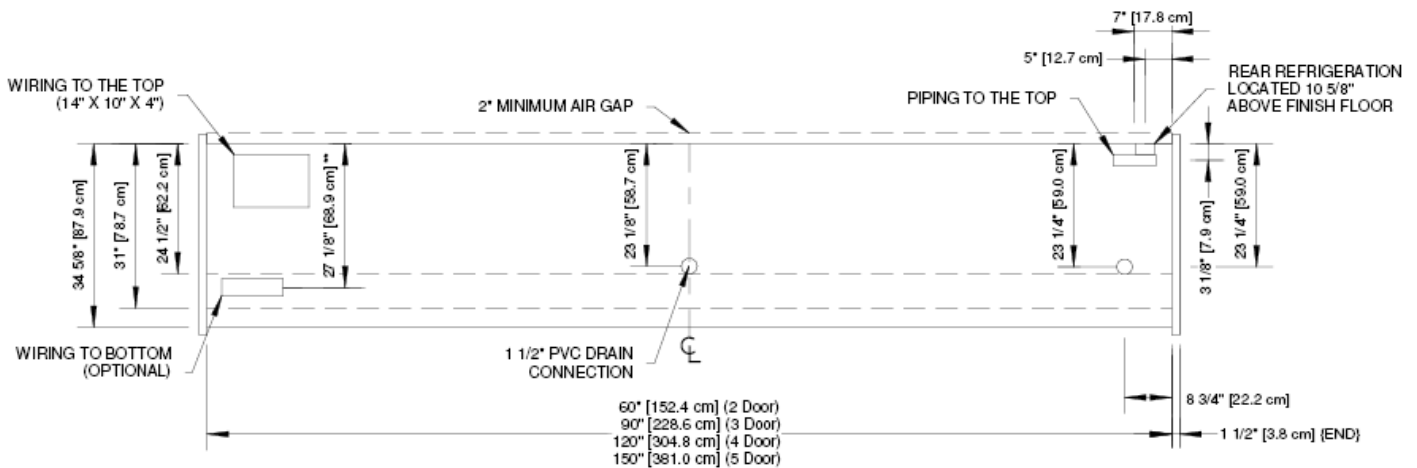


Fig. 8: Penetrate foam as needed to access piping



! ATTENTION
Indicates an important point of information that is key to ensuring proper case functionality.

JNRZH



| DRAIN LOCATION FROM CENTERLINE | | | | |
|--------------------------------|-----|--------|-----|-----|
| CASE LENGTH | 2DR | 3DR | 4DR | 5DR |
| "X" | 0" | - 0.5" | 0" | 0" |

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

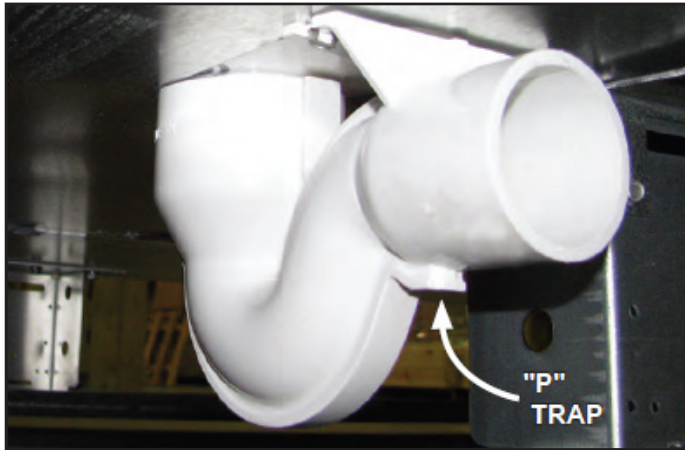


Fig. 9: "P" trap

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. 10), at the top rear-left of the case (Fig. 11) 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 B**.

LIGHTING

Lighting for reach-in door cases is pre-installed during the manufacturing process. The light switch is located on the outside of the case, underneath the front panel at the far left-hand end. For any questions or service needs, please contact our Case Division Customer Service Department toll-free at 1-800-283-1109.



Fig. 10: Junction box beneath case

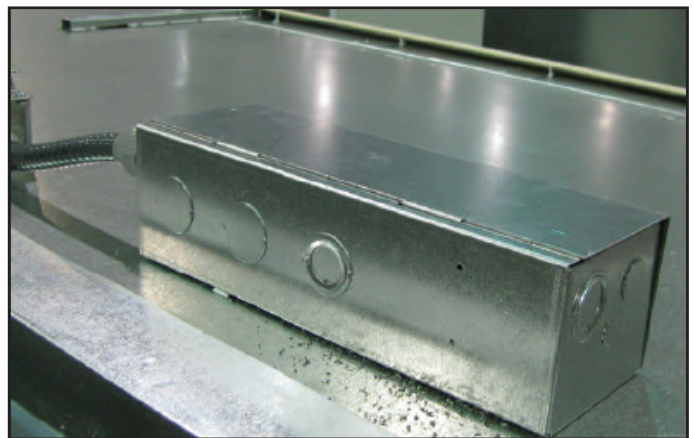


Fig. 11: Junction box above on top of case

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.

PRE-POWER CHECKLIST

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 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.12).

DEFROST & TEMPERATURE CONTROLS

Hillphoenix low temperature door cases utilize electric or hot gas 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 used for the defrost cycle are the various defrost termination sensors, which work to terminate the defrost cycle in the case. These controls may include 1) a Klixon® thermostat, 2) a sensor probe, or 3) a dial-type thermostat with sensor bulb (the thermostat will always be mounted with the electrical controls of the case - i.e., in the electrical junction box, in the electrical raceway, etc.).

If electric defrost is used, the defrost termination sensor will be located in a drop tube in the coil or mounted to the return bend on the coil. If hot gas defrost is used, the defrost termination sensor will be mounted to the dump line—the sensor should

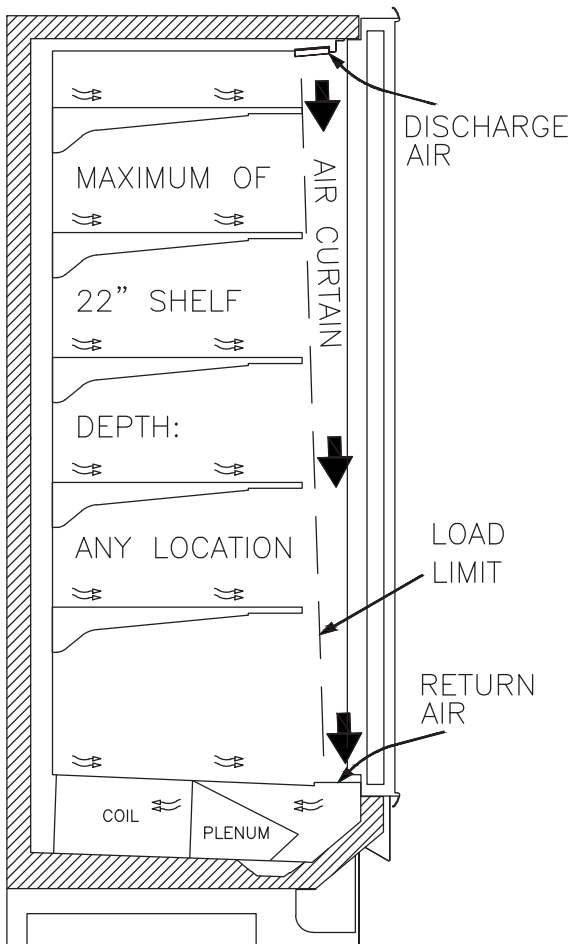


Fig. 12: Airflow and load limit inside case

always be mounted on the coilside of the check valve or solenoid valve. For proper case operation, the defrost termination sensor must not be located in the discharge air.

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

ATTENTION



To insure optimal operation of the door and frame system, a constant 120V supply be used to power the electrical circuits. Cycling the input voltage will adversely impact case performance.

DETERMINING SUPERHEAT

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

1. Obtain suction pressure from the access port. Obtain suction line temperature from the area near the TXV bulb at the outlet of the evaporator coil (Fig. 13).
2. Use appropriate Refrigerant temperature-pressure chart to convert to Temperature from the measured suction pressure.
3. Finally, subtract the converted temperature reading from the actual temperature reading. The resulting number is the superheat setting—once this has been determined, adjust the TXV as needed to obtain the proper setting.

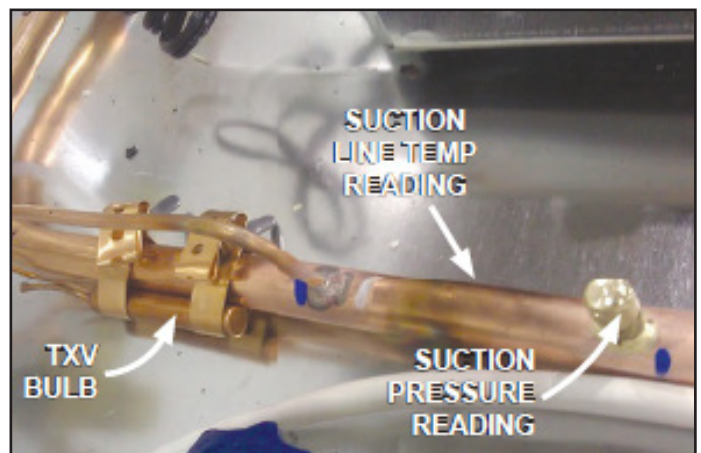


Fig. 13: Obtain pressure and temperature readings

FANS & CASE CLEANING



⚠ DANGER

SHOCK HAZARD

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

FANS

Reach-in door cases feature electronically commutated (ECM) fan motor assemblies, whereby the fan blade, fan motor, and basket are integrated into a single unit.

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

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

1. Unplug the fan motor (Fig. 14) from the receptacle on the exterior of the fan plenum. Push the power cord back through the plenum opening.
2. Remove fasteners, then lift out the entire fan basket.

