

HUSSMANN®



MD

Medium Temperature Self Contained Open Vertical Merchandisers



MD-14

MD-10

Installation & Service Manual

IMPORTANT
Keep in store for future reference!

P/N 2402646_D

February 2012



ATTENTION

Merchandiser must operate for 24 hours
before loading product!

Regularly check merchandiser temperatures.

Do not break the cold chain. Keep products
in cooler before loading into merchandiser.

These merchandisers are designed
for pre-chilled products only.



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

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REVISION HISTORY

REVISION D — FEBRUARY 2011

- 1. Updated refrigerant charge amounts, Page A-3
- 2. Updated display area, Page A-4
- 3. Changed honeycomb part numbers, Page A-1

REVISION C — DECEMBER 2011

- 1. Added Safe-NET III™, page 3-1 to 3-6
- 2. Revised to temperature termination, page 3-7
- 3. Added optional LED fixtures service, page 5-2
- 4. Revised wiring diagrams, page A-5 & A-6

REVISION B — DECEMBER 2010

- 1. Added self contained location drawings, page 1-2
- 2. Added Remote Line Sizing, Koolgas, page 2-2
- 3. Added Electronic Control, Section 3
- 4. Added Technical Data, Appendix A

ORIGINAL ISSUE — AUGUST 2005

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.

INSTALLATION

CERTIFICATION

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

ANSI/NSF-7 Type I - Display Refrigerator / Freezer

Intended for 75°F / 55% RH Ambient Application

ANSI/NSF-7 Type II - Display Refrigerator / Freezer

Intended for 80°F / 55% RH Ambient Application

ANSI/NSF-7 - Display Refrigerator

Intended for Bulk Produce

HUSSMANN PRODUCT CONTROL

The serial number and shipping date of all equipment is recorded in Hussmann's files for warranty and replacement part purposes. All correspondence pertaining to warranty or parts ordering must include the serial number of each piece of equipment involved. This is to ensure the customer is provided with the correct parts.

SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading. This equipment has been carefully inspected at our factory. Any claim for loss or damage must be made to the carrier. The carrier will provide any necessary inspection reports and/or claim forms.

Apparent Loss or Damage

If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim.

Concealed Loss or Damage

When loss or damage is not apparent until after equipment is uncrated, retain all packing materials and submit a written response to the carrier for inspection within 15 days.

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%.

<p>Recommended operating ambient temperature is between 65°F (18°C) to 75°F (23.9°C). Maximum relative humidity is 55%.</p>
--

Placing refrigerated merchandisers in direct sunlight, near hot tables or near other heat sources could impair their efficiency. Like other merchandisers, these 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 merchandiser.

1-2 INSTALLATION

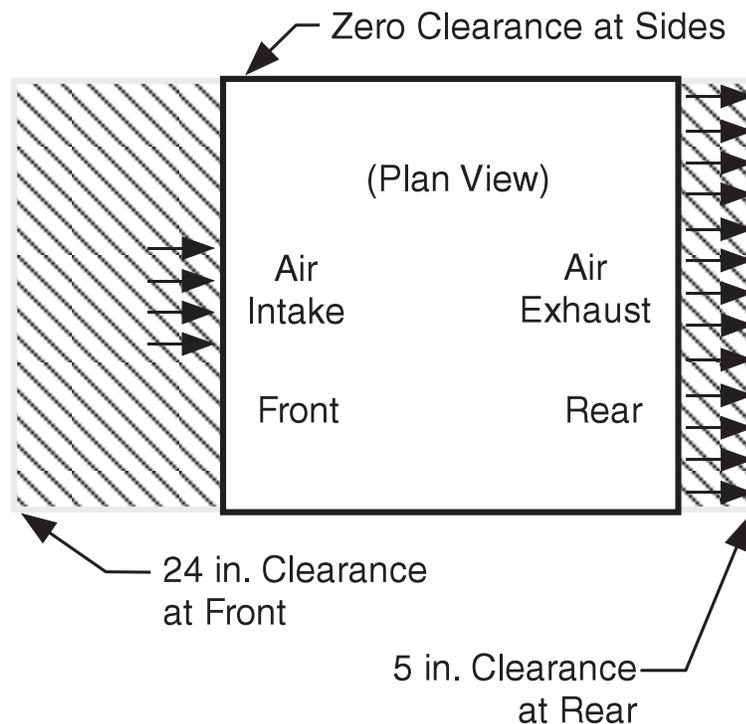
SELF CONTAINED (LOCATION)

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.

BE SURE TO POSITION SELF CONTAINED MERCHANDISERS PROPERLY.

SELF CONTAINED models have vented base panels to allow air circulation through the condensing unit.

Allow for a minimum 5 in. clearance from walls, merchandisers, and any other large objects near the merchandiser's vented base panels (for self contained models). Blocking or restricting air flow will adversely affect performance and may damage the refrigeration system.



MODEL DESCRIPTION

The MD models are open, vertical, medium temperature display merchandisers. They are self contained merchandisers with their own condensing unit. Each self contained model has a condensing unit that is factory installed beneath the display area of the case. The unit is ready for operation when electrical service is connected.



UNLOADING

Unloading from Trailer:

Lever Bar (also known as a Mule, Johnson Bar, J-bar, Lever Dolly, or Pry Lever)

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

Improper handling may cause damage to the merchandiser when unloading. To avoid damage:

1. Do not drag the merchandiser out of the trailer. Use a Johnson bar (mule).
2. Use a forklift or dolly to remove the merchandiser from the trailer.

EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur.

MERCHANDISERS ARE NOT STRUCTURALLY DESIGNED TO SUPPORT EXCESSIVE EXTERNAL LOADING such as the weight of a person. Do not place heavy objects on the merchandiser.

SHIPPING SKID

Each merchandiser is shipped on a skid to protect the merchandiser's base, and to make positioning the case easier.

Remove the top of the crate and detach walls from each other. Lift crate from the skid. Unscrew the case from the skid. The fixture can now be lifted off the crate skid. **Lift only at base of skid!** Remove any braces and/or skids attached (blanket wrapped merchandiser may have skids).

DO NOT TILT MERCHANDISER ON ITS SIDE OR END WHEN REMOVING SKID.

Once the skid is removed, the merchandiser must be lifted —NOT PUSHED— to reposition. To remove the skid, remove screws attaching skid to the merchandiser.

Check floor where cases are to be set to see if it is a level area. Determine the highest part of the floor.



1-4 INSTALLATION

MERCHANDISER LEVELING

BE SURE TO POSITION MERCHANDISERS PROPERLY. Level the merchandiser by all four corners. Merchandiser(s) must be installed level to ensure proper operation of the refrigeration system, and to ensure proper drainage of defrost water.

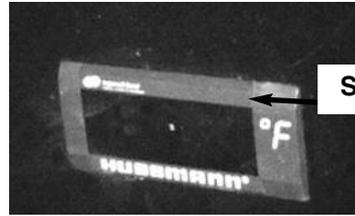
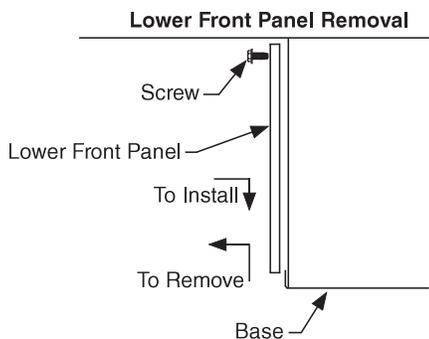
SERIAL PLATE LOCATION

The serial plate is located at the interior top left end. It contains all pertinent information such as model, serial number, amperage rating, refrigerant type and charge.



REFRIGERATION UNIT ACCESS

The lower front panel may be removed by lifting the panel straight upward and over the tabs on which it is hanging. In a self contained merchandiser, two screws will have to be removed from either end of the panel. The panel is installed by reversing the above procedure. Ensure lower front panel is flat against the floor when installed to prevent air circulation problems on self contained merchandisers.



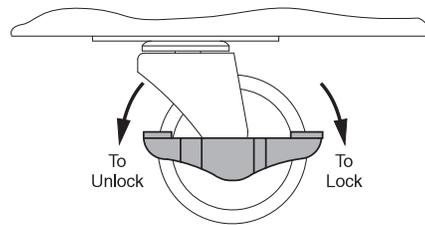
Lift up and out to remove access panel



Be careful not to detach Safe-NET III cable from display when removing access panel.

