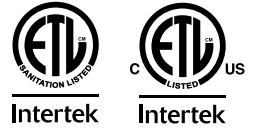


# HUSSmann®



**DOE 2017**  
Energy Efficiency  
Compliant

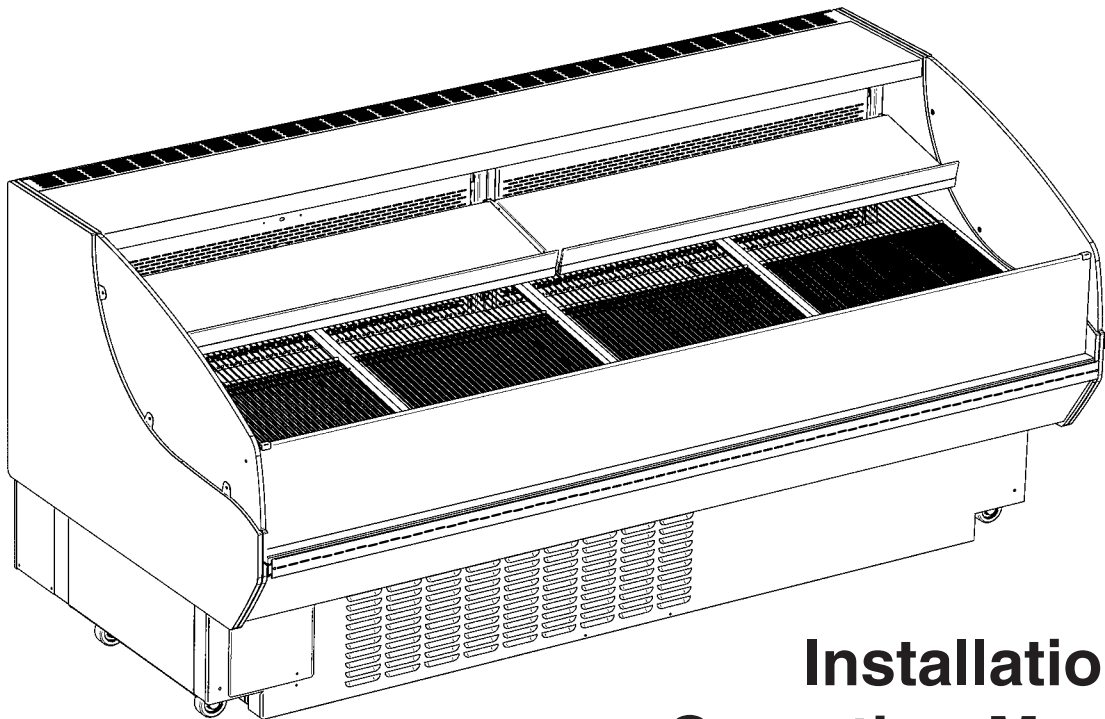
## Q-Series Medium Temperature Self Contained

**Q1SSM4S / Q1SSM6S / Q1SSM8S**

**Q2SSM2S / Q2SSM4S / Q2SSM6S**

**Q2SSM8S / Q3SSM4S / Q3SSM6S**

**Q3SSM8S**



## Installation & Operation Manual

**IMPORTANT**  
Keep in store for  
future reference!

**P/N 0562873\_K**  
October 2019

# 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!*

12999 St. Charles Rock Road • Bridgeton, MO 63044-2483

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## REVISION HISTORY

### REVISION K

Added Model Q2SSM2S

### REVISION J

Updated California Warning; Updated ABS Drain Fitting

### REVISION H

Page 3-1 to 3-5: Removed Controller information with updated Controller; Page 3-6-Replaced electrical box drawing with image “Elec box Q”-Replace Sensor connections image on right bottom with “Sensors Danfoss Ctrl” -Replace Sensor colors on Sensor locations drawing with lengths 1.5m & 3.5m; Page 3-7-Replace Table Page 5-3-Replace Parts Table; Page A-3-Replace Refrigeration Data Table

### REVISION G

Page, 3-7 removed control photo  
Page 3-8: Updated Load Limit Drawings  
Page 5-2: Update Standard parts and Refrigeration tables (see excel file attached)  
Page A-3: On Physical data table. Change Q1SSM6S refrigerant charge from 96 Oz (2.721 kg) to 43 Oz (1.219 kg)  
Page A-4: Changed Fuse Amp. to 30  
Updated to Revision E wiring diagrams

### REVISION F

Updated, Thermometer Part Number, Page 5-2

### REVISION E

Updated, Page 3-7, A-3, 5-2

### REVISION D

Updated, Page 3-5, 3-7, A-3, 5-2 and updated all wiring diagrams

### REVISION C

Updated electrical diagram, 0556822, page A-10  
Updated page 5-2 (condensing unit part number)

### REVISION B

Included Q1 models with updates to Cover, Footer of all pages, Q1 updates to pages 3-2, 3-5, 3-7 3-8, 5-2, 5-3, A-1, A-2, A-3, A-4, A-5

**ORIGINAL ISSUE — MARCH 2016**

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## 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

### UL LISTING

These merchandisers are manufactured to meet ANSI/ UL 471 standard requirements for safety. Proper installation is required to maintain the listing.

### FEDERAL / STATE REGULATION

These merchandisers at the time they are manufactured, meet all federal and state/ provincial regulations. Proper installation is required to ensure these standards are maintained. Near the serial plate, each merchandiser carries a label identifying the environment for which the merchandiser was designed for use.

**ANSI/NSF-7 Type I – Display Refrigerator /Freezer  
Intended for 75°F (24°C) / 55%RH Ambient Application**

**ANSI/NSF-7 Type II – Display Refrigerator / Freezer  
Intended for 80°F / 55%RH Ambient Application**

**ANSI/NSF-7 – Display Refrigerator  
Intended for Bulk Produce**

### 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.

**Recommended operating ambient  
temperature is between  
65°F (18°C) to 75°F (23.9°C).  
Maximum relative humidity is 55%.**

### 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%.

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)

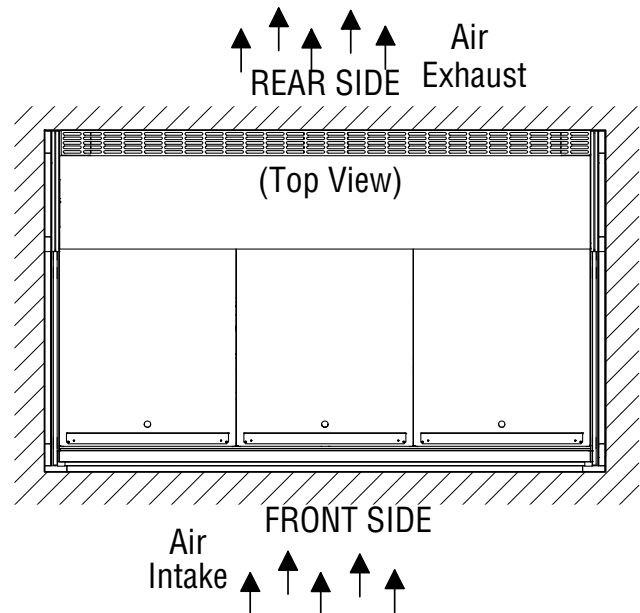
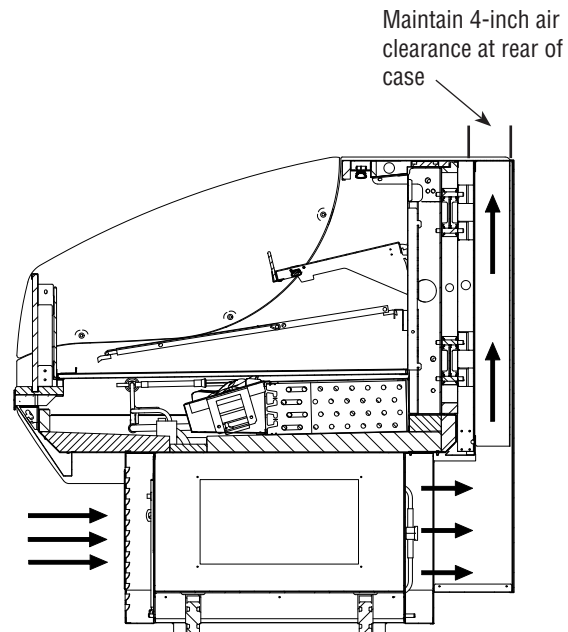
Product should always be maintained at proper temperature. This means that from the time the product is received, through storage, preparation and display, the temperature of the product must be controlled to maximize the life of the product.

**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 4 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.



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



## 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.



## CAUTION

Do not walk or put heavy objects on case.  
Do not place objects atop the unit.



## WARNING

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

## 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 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 LAY MERCHANDISER OVER ON THE FLOOR TO REMOVE 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.



## WARNING

**Do NOT remove shipping crate until the merchandiser is positioned for installation.**

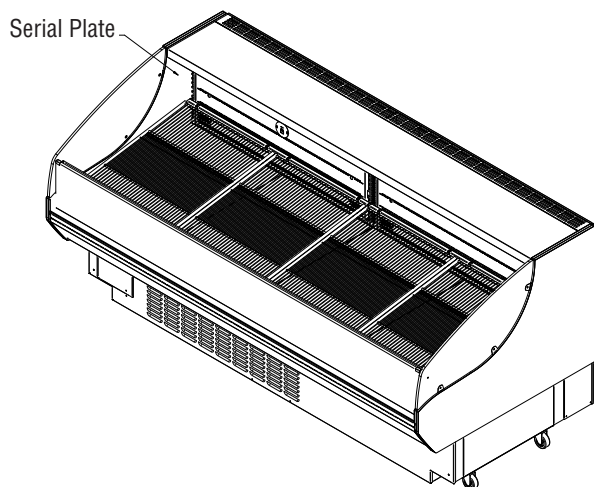


### MERCHANDISER LEVELING

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.

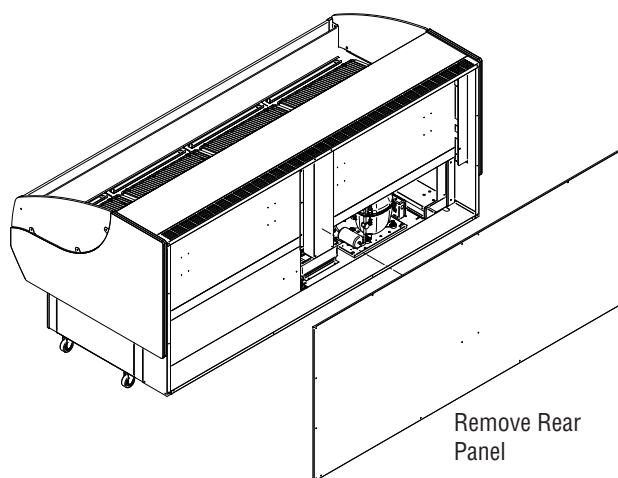
### SERIAL PLATE LOCATION

The serial plate is located on the inside of the merchandiser's display area as shown below.



### REFRIGERATION UNIT ACCESS

The rear front panel may be removed by lifting the panel straight upward and over the tabs on which it is hanging. 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.





## Equipment Start-Up Check List:

Step	Startup Activity	Check
1	Locate, read and maintain install/operation manual in a safe place for future reference.	<input type="checkbox"/>
2	Examine unit. Confirm there is NO damage or concealed damage.	<input type="checkbox"/>
3	Level the unit, side to side and front to rear.	<input type="checkbox"/>
4	Remove all shipping brackets and straps	<input type="checkbox"/>
5	Unit must be run on a dedicated electrical circuit without the use of an extension cord.	<input type="checkbox"/>
6	Ensure that the proper electrical requirements for the equipment are supplied.	<input type="checkbox"/>
7	Verify lights turn on and off and there is no exposed wiring.	<input type="checkbox"/>
8	Check that shelves are installed evenly.	<input type="checkbox"/>

## LEGAL DISCLAIMER:

Hussmann shall not be liable for any repair or replacements made without the written consent of Hussmann, or when the product is installed or operated in a manner contrary to the printed instructions covering installation and service which accompanied such product.

NOTES:

## ELECTRICAL / REFRIGERATION

### MERCHANDISER ELECTRICAL DATA

Refer to the technical data sheets and merchandiser serial plate for electrical information.

