HUSSMANN® NSF®

RL with INNOVATOR Doors or INNOVATOR III Doors

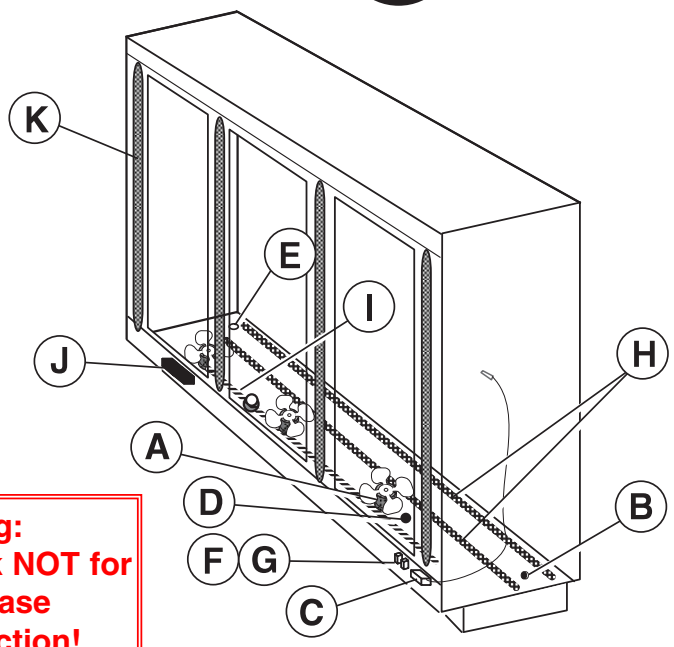
Technical Data Sheet

P/N 0510175_J

NSF® Certified

January 2018

DOE 2017
Energy Efficiency Compliant



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

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.

Item	Part #	(Qty.)	Description	Wiring Item #
Fan Assemblies, and Thermostats				
A.	**12W Energy Efficient** Fan Assembly			(1)
	0477655		Fan Motor, Evaporator (MO.4410546)	
	0461805		Fan Blade (FB.4780446)	
B.	0474033		Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)
C.			Optional Adjustable Refrigeration Thermostat	(3)
D.	0344662		Defrost Limit Thermostat (CT.4440261)	(4)
E.	0461814		Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)(KG Only)	(5)
Relays				
F.	0342598		Anti-Sweat Control Relay (120V KoolGas) (RL.4480238)	(6)
G.	0342599		Fan Control Relay (208V) (RL.4480237)	(7)
Heaters				
H.	Electric Defrost Heaters – Front (208V)			(8)
	3015518	(1)	1 Door Models (HE.4850632)	
	0441755	(1)	2 Door Models (HE.4850346)	
	0441756	(1)	3 Door Models (HE.4850337)	
	0441757	(1)	4 Door Models (HE.4850347)	
	0441758	(1)	5 Door Models (HE.4850323)	

Item	Part #	(Qty.)	Description	Wiring Item #
Heaters (Continued)				
H.	Electric Defrost Heaters — Rear (208V)			(8)
	3015519	(1)	1 Door Models (HE.4850634)	
	3015372	(1)	2 Door Models (HE.4850358)	
	3015373	(1)	3 Door Models (HE.4850359)	
	3015374	(1)	4 Door Models (HE.4850360)	
	3015375	(1)	5 Door Models (HE.4850361)	
I.	Drain Pan Heater — Electric & KoolGas (120V)			(9)
	0489708	(1)	1 Door Models (HE.4850643)	
	0387036	(1)	2 Door Models (HE.4850239)	
	0387037	(1)	3 Door Models (HE.4850240)	
	0387038	(1)	4 Door Models (HE.4850241)	
	0387039	(1)	5 Door Models (HE.4850242)	
LED Fixtures and Power Supply				
J.	0499399		LED Power Supply (EP.4481668)	
K.			LED Fixture *Replace with like fixtures*	

Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE ***manual, P/N 0425683, for Innovator, Innovator II, or Innovator III door and frame replacement parts.***

Data sheet-Reach-in RL

Note: Revision J: Updated wiring diagrams on page 6 and 7.

