HUSSMANN®

EcoVision II Plus Door Upgrade

for Tyler N6D Multi-deck Merchandisers

Installation & Service Manual

P/N 0530690_B

November 2013

IMPORTANT

Keep in store for future reference!

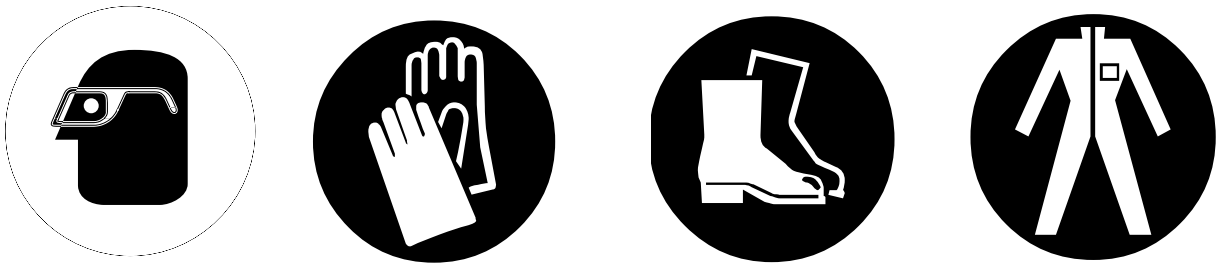
Spanish 0538854
French 0538855

BEFORE YOU BEGIN

Read these instructions completely and carefully.

PERSONAL PROTECTION EQUIPMENT (PPE)

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



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PREPARATION

INSTALLATION

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

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

CAUTION

Caution: Tipping Hazard
Case tipping may occur if cases are not properly leveled and secured.

REVISION HISTORY

REVISION A
1. Original issue

ECOVISION II PLUS Door Installation Tool List

Level, 4 ft suggested
Ratchet
1/4 in. Socket
7/16 in. Socket
3/8 in. Socket
1/2 in. Open End Wrench
Battery Drill/Screw Gun
Rubber Mallet
Hammer
Putty Knife
Pop Rivet Gun (for end fillers)
4ft Ladder

* *

ANSI Z535.5 DEFINITIONS

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

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

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

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

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.

GENERAL

Verify the merchandiser model(s) to be outfitted with the EcoVision II Plus door kit(s) by locating the merchandiser's serial plate.

This instruction details the installation of EcoVision II Plus doors N6D Tyler Multi-deck Merchandisers.

⚠ WARNING

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

⚠ WARNING

Do NOT lean glass doors against the merchandiser lineup. Leave them packed in their protective packaging until they are ready to be directly installed in the lineup. Accidental glass breakage can be dangerous. Always wear protective glasses and gloves when handling glass.

EcoVision II Plus doors may be installed without the need to remove product from the merchandisers. Check with the store manager, and let them know how long a door lineup will take to complete. The average time to install each door is about 20 minutes.

WATER MISTERS AND LIGHT RAILS may not be used with glass doors. Remove any mist equipment from case before installing doors.

NOTE

Read these instructions carefully and completely before attempting to install EcoVision II Plus doors.

⚠ CAUTION

Use caution handling glass parts. Always wear safety glasses, long pants, gloves and arm guards when handling glass doors. Do not lean doors against case. Doors should remain in packing crate until it is time to install on to case.

1 Installing EcoVision II Plus Doors requires at least two installers!

A. Carefully unpack EcoVision II Plus Door upgrade kit(s), and examine parts. Do not carry doors by the handle.

LOCATION

EcoVision II Plus doors are designed for merchandisers that display products in air conditioned stores where temperature is maintained at or below 75°F (24°C) and relative humidity is maintained below 55%. Fogging and/or moisture may occur on the doors if merchandisers are operated outside these conditions.

Placing refrigerated merchandisers in direct sunlight, near hot tables or near other heat sources could impair their efficiency, which may cause the doors to fog. Refrigerated merchandisers are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around the merchandisers. Product should always be maintained at proper temperature. This means that from the time the product is received, through storage, preparation and display, the temperature of the product must be controlled to maximize the life of the product.

CASE LEVELING

Merchandisers must be installed level to ensure proper operation of the refrigeration system, and to ensure proper drainage of defrost water. Glass alignment is also affected with improper leveling of the merchandisers. All steps of settting, joining and case leveling attention to the glass position is critical. Do not attempt to make glass adjustments prior to case leveling.

2 Remove Canopy Fascia, Racks and Display Pans

A. Remove canopy fascia. Canopy fascia will be replaced later.

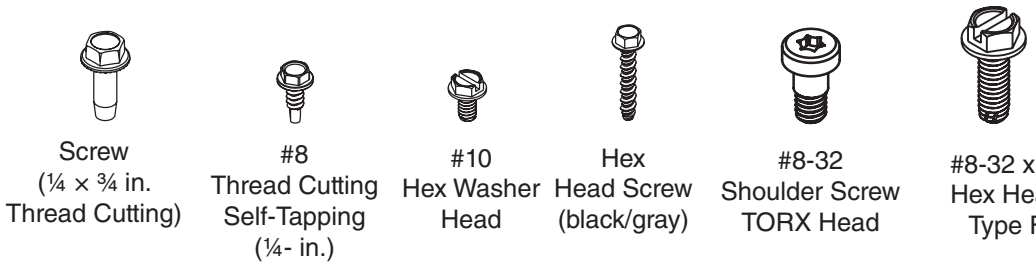
B. Loosen any screws or rods between canopy fascias of joined cases.

Figure 2-1 — Canopy Fascia Removed

3 Remove existing Top Rail. New EcoVision II Plus top rail will be installed later.

A. Loosen any screws or rods between canopy fascias of joined cases.

B. Remove canopy screws at top of case. Set canopy safely on top of case. Canopy we be reinstalled later.



Screw (¼ × ¾ in. Thread Cutting)

