

HUSSMANN®



Insight™ Freedom Line

**Meat, Delicatessen,
Dairy and Produce
Merchandisers**



Installation & Operation Manual

Shipped With Case Technical Data Sheets

P/N 3001933_B

April 2016

IMPORTANT

**Keep in store for
future reference!**

MANUAL - I/O FREEDOM MULTI-DECK

**Spanish 3001934
French 3001935**



BEFORE YOU BEGIN
Read these instructions completely and carefully.



PERSONAL PROTECTION EQUIPMENT (PPE)

Personal Protection Equipment (PPE) is required whenever servicing this equipment. Always wear safety glasses, gloves, protective boots or shoes, long pants, and a long-sleeve shirt when handling glass.

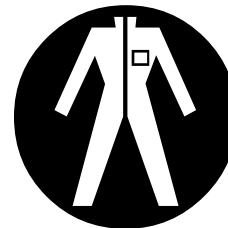
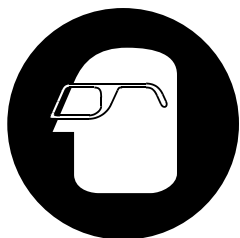


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IMPORTANT
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WARRANTY

REVISION HISTORY

REVISION B

1. Revised to B for Team Center

REVISION A

1. Revision A is original manual issue.

INSIGHT INSTALLATION

TOOL LIST

(recommended)



Unloading From Trailer:

Lever Bar (also known as a Mule,
Johnson Bar, J-bar, Lever Dolly, and pry lever)
Moving Dolly



Setting Case Line-Up:

- Level, 4 ft (suggested)
- Ratchet
- 1/4 in. Socket Drill Bit
- 5/16 in. Socket Drill Bit
- 1/2 in. Socket - Deep Drill Bit
- 1/2 in. Open End Wrench
- Cordless Impact Drill
- Caulking Gun
- 10 in. Adjustable Crescent Wrench

ANSI Z535.5 DEFINITIONS



• **DANGER** – Indicate[s] a hazardous situation which, if not avoided, will result in death or serious injury.



• **WARNING** – Indicate[s] a hazardous situation which, if not avoided, could result in death or serious injury.



• **CAUTION** – Indicate[s] a hazardous situation which, if not avoided, could result in minor or moderate injury.

• **NOTICE** – *Not related to personal injury* – Indicates[s] situations, which if not avoided, could result in damage to equipment.

INSTALLATION

NSF LISTING

These merchandisers are manufactured to meet ANSI/UL471 standard requirements for safety. Proper installation is required to maintain this listing. Near the serial plate, each merchandiser carries a label identifying the type of conditions for which the merchandiser was performance tested.

ANSI/NSF-7 Type I – Display Refrigerator / Freezer
Intended for 75°F / 55%RH Ambient Application

ANSI/NSF-7 Type II – Display Refrigerator / Freezer
Intended for 80°F / 55%RH Ambient Application

ANSI/NSF-7 – Display Refrigerator
Intended for Bulk Produce

FEDERAL / STATE REGULATION

These merchandisers, at the time they are manufactured, meet all federal and state / provincial regulations.

LOCATION

These merchandisers are designed for displaying products in air conditioned stores where temperature is maintained at or below the ANSI / NSF-7 specified level and relative humidity is maintained at or below 55%. Placing refrigerated merchandisers in direct sunlight, near hot tables or near other heat sources could impair their efficiency. Like other merchandisers, these are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around the merchandisers. Product should always be maintained at proper temperature. This means that from the

time the product is received, through storage, preparation and display, the temperature of the product must be controlled to maximize the life of the product.

Merchandisers have internal frames. A 1.5 inch (38 mm) space between the rear of the merchandiser and wall must be maintained for air circulation. However, in high ambient conditions, sweating may still occur. If this happens install a method of forced ventilation such as a fan ventilation kit. A 7-inch (178 mm) space is required between the facade top and the ceiling. A Louvered Facade Panel kit is available that will allow for a top spacing minimum clearance of 3 inches (76 mm).

For California Businesses:

WARNING

This product may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

This warning is the result of the California State law known as the California Safe Drinking Water and Toxic Enforcement Act of 1986, which is commonly referred to as “Proposition 65.” This warning does not mean that Hussmann products will cause cancer or reproductive harm, or is in violation of any product-safety standards or requirements. As clarified by the California State government, Proposition 65 can be considered more of a ‘right to know’ law than a pure product safety law. When used as designed, Hussmann believes that our products are not harmful. We provide the Proposition 65 warning to stay in compliance with California State law. It is your responsibility to provide accurate Proposition 65 warning labels to your customers when necessary. For more information on Proposition 65, please visit the California State government website.

FREEDOM LINE DESCRIPTION

Freedom Line models are designed to be ready for remote installation of a top-mounted, air-cooled condensing unit, such as Hussmann's Freedom Line condensing units. They are controlled by the Safe-NET III electronic control. The case temperature is controlled by cycling the compressor based on the discharge air temperature input. The sensor for this input is located in the discharge air stream above the interior top panel. Defrost is time initiated and terminated. The Safe-NET III control is pre-programmed for medium temperature food operation and is adjusted for the required temperature by the control knob located on the front of the controller, which is on top of the case. Freedom cases running on individual condensing units may be installed as stand-alone cases with ends, or as part of a lineup. When installed in a lineup, Hussmann recommends that partitions be installed between individual cases to prevent frost buildup and other issues that might result from different defrost schedules and operating temperatures.

SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading. This equipment has been carefully inspected at our factory. Any claim for loss or damage must be made to the carrier. The carrier will provide any necessary inspection reports and/or claim forms.

Apparent Loss or Damage

If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim.

Concealed Loss or Damage

When loss or damage is not apparent until after equipment is uncrated, retain all packing materials and submit a written request to the carrier for inspection, within 15 days.

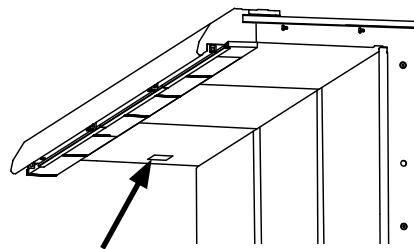
UNLOADING

Improper handling may cause damage to the merchandiser when unloading. To avoid damage:

1. Do not drag the merchandiser out of the trailer. Use a Johnson bar (mule).
2. Use one dolly to remove the merchandiser from the trailer.

SERIAL PLATE LOCATION

The serial plate is located inside the canopy at the left side of the case. The serial plate contains information about the specific model and its operating parameters.



Serial Plate inside Canopy (top left side)



WARNING

Do not walk on case. Do not store items or flammable materials atop the case.

EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur. THEY ARE NOT STRUCTURALLY DESIGNED TO SUPPORT EXCESSIVE EXTERNAL LOADING such as the weight of a person. Do not place heavy objects on the merchandiser.

NOTE:

Be careful not to damage the factory installed end while moving the case. Make sure that tools are positioned past the end and beneath the merchandiser's support bar.

MOVING MERCHANDISER INTO POSITION

The electrical box and GFCI receptacle are mounted on top of the case. They can be temporarily detached and suspended if required to provide clearance for door openings during shipment and installation. **Do not suspend these components by their wire conduits.** Hardware on top of the case can be removed if clearance of the case into the store presents an issue.

Be sure to replace all screws and to secure all components. The condensing unit produces vibration that can cause screws to loosen.

 **WARNING**

Use caution when working around refrigeration lines or water lines, damage to equipment and personal injury could occur.

1-4 INSTALLATION

MERCHANDISERS SHIPPED WITH END INSTALLED

If the merchandiser was shipped with the end installed, two long bolts were used to hold the shipping brace to the end. If the shipping bolts are reinserted after removing the brace, they will extend into the product area. **THEREFORE, BE SURE TO REPLACE THESE BOLTS WITH THE SHORTER BOLTS PROVIDED.** NSF requires any bolt or screw in the product area be capped or cut off if it has more than three exposed threads.



Be careful not to damage the factory installed end while moving the merchandiser.

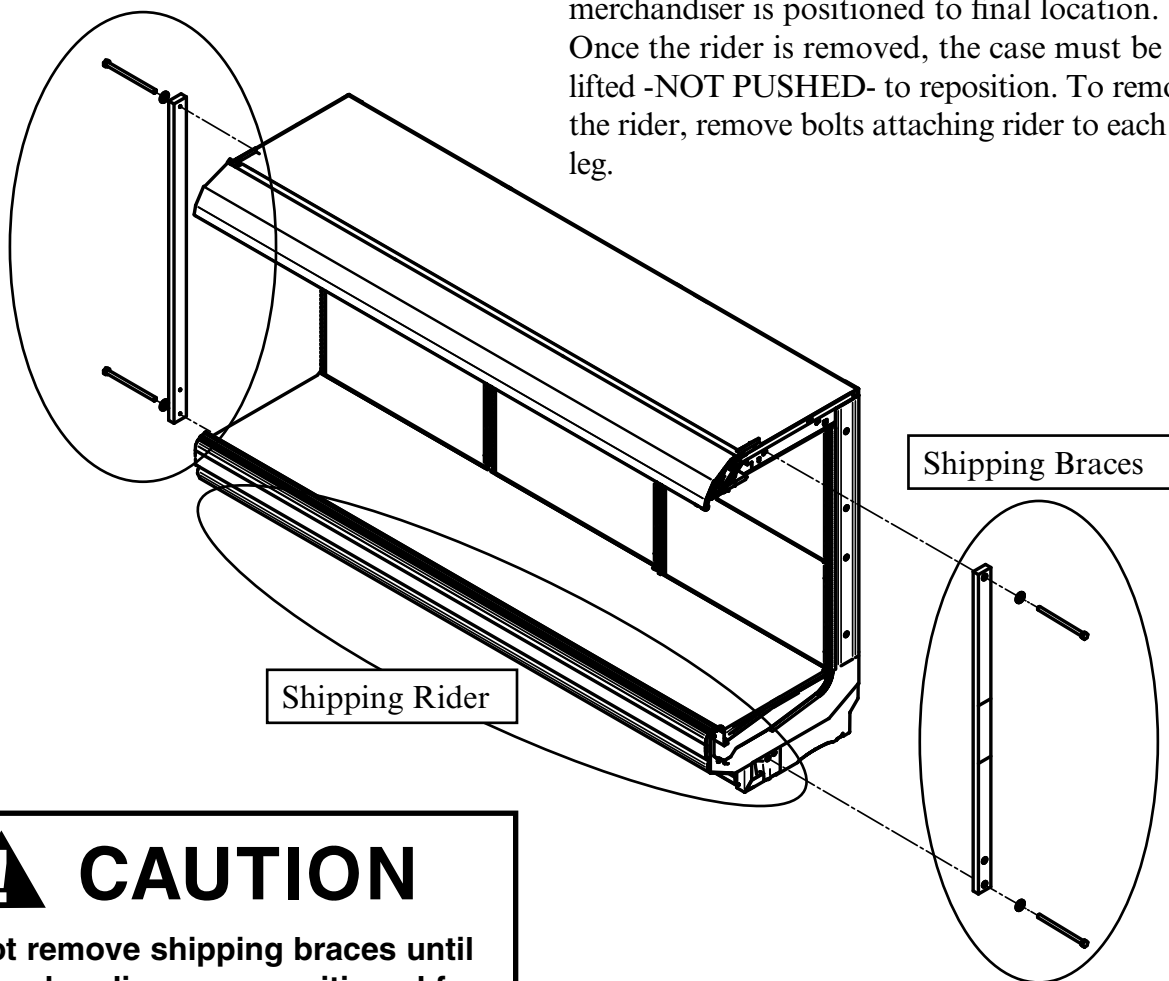
END SHIPPING BRACES

Move the merchandiser as close as possible to its permanent location, then remove all packaging. Check for damage before discarding packaging. Remove all separately packed accessories such as kits and shelves.

Do not remove end braces until joining begins. Recycle wooden braces and hardware.

SHIPPING RIDER

Some merchandisers are shipped on a rider to protect the factory installed front legs, and to make positioning the merchandiser easier. Do not remove the bottom rider until the merchandiser is positioned to final location. Once the rider is removed, the case must be lifted **-NOT PUSHED-** to reposition. To remove the rider, remove bolts attaching rider to each leg.



CAUTION

Do not remove shipping braces until the merchandisers are positioned for installation.

HANDLING ELECTROSTATIC SENSITIVE DEVICES (FAN CONTROLLER)

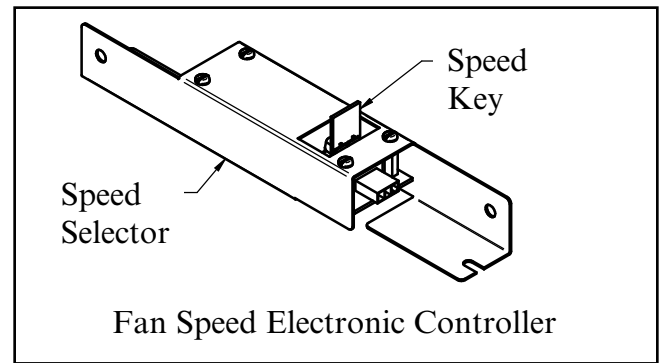
Some Insight merchandisers are equipped with an electronic controller to optimize fan speeds and enhance energy performance. The electronics may be standard or later installed to the cases as a kit. These electronics consist of an input in the motor, and a controller with a key that allows fan speeds to be changed. (Only a professional technician should make any changes to the fan speeds.) A different speed key may need to be ordered to change the fan speed. Contact your Hussmann representative to learn and order what speed key is appropriate for your products.

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product contains protection circuitry, damage may occur on devices subjected to high energy ESD. Proper precautions should be taken to avoid loss of functionality.

A field grounding kit is recommended for installation of components from a kit or for field service work performed by internal service personnel. The following equipment is recommended for work being performed in the case:



Example of Grounding Kit
3M 8507 with audible
alarm



DO:

- Minimize handling.
- Keep parts in original packaging until ready for use.
- Store and carry components in Original Manufacture Packaging or equivalent Static shielding bags.
- Discharge static before handling device by touching nearby grounded surface.
- Handle devices by the body.
- Keep a dust free work area.

DON'T:

- Touch the leads of any device.
- Slide ES Sensitive devices over any surface.
- Store or carry components or assemblies in plastic bags.
- Store sensitive components in thermocole/ plastic foam.

Field Ground Kit with instructions for use
Recommended Suppliers/Distributors of
Equipment:

DESCO Industries

Part Numbers (18575 or 18576 or 95651)

3M Corporation

Part Numbers (8501 or 8505 or 8507 or
FSKL3RD)

Amazon, DigiKey, Grainger, Mouser, Newark.
Search under ESD Service Kits.

INSTALLING TYPE II FAN SPEED CONTROL KIT

A fan speed control may be required for a merchandiser to operate for certain applications such as Type II conditions. However, if the speed key is removed, the fans will return to the default fan speed, which typically aligns with Type I operation. Each key is configured from the factory to operate for the specific model for which it was ordered.

**ANSI/NSF-7 Type II – Display Refrigerator / Freezer
Intended for 80°F / 55%RH Ambient Application**

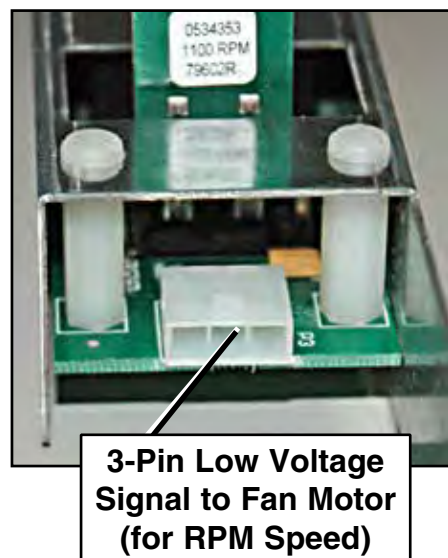
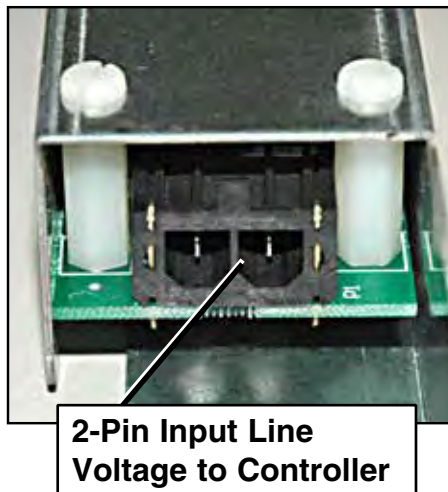
Contact your Hussmann representative to order this kit if the cases in your lineup are required to operate in Type II conditions. The controller will operate up to 6 fan motors. Only an experienced electrician should install the fan controller.

1. Mount the controller inside of the wireway of each case. Insert the speed key into the controller. Insert harness connector (2-pin) into the controller. The 2-pin side supplies power to the controller. It can be used with 110V or 220V circuits.

2. Insert the harness connector (3-pin) into the controller. The 3-pin side sends a signal to the fan motor and the fan speed RPM is now changed to the new setting.

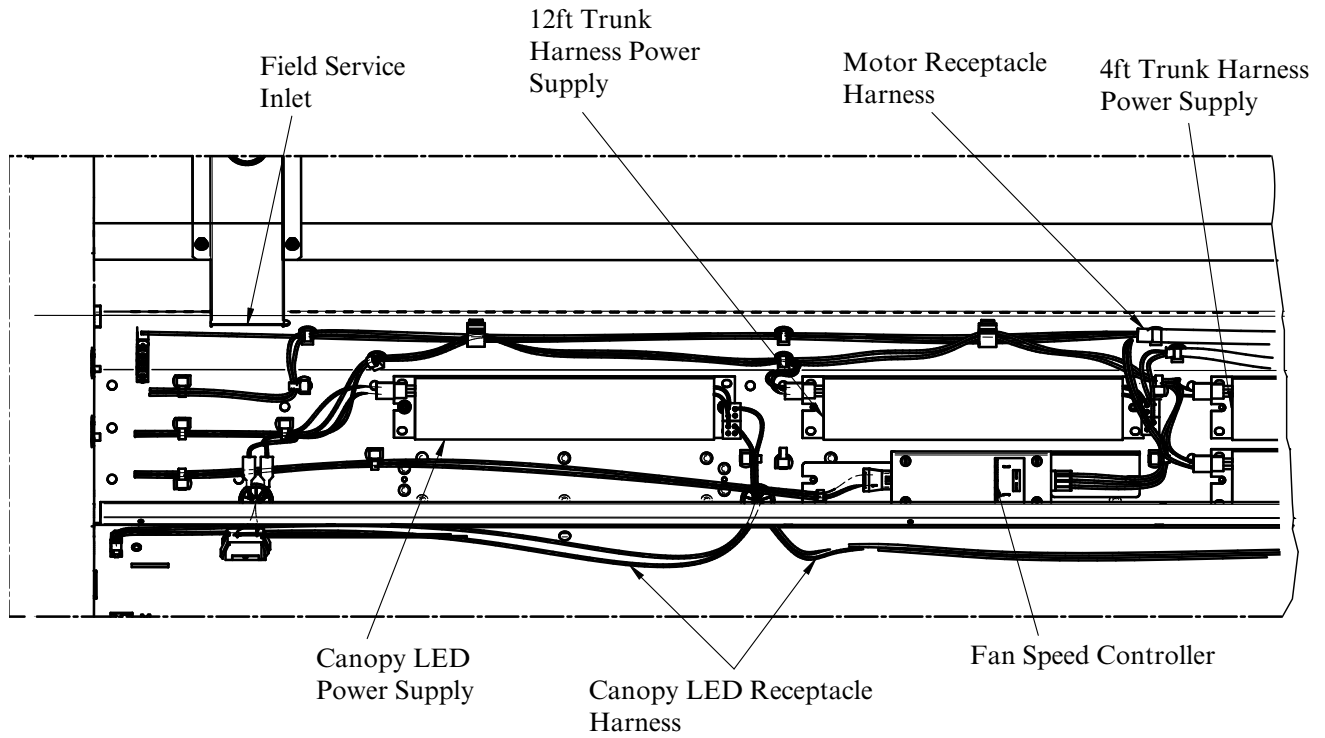
Harness Routing and Field Connections are shown on the next Page.

⚠ WARNING
— LOCK OUT / TAG OUT —
To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.



**TYPE II FAN SPEED CONTROL
LOCATION**

**Fan Speed Controller Harness Routing
Tall Multi-Deck (when required)**



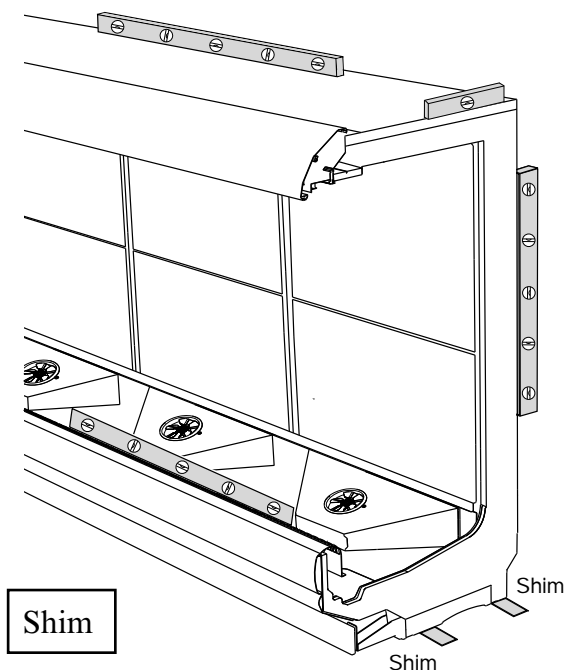
MERCHANDISER LEVELING

Merchandisers must be installed level to ensure proper operation of the refrigeration system and to ensure proper drainage of defrost water. Pay close attention to case position during all steps of setting, joining and leveling.

NOTE: BEGIN LINEUP LEVELING FROM THE HIGHEST POINT OF THE STORE FLOOR.

Preparation

1. Using store blueprints, measure off and mark on floor the exact dimensions/locations of the merchandiser footprint. **A 1½ inch space is required behind each merchandiser to prevent condensation.**
2. Snap a chalk line for the front and rear positions of the base pods.
3. Mark the location of each joint from front to back lines.
4. **USE SUPPLIED SHIMS TO LEVEL CASE.** Shims are to be inserted under the base pods.



Case Lineup Leveling

1. **FLOORS ARE NOT LEVEL!!!** When working with two or more merchandisers to be joined, the whole lineup must be leveled on the same plane, left to right and front to back. This means that the entire lineup must be brought up to the level of the highest case in the lineup.

Along the lines previously marked, find the highest point of the floor by:

- Walking the floor and noticing any dips or mounds;
- Using a string level; and
- Using a transit.

2. Position the first merchandiser at the highest point on the floor. Work outward from that point to create the merchandiser lineup.

3. Use a 48 inch (1220 mm) or longer level for end-to-end leveling. The rear edge of the top foam panel of the merchandiser is a good location for the level at the rear of the case.

4. For leveling the merchandiser front-to-rear, a 24 inch (610 mm) level should be placed on the lower flange of the merchandiser end frame. If the merchandiser has a factory installed end, the level should be placed on the canopy support brackets on top of the merchandiser. Suggested level locations are shown in the illustration.

(case can be leveled with doors on it)
(Close doors during leveling.)

JOINING CASES IN A LINEUP (MULTI-DECK) IP4 / IM5/ ID5/ ID6/ IC6

Sectional construction means that two or more merchandisers may be joined in line yielding one long continuous display requiring one pair of ends. Join cases from left to right. If casters are installed, they must be removed. All cases in the lineup must be level as described on Page 1-4 before joining. See Appendix A for rear load cases.

JOINTS MUST BE AIR-TIGHT TO PREVENT FORMATION OF ICE OR CONDENSATION.

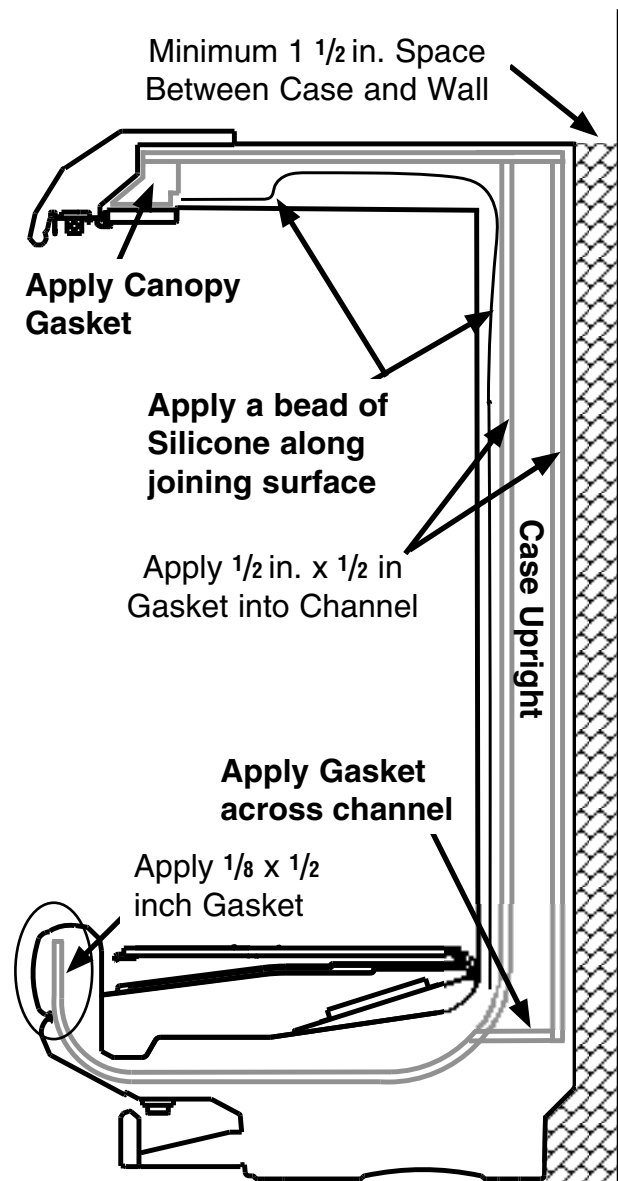
Prepare Merchandiser

1. Check to be sure that merchandisers are level. Cases are to be joined from left to right, starting with the right end mated to a left end case. Locate the Joining Kit and check contents.
2. Remove shelves (if installed), display racks, pans from the right end.
3. Remove the lower back interior panel(s) from the right end. To remove a panel, lift it up from its bottom edge and out. No tools are required.