CASTERS

The merchandiser may be equipped with optional casters. If the case has optional casters as shown below, use the brake to lock the case in place.



SEALING MERCHANDISER TO FLOOR

If required by local sanitary codes, or if the customer desires, merchandisers may be sealed to the floor using a vinyl cove base trim. The size needed will depend on how much variation there is in the floor, from one end of the merchandiser to the other. Sealing of the lower front and rear panels on self contained models may hamper their removal for servicing or maintenance of the condensing unit.

NOTE: Do not allow trim to cover any intake or discharge grilles located in the lower front panel.

ELECTRICAL / REFRIGERATION

MERCHANDISER ELECTRICAL DATA

Refer to merchandiser serial plate for electrical information.

FIELD WIRING

Field wiring must be sized for component amperes stamped on the serial plate. Actual ampere draw may be less than specified.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES

ELECTRICAL CONNECTIONS

All wiring must be in compliance with NEC and local codes. Self contained models are electrical cord connected at the electrical box.

ELECTRICAL OUTLET:

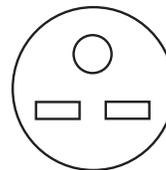
Before the merchandiser is connected to any wall circuit, use a voltmeter to check that the outlet is at 100% of the rated voltage. The wall circuit must be dedicated for the merchandiser. Failure to do so voids the warranty. **Do not use an extension cord.** Never plug in more than one merchandiser per electrical circuit.

- Always use a dedicated circuit with the amperage stated on the unit.
- Plug into an outlet designed for the plug.
- Do not overload the circuit
- Do not use long or thin extension cords. Never use adapters.
- If in doubt, call an electrician.

 **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.



NEMA 6-15R
Receptacle
MD

Self-contained models have factory-installed power cords attached at the electrical box.

POWER SWITCH

The main power switch is located in the electrical box. This switch controls all power to the case. This switch must be in the OFF position, and the electrical cord must be unplugged before starting any cleaning or service work.

 **WARNING**

Risk of Electric Shock. If cord or plug becomes damaged, replace only with a cord and plug of the same type.

 **WARNING**

Merchandiser must be grounded. Do not remove the power supply cord ground.

REFRIGERATION**(Self Contained Models)**

Each self contained model is equipped with its own condensing unit and control panel located beneath the display area. The correct type of refrigerant will be stamped on each merchandiser's serial plate. The merchandiser refrigeration piping is leak tested. The unit is charged with refrigerant, and shipped from the factory with all service valves open.

**WARNING**

**Refrigeration lines are under pressure.
Refrigerant must be recovered before
attempting any connection or repair.**

**CAUTION**

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

WATER OUTLET AND WATER SEAL

The condensate water outlet is located at the front corners of the evaporator coil area. The outlet has a factory installed, external water seal.

For self contained models, this water seal drains into the condensate evaporator pan located beneath the merchandiser.

NOTE: All lower base panels must be in place when the refrigerator is operating. If not, air-flow from the condenser will be directed over the evaporator pan and defrost water in the pan may overflow.

**WARNING**

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

START UP / OPERATION MD-10 & MD-14



**...ATTENTION
INSTALLER**

It is the contractor's responsibility to install merchandiser(s) in accordance with all local building and health codes.

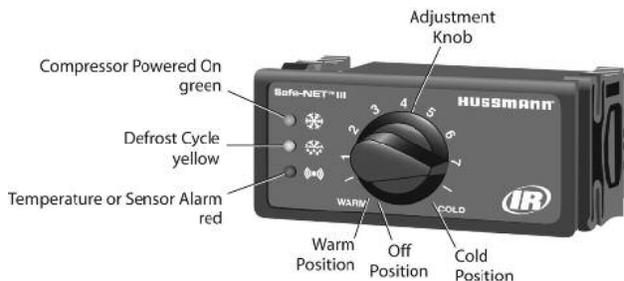
**Safe-NET III™
TEMPERATURE AND DEFROST
CONTROLLER**

SAFE-NET III™ USER INSTRUCTIONS

Your refrigerated case uses a Hussmann Safe-NET™ III temperature and defrost controller to precisely maintain the temperature and prevent frost buildup on the cooling coil. LEDs indicate when the compressor or refrigeration is on, when the case is in a defrost cycle, if the temperature is outside the desired range, or if there is a sensor failure.

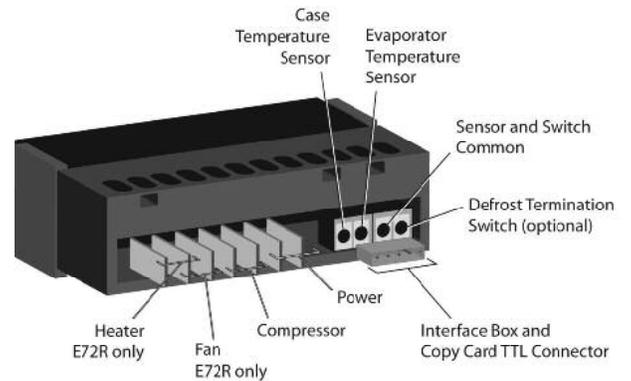
An adjustment knob allows the temperature to be set within the configured range and can power off the controller and compressor. Your controller has been custom-configured to provide the best temperature and defrost control for your chilled or frozen food.

The front of the controller has an adjustment knob and status LEDs. The back of the controller has connections for sensors and switched equipment.



The Safe-NET III controller includes the following features and connections.

- Adjustment knob:
Adjusts the temperature setpoint.
Turn adjustment knob to OFF to turn off refrigeration system. Unplug merchandiser from power before servicing the unit.



- Controller LEDs:
 - ❄️ Compressor Powered On LED (green):
Lights while the compressor is running or the refrigeration valve is open.
 - ❄️ Defrost Cycle LED (yellow):
Lights while the refrigeration coil is defrosting.
 - 🔊 Temperature or Sensor Alarm (red):
Lights if the temperature is too warm or too cold. Flashes if a sensor fails.

- Rear connections:
 - Case temperature sensor:
 - Typically senses the temperature of the air in the case.
Used by the controller to determine when to power on or power off the compressor or refrigeration.
 - Evaporator temperature sensor:
 - Senses the temperature of the refrigeration coil.
Terminates a defrost cycle when refrigeration coil ice melts.
 - Compressor or refrigeration relay:
 - Switches on the compressor or refrigeration valve for cooling.



WARNING

The optional evaporator fan remains ON when the adjustment knob is in the OFF position.

DISPLAY

The display includes three red LEDs and two digits for temperature, defrost status, and error codes.

The three display LEDs are red, and their behavior matches the LEDs on the controller.



START-UP

1. Plug in the merchandiser.



WARNING

The OFF Position does not disconnect line voltage to the case, refrigeration unit, fan, or heater.

2. Wait for the self check to complete. During the self check, each LED flashes for one second, then all LEDs turn on for two seconds. If the LEDs do not flash, make sure the adjustment knob is not in the Off position.
 - After the self check, all LEDs turn off until the compressor starts. **There may be a delay before the compressor starts.** If the red Temperature or Sensor Alarm LED stays on after the self check.
 - The green Compressor Powered On LED turns on when the compressor starts.