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

### 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

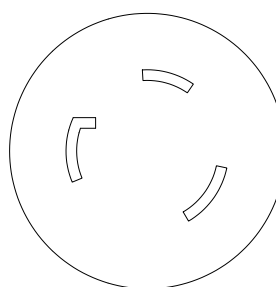
All wiring must be in compliance with NEC and local codes.

### ELECTRICAL OUTLET

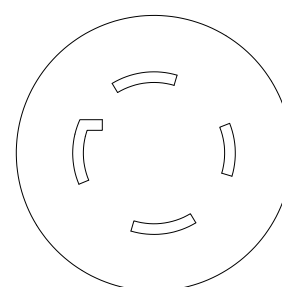
Before the merchandiser is connected to any wall circuit, use a voltmeter to check that the outlet is at 100% of the rated voltage. The wall circuit must be dedicated for the merchandiser. Failure to do so voids the warranty. Do not use an extension cord. Never plug in more than one merchandiser per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

NEMA L5-30



NEMA L14-30



### 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.

## WATER OUTLET AND WATER SEAL

The condensate water outlet is located in the center of the merchandiser. 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.

For installation or maintenance of the P-TRAP, use only adhesive compatible with ABS fittings.



Item # 18s279

**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.

## WARNING

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

## 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.*

## WARNING

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

## CAUTION

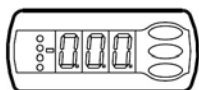
**Risk of Electric Shock. If cord or plug becomes damaged, replace only with a cord and plug of the same type.**

## START UP / OPERATION

### Operation

#### Display

The values will be shown with three digits, and with a setting you can determine whether the temperature are to be shown in °C or in °F.



#### Light-emitting diodes (LED) on front panel

HACCP = HACCP function is active

The other LED's on the front panel will light up when the belong- ing relay is activated.



= Refrigeration

= Defrost

= Fan running

The light-emitting diodes will flash when there is an alarm.

In this situation you can download the error code to the display and cancel/sign for the alarm by giving the top knob a brief push.

#### The Buttons

When you want to change a setting, the upper and the lower buttons will give you a higher or lower value depending on the button you are pushing. But before you change the value, you must have access to the menu. You obtain this by pushing the upper button for a couple of seconds - you will then enter the col- umn with parameter codes. Find the parameter code you want to change and push the middle buttons until value for the parameter is shown. When you have changed the value, save the new value by once more pushing the middle button.

#### Examples

##### Set menu

1. Push the upper button until a parameter r01 is shown
2. Push the upper or the lower button and find that parameter you want to change
3. Push the middle button until the parameter value is shown
4. Push the upper or the lower button and select the new value
5. Push the middle button again to freeze the value.

Cutout alarm relay / receipt alarm/see alarm code

- Push short the upper button

If there are several alarm codes they are found in a rolling stack. Push the uppermost or lowermost button to scan the rolling stack.

#### Set temperature

1. Push the middle button until the temperature value is shown
2. Push the upper or the lower button and select the new value
3. Push the middle button again to conclude the setting.

Reading the temperature at defrost sensor

- Push short the lower button

Manual start or stop of a defrost

- Push the lower button for four seconds. (Though not for application 4).

Reprinted with permission from the controller manufacturer.

### Defrost

During defrost a -d- is shown in the display. This view will continue up till 15 min. after the cooling has resumed.

However the view of -d- will be discontinued if:

- The temperature is suitable within the 15 minutes
- The regulation is stopped with "Main Switch"
- A high temperature alarm appears

### Alarms

The controller can give alarm in different situations. When there is an alarm all the light-emitting diodes (LED) will flash on the controller front panel, and the alarm relay will cut in.

#### Upper alarm limit

Here you set when the alarm for high temperature is to start. The limit value is set in °C (absolute value). The limit value will be raised during night operation. The value is the same as the one set for night setback, but will only be raised if the value is positive. The limit value will also be raised in connection with reference displacement r39.

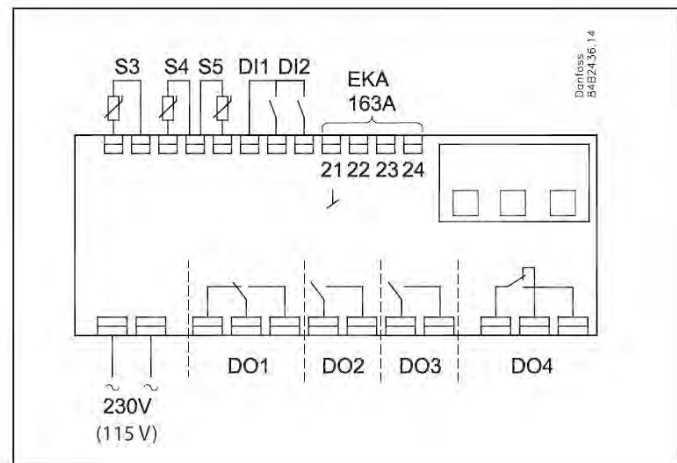
#### Lower alarm limit

Here you set when the alarm for low temperature is to start. The limit value is set in °C (absolute value). The limit value will also be raised in connection with reference displacement r39.

#### Signal to the alarm thermostat

Here you have to define the ratio between the sensors which the alarm thermostat has to use. S3, S4 or a combination of the two. With setting 0% only S3 is used. With 100% only S4 is used.

### Connections



### Power supply

230 V a.c.

### Sensors

S3 and S4 are thermostat sensors. A setting determines whether S3 or S4 or both of them are to be used. S5 is a defrost sensor and is used if defrost has to be stopped based on temperature.

### Digital On/Off signals

A cut-in input will activate a function. The possible functions are described in menus o02 and o37.

### External display

Connection of display type EKA 163A (EKA 164A).

### Relays

The general uses are mentioned here. See also page 6 where the different applications are shown.

DO1: Refrigeration. The relay will cut in when the controller demands refrigeration

DO2: Defrost. The relay will cut in when defrost is in progress

DO3: For either fans or refrigeration 2

Fans: The relay will cut in when the fans have to operate  
Refrigeration 2: The relay will cut in when refrigeration step 2 has to be cut in

DO4: For either alarm, rail heat, light or hotgas defrost

Alarm: Cf. diagram. The relay is cut in during normal operation and cuts out in alarm situations and when the controller is dead (de-energised)

Rail heat: The relay cuts in when rail heat is to operate

Light: The relay cuts in when the light has to be switched on  
Hotgas defrost: See diagram. The relay will cut out when defrost has to be done

### Data communication

The controller is available in several versions where data communication can be carried out with one of the following systems: MOD-bus or LON-RS485.

If data communication is used, it is important that the installation of the data communication cable is performed correctly.

See separate literature No. RC8AC...

### Electric noise

Cables for sensors, DI inputs and data communication **must** be kept separate from other electric cables:

- Use separate cable trays
- Keep a distance between cables of at least 10 cm
- Long cables at the DI input should be avoided



## WARNING

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



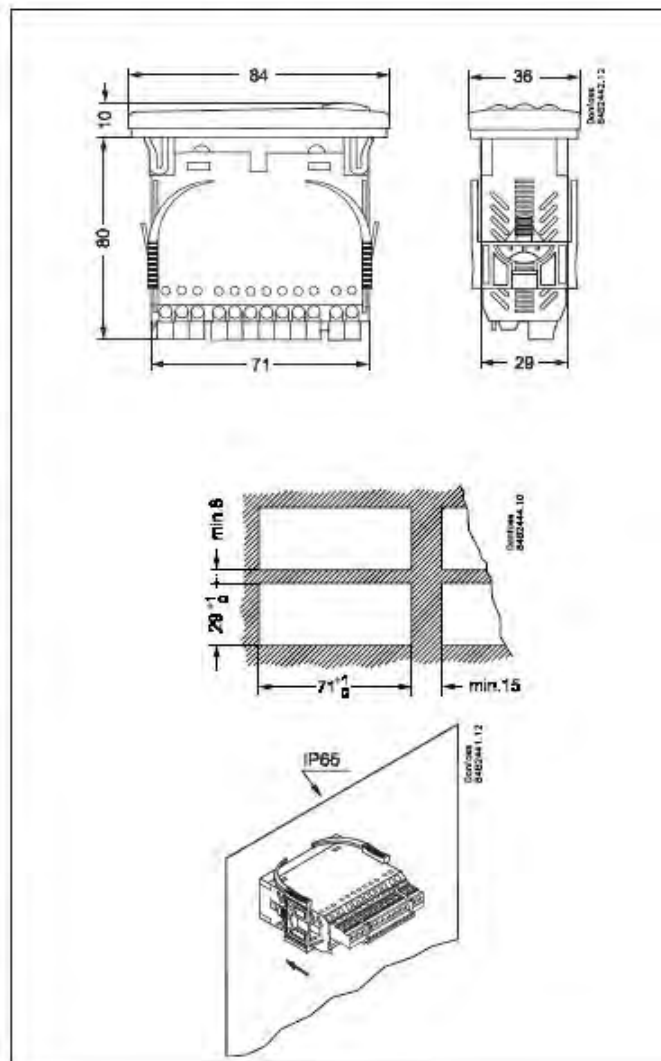
## Data

Supply voltage	230 V a.c. +10/-15 %, 2.5 VA, 50/60 Hz		
Sensors 3 pcs off either	Pt 1000 or PTC 1000 or NTC-M2020 (5000 ohm / 25°C)		
Accuracy	Measuring range	-60 to +99°C	
	Controller	±1 K below -35°C ±0.5 K between -35 to +25°C ±1 K above +25°C	
	Pt 1000 sensor	±0.3 K at 0°C ±0.005 K per grad	
Display	LED, 3-digits		
External display	EKA 163A		
Digital inputs	Signal from contact functions Requirements to contacts: Gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer		
Electrical connection cable	Max. 1,5 mm <sup>2</sup> multi-core cable		
Relays*		CE (250 V a.c.)	UL *** (240 V a.c.)
	DO1. Refrigeration	10 (6) A	10 A Resistive 5FLA, 30LRA
	DO2. Defrost	10 (6) A	10 A Resistive 5FLA, 30LRA
	DO3. Fan	6 (3) A	6 A Resistive 3FLA, 18LRA 131 VA Pilot duty
	DO4. Alarm	4 (1) A Min. 100 mA**	4 A Resistive 131 VA Pilot duty
Environments	0 to +55°C, During operations -40 to +70°C, During transport 20 - 80% Rh, not condensed No shock influence / vibrations		
Density	IP 65 from front. Buttons and packing are imbedded in the front.		
Escapement reserve for the clock	4 hours		
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 and EN 60730-2-9, A1, A2 EMC tested acc. EN61000-6-3 and EN 61000-6-2		