(Reverse procedure when re-installing fan assembly.)

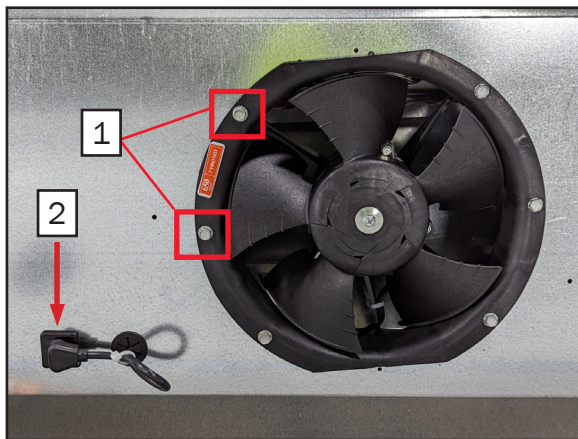


Fig. 14: Fan basket



⚠ ATTENTION

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

CLEANING PROCEDURES

A periodic cleaning schedule should be established to maintain proper sanitation, insure maximum operating efficiency, and avoid the corrosive action of food fluids on metal parts that are left on for long periods of time. We recommend cleaning once a week.

- 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 waste outlet. Check waste outlet before starting the cleaning process to insure it is unclogged. Avoid introducing water faster than the case drain can carry it away.
- Lift the fan plenum to gain access to the coil for cleaning and maintenance. Remove screws where plenum flange sits on top front of coil. Pull plenum forward and rotate up (Fig. 15).

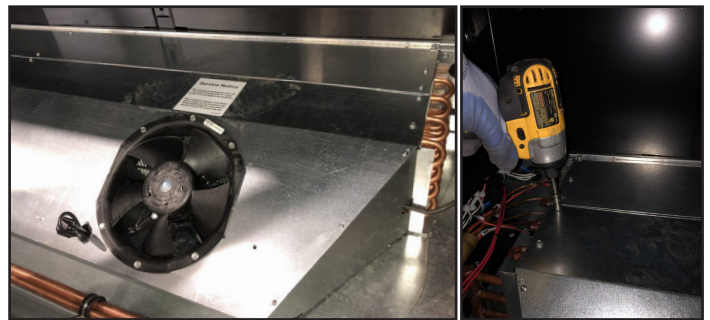


Fig. 15: Fan plenum and removing coil cover

- To clean the lights, shut off the lights in the case, then wipe them down with a soft, damp cloth. Avoid using harsh or abrasive cleaners as they may damage the lights. Be certain that the lights are completely dry before re-energizing.
- If any potentially harmful cleaners are used, be certain to provide a temporary separator (e.g., cardboard, plastic wrap, etc.) between those cases that are being cleaned and those that may still contain product.

⚠ CAUTION



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

- Avoid spraying cleaning solutions directly on electrical connections.
- Allow cases to be turned off long enough to clean any frost or ice from coil and pans.
- Remove kickplate and clean underneath the case with a broom and a long-handled mop. Use warm water and a disinfecting cleaning solution when cleaning underneath the cases.

A JNRZH OPERATING DATA & CASE DIMENSIONS

B ELECTRICAL WIRING

C CASE TOP FASCIA

D PARTS LIST

E SEISMIC BRACKETS

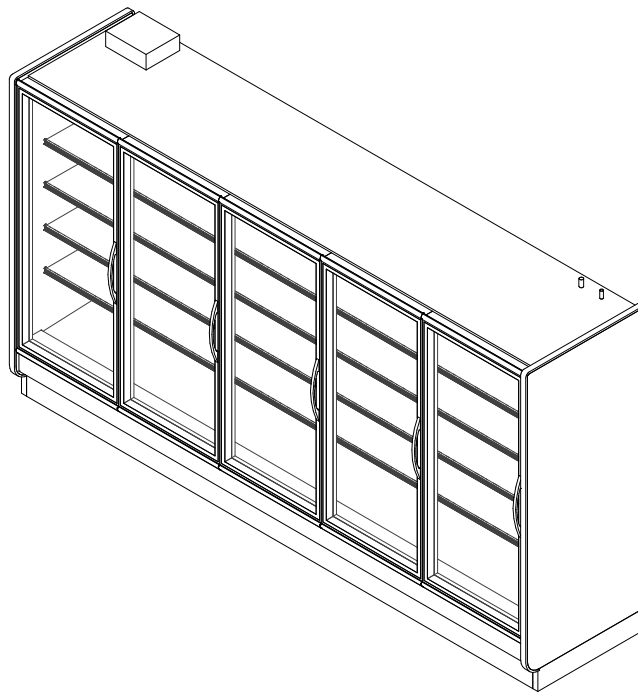
F PEG HOOKS

JNRZH

2, 3, 4 & 5 Door High Narrow Reach-In Glass Door Merchandiser
Frozen Food/Ice Cream

GENERAL NOTES:

- Light controls - occupancy sensors are required.
- Option 1: OEM Provided: OEM anti-condensate and lighting controls (on/off) are standard unless otherwise specified.
- Option 2: End User Provided: Light controls should be based on occupancy sensors. Store level A/S control should be set to 30% minimum off time at 75°F/55%RH.



| SHIPPING WEIGHT | |
|-----------------|--------|
| Case | Weight |
| JNRZH | --- |



COMPONENT
ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRZH

| Rev. Date | Rev. # | Rev. Title |
|-----------|--------|----------------|
| 05-03-23 | 3 | NOTES UPDATE |
| 04-10-23 | 2 | ENDVIEW UPDATE |



JNRZH

2, 3, 4 & 5 Door High Narrow Reach-In Glass Door Merchandiser Frozen Food/Ice Cream

| ELECTRICAL DATA | | | | | | | | | |
|-----------------|---------------|----------------------|-------|--------------|-------|---------------------------|-------|-----------|-------|
| Case Length | Fans Per Case | High Efficiency Fans | | Tank Heaters | | Defrost Heaters (1-Phase) | | | |
| | | 120 Volts | | 120 Volts | | 208 Volts | | 240 Volts | |
| | | Amps | Watts | Amps | Watts | Amps | Watts | Amps | Watts |
| 2 Door | 2 | 0.60 | 50 | 1.50 | 152 | 7.50 | 1552 | 8.60 | 2068 |
| 3 Door | 3 | 1.00 | 75 | 1.60 | 171 | 10.90 | 2274 | 12.60 | 3018 |
| 4 Door | 4 | 1.30 | 100 | 1.90 | 226 | 14.30 | 2984 | 16.60 | 3992 |
| 5 Door | 5 | 1.60 | 125 | 2.30 | 275 | 17.50 | 3640 | 20.20 | 4840 |

| LIGHTING DATA | | | |
|---------------|-----------|------------------|-------|
| Case Length | Door Size | OP7 Single Swing | |
| | | 120 Volts | |
| | | Amps | Watts |
| 2 Door | 30" | 0.28 | 33.0 |
| 3 Door | 30" | 0.41 | 49.2 |
| 4 Door | 30" | 0.55 | 65.4 |
| 5 Door | 30" | 0.68 | 81.6 |

| ANTI CONDENSATE DATA | | | | | | | |
|----------------------|-----------|---------------------|-------|-------------|-------|------------|-------|
| Case Length | Door Size | Individual Circuits | | | | | |
| | | ELMD, I90 Doors | | | | Door Frame | |
| | | Heated Doors | | Low E Doors | | 101-LE | |
| | | 120 Volts | | 120 Volts | | 120 Volts | |
| | | Amps | Watts | Amps | Watts | Amps | Watts |
| 2 Door | 30" | 0.64 | 76 | 0.38 | 45 | 1.26 | 151 |
| 3 Door | 30" | 0.95 | 114 | 0.57 | 68 | 1.76 | 211 |
| 4 Door | 30" | 1.27 | 152 | 0.76 | 91 | 2.29 | 275 |
| 5 Door | 30" | 1.59 | 191 | 0.95 | 114 | 2.78 | 334 |



COMPONENT
ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRZH

| Rev. Date | Rev. # | Rev. Title |
|-----------|--------|----------------|
| 05-03-23 | 3 | NOTES UPDATE |
| 04-10-23 | 2 | ENDVIEW UPDATE |



JNRZH

2, 3, 4 & 5 Door High Narrow Reach-In Glass Door Merchandiser Frozen Food/Ice Cream

| GUIDELINES AND CONTROL SETTINGS {DIRECT EXPANSION HFC/CO2} | | | | | | | |
|--|----------------------------|-------------------------------------|----------|---------------------------------|-----------------|--------------------|------------------------------|
| Application | Door Heat | Refrigeration Load Per Door (BTU/H) | | Superheat Set Point @ Bulb (°F) | Evaporator (°F) | Discharge Air (°F) | Discharge Air Velocity (FPM) |
| | | Conventional | Parallel | | | | |
| Frozen Food | Heated Glass and Rail | 1029 | 1008 | 3 - 5 | - 7 | - 1 | 300 |
| Frozen Food | Unheated Glass/Heated Rail | 974 | 954 | 3 - 5 | - 7 | - 1 | 300 |
| Ice Cream | Heated Glass and Rail | 1108 | 1081 | 3 - 5 | - 15 | - 8 | 300 |
| Ice Cream | Unheated Glass/Heated Rail | 1043 | 1018 | 3 - 5 | - 15 | - 8 | 300 |

| DEFROST CONTROLS {DIRECT EXPANSION HFC/CO2} | | | | | | |
|---|------------------|-----------------------|--------------------|-----------------|-----------------------|--------------------|
| Defrosts Per Day | Electric Defrost | | | Hot Gas Defrost | | |
| | Fail-Safe (Min) | Termination Temp (°F) | Run-Off Time (Min) | Fail-Safe (Min) | Termination Temp (°F) | Run-Off Time (Min) |
| 1 | 46 | 50 | 0 | 24 | 73 | 13 - 15 |

NOTES:

- "---" indicates that this feature is not an option on this case model.
- Door / Frame A/S circuits and fans share the same circuit (same cycle). Default jumpers can be removed in field if separate circuits are desired for A/S and fans.
- Drain heater and fan motors share the same circuit (separate cycles). Electrical circuits must be properly sized to accommodate the higher current draw of the tank heater
- Anti-condensate heat values for Low E doors represent a door with no heat on the glass.
- Listed discharge air velocity represents the average velocity at the peak of defrost.
- Temperature and defrost settings listed above are recommended start-up settings. Final operational settings may need to be adjusted for the store conditions in which the case operates.
- No run-off time required for electrical defrost.
- Typical electric defrost time is 20 minutes when ambient conditions are 75°F / 55%RH.
- Light and A/S wattages above reflect 100% run time. To determine actual daily energy usage at 75°F/55%RH conditions, reduce the light wattages above by 42% and reduce the A/S values above by the minimum off time.
- Discharge air temperature values represent readings taken within the upper air channel immediately behind/upstream of the honeycomb.



ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

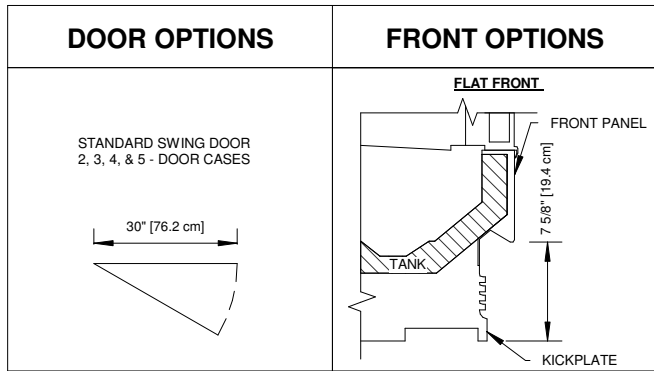
JNRZH

| Rev. Date | Rev. # | Rev. Title |
|-----------|--------|----------------|
| 05-03-23 | 3 | NOTES UPDATE |
| 04-10-23 | 2 | ENDVIEW UPDATE |



JNRZH

2, 3, 4 & 5 Door High Narrow Reach-In Glass Door Merchandiser
Frozen Food/Ice Cream



ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

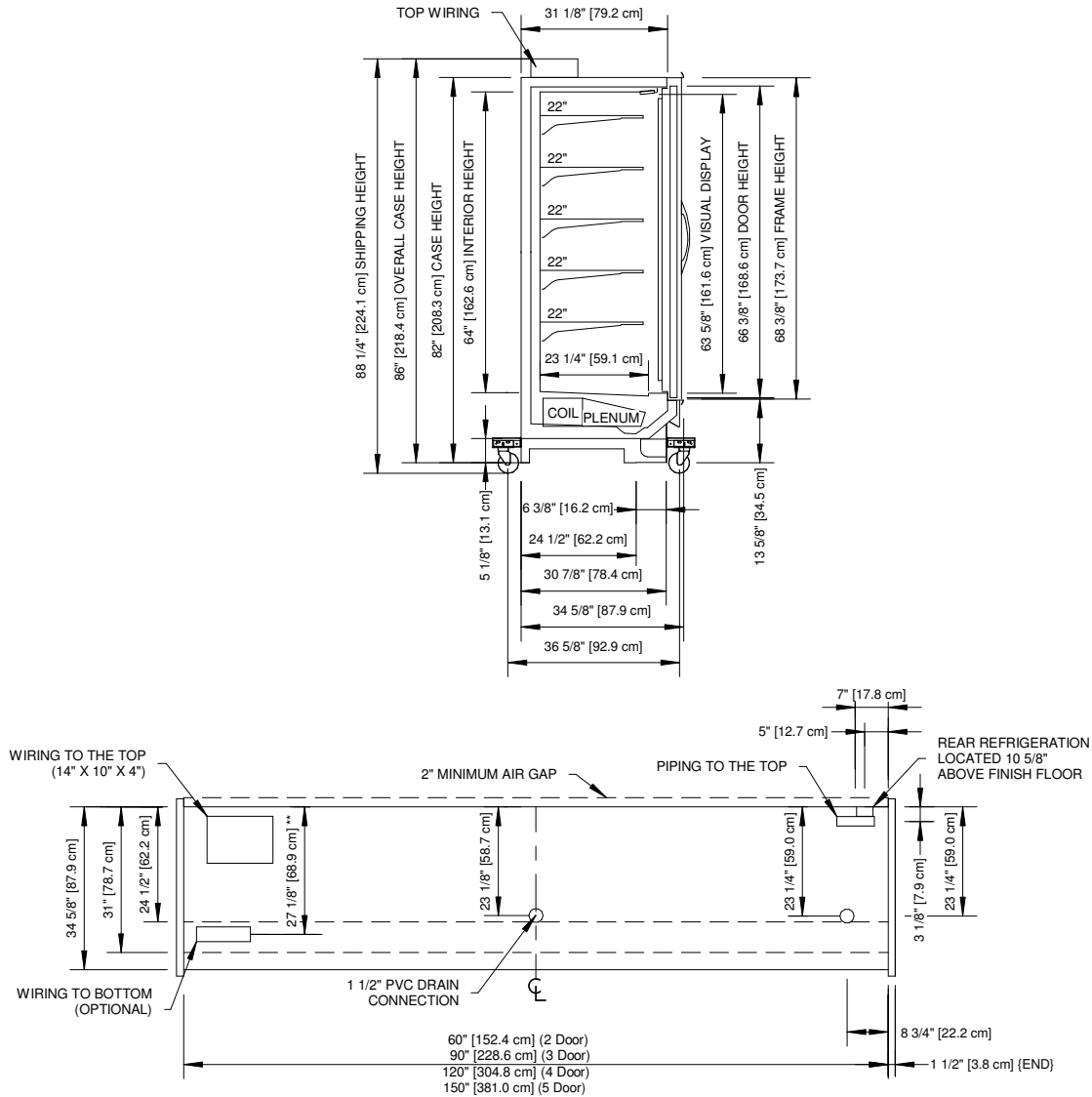
JNRZH

| Rev. Date | Rev. # | Rev. Title |
|-----------|--------|----------------|
| 05-03-23 | 3 | NOTES UPDATE |
| 04-10-23 | 2 | ENDVIEW UPDATE |



JNRZH

2, 3, 4 & 5 Door High Narrow Reach-In Glass Door Merchandiser Frozen Food/Ice Cream



NOTES:

* : STUB-UP AREA.

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

• Ends add approximately 1" to case height, 1/2" to the back & 1" to the front.

| DRAIN LOCATION FROM CENTERLINE | | | | |
|--------------------------------|-----|--------|-----|-----|
| CASE LENGTH | 2DR | 3DR | 4DR | 5DR |
| "X" | 0" | - 0.5" | 0" | 0" |



ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRZH

| Rev. Date | Rev. # | Rev. Title |
|-----------|--------|----------------|
| 05-03-23 | 3 | NOTES UPDATE |
| 04-10-23 | 2 | ENDVIEW UPDATE |

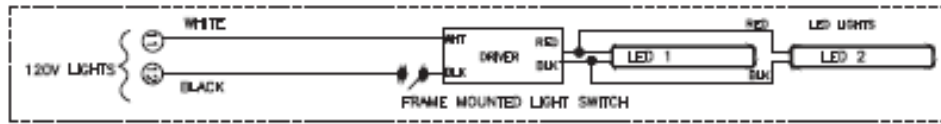


WIRING IDENTIFICATION

| WIRE IDENTIFICATION | BLACK | WHITE | BLUE | RED | YELLOW | PURPLE | ORANGE | GREEN |
|----------------------------------|---------|-------|-------|---------|--------|--------|--------|-------|
| DEFROST HEATERS (1-PHASE) | L2 | | | | | | | |
| DEFROST HEATERS (3-PHASE) | L1 | | | | | | | |
| | 14 | 13 | | | | | | |
| ANTI-CONDENSATE HEATERS | 16 | 15 | | | | | | |
| | 18 | 17 | | | | | | |
| | 10 | 9 | | | | | | |
| ASLE WARMER | 36 | 37 | | | | | | |
| DRAIN HEATER | 4 | 3 | 40 | | | | | |
| PRIMARY FANS | 6 | 5 | | | | | | |
| SECONDARY FANS | 8 | 7 | | | | | | |
| AMBIENT FANS | 12 | 11 | | | | | | |
| BELL | 60/62 | | | | | | | |
| TEMPERATURE CONTROL | | | | | 19/20 | | | |
| DEFROST TERMINATION CONTROL | 22 | | | | | 21 | 23 | |
| DEFROST SAFETY CUTOFF CONTROL | 28 | | | | | 27 | 29 | |
| LIQUID LINE SOLENOID | | | | | | 30 | 31 | |
| SUCTION LINE SOLENOID | | | | | | 38 | 39 | |
| CASER CONTROLLER POWER | 42 | 41 | | | | | | |
| TRANSFORMER | 24 | 25 | | | | | | |
| CAPACITOR | 34 | | 35 | | | | | |
| RECEPTACLE | 32 | 33 | | | | | | 75 |
| SYSTEM NEUTRAL (3-PHASE) | | N | | | | | | |
| POWER CORU (SEL-F-CONTAINED) | 58 | 57 | | | | | | |
| SERVICE LIGHT (H-PRESSURE) | 53/54 | | 49/50 | | | | | |
| HIGH PRESSURE SWITCH | 51/52 | 47 | | | | | | |
| DUAL PRESSURE SWITCH | 49 | 45 | | 44/220V | | | | |
| CONDENSING UNIT FAN | 26 | 43 | | | | | | 77 |
| IG 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 | 78 | 61 | | | | | | |
| TANK FLUSH SOLENOID | 87/220V | 87 | | | | | | 86 |
| MISTING SOLENOID | 89/220V | 89 | | | | 88 | | |
| DRIP DOWN TIMER | | | | | | 90 | | |
| REAR STORAGE BOX FANS | 94 | 95 | | | | | | 81 |
| GROUND TO EXTERIOR FRAME | | | | | | | | 83 |
| GROUND TO INTERIOR LINER | | | | | | | | 85 |
| GROUND TO JUNCTION BOX | | | | | | | | 97 |

