HUSSMANN®

Excel

Medium Temperature

Bulk Produce and Bakery
Merchandisers





Installation & Service Manual

Shipped With Case Data Sheets

P/N 0518258_D

January 2022

Spanish P/N 0538840

IMPORTANT

Keep in store for future reference!

BEFORE YOU BEGIN

Read these instructions completely and carefully.

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.

The information contained in this document is the property of Hussmann Corporation and shall not be used in whole or in part without written permission.

CAUTION

This manual was written in accordance with originally prescribed equipment that is subject to change. Hussmann reserves the right to change all or part of the equipment for future stores such as, but not limited to, controllers and electrical specifications.

WARNING

Do not use mechanical devices or other means to accelerate the defrosting process.

Do not use electrical appliances inside the food storage compartments of the case(s).

WARNING

Case ventilation openings must be clear of any obstructions. Do not damage the refrigerant circuit.

WARNING

PERSONAL PROTECTION EQUIPMENT (PPE)

Only qualified personnel should install and service this equipment. Personal Protection Equipment (PPE) is required whenever installing or servicing this equipment. Always wear appropriate PPE as required by OSHA regulations, as well as all other federal, state and local codes. PPE may include, but is not limited to, safety glasses, gloves, protective boots or shoes, long pants, and a long-sleeve shirt. Observe all precautions on tags, stickers, labels and literature attached to this equipment.

WARNING

Proper Field Wiring and Grounding Required! Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.

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 controllers, electrical panels, condensers, lights, fans, and heaters.

WARNING

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

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WARRANTY

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

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REVISION HISTORY

REVISION D – January 2022 - Added Coil Cleaning Note, Page 5-4.

REVISION C – October 2013 - Added warning box, page 1-1; Added Maintaining Fluorescent Lamps, page 5-4; Revised Replacing Fluorescent Lamps, page 6-2.

REVISION B – December 2012 - Added Coil Cleaning, Page 5-4.

REVISION A – November 2010
Original Issue



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.

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 store items or flammable materials atop the unit. Do not walk 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.

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.

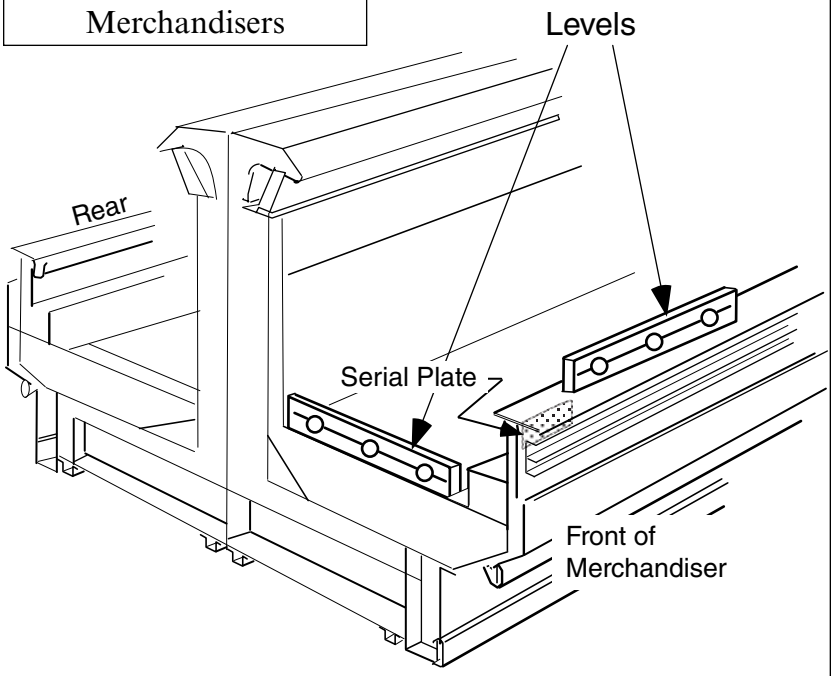
3. Remove the rear panel(s) from the right end. On multi-deck cases remove the lower back panel first. To remove a panel lift it up from its bottom edge and out. No tools are required.

Apply Gaskets

1. Apply ½ in. (13 mm) gasket in the horizontal recess across the bottom and up the front of the merchandiser as shown. Gasket should cover slots.

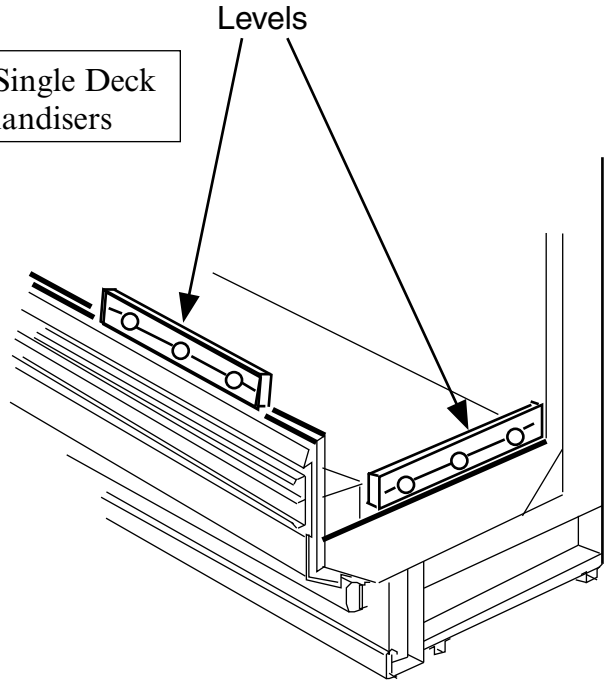
2. Apply the 1⅝ in. (41 mm) gasket to cover foam-to-metal gap at rear of case and across the top as shown. Be sure to overlap gaskets as shown. Check to be sure that there are no gaps between gasket and merchandiser.

Leveling Wide Island Merchandisers



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

Leveling Single Deck Merchandisers



Fasten Cases

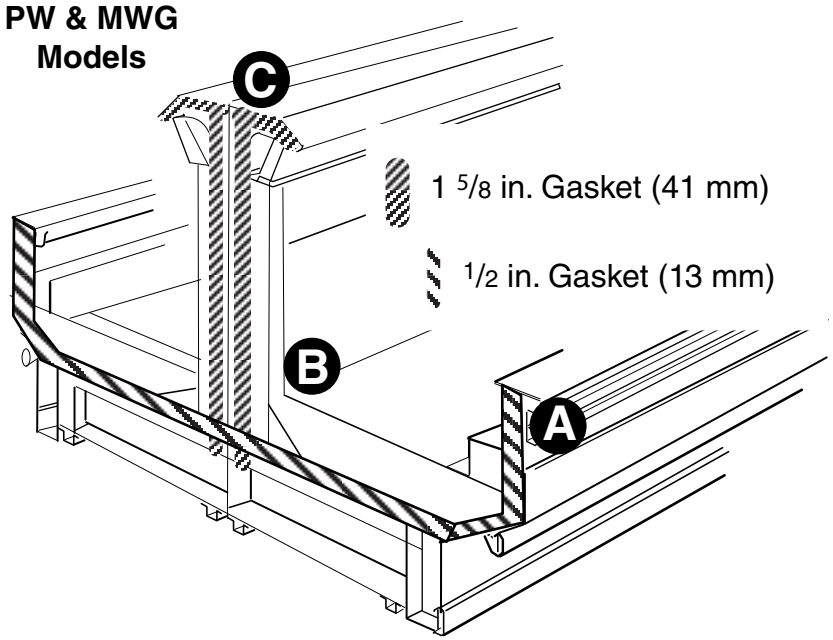
1. Move the second merchandiser into position against the first. Match the alignment pins with the corresponding holes.

