HUSSMANN®

EVOLVE technologies compatible

Reach-in Merchandisers

Medium and Low Temperature

Use this manual along with door manual P/N 0425683 for cases with Innovator Doors

Use this manual along with door manual P/N 3008521 for cases with EcoVision II Doors (RMTD)

Installation & Operation Manual

Shipped With Case Data Sheets

P/N 0387183_W

August 2025

IMPORTANT

Keep in store for future reference!

Spanish P/N 0517045
French P/N 0527085

BEFORE YOU BEGIN
READ THESE INSTRUCTIONS COMPLETELY AND CAREFULLY.

LEGAL DISCLAIMER

Review all safety warnings on the case and in this manual before attempting start-up. Hussmann shall not be liable for any repair of replacement made without the written consent of Hussmann, or when the product is installed or operated in a manner contrary to the printed instructions covering installation and service which accompanied such product. Please note that failure to follow the instructions in this document may void your factory warranty.

ANSI Z535.5 DEFINITIONS

The definitions below are used to clarify the magnitude and urgency of harm and damage, considering problems arising from misuse. Relative to their potential danger, the definitions are divided into five parts according to ANSI Z535 Series.

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE is used to address practices not related to personal injury.

SAFETY INSTRUCTIONS (or equivalent) signs indicate specific safety-related instructions or procedures.

PROPOSITION 65

This warning does not mean that Hussmann products will cause cancer or reproductive harm, or is in violation of any product-safety standards or requirements. As clarified by the California State Government, Proposition 65 can be considered more of a'right to know'law than a pure product safety law. When used as designed, Hussmann believes that our products are not harmful. We provide the Proposition 65 warning to stay in compliance with California State law.

It is your responsibility to provide accurate Proposition 65 warning labels to your customers when necessary. For more information on Proposition 65, please visit the California State Government Website.

USER SAFETY AND PRODUCT INFORMATION

General Safety Instructions

SAFETY INSTRUCTIONS

This manual was written in accordance with originally prescribed equipment that is subject to change. Hussmann reserves the right to change or revise specifications and product design in connection with any feature of our products.

Personal Protection Equipment (PPE) is required. Wear safety glasses, gloves, protective boots or shoes, long pants, and a long-sleeve shirt when working with this equipment and while handling glass.

The safety of our customers and employees is paramount. The precautions and procedures described in this manual are intended as general methods for safe use of this equipment. Please be sure to comply with the precautions described in this manual to protect you and others from possible harm. Always follow OSHA standards for safety.

Only qualified personnel should install and service this equipment. Personal Protection Equipment (PPE) is required. Wear safety glasses, gloves, protective boots or shoes, long pants, and a long-sleeve shirt when working with this equipment and while handling glass.

Observe all precautions on tags, stickers, labels and literature provided and referenced for this equipment. Use only Hussmann approved parts approved through the Hussmann Performance Parts Website. Verify that all repair parts are identical models to the ones they are replacing. Do not substitute parts such as motors, switches, relays, heaters, compressors, power supplies, or solenoids.

Read all safety information regarding the safe handling of refrigerant and refrigerant oil, including the Material Safety Data Sheet. MSDS sheets can be obtained from your refrigerant supplier. Service is to be performed by factory-authorized service personnel, so as to minimize the risk of possible injury due to incorrect parts or improper service. Contact your Hussmann representative to arrange servicing.

1. If the information in these instructions are not followed exactly, a fire or explosion may result, causing property damage, personal injury or death. Observe all precautions on tags, stickers, labels and literature attached to this equipment.
2. Installation and service must be performed by a qualified installer or service agency.
3. This unit is designed only for use with R-290 gas as the designated refrigerant.

⚠WARNING

READ THE ENTIRE MANUAL BEFORE INSTALLING OR USING THIS EQUIPMENT.

- WARNING—Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.
- WARNING – Risk Of Fire. Dispose Of Properly In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
- WARNING – Risk Of Fire. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must Be Followed.
- WARNING – Risk of Fire due to Flammable Refrigerant Used. Follow Handling Instructions Carefully in Compliance with National Regulations.
- WARNING – Risk Of Fire or Explosion – Store in a well ventilated room without continuously operating flames or other potential ignition.
- WARNING – Risk Of Fire Or Explosion – Auxiliary devices which may be ignition sources shall not be installed in the ductwork, other than auxiliary devices listed for use with the specific appliance. See instructions.
- Installation and service must be performed by a qualified installer or service agency only as recommended by the manufacturer.
- Only a qualified and authorized technician should attempt to service.
- A hand-held leak detector ("sniffer") will be used before any repair and/or maintenance.
- No open flames, cigarettes, or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.
- Excessive ambient conditions may cause condensation and sweating on doors. Facility operators are responsible for monitoring doors and floor conditions and ensuring the safety of all persons present.
- WARNING: Keep clear of obstruction, all ventilation openings in the appliance enclosure or in the structure for build-in.
- WARNING: Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
- WARNING: Do not damage the refrigerating circuit.
- WARNING: Do not use electrical appliances inside the food storage compartments unless they are the type recommended by the manufacturer.
- WARNING: In order to reduce flammability hazards the installation of this appliance must only be carried out by a suitably qualified person.
- Do not use any means to clean, other than those recommended by the manufacturer.

⚠WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.
- WARNING – Risk Of Fire – Auxiliary devices which may be ignition sources shall not be installed in the ductwork, other than auxiliary devices listed for use with the specific appliance.
- Do not store items or flammable materials atop the unit. Do not walk on case.
- Do not store explosive substances, such as aerosol cans with flammable propellant, in this appliance.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.
- Any insulation shall be suitable for use with the material being insulated.
- Protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
- Piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ANSI/ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.
- The installation of pipe-work shall be kept to a minimum.
- Mechanical connections made in accordance shall be accessible for maintenance purposes.
- Provision shall be made for expansion and contraction of long runs of piping.
- Piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damaging the system.
- Flexible pipe elements shall be protected against mechanical damage, excessive stress by torsion, or other forces, and that they should be checked for mechanical damage annually.
- Precautions shall be taken to avoid excessive vibration or pulsation.

- After completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:

  1. The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.

  2. The test pressure after removal of pressure source shall be maintained for at least 1 h with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5 % of the test pressure.

  3. During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 1500 microns within 10 min. The vacuum pressure level shall be specified in the manual, and shall be the lessor of 500 microns or the value required for compliance with national and local codes and standards, which may vary between residential, commercial, and industrial buildings.

- Ducts connected to an appliance shall not contain a potential ignition source.
- Solenoid valves shall be correctly positioned in the piping to avoid hydraulic shock.
- Solenoid valves shall not block in liquid refrigerant unless adequate relief is provided to the refrigerant system low pressure side.
- Factory installed refrigerant sensors or detectors shall not be disconnected.

Additional warning related to servicing and maintaining equipment can be found in the maintenance and service section. Read all warnings prior to installing, performing maintenance, or servicing the equipment in any way.

⚠CAUTION

- Do NOT block air vents. Obstructing air vents will affect case performance, which could potentially lead to case failure.
- 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, to warm before applying hot water.
- Do NOT allow cleaning agent or cloth to contact food product.
- Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

INSTALLATION REQUIREMENTS

i. Equipment piping in the occupied space shall be installed in such a way to protect against accidental damage in operation and service.
ii. Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
iii. Protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
iv. Provision shall be made for expansion and contraction of long runs of piping.
v. Piping in REFRIGERATING SYSTEMS shall be so designed and installed to minimize the likelihood hydraulic shock damaging the system.
vi. Solenoid valves shall be correctly positioned in the piping to avoid hydraulic shock or pressure.
vii. Insulation shall be suitable for use with the material being insulated.
viii. Flexible pipe elements shall be protected against mechanical damage, excessive stress by torsion, or other forces. They should be checked for mechanical damage annually.
ix. The indoor equipment and pipes shall be securely mounted and guarded such that accidental rupture of equipment cannot occur from such events as moving furniture or reconstruction activities.
x. Where safety shut off valves are specified, the minimum room area may be determined based on the maximum amount of refrigerant that can be leaked.
xi. Where safety shut-off valves are specified, the location of the valve in the REFRIGERATING SYSTEM relative to the occupied spaces shall be in close proximity.
xii. Field-made refrigerant joints indoors shall be tightness tested to applicable codes and requirements.

SAFETY SHUT-OFF VALVES

a. Safety shut-off valves installation shall avoid hydraulic shock.
b. Safety shut-off valves shall not block in liquid refrigerant unless adequate relief is provided to the refrigerant system low pressure side.
c. Where safety shut-off valves are specified, the minimum room area may be determined based on the maximum amount of refrigerant that can be leaked.
d. Safety shut-off valves shall be located in such a way such that leaks upstream of the safety shut-off valve shall not enter the internal volume of the partial unit and in a space with a room volume large enough so that the maximum refrigerant charge complies to the limit for releasable charge. Safety shut off valves shall be positioned to enable access for maintenance by an authorized person.

REFRIGERANT DETECTION SYSTEMS

a. For REFRIGERANT DETECTION SYSTEMS, the function and operation and required servicing measures.
b. For LIMITED LIFE REFRIGERANT SENSORS used in REFRIGERANT DETECTION SYSTEMS, the specified end of life and instructions for replacement.
c. REFRIGERANT SENSORS for REFRIGERANT DETECTION SYSTEMS shall only be replaced with sensors specified by the appliance manufacture.

⚠WARNING

BEFORE WORKING WITH R-744 (CO2) REFRIGERANT

Safety Checks

- WARNING: The refrigeration system is under high pressure. Do not tamper with it. Contact qualified service personal before disposal.
- R-744 (CO2) systems have similar safety concerns with all conventional refrigerants, in that it displaces oxygen, is heavier than air and will concentrate closer to the floor if there is a system leak. R-744 should be monitored for leaks similar to other refrigerants.
- If the refrigeration system is de-energized, venting of the R-744 through the pressure regulating relief valves on the refrigeration system can occur. In such cases, the system might need to be recharged with R-744, but in any case, the pressure regulating relief valve(s) shall not be defeated or capped. The relief setting shall not be altered.
- A sufficient number of pressure relief and pressure regulating relief valves might need to be provided based on the system capacity and located such that no stop valve is provided between the relief valves and the parts or section of the system being protected.
- A pressure relief device shall be installed in the high-pressure side of the refrigeration system between the motor-compressor and the gas cooler. There shall be no shut off devices or other components except piping between the motor-compressor and the pressure relief device that could introduce a pressure drop.
- The pressure relief device shall be mounted so that any refrigerant released from the system during its operation cannot cause harm to the user of the appliance. The aperture shall be located so that it is unlikely to be obstructed in normal use.
- The installed pressure relief device shall have no provisions for setting by the end user.
- The pressure setting of the installed pressure relief device shall be no higher than the design pressure of the high-pressure side.
- Confirm operation of leak detectors (e.g., by exhaling near the sensor), audible / visible alarms, and machine room ventilation before operation.
- Ventilate adjacent enclosed areas to prevent the formation of dangerous concentrations of carbon dioxide.
- Avoid contact of the skin or eyes with solid carbon dioxide (dry ice) or objects cooled by solid carbon dioxide.
- Additional information on the safe use and handling of carbon dioxide can be found in Standards from the Compressed Gas Association Standard (www.cganet.com).
- The following checks shall be applied to installations:
  a. The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed.
  b. The ventilation machinery and outlets are operating adequately and are not obstructed.
  c. If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
  d. Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
  e. Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
- Replacement parts must be compatible with the specific unit's maximum design pressure as shown on the unit labeling. For example, if the unit has been designed to meet 1,160 psig (80 bar) maximum design pressure then any replacement part must be 1,160 psig (80 bar) compatible.

BEFORE WORKING WITH R-744 (CO2) REFRIGERANT (CONT.)

Asphyxiation

- R-744 is odorless, heavier than air, and is an asphyxiant gas. If sensor reading is maxed out or non-responsive assume an unsafe level of CO2 and ventilate the room prior to entering.
- Practical limit of R-744 is 0.006 lb/ft3 (56,000 ppm).
- Personnel including rescue workers should not enter areas in which the carbon-dioxide content exceeds 3% (30,000 ppm) by measurement unless wearing an SCBA or supplied-air respirator.
- A leak of R-744 could result in a concentration exceeding the practical limit in an enclosed, occupied space such as a cold room. Precautions must be taken to prevent asphyxiation. These include the use of permanent leak detection, which activates an alarm in the event of a leak.
- The practical limit is defined in ASHRAE 34 but may vary depending on regional regulations. The table below summarizes the effect of R-744 at various concentrations in the air.

PPM of R-744 (CO_2)	Effects
442	concentration in atmosphere
5,000	long-term exposure limit (8 hours)
15,000	short-term exposure limit (10 minutes)
30,000	discomfort, breathing difficulties, headache, dizziness, etc.
100,000	loss of consciousness, followed by death
300,000	quick and immediate death

CO2 Quality

- CO2 that is purchased for use in refrigeration systems should be of a purity level high enough to prevent accumulation of non-condensible gases and moisture. A build-up of these gases can block small orifices (such as expansion valves) or lead to high discharge pressure, reducing operation or causing the system to become inoperable.
- CO2 is commercially available at several different purity levels. The common names and percent purity are listed below. Hussmann recommends using “Refrigeration Grade” (99.99% purity) CO2.
- Mixing of higher purity grades of CO2 is acceptable. Lower grades of CO2 contain higher levels of contaminants and water and will decrease system performance. Higher levels of moisture may react with the CO2 and form carbonic acid that can degrade component integrity. Hussmann recommends keeping enough refrigeration grade CO2 on-site to charge the system.
- Medical grade CO2 should not be used, due to the outlet pressure regulators typically present on tanks.
- Bone-Dry grade is the minimum acceptable purity to ensure proper operation of the equipment and is pure enough to technically prevent accumulation of non-condensible gases in the system.
- R-744 (CO2) purity:

R-744 (CO_2) Grade	Purity
Industrial and Medical Grade	99.5%
Bone Dry (minimum acceptable)	99.8%
Anaerobic Grade	99.9%
Refrigeration Grade (recommended)	99.99%
Coleman/Instrument Grade	99.99%
Research Grade	99.999%
Ultra-Pure Grade	99.9999%

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WARRANTY

CASE CLEARANCE

A 4-inch (102 mm) space between the rear of the merchandiser and wall must be maintained for air circulation. However, in high ambient conditions, sweating may still occur. If this happens, install a method of forced ventilation such as a fan ventilation kit.

NOTICE

- Merchandiser must operate for 24 hours before loading product!
- Regularly check merchandiser temperatures.
- Do not break the cold chain. Keep products in cooler or freezer before loading into merchandiser.
- Low temperature merchandisers are designed for loading ONLY frozen products. Medium Temperature merchandisers are designed for loading ONLY chilled products.

INSTALLATION TOOL LIST

Unloading From Trailer:

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

Setting Case Line-Up:

Level, 4 ft suggested
Ratchet
¼ in. Socket
5/16 in. Socket
½ in. Socket
Battery Drill/Screw Gun
Caulking Gun
10 in. Adjustable Crescent Wrench

REVISION HISTORY

REVISION W — NOVEMBER 2024
1. Updated for UL 60335

REVISION V — FEBRUARY 2017
1. Page 1-1, Added Additional Statement to Fed. / State Regulations; Ambient Conditions note, Page 4-1

REVISION U — DECEMBER 2016
1. Page 1-24, Added Splashguard Brackets for RMT

INSTALLATION

UL LISTING

These merchandisers are manufactured to meet ANSI/ UL 60335 requirements for safety. Proper installation is required to maintain the listing.

FEDERAL / STATE REGULATION

These merchandisers at the time they are manufactured, meet all federal and state/ provincial regulations. Proper installation is required to ensure these standards are maintained. Near the serial plate, each merchandiser carries a label identifying the environment for which the merchandiser was designed for use. In compliance with DOE 2017, standard low temp Reach In cases with Innovator I Doors are equipped with an anti-sweat controller that maintains the door heat at a level that meets DOE energy limits. Any factory or field-installed anti-sweat controller applied to a low temp Reach In case with Innovator I Doors must be programmed to cycle the heaters at no more than 50% run time at design conditions of 75 degrees, 55% RH for frozen food operating condition.