Apply Gaskets as Follows (MULTI-DECK):

Right End

1. Apply $\frac{1}{2}$ x $\frac{1}{2}$ inch (12.7 mm) x (12.7 mm) gaskets into the case channels as shown in the illustration. Check that the gasket is properly inserted into the entire length of the channels with no gaps. Be sure to also apply gasket horizontally across the two case channels as shown. Apply canopy gasket as shown.
2. Apply $\frac{1}{8}$ x $\frac{1}{2}$ inch (3.18 mm) x (12.7 mm) gasket at the lower front as shown in the illustration. This area does not have a gasket channel.
3. Apply a continuous bead of **neutral curing silicone sealant** (caulk) starting from the case canopy, down the case upright as shown in the illustration. Only use a neutral curing type of silicone sealant.



IMPORTANT

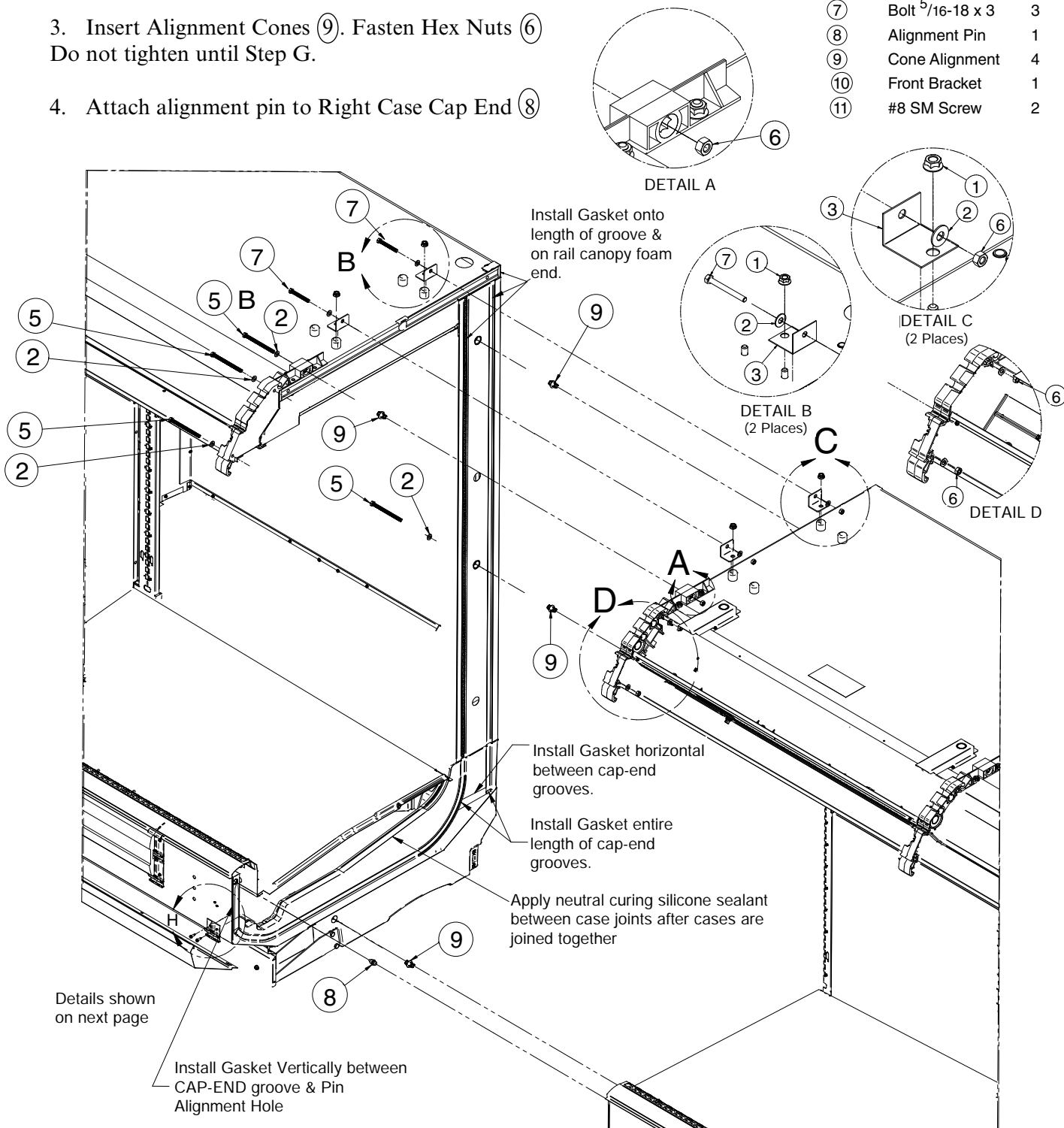
- Do not stretch gasket, especially around corners.
- Do not butt gaskets; Always overlap them as shown.
- Remove paper backing after gasket has been applied.
- Perimeter gasket required by NSF.

1-10 INSTALLATION

FASTENING LINEUP (MULTI-DECK)

1. Attach case joining brackets (3) to top of case, using Hex Nuts (1). Insert bolts (7), Washers (2), and Hex Nuts (6) as shown in Detail A, B, C & D.
2. Insert Bolts (5) and Washers (2) at front (pods) as shown in large illustration below.
3. Insert Alignment Cones (9). Fasten Hex Nuts (6). Do not tighten until Step G.
4. Attach alignment pin to Right Case Cap End (8)

Item Number	Description	Quantity
①	Hex Nut $\frac{3}{8}$ -24	4
②	Flat Washer $\frac{5}{16}$	8
③	Joining Bracket	4
④	Bolt $\frac{5}{16}$ -18 x 7	1
⑤	Bolt $\frac{5}{16}$ -18 x $4\frac{1}{2}$	2
⑥	Hex Nut $\frac{5}{16}$ -18	6
⑦	Bolt $\frac{5}{16}$ -18 x 3	3
⑧	Alignment Pin	1
⑨	Cone Alignment	4
⑩	Front Bracket	1
⑪	#8 SM Screw	2



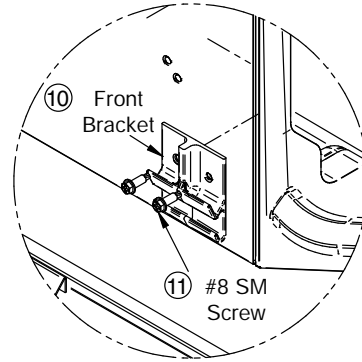
5. Push right case to mate with left case, ensuring that alignment cones are aligned between cases. Draw merchandisers together first at the lower back of the case, then tighten cases together at front (pods). Do not tighten hardware.

6. Draw canopies of merchandisers together by using the case joining brackets at top of canopy. Tighten until canopies touch.

7. Tighten all remaining bolts. Do not overtighten.

8. Align panel as shown in Detail G & H. Install Front Bracket (10). Fasten with # 8 screws as shown in Detail H.

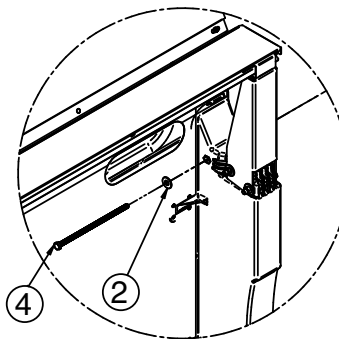
9. Apply a continuous bead of **neutral curing silicone sealant** (caulk) at the case joint.



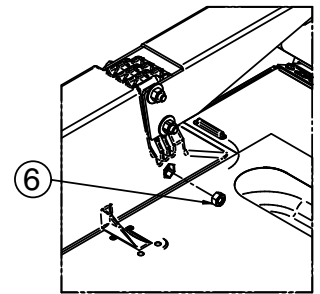
DETAIL H



Install case-to-case joining brackets

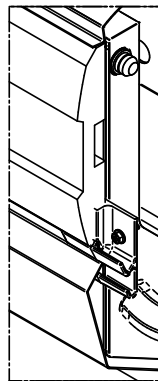


DETAIL H

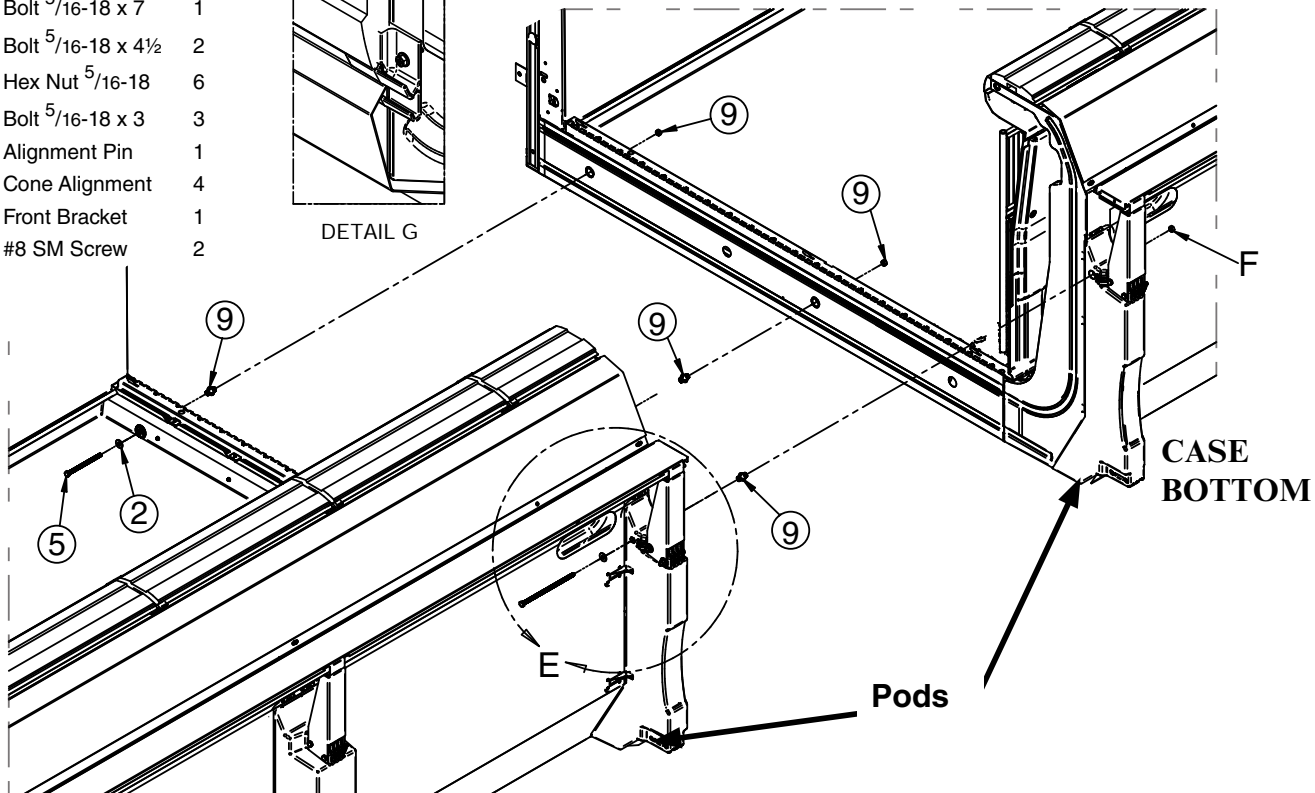


DETAIL F

Item Number	Description	Quantity
①	Hex Nut ³ / ₈ -24	4
②	Flat Washer ⁵ / ₁₆	8
③	Joining Bracket	4
④	Bolt ⁵ / ₁₆ -18 x 7	1
⑤	Bolt ⁵ / ₁₆ -18 x 4½	2
⑥	Hex Nut ⁵ / ₁₆ -18	6
⑦	Bolt ⁵ / ₁₆ -18 x 3	3
⑧	Alignment Pin	1
⑨	Cone Alignment	4
⑩	Front Bracket	1
⑪	#8 SM Screw	2



DETAIL G



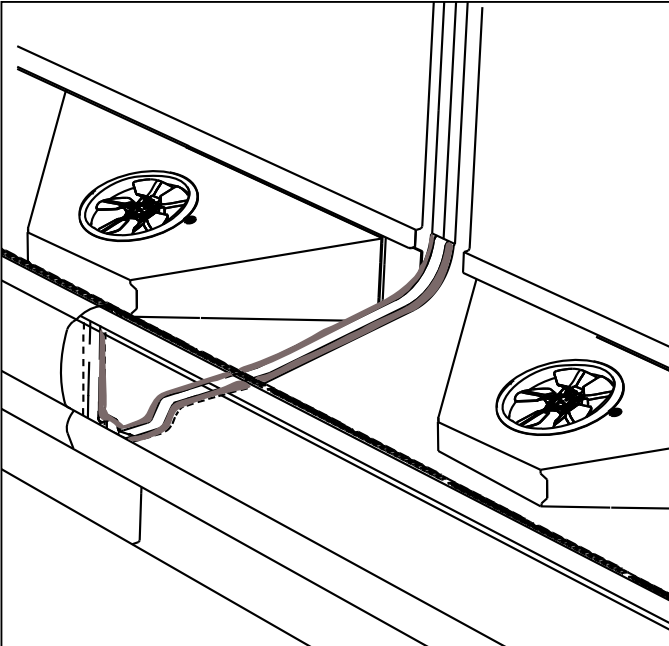
Seal Lineup Joints (all cases)

The joint between the two joined case must be sealed for sanitation. Apply a long, continuous bead of silicone to fill any gaps between the cases.

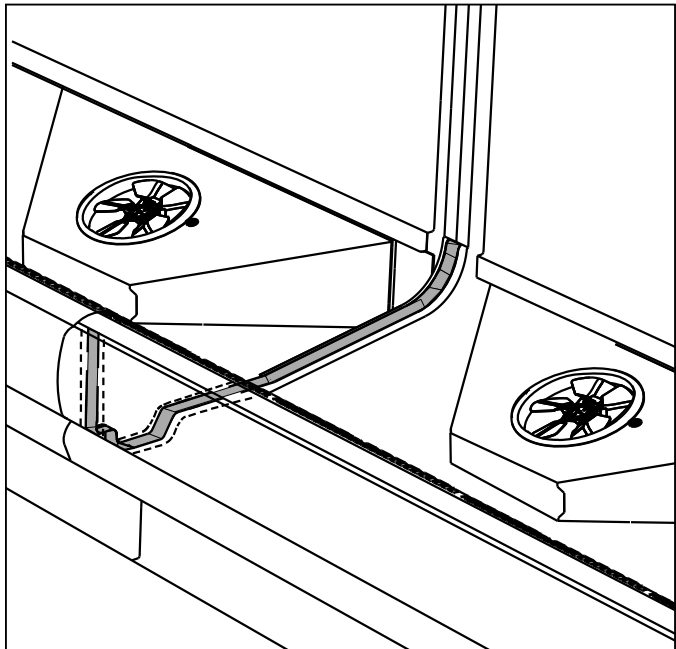
Be sure to start from the back and go all the way to the air return as shown in the illustration below.

⚠ WARNING
Use caution when working around refrigeration lines or water lines, damage to equipment and personal injury could occur.

📄 IMPORTANT Fill any gaps between cases with silicone.
Apply Butyl to case joint.



Apply Neutral Curing Silicone Sealant in any gaps between the Case Joints.



Apply Butyl tape over Case Joints.

INSTALLING END ASSEMBLIES

View end assemblies must be factory-installed. Solid end assemblies are normally factory installed. The following information is provided for retrofit or field installation.

Prepare Merchandiser

1. Remove shipping brace. Brace screws will be replaced with shorter screws found in packout kit. Ensure Nut Retainers are in place.

IMPORTANT

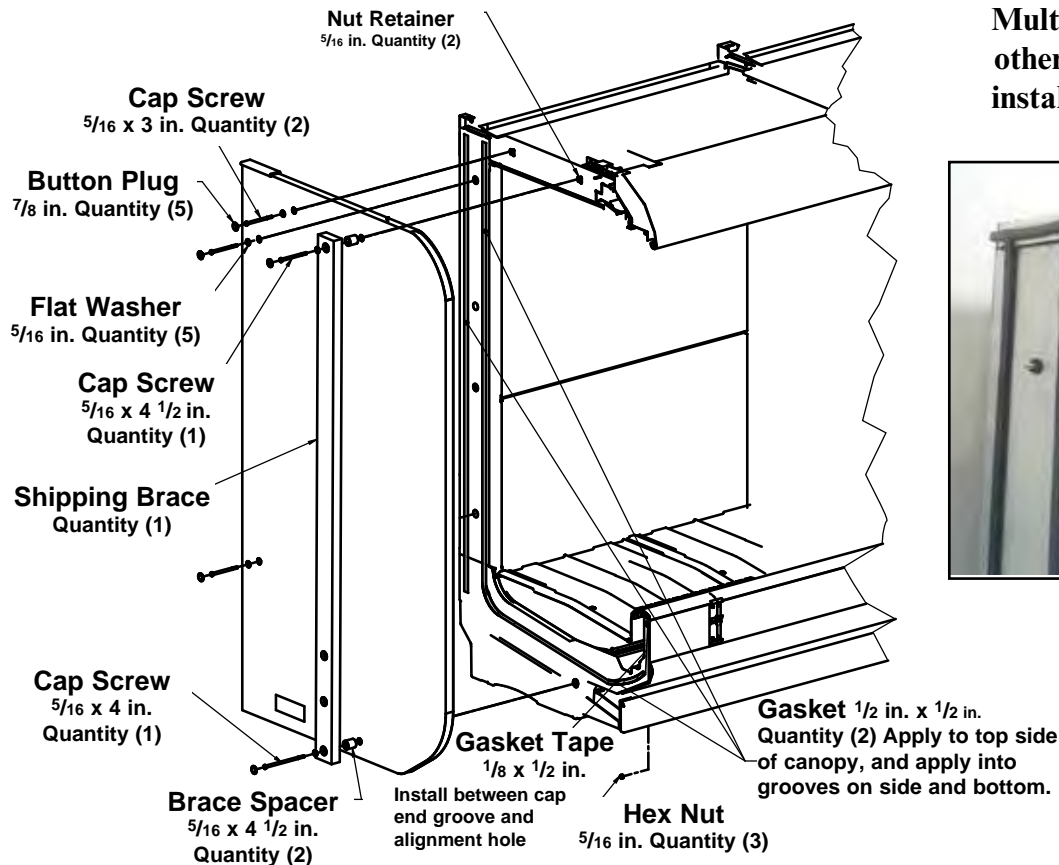
- Do not stretch gasket, especially around corners.
- Do not butt gaskets; Always overlap them as shown.
- Remove paper backing after gasket has been applied.
- Perimeter gasket required by NSF.

Apply Gaskets and Silicone to End Frame as Follows:

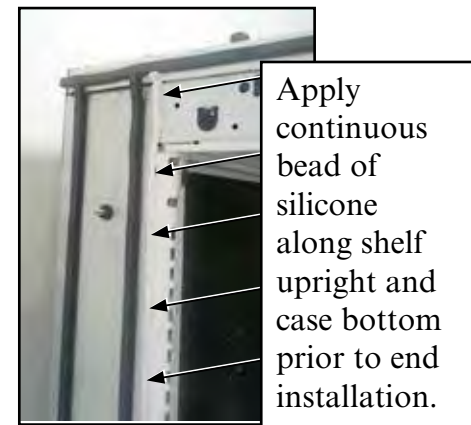
1. Apply ½ x ½ in. (12.7 mm) x (12.7 mm) gaskets into the case channels as shown in the illustration. Check that the gasket is properly inserted into the entire length of the channels with no gaps. Apply silicone between case end cap and end.

Fasten End Assembly to Merchandiser

1. Use shorter supplied cap screw and washer, (3 in. at the top and 4½ in. at bottom) to fasten end assembly to merchandiser at the locations where brace was removed. Secure at bottom and back with hex nut. The two nut retainers are used at the top (canopy).
2. Install remaining cap screws, and secure all screws in place. Do not overtighten.
3. Insert Plug Buttons to cover screw caps.



Multideck shown, other case ends are installed similarly.



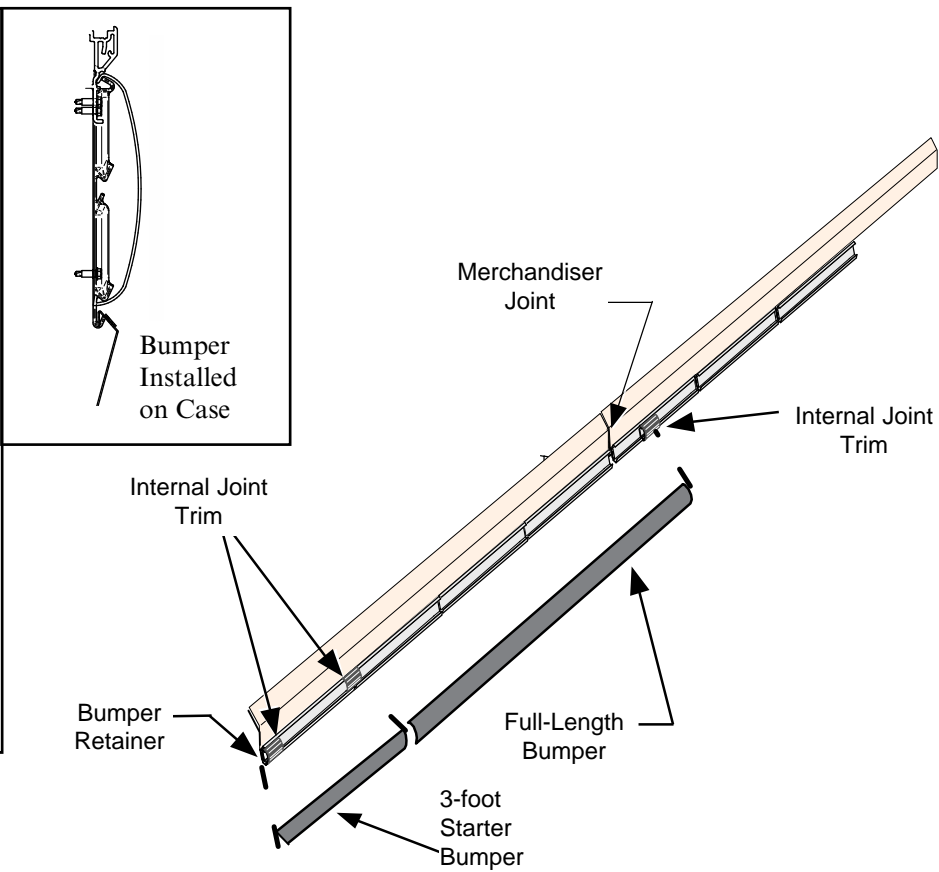
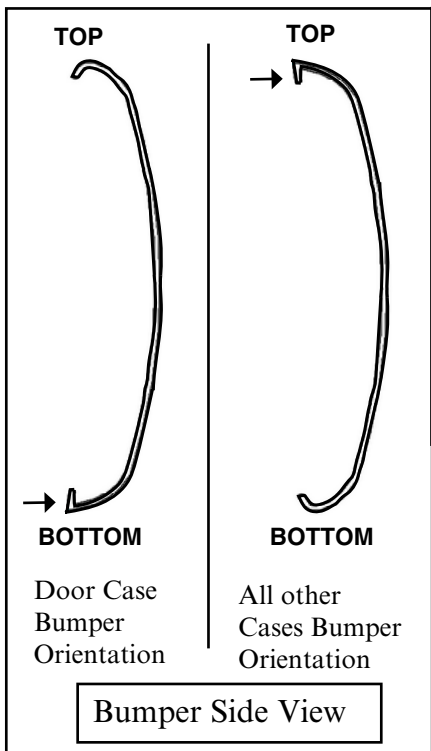
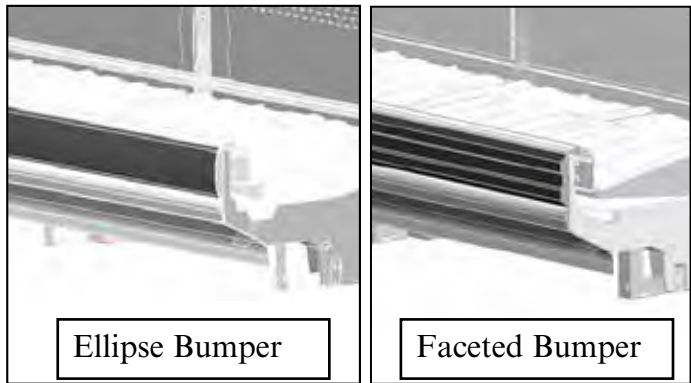
1-14 INSTALLATION

INSTALLING BUMPERS

1. Bumpers are packed out with the case and snap onto the bumper retainer. Gaskets are factory installed in the bumper retainers to provide support for the bumpers. Do not remove the gaskets.
2. Internal joint trims are provided with the case to disguise joints for a lineup of cases.
3. Start at the left end of the lineup. Install 3ft starter bumper first. Refer to bumper side view illustration to ensure the bumper is orientated correctly. Place top of bumper over bumper retainer, then snap bottom of bumper into place at bottom of retainer. Position internal joint trim between the starter bumper and full-length bumper.

4. Continue installing bumper(s) until the lineup is complete. The last piece of bumper will need to be cut so that it is flush with the right end cap. Use a fine tooth saw to cut the bumper vertically at a 90° angle.
5. Ensure joint trim is positioned behind bumper at all joints to close any gaps in the lineup. Remove protective film from bumper once installation is complete.

NOTE  Bumpers come in two styles — Ellipse and Faceted.