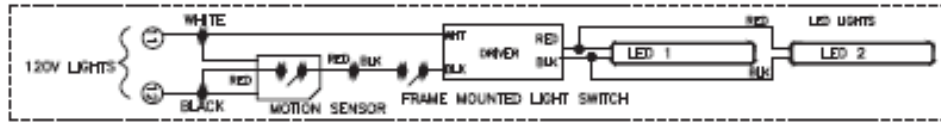
PG01 598E - R4

ELECTRIC DEFROST: HOT GAS

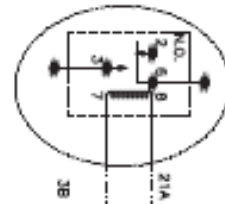
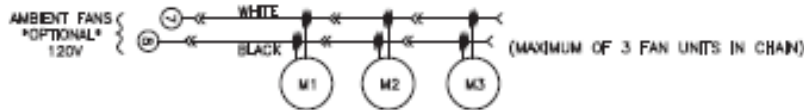
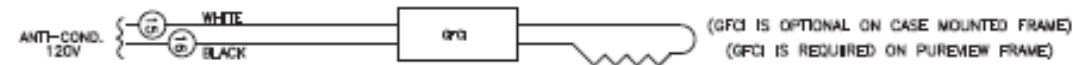
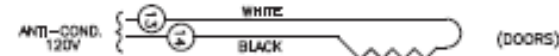


TYPICAL LIGHT CIRCUIT

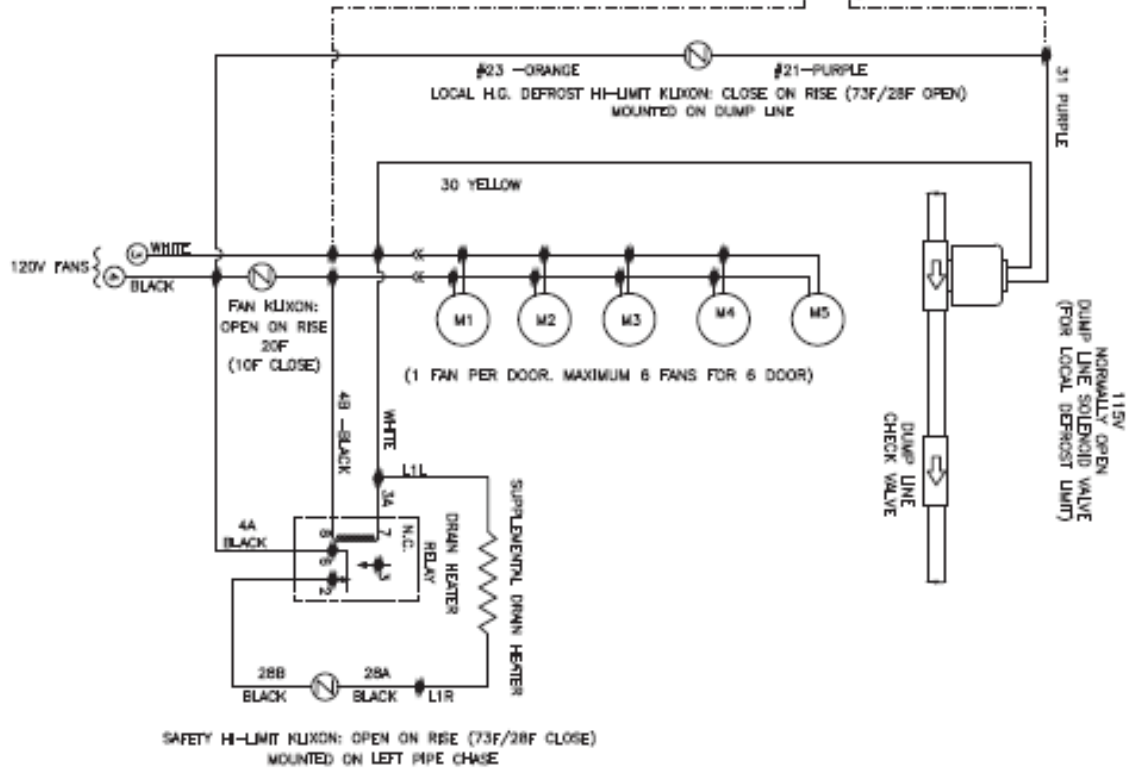
- OR -



*OPTIONAL LIGHT CIRCUIT ON/OFF MOTION SENSOR

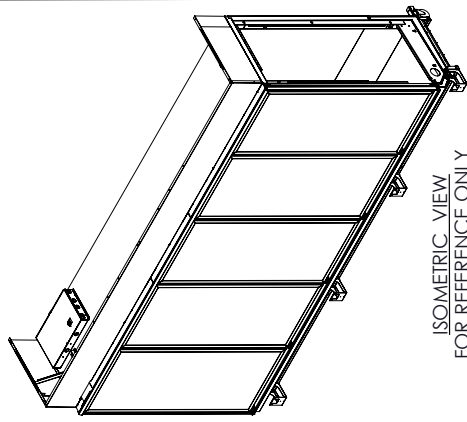


OPTIONAL DRY CONTACT RELAY REPORTS DEFROST Klixon STATUS TO THE BACK CLUSTER-ON-WIRE



NAME: 10084655 OBJECT: R900217 DATE: 03-10-2023 20:44:11

- NOTES:
- THIS SHIPPED LOOSE FASCIA FRAMEWORK MODULE ARRANGEMENT IS APPLICABLE TO 2DR, 3DR, 4DR AND 5DR CASES ONLY.
 - CASE AND JUNCTION BOX SHOWN ARE FOR REPRESENTATION ONLY.
 - REFER WORK ORDER FOR QUANTITY OF FASCIA SUPPORT BRACKET.



SECURE 12" FASCIA TO THE DOOR COVER ASSEMBLY USING 6X #8 SCREWS. (SPECIFIC TO 5DR)

SECURE END FASCIA TO THE FASCIA BASE USING 4X #8 SCREWS. TYPICAL ON RH SIDE

JUNCTION BOX

DOOR COVER ASSEMBLY

REMOTE DISPLAY

ADJUSTABLE END FASCIA LH OUTSIDE PANEL

ADJUSTABLE END FASCIA INSIDE PANEL

JUNCTION BOX

FASCIA FRONT

DOOR COVER ASSEMBLY

FASCIA SUPPORT BRACKET

REPEAT EXPLODED VIEW SHOWING THE EXPLOSION OF FASCIA FRAMEWORK MODULE, CASE AND JUNCTION BOX

ADJUSTABLE END FASCIA INSIDE PANEL

ADJUSTABLE END FASCIA RH OUTSIDE PANEL

EXPLODED VIEW
SHOWING THE EXPLOSION OF FASCIA FRAMEWORK MODULE, CASE AND JUNCTION BOX

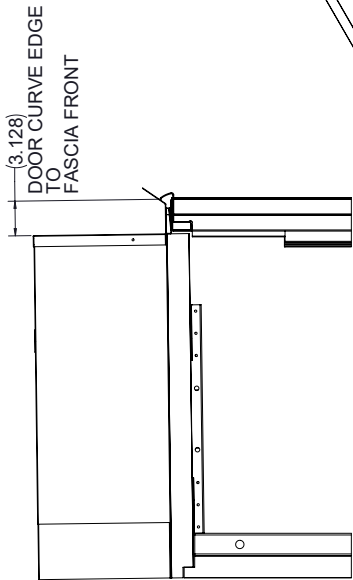
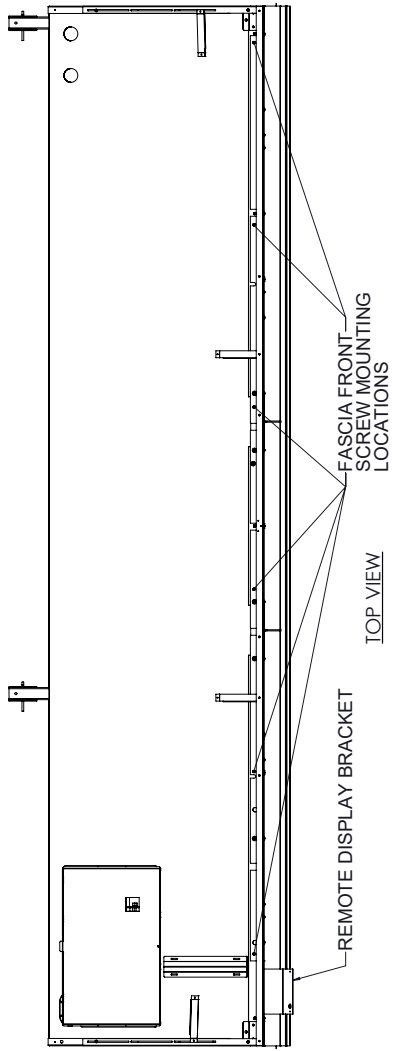
| | |
|--|--|
| ASSEMBLY TYPE: Sub-Assembly TOLERANCES: (UNLESS SPECIFIED) DIMENSIONS: 1/16, 1/8, 1/4, 3/8, 1/2 FRACTIONS: 1/2, 3/4, 1, 1 1/2 DECIMALS: .000, .001, .002, .003, .004, .005, .006, .007, .008, .009, .010 ANGLES: 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 165, 180 DRAWING: NOT TO SCALE | <p>THIRD ANGLE PROJECTION</p> |
| | <p>Hilphoenix</p> <p>Display Case 1000 Park Hill Road Rock Hill, SC 29730 803.782.4600</p> |
| <p>REF: AS, FAC, P2, RMT-DSPL</p> | |
| <p>DATE: 06-03-2023</p> | |
| <p>DRAWN BY: RRH</p> | |
| <p>SHEET: 1 OF 2</p> | |

| RRH | DATE | 120331 | 1 | RELEASED TO PRODUCTION |
|-----------|------|---------|----|------------------------|
| REV BY: | DATE | ECN NO. | R/ | DESCRIPTION |
| REVISIONS | | | | |