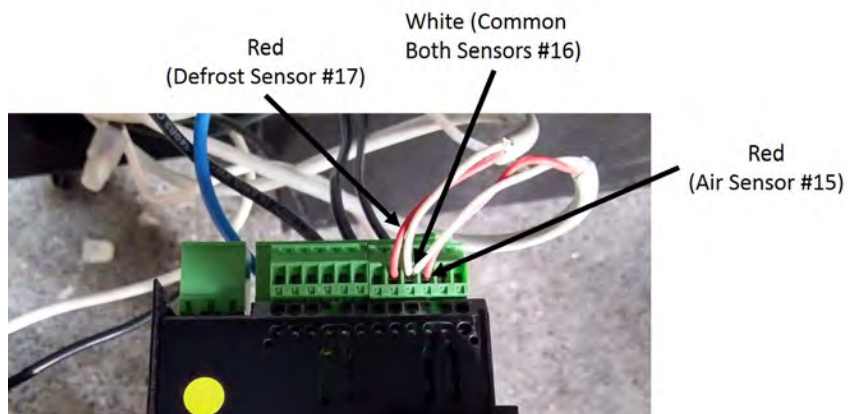
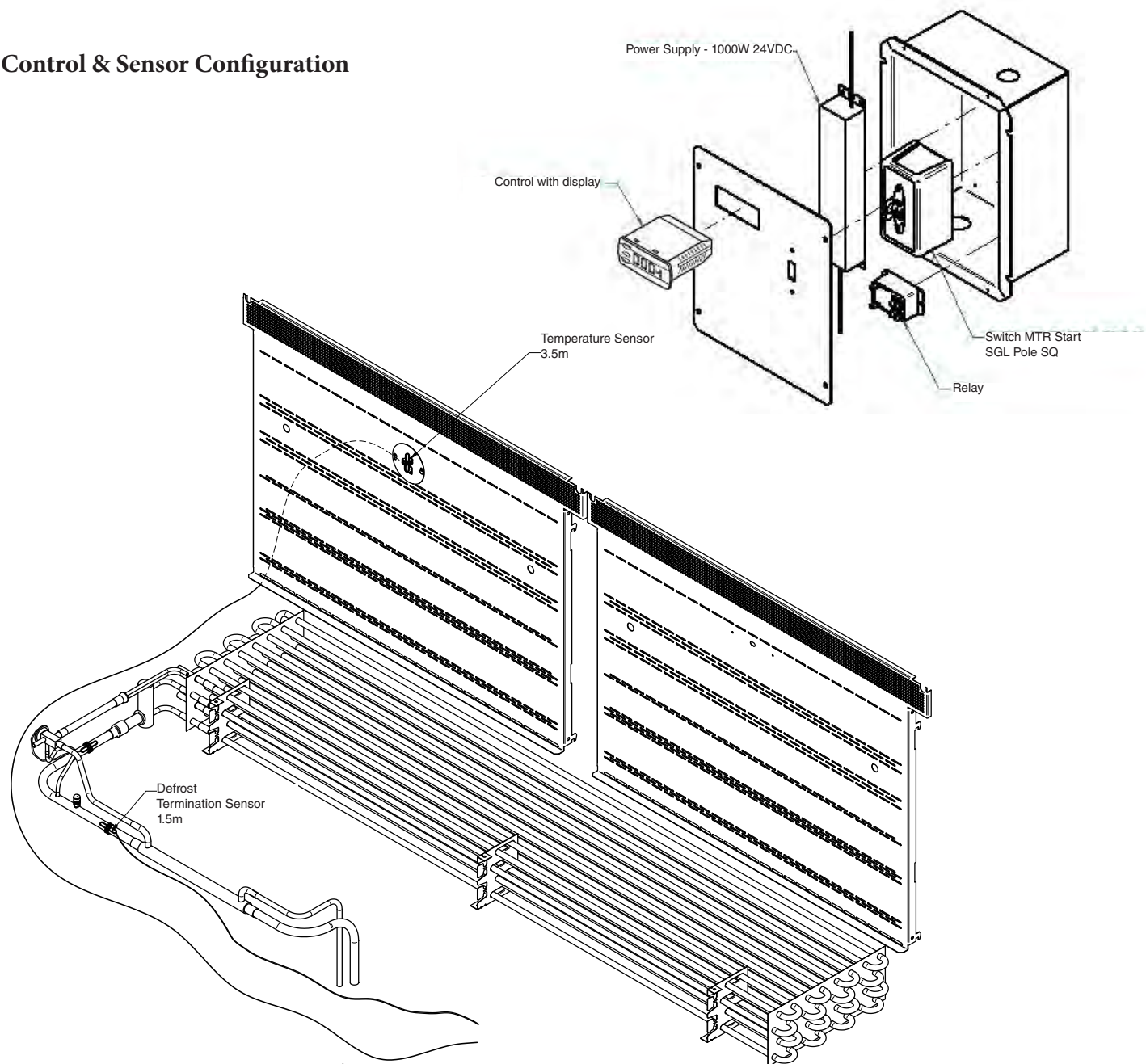
\* DO1 and DO2 are 16 A relays. DO3 and DO4 are 6 A relays. Max. load must be kept.

\*\* Gold plating ensures make function with small contact loads

\*\*\* UL-approval based on 30000 couplings



## Control & Sensor Configuration



Model	Product Application	Discharge Air Temperature	Defrost Frequency (per day)	Type of Defrost	Temp. Termination	Failsafe Time (Minutes)
Q1SSM4S Q1SSM6S Q1SSM8S Q2SSM2S Q2SSM4S Q2SSM6S Q2SSM8S Q3SSM4S Q3SSM6S Q3SSM8S	Medium Temp. (Dairy, Deli)	24°F	4	Off-cycle	48°F	50
					52°F	

1. The controller controls refrigeration temperature. This is factory installed in the control panel. Adjust this control to maintain the discharge air temperature shown. Measure discharge air temperatures at the center of the discharge louver.

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

To ensure a thorough defrost, defrost must be terminated by the temperature termination setting — not by time.

## START UP

Follow the controller start up procedures as detailed in Section 3 of this manual.

Each self contained merchandiser has its own evaporator coil and a pre-set thermostatic expansion valve (TEV). The TEV has been factory set at design conditions to provide the recommended performance.

## TEV ADJUSTMENT

Expansion valves may be adjusted to fully feed the evaporator. Before attempting to adjust valves, make sure the evaporator is clear or only lightly covered with frost, and the merchandiser is within 10°F of its expected operating temperature.

Adjust the valve as follows:

- Attach a probe to the suction line near the expansion valve bulb.
- Obtain a pressure reading from the factory installed Schraeder valve. Convert the pressure reading to a saturated temperature for the refrigerant.

Temperature (b) minus Temperature (a) is the superheat. The valve should be adjusted so that the greatest difference between the two temperatures is 3°F to 5° F.

Make adjustments of no more than 1/2 turn of the valve stem at a time and wait for at least 15 minutes before rechecking the probe temperature and making further adjustments.

Low Pressure  
Cut In: 40 psi  
Cut out: 10 psi



**ELECTRONIC PRESSURE CONTROL**

## 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.**



## 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.**

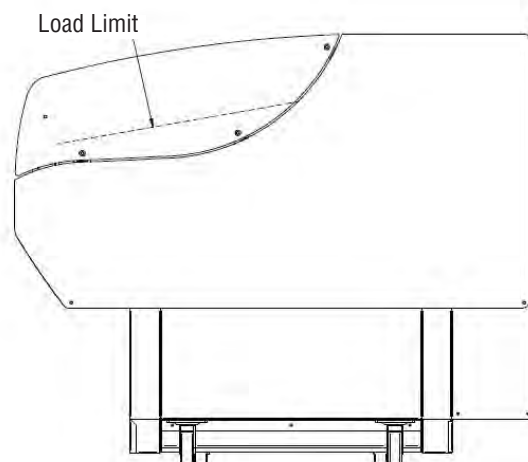
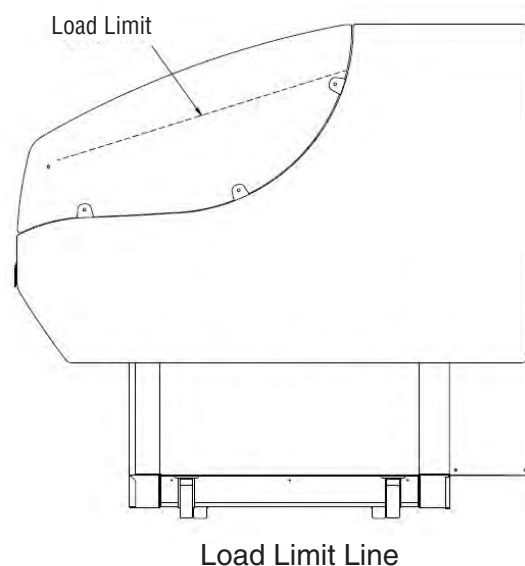
Proper rotation of product during stocking is necessary to prevent product loss. Always bring the oldest product to the top and set the newest to the bottom.

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 allow product to be placed outside of the designated load limits in the illustration.

## THERMOMETER

Q-Series models have a solar thermometer. The thermometer is located at the top interior of the merchandiser.



Load limit line  
Q1SSM6S & Q1SSM8S





## 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.**

**SELF CONTAINED MODELS EMPTY INTO AN 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.



## WARNING

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

## ⚠ WARNING

Do NOT use HOT water on Cold glass Surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, to warm before applying hot water.

### 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.

### CLEANING UNDER FAN PLENUM

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

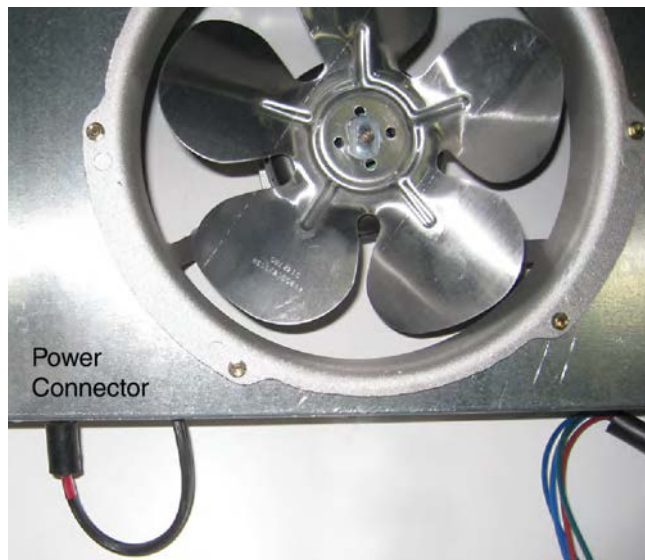
## ⚠ WARNING

### — 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.*

## ⚠ WARNING

**SHUT FANS OFF DURING CLEANING PROCESS.**



### CLEANING DISCHARGE AIR LOUVERS

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





## 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.**

## 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.

## 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.



**NEVER USE SHARP OBJECTS AROUND COILS.**

Use a soft brush or vacuum brush to clean debris from coils. *Do not puncture coils!*

Do not bend fins. Contact an authorized service technician if a coil is punctured, cracked, or otherwise damaged.

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



## CAUTION

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.

## 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.



### 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)

## Self-Contained Refrigeration Equipment Maintenance Check List

***** Warranty does not cover issues caused by improper installation or lack of basic preventative maintenance. *****										
Record starting date										
Store Name and Number										
Store Address										
Unit Model Number										
Unit Serial Number										
Contractor/Technician										

	Technician									
	PM date									

PM activity-For visual inspection items, denote "ok or complete" in the column to right when PM has been performed. For measured data requested, record data requested in the appropriate column to the right)	Quarterly	Semi-Annually	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Check in with store manager, record any complaints or issues they have with unit.	X									
Look unit over for any damage, vibrations or abnormal noise.	X									
Verify unit is level side to side and front to rear.	X									
Confirm refrigerant lines properly are secured and not touching or rubbing other lines, wires or frame work.	X									
Verify fan motors and motor mounts are tight.	X									
Confirm fan blade/s are tight and not rubbing or hitting.	X									
Make sure all electrical connections, factory and field, are tight.	X									
Verify electrical connections at lamps are they secure and dry.	X									
Check for and replace any frayed or chaffed wiring.	X									
Check all electrical wiring make sure it is secured and not on any sharp edges or hot lines.	X									
Check for air disturbances external to the unit. Heat and air registers, fans, and doors etc.	X									
Check for water leaks.	X									
Clean evaporator coil/s and fan blade/s. Do not use an acid base cleaner. Rinse off any cleaner residue.		X								
Clean discharge air honeycombs or grilles. Do not use an acid base cleaner. Rinse off any cleaner residue.		X								
Clean condenser coil/s and fan blade/s. Do not use an acid base Cleaner. Rinse off any cleaner residue.		X								
Clean condensate drain pan and drain line.		X								
Verify condensate drain lines are clear and functioning.		X								
Record voltage reading at unit with unit off?		X								
Verify condenser and evaporator fans are working.	X									
Record condenser air inlet temperature	X									
Record condenser air outlet temperature	X									
Is condenser air inlet or air exhaust restricted or recirculating?	X									
Verify there are no visual oil or refrigerant leaks.	X									
Record voltage reading with unit running.		X								
Record compressor amp draw.		X								
Record defrost heater voltage and amp draw.		X								
Record anti-sweat heater voltage and amp draw.		X								
Record case product temperature.	X									
Record unit discharge air temperature.	X									
Record unit return air temperature.	X									
Record ambient conditions around unit (wet Bulb temperature and dry bulb temperature).	X									
Check product loading, do not load beyond the units load limits.	X									
Verify clearances on sides/back of unit.	X									
Check unit controller for proper operation. See controller or 1/0 Manual for proper controller operation.		X								
Confirm door switches function.	X									
Verify unit doors and lids work and are sealed correctly.	X									
Verify that all the panels, shields and covers are in place.	X									

Technician Notes:

NOTES:

## 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.



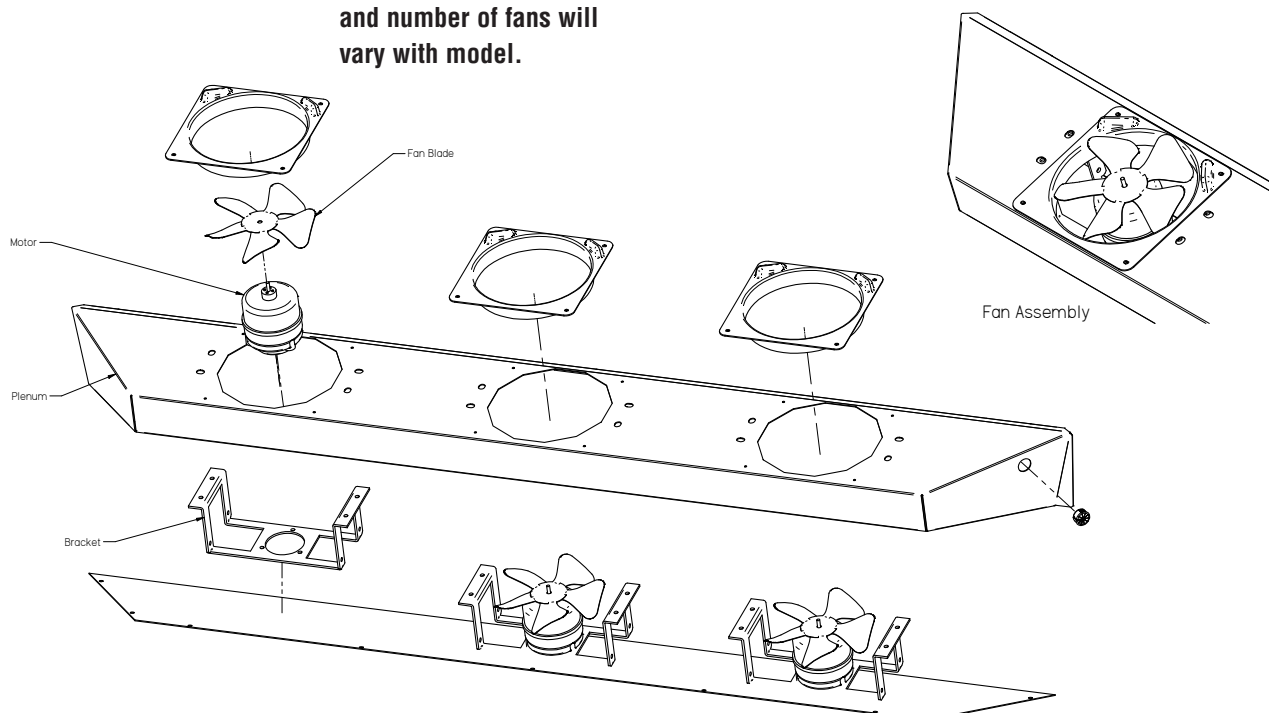
## WARNING

## — 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.

**Note: Plenum length and number of fans will vary with model.**



## 5-2 SERVICE — TECHNICAL DATA

### Replacement Parts List

Standard Parts Description	Part Number	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Black End Trim	1750301121	X	X	X	X	X	X	X	X	X	X
End Plexiglass Q1	0558332	X	X	X							
End Plexiglass Q2	0558709				X	X	X	X			
End Plexiglass Q3	0558710								X	X	X
Caster	175018505	X	X	X	X	X	X	X	X	X	X
Drain Trap	185279	X	X	X	X	X	X	X	X	X	X
Cover Drain	0301266	X	X	X	X	X	X	X	X	X	X
Thermometer (solar)	0517730	X	X	X	X	X	X	X	X	X	X
Black bumper	1H19068700	X	X	X	X	X	X	X	X	X	X
Black bumper end cap	1H19070700	X	X	X	X	X	X	X	X	X	X
Aluminum bumper base	175035002	X	X	X	X	X	X	X	X	X	X
Black Telescopic shelf	0514078	X	X	X	X	X	X	X	X	X	X
Front plexiglass 7" 2 ft	3081334				X						
Front plexiglass 11.5" 2 ft	3081333				X						
Front plexiglass for shelf 2 ft	3081310				X						
Front plexiglass 8.5" 4 ft	0555039	X				X			X		
Front plexiglass 11" 4 ft	0555059	X				X			X		
Front plexiglass for shelf 4 ft	0555042					X		X	X		X
Front plexiglass 11" 6 ft	0552793		X				X			X	
Front plexiglass 8.5" 6 ft	0555336						X			X	
Front plexiglass 4.937" 6ft	3027214		X								
Front plexiglass for shelf 3 ft	0557223						X			X	
Front plexiglass 11" 8 ft	0555419			X				X			X
Front plexiglass 8.5" 8 ft	0555420							X			X
Front plexiglass 4.937" 8ft	3027215			X							
Binding screw #8-32 1/4	300030604	X	X	X	X	X	X	X	X	X	X
Post binding #8-32 1/2	175010369	X	X	X	X	X	X	X	X	X	X
Led light 24" 3000K	3004886				X						
Led light 48" 3000K	3004895					X		X	X		X
Led light 36" 3000K	0523750						X			X	
Clip for led light	0523762					X	X	X	X	X	X
Switch led light	125010307	X	X	X	X	X	X	X	X	X	X
Power supply 1000w 24VDC	3079207	X	X	X	X	X	X	X	X	X	X
Fuse 15 amp	125018604	X	X	X	X	X	X	X	X	X	X
Fuse holder	125018605	X	X	X	X	X	X	X	X	X	X

Refrigeration	Description	Part Number	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Distributor (Sporlan 1620)		1H18877500	X	X	X	X	X	X	X	X	X	X
Heat exchanger		225013305A				X						
Heat exchanger		00008480	X	X	X		X		X		X	X
Evaporator 2 ft		3027787500				X						
Evaporator 4 ft		0498770	X				X			X		
Evaporator 6 ft		050033700		X				X			X	
Evaporator 8 ft		0500335			X				X			X
Plastic collar fan		0409510	X	X	X	X	X	X	X	X	X	X
Aluminum fan blade (6.70", 15")		0428111	X				X	X			X	
Aluminum fan blade (6.70", 20")		0409511				X			X			
Aluminum fan blade (6.70", 25")		0409512		X	X					X		X
Evaporator fan motor (115V, 4W)		0477653	X	X	X	X	X	X	X	X	X	X
Bracket fan motor		0552827	X	X	X	X	X	X	X	X	X	X
Sight glass (Sporlan SA-13)		225010075	X	X	X	X	X	X	X	X	X	X
Drier (Sporlan C-163-S)		1701595	X	X	X	X	X	X	X	X	X	X
Condensing unit main switch		E205705	X	X	X	X	X	X	X	X	X	X
Condensing unit (M4EH-0049-CAA-020)		1H28199500	X									
Expansion valve (Danfoss 068U2138)		225013403		X			X			X		
Expansion valve (Danfoss 068U2137)		225013356	X									
Expansion valve (Danfoss 068U2139)		0460972			X				X		X	
Expansion valve (Danfoss 068U3367)		0460973										X
Condensing unit (M4FF-0050-CAA-212)		225030081					X					
Condensing unit (M4FF-0080-IAV-212)		1H28154500									X	
Condensing unit (M4FF-0075-CAV-212)		1H28155500			X			X				
Condensing unit (FJAF-B100-CFV-021)		1H28147500							X			X
Condensing unit (M4FF-0056-IAA-041)		1H28153500		X						X		
Condensing unit (M4EH-0049-CAA-020)		1H28199500	X									
Refrigeration R404A	Description	Part Number	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Expansion valve R448 (Sporlan EGDE-1/4-C)		3031926	X									
Expansion valve R448 (Sporlan EGDE-1/3-C)		3031930		X			X			X		
Expansion valve R448 (Sporlan EGDE-1/2-C)		3031934			X			X	X		X	X
Expansion valve (Sporlan EGDE-1/5-C)		3031922				X						
Condensing unit (M6IM-H028-IAA-025)		3089783500				X						
Condensing unit R448 (M6EM-H046-CAA-020)		3062007500	X									
Condensing unit R448 (M6GP-H064-CAA-177)		3087874500		X			X			X		
Condensing unit R448 (M6GP-H090-CAV-212)		3082678500			X			X			X	
Condensing unit R448 (M6KP-0127-CFV-020)		3082674500							X			X

## Replacement Parts List CONTINUED

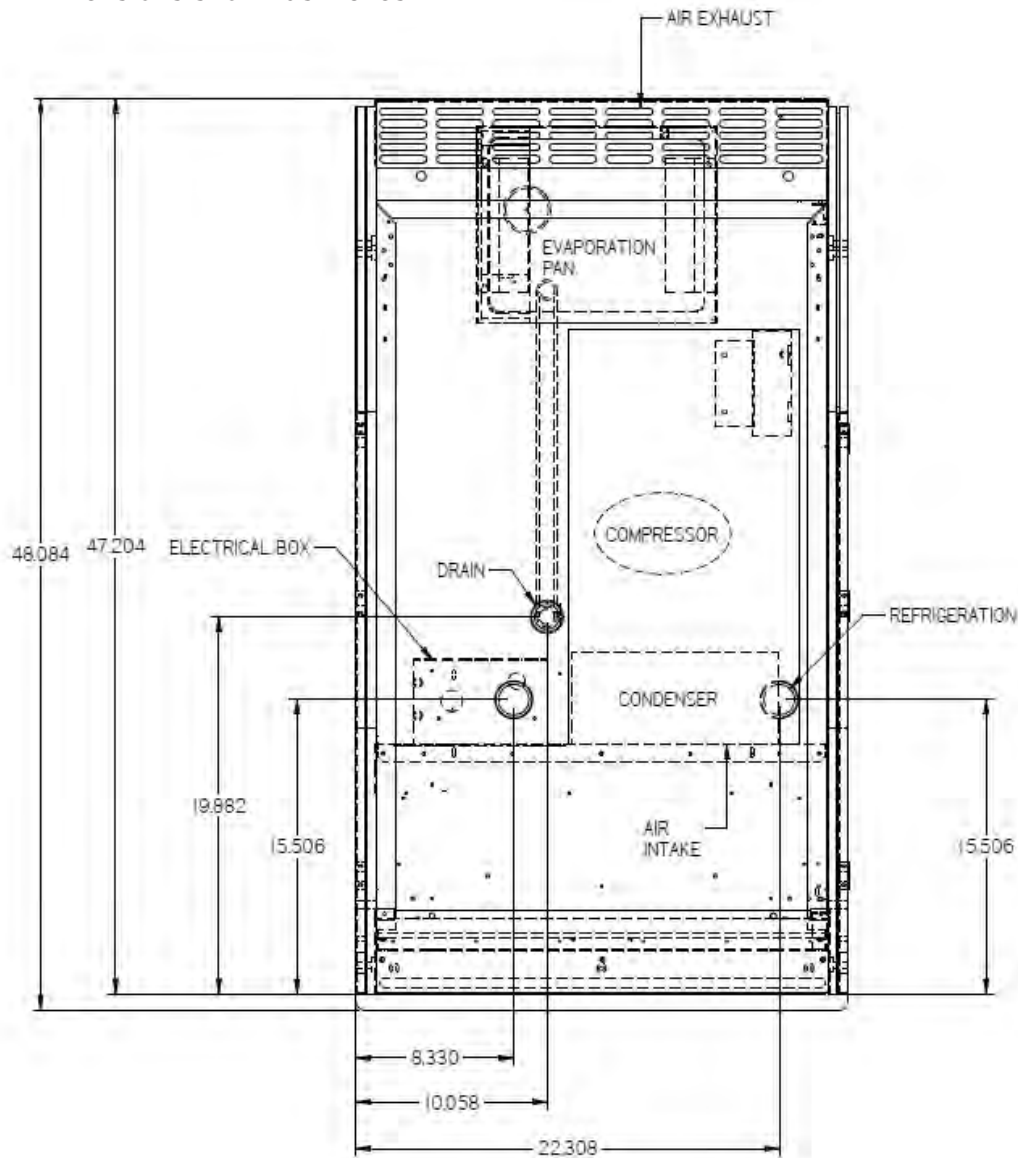
Heaters and Harnesses		Part Number	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Description												
Evap Pan 1000W-120	1H95134550		X			X	X					
Evap Pan 1500W-240V	1H95137550				X			X	X		X	X
Evap Pan 1500W-120	1H95136550			X						X		
Power cord LS-30P	0557077		X	X		X	X			X		
Power cord L14-30P	0557599				X			X	X		X	X
Canopy Led harness	0523772		X	X	X	X	X	X	X	X	X	X
Shelf led harness (male)	523768					X	X	X	X	X	X	X
Shelf led harness (female)	1H26295550					X	X	X	X	X	X	X

