

HUSSMANN®

IMPACT™ Merchandisers



Medium Temperature

Meat, Delicatessen, Dairy and Produce Merchandisers



Installation & Service Manual

Shipped With Case Data Sheets

P/N 0378414_H

Impact Series

June 2010

IMPORTANT

Keep in store for future reference!



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WARRANTY

IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE
Quality that sets industry standards!

HUSSMANN[®]

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REVISION HISTORY

REVISION H

1. Added shelf weight limits table, page 4-3.

REVISION G

1. Changed starter bumper, page 1-7.
2. Added bumper film removal, page 1-8.
3. Added installing optional stainless steel splashguard, separated sealing standard and optional splashguards to floor, pages 3-3 and 3-4.
4. Updated load limit profiles, pages 4-1 and 4-2.
5. Updated shelf bracket profile, page 4-2.
6. Added do not use ammonia-based cleaners on acrylic parts, page 5-1.
7. Added damaged honeycomb must be replaced, page 5-3.

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.

REVISION F

1. Added Caution box, page 2-4.
2. Added single deck load limit profile, page 4-2.
3. Revised lighted shelf installation, pages 4-2 through 4-4.

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

REVISION E

1. Added NSF information on cover and pages 1-1, 3-1 and 4-4 through 4-6.
2. Added lighted shelf installation, pages 4-2 through 4-4.
3. Added replacing damaged drain, page 6-4.
4. Removed CW2 model information throughout.

REVISION C

1. Added glass front trim note, page 1-9.
2. Updated splashguard profile, page 3-3.
3. Updated sealing standard splashguard, page 3-4.
4. Added sealing optional splashguard, page 3-4.
5. Added Lamp holder and end cap replacement, page 6-2.

INSTALLATION

NSF CERTIFICATION

These merchandisers are manufactured to meet ANSI / National Sanitation Foundation (NSF®) Standard #7 requirements. Proper installation is required to maintain certification. Near the serial plate, each case carries a label identifying the type of application for which the case was certified.

**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**

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.

The exterior frames on these cases provide space 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.

Wide Island Fronts

BE SURE TO POSITION WIDE ISLAND MERCHANDISER FRONTS PROPERLY. The front of wide island merchandisers is readily identified by the location of the serial plate (see leveling drawing on next page). Since all electrical and refrigeration connections will be made at the front side, the fronts will need to be positioned according to the store plan layout.

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.



CAUTION

Do not walk or put heavy objects on 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 case.

MERCHANDISERS SHIPPED WITH END INSTALLED

If the case 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.

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.

SHIPPING BRACES

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

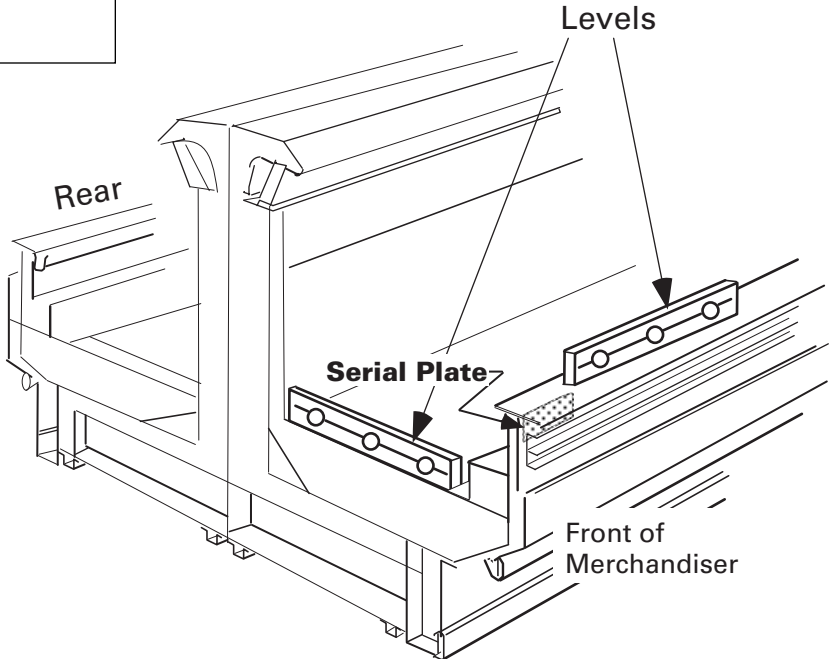
⚠ WARNING
Do NOT remove shipping braces until the merchandisers are positioned for installation.

LEVELING

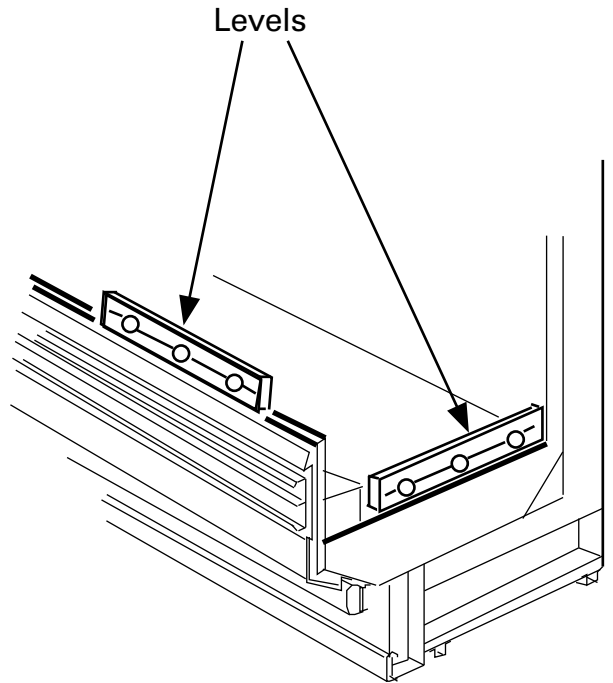
Merchandisers must be installed level to ensure proper operation of the refrigeration system and to ensure proper drainage of defrost water. When leveling merchandisers, use a carpenter's level as shown. Leveling shims are provided with each merchandiser for use if needed. The shims are big enough so that you can level adjoining merchandisers at the same time using one shim.

NOTES:

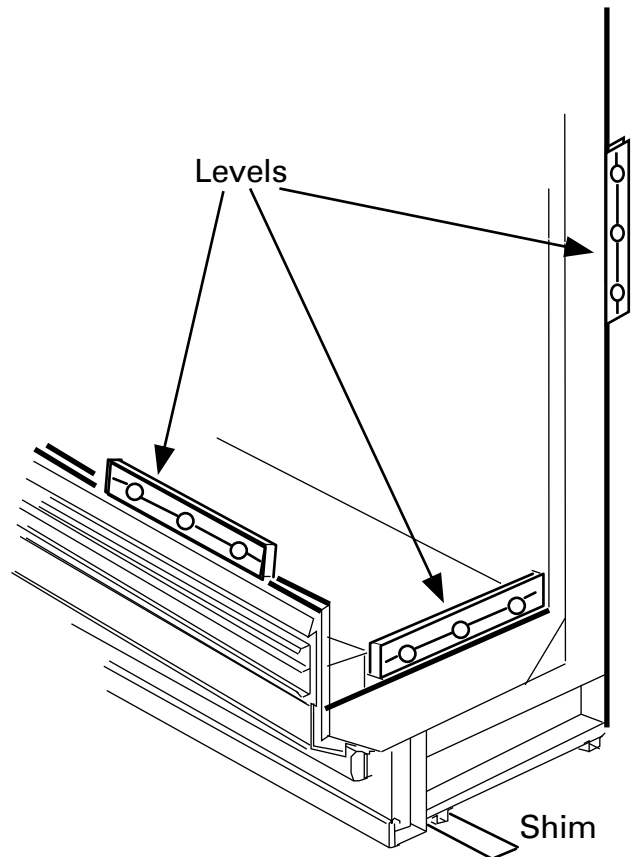
- **BEGIN LINEUP LEVELING FROM THE HIGHEST POINT OF THE STORE FLOOR.**
- If shimming two corners, check to see if a shim is needed in the center of the merchandiser. If a gap exists between the support rail of the merchandiser and the floor, a shim should be placed in the center.



Leveling Single Deck Merchandisers



Leveling Multi-deck Merchandisers



NOTE: Do not place levels on Display Pans or on Shelves.

JOINING INSTRUCTIONS

Sectional construction means that two or more merchandisers may be joined in line yielding one long continuous display requiring only one pair of ends.

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

Prep Case

1. Check to be sure that merchandisers are level and that the factory-installed nut retainers and alignment pins are in place. Locate Joint Kit and check contents against parts list.
2. Remove shelves (if installed), display racks, pans, front shelf supports and front air grilles from the right end.
3. Remove the rear panel(s) from the right end. On multi-deck cases remove the lower back panel first. To remove a panel lift it up from its bottom edge and out. No tools are required.

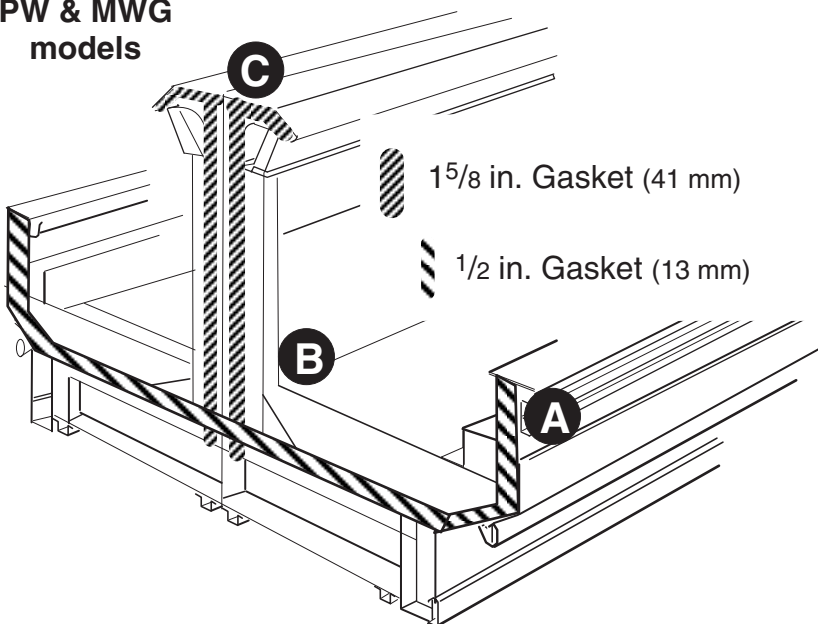
Apply Gaskets

1. Apply 1/2 in. (13 mm) gasket in the horizontal recess across the bottom and up the front of the merchandiser as shown. Gasket should cover slots.
2. Apply the 1 5/8 in. (41 mm) gasket to cover foam-to-metal gap at rear of case and across the top as shown. Be sure to overlap gaskets as shown. Check to be sure that there are no gaps between gasket and merchandiser.