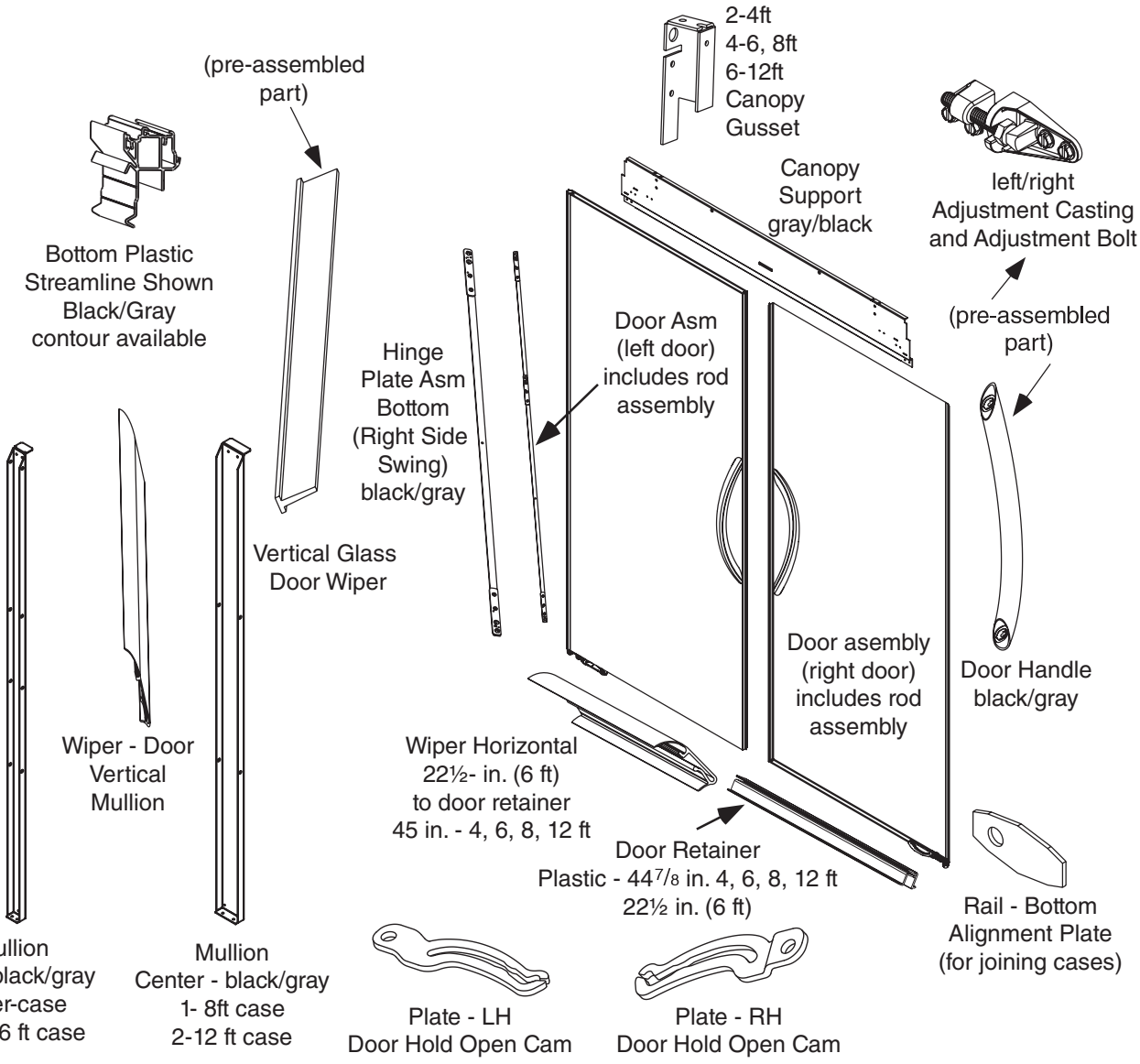
#8 Thread Cutting Self-Tapping (¼- in.)

#10 Hex Washer Head

Hex Head Screw (black/gray)

#8-32 Shoulder Screw TORX Head

#8-32 x ½ Hex Head Type F



EcoVision Door — Parts Identification

4 Pre-assemble the **EcoVision Canopy Support**

A. Fasten canopy support bracket to canopy support.

B. Fasten left and right gussets to canopy support.

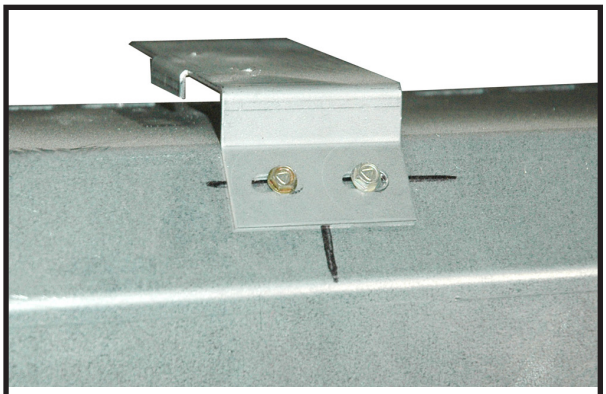


Figure 4-1 — Canopy Support Bracket

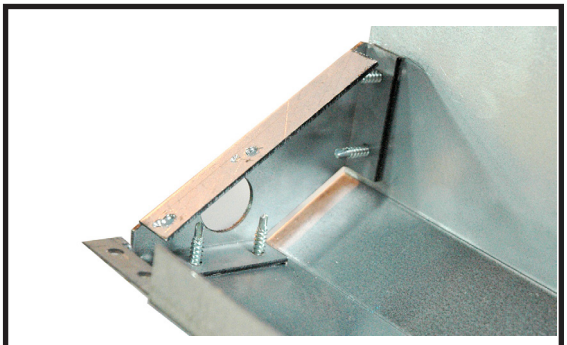


Figure 4-2 — Left Gusset

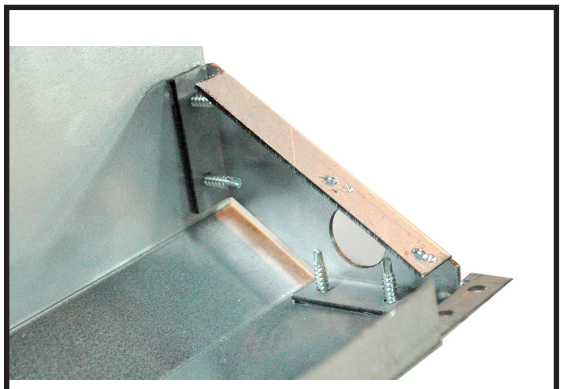


Figure 4-3 — Right Gusset

5 Installing **EcoVision II Plus Canopy Support**

A. Center the canopy support inside the channel at the top of the case. Fasten the first screw at the center of the canopy support. The canopy support may need to be adjusted later (after the mullions are installed). Do not tighten canopy support at this time.

⚠ CAUTION

Canopy Support has sharp metal edges. Wear safety glasses, long sleeve shirt, long pants, arm guards and gloves. Use caution when working at eye level or over head.