REFRIGERATION / ELECTRICAL / SAFE-NET III**FIELD INSTALLATION
OF CONDENSING UNIT**

In some circumstances store doors may not be tall enough to pass the electrical components through the door. In this situation, the electrical components may be removed temporarily to pass under lower frame store doors.

Condenser mounting brackets are provided on top of the case with pilot holes with specific attachment points for the condensing unit base. The mounting brackets are located on the top right side of the case.

After mounting the condensing unit, the electrical box must be re-attached to the top. The condensate pan, if provided, is packed inside the case and must also be installed on top of the case and plugged into the receptacle provided. Exact component location is not critical; however, the components should be mounted in the general locations shown to ensure that electrical connections reach, and the condensate pan has adequate air flow from the condenser.

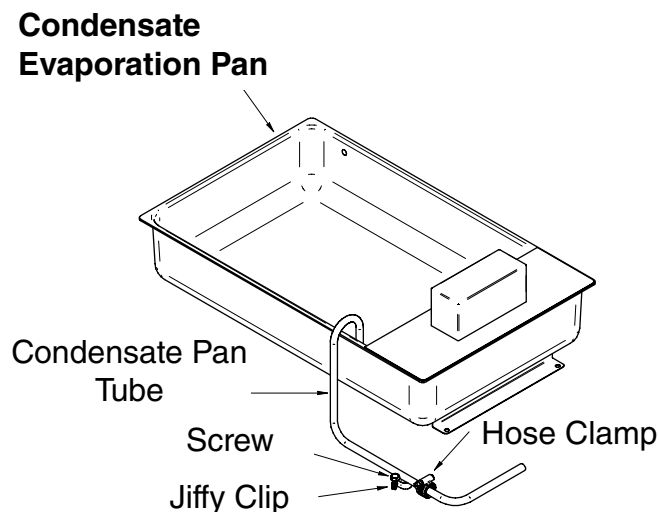

WARNING

Opening condensing unit electrical box exposes personnel to electrical hazard and should only be performed by a qualified service technician!

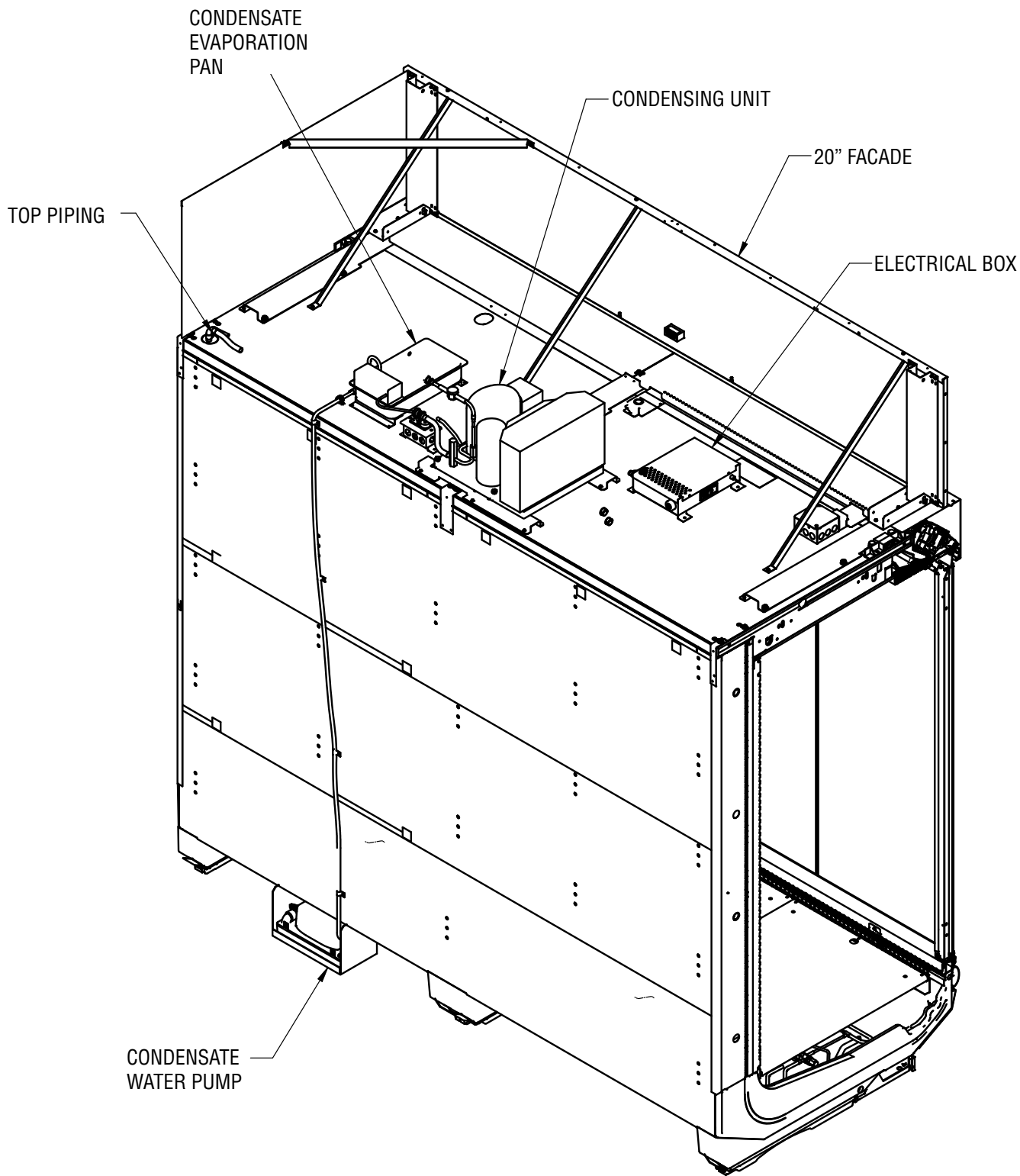
NOTE:

EACH UNIT LENGTH (12FT, 8FT, 6FT, 4FT) HAS DIFFERENT LOCATIONS FOR CONDENSING UNIT AND ELECTRICAL COMPONENTS.

IMPORTANT: Pans must be installed level. Shim if needed.



REFRIGERATION/ELECTRICAL/Safe-NET III



ABOUT QUICK CONNECT COUPLINGS

Quick Connect fittings are provided on both the case inlet and outlet lines, and on Hussmann’s Freedom Line condensing units. The case and condensing unit are pre-charged with the correct amount of refrigerant, and the lines are sealed. Connecting the Quick Connects together breaks the seals to connect the refrigeration lines of the unit to the case. The Quick Connects must be properly torqued to avoid refrigerant leaks.

USE A TORQUE WRENCH TO TIGHTEN THE QUICK CONNECT COUPLINGS TO THESE SETTINGS TO GET A LEAK-PROOF SEAL.

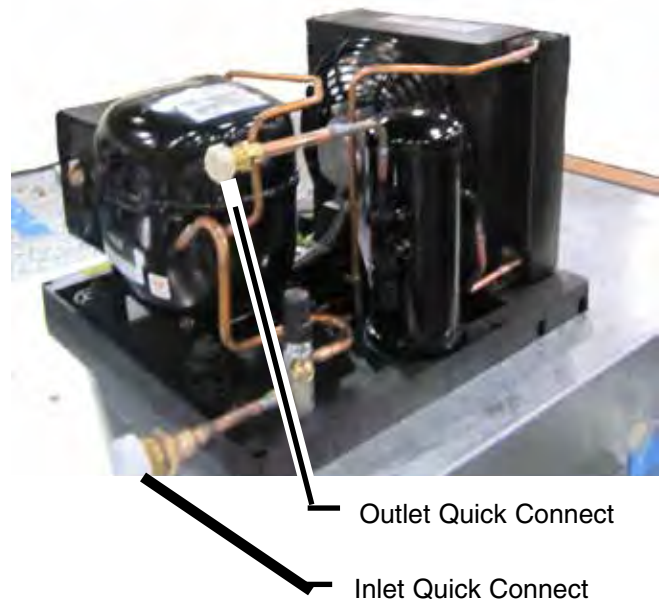
Coupling Size (inches)	Foot Pounds (Ft. Lbs.)
3/8	10-12
7/8	50-65

CONNECT LINES

Mount the suction line and liquid line to the condensing unit. When ready to connect, remove protector caps and plugs from the Quick Connect couplings.

If necessary, carefully wipe coupling seats and threaded surfaces with a clean cloth to prevent the inclusion of dirt or any foreign material in the system.

Lubricate male half diaphragm and synthetic rubber seal with refrigerant oil. Thread the coupling halves together by hand to ensure proper mating of threads. Use proper size wrenches (on coupling body hex and on union nut) and tighten until coupling bodies “bottom” or a definite resistance is felt.



INSULATE REFRIGERANT LINES

Suction lines are insulated to prevent condensation; extra insulation is provided to cover the field connected tubing sections. These exposed sections must be covered with insulation. Check that all suction lines are adequately covered with insulation, as some insulation may have been dislodged during shipping and installation. Avoid locating the tubing above the electrical box to prevent condensation from dripping onto electrical components.



It is the contractor's responsibility to install merchandiser(s) in accordance with all local building and health codes.

FIELD WIRING

Terminal blocks are used for field connection of the 120V single phase and 208/230V single phase power supply. The terminal blocks are located inside the electrical box on top of the case. The wiring diagram and circuit requirements are provided on the Technical Data Sheets provided with the case and condensing unit. The switch for 120V components is on top of the case, on the front of the electrical box. **The switch does not affect 208/230V circuits.**

The condensing unit is provided with 5-ft leads and 1/4-inch terminals. The conduit must be connected to the 13/16-inch cutout on the electrical box, and the 1/4-inch terminals are connected to the normally open contacts on the compressor relay. The heated condensate pan, if provided, is to be wired into the 220V terminal strip in electrical enclosure box.

WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

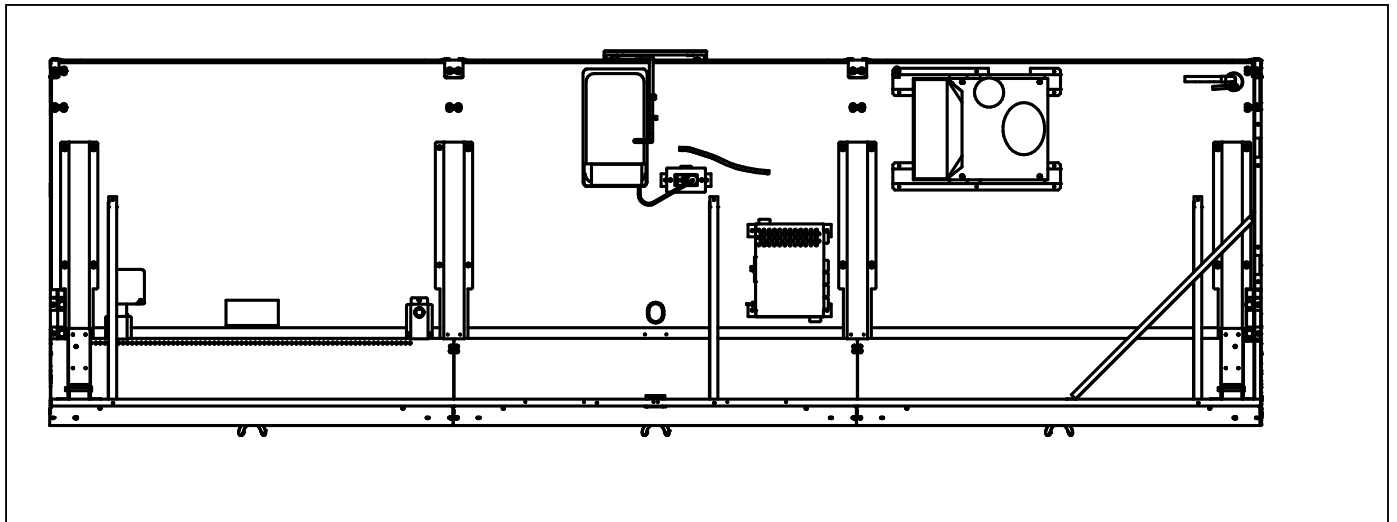
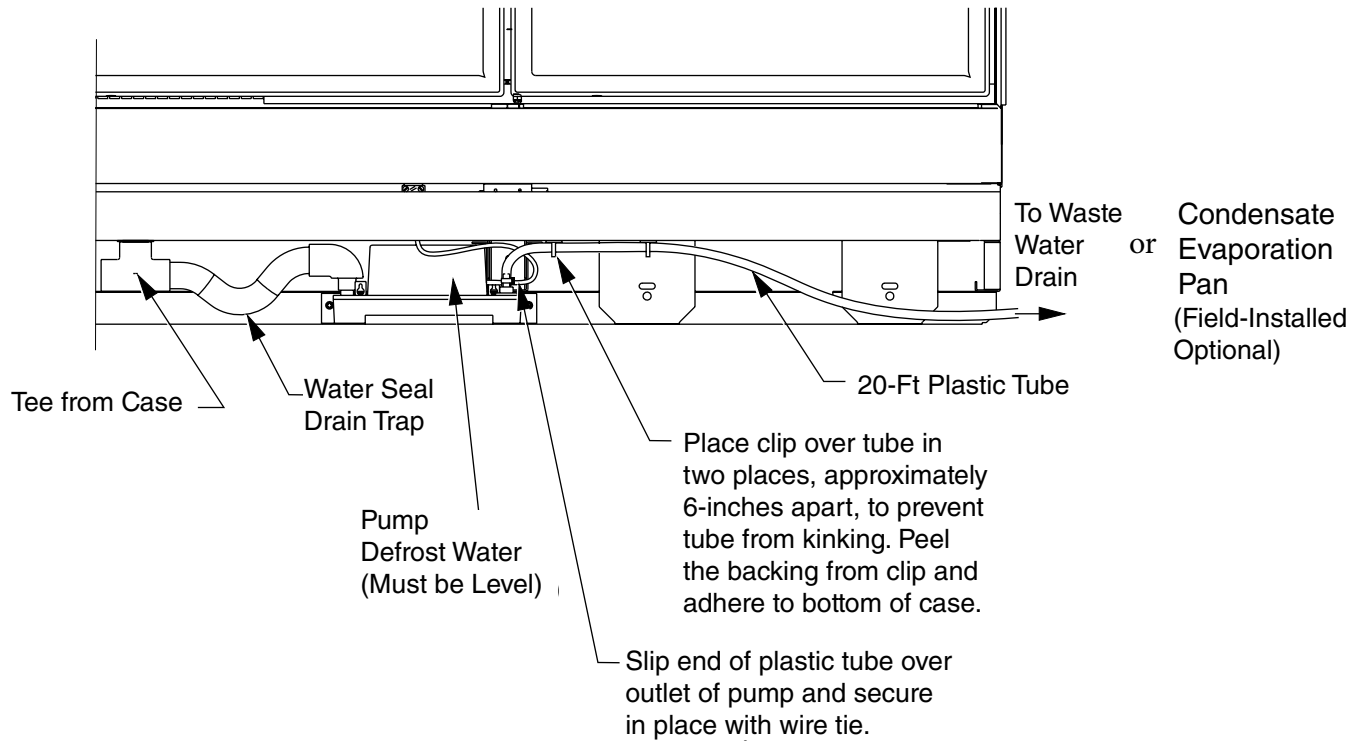
Safe-NET III DISPLAY

Insert the Safe-NET III display from the front into the opening provided in the facade.

CAUTION

Blocked drain lines will cause water to back up in the case and spill onto the floor, causing a slip hazard.

Installation of Defrost Water Drain Line to Case Condensate Pump (Viewed from Front of Case with Shipping Brace Removed)

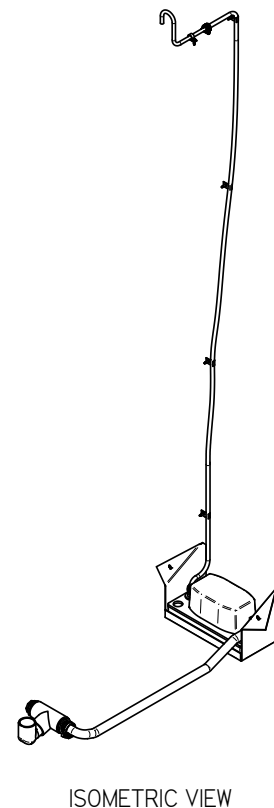
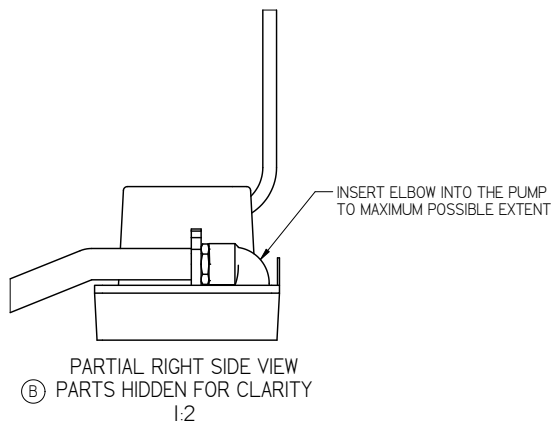
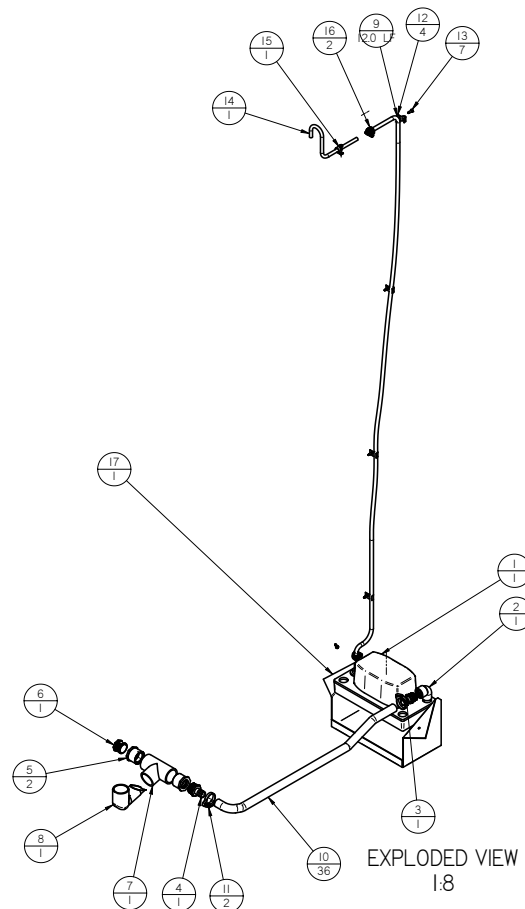


(OPTIONAL) CONDENSATE WATER PAN AND PUMP

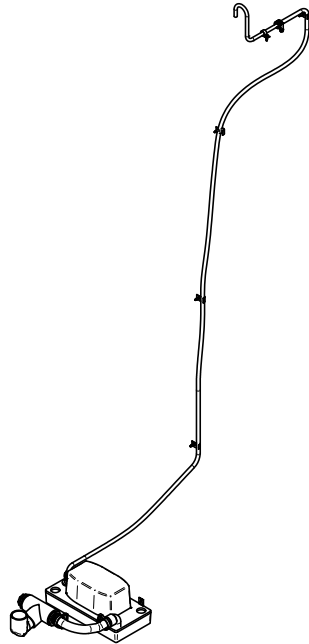
The bottom drain for defrost water from the evaporator coil is connected to an evacuation pump which uses 3/8-inch plastic drain tubing to pump the water to the condensate pan on top of the case. The tubing should be inspected through its entire length to ensure that it has not been cut, kinked, obstructed, or damaged during shipping and installation.

The tees and elbows in the illustrations are to be fitted in the foam tube bottom of the merchandiser. The pump's tubing is then routed behind the case to the condensate pan on top of the case.

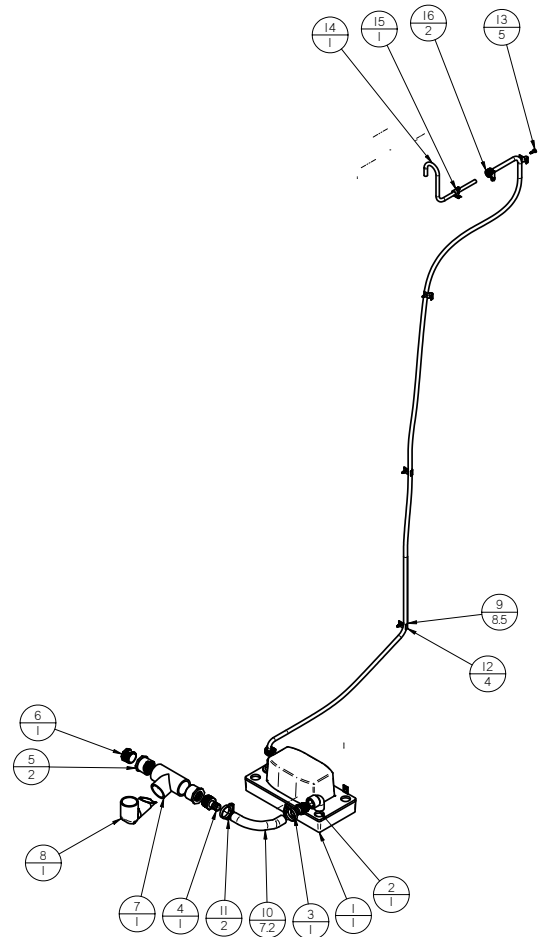
Item Number	Title	Quantity
1	DEFROST WATER PUMP CP-22LP	1
2	ELBOW-90 PVC .500 SOCKET X .750 FEMALE THREADED	1
3	FITTING-.750 MALE THREADED BARBED TUBE ADAPTER	1
4	FITTING-1" MALE THREADED BARBED TUBE ADAPTER	1
5	BUSHING-REDUCER 1/4 X 1/2 IN	2
6	PLUG- 1 IN THREADED	1
7	TEE-1.250 SLP X SLP X SLP	1
8	ELBOW- AIR SEAL INSIGHT	1
9	TUBING-CLR VINYL 3/8ID X 1/16WALL	12.0 LF
10	TUBING-PVC CLEAR FLEX ID .750 X 1.000 OD	36.0 INCHES
11	CLAMP-7/8 NYLON	2
12	CLIP-JIFFY 3/8 (5/8 TUBE)	4
13	SCREW-SM 8-18X5/8 PHIL HX HD	7
14	TUBE-.375 X .028W CONDENSATE PAN	1
15	CLIFF JIFFY FOR 3/8 TUBE	1
16	CLAMP-HOSE 1/4 TO 5/8	2
17	BRACKET SUPPORT CONDENSATE PUMP	1



Item Number	Title	Quantity
1	DEFROST WATER PUMP CP-22LP	1
2	ELBOW-90 PVC .500 SOCKET X .750 FEMALE THREADED	1
3	FITTING-.750 MALE THREADED BARBED TUBE ADAPTER	1
4	FITTING-1" MALE THREADED BARBED TUBE ADAPTER	1
5	BUSHING-REDUCER 1 1/4 X 1 IN	2
6	PLUG- 1 IN THREADED	1
7	TEE-1.250 SLP X SLP X SLP	1
8	ELBOW- AIR SEAL INSIGHT	1
9	TUBING-CLR VINYL 3/8ID X 1/16WALL	8.5 LF
10	TUBING-PVC CLEAR FLEX ID .750 X 1.000 OD	7.2 INCHES
11	CLAMP-7/8 NYLON	2
12	CLIP-JIFFY 3/8 (5/8 TUBE)	4
13	SCREW-SM 8-18X5/8 PHIL HX HD	5
14	TUBE-.375OD X .032WALL CONDENSATE PAN	1
15	CLIFF JIFFY FOR 3/8 TUBE	1
16	CLAMP-HOSE 1/4 TO 5/8	2