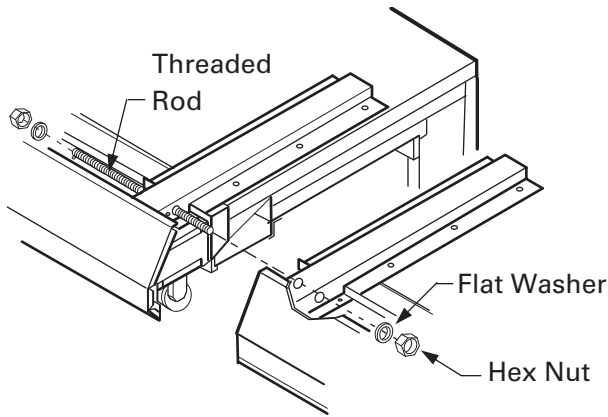
Fasten Cases

1. Move the second merchandiser into position against the first. Match the alignment pins with the corresponding holes.
2. Fasten fronts together using cap screws, flat washers, lock washers and nuts. Tighten only until front panels touch. **Do not tighten fully.**
3. Use the cap screws, flat washers and lock washers provided in the joint kit to draw the merchandisers together at rear. **Do not tighten fully.**

PW & MWG models



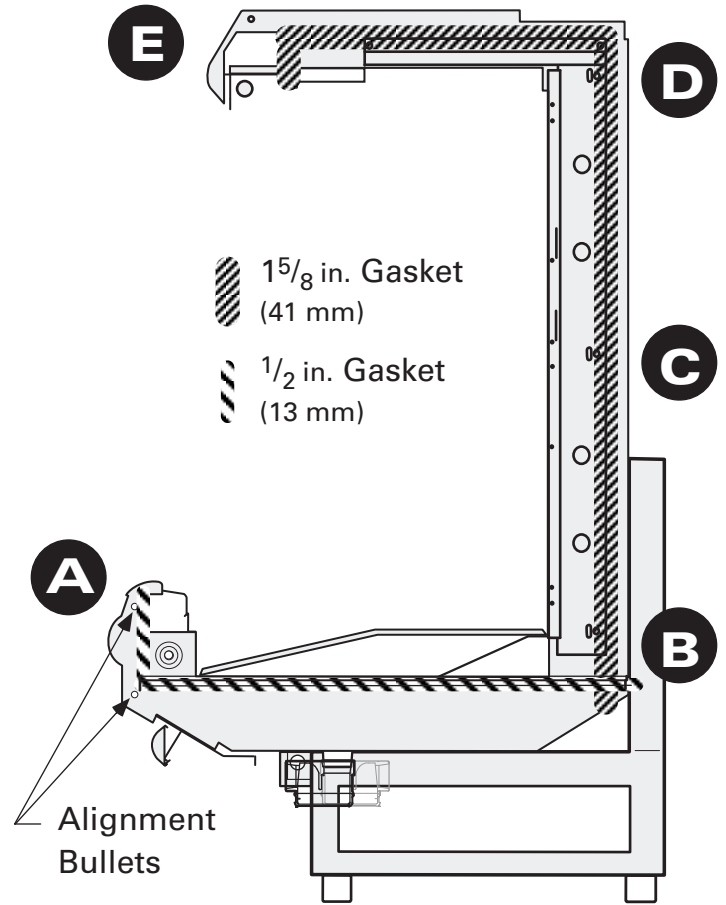
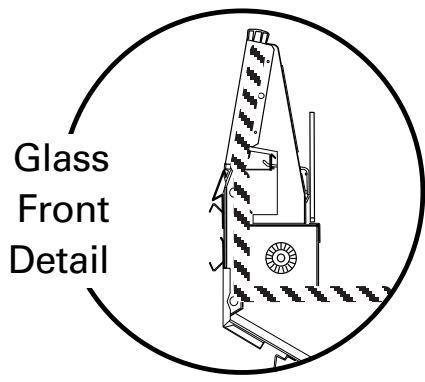
4. Draw canopies of multi-deck wall merchandisers together by inserting threaded rod through top shoe as shown. Fasten each end with washers and nuts. **Tighten only until canopies touch.**
5. Tighten joints in the order shown (A, B, C, D) until gaskets are compressed, and cases join smoothly.



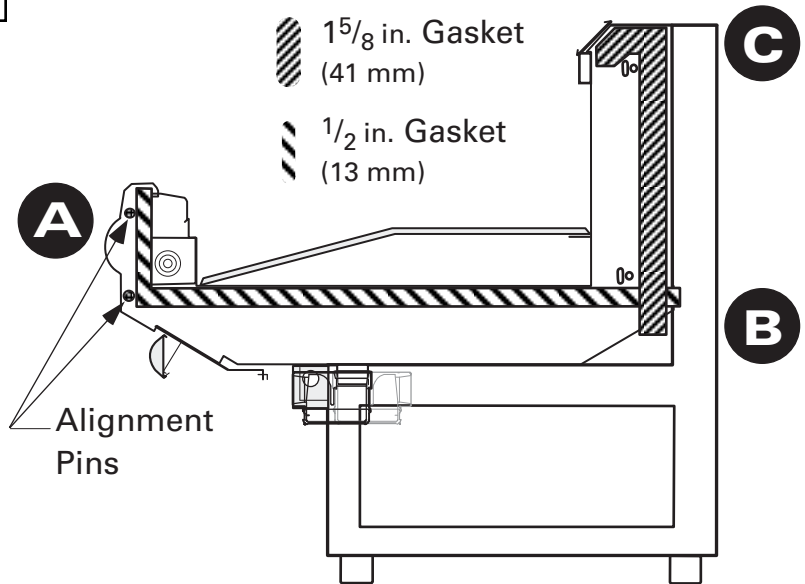
Connecting Canopies
of Multi-deck Wall Cases

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.

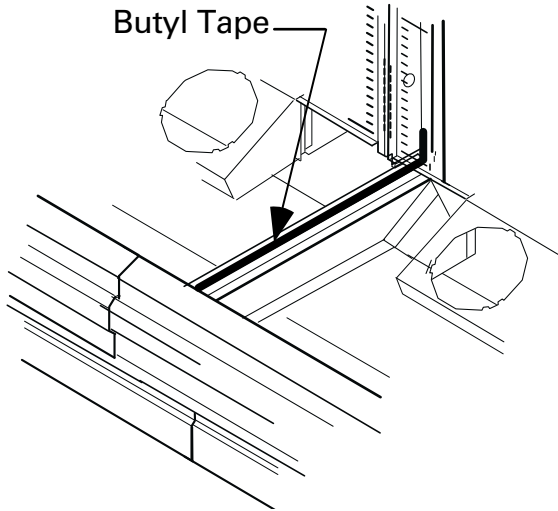


Tighten in Order Shown

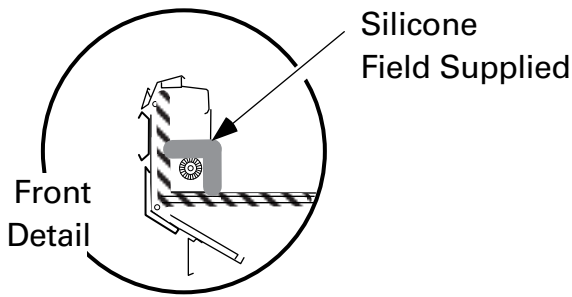


Seal Merchandisers

1. Apply butyl tape across the bottom joint.
Be sure to extend the tape up the back and front of the case.

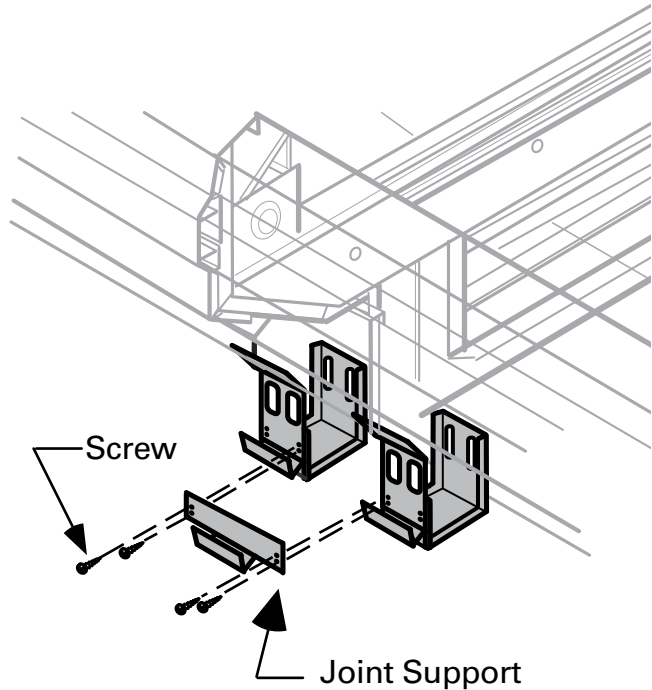


2. Use field-supplied silicone to fill any gaps between the front support brackets.



Install Splashguard Joint Support

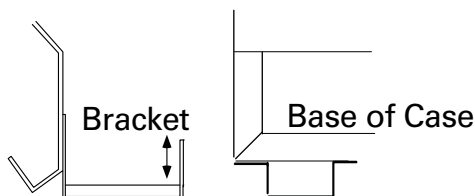
Position the joint support across the brackets as shown above. Fasten with hex head sheet metal screws.



SPLASHGUARD BRACKET AND JOINT SUPPORT

Install Splashguard Bracket

Position splashguard brackets to the merchandiser and level to the floor. Each bracket has a 1 1/2 in. (38 mm) slot at the rear of the bracket where it attaches to the merchandiser. Tighten screws to secure the brackets.



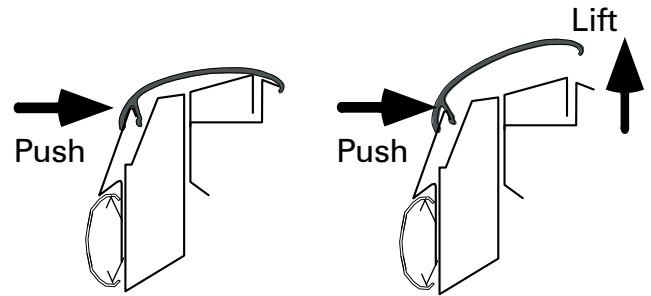
OFFSETTING BUMPERS AND TOP RAIL

Offsetting the bumpers and top rails helps to disguise the joint locations, giving the lineup a smoother look.

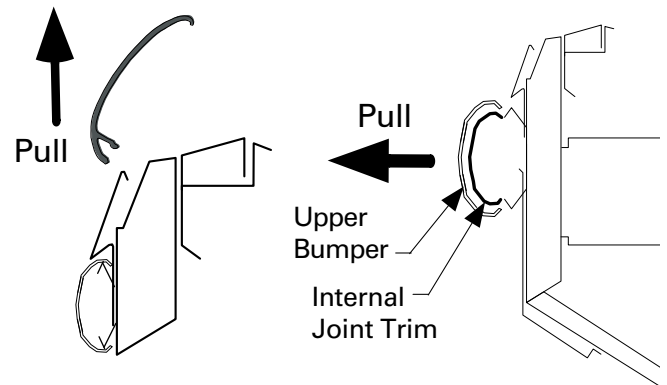
1. Locate starter bumpers and top rail. They are shipped with the left-end kit.