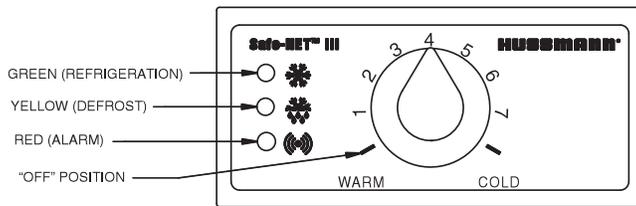
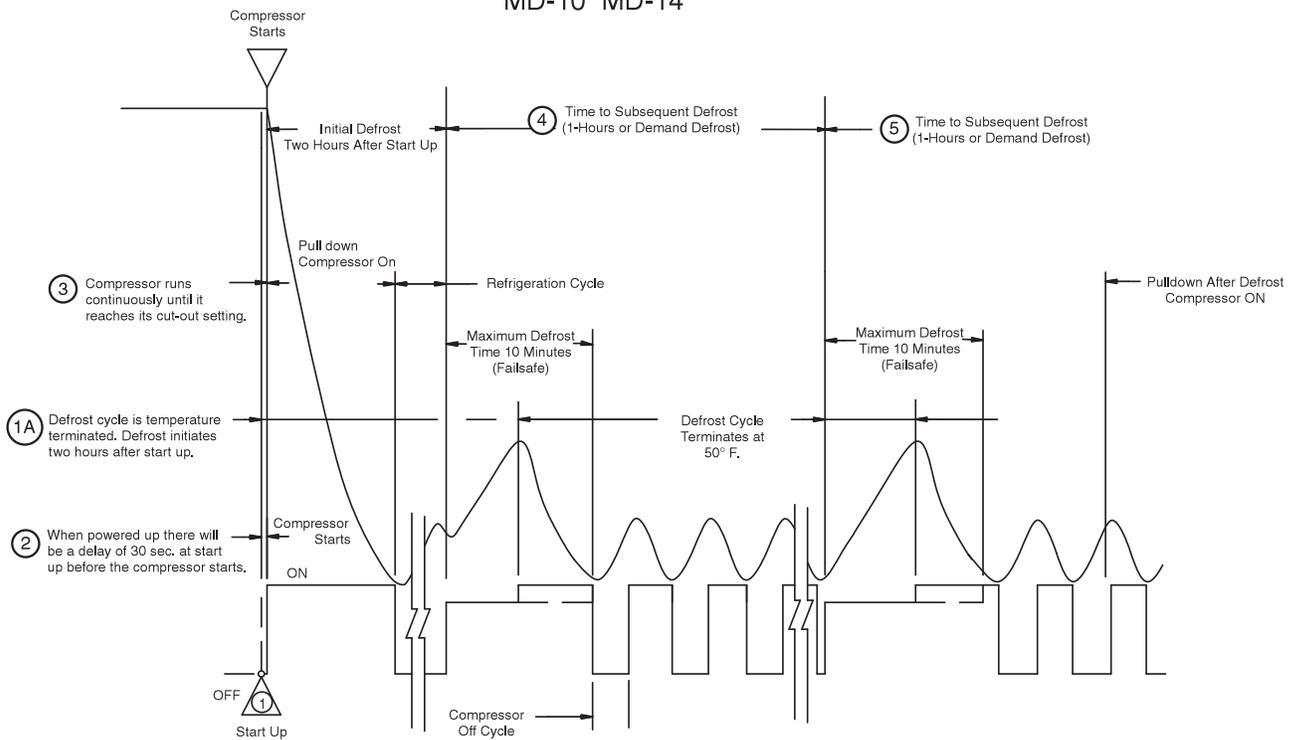
NOTE: Do NOT load product until AFTER merchandiser operates for 24 hours and reaches desired operating temperature.



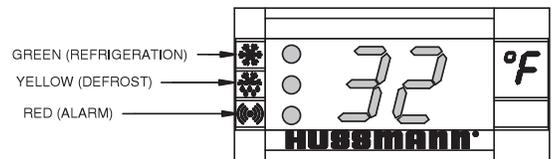
WARNING

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

SEQUENCE OF OPERATION
MD-10 MD-14



Safe-Net III Controller



DISPLAY

1. Apply power to the merchandiser. Wait for the self check to complete. During the self check, each LED flashes for one second and then all LEDs turn on for two seconds. If the LEDs do not flash, make sure the adjustment knob is not in the "OFF" position.
- 1A. The merchandiser temperature displays at startup. The initial defrost starts two hours later. The display will show the temperature at the start of defrost. This reading will remain displayed during defrost and until it times out, even though the refrigeration mode has been initiated. (The green LED will be lit.)
2. The compressor will start after a 30 second delay once power is applied.
3. The compressor will continue to run until it reaches its cut-out temperature (Pulldown).
4. The refrigeration cycle will continue for the next subsequent scheduled (1-hour) or demand defrost.
5. The above process will repeat (steps 3 and 4) until the power is interrupted.
6. If power stops, the process will start over at step 1, and the time to subsequent defrost will reset.

ALARMS AND CODES

FLASHING TEMPERATURE OR SENSOR ALARM LED, E1 OR E2

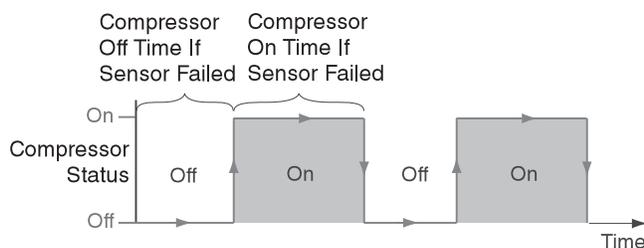
If the Temperature or Sensor Alarm LED (red) on the controller and display is flashing, a temperature sensor has failed. The display shows E1 if the case sensor has failed or E2 if the evaporator sensor has failed.

If the merchandiser sensor fails, refrigeration will run continuously. Turn off, or repeat a duty cycle of a few minutes on and a few minutes off.

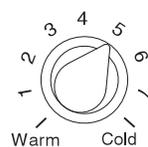


DEFROST TERMINATION SWITCH

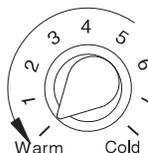
Merchandisers may use a defrost termination switch, instead of an evaporator sensor to terminate a defrost cycle. The defrost termination switch is temperature activated and senses the completion of defrost.



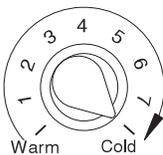
MANUAL DEFROST



1. Note location of knob setting



2. Rotate knob fully counterclockwise until it stops (full warm - "OFF" position)

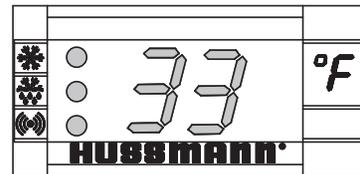
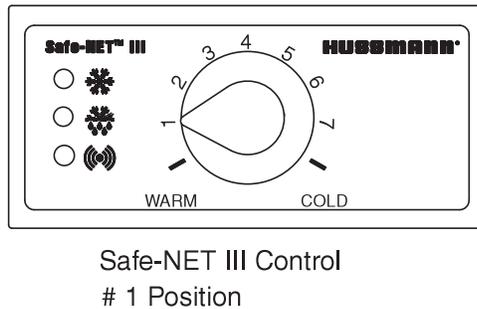
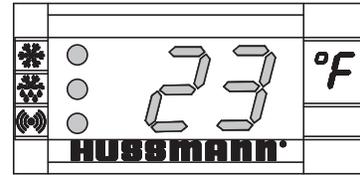
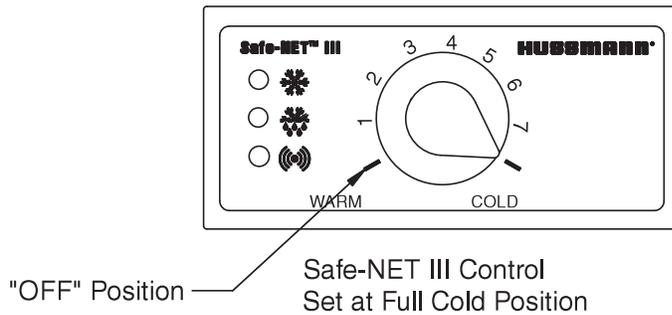


3. After 10 seconds, but before 20 seconds, rotate knob fully clockwise until it stops (full cold position)

Note:

This procedure initiates a manual or forced defrost.

IMPORTANT: Return the control knob to its original setting (Step 1) once the manual defrost has been initiated.