ANSI/NSF-7 Type I – Display Refrigerator / Freezer
Intended for 75°F (24°C) / 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. To prevent sweating on the exterior surfaces of merchandisers, there must be A MINIMUM CLEARANCE OF 4 INCHES (102 MM) between the merchandisers and other fixtures or walls. 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.

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. The carrier will supply necessary forms.

Concealed Loss or Damage
When loss or damage is not apparent until after equipment is uncrated, a claim for concealed damage is made. Upon discovering damage, make request in writing to carrier for inspection within 15 days and retain all packing. The carrier will supply inspection report and required claim forms.

⚠ 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 store items or flammable materials atop the unit.

⚠ WARNING

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

For California Businesses:

This warning is the result of the California State law known as the California Safe Drinking Water and Toxic Enforcement Act of 1986, which is commonly referred to as "Proposition 65."

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

MERCHANDISERS SHIPPED WITH END INSTALLED

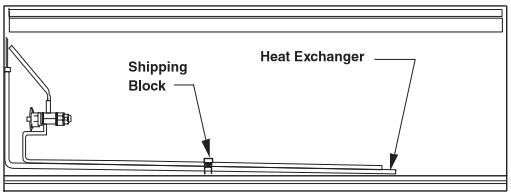
If the case was shipped with the end installed, two long bolts were used to hold the shipping brace to the end. If the shipping bolts are reinserted after removing the brace, they will extend into the product area and may damage the coil. THEREFORE, BE SURE TO REPLACE THESE BOLTS WITH THE SHORTER BOLTS PROVIDED.

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

Locate the shipping block in the center of the heat exchanger (see illustration), and remove it before piping the merchandiser. This block was installed to minimize shipping vibration.



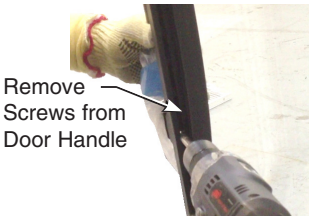
Top View of Merchandiser

MOVING MERCHANDISER THROUGH NARROW STORE ENTRANCES

Some exterior merchandiser parts may be disassembled for transit access through small doors or passage ways. This procedure takes approximately 30 minutes to disassemble and reassemble one case. Contact your Hussmann representative to see if store merchandisers have this kit option. The case height without these components installed on top is 82.75 in. (2102 mm). Case depth is 35.5 in. with handles, wireway pan and external frames removed.

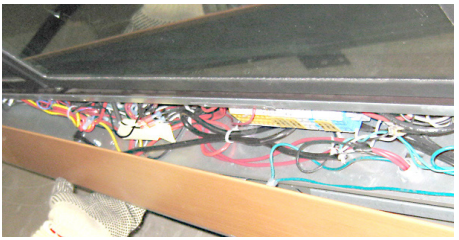
Follow the steps below to decrease the merchandiser profile for narrow access:

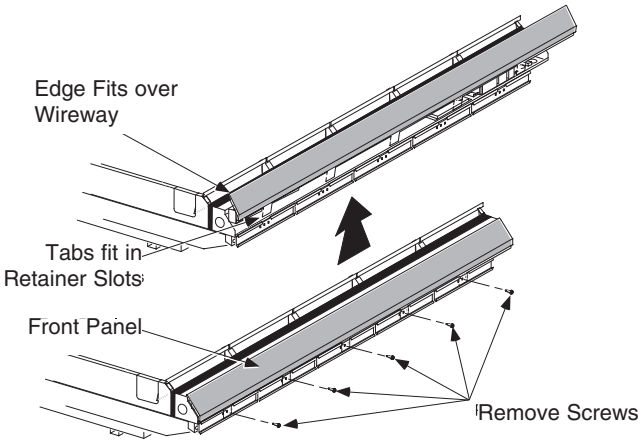
1. Remove the door handles.



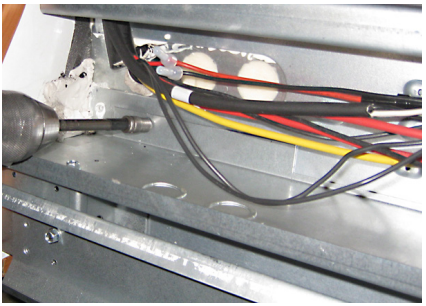
2. Remove the front bumper. Pull from the bottom and set aside.

3. Remove the lower front panel to access the wireway.

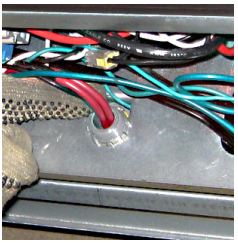




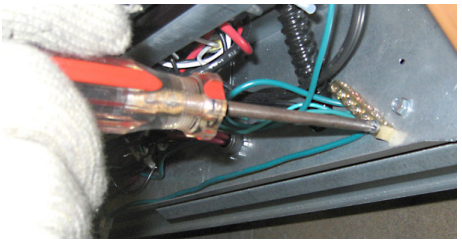
4. Remove the screws that attach the wireway pan to the bottom assembly.



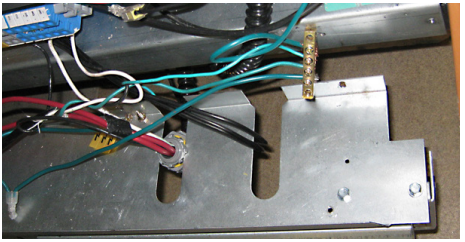
5. Detach the rubber and plastic gromets from the wireway pan.



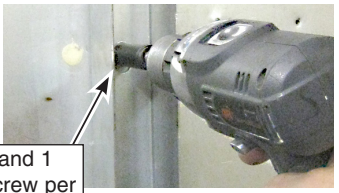
6. Remove the screws that attach the grounding lug to the wireway pan.



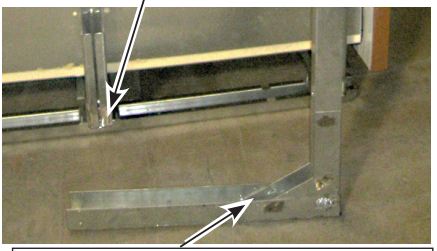
7. Slide the wireway pan out, and remove it from the case. Bumper brackets and supports are attached to wireway pan. Removing the pan will remove the entire assembly.



8. Remove the back, external braces from the rear of the case as shown below. Braces will slide straight back away from the case when nuts and screws are removed.



6 nuts and 1 bottom screw per external brace



Bottom screw is located approximately 10 inches inboard from the rear of the case. Bottom screw location on removed rear brace.

Check the following before the rear of the case is positioned at its final location according to the store plan:

1. The external braces must be reinstalled with (6) nuts per brace, torqued to 24 foot pounds.

⚠ CAUTION

Do not walk on top of merchandiser. Do not store items or flammable materials atop the unit."

FINAL LOCATION

Once the case reaches its final location, reassemble the wireway and door handles as follows:

1. Reinstall wireway pan in reverse order of removal.

2. The ground lug must be reinstalled using the screws provided.

3. Replace the conduit connectors and plastic gromets to the wireway pan.

4. Replace wireway cover, bumper and door handles.

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.

Metal leveling shims or wedges are provided with each merchandiser for use if needed.

⚠ CAUTION

Rear external frames must be reinstalled securely before setting or unloading shelves.

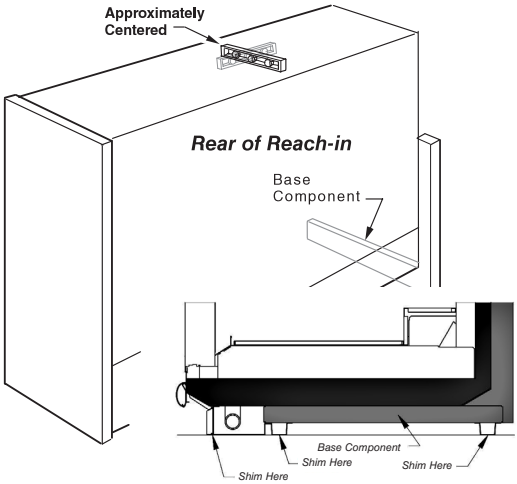
DO NOT WALK ON TOP OF THE MERCHANDISER. DO NOT PLACE HEAVY OBJECTS ON CASE.

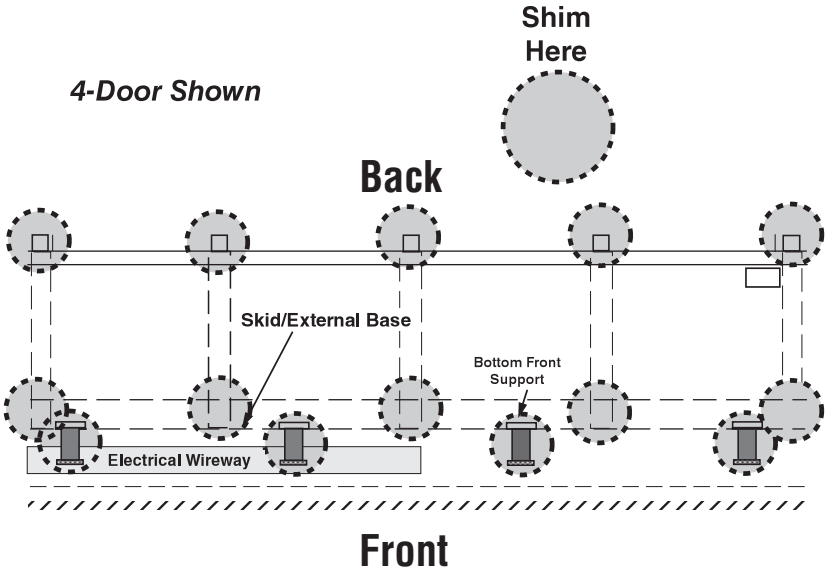
NOTE: BEGIN LINEUP LEVELING FROM THE HIGHEST POINT OF THE STORE FLOOR.

Place shims under the rail and make sure that they are positioned at a base component (crossbar). Thi transfers the weight directly from the loaded case through to the floor.

Placing shims at other locations will cause uneven distribution of weight leading to piping leaks, as well as sagging or wracked doors.

Bottom front supports must be shimmed if not in full contact with the floor.





DOOR ADJUSTMENT

After leveling and joining the merchandisers, adjust and level doors according to manufacturer's instructions shipped with each product. Factory settings may be lost due to vibration during shipment.

JOINING

Sectional construction means that two or more merchandisers may be joined in line yielding one long continuous display requiring only one pair of ends. Joining kits and instructions are shipped with each merchandiser.

To join like fixtures, a joining kit is required. To join unlike fixtures, or like fixtures operating at different temperatures, a 2 inch (51 mm) partition kit is required. To join same temperature merchandisers on different defrost cycles, a plexiglass partition kit is required.

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

Refer to the instructions on the next page.

Joining Instructions

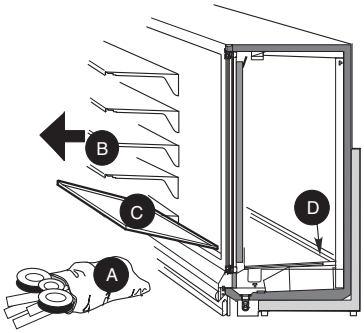
Remote Reach-Ins Joining Instructions

Splashguard brackets must be installed before piping or wiring case.

PARTS LIST

Item	*Quantity*					*Description*
	RL/RM RM/RMF	RLNS/ RMNS/ RLTIM	RLN RMN	RLNIM RLNIE	RMTM RLTM, RMTD	
1.	2	4	2	4	2	Donut Gasket
2.	1	4	1	2	2	Gasket, .906 x 1/2 x 200 in.
3.	1	2	1	2	1	Gasket, 1/2 x 1/4 x 600 in.
4.	8	12	8	14	6	Cap Screw 5/16 -18 x 1 1/4
5.	8	12	8	14	6	Split Lock Washers 5/16
6.	1	2	1	2	1	Joint Molding
7.	5	10	5	10	5	Binder Post and Screw
8.	1	2	1	2	1	Splice Connector

NOTE: Be sure first merchandiser has been leveled according to the main installation instruction. Carefully unpack and inspect the joining parts listed above to verify completeness and that there is no damage.



1 Prepare cases for joining (both sides of islands) as shown in Figure 1.

A. Remove bumpers, rails, packing materials, and splashguards from the both cases.

B. Remove shelves (if installed).

C. Remove display racks and pans from ends to be joined.

D. Remove plenum covers.

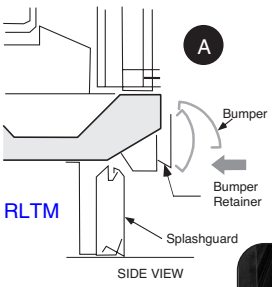
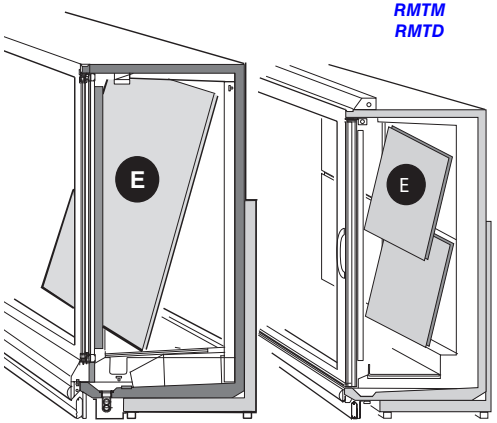


Figure 1. Prepare Cases

RL / RM / RMF RLN / RMN and RLNI

E. Remove back panels from ends to be joined by lifting up and out near the bottom. No tools are necessary. The RLTM models have upper and lower back panels that must be removed.

RLTM RMTM RMTD



F. Remove joint molding from any door frames that will be joined to another case.

G. RLNI Only: Remove screws and interior top panel on both sides of the island case end to be joined (see Figure 1).

RLNI Only

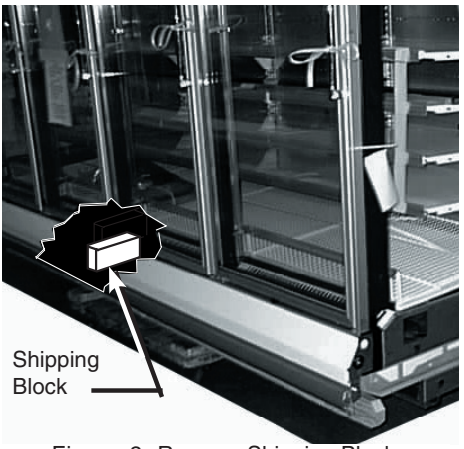


Figure 2. Remove Shipping Block
(One From Each Side of Island Models)

2 Locate and remove the shipping block in the center of the heat exchanger in the interior bottom of each case, see Figure 2.

Snap a chalk line on the floor to use as a guide for positioning the front of the cases in the line-up. The front base frame should be on the chalk line.

3 Once cases are close to final placement, remove the shipping braces from the ends to be joined, see Figure 3. Discard bolts and flat washers used to hold shipping braces. Bolts are too long to be used for joining.

DO NOT USE SHIPPING BOLTS TO JOIN CASES!

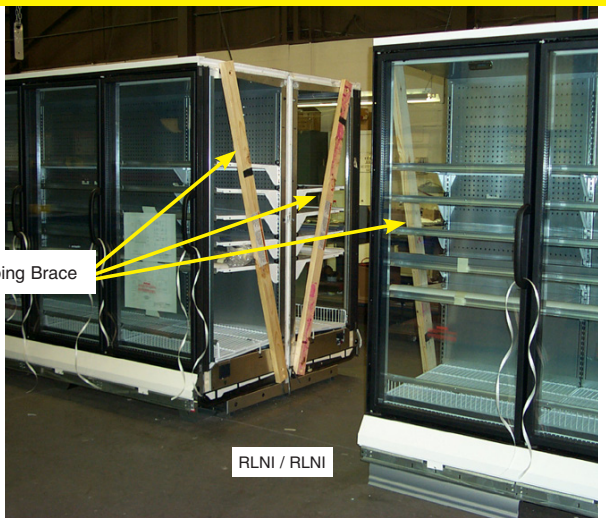


Figure 3. Remove Shipping Braces

4 If not already installed make sure Nut Retainers and Alignment Pins are in place in the right end frame as shown in Figure 4A or 4B.