2. Remove factory installed top rails and bumpers from cases as follows:

- a. To remove top rails, push rail toward the back of the case with one hand while lifting the top edge off the light channel with the other hand. See drawing below.
- b. Starting at one end, carefully peel bottom of top rail free of color panel and set the rail inside the case.
- c. Remove upper and lower bumpers by pulling bumper away from bumper retainers. Be careful not to lose the internal joint trims on the upper bumpers.



Step 2-a.

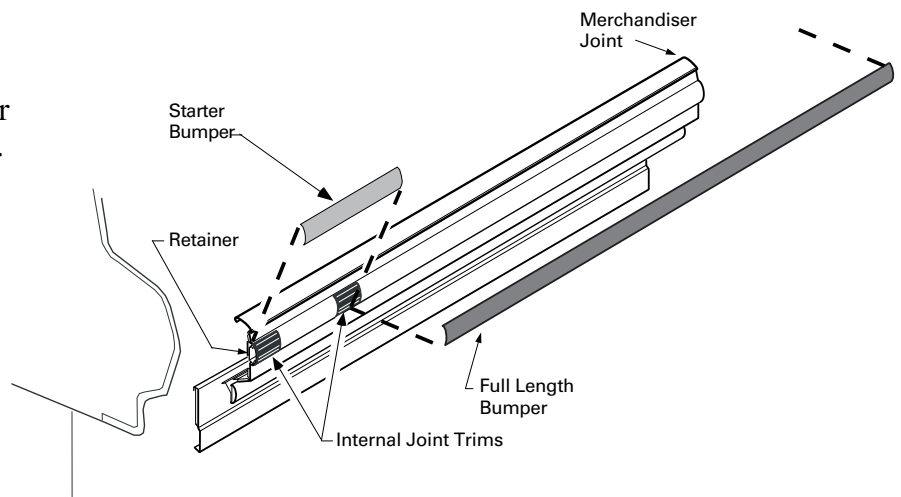


Step 2-b.

Step 2-c.

3. Starting at the left end of the line up, install the upper bumper starter section first. To install:

- a. Position internal joint trims so that the first is flush to the left-end panel and the second is centered between the starter bumper and the full length bumper as shown below.
- b. Install full length bumpers and internal trims offset across joints. Make sure that no gaps exist between sections. Continue installing the upper bumpers the length of the line up. Do NOT install the last upper bumper section at this time. This section will be installed in the last step.

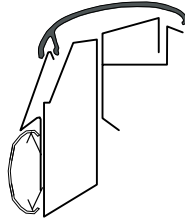


4. Install lower bumper starter and full length lower bumpers by simply pushing them into place. There are no internal joint trims on the lower bumpers.

1-8 INSTALLATION

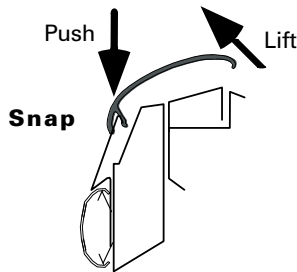
- Return to the left end of the line up and position the starter section of the top rail as shown.

NOTE: The top rail should not be installed until the upper bumper is securely in place.



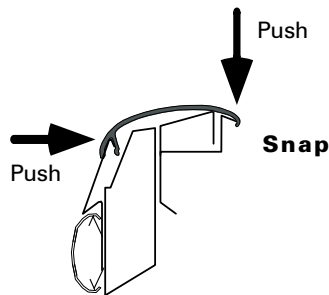
- Push the bottom portion of the short top rail section down over the color panel. It helps if you lift the top with your other hand as shown. You will hear and feel the trim “snap” into place.

NOTE: The trim must “snap” to be properly positioned.



- Use one hand to push the top rail toward the rear of the case while using the other hand to “snap” the top section down over the edge of the light channel as shown.

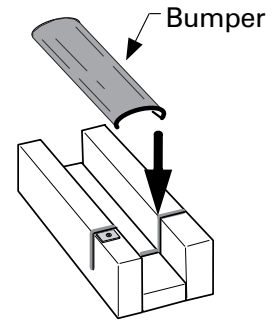
Again, be sure it “snaps” into place.



- Install full length top rails using the same procedures. Continue installing the top rails the length of the line up. Do NOT install last section at this time.
- Once all except the last sections of upper bumper and top rail have been installed refrigerate the case line up for at least six (6) hours. **The last sections of upper bumper and top rail should be kept inside a refrigerated case or cooler during this time.** This will allow the bumpers and top rails to contract.

- Go to the right end of the line up and tap the top rail and bumpers to close any gaps.

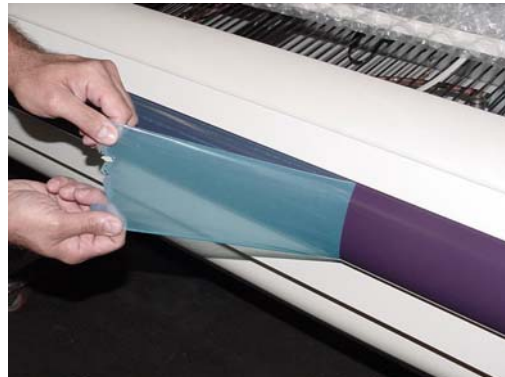
- Measure and cut last sections of top rail and bumpers. Use a miter box and fine-tooth saw to cut last bumpers and top rail to length. Install the last sections.



Miter Box

Note: If part of plastic top rail pops loose, remove that section of top rail and re-install according to Steps 6 and 7 above. Trying to reinstall only the popped part may not secure the top rail, and may damage the top rail, color panel and light channel.

- Remove protective film from bumper and top rail once installation is complete.



GLASS FRONT CASE ONLY: Apply field-supplied silicone sealant to underside of end trim and press firmly in place.

INSTALLING PARTITIONS

To join same temperature fixtures on different defrost cycles, an acrylic partition kit is required.

To join unlike fixtures, or like fixtures operating at different temperatures, a 1½ in. (38 mm) partition kit is required.

Instructions for installing these partitions are included with the kits.

REFRIGERATION / ELECTRICAL

REFRIGERANT

The correct type of refrigerant will be stamped on each merchandiser's serial plate. The case refrigeration piping is leak tested, factory sealed and pressurized. Before making refrigeration hookups, depress the universal line valve to ensure that coils have maintained pressure during shipment.

! WARNING

Refrigeration lines are under pressure and should be depressurized before attempting to make any connections.

REFRIGERANT PIPING

Connection Location

The refrigerant line connections are at the right-hand end of the merchandiser (as viewed from the front) beneath the display pans. A sticker marks the location of the connection "pod." The installer must saw a hole through the pod to exit the case.

After connections have been made, seal this outlet thoroughly. Seal both the inside and the outside. We recommend using an expanding polyurethane foam insulation.

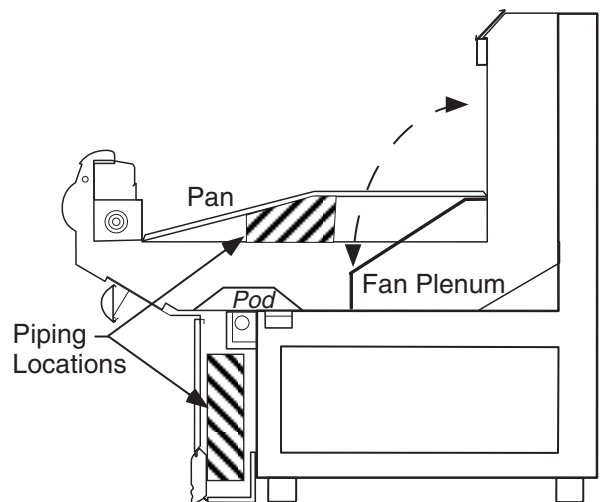
Multiplexing

Piping of merchandisers operating on the same refrigeration system may be run from case to case. **DO NOT RUN REFRIGERANT LINES THROUGH MERCHANDISERS THAT ARE NOT ON THE SAME REFRIGERATION SYSTEM BRANCH** as this may result in poor refrigeration control and compressor failure.

Interconnecting piping inside the merchandiser must be located as shown below to allow room for lifting the hinged fan plenums and for clearance beneath the display pans. Or the interconnecting piping may be run outside the case in the wireway area shown.

! CAUTION

When brazing pipes, be sure to use the insulation blanket shipped with the merchandiser to prevent damage to the plastic case bottom.



Line Sizing

Refrigerant lines should be sized as shown on the refrigeration legend that is furnished for the store or according to ASHRAE guidelines. Refer to the information on the next page for branch line piping of Hussmann Equipment.

Oil Traps

P-traps (oil traps) must be installed at the base of all suction line vertical risers.

Pressure Drop

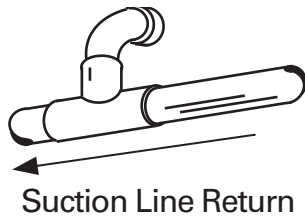
Pressure drop can rob the system of capacity. To keep the pressure drop to a minimum, keep the refrigerant line run as short as possible using a minimum number of elbows. Where elbows are required, USE LONG RADIUS ELBOWS ONLY.

INSULATION

The suction and liquid lines should be clamped or taped together and insulated for a minimum of 30 ft (9144 mm) from the merchandiser. Additional insulation for the balance of the liquid and suction lines is recommended wherever condensation drippage is objectionable or lines are exposed to ambient conditions.

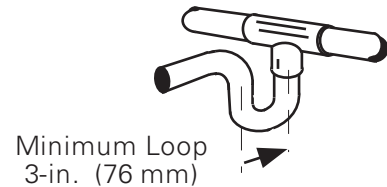
SUCTION LINE

- Pitch in direction of flow.
- May be reduced by one size at one third of case run load and again after the second third. Do not reduce below the case suction line size.
- Case suction lines should enter at the top of the branch line.



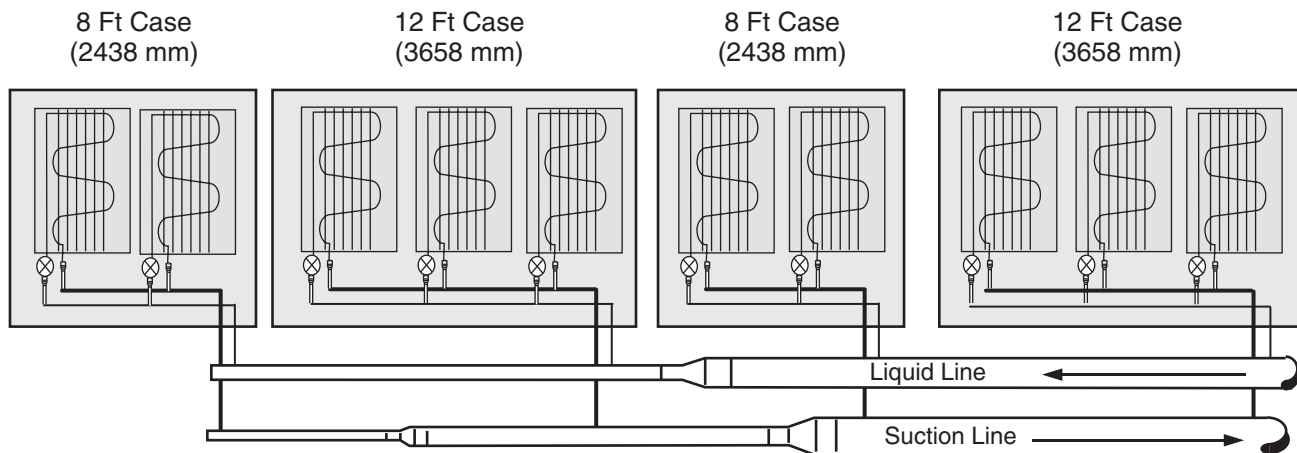
LIQUID LINE

- May be reduced by one size after one half the case run load. Do not reduce below the case liquid line connection size.
- Take-offs to case liquid lines should exit the bottom of the branch liquid line. Provide an expansion loop for each evaporator take-off (minimum 3 in. [76 mm] loop).