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.**

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.



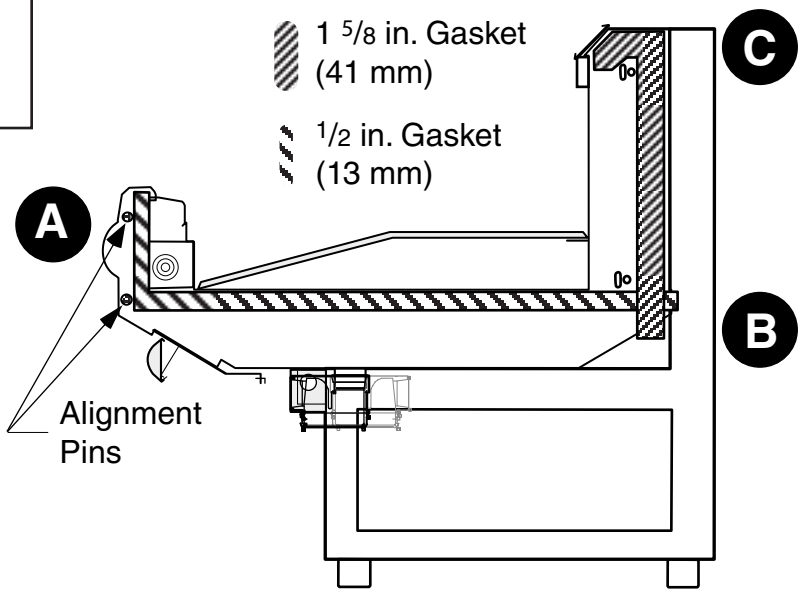
IMPORTANT

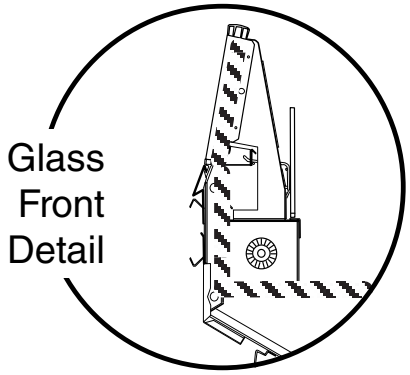
• Do not stretch gasket, especially around corners.

• Do not butt gaskets; always overlap them as shown.

• Remove paper backing after gasket has been applied.

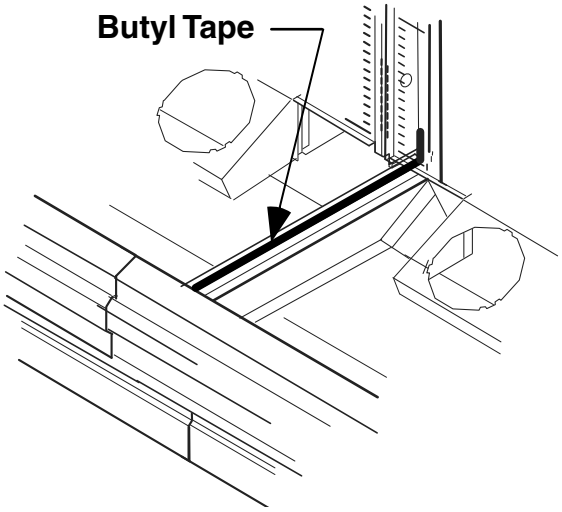
Tighten in Order Shown



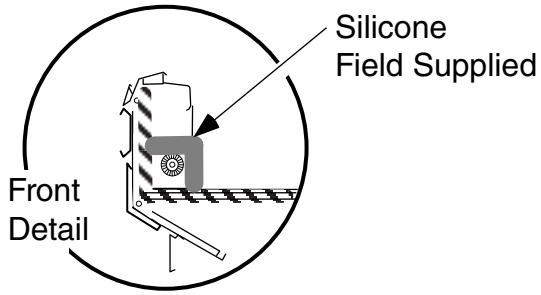


Seal Merchandisers

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



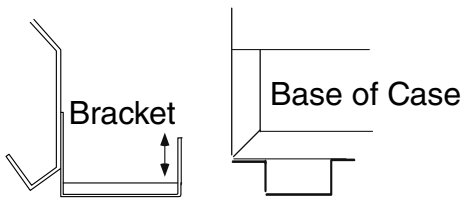
2. Use field-supplied silicone to fill any gaps between the front support brackets.



SPLASHGUARD BRACKET AND JOINT SUPPORT

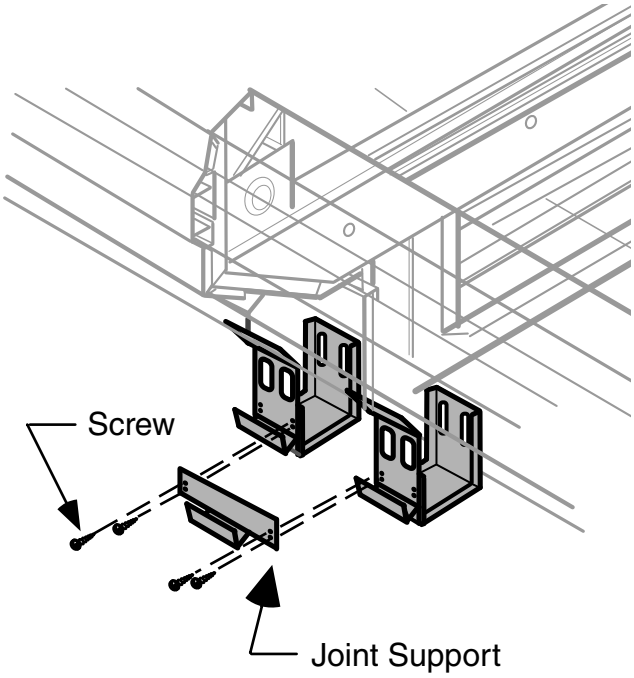
Install Splashguard Bracket

Position splashguard brackets to the merchandiser and level to the floor. Each bracket has a 1½ in. (38 mm) slot at the rear of the bracket where it attaches to the merchandiser. Tighten screws to secure the brackets.



