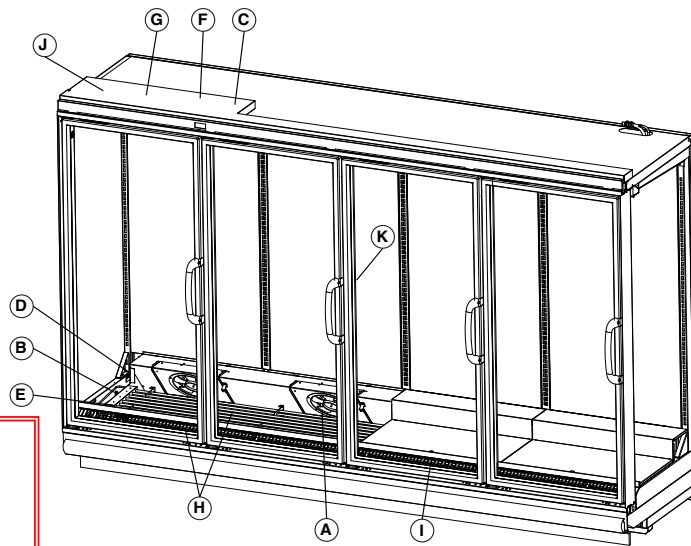


We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.



DOE 2017
Energy Efficiency
Compliant

Warning:
Terminal block
NOT for
case-to-case
wire connection!

Item	Part #	Description	Wiring Item #	Item	Part # (Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS			
A.	12W Standard Energy Efficient Fan Assembly (1)			H.	Electric Defrost Heaters – (208V) (8)		
	0527610	Fan Motor, Evaporator (MO.4410546)			3015380 (1)	2 Door Models (HE.4850346)	
	0461805	Fan Blade (FB.4780446)			3015381 (1)	3 Door Models (HE.4850337)	
B.	0547083	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)		3015382 (1)	4 Door Models (HE.4850347)	
C.		Optional Adjustable Refrigeration Thermostat	(3)		3015383 (1)	5 Door Models (HE.4850323)	
D.	0440423	Defrost Limit Thermostat (CT.4440261)	(4)	I.	Drain Pan Heater (Electric & KoolGas) (120V) (9)		
E.	0446007	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296) (KG Only)	(5)		0452974 (1)	2 Door Models (HE.4850239)	
RELAYS					0452975 (1)	3 Door Models (HE.4850240)	
F.	0342598	Control Relay (120V KoolGas) (RL.4480238)	(6)		0452976 (1)	4 Door Models (HE.4850241)	
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0452977 (1)	5 Door Models (HE.4850242)	
				LED FIXTURES AND POWER SUPPLY			
				J.	0499399	LED Power Supply (EP.4481668)	
				K.		LED Fixture	
				<i>Replace with like fixtures</i>			

Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE manual, PIN 0425683, for Innovator door and frame replacement parts.

Note: Revision F: Updated wiring diagram on page 6 and added a wiring diagram on page 7.