Liquid Line Take Off

Offtime Defrost



REFRIGERATION THERMOSTAT

The bulb for the optional refrigeration thermostat is located approximately 12 in. (305 mm) above the coil and 6 ft (1829 mm) from the left-hand end (facing front) of the merchandiser. The optional refrigeration thermostat is located 5 ft (1524 mm) from the left-hand end, just past the wireway. On wide island models, the thermostat body is located on the serial plate side (front) of the merchandiser.

DEFROST TERMINATION THERMOSTAT

The standard disc type defrost termination thermostat is not adjustable. This thermostat is clamped to the suction line of the coil on the left-hand (facing front) end of the case.

DEFROST SEQUENCES

These merchandisers require defrost cycles for proper operation. Refer to the data sheets for application data.

The Time Clock initiates defrost. The evaporator fans continue to circulate air across the evaporator coil, melting any frost build-up. Defrost can be terminated by either temperature or time.

Temperature Termination

Temperature termination should be used for the following types of installations:

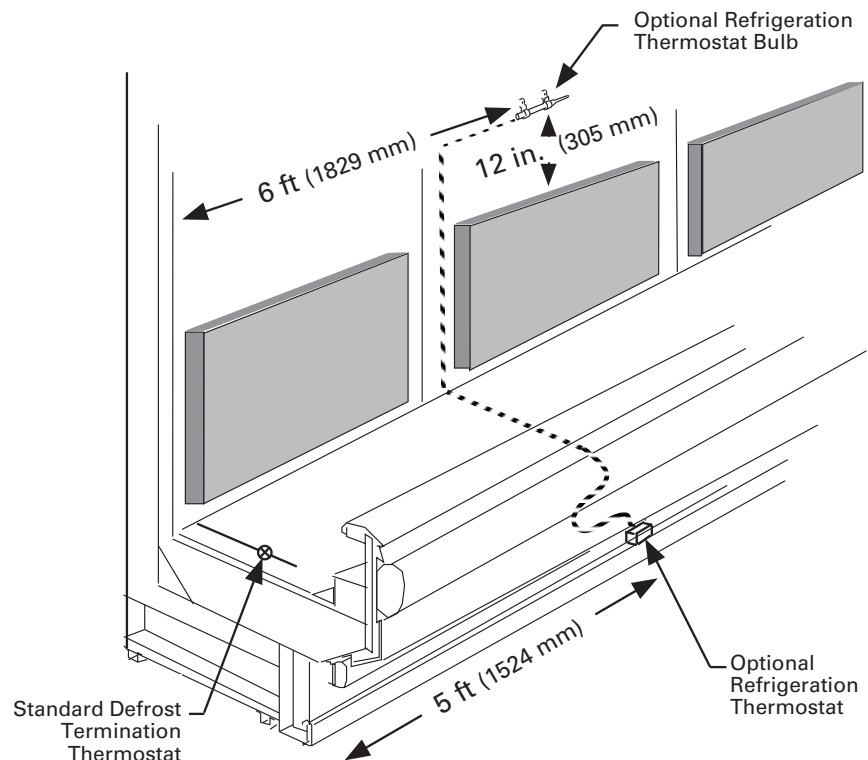
1. Parallel systems with EPRs or suction stop solenoids
2. Single compressor units without pump-down cycle.

Time Termination

Should be used for the following types of installations:

1. Parallel systems with thermostat and liquid solenoid.
2. Single compressor units with pump-down.

To use time termination, simply do not wire the termination thermostat.



MERCHANDISER ELECTRICAL DATA

Merchandise data sheets are included with this manual. The data sheets provide case electrical data, electrical schematics, parts lists and performance data. Refer to the merchandise data sheets and case serial plate for electrical information.

ELECTRICAL CONNECTIONS


All wiring must be in compliance with NEC and local codes. All electrical connections are to be made in the electrical wireway or *Handy Box*.

FIELD WIRING

Field wiring must be sized for component amperes stamped on the serial plate. Actual ampere draw may be less than specified. Field wiring from the refrigeration control panel to the merchandisers is required for defrost termination thermostats and for optional refrigeration thermostats. When multiple merchandisers are on the same defrost circuit, the defrost termination thermostats are wired in series. **ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES.**

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's wireway.

 <p>CAUTION</p>
<p>Optional T8 rail lights and optional Quick Connect spray hose or field-installed misting system shall not be used together.</p>

WIRING COLOR CODE	
<p>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>	
<p>PINKREFRIG. THERMOSTAT LOW TEMP. LIGHT BLUE..REFRIG. THERMOSTAT NORM TEMP. DARK BLUE ..DEFROST TERM. THERMOSTAT PURPLE.....CONDENSATE HEATERS BROWNFAN MOTORS GREEN*GROUND</p>	<p>ORANGE OR TANLIGHTS MAROON...RECEPTACLES YELLOW....DEFROST HEATERS 120V REDDEFROST HEATERS 208V</p> <p>*EITHER COLORED SLEEVE OR COLORED INSULATION</p>
<p>ELECTRICIAN NOTE: Use copper conductor wire only. MERCHANDISER MUST BE GROUNDED</p>	
<p>THESE ARE MARKER COLORS WIRES MAY VARY.</p>	

DRIP PIPING AND SPLASHGUARDS

WASTE OUTLET AND WATER SEAL

The waste outlet is located in front of the fan plenum 6 ft (1829 mm) from the left-hand end of the merchandiser (facing case front). A water seal is supplied with each fixture. The water seal must be installed to the waste outlet to prevent air leakage and insect entrance into the fixture.

NOTE:

Water seal outlet must clear front skid rail.

A Tee, adapter, plug and street ell are also supplied with each merchandiser.

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. 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.
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 $\frac{1}{4}$ 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.

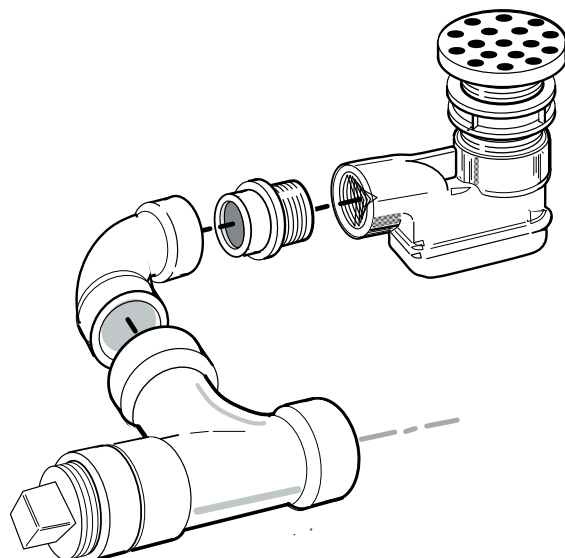
CAUTION

Splashguard brackets MUST be installed before piping case.

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



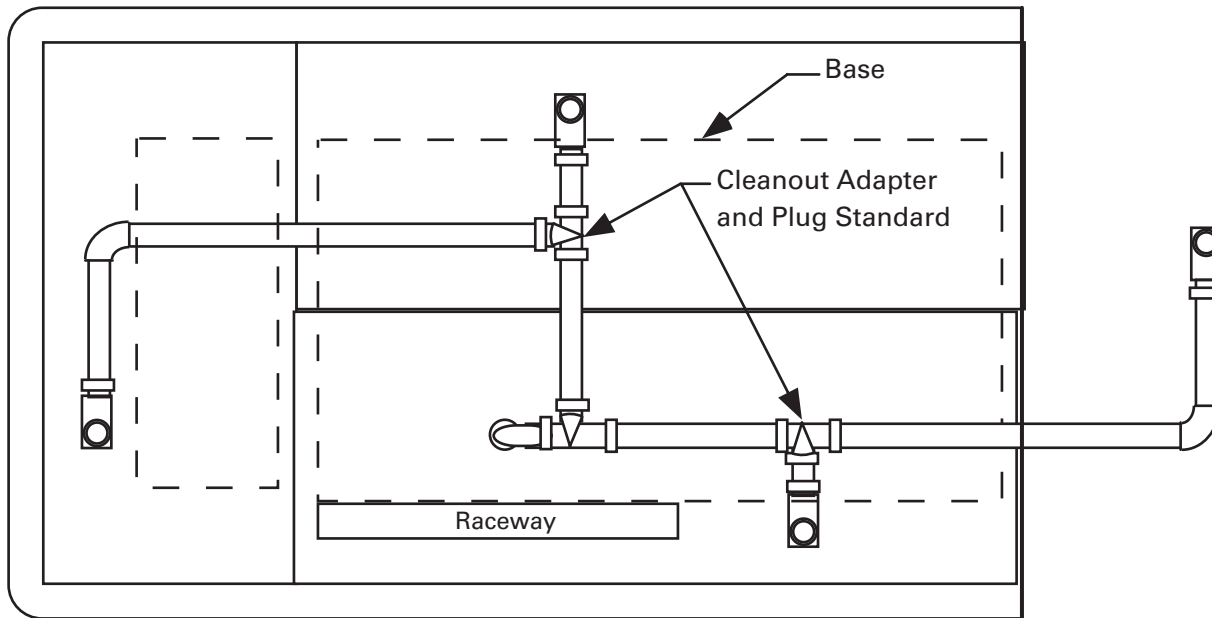
6. Prevent drip pipes from freezing:
 - A. Do NOT install drip pipes in contact with uninsulated suction lines. Suction lines should be insulated with a nonabsorbent insulation material.
 - B. Where drip pipes are located in dead air spaces, such as between merchandisers or between a merchandiser and a store wall, provide means to prevent freezing.



Produce / Meat Wide Island Merchandisers

See the case data sheet set for dimensions. Each waste outlet will be interconnected with factory installed drip piping. When a 6 ft (1829 mm) end merchandiser is ordered to be joined to a center case at the factory, its waste outlet can also be interconnected as shown. A drain piping connect kit is required.

Each merchandiser is supplied with a 2 in. (51 mm) water seal, an adapter, a plug and a street ell. The street ell and water seal must be installed to prevent air leakage and insect entrance into the merchandiser. They should be installed as shown below.



End Case

6, 8 or 12 Ft Case
(1829, 2438 or 3658 mm Case)

NOTE:
Water seal outlet must clear front skid rail.

INSTALLING SPLASHGUARDS & LOWER FRONT PANELS

The splashguard and lower front panel are shipped inside each merchandiser. **AFTER** merchandisers have been leveled and joined, and all drip piping, electrical and refrigeration work has been completed, install the splashguard and lower front panel.