Install Splashguard Joint Support

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



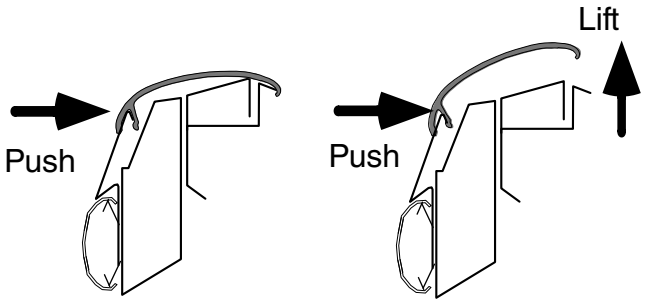
OFFSETTING BUMPERS AND TOP RAIL

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

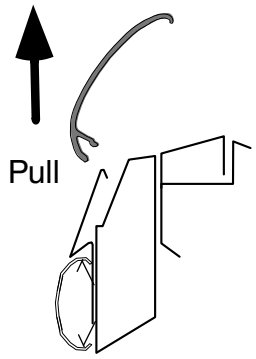
1. Locate starter bumpers and top rail. They are shipped with the left-end kit.

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

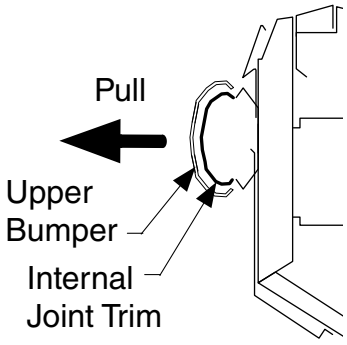
a. To remove top rails, push rail toward the back of the case with one hand while lifting the top edge off the light channel with the other hand. See drawing below.
b. Starting at one end, carefully peel bottom of top rail free of color panel and set the rail inside the case.
c. Remove upper and lower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



Step 2-a.



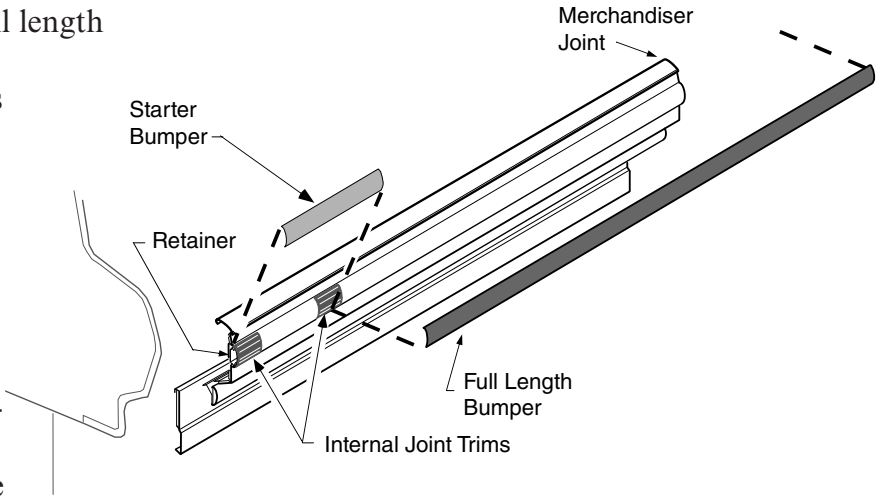
Step 2-b.



Step 2-c.

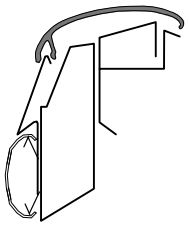
3. Starting at the left end of the line up, install the upper bumper starter section first. To install:

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.

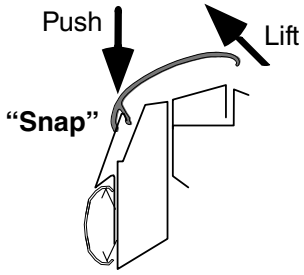
5. Return to the left end of the line up and position the starter section of the top rail as shown.



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

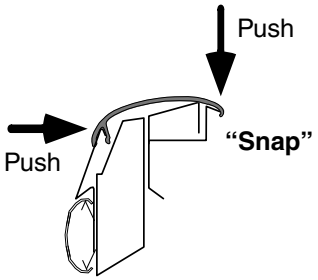
6. Push the bottom portion of the short top rail section down over the color panel. It helps if you lift the top with your other hand as shown. You will hear and feel the trim "snap" into place.

NOTE: The trim must "snap" to be properly positioned.



7. 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.

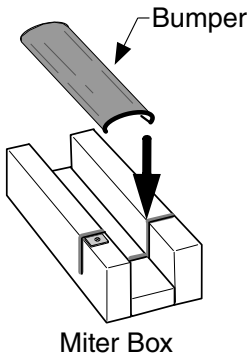


8. Install full length top rails using the same procedures. Continue installing the top rails the length of the line up. Do NOT install last section at this time.

9. 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.

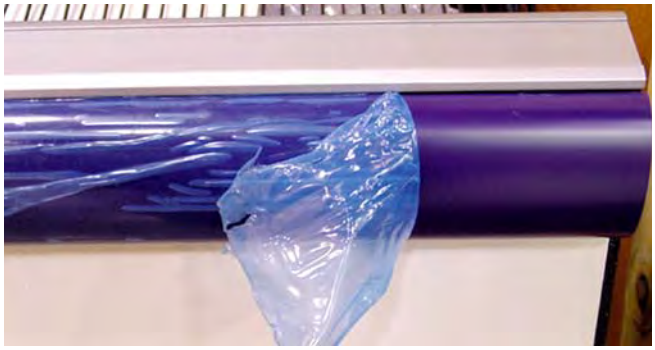
10. Go to the right end of the line up and tap the top rail and bumpers to close any gaps.

11. 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.



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.

12. 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.

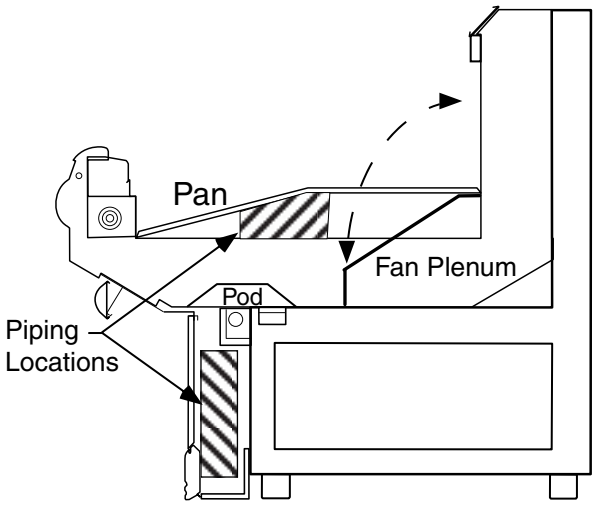
After connections have been made, seal this outlet thoroughly. Seal both the inside and the outside. We recommend using an expanding polyurethane foam insulation.

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.

⚠ CAUTION

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



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.

Line Sizing

Refrigerant lines should be sized as shown on the refrigeration legend that is furnished for the store or according to ASHRAE guide-lines. 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.

