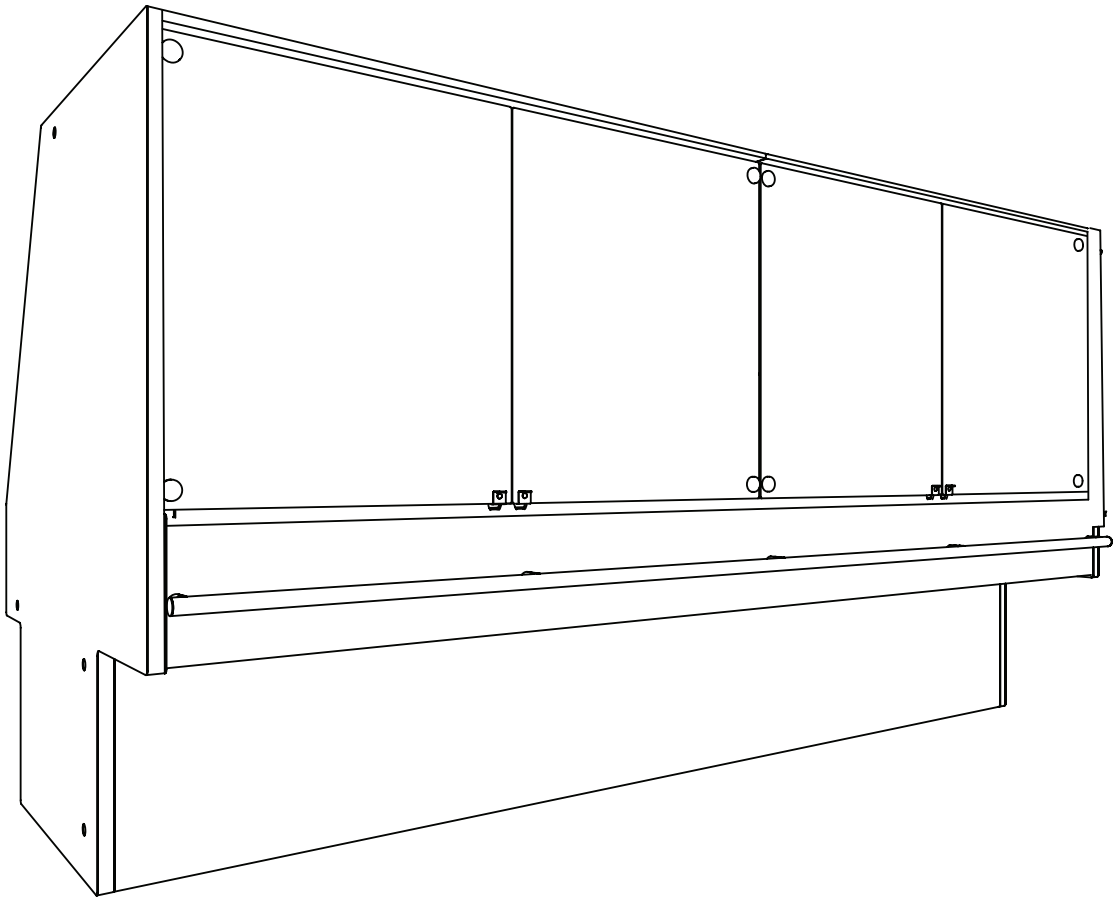


Q3 MEAT VERTICAL MERCHANDISER

USER MANUAL

Q3 - Q3-MV 4'/ Straight Vertical Case

Remote

Table of Contents

DOE 2012
Energy Efficiency Compliant

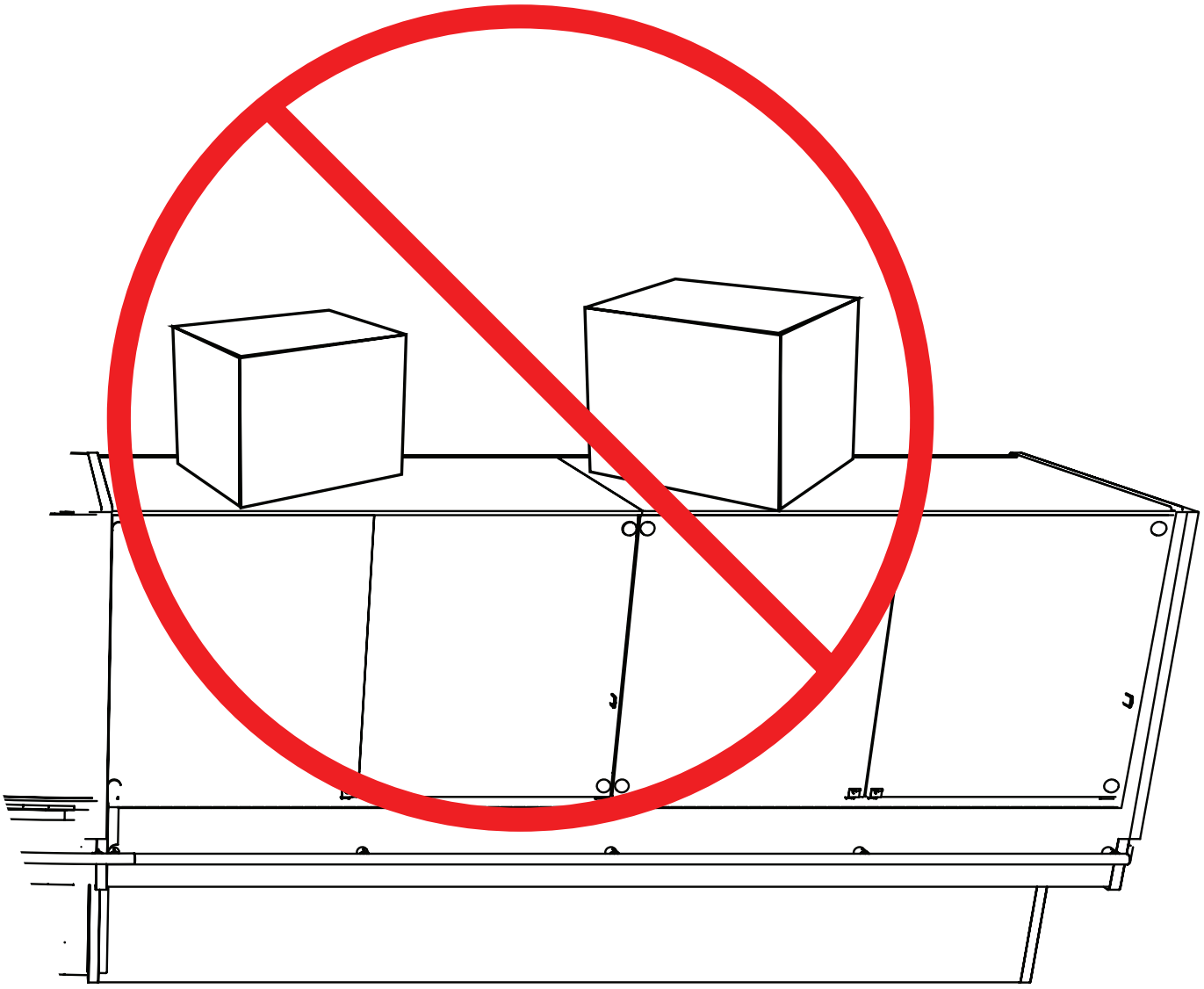
Hussmann refrigerated merchandisers configured for sale for use in the United States meet or surpass the requirements of the DOE 2012 energy efficiency standards.

Notice

WARNING

1. DO NOT load or stand over top of case. Glass breakage may occur if precauions are disregarded.

*Broken glass can cause lacerations, cuts, and puncture wounds which may result in severed arteries or tendons, amputations, eye injuries, or exposure to disease.



General Information

Case Description:

Description: Refrigerated Vertical Meat Merchandiser

Shipping Damage: All equipment should be thoroughly examined for shipping damage before and during unloading. This equipment has been carefully inspected at our factory and the carrier has assumed responsibility for safe arrival. If damaged, either apparent or concealed, claim must be made to the carrier Immediately.

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. The carrier will supply necessary claim forms.

Concealed Loss or Damage: When loss or damage is not apparent until after all equipment is uncrated, a claim for concealed damage is made. Make request in writing to carrier for inspection within 15 days, and retain all packaging. The carrier will supply inspection report and required claim forms.

Shortages: Check your shipment for any possible shortages of material. If a shortage should exist and is found to be the responsibility of Hussmann Chino, notify Hussmann Chino. If such a shortage involves the carrier, notify the carrier immediately, and request an inspection. Hussmann Chino will acknowledge shortages within ten days from receipt of equipment.

Hussmann Chino Product Control: The serial number and shipping date of all equipment has been 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, in order to provide the customer with the correct parts.

Location/Store Conditions: The Q3-MV refrigerated merchandiser has been designed for use only in air conditioned stores where temperature and humidity are maintained at 80°F and 55% relative humidity or 75°F and 55% relative humidity. DO NOT allow air conditioning, electric fans, ovens, open doors or windows (etc.) to create air currents around the merchandiser, as this will impair its correct operation.

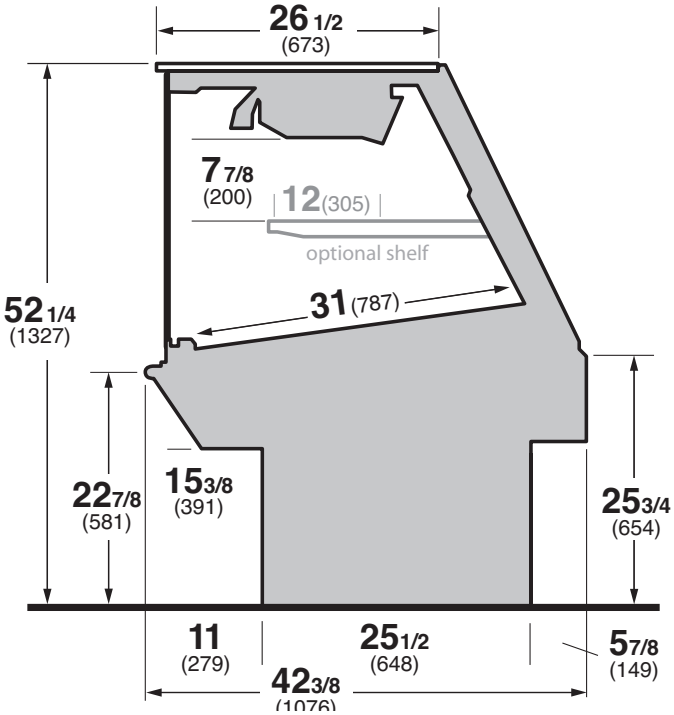
Keep this booklet with the case at all times for future reference.

HUSSMANN®/CHINO
A publication of HUSSMANN® Chino
13770 Ramona Avenue • Chino, California 91710
(909) 628-8942 FAX
(909) 590-4910
(800) 592-2060

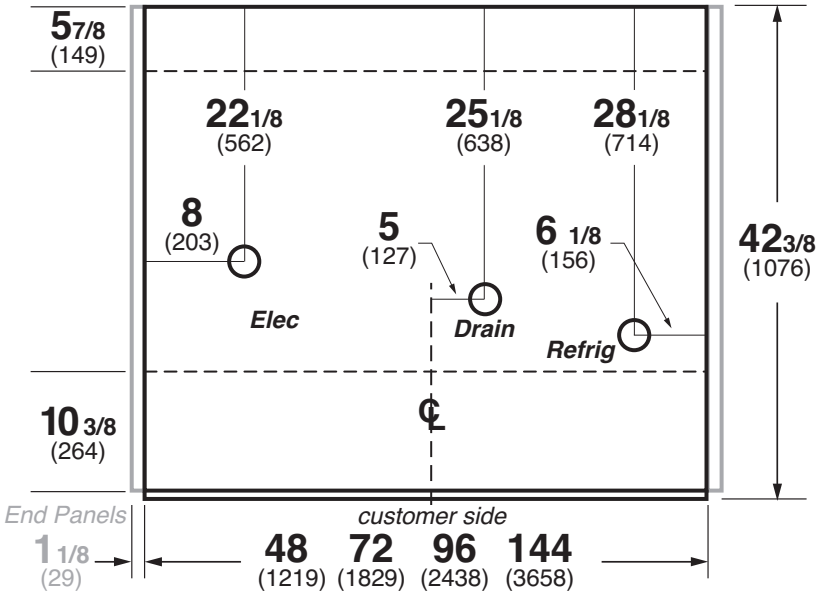
This equipment is to be installed to comply with the applicable NEC, Federal, State, and Local Plumbing and Construction Code having jurisdiction.

Case Sections

Q3-M/FV-EP Multi-Deck Vertical Glass Service Meat Case



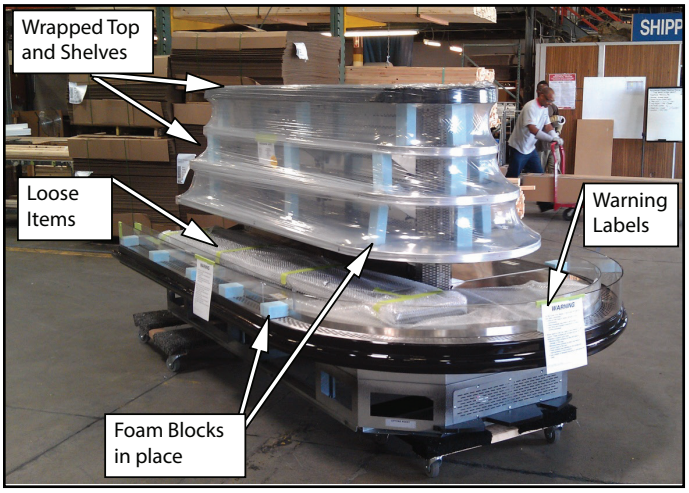
Q3-M/FV-EP



Installation

NOTICE

Do NOT remove Foam Blocks from shelves and glass until the merchandisers are positioned for installation. Shelves or merchandising glass may be damaged.



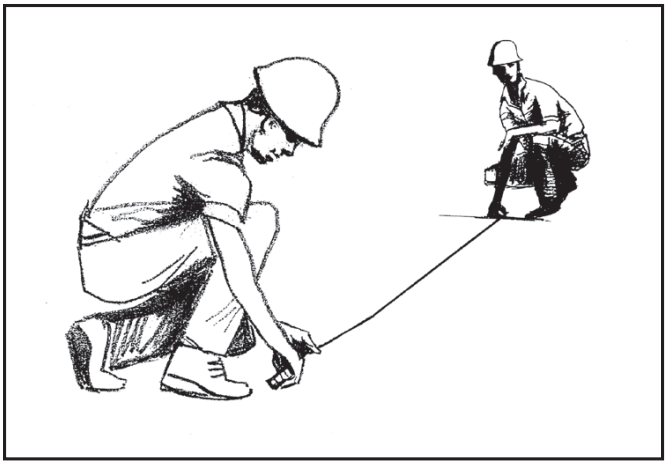
Case is to arrive at store as was shipped form factory. See reference above for proper shipment referencing. (Not actual case)

Receiving Case

Upon receiving your new Hussmann Case 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/ or claim form. If there is 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.

Snapping Chalk Lines

Prepare permanent positioning by marking floors with Chalk snap lines where cases are to be located. Chalk lines are to run along the base or legs of cases.

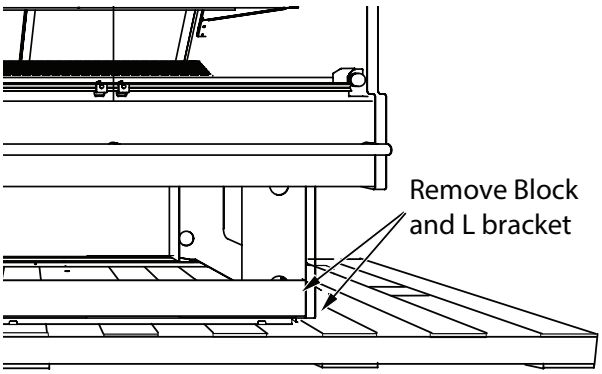


Installation (cont'd)

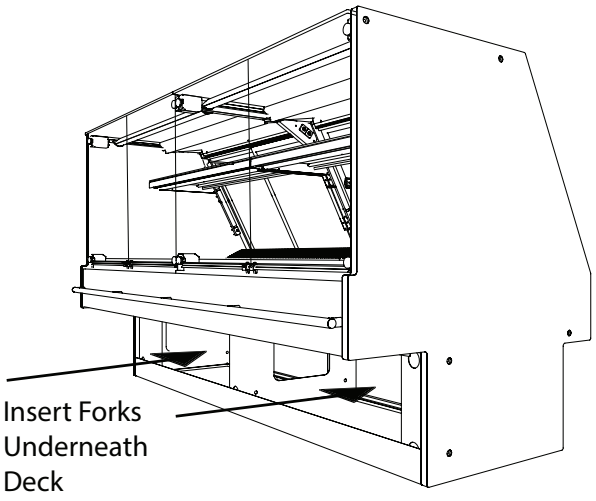
Placement

Important: See lifting instructions to properly lift case when being placed on dollies or permanent location. (See page 8 for Lifting Instructions.)