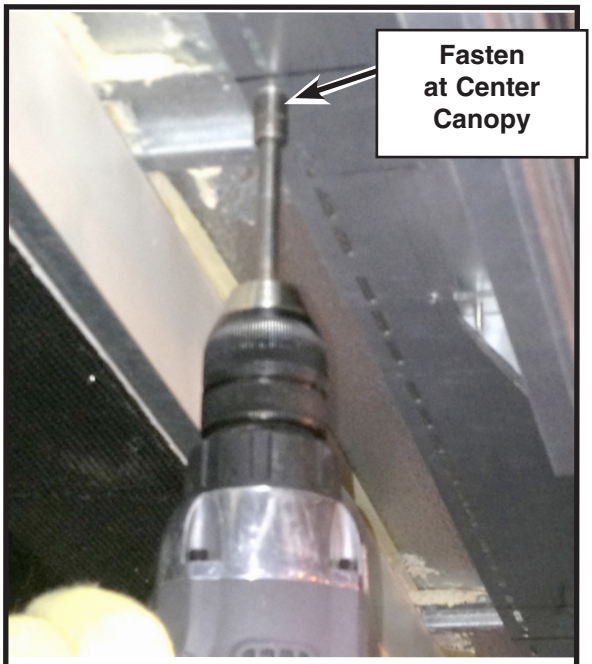


Figure 5-1 Installing Canopy Support

6 Installing **Bottom Rail Support and Bottom Rail Extrusion**

A. Rail supports are installed in 4ft lengths. Place rail supports on top of existing rail.

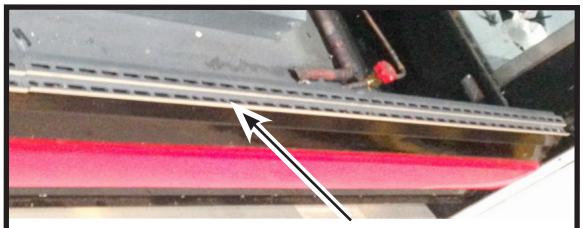


Figure 6-1 Bottom Rail Support

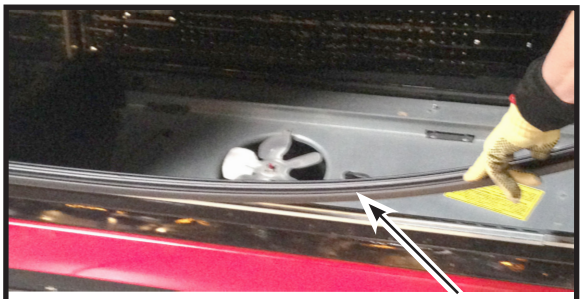


Figure 6-2 Bottom Rail Extrusion

7 Pre-assemble **Light Channel - (Power Supply and LEDs)**

A. Attach power supplies to the EcoVision II Plus light channel.

B. Attach LEDs to the light channel.

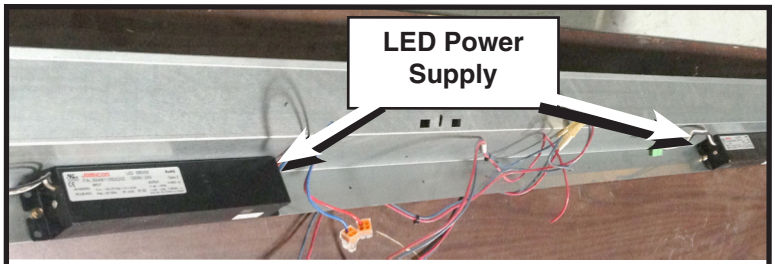


Figure 7-1 Attach Power Supplies

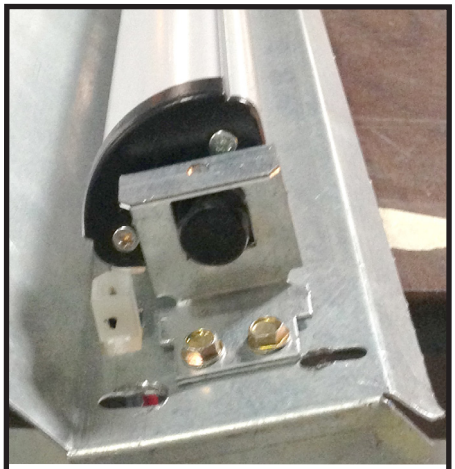


Figure 7-2 Attach LEDs to Light Channel

8 Installing **Mullions**

A. Attach the end mullions first.

NOTE: End mullions may be used on the left, or the right side of merchandiser.

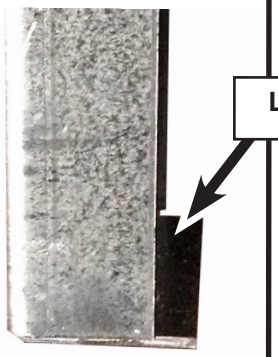


Figure 8-1 End Mullion Lip

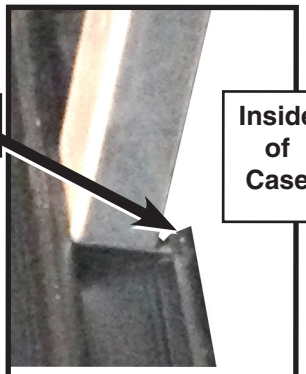


Figure 8-2 End Mullion

B. Attach center mullion(s).

C. The goal is to make sure the mullions are 90° in relation to the bottom rail and the canopy. To do this, measure from back of case to front of mullion at bottom of case. Next, measure from back of case to front of mullion at the top of case. Then check measurement at center mullion. The mullions should measure the same distance at top, and bottom. If the mullions need adjustment, remove center canopy screw installed in Step 5, then adjust end mullions first.

D. Fasten canopy screws when mullions are straight. If the case has an end on it, a ½ in gasket must be installed between the end of the case and the end mullion.