Sheet Metal Replacement Parts Painted		Part Number	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Description												
Shelf 12" X 23.5"	3081315					X						
Shelf 12" X 48"	0555047						X		X	X		X
Shelf 12" X 36"	0555320							X			X	
Shelf 18" X 48"	0557068									X		X
Shelf 18" X 36"	0556463										X	
Rear top cover grill 2 ft	3081319					X						
Rear top cover grill 4 ft	0555105		X				X			X		
Rear top cover grill 6 ft	0561682			X				X			X	
Rear top cover grill 8 ft	0555415				X				X			X
Front bottom grill 4 ft	0555079		X				X			X		
Front bottom grill 6 ft	0555343			X				X			X	
Front bottom grill 8 ft	0555430				X				X			X
Bracket mount rack 24"	3081317					X						
Bracket mount rack 48"	0555050		X		X		X		X	X		X
Bracket mount rack 36"	0552788			X				X			X	
Air deck pan (top) 2 ft	3081325					X						
Air deck pan (bottom) 2 ft	3081326					X						
Air deck pan (top)	0552840		X	X	X		X	X	X	X	X	X
Air deck pan (bottom)	0552846		X	X	X		X	X	X	X	X	X
Back panel Q1 4ft	0558335		X		X							
Back panel Q1 6ft RH (thermometer)	0558629			X								
Back panel Q1 6ft LH (sensor)	0558630			X								
Back panel Q1 8ft RH	0558637				X							
Back panel Q2 2ft	3081341					X						
Back panel Q2 4 ft	0555064						X		X			
Back panel Q2 6 ft RH (thermometer)	0555334							X				
Back panel Q2 6 ft LH (sensor)	0555335							X				
Back panel Q2 8 ft RH	0555410								X			
Back panel Q3 4 ft	0557081									X		X
Back panel Q3 6 ft RH (thermometer)	0552860										X	
Back panel Q3 6 ft LH (sensor)	0552863										X	
Back panel Q3 8 ft RH	0557173											X
Side panel chimney Q1 RH	0558333		X	X	X							
Side panel chimney Q1 LH	0558334		X	X	X							
Side panel chimney Q2 RH	0555102					X	X	X	X			
Side panel chimney Q2 LH	0555103					X	X	X	X			
Bottom panel chimney 4 ft	0555100		X				X			X		
Back panel chimney Q1 4ft	0558348		X									
Back panel chimney Q1 6ft	0558627			X								
Back panel chimney Q1 8ft	0558638				X							
Bottom panel chimney Q2 2 ft	3081277					X						
Back panel chimney Q2 2 ft	3081324					X						
Back panel chimney Q2 4 ft	0555104						X					
Bottom panel chimney 6 ft	0555346			X				X			X	
Back panel chimney Q2 6 ft	0555349							X				
Bottom panel chimney 8 ft	0555416				X				X			X
Back panel chimney Q2 8 ft	0555422								X			
Side panel chimney Q3 RH	0557078									X	X	X
Side panel chimney Q3 LH	0557079									X	X	X
Back panel chimney Q3 4 ft	0557080									X		
Back panel chimney Q3 6 ft	0556853										X	
Back panel chimney Q3 8 ft	0557175											X

Controller Parts		Part Number	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Description												
PRE-PROGRAMMED CONTROL Q1	3060985		X	X								
PRE-PROGRAMMED CONTROL Q1	3060986				X							
PRE-PROGRAMMED CONTROL Q2	3081701					X						
PRE-PROGRAMMED CONTROL Q2	3060987						X					
PRE-PROGRAMMED CONTROL Q2	3060988							X	X			
PRE-PROGRAMMED CONTROL Q3	3060989									X		
PRE-PROGRAMMED CONTROL Q3	3060990										X	X
Compressor relay (120V)	0459304		X	X		X	X			X		
Compressor relay (220V)	1804241				X			X	X		X	X



Dimensions shown as inches



#### General

Case Length (Note: includes one pair of ends)  
 Optional End Bumpers (One pair)  
 Maximum O/S dimension of case back to front  
 (Note: includes bumper)

#### Q2SSM2S

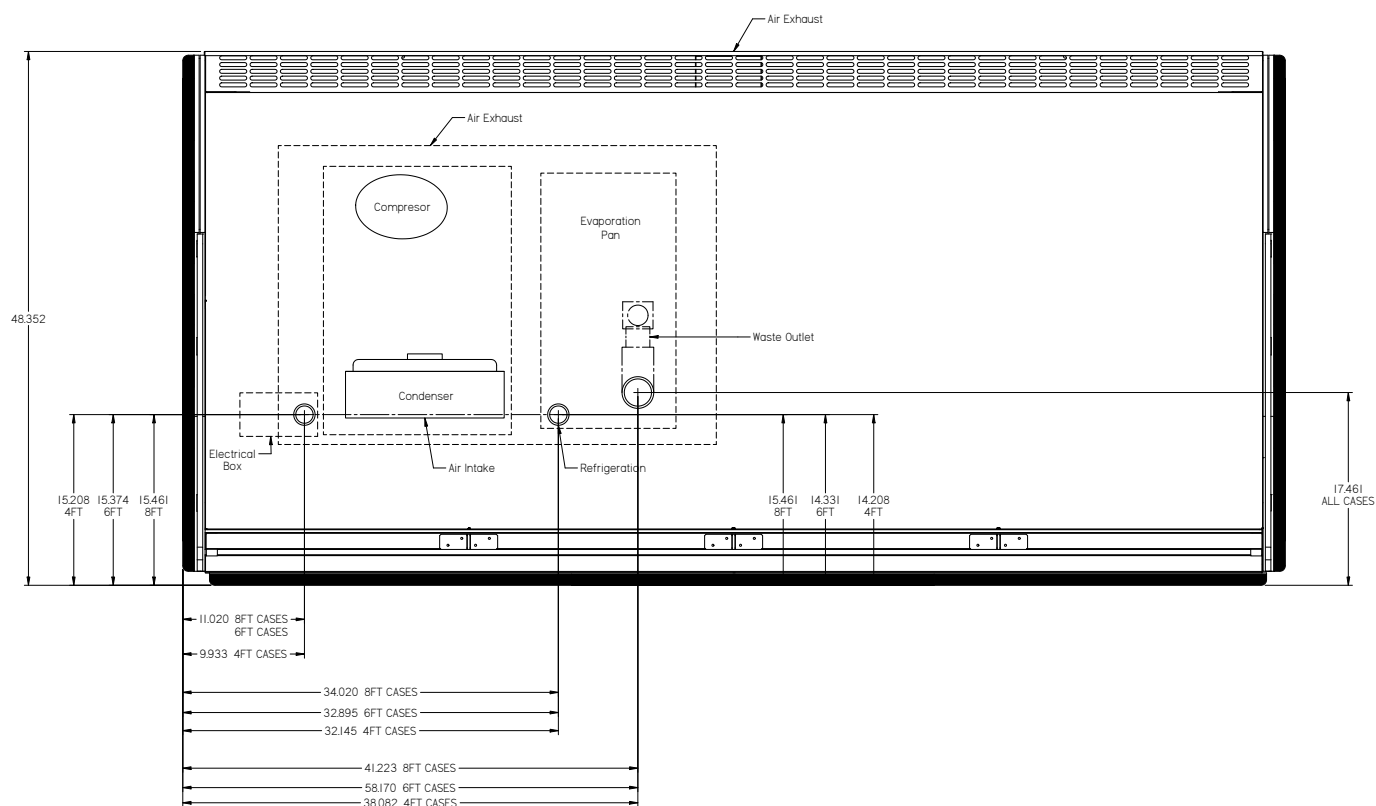
25" (63.5 cm)  
 1" (2.54 cm) per Bumper  
 48.35" (123 cm)

#### Waste Outlet

LH end of case (from outside of End Assembly)  
 to center of waste outlet

#### Q2SSM2S

10.05" (25.52 cm)



Dimensions shown as inches and (mm).

#### General

Case Length (Note: includes one pair ends)  
 Optional End Bumpers (One pair)  
 Maximum O/S dimension of case back to front  
 (Note: includes bumper)

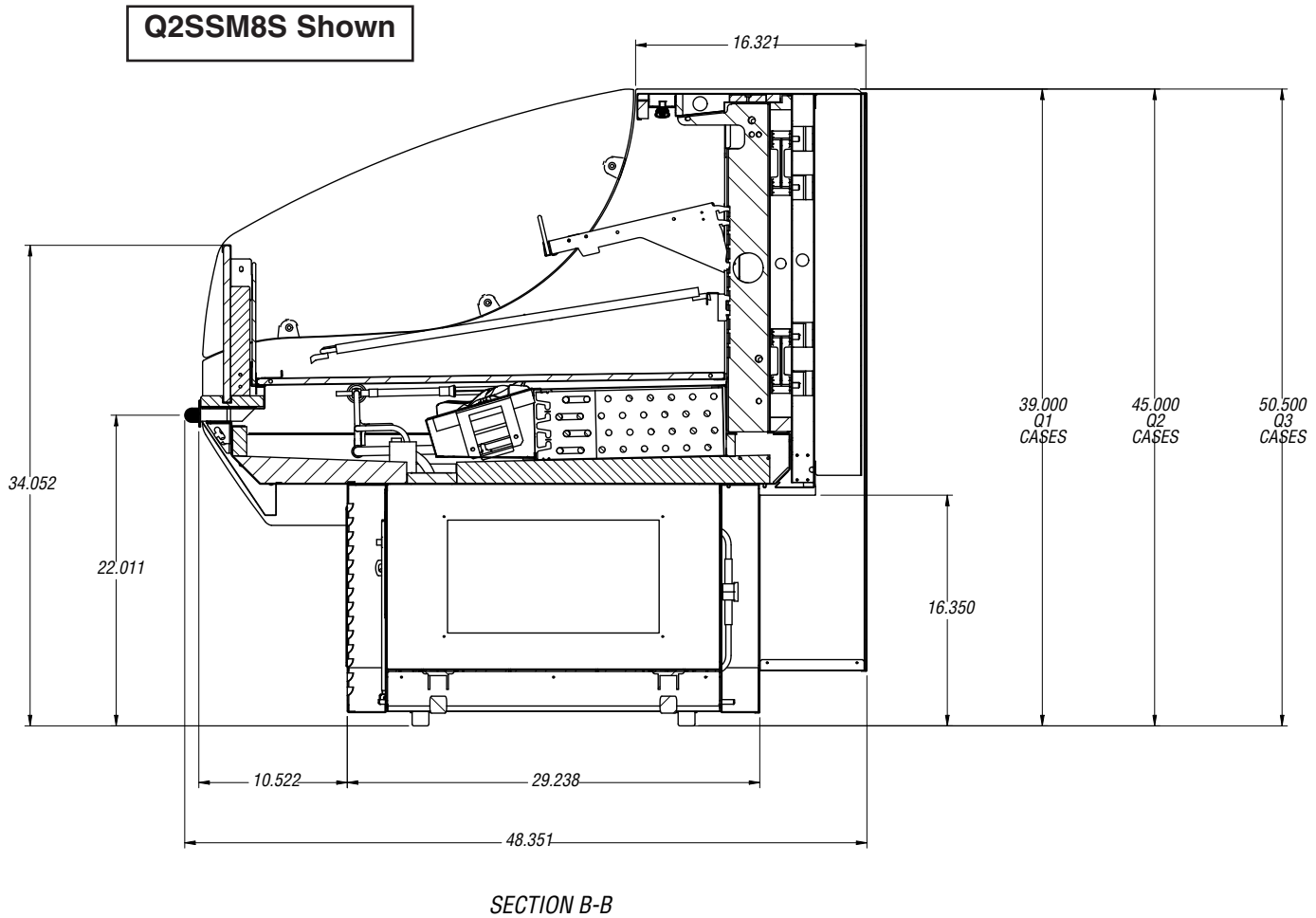
Q1/Q2/Q3SSM4S	Q1/Q2/Q3SSM6S	Q1/Q2/Q3SSM8S
50" (127 cm)	74" (188 cm)	98" (249 cm)
	1" (2.54 cm) per Bumper	
	48.35" (123 cm)	

#### Waste Outlet

LH end of case (from outside of End Assembly)  
 to center of waste outlet

Q1/Q2/Q3SSM4S	Q1/Q2/Q3SSM6S	Q1/Q2/Q3SSM8S
38.08" (96.72 cm)	58.17" (147.75 cm)	41.22" (104.7 cm)