First remove Blocks and L Brackets around the case from pallet.

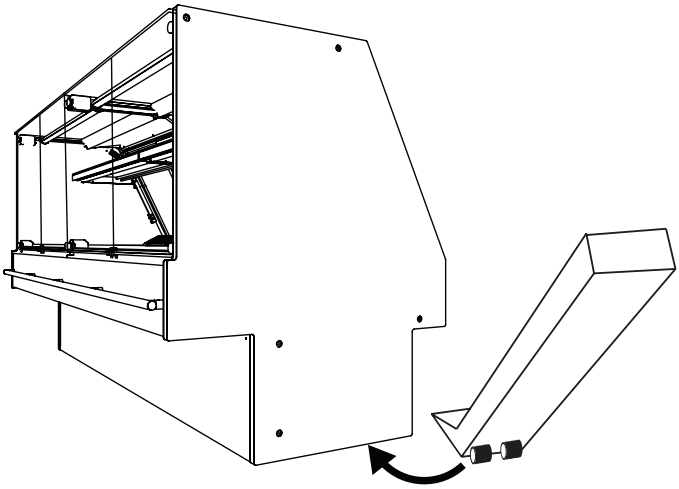


Proceed by setting forklifts under specified locations as instructed in the Lifting Instructions (pg. 8.) Be careful not to damage drains or near components when placing forks underneath case. A spotter is mandatory to ensure no damage is caused to the case. Lift case and replace with dollies, place near or in permanent location.

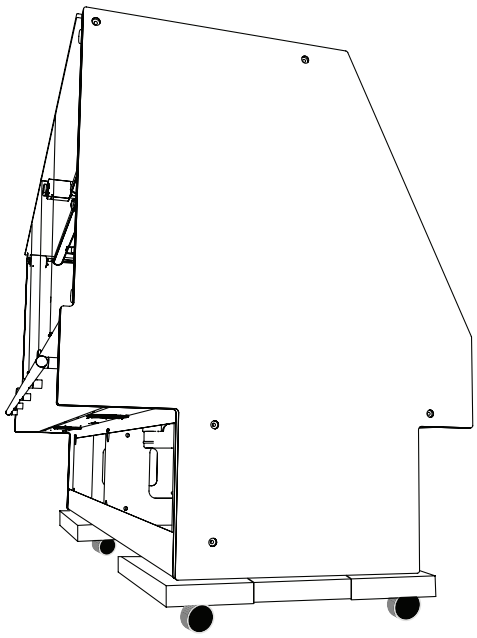


Move the fixture as close as possible to its permanent location and then remove all packaging and preparing to remove off Skid. Remove all separately packed accessories such as kits, and panels. Check for damage before discarding packaging.

In the case a fork lift truck is not available follow the demonstration below to properly lift case using a Johnson Bar (J-Bar) to place on dollies to traffic from start point to placement area.

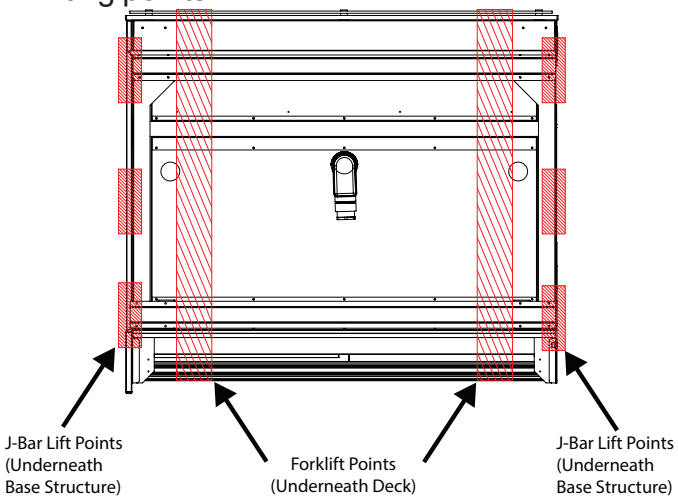


Place J-Bar underneath base of merchandiser to gain leverage, once lifted place Dollie underneath first end and slowly lower onto dollie ensuring merchandiser is placed on stable location. Proceed to opposite end and repeat.



Q3-MV Lifting and Transport Instructions

1. The Q3-MV can be lifted by a forklift at typical lifting points.



⚠WARNING

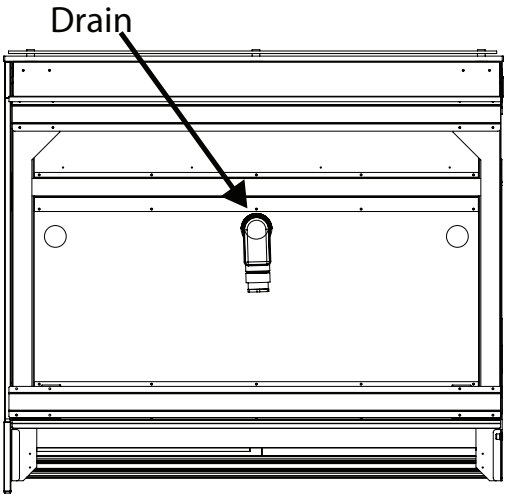
Improper placement of forks may damage drainage piping. Use a spotter when placing forks. Make sure that piping will not be damaged. Use J-Bars or Jacks if forks cannot be used safely

2. Ensure lower body panels are removed before lifting with a forklift. Serious damage will occur if the body panels are not removed.
3. Make sure that fork spacing and width will not damage drain or come in contact with piping, or electrical lines
4. Be sure that the forks are long enough to support beyond the center of the case but not damage near components. Check for proper balance before moving. A minimum fork length of 36" is recommended for 68" wide cases
5. The Q3-MV merchandiser can be raised at one end underneath the deck with a forklift to allow the placement of rollers or dollies.
6. Evenly support the entire base structure on rollers or dollies before attempting to move. Each Base Leg must have its own dollie to properly support the case.

Lifting Points are typical and dependent upon size of case and refrigeration application, drainage configurations will call for altercations in Lifting Zones.

Below are the following drainage configurations and lifting should be altered to the expected model.

Q3 MV Drain Location

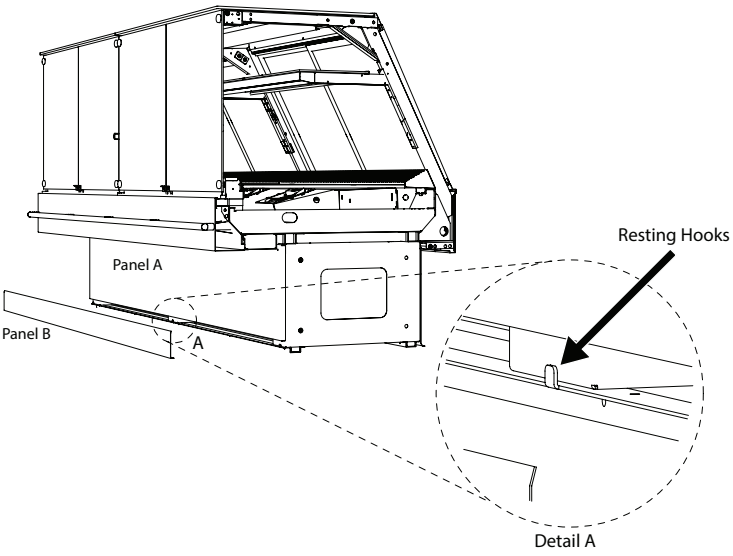


Installation (cont'd)

Front Body Panel Install

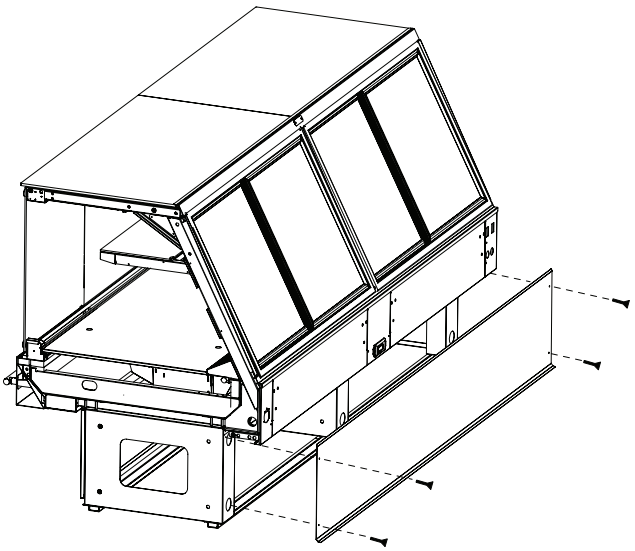
A Phillips Screw Driver/Bit will be needed to install body panels.

To begin Bottom panel assembly place panel A along side the base of the case and lower panel on to support hooks along the bottom of the base (See illustration below for details).



Fasten Rear Body Panel Install

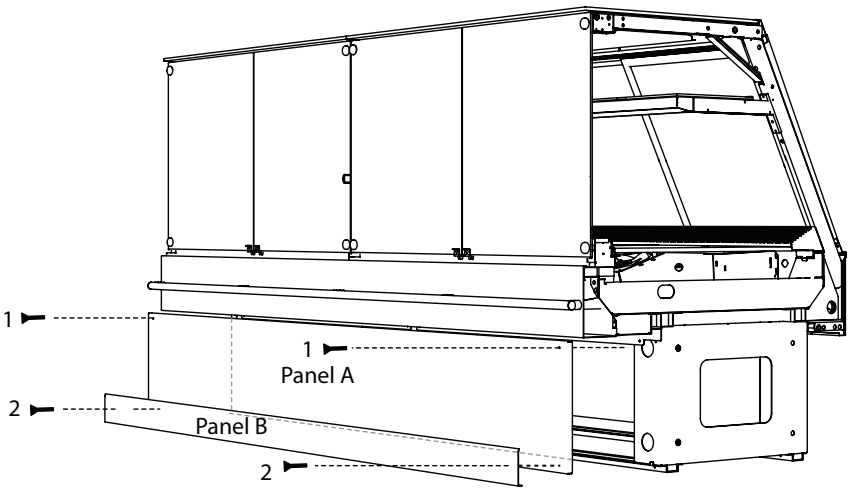
(1) Align pre drilled holes to base of case
(2) Secure top and bottom of rear panel using fasteners as shown below.



Allow front and rear body panels to slide down resting on support hooks. 2.Place L Bracket along the underside of deck to hold body panel top in place against base wall of case.

Fasten Front Body Panel Install

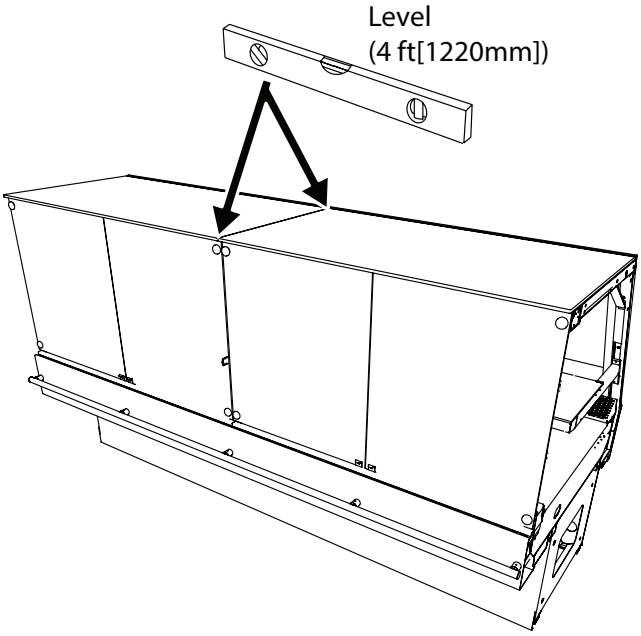
(1) Secure Panel A with top fasteners only.
(2) Overlay Panel B to bottom of Panel A as shown in illustration below
*Note Panel B will be attached freely with no pre drilled holes.



Installation (cont'd)

Leveler Adjustment

Position the case at the highest point. Set a long magnetized level (4ft [1220 mm] or more) on either underneath the deck or on top of the case. Ensure to level case from front to back and side to side.



Note: To avoid removing concrete flooring, begin line up levelling from the Highest point of the store floor.

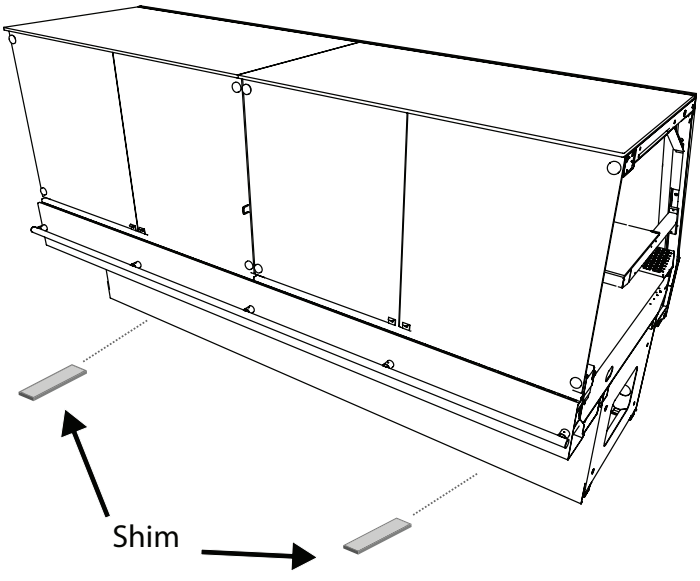
NOTICE

Longer length cases may require shims along the center portion of the case to maintain proper case performance and drainage.

Shim The Case

Use shims at each corner of the case to level out any discrepancies in order to optimize case performance and proper drainage.

Note: Shims are not Factory supplied. Contractor should carry available components. Metal Shims are recommended for use to eliminate any deterioration from shims over time.