NOTE: Merchandisers with low bases do not have lower front panels and require only the installation of splashguards.

To Install Splashguards:

1. Check to be sure that all splashguard brackets are level with the floor.
2. Position top of splashguard over the top edge of the bracket as shown below.
3. Push the lower edge of the splashguard toward the bottom of the bracket until it snaps into place.

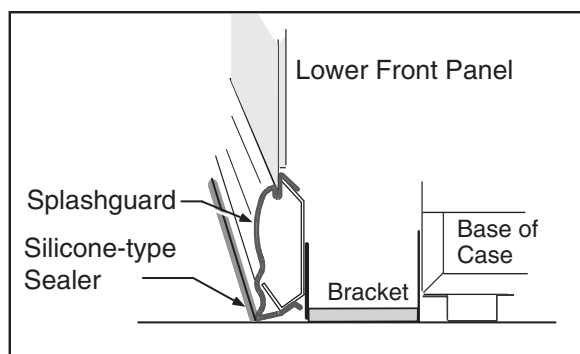
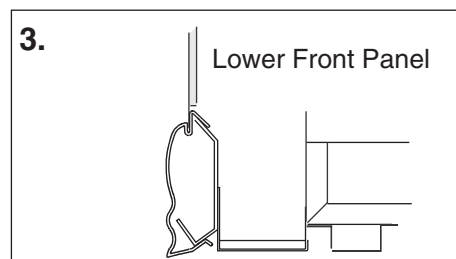
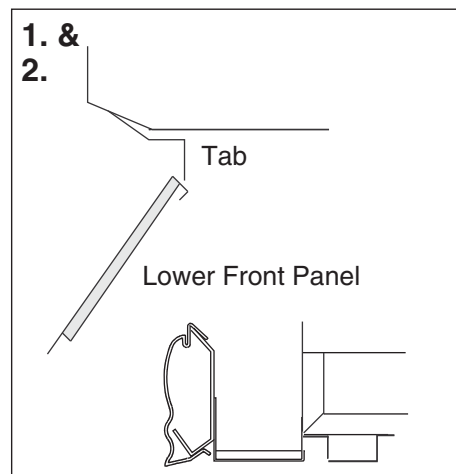
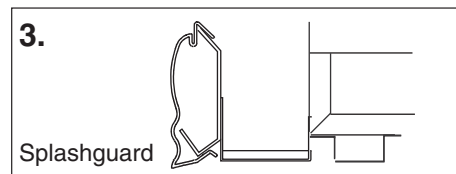
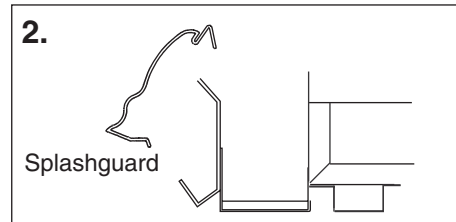
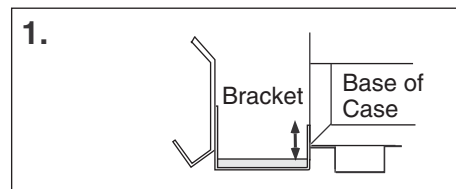
To Install Lower Front Panel

1. Position the lower front panel with the top angled as shown in the illustration below.
2. The tabs extending from the upper front panel assembly are designed to fit into the slots on the top of the lower front panel.
3. Once the top is positioned, lift the panel up and drop it into the groove at the top of the splashguard.

SEALING SPLASHGUARD TO FLOOR

IF REQUIRED by local sanitation codes, or if desired by the customer, plastic splashguards may be sealed to the floor using silicone type sealer. The amount needed will depend on how much the floor is out of level.

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 silicone type sealer along the bottom of the splashguard. Sealant must be removed and replaced when servicing.



INSTALLING *OPTIONAL* STAINLESS STEEL SPLASHGUARDS

The **OPTIONAL** stainless steel splashguard is also shipped inside the merchandiser. **AFTER** all the merchandisers have been leveled and joined, and all drip piping, electrical and refrigeration work has been completed, install the **OPTIONAL** stainless steel splashguard and, if appropriate, the lower front panel.

To Install Splashguards:

1. Check to be sure that all splashguard brackets are level with the floor.
2. Position top of splashguard over the top edge of the bracket as shown below.
3. Push the lower edge of the splashguard toward the bottom of the bracket until it snaps into place.

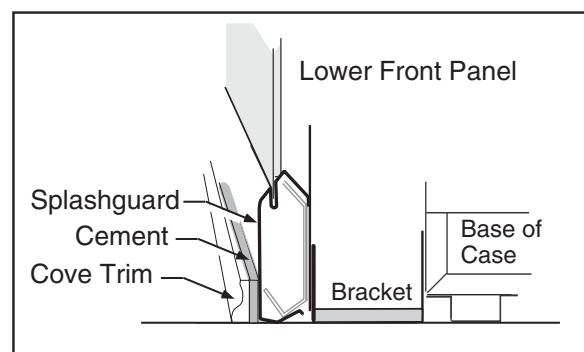
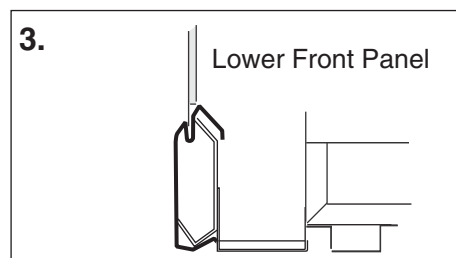
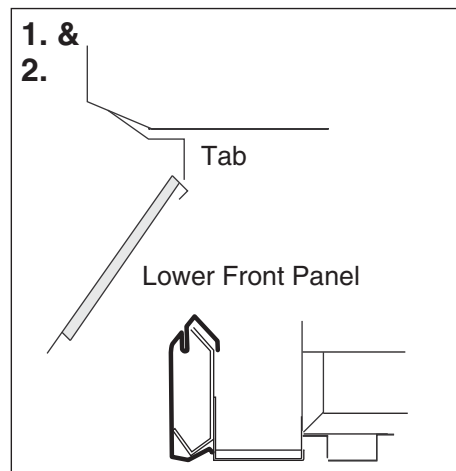
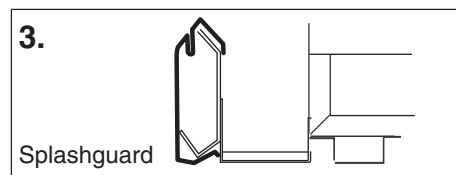
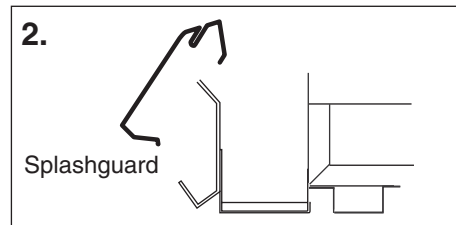
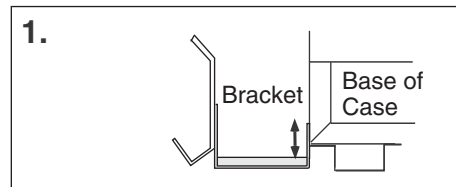
To Install Lower Front Panel

1. Position the lower front panel with the top angled as shown in the illustration below.
2. The tabs extending from the upper front panel assembly are designed to fit into the slots on the top of the lower front panel.
3. Once the top is positioned, lift the panel up and drop it into the groove at the top of the splashguard.

OPTIONAL stainless steel splashguards may be sealed to the floor using a vinyl cove base trim. The size of trim needed will depend on how much the floor is out of level.

To install the 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.




START UP / OPERATION

START UP

See the merchandiser's Data Sheet Set 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 case maintenance will result in refrigerant loss unless the system is first isolated and the refrigerant recovered.

 <h2 style="margin: 0;">CAUTION</h2>
<p>REMOVAL OF THE TEV CAP WILL RESULT IN REFRIGERANT LOSS UNLESS THE SYSTEM IS FIRST ISOLATED AND THE REFRIGERANT RECOVERED.</p>

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 case 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.

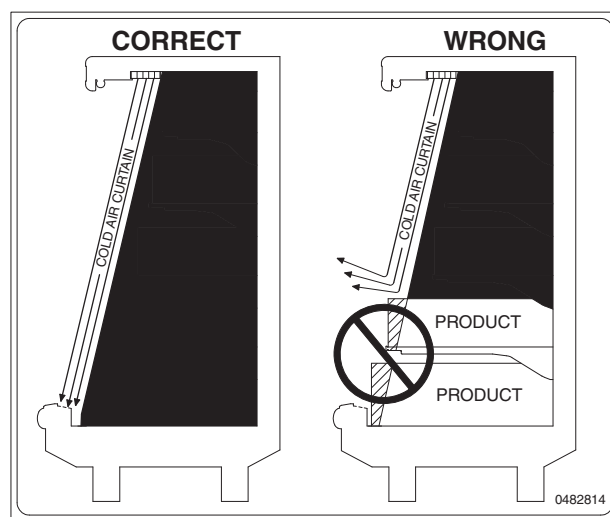
AIR DISCHARGE AND RETURN FLUES MUST REMAIN OPEN AND FREE OF OBSTRUCTION AT ALL TIMES to provide proper refrigeration and air curtain performance. Do not allow product, packages, signs, etc. to block these grilles. Do not use non-approved shelving, baskets, display racks, or any accessory that could hamper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

LOAD LIMITS

Each merchandiser has a load limit decal. Shelf life of perishables will be short if load limit is violated. **AT NO TIME SHOULD MERCHANDISERS BE STOCKED BEYOND THE LOAD LIMITS INDICATED.**



DO NOT BLOCK HONEYCOMB.

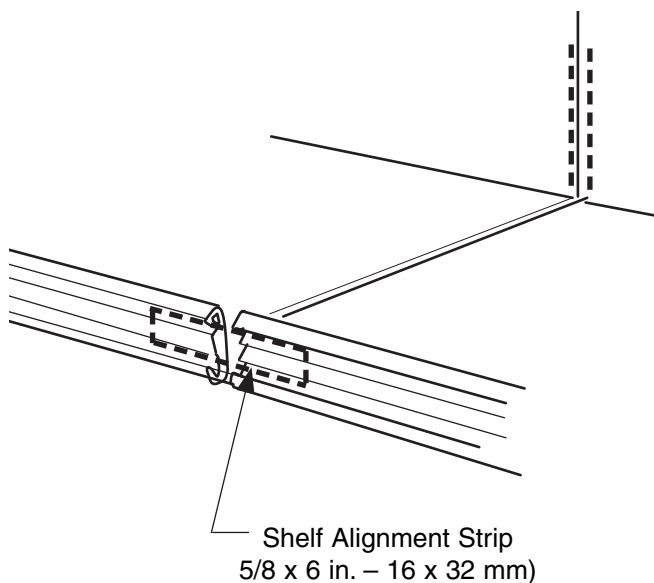


MULTI-DECK SHELF ALIGNMENT

Taped to one of the shelves of each merchandiser is a small plastic bag containing shelf alignment strips. These strips are designed to enhance the appearance of the shelves by aligning the front edge of each shelf with that of an adjacent shelf.