ISOMETRIC VIEW



EXPLODED VIEW
1.8

IDD5SU
IDD5NL

Parameter	Description	Value	Min	Max
1	Copy/Card Lock Out function	0	0=disabled or 1=enabled	
2	Controller Operation Temperature Units	1	0=Celsius or 1=Fahrenheit	
3	Defrost Method	2	1=Electric 2=Off-cycle 3=reverse cycle	
4	Evaporator Temp. Sensor	0	0=disable or 1=enable	
5	Defrost Termination Method	0	0=disable 1=Evap. Sensor 2=Control Sensor 3=Digital Switch (close)	
6	On-Off logical function	1	0=disable or 1=enable	
7	Potentiometer off position	10°	5°	57°
8	Potentiometer on position	15°	9°	61°
9	Freezer Cut-in warm	42°F	-40°C (-40°F)	40°C (104°F)
10	Freezer Cut-out warm	38°F	-40°C (-40°F)	40°C (104°F)
11	Freezer Cut-in cold	34°F	-40°C (-40°F)	40°C (104°F)
12	Freezer Cut-out cold	30°F	-40°C (-40°F)	40°C (104°F)
13	Compressor ON time delay at Controller Power Up	0 min 10 sec	0 sec	59 min 59 sec
14	Compressor Minimum (ON) time	1 min 0 sec	0 sec	30 min 59 sec
15	Compressor Minimum (OFF) time	2 min 0 sec	0 sec	59 min 59 sec
16	Maximum Compressor Run Function	0	0=disable or 1=enable	
17	Maximum Compressor Run Time	2 hour 0 min	0 min	17 hour 59 min
18	Defrost Display Lock (display indication during defrost)	2	0=display temperature read 1=lock the display on temp. 2=display DF	
19	Display Unlock Time	0 hour 5 min	0 min	1 hour 59 min
20	Display Temperature Offset	0°F	-40°C (-72°F)	40°C (72°F)
21	Show Parameter Code Number	1	0=disable or 1=enable	
22	Parameter Code Number	75	-99	99
23	Evaporator Fan Operation during Compressor off-cycle	0	0=ON or 1=OFF	
24	Evaporator Fan Delay at Start of Compressor on-cycle	1	0=Evaporator temperature 1=Time delay 2=Both (evap. temp. + time delay)	
25	Fan Start Evaporator Temperature	41°F	-40°C (-40°F)	40°C (104°F)
26	Fan Start Time Delay	1 min 0 sec	0 sec	9 min 59 sec
27	Fan Shut Down Time Delay	0 min 0 sec	0 sec	9 min 59 sec
28	Evaporator Fan Cycle during Compressor off-cycle	0	0=disable or 1=enable	
29	Fan On Time during Compressor Off	15 min 0 sec	10 min 0 sec	59 min 59 sec
30	Fan Off Time during Compressor Off	10 min 0 sec	10 min 0 sec	59 min 59 sec
31	Temperature Alarm Enable	1	0=disable or 1=enable	
32	High Temperature Alarm - Warm	60°F	-40°C (-40°F)	40°C (104°F)
33	Low Temperature Alarm - Warm	10°F	-40°C (-40°F)	40°C (104°F)
34	High Temperature Alarm - Cold	56°F	-40°C (-40°F)	40°C (104°F)
35	Low Temperature Alarm - Cold	10°F	-40°C (-40°F)	40°C (104°F)
36	Low Temperature Alarm Differential	4°F	1°C (2°F)	10°C (18°F)
37	Low Temperature Alarm Time Delay	0 hour 30 min	0 min	4 hour 59 min
38	Temperature Alarm Disable Time after Start Up	2 hour 0 min	0 min	17 hour 59 min
39	Temperature Alarm Delay after Defrost	1 hour 0 min	0 min	17 hour 59 min
40	Buzzer Function	1	0=disable or 1=enable	
41	Buzzer Period	0.5 sec	0.2 sec	24.9 sec
42	Led Alarm Function	1	0=disable or 1=enable	
43	Led Alarm Period	0.4 sec	0.4 sec	24.8 sec
44	Sensor failure mode (compressor and fan relay failure mode)	0	0=Relays fail OPEN 2=Relays fail CLOSE 3=Duty cycle	
45	Compressor On Time if Sensor failed	0 hour 6 min	1 min	59 hour 59 min
46	Compressor Off Time if Sensor failed	0 hour 2 min	1 min	59 hour 59 min
47	Sensor Fault Monitoring Time	1 min 0 sec	5 sec	59 min 59 sec
48	Condenser Function	0	0=Disable or 1=Enable	
49	Condenser condition Sensor	0	0=Open Contact 1=Closed Contact	
50	Compressor Turn off by condenser	0	0=Disable or 1=Enable	
51	Compressor Turn off Time	0 min 0 sec	0 sec	59 min 59 sec
52	Compressor Turn on by Condenser	1	0=Disable or 1=Enable	
53	Compressor Turn on Time by Condenser	0 hour 0 min	0 sec	17 hour 59 min
54	Defrost Function	1	0=disable 1=System run time 2=Compressor run time	
55	Defrost Cycle at power on	0	0=disable or 1=enable	
56	Defrost Termination temperature	48°F	-40°C (-40°F)	40°C (104°F)
57	Time to first defrost (Initial frost build time)	2 hour 0 min	10 min	71 hour 59 min
58	Time to subsequent defrost	6 hour 0 min	10 min	71 hour 59 min
59	Defrost duration Time (failsafe)	0 hour 20 min	1 min	4 hour 59 min
60	Drip time	0 min 0 sec	0 sec	59 min 59 sec
61	Temperature Initiated Defrost Function	0	0=disable or 1=enable	
62	Temperature Initiated Defrost (T = Tspace-Tevap.)	6°F	0°C (0°F)	40°C (72°F)
63	Temperature Initiated Defrost Time Delay	15 min 0 sec	0 sec	59 min 59 sec
64	Temperature Initiated Defrost Time Delay After Defrost	50 min 0 sec	0 sec	59 min 59 sec
65	Defrost Heater Duty Cycle Function	0	0=disable or 1=enable	
66	Heater On Time	1 min 0 sec	5 sec	59 min 59 sec
67	Heater Off Time	0 min 30 sec	0 sec	59 min 59 sec

**ID5SM
ID5NM**

Parameter	Description	Value	Min	Max
1	CopyCard Lock Out function	0	0=disabled or 1=enabled	
2	Controller Operation Temperature Units	1	0=Celsius or 1=Fahrenheit	
3	Defrost Method	2	1=Electric 2=Off-cycle 3=reverse cvcle	
4	Evaporator Temp. Sensor	0	0=disable or 1=enable	
5	Defrost Termination Method	0	0=disable 1=Evap. Sensor 2=Control Sensor 3=Digital Switch (close)	
6	On-Off logical function	1	0=disable or 1=enable	
7	Potentiometer off position	10°	5°	57°
8	Potentiometer on position	15°	9°	61°
9	Freezer Cut-in warm	42°F	-40°C (-40°F)	40°C (104°F)
10	Freezer Cut-out warm	38°F	-40°C (-40°F)	40°C (104°F)
11	Freezer Cut-in cold	28°F	-40°C (-40°F)	40°C (104°F)
12	Freezer Cut-out cold	24°F	-40°C (-40°F)	40°C (104°F)
13	Compressor ON time delay at Controller Power Up	0 min 10 sec	0 sec	59 min 59 sec
14	Compressor Minimum (ON) time	1 min 0 sec	0 sec	30 min 59 sec
15	Compressor Minimum (OFF) time	2 min 0 sec	0 sec	59 min 59 sec
16	Maximum Compressor Run Function	0	0=disable or 1=enable	
17	Maximum Compressor Run Time	2 hour 0 min	0 min	17 hour 59 min
18	Defrost Display Lock (display indication during defrost)	2	0=display temperature read 1=lock the display on temp. 2=display DF	
19	Display Unlock Time	0 hour 5 min	0 min	1 hour 59 min
20	Display Temperature Offset	0°F	-40°C (-72°F)	40°C (72°F)
21	Show Parameter Code Number	1	0=disable or 1=enable	
22	Parameter Code Number	76	-99	99
23	Evaporator Fan Operation during Compressor off-cycle	0	0=ON or 1=OFF	
24	Evaporator Fan Delay at Start of Compressor on-cycle	1	0=Evaporator temperature 1=Time delay 2=Both (evap. temp. + time delay)	
25	Fan Start Evaporator Temperature	41°F	-40°C (-40°F)	40°C (104°F)
26	Fan Start Time Delay	1 min 0 sec	0 sec	9 min 59 sec
27	Fan Shut Down Time Delay	0 min 0 sec	0 sec	9 min 59 sec
28	Evaporator Fan Cycle during Compressor off-cycle	0	0=disable or 1=enable	
29	Fan On Time during Compressor Off	15 min 0 sec	10 min 0 sec	59 min 59 sec
30	Fan Off Time during Compressor Off	10 min 0 sec	10 min 0 sec	59 min 59 sec
31	Temperature Alarm Enable	1	0=disable or 1=enable	
32	High Temperature Alarm - Warm	60°F	-40°C (-40°F)	40°C (104°F)
33	Low Temperature Alarm - Warm	10°F	-40°C (-40°F)	40°C (104°F)
34	High Temperature Alarm - Cold	56°F	-40°C (-40°F)	40°C (104°F)
35	Low Temperature Alarm - Cold	10°F	-40°C (-40°F)	40°C (104°F)
36	Temperature Alarm Differential	4°F	1°C (2°F)	10°C (18°F)
37	Temperature Alarm Time delay	0 hour 30 min	0 min	4 hour 59 min
38	Temperature Alarm Disable Time after Start Up	2 hour 0 min	0 min	17 hour 59 min
39	Temperature Alarm Delay after Defrost	1 hour 0 min	0 min	17 hour 59 min
40	Buzzer Function	1	0=disable or 1=enable	
41	Buzzer Period	0.5 sec	0.2 sec	24.9 sec
42	Led Alarm Function	1	0=disable or 1=enable	
43	Led Alarm Period	0.4 sec	0.4 sec	24.8 sec
44	Sensor failure mode (compressor and fan relay failure mode)	0	0=Relays fail OPEN 2=Relays fail CLOSE 3=Duty cvcle	
45	Compressor On Time if Sensor failed	0 hour 6 min	1 min	59 hour 59 min
46	Compressor Off Time if Sensor failed	0 hour 2 min	1 min	59 hour 59 min
47	Sensor Fault Monitoring Time	1 min 0 sec	5 sec	59 min 59 sec
48	Condenser Function	0	0=Disable or 1=Enable	
49	Condenser condition Sensor	0	0=Open Contact 1=Closed Contact	
50	Compressor Turn off by condenser	0	0=Disable or 1=Enable	
51	Compressor Turn off Time	0 min 0 sec	0 sec	59 min 59 sec
52	Compressor Turn on by Condenser	1	0=Disable or 1=Enable	
53	Compressor Turn on Time by Condenser	0 hour 0 min	0 sec	17 hour 59 min
54	Defrost Function	1	0=disable 1=System run time 2=Compressor run time	
55	Defrost Cycle at power on	0	0=disable or 1=enable	
56	Defrost Termination temperature	48°F	-40°C (-40°F)	40°C (104°F)
57	Time to first defrost (Initial frost build time)	2 hour 0 min	10 min	71 hour 59 min
58	Time to subsequent defrost	4 hour 0 min	10 min	71 hour 59 min
59	Defrost duration Time (failsafe)	0 hour 20 min	1 min	4 hour 59 min
60	Drip time	0 min 0 sec	0 sec	59 min 59 sec
61	Temperature Initiated Defrost Function	0	0=disable or 1=enable	
62	Temperature Initiated Defrost (T = Tspace-Tevap.)	6°F	0°C (0°F)	40°C (72°F)
63	Temperature Initiated Defrost Time Delay	15 min 0 sec	0 sec	59 min 59 sec
64	Temperature Initiated Defrost Time Delay After Defrost	50 min 0 sec	0 sec	59 min 59 sec
65	Defrost Heater Duty Cycle Function	0	0=disable or 1=enable	
66	Heater On Time	1 min 0 sec	5 sec	59 min 59 sec
67	Heater Off Time	0 min 30 sec	0 sec	59 min 59 sec

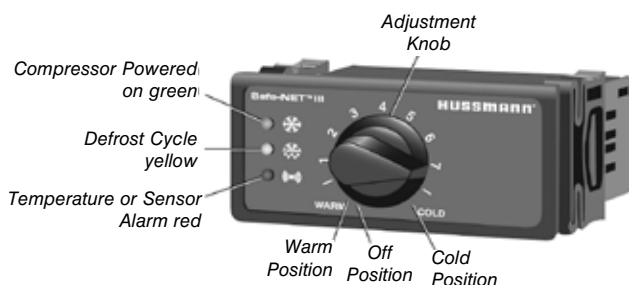
Safe-NET III™ TEMPERATURE AND DEFROST CONTROLLER

SAFE-NET III™ USER INSTRUCTIONS

Your refrigerated case uses a Hussmann Safe-NET™ III temperature and defrost controller to precisely maintain the temperature and prevent frost buildup on the cooling coil. LEDs indicate when the compressor or refrigeration is on, when the case is in a defrost cycle, if the temperature is outside the desired range, or if there is a sensor failure.

An adjustment knob allows the temperature to be set within the configured range and can power off the controller and compressor. Your controller has been custom-configured to provide the best temperature and defrost control for your chilled or frozen food.

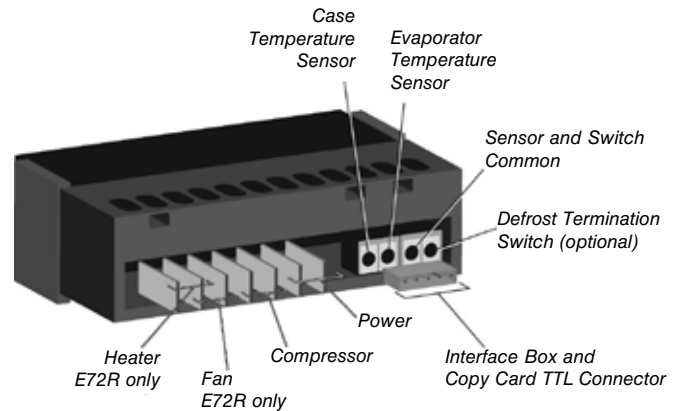
The front of the controller has an adjustment knob and status LEDs. The back of the controller has connections for sensors and switched equipment.



The Safe-NET III controller includes the following features and connections.

- Adjustment knob:

Adjusts the temperature setpoint. Turn adjustment knob to OFF to turn off refrigeration system. Unplug merchandiser from power before servicing the unit.



- Controller LEDs:

- ❄️ Compressor Powered On LED (green): Lights while the compressor is running or the refrigeration valve is open.

- ❄️ Defrost Cycle LED (yellow): Lights while the refrigeration coil is defrosting.

- 🔊 Temperature or Sensor Alarm (red): Lights if the temperature is too warm or too cold. Flashes if a sensor fails.

- Rear connections:

- Case temperature sensor:

- Typically senses the temperature of the air in the case. Used by the controller to determine when to power on or power off the compressor or refrigeration.

- Evaporator temperature sensor:

- Senses the temperature of the refrigeration coil.

- Compressor or refrigeration relay:

- Switches on the compressor or refrigeration valve for cooling.

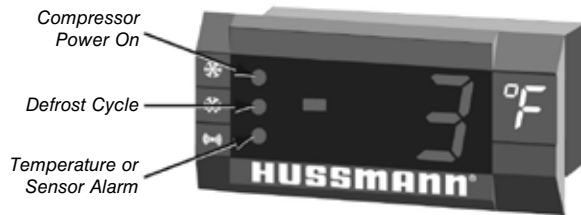
⚠️ WARNING

The optional evaporator fan remains ON when the adjustment knob is in the OFF position.

DISPLAY

The display includes three red LEDs and two digits for temperature, defrost status, and error codes.

The three display LEDs are red; their behavior matches the LEDs on the controller.



START-UP

1. Plug in the merchandiser.



2. Wait for the self check to complete. During the self check, each LED flashes for one second, then all LEDs turn on for two seconds. If the LEDs do not flash, make sure the adjustment knob is not in the Off position.
 - After the self check, all LEDs turn off until the compressor starts. **There may be a delay before the compressor starts**, if the red Temperature or Sensor Alarm LED stays on after the self check.
 - The green Compressor Powered On LED turns on when the compressor starts.

! WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

NOTE: Do NOT load product until AFTER merchandiser operates for 24 hours and reaches desired operating temperature.

1. Apply power to the merchandiser. Wait for the self check to complete. During the self check, each LED flashes for one second and then all LEDs turn on for two seconds. If the LEDs do not flash, make sure the adjustment knob is not in the “OFF” position.
 - 1A. The merchandiser temperature displays at startup. The initial defrost starts two hours later. The display will show “DF” at the start of defrost. This reading will remain displayed during defrost and until it times out, even though the refrigeration mode has been initiated.
(The green LED will be lit.)
2. The compressor will start after a 30 second delay once power is applied.
3. The compressor will continue to run until it reaches its cut-out temperature (Pulldown).
4. The refrigeration cycle will continue for the next subsequent scheduled defrost.
5. The above process will repeat (steps 3 and 4) until the power is interrupted.
6. If power stops, the process will start over at step 1, and the time to subsequent defrost will reset.
7. Medium temperature is the same except for a 30-minute time terminated defrost.

1. Apply power to the case. Wait for the self check to complete. During the self check, each LED flashes for 1 second, and then all LEDs turn on for 2 seconds. If the LEDs do not flash, make sure the adjustment knob is not in the "OFF" position. The display will also be blank "OFF." Upon power up, the display will show the case temperature. The initial defrost will occur 2 hours later. The display will show the "DF" at initiation of defrost. This reading will remain displayed during defrost and until it times out, even though the refrigeration mode has been initiated. (The green LED will be on.) The subsequent defrost will occur at 6-hour intervals, after initial defrost (4-defrost/day).
2. The compressor will start after a delay of "10" seconds after the power is applied.
3. The compressor will continue to run until it reaches its cutout temperature (pulldown).
4. The refrigeration cycle will continue until the next subsequent scheduled defrost.
5. The above process will repeat (Steps 3 and 4) until the power is interrupted.
6. If the power is interrupted, the process will start over at Step 1, and the time to subsequent defrost will reset.

TEMPERATURE ADJUSTMENT

Rotate the adjustment knob counter clockwise for a warmer setpoint or clockwise for a colder setpoint.

- While the temperature is being adjusted, the optional display shows the setpoint (cut out value). A few seconds after the temperature is set, the display reverts to showing the sensed temperature in the merchandiser.

ALARMS AND CODES

FLASHING TEMPERATURE OR SENSOR ALARM LED, E1 OR E2



If the Temperature or Sensor Alarm LED (red) on the controller and display is flashing, a temperature sensor has failed. The display shows E2 if the evaporator sensor has failed.

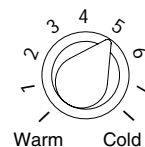
If the merchandiser sensor fails, refrigeration will run continuously. Turn off, or repeat a duty cycle of a few minutes on and a few minutes off.

MANUAL DEFROST

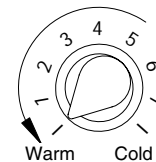
Note:

This procedure initiates a manual or forced defrost.

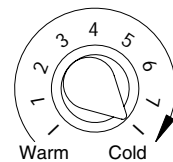
IMPORTANT: Return the control knob to its original setting (Step 1) once the manual defrost has been initiated.



1. Note location of knob setting

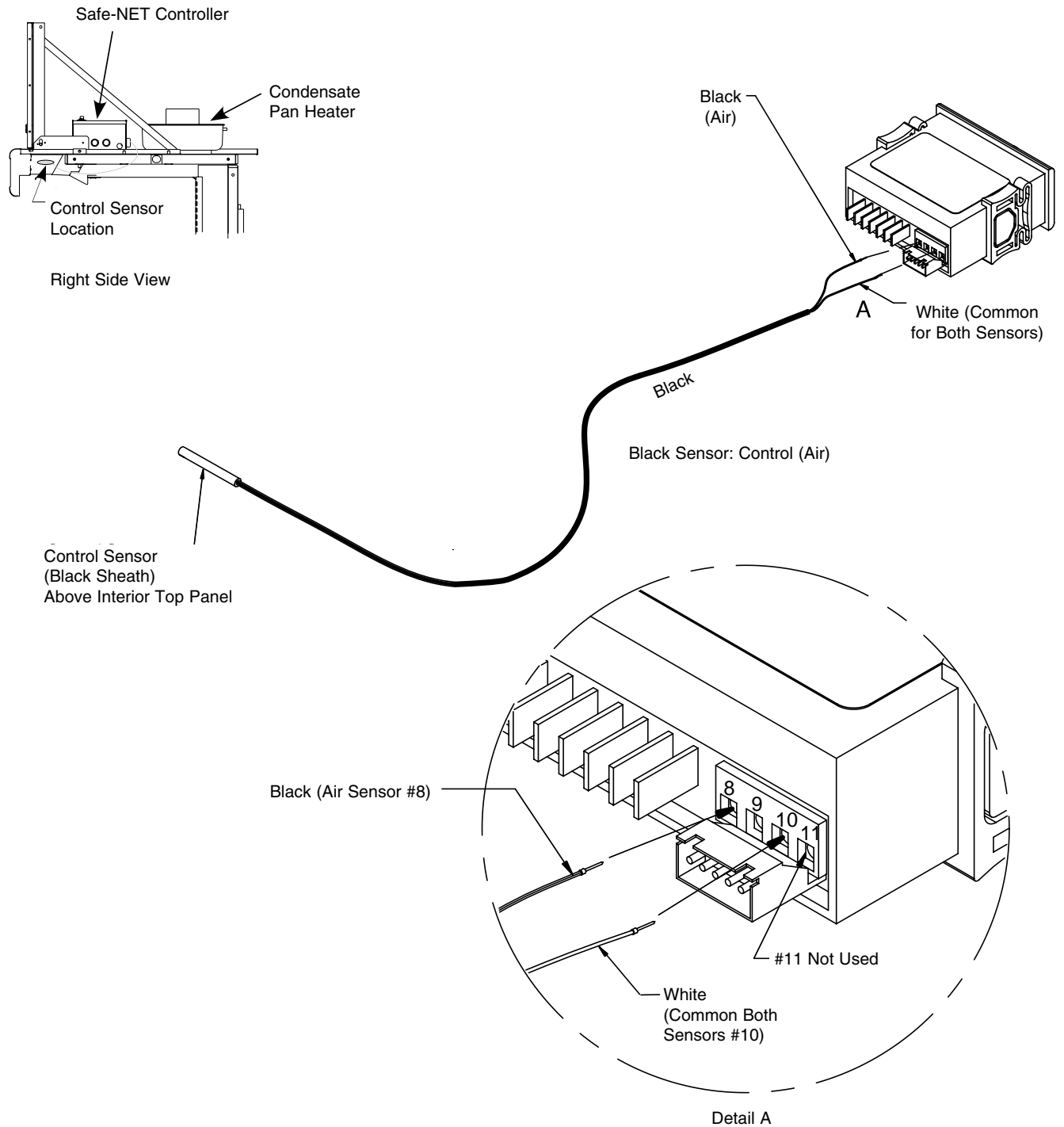


2. Rotate knob fully counterclockwise until it stops (full warm - "OFF" position)



3. After 10 seconds, but before 20 seconds, rotate knob fully clockwise until it stops (full cold position)

Typical Sensor to Control Configuration



CONTROLS and ADJUSTMENTS

Model	Production Application	Discharge Air Temp	Defrost Freq. (per day)	Type of Defrost	Termination Temp.	Failsafe Time (minutes)
IDDF5SU	Med Temp Dairy/Deli	34°F	4	Off Time	48°F	20
IDF5SM	Med Temp Dairy/Deli	31°F	6	Off Time	48°F	20
IDF5NM	Med Temp Dairy/Deli	31°F	6	Off Time	48°F	20
IDDF5NL	Med Temp Dairy/Deli	34°F	4	Off Time	48°F	20

MANUAL DEFROST

1. The Safe-NET III Controller controls refrigeration temperature. This is factory installed in the control panel. Adjust this control knob to maintain the discharge air temperature shown. Measure discharge air temperatures at the center of the honeycomb.

For low temperature models, defrosts are time initiated and temperature terminated. The defrost setting is factory set as shown.

To ensure a thorough defrost, the defrost must be terminated by the temperature termination setting — not by time.

For medium temperature models, defrost is time initiated and time terminated.

cut-in is 25 psig. HIGH side cut-out is 350 psig.

MERCHANDISER ELECTRICAL DATA

Merchandiser data sheets for specific models are shipped with this manual. The data sheets provide merchandiser electrical data, standard electrical schematics, parts lists and performance data. **Refer to the merchandiser data sheets and merchandiser serial plate for electrical information. Refer to the separate wiring diagrams shipped with the case for specific information about the merchandiser and any optional wiring kits that may have been applied.**

EMERSON PRESSURE CONTROL ADJUSTMENT SETTING

Locate the Emerson Electronic Unit Controller pressure safety control located on the Copeland Condensing Unit. Follow the instructions shown on the Emerson EUC, check and adjust the LOW and HIGH side settings. Recommended settings for R-404A refrigerant are: LOW side cut-out is 10 psig,

FIELD WIRING

Field connection of electrical power shall be supplied as two circuits: Circuit #1 powers the case fans, case lighting, and (optional) condensate pump; Circuit #2 powers the condensing unit, controller, and (optional) condensate evaporator pan. Field connection for Circuit #1 shall be made inside the canopy electrical raceway, and field connection for Circuit #2 shall be made inside the electrical enclosure on top of the case. The wiring diagram and circuit requirements are provided on the Technical Data Sheets provided with the case and condensing unit.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES.

Electric Defrost is standard for low temperature merchandisers and requires temperature termination. Off Time Defrost is standard for medium temperature merchandisers and is temperature terminated.

Following NEC and local codes is the responsibility of the electrical contractor.

ELECTRICAL CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections are to be made in the electrical enclosure box located on top of case.



WARNING

Terminal block NOT for case-to-case wire connection.

IDENTIFICATION OF WIRING

Leads for all electrical circuits are identified by colored plastic bands. These bands correspond to the color code sticker (shown below) located inside the merchandiser wireway. Refer to the Electrical diagrams are shipped with case Data Sheet.

WIRING COLOR CODE

Leads for all electrical circuits are identified by a colored plastic band: neutral wire for each circuit has either White insulation or a White plastic sleeve in addition to the color band.