Parts List

CHK	ITEM	PART #	QTY	KEY	PANEL USE?
☐	TRIM A	1H63905002	1	A	NO
☐	TRIM B	143394-2B	1	B	NO
☐ ☐	TRIM C	1H97637004 (STAINLESS) 1H97637007 (EXT COLOR)	1	C	NO
☐ ☐	TRIM D	1H97784004 (STAINLESS) 1H97784007 (EXT COLOR)	1	D	NO
☐ ☐ ☐	TRIM E	2H00636004 (STR TO STR) 1H99616004 (WDG TO WDG) 1H99617004 & 1H99618004 (STRAIGHT TO WEDGE)	1	E	NO
☐	TRIM F	2H00637004	1	F	NO
☐	TRIM G	2H00135004	1	G	NO
☐ ☐	TRIM H	2H00649004 (STAINLESS) 2H00649005 (BLACK)	1	H	NO
☐	WASHER , 5/16"	300-03-1315	5	J	NO
☐	BOLT, 3/8 - 16 X 1	300-03-0845	5	K	NO
☐	SPACER, NYLON, 5/8OD X 1/4	2H04205800	1	L	NO
☐	ALIGNMENT PIN	0376408	2	M	NO
☐	ALIGNMENT TAB, PLEX	070778-PLX	1	N	NO
☐	SHIM	375-01-3004-B	20	p	YES
☐	GASKET SEAL TAPE	225-01-0628	10 FT	Q	NO
☐	SEALANT, BUTYL, TUBE	100-01-0121	1	R	NO
☐ ☐ ☐	SEALANT, SILICONE, TUBE	100-01-0051 (CLEAR) 100-01-0063 (SILVER) 100-01-0065 (BLACK)	1	-	YES
☐	SCREW, SELF TAP #8 X 1/2	300-03-0037	10	-	YES
☐	VHB DOUBLE-SIDED TAPE	175-01-0562	10 FT	-	NO
☐	COUPLING, 2" PVC	225-01-0090	1	-	YES
☐	NIPPLE, 2" PVC	225-01-0577	1	-	YES
☐	ADAPTER, 1-1/2" PVC	225-01-1429	1	-	YES
☐	DRAIN TRAP, PVC	225-01-1552	1	-	YES

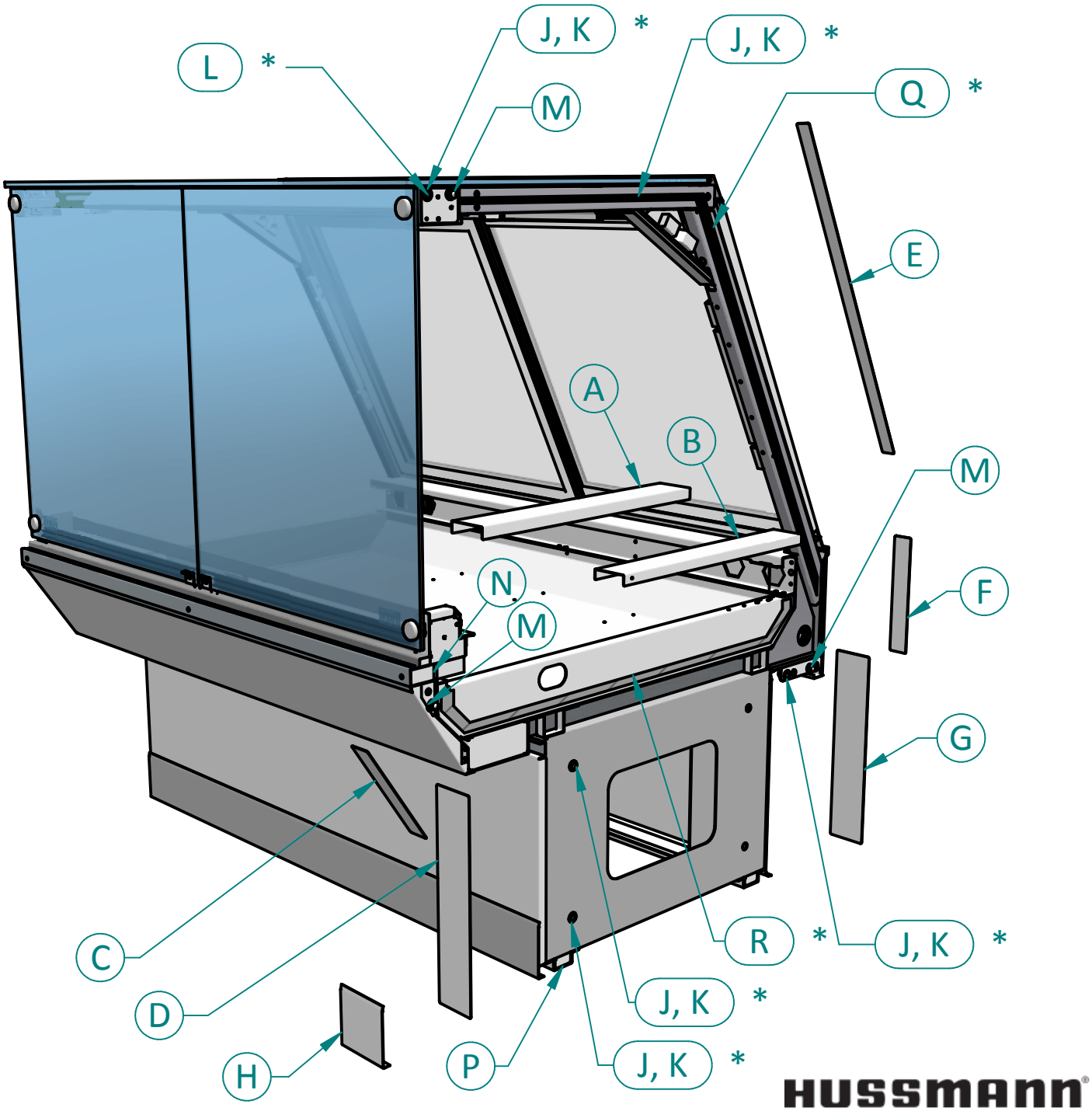
See page 12 for detailed illustration

SALES ORDER # _____

EXT COLOR _____

INT FINISH __SS__/__BLACK___

*SEE INSTALLATION GUIDE



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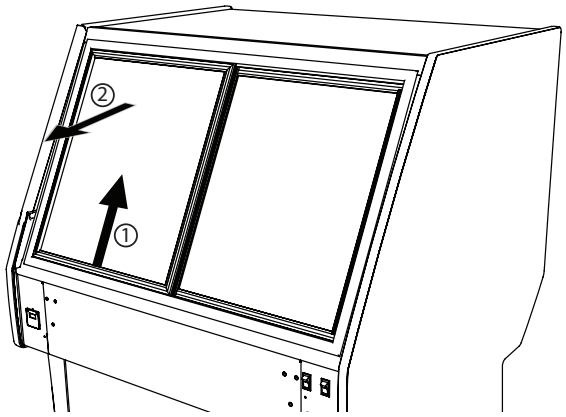
REV B 05/08/2015

Installation (cont'd)

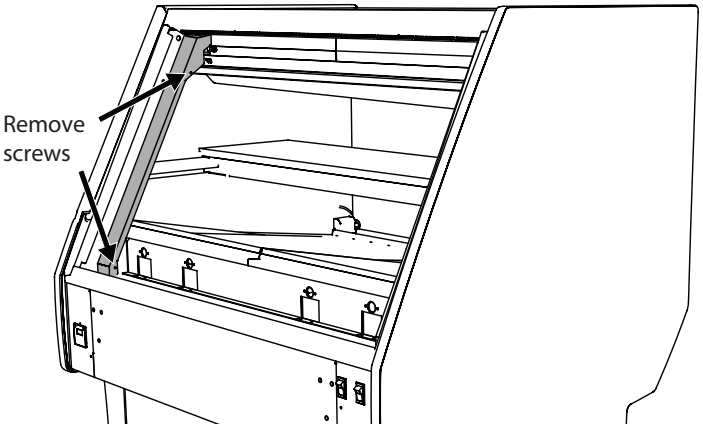
Q3-MV Arm/Glass Adjustment

Before any adjustments are made ensure that the case is completely level from front to back and left to right. A level case will ensure optimal alignments as well to like cases.

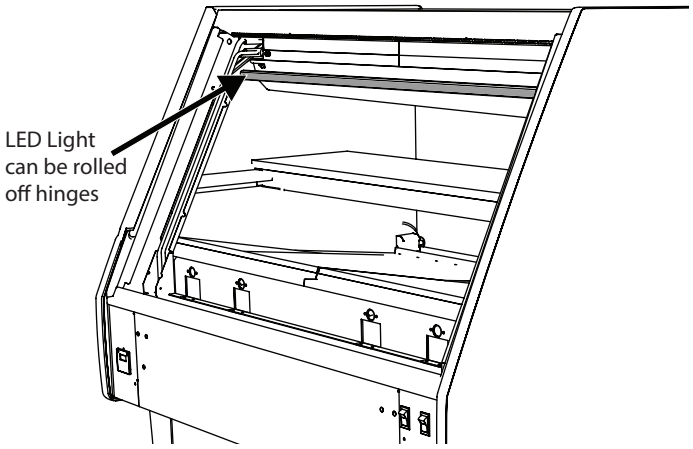
Begin the Arm Adjustment process by removing the rear doors from the frame. This can be done by lifting up and outward away from the rear door frame.



Once the door has been removed, unfasten the rear piping cover by removing the following 2 screws.

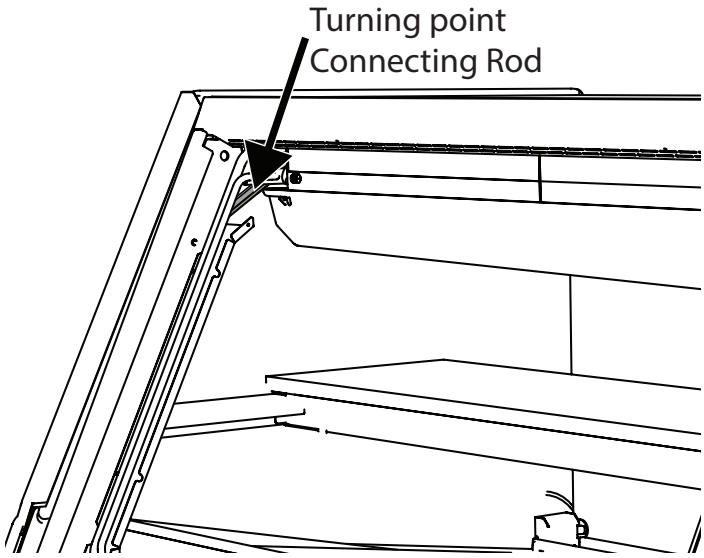


The LED light can now be removed to access the Turn Buckle.



Using a ½" open-ended wrench, turn the turn buckle connecting rod until the level placed above the canopy arms reaches its levelled point.

- Note that some turn buckles may be reversed thread. Test the turning direction by observing the effect of turn direction.
- Upon reaching Level turn the connection rods two full rotationin the direction which raises the canopy. This will PRELOAD the arms to compensate for the weighted product.

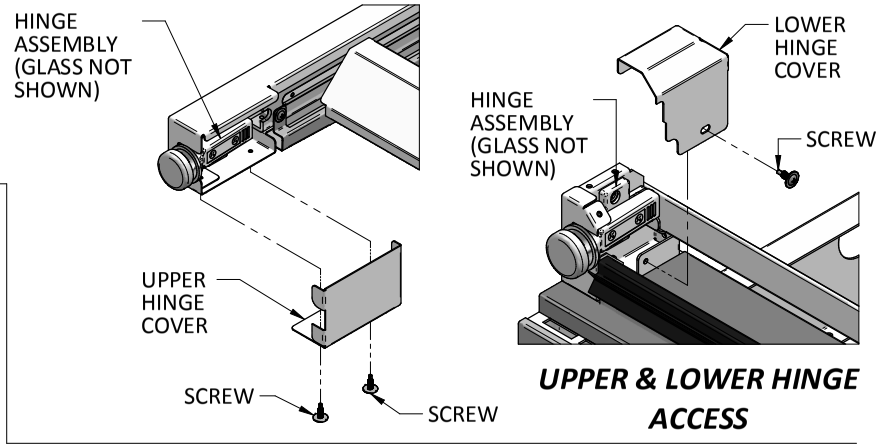


Q3-DV/MV HINGE ADJUSTMENT

STOP

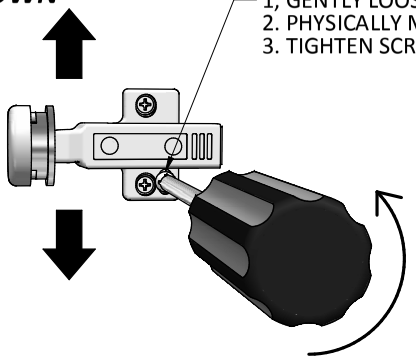
Before adjusting glass:

- **Set, Level, and Bolt together all cases**
- **Double-check leveling for all cases**

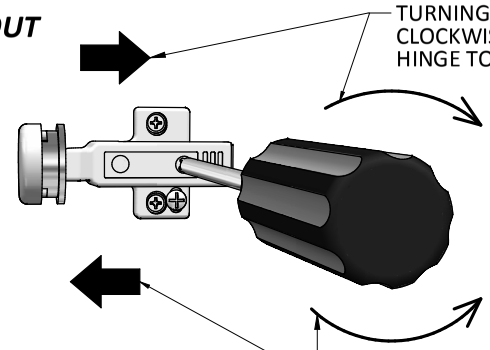


UPPER & LOWER HINGE ACCESS

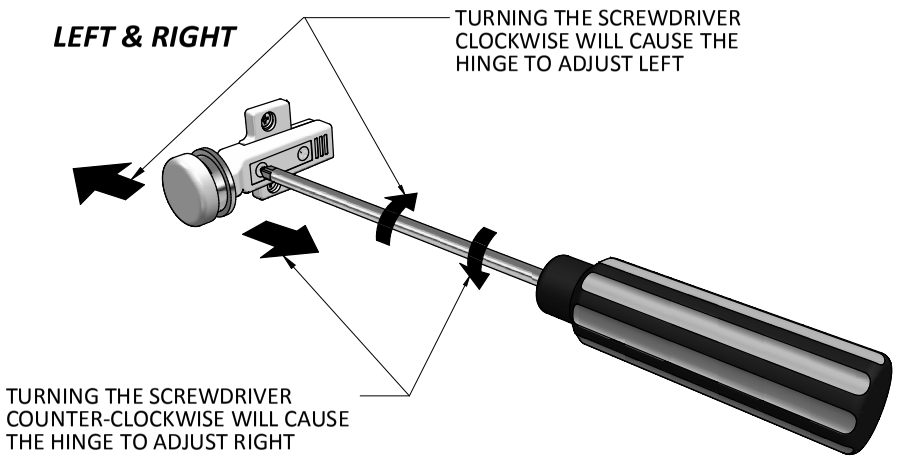
UP & DOWN



IN & OUT



LEFT & RIGHT



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Setting and Joining

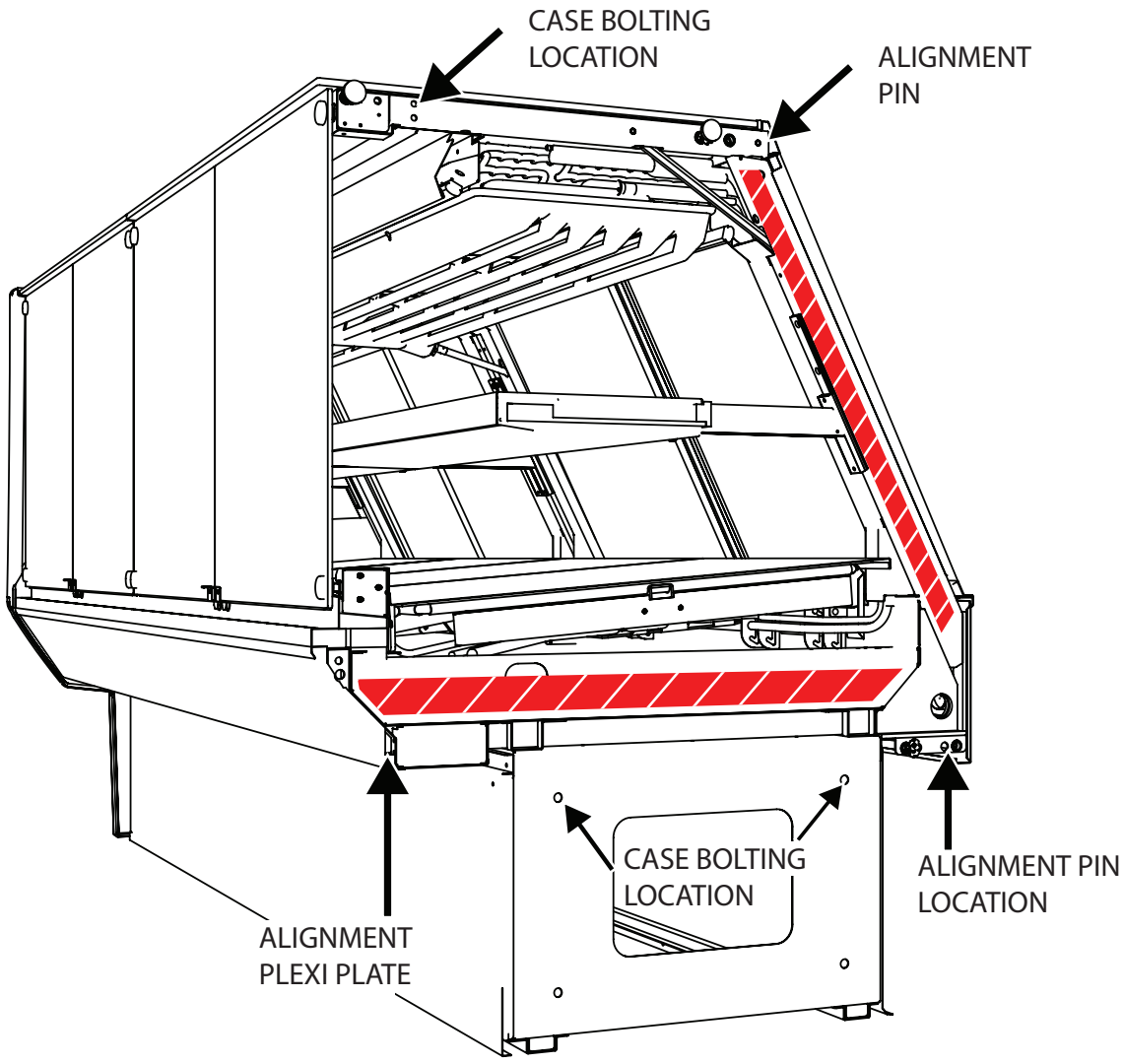
The sectional construction of these models enable them to be joined in line to give the effect of one continuous display.
An Alignment pin kit is supplied with every case and must be used in alignment.

