HUSSMANN®
IMPACT™ Merchandisers

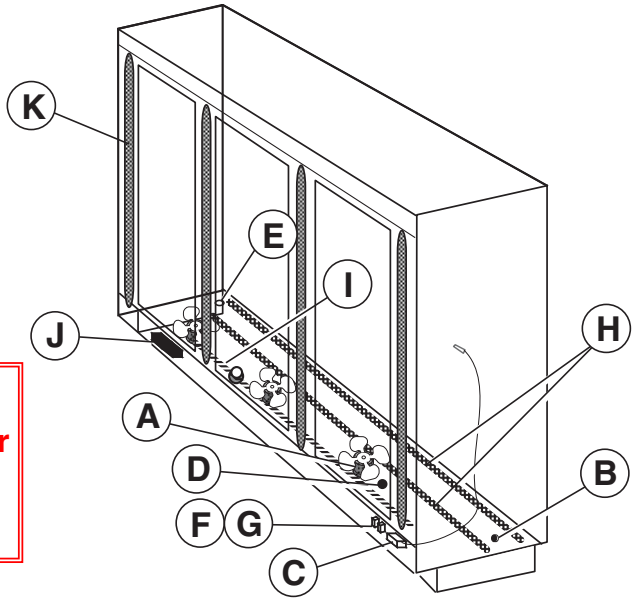
RLN with INNOVATOR Doors

Technical Data Sheet

P/N 0435490_K

NSF® Certified

November 2009



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 #
FAN ASSEMBLIES, AND THERMOSTATS			
A.		**12W Standard** Fan Assembly	(1)
	0047000	Fan Motor, Evaporator (MO.4410103)	
	0461805	Fan Blade (FB.4780446)	
		12W Optional 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)	(5)
RELAYS			
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)

Item	Part #	(Qty)	Description	Wiring Item #
HEATERS				
H.			Electric Defrost Heaters – Front (208V)	(8)
	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)	
			Electric Defrost Heaters — Rear (208V)	(8)
	0463891	(1)	2 Door Models (HE.4850358)	
	0463892	(1)	3 Door Models (HE.4850359)	
	0463893	(1)	4 Door Models (HE.4850360)	
	0463894	(1)	5 Door Models (HE.4850361)	
I.			Drain Pan Heater (Electric & Kool Gas) (120V)	(9)
	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)	
LAMPS AND BALLASTS				
J.	0489698		2 Lamp Ballast (BA.4481596)	
	0489699		3 Lamp Ballast (BA.4481739)	
	0424649		Export Ballast (BA.0424649)	
K.			Standard Fluorescent Lamp *Replace with like fixtures*	
L.	0499399		LED Power Supply (EP.4481668)	
M.			LED Fixture *Replace with like fixtures*	

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: For LED lighting parts contact your Hussmann service representative at 1-800-922-1919. Please have your model and serial number available.

NOTE: Revision K updates LED electrical data, Page 4.