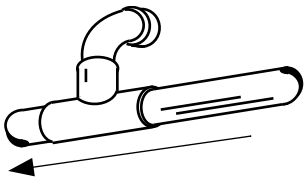
Pressure Drop
Pressure drop can rob the system of capacity. To keep the pressure drop to a minimum, keep the refrigerant line run as short as possible using a minimum number of elbows. Where elbows are required, USE LONG RADIUS ELBOWS ONLY.

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

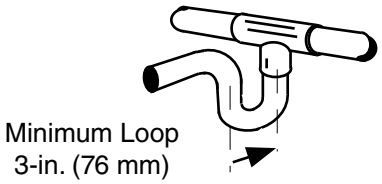
- Pitch in direction of flow.
- May be reduced by one size at one third of case run load and again after the second third. Do not reduce below the case suction line size.
- Case suction lines should enter at the top of the branch line.



Suction Line Return

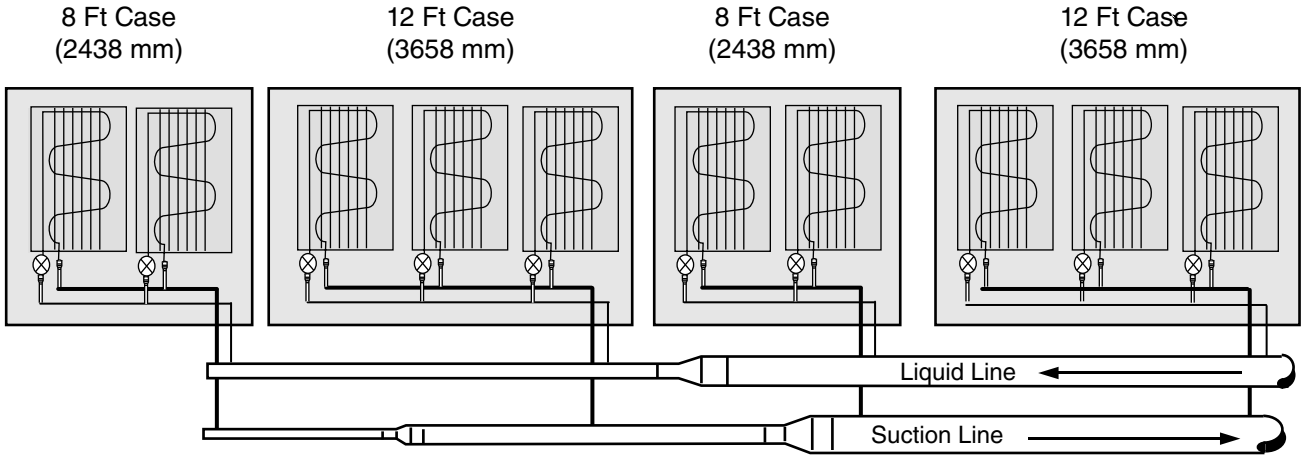
LIQUID LINE

- 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.

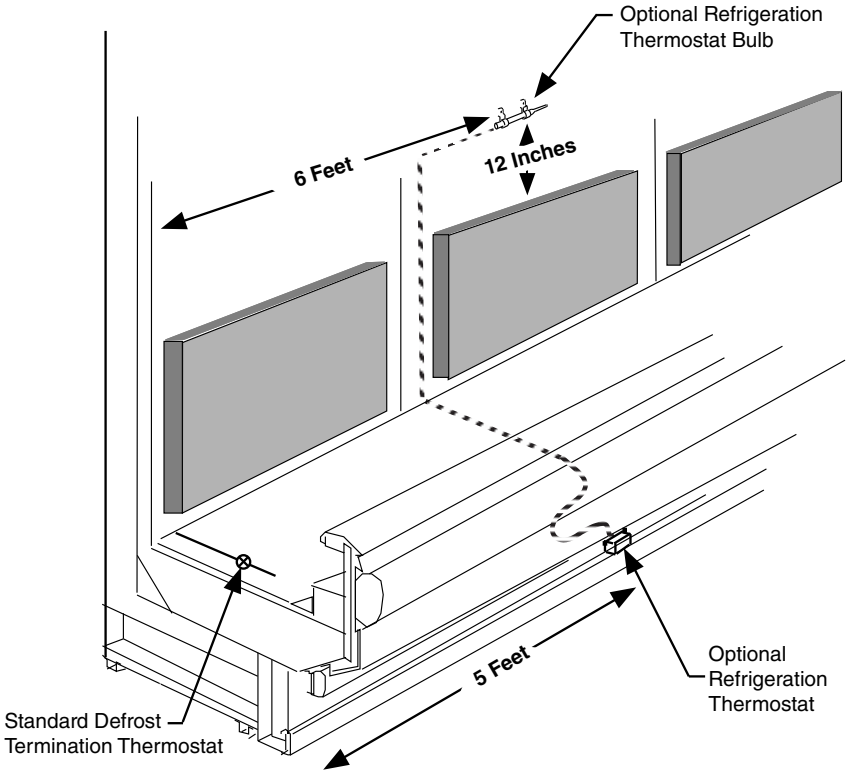
Temperature Termination
Temperature termination should be used for the following types of installations:

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

Merchandiser data sheets are included with this manual. The data sheets provide case electrical data, electrical schematics, parts lists and performance data. Refer to the merchandiser 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*.

⚠ CAUTION

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

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.

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.

PINK .....REFRIG. THERMOSTAT LOW TEMP.	ORANGE OR
LIGHT BLUE ..REFRIG. THERMOSTAT NORM TEMP.	TAN .....LIGHTS
DARK BLUE ..DEFROST TERM. THERMOSTAT	MAROON...RECEPTACLES
PURPLE.....CONDENSATE HEATERS	YELLOW ....DEFROST HEATERS 120V
BROWN .....FAN MOTORS	RED .....DEFROST HEATERS 208V
GREEN* .....GROUND	

*EITHER COLORED SLEEVE OR COLORED INSULATION

ELECTRICIAN NOTE: Use copper conductor wire only.
MERCHANDISER MUST BE GROUNDED

THESE ARE MARKER COLORS WIRES MAY VARY.

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 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.

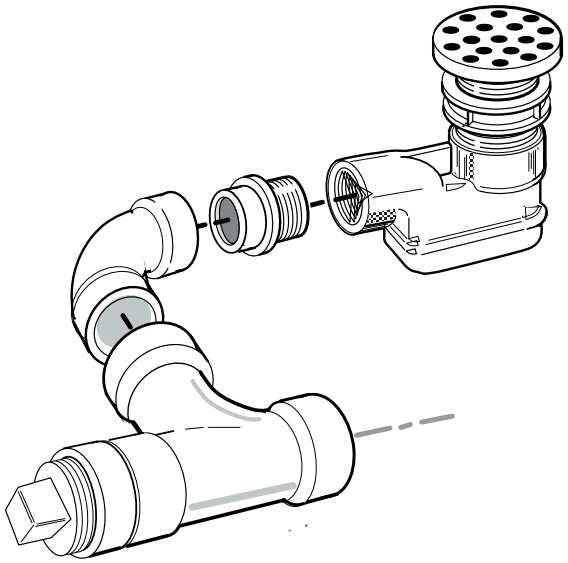
5. Provide a suitable air break between flood rim of the floor drain and outlet of drip pipe. To meet code on low base merchandisers, it may be necessary to install a field-supplied drip pipe reducer. An alternative is to cut the last section of drip pipe at an angle.



