HEATCRAFT™ Worldwide Refrigeration

Installation & Operation Manual

KW-IOM-1027 **April 2017** **Part No. 31E11027**

KYSOR/WARREN®

LEGACY Self Service / Self-Contained Display Case

Models:
QWM1GDC-08

Applications:

Contents

Introduction – General Information

This manual has been prepared for our customers and the personnel involved in setting up and maintaining our cases.

The Kysor/Warren case is designed to provide years of trouble free service. This case provides excellent visibility and accessibility to the displayed products and is designed to merchandise packaged sandwiches, cheese, deli, prepared food, produce and meat. These units offer exceptional display facing area and the shelves are fully adjustable. These cases should be installed and operated according to the instructions contained in this manual to insure proper performance. They are designed for display of products in an air-conditioned store where temperature and humidity are maintained at a **maximum of 75º dry-bulb temperature and 55% relative humidity.**

CAUTION: Failure to maintain maximum design conditions may result in operational issues such as the following: increased BTUH load, high product temperature, coil icing, product frosting, and external sweating.

Case Description

Model	Description
QWM1GDC-08	Self-service, self-contained, prepared food display case with glass front and produced in 8 ft. lengths.

These cases are connected to a single compressor condensing unit. Installation and Service instructions are provided by the condensing unit manufacturer and are not part of this manual.

Receiving/Shipping Damage/Lost Items

All equipment should be examined for shipping damage before and during unloading. If there is any damage, the carrier should be notified immediately and an inspection requested. The delivery receipt must be noted that the equipment was received damaged. If damage is of a concealed nature, you must contact the carrier within three (3) days following delivery. The consignee for all damages must file a claim with the carrier.

NOTE: All claims for shortages must be within 10 days after receipt of shipment.

Refrigerant

A variety of refrigerants can be used in the Kysor/Warren cases provided the correct expansion valve is equipped with the case when ordered (i.e., R–404 required for the end user requires specifying the correct expansion valve for R–404 refrigerant when the order is placed). Multiple expansion valves are available, depending on end user refrigerant requirements. Expansion valves are supplied for the refrigerant specified on the original sales order.

In addition, cases can be modified in the field to allow changing the type of refrigerant used. This requires changing the expansion valve and distributor orifice that is currently equipped in the case. Contact your Kysor/Warren Service Representative for additional information.

NOTE: Refer to Case Data Control Settings for refrigeration requirements.

Condensing Unit

The condensing unit is not intended to be removed from the case except in the event a compressor must be replaced. To remove the condensing unit, disconnect the suction/liquid connections on the base valves at the right front of the case.

CAUTION: Before attempting to remove the condensing unit, be sure that all electrical power to the case has been turned off. Also, caution should be used when releasing pressure on the refrigerant system.

NOTE: Before attempting to remove the condensing unit, be sure that all electrical power to the case has been turned off. Also, caution should be used when releasing pressure on the refrigerant system.

CAUTION: During installation and service of this equipment, precautions should be taken to prevent loss of refrigerant to the atmosphere.

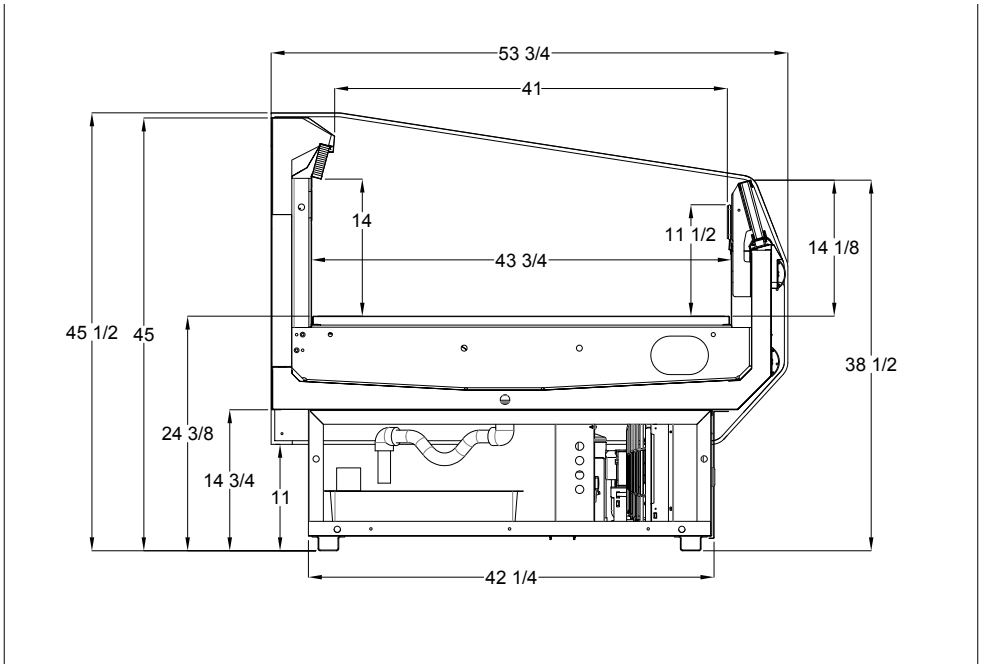
Condensate Evaporator Pan Heater:

The Condensate Evaporator Pan Heater has following features

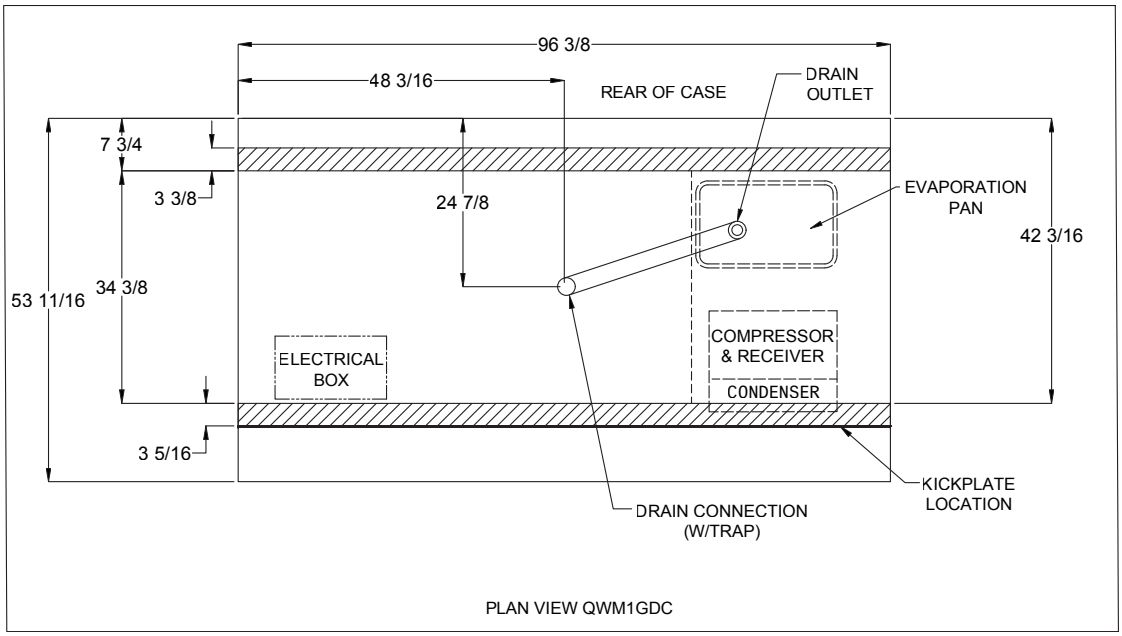
- Electrical rating of 120V/60Hz/1Ph, 8.3A, 1000 W
- Condensate dissipation rate: 8.5 gallons per day
- 3 gallon evaporator pan (1.8 times the condensate/defrost of 3-door case)

Plan and Cross Views

QWM1GDC-08 Cross View



QWM1GDC-08 Plan View



Case Data

QWM1GDC-08

Capacities

Cubic Capcity	31.11 cu ft

Dimensions

Overall Length (w/o ends)	96.375”
Thickness – Pair	1.5”/End

Defrost (Off Cycle only)	Frequency	Fail Safe	Termination
8’	3	60 min	47 ºF(*)
(*)=Thru factory supplied thermostat mounted on evaporator.			