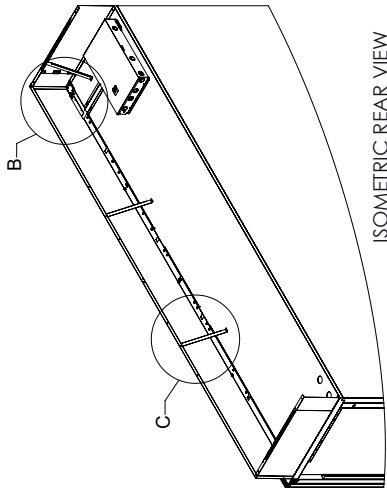
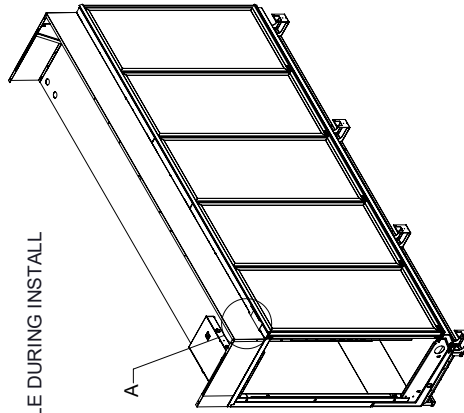
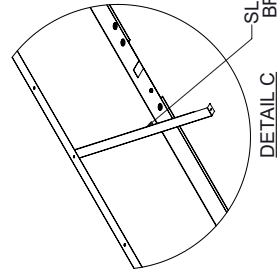
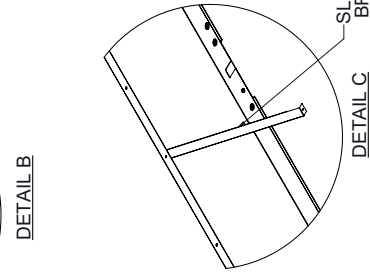
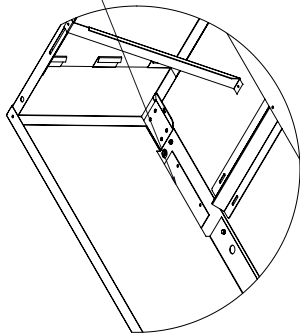
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILPHOENIX

DRAWING GENERATED IN SOLIDWORKS

DRAWING GENERATED IN SOLIDWORKS

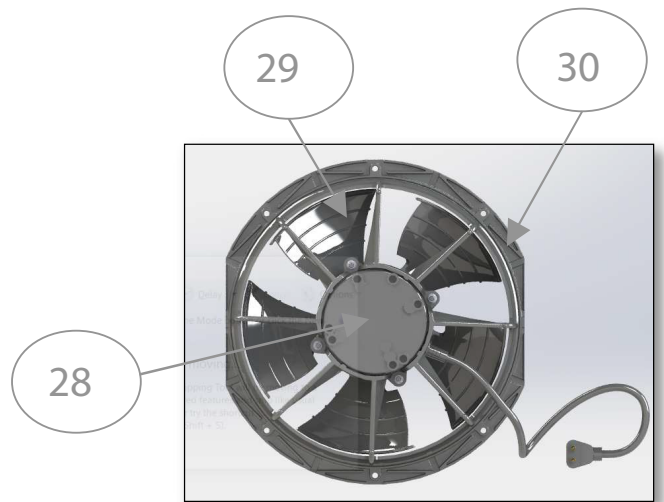
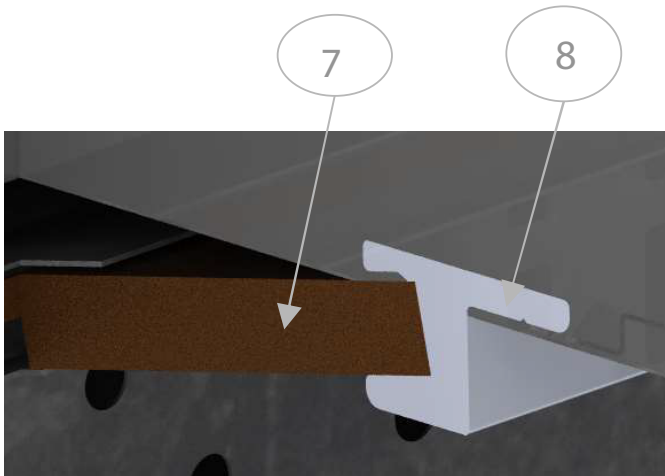


NOTCH IS PROVIDED ON 12" FASCIA FOR THE PROVISION OF REMOTE DISPLAY BRACKET CAUTION - AVOID DAMAGE TO CABLE DURING INSTALL



| | |
|--|-----------------------------------|
| <p>Hilphoenix Display Cases Colon Heights, VA 23844 (801) 206-6649</p> | <p>REF. AS, FAC, P2, RMT-DSPL</p> |
| | <p>DATE: 06-03-2023</p> |
| <p>DRAWN BY: RRH</p> | <p>SHEET: 2 OF 2</p> |
| <p>PART NUMBER: R900217</p> | |

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



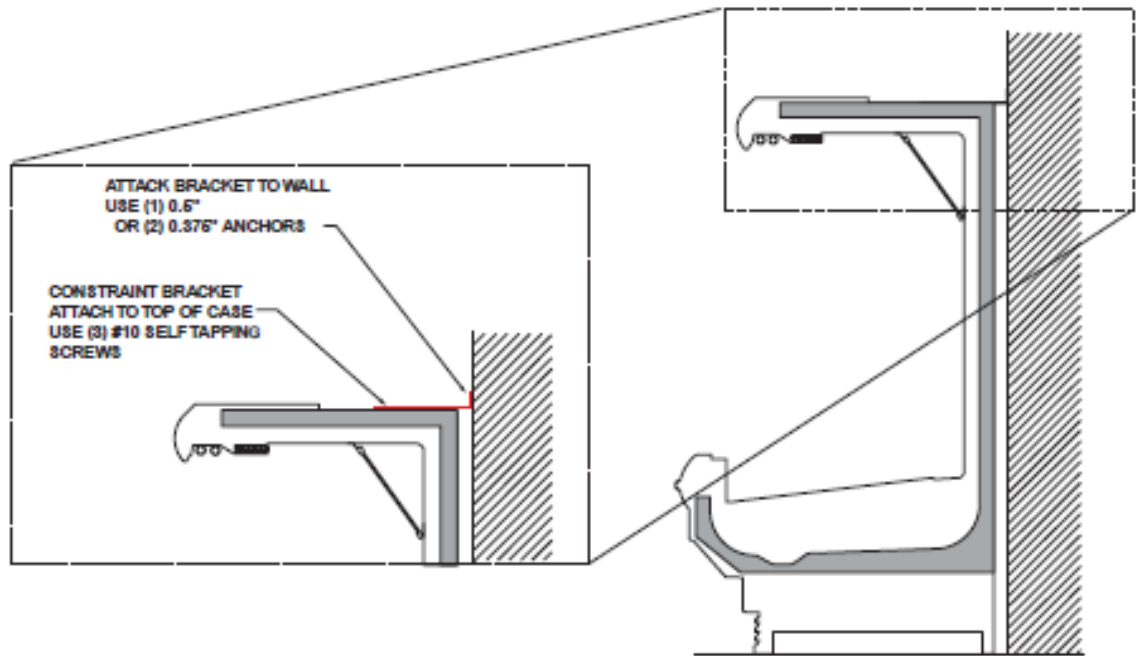
| Location Number | Part Descriptions |
|------------------------|---|
| 1 | Kickplate, Strome Gray |
| 2 | Lower Front Panel, Painted Custom Color |
| 3 | Back Panel |
| 4 | Deck Pan, Painted, Unpainted |
| 5 | Wire Shelving, With or Without Covers |
| 6 | Front Baffle, Aluminum |
| 7 | Honeycomb 1"x4"x48" |
| 8 | Honeycomb Retainer, Painted |
| 9 | Upper Rear Baffle, Center or End |
| 10 | Nose Bumper, Polymer Custom Color |
| 11 | Lower Rear Baffle Painted. |
| 12 | Top Canopy |
| 13 | " J " Rail, for Kickplate |
| 14 | Top Flue Panel Painted |
| 15 | Frame Assembly Left, Right & Center |
| 16 | Door, Specify Mask Color, Ardco or Anthony, Door Handle Type, Low or Medium Temperature Applications, Left or Right-Hand Swing, |
| 17 | Door Frame Manufactures Low or Medium Temperature Application |
| 18 | Coil |
| 19 | Bumper Retainer |
| 20 | Bottom Wire Racks |
| 21 | Tag Molding, PVC, or Aluminum |
| 22 | Thermometer Includes Bracket |
| 23 | End Assembly Solid Custom Color Identify Left or Right or Color of Panel And Color of End Trim Color |
| 24 | End Kickplate, Painted, Stainless Steel |
| 25 | Defrost Heaters |
| 26 | Anti-Condensate Heaters, Discharge |
| 27 | Base Frame |
| 28 | Fan Motor – State High Efficiency or Standard |
| 29 | Fan Blade |
| 30 | Fan Basket 8" |