Engineering Plan Views

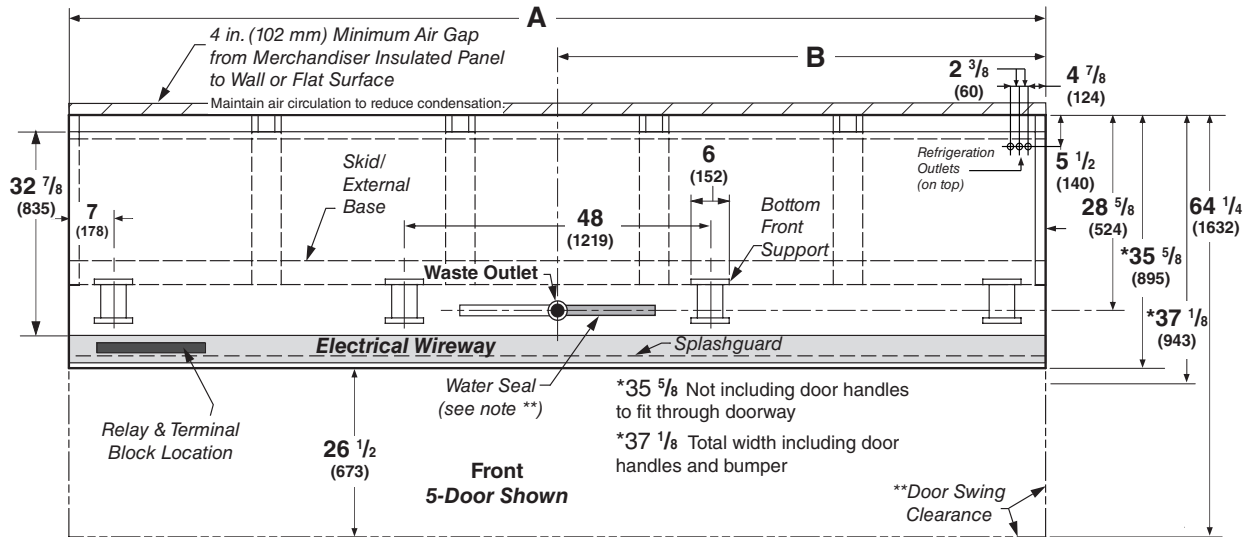
Narrow Reach-In 2, 3, 4 & 5 Door

RLNS - RMNS Plan View

PHYSICAL DATA

Merchandiser Drip Pipe (in.)	1
Merchandiser Liquid Line (in.)	3/8
Merchandiser Suction Line (in.)	5/8

Dimensions shown as in. & (mm).



	2 Dr	3 Dr	4 Dr	5 Dr
General				
(A) Case Length (without ends or partitions) <i>(Each solid end adds approximately 2 3/8 in (60 mm) to length of line up; each partition adds approximately 2 3/4 in (70 mm); case to case joints can add approximately 1/8 in (3 mm) for gasket material).</i>	62 (1575)	92 1/2 (2350)	122 7/8 (3121)	153 3/8 (3896)
Maximum O/S dimension of case back to front <i>(Includes bumper)</i>	37 1/8 (943)	37 1/8 (943)	37 1/8 (943)	37 1/8 (943)
Back of case to rear of splashguard	32 7/8 (835)	32 7/8 (835)	32 7/8 (835)	32 7/8 (835)
Width of Skidrail	3 3/8 (86)	3 3/8 (86)	3 3/8 (86)	3 3/8 (86)
Width of Bottom Front Support	6 (152)	6 (152)	6 (152)	6 (152)
Stub-up area between front skidrail / splashguard	6 3/8 (1000)	6 3/8 (1000)	6 3/8 (1000)	6 3/8 (1000)
Electrical Service				
LH end of case to the center of nearest knockout	5 3/4 (146)	5 3/4 (146)	5 3/4 (146)	5 3/4 (146)
LH end of case to the center of RH knockout	31 1/4 (794)	31 1/4 (794)	31 1/4 (794)	31 1/4 (794)
Back O/S of case to center of knockout	21 1/2 (546)	21 1/2 (546)	21 1/2 (546)	21 1/2 (546)
<i>*NOTE: Electrical Field Wiring Connection Point is at terminal.</i>				
Waste Outlet				
(B) Right end of case to center of waste outlet	23 3/4 (603)	54 1/4 (1378)	46 1/4 (1175)	76 5/8 (1946)
Back O/S of case to center of waste outlet	28 5/8 (727)	28 5/8 (727)	28 5/8 (727)	28 5/8 (727)
Water Seal				
Edge of water seal to center of waste outlet	13 (330)	13 (330)	13 (330)	13 (330)
Outside diameter of drip piping (Schedule 40 PVC drip pipe) 1 (25)		1 (25)	1 (25)	1 (25)
<i>** NOTE: Field installed water seal outlets, tees, and connectors are shipped with case</i>				
Refrigeration Outlet				
RH end of case to center RH refrigeration outlet	8 5/8 (219)	8 5/8 (219)	8 5/8 (219)	8 5/8 (219)
Back O/S of case to center of refrigeration outlet	5 (127)	5 (127)	5 (127)	5 (127)
Outside bottom front supports from end of case	7 (178)	7 (178)	7 (178)	7 (178)
Center bottom front support from Centerline	24 (610)	24 (610)	24 (610)	24 (610)
<i>Distance between Center and Outside supports will vary</i>				