<p>PINK REFRIG. THERMOSTAT LOW TEMP.</p> <p>LIGHT BLUE. REFRIG. THERMOSTAT NORM TEMP.</p> <p>DARK BLUE. DEFROST TERM. THERMOSTAT</p> <p>PURPLE ANTI-SWEAT HEATERS</p> <p>BROWN FAN MOTORS</p> <p>GREEN* GROUND</p>	<p>ORANGE OR</p> <p>TANLIGHTS</p> <p>MAROON ..RECEPTACLES</p> <p>YELLOW* ..DEFROST HEATERS, 120V</p> <p>RED*DEFROST HEATERS, 208V</p>
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*EITHER COLORED SLEEVE OR COLORED INSULATION

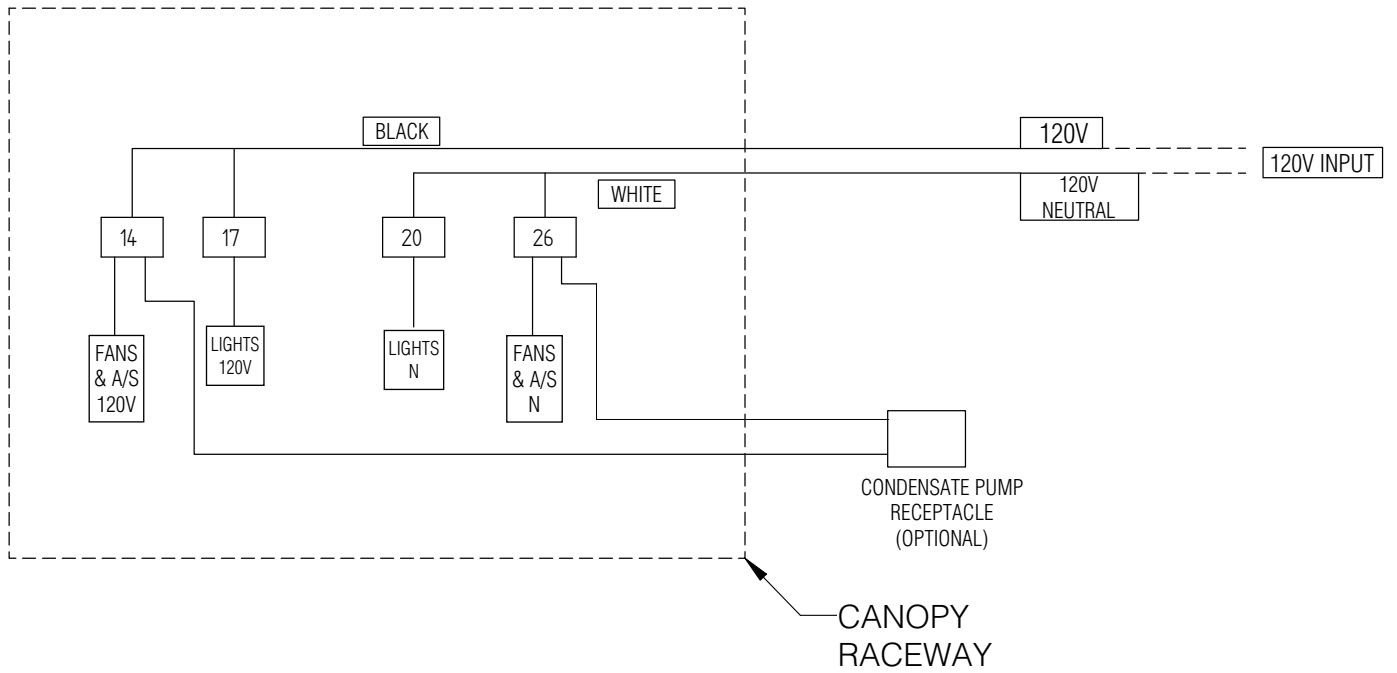
ELECTRICIAN NOTE: Use copper conductor wire only.

CASE MUST BE GROUNDED

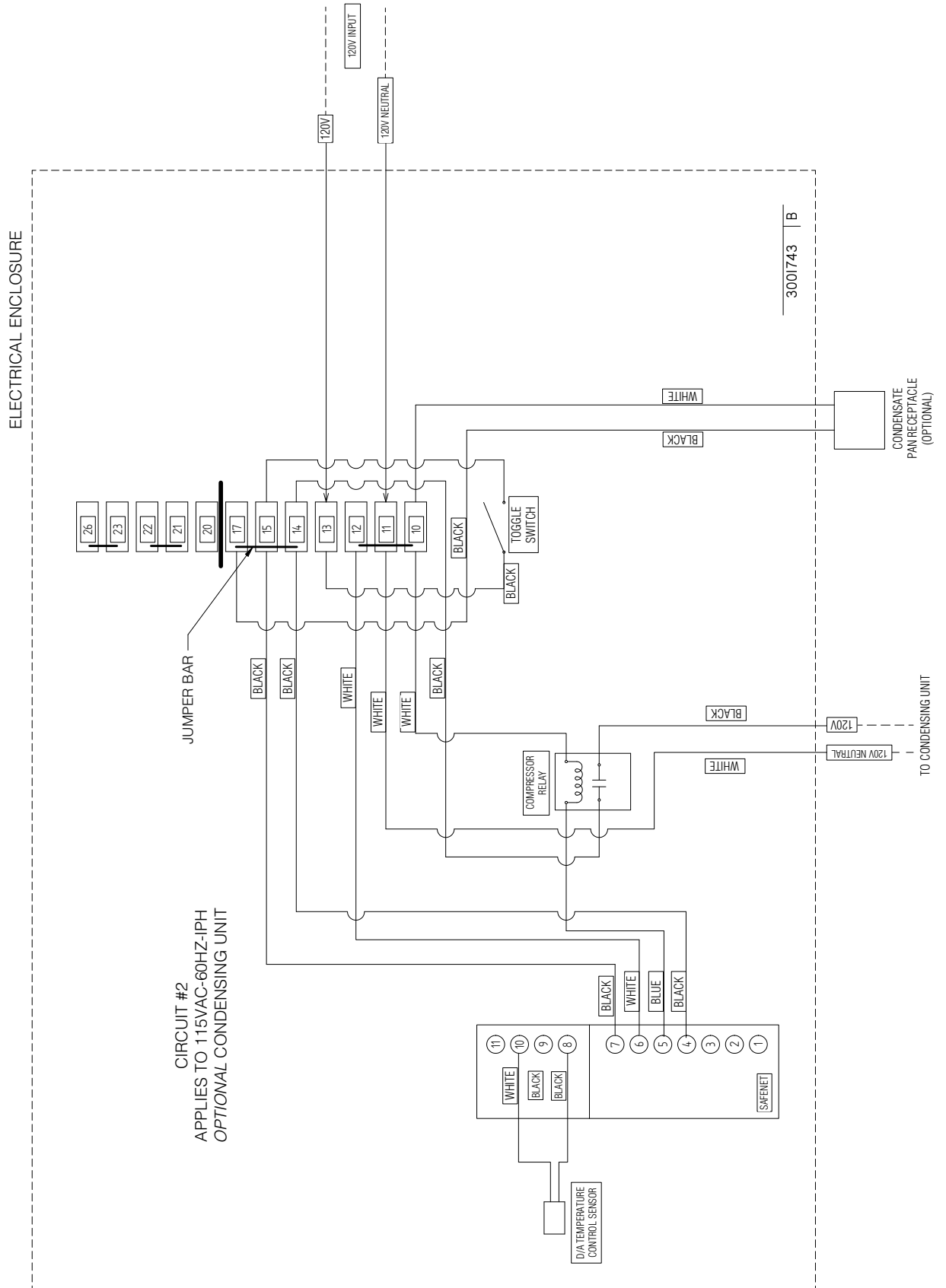
THESE ARE MARKER COLORS WIRES MAY VARY.

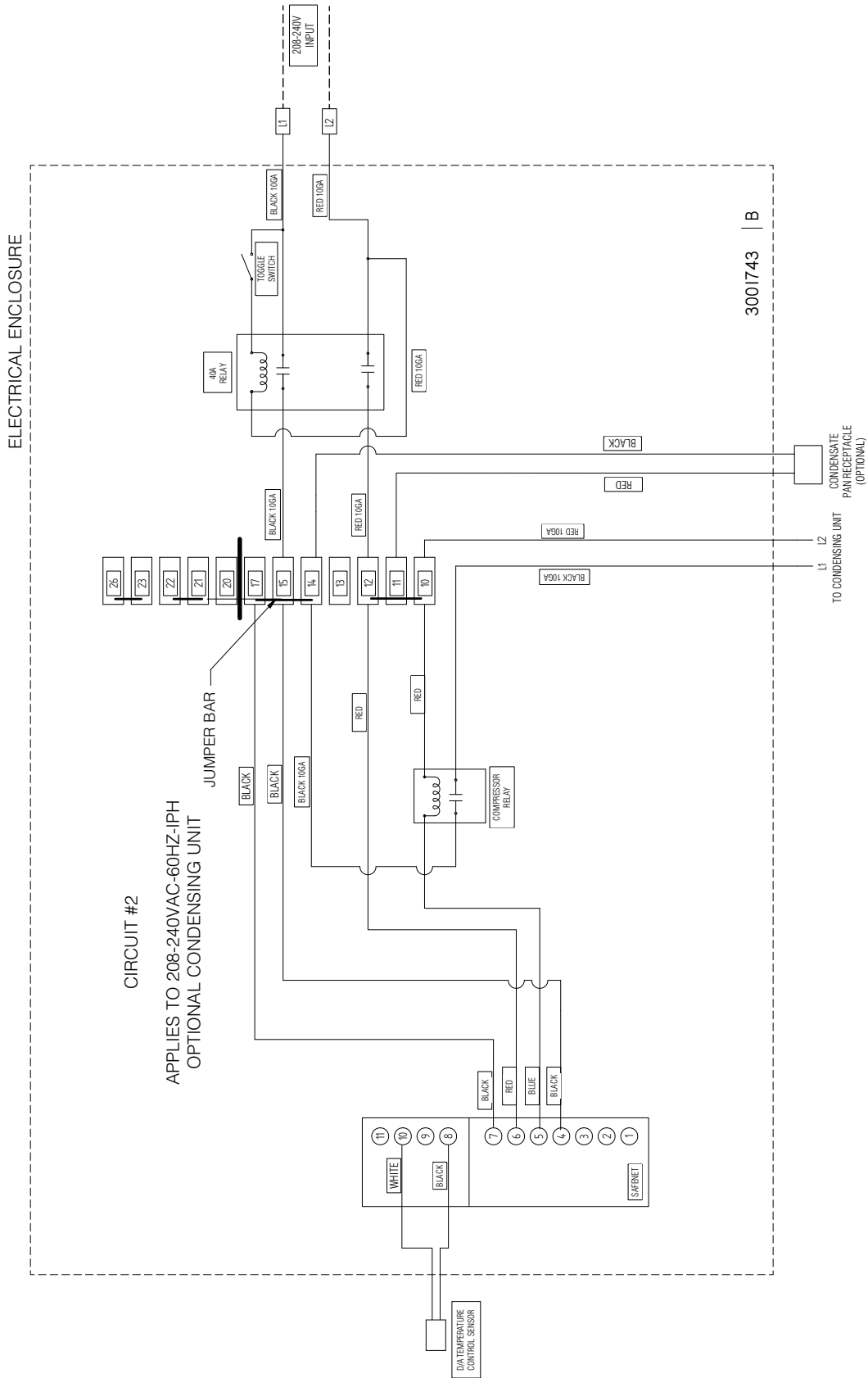
Wiring Diagram

CIRCUIT #1
115VAC-60HZ-IPH



Wiring Diagram



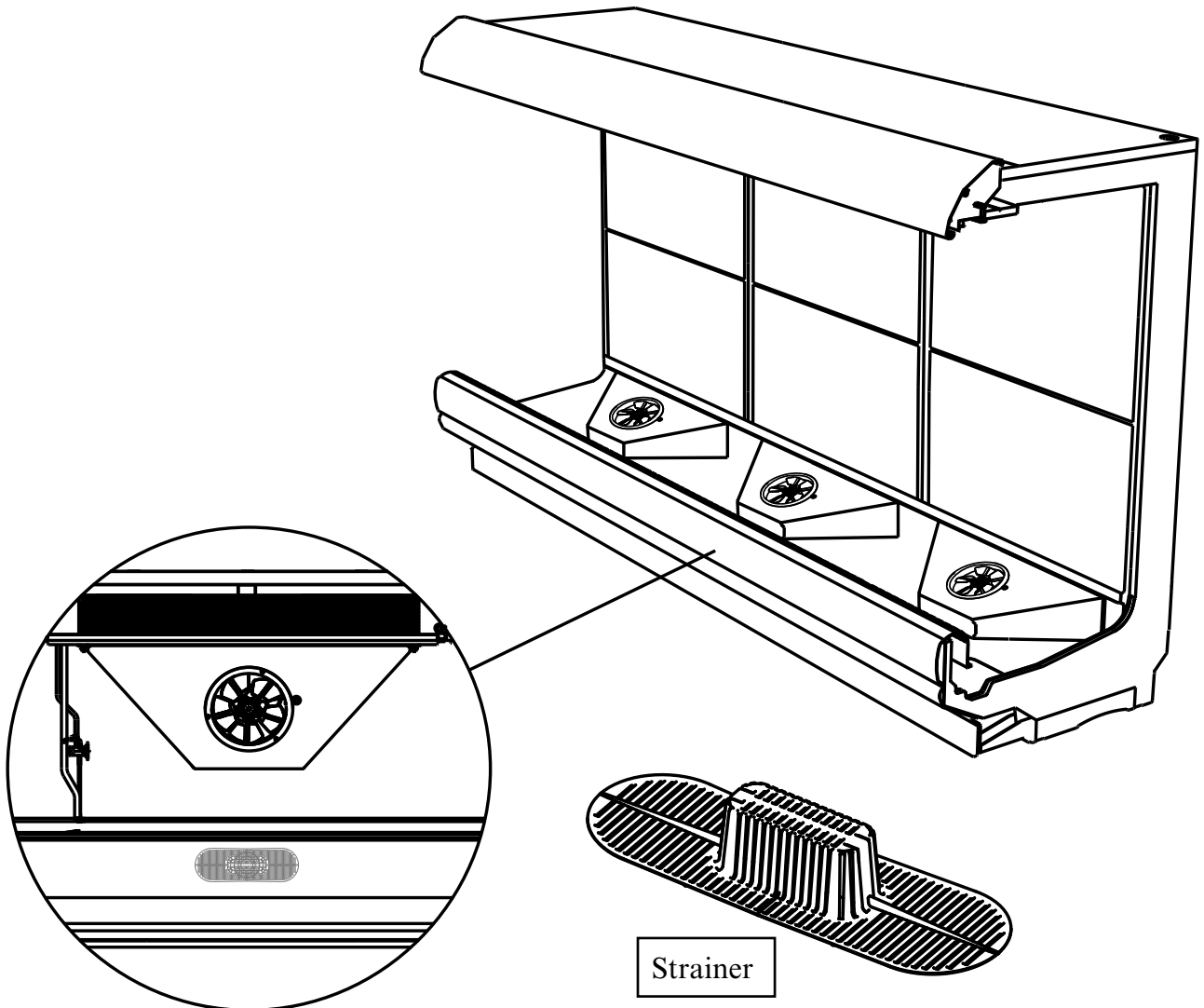
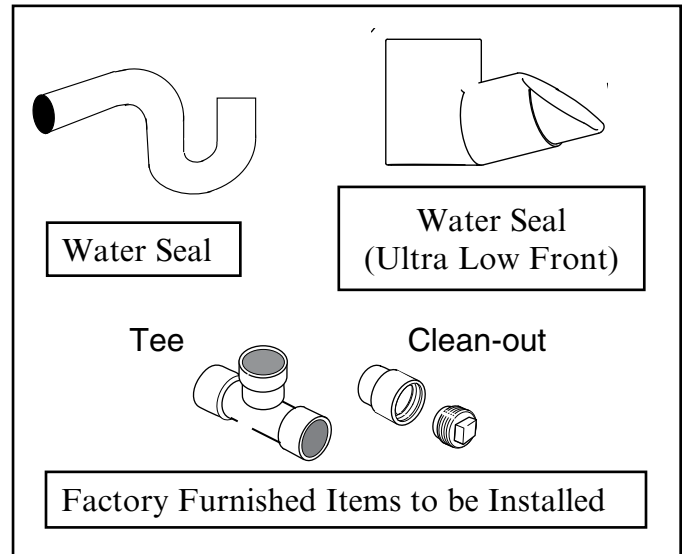


DRIP PIPING / FACADES / SPLASHGUARDS / BUMPERS

WASTE OUTLET AND WATER SEAL

Insight merchandisers have one waste outlet located in the front center of the bottom or righthand side for 8 ft cases. Water seals are field installed with waste outlet to prevent air leakage and insect entrance into the case. Tees and clean-outs are supplied for each case.

A hat-shaped strainer is also shipped with the merchandiser. Place strainer over the waste outlet as shown below.



INSTALLING DRIP PIPING

Poorly or improperly installed drip pipes can seriously interfere with the merchandiser's operation and result in costly maintenance and product losses.

Optional drip pipe arrangements are shown on the next page. It is the installing contractor's responsibility to consult local agencies for local code requirements. Assemble the components using field-supplied PVC primer and glue according to the manufacturers direction.

Please follow the recommendations listed below when installing drip pipes to ensure proper installation.



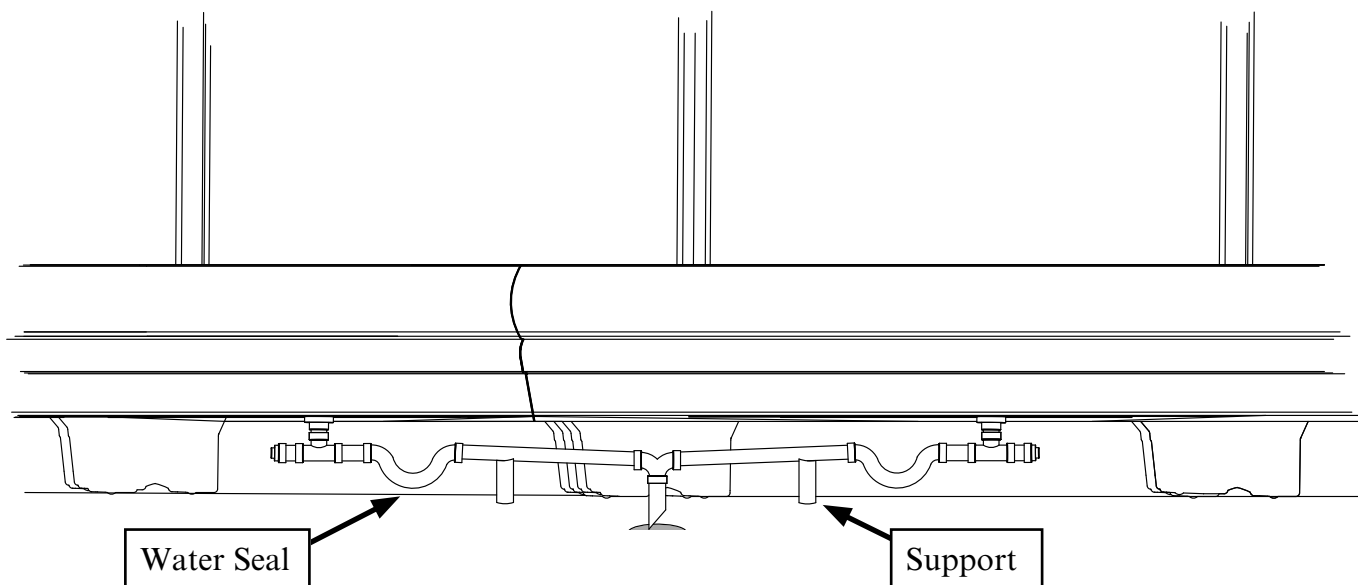
1. Never use drip piping smaller than the nominal diameter of the pipe or water seal supplied with the merchandiser.



It is the installing contractor's responsibility to consult local agencies for local code requirements.

2. When connecting drip piping, the "water seal" must be used as part of the drip piping to prevent air leakage or insect entrance. Never use two water seals in series in any one drip pipe. Double water seals in series will cause an air lock and prevent draining.
3. Pitch the drip piping in the direction of flow. **There should be a minimum pitch of ¼ in. per ft (20 mm per 1 m).**
4. Avoid long runs of drip piping. Long runs make it impossible to provide the pitch necessary for good drainage.
5. All connections must be watertight and sealed with the appropriate PVC or ABS cement.

Optional Drip Piping Arrangements for Standard Case Height (Not for Low Front Cases)



6. Ensure that drip piping is supported to relieve any stress on drip pipe connectors and drain hub. Drip piping **MUST** be supported no more than 24 in. from drain hub tee.

7. Provide a suitable air break between flood rim of the floor drain and outlet of drip pipe. To meet code on low base merchandisers, it may be necessary to install a field-supplied drip pipe reducer.

8. Prevent drip pipes from freezing:

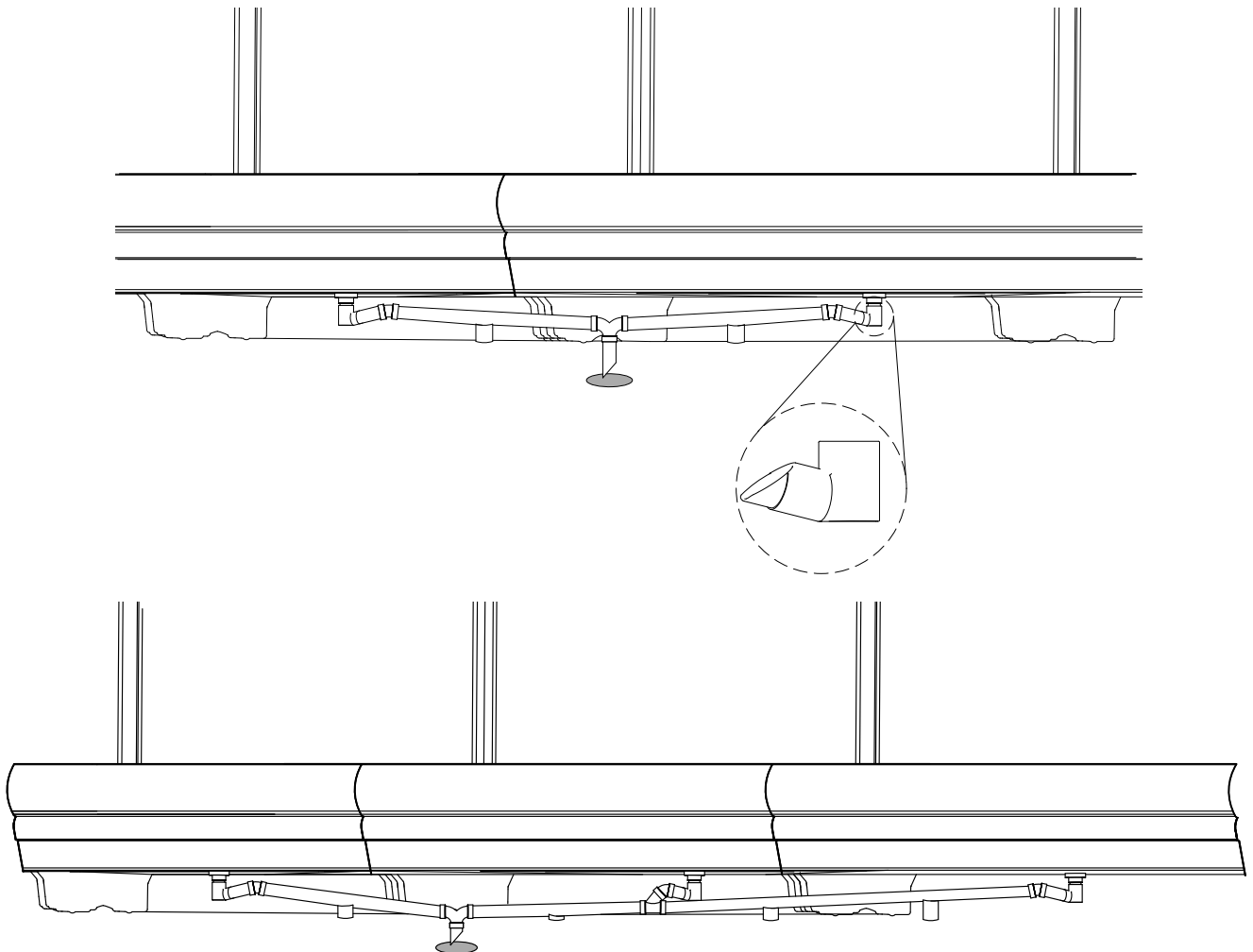
Do not install drip pipes in contact with uninsulated suction lines. Suction lines should be insulated with a nonabsorbent insulation material.

Where drip pipes are located in dead air spaces, such as between merchandisers or between a merchandiser and a store wall, provide means to prevent freezing.



An alternative is to cut the last section of drip pipe at an angle.

Optional Drip Piping Arrangements for Low Front Cases

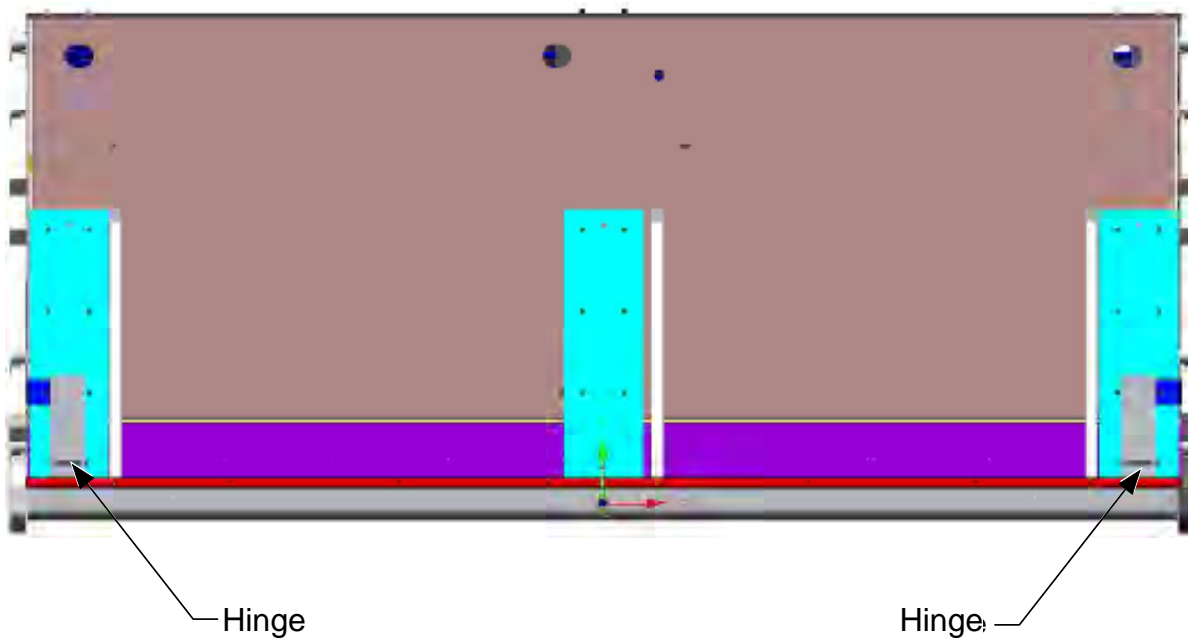
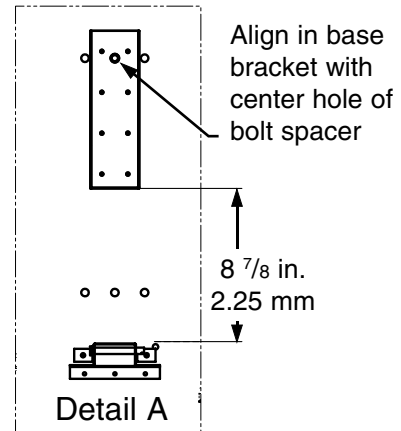


3-4 FACADE AND SPLASHGUARD

INSTALLING FACADES

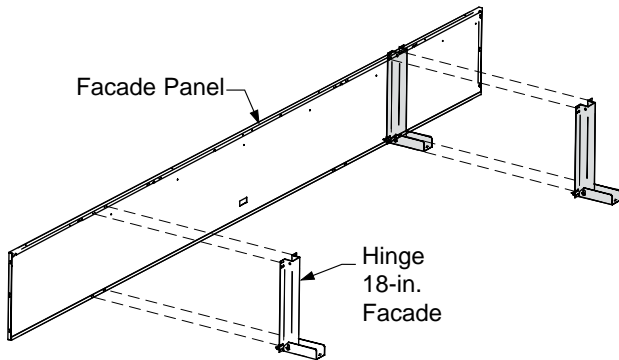
Refer to the Hinge Location illustration to determine where hinges will be positioned on the top of the merchandiser.