Electrical Specification

Circuit Data / Amps	8’
Refrigeration Cycle +	17.46
Defrost Cycle +	17.94
Anti-Sweat Amps	0.24
Evaporator Fan Motor Amps	0.44
BTU Requirements @ +20 F	4952
Condensate Pump Amps	N/A
Condensate Pan Heater Amps	7.21
Compressor RLA	19.71
Condenser Fan Motor Amps	0.7
Minimum Circuit Amperage	21.4
Maximum Over current Protection	25
Power Supply	208/115
Cycle	60
Phase	1

Control Settings

Discharge Air	3-23 ºF

Discharge Air Velocity (1 hour after defrost)	Discharge Air Temperature
300-375 FPM	6-23 ºF

Refrigerant and Charge

Case	Refrigerant Type	Charge (lbs)
QWM1GDC-08	R-404A	4.5

Note: Temperature is measured in discharge air. Defrost frequency is at design conditions. Higher temperature or humidity may require more defrost and longer fail-safes. These cases are not designed to operate environments where the ambient temperature is greater than 75ºF and the relative humidity is greater than 55%.

Refer to www.kysorwarren.com for other electrical data and information.

Case Installation

Preparation

Prepare the installation area as follows:

1. Clean area where case is to be installed.
2. Verify installation area is at least 15 feet from any outside entrances or heating and cooling outlets.
3. Ensure floor loading will support the case and the case contents.
4. Ensure proper AC power is available. Refer to case AC input requirements located in the electrical connections section of this manual.
5. Ensure expansion valve in case is the proper valve for the type of refrigerant used at the installation site.

CAUTION: To prevent condensation on the end panels of cases, a minimum of 6.0 inches between walls or other cases is required for airflow. If 6.0 inches is not possible, then the space between the cases must be completely filled and sealed or an updraft fan kit must be installed to provide air circulation through the space.

Installation

The following instructions are provided for unpacking, moving, loading, and lifting the case prior to installation.

NOTE: READ ALL INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION.

Unpacking

WARNING! Use caution when removing the strapping in the following procedure, as the shelves are very heavy and could fall causing personal injury or equipment damage.

1. Remove all shipping tape from lamps and ensure that all lamp ends are snapped in place.
2. Ensure the evaporator cover is installed correctly with the deck pans installed.
3. Move the case into position, install, and perform the operational checkout procedures following the instructions within this manual.

CAUTION: Be careful not to damage the factory-installed end while moving the case. Use the case lift points on the case to move it to the proper location.

Installing Case

1. Ensure all preparation for installation, as outlined in the above paragraphs, have been fully complied with and are complete.
2. Allow a minimum of 18 inches between the rear of the case and the store walls and/or other cases. This space reduces the possibility of condensation problems. It may be necessary to provide forced air ventilation in some installations.
3. This case must be located on a firmly based floor and leveled within plus or minus 1/16 inch.
4. Connect input AC power. Reference electrical installation procedure later in this manual.
5. Install all caps, and trim per the applicable instructions contained in this manual.
6. Remove all other shipping materials.

CASE MUST BE LEVELED FROM FRONT TO BACK AND END-TO-END AND SUPPORTED CONTINUOUSLY AS NEEDED WITH SHIMS.

Installation of Trim, Caps, & Shelves

We offer several different trim packages. Below are basic instructions for our 3000 series trim. For any other trim packages or questions not answered below, please contact the Technical Service Department at Kysor// Warren (800-866-5596).

Case front part selection and case trim selection are provided in the information that follows:

Case Front Part Selection

For Cases In A Lineup:

- Rub Rail Cap Starter 1/lineup Std. or w/ptm
- Raceway Cap Starter 1/lineup
- 1” Mccue Bumper Starter 1/lineup
- 3” Mccue Bumper Starter 1/lineup
- Rub Rail Cap 1/case Std. or w/ptm
- Raceway Cap 1/case
- 1” Mccue Bumper 1/case
- 3” Mccue Bumper 1/case

For Single Case:

- Rub Rail Cap 1/case Std. or w/ptm
- Raceway Cap 1/case
- 1” Mccue Bumper 1/case
- 3” Mccue Bumper 1/case
- Canopy End Trim 2/lineup
- Glass Cap End Trim 2/lineup
- Glass Cap Joint Trim 1/joint
- Front Panel End Trim 2/lineup

Case Trim Selection

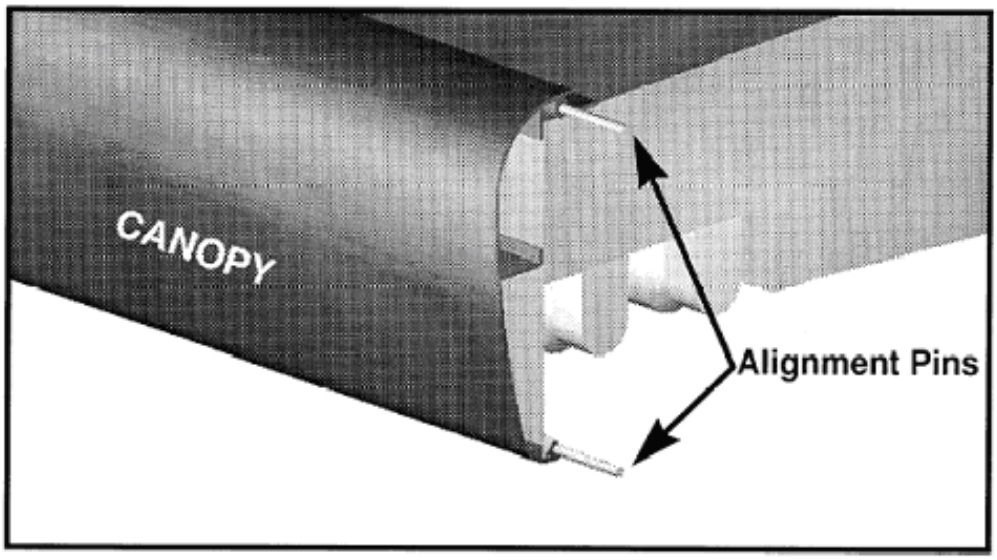
The only trim provided is on the right and left end cases. All exterior panels slide from right to center and left to center.

For Single Case W/ Two Ends:
Trim is factory installed.

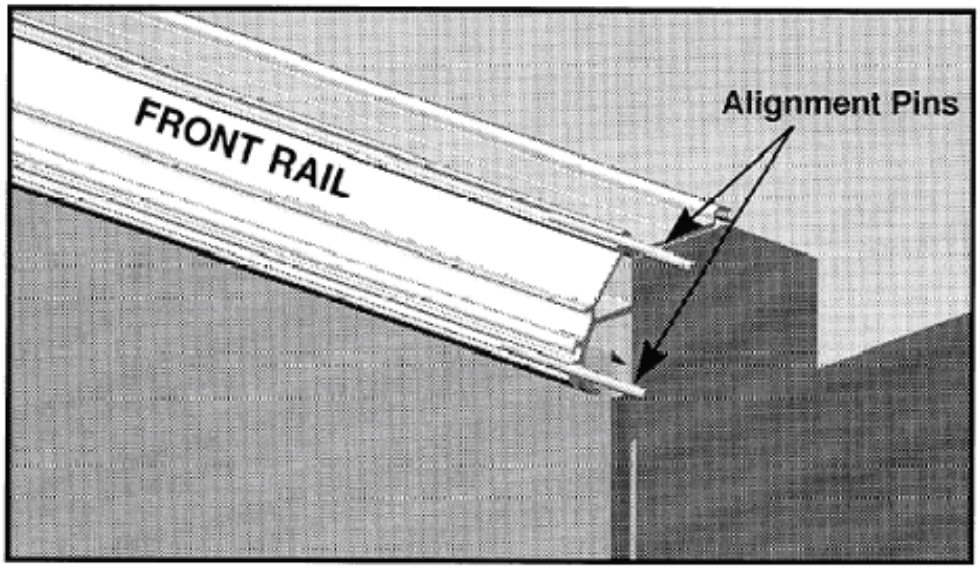
For Mutual End In A Lineup:
Proper additional piece of end trim should be used.