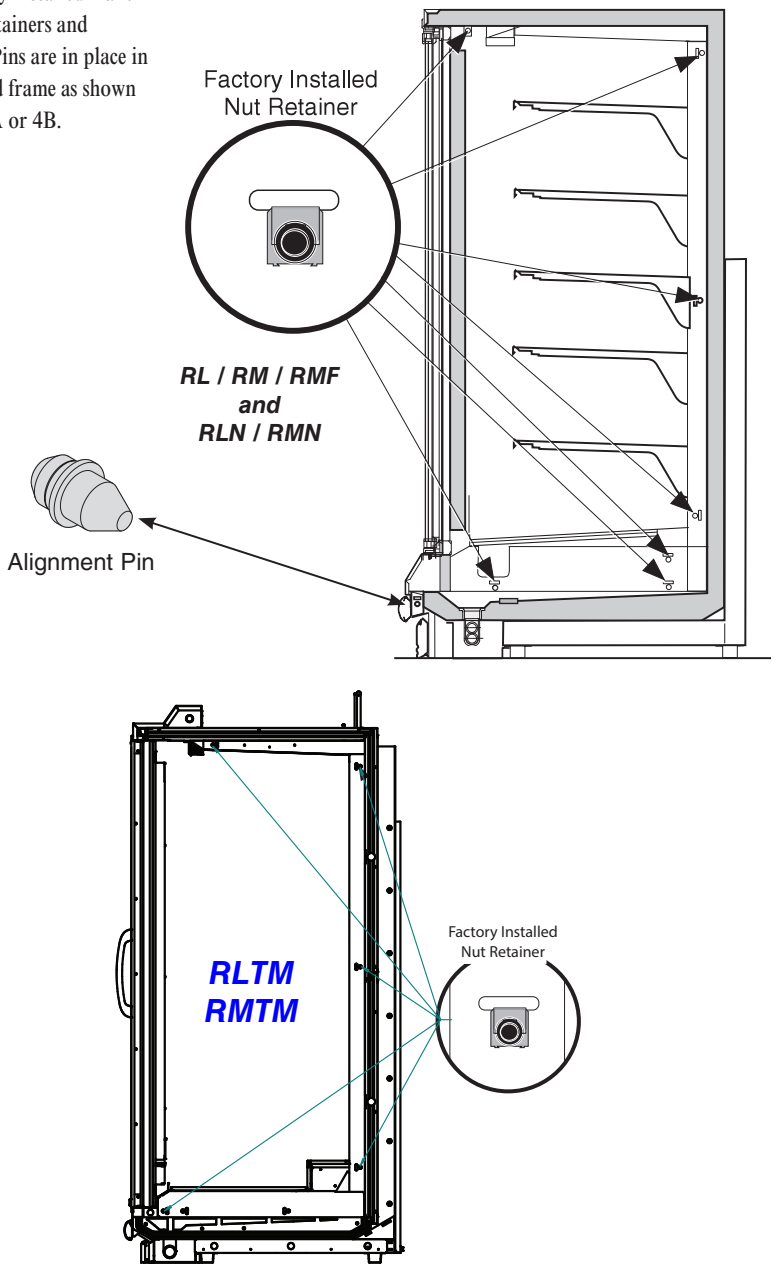
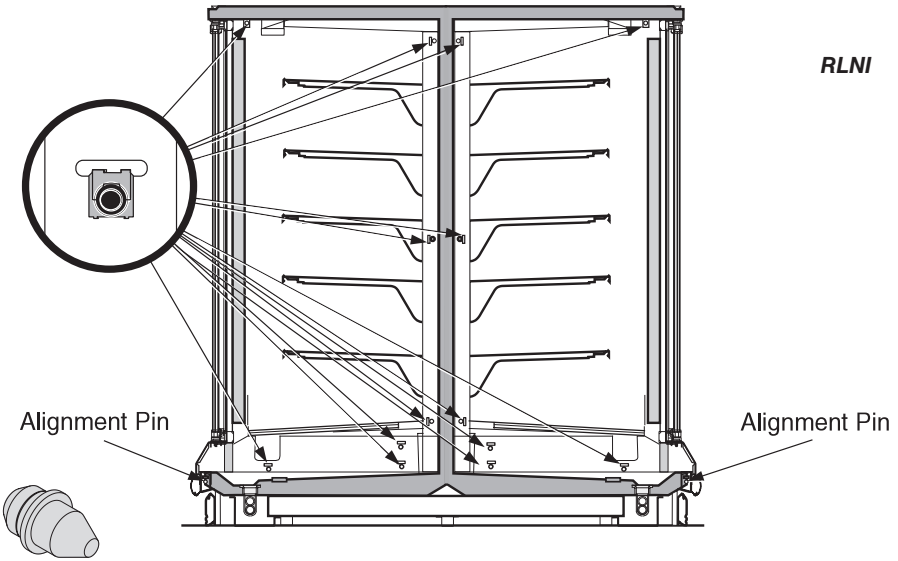


Figure 4A. Verify Nut Retainer Installation


RLNI
Alignment Pin
Alignment Pin

5 Apply Donut Gasket – 1 in recess around both left end as shown in Figure 5A, Part 1; 5B or 5C, Part 1, and right end frames as shown in Figure 5A, Part 2; 5B or 5C, Part 2.

Apply the wider Foam Tape Gasket — 2 around the right end frame as shown in Figure 5A, Part 2, 5B or 5C, Part 2.

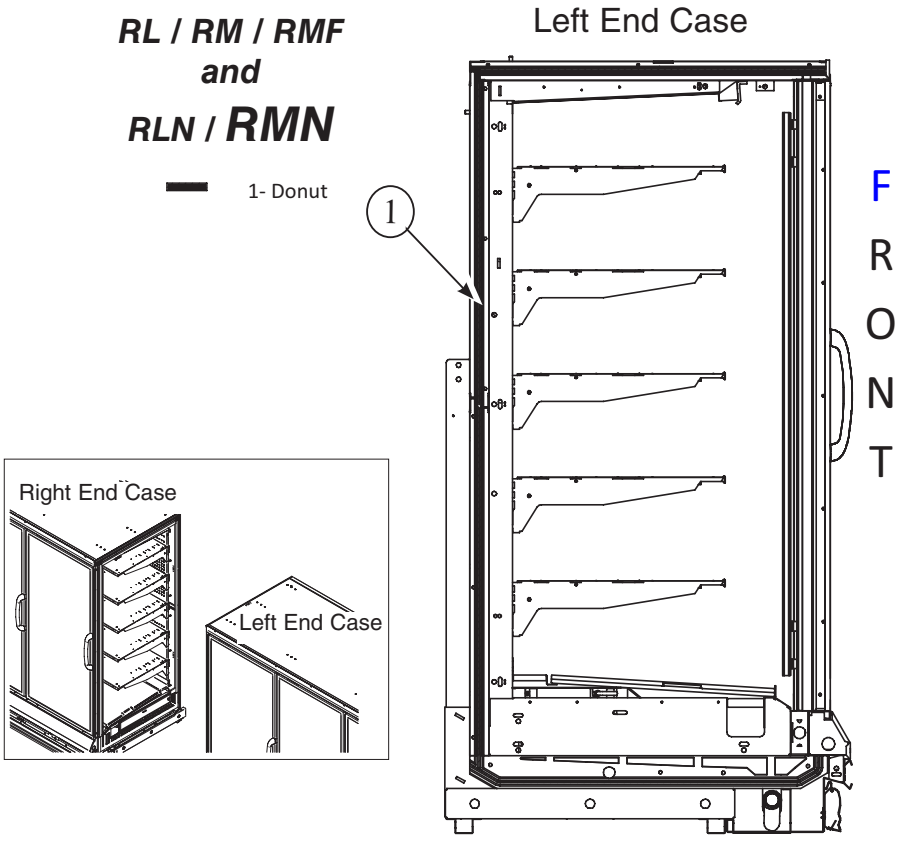


Figure 5A, Part 1. Apply Gasket to Left End of RL/RM/RMF and RLN/RMN

Apply gasket pad to right end first, then apply the narrower Foam Tape Gasket — 3 around the perimeter of the right end frame outside of the donut gasket as shown in Figure 5A, Part 2, 5B or 5C, Part 2.

- Lap gaskets at lower corners.
- Check that there are no gaps between gasket and case.
- Do not stretch gasket, especially around corners. To make sharp corners, paper backing can be torn without removing from gasket.
- Do not butt gaskets; always lap joints.
- Remove paper backing after gasket is applied to keep gasket free of debris.
- Gasket has high tack adhesive and must be properly placed the first time.

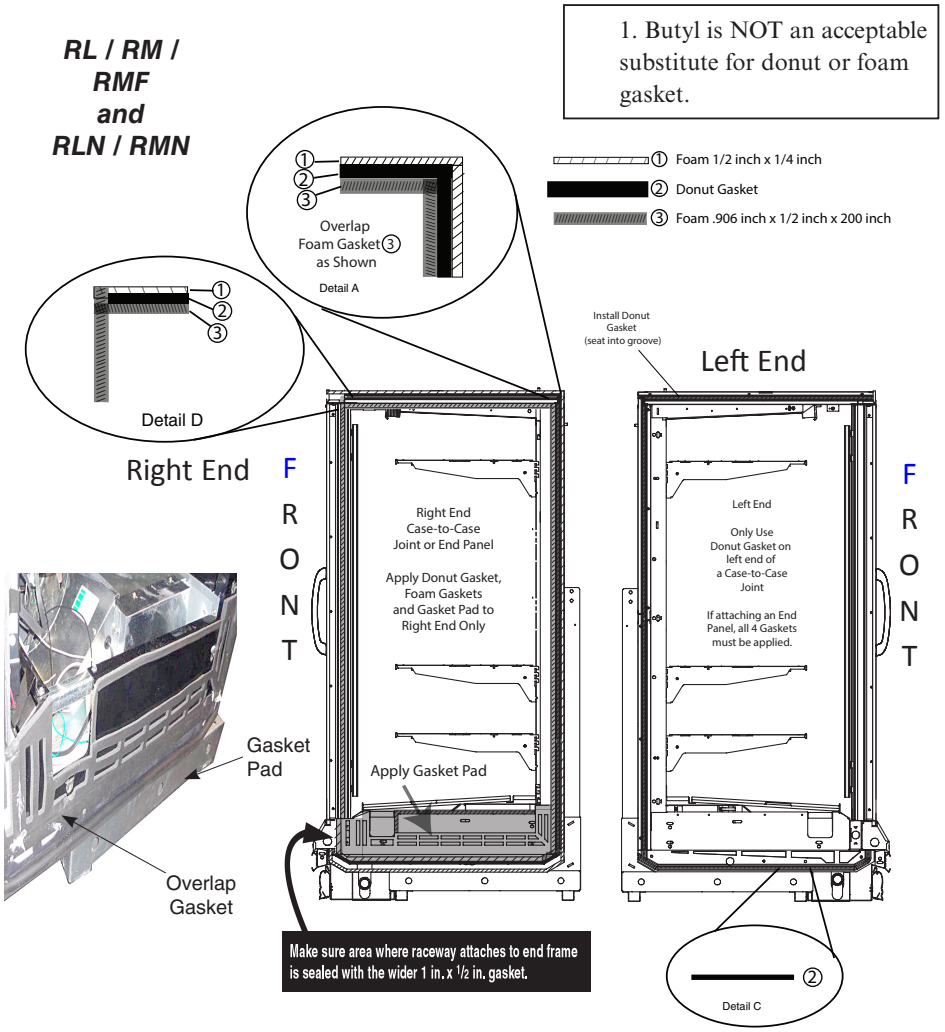


Figure 5A, Part 2. Apply Gaskets to Right End of RL/RM/RMF and RLN/RMN

RLNI

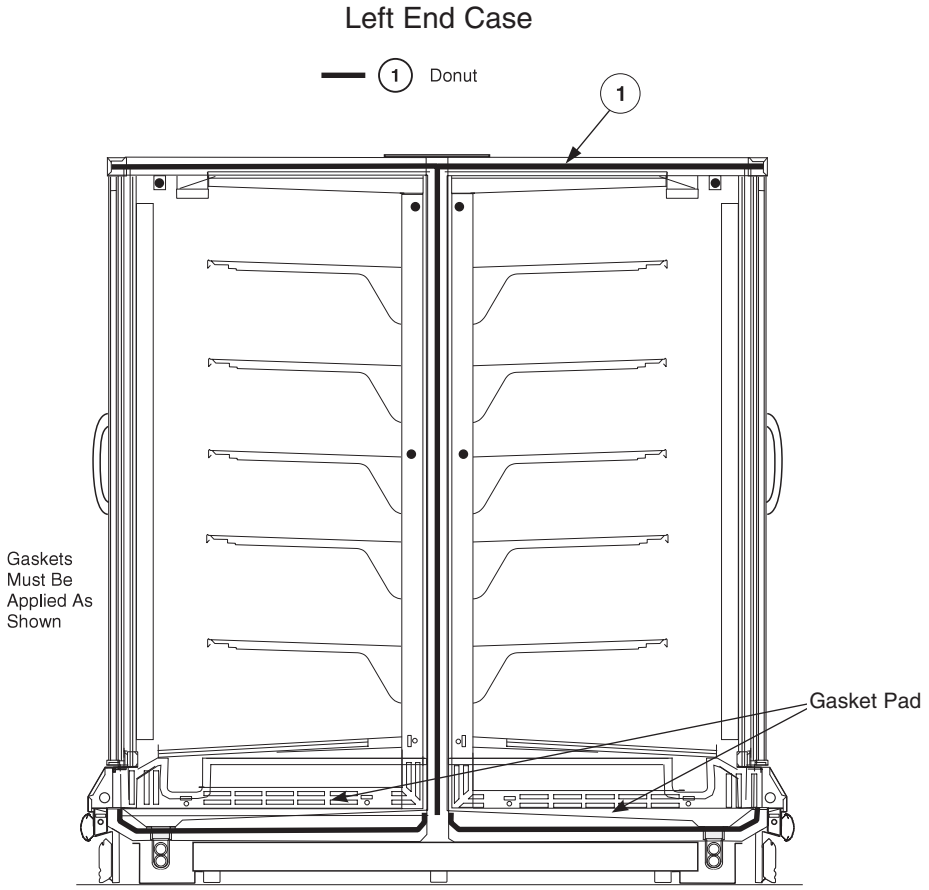


Figure 5A. Apply Gaskets to Left End of RLNI

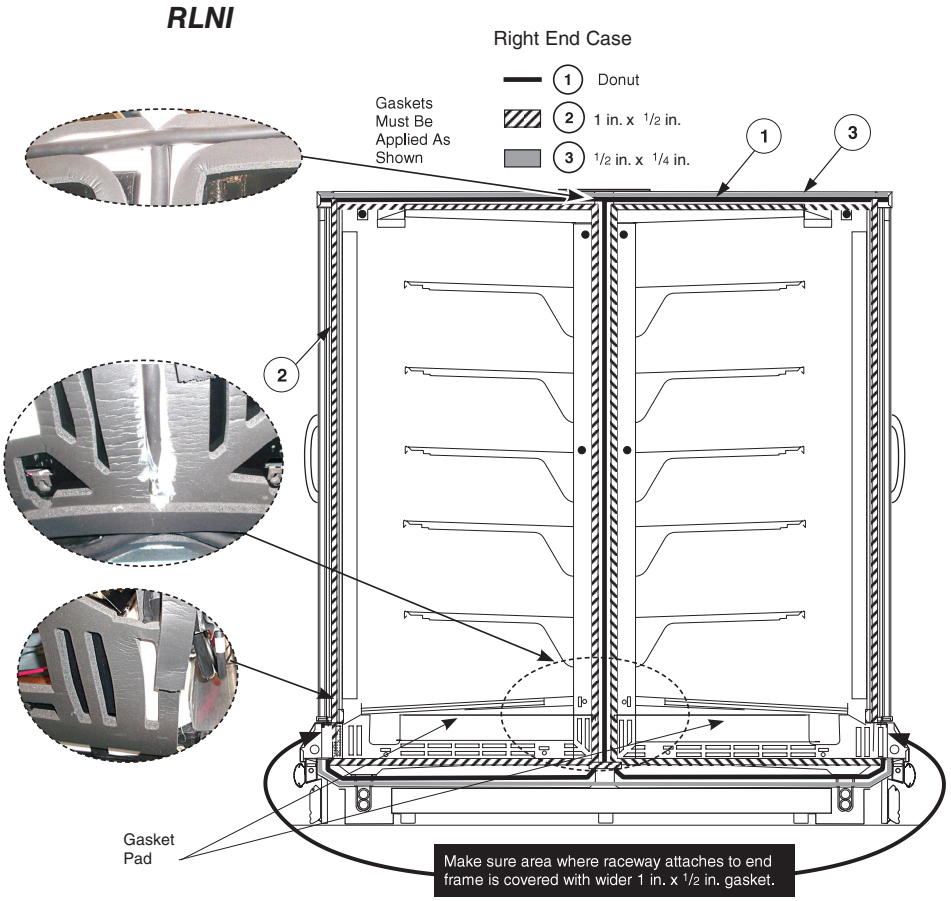
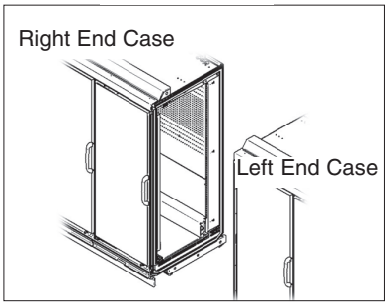