Leveling

IMPORTANT! IT IS IMPERATIVE THAT CASES BE LEVELED FROM FRONT TO BACK AND SIDE TO SIDE PRIOR TO JOINING. A LEVEL CASE IS NECESSARY TO INSURE PROPER OPERATION, WATER DRAINAGE, GLASS ALIGNMENT AND OPERATION OF THE HINGES SUPPORTING THE GLASS. LEVELING THE CASE CORRECTLY WILL SOLVE MOST HINGE OPERATION PROBLEMS.

1. Using case blueprints, measure off and mark on the floor the exact dimensions of where the cases will sit. Snap chalk line for front and back positions of base rail or pedestal. Mark the location of each joint front and back. Find the highest point throughout the lineup. FLOORS ARE NORMALLY NOT LEVEL! Determine the highest point of the floor; cases will be set off this point. All cases in the entire lineup must be brought up to the highest level of the case sitting at the highest point in the lineup.

2. Set first case over the highest part of the floor and adjust base so that case is level by using shims.



Installation (cont'd)

3. Set second case within one foot (1') of the first case. Keep the supports along the length of the case and far end of case. Level case to the first using the instructions in step one.

4. Apply liberal bead of case joint sealant (butyl) to first case. Sealant area is shown using a dotted line in illustration. Apply heavy amount to cover entire shaded area.

5. Apply liberal bead of case joint sealant (butyl) to first case. Sealant area is shown using a striped line in illustration in page 14. Apply heavy amount to cover entire shaded area.

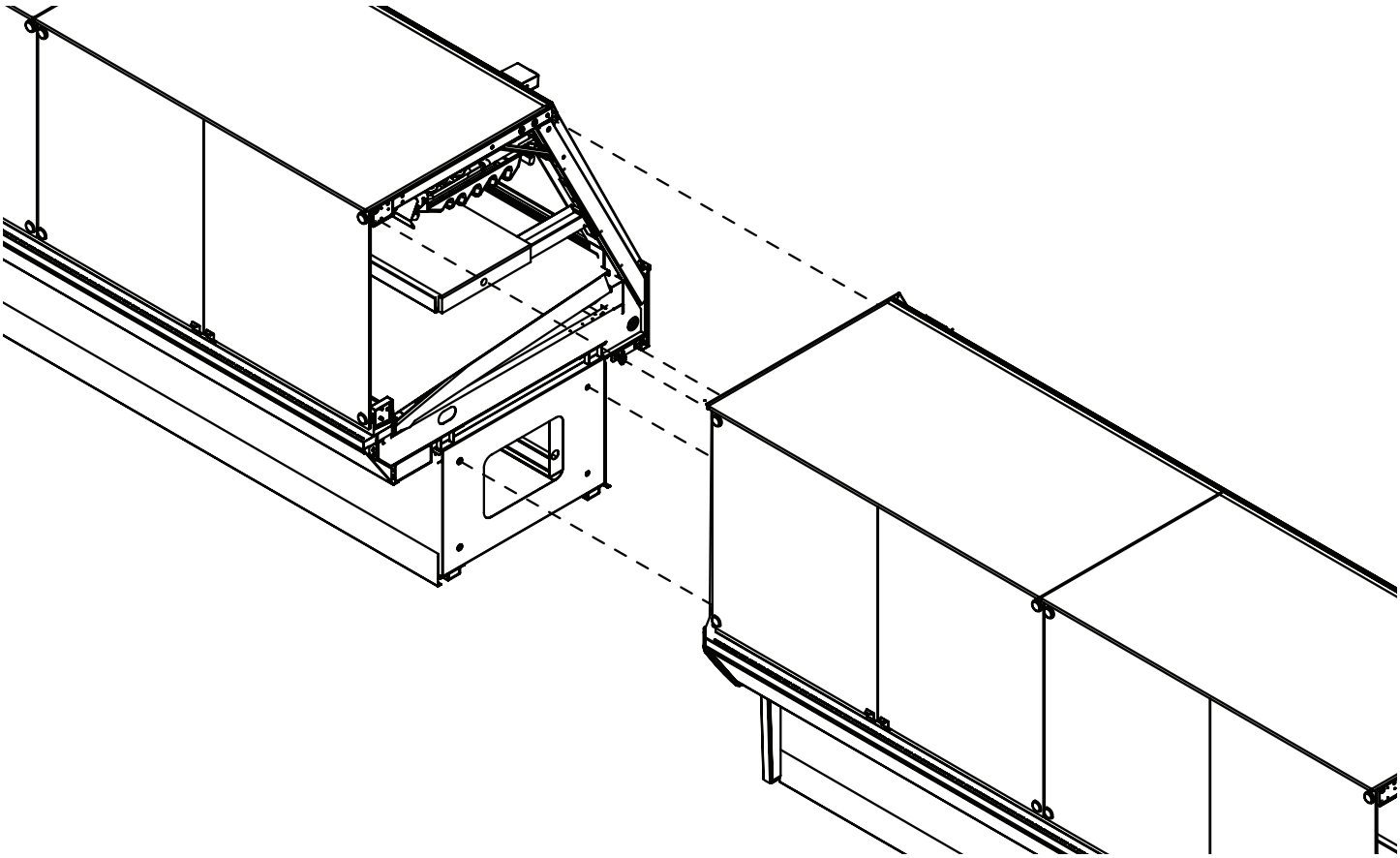
6. Slide second case up to first case snugly. Then level second case to the first case so glass front, bumper and top are flush.

ATTENTION INSTALLER

It is the contractor's responsibility to install case(s) according to local construction and health codes.

CAUTION

Do not use bolts to pull cases together.

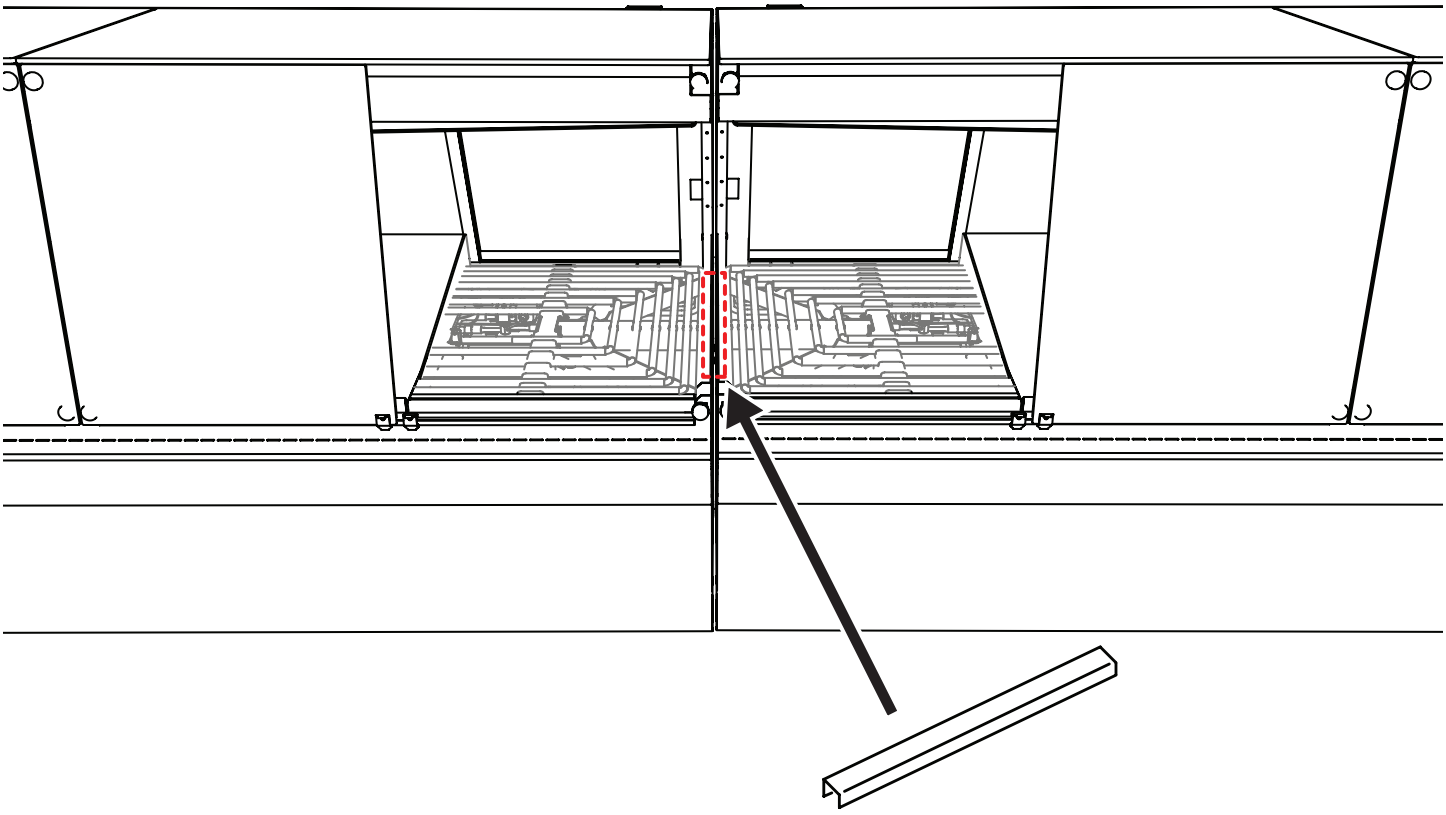


Installation (cont'd)

7. To compress butyl at joint, use two Jurgenson wood clamps. Make sure case is level from front to back and side to side on inside bulkheads at joint.

8. Attach sections together via the bolts pictured in the illustration below.

9. Apply bead of butyl to top of bulk heads and slip on stainless steel bulkhead cap under the refrigeration piping as pictured below . Also apply silicone to seam between joints.

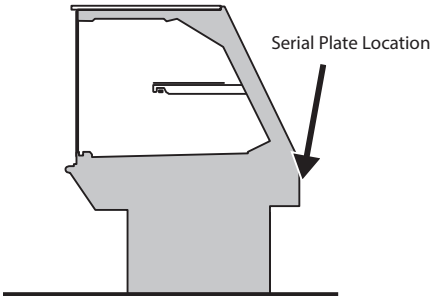


BULK HEAD JOINT CAP

Refrigeration

Refrigerant

The correct type of refrigerant will be stamped on each merchandiser's serial plate. The case refrigeration piping is pressurized with a nitrogen holding charge, leak tested and factory sealed. Before making refrigeration hookups, depress universal line valve (Shraeder Valve) to ensure that coils have maintained pressure during shipment. In the case pressure was not maintained contact your Hussmann Service Tech for further assistance.



⚠CAUTION

Refrigeration lines are under pressure. Refrigerant must be recovered before attempting to make any connections.

Refrigerant piping

The refrigerant line connections are at the right hand end of the case (as viewed from the front) beneath the display pans. The merchandiser will beforehand ensure an earlier cut hole through the pod to exit the merchandiser for the refrigeration lines. After connections have been made, make certain to seal this outlet thoroughly if not sealed at factory already. Seal both the inside and outside. We recommend using an expanding polyurethane foam insulation.

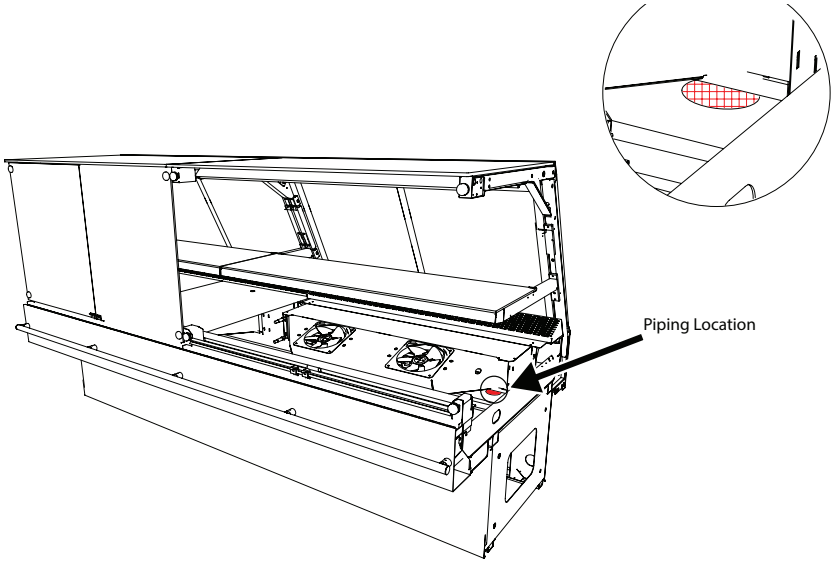
Line Sizing

Refrigerant should be sized as shown on the refrigeration legend that is furnished for the store or according to the ASHRAE guidelines

Oil Traps

P-traps (oil traps) must be installed at the base of all suction line vertical risers.

It is the contractor's responsibility to install case(s) according to local construction and health codes.



Refrigeration Spec Sheets

MEAT /FISH SERVICE CASE

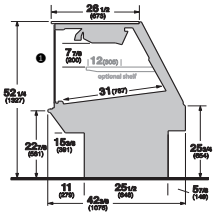
HUSSMANN - Q3-MV /FV -EP (CHINO)

DOE 2012 Energy Efficiency Compliant

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

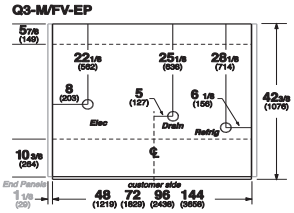
Q3-MV / FV-EP
MULTI-DECK VERTICAL GLASS
SERVICE MEAT / FISH CASE

Q3-M/FV-EP Multi-Deck Vertical Glass Service Meat Case

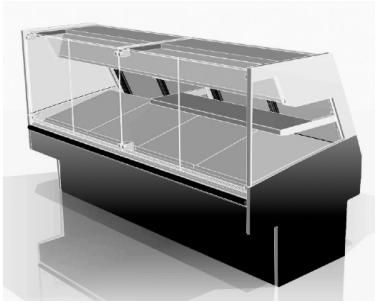


SECTION

Q3-M/FV-EP



PLAN



REFRIGERATION DATA:

CASE LENGTH	CASE USAGE	CAPACITY (BTU / HR) TOTAL			TEMPERATURE (ºF) EVAPORATOR			UNIT SIZING*			DISCHARGE AIR			VELOCITY	EST. REFG. CHRG.	GLYCOL REQUIREMENTS	
		PAR (NO-Shelf)	PAR (Shelf)	CONV	PAR (NO-Shelf)	PAR (Shelf)	CONV	PAR (NO-Shelf)	PAR (Shelf)	CONV	PAR (NO-Shelf)	PAR (Shelf)	CONV	(FT / MIN)	(LBS)	GPM	PSI
4'	MEAT / FISH	1,100	1,500	NA	28	22	NA	26	20	NA	35	28	NA	50-75	N/A	N/A	N/A
6'	MEAT / FISH	1,650	2,250	NA	28	22	NA	26	20	NA	35	28	NA	50-75	N/A	N/A	N/A
8'	MEAT / FISH	2,200	3,000	NA	28	22	NA	26	20	NA	35	28	NA	50-75	N/A	N/A	N/A
12'	MEAT / FISH	3,300	4,500	NA	28	22	NA	26	20	NA	35	28	NA	50-75	N/A	N/A	N/A

*2º F less than evaporator for pressure loss in refrigerant lines

END PANEL WIDTH KEY

# OF END PNLS	END PNL WIDTH (IN.)	TOTAL ADDED LENGTH (IN.)
1	1 1/8"	1 1/8"
2	1 1/8"	2 1/4"

LEGEND

PAR-	PARALLEL (REMOTE)
CONV-	CONVENTIONAL (SELF-CONT)
NA -	NOT APPLICABLE
N/A -	NOT AVAILABLE
TBD -	TO BE DETERMINED
A/S -	AIRSWEEP
GCDA-	GRAVITY COIL DISCH AIR
DC-	DECK COIL

REFRIGERATION DATA CONTINUED:

CASE LENGTH	CASE USAGE	DIGITAL THERMOSTAT / SENSOR SETTINGS CONTROL SETTINGS			EPR SETTINGS†		
		LOCATION	CUT IN (ºF) ‡	CUT OUT (ºF)	R22 (PSIG)	R404A (PSIG)	R407A (PSIG)
4', 6', 8',12'	MEAT / FISH	GCDA - NO Shelf GCDA - Shelf	35 / 1 / 1 28 / 2 / 1	34 26	No-Shelf: 52	No-Shelf: 66	No-Shelf: 52
		DC - NO Shelf DC - Shelf	30 / 1 / 1 32 / 1 / 1	29 31	Shelf: 45	Shelf: 58	Shelf: 45

REFRIGERATION NOTES:

† UNDER LOAD WITH SUCTION STOP CONTROL *(SOLENOID VLV'S ENERGIZED, WITH LOC SPECIFIED DRIVING EVAP PRESSURE)*
‡ (SET POINT (ºF) / DIFFERENTIAL (ºF) / TIME DELAY (MIN)) T-STAT DIGITAL JC A419ABC-ICSETTINGS WITH BULB LOCATIONS AS GIVEN IN I/O MANUAL

ELECTRICAL DATA:

ENERGY EFF. FANS (120 / 1 Volt / Phase)

LIGHTING: LED WITH ELECTRONIC DRIVER 120V INPUT VOLTAGE

CASE LENGTH	# EVAP. FANS	# A / S FANS	TOTAL FANS		LED CANOPY LIGHTS (OPTIONAL)		LED SHELF LIGHTS (OPTIONAL)		LED REAR LIGHTS (OPTIONAL)		TOTAL LED LIGHTS	
	.29 AMPS EA	.15 AMPS EA	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
4'	NA	1	0.15	4.50	0.16	17.60	NA	NA	N/A	N/A	0.16	17.60
6'	NA	1	0.15	4.50	0.24	26.00	NA	NA	N/A	N/A	0.24	26.00
8'	NA	1	0.15	4.50	0.33	35.20	NA	NA	N/A	N/A	0.33	35.20
12'	NA	1	0.15	4.50	0.49	52.80	NA	NA	N/A	N/A	0.49	52.80

ELECTRICAL DATA CONTINUED:

CASE LENGTH	CONDENSING UNIT (208V / 1 PHASE)		DRAIN EVAP PAN (120V)		CONVENIENCE OUTLETS (Optional)		
	AMPS	WATTS	AMPS	WATTS	# OUTLETS	VOLTS	AMPS
4'	N/A	N/A	N/A	N/A	1	115	15.00
6'	N/A	N/A	N/A	N/A	1	115	15.00
8'	N/A	N/A	N/A	N/A	1	115	15.00
12'	N/A	N/A	N/A	N/A	1	115	15.00

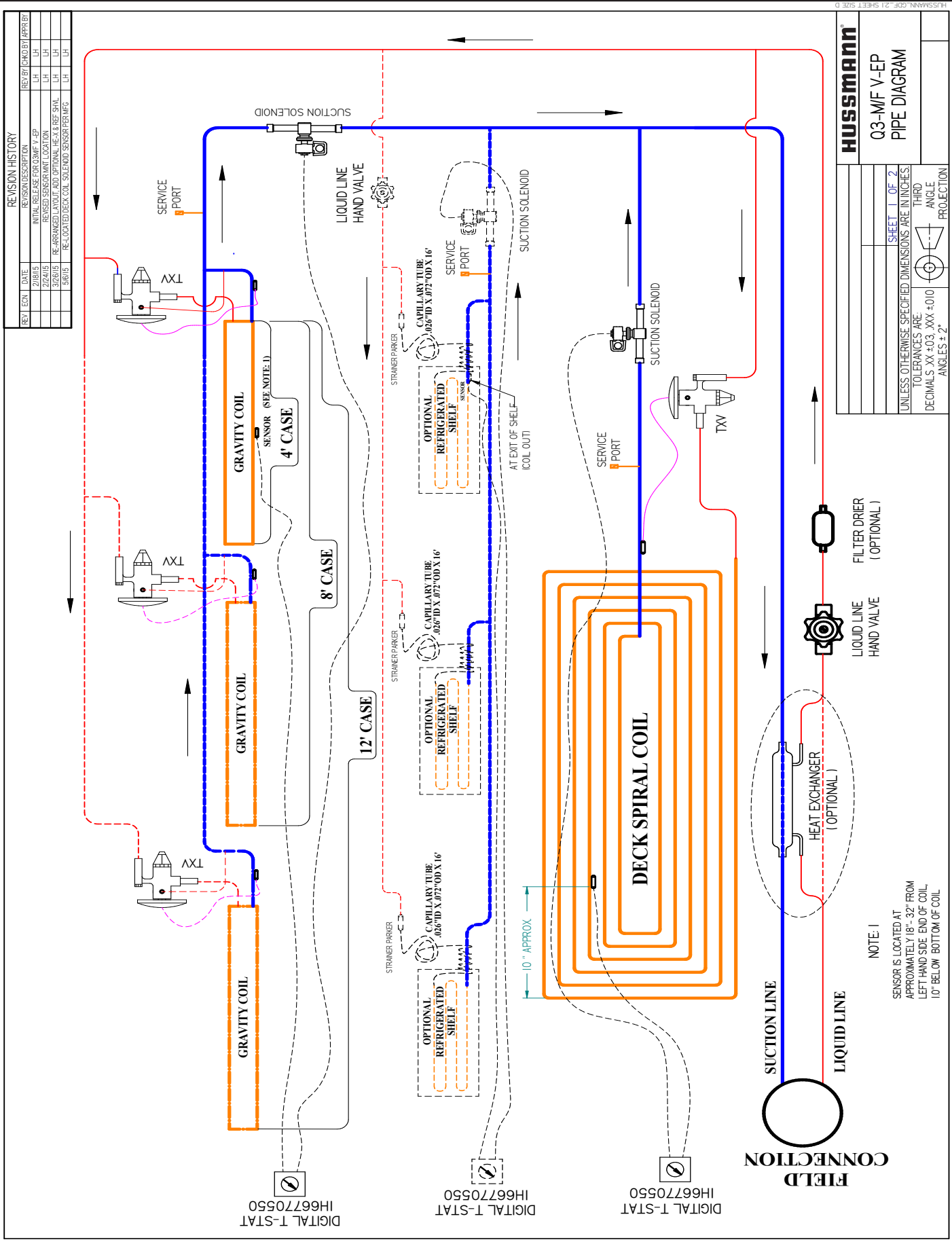
DEFROST DATA:

CASE LENGTH	DEFROST TYPE	TIME (MIN.)	TERM. TEMP. (ºF) COIL ONLY	DRIP TIME (MIN.)	DEFROST PER DAY		ELECTRICAL DEFROST 208V 1 / PHASE		DEFROST WATER (LB / DAY)	
					NO-SHELF	SHELF	AMPS	WATTS	NO-SHELF	SHELF
4'	OFF TIME	50	45	N/A	1	3	NA	NA	3.60	5.20
6'	OFF TIME	50	45	N/A	1	3	NA	NA	5.50	7.80
8'	OFF TIME	50	45	N/A	1	3	NA	NA	7.30	10.40
12'	OFF TIME	50	45	N/A	1	3	NA	NA	10.90	15.60

OPTIONS/NOTES:

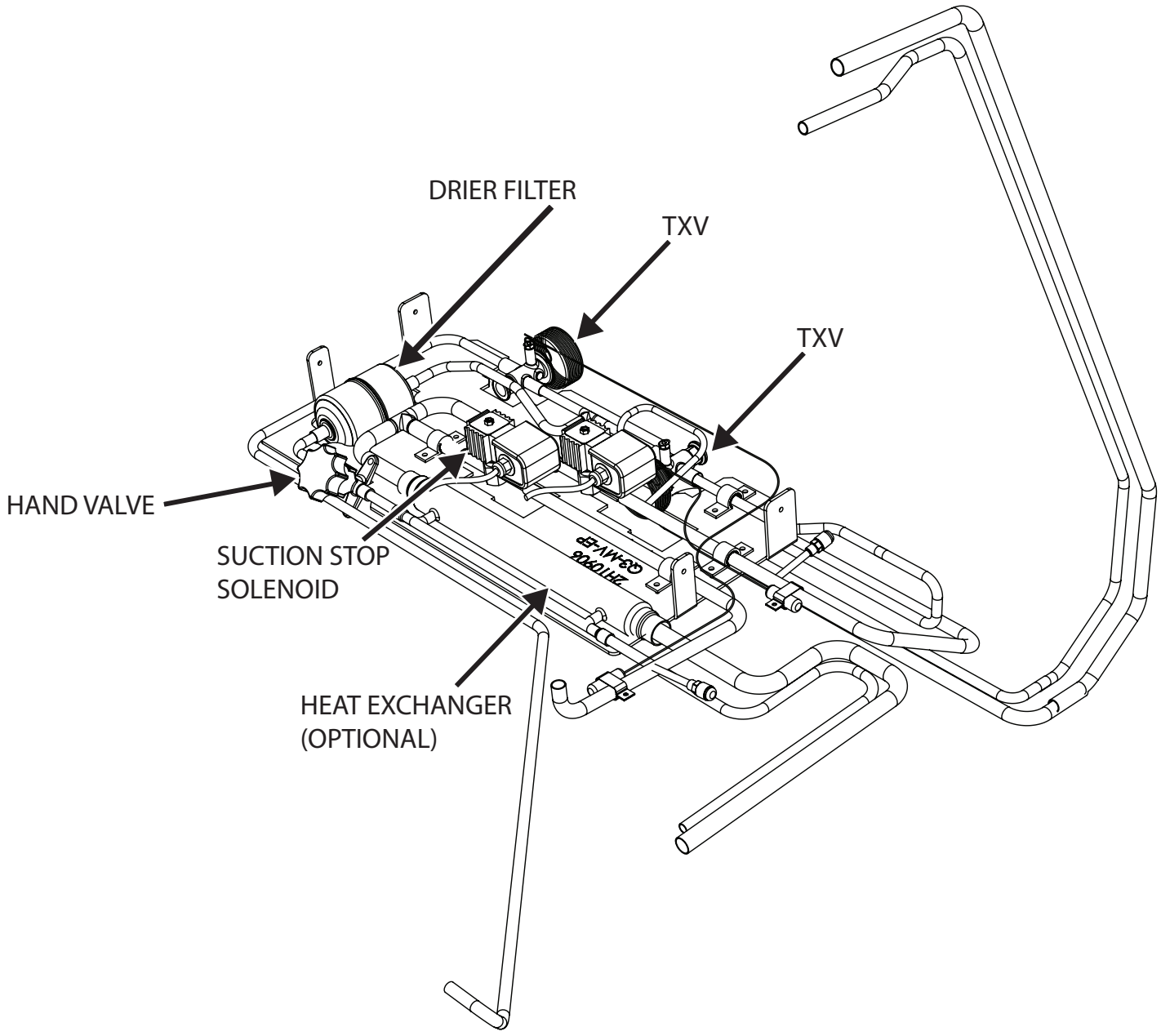
1. GFCI receptacles are optional and supplied with the case when ordered

Refrigeration (cont'd)

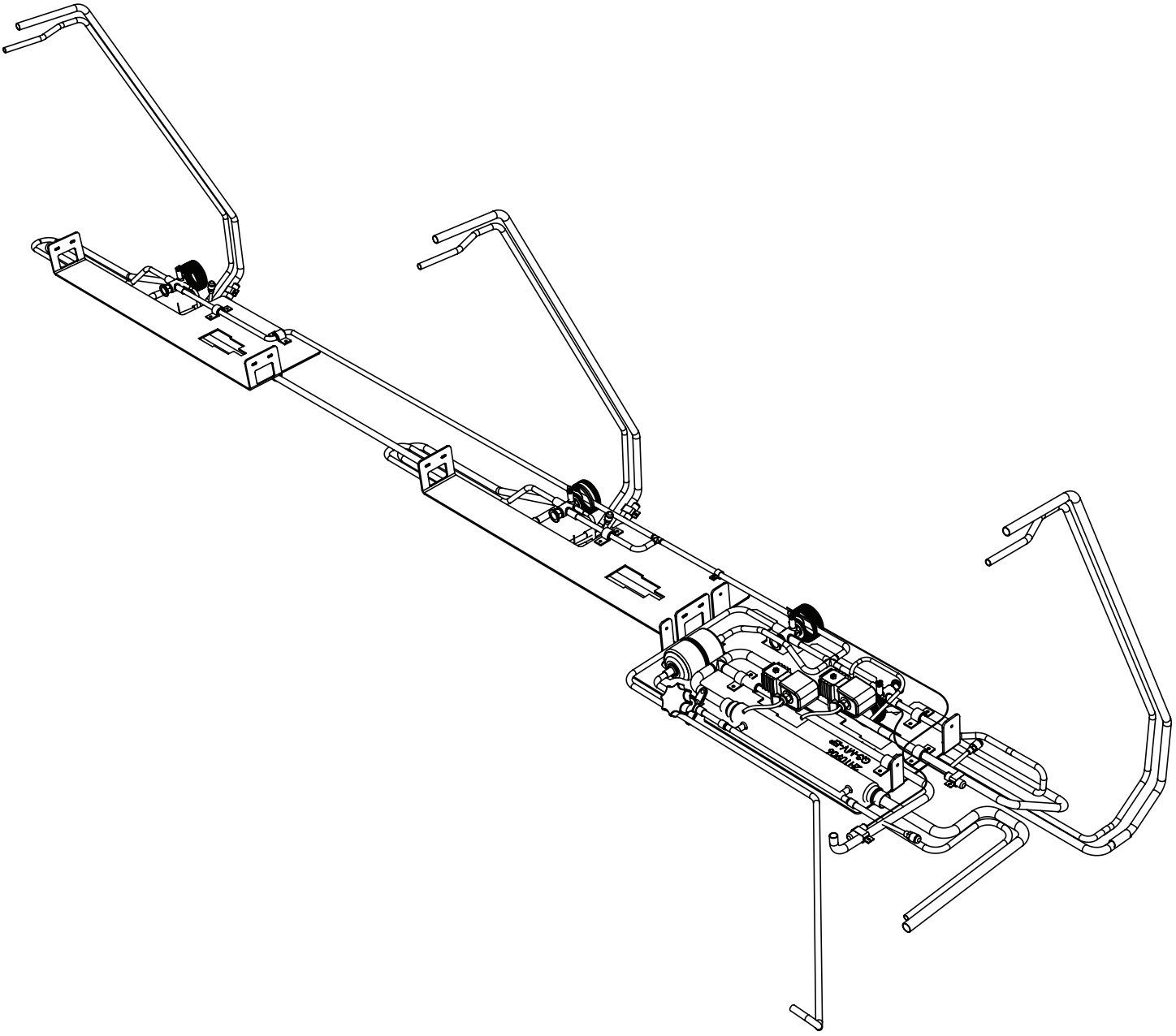


Refrigeration (cont'd)

See demonstrations below for detailed overview of the Q3-MV Piping schematic.

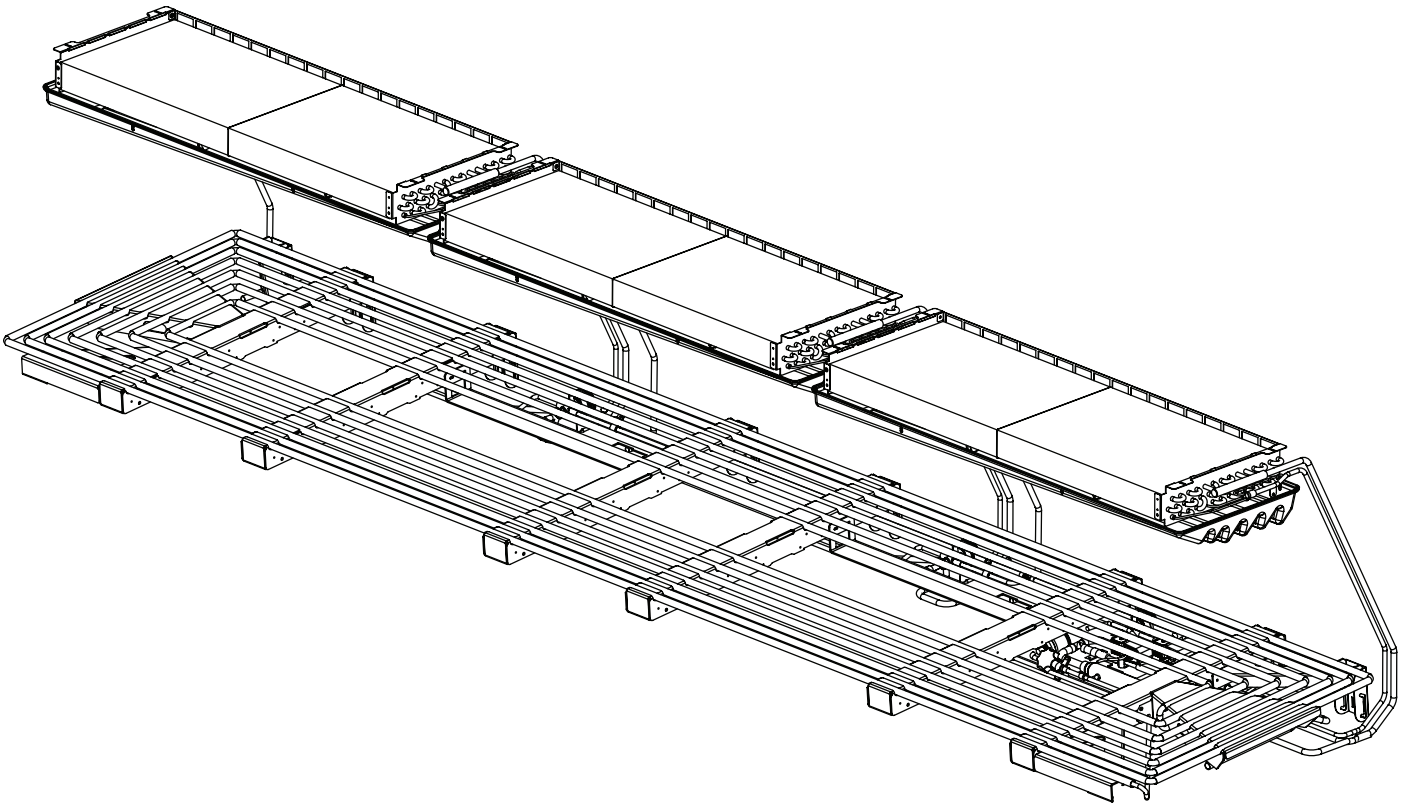


Refrigeration (cont'd)



Refrigeration (cont'd)

Piping schematic w/serpentine coils and Gravity Coil



Electrical

Merchandiser Electrical Data

Technical data sheets are shipped with this manual. The data sheets provide merchandiser electrical data. Refer to the technical data sheets and merchandiser serial plate for electrical information.