Dimensions shown as inches



## DEFROST DATA

	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Frequency (hr)	6									
Offtime Failsafe (minutes)	50									
Defrost Termination Temperature °F	48				52					

## PHYSICAL DATA

	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Refrigerant Charge R404A										
Oz	43	43	96		43	96	96	43	89.6	96
Kg	1.219	1.219	2.721		1.219	2.721	2.721	1.219	2.54	2.721
Refrigerant Charge R448A										
Oz	36	47	49	35	34	48	59	44	48	59
Kg	1.045	1.334	1.402	0.997	0.992	1.362	1.697	1.272	1.362	1.697

## REFRIGERATION DATA

	Q1SSM4S	Q1SSM6S	Q1SSM8S	Q2SSM2S	Q2SSM4S	Q2SSM6S	Q2SSM8S	Q3SSM4S	Q3SSM6S	Q3SSM8S
Condensing Unit (hp)	1/2	1/2	3/4	1/4	1/2	3/4	1	1/2	3/4	1
Condensing Unit Capacity (BTU/hr at std. Rating conditions)	3620	4750	6090	1940	4010	6090	9370	4750	6720	9370

**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.

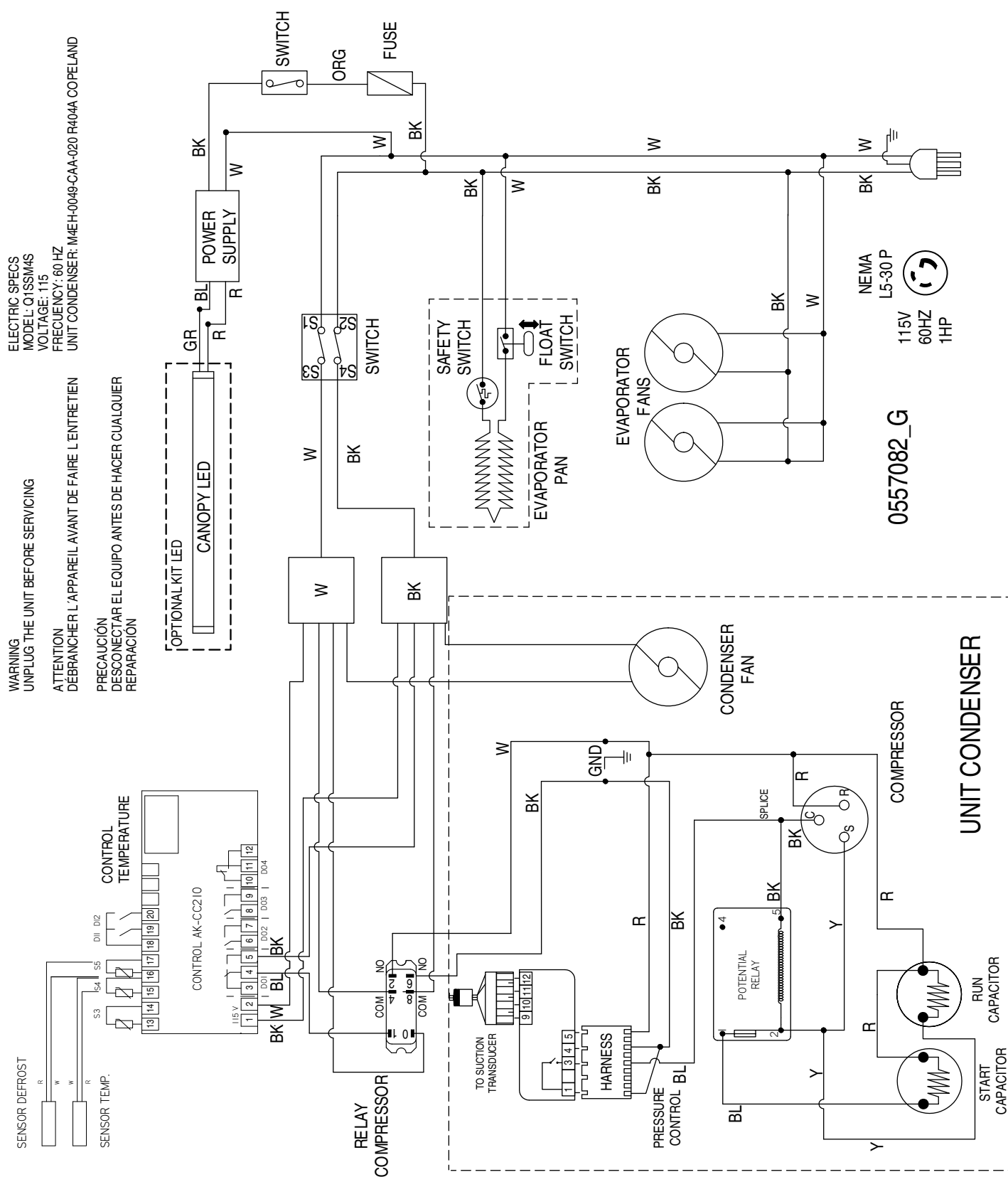
## ELECTRICAL DATA

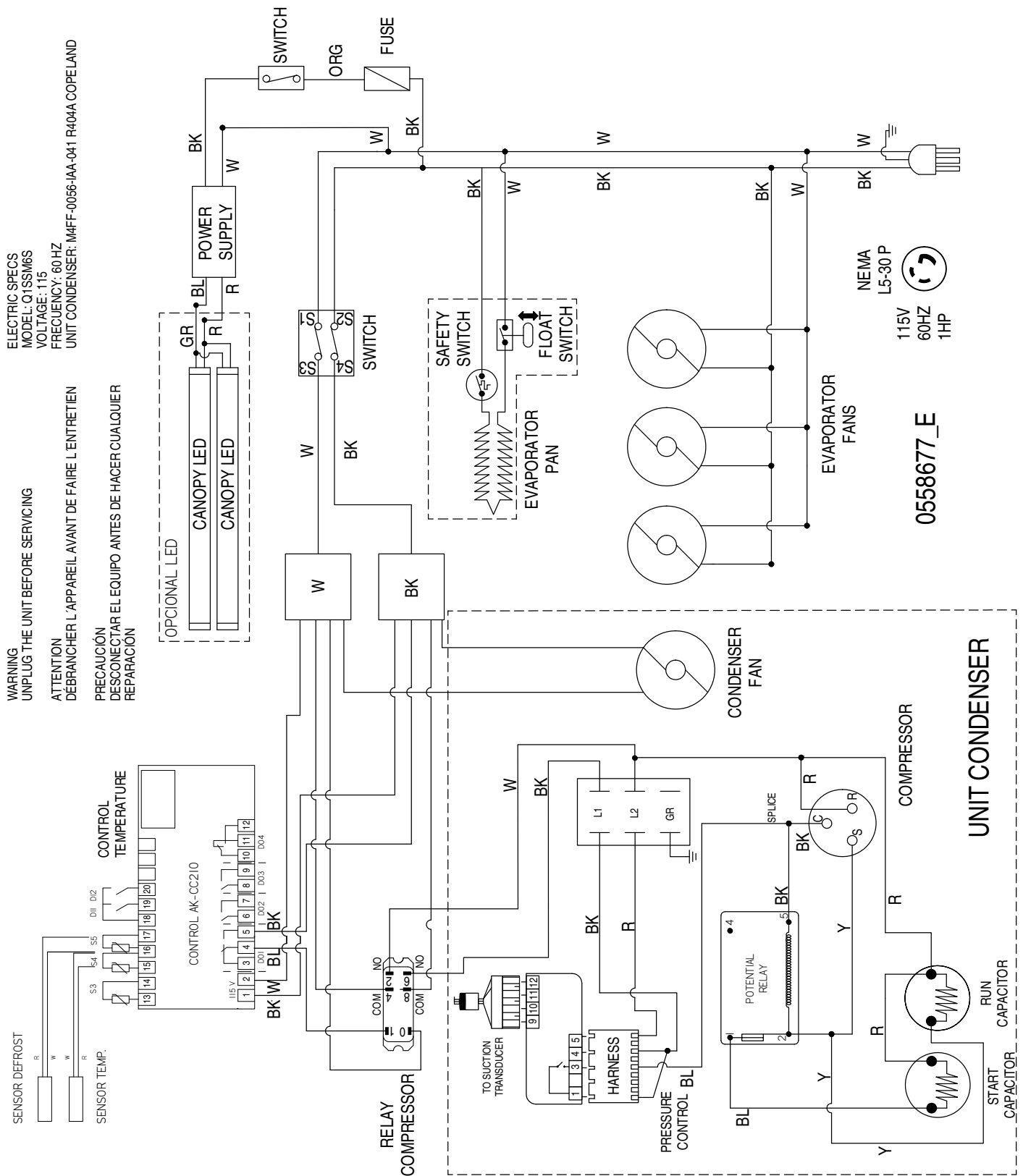
Model	Nominal HP	Refrigerant Type	Volts	Nema Plug	Fuse Amp	Hz/Ph
Q1SSM4S	1/2	R404A / R448A	115	L5-30P	30	60/1
Q1SSM6S	1/2		115	L5-30P	30	
Q1SSM8S	3/4		208/230	L14-30P	30	
Q2SSM2S	1/4		115	L5-30P	30	
Q2SSM4S	1/2		115	L5-30P	30	
Q2SSM6S	3/4		208/230	L14-30P	30	
Q2SSM8S	1		208/230	L14-30P	30	
Q3SSM4S	1/2		115	L5-30P	30	
Q3SSM6S	3/4		208/230	L14-30P	30	
Q3SSM8S	1		208/230	L14-30P	30	

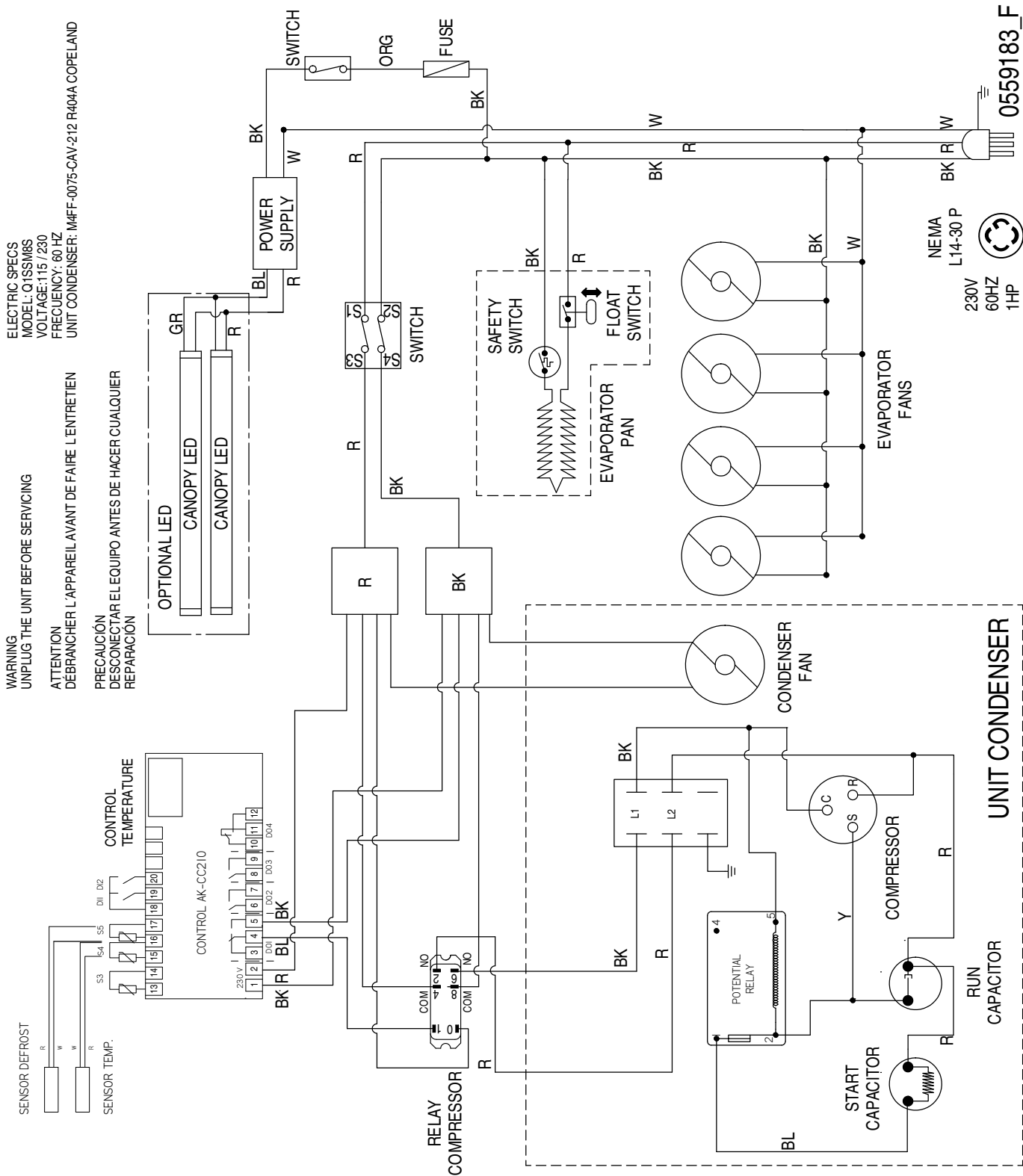
## ESTIMATED SHIPPING WEIGHT

	Case	(with shipping crate)
Q1SSM4S	511lb (232kg)	555lb (252kg)
Q1SSM6S	620lb (282kg)	732 lb (332 kg)
Q1SSM8S	807lb (366kg)	952 lb (432 kg)
Q2SSM2S	326lb (148kg)	421lb (190kg)
Q2SSM4S	535 lb (243 kg)	630 lb (285 kg)
Q2SSM6S	705 lb (320 kg)	832 lb (377 kg)
Q2SSM8S	916 lb (415 kg)	1081 lb (490 kg)
Q3SSM4S	617 lb (280 kg)	728 lb (330 kg)
Q3SSM6S	882 lb (400 kg)	1047 lb (475 kg)
Q3SSM8S	1146 lb (520 kg)	1352 lb (613 kg)