Figure 5B. Apply Gaskets to Right End of RLNI

RLTM
RMTM
RMTD



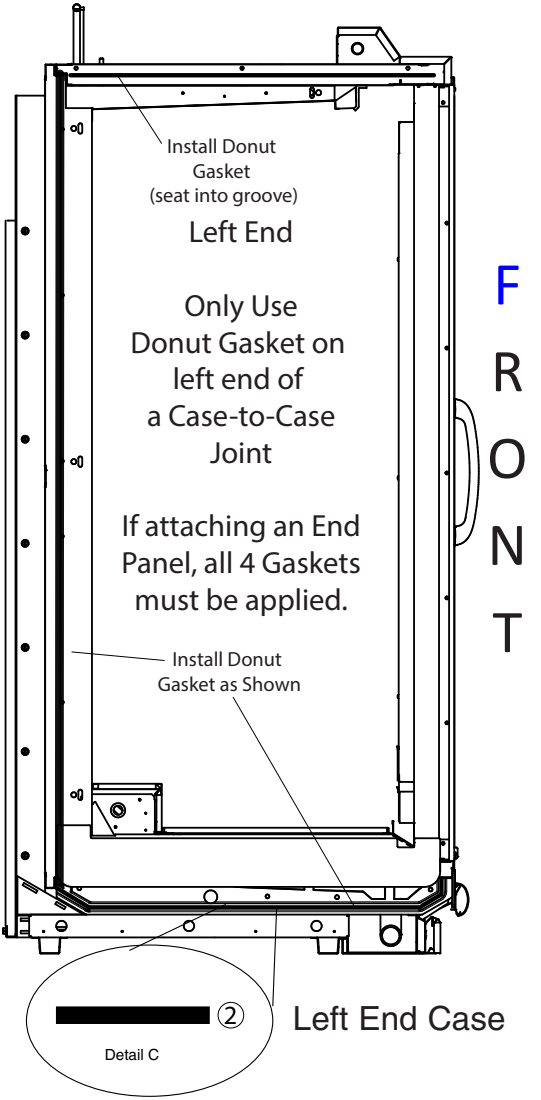


Figure 5C, Part 1. Apply Donut Gasket to Left End of RLTM / RMTM /

6 Move the second merchandiser against first, mating alignment pins with corresponding holes. Use care when pushing the cases together.

RL / RM / RLN / RMN / RLNI: Do not cut wires routed along the front bumper retainer. See detail in Figure 6.

The RMTM / RLTM / RMTD has no alignment pin and the wireway is at the top front.

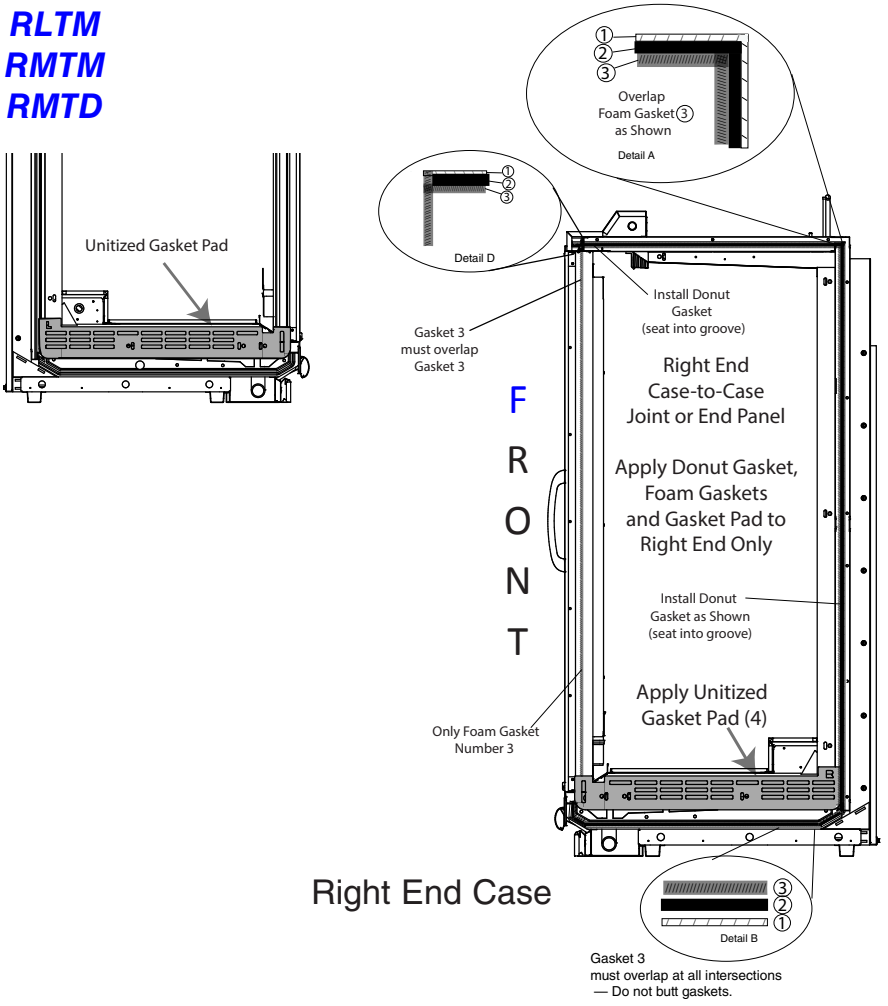


Figure 5C, Part 2. Apply Gasket to Right End of RLTM / RMTM / RMTD

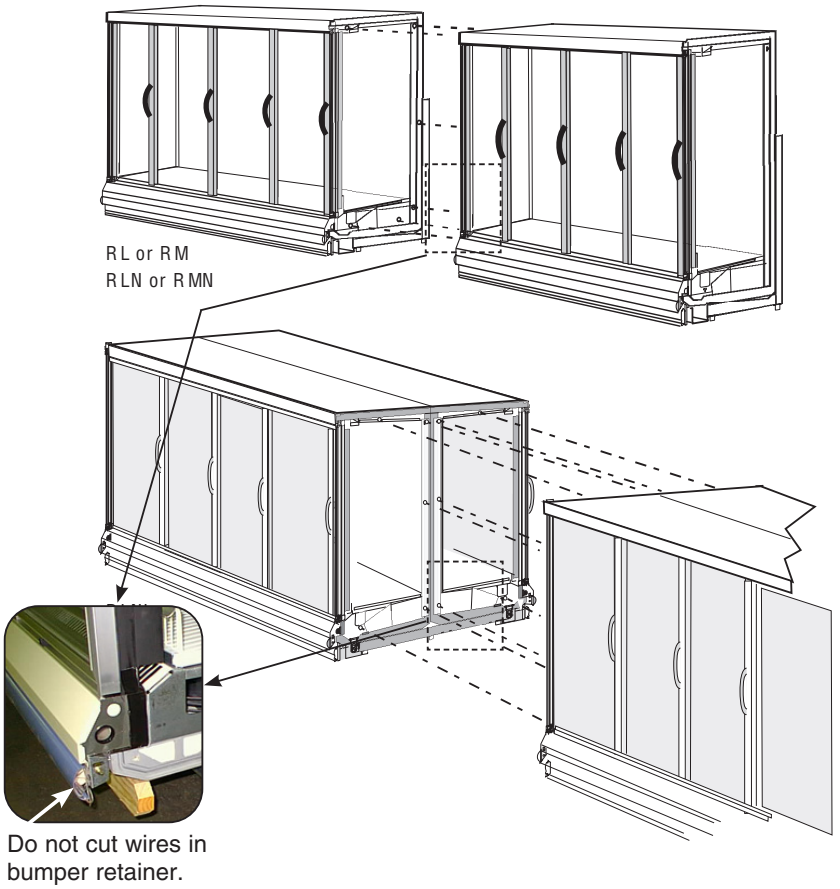


Figure 6. Move Cases Together

RL, RM, RMF, RLN, RMN

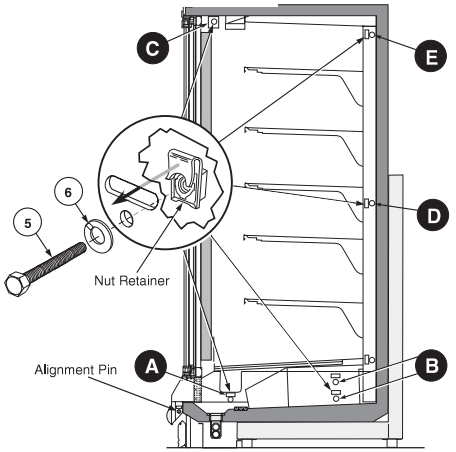


Figure 7A. Joining Sequence

RLTM / RMTM / RMTD

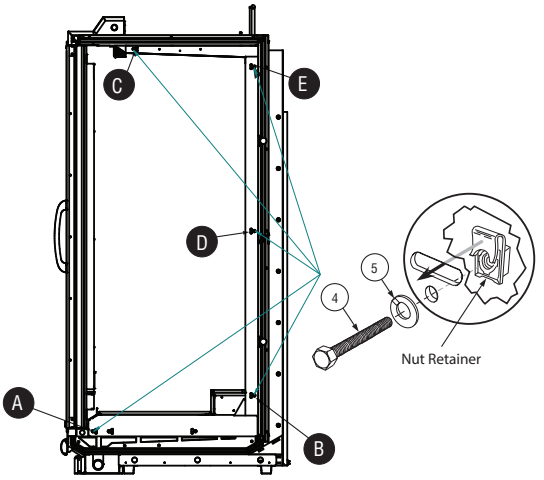


Figure 7B. Joining Sequence

7 Loosely insert Cap Screw – 5 with Lock Washer – 6 into each nut retainer following the sequence shown in Figures 7A and 7B.

Do not tighten fully.

A. Fasten bottom fronts together, but tighten only until front panels touch.

B. Move to the bottom back position and join (2 places).

C. Join at the top front position.

D. Go to the middle back wall position and join.

E. Join at the lower back wall.

F. Finally, join at the top back wall position.

Following the same sequence, tighten each cap screw fully until the merchandisers are joined with a snug fit and gaskets are compressed.

When joining two RLNIE models, nut retainers and alignment pins are used on one case only.

8 Refer to Section 1 of the Reach-In Installation and Service Manual to install splashguard brackets and bumpers. Section 3 provides direction for installing splashguards, including splashguard Splice Connector – 8. shown in Figure 9.

Note that RLTM / RMTM cases have steel splashguards that do not use a splice connector.

RLNI

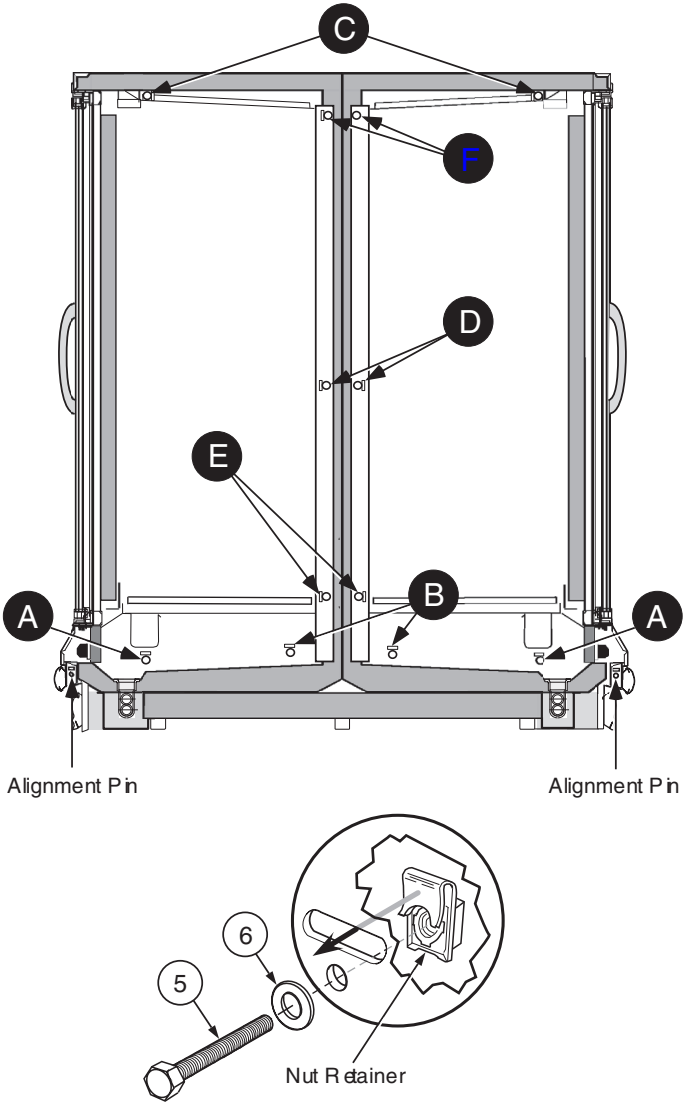


Figure 7C. Joining Sequence for RLNIM Cases

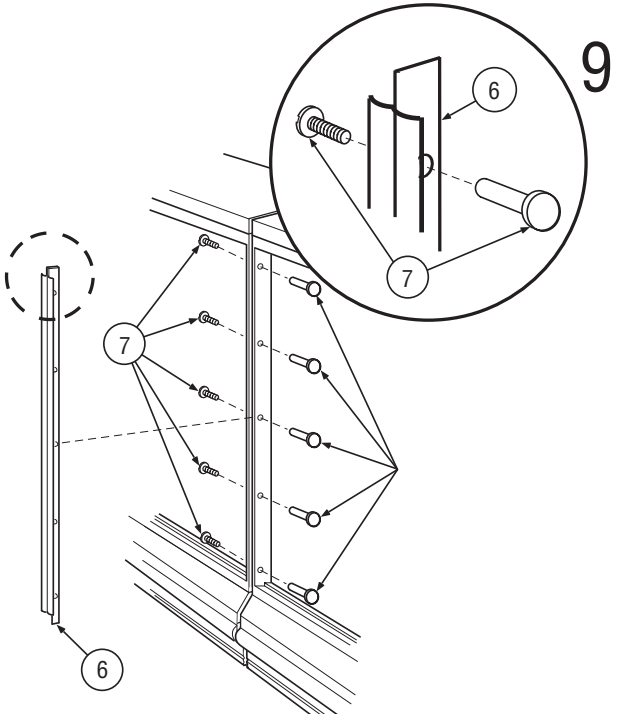


Figure 8. Installing ***"J"*** Molding

9 Align holes in frame with holes in Joint Molding – 6. Fasten cases together using Binder Post and Screws – 7 as shown in Figure 8.