Electrical Connections

All wiring must be in compliance with NEC and local codes. All electrical connections including both supply circuits are to be made in the electrical J-Box.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES

Field Wiring

Field wiring must be sized for component amperes stamped on the serial plate (refer to pg 16 for location). Actual ampere draw may be less than specified.

Identification of Wiring

Leads for all electrical circuits are identified by colored plastic bands. These bands correspond to the color code sticker (shown below) located inside the merchandiser's wireway cover.

⚠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.

WIRING COLOR CODE

Leads for all electrical circuits are identified by a colored plastic band: neutral wire for each circuit has either white insulation or a white plastic sleeve in addition to the color band.

Pink.....Refrig, Thermostat Low Temp
Light Blue..Refrig, Thermostat Norm Temp
Dark Blue..Defrost Term, Thermostat
Purple.....Condensate Heaters
Brown.....Fan Motors
Green*.....Ground

Orange OR
Tan.....Lights
Maroon..... Receptacles
Yellow..... Defrost Heaters 120V
Red.....Defrost Heaters 208V

*Either Colored Sleeve or Colored Insulation

ELECTRICIAN NOTE: Use proper conductor wire only.
MERCHANDISER MUST BE GROUNDED

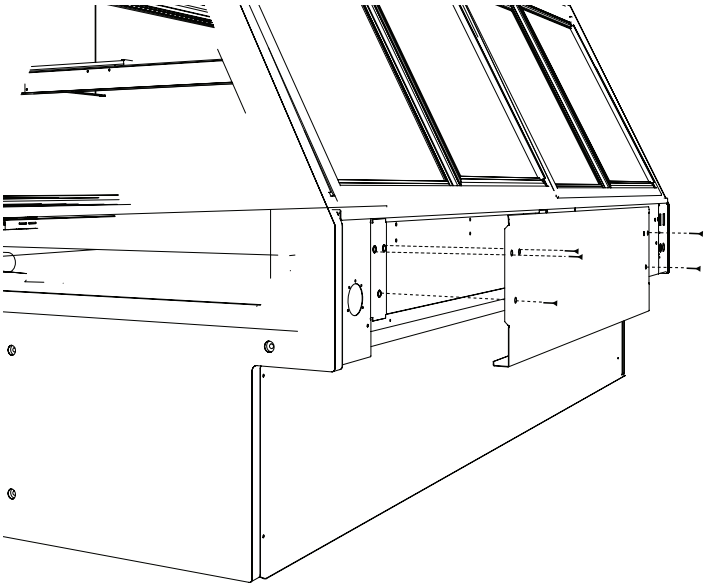
These are marker colors, wire may vary.

Electrical Cont'd

Remove Rear Raceway

The Merchandisers Electrical access is located at the rear of the case. Fasteners must be removed in order to gain access. See illustration below.

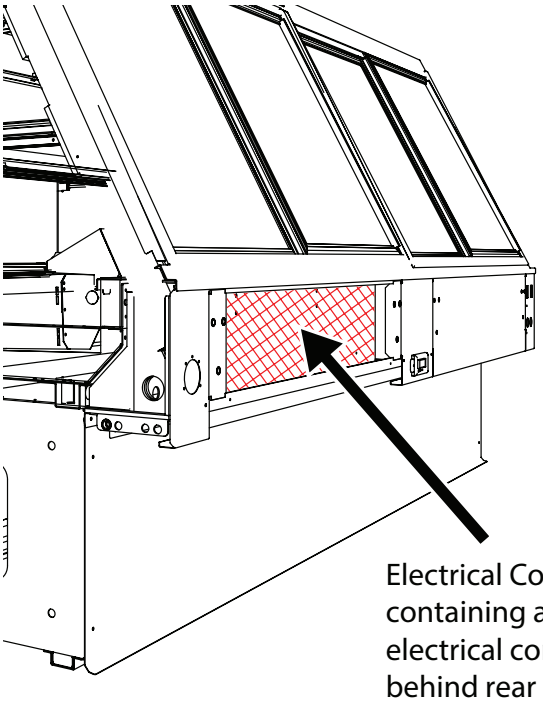
Remove Rear Raceway from rear of case.



Electrical Conduit (Electrical Box)

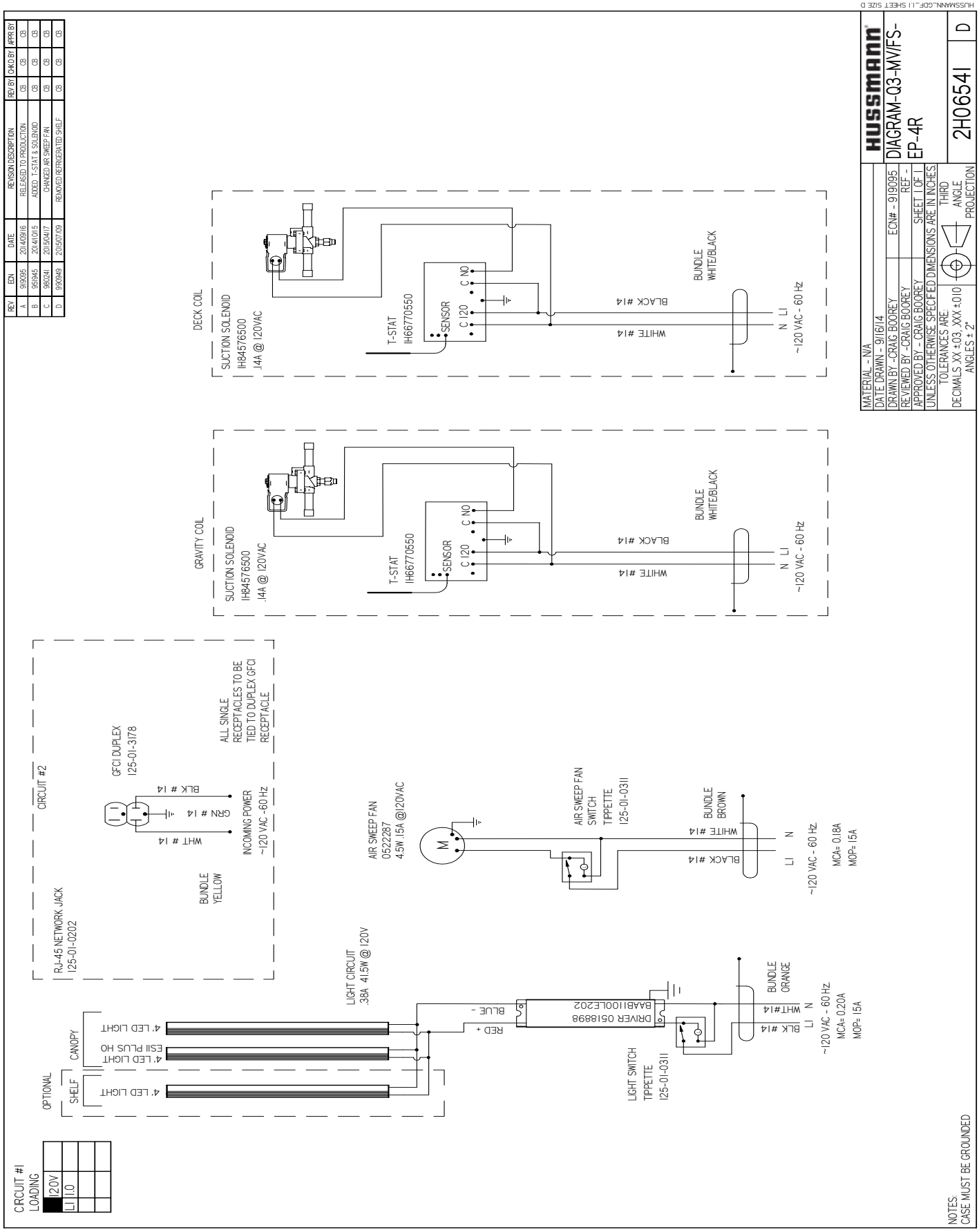
The Merchandisers Electrical conduit can be found inside the compartmentat the rear. Removing the raceway will gain access to the electrical components inside the J-Box allowing any maintenance necessary.

Electrical Conduit

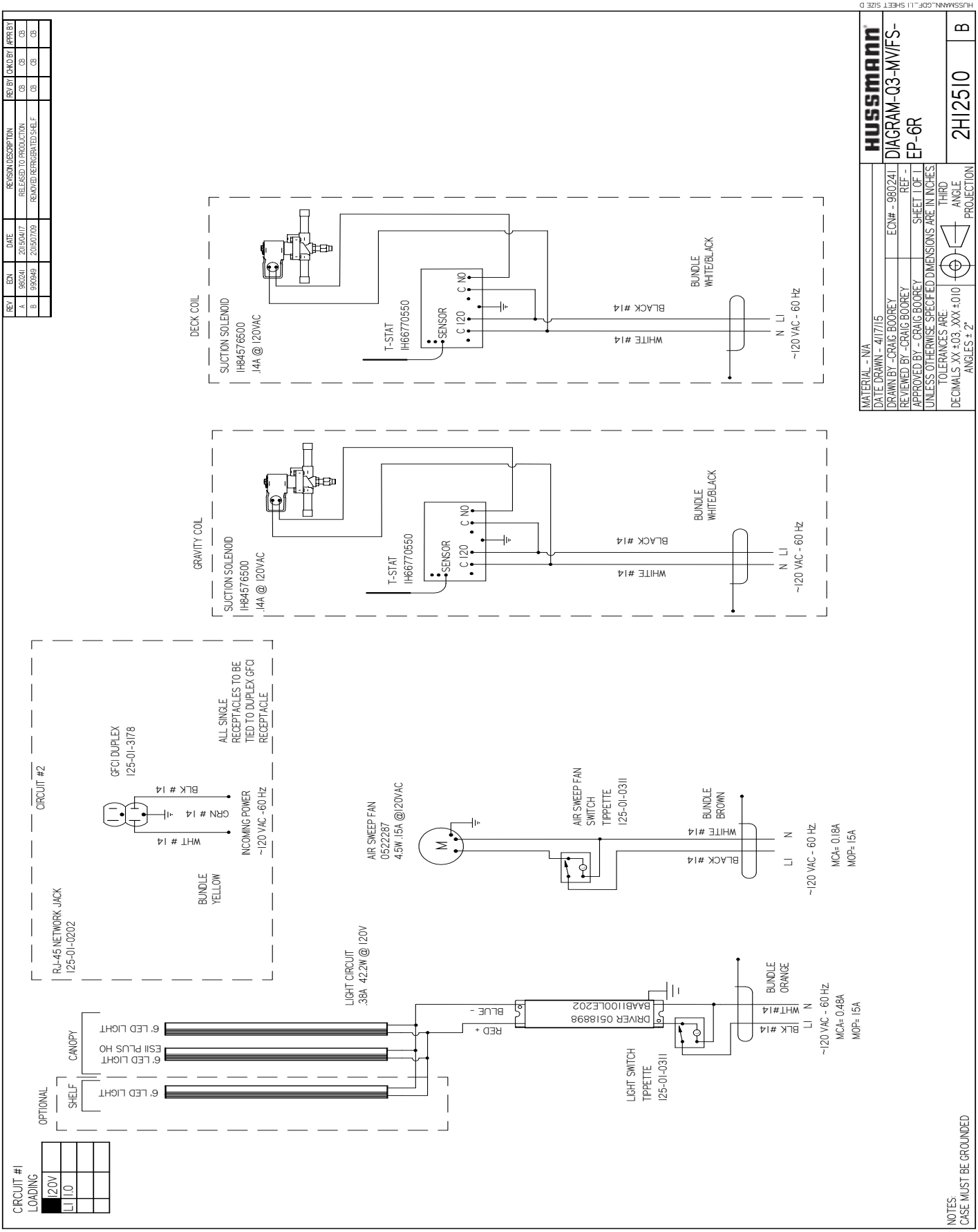


Electrical Conduit containing all necessary electrical components behind rear raceway cover