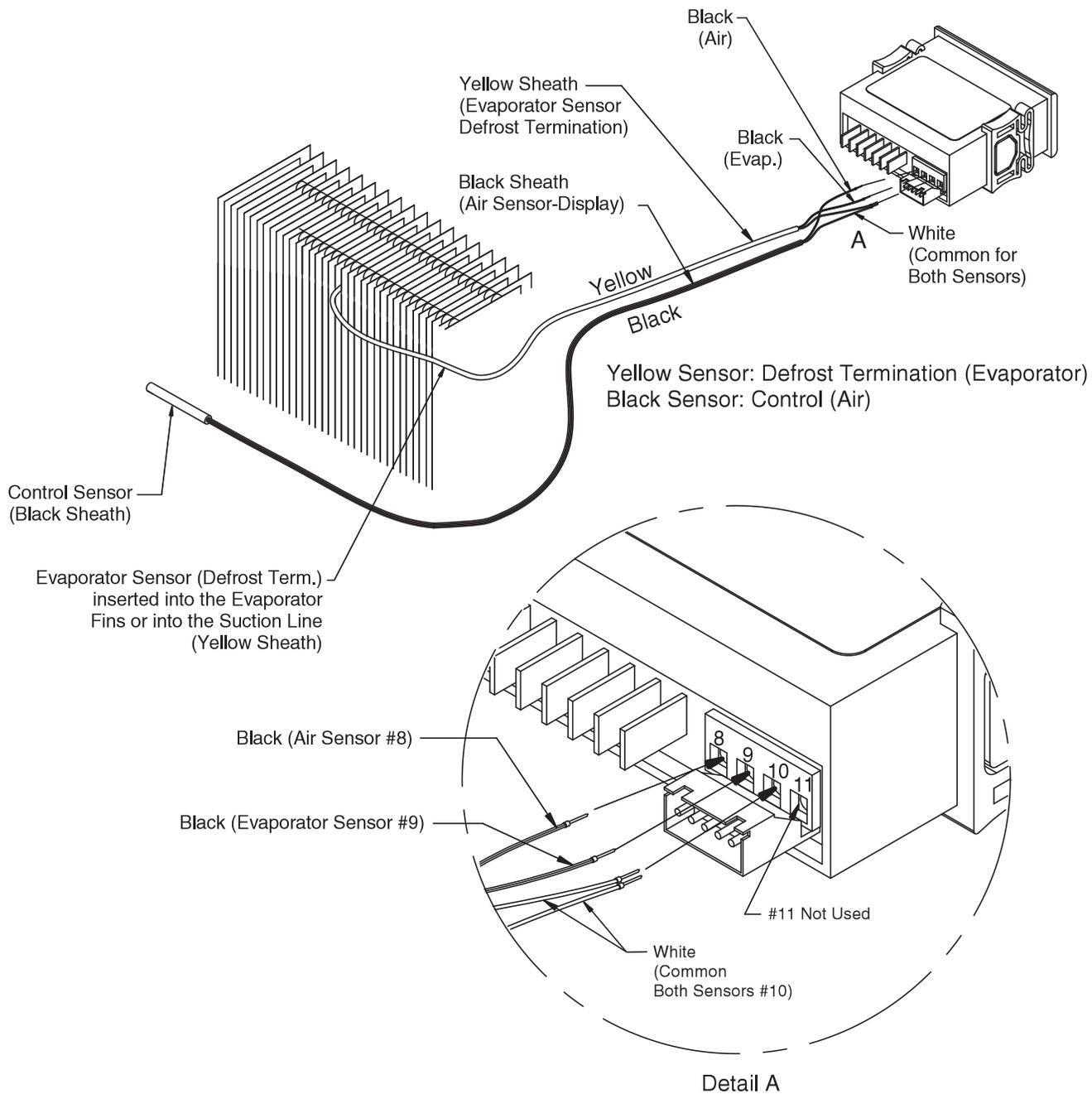


TEMPERATURE ADJUSTMENT

1. Rotate the adjustment knob counter clockwise for a warmer setpoint or clockwise for a colder setpoint.
2. While adjusting the temperature, the display shows the setpoint (cut out value). A few seconds after the temperature is set, the controller reverts to the sensed temperature in the merchandiser.
3. To verify merchandiser settings, turn the dial to warm and cold as shown above. Output readings should be within one degree of the temperatures shown above.



Typical Sensor to Control Configuration



CONTROLS and ADJUSTMENTS

Refrigeration Controls			Defrost Controls			
Model	Product Application	Discharge Air Temperature	Defrost Frequency (per day)	Type of Defrost	Termination Temperature	Failsafe Time (Minutes)
MD-10 MD-14	Medium Temp. (Dairy, Deli)	24° F to 32° F	24	Off Time	50° F	10 Min.

1. The Safe-NET III Controller controls refrigeration temperature. This is factory installed in the control panel mounted on the merchandiser's fascia. Measure discharge air temperatures at the center of the louvers.

Defrosts are time initiated and temperature terminated for self contained models. The defrost setting is factory set as shown above.



**...ATTENTION
INSTALLER**

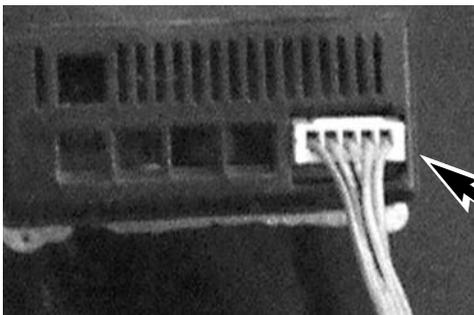
It is the contractor's responsibility to install merchandiser(s) in accordance with all local building and health codes.



WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.



Rear of Safe-NET III Control

SHELVES

MD models are equipped with four shelves. Heights are adjustable in one-inch increments. Product shelves should be loaded so that the product does not extend over the front edge of the shelf. Product loaded over the edge will interfere with air circulation in the cabinet. It is also desirable to leave a small space between the rear interior wall and the product on the shelves, to allow air to enter the cabinet interior through the perforations in the rear wall. The shelves are rated for **130 pounds each load capacity**.

Install the shelf support brackets first to the desired height before installing each shelf. Place the rear of the bracket in the desired slot. Raise the front of the brackets towards the rear of the cabinet. Once the ends are in the slot, rotate the bracket forward, locking it in place. Place the shelf on the bracket. **The shelves are not to be slanted. They must remain in the horizontal position.**

LOAD LIMITS

Each merchandiser has a load limit decal. Shelf life of perishables will be short if load limit is violated.



AT NO TIME SHOULD MERCHANDISERS BE STOCKED BEYOND THE LOAD LIMITS INDICATED.

DO NOT BLOCK DISCHARGE AIR LOUVERS.

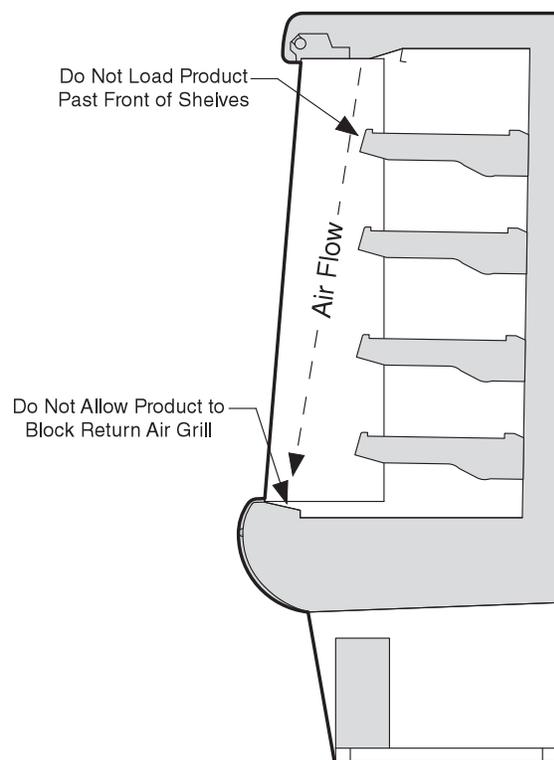
STOCKING

Product should **NOT** be placed inside the merchandisers until merchandisers are at proper operating temperature.

Allow merchandiser 24 hours to operate before loading product.

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 Block Merchandiser Air Flow

THERMOMETER

The thermometer is located next to the discharge in the middle of the merchandiser. The reading is in C° / F°.

LIGHTING

Interior lighting is provided by a cool, white fluorescent bulb. The bulb is sleeved to maintain proper heat around the bulb for maximum light intensity and to protect the product in case of breakage. The bulb can be replaced without removing shelves or product. To replace the bulb, twist the bulb and slide the prongs clear of the lamp holder. Remove the protective shield from the old bulb, and put it on the new bulb. Make sure the prongs on the bulb twist and lock into place when placing the bulb back in the holders.