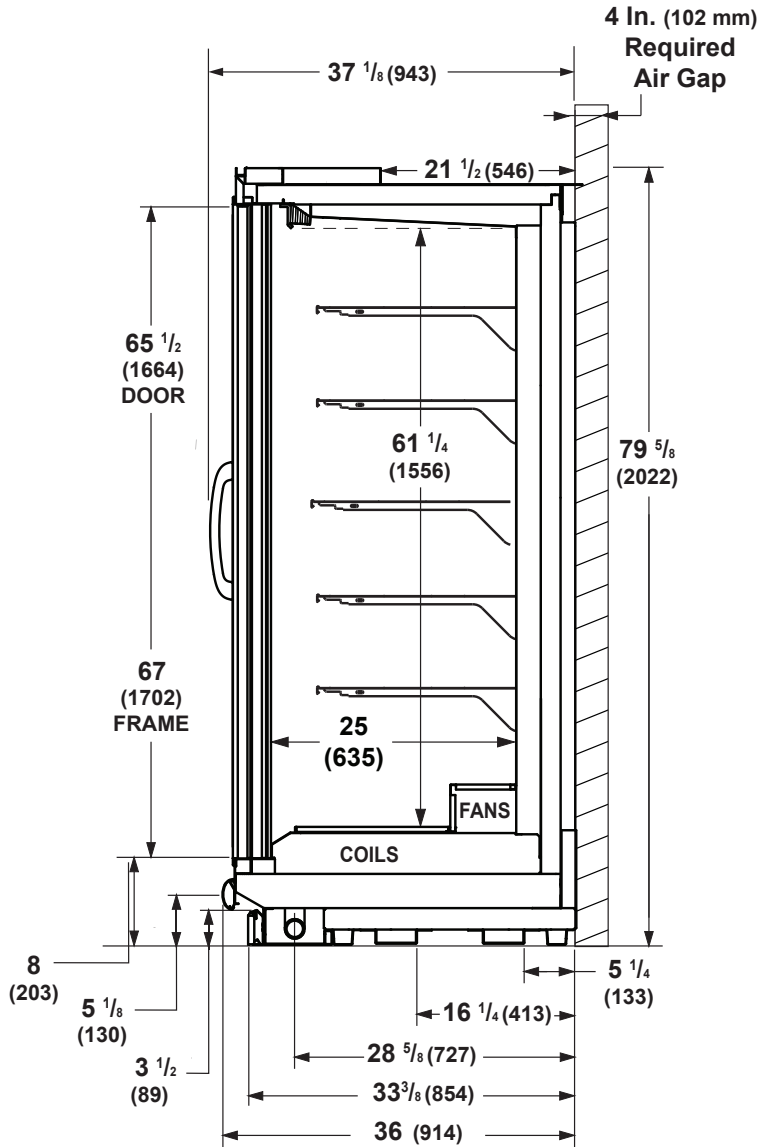
Narrow Reach-in 2, 3, 4 and 5 Door Models INNOVATOR Doors Standard

DOE 2017
Energy Efficiency
Compliant

Hussmann refrigerated merchandisers configured for sale for use in the United States meet or surpass the requirements of the DOE 2017 energy efficiency standards.

Standard Reach-in configuration consists of Innovator I doors, energy efficient fan motors, and EcoShine II LED vertical lighting.

Dimensions shown as in. & (mm).



NSF Certification

This merchandiser model is manufactured to meet NSF/ANSI (National Sanitation Foundation) Standard #7 requirements for construction, materials & cleanability.

RLNS

With Innovator Doors
Low Temperature

REFRIGERATION DATA§

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC	AHRI Rating*
Discharge Air (°F)	-3	-12	-3
Evaporator (°F)	-9	-17	-9
Unit Sizing (°F)	-12	-20	-12

* With door A/S controller

Btu/ht/Door

INNOVATOR	FF	IC	AHRI
Parallel	1020	1080	900
Conventional	1040	1100	930

§ Average evaporator temperature shown. Use dew point for high glide refrigerants for unit sizing. Care should be taken to use the dew point in PT tables for measuring and adjusting superheat. Adjust evaporator pressure as needed to maintain discharge air temperature shown.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/day)	1.2	1.2

(± 15% based on case configuration and product loading.)

ELECTRIC	FF	IC
Temp Term (°F)	48°	48°
Failsafe (minutes)	45	45

GAS	FF	IC
Duration (minutes)	20	20

OFFTIME Not Recommended

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost Termination (Temp °F)**

Not Recommended

**Use a Temperature Pressure Chart to determine PSIG conversions.

PHYSICAL DATA

Estimated Charge ***

2Dr	1.8 lb	29 oz	0.8 kg
3Dr	2.7 lb	43 oz	1.2 kg
4Dr	3.6 lb	58 oz	1.6 kg
5Dr	4.6 lb	74 oz	2.1 kg

***This is an average for all refrigerant types. Actual refrigerant charge may vary by approximately half a pound (8 oz/0.2 kg).