Canopy and Front Rail Alignment

After the display cases are properly joined and sealed, align the canopies by sliding the alignment pins across the joint from one canopy into the adjoining canopy. It may be necessary to loosen and/or remove the screws at the top of the canopy to aid in the alignment of the two canopies and to eliminate any gap between the canopies. The screws should be tightened after canopies are aligned.



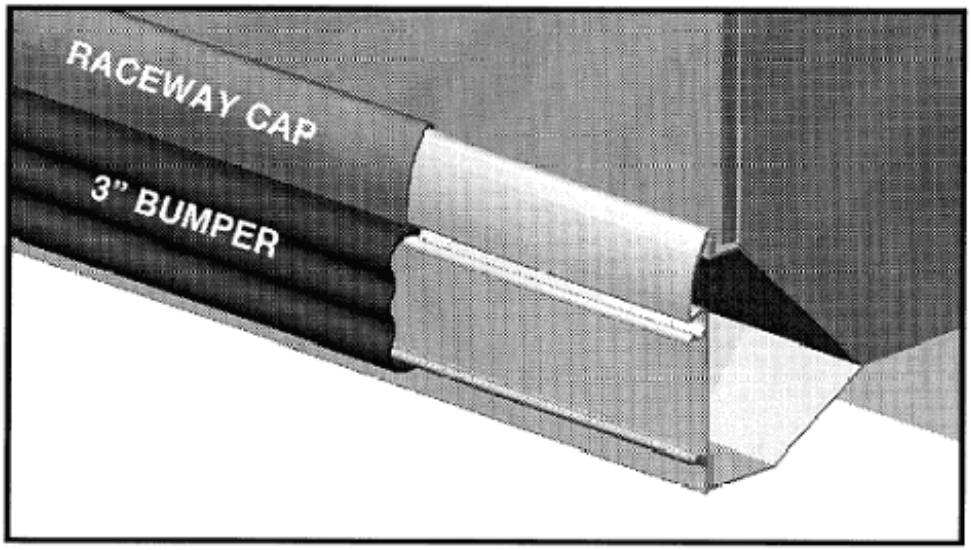
Align the case front rails with a single alignment pin sliding the pin across the joint into the adjoining front rail. It may be necessary to loosen the screws holding the front rail to aid in the alignment process. The screws should be tightened after the front rails are aligned.



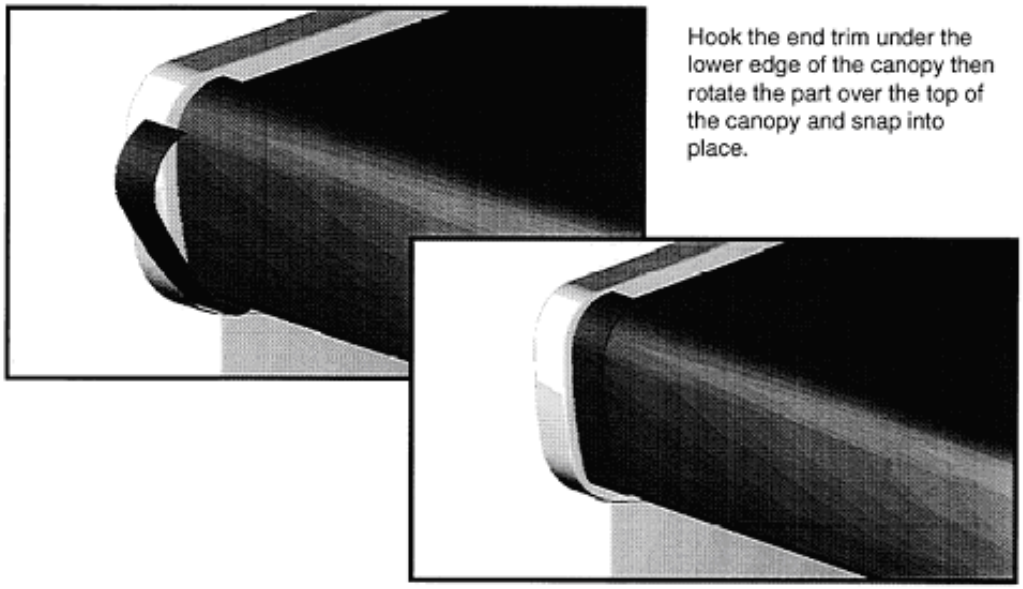
3” Bumper
Install the 3” bumper parts to the raceway using the same procedure as described for the 1” bumper parts.

Raceway Cap
Install the raceway cap parts to the raceway using the same procedure as described for the rub rail cap.

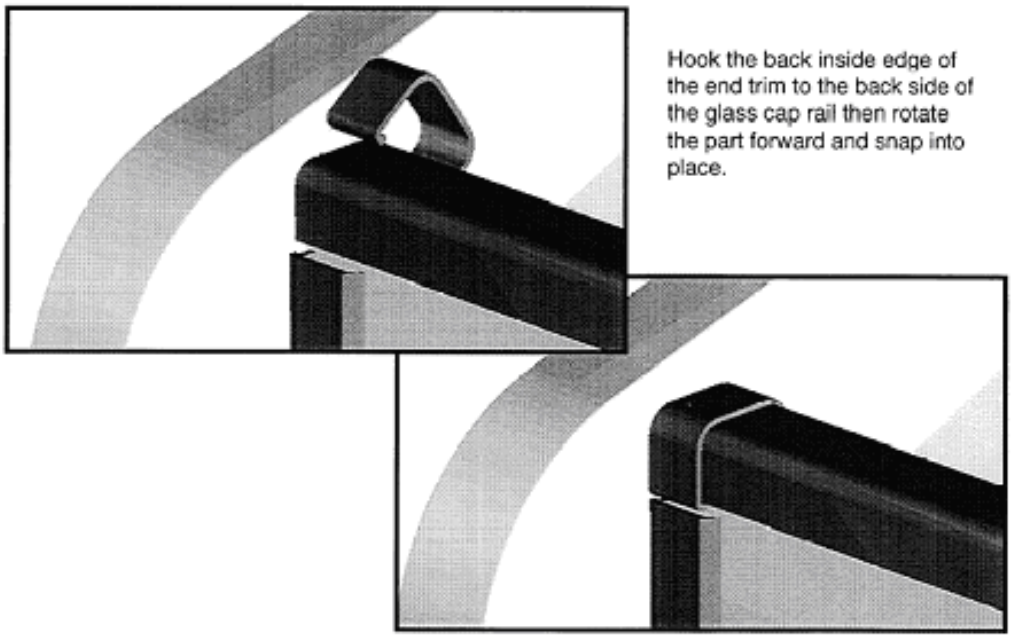
NOTE: The raceway cover parts do not overlap as the rub rail cap parts do.



Canopy End Trim Installation – All Models

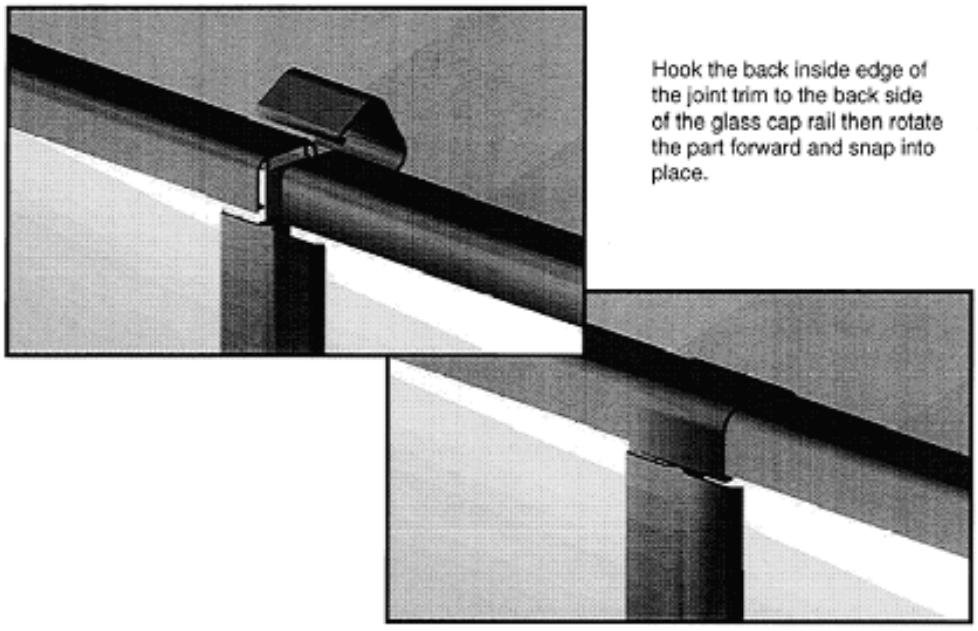


Glass Cap Rail End Trim Installation – Glass Models



Hook the back inside edge of the end trim to the back side of the glass cap rail then rotate the part forward and snap into place.