Optional LED lighting is offered for MD merchandisers. LEDs are held in place with clips. The protective light shield is a single piece.

NIGHT COVER

All MD models come equipped with a night cover as a standard feature. The handle for the cover is located near the lamp, grasp the handle and pull downward until enough of the cover has been exposed, allowing the handle to be placed over the retainer located on the lower panel. If a night cover must be replaced, follow these steps: disconnect power to the cabinet. On the top exterior of the cabinet, there is a perforated metal cover. Lower the lamp fixture as if you were replacing the ballast. Lift the left retainer. Pull the night cover towards you, and slide to left. Install the new cover in reverse order.



WARNING

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



WARNING

Fluorescent lamps contain mercury vapor. Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Do not break or puncture fluorescent lamps. Dispose of, or store, all fluorescent lamps in accordance with Federal (40 CFR 273), State, and local hazardous waste requirements. Refer to <http://www.epa.gov/mercury/about.htm>

3-10 START UP / OPERATION

NOTES:

MAINTENANCE

CARE AND CLEANING

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

Exterior Surfaces

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

Interior Surfaces

The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface. Self contained models empty into a limited capacity evaporation pan, which will overflow if excess water is used in cleaning.

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 not use high pressure water hoses.

WARNING

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

Do:

- Remove the product and all loose debris to avoid clogging the waste outlet.
- Store product in a refrigerated area such as a cooler. Remove only as much product as can be taken to the cooler in a timely manner.
- Disconnect electrical power before cleaning.**
- 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.**
- Take care to minimize direct contact between fan motors and cleaning or rinse water.
- Do NOT flood merchandiser with water. **NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.**



CAUTION

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

SELF CONTAINED MODELS EMPTY INTO A CONDENSATE EVAPORATION PAN THAT WILL OVERFLOW IF TOO MUCH WATER IS INTRODUCED DURING CLEANING.

- Allow merchandisers to dry before resuming operation.
- After cleaning is completed, turn on power to the merchandiser.



CAUTION

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.

CLEANING UNDER FAN PLENUM

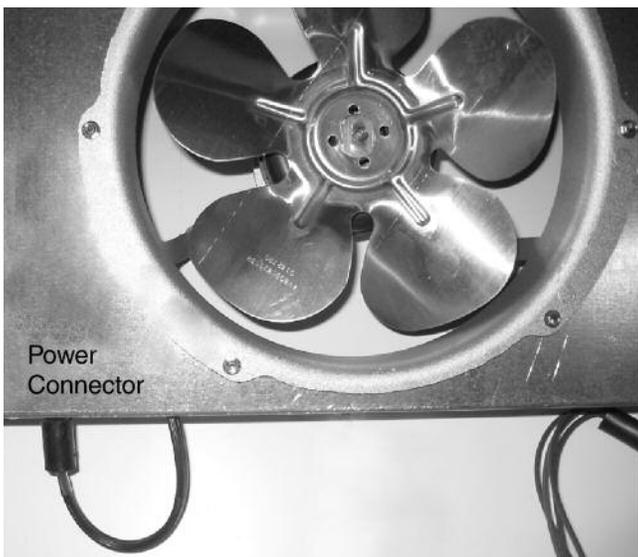
To facilitate cleaning, the fan plenum is hinged.

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



CAUTION

SHUT FANS OFF DURING CLEANING PROCESS.



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.



CAUTION

DO NOT FLOOD!

Use only enough water necessary to clean surface. Water must not drip down the case!

Never use ammonia based cleansers, abrasive cleansers, or scouring pads.



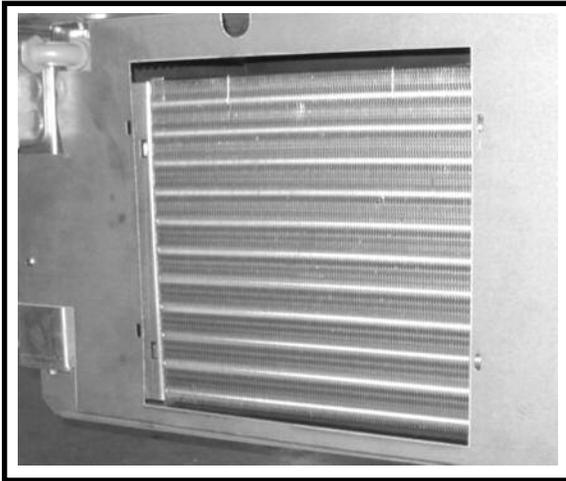
WARNING

— 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.

CLEANING COILS

Condenser coils should be cleaned at least once per month. Additional cleaning may be needed depending on the operational environment. A dirty condenser blocks normal airflow through the coils.



Airflow blockage increases energy consumption and reduces the merchandiser's ability to maintain operating temperature.

To clean the coils, use a vacuum cleaner with a wand attachment and a soft (non-metallic) brush to remove dirt and debris. Do not bend coil fins. Always wear gloves and protective eye wear when cleaning near sharp coil fins and dust particles.



CLEANING EVAPORATION PAN
(SELF CONTAINED ONLY)

The condensate water outlet for self contained models empties into a limited capacity evaporation pan.

Debris or dirt accumulation inside the condensate evaporation pan or on the heater coil will reduce the pan's evaporation capacity and cause premature heater failure. The evaporation pan waste water will overflow and spill onto the floor if the heater is not properly operating.

Remove accumulated debris from the evaporation pan. Wipe down heater coil with a cloth and warm water. Be sure to remove any dirt, debris or liquids from the heater coil.

Water introduced during cleaning will cause the evaporation pan to overflow.

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.
2. Clean area.
3. Apply vinyl or car wax and polish surface for a smooth glossy finish.

 **WARNING**

Evaporation Pan is Hot!
and poses risk of bodily injury – Always Wear gloves and protective eye wear when servicing. Turn off evaporation pan heater, and allow pan to cool.



PRECAUTION
CLEANING PRECAUTIONS

When Cleaning:

- Do not use high pressure water hoses
- Do not introduce water faster than waste outlet can drain
- NEVER INTRODUCE WATER ON SELF CONTAINED UNIT WITH AN EVAPORATION PAN
- NEVER USE A CLEANING OR SANITIZING SOLUTION THAT HAS OIL BASE (these will dissolve the butyl sealants) or an AMMONIA BASE (this will corrode the copper components of the merchandiser)
- TO PRESERVE THE ATTRACTIVE FINISH:
 - Use a water and a mild detergent for the exterior only
 - Do NOT use a chlorinated cleaner on any surface
 - Do NOT use abrasives or steel wool scouring pads (these will mar the finish)

SERVICE

REPLACING FAN MOTORS AND BLADES

Should it ever be necessary to service or replace the fan motors or blades be certain that the fan blades are reinstalled correctly.

THE BLADES MUST BE INSTALLED WITH RAISED EMBOSING (PART NUMBER ON PLASTIC BLADES) POSITIONED AS INDICATED ON THE PARTS LIST.

For access to these fans:

1. Remove product and place in a refrigerated area. Turn off power to the merchandiser.
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.

WARNING

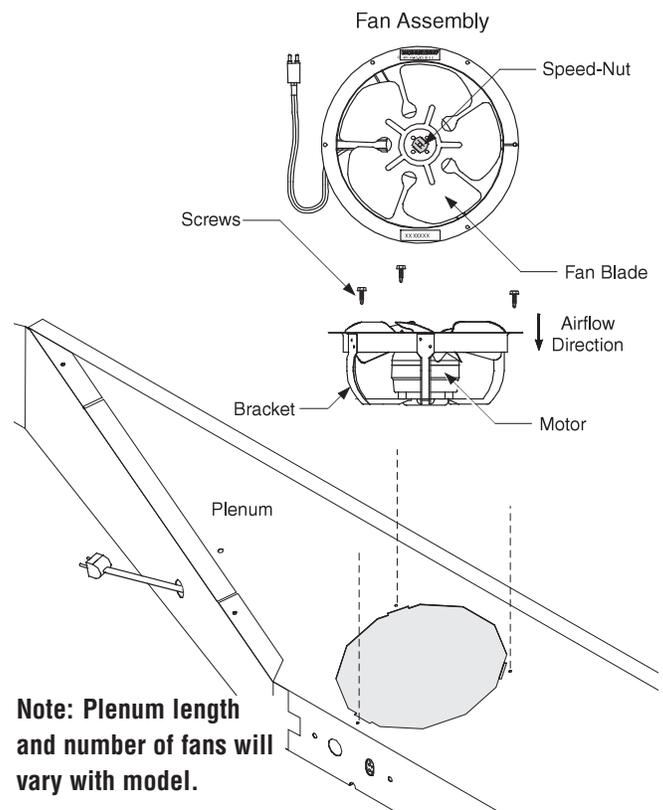
Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

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.