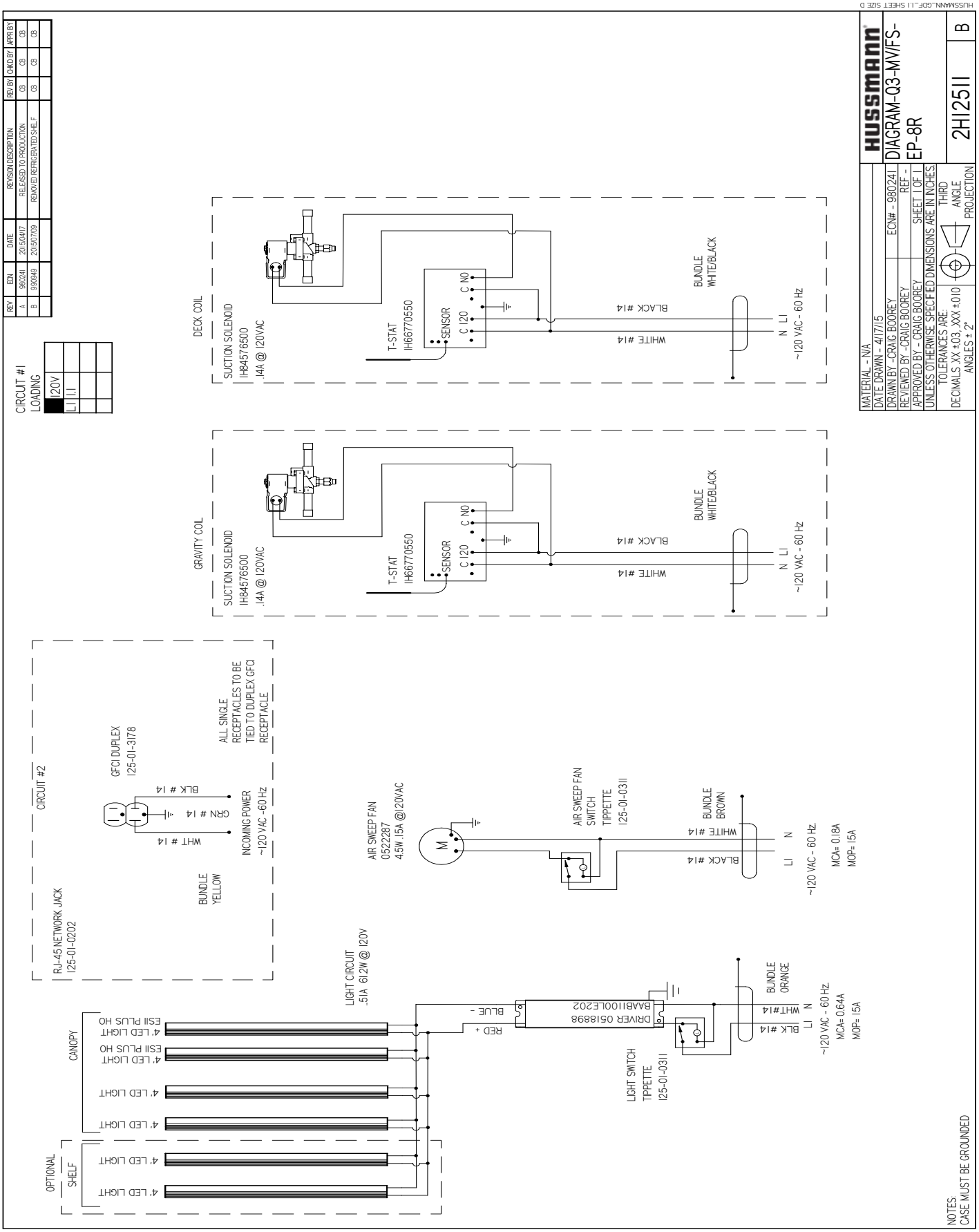
Wiring Diagram



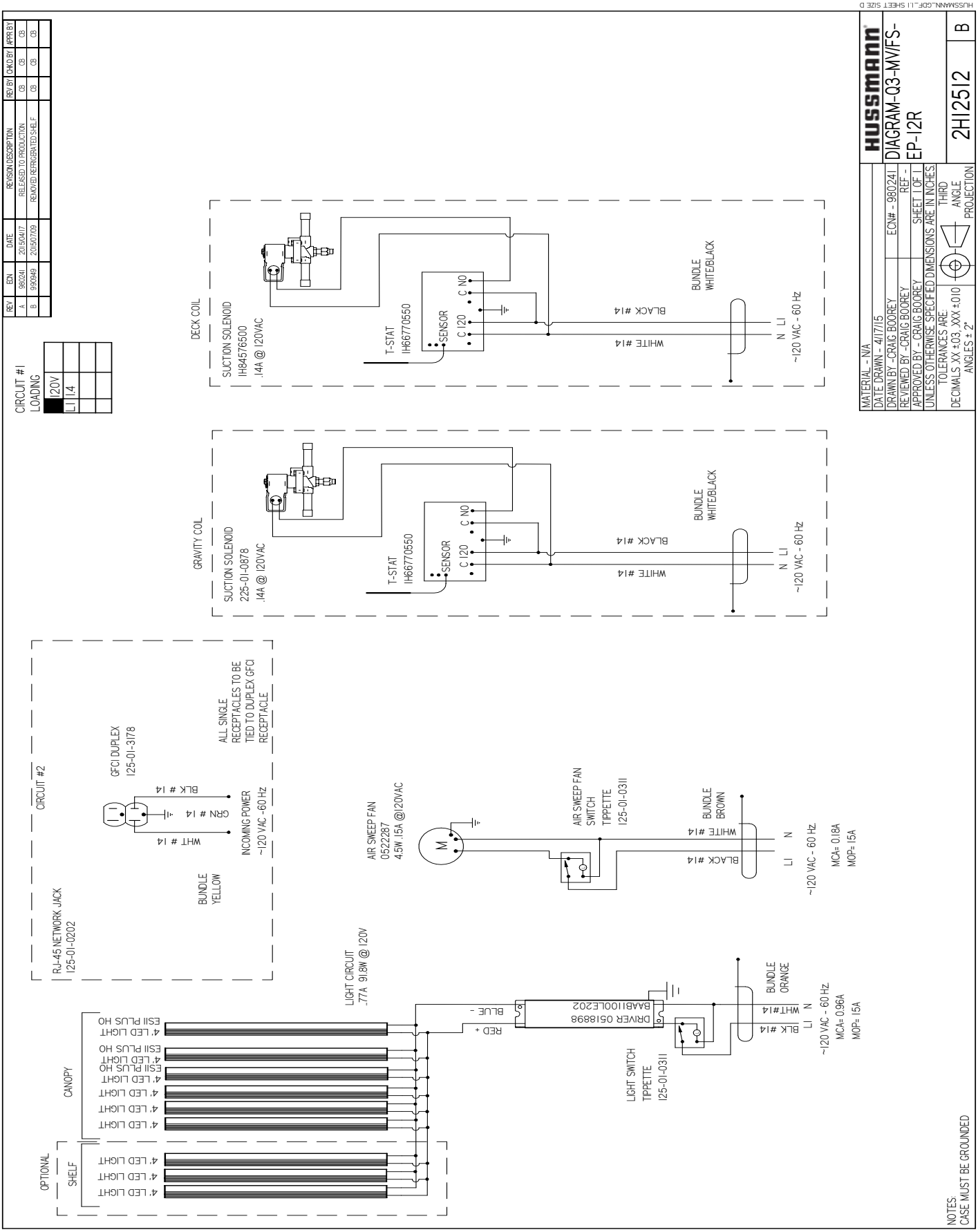
Wiring Diagram (Cont'd)



Wiring Diagram (Cont'd)



Wiring Diagram (Cont'd)



User Information

Start Up

See the merchandisers Data Sheet Set for refrigerant settings and defrost requirements. Bring merchandisers down to the operating temperatures listed on the Data Sheet.

⚠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.

Load Limit

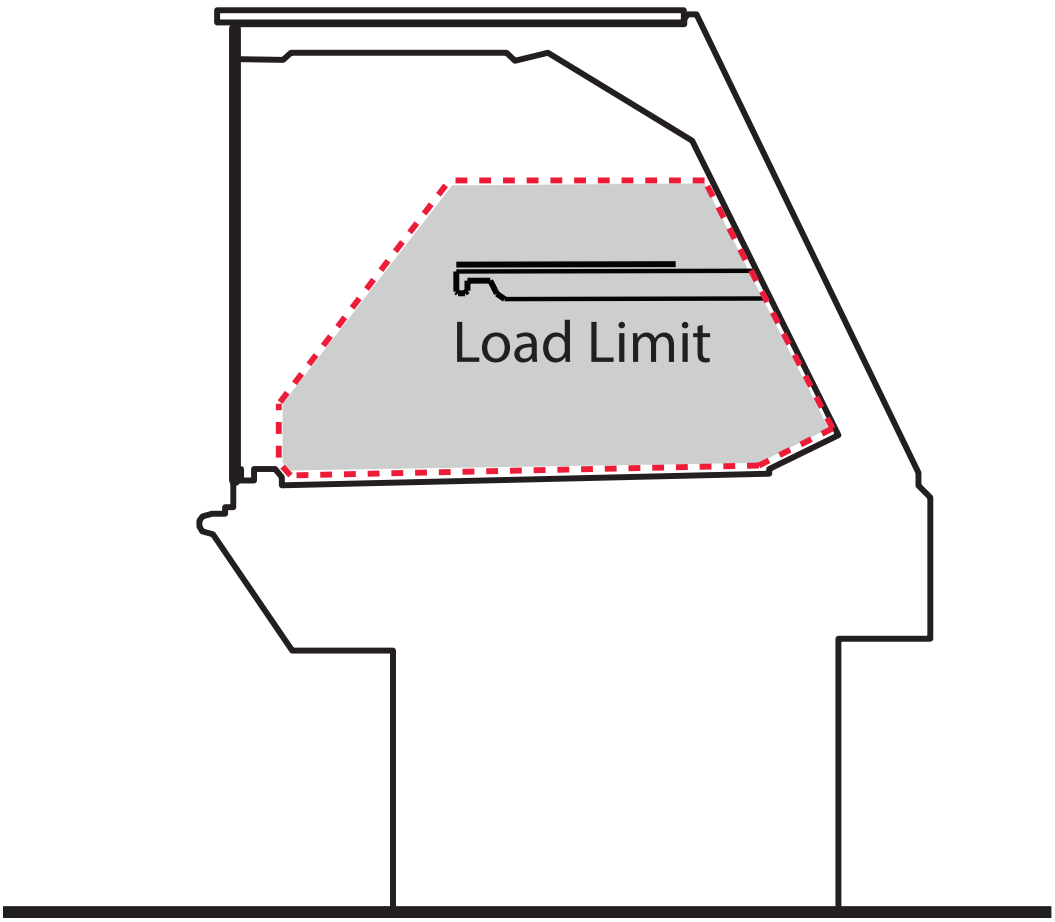
Each Merchandiser has a Load Limit. Shelf life of perishables will shorten if Load Limit is violated.

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

DO NOT BLOCK HONEYCOMB OR AIR RETURN GRILLE.

LOAD LIMIT

DO NOT OVERSTOCK MERCHANDISER



OPERATION SPECIFICATIONS

This case is designed to operate in store conditions of 75F and 55%RH* or lower. The case is equipped with easy adjustment features for varying store conditions.

Baseline Settings

75°F and 55%RH* ambient store conditions

- Evaporator temperature: 28° F specific refrigerant equivalent (with coils under load)
- Superheat (SH): 3-6°F (as low as 1-2°F SH is acceptable on Deck)
- Discharge air (DA) from gravity coil: 33-36°F typical range
- Discharge air Velocity: 50-75 FPM
- Digital T-Stat (A419) Set Point (SP) Cut in Temperature / Differential (dIF Cutout from SP): Gravity Coil 34°F/1°F and Deck Coil 32°F/1°F
- Defrost: 1/day, 50 minutes
- Air Sweep Fans: On/Off switch (only use if needed)

Store conditions, if different from design conditions, may require adjustments to settings as listed in the SETUP TROUBLE SHOOTING section.

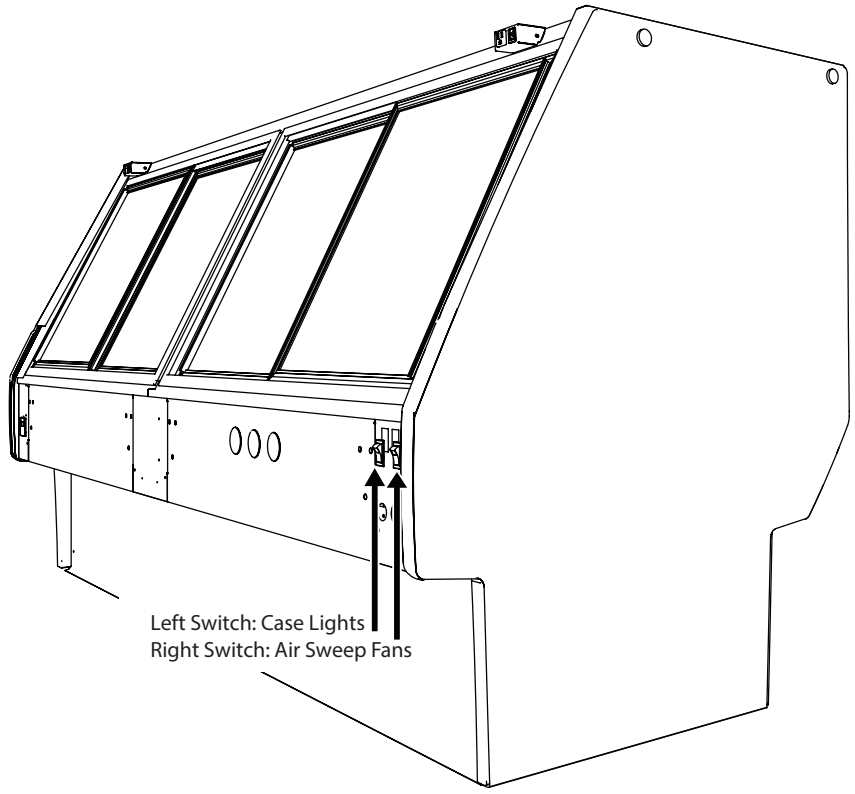
Please refer published case specifications on Hussmann website

Refer to A419 Display Symbols, Control Function, Ranges, Units, Values, and Factory Settings Display Symbol for further information

Case Switches

The Q3-M/F-V is equipped with 2 functioning switches at the rear right of the case.

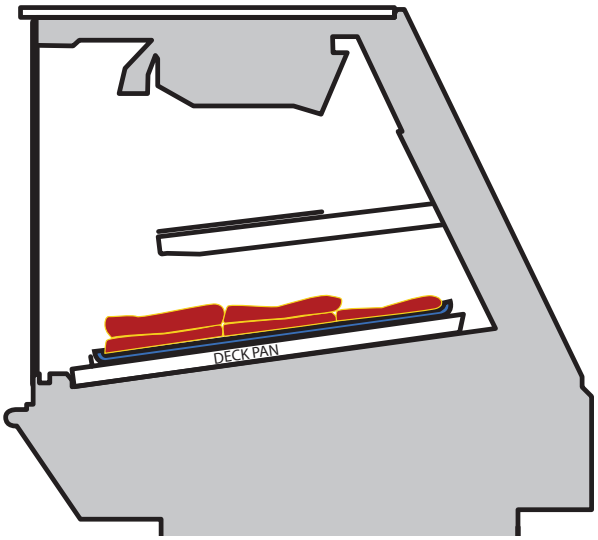
- Left Switch: Will turn on and off the case lights
- Right Switch: The Air Sweep Fan switch will turn on the air sweep fans located near the front of the case, use of this switch will be necessary when condensation begins to build on the front glass. Turn off once condensation has resolved.



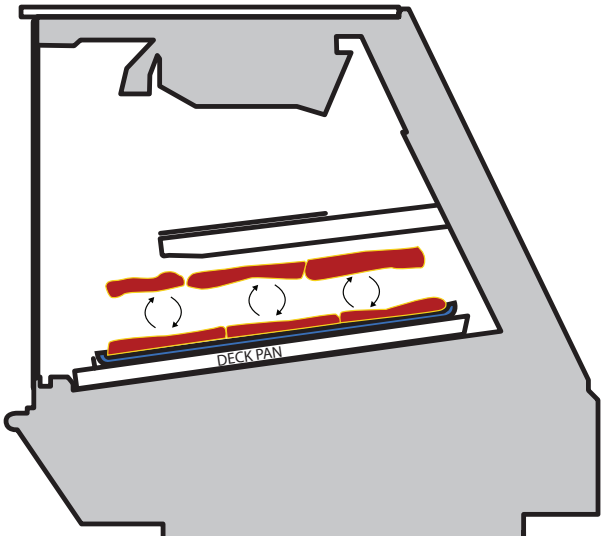
Merchandising Requirements

Use a consistent display strategy in each case . Hussmann recommends the use of flat bottomed aluminum or high density plastic trays as the ideal merchandising display method.

When displaying product on flat trays directly on the deck surface (ideal display method), layer product single or double high keeping product within the load limits (page 27). This promotes even cooling from both the spiral deck coil below and gravity coil above, and allows for less refrigeration power, lower dehydration and increased product life.

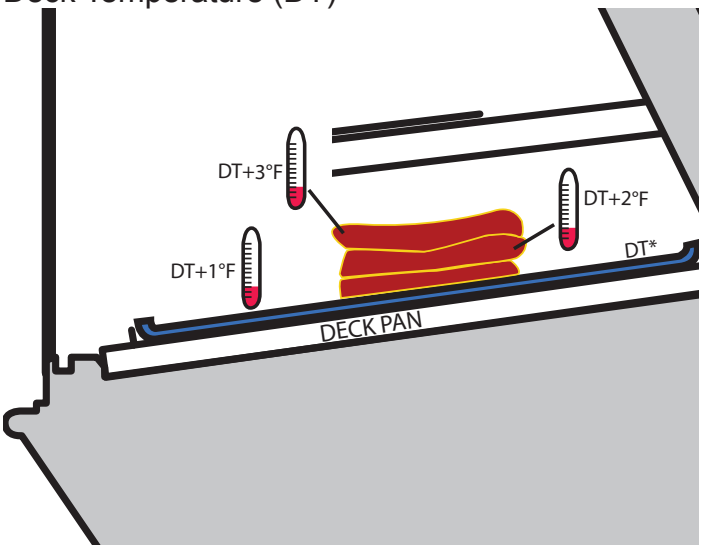


Rotate product every several hours. Bottom layer should be rotated to the top and flipped. This ensures even cooling, dehydration and color maintenance.



As demonstrated below, each layer of product has a slight increase in internal product temperature the higher it is stacked. It is very important that each layer make direct contact with the layer below it. With conductive cooling, heat will flow from the warmer surface to the cooler surface until both are nearly at the same temperature.

Deck Temperature (DT)

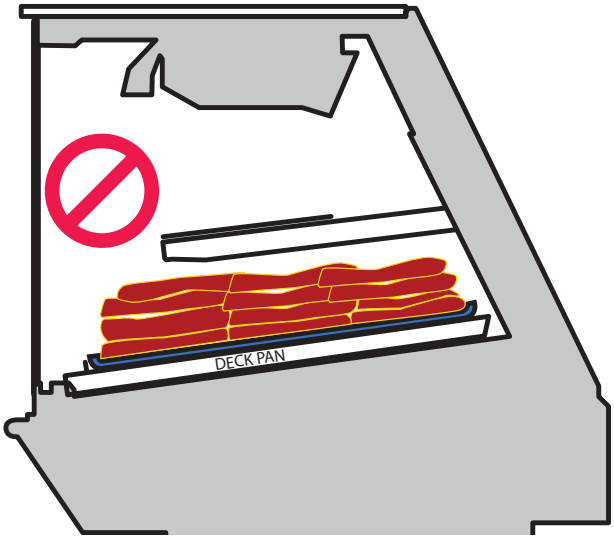


* DT will vary based on store conditions and case set points.