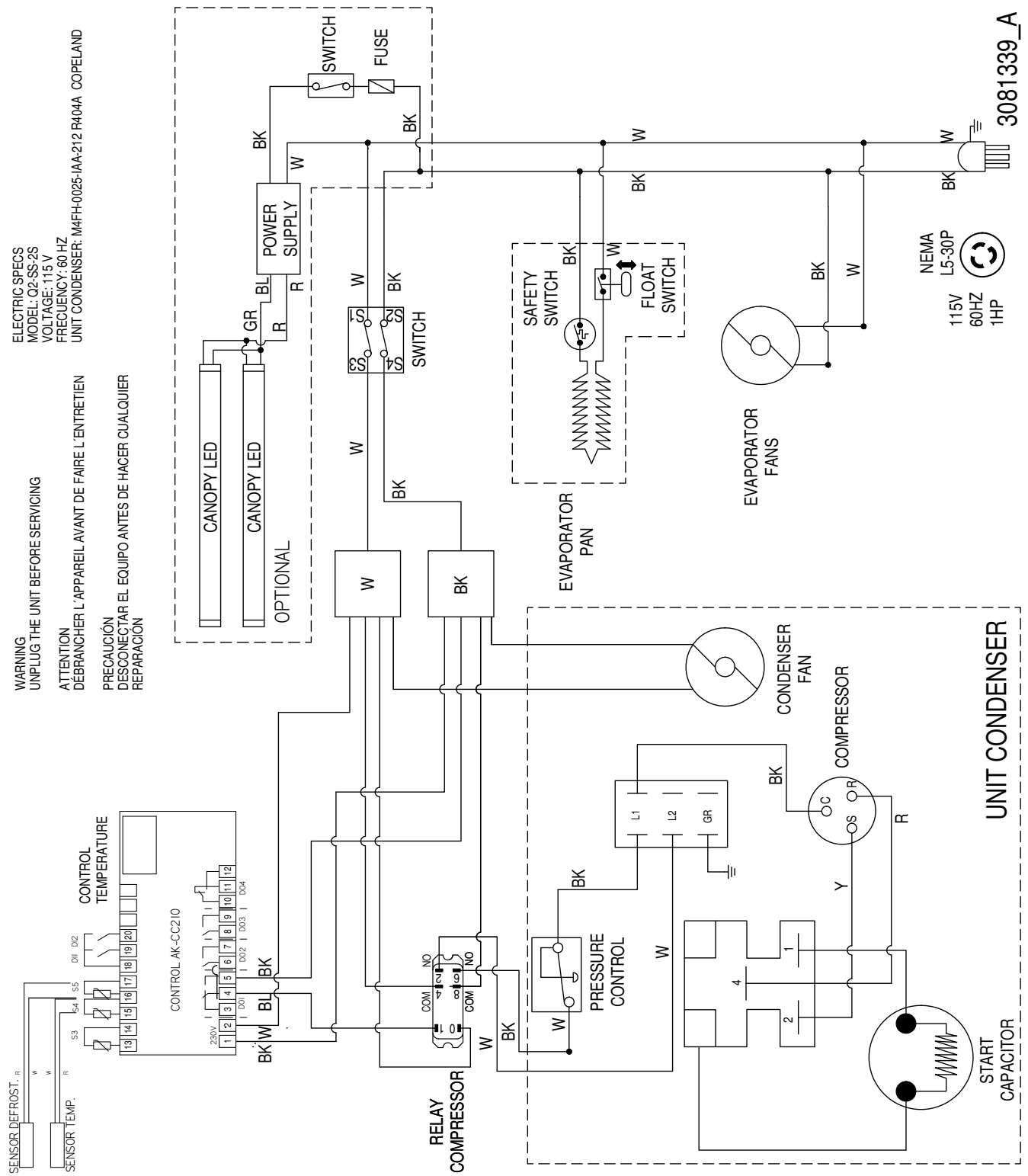
**Note:** Actual weights may vary based on optional kits included

