

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 #	Description	Wiring Item #	Item	Part #	(Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS (CONTINUED)				
A.	12W Standard	Fan Assembly	(1)	H.	Electric Defrost Heaters — Rear (208V)	(8)		
	0047000	Fan Motor, Evaporator (MO.4410103)			0484313 (1)	1 Door Models (HE.4850634)		
	0461805	Fan Blade (FB.4780446)			0463891 (1)	2 Door Models (HE.4850358)		
	12W Optional Energy Efficient	Fan Assembly (1)			0463892 (1)	3 Door Models (HE.4850359)		
	0477655	Fan Motor, Evaporator (MO.4410546)			0463893 (1)	4 Door Models (HE.4850360)		
	0461805	Fan Blade (FB.4780446)			0463894 (1)	5 Door Models (HE.4850361)		
B.	0474033	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)	I.	Drain Pan Heater — Electric & KoolGas (120V)	(9)		
C.		Optional Adjustable Refrigeration Thermostat	(3)		0489708 (1)	1 Door Models (HE.4850643)		
D.	0344662	Defrost Limit Thermostat (CT.4440261)	(4)		0387036 (1)	2 Door Models (HE.4850239)		
E.	0461814	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)	(5)		0387037 (1)	3 Door Models (HE.4850240)		
RELAYS				LAMPS, BALLASTS, LED FIXTURES AND POWER SUPPLY				
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)	J.	0489698	2 Lamp Ballast (BA.4481596)		
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0489699	3 Lamp Ballast (BA.4481739)		
HEATERS				K.	Standard Fluorescent Lamp			
H.	Electric Defrost Heaters – Front (208V)	(8)			Replace with like fixtures			
	0484312 (1)	1 Door Models (HE.4850632)		L.	0499399	LED Power Supply (EP.4481668)		
	0441755 (1)	2 Door Models (HE.4850346)		M.	LED Fixture			
	0441756 (1)	3 Door Models (HE.4850337)			Replace with like fixtures			
	0441757 (1)	4 Door Models (HE.4850347)		NOTE: For LED lighting parts contact your Hussmann service representative at 1-800-922-1919. Please have your model and serial number available.				
	0441758 (1)	5 Door Models (HE.4850323)		Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE manual, P/N 0425683, for Innovator and Innovator II door and frame replacement parts.				

NOTE: Revision P updated electrical data, page 4.