11. Close air gaps under fan plenum. Warmer air moving into refrigerated air reduces effective cooling. If the plenum does not rest against the case bottom without gaps, apply foam tape to the bottom of the fan plenum to reduce improper air movement. Use silicone sealant to close other gaps.
12. Reinstall display pans. Bring merchandiser to operating temperature before restocking.



REPLACING ELECTRONIC BALLASTS / LED POWER SUPPLIES

MD Merchandisers may be equipped with fluorescent or LED lights. Fluorescent lights are powered by electronic ballasts. LED lights are powered by power supplies. The procedure to replace these parts is similar.

Canopy Ballast or Power Supply

The canopy ballast or power supply is located in the electrical box on top of the MD case.

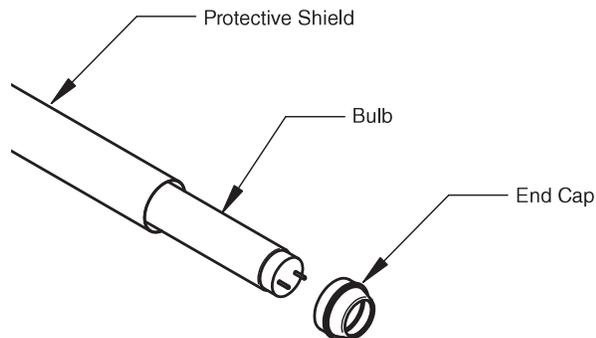
To gain access:

1. **DISCONNECT THE ELECTRICAL POWER TO THE MERCHANDISER.**
2. Remove screws attaching the raceway cover, then remove cover.
3. Service or replace ballast/power supply as required. Reassemble items as they were originally installed.
4. Reconnect the electrical power.

REPLACING FLUORESCENT LAMPS

Fluorescent lamps have a plastic shield. When the lamp is replaced, keep the lamp shield to install over the new lamp.

The switch under the display lamp cover operates the display lamp.



REPLACING LED FIXTURES

The switch under the display lamp cover operates the display lamp. For LEDs, this protective shield is incorporated as part of the LED fixture. Rotate the LED fixture to release it from the lamp harness.



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.

Remove Plastic Pins Attaching Display Lamp



WARNING

Fluorescent lamps contain mercury vapor. Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Do not break or puncture fluorescent lamps. Dispose of, or store, all fluorescent lamps in accordance with Federal (40 CFR 273), State, and local hazardous waste requirements. Refer to <http://www.epa.gov/mercury/about.htm>

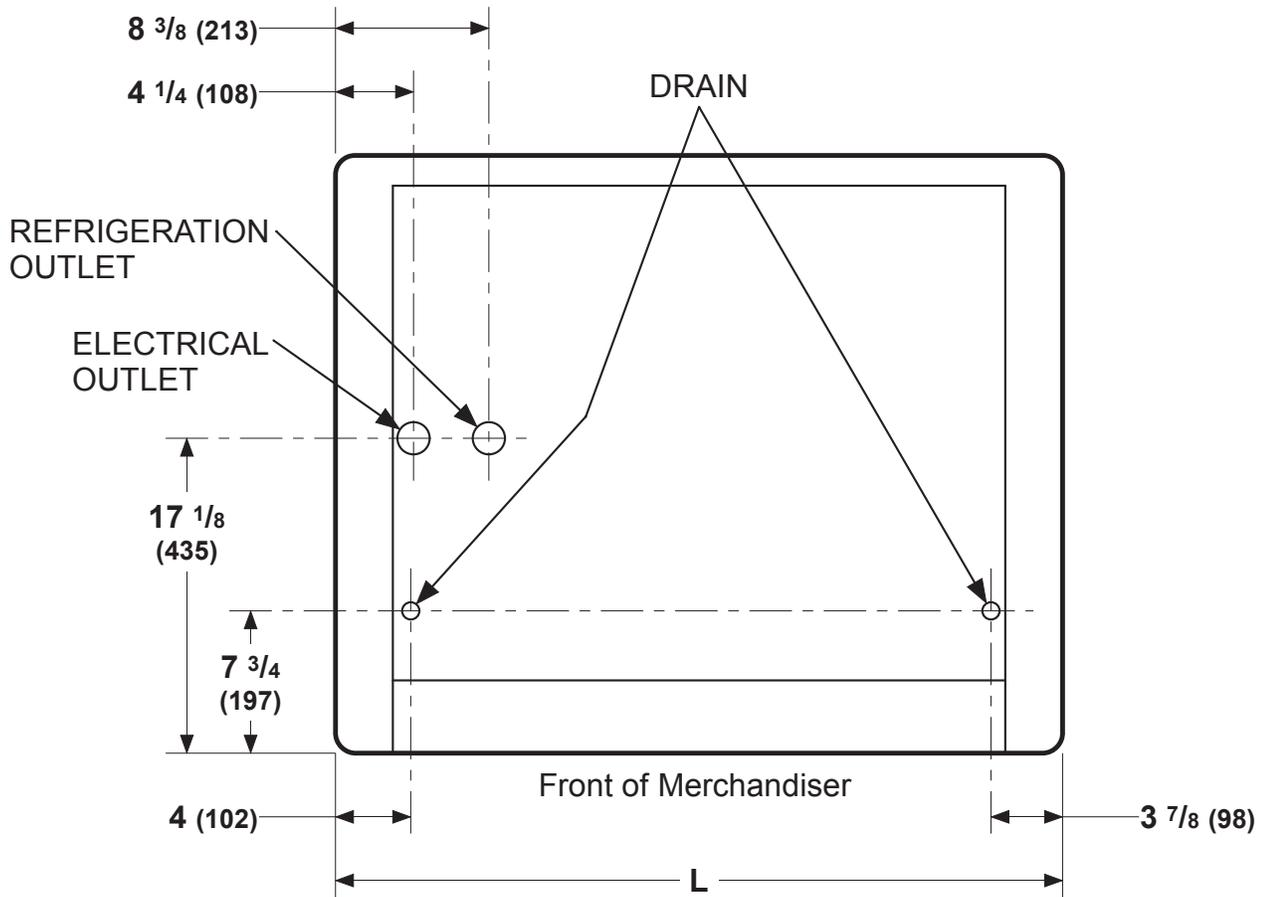


Hussmann refrigerated merchandisers configured for sale for use in the United States meet or surpass the requirements of the DOE 2012 energy efficiency standards.

Item	Part #	Description	Item	Part #	Description
FAN ASSEMBLIES AND THERMOSTATS			REFRIGERATION		
	MO.4410327	12W Standard Fan Assembly—MD-10		CU.4200701	Compressor MD-10 MD-14
	MO.4411019	5W Fan Assembly —MD-14		FI.4613274	Drier
	CT.4483188	Safe-NET III Controller		BR.4916662	Condenser Fan Motor MD-14
	CC.4482540	Digital Display		FB.4780650	Condenser Fan Blade
	EP.4482541	Safe-NET harness		RC.4671505	MD-14 Cap Tube Assembly
	EP.4441283	Power Cord, 15A 208-230V		RC.4671505	MD-10 Cap Tube Assembly
	CC.4482538	Defrost Sensor - Yellow		RL.4441382	Compressor Relay
	CC.4482992	Air Sensor - Black	FLUORESCENT LAMPS AND BALLASTS		
HEATERS				BA.4480870	Ballast, Lamp
	DP.4997869	Condensate Pan Assembly		BU.4481664	Lamp
	HE.4851189	Heater Condensate Pan		SW.4440542	Switch, Lamp
	FL.4916870	Float Switch	LED FIXTURES AND POWER SUPPLY		
	RL.4480237	Condensate Pan Relay		BU.4441810	LED Light Tube 3ft MD-10
				BU.441801	LED Light Tube 4ft MD-14
				EP.4481668	Power Supply
				TP.4919286	Front Acrylic MD-10
				TP.4919287	Front Acrylic MD-14
				TP.4998080	Honeycomb MD-10
				TP.4997870	Honeycomb MD-14