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 Wide Island Merchandisers

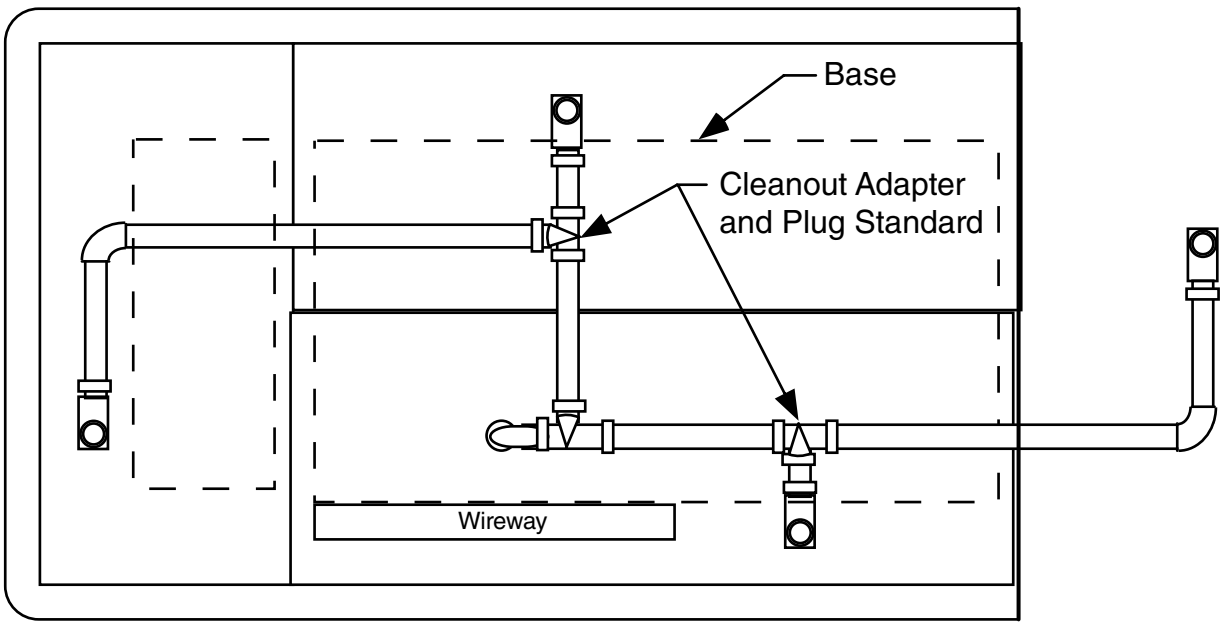
See the case data sheet set for dimensions. Each waste outlet will be interconnected with factory installed drip piping. When a 6 ft (1829 mm) end merchandiser is ordered to be joined to a center case at the factory, its waste outlet can also be interconnected as shown. A drain piping connect kit is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

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.



End Case

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

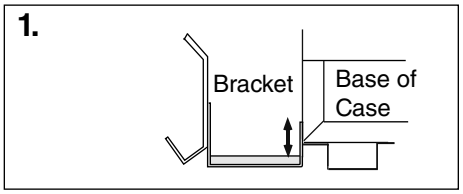
NOTE:
Water seal outlet must clear front skid rail.

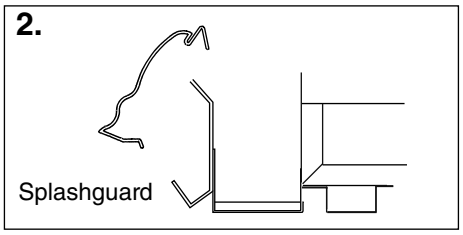
To Install Splashguards:

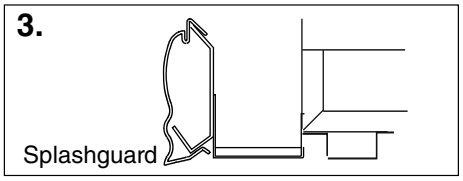
1. Check to be sure that all splashguard brackets are level with the floor.
2. Position top of splashguard over the top edge of the bracket as shown below.
3. Push the lower edge of the splashguard toward the bottom of the bracket until it snaps into place.

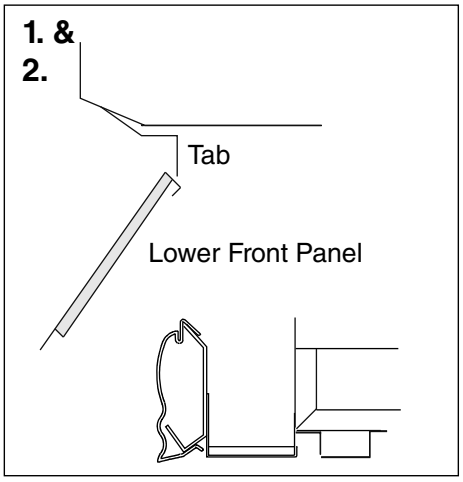
To Install Lower Front Panel

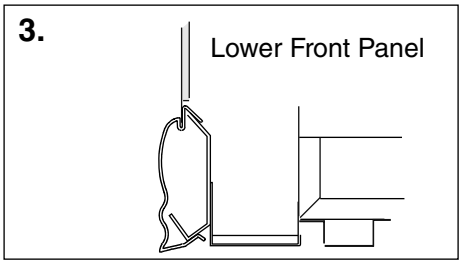
1. Position the lower front panel with the top angled as shown in the illustration below.
2. The tabs extending from the upper front panel assembly are designed to fit into the slots on the top of the lower front panel.
3. Once the top is positioned, lift the panel up and drop it into the grove at the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











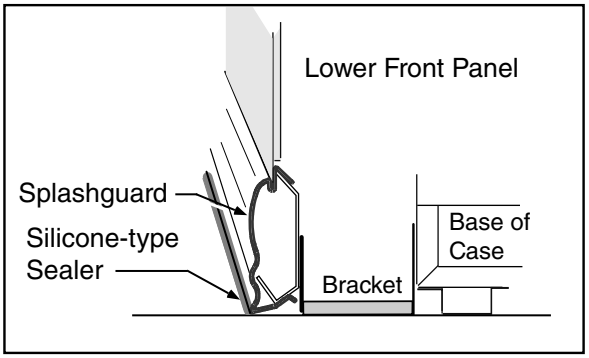
SEALING SPLASHGUARD TO FLOOR

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.