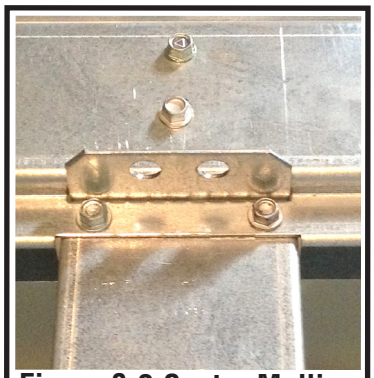


Figure 8-2 Center Mullion

Figure 8-4 Measure Bottom

Figure 8-3 Center Mullion

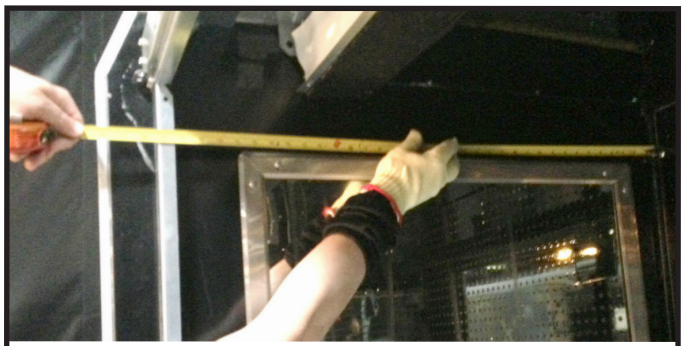


Figure 8-5 Measure Top

Figure 8-3 1/2 in. Gasket

9 Installing **Bottom Gasket Retainer(s)**

A. Start at the left end of the retainer track, and push the retainer into place, working left to right.

⚠ CAUTION

Do not leave merchandisers unsupported or unattended until all parts are properly secured.