Merchandising DON'TS

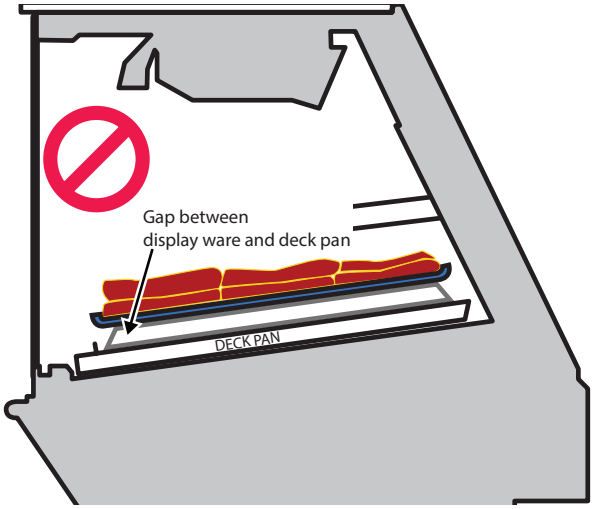
Products can be stacked too high on trays or display ware, the Spiral serpentine coil underneathe the deck pans are the main source for cooling for the case. If you are not achieving the internal product temperature your store desires, remove one layer. Monitor product interval temperatures for several hours.

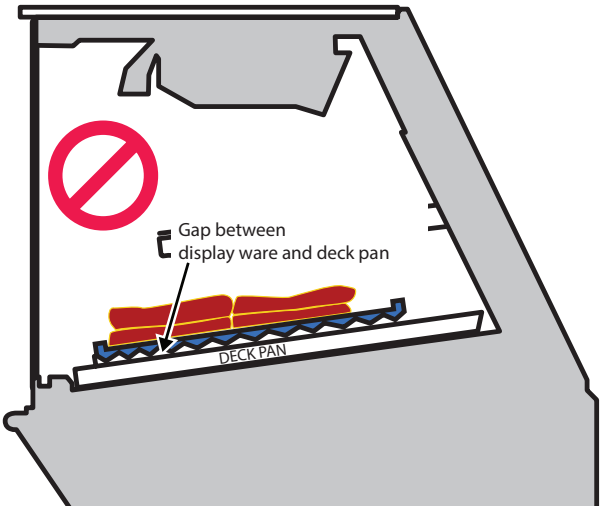
By no means use Foam, polycarbonate, wood, synthetic solid surface materials or any other product partition which acts as an insulator to display product. When separating product from direct contact preferably refer to Butcher Paper if desired.

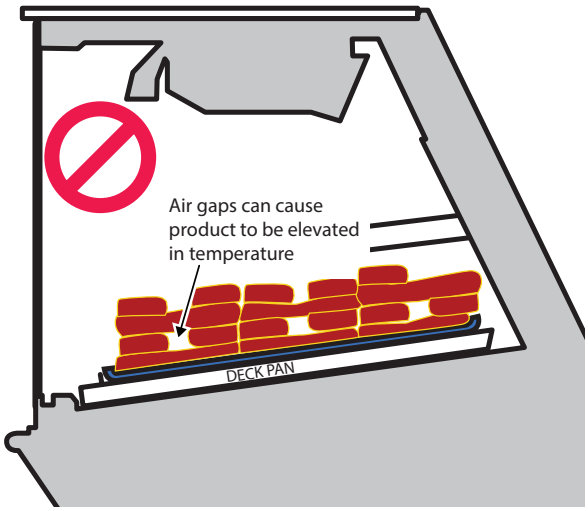


Display ware used inside a Q3-M/F-V **MUST BE FLAT BOTTOMED** to make direct contact with the cooled deck pans, keep in mind that most display ware is designed with ridge along the bottom end or ridges across the surface bottom for structural support. Often times display ware has feet on the bottom of it to prevent direct contact with the display pan. Refrain from using any display ware which prevents direct contact between the display ware bottom and the cooled display pans. Any air space between the Hussmann opticold deck pans, the display ware or the product will adversely affect case performance and cause elevated product temperature and early product loss.

The following Display Wares or display configurations are **NOT RECOMMENDED** and working outside of the Hussmann requirements will adversely affect product and/or case performance.







Fault Codes

A419 Fault Code/Alarm	Definition	System Status	Solution
SF flashing with OP	Open Temp sensor or sensor wiring	Output functions according to the selected sensor failure mode (SF setting)	See Troubleshooting section of A419 Elec. Temp Cont. Install Manual P/N: 24-7664-1539 Rev D. Cycle Power to reset the control.
SF flashing with SH	Shorted temperature sensor or sensor wiring	Output functions according to the selected sensor failure mode (SF setting)	See Troubleshooting section of A419 Elec. Temp Cont. Install Manual P/N: 24-7664-1539 Rev D. Cycle Power to reset the control.
EE	Program failure	Output is off	Reset the control by pressing MENU. If problem persists, replace the control.

Penn by Johnson Controls: A419 Series Electronic Temperature Control

A419 Display Symbols, Control Function, Ranges, Units, Values, and Factory Settings Display Symbol

Display Symbol	Control Function	Range – Units/Value	Hussmann Set Value†
SP	Setpoint*	-30 to 212 – °F (-34 to 100 – °C)	Gravity Coil Dis. Air = 35°F (**32°F) Deck Coil = 30°F (**25°F) **Shelf Coil = **26°F (Optional)
dIF	Differential*	1 to 30 – (F° or C° in 1-degree increments	Gravity Coil Dis. Air = 1°F Deck Coil = 1°F **Shelf Coil = 1°F (Optional)
ASd	Anti-short Cycle Delay	0 to 12 – (in 1-minute increments)	Gravity Coil Dis. Air = 1 min Deck Coil = 1 min **Shelf Coil = 1 min (Optional)
OFS	Temperature Offset	0 to 50 (F° or C° in 1-degree increments)	0
SF	Sensor Failure Operation	(No range)— 0 = output relay deenergized 1 = output relay energized	1
BIN	Temperature Offset Indicator	(No range) – BIN is displayed and the A419 control operates on the secondary setpoints when the circuit between the BIN and COM terminals is closed.	N/A
or	Cooling or Heating Mode of Operation	(No range) – (Cooling Mode) is displayed when the Jump1 jumper is removed. (Heating Mode) is displayed when the Jump1 jumper is installed.	Cooling Mode

* The sum of the Setpoint and Differential values must be within the Setpoint range, or the control may not function properly. Also, dIF (Differential) applies below the SP, and not a ± value (i.e. . SP - dIF = Cutout Value) † Hussmann Set Values are recommended, but each Operational Environment may dictate minor adjustments. Increases or decreases in SP are recommended only in 1 degree Increments and assumes the specified (see Spec Sheet) Evaporator Temperature when all Suction Stop Control Solenoids are energized (open/under load, with A419 Status Indicator(s) LED on). Refer to I/O Manual and/or Pipe Diagram for Sensor Locations. Should Set Pt values not be achievable, verify TEV Superheat adjustments are between 2-4°F for Deck Coil and 2-6°F for Gravity Coil (with preference at the lower end of the range) and actual Evaporator Temperature is within +0/-2°F tolerance from Spec. **With Refrigerated Shelf (Optional)

Maintenance

Case Cleaning

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

⚠WARNING

TO PREVENT INJURY ALWAYS SHUT OFF POWER DURING CLEANING PROCESS.

Exterior Surfaces

The exterior surfaces must be cleaned with a mild detergent without chloride and warm water to protect and maintain their attractive finish. NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.

Cleaning Bumpers

Clean Bumpers with household spray cleaners.

Cleaning Under Merchandiser

Remove lower body panels. Use a vacuum with a long wand attachment to remove accumulated dust and debris from under the merchandiser.

Cleaning Stainless Steel Surfaces

Use non abrasive cleaning materials, and always polish with the grain of the steel. Use warm water or add a mild detergent to the water and apply with a cloth. Always wipe dry after wetting.

Use 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.

Clean frequently to avoid build-up of hard, stubborn stains. A stainless steel cleaning solution may be used periodically to minimize scratching and remove stains.

Rinse and wipe dry immediately after cleaning. Never use hydrochloric acid (muriatic acid) on stainless steel.

Interior Surfaces

The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions that do not contain chloride with no harm to the surface.

Cleaning Coils

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.

Recommended Cleaning Schedule

Follow the schedule listed below for optimal sanitation and case performance. Exterior and Interior cleaning will be cleaned varying on upkeep of the merchandiser through daily use.

- Merchandiser Deck & Drain Area: Once a week minimum.
- Gravity Coil & Drip Tray: Once a month minimum.

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 proper adjustments as necessary. To maintain product integrity, if not done so already, move all product to a cooler until the merchandiser has returned to normal operating temperatures.

Maintenance Cont'd

Do Not Use:

- Abrasive cleaners and scouring pads, as these will damage the finish.
- A hose on lighted shelves or submerge lighted shelves in water.
- Solvent, oil or acidic based cleaners on any interior surfaces.
- A hose on LED Lights or any other electrical component.
- **IT IS NOT REQUIRED TO RAISE THE DECK SPIRAL COIL ASSEMBLY DURING CLEANING.**
- The case can be cleaned after removing the deck pan and alum tray. Nothing else needs to be moved or lifted.

Do:

- Remove the product and all loose debris to avoid clogging the waste outlet.
- Store product in a refrigerated area such as a cooler during the cleaning process. Remove only as much product as can be taken to the cooler in a timely manner.
- **First Turn off Refrigeration, then disconnect electrical power to merchandiser.**
- Thoroughly clean all surfaces with soap and hot water. Do not use steam or high pressure water hoses to wash the interior. These will destroy the merchandisers' sealing causing leaks and poor performance.
- Avoid direct contact between fan motors and cleaning or rinse water.
- Rinse with hot water, but DO NOT flood. Never introduce water faster than the waste outlet can drain.
- Allow merchandiser to completely dry before

Troubleshooting

Problem	Possible Cause	Possible Solution
Product too cold and/ or freezing	Spiral Deck Coil (SDC) is too cold.	Probe the deck with the product in place. If the deck is less than 29°F increase the SDC thermostatic SP incrementally. Allow approximately 60 minutes or stable temperatures for system to react then recheck temperatures. Verify when SDC T-Stat is active that SDC is operating at desired Temperature/ Pressure (Evap Pressure).
	Gravity Coil (GC) set too cold	Increase thermostatic set point *(SP) of GC. Your setting will depend on store conditions and desired product temperature. The thermostatic SP is properly set when the product is ideally 33-38°F. Should ice be forming on the GC, verify Evaporator Pressure, GC Discharge Air (DA) is ranging between 33-36°F
	Excessive Icing	Ensure excessive icing condition's don't exist on SDC or that any exist on the GC
	Evaporator Suction Temperature	Ensure case evaporator / suction temperature is above 28°F.
	Superheat Set Too Low	Check superheat and adjust as necessary. See Case Specification
	T-Stat Sensor And TXV Bulbs Not Firmly Secured	Ensure that all T-Stat sensor and TXV bulbs are firmly secured to the pipes in the locations shown in figure (C). The bulbs should be at the 3 or 9 o'clock position on the pipe. Take care to insure SDC T-Stat sensor is below the surface of the Spiral Deck Tube (at mid tube from outer/inner of spiral) to insure no interference with Deck Plate. Band strap should be thin gauge copper. GC T-Stat sensor tip should be located approximately 1" below the bottom fin surface, at approximately coil center (front-back) and between 18"-24" from the end of the case wall. Ensure that the case is piped per the piping diagram (C) [Note: some components may be optional].
Product dehydrating prematurely	GC set too cold	Increase thermostatic SP of GC. Your setting will depend on store conditions and desired product temperature. The thermostatic SP is properly set when the DA from the GC is ranging between 33-37°F, depending upon Meat Department ambient conditions. Product should be turned and rotated about every 4 hours. Product should be covered at night with a clean, damp cloth such as cheese cloth if left in the display case overnight
Product too warm	Improper Case Piping	Verify case is properly piped per the Piping Diagram. Refer to Pipe Diagram
	Improper Suction Pressure Setting	Verify case suction pressure is set to a 28°F temperature equivalent when all Solenoid VLV are active/open
	Improper Superheat Setting	Verify superheat. Adjust TX valves accordingly. Deck/Spiral coil may be set as low as 1-2° SH. Gravity coil may be set as low as 3° SH. (NOTE, when adjusting TXV superheat, first adjust the corresponding T-Stat below equivalent suction temperature. This will ensure that the T-Stat does not close during the adjustment period. Be sure to return T-Stat to SP.

Troubleshooting Cont'd

Problem	Possible Cause	Possible Solution
Product too warm	Improper EPR Set Point	If SDC inlet temperature is above 28°F reduce the EPR set point
	Improper Thermostat Bulb Location	Ensure that the thermostat bulb for the gravity coil (A) is not contacting any coil parts and is located in the discharge air stream
	Improper TXV Bulb Location	Ensure that the TX valve bulbs are located as per the piping diagram. Refer to Pipe Diagram
	Improper Deck Plates (and Pans) Sitting	Ensure that the deck plates (and pans) are seated and making good contact with the SDC and each other
	Gravity Coil Air Flow Obstruction	Ensure that gravity coil is fully cleared all the time
	Defrost Failure To Clear All SDC Ice Buildup	The SDC will eventually pack with ice and refrigeration performance will be severely degraded. Confirm Evaporator Temperature is 28°F, SDC T-Stat SP to specification, and SDC termination temperature reaching at least 42°F. Increase the defrost time in 5 minute increments if this condition is observed, and termination temperature not achieved.
	Improperly sized refrigerant lines	Ensure that refrigerant lines are properly sized per the installation manual. Inspect liquid line for kinks, pinched or excessive u-bends
	Solid Column Of Liquid Refrigerant NOT reaching the TXV	Inspect liquid line for kinks, pinched or excessive u- bends.
	Liquid Refrigerant case inlet Temperature is excessive	Ensure that the liquid refrigerant entering temperature is not excessive. Liquid greater than 110°F at 6" ahead of the TXV may be an indication of equipment problems
	Product Introduction Temperature Too High	Correct product introduction temperature should be 34°F.-36°F.
	Product Is Stacked Too High	Reduce display height of product. Less than 6" is recommended
	Product is displayed in containers that impede the conduction cooling from the SDC	Use containers with full length, flat bottoms. Refer to MERCHANDIZING RECOMMENDATIONS (page 29) section for further information.
	Incorrect replacement lighting is adding too much heat	Use only Hussmann genuine replacement parts or equivalent.
Case temperature is too warm.	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at or below 75°F Dry bulb and 55% relative humidity.
	Discharge air temp is out of spec.	Check suction pressure and insure that it meets factory specifications.
	Case is in defrost.	Check defrost settings. See Technical Specifications section.
	Product load may be over its limits blocking airflow.	Redistribute product so it does not exceed load level.

Troubleshooting Cont'd

Problem	Possible Cause	Possible Solution
Case temperature is too cold.	The t-stat temp is set too low.	Check settings. See Technical Specifications section.
	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at or below 75°F Dry bulb and 55% relative humidity.
Condensation on glass.	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at or below 75°F Dry bulb and 55% relative humidity.
	There are glass gaps on the side of the case.	See glass adjustment section.
	Glass is not completely shut.	Close glass correctly.
	Ambient Conditions	Turn on Air Sweep Fans located at the right rear of merchandiser.
Water has pooled under case.	Case drain is clogged.	Clear drain.
	PVC drains under case may have a leak.	Repair as needed.
	Case tub has unsealed opening.	Seal as needed.
	If the case is in a line-up, case to case joint is missing or unsealed.	Install case to case joint and seal as needed.
	Evaporator pan is overflowing (if applicable).	Check electrical connection to evaporator pan. Check float assembly, it should move freely up and down the support stem. Clear any debris.
Case is not draining properly.	Case is not level.	Level the case.
	Drain screen is plugged.	Clean drain screen and remove any debris.
	Drain or P-trap is clogged.	Clear any debris.
Frost or ice on evaporator coil.	Defrost clock is not functioning.	Case should be serviced by a qualified service technician.
Lights do not come on.	LED Driver /light wiring.	Check electrical connections. See Electrical Section and check wiring diagram.
	LED Driver needs to be replaced.	Case should be serviced by a qualified service technician. See Electrical Section.
	LED Light needs to be replaced.	Case should be serviced by a qualified service technician.
	Light Switch needs to replaced.	Case should be serviced by a qualified service technician.

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

Hussmann Warranty / Technical Assistance
(800) 592-2060

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