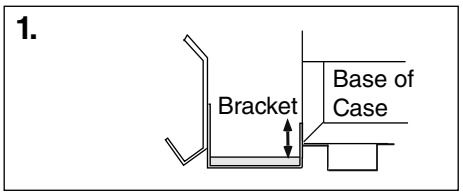
To Install Lower Front Panel

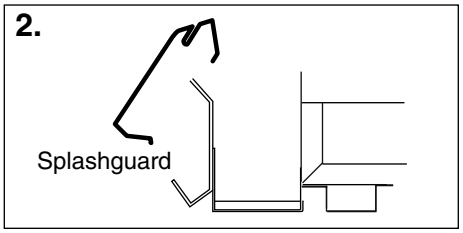
1. Position the lower front panel with the top angled as shown in the illustration below.
2. The tabs extending from the upper front panel assembly are designed to fit into the slots on the top of the lower front panel.
3. Once the top is positioned, lift the panel up and drop it into the grove at the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

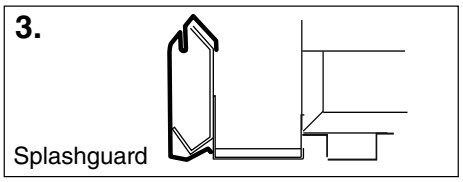
OPTIONAL stainless steel splashguards may be sealed to the floor using a vinyl cove base trim. The size of trim needed will depend on how much the floor is out of level.

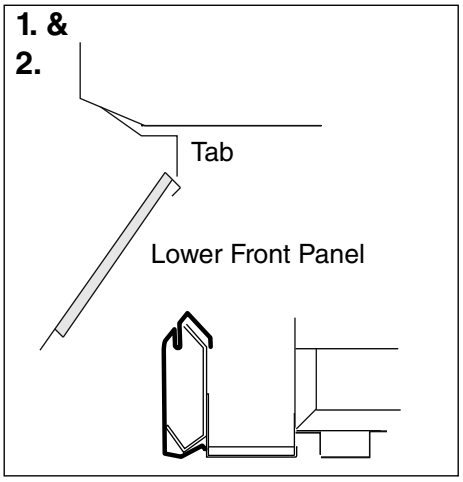
To install the trim to the splashguard:

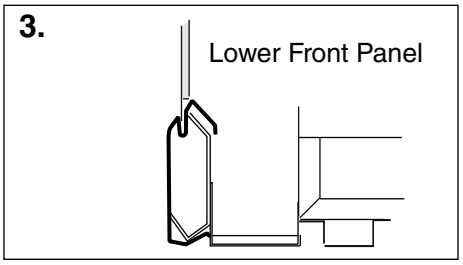
1. Remove all dirt, wax and grease from the area of the splashguard where adhesion will be necessary to ensure a secure installation.
2. Apply a good contact cement to the cove trim and allow proper drying time according to the directions supplied with the cement.
3. Install the trim to the splashguard 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.

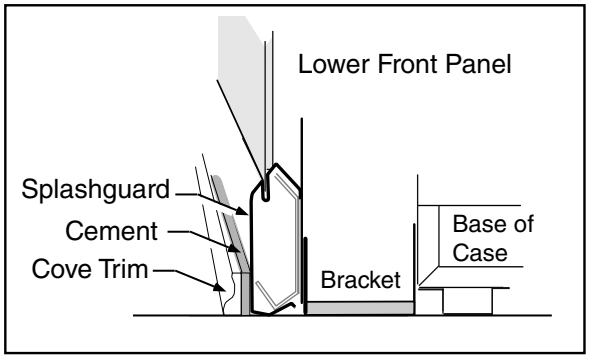












START UP / OPERATION

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.

⚠ 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.

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.**

LOAD LIMIT

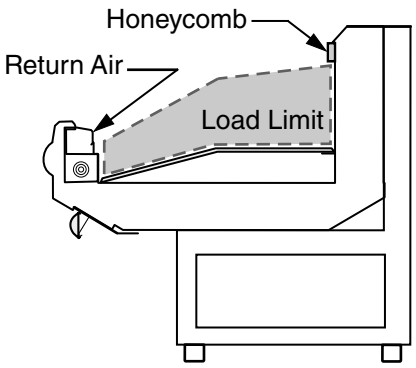
DO NOT BLOCK HONEYCOMB.

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 signs, product, packages, etc. to block these grilles. Do not use non-approved shelving, baskets, display racks, or any accessory that could hamper air curtain performance.



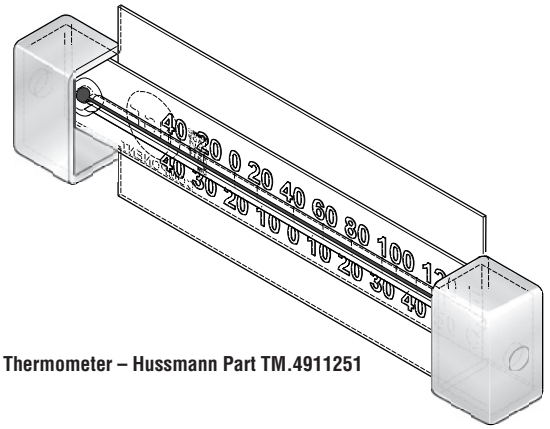
INSTALLING FDA/NSF REQUIRED THERMOMETER

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.

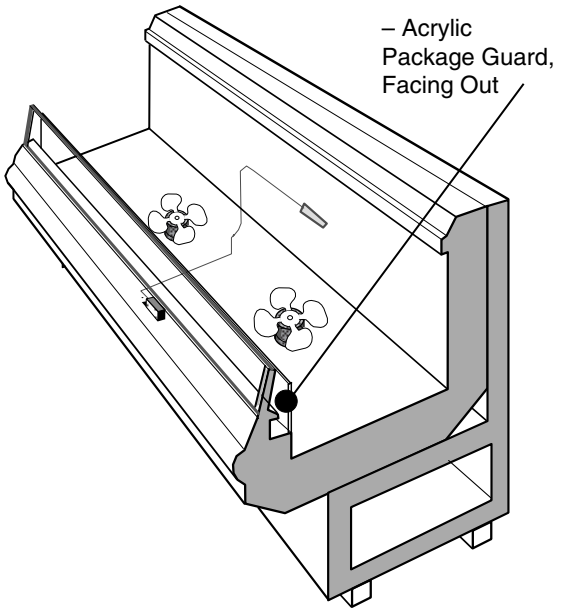
This is an NSF-7 & US FDA Food Code Required Thermometer