Engineering Plan Views

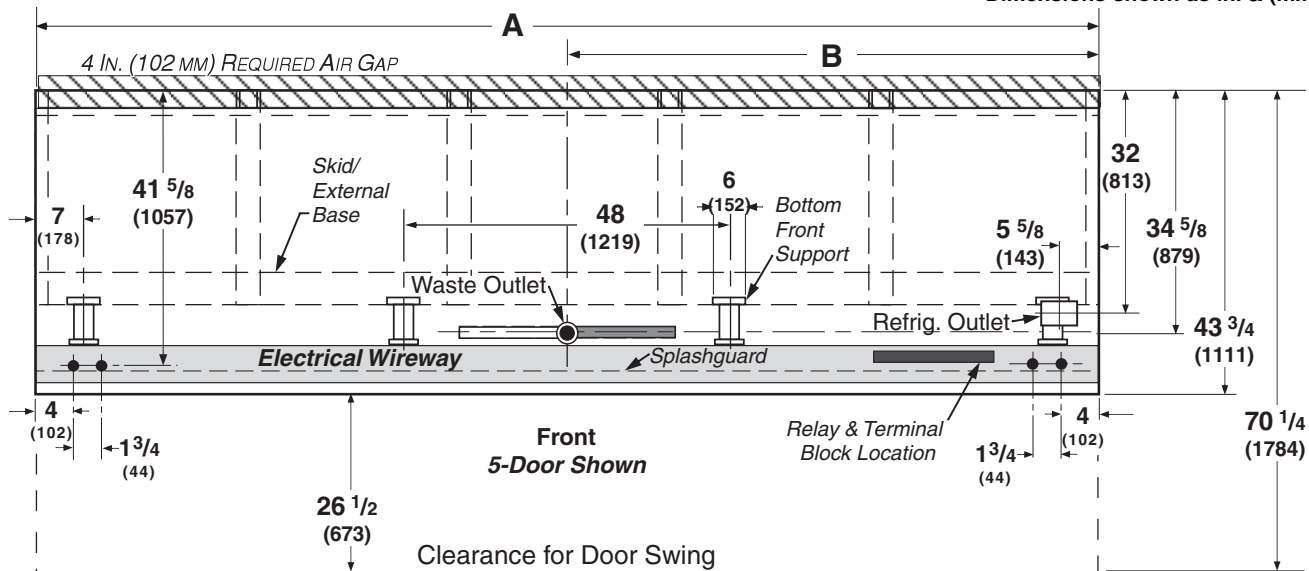
PHYSICAL DATA

Merchandiser Drip Pipe (in.)	1 1/4
Merchandiser Liquid Line (in.)	3/8
Merchandiser Suction Line (in.)	7/8

RL - RM - RMF Plan View 06-2009

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

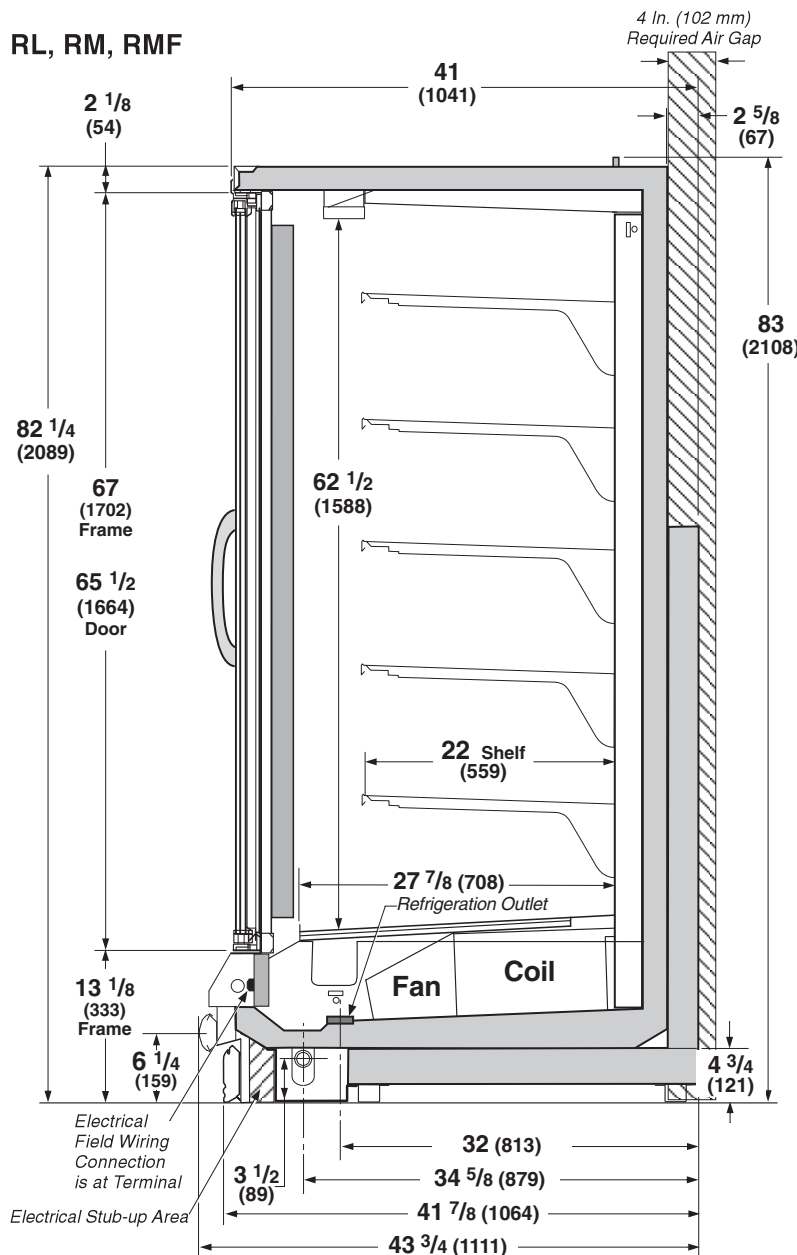
Dimensions shown as in. & (mm).