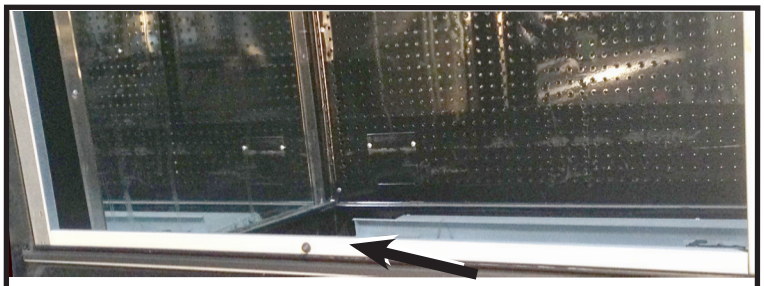


Figure 9-1 Bottom Retainer

10 Installing **Light Channel**

A. Plug LED harness into canopy. Tuck wiring into channel.

B. Fasten the center screw first (6 screws #10). Install light channel cover 10 screws (8ft).

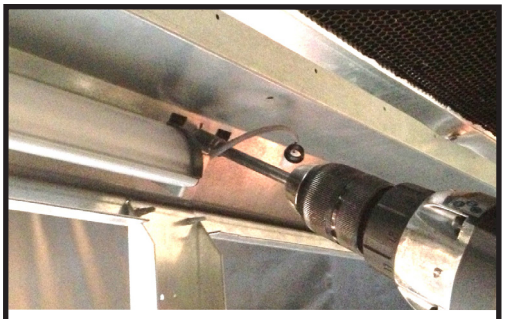


Figure 10-1 Light Channel

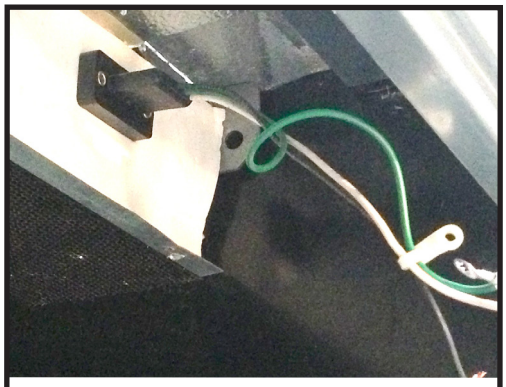


Figure 10-2 Harness Plug

11 Installing **Bottom Horizontal Gasket Wiper and Vertical Wipers**

A. Start at the left end of the case. Push wipers into place, working left to right. Wipers snap into place.

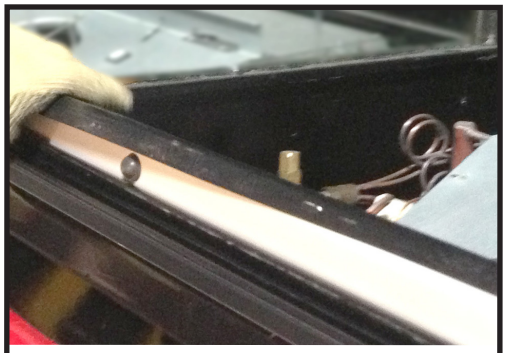


Figure 11-2 Horizontal Wiper

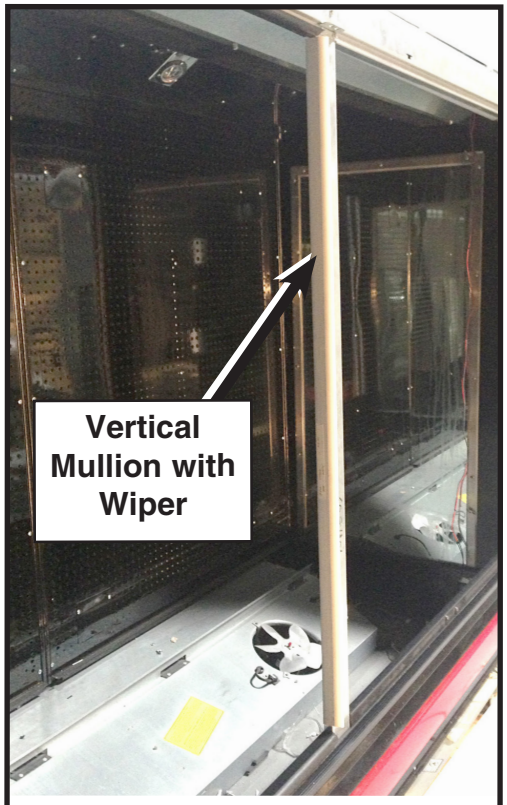


Figure 11-4 Vertical Wiper

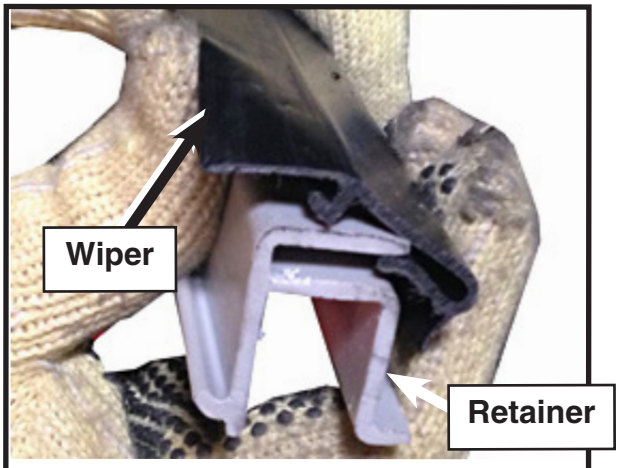


Figure 11-1 Horizontal Wiper

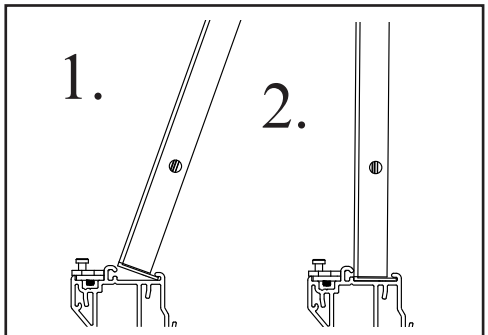


Figure 11-5 Horizontal Wiper

Figure 11-3 Vertical Wiper

12 Installing **Split Rail Hinge Plate Assembly** (4ft) for stair stepping the doors

A. Look for “L” and “R” on hinge plate. “L” is for left side of case. “R” is for right side of case.

B. Fasten center screw only.

⚠ CAUTION

DO NOT CARRY DOORS BY HANDLE. PERSONAL INJURY AND DAMAGE TO THE DOORS MAY RESULT.

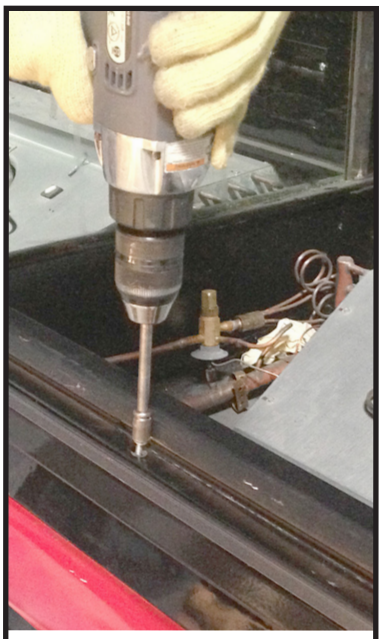


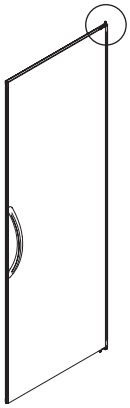
Figure 12-1 Hinge Plate

13 Installing Doors

A. Install left-sided door first at left side of case. Use a putty knife to push down top door pin to help slip top pin into door casting. Then set bottom of door torsion rod into hinge plate hole.

B. Install the right door in the same manner.

C. If doors to not lineup correctly, the doors can be raised or lowered by sliding the hinge plate left or right. Slide hinge plate assembly left, and the right door will raise, left door goes down. Slide hinge plate assembly right, and the left door will raise, right door goes down. Once level screw down (5 places) on hinge plate assembly.



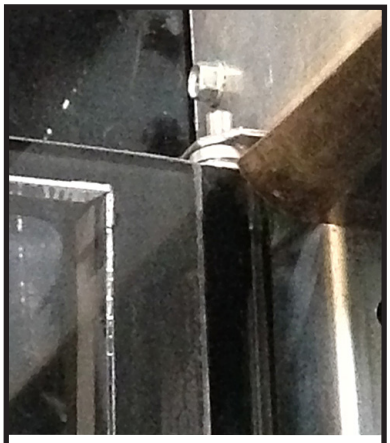


Figure 13-1 Door Casting

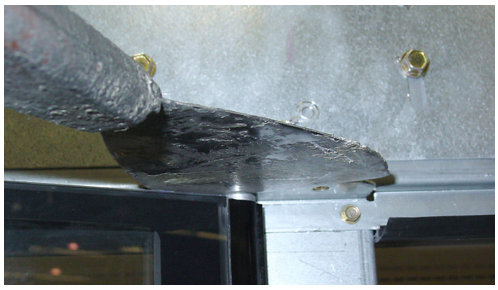


Figure 13-2 Putty Knife

14 Install EcoVision II Plus Door(s). Adjust closing tension on each door as it is installed as shown in Step 19 and Step 20.

Install the doors closest to Contour/Rectangular ends first (Door 1 & 6). See Fig. 14-1.

A. Insert top of door into pin of door casting as shown in Fig. 14-2 & 14-3.

B. Raise door up and position torsion rod at the bottom of the door into bottom hinge plate hole as shown in Fig. 14-4. See next page for door adjustment procedure.

C. Install remaining doors. Doors will be adjusted in the next Step.

⚠ CAUTION

Do not carry doors by handle. Personal injury and damage to the doors may result.