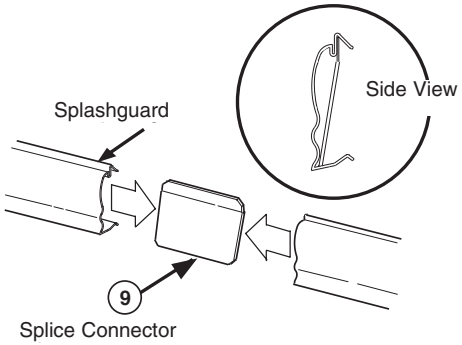
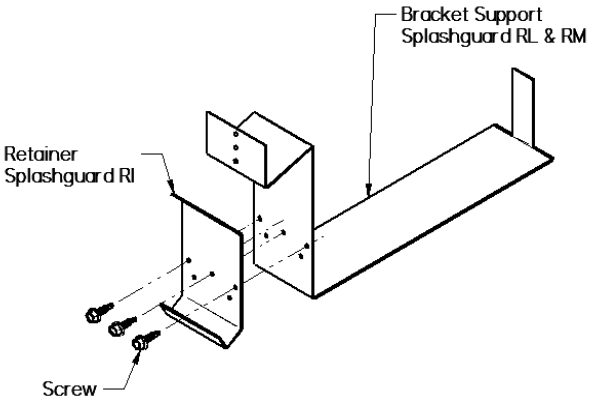


Figure 9. Installing Splashguard Splice Connector

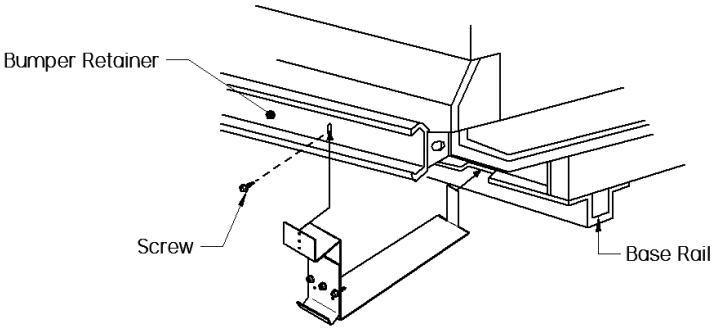
10 Refer to Section 1 of the Reach-In Installation and Service Manual to install splashguard brackets and bumpers. Section 3 provides direction for installing splashguards, including splashguard Splice Connector – 8. shown in Figure 9. Note that RLTM cases have steel splashguards that do not use a splice connector.

INSTALLING SPLASHGUARD BRACKETS (RL/ RLN)

1. Attach retainer splashguard RI to bracket support splashguard RL & RM using three screws



2. INSTALL SPLASHGUARD SUPPORT BRACKETS BEFORE PIPING CASE. The leveling brackets have a maximum extension of one (1) inch (25 mm) for uneven floors.



DO NOT PLACE SHIMS UNDER SPLASHGUARD BRACKETS.

INSTALLING SPLASHGUARDS AND BRACKETS

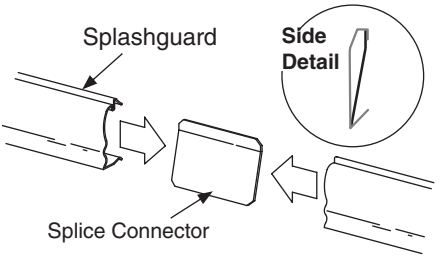
(RLTM Cases)

To install splashguards and brackets:

1. Slide the splashguard support bracket's small flange into base rail slots. Next, slide the splashguard retainer assembly under the case as shown.

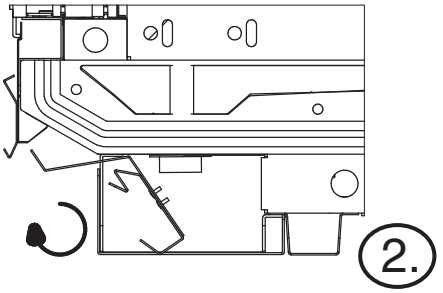
Splashguards Installation

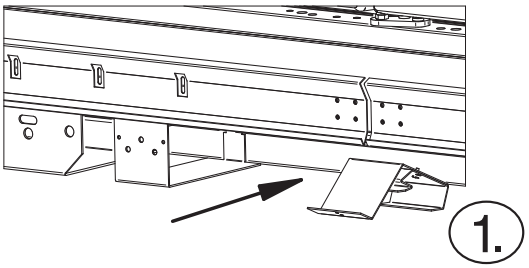
2. Rotate the retainer assembly clockwise (from right hand side) while pulling towards the front of the case, until the forward most flange sits flush with the back of the color panel.

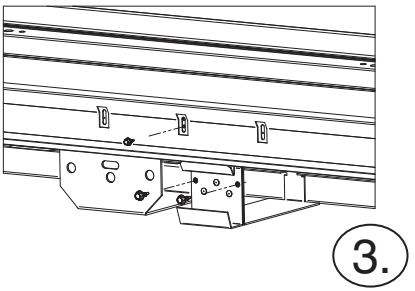


3. Align the retainer assembly with and attach to the support bracket using #10 screws. Then install a #8 screw through the color panel into the top retainer flange.

DO NOT PLACE SHIMS UNDER SPLASHGUARD BRACKETS.







INSTALLING BUMPERS

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

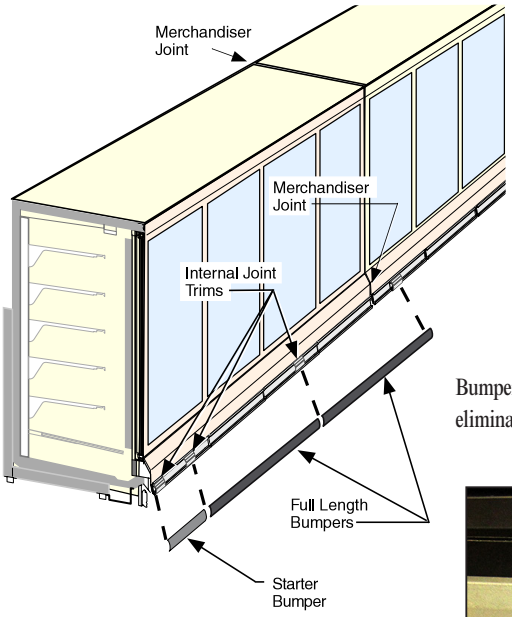
Begin at the left end of the line-up. A starter bumper is factory-installed with end kits. Insert the internal joint trim, then add the full-length bumper.

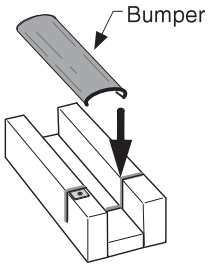
Align each bumper section with its retainer and push into place, working from the end of the lineup. Install full length bumpers and internal joint trims offset across joints. Make sure that no gaps exist between sections. Continue installing bumpers the length of the line up.

Do NOT install the last bumper sections at this time. These sections will be installed in the last step.

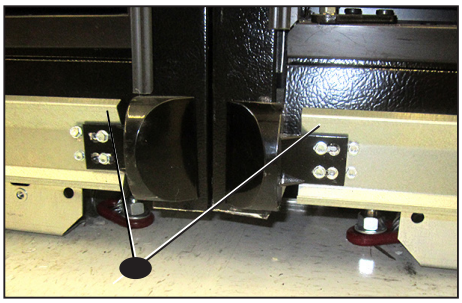
Once all except the last section of bumper have been installed, refrigerate the case line-up for at least six (6) hours. The last sections of bumper should be kept inside a refrigerated case or cooler during this time to allow the bumpers to contract.

Before installing the last full-length section, measure the remaining space. Use a miter box and fine-tooth saw to cut last bumper to length. Install the last section. Remove protective film from bumpers once installation is complete. Optional end bumpers are factory-installed.





Bumper End Caps can be adjusted horizontally to eliminate gaps.



REFRIGERATION / ELECTRICAL

REFRIGERANT

The correct type of refrigerant will be stamped on each merchandiser's serial plate which is located on the left-hand end of the interior top liner.

⚠ WARNING

Refrigeration lines are under pressure. Depressurize and recover refrigerant before attempting any connection or repair.

Refrigerant vapor is hazardous to your health and can cause death. Avoid breathing refrigerant and lubrication vapor or mist. Exposure may irritate eyes, nose and throat. If accidental system discharge occurs, ventilate work area before resuming service.

Always wear safety goggles and protective gloves when working with refrigerants. Contact with refrigerant may cause injury. Disconnect hoses with extreme caution! All hoses may contain liquid refrigerant under pressure.

Be sure that any room where you are working is thoroughly ventilated, especially if a leak is suspected.

Read all safety information regarding the safe handling of refrigerant and refrigerant oil, including the Material Safety Data Sheet. MSDS sheets can be obtained from your refrigerant supplier.

⚠ CAUTION

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

LEAK DETECTION

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. The following leak detection methods are deemed acceptable for all refrigerant systems:
Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity might not be adequate, or might need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work. Note: Examples of leak detection fluids are bubble method and fluorescent method agents.

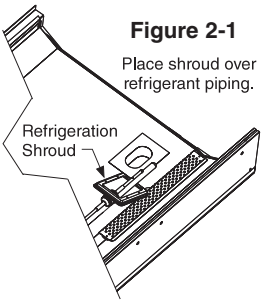
If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to the Refrigerant Recovery section provided.

REFRIGERANT PIPING

Standard Connection Location

The refrigerant line connections are at the right- hand end of merchandiser (end opposite the main serial plate) beneath the display pans. A sticker marks the location of the connection. The installer must saw a hole to exit the cases.

Figure 2-1



A refrigeration shroud ships with each case.

Before making connections, place the refrigeration shroud over refrigeration piping so that when the shroud is rotated into place, it will be in the upright position. The Figure 2-1 shows the correct orientation.

Be careful not to burn, scorch or overheat the shroud when making connections. Once connections have been made, apply silicone sealant to the bottom of the shroud as shown in Figure 2-2.

As shown in Figure 2-3, rotate and center the shroud over the refrigeration outlet foam pad.

Figure 2-2

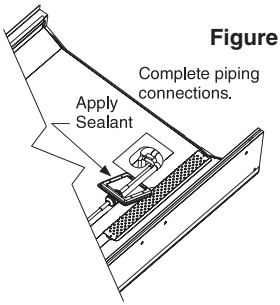
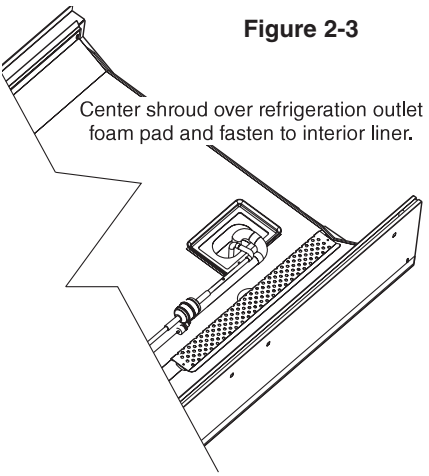


Figure 2-3



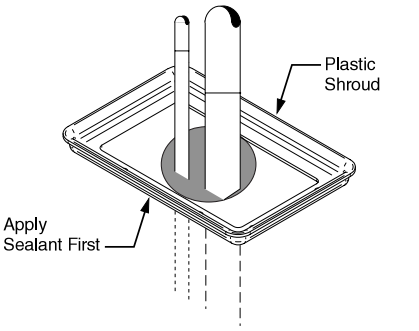
Seal this outlet thoroughly. Seal both the inside and the outside. We recommend using an expanding polyurethane foam insulation. Cover foam with silicone to prevent water from entering foam.

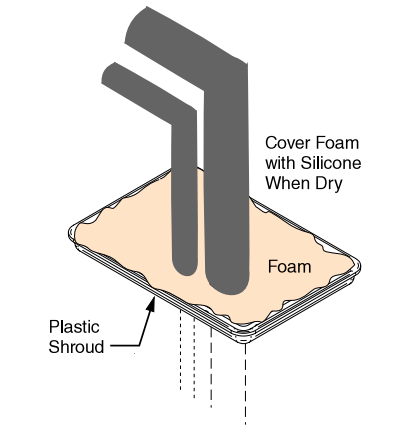
Optional Internal Top Piping Connections
A shroud should be used to seal outside pipe penetrations at the top of the merchandiser. Position the shroud over the case piping before making the final connection.

Once all connections are made and insulation has been applied to the piping, run a bead of sealant around the bottom of the shroud. Put the shroud into position and attach with six screws.

In the event the shroud was not placed over the piping prior to final connection, the shroud can be cut (carefully) and then installed with adhesive holding the shroud in place on top of the merchandiser.

After connections have been made, seal this outlet thoroughly. Seal both the inside and the outside.
We recommend using an expanding polyurethane foam insulation. Cover foam with silicone to ensure seal around insulation and to prevent deterioration of foam.





Multiplexing
Piping of merchandisers operating on the same refrigeration system may be run from merchandiser to merchandiser through the end frame saddles provided for this purpose. DO NOT RUN REFRIGERANT LINES THROUGH MERCHANDISERS THAT ARE NOT ON THE SAME REFRIGERATION SYSTEM as this may result in poor refrigeration control and compressor failure.

NOTE: If Gas defrost is used, the liquid line will need to be increased two sizes larger inside the merchandiser area. This is necessary to ensure even liquid drainage from all evaporators during defrost.

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

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

With GAS Defrost
The suction and liquid lines should NOT contact each other and should be insulated separately for a minimum of 30 ft (9144 mm) from the merchandiser.

With OTHER Than Gas Defrost
The suction and liquid lines should be clamped or taped together and insulated for a minimum of 30 ft (9144 mm) from the merchandiser.

With All Defrost
Additional insulation for the balance of the liquid and suction lines is recommended wherever condensation drippage is objectionable or the lines are exposed to ambient conditions.

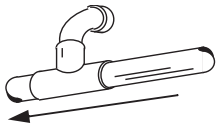
⚠ CAUTION

The following information is applicable only for piping Hussmann merchandisers to Hussmann refrigeration equipment.

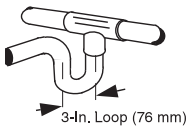
BRANCH LINE PIPING

Suction Line – All Defrosts

- 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 evaporator connection size.
- Suction returns from evaporators enter at the top of the branch line.



Suction Line Return



Liquid Line Take Off

Liquid Line – Off-time and Electric Defrost

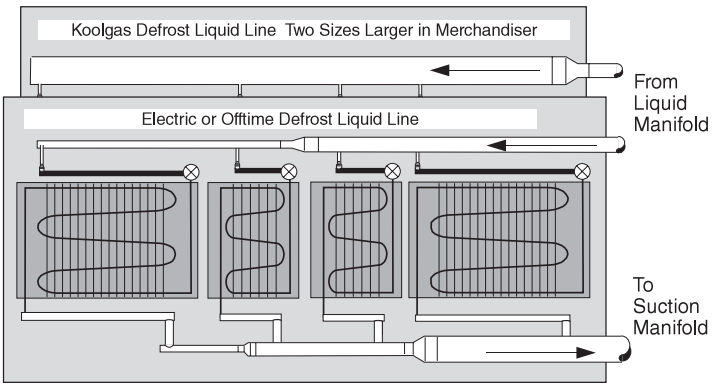
- May be reduced by one size after one half the case load run. Do not reduce below evaporator connection size.
- Take-offs to evaporators exit the bottom of the liquid line. Provide an expansion loop for each evaporator take-off (minimum 3 in. (76 mm) diameter).

Liquid Line – Koolgas Defrost

- Maximum of 6 evaporators per Branch System.
- Increase the liquid line size inside the case by two sizes over the branch size.

Branch Size	In Case Size
½	7/8
5/8	1 1/8
7/8	1 3/8
1 1/8	1⅝
1 3/8	2 1/8

- Take-offs to evaporators exit the bottom of the liquid line. Provide an expansion loop for each evaporator take-off (minimum 3 in. (76 mm) diameter).