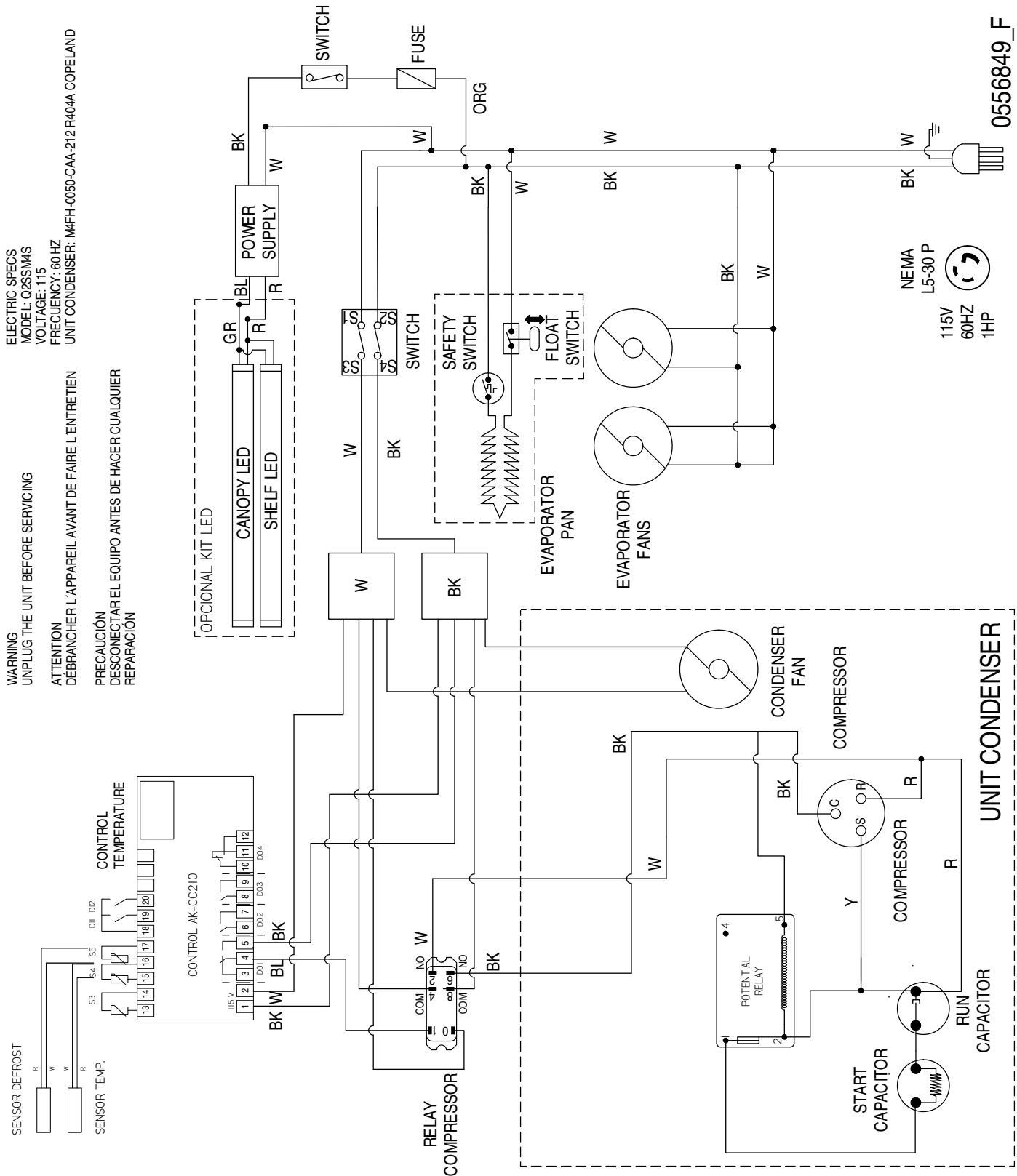


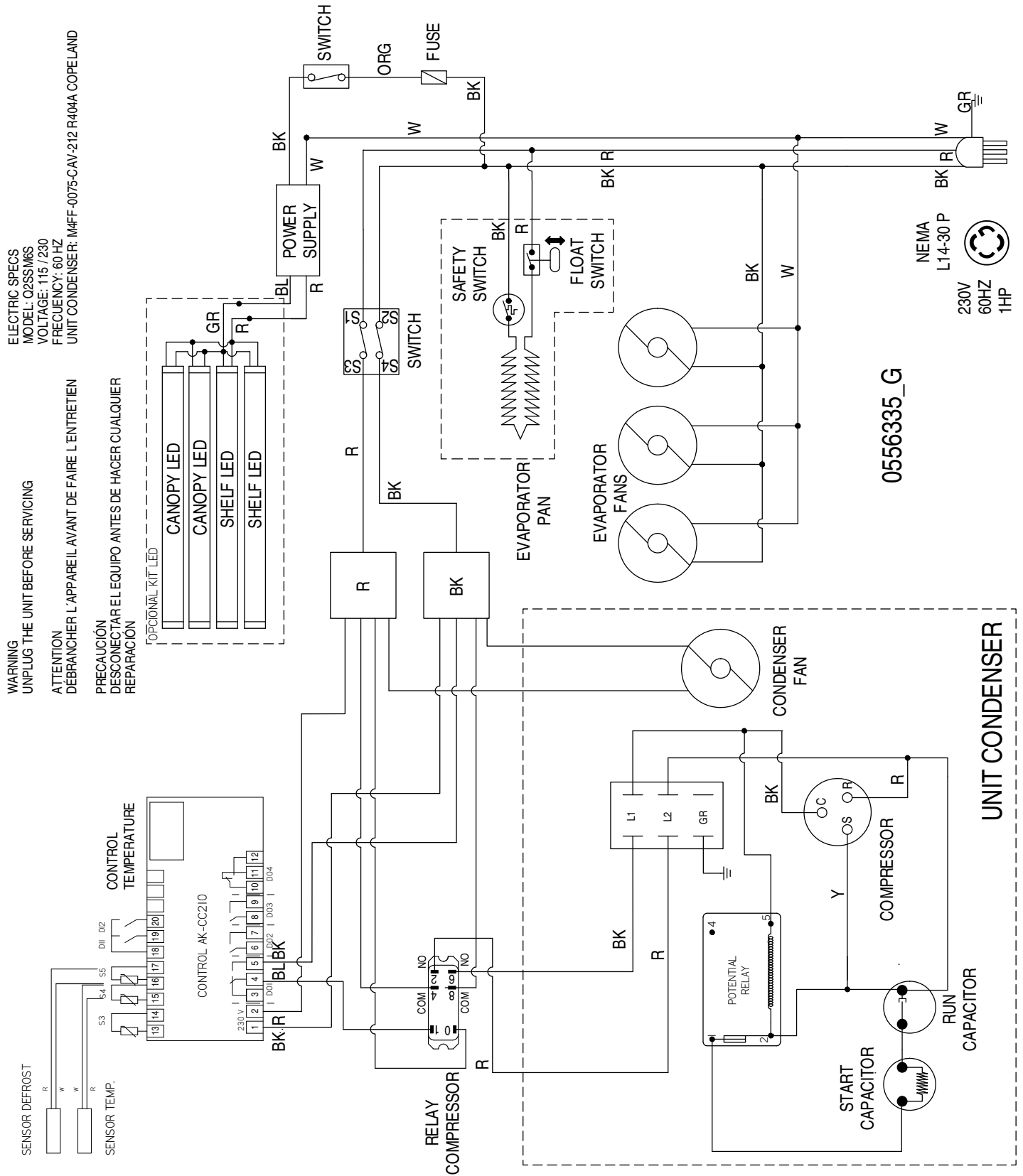




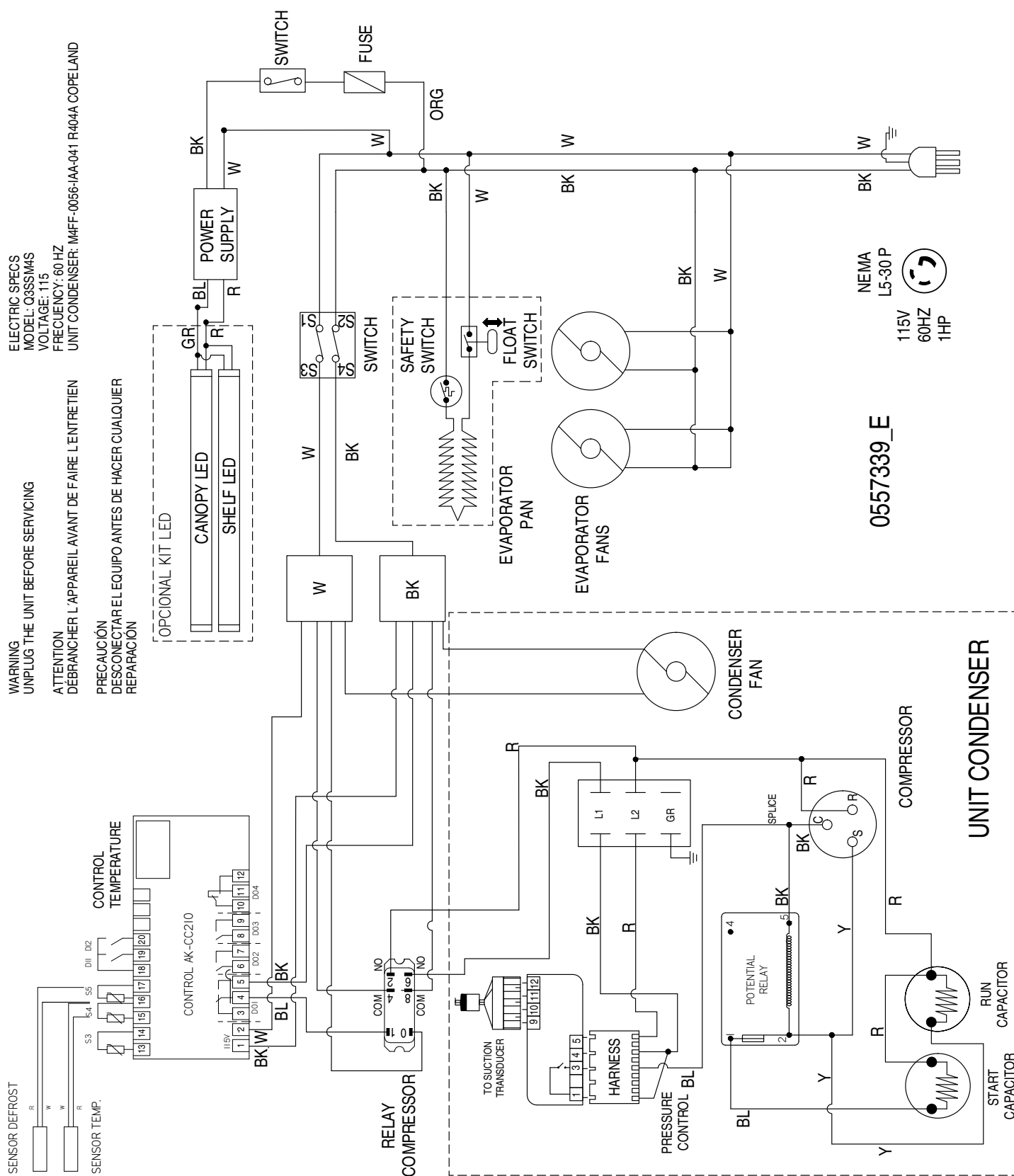


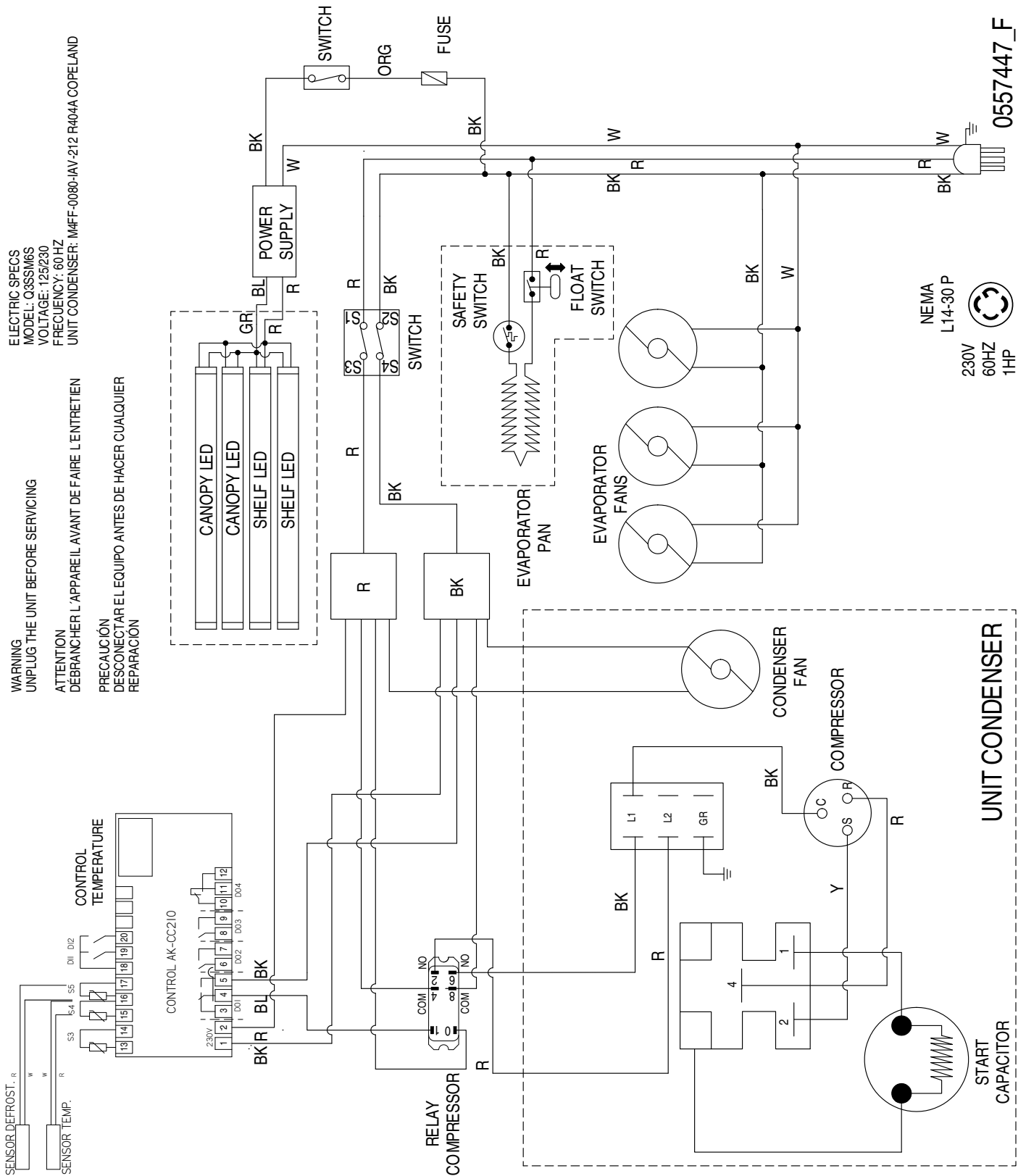


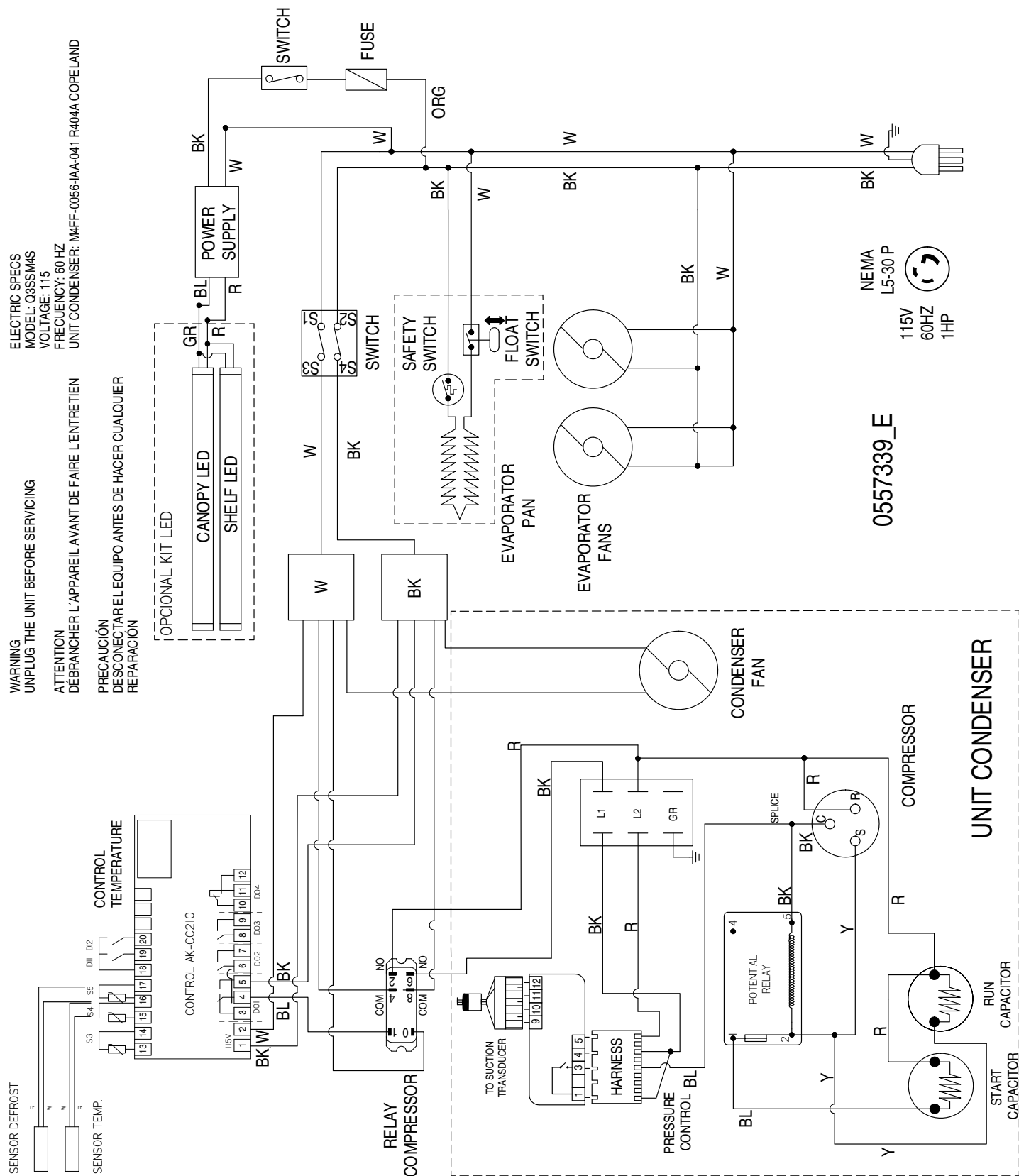


















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**To obtain warranty information  
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Please include the model and  
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