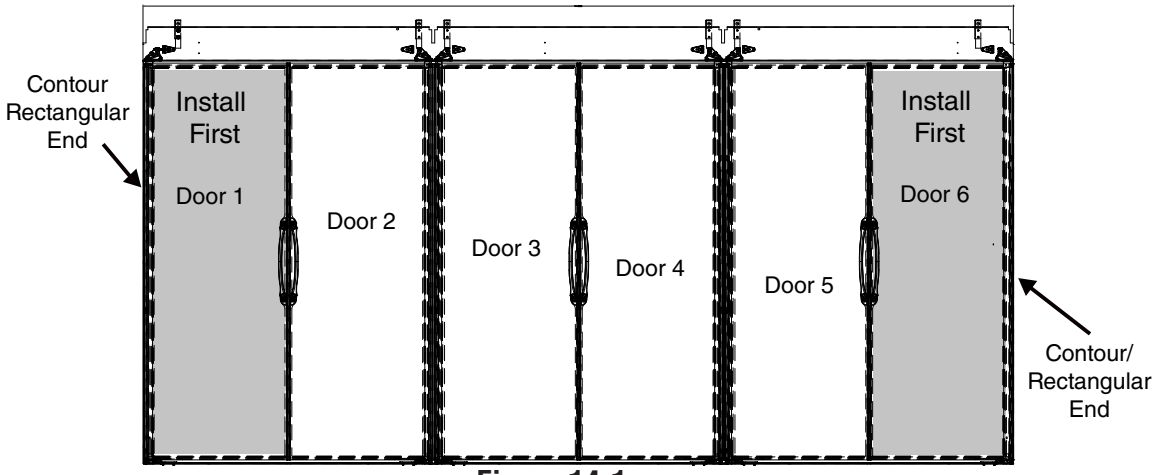


Figure 14-1

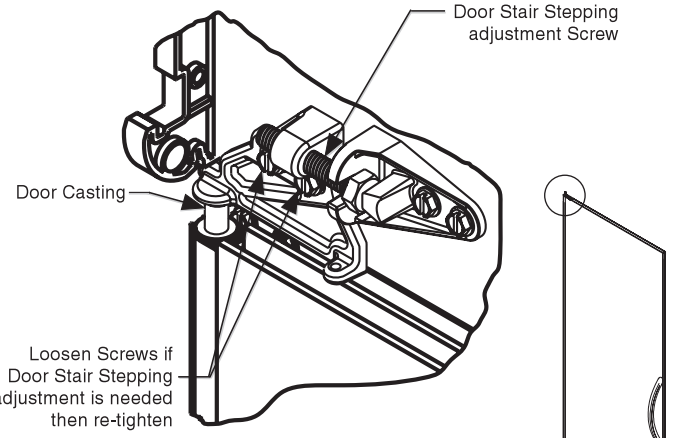


Figure 14-2

Figure 14-3
Left EcoVision Door

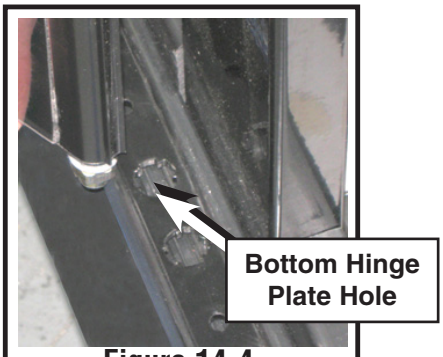


Figure 14-4

15 Adjusting EcoVision Doors.

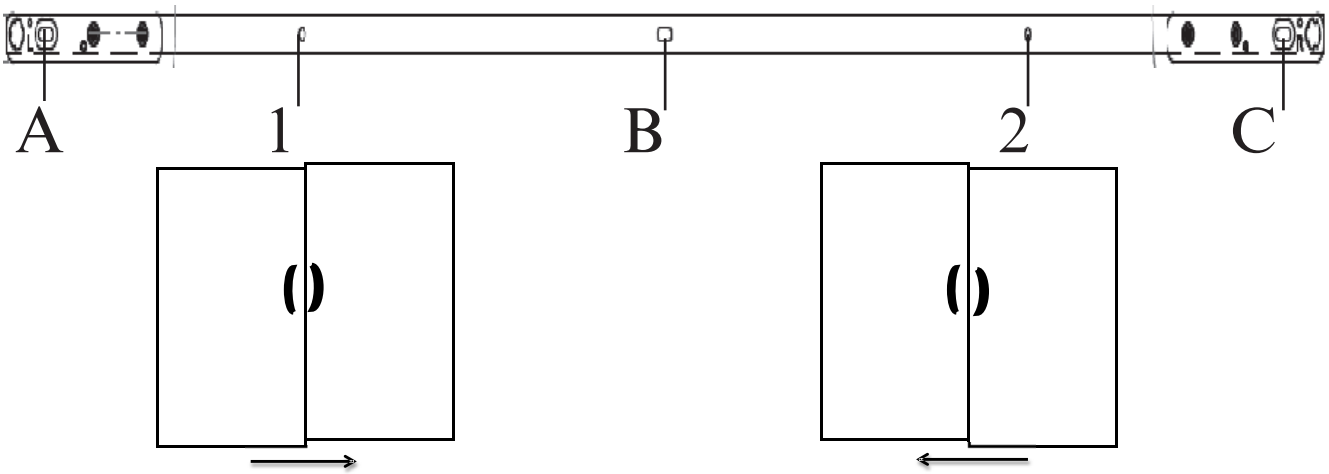
A. Leveling — Merchandisers must be installed level to ensure proper operation of the refrigeration system, and to ensure proper drainage of defrost water.

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

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

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

EcoVision Door Alignment - Modular Bottom Hinge Plate



To Correct Shift the Bottom Plate to the Right

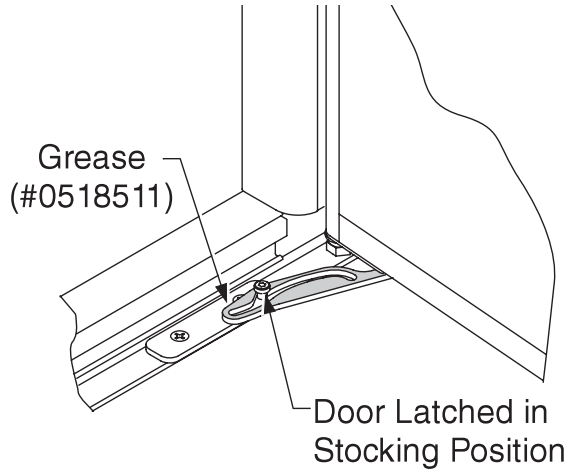
To Correct Shift the Bottom Plate to the Left

16 Door Hold Open

EcoVision doors have a door hold open latch that allows the doors to remain in an open position. This feature is especially useful for stocking the merchandiser with product or cleaning the merchandiser's interior.

The door hold open is located on each door, near the bottom of the door. The hold open latch comes pre-greased from the factory. Verify grease is in the shaded area inside and around the groove in the cam as shown in Fig. 17-2. Open door until hold open engages and locks into position. A clicking sound will be heard. To close door push it until it disengages.

DO NOT pry open Cam to pass shoulder screw onto Cam. This will permanetely damage the cam. Screw must be insert into Cam, and then torqued down.



Cam slot is positioned over the screw hole then the Torx screw is attached.

Figure 16-1

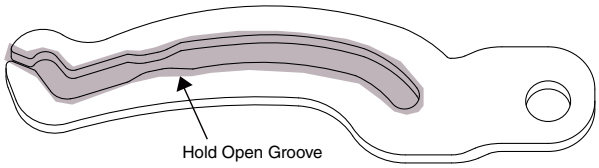


Figure 16-2

17 Tightening Torsion Rods

A. Once doors are correctly aligned, tighten torsion rod at bottom of doors - (6 clicks).

NOTE: Refer to illustrations on the next page for additional door adjustment information.