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Spanish P/N 0553990

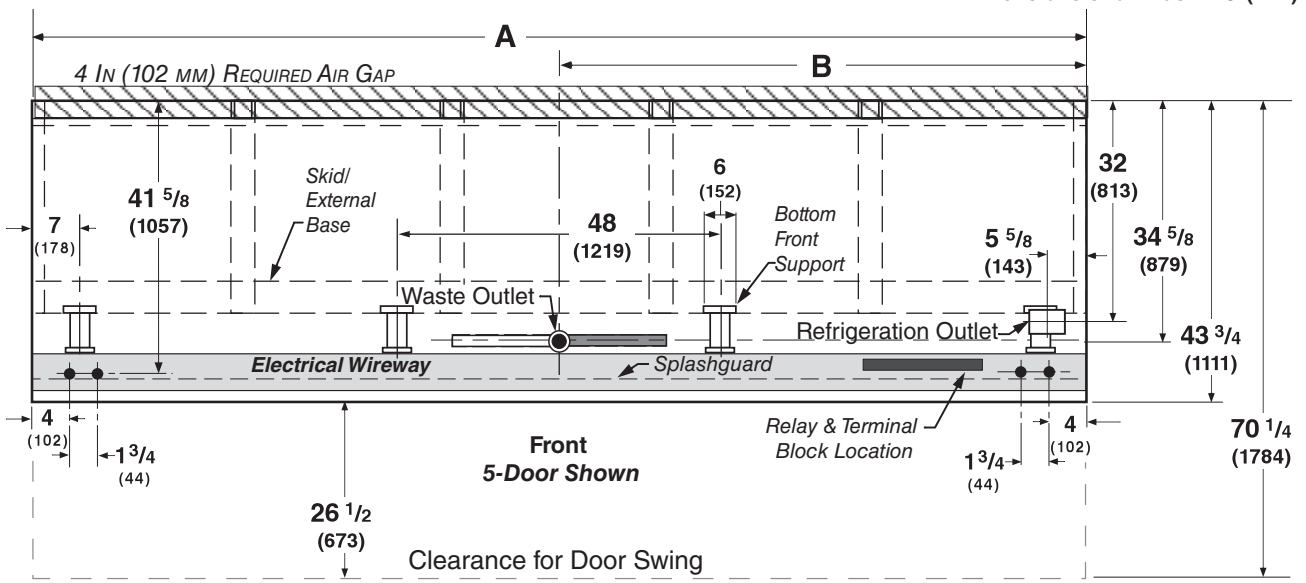
Engineering
Plan Views

Reach-In
1, 2, 3, 4 & 5 Door

RL - RM - RMF
Plan View

PHYSICAL DATA	
Merchandiser Drip Pipe (in.)	1 1/4
Merchandiser Liquid Line (in.)	3/8
Merchandiser Suction Line (in.)	5/8

Dimensions shown as in. & (mm).



General		1 Dr	2 Dr	3 Dr	4 Dr	5 Dr
(A)	Case Length (without ends or partitions)	31 1/2 (800)	62 (1575)	92 1/2 (2350)	122 7/8 (3121)	153 3/8 (3896)
**NOTE: Each solid end adds approximately 2 3/8 in (60 mm) to length of line up; each partition add approximately 2 3/4 in (70 mm); case to case joints can add approximately 1/8 in (3 mm) for gasket material.						
	Maximum O/S dimension of case back to front	43 3/4 (1111)	43 3/4 (1111)	43 3/4 (1111)	43 3/4 (1111)	43 3/4 (1111)
	(Includes bumper. Add 26 1/2 in. (673 mm) for door swing.)					
	Back of case to rear of splashguard	39 7/8 (1013)	39 7/8 (1013)	39 7/8 (1013)	39 7/8 (1013)	39 7/8 (1013)
	Width of Skidrail	3 3/4 (95)	3 3/4 (95)	3 3/4 (95)	3 3/4 (95)	3 3/4 (95)
	Width of Bottom Front Support	6 (152)	6 (152)	6 (152)	6 (152)	6 (152)
	Stub-up area between front support and splashguard	3 1/8 (79)	3 1/8 (79)	3 1/8 (79)	3 1/8 (79)	3 1/8 (79)
Electrical Service						
	RH end of case to the center of nearest knockout	4 (102)	4 (102)	4 (102)	4 (102)	4 (102)
	RH end of case to the center of LH knockout	27 1/2 (698)	58 (1473)	88 1/2 (2248)	118 7/8 (3019)	149 3/8 (3794)
	Back O/S of case to center of knockout	41 5/8 (1058)	41 5/8 (1058)	41 5/8 (1058)	41 5/8 (1058)	41 5/8 (1058)
NOTE: Electrical Field Wiring Connection Point is at terminal.						
Waste Outlet						
(B)	Right end of case to center of waste outlet	15 3/4 (400)	23 7/8 (606)	54 1/4 (1378)	46 1/4 (1175)	76 5/8 (1946)
	Back O/S of case to center of waste outlet	34 5/8 (879)	34 5/8 (879)	34 5/8 (879)	34 5/8 (879)	34 5/8 (879)
Water Seal						
	Edge of water seal to center of waste outlet	13 (330)	13 (330)	13 (330)	13 (330)	13 (330)
	Schedule 40 PVC drip pipe	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)
** NOTE: Field installed water seal outlets, tees, and connectors are shipped with case						
Refrigeration Outlet						
	RH end of case to center of RH refrigeration outlet	5 3/8 (137)	5 3/8 (137)	5 3/8 (137)	5 3/8 (137)	5 3/8 (137)
	Back O/S of case to center of refrigeration outlet	32 (813)	32 (813)	32 (813)	32 (813)	32 (813)
	Outside bottom front supports from end of case	6 3/4 (170)	6 3/4 (170)	6 3/4 (170)	6 3/4 (170)	6 3/4 (170)
	Center bottom front support from Centerline	NA	24 (610)	24 (610)	24 (610)	24 (610)
	Distance between Center and Outside supports will vary					