RLNS

With Innovator Doors
Low Temperature

Husmann recommends against frame heater cycling with *Innovator* doors or *Innovator III* doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

	2Dr	3Dr	4Dr	5Dr				
Number of Fans—12W	2	3	4	5				
	Amperes				Watts			
Merchandiser	2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Energy Efficient Evaporator Fan								
120V 50/60Hz	0.60	0.90	1.20	1.50	36	54	72	90
220V 50/60Hz Export	0.38	0.57	0.76	0.95	50	75	100	125
Door Anti-sweat Heaters (on fan circuit)								
120V 50/60Hz Innovator	1.5	2.3	3.0	3.8	182	273	364	455*
120V 50/60Hz Innovator III	0.9	1.3	1.7	2.2	104	156	208	260
220V 50/60Hz Export Innovator	0.8	1.3	1.7	2.1	185	278	370	463
220V 50/60Hz Export Innovator III	NA	NA	NA	NA	NA	NA	NA	NA
Frame Anti-sweat Heaters (on fan circuit)								
120V 50/60Hz Innovator	0.78	1.18	1.57	1.97	94	141	188	236
220V 50/60Hz Export	0.43	0.64	0.85	1.07	94	141	188	236
Minimum Circuit Ampacity								
120V 50/60Hz Innovator	3.26	5.14	7.12	9.0				
120V 50/60Hz Innovator III	2.66	4.14	5.82	7.4				
220V 50/60Hz Export Innovator	1.88	3.02	4.16	5.1				
220V 50/60Hz Export Innovator III	1.08	1.72	2.46	3.0				
Maximum Over Current Protection 120V	20	20	20	20				
Maximum Over Current Protection 220V	15	15	15	15				
Defrost								
Drain Heaters (120V)	0.63	1.25	2.00	2.57	75	150	240	300
(Export: 220V 50 Hz)	0.34	0.76	1.22	1.53	84	168	269	336
208V 1Ø Electric Defrost	6.72	10.08	13.46	16.82	1400	2100	2800	3500
(Export: 220V 50 Hz)	7.11	10.66	14.24	17.79	1564	2345	3133	3914
Standard Vertical LED Lighting	2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Husmann EcoShine II™ - A (120V)	0.31	0.46	0.62	0.77	37.1	55.6	74.2	92.7

* Maximum door watts without A/S cycling controls shown.

Product Data

<i>Recommended Usable Cube</i> ¹ (Cu Ft/Dr)	20.95 ft ³ /Dr (.59 m ³ /Dr)
<i>AHRI Total Display Area</i> ² (Sq Ft/Dr)	12.66 ft ² /Dr (1.18 m ² /Dr)
<i>Shelf Area</i> ³ (Sq Ft/Dr)	27.20 ft ² /Dr (2.53 m ² /Dr)

¹ AHRI Refrigerated Volume less shelving and other unusable space: Refrigerated Volume/Unit of Length, ft³/ft [m³/m]

² Computed using AHRI 1200 standard methodology: Total Display Area, ft² [m²]/Unit of Length, ft [m]