When installing shelves:

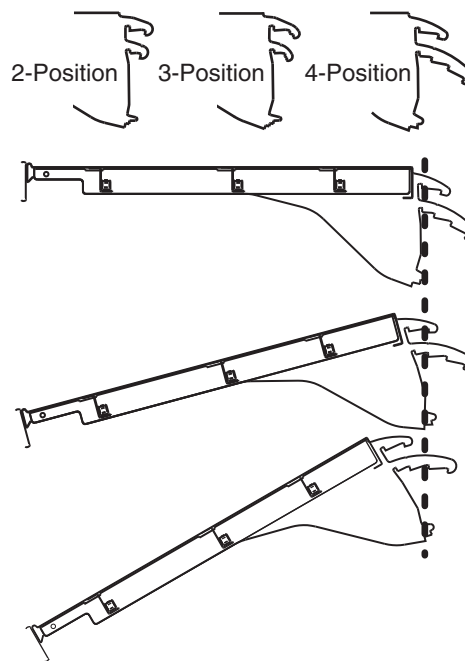
1. Insert one of the alignment strips into the slot behind the front edge of each shelf.
2. After all shelves are installed, slide the strip across the shelf joint wherever two shelves are adjacent. This will lock them together.



MULTI-DECK SHELF CONFIGURATION

The bottom display shelves can be adjusted to accommodate shallow or volume displays (bulky items such as hams or chickens). The upper 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.

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



SHELF MAXIMUM WEIGHT LIMITS

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

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 Husmann 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

PROCEDURE FOR INSTALLING LIGHTED SHELVES

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



Shelf Light Plug



Shelf Light Receptacle

1. Remove produce from shelf and place in cooler. **SHUT OFF POWER TO THE MERCHANDISER.**

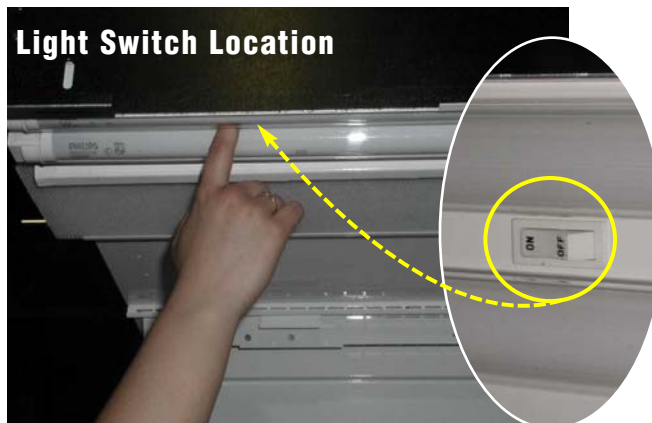


WARNING

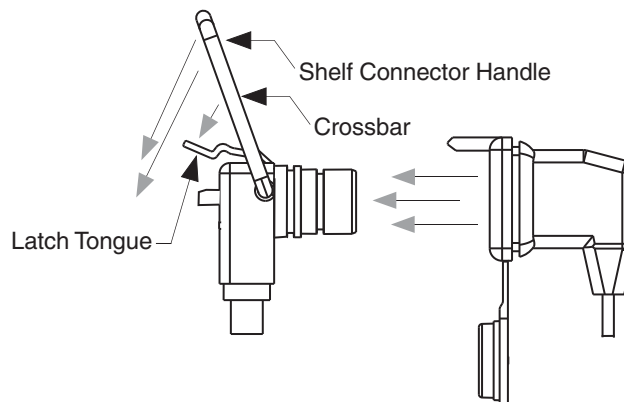
— LOCK OUT / TAG OUT —

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.

2. Turn off Canopy Light Switch. Remove all packed shelves.



3. Remove shelf connectors from power sockets. Always grip shelf connector by the handle when removing from socket. **PULL handle DOWN AND THEN OUT to disengage.** Note that latch tongue must depress to disengage plug.

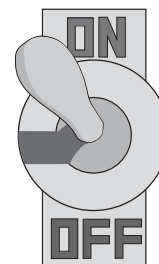


4. **Engage each power socket cap and ensure that each cap is fully seated before cleaning.** Ensure the proper seating of the cap at all times when the plug is not engaged.

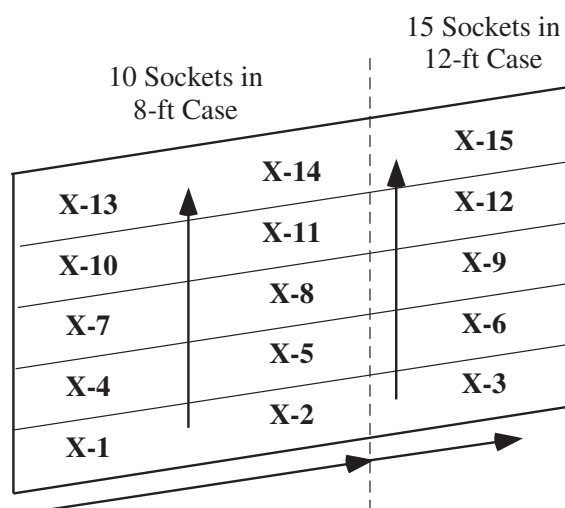
5. Clean the merchandiser as described in the **Care and Cleaning** paragraphs of *Section 5 – Maintenance*. **Keep liquid out of sockets.** (Allow merchandiser shelves to dry before turning on shelf power.)
6. Verify that power is at the merchandiser and turned on. Verify that the merchandiser light switch is turned “OFF.” Switch is located in the canopy, on the left, behind first row of lamps.
7. See the illustration below. It is typical of D5, C5, and D6 models. 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.
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.
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.

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. ***It is important that shelf brackets be properly seated in the slotted upright.***

- If a shelf LED lights do not operate,
- A. Turn off light switch.
 - B. Remove and firmly re-insert each shelf plug.
 - C. Turn on light switch.



Shelf Socket



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

Note: LED lamps use a 24VDC power supply.

If a shelf fluorescent light does not operate:

- A. Turn off light switch.
- B. Make certain the shelf lamps are properly engaged in the shelf lamp holders.
- C. Remove and firmly re-insert each shelf plug.
- D. Turn on light switch.

Note: The ballasts used in Impact models have built-in anti-arc protection. An electrical arc may occur if a shelf plug is not seated properly, or if a lamp is not properly seated in a lamp holder. The ballast will shut down when it detects an arc. Two to four lamps will be out in the merchandiser when this occurs. Carefully check the plugs to make sure they are fully seated, and check the lamps to ensure they are firmly seated in the lamp-holders on the affected shelves. To reset a ballast that has 'tripped' on anti-arc, turn off the merchandiser light switch for a minimum of 15 seconds, then turn it on.

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 or LED does not work, verify:

- A. the case light switch is "ON" and
- B. that the shelf lamp is properly engaged in the shelf lamp holders.

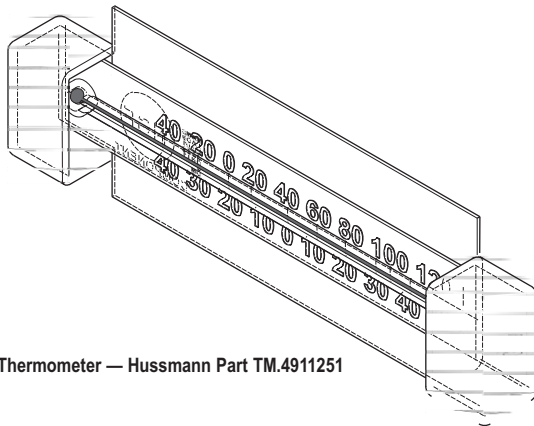
INSTALLING FDA/NSF REQUIRED THERMOMETER

The following pages provide the same information that ships with the thermometer.

This 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.

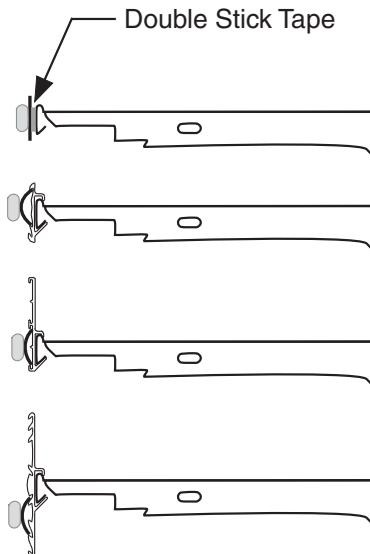
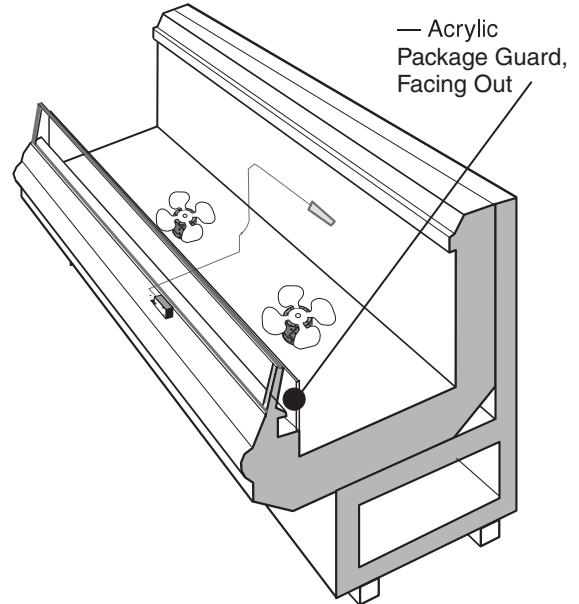
This is an NSF-7 & US FDA Food Code Required Thermometer



Thermometer — Hussmann Part TM.4911251

Hussmann Corporation • 12999 St. Charles Rock Road • Bridgeton, MO 63044-2483
U.S. & Canada 1-800-922-1919 • Mexico 1-800-522-1900 • www.hussmann.com
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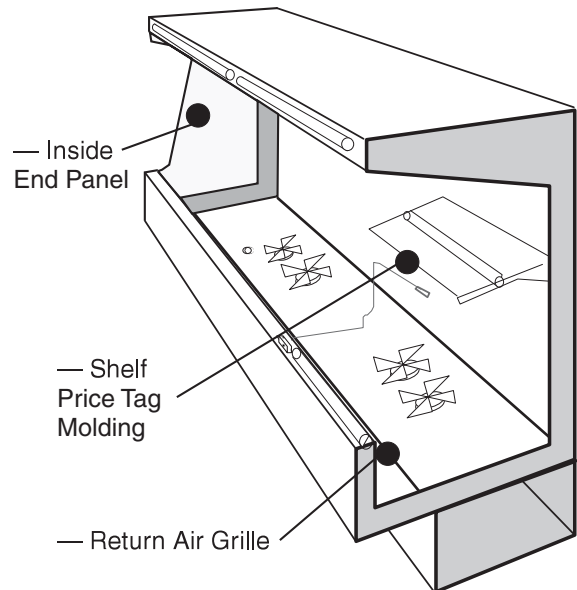
Suggested Mounting Locations in Single Deck Glass Front Impact Merchandisers



Flexible Plastic Fits in Price Tag Moldings

Hussmann P/N 0429971_C

10/2007



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, weekly.