	1 Dr	2 Dr	3 Dr	4 Dr	5 Dr
General					
(A) Case Length (without ends or partitions) <i>(Each end adds 2 in. (51 mm) to length of lineup; each insulated partition adds 1 1/2 in. (38 mm).</i>	31 1/2 (800)	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. Add 26 1/2 in. (673 mm) for door swing.)</i>	43 3/4 (1111)	43 3/4 (1111)	43 3/4 (1111)	43 3/4 (1111)	43 3/4 (1111)
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)
<i>* NOTE: Electrical Field Wiring Connection Point is at terminal.</i>					
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)
<i>** NOTE: Field installed water seal outlets, tees, and connectors are shipped with case</i>					
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)
<i>Distance between Center and Outside supports will vary</i>					

Reach-in 2, 3, 4 and 5 Door Models

Dimensions shown as in. & (mm).



Impact RL
With INNOVATOR Doors
Frozen Food & Ice Cream

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
Btu/hr/Door*				
Parallel	1300	1370	1390	1470
Conventional	1325	1400	1420	1590

*Optional LED lighting reduces refrigeration load by 100 Btu/hr/Door.

Optional Energy Efficient Fan motors reduce refrigeration load by 109 Btu/hr/Door.

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	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.

Estimated Charge (lb)***

1Dr	0.9	4Dr	3.6
2Dr	1.8	5Dr	4.6
3Dr	2.7		

***This is an average for all refrigerant types. Actual refrigerant charge may vary by approximately half a pound.

Length Added to Lineup by each

Standard End (in.)	2
Optional End with Window (in.)	1 1/2
Optional Partition (in.)	1 1/2