RL

With Innovator Doors or Innovator III Doors

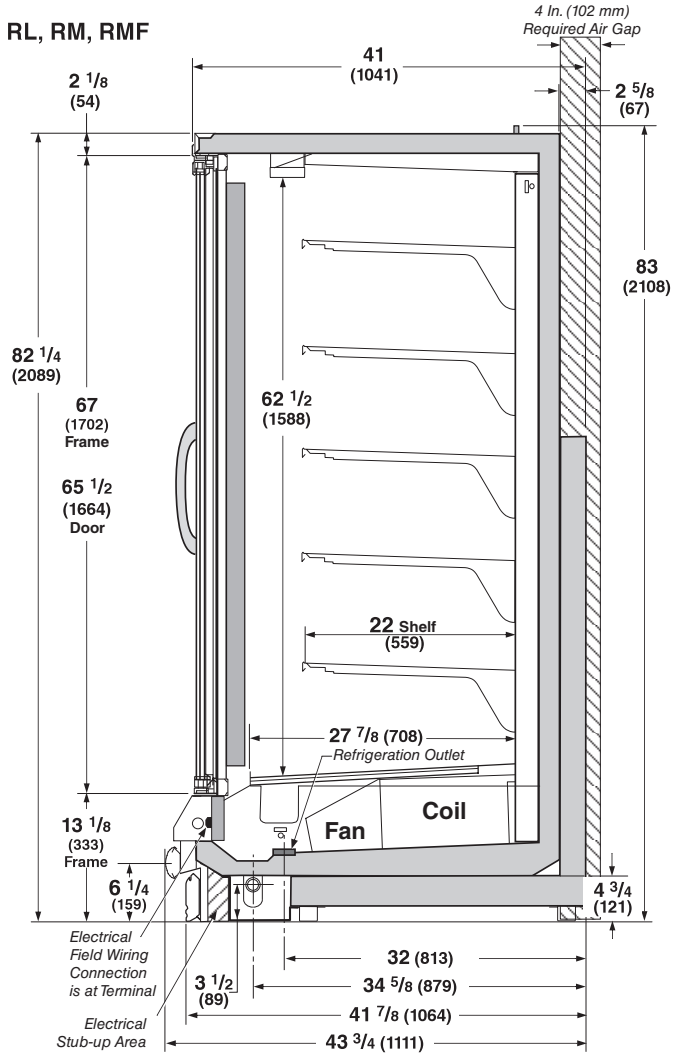
Low Temperature

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).



Estimated Charge ***			RL
1Dr	0.9 lb	14 oz	0.4 kg
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).

NSF Certification

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

REFRIGERATION DATA§

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

	2, 3, 4, 5 Door		1 Door	
	FF	**IC**	**FF**	**IC**
Discharge Air (°F)	–5	–12	2	–5
Evaporator (°F)	–11	–19	–11	–19
Unit Sizing (°F)	–14	–22	–14	–22
AHRI Rating*				
Discharge Air (°F)	–2			
Evaporator (°F)	–7			
Unit Sizing (°F)	–10			

*With A/S controller

Btulhr/Door				
INNOVATOR				
Parallel	955	1065	1095	1200
Conventional	970	1085	1115	1225
AHRI Rating				
Parallel	910		1045	
Conventional	940		1080	
INNOVATOR III				
Parallel	935	1035	1075	1165
Conventional	955	1055	1100	1190

§ 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

ALL	**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		
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.