U.S. & CANADA 1-800-922-1919 • MEXICO 1-800-522-1900 • WWW.HUSSMANN.COM

P/N 0435490K

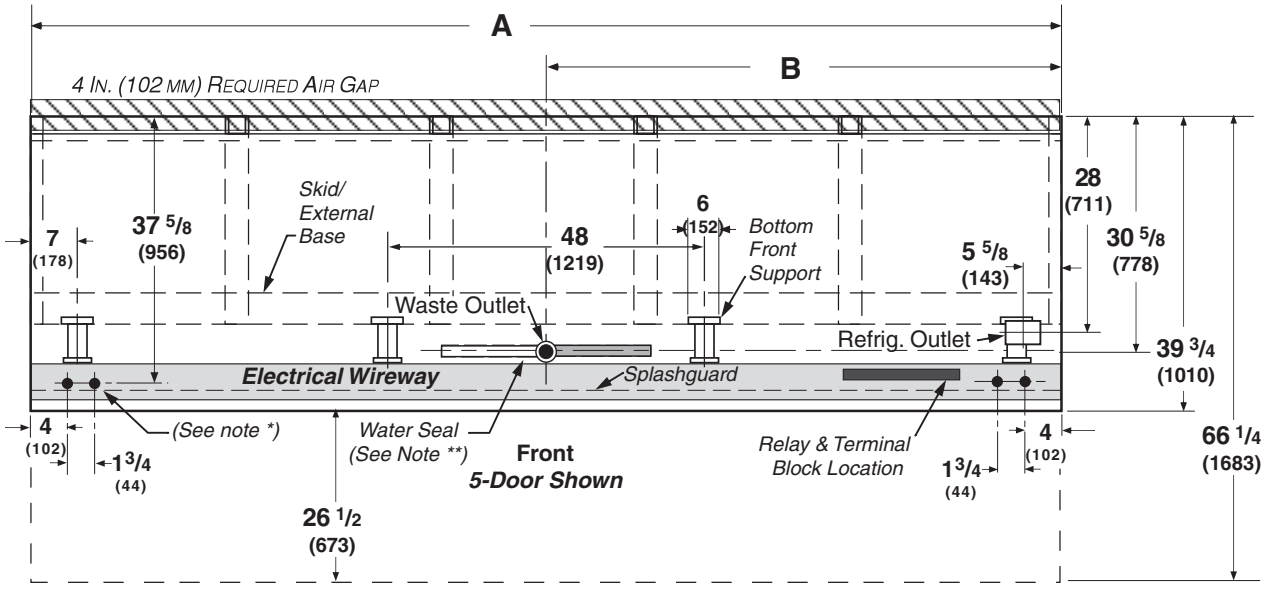
Engineering
Plan Views

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

RLN - RMN
Plan View
06-2009

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

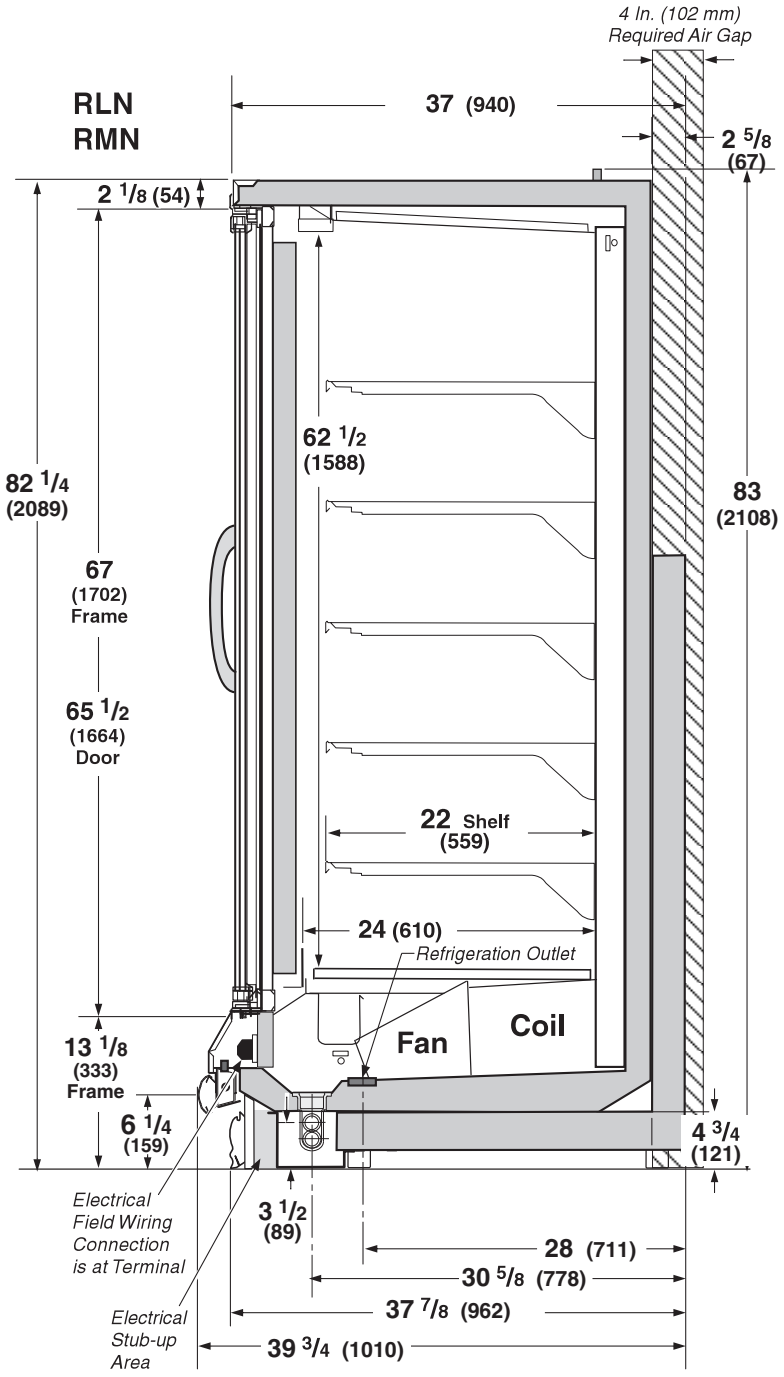
Dimensions shown as in. & (mm).