NSF Certification

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

Impact RL
With INNOVATOR Doors
Frozen Food & Ice Cream

Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

Number of Fans—12W	1	2	3	4	5					
Merchandiser	Amperes					Watts				
	1Dr	2Dr	3Dr	4Dr	5Dr	1Dr	2Dr	3Dr	4Dr	5Dr
Evaporator Fan										
120V 60Hz Standard	0.65	1.30	1.95	2.60	3.25	50	100	150	200	250
120V 50Hz Standard	0.75	1.50	2.25	3.00	3.75	57	114	171	228	285
220V 60Hz Export	NA	0.66	0.99	1.32	1.65	NA	100	150	200	250
220V 50Hz Export	NA	0.76	1.14	1.52	1.90	NA	114	171	228	285
120V 60Hz Energy Efficient	0.30	0.60	0.90	1.20	1.50	18	36	54	72	90
220V 60Hz Energy Efficient	NA	0.30	0.45	0.60	0.75	NA	36	54	72	90
Door Anti-sweat Heaters (on fan circuit)										
120V 50/60Hz Standard	0.77	1.54	2.31	3.08	3.86	92	185	278	370	463
220V 50/60Hz Export	NA	0.84	1.26	1.68	2.10	NA	185	278	370	463
Frame Anti-sweat Heaters (on fan circuit)										
120V 50/60Hz Standard	0.39	0.78	1.18	1.57	1.97	47	94	141	188	236
220V 50/60Hz Export	NA	0.43	0.64	0.85	1.07	NA	94	141	188	236
Minimum Circuit Ampacity										
120V 60Hz Standard	3.01	3.82	5.64	7.45	9.28					
120V 50Hz Standard	3.01	4.02	5.94	7.85	9.78					
220V 60Hz Export	NA	2.13	3.09	4.05	5.02					
220V 50Hz Export	NA	2.23	3.24	4.25	5.27					
120V 60Hz Energy Efficient	NA	3.12	4.59	6.05	7.53					
220V 60Hz Energy Efficient	NA	1.77	2.55	3.33	4.12					
Maximum Over Current Protection 120V	20	20	20	20	20					
Maximum Over Current Protection 220V	15	15	15	15	15					
Defrost										
Drain Heaters (120V)	1.67	0.63	1.25	2.00	2.57	200	75	150	240	300
(Export: 220V 50 hz)	NA	0.34	0.76	1.22	1.53	NA	84	168	269	336
208V Electric Defrost	2.88	6.72	10.08	13.46	16.82	600	1400	2100	2800	3500
(Export: 220V 50 hz)	NA	7.11	10.66	14.24	17.79	NA	1564	2345	3133	3914
Standard Vertical Lighting										
Innovator* Doors (120V)	1.00	1.50	2.00	2.50	3.00	120	180	240	300	360
(Export: 220V 50 hz)	NA	0.84	1.12	1.40	1.68	NA	185	246	308	370
Optional LED Lighting										
Hussmann EcoShine™ [27 W] (120V)	0.23	0.45	0.68	0.90	1.13	27	54	81	108	135
Hussmann EcoShine™ [27 W] [220V Export]	0.12	0.25	0.37	0.49	0.61	27	54	81	108	135
Hussmann EcoShine™ EP [16 W] (120V)	0.13	0.27	0.40	0.53	0.67	16	32	48	64	80
Hussmann EcoShine™ EP [16 W] [220V Exp]	0.07	0.15	0.22	0.29	0.36	16	32	48	64	80
Hussmann EcoShine™ [20 W] (120V)	0.17	0.33	0.50	0.67	0.83	20	40	60	80	100
Hussmann EcoShine™ [20 W] [220V Export]	0.08	0.17	0.25	0.33	0.42	20	40	60	80	100
Gelcore (120V)	0.24	0.48	0.73	0.97	1.21	29	58	87	116	145
Gelcore (120V) [220V (Export)]	0.13	0.26	0.40	0.53	0.66	29	58	87	116	145

* Innovator or Innovator II

Product Data

<i>Recommended Usable Cube</i> ¹ (Cu Ft/Dr)	23.46 ft ³ /Dr (0.66 m ³ /Dr)
<i>ARI Total Display Area</i> ² (Sq Ft/Dr)	13.31 ft ² /Dr (1.24 m ² /Dr)
<i>Shelf Area</i> ³ (Sq Ft/Dr)	29.32 ft ² /Dr (2.72 m ² /Dr)

- ¹ ARI Refrigerated Volume less shelving and other unusable space: Refrigerated Volume/Unit of Length, ft³/ft [m³/m]
- ² Computed using ARI 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

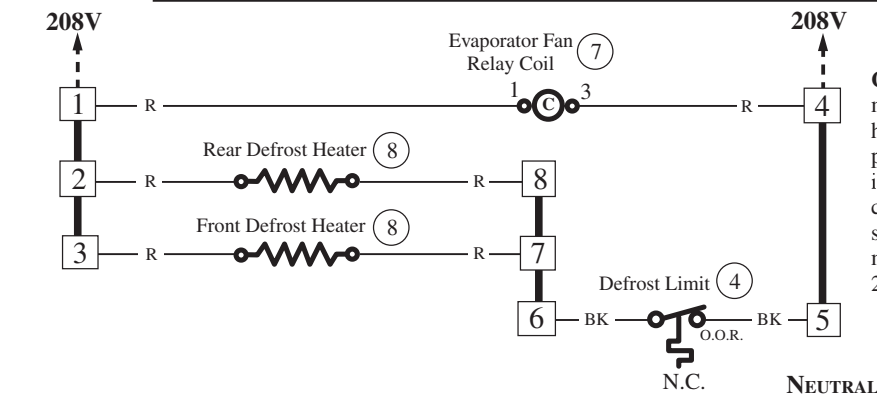
Case	<i>1 Dr</i>	<i>2 Dr</i>	<i>3 Dr</i>	<i>4 Dr</i>	<i>5 Dr</i>	Solid End
						<i>(each)</i>
lb (kg)	617 (280)	997 (453)	1295 (589)	1595 (725)	1874 (852)	55 (25)

⁴ Actual weights will vary according to optional kits included.

