

EcoVision II Plus Door Upgrade

for Impact Medium Temperature Merchandisers



Installation & Service Manual

P/N 0542157_A May 2014

IMPORTANT

Keep in store for future reference!

Spanish 0544199 French 0544200

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

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

REVISION HISTORY

REVISION A Revised superceded part number 0529115_C

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. The serial plate is located on the inside behind the return air grille.

This instruction details the installation of EcoVision II Plus doors for Hussmann Impact cases.



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

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. Competitor case models may also be outfitted with EcoVision II Plus door upgrade kits. Check with your Hussmann representative for details. EcoVision 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.

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



2 Carefully remove canopy fascia(s) from the merchandiser(s).

- **A.** Remove screws from fascia. Unhook the canopy fascia panel by lifting out from the center at the bottom as shown in Figure 2-1.
- **B.** Remove canopy fascia. Canopy fascia will be reinstalled later
- **C.** Loosen rods in canopy between the joined cases as shown in Figure 2-2.

3 Remove color panel and bumper as shown in Figure 3-1.

A. Set bumper aside. Bumper will be reinstalled after EcoVision II Plus doors are installed.

4 Remove the ¹/₄ in. screws from the Impact front rail extrusion.

A. Remove rail extrusion and discard. New EcoVision II Plus rail extrusion will be installed later.





Figure 2-1 — Canopy Fascia





5 Install insulation and inner bottom rail supports.

- **A.** Clean sealers and (or) Perma-gum off front supports before attaching insulation or bottom rail support
- B. Insert insulation with notched side toward the outside of the case (3) per 12 ft case, (2) per 8 ft case as shown in Figure 5-1 and 5-2.
- **C.** Install inner bottom rail support and attach it to the front supports using #8 x ³/₈ in. screws.
- 6 Attach the outer bottom rail support to the front of the case with #8-18 x $^{1}/_{2}$ in. screws.







6a Attach EcoVision II Plus bottom rail extrusion

- **A.** Place bottom rail extrusion onto the front of the case as shown in Fig 6-1a & 6-2a
- **B.** Make sure the rail is properly seated and there are no gaps between the extrusion and the inner bottom rail support. (Fig 6-2a)
- **A.** Make sure extrusion is level
- **B.** Fasten #8 screws as shown in Fig 6-2a. Space approximately every 12 inches.

Attention! No Gap Between Parts!

> Bottom Rail Extrusion



Level





7 The design of the Impact Ecovision Door kits will work on Pre 04/1996 cases and Post 04/1996 Impact cases. The difference in the Canopy is shown below









9 Install Light channel attachment (12 inch parts) as shown in Fig. 9-1 using #8 Screw





10 Insert the Tabs on the Canopy Channel Assembly into Light Channel Retainer as shown in Fig 10-1 and 10-2 and fasten with #8 screws as shown by arrow.







13 Remove four ⁹/16 in. nuts from top of canopy and set aside. Nuts will be Reinstalled later in the instruction. This provides movement of the canopy and makes the mullions easier to install.





It may not be necessary to perform this step for some lineups. See step 15 for more information. Attach ¹/₂ in. gaskets to end mullions.
Attach gasket to each left and right end mullion. (End mullions are thinner than the center mullions.) The photo shows the mullion already installed at the end of the right side of the case.



- **15** Attach end and center mullions onto the rail extrusion as shown in Fig. 15-1.
 - **A.** Angle the top of the mullion toward the inside of the case, and engage the lower flange into bottom extrusion. Straighten mullion, and engage top into canopy support as shown in Fig. 17-2
- **16** Angle the door wiper retainer into the front side (outside the case) of bottom rail extrusion. Squeeze wiper retainer until it snaps into bottom extrusion as shown in Fig. 16-1 and 16-2.



Figure 15-1









NOTE: End mullions may be used on the left, or the right side of merchandiser. If LEDs are installed, mullions with LEDs are marked (L) left, (R) right), (C) center.

- **18** Install bottom hinge plate assembly into the bottom rail extrusion about a ¹/4 in. from end of extrusion. (3) plates for 12-ft case, (2) plates for 8 ft. case. There is a an "L" stamped on the left side and an "R" on the right side.
 - A. Insert one screw into the center hole and only the center hole. Do not tighten completely. This will allow for leveling of the doors later.