Notice that hinge position will vary with the number of doors of the merchandiser.



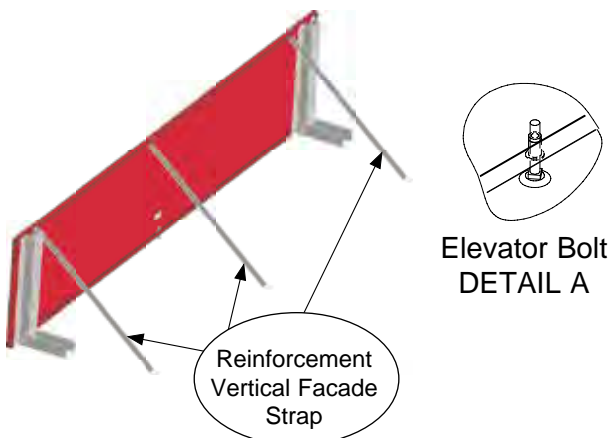
Facade Hinge Locations

Identify the corresponding positions on the facade panel, then fasten the hinges to the facade panel with provided screws.

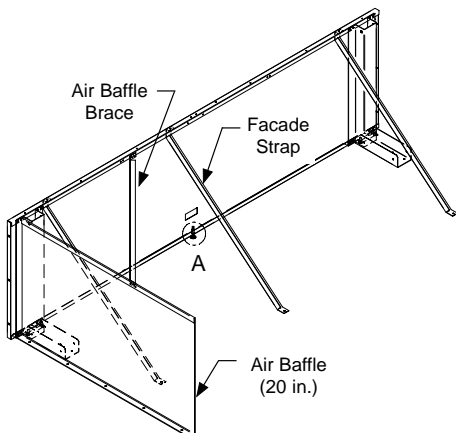


Fasten Hinges to Facade

Raise the elevator bolts at the bottom of the facade. Attach reinforcement straps to the Facade Panel with provided screws.



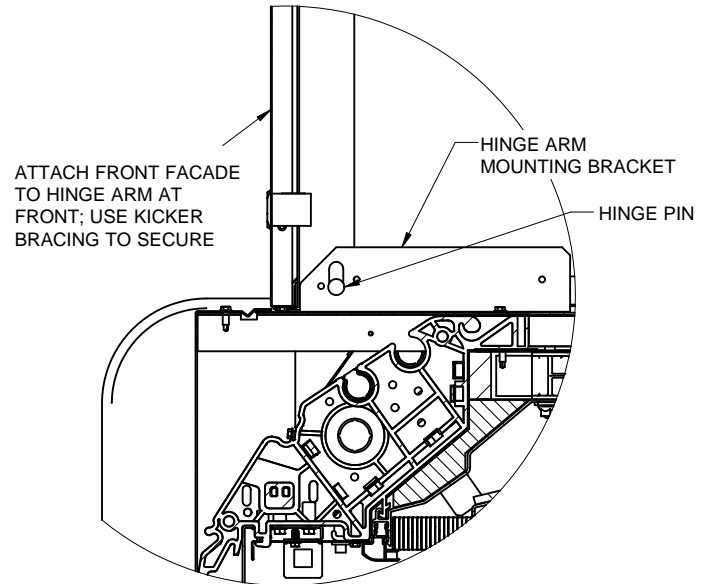
Fasten Reinforcement Strap



Install Air Baffle

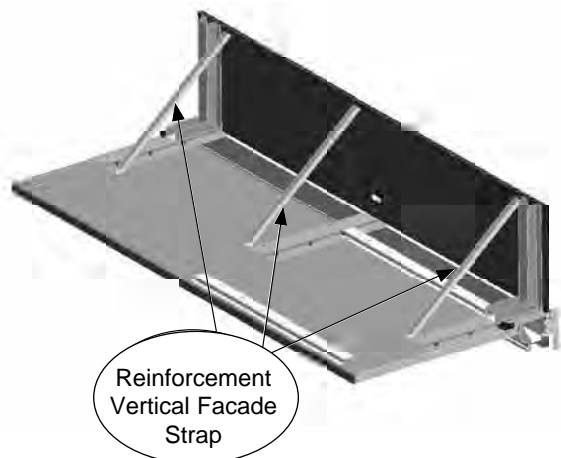
Position the facade centered on case length and recessed from the fascia as shown in the side view. One hinge will be between the condensing unit and the electrical box. If necessary, the electrical box can be relocated.

Line up trim channel edge with edge of facade panel



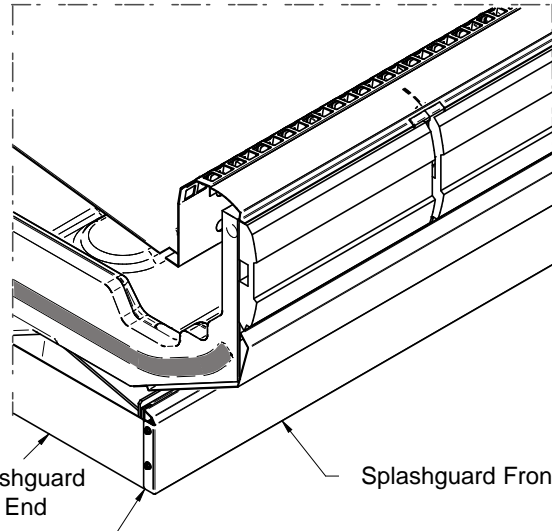
Attach facade channel to top of canopy fascia using #8 x 1/2 sheet metal screws provided. Place front of trim channel at edge of flat surface on canopy fascia top.

Fasten the hinge. Fasten the reinforcement straps after hinges are attached using provided screws.



INSTALLING END SPLASHGUARD

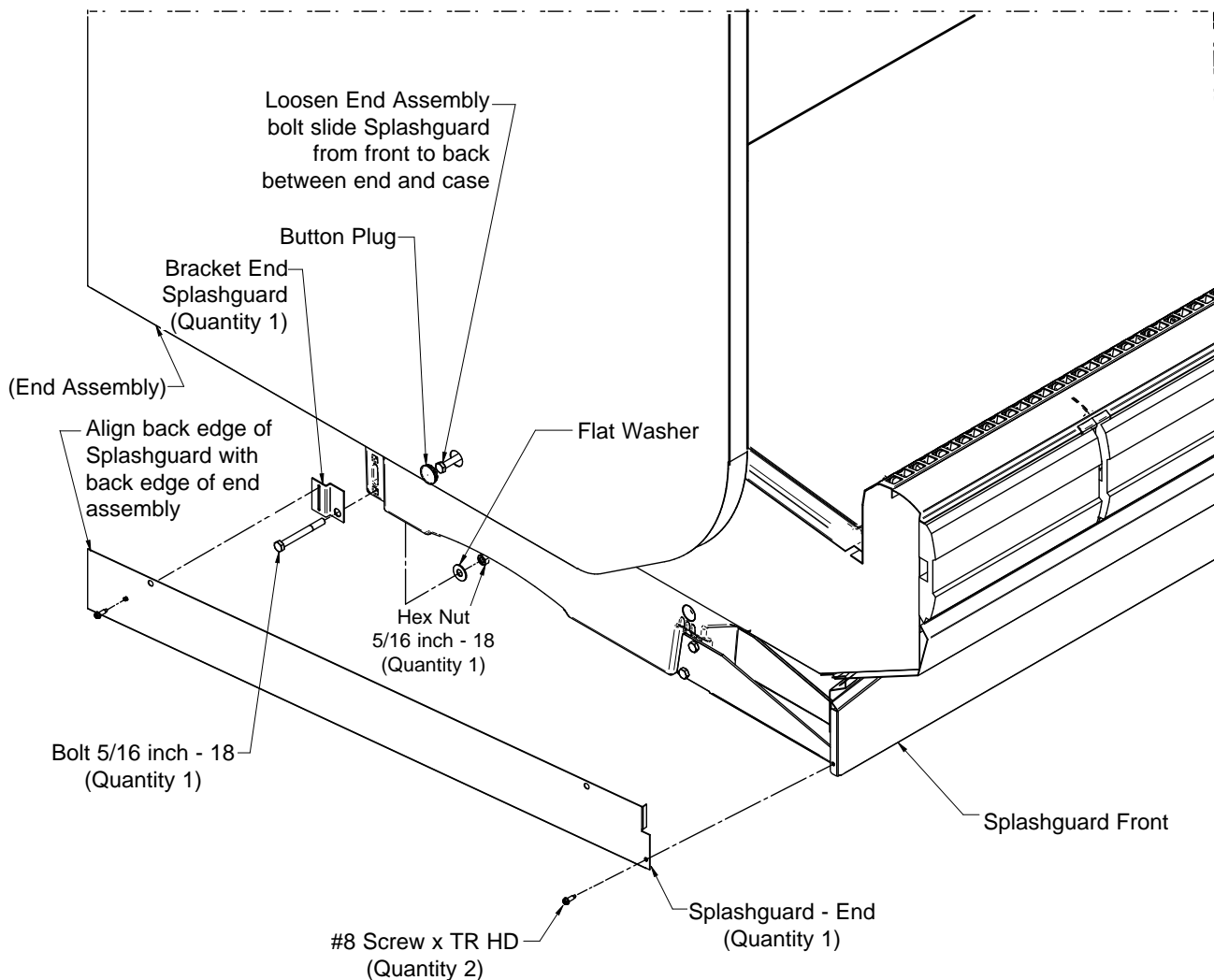
1. End splashguard must be slid in from the front, so that it fits behind the end panel. Attach end splashguard brackets (2) to base at locations shown in the illustrations below.
2. Align forward edge of splashguard end panel to the inside of front splashguard. Fasten end splashguard to bracket with screws.



Place Splashguard - End to the inside of Splashguard - Front

NOTE End Splashguard Panel fits to the inside of End Assembly.


IMPORTANT Install end splashguard before installing front splashguards.



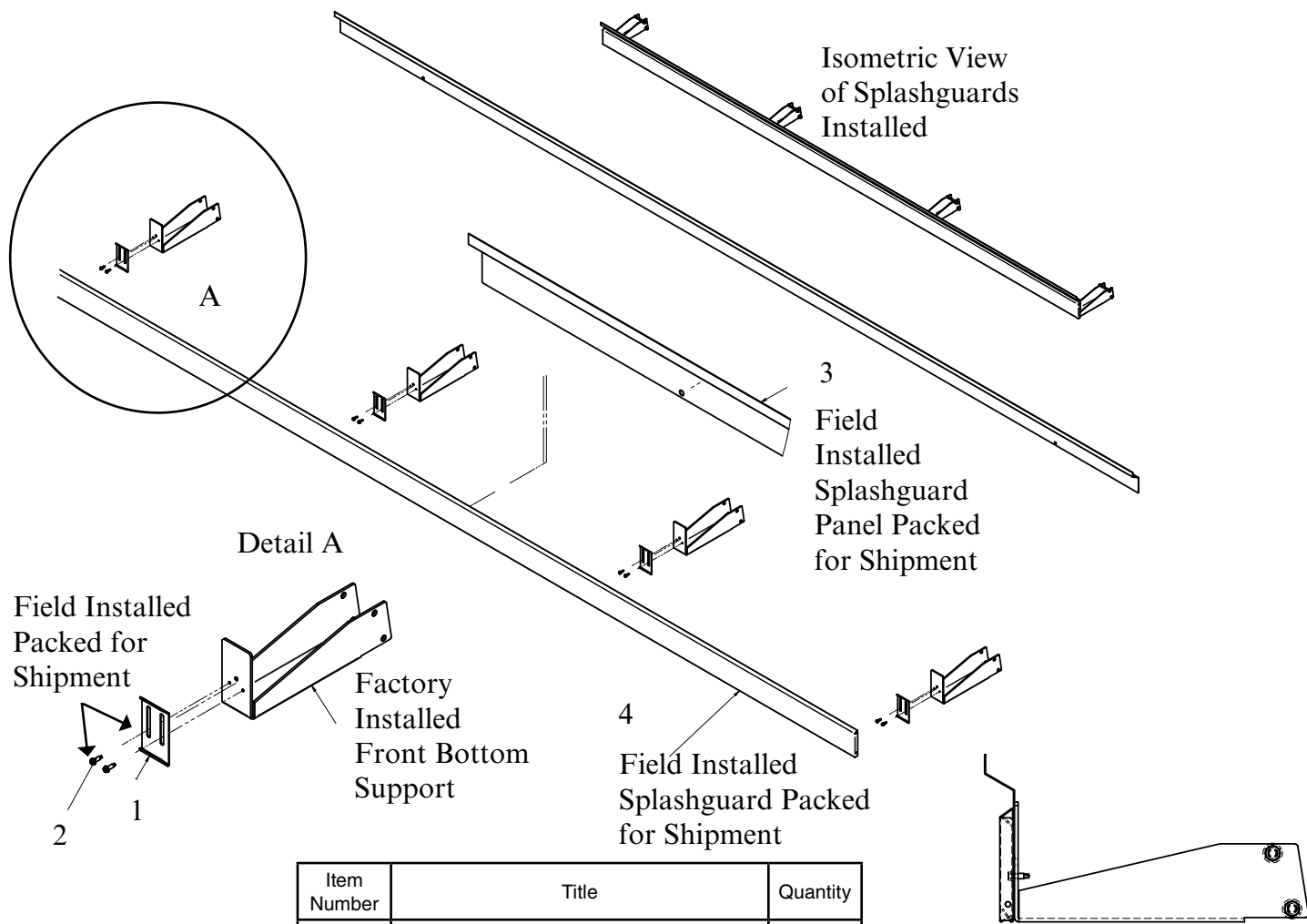
INSTALLING SPLASHGUARD BRACKETS

Position splashguard brackets at the front base (legs) of the merchandiser near the floor. Loosely assemble Splashguard Bracket using #8 x 5/8 inch SM screws as shown in Detail A below. More detail of splashguard installation shown on next page.

 **IMPORTANT** Install Drip Piping Before Installing Splashguards

 **WARNING**
Use caution when working around refrigeration lines or water lines, damage to equipment and personal injury could occur.

Splashguard Bracket and Panel Installation (12 ft Shown)



Item Number	Title	Quantity
1	RETAINER SPLGRD	4
2	SCREW SM 8 X 18X5/8 PHIL HX HD	8
3	PANEL 5.4" SPLGRD CL/O 12 FT	1
4	SPLASHGUARD FRONT 12FT	1

3-8 FACADE AND SPLASHGUARD

INSTALLING SPLASHGUARDS (Retainers and Panels)

Splashguards are shipped inside each merchandiser, 4 brackets for 12 ft case, 3 for 6 ft , etc. **AFTER** merchandisers have been leveled and joined, and all drip piping, electrical and refrigeration work has been completed, install the splashguard.

To Install Splashguards:

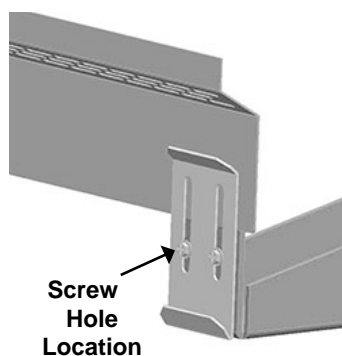
1. Check to be sure that all splashguard brackets are level with the floor. Refer to previous page for additional exploded view pictures.
2. Loosely attach the lower splashguard retainer bracket using # 8 SM screws (1).
3. Install close-off panel as shown in (2 & 3). Slide splashguard close-off panel between the bracket and lower front support.
4. Raise the splashguard close-off panel to where the top fits into bend on the lower color panel, then tighten the splashguard brackets.
4. Fit the lower splashguard into the slots on the lower splashguard retainer. Lower splashguard snaps into place (4).

To install OPTIONAL cove trim to the splashguard:

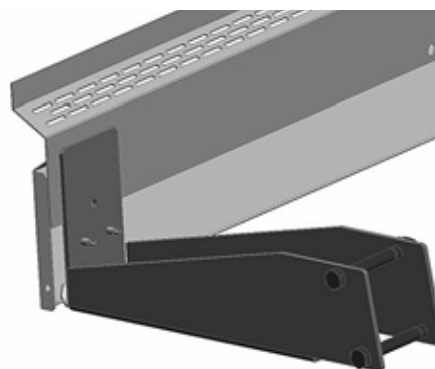
1. Remove all dirt, wax and grease from the area of the splashguard where adhesion will be necessary to ensure a secure installation.
2. Apply a good contact cement to the cove trim and allow proper drying time according to the directions supplied with the cement.
3. Install the trim to the splashguard so that it is lying flush with the floor. **DO NOT SEAL THE TRIM TO THE FLOOR.**
4. **If required by local health codes** the Cove Trim may be sealed to the floor, using a silicone type sealer. Sealant must be removed and replaced when servicing.



1.

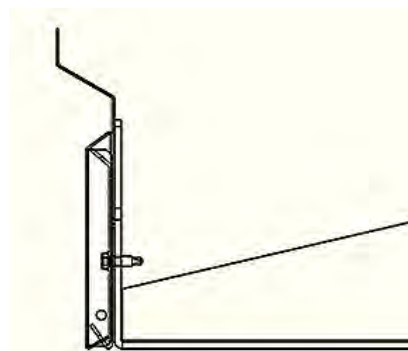


2.



Rear View

3.



4.

START UP / OPERATION

ATTENTION

Merchandiser must operate
for 24 hours before loading
product!

Regularly check merchandiser temperatures.

Do not break the cold chain. Keep products
in cooler or freezer before loading into
merchandiser.

Medium temperature merchandisers are
designed for loading **ONLY** pre-chilled
products.





CAUTION

DO NOT OPERATE REFRIGERATION SYSTEM OUTSIDE TYPE I AND TYPE II AMBIENT OPERATING CONDITIONS.

POOR PERFORMANCE OF REFRIGERATION SYSTEM MAY RESULT FROM CONTINUOUS OPERATION OUTSIDE OF THE FOLLOWING CONDITIONS:

ANSI/NSF-7 Type I – Display Refrigerator / Freezer
Intended for 75°F / 55%RH Ambient Application

ANSI/NSF-7 Type II – Display Refrigerator / Freezer
Intended for 80°F / 55%RH Ambient Application

EVAPORATOR PANS MAY OVERFLOW, CAUSING FLOODING DURING CONTINUOUS OPERATION IN EXTREME STORE TEMPERATURES.

After system startup and after 24 hours of operation make sure to verify that the oil level in the compressor is at 1/2 site glass on the compressor. Add compressor manufacturer's recommended type oil as needed to maintain correct level.

If refrigeration system operation is required for functional verification, please follow the recommendations below:

- » Install display case shelves before operation.
- » Drafts from open doors, fans, or other sources must be avoided.
- » Air discharge and return flues must remain open and free of obstruction at all times.
- » Temporarily set the refrigeration control knob to the warmest position for operation during non-controlled ambient conditions, to keep defrost water build-up to a minimum.
- » If heater pans have been de-energized following a defrost cycle, standing water will remain in the pans. Re-energize power to the pans long enough to remove remaining water before restarting refrigeration during non-controlled ambient conditions.



WARNING

Do not walk on top of case.
Do not store items or flammable materials on top of the case.



CAUTION

Tipping Hazard


Case tipping may occur if cases are not properly leveled and secured, or if cases are not properly loaded.

START UP / OPERATION

START UP

See the merchandiser's Technical Data Sheet for refrigerant settings and defrost requirements. Bring merchandisers down to the operating temperatures listed on the data sheet. Each four foot section has its own evaporator coil and pre-set non-adjustable thermostatic expansion valve (TEV). No adjustment is required.

DO NOT REMOVE THE CAP ON THE TEVs. This cap is to be removed only for valve disassembly. Removal of this cap during merchandiser maintenance will result in refrigerant loss unless the system is first isolated and the refrigerant recovered.

 CAUTION
REMOVAL OF THE TEV CAP WILL RESULT IN REFRIGERANT LOSS UNLESS THE SYSTEM IS FIRST ISOLATED AND THE REFRIGERANT RECOVERED.

The TEV has been factory set to provide the recommended performance settings as specified on the merchandiser data sheets.

STOCKING

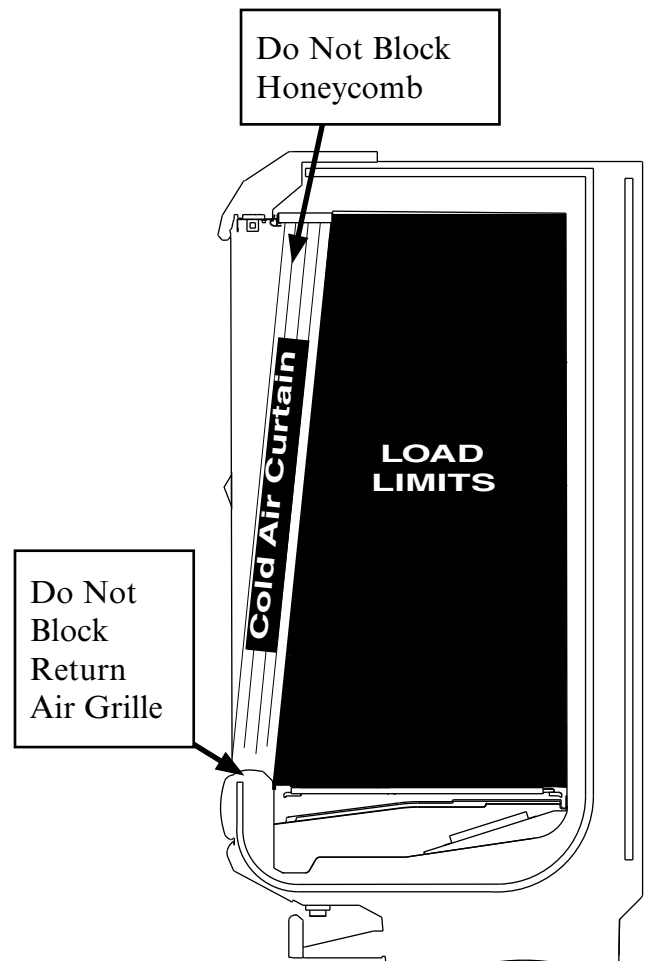
Product should NOT be placed in merchandisers until merchandiser is at proper operating temperature.

Proper rotation of product during stocking is necessary to prevent product loss. Always bring the oldest product to the front and set the newest to the back.

AIR DISCHARGE AND RETURN FLUES MUST REMAIN OPEN AND FREE OF OBSTRUCTION AT ALL TIMES to provide proper refrigeration and air curtain performance. Do not allow product, packages, signs, etc. to block these grilles. Do not use non-approved shelving, baskets, display racks, or any accessory that could hamper air curtain performance.

LOAD LIMITS

Do not stock shelves above load limit decals. Shelf life of perishables will be short if load limit is violated. **AT NO TIME SHOULD THE MERCHANDISERS BE STOCKED BEYOND THE LOAD LIMITS INDICATED.**



SHELF MAXIMUM WEIGHT LIMITS

Hussmann merchandiser shelves are designed to support the maximum weight load limits as indicated in this table.

Exceeding these maximum weight load limits may cause damage to the shelf or shelves, damage to the merchandiser, damage to store products, and potentially create a hazardous condition for customers and staff. Exceeding the indicated maximum weight load limits constitutes misuse as described in the Hussmann Limited Warranty.

Weight Limits for Merchandiser Shelving

Nominal Shelf Depth	Maximum Load Limit
12 in. (305 mm)	125 lb (56.7 kg)
14 in. (357 mm)	125 lb (56.7 kg)
16 in. (406 mm)	200 lb (90.7 kg)
18 in. (457 mm)	200 lb (90.7 kg)
20 in. (508 mm)	250 lb (113.4 kg)
22 in. (559 mm)	250 lb (113.4 kg)
24 in. (610 mm)	250 lb (113.4 kg)
Heavy Duty Beverage Shelf 16 in. (406 mm)	300 lb (136 kg)
Heavy Duty Beverage Shelf 18 in. (457 mm)	320 lb (145.1 kg)
Heavy Duty Beverage Shelf 20 in. (508 mm)	350 lb (158.8 kg)
Heavy Duty Beverage Shelf 22 in. (559 mm)	350 lb (158.8 kg)
Heavy Duty Beverage Shelf 24 in. (610 mm)	350 lb (158.8 kg)

*Shelf load limits at 0° tilt

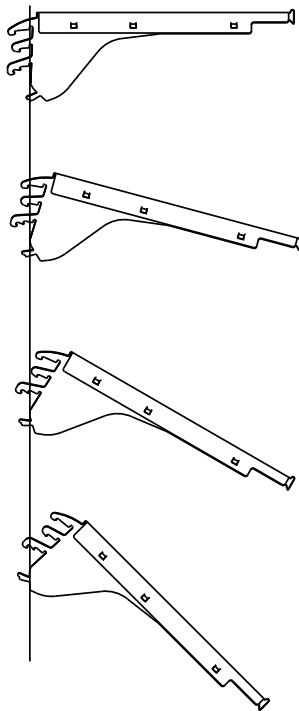
Merchandiser Shelf Depths

	Recommended	Maximum
Narrow (37 in. Merchandiser Depths)	16 in. (406 mm)	18 in. (457 mm)
Standard (42 in. Merchandiser Depths)	22 in. (559 mm)	24 in. (610 mm)

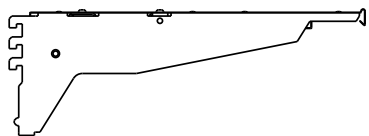
MULTI-DECK SHELF CONFIGURATION

Shelves are individually mounted in 1 in. (25 mm) increments and have two-, three-, or four-position brackets, permitting shelves to be placed in a flat or down-tilt position (see illustration). Front product stops are recommended when shelves are placed in the down-tilt position.