Glass Cap Rail Joint Trim Installation – Glass Models



Hook the back inside edge of the joint trim to the back side of the glass cap rail then rotate the part forward and snap into place.

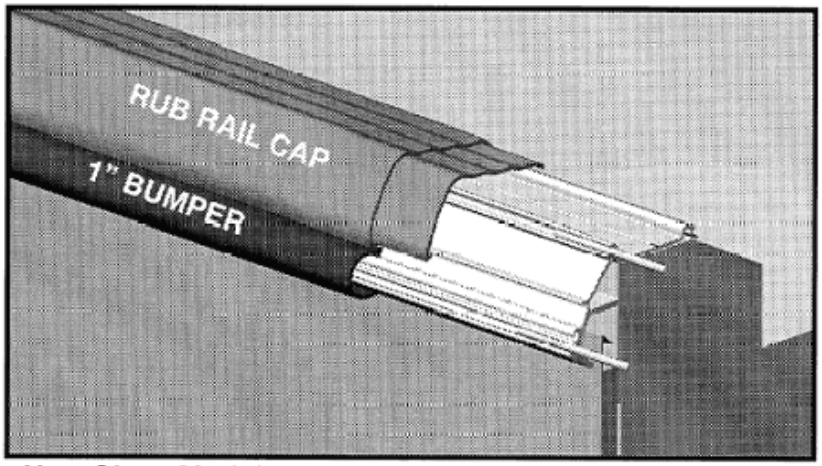
Bumper, Rub Rail Cap, and Raceway Cover Installation

1" Bumper
Install the two-foot length of 1" bumper to the left hand end of the first case in the lineup. To install the bumper, hook the lower edge of the bumper to the aluminum retainer and rotate the bumper up and snap the top edge onto the retainer. Install this part as close to the case flat end panel as possible.

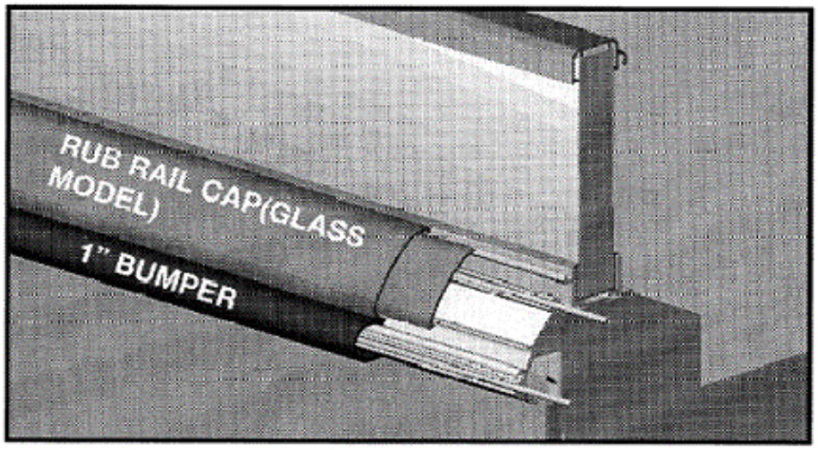
Install the additional case length 1" bumper parts, crossing over the joint of the cases in the lineup and trimming the last piece to fit the last case in the lineup.

Rub Rail Cap
Install the four foot rub rail cap part to the left hand of the first case in the lineup. To install the rub rail cap hook the lower edge of the cap to the aluminum front rail just above the 1" bumper then rotate the cap toward the case and snap it down to the back hook on the aluminum front rail on non-glass models and the top hook on the aluminum rail on glass models. Install this part as close to the case flat end panel as possible.

Install the additional case length rub rail cap parts as close to one another as possible, crossing over the joint of the cases in the lineup and overlapping each part where provided. Trim the last part to fit the last case in the lineup.



Non-Glass Model



Glass Model

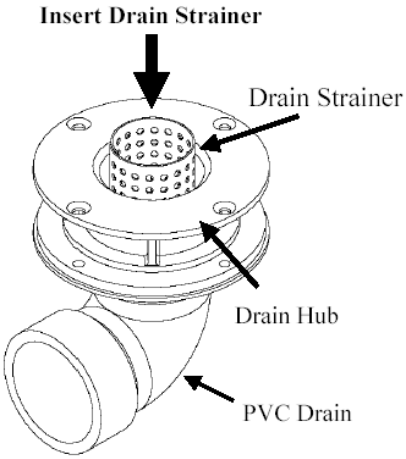
Note: If a mutual end is used in a lineup, the proper additional pieces of trim should be used.

Drain Strainer

NOTE: Not all of our cases have drain strainers. This information applies only to the cases equipped with the strainers.

- Purpose: Keep debris or any foreign objects from entering the PVC drain, which could cause blockage.
- Installation: Insert into drain until drain strainer stops – it will not be flush. Strainer will exceed hub by 1". NOT flatten drain strainer

Note: 1 ½" Drain Pipe



DO

Electrical Connections - General

Cases are standard with one row of high output lamps. Ballasts are located in the canopy or in the raceway if no canopy is provided. See wiring diagram for layout.

An electrical box is provided with each refrigerator for wiring your fan, anti-sweat heaters, and light circuits. This is an approved method by the Underwriters' Laboratories; however, field wiring must be in accordance with local and national electrical codes.

All field connections are made in the electrical box. Make sure that proper voltage is supplied to your refrigerator. Check refrigerator nameplate for the required voltage for fans, anti-sweat heaters, lights and defrost heaters. ALL REFRIGERATORS MUST BE GROUNDED.

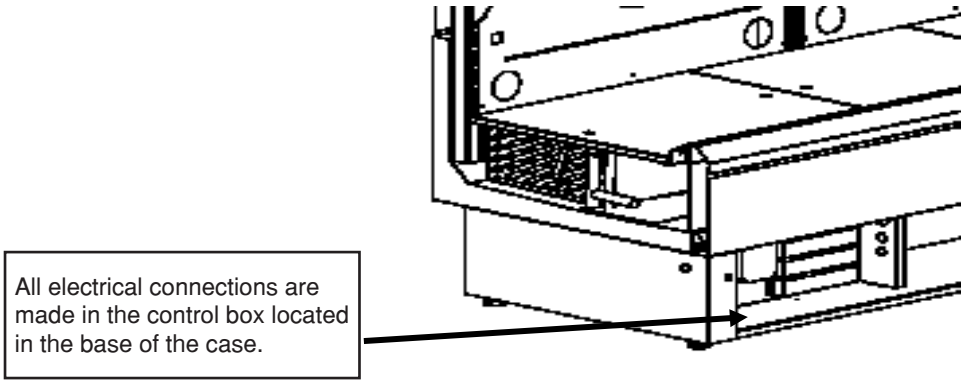
The Recommended Control Settings in the Case Data shows the electrical ratings for your case. This is the same information that appears on your refrigeration nameplate.

NOTE: Fan motors must operate continuously and panel must be marked sufficiently to prevent the fan motors from being turned off accidentally. When refrigerators are multiplexed, add the total of these amperage values to determine wire size and circuit protection. Anti-condensate controllers can be used to control the anti-condensate heater.