A. Insert door wipers to the inside of each mullion. Push the ends of the wiper tracks onto mullions first, and then work toward the center.





20 Insert bottom of door into bottom hinge plate assembly first.

- **A.** Install door into bottom hinge plate assembly.
- **B.** Use a putty knife to depress pin and slide door as shown in Figure 20-1. Move the door until the door pin engages in the hole in the mullion at the top of the door. Repeat for all left and righthand doors.







21 Increase / Decrease door tension

The door's closing speed may be adjusted by rotating the adjustable tension rods near the hinge of each door. 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.

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.

All hold open cams come from the factory pregreased as shown in Figure 21-3. Removal of the grease will reduce the life of hold open cam.









Figure 21-2



22 Attach door plate cam,and fasten TORX Head Shoulder Screw.

A. Insert TORX head shoulder screw through door plate cam and fasten to bottom hinge plate.

Attention!

DO NOT use any tools to pry open the arms of the cam. This will permanently damage the cam and will prevent the door from staying open during stocking

23 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).

Figure 22-1

Door not shown for clarity

B

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.

Each plate assembly should have 5 screws.

EcoVision Door Alignment - Modular Bottom Hinge Plate



Door Plate Cam

TORX HD

Bottom Rail

Bottom Hinge Assembly Plate

Shoulder Screw

To Correct Shift the Bottom Plate to the Right To Correct Shift the Bottom Plate to the Left





Install screw plate covers.

A. Remove center screw and reinstall with cover to seal the slot.



25 Reinstall front color panel and bumper.

- **A.** Seat front color panel in extrusion.
- **B.** Reinstall canopy fascia, deck pans, etc.



26 Attach (black or clear) bumpers at the top of the doors about 1 in. from the center of door.





27 Check door open and closing; check button bumpers

- **A.** Doors should now open and close smoothly and at the same rate.
- B. Fasten all ⁹/16 inch nuts on top of the case, and tighten to canopy.

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

28 Start up / Stocking

Refer to the merchandiser's Technical Data Sheet for 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 28-1 — Product Stocking Limits



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 lineup, 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.





Contour End Filler Instruction

Figure 2-1 — Top existing

- Place outside filler panel (2) over the contour end panel.
- **B.** Mark location at top and bottom of existing trim piece for cutting
 - Figure 2-1 Top existing trim section removed





- **2** Align Exterior Panel against the End Panel, flush with the top.
 - **A.** Draw a line on the trim piece where it meets the end of the Exterior Panel. (See arrow).
 - **B.** Cut the trim piece at the marked location.
 - **C.** Remove screw from the top of Trim.
 - **D.** Start at the top and remove the Trip Piece.
 - **E.** Leave the bottom section of the trim on the case.





Figure 2-1 — Align Exterior Panel



3 Fit foam panel (1) for cutting.

A. Align foam panel (1) with bottom front where existing trim piece was cut as shown in Figure 3-3.

- **B.** Align foam panel (1) at canopy so that it sticks out 1 inch past canopy. Mark for cutting as shown in Figure 3-3.
- **C.** Cut foam panel (1).



Figure 3-3 — Foam Panel Cut to Fit





Insert cutout foam panel (1) into contour 5 end gap.





7 Insert one # 8 screw at bottom to temporarily hold outside filler panel in place, one at top.

To verify that panel is straight:

- **A.** Measure the distance from back of contour end to the front of end panel as shown in Figure 7-1.
- **B.** Measure the same distance as on the bottom. Insert one #8 screw to hold panel in place at top to temporarily hold panel in place as shown in Figure 7-1.





- **8** Repeat same steps for inside filler panel (3).
 - **A.** Make sure inside and outside panel are even as shown in Figure 8-1 and 8-2.



- **9** Place trim piece (4) over end fillers measure and cut trim piece to align with existing trim piece.
 - **A.** Make sure trim piece (4) is against filler panels and insert #8 screw at the top of trim.







- **10** For every pilot hole in end filler panels, drill a ¹/8 inch hole into the existing contour end panel.
 - **A.** Shoot pop rivets (1/8 inch) into pilot holes (15 places). Remove screws, and replace with pop rivets.
 - **B.** Shoot pop rivets to the side of the trim piece at the middle and bottom both inside and outside of trim.
 - **C.** Make sure there are no rough edges on the pop rivets or at the joint.
 - **D.** Paint rivets to match color of end panel.





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

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