RL
With Innovator Doors or Innovator III Doors
Low Temperature

Hussmann 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
240V 50/60Hz Export Innovator	0.30	0.45	0.60	0.75	36	54	72	90
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
240V 50/60Hz Export Innovator	0.8	1.2	1.5	1.9	183	275	367	459
220V 50/60Hz Export Innovator III	NA	NA	NA	NA	NA	NA	NA	NA
* Maximum door watts without anti-sweat cycling controls shown.								
Frame Anti-sweat Heaters (on fan circuit)								
120V 50/60Hz	0.78	1.18	1.57	1.97	94	141	188	236
240V 50/60Hz Export	0.45	0.67	0.89	1.12	107	161	215	269
Minimum Fan Circuit Ampacity								
120V 50/60Hz Innovator	3.1	4.9	6.8	8.6				
120V 50/60Hz Innovator III	2.5	3.9	5.5	7.0				
240V 50/60Hz Export Innovator	1.8	2.9	4.0	4.9				
240V 50/60Hz Export Innovator III	1.0	1.6	2.3	2.8				
Maximum Over Current Protection 120V	**20**	**20**	**20**	**20**				
Maximum Over Current Protection 240V	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
(Export: 240V 50 Hz)	0.41	0.83	1.33	1.67	100	200	320	400
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
(Export: 240V 50 Hz)	7.76	11.65	15.53	19.42	1864	2796	3728	4660
Standard Vertical LED Lighting	**2Dr**	**3Dr**	**4Dr**	**5Dr**	**2Dr**	**3Dr**	**4Dr**	**5Dr**
Hussmann EcoShine II™ - A (120V)	0.31	0.46	0.62	0.77	37.1	55.6	74.2	92.7
Hussmann EcoShine II™ - A (220V Export)	0.17	0.25	0.34	0.42	37.1	55.6	74.2	92.7
Optional Vertical LED Lighting								
Hussmann EcoShine II™ - B (120V)	0.36	0.52	0.68	0.84	43.2	62.3	81.4	100.5
Hussmann EcoShine II™ - B (220V Export)	0.20	0.28	0.37	0.46	43.2	62.3	81.4	100.5

Anti-sweat controls are standard for all low temperature Reach-in cases with Innovator I doors.

Product Data

Recommended Usable Cube [1] ***(Cu Ft/Dr)***	23.46 ft^3 /Dr (0.66 m^3 /Dr)
AHRI Total Display Area [2] **(*Sq Ft/Dr*)**	13.04 ft^2 /Dr (1.21 m^2 /Dr)
Shelf Area [3] ***(Sq Ft/Dr)***	29.32 ft^2 /Dr (2.72 m^2 /Dr)

[1] AHRI Refrigerated Volume less shelving and other unusable space: Refrigerated Volume/Unit of Length, ft^3/ft [m^3/m]

[2] Computed using AHRI 1200 standard methodology: Total Display Area, ft^2 [m^2]/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]

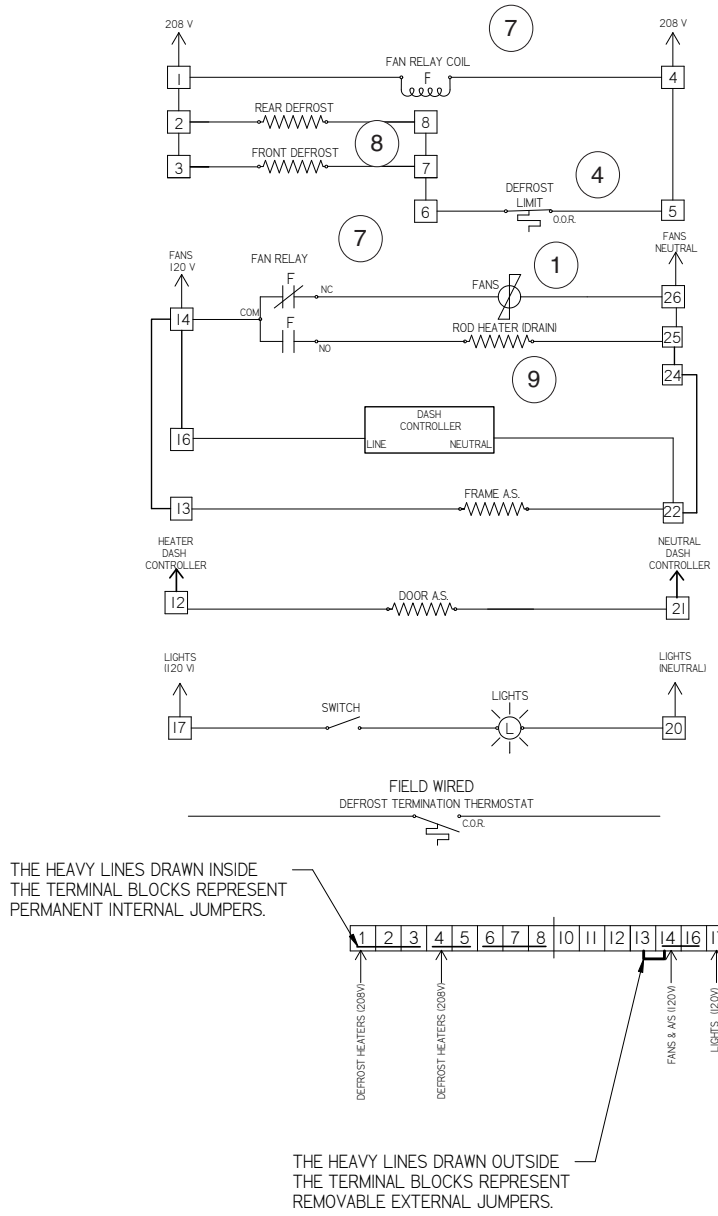
Case						**Solid End**
	1 Dr	***2 Dr***	***3 Dr***	***4 Dr***	***5 Dr***	***(each)***
lb *(kg)*	617 (280)	997 (453)	1295 (589)	1595 (725)	1874 (852)	55 (25)