WARNING! Ensure the Kickplate does not come in contact with the case electrical wiring. Live electrical wiring that comes in contact with the case is a shock hazard that may cause severe injury or death by electrocution.

WARNING! Always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as fans, heaters, thermostats and light bulbs. Failure to disconnect the electrical power may result in personal injury or death.

Electrical Termination



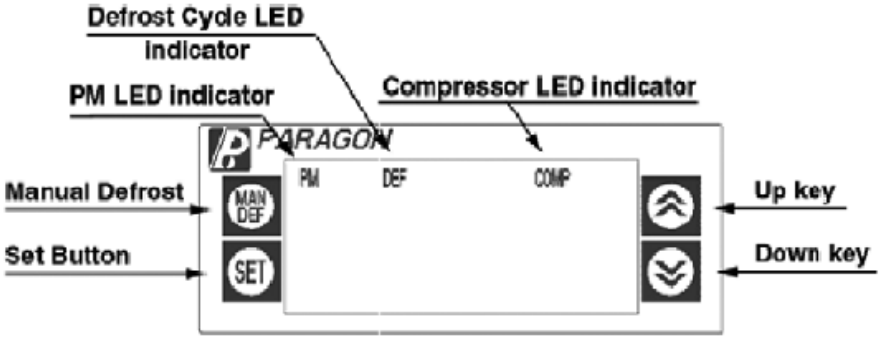
The wires are clearly identified for termination purposes as follows:

Component	Wire Number
Anti-Sweat Heater	1 and 2
Refrigerator Fan Motors and Drain Heater	3 and 4
Lighting Circuit	5 and 6
Defrost Heaters	7 and 8
Temperature Control	9 and 10
Dual Temperature?	15 and 16
Defrost Termination Control	17 and 18

Paragon ERC-2 Set-Up Instructions

Remote Display

1. Remove cover from Paragon display so the display LED is visible. The display must be shown on Figure 1:
2. Set Clock to local time as shown on figure 2.
3. Set Setpoint Temperature, SEt, TO “32”.



To change time of day and setpoint temperature (First Level), follow these steps:

To change time-of-day and setpoint temperature (First Level) follow these steps:

Step 1	SET	Press and hold set for 5 seconds. The display will show **CLoC**
Step 2	SET	Press SET again to change the time-of-day
Step 3	▲ or ▼	Press UP or DOWN until the correct time-of-day is displayed
Step 4	SET	Press SET to accept the new time
Step 5	▼	Press DOWN to go to the next parameter – Setpoint Temperature - **SEt** (cut out)
Step 6	SET	Press SET to change the setpoint temperature
Step 7	▲ or ▼	Press UP or DOWN to go to the desired setpoint. The range is – 40 to 60°F or –40 to 16°C
Step 8	SET	Press SET to accept the change
Step 9	▼	Press DOWN to exit the first level of programming

Note 1: During programming, if no button is pushed during 30 seconds, the control will go back to the normal operating mode. This is valid for both programming levels.

Note 2: When changing the time, press and hold the MAN DEF button for 3 seconds to change the AM/PM mode.

To change the other parameters (Second Level) follow these steps:

Step 1	SET and ▼	Press and hold SET and DOWN for 10 seconds. The display will show **dSPL**
Step 2	SET	Press SET to change the parameter
Step 3	▲ or ▼	Press UP or DOWN to change the options, time or temperature for the current parameter
Step 4	SET	Press SET to accept the new value
Step 5	▼	Press DOWN to go to the next parameter, then go back to Step 2. After the last parameter is displayed (**ALHi**), the display will go back to the normal operating condition

Note: to scroll down the parameters without changing them, press the DOWN button.

4. Set Clock Format, CLHr, TO “12HR”
5. Set Temperature Format, dSP, TO “F”
6. Set Defrost Type, dFtP, TO “Elec”
7. Set Fan Status During Defrost, EFAN, to “Yes”
8. Set Fan Status During Normal Mode, CFAN, to “On”
9. Set Defrost Interval, dFin, to “Tday”
10. Set Minimum Compressor Off Time, CoFF, to “0”
11. Set Minimum Compressor On Time, Con, to “0”
12. Set Alarm Delay, Alrd, to “0”
13. Set Compressor Run Time, CPrn, to “0”

14. Set Number Defrost, nodF, to “3”
15. Set Start time, dEF1, defrost in 8 hr intervals
16. Set Defrost Duration, dEFd, to “60 minutes”
17. Set Fan Delay, Fand, to “0”
18. Set Pump Down, Pudn, to “0”
19. Set Drip Time, driP, to “0”
20. Set Setpoint Differential, diF, to “18”
21. Set Temperature Initiated Defrost, tdEF, to “n/a”
22. Set Defrost Termination Temp, dEF, to “47”
23. Set Fan Cut-In to, FAn, to “n/a”
24. Set Low Temperature Alarm, ALLo, to “0”
25. Set High Temperature Alarm, ALHi, to “60”

NOTE: Set defrost intervals at every 8 hours

List of Parameters

Here is a list of the parameters that can be changed in the Second Level of programming, as well as their options and ranges.

Parameter	Display Symbol	Description	Range / Options
Display Status	dSPL	Information shown on the display during operation conditions	tdAy – time-of-day rSP° – zone temperature (refrigerated space) CyCL – cycle between time and zone temperature Epr° – evaporator coil temperature
Clock Format	CLHr	Format of the time (12 or 24 hours mode)	12Hr – AM/PM format 24Hr – 24 hour format
Temperature Format	°dSP	Temperature degrees	°F – degrees Fahrenheit °C – degrees Celsius
Defrost Type	dFtP	Type of defrost used in the application	ELEC – electric heater defrost / off cycle HgAS – hot gas
Fan Status During Defrost	EFAN	Enable or not the fan during defrost	no – fan is turned off during defrost yES – fan remains on during defrost
Fan Status During Normal Mode	CFAN	Enable or not the fan during normal compressor on/off mode	on – fan is always on during normal mode CyCP – fan cycles with compressor
Defrost Interval	dFin	Type of defrost interval	TdAy – time-of-day setpoint CPrn – compressor run time tdEF – temperature initiated defrost
Minimum Compressor Off Time	CoFF	Minimum time that the compressor will remain turned off	Range: from 0 to 15 min
Minimum Compressor On Time	Con	Minimum time that the compressor will remain turned on	Range: from 0 to 15 min
Alarm Delay	ALrd	Time delay before the alarm goes off after the temperature fall off the two alarm setpoints	Range: from 0 to 59 min
Compressor Run Time	CPrn	Time the compressor will run between defrosts	
Number of Defrosts	nodF	Number of defrosts per day	from 0 to 8 (0 means 1 defrost every 48 hours)

Defrost Start Time	dEF1-8	Start time of each defrost	
Defrost Duration	dEFd	Defrost duration time (back-up for defrost termination temperature)	Range: from 0 min to 4 hours
Fan Delay	FAnd	Delay time for the fan after defrost (back-up for fan cut-in temperature)	Range: from 0 to 15 min
Pump Down	Pudn	Pump down duration	Range: from 0 to 59 min
Drip Time	driP	Drip time duration	Range: from 0 to 59 min
Setpoint Differential	diF°	Cut-in temperature differential Note: cut-in is cut-out plus differential	Range: from 1 to 25°
Temperature Initiated Defrost	tdEF	Temperature that will initiate a defrost cycle	Range: from – 40 to 40°F or – 40 to 4°C
Defrost Termination Temperature	dEF°	Temperature in the evaporator that will terminate the defrost cycle	Range: from 0 to 75°F or –18 to 24°C
Fan Cut-In Temperature	FAn°	Temperature in the evaporator that will turn the fan on after defrost	Range: from – 40 to 60°F or – 40 to 16°C
Low Temperature Alarm	ALLo	Low temperature setpoint that will make the alarm go off and the error message appear on the display	Range: from – 40 to 83°F or – 40 to 28°C
High Temperature Alarm	ALHi	High temperature setpoint that will make the alarm go off and the error message appear on the display	Range: from – 40 to 83°F or –40 to 28°C

Important Note: To change from degrees **C** to **F** or vice-versa, the user must reprogram all the parameters that are related to the temperature. The unit does not convert the parameters automatically from degrees **F** to **C** or vice-versa.