Figure 14-1 Bottom Torsion Adjustment

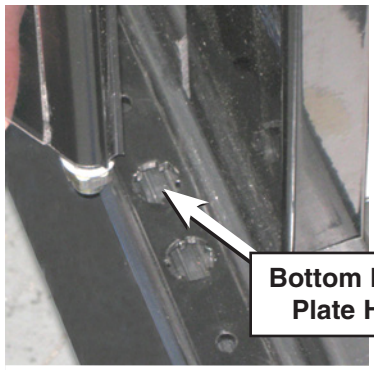


Figure 14-2 Hinge Plate

18 Secure Hold Open Cam

A. Align cam slot over threaded hole in hinge plate assembly. Install screw through cam and connect to hinge plate. EcoVision II Plus doors have a hold open latch that allows the doors to remain in an open position. This feature is especially useful for stocking the merchandiser with product or cleaning the merchandiser's interior. Fasten hold open cam screw as shown. **Never spread cam with screw driver!**

Figure 15-1 Hold Open Cam Screw

19 Increase / Decrease door tension

The door's closing speed may be adjusted by rotating the adjustable tension rods near the hinge of each door. **Open door to 90° and lift up weight of door to prevent damage to plate bottom when adding door tension.** Use a 1/2 in. open end wrench to tighten door. Adjust tension with each click. Doors should be adjusted to six clicks or as needed. **DO NOT over-torque the hinge spring assembly more than 8 clicks — damage to door may result.**

Lift door up and out of bottom hinge plate to remove door tension. **Do not use wrench to decrease door tension as this may damage the star pattern on the bottom hinge plate assembly.**

Check that cam has greased applied. If no grease is applied, apply supplied grease to hold open as shown in Figure 19-3.

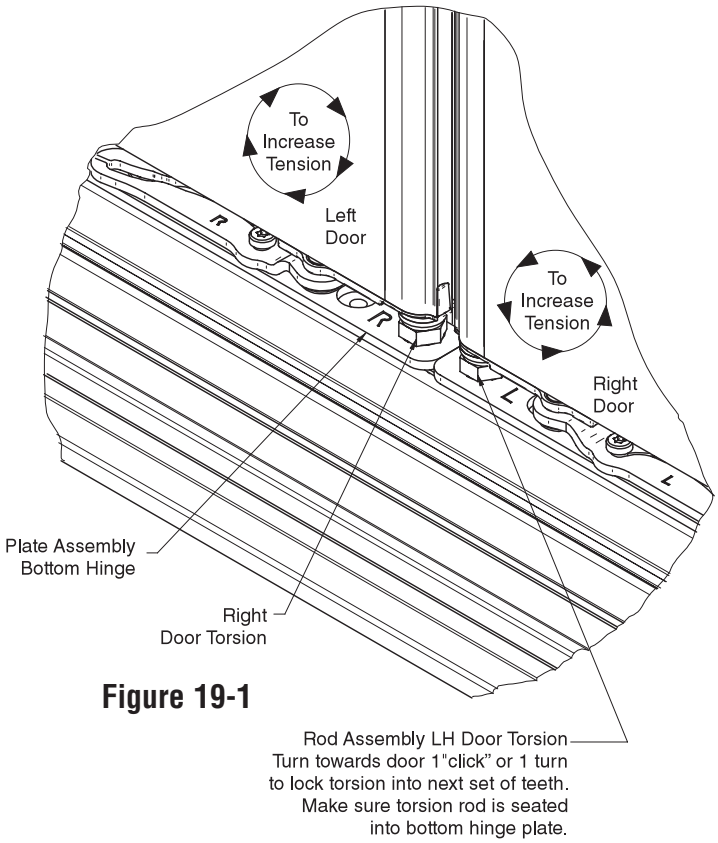


Figure 19-1

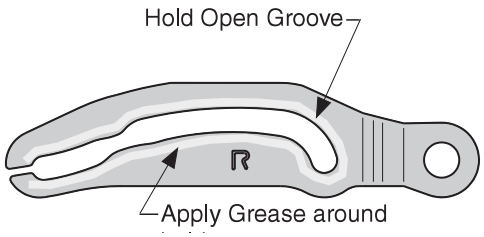


Figure 19-3

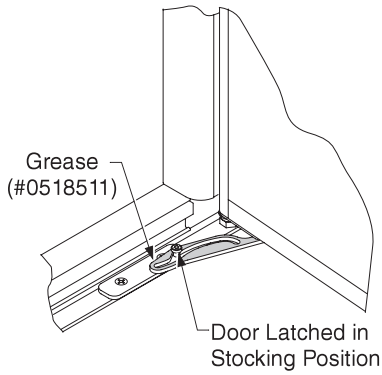


Figure 19-2

20 Replace Canopy Fascia

A. Fasten canopy fascia at top of case (4 screws).

⚠ WARNING

Failure to reinstall canopy nuts could cause case parts to become loose and fall, causing serious personal injury.

Figure 20-2 Canopy Fascia

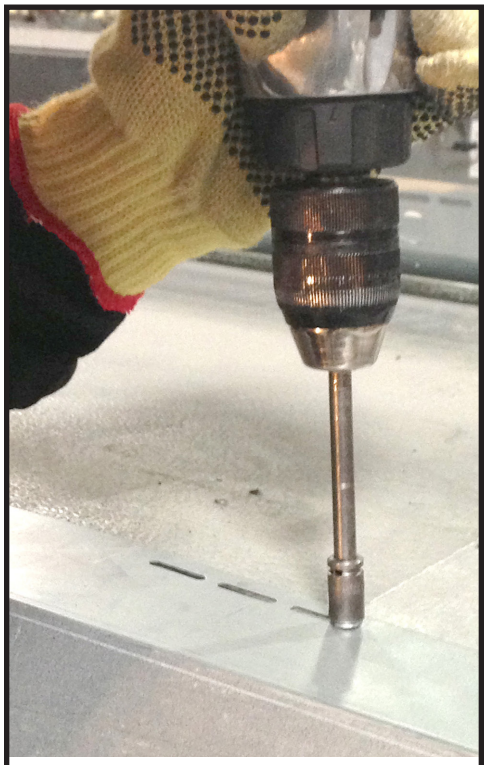


Figure 20-1 Fasten Canopy Fascia

21 Check Door Open and Closing

A. Doors should now open and close smoothly and at the same rate.

Figure 21-1 Doors Installed

22 Start up / Stocking

Locate the merchandiser's refrigerant settings and defrost requirements. Bring merchandisers down to the operating temperatures listed on the data sheet.