EXPANSION VALVE ADJUSTMENT

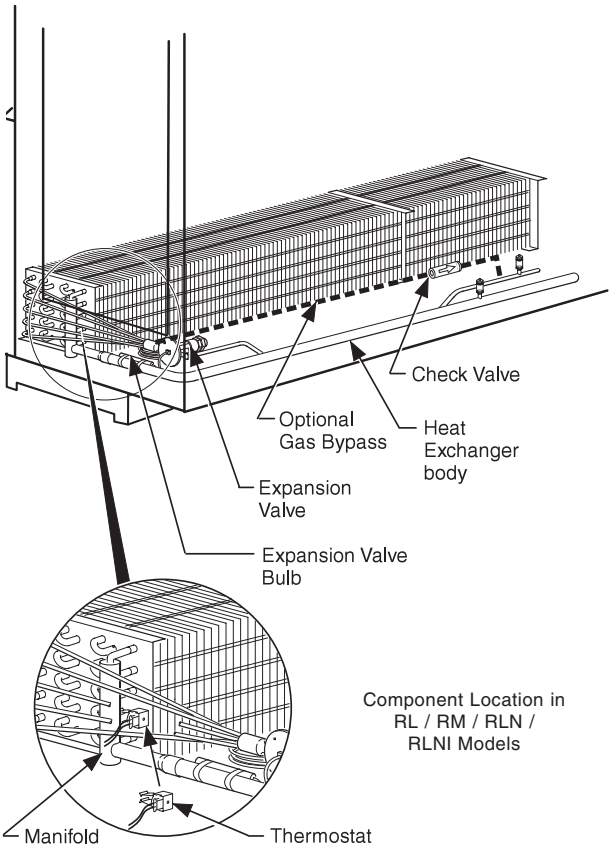
Expansion valves must be adjusted to fully feed the evaporator. Before attempting to adjust valves, make sure the evaporator is either clear or only lightly covered with frost, and that the merchandiser is within 10 deg F (6.5 deg C) of its expected operating temperature. Adjust valves as follows:

Method 1 (recommended): Attach a sensing probe (either thermocouple of thermistor) to the evaporator outlet, under the clamp holding the expansion valve bulb. Attach a pressure probe to the access valve on the suction line. Measure superheat by subtracting the saturation temperature at the measured pressure from the measured outlet temperature. Method 2: Attach two sensing probes.

Note:
When using high glide refrigerants (e.g., R-407A, R-448A), use the evaporator pressure and subtract the dew point from the coil outlet refrigerant temperature to measure the superheat level.

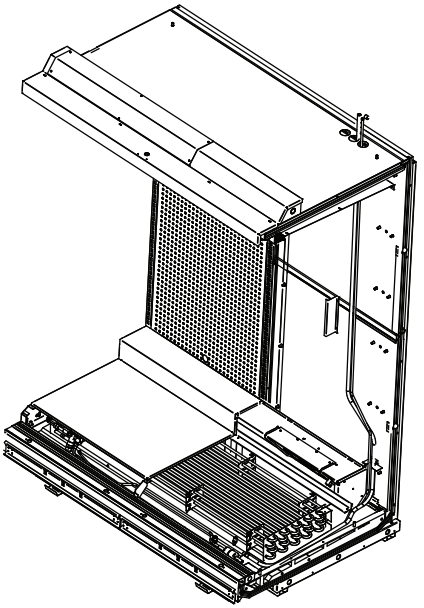
Attach two sensing probes (either thermocouple or thermistor) to the evaporator. Position one under the clamp holding the expansion valve bulb; securely tape the other to the coil inlet line.

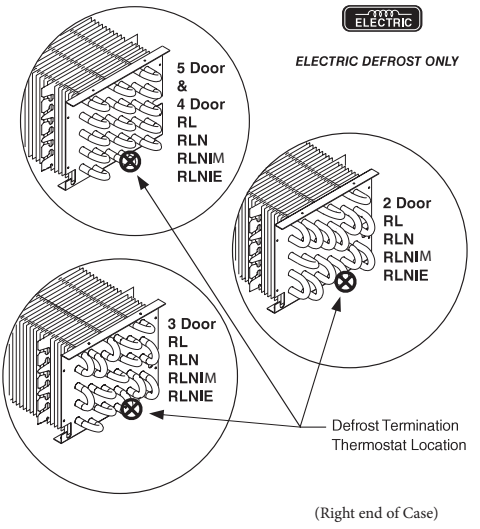
Make adjustments of no more than 1/4 turn for Balanced Port TEV and 1/2 turn at a time for other valve models. Wait at least 15 minutes before rechecking the probe temperature or making further adjustments.



Component Location in RL / RM / RLN / RLNI Models

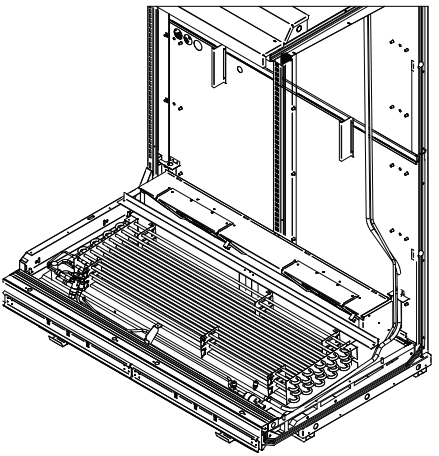
Some "hunting" of the expansion valve is normal. The valve should be adjusted so that during the hunting THE GREATEST DIFFERENCE BETWEEN THE TWO PROBES IS 3–5 deg F (1.7–2.8 deg C). With this adjustment, during a portion of the hunting the temperature difference between the probes will be less than 3 deg F (1.7 deg C) and at times 0.

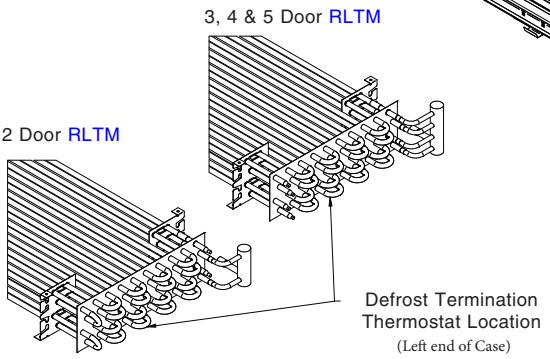


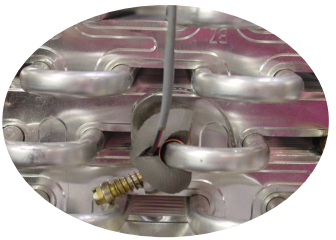


REFRIGERATION THERMOSTAT

The thermostat body is located in the electrical raceway near the right-hand end of the merchandiser. Its sensing bulb is located behind the right end interior back panel.







DEFROST TERMINATION THERMOSTAT

The standard disc type defrost termination thermostat is not adjustable.

On low-temperature merchandisers, the defrost termination thermostat or optional termination sensor is located on the right end of the coil at the bottom center return bend. If an optional adjustable thermostat is used, the bulb will be clamped to the suction line on the left end of the merchandiser.

CONTROL SETTINGS MEDIUM TEMPERATURE

Conventional Single Compressor
Measure Discharge Air Temperature
at the center of the case
at the discharge honeycomb.

Merchandiser temperature must be controlled by a thermostat or other device with a 3–6 deg F (1.7–3.3 deg C) differential. It will be wired to control the compressor motor contactor.

Standard Off Time defrost is time terminated. On outdoor units the defrost timer will control a liquid line solenoid beginning a defrost pumpdown 4 minutes before defrost.

The defrost frequency and lengths listed may require adjustment for specific store conditions. Factors include:

- Store temperature and humidity
- Low head pressure
- Long refrigerant line runs
- Seasonal changes
- Merchandiser temperature lower than recommended

When practical, defrost when store is closed.

Low pressure control settings are applicable to outdoor condensing units where ambient does not fall below 0 deg F.

CONTROL SETTINGS LOW TEMPERATURE

Conventional Single Compressor
Measure Discharge Air Temperature
at the center of the case
at the discharge honeycomb.

Merchandiser temperature must be controlled by a thermostat or other device with a 3–6 deg F (1.7–3.3 deg C) differential. It will be wired to control the compressor motor contactor.

Standard Electric defrost is temperature terminated. The defrost termination thermostats for all the merchandisers on one compressor are wired in series. Failsafe must not control defrost cycle length, especially when less than 208V power supply is used for defrost heaters, or if frost build up is heavy from shopping demands.

On outdoor units the defrost timer will control a liquid line solenoid beginning a defrost pumpdown 4 minutes before defrost.

Optional Gas defrost is time terminated and has fan cycling thermostat. The defrost frequency and lengths listed may require adjustment for specific store conditions.
Factors include:

- Store temperature and humidity
- Low head pressure
- Long refrigerant line runs
- Seasonal changes
- Merchandiser temperature lower than recommended

Defrost after store closes when practical.
Low pressure control settings are applicable to outdoor condensing units where ambient does not fall below 0 deg F.

CONTROL SETTINGS MEDIUM TEMPERATURE

Parallel Compressor Rack
Measure Discharge Air Temperature
at the center of the case
at the discharge honeycomb.

Merchandiser temperature must be controlled by a mechanical or electronic pressure regulator or thermostat that will be mounted on the rack.

Standard Off Time defrost is time terminated. The defrost frequency and lengths listed may require adjustment for specific store conditions. Factors include:

- Store temperature and humidity
- Low head pressure
- Long refrigerant line runs
- Seasonal changes
- Merchandiser temperature lower than recommended

Stagger defrosts to maintain stable compressor loading and sufficient defrost gas. When practical, defrost when store is closed.

CONTROL SETTINGS LOW TEMPERATURE

Parallel Compressor Rack
Measure Discharge Air Temperature
at the center of the case
at the discharge honeycomb.

Merchandiser temperature must be controlled by a mechanical or electronic pressure
regulator or thermostat that will be mounted on the rack.

Standard Electric defrost is temperature terminated. Failsafe must not control defrost cycle length, especially when less than 208V power supply is used for defrost heaters, or if frost build up is heavy from shopping demands.

Optional Gas defrost is time terminated and has fan cycling thermostat. The defrost
frequency and lengths listed may require adjustment for specific store conditions. Factors include:

- Store temperature and humidity
- Low head pressure
- Long refrigerant line runs
- Seasonal changes
- Merchandiser temperature lower than recommended

Stagger defrosts to maintain stable compressor loading and sufficient defrost gas. When practical, defrost when store is closed.

MERCHANDISER ELECTRICAL DATA

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

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.

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

When two or more merchandisers with full length wireways are installed in line, remove the splashguards, end caps and wireway covers, and install the nipple and nuts (supplied) providing electrical passage from one merchandiser to the next. Following NEC and local codes is the responsibility of the electrical contractor.

ELECTRICAL CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections are to be made to the terminal blocks in the electrical wireway behind the lower front panel at the right-hand end of the merchandiser (facing front).

IDENTIFICATION OF WIRING

Leads for all electrical circuits are identified by colored plastic bands. These bands correspond to the color code sticker (shown below) located inside the merchandiser wireway.

⚠ WARNING

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

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 TAN.....LIGHTS
LIGHT BLUE.. REFRIG. THERMOSTAT NORM TEMP.	MAROON .....RECEPTACLES
DARK BLUE.. DEFROST TERM. THERMOSTAT	YELLOW*.....DEFROST HEATERS, 120V
PURPLE..... ANTI-SWEAT HEATERS	RED* .....DEFROST HEATERS, 208V
BROWN..... FAN MOTORS	
GREEN* ..... GROUND	

*EITHER COLORED SLEEVE OR COLORED INSULATION

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

THESE ARE MARKER COLORS WIRES MAY VARY.

DRIP PIPING AND SPLASHGUARDS

WASTE OUTLET AND WATER SEAL

The waste outlet location varies for each of the 1, 2, 3, 4, and 5-door merchandisers. Drip piping is located between the front merchandiser base and the splashguard fixture and runs parallel to the merchandiser (see Data Sheet for exact locations).

CAUTION

Splashguard *brackets* MUST be installed before piping merchandiser.
(See Page 1-3)

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.

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

- 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.

- 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).

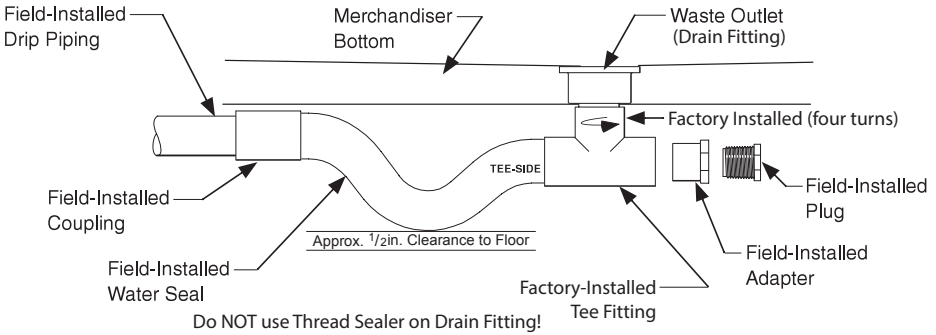
- Avoid long runs of drip piping. Long runs make it impossible to provide the pitch necessary for good drainage.

- Provide a suitable air break betwe rim of the floor drain and outlet of To meet code on low base merchan may be necessary to install a field drip pipe reducer. An alternative the last section of drip pipe at an

- Prevent drip pipes from freezing sw freezing:

  A. Do NOT install drip pipes in contact with uninsulated suction lines. Suction lines should be insulated with a non-absorbent 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 drip pipe from sweating. External ventilation fans may be required to prevent sweating.

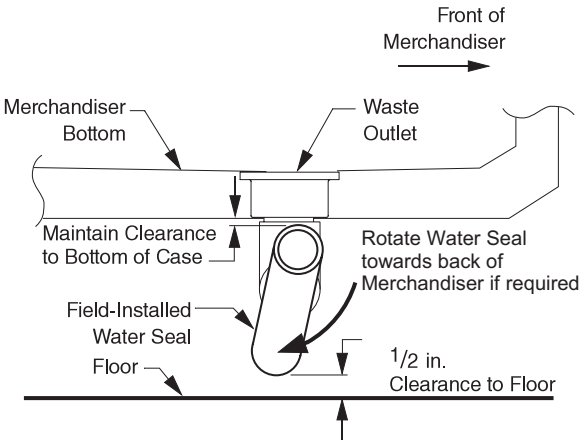


1. Tee is factory-installed. Do not overtighten threads, or the drain fitting or tee may become damaged.

2. Do NOT use thread sealer on ABS drain fitting. If sealer is used the ABS drain fitting may crack or leak! (If a tee needs to be installed it should be tightened no more than 4 turns.) Do not overtighten threads.

3. Dry fit the supplied water seal / trap to ensure approximately 1/2 in. of clearance from the bottom of the trap to the floor as shown.

NOTE: It may be necessary to rotate water seal (trap) inside the tee a few degrees to ensure clearance at two locations. There must be clearance 1) between the bottom of the water seal and the floor, and 2) between the top of the water seal outlet and the bottom of the merchandiser. Do not over-rotate or gravity seal may be compromised. Always rotate trap bottom toward merchandiser support rail.

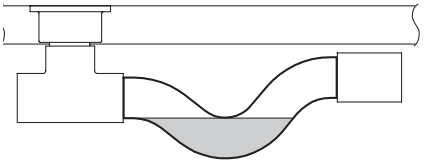


4. Install remaining PVC drain parts using recommended PVC cleaner, primer and cement per manufacturer's recommendations.

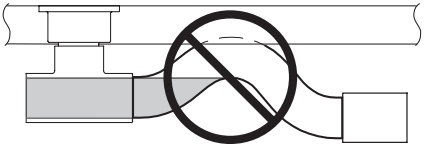
5. Thread plug into the adapter until snug but not to exceed four full rotations.

6. Installed drip piping may require additional support depending on the number and location of the hub floor drains. The installer should always provide adequate support to all drip piping arrangements to prevent excess stress on all drip piping components. The installer must provide additional support when "evac" type waste water systems are applied.