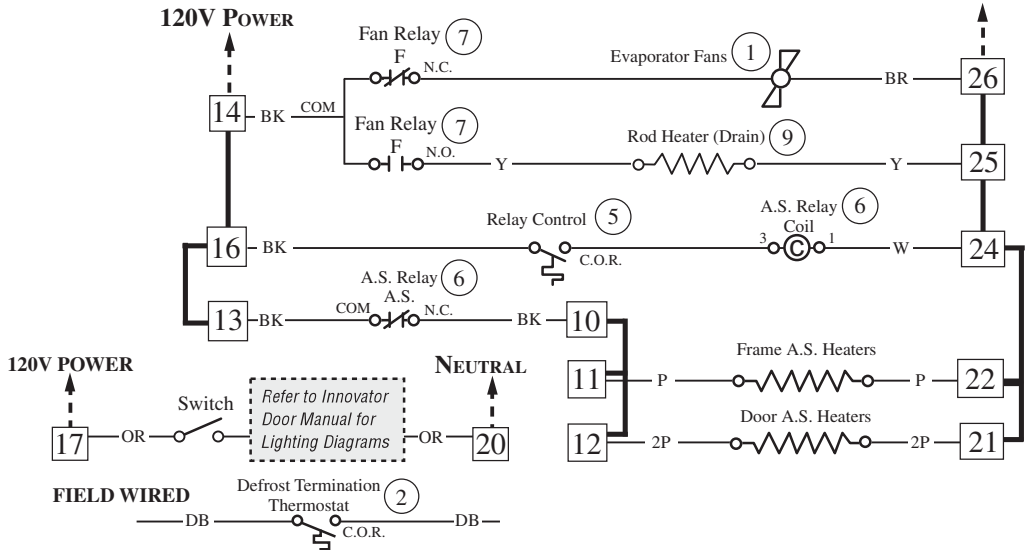
Fan and Heater Circuits - Electric Defrost (standard)

Low Temperature

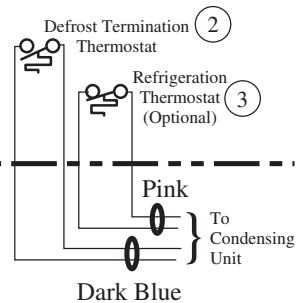
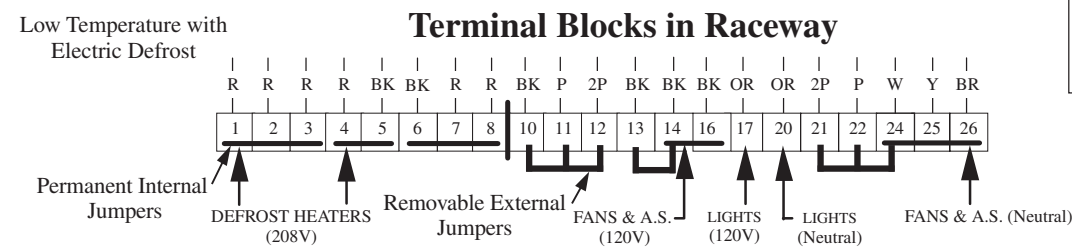
CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS
 R = Red P = Purple 2P = Purple (2 Bands) DB = Dark Blue BL = Black
 LB = Light Blue BR = Brown Y = Yellow OR = Orange W = White
THESE ARE MARKER COLORS (WIRE MAY VARY.)



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.