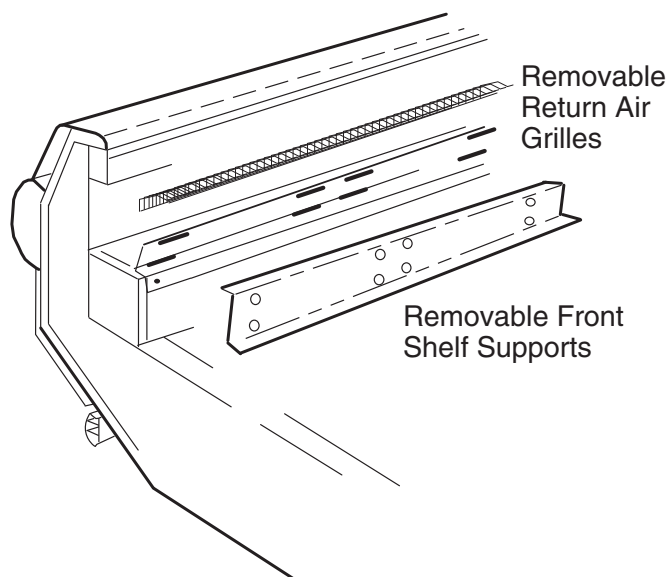
Fan Plenum

To facilitate cleaning, the fan plenum is hinged. After cleaning be sure the plenum is properly lowered into position OR PRODUCT LOSS WILL RESULT due to improper refrigeration.



Removable Front Shelf Support and Return Air Grille

The front shelf support may be removed to facilitate cleaning. Simply lift a four-foot section up and out as shown below.



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 CLEANSERS OR SCOURING PADS.

Interior Surfaces

The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface.

Do NOT Use:

- Abrasive cleansers and scouring pads, as these will mar the finish.
- Ammonia-based cleaners on acrylic parts.
- A hose on lighted shelves or submerge the shelves in water.
- Solvent, oil or acidic based cleaners on any interior surfaces.
- A hose on rail lights, canopy lights or any other electrical connection.



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.
- A hose on lighted shelves or submerge the shelves in water.
- Solvent, oil or acidic based cleaners on any interior surfaces.
- A hose on rail lights, canopy lights or any other electrical connection.

Do:

- Remove the product and all loose debris to avoid clogging the waste outlet.
 - Engage shelf light caps if removing shelves.
 - 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.
 - **First turn off refrigeration, then disconnect electrical power.**
 - Thoroughly clean all surfaces with soap and hot 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 hot water, but do NOT flood.
- NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.
- Allow merchandisers to dry before resuming operation.

**WARNING**

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

- Wipe down lighted shelves with a damp sponge or cloth so that water does not enter the light channel. **DO NOT USE A HOSE OR SUBMERGE SHELVES IN WATER.**
- After cleaning is completed, turn on power to the merchandiser.
- Ensure shelf lights are fully seated and engaged.

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.

CLEANING UNDER MERCHANDISERS

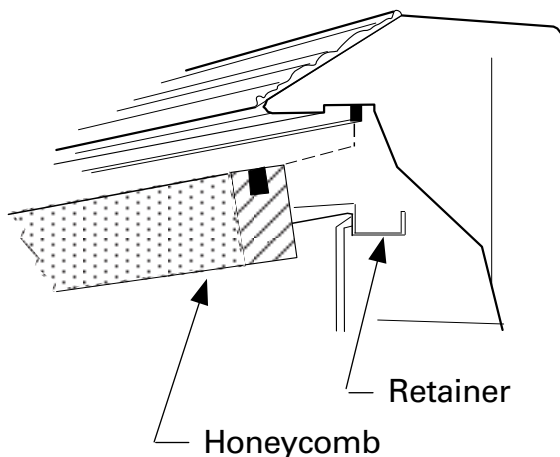
Remove splashguards not sealed to floor. Use a vacuum with a long wand attachment to remove accumulated dust and debris from under the merchandiser.

CLEANING HONEYCOMB ASSEMBLIES

Honeycombs should be cleaned every six months. Dirty honeycombs will cause merchandisers 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.

Single Deck Cases

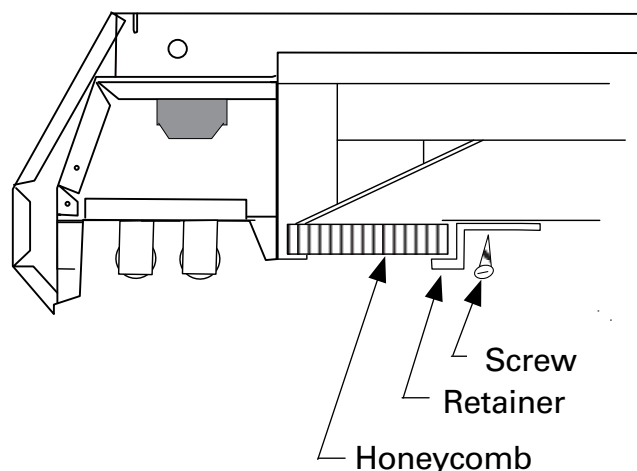
1. Using a flat object such as a screw driver, compress the honeycomb and remove it from its retainer.
2. Clean and dry the honeycomb.
3. After cleaning, replace in reverse order.



Multi-deck Cases

1. Loosen or remove screw to free honeycomb.
2. Clean and dry the honeycomb.
3. After cleaning, replace honeycomb and slide retainer forward and to the right.

Damaged honeycomb must be replaced.



CLEANING STAINLESS STEEL RAILS

Use non-abrasive cleaning materials, and always polish with grain of the steel. Use warm water or add a mild detergent to the water and apply with a cloth. Always wipe rails dry after wetting.

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

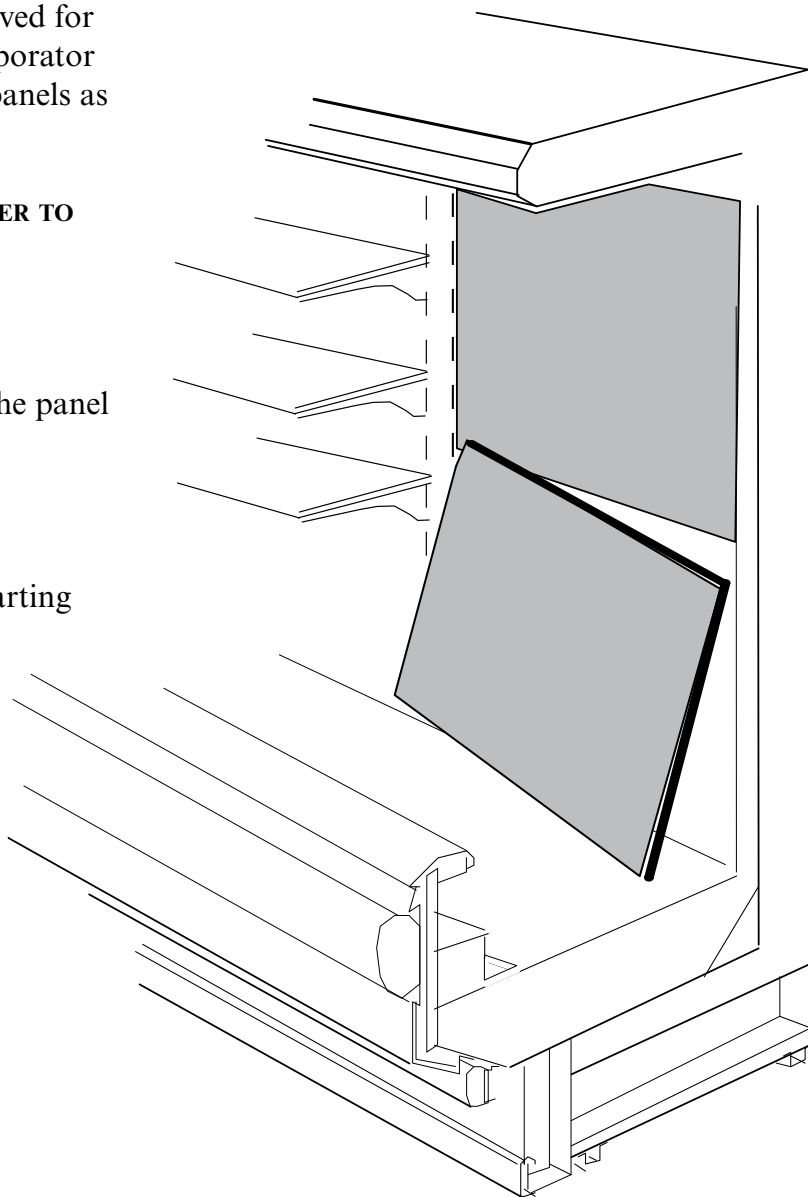
Clean frequently to avoid build-up of hard, stubborn stains. A stainless steel cleaning solution may be used periodically to minimize scratching and remove stains.

Rinse and wipe dry immediately after cleaning. Never use hydrochloric acid (muriatic acid) on stainless steel.

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. 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.
6. After cleaning or servicing the merchandiser, reconnect the electrical power.



REMOVING SCRATCHES FROM BUMPER

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

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

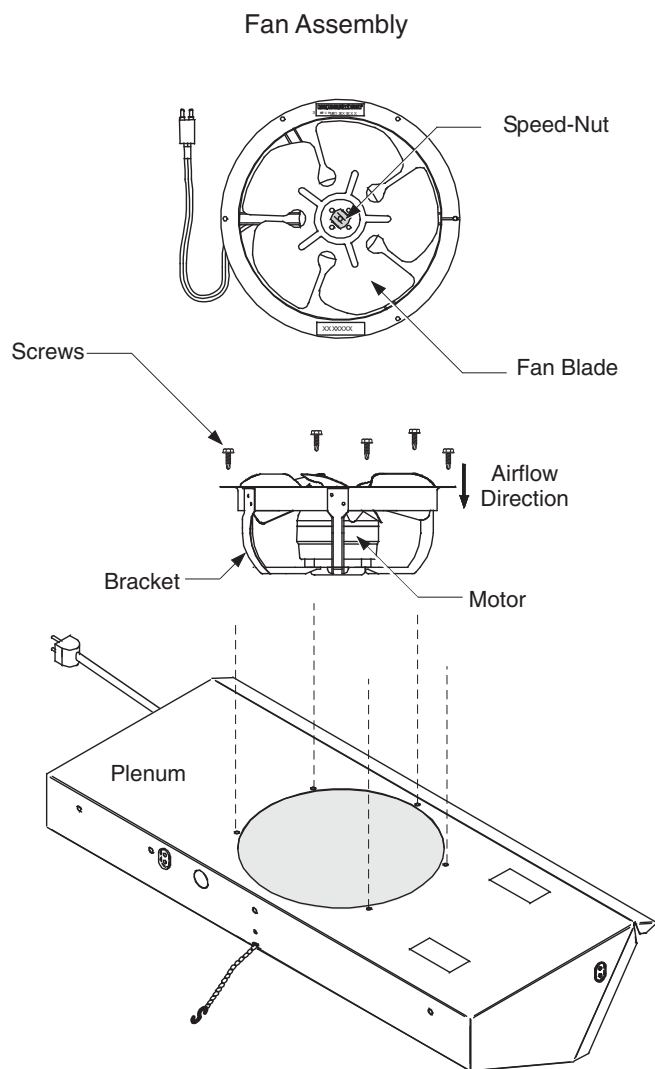
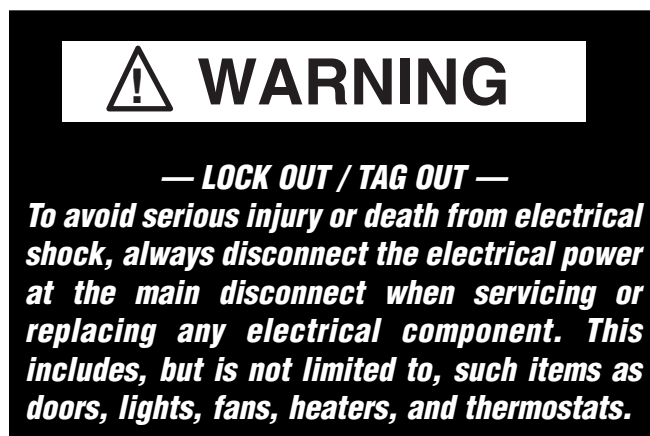
SERVICE

REPLACING FAN MOTORS AND BLADES

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.