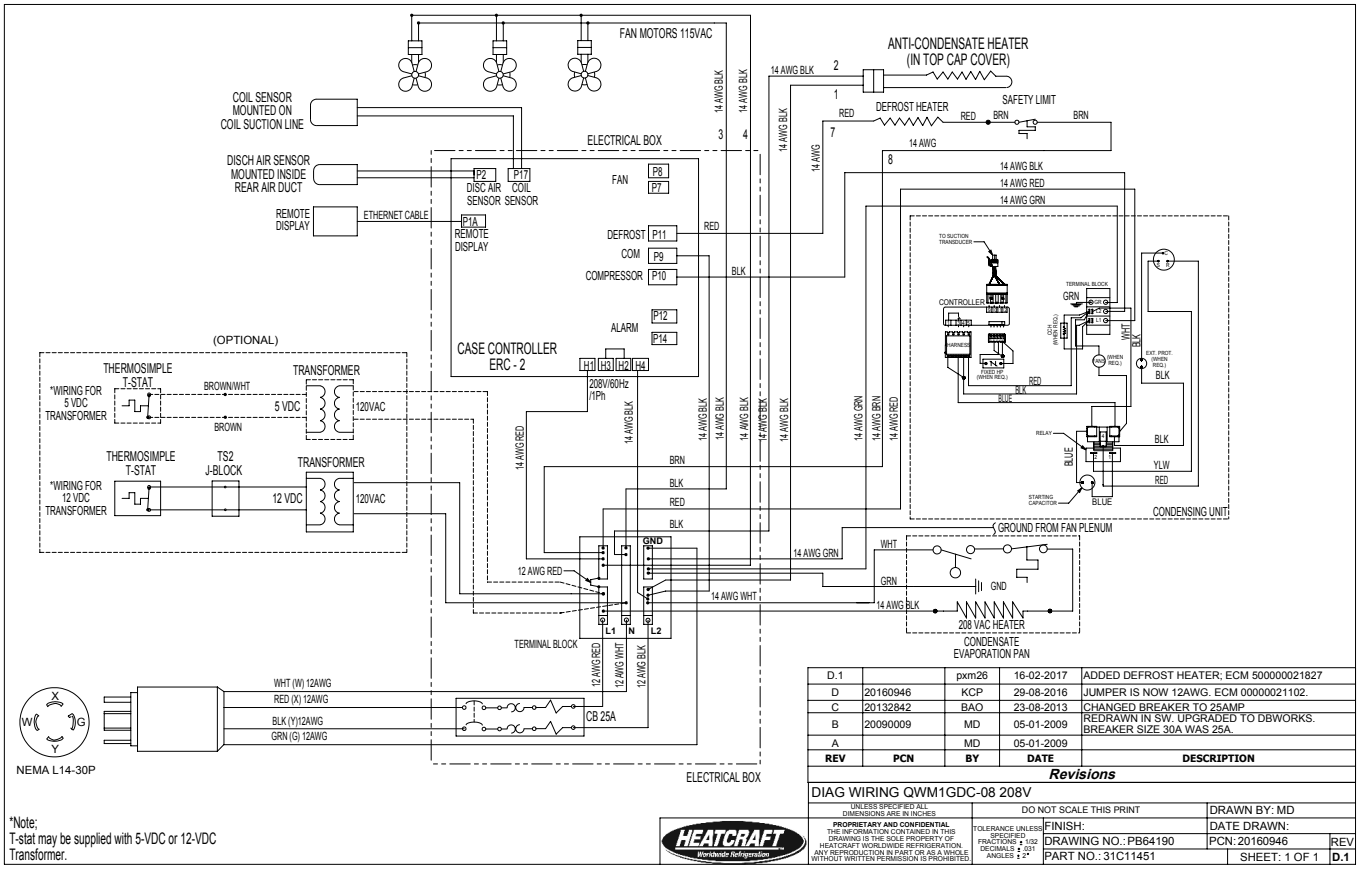
PLEASE SEE BELOW PARAGON DISPLAY AND ERROR CODE

Error Codes

Display	Control Status
Er 1	ERC Fault – software or hardware failure
Er 2	ERC Communication Fault – indicates that there is a problem with the display module cable
Er 3	Zone Sensor Fault – indicates an open or shorted temperature sensor
Er 4	Evaporator Sensor Fault – indicates an open or shorted evaporator sensor
Er 6	Low Temperature Alarm – indicates that the temperature has dropped below the low alarm setpoint
Er 7	High Temperature Alarm – indicates that the temperature has gone above the high alarm setpoint

For Error Codes 1 and 2 cut the power to the unit and correct the problem to reset the display.
For Codes 3 and 4, press the UP or DOWN button on the display to reset the error message. If the display still shows the message, the sensor must be replaced.
The Error Codes 6 and 7 will be automatically reset once the temperature is back within the two setpoints.

Wiring Diagram



REV	PCN	BY	DATE	DESCRIPTION
D.1		pxm26	16-02-2017	ADDED DEFROST HEATER; ECM 500000021827
D	20160946	KCP	29-08-2016	JUMPER IS NOW 12AWG. ECM 00000021102.
C	20132842	BAO	23-08-2013	CHANGED BREAKER TO 25AMP
B	20090009	MD	05-01-2009	REDRAWN IN SW. UPGRADED TO DBWORKS. BREAKER SIZE 30A WAS 25A.
A		MD	05-01-2009	

Revisions

DIAG WIRING QWM1GDC-08 208V

UNLESS SPECIFIED ALL DIMENSIONS ARE IN INCHES | DO NOT SCALE THIS PRINT | DRAWN BY: MD

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TOLERANCE UNLESS SPECIFIED: FRACTIONS ± 1/32, DECIMALS ± .031, ANGLES ± 2°

FINISH: | DATE DRAWN:

DRAWING NO.: PB64190 | PCN: 20160946 | REV

PART NO.: 31C11451 | SHEET: 1 OF 1 | D.1

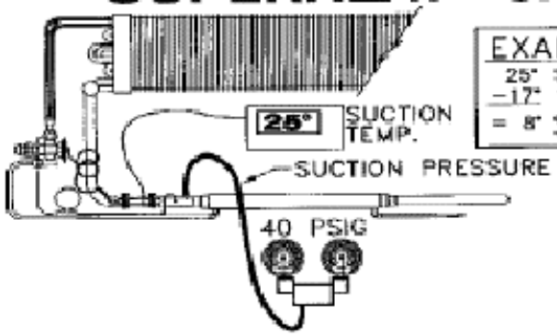
Expansion Valve and Superheat

CAUTION: During service of this equipment, precautions should be taken to prevent loss of refrigerant to the atmosphere. Always install the expansion valve stem cap after making valve adjustments.

The expansion valve furnished with your case has been sized for maximum coil efficiency. To adjust superheat, perform the following:

1. Place a thermocouple near the expansion valve bulb. Read the suction line pressure as near coil as possible. If closest is at the condensing unit, estimate suction line loss at 2 PSIG.
2. Convert coil suction pressure to temperature. The difference between coil temperature and the thermocouple temperature is superheat. Use average superheat when expansion valve is hunting.
3. Do not set the superheat until cases have pulled down to operating temperature and never open or close the valve over turn between adjustments and allow 10 minutes or more between adjustments.
4. Superheat should be set at 6-8 F.
5. After the initial setting, the superheat should be rechecked when product is stocked and at designed temperature.