E1 SEISMIC BRACKETS

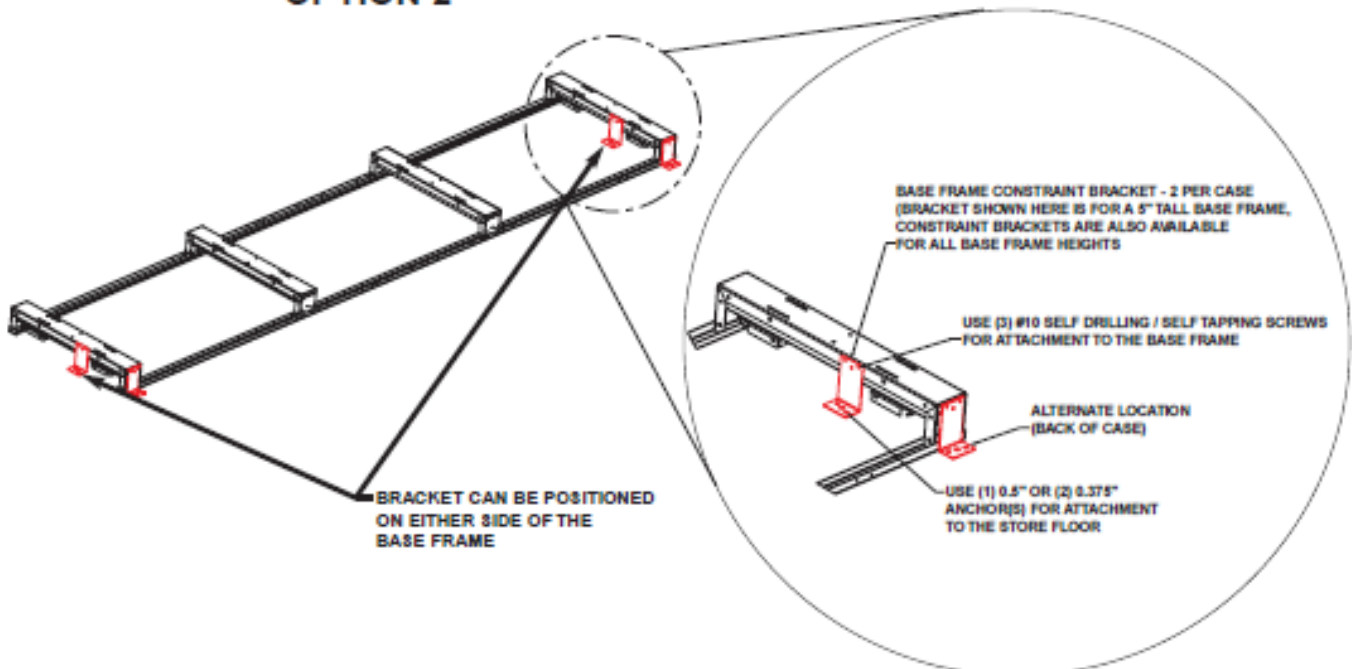
The case constraint brackets can be installed in 2 ways. Option 1 can be used on multi-deck cases and uses an “L” bracket to attach the case to a vertical wall, as shown below. Option 2 can be used on multideck cases or on cases that do not have a canopy.

Attach the “L” brackets to the base frames in either of the locations shown below. Brackets are available for all base frame heights.