Case performance will be degraded if peg shelves are used without baffles. Unauthorized specialty shelving may cause poor merchandiser performance. Consult your Hussmann representative to ensure optimum performance of Hussmann equipment.



4-position Shelf



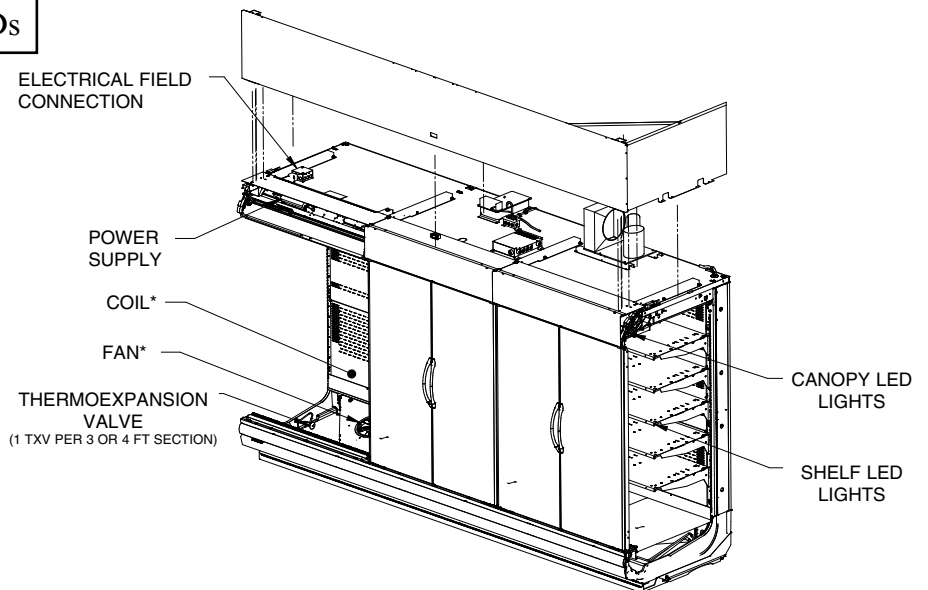
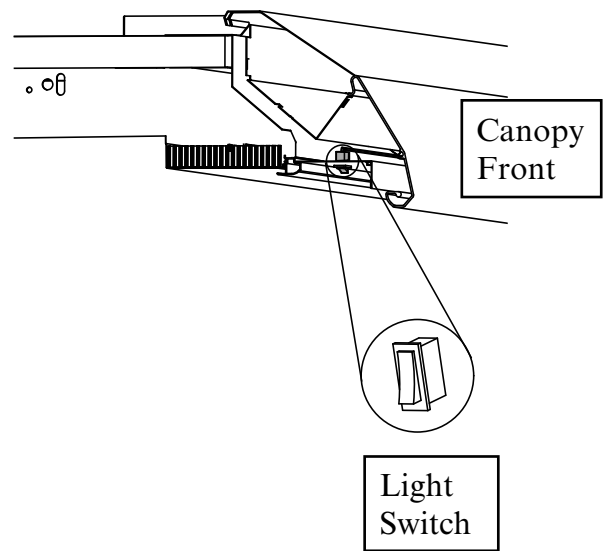
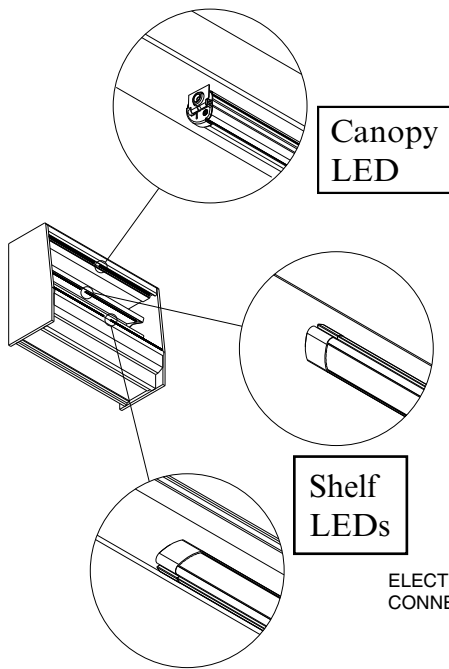
Beverage Shelf

LED FIXTURES

These merchandisers are equipped with 24 volt DC power supplies that power the LEDs. The power supplies are located in the canopy wire-way. EcoShine II Plus LEDs work well for dimming or on/off operation using an occupancy sensor (optional kits).

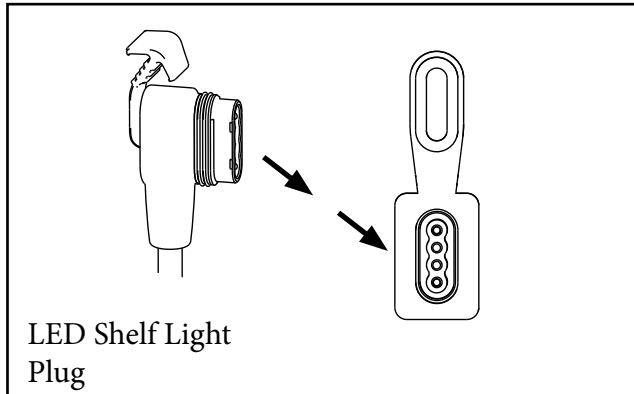
They can be turned on and off in a cold environment with no warm-up time and no negative impact on lamp life. Hussmann EcoShine II LED light fixtures normally perform for more than 50,000 hours. Shelf lights are IP67 rated for water resistance. Canopy lights are IP54 rated for water splashes.

⚠ WARNING
— LOCK OUT / TAG OUT —
To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

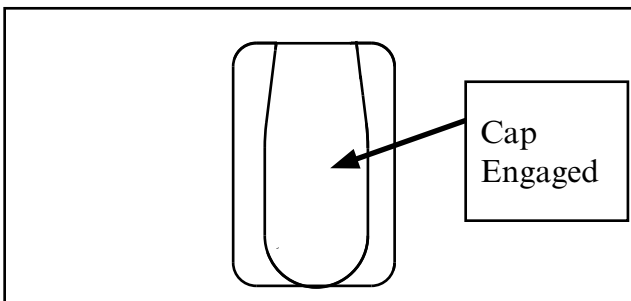


PROCEDURE FOR INSTALLING LIGHTED SHELVES

Follow these instructions to ensure good contact between male and female connectors.



1. Remove any products from the case and place in cooler. Shut off power to the merchandiser.
2. Turn off Canopy Light Switch. Remove all packed shelves.
3. **Engage each power socket cap, and ensure that each cap is fully seated before cleaning.** Ensure the proper seating of the cap at all times when the plug is not engaged.



4. Clean the merchandiser as described in the *Care and Cleaning* paragraphs of **Section 5 — Maintenance**. **Keep liquid out of sockets.** (Allow merchandiser shelves to dry before turning on shelf power.)

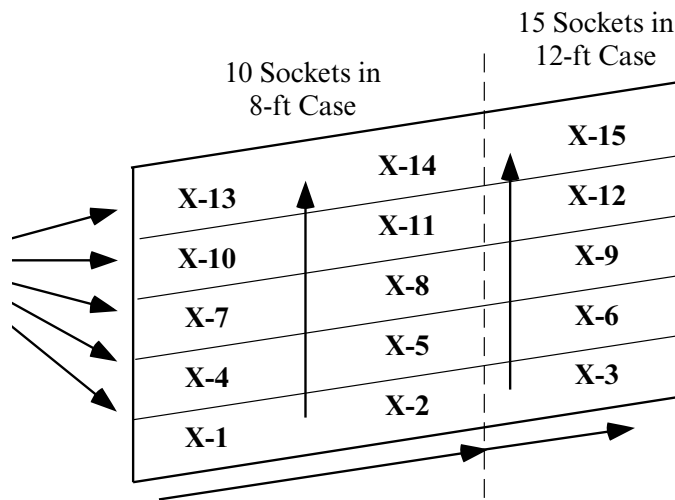
5. Verify power to the merchandiser is turned ON. Verify that the merchandiser light switch is turned OFF. The switch is located in the canopy, on the left side.

6. Refer to the illustration at the top of the next page. Note that other models will have fewer rows of shelves. Starting from the left-hand bottom section, choose the location for the first shelf, X-1.

7. Secure the shelf in the slotted upright. Make certain that the shelf is level and that ends are in the same slot on the left and right upright. Markings on the shelf uprights indicate the proper shelf notch for each shelf location. It is important that shelf brackets be properly seated in the slotted upright.

8. Working from left to right, install the next shelf, X-2, to the right of the first shelf you installed. Always work from left to right and from the bottom up in each 8 ft (2438 mm) and 12 ft (3685 mm) merchandiser.

9. After each shelf on the bottom row is in position, be sure to remove the cap and insert the shelf connector. ***Push firmly.***



**Always work Left to Right,
and Bottom to Top**

10. Turn ON the merchandiser light switch after the entire bottom row has been installed in either 8 or 12 ft (2438 or 3658 mm) merchandisers. The shelf lights should light.



If an LED shelf light does not operate:

- Turn off light switch.
- Remove and firmly re-insert each shelf plug.
- Turn on light switch.

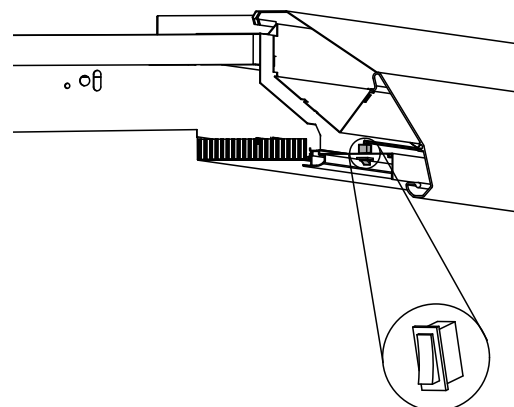
If lights do not operate after checking the items listed above, contact the installation contractor.

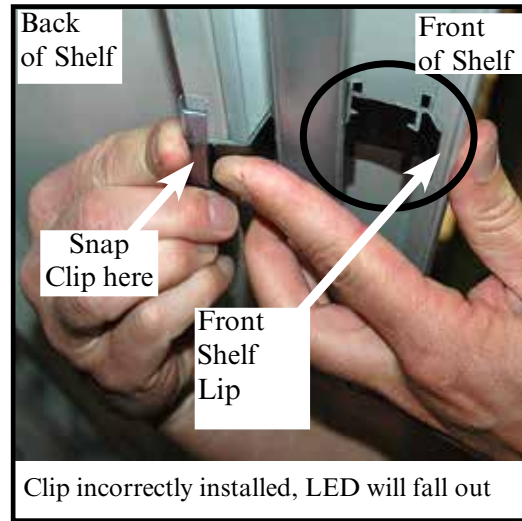
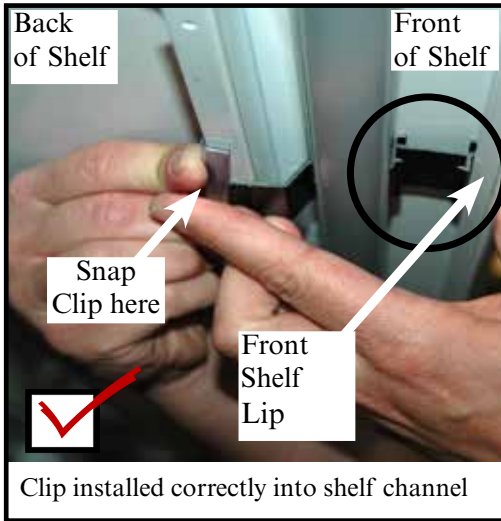
11. Using the row of shelves just installed as support, set the next shelf, X-4, in the desired location. Remove the cap and insert the shelf plug. Continue working left to right installing shelves X-5 and X-6.

Note: Since the location for the remaining shelves, X-4 to X-15, may be directly over the rear wall receptacle, the shelf should be plugged in before engaging brackets in the uprights. The lower shelf will support the weight of the next shelf until it is plugged in. After installing each shelf, verify that its plug is properly connected to its rear wall receptacle. Continue working row by row, bottom up, left to right.

Important

If a shelf is plugged in and the lamp does not work, verify the case light switch is ON.

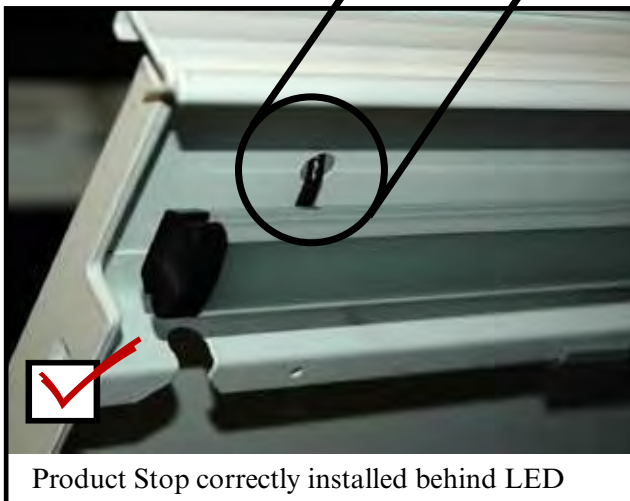




Shelf LED clips must be first inserted into the front lip underneath the shelf as shown at left. Next the retaining clip is “snapped on” to the rear of the LED clip.

PRODUCT STOP INSTALLATION

Use caution when installing Product Stops. Product stop legs must be inserted at an angle. When product leg goes through the shelf, it must rest **BEHIND** the LED shelf light as shown below.

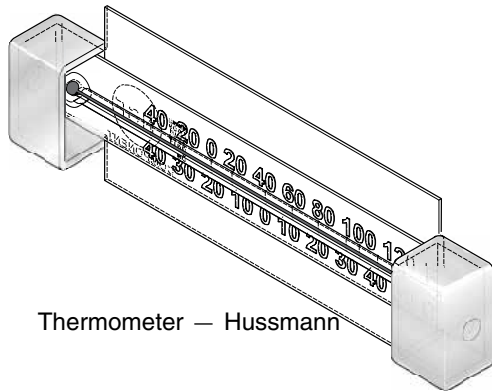


INSTALLING FDA/NSF REQUIRED THERMOMETER

The thermometer requirement does not apply to display refrigerators intended for bulk produce (refer to page 1-1). Please note that the tape cannot be exposed after installation.

This thermometer may not be required or provided in other countries. Check for local code requirements.

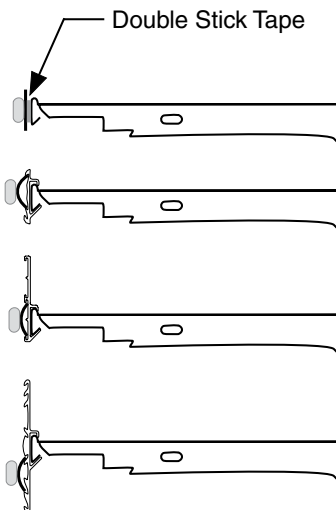
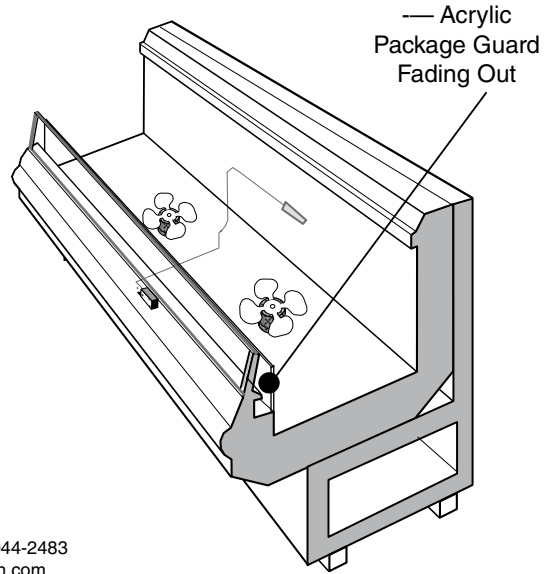
This is an NSF-7 & US FDA Food Code Required Thermometer



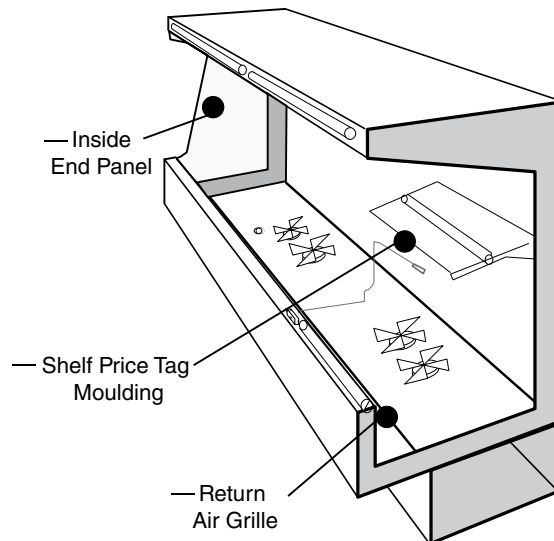
Thermometer — Husmann

Husmann Corporation • 12999 St. Charles Rock Road • Bridgeton, MO 63044-2483
U.S. & Canada 1-800-922-1919 Mexico 1-800-890-2900 www.husmann.com
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Suggested Mounting Locations in Single Deck Glass Front Merchandisers



Flexible Plastic Fits in Price Tag Mouldings



Suggested Mounting Locations in Multi-deck Merchandisers

Important – Please read!

This thermometer is provided in response to United States Food and Drug Administration (US FDA) Food Code [<http://www.fda.gov/>] and National Sanitation Foundation (NSF / ANSI) Standard 7 [<http://www.nsf.org/>]

Each installation will be different depending on how the unit is stocked, shopping patterns in the department and ambient conditions of the store. The suggested locations provided herein are possible locations. It is the responsibility of the purchaser / user to determine the location within the food storage area of the unit that best meets the code requirements above.

The thermometer may need to be moved several times to find the warmest location. Mounting options include flexible plastic for price tag molding application, magnet applied to back of flexible plastic for steel end wall, and double stick tape. Tape must not be exposed after installation.

Questions about either code should be addressed to local agencies or other appropriate officials.

**Keep with merchandiser
or give to store manager.**

DO NOT DESTROY.

MAINTENANCE

CARE AND CLEANING

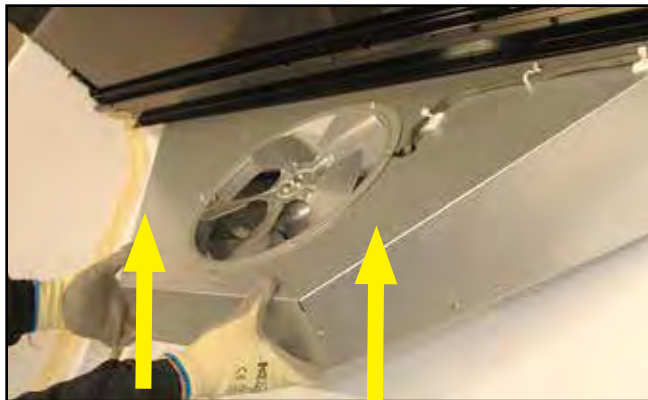
Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, these merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down as part of a regular store sanitation schedule.

Fan Plenum

To facilitate cleaning, the fan plenum is hinged. A chain is provided to hook the fan plenum, so that it stays up to facilitate cleaning. After cleaning be sure the plenum is properly lowered into position or product loss will result due to improper refrigeration.

Removable Return Air Grilles

The return air grilles may be removed to facilitate cleaning. Lift a four foot section up and out as shown below.



Lift up Fan Plenum. Use chain to hook up fan plenum to facilitate cleaning.

WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area. All products in the case should be removed and stored in a cooler at the appropriate temperature before shutting off power to the case.

CAUTION

SHUT FANS OFF DURING CLEANING PROCESS.

WARNING

Do NOT allow cleaning agent or cloth to contact food product.

Fascia Panels

The exterior of the fascia panels should be cleaned with a mild detergent and warm water.

Do not use ammonia-based products to clean optional acrylic panels. Never use abrasive cleansers or scouring pads.

Exterior Surfaces

The exterior surfaces must be cleaned with a mild detergent and warm water to protect and maintain their attractive finish.

NEVER USE ABRASIVE CLEANERS OR SCOURING PADS.

Interior Surfaces

The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions will not harm the surface. Always read and follow the manufacturer's instructions when using any cleaning product.

Inspect all LED connections and plug/receptacles for signs of arcing. Replace any component that shows signs of arcing. Make sure all unused receptacles have close-off covers securely attached.

Do Not Use:

- Abrasive cleansers and scouring pads, as these will mar the finish.
- Coarse paper towels on coated glass.
- Ammonia-based cleaners on acrylic parts.
- Do not spray water from a hose directly on the canopy lights or fans.
- Solvent, oil or acidic based cleaners on any interior surfaces.

• A pressure nozzle on canopy lights, shelf lights or any other electrical connection. Do not use water pressure beyond what is supplied from the potable water system and spray nozzle (ie Do not use a pressure washer.)

Do Use:

- First turn off refrigeration, then disconnect electrical power. Shut off lights and fans. Make sure all unused light receptacles have their close-off covers securely attached.
- Remove the product and all loose debris to avoid clogging the waste outlet.
- Store product in a refrigerated area such as a cooler. Remove only as much product as can be taken to the cooler in a timely manner.
- Thoroughly clean all surfaces with soap and warm water. Do not use steam or high water pressure hoses to wash the interior. These will destroy the merchandisers' sealing causing leaks and poor performance.
- Lift hinged fan plenum for cleaning. Hook chain in rear panel to secure plenum during cleaning. Be sure to reposition the fan plenum after cleaning merchandiser.
- Take care to minimize direct contact between fan motors and cleaning or rinse water.
- Rinse with warm water, but do not flood. Never introduce water faster than the waste outlet can remove it.
- Allow merchandisers to dry before resuming operation.
- Wipe down lighted shelves with a damp sponge or cloth so that water does not enter the light channel.
- After cleaning is completed, turn on power to the merchandiser.

RECOMMENDED CLEANING INSTRUCTIONS

The directions below are recommended cleaning instructions for Insight cases and should not be used as a substitute for the store's regular maintenance schedule. Follow all local and national health codes. Cleanliness of the case encourages long-lasting life of the equipment. This guide lists some of the key areas of the cases that require cleaning to help maintain the overall appearance and performance of the equipment and keep it free of debris. The cases may need additional cleaning, especially in high traffic areas, dusty areas and during unusually extended periods of use of the equipment.

Rotate the type of detergent and sanitizer used. For example, rotate the use of an ammonia based, a chlorine based and/or a peroxide based detergent and sanitizer to ensure micro-organisms do not become resistant to a single detergent or sanitizer.

CLEANING INSTRUCTIONS Weekly or Monthly

1. Remove product; store it in another case or suitable walk-in cooler.
2. Remove wire racks and bottom pans. Cleaning them in the case with warm water and a soap solution, then rinse and set aside. Flip up the fan plenum assembly to provide more room for cleaning in the case if necessary.
3. Access the fan plugs through the flip-up wire rack. Slide the bottom pan over and unplug or turn off the fan(s).
4. Remove all loose debris and food particles that may clog drain. Check drain to make sure it is not clogged. Do not force items down drain, use the drain catch to remove debris and dispose.
5. Remove honeycomb and price display molding.

6. Clean all surfaces including shelves and honeycomb by spraying down water (preferably warm) and mild detergent. Use a brush or cleaner pad if necessary to aid in penetrating dirt.
7. Use mild soap and water to clean condensate pump and heated evaporation pan (if field installed).
8. Rinse all surfaces with water, then spray with a sanitizer. Rinse off sanitizer with clean water using a hose. Allow surfaces to air dry, since wiping would defeat the purpose of sanitizing.
9. Replace all internal parts carefully so that they seat properly. This is necessary for proper case operation.
10. Plug the fans back in (or switch them on) and make sure they are running.
11. Replace product.

CLEANING INSTRUCTIONS Quarterly or Semiannually

1. Remove product; store it in another case or suitable walk-in cooler.
2. Remove wire racks and bottom pans. Cleaning them in the case with warm water and a soap solution, then rinse and set aside. Flip up the fan plenum assembly to provide more room for cleaning in the case if necessary.
3. Access the fan plugs through the flip-up wire rack. Slide the bottom pan over and unplug or turn off the fan(s).
4. Remove all loose debris and food particles that may clog drain. Check drain to make sure it is not clogged. Do not force items down drain, use the drain catch to remove debris and dispose.
5. Remove honeycomb and price display molding.

6. Clean all surfaces including shelves and honeycomb by spraying down water (preferably warm) and mild detergent. Use a brush or cleaner pad if necessary to aid in penetrating dirt.

7. Remove all the shelves and set aside then remove the back panels.

8. Clean the backside of the back panels in the case as you remove them.

9. Clean the newly exposed surfaces and the coil by spraying down with water (preferably warm) and a mild detergent solution.

10. Rinse the newly exposed surfaces and the coil with water then spray with a sanitizer. Allow surfaces to air-dry, since wiping would defeat the purpose of sanitizing.

11. Replace the back panels and shelves

12. Rinse all surfaces with water, then spray with a sanitizer. Allow surfaces to air-dry since wiping would defeat the purpose of sanitizing.