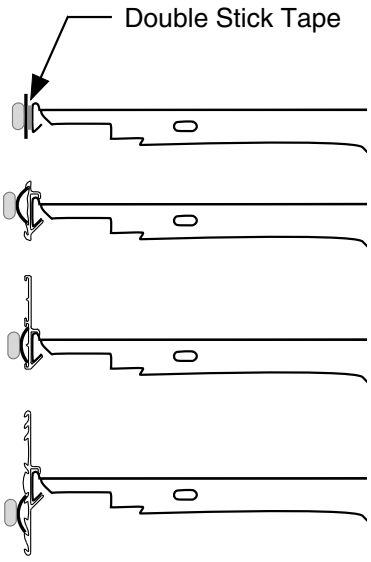


Thermometer – Hussmann Part TM.4911251

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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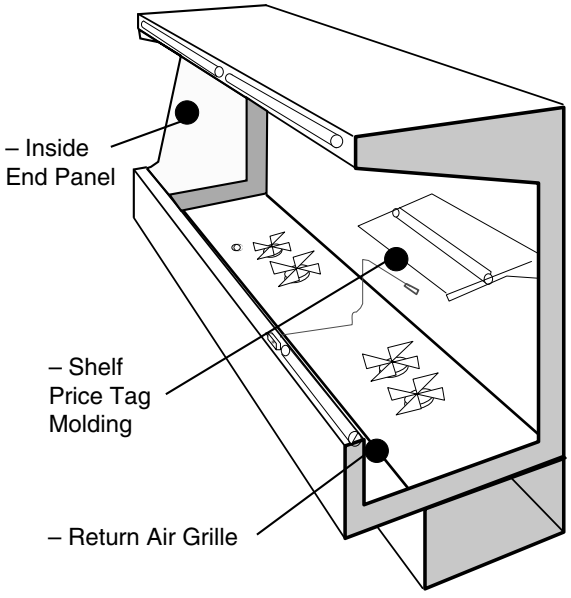
Suggested Mounting Locations
in Single Deck Glass Front
Impact Merchandisers





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 with 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 plsatic 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 officals.

Keep with merchandiser or give to store manager.

DO NOT DESTROY.

Notes:

MAINTENANCE

CARE AND CLEANING

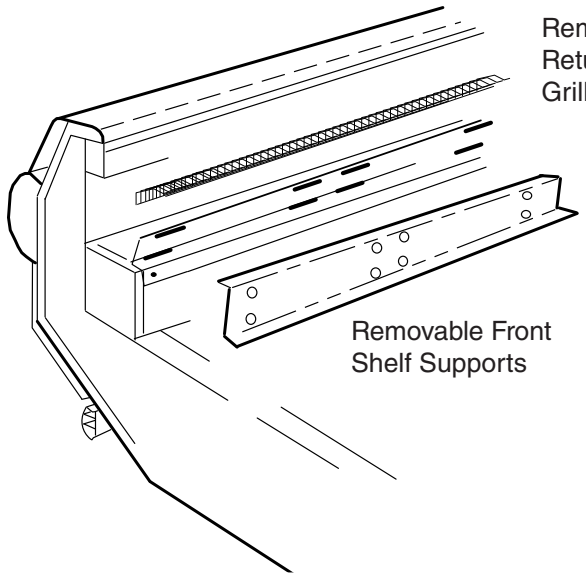
Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, these merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down, weekly.

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.

⚠ WARNING

SHUT FANS OFF DURING CLEANING PROCESS.

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.



⚠ 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.

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.

⚠ WARNING

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

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.

•Solvent, oil or acidic based cleaners on any interior surfaces.

•A hose on rail lights, canopy lights or any other electrical connection.

⚠ WARNING

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

Do:

•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.

•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.

•After cleaning is completed, turn on power to the merchandiser.

CLEANING HONEYCOMB ASSEMBLIES

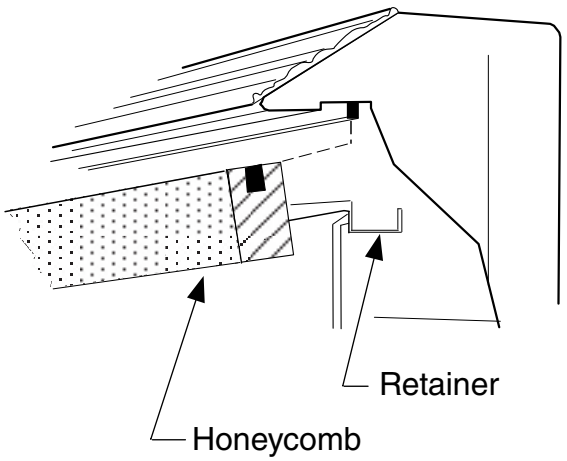
Honeycombs should be cleaned every six months. Dirty honeycombs will cause merchandisers to perform poorly. The honeycombs may be cleaned with a vacuum cleaner. Soap and water may be used if all water is removed from the honeycomb cells before replacing. Be careful not to damage the honeycombs.

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.



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. Lift the panel up, then pull forward and out.

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

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

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 necesssary. To maintain product integrity, move all product to a cooler until the unit has returned to normal operating temperatures.

Do NOT use chlorine or ammonia-based cleaners to clean aluminum coils.

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.

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.

MAINTAINING FLUORESCENT LAMPS

Fluorescent lamps should not be allowed to run to failure. If a re-lamp schedule is not in place, the tubes should be inspected for signs of degradation (blackened ends). Degraded or failed tubes should be replaced.

Allowing severly degraded lamps to operate may cause a ballast failure or could expose the lamp holder to excessive heat. Replacing degraded bulbs is more cost effective than replacing ballast and lamp-holders.

Traditional re-lamp programs are 18-to-24 month intervals. In the absence of a re-lamp program, a yearly inspection of the lighting system is recommended.

1. Inspect all lamp sockets and plug-receptacle connections for signs of arching. Replace any component that shows signs of arching.

2. Make sure all unused receptacles have their close-off covers securely installed.

3. Make sure proper cleaning procedures are followed. Lights and fans MUST be turned off when a case is cleaned and MUST be allowed to dry before turning power back on.

4. Do not use a pressure nozzle to clean inside of case.

SERVICE

REPLACING FAN MOTORS AND BLADES

⚠ CAUTION

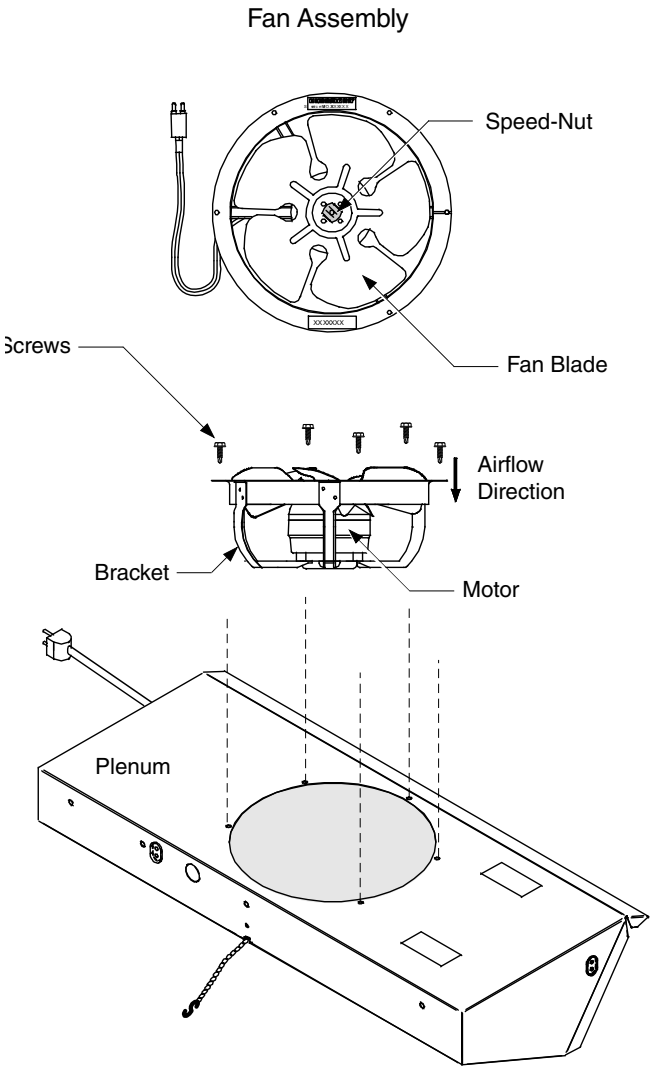
— LOCK OUT / TAG OUT —

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.