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



Water Seal
Correct



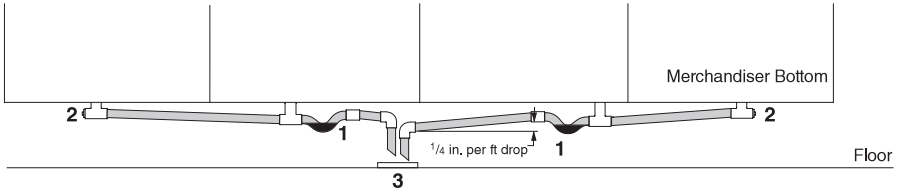
Water Seal
NOT Correct

DRIP PIPING LINEUP ARRANGEMENTS

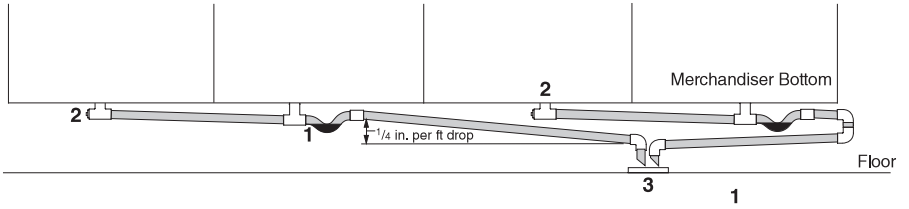
The following illustrations below show typical arrangements for installing drip pipes for a lineup of merchandisers. Illustrations are for reference only. Piping may vary with location and access to hub drain(s). Each merchandiser waste outlet must be individually piped to a hub drain if 1/4 in. drip piping pitch cannot be maintained.

NOTE: No more than two merchandiser are to be piped per water seal. Do not install water seal between two merchandiser waste outlets that are piped together. **(Double water seals in series will cause an air lock and prevent drainage.)**

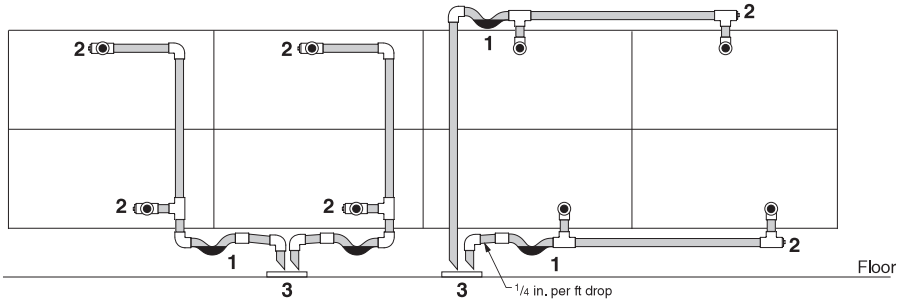
RL, RLN Single Line Up (4 merchandisers shown)



RL, RLN Single Line Up (4 merchandisers shown)



RLNIM Cross Drip Piping (4 merchandisers shown)



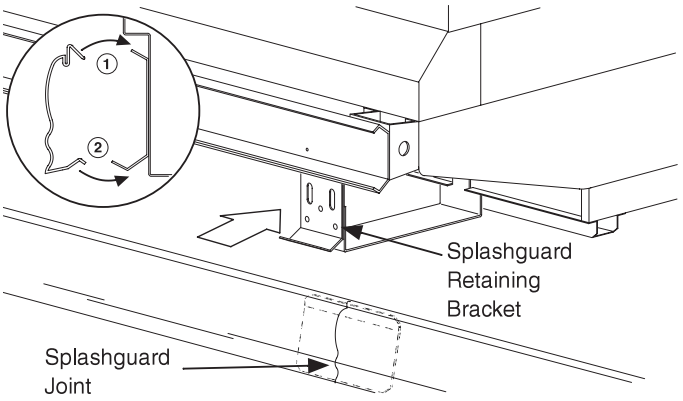
1 = Water Seal **2** = Clean Out Plug **3** = Hub Drain

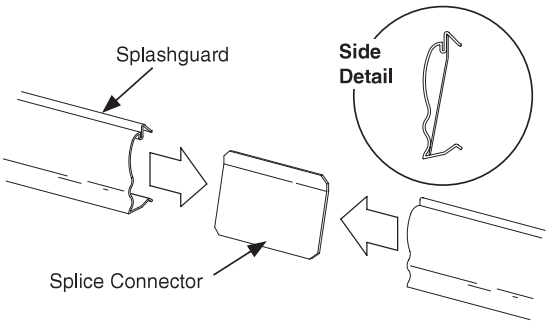
INSTALLING SPLASHGUARDS

The splashguard is shipped inside each merchandiser. AFTER merchandisers have been leveled and joined, and all drip piping, electrical and refrigeration work has been completed, re-install the front color panel, then install the splashguards.

First, position top of splashguard over the top edge of the bracket; second, push the lower edge of the splashguard toward the bottom of the bracket until it snaps into place.

Splashguards are joined with a galvanized metal splice connector that comes with the joint kit. Join the splashguards before installing on case.



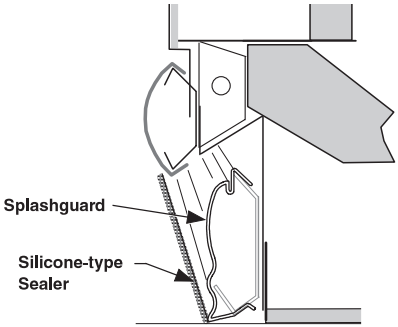


SEALING SPLASHGUARD TO FLOOR

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.

• Remove all dirt, wax and grease from the area of the splashguard where adhesion will be necessary. This is to ensure a good, secure installation.

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



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.

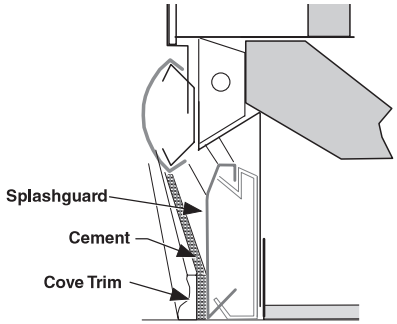
To install the trim to the splashguard:

• Remove all dirt, wax and grease from the area of the splashguard where adhesion will be necessary. This is to ensure a good and secure installation.

• Apply a good contact cement to the cove trim and allow proper drying time according to the directions supplied with the cement.

• Install the trim to the splashguard so that it is lying flush with the floor. DO NOT SEAL THE TRIM TO THE FLOOR.

• **If required by local health codes** Cove Trim may be sealed to the floor using a silicone type sealer. Sealant must be removed and replaced when servicing.



START UP / OPERATION

STARTUP AND OPERATION

See the merchandiser's Technical Data Sheet for refrigerant settings and defrost requirements. Bring merchandisers down to the operating temperatures listed on the data sheet.

Excessive ambient conditions may cause condensation and therefore sweating of doors. Facility operators should monitor doors and floor conditions to ensure safety of persons.

STOCKING

Product should NOT be placed in merchandisers until all refrigeration controls have been adjusted and merchandisers are at proper operating temperature.

All shelves and the lower deck are intended to display product. Shelf height is adjustable in one inch increments. Spacing of 12 inches is recommended for most applications. Maximum load per shelf is 170 pounds. Merchandisers may be ordered with optional "L" shaped wire shelves.

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.

Do not prop doors open while stocking. And keep the doors closed as much as possible to prevent coil frosting and high merchandiser temperature.

Hussmann recommends solid shelves for ice cream.

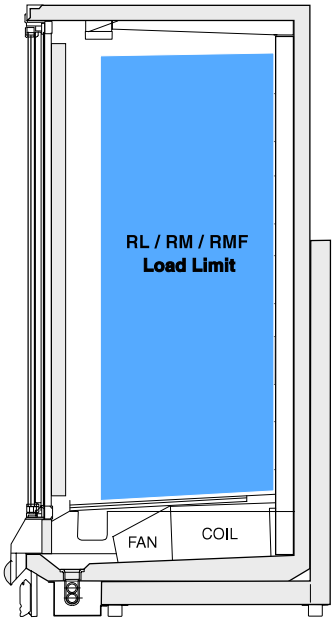
LOAD LIMITS

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

Various shelf depths are offered with Reach In cases. The standard depth on all Reach-In cases is 22" (21" on RFLNS and RFMNS cases). Some cases have been designed to support larger shelves, but require design modifications to support the extra shelf length. These cases have a label near the serial plate that reads: This case has been reinforced to support 26" shelves.

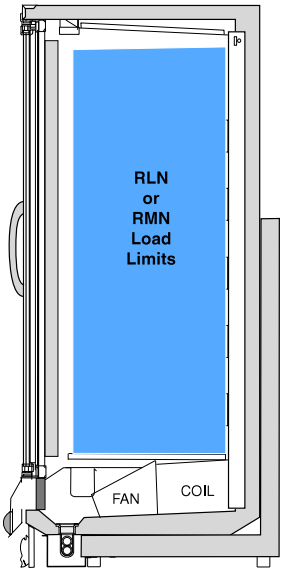
DO NOT INSTALL 26" SHELVES IN ANY REACH IN CASE THAT DOES NOT HAVE THIS LABEL.

DO NOT BLOCK HONEYCOMB.



⚠ CAUTION

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


RLN
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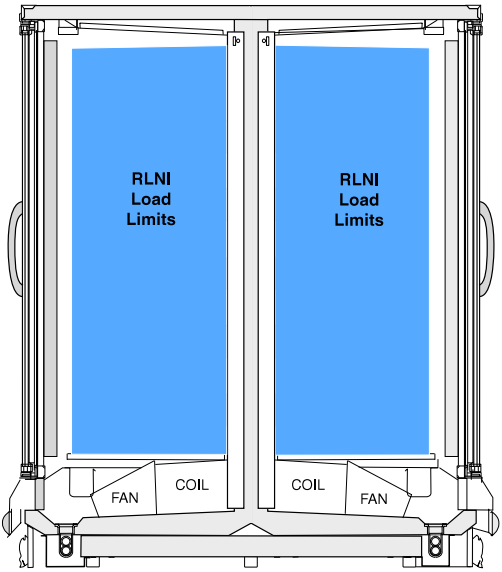
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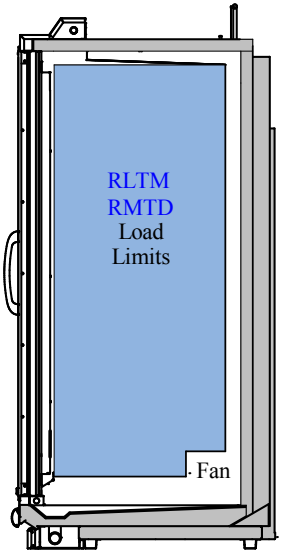
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RMTD
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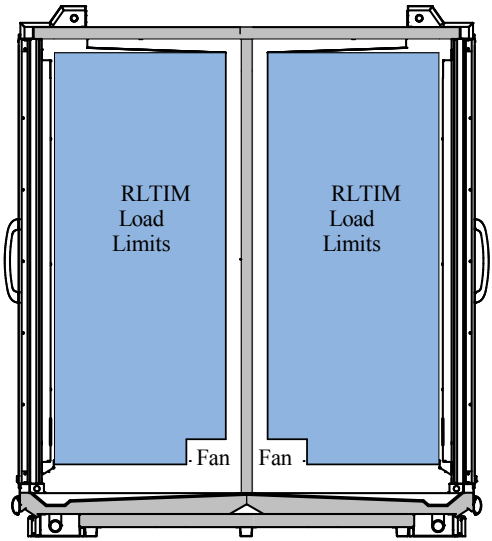
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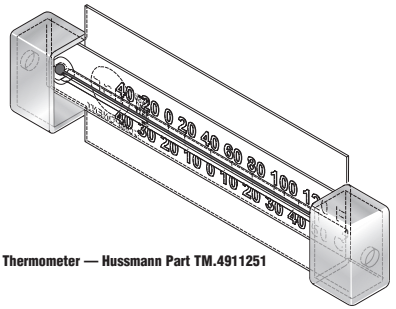
INSTALLING FDA/NSF REQUIRED THERMOMETER

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.

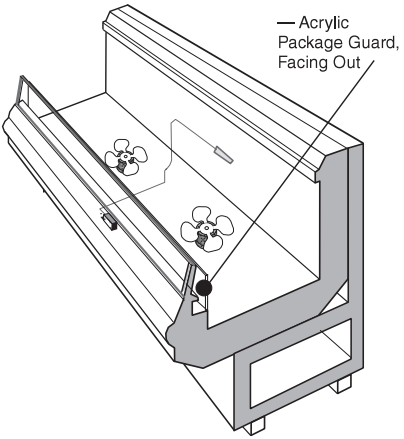
This is an NSF-7 & US FDA Food Code Required Thermometer

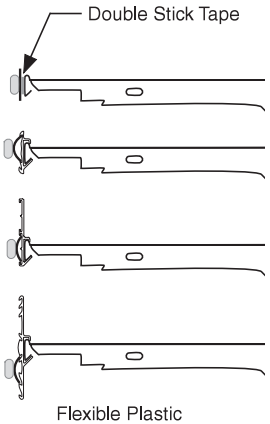


Thermometer — Hussmann Part TM.4911251

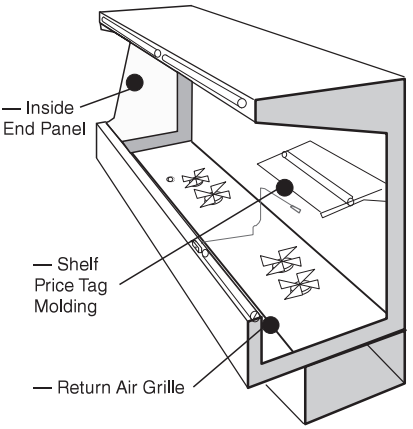
Hussmann Corporation • 12999 St. Charles Rock Road • Bridgeton, MO 63044-2483
U.S. & Canada 1-800-922-1919 • Mexico 800-890-2900E • www.hussmann.com

Suggested Mounting Locations in Single Deck Glass Front Impact Merchandisers





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.

⚠ WARNING

SHUT FANS OFF DURING CLEANING PROCESS.

Fan Plenum

To facilitate cleaning, the fan plenum is hinged and also fastened with screws at each end. After cleaning be sure the plenum is properly lowered into position and that screws are reinstalled OR PRODUCT LOSS WILL RESULT due to improper refrigeration.

Always*Clear™ Glass

Wipe inside of glass with isopropyl alcohol and a soft cloth. Allow surface to dry before closing door. Use of other cleaners or abrasives may damage the Always*Clear surface, and/or void the warranty. Refer to manual that ships with doors.

⚠ 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.

Interior Surfaces

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

Exterior Surfaces

The exterior surfaces should be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.

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.

DO USE:

- Remove the product and all loose debris to avoid clogging the waste outlet.
- Store product in a refrigerated area such as a freezer. Remove only as much product as can be taken to the freezer 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.
- Remove screws and lift hinged fan plenum for 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 and refrigerant to the merchandiser.
- Verify that merchandiser is working properly.

⚠WARNING

- WARNING—Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.
- WARNING – Risk Of Fire. Dispose Of Properly In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
- WARNING – Risk Of Fire. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must Be Followed.
- WARNING – Risk of Fire due to Flammable Refrigerant Used. Follow Handling Instructions Carefully in Compliance with National Regulations.
- WARNING – Risk Of Fire or Explosion – Store in a well ventilated room without continuously operating flames or other potential ignition.
- WARNING – Risk Of Fire Or Explosion – Auxiliary devices which may be ignition sources shall not be installed in the ductwork, other than auxiliary devices listed for use with the specific appliance. See instructions.
- Failure to follow instructions can result in an explosion, death, injury and property damage.

If the information in these instructions are not followed exactly, a fire or explosion may result, causing property damage, personal injury or death.

READ ALL WARNINGS BEFORE SERVICING OR PERFORMING MAINTENANCE ON THIS EQUIPMENT.

- Installation and service must be performed by a qualified installer or service agency only as recommended by the manufacturer.
- Only a qualified and authorized technician should attempt to service.
- If a leak is present or even suspected, do not allow untrained personnel to attempt to find the cause.
- A hand-held leak detector ("sniffer") will be used before any repair and/or maintenance.
- No open flames, cigarettes, or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.
- WARNING – Risk of fire or explosion. Dispose of properly in accordance with federal or local regulations. Flammable refrigerant used.