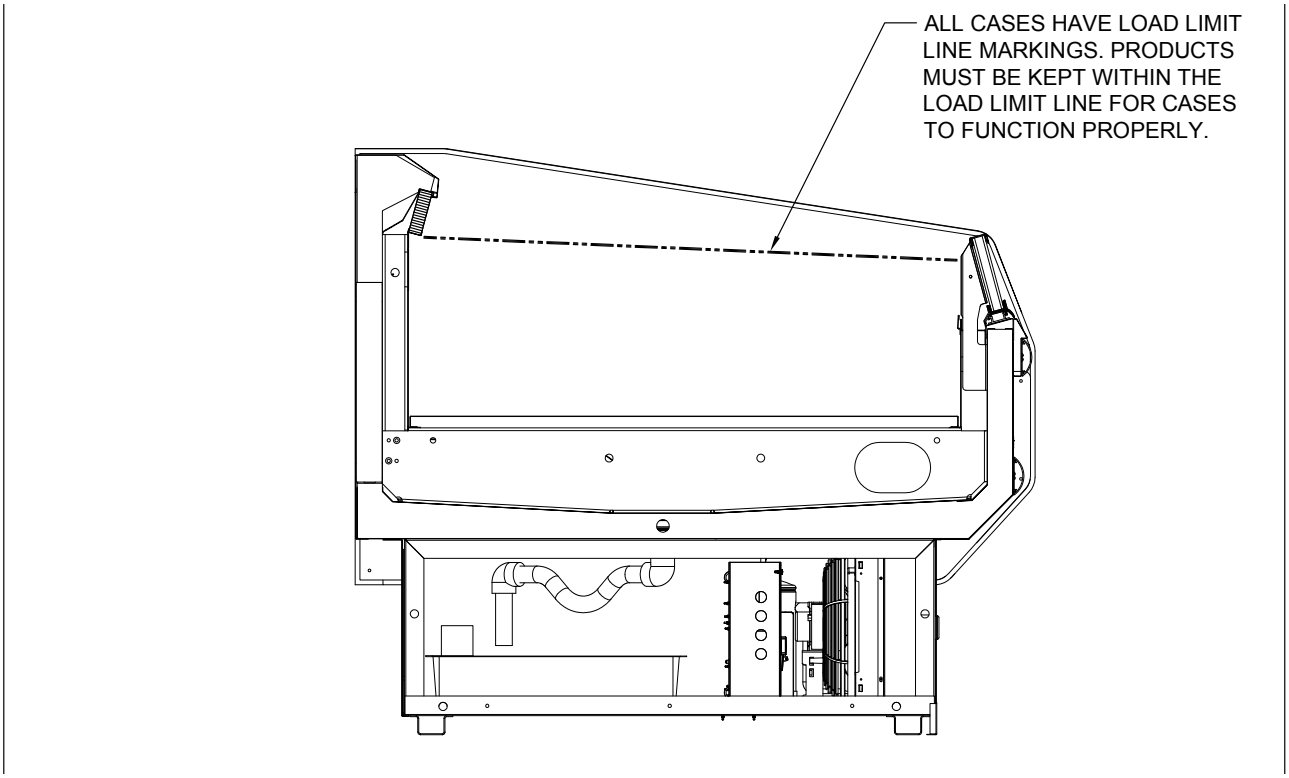
SUPERHEAT CALCULATIONS



EXAMPLE: R-22
25° SUCTION TEMPERATURE
−17° SUCTION PRESS. CONVERTED TO TEMP.
= 8° SUPERHEAT

Operation

Merchandise should not be placed in the fixture until all controls have been adjusted and the case is at the proper operating temperature. AT NO TIME SHOULD THE CASE BE STOCKED BEYOND THE LOAD LINE LIMIT OR OVER THE FRONT EDGE OF THE ADJUSTABLE SHELVES.



Do not place product in cases until it is at proper operating temperature. Air discharge and return flues must remain open and free of debris or obstruction at all times to provide proper refrigeration and air current performance. Do not allow any product, signs, debris, etc. to block these grilles. Do not use any non-approved shelving, display racks or any accessory that could hamper air current performance.

WARNING! Do not walk on top of the cases! This could result in damage to the case and serious personal injury could occur. These cases are not designed to support excessive external weight. Do not use top of cases for storage.

Normal Operation

Electric Defrost is standard on these models and the fans run continuously.

Cleaning

As a general rule, always use mild soap and water to wipe the case down. Special precautions must be taken when cleaning some components of the case.

Exterior surfaces should be cleaned with warm water and mild soap to protect and maintain the finish. Do not use cleaners containing abrasive materials or ammonia, which will scratch or dull the finish. The waste outlet should be flushed with water following each cleaning.

Interior surfaces may be cleaned with most mild soap formulas, ammonia based cleaners, and sanitizing solutions with no harm to the surface.

WARNING! Always shut power off during the cleaning process. Cleaning the case with electrical power applied is a shock hazard that may cause serious injury or death.

WARNING! DO NOT USE HOT WATER ON COLD GLASS SURFACES. This could cause the glass to shatter and could result in personal injury. Glass fronts and ends should be warm before applying hot water.

CAUTION: The following could damage the case:

- Do not use solvent, oil, or acidic-based cleaners on any interior surfaces as the surface may become damaged.
- Do not use abrasive cleaners and scouring pads, as these will mar the finish.
- Never introduce water into the case faster than the waste outlet can release it.
- DO NOT USE STEAM OR HIGH PRESSURE SYSTEMS TO CLEAN THE CASE, AS SEALS MAY BE BROKEN WHICH WILL CAUSE THE CASE TO LEAK.

Shelves

Do not use a hose or submerge shelves in water. When cleaning lighted shelves, wipe down with a wet sponge or cloth so that water does not enter the light rails.

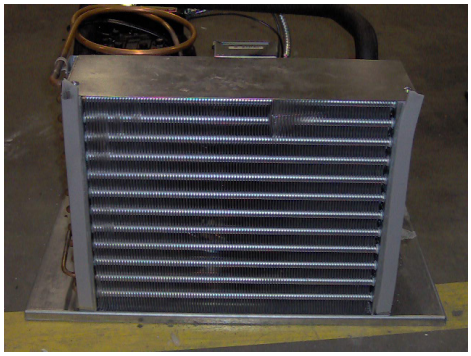
Condensing Units

Follow the previous general cleaning of the interior and exterior parts with the exception of DO NOT USE WATER HOSE to clean evaporator or tub of the case.

CAUTION: Condensing units should have at least 18" clearance from any wall or other obstruction in order to operate properly.

WARNING! Always shut power off at the main breaker during the cleaning process. Cleaning the case or condensing unit with electrical power applied is a shock hazard that may cause serious injury or death.

CAUTION: DO NOT FLUSH WITH WATER. This case is not connected to a drain system and has its own evaporating pan with limited capacity.



Condensing Units: Once a month vacuum the entering air side of the condenser to clear any debris or dust – opposite to direct normal air flow.

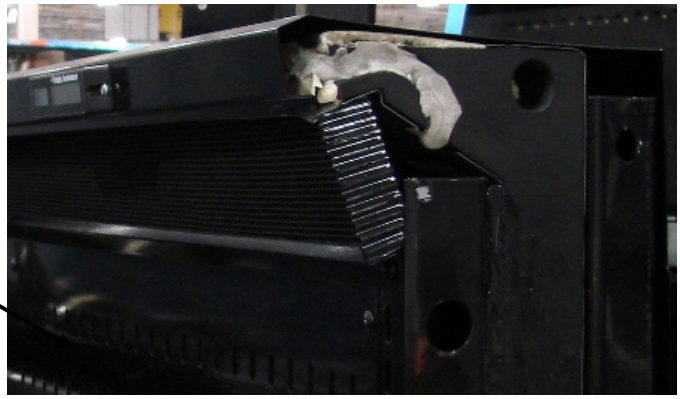
NOTE: Do not stack anything that may block airflow in front of louvers or rear of case. Self-contained cases draw air from front to rear and blocking this airflow will cause case to overheat and shut down.