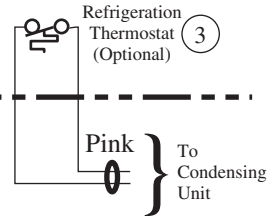
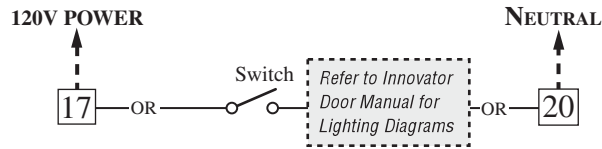
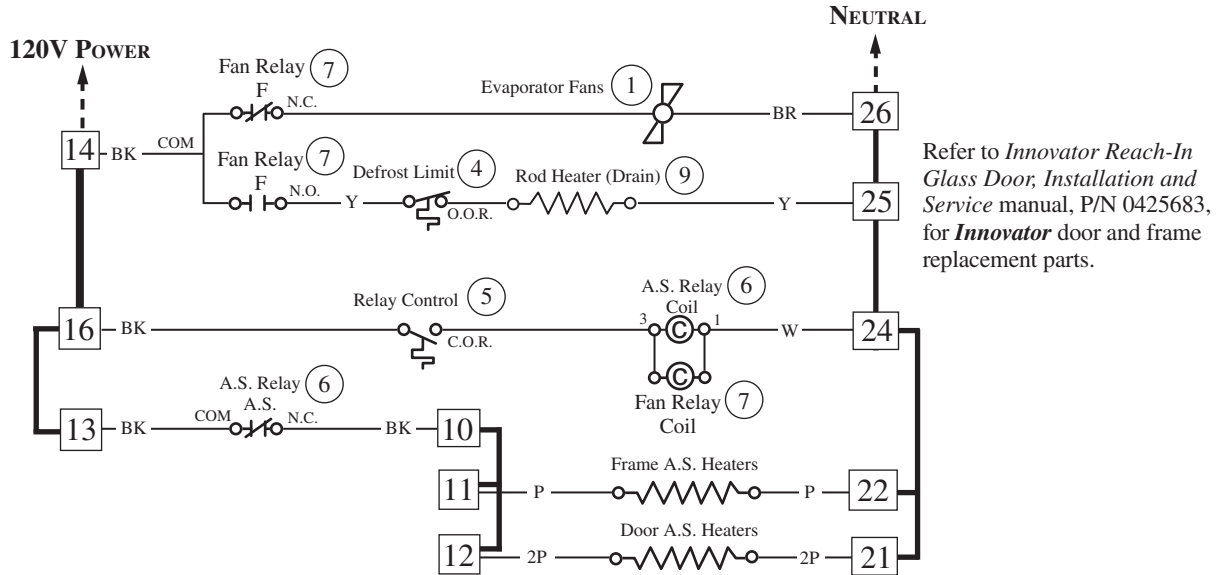


Electric Defrost Sequence - Low Temperature

- 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.
- If the Defrost Heater raises internal air temperature above 90°F, the Defrost Limit Thermostat (4) will open.
- Temperature rise of the evaporator closes the Relay Control Thermostat (5) at about 35°F, energizing 120V A.S. Relay Coil (6). This relay's contacts open the Frame and Door Heater Circuits.
- 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.
- Temperature fall of the evaporator opens the Relay Control Thermostat (5) at about 20°F, de-energizing 120V A.S. Relay Coil (6). A.S. Relay Contacts close the Frame and Door Heater Circuits.

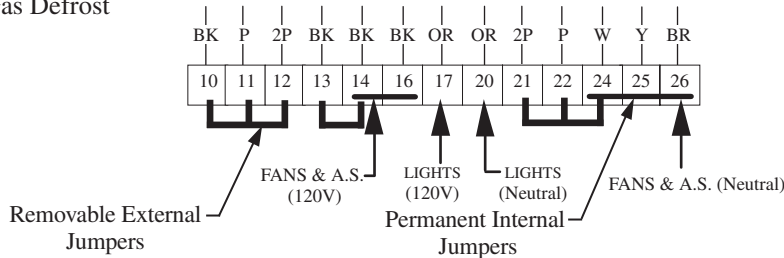
Fan and Heater Circuits - Gas Defrost (optional) Low Temperature

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS
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 LB = Light Blue BR = Brown Y = Yellow OR = Orange W = White
THESE ARE MARKER COLORS (WIRE MAY VARY.)



Low Temperature with Gas Defrost

Terminal Blocks in Raceway



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.