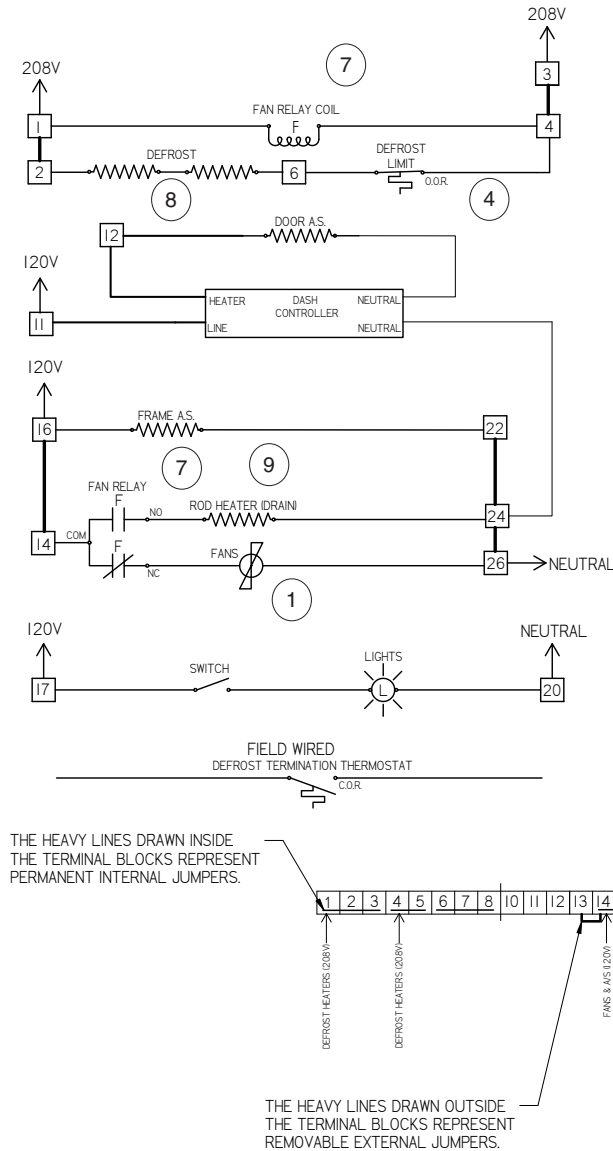
³ Shelf surface area is composed of bottom deck plus standard shelf complement, as shown in the Hussmann *Product Reference Guide*. The standard shelf complement for this model is (5) rows of 22-inch shelves.

ESTIMATED SHIPPING WEIGHT ⁴					
Case	<i>2 Dr</i>	<i>3 Dr</i>	<i>4 Dr</i>	<i>5 Dr</i>	Solid End
					<i>(each)</i>
lb (kg)	895 (407)	1122 (510)	1518 (690)	1870 (850)	74 (34)

⁴ Actual weights will vary according to optional kits included.

Fan and Heater Circuits - Electric Defrost (standard) Low Temperature

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS
 R = Red P = Purple 2P = Purple (2 Bands) DB = Dark Blue BK = Black
 LB = Light Blue BR = Brown Y = Yellow OR = Orange W = White
THESE ARE MARKER COLORS (WIRE MAY VARY.)



CAUTION: When multiplexing merchandisers equipped with defrost heaters, if branch circuit overcurrent protection is larger than the individual merchandiser's defrost circuit load, then additional supplemental overcurrent protection may be required per NEC Articles 210 and 240.

Refer to *Innovator Reach-In Glass Door, Installation and Service manual*, P/N 0425683, for *Innovator* door and frame replacement parts.

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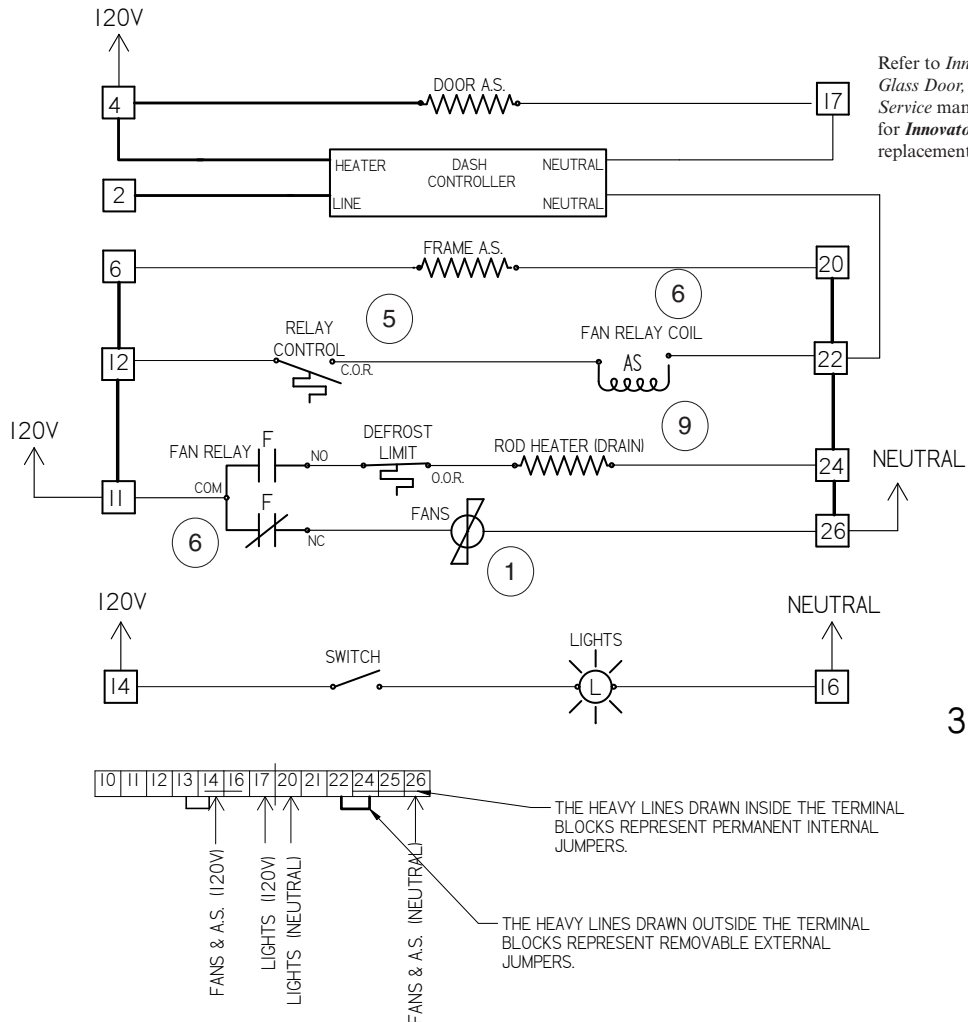
Electric Defrost Sequence – Low Temperature