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

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

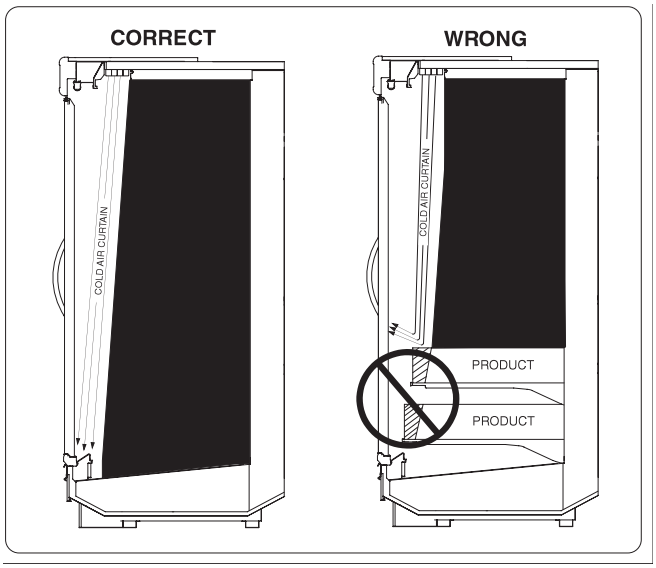


Figure 22-1 — Product Stocking Limits

⚠ CAUTION

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

TECHNICAL GUIDELINE FOR CASE AND REFRIGERATION SYSTEM ADJUSTMENTS

Upgrading your existing store with EcoVision II Plus doors is an excellent way to reduce energy costs. However, adjustments to your equipment may be required as a result of adding doors, because the original equipment was designed for higher refrigeration loads. Below is a list of recommended changes that need consideration for cases, line-ups and the refrigeration system after upgrading to EcoVision II Plus doors in order to maintain optimal performance of the refrigeration equipment.

For a detailed analysis and quote of the specific adjustments needed at your store, please contact your Hussmann sales representative. The Hussmann Team will help ensure that your existing equipment remains at optimal performance after the EcoVision II Plus door upgrade. Without proper evaluation by a Hussmann Application Engineer or qualified professional, oil return, case performance, and product temperature could be negatively impacted.

CASES

A. Thermostatic Expansion Valve (TXV)/ Orifice

Each case may have multiple evaporator coils, and each evaporator coil has a TXV / orifice combination. The setting of the superheat of each coil is critical to the performance of the case. The superheat setting on the valve may require changing to achieve optimal performance of the case.

The change is likely due to the large decrease in case load (the existing valve may not have enough range in its operation to accommodate the smaller load). For non-adjustable valves, add a stem kit, or replace the valve. If you have a non-adjustable Danfoss valve, it must be changed to a valve with superheat adjustment. If you have an adjustable valve, adjust the valve. Recommended superheat is 4° to 7°.

B. If an electronic TXV is used, no change is needed.

LINE-UPS

A. Each line-up of cases has a solenoid valve or Evaporator Pressure Regulator (EPR) by which to control temperature.

If a solenoid valve is used in either the liquid or the suction line, more than likely, these will not have to be changed. An evaluation of the sizing of these lines is required based on the reduced load. If they are oversized or undersized by more than one size, then they should be resized. The reason for this is that these valves, especially if they are in the suction line, require a pressure drop in which to operate. If valves are oversized, this pressure drop may not be strong enough to actuate the valve. This reduction in load allows the case saturated suction temperature to run 3° to 6° warmer, therefore it is recommended that a mechanical or electronic EPR, per line-up, be utilized to optimize case performance and increase energy savings. Rear-load cases must have an EPR added.

If a mechanical EPR is used, sizing to the new load must be considered.

If an electronic EPR is used, the existing valve will need to be checked for full function at the new load.

B. Each line-up of cases has a liquid and suction line from a loop served by the rack, or a run from the rack to the line-up.

The liquid line does not normally need to be changed.

The suction line in every line up needs to be checked and changed as required.

The suction riser is the most important line that must be looked at. If the new load requires a different line size, it must be changed to ensure proper lubricant volume returns back to the compressors.

REFRIGERATION SYSTEM (DX SYSTEM)

A. The DX system itself has many components that must be evaluated. They include:

Compressors: After determining the new BTU/hr load, determine if the existing compressor selection will allow steps from 8% to 20%. If not, a compressor or more compressors may need to be removed or replaced.

When the existing design uses an even number of compressors, a compressor change should be considered if the load was reduced by more than one compressor capacity. Adjusting the compressor output by means of un-loaders, variable frequency drives, or digital technology, may be acceptable alternate solutions.

NOTE: Pay particular attention to affected circuits that are fed by a satellite compressor or conventional unit. That compressor may now be grossly oversized.

Gas Defrost: If the rack is equipped with gas defrost, the main liquid line solenoid and the discharge differential valves should be evaluated. If the existing valve is oversized, a new valve should be considered.

Heat Reclaim - If the rack is equipped with heat reclaim, the new value for available heat should be recalculated. It is possible that the heat reclaim coil will now be oversized. This is especially true if compressor changes have been made. Typically, whole rack BTU/hr reductions of 35 percent and greater would need to be seen.

Discharge Riser: Depending on the drop of BTU/hr to the entire rack, the discharge riser (the piping that goes from the rack to the condenser), may need to be resized. Under most applications this will just need to be checked. If the drop in the total BTU/hr is greater than 35%, a resize is more than likely necessary. If this line is not resized when it is necessary to do so, lubricant return back to the compressors may be an issue.

Condenser: The condenser will not typically need to be replaced. However, if winter control is provided and there is a Total Heat of Rejection (THR) load drop of greater than 40 percent, the winter control valve should be checked.

Receiver Pressure Regulator: The sizing on these series of valves will probably be acceptable and a small reset on the A8/A9 series may be required.

Solenoid Valves: Depending on the manufacturer and function of the solenoid valves, the sizing may need to be looked at. Some models require a pressure drop across the valve in order to close. If the flow through the valve is too small, the pressure drop may not exist and therefore the valve may not operate as designed.

Sub-Cooler: If the rack is sub-cooled and the drop in total BTU/HR is greater than 35 percent, the sub-cooler and its TXVs may need to be resized.

HEATING, VENTILATION, AIR-CONDITIONING SYSTEM (HVAC)

In some instances, the HVAC system is sized based on an assumption that a portion of the refrigeration capacity will be used to reduce the temperature and humidity in the store. This is called "case credits." This reduction in AC load is calculated based on the "spillover" of the chilled air from these cases by adding doors this "spillover" is eliminated. If these credits were taken, and EcoVision II Plus doors are applied to a major part of the refrigeration load, typically 35 percent or more, the HVAC system needs to be evaluated to see if it can handle the entire air-conditioning load.

In addition to the adjustments above, the following tasks must also be considered:

1. Time required to isolate that portion of the system where the component(s) will be replaced

2. Removal of the refrigerant (per government guidelines)

3. Removal of the part(s) to be replaced

4. Installing the new component(s)

5. Evacuation of that part of the system that was isolated

6. Recharging of the refrigerant that was removed and

7. Setting of each valve/component installed.