Honeycomb Assembly

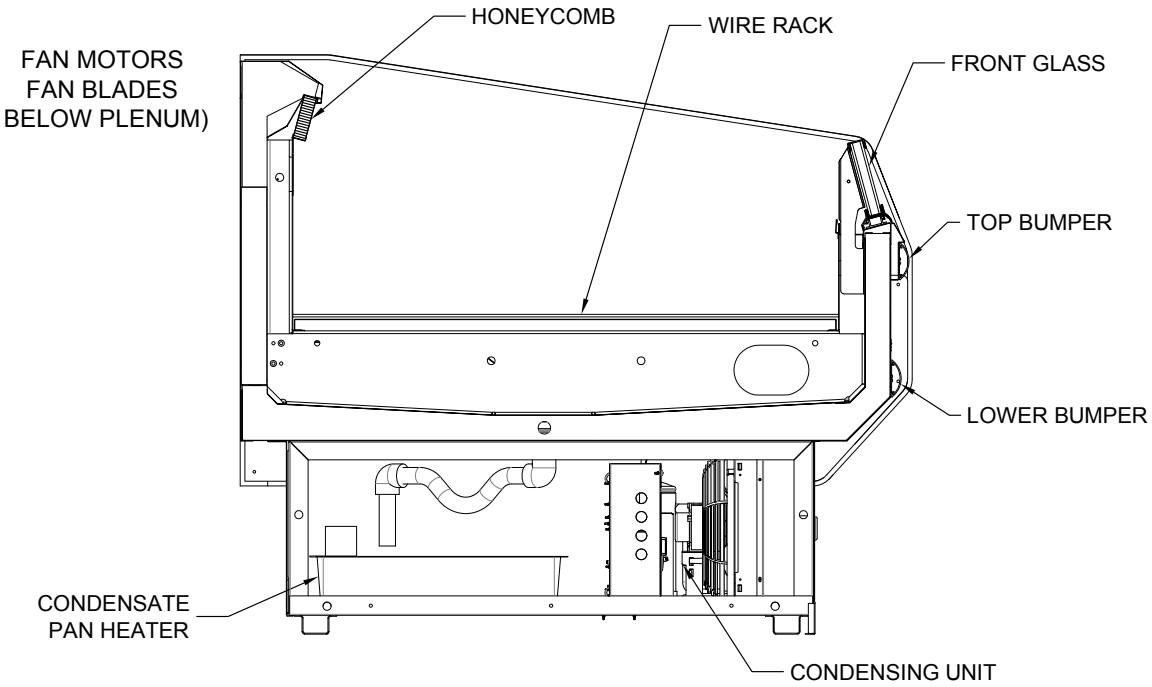
The honeycomb should be cleaned every 6-8 months, depending on store conditions. The honeycomb may be cleaned with a vacuum cleaner or removed to be washed with soap and water. The honeycomb must be completely dry before returning it to the case.

To remove honeycomb from case, take out screws located here.

Note the position and angle of the honeycomb when removing from the case. Honeycomb must be replaced at the same angle.



Parts List and Drawings



QWM1GDC-8
CROSS-SECTION VIEW

NOTE: Standard parts are provided in the parts lists. Cases may be equipped with specialty parts that were incorporated into the case(s) at the time they were manufactured. It is important to have the case serial number when contacting Kysor//Warren for replacement parts.

Parts List

Description	Part No.
Expansion Valve	03A32006
Evap Fan Mtr	09A10131
Evap Fan Blade	09B10045
Top Bumper Bstn - Red	24B20398
Lwr Bumper Bstn – Polar Wht	24B16894
Thermopane Front Glass	14D10082
Rack Wire Adjust. Black	28G21091
Fan Wiring Harness	10M10151
Condensing unit	01D10029
Condensate Pan Heater	28H12043
Honeycomb White	13A15169
Honeycomb Black	13A15170

NOTE: Standard parts are provided in the parts lists. Cases may be equipped with specialty parts that were incorporated into the case(s) at the time they were manufactured. It is important to have the case serial number when contacting Kysor/Warren for replacement parts.

NOTE: Standard parts are listed. Individual cases may have options different than listed and the serial number for these cases is required when ordering parts.

Warranty

IN THE CONSTANT EFFORT TO IMPROVE OUR PRODUCTS, WE RESERVE THE RIGHT TO CHANGE AT ANY TIME SPECIFICATIONS, DESIGN, OR PRICES WITHOUT INCURRING OBLIGATION.

One-Year Warranty:

KYSOR/WARREN warrants to the original purchaser this new equipment and all parts thereof, to be free from defects in material and workmanship under normal use and service. If any part or parts of the equipment should prove defective during the period of one year from installation date (not to exceed one year and thirty days from the date of original shipment from the factory), KYSOR/WARREN hereby guarantees to replace or repair, without charge (F.O.B. Columbus, Georgia), such part or parts as proven defective, and which KYSOR/WARREN'S examination disclosed to its satisfaction to be thus defective, with a new or functionally operative part. The liability of KYSOR/WARREN under this warranty shall be limited to claims made by the original purchaser to KYSOR/WARREN or its local distributor within the warranty period.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS, AND ALL OTHER OBLIGATIONS OR LIABILITIES OF KYSOR/WARREN.

GLAZING:

Glass is not guaranteed against breakage. If this refrigerator is equipped with a glazing assembly carrying the manufacturer's brand name (Thermopane, Twindow, etc.), the manufacturer's glazing warranty in effect at the time of this shipment is extended to that assembly. It is void outside the continental United States.

BULBS:

Light bulbs and fluorescent lamp tubes are not covered by any warranty for length of life or for any type of breakage.

THIS WARRANTY SHALL NOT APPLY:

1. To the condensing case used with refrigerated equipment unless it was sold and shipped by KYSOR/WARREN.
2. When this equipment or any part thereof is damaged by fire, flood, act of God, or when the original model and serial number plate has been altered, defaced, or removed.
3. When this equipment or any part thereof is subject to accident, alteration, abuse, misuse, tampering, operation on low or improper voltages, or is put to a use other than recommended by KYSOR/WARREN.
4. When this equipment or any part thereof is damaged, or when operation is impaired, due to failure to follow installation manual (improper installation is the responsibility of the installer).
5. Outside the continental United States, Canada and Mexico.
6. To labor cost for replacement of parts, or for freight or shipping expenses.
7. To freight or shipping charges or to customs duties to any country.
8. If the Warranty holder fails to comply with all the provisions, terms and conditions of this Warranty.

Parts replaced under this Warranty are warranted only through the remainder of the original Warranty. KYSOR// WARREN may, at its option and in its discretion, elect to honor this Warranty and to disregard the original purchaser's non-compliance with any of the provisions, terms and conditions of the Warranty.

THIS WARRANTY DOES NOT COVER CONSEQUENTIAL DAMAGES.
KYSOR/WARREN shall not be liable under any circumstances for any consequential damages, including loss of profits, additional labor costs, loss of refrigerant or food products, or injury to person or property caused by defective material or parts or for any delay in the performance of this Warranty due to causes beyond its control. The foregoing shall constitute the sole and exclusive remedy of any purchase and the sole and exclusive liability of KYSOR//WARREN in connection with this product.

Parts Warranty Policy

The following procedures are in accordance with Kysor//Warren's standard one-year warranty, which covers any part to be free of defects under normal use and service for one year from the date of installation. Not to exceed one year and thirty days from the date of original shipment from the factory.

New Equipment Parts Shortages and Defects

Any parts shortages or damage must be reported to Kysor//Warren no more than 10 working days from the date of delivery. After this time has expired Kysor//Warren will assume the parts were lost during installation and all parts required will be charged cost plus shipping to replace.

Parts Ordering Procedure

All parts must be ordered through the Kysor//Warren parts department with the following information:

- Store Name and Number
- Location
- Case or Case Model and Serial Number
- Firm or Contractor Placing Order
- Shipping Address
- Parts Description
- Reason for Defect

If the order is for a replacement part still in warranty a Purchase Order Number will be required from the contractor placing the order. We will then issue a Return Material Authorization Tag (RMA) that will be sent to the firm or contractor who has ordered the part.

Return Authorization Procedure

Warranty parts must be returned postage prepaid to Kysor/Warren within 30 days from
replacement part ship date and must be accompanied by a RMA in order to ensure the proper credit. The RMA should also be written on the outside of the box. Any parts not returned within 30 days will be invoiced to the firm or contractor who has placed the order.

IN THE CONSTANT EFFORT TO IMPROVE OUR PRODUCTS, WE RESERVE THE RIGHT TO CHANGE AT ANYTIME SPECIFICATIONS, DESIGN, OR PRICES WITHOUT INCURRING OBLIGATION.

KYSOR/WARREN
5201 Transport Boulevard
Columbus, Georgia 31907
706-568-1514