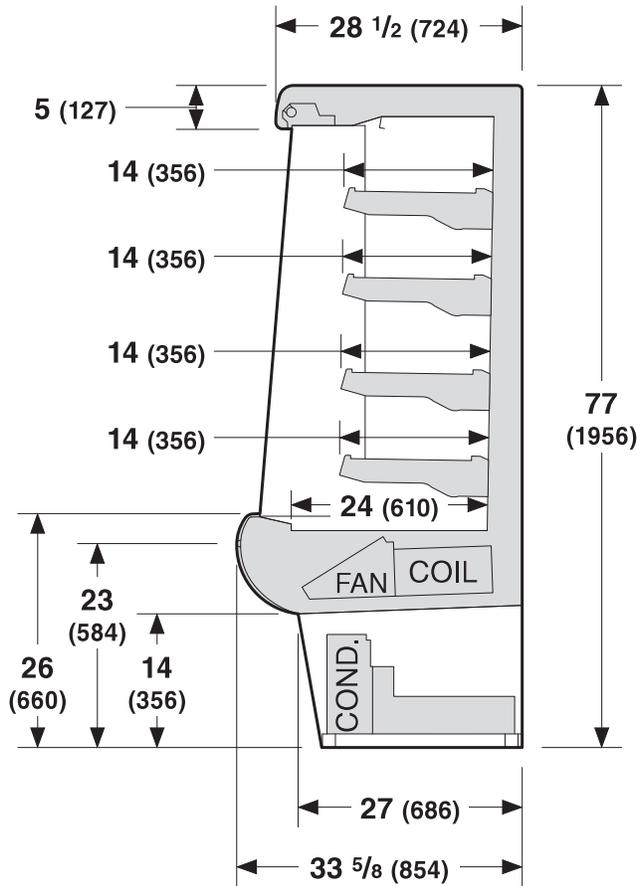
MD — Plan View

Dimensions shown as inches and (mm).



Model	Length
MD-10	39"
MD-14	52"

MD — Cross Section



REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H. unless otherwise stated. Schedule defrost at night while lights are off.

MD

Thermostat

Setting CI/CO (°F)	Position 1	Position 2
	40 / 33	34 / 23

Condensing Unit (hp)

MD-10	1
MD-14	1

Condensing Unit

Capacity	
MD-10	7376
MD-14	7376

(Btu/hr at std. rating conditions)

DEFROST DATA

Frequency (hr)	1
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OFFTIME

Failsafe (minutes)	10
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Defrost Termination Temperature	50°F
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PHYSICAL DATA

Refrigerant Charge

MD-10 (R134a)	33.757 oz	0.957 kg
MD-14 (R134a)	36.261 oz	1.028 kg

Electrical Data

Note: These are rated values for individual components and should not be added together to determine total merchandiser electrical load.

	MD-14		MD-10	
Number of Fans – 5W	2		1	
	Amperes	Watts	Amperes	Watts
Evaporator Fans				
208-230V 60Hz Standard	0.6	10	0.7	12
Condensate Pan Heaters (230V)	3.6	750	3.6	750
Condensing Unit (208/230V, 1Ph, 60Hz) Standard				
	MD-10		MD-14	
Compressor LRA	41		41	
Compressor RLA	9.5		9.5	

Product Data

MD-10

AHRI Total Display Area¹ (Sq FtlCase) 11.7 ft² /case (3.57 m² /case)

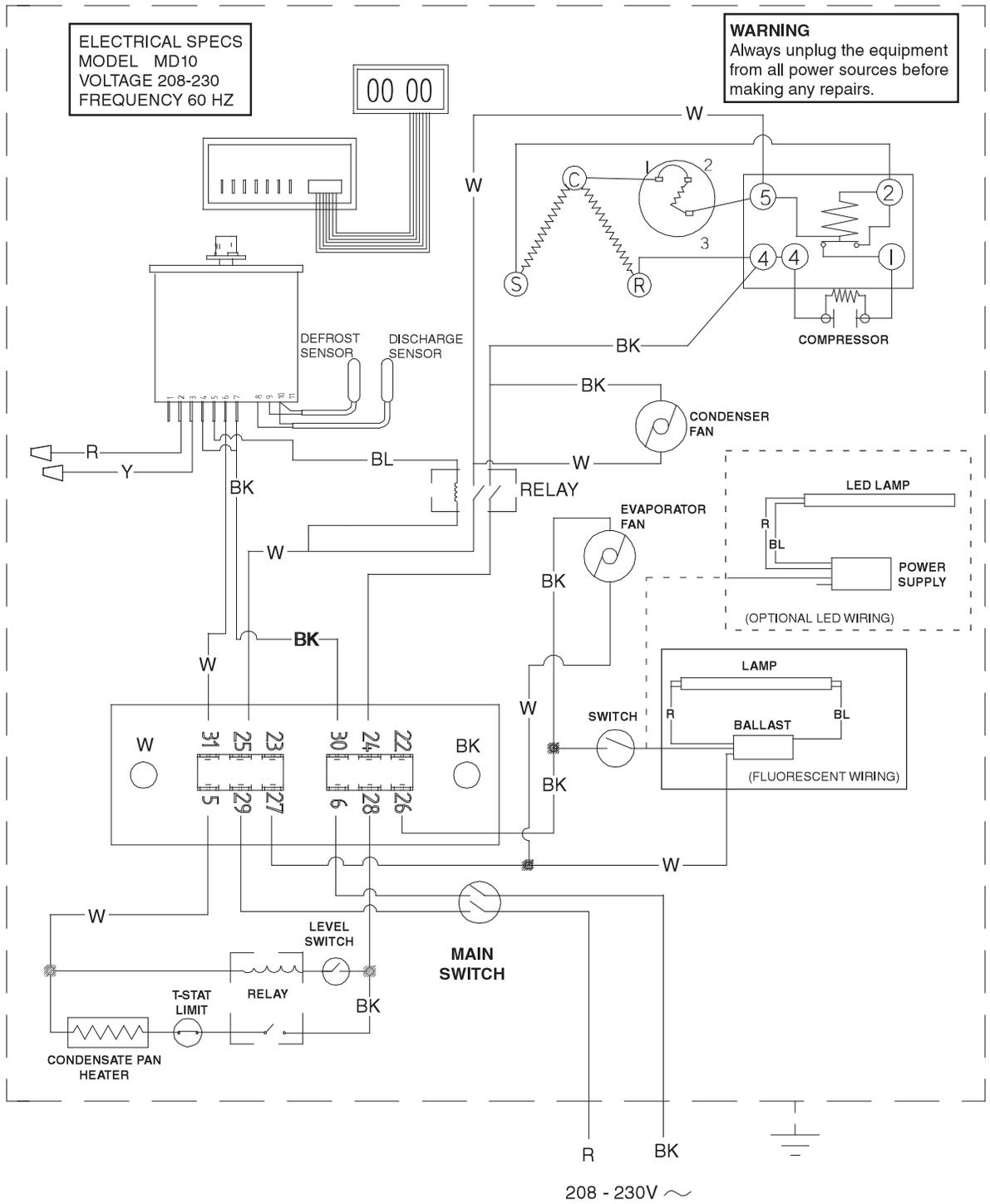
MD-14

AHRI Total Display Area¹ (Sq FtlCase) 15.79 ft² /case (4.81 m² /case)

¹ Computed using AHRI 1200 standard methodology:
Total Display Area, ft² [m²] / Unit of Length, ft [m]

MODEL NUMBER	LENGTH	DEPTH	HEIGHT	COMPRESSOR NOMINAL HORSEPOWER	REFRIG TYPE	CASE VOLTS	RUN AMPS	FUSE AMPS	NEMA PLUG	APPROX WEIGHT
MD-10	39 in.	33 ⁵ / ₈ in.	77 in.	1	R-134a	208-230/60/1	10.3 Amps	15	6-15P	368 lbs.
MD-14	52 in.	33 ⁵ / ₈ in.	77 in.	1	R-134a	208-230/60/1	12 Amps	15	6-15P	467 lbs.