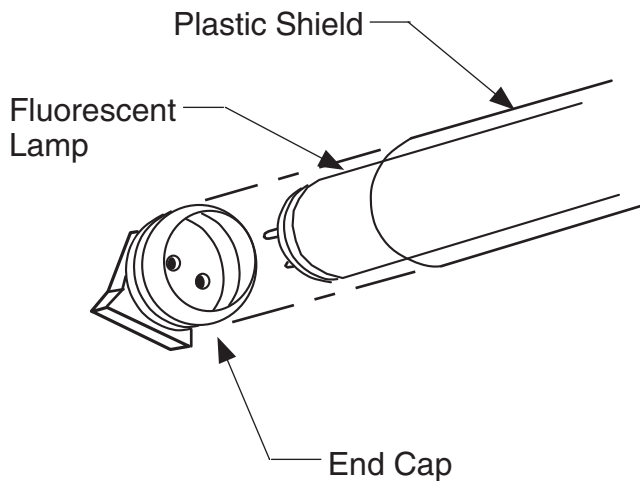


Medium Temperature

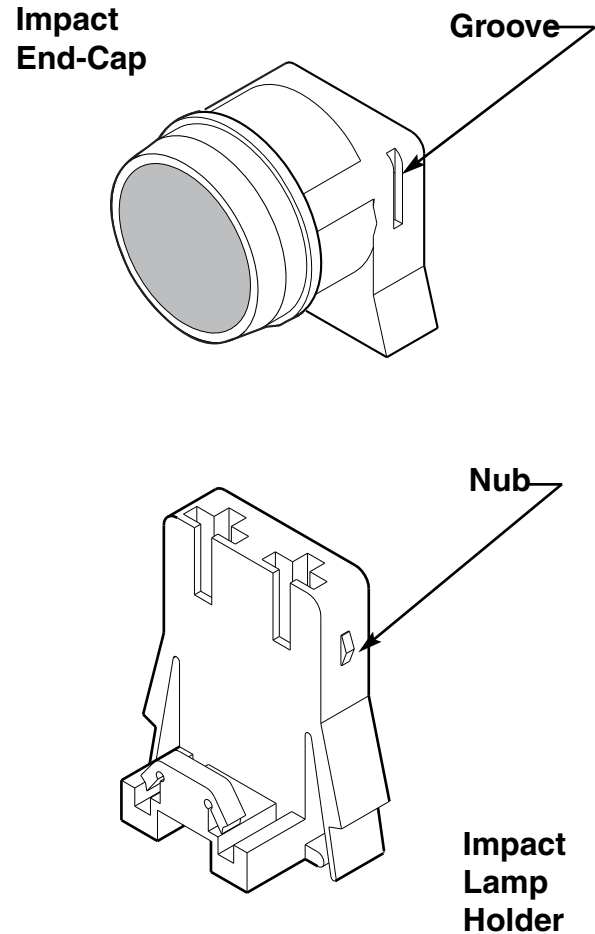
REPLACING FLUORESCENT LAMPS

Fluorescent lamps are furnished with moisture resistant lamp holders, shields and end caps. Whenever a fluorescent lamp is replaced, be certain to reinstall the lamp shields and end caps.

The switch in the canopy operates both the canopy and the shelf lamps. The rail lamp switch is located on the rail.

**REPLACING LAMP HOLDERS AND END CAPS**

The Impact lamp holder is designed to snap into the sheet metal of the case. The lamp holder has a locking 'nub' which fits inside the groove of specially designed end caps.

**IMPORTANT!**

Always replace lamp holders and end caps with Hussmann lamp holders and end caps.

Use of non-Hussmann parts may result in poor electrical contact and short lamp life.

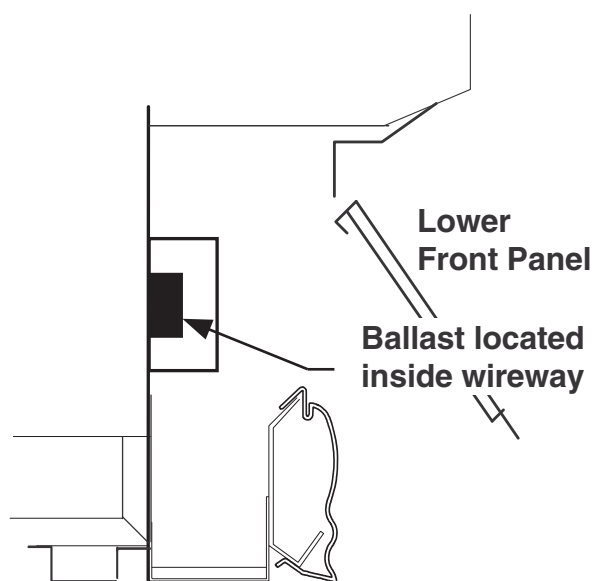
REPLACING ELECTRONIC BALLASTS

Rail Lamp Ballast

The rail lamp ballast is located in the wireway, behind the lower front panel at the left-hand end of the merchandiser. **NOTE:** The switch for the rail lamp is separate from the canopy and shelf lighting. The rail lamp switch is located on the rail.

To gain access:

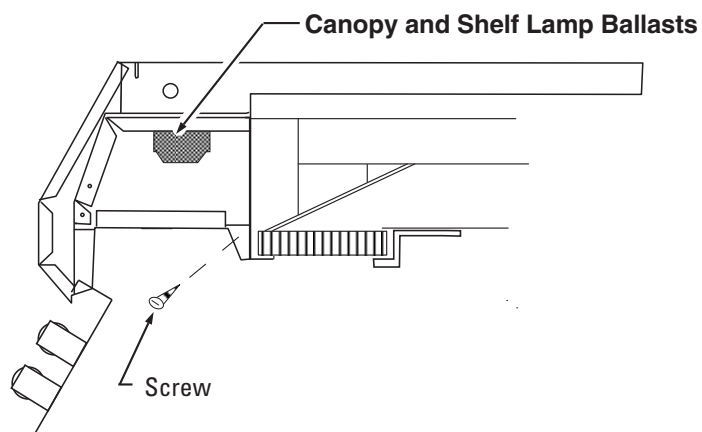
1. **DISCONNECT THE ELECTRICAL POWER TO THE MERCHANDISER.**
2. Remove the lower front panel by lifting it up and out.
3. Remove screws attaching the wireway cover, then remove cover.
4. Service or replace ballast as required. Reassemble items as they were originally installed.
5. Reconnect the electrical power.



Canopy and Shelf Lamp Ballasts

These ballast are located at the top of the merchandiser inside the canopy. The switch in the canopy operates both the canopy and the shelf lamps. The rail lamp has a separate switch.

1. **DISCONNECT POWER TO THE MERCHANDISER.**
2. Remove fluorescent lamps from the canopy.
3. Remove the screws that secure the lamp panel.
4. Grasping the light panel at the area where the top of the panel and the top of the merchandiser meet, pull back and down until the panel swings freely.
5. Replace ballast and reassemble parts in reverse order.
6. Reconnect the electrical power.



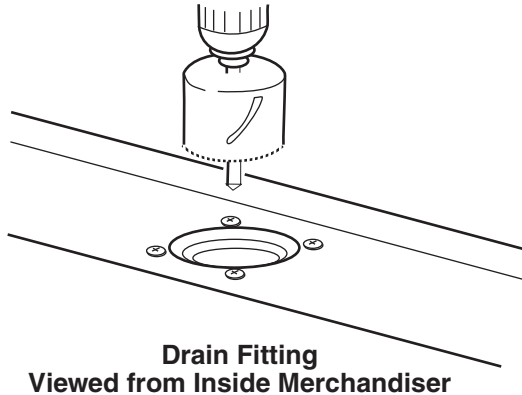
NOTE:

The ballast are in sequence from the left-hand end of the merchandiser (facing front) as follows: Farthest left, bottom shelf ballast, then center shelf or shelves, top shelf, first row canopy and last is second row canopy. The rail lamp ballast is located in the wireway.

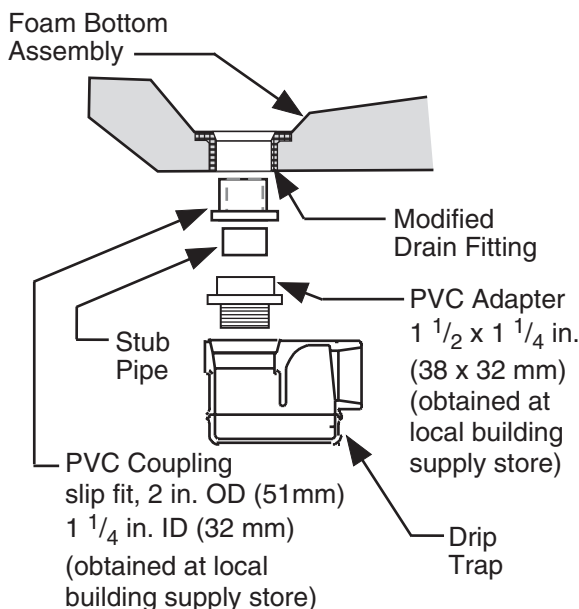
REPLACING DAMAGED DRAIN FITTING

The following procedure is for the field repair of a broken drain fitting.

1. Use a drill with a 2 in. (51 mm) hole saw to drill out the bottom of the drain fitting. Be sure to drill completely through fitting and bottom liner.



2. Apply an ABS and PVC compatible primer-sealer to outside of PVC coupling and inside of drain. Insert coupling into drain fitting.
3. Install a PVC adapter on the drip trap. Apply primer-sealer to a stub piece of PVC pipe and insert between coupling and adapter.



REPAIRING ALUMINUM COIL

The aluminum coils used in Hussmann 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.



HUSSMANN®

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

U.S. & Canada 1-800-922-1919 • Mexico 1-800-522-1900
www.husmann.com

Hussmann Corporation
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