13. Replace all remaining internal parts carefully so that they seat properly. This is necessary for proper case operation.

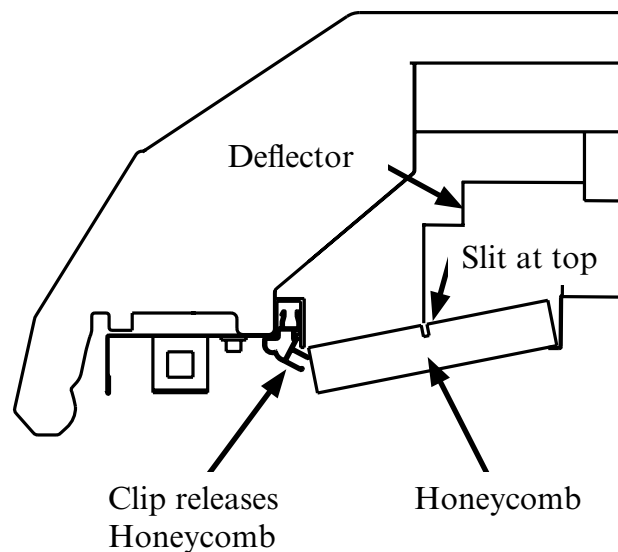
14. Plug the fans back in (or switch them on) and make sure they are running.

15. Replace product.

CLEANING HONEYCOMB ASSEMBLIES

Honeycombs should be cleaned every six months, or depending on store environment the honeycombs may need to be cleaned more often. Dirty honeycombs will cause cases to perform poorly.

The honeycombs may be cleaned with a vacuum cleaner. Soap and water may be used if all water is removed from the honeycomb cells before replacing. Be careful not to damage the honeycombs.



1. Remove honeycomb by pulling clip as shown above.

2. Clean and dry the honeycomb.

3. Honeycomb is not symmetrical. Orient slot at the top and different color straw to the back.

3. After cleaning, replace honeycomb. Ensure deflector is seated in center of honeycomb.

Damaged honeycomb must be replaced.

CLEANING MIRRORS

Mirrors are sheets of clear glass that have very thin reflective and protective coatings applied to one side. These coatings are susceptible to deterioration if certain cleaning solutions and even water are allowed to come in contact with them. Every precaution should be taken to keep all liquids away from the coated side of the mirrors. **IF LIQUIDS ARE ALLOWED TO FLOW ALONG THE FACE SIDE OF THE MIRROR TO ITS EDGE, THE LIQUID CAN SEEP UP BETWEEN THE COATING AND THE GLASS, CAUSING SERIOUS DAMAGE.**

To Help Prolong the Life of the Mirrors:

- Use only mild cleaning solutions that do not leave residue, such as a weak (10%) solution of vinegar and water.
- Do NOT spray liquids on the mirrors. Away from food, dampen the cleaning cloth, then use the cloth to wipe the mirror.
- Wipe water from the mirrors immediately to prevent difficult to remove water spots and also to prevent the water from reaching the mirror's edge.
- Never use dirty cloths, scrapers or any other abrasive materials for cleaning.

REMOVING INTERIOR BACK PANELS

The interior back panels may be removed for cleaning and to gain access to the evaporator coils. Remove the rear interior back panels as follows:

1. Disconnect the electrical power to the merchandiser.
2. Unplug shelf lights and insert plastic protective cap. Remove shelving.
3. Remove the lower panel first: lift the panel up, then pull forward and out.
4. Remove the top panel.



5. Replace panels in reverse order, starting with the top panel.

BOTTOM LINER REPAIR

Insight merchandisers have bottom liners, which are made of a high density polyethylene material (HDPE). Repairs may be made if the bottom liner becomes damaged. Follow the illustrations at right to repair the liner.

For minor repairs:

Minor repairs consist of deep scratches and tears that are no more than $\frac{1}{8}$ inch thick.

1.) Remove all product, and disconnect power to the case that is to be serviced. Locate the damaged area of the liner. Clear and clean the area, then wipe it dry.

2.) Use an electric hot air gun to heat the tear. **Heat to 600°F (316°C)**. Solder the tear with $\frac{1}{8}$ inch filler welding rod, made from HDPE. Ensure no voids or skips in completed bead.

3.) Let the area cool, then buff the area flat. A 5-inch, 80 grit disc works well for this. The repair is now complete.

For major repairs:

1.) For repairs with larger size gashes or holes, a piece of HDPE may be cut into a square as shown in **(F)** at right. (The square HDPE shown in the photo is white for clarity.)

2.) Remove all product and disconnect power to the case that is to be serviced. Locate the damaged area of the liner. Clear and clean the area, then wipe it dry. Ensure no voids or skips in completed bead.

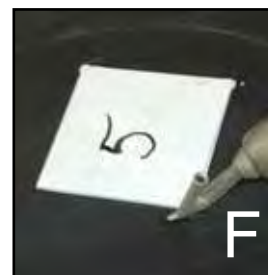
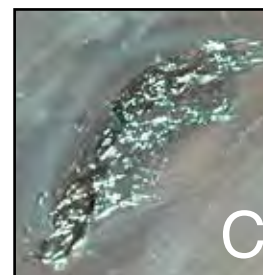
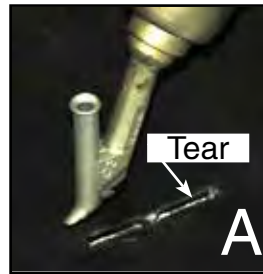
3.) The square is then tacked at all four corners using the hot air gun.

4.) Solder with $\frac{1}{8}$ inch filler welding rod around the perimeter of the HDPE square.

5.) Buff the area flat if needed. The repair is now complete.



Forthoff Mini Electric Hot Air Gun
(120V 1300W)



⚠ WARNING

Always wear protective clothing when operating hot air gun, such as fire resistant gloves and arm guards. Hot air gun operates at extremely high temperature and could cause serious burns. Always have fire protective gear on hand in case of fire.

⚠ WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

CLEANING COILS

NEVER USE SHARP OBJECTS AROUND COILS!

Use a soft brush or vacuum brush to clean debris from coils. *Do not puncture coils!* Do not bend fins. Contact an authorized service technician if a coil is punctured, cracked or otherwise damaged.

ICE in or on the coil indicates the refrigeration and defrost cycle is not operating properly. Contact an authorized service technician to determine the cause of icing, and to make adjustments as necessary. To maintain product integrity, move all product to a cooler until the unit has returned to normal operating temperatures.

CLEANING STAINLESS STEEL FRONT RAILS

Use non-abrasive tools, and always polish with grain of the steel.

Use alkaline chlorinated or non-chlorine containing cleaners. Do not use cleaners containing salts as this may cause pitting and rusting of the stainless steel finish.

Clean frequently to avoid build-up of hard, stubborn stains. Rinse and wipe dry immediately after cleaning. Never use hydrochloric acid (muriatic acid) on stainless steel.

REMOVING SCRATCHES FROM BUMPER

Most scratches and dings can be removed using the following procedure.

- Use steel wool to smooth out the surface area of the bumper.
- Clean area.
- Apply vinyl or car wax and polish surface for a smooth glossy finish.

CLEANING UNDER MERCHANDISERS

Remove splashguards not sealed to floor. Use a vacuum with a long wand attachment to remove accumulated dust and debris from under the merchandiser.



WARNING

Do not use HOT water on COLD glass surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, ends and service doors to warm before applying hot water.

CLEANING CONDENSATE PUMP AND HEATED EVAPORATION PANS

(for case with field-installed option)

ALWAYS DISCONNECT POWER AT THE MAIN CASE DISCONNECT BEFORE SERVICING THE EQUIPMENT.

These items are optional items and are not provided with the case.

- The condensate water outlet for the self-contained models empties into a limited capacity evaporation pan.
- Clean product spills immediately. If a product spill enters the Condensate Pump or Heated Evaporation Pans, a maintenance technician may be required to clean both the pump and heated pans.
- Clean case interior with a sponge or soft cloth, wetted with mild soap and water. Do not pour water from a bucket or hose into case drain. Water introduced during cleaning will cause the evaporation pan to overflow.
- Sediment and debris will clog the Condensate Pump and plastic tubing for water delivery to the Heated Evaporation Pans.
- The Condensate Pump and the Heated Evaporation Pans require regular monthly inspection. The Condensate Pump is located below the case bottom. The Heated Evaporation Pans are located on the case top. Evidence of excess water or odor is an indication that immediate service is required.
- Recommended cleaning the Condensate Pump reservoir and Heated Evaporation Pans is with mild soap and water. Disconnect power before cleaning. Empty pump sump and heater pans of water before reapplying power.

- If using the optional Defrost Synchronization controls, the Master Sync Switch needs to be reset by the maintenance technician after re-applying electrical power to case.

WARNING

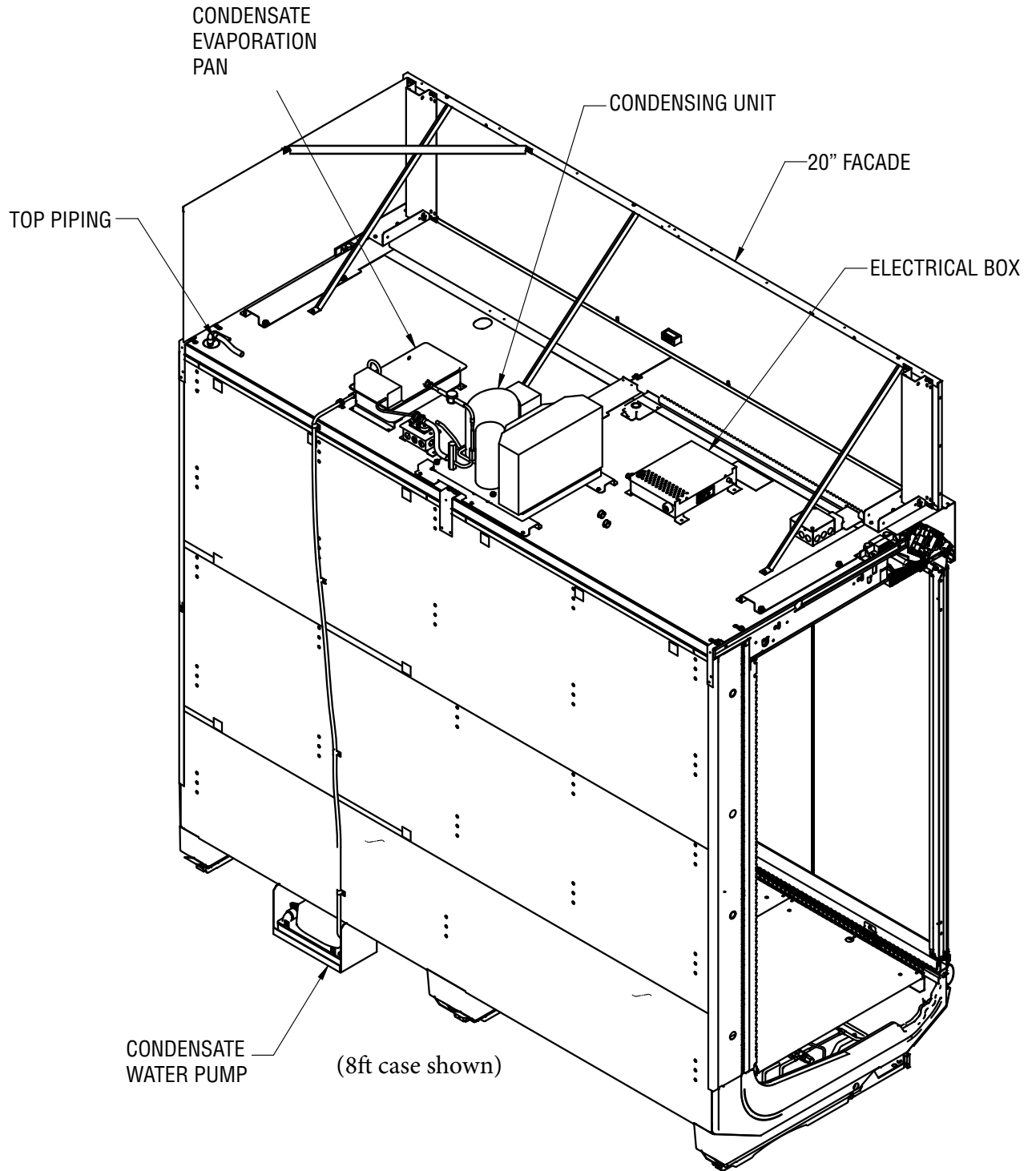
— **LOCK OUT / TAG OUT** —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

WARNING

— **Evaporation Pan is Hot!** —

and poses risk of bodily injury — Always wear gloves and protective eye wear when servicing condensate pump and heated evaporation pans. Turn off evaporation pan heater, and allow pan to cool before servicing.



SERVICE

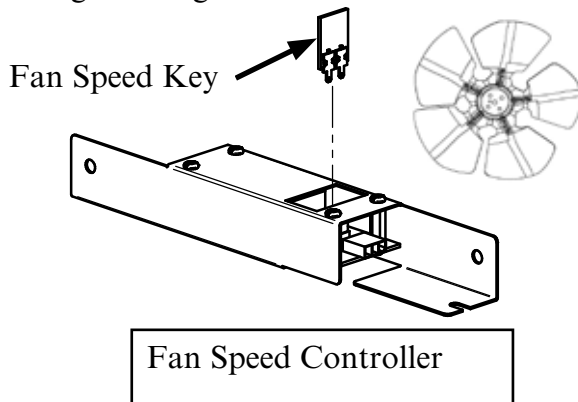


Only a certified technician should perform service to Hussmann refrigerated merchandisers.

⚠ WARNING
— LOCK OUT / TAG OUT —
 To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

REPLACING FAN MOTORS AND BLADES

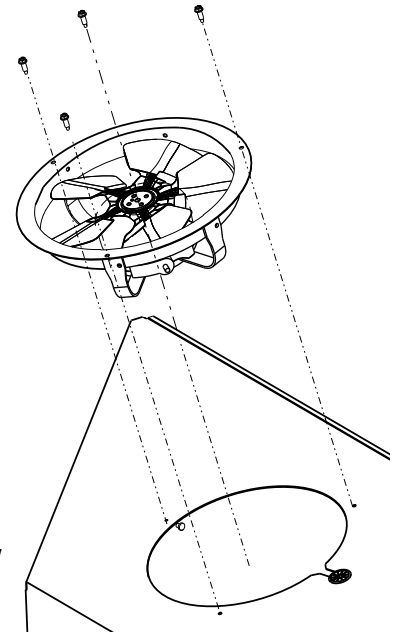
Fan control electronics are electrostatic sensitive (ESD). If the case is equipped with an optional fan controller, use a grounding kit before handling. See Page 1-4 for more information.



See cross section for location of evaporator fans. Should it ever be necessary to service or replace the fan motors or blades be certain that the fan blades are re-installed correctly.

For access to these fans:

1. Turn off power.
2. Remove bottom display pans.
3. Disconnect fan from wiring harness.
4. Remove fan blade.
5. Remove screws holding fan motor/bracket assembly to plenum and remove assembly.
6. Replace fan motor/bracket assembly and reinstall screws.
7. Reinstall fan blade.
8. Reconnect fan to wiring harness.
9. Turn on power.
10. Verify that motor is working and blade is turning in the correct direction.
11. Close air gaps under fan plenum. Warmer air moving into refrigerated air reduces effective cooling. If the plenum does not rest against the case bottom without gaps, apply foam tape to the bottom of the fan plenum to reduce improper air movement. Use silicone sealant to close other gaps.
12. Replace display pans. Bring merchandiser to operating temperature before restocking.



REPLACING LED CANOPY LIGHT BARS

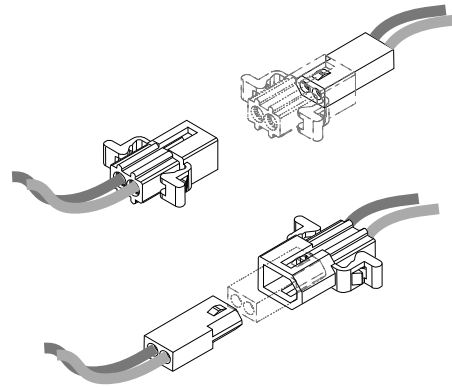
LED canopy lights come standard for Insight merchandisers and Insight merchandisers with EcoVision II Plus Doors. Canopy lights are powered by a 24 VDC power supply. The power supply(s) are located in the case canopy behind fascia panels.

The canopy light bars are attached to the canopy light channel with mounting clips. The electrical wiring has a quick connect that can be unplugged.

1. To replace a canopy light bar, carefully remove the light bar from the clip, replace with like Hussmann fixture, and connect the new wiring to the quick connect.
2. Return power, and switch the light switch on and off to ensure lights work properly.



Canopy Light Bar



Canopy Light Connector

REPLACING LED SHELF LIGHT BARS

The LED shelf light bars are held in place using a clip on the back of the light bar. Shelf light bars are powered by 24 VDC Class 2 power supply located in the case canopy, behind the fascia panel.

1. Turn OFF the light switch in the case canopy. Ensure power is turned off to the case. Unplug the shelf wire connector from the receptacle where it is plugged.
2. Replace with the appropriate Hussmann LED light bar.
3. Return power, and switch the light switch on and off to ensure lights work properly.



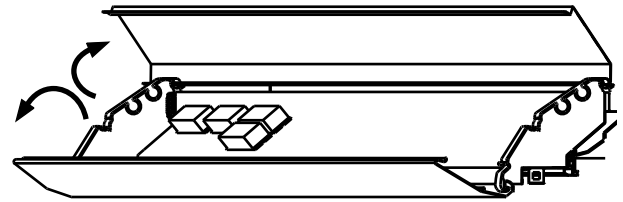
Shelf Light Bar

See Page 4-6 for more information about installing shelf lights.

REPLACING LED POWER SUPPLIES

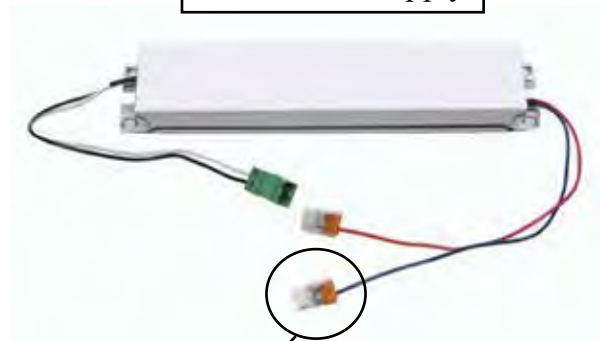
Replacing electrical components should only be performed by a qualified service technician. The 24 VDC power supplies for the LEDs are located at the top of the merchandiser inside the canopy.

1. **DISCONNECT POWER TO THE MERCHANDISER.**
2. Flip canopy fascia panel out to find the power supply(s) in the wireway behind canopy panel.
3. Remove the screws that secure the power supply(s), and disconnect the LED wiring at the quick connects.
4. Remove the old power supply, and install new power supply. Replace parts in reverse order. All connections must be made in the wireway.
5. Reconnect the electrical power. Turn on light switch on and off to ensure lights work properly.



Power Supply(s) inside Wireway

LED Power Supply



Quick Connect



24VDC power supplies must be replaced with Class 2 Husmann power supply to ensure proper operation. Contact your Husmann representative to order replacement kits.

FRONT DOOR CASES

ADJUSTING ECOVISION DOORS

Check that all doors open and close properly.

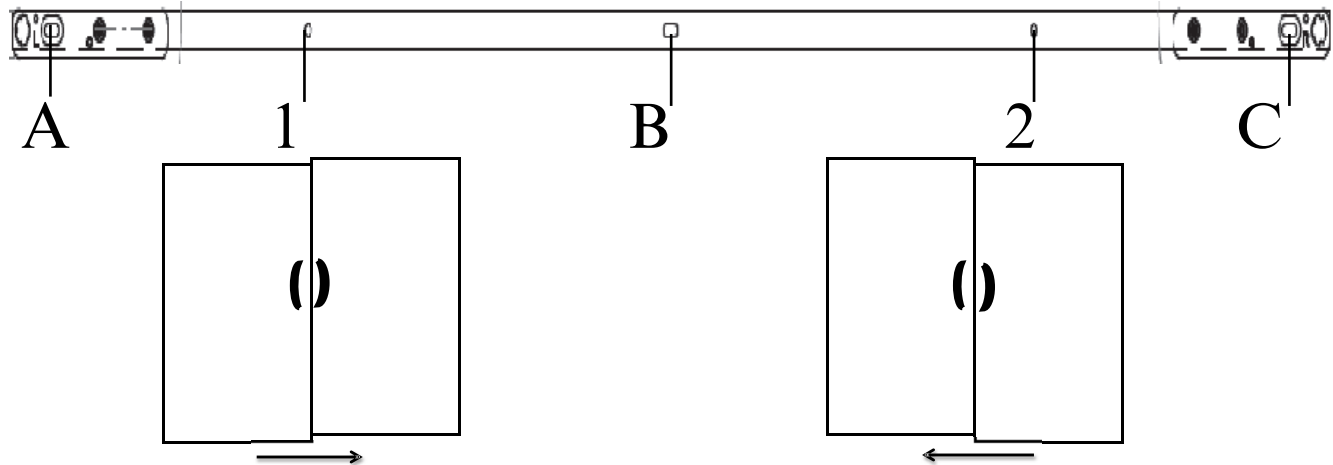
A. Leveling — Merchandisers must be installed level to ensure proper operation of the refrigeration system, and to ensure proper drainage of defrost water.

Glass alignment is also affected with improper leveling of the merchandisers. All steps of setting joining and case leveling attention to the glass position is critical. Do not attempt to make glass adjustments prior to case leveling.

B. Door Adjustment — Loosen the screws A, B and C as shown below (Do not remove the screws completely).

Slide the bottom plate left and right until proper alignment is achieved. Retighten the screws A, B and C. Install fasteners in locations 1 and 2 as shown below.

EcoVision Door Alignment - Modular Bottom Hinge Plate



To Correct Shift the Bottom Plate to the Right

To Correct Shift the Bottom Plate to the Left

ADJUSTING DOOR CLOSING SPEED

Check that each EcoVision II Plus door opens and closes properly. The door's closing speed is factory adjusted, but the door may also be field adjusted.

Do the following to adjust the doors:

1. To release door tension, open the door to 90° and lift up the door from the bottom. Lift the torsion rod out of the star pattern in the bottom hinge plate. (The door should be lifted out of the star pattern in the hinge plate to prevent any damage to the star pattern.)
2. Use a ½ in. open end wrench to tighten the torsion of the door. Adjust tension with each audible click. Doors should be adjusted to 4 clicks, more if needed. Door must be properly reseated in star pattern of hinge plate after torsion tension is applied.

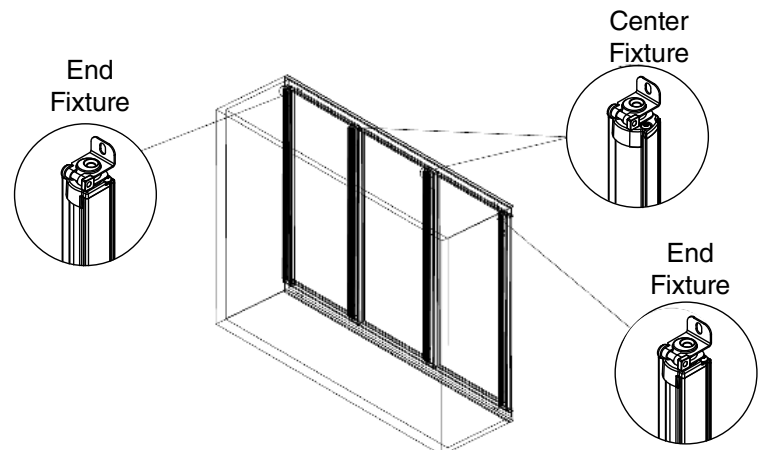


REPLACING LED VERTICAL MULLION LIGHT BARS

LED vertical mullion lights are an available lighting option for EcoVision II Plus doors. Center fixtures illuminate the middle of the case, and the end fixtures illuminate the ends, or sides of the case.

These LEDs have different shaped lenses. They are not to be interchanged. Contact your Husmann representative to order replacements.

The light bars are attached to the door mullions with mounting clips, and can be replaced similar to the canopy lights — just remove them from the mounting clips, and connect new wires at quick connect.



REPAIRING ALUMINUM COIL

The aluminum coils used in Hussmann Insight merchandisers may be easily repaired in the field. Materials are available from local refrigeration wholesalers.

Hussmann recommends the following solders and technique:

Solders

Aladdin Welding Products Inc.

P.O. Box 7188

1300 Burton St.

Grand Rapids, MI 49507

Phone: 1-800-645-3413

Fax: 1-800-645-3414

X-Ergon

1570 E. Northgate

P.O. Box 2102

Irving, TX 75062

Phone: 1-800-527-9916

NOTE:

Hussmann Aluminum melts at 1125°F (607°C)

Aladdin 3-in-1 rod at 732°F (389°C)

X-Ergon Acid core at 455°F (235°C)

Technique:

1. Locate Leak.
2. REMOVE ALL PRESSURE.
3. Brush area UNDER HEAT.
4. Use PRESTOLITE TORCH ONLY. Number 6 tip.
5. Maintain separate set of stainless steel brushes and USE ONLY ON ALUMINUM.
6. Tin surface around area.
7. Brush tinned surface UNDER HEAT, thoroughly filling the open pores around leak.
8. Repair leak. Let aluminum melt solder, NOT the torch.
9. Don't repair for looks. Go for thickness.
10. Perform a leak check.
11. Wash with water.
12. Cover with a good flexible sealant.

A decorative border with a repeating geometric pattern of interlocking squares and lines, rendered in a light blue color, framing the entire page.

HUSSMANN[®]

**To obtain warranty information
or other support, contact your
Hussmann representative.
Please include the model and
serial number of the product.**

Hussmann Corporation, Corporate Headquarters: Bridgeton, Missouri, U.S.A. 63044-2483 01 October 2012

Husmann Corporation

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