MD-10



WARNING

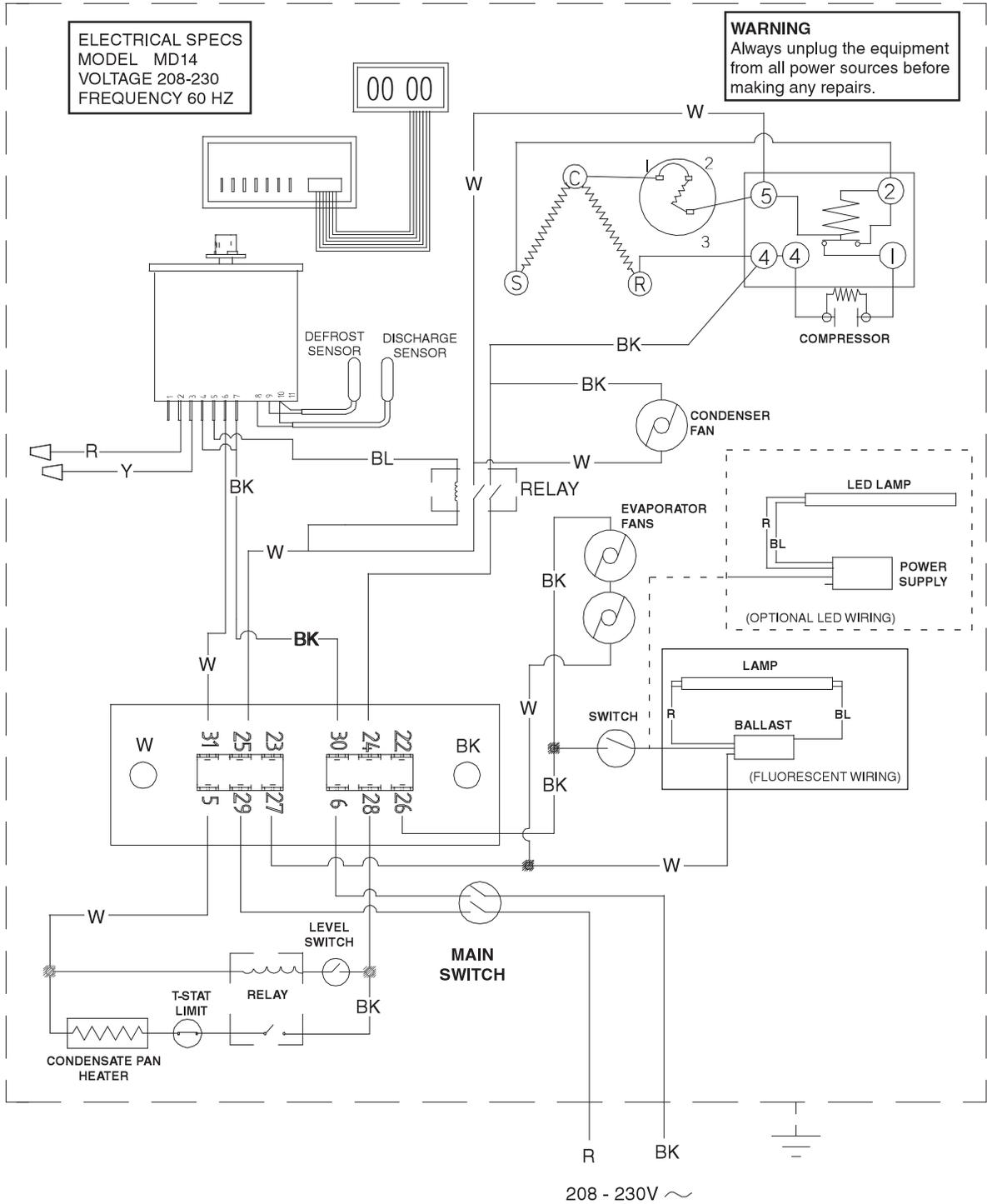
All components must have mechanical ground, and the merchandiser must be grounded.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

R = Red Y = Yellow G = Green BL = Blue BK = Black W = White

● = 120V POWER ○ = 120V NEUTRAL ⚡ = FIELD GROUND = CASE GROUND

MD-14



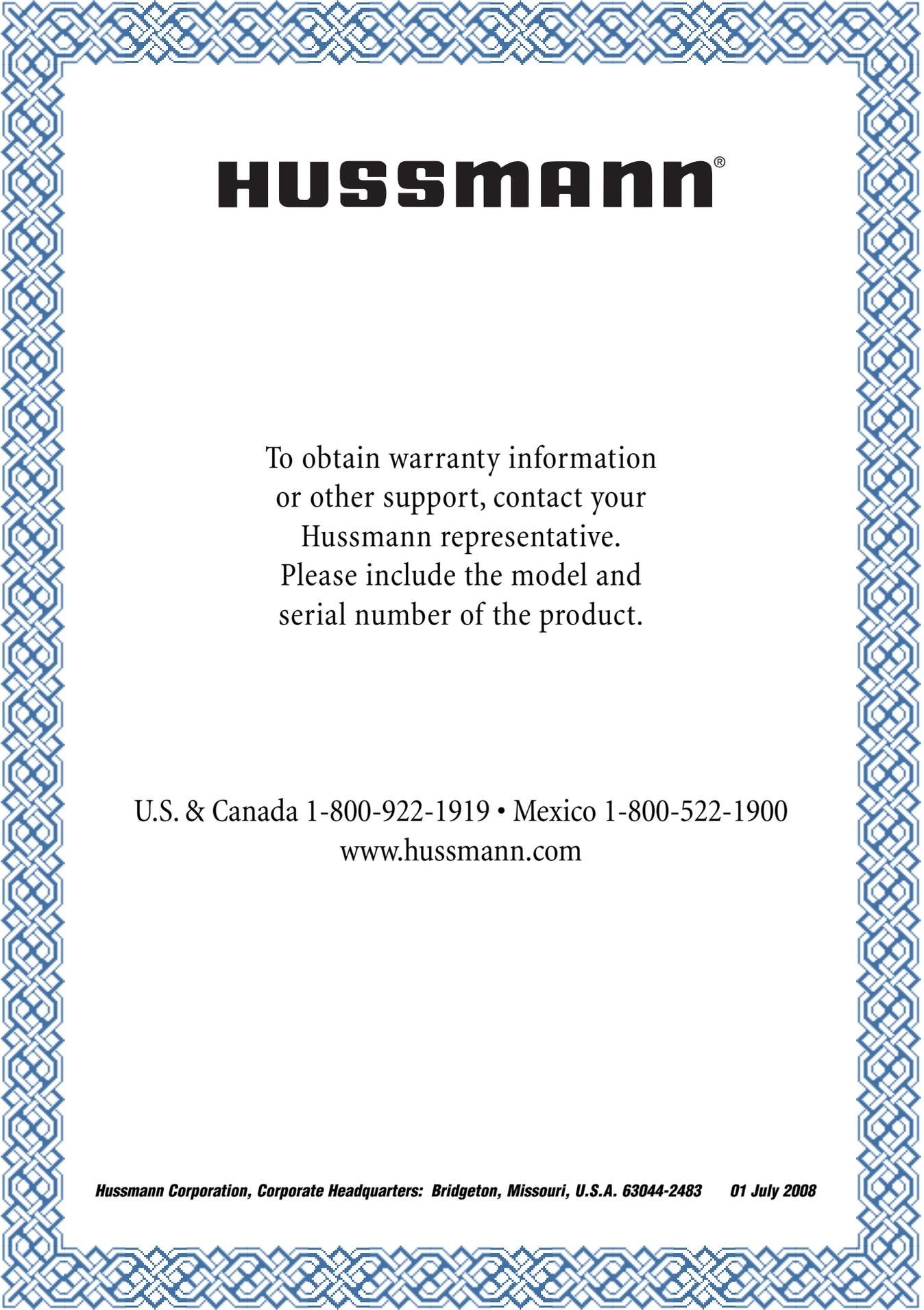
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A decorative border with a repeating geometric pattern of interlocking squares and lines, rendered in blue, surrounds the central text.

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

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