FAILURE TO ABIDE BY THIS WARNING COULD RESULT IN AN EXPLOSION, DEATH, INJURY, AND PROPERTY DAMAGE.

BEFORE WORKING WITH REFRIGERANT

Safety Checks

- Prior to beginning work on systems containing FLAMMABLE REFRIGERANTS, safety checks are necessary to ensure that the risk of ignition is minimized.
- Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., non-sparking, adequately sealed, or intrinsically safe.
- If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available on hand. A dry chemical or CO_2 fire extinguisher should be adjacent to the charging area.
- No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment shall be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.
- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times, the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.
- The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:
  a. The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed;
  b. The ventilation machinery and outlets are operating adequately and are not obstructed;
  c. If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
  d. Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
  e. Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

CHECKS AND REPAIRS TO ELECTRICAL DEVICES

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment, so all parties are advised.

Initial safety checks shall include:

a. That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
b. That no live electrical components and wiring are exposed while charging, recovering or purging the system;
c. That there is continuity of earth bonding.

⚠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.
- To reduce the risk of fire, electrical shock or injury when cleaning this merchandiser:
  -Unplug the merchandiser before cleaning.
  -Keep all liquids away from electrical and electronic components.
- 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.
- Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
- Ensure that the apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.
- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times, the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
- When servicing, ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

- Component parts are designed for propane and are non-incendive and non-sparking. Component parts shall be replaced with like components, and servicing shall be done by factory authorized service personnel only, so as to minimize the risk of possible ignition due to incorrect parts or improper service.
- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
- Replace components only with parts specified by the manufacturer. Other parts can result in the ignition of refrigerant in the atmosphere from a leak.

DO USE:

- Remove the product and all loose debris to avoid clogging the waste outlet.
- Store product in a refrigerated area such as a freezer. Remove only as much product as can be taken to the freezer 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.
- Remove screws and lift hinged fan plenum for 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 and refrigerant to the merchandiser.
- Verify that merchandiser is working properly.

⚠ WARNING

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

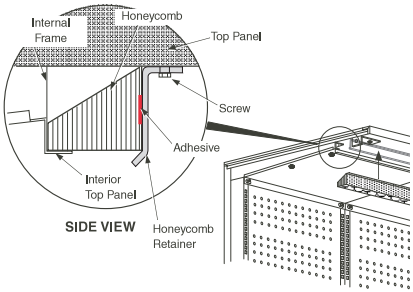
⚠ WARNING

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

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 reassembling. Be careful not to damage the honeycombs.

1. Remove the sheet metal screws located in the front metal retainer which holds the honeycomb assembly in place.
2. Lift the honeycomb assembly out of the L-bracket to remove it.
3. Clean and dry the honeycomb.
4. After cleaning, reassemble in reverse order of removal.



CLEANING STAINLESS STEEL SURFACES

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.

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.

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

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

CLEANING 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.

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

REFRIGERANT REMOVAL, EVACUATION AND RECOVERY

When breaking into the refrigerant circuit to make repairs—or for any other purpose—conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

a. Safely remove refrigerant following local and national regulations;
b. Purge the circuit with inert gas;
c. Evacuate;
d. Purge with inert gas;
e. Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. The system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

Refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

RECOVERY PROCEDURE

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available.

All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the supplier. Only electric heating to the compressor body shall be employed to accelerate this process.

When oil is drained from a system, it shall be carried out safely.

REPLACING FAN MOTORS AND BLADES

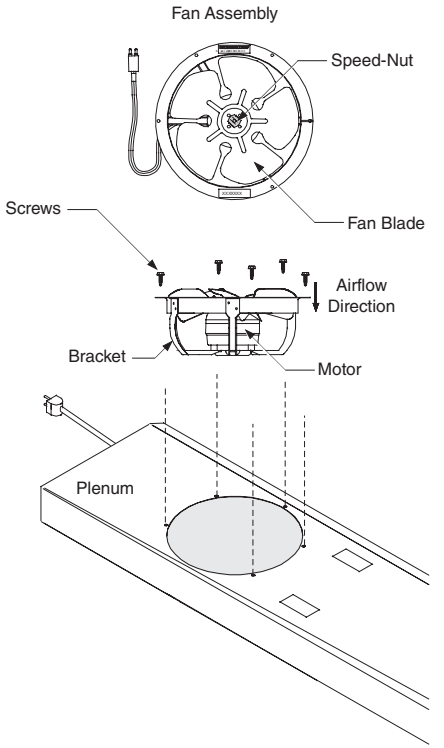
See cross section for location of evaporator fans. Should it ever be necessary to service or replace the fan motors or blades be certain that the fan blades are re-installed correctly.

For access to RL / RM / RLN / RMN / RLNI / RLNIE 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 large 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, however defrost water should not be blocked by fan plenum. Do NOT seal fan plenum so that water can not drain.
12. Replace display pans. Bring merchandiser to operating temperature before restocking.

⚠ WARNING

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 fans, heaters, thermostats and lights.

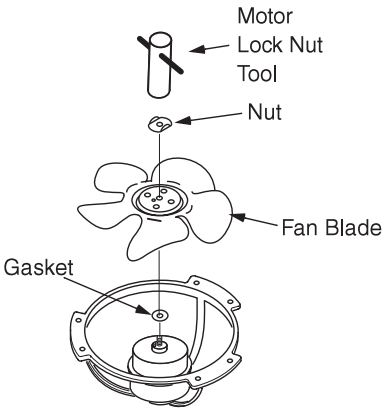


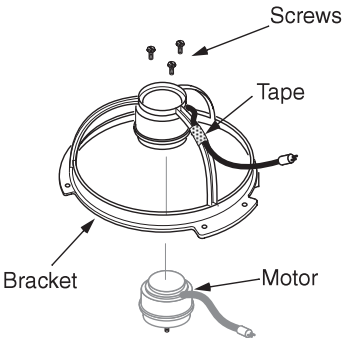
Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

RLTM ONLY

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. Lift fan plenum and remove screws holding bottom of motor to fan basket.
6. Replace fan motor and blade.
7. Lower fan plenum.
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 large 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, however defrost water should not be blocked by fan plenum. Do NOT seal fan plenum so that water can not drain.
12. Replace display pans. Bring merchandiser to operating temperature before restocking.





⚠ WARNING

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

⚠ WARNING

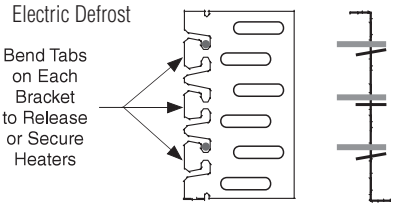
Always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as fans, heaters, thermostats and lights.

REPLACING ELECTRIC DEFROST HEATERS FOR (RL / RLN / RLNI / RLNIE) ONLY

Electric defrost requires a heater on the front and rear of the coil as shown. The heaters are held in place by tabs in the coil brackets.

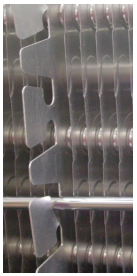
Front Defrost Heater

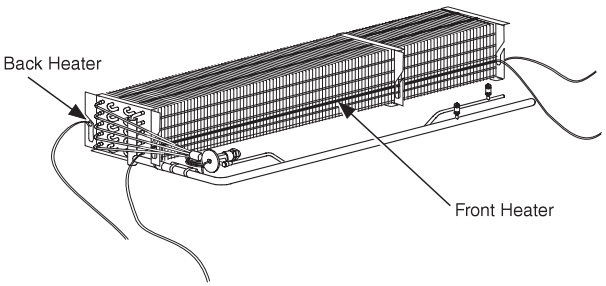
1. Disconnect Power.
2. Lift fan plenum up and back to access the heater.
3. Bend tabs holding heater to horizontal.
4. Remove heater from coil bracket.
5. Position new heater in bracket.
6. Bend tabs back to vertical to hold heater in bracket.
7. Replace the coil cover and lower fan plenum.
8. Turn on power.
9. Verify that heater is working correctly.
10. 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.
11. Replace display pans. Bring merchandiser to operating temperature before restocking.



Rear Defrost Heater

1. Disconnect Power.
2. Remove coil cover.
3. Remove clips holding heater to coil tube.
4. Remove heater from slots in coil bracket.
5. Position new heater in slots.
6. Replace clips.
7. Replace the coil cover.
8. Turn on power.
9. Verify that heater is working correctly.
10. Replace display pans. Bring merchandiser to operating temperature before restocking.

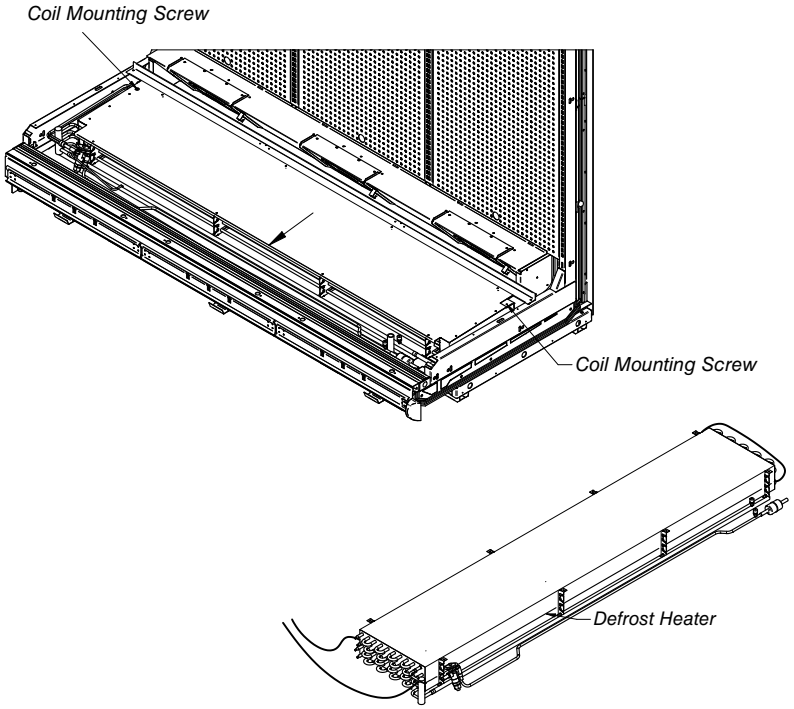




REPLACING Electric Defrost Heaters (RLTM Only)

RLTM electric defrost heaters are located in front of and behind the coil. Mounting brackets and supports are attached to plenum brackets.

1. Disconnect Power.
2. Remove display pans.
3. Remove coil mounting screws and slide coil towards the front of the case.
4. Bend tabs holding heater to horizontal.
5. Remove heater from coil brackets.
6. Position new heater in brackets.
7. Bend tabs back to vertical to hold heater in bracket.
8. Push back in alignment with plenum baffles and reinsert coil mounting screws.
9. Turn on power.
10. Verify that heater is working correctly.
11. Close air gaps between the coil covers and the plenum baffles with silicone sealant.
12. Replace display pans. Bring merchandiser to operating temperature before restocking.



REPLACING Drain Pan Heater — Electric and Gas Defrost (Low Temperature Only)

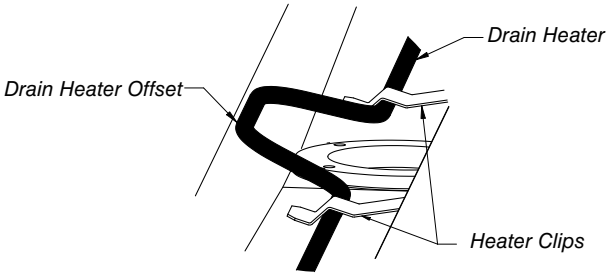
⚠ WARNING

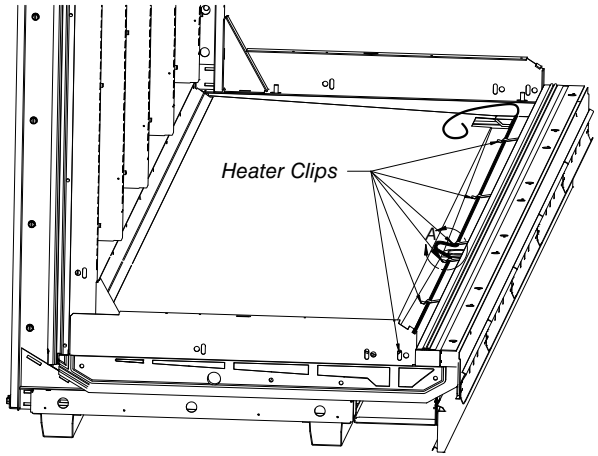
Always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as fans, heaters, thermostats and lights.

The drain pan heater is located as shown below.

Remove Drain Pan Heater

1. Disconnect power.
2. Pull heater out from under heater clips.
3. Position new heater under heater clips. Be sure offset is properly positioned around the drain.
4. Reconnect power.
5. Verify that heater is working correctly.





SERVICING VERTICAL LIGHTING

Refer to door manufacturer's manual for servicing of vertical lamps.

SERVICING DOORS AND FRAMES

See door manufacturer's service manual for servicing information. One manual is shipped with each merchandiser.

Hussmann's Innovator Door manual (P/N 0425683) can be found on the website WWW.HUSSMANN.COM.

REPLACING DOOR OR DOOR FRAME PARTS

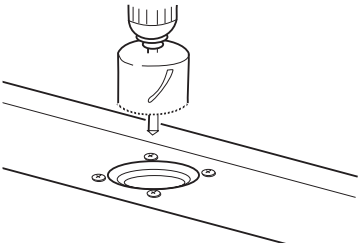
Parts for Reach-in doors and door frame assemblies must be ordered direct from the door manufacturer This includes the glass doors, door frame assemblies, lamps, ballasts, door handles, hold open slides, and power cords.

Refer to specific warranty supplied with the door. The manufacturers have a warranty against moisture penetration, a warranty against tempered glass breakage, and a warranty on ballasts. Lamps are not covered by Hussmann or the door manufacturer.

REPLACING DAMAGED DRAIN FITTING

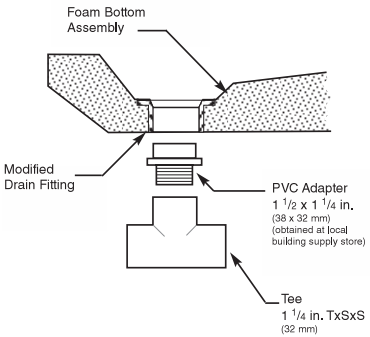
The following procedure is for the field repair of a broken drain fitting.

1. Use a drill with a 1 7/8-inch (48 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 Case

2. Insert adapter into drain fitting. **Do NOT use thread sealer on ABS drain fitting. If sealer is used the ABS drain fitting may crack or leak!** (Tee should be tightened no more than 4 turns.) Do not overtighten threads.



Do NOT use Thread Sealer on Drain Fitting!

End Section View

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.

DECOMMISSIONING PROCESS

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample should be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

a. Become familiar with the equipment and its operation.
b. Isolate the system electrically.
c. Before attempting the procedure, ensure:
   i. Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
   ii. All personal protective equipment is available and being used correctly.
   iii. The recovery process is supervised at all times by a qualified, competent person.
   iv. Recovery equipment and cylinders conform to the appropriate standards.
d. Pump down refrigerant system, if possible.
e. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f. Make sure that cylinder is situated on the scales before recovery takes place.
g. Start the recovery machine and operate in accordance with instructions.
h. Do no overfill cylinders (no more than 80% volume liquid charge).
i. Do not exceed the maximum working pressure of the cylinder, even temporarily.
j. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k. Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

Equipment shall be labeled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

WARRANTY

HUSSMANN®

To obtain warranty information or other support, contact your Hussmann representative or visit:
https://www.hussmann.com/services/warranty

Please include the model and serial number of the product.

For questions about your equipment please contact our Technical Support Team 866-785-8499
For General Support or Service Calls contact our Customer Support Call Center 800-922-1919
For ordering Aftermarket Warranty Parts 1-855-Huss-Prt (1-855-487-7778)
Hussmann_part_warranty@hussmann.com