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.



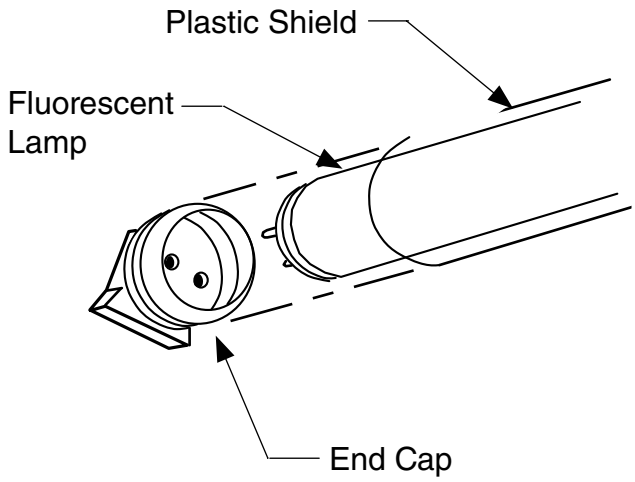
REPLACING FLUORESCENT LAMPS

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 rail lamp switch is located on the rail.

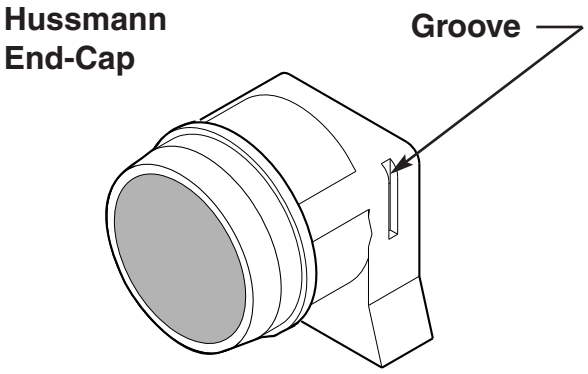
Inspect all lamp sockets and plug–receptacle connections for signs of arcing. Replace any component that shows signs of arcing.

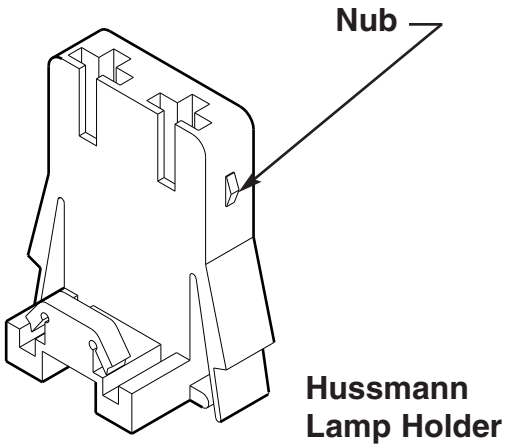
Make sure all unused receptacles have their close-off covers securely attached.



REPLACING LAMP HOLDERS AND END CAPS

The 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:

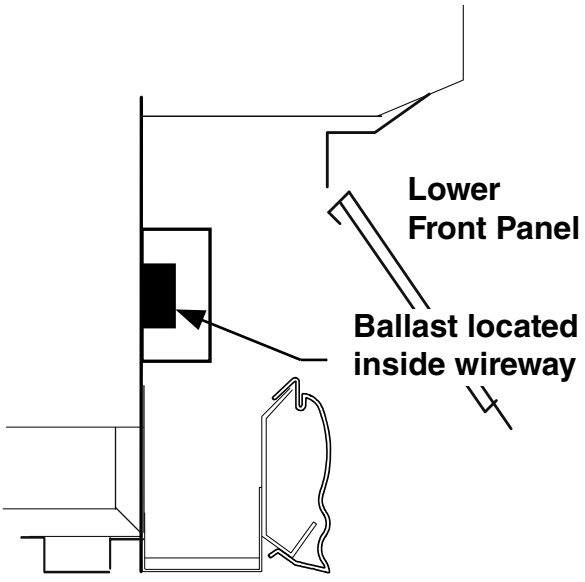
1. **DISCONNECT THE ELECTRICAL POWER TO THE MERCHANDISER.**

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.

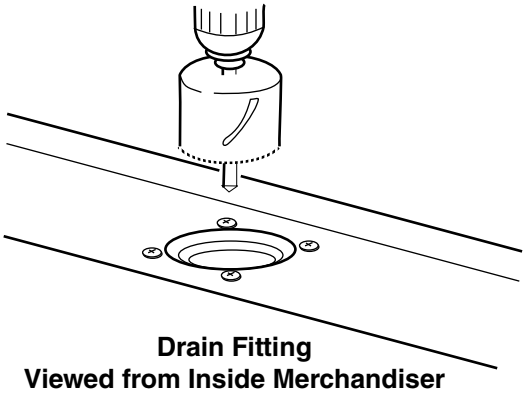
5. Reconnect the electrical power.



REPLACING DAMAGED DRAIN FITTING

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

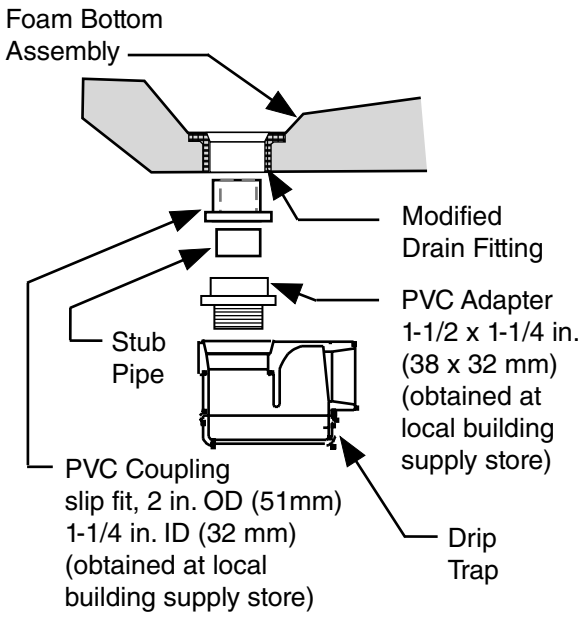
1. Use a drill with a 2 in. (51 mm) hole saw to drill out the bottom of the drain fitting. Be sure to drill completely through fitting and bottom liner.



Drain Fitting
Viewed from Inside Merchandiser

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 Hussmann
representative.

Please include the model and
serial number of the product.

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