1. Power from the defrost contactor energizes Defrost Heaters and 208V Evaporator Fan Relay Coil (7). Relay Contacts open the fan circuit and energizes the Drain Pan Heater.
2. If the Defrost Heater raises internal air temperature above 90°F, the Defrost Limit Thermostat (4) will open.
3. When Defrost Termination Thermostat ends defrost period, the defrost contactor opens the Defrost Heater and Evaporator Fan Relay Coil Circuits. The Drain Pan Heater goes off and fans are on.
4. Standard low temperature Reach In cases with Innovator I doors are shipped with the DASH controller for door anti-sweat heater control installed. Do not connect the DASH controller input to a centralized anti-sweat system. It must be connected to a continuous 120V circuit for proper operation.
5. If the case is connected to a centralized anti-sweat controller that meets DOE compliance requirements, the DASH controller is not installed on the case. Feed the 120V controller output into terminal #12.
6. Options may be installed that have additional or replacement wiring diagrams.
7. Reach In cases with Innovator III doors do not have the DASH controller.

Fan and Heater Circuits - Gas Defrost (optional)

Low Temperature

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS
 R = Red P = Purple 2P = Purple (2 Bands) DB = Dark Blue BK = Black
 LB = Light Blue BR = Brown Y = Yellow OR = Orange W = White
THESE ARE MARKER COLORS (WIRE MAY VARY.)



3015III_C

Gas Defrost Sequence - Low Temperature

1. Defrost vapor enters evaporator causing a rise in temperature. At about 35°F the Control Relay Thermostat (5) closes the Fan Relay Coil (7) and Control Relay Coil (6) circuit. The Coil opens the Fan, Door Heater, and Frame Heater circuits, while energizing the Drain Pan Heater (9).
2. If the Drain Pan Heater (9) raises internal air temperature above 90°F, the Heater Limit Thermostat (4) will open.
3. When the defrost timer ends a defrost period, the evaporator temperature will start to fall. At about 20°F, the Control Relay Thermostat will open, de-energizing the Control Relay Coil and Fan Relay Coil (7). Control and Fan Relay's will open the Drain Pan Heater circuits, and will close the Fan, Door Heater, and Frame Heater circuits.
4. Standard low temperature Reach In cases with Innovator I doors are shipped with the DASH controller for door anti-sweat heater control installed. Do not connect the DASH controller input to a centralized anti-sweat system. It must be connected to a continuous 120V circuit for proper operation.
5. If the case is connected to a centralized anti-sweat controller that meets DOE compliance requirements, the DASH controller is not installed on the case. Feed the 120V controller output into terminal #12.
6. Options may be installed that have additional or replacement wiring diagrams.
7. Reach In cases with Innovator III doors do not have the DASH controller.