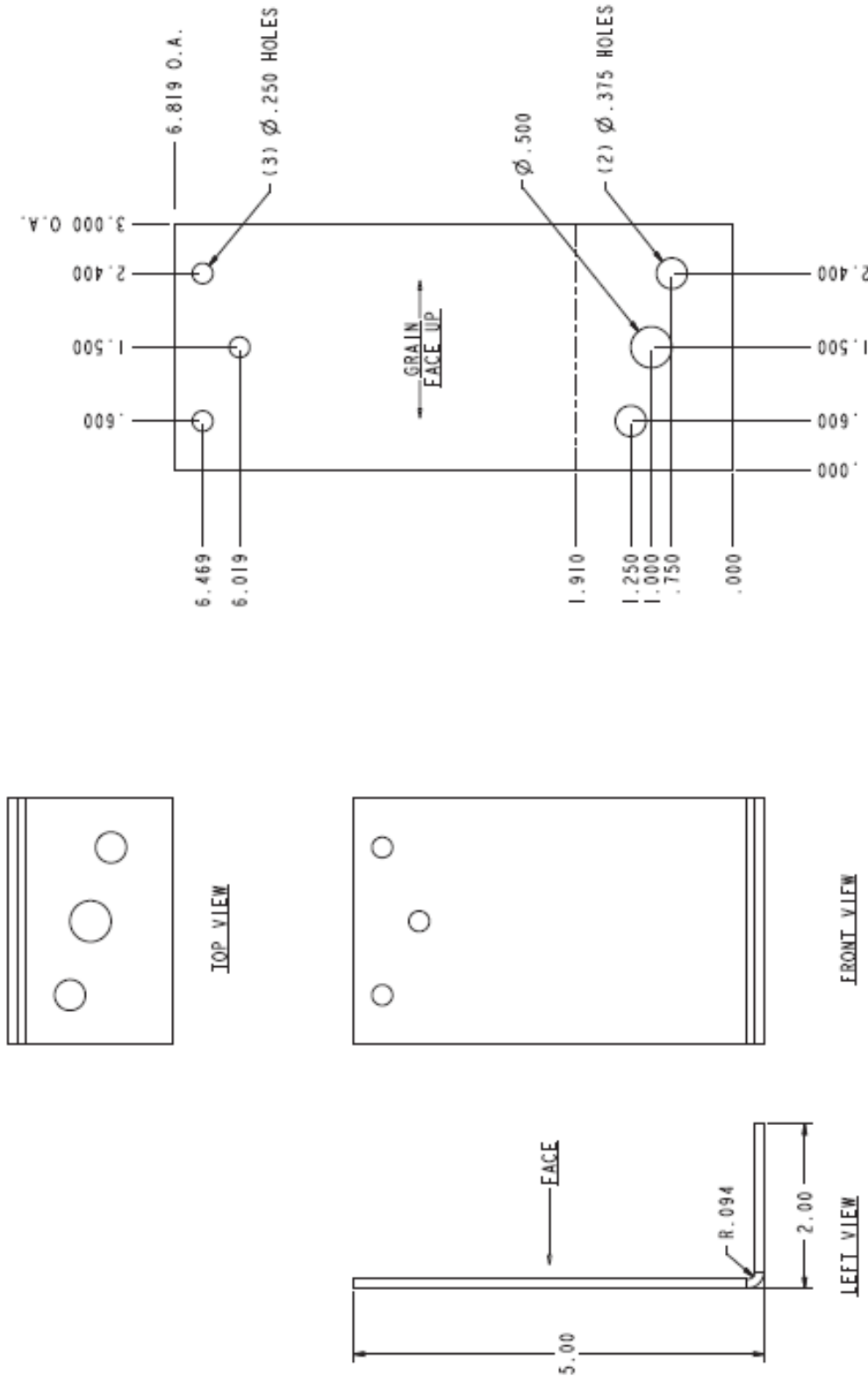
OPTION 1



OPTION 2



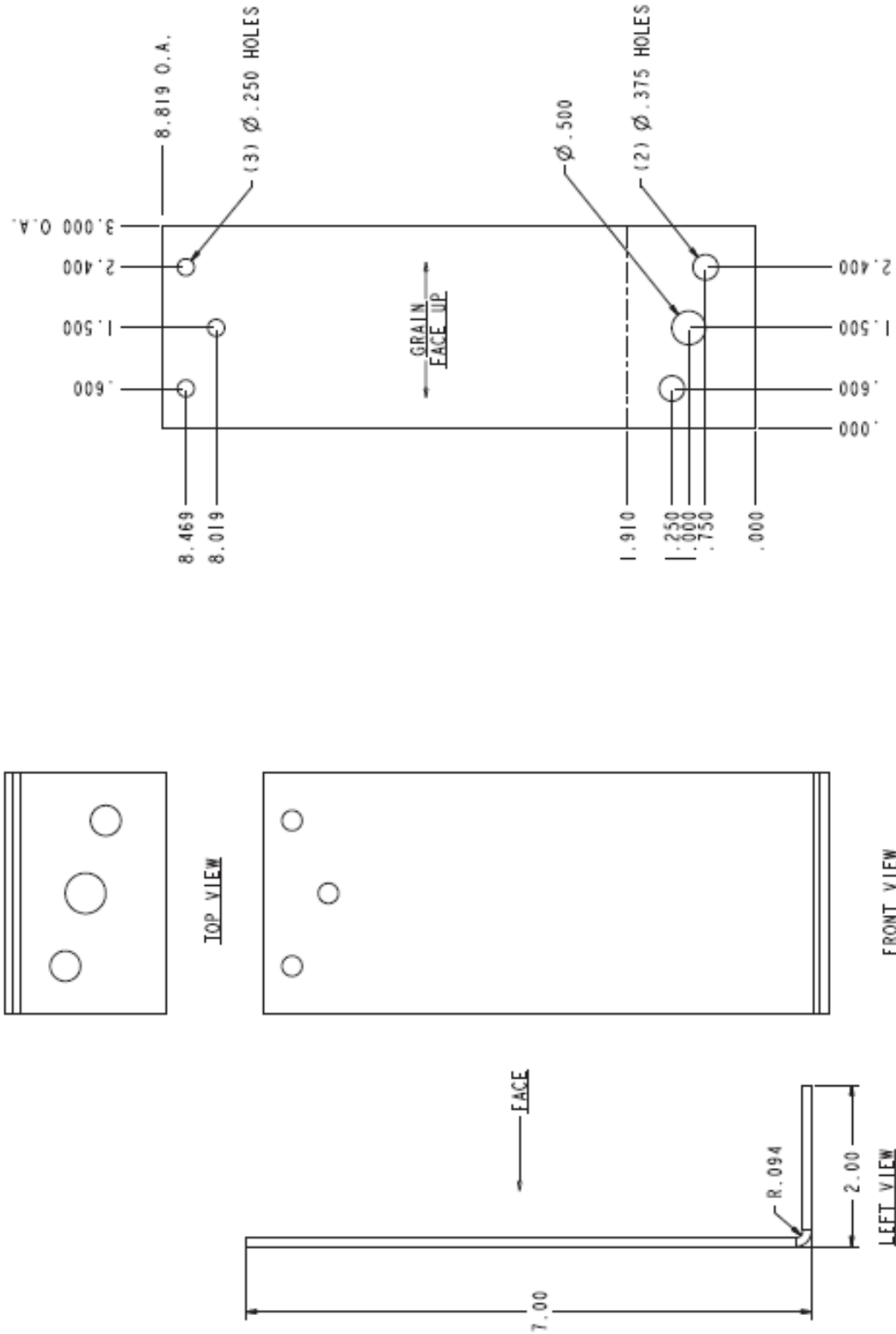
5" BRACKETS



| | | | | |
|--|----------------|------------------------|----------------|---------------|
| ALL BENDS 90° UNLESS SPECIFIED | DATE: 05/15/06 | RELEASED TO PRODUCTION | DATE: 05/15/06 | SHEET: 1 OF 1 |
| ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED | ECN NO: 17 | DESCRIPTION | | |
| ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED | | | | |
| STARTING SIZE TO SCALE | | | | |
| ⊗ = VARIANCE ACCEPTABLE | | | | |
| Mill Phoenix | | | | |
| 1925 MILL ROAD COLONIAL HEIGHTS, VA 23044 PH: (804) 305-4455 FAX: (804) 305-3124 | | | | |
| QNT: 1 | | | | |
| QTY: 6L | | | | |
| QTY: MSP | | | | |
| QTY: 126 | | | | |
| FINISH: GALVANIZED | | | | |
| QTY: F766804AGL | | | | |
| QTY: BKT.L. 5" BF. CONSTRAINT | | | | |
| QTY: 1 | | | | |

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

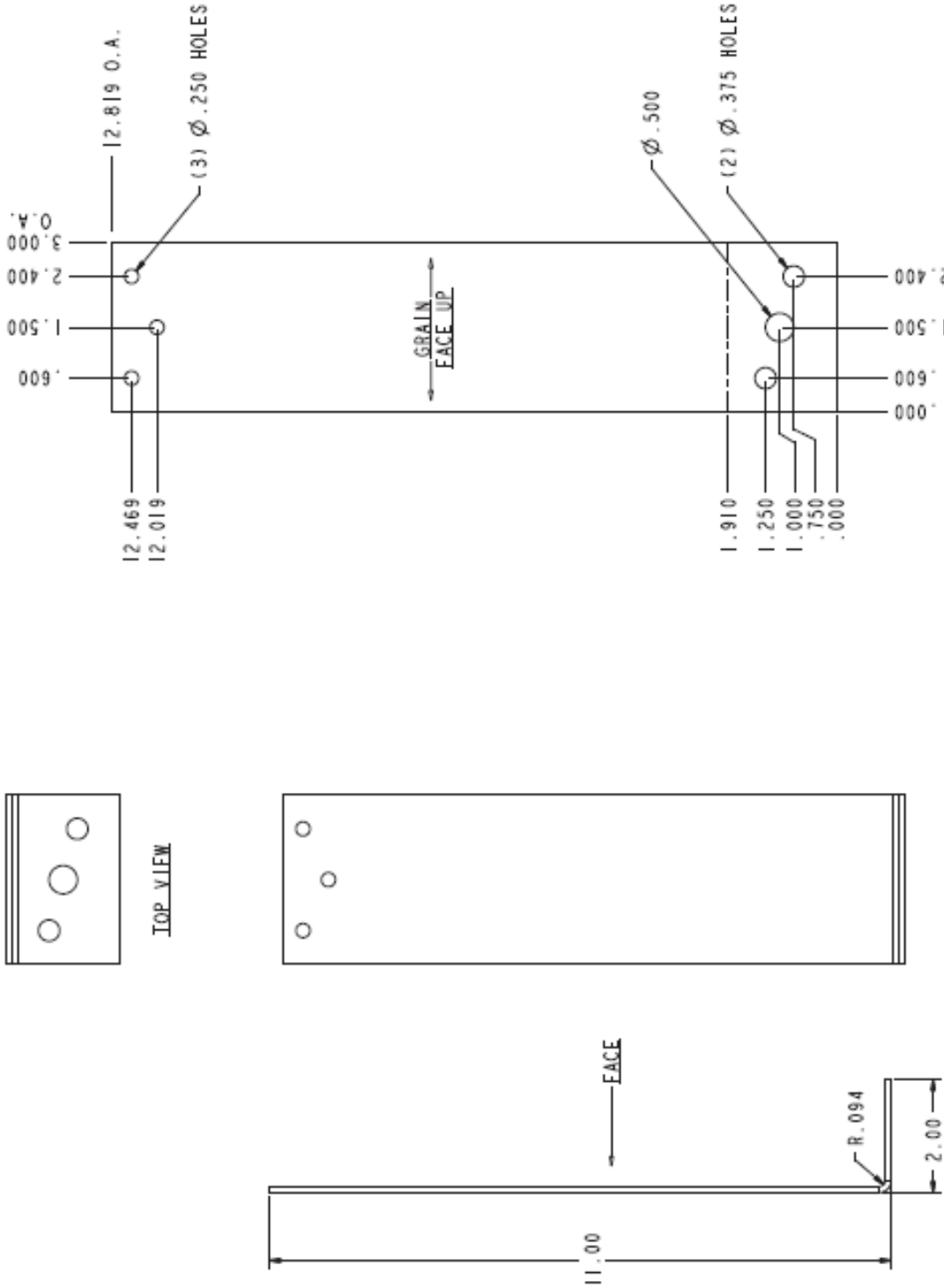
7" BRACKETS



| | | | |
|--|----------|-------------------|------------------------|
| REV | 05/15/06 | 62357 | RELEASED TO PRODUCTION |
| BY | DATE | ECN NO. | DESCRIPTION |
| ALL DIMS 90° UNLESS SPECIFIED ALL DIMENSIONS IN INCHES DECIMALS TO 2 PLACES UNLESS NOTED OTHERWISE DIMENSIONS NOT TO SCALE (X) = VARIANCE ACCEPTABLE HILL PHOENIX HILL PHOENIX TOOL & DIE 1815 HILL PHOENIX ROAD COLLETON, TEXAS 75844 PH: (409) 524-4455 FAX: (409) 524-9124 | | | |
| PART NUMBER: BRT-L-7" SF-CONSTANT | | SHEET: 1 OF 1 | |
| DRAWN BY: CWC | | DATE: 05/15/06 | |
| MATERIAL: GL | | FINISH: MSP | |
| QUANTITY: 120 | | TOTAL: GALVANIZED | |
| F766805KGL | | | |

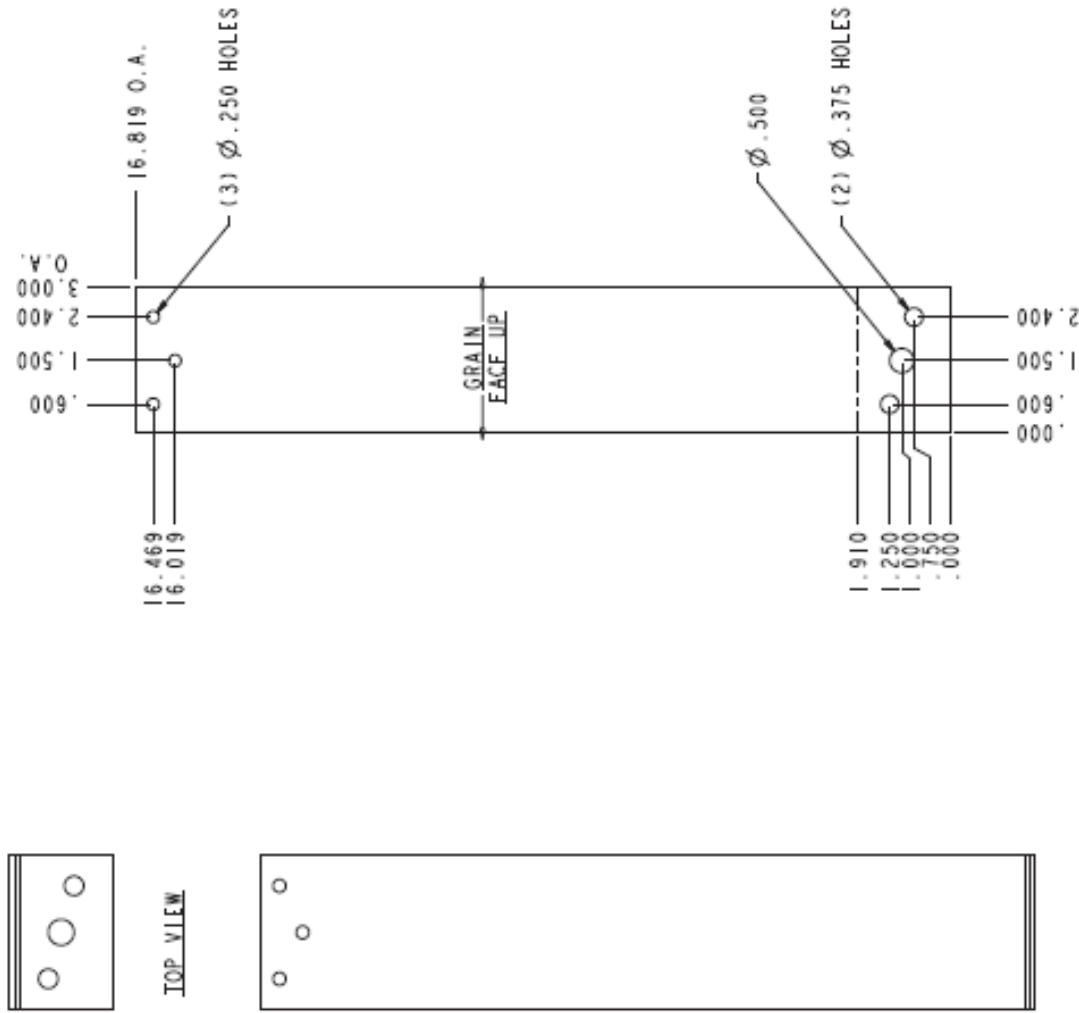
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX

11" BRACKETS



| | | | |
|--|------------------------------|--------|------------------------|
| REV | 05/15/06 | 62357 | RELEASED TO PRODUCTION |
| BY | DATE | ECN NO | DESCRIPTION |
| INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHENIX | | | |
| HILL PHENIX HILL PHENIX 1925 HOFFER HILL ROAD COLUMBIA, SOUTH CAROLINA 29224 PH: (803) 326-4050 FAX: (803) 326-9725 WWW.HILLPHENIX.COM | | | |
| ALL DIMENSIONS UNLESS SPECIFIED | MATERIAL SPECIFICATIONS | | |
| ALL DIMENSIONS UNLESS SPECIFIED | 6L | MSP | 12G |
| ALL DIMENSIONS UNLESS SPECIFIED | FINISH: GALVANIZED | | |
| ALL DIMENSIONS UNLESS SPECIFIED | PART NUMBER: F766806GGL | | |
| ALL DIMENSIONS UNLESS SPECIFIED | DRAWN BY: CWC DATE: 05/15/06 | | |
| ALL DIMENSIONS UNLESS SPECIFIED | SHEET: 1 OF 1 | | |

15" BRACKETS



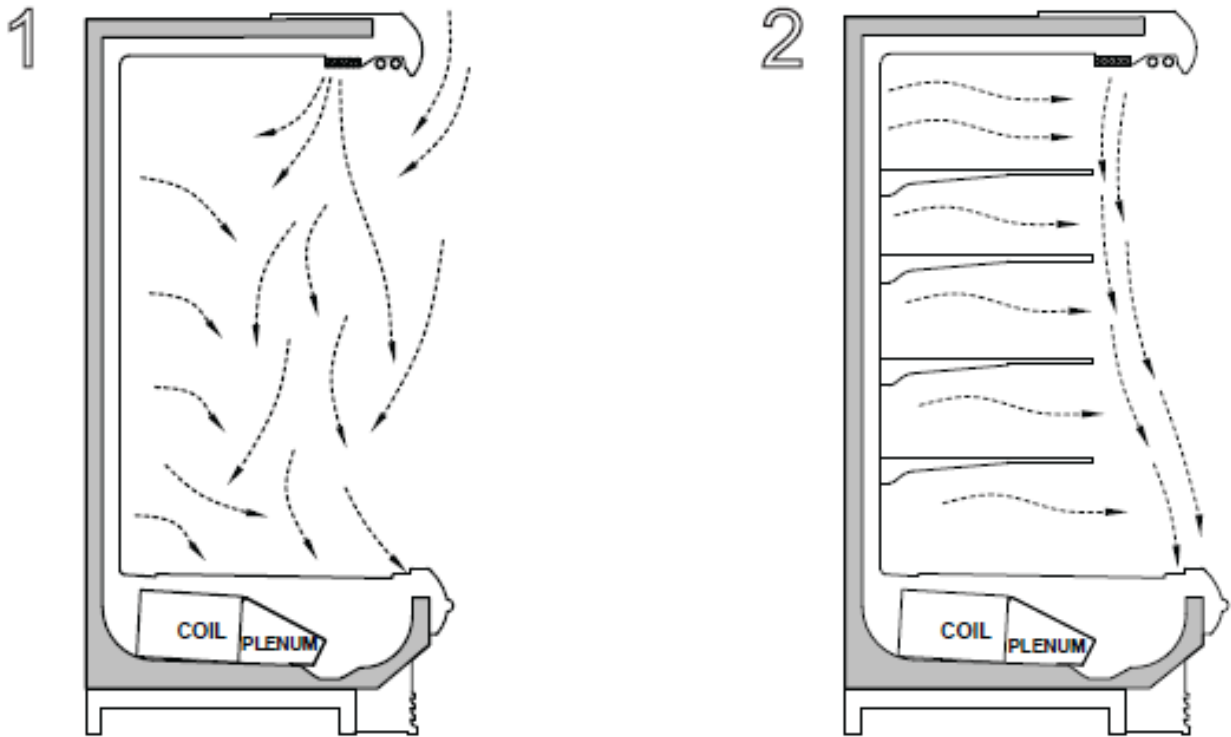
TOP VIEW

FRONT VIEW

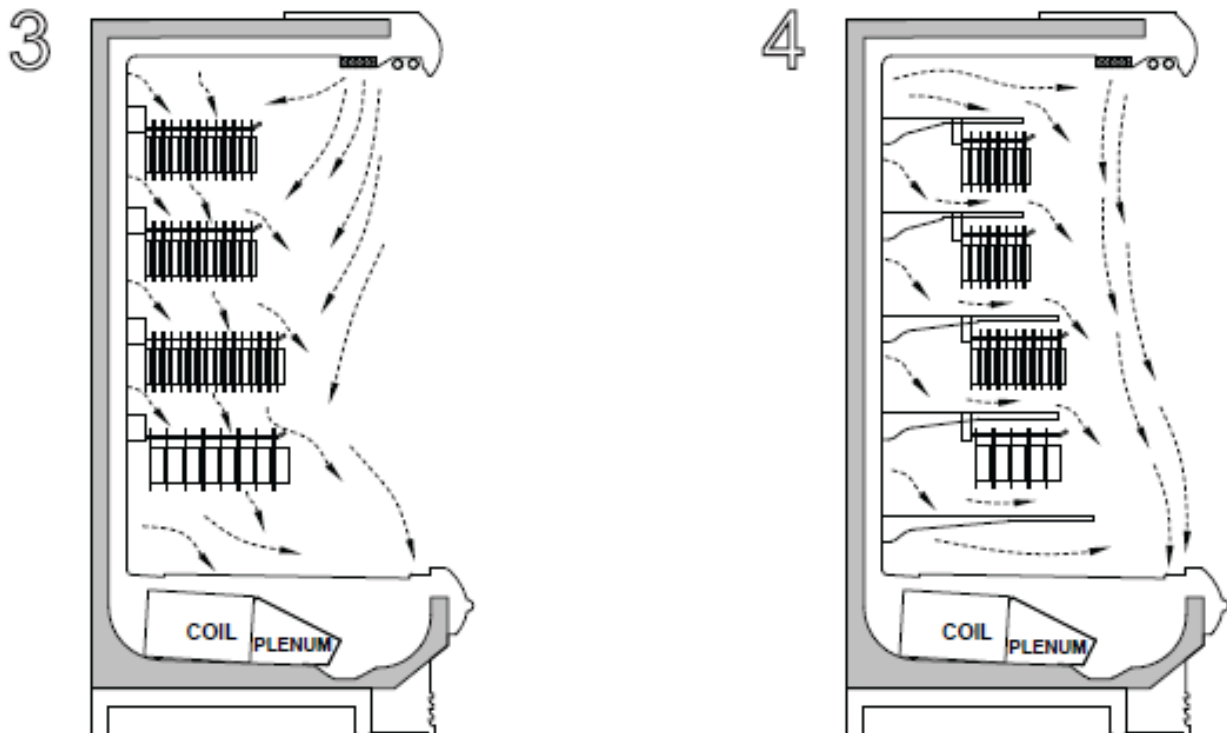
LEFT VIEW

| | | |
|--|---------|----------------------------|
| ALL DIMENSIONS UNLESS SPECIFIED | UNIT: | GL |
| INCHES | TYPE: | MSP |
| 1" = 1" ALL DIMENSIONS & FIT | FINISH: | 1.20 |
| ① = VARIANCE ACCEPTABLE | FINISH: | GALVANIZED |
| Mill Phoenix | | |
| 1875 MILL CREEK ROAD COLUMBIA, SC 29928 PH 803-730-1055 Fax 803-730-3724 | | |
| PART NUMBER: | | F766807EGL |
| REV. NO.: | | REV. 1 - 15" RF CONSTRAINT |

When a case merchandiser's shelves are removed, air drifts back to the rear duct and swirls around, thus breaking the protective air envelope and allowing case air to mix with ambient store air (Fig. 1). When the shelves are present, air flows from the top and back, forming a protective barrier against the ambient store air (Fig. 2).



When peg bars are present, air falls through openings between packages and fails to maintain a protective barrier (Fig. 3). When the bars are fully stocked, the effect is minimized; however, product temperatures will not be optimal. Sweating may be noticed on the top duct panel above the bars and frost will build up on the coil faster, requiring more frequent defrost cycles. For proper set-up of a merchandiser with peg bars, install a solid baffle above each row of peg bars - except for the bottom shelf - to maintain proper air flow and temperatures inside the case. Non-load-bearing solid air baffles should run the same width as the peg bars.



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 acts 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 completed or returned within two weeks after startup.

THIS PLAN DOES NOT COVER CONSEQUENTIAL OR LIQUIDATED DAMAGES. The manufacturer shall not be liable under any circumstances for any consequential or liquidated 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 the 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, Inc.
Display Merchandisers
1925 Ruffin Mill Road
Colonial Heights, VA 23834
1-800-283-1109

Hillphoenix, Inc.
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 receptacles must be dried off prior to insertion and re-energizing the lighting circuit.

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

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

Hillphoenix.
a  company

Tel: 1-804-526-4455

1925 Ruffin Mill Rd, Colonial Heights, VA 23834

Due to our commitment to continuous improvement, all specifications are subject to change without notice.

Hillphoenix is a Sustaining Member of the American Society of Quality.

Visit our website at www.hillphoenix.com

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