[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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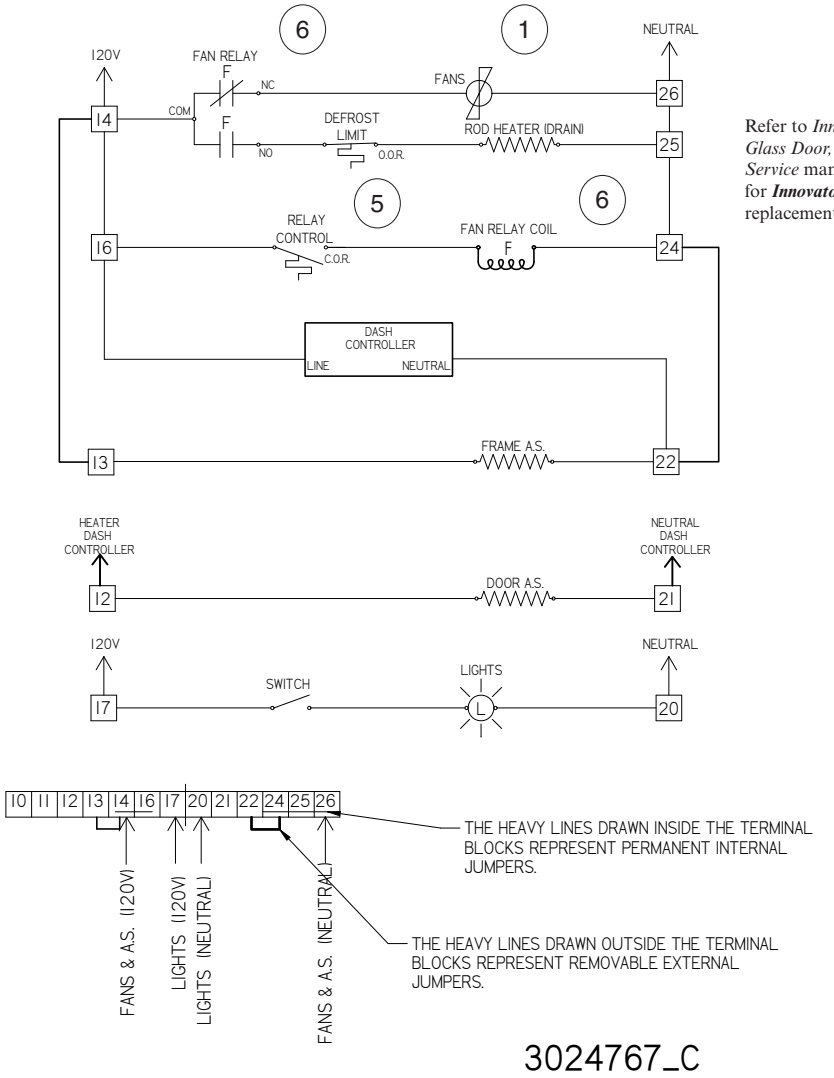
Electric Defrost Sequence - Low Temperature

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.)



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

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.