		2 Dr	3 Dr	4 Dr	5 Dr
General					
(A)	Case Length (without ends or partitions)	62 (1575)	92 1/2 (2350)	122 7/8 (3121)	153 3/8 (3896)
	Maximum O/S dimension of case back to front *(Includes bumper)*	39 3/4 (1010)	39 3/4 (1010)	39 3/4 (1010)	39 3/4 (1010)
	Back of case to rear of splashguard	35 3/8 (899)	35 3/8 (899)	35 3/8 (899)	35 3/8 (899)
	Width of Skidrail	4 1/2 (114)	4 1/2 (114)	4 1/2 (114)	4 1/2 (114)
	Width of Bottom Front Support	6 (152)	6 (152)	6 (152)	6 (152)
	Stub-up area between front skidrail and splashguard	6 3/8 (1000)	6 3/8 (1000)	6 3/8 (1000)	6 3/8 (1000)
Electrical Service					
	RH end of case to the center of nearest knockout	4 (102)	4 (102)	4 (102)	4 (102)
	RH end of case to the center of LH knockout	58 (1473)	88 1/2 (2248)	118 7/8 (3019)	149 3/8 (3794)
	Back O/S of case to center of knockout	37 5/8 (956)	37 5/8 (956)	37 5/8 (956)	37 5/8 (956)
** NOTE: Electrical Field Wiring Connection Point is at terminal.*					
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	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)
	Outside diameter of drip piping	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)
	Back O/S of case to center of refrigeration outlet	28 (711)	28 (711)	28 (711)	28 (711)
	Outside bottom front supports from end of case	6 3/4 (170)	6 3/4 (170)	6 3/4 (170)	6 3/4 (170)
	Center bottom front support from Centerline	24 (610)	24 (610)	24 (610)	24 (610)
	Distance between Center and Outside supports will vary				

Impact RLN
With INNOVATOR Doors
Frozen Food & Ice Cream

Dimensions shown as in. & (mm).



REFRIGERATION DATA

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

	FF	IC
Discharge Air (°F)	–5	–12
Evaporator (°F)	–11	–19
Unit Sizing (°F)	–14	–22
Btu/hr/Door*	**FF**	**IC**
Parallel	1300	1370
Conventional	1325	1400

*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

	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.

PHYSICAL DATA

Estimated Charge (lb)***

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

***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 RLN
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

			2Dr	3Dr	4Dr	5Dr				
Number of Fans—12W			**2**	**3**	**4**	**5**				
				Amperes				**Watts**		
Merchandiser			**2Dr**	**3Dr**	**4Dr**	**5Dr**	**2Dr**	**3Dr**	**4Dr**	**5Dr**
Evaporator Fan										
120V	60Hz	Standard	1.30	1.95	2.60	3.25	100	150	200	250
120V	50Hz	Standard	1.50	2.25	3.00	3.75	114	171	228	285
220V	60Hz	Export	0.66	0.99	1.32	1.65	100	150	200	250
220V	50Hz	Export	0.76	1.14	1.52	1.90	114	171	228	285
120V	60Hz	Energy Efficient	0.60	0.90	1.20	1.50	36	54	72	90
220V	60Hz	Energy Efficient	0.30	0.45	0.60	0.75	36	54	72	90
Door Anti-sweat Heaters (on fan circuit)										
120V	50/60Hz	Standard	1.54	2.31	3.08	3.86	185	278	370	463
220V	50/60Hz	Export	0.84	1.26	1.68	2.10	185	278	370	463
Frame Anti-sweat Heaters (on fan circuit)										
120V	50/60Hz	Standard	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	60Hz	Standard	3.82	5.64	7.45	9.28				
120V	50Hz	Standard	4.02	5.94	7.85	9.78				
220V	60Hz	Export	2.13	3.09	4.05	5.02				
220V	50Hz	Export	2.23	3.24	4.25	5.27				
120V	60Hz	Energy Efficient	3.12	4.59	6.05	7.53				
220V	60Hz	Energy Efficient	1.77	2.55	3.33	4.12				
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 Lighting			**2Dr**	**3Dr**	**4Dr**	**5Dr**	**2Dr**	**3Dr**	**4Dr**	**5Dr**
Innovator* Doors (120V)			1.50	2.00	2.50	3.00	180	240	300	360
(Export: 220V 50 Hz)			0.84	1.12	1.40	1.68	185	246	308	370
Optional LED Lighting										
Hussmann EcoShine™ [27 W] (120V)			0.45	0.68	0.90	1.13	54	81	108	135
Hussmann EcoShine™ [27 W] [220V (Export)]			0.25	0.37	0.49	0.61	54	81	108	135
Hussmann EcoShine™ EP [16 W] (120V)			0.27	0.40	0.53	0.67	32	48	64	80
Hussmann EcoShine™ EP [16 W] [220V (Export)]			0.15	0.22	0.29	0.36	32	48	64	80
Hussmann EcoShine™ [20 W] (120V)			0.33	0.50	0.67	0.83	40	60	80	100
Hussmann EcoShine™ [20 W] [220V (Export)]			0.17	0.25	0.33	0.42	40	60	80	100
Gelcore (120V)			0.48	0.73	0.97	1.21	58	87	116	145
Gelcore (120V) [220V (Export)]			0.26	0.40	0.53	0.66	58	87	116	145

* *Innovator* or *Innovator II*

Product Data

Recommended Usable Cube [1] ***(Cu Ft/Dr)***	22.80 ft^3 /Dr (0.65 m^3 /Dr)
ARI Total Display Area [2] **(*Sq Ft/Dr)***	13.31 ft^2 /Dr (1.24 m^2 /Dr)
Shelf Area [3] ***(Sq Ft/Dr)***	28.50 ft^2 /Dr (2.65 m^2 /Dr)

[1] ARI Refrigerated Volume less shelving and other unusable space: Refrigerated Volume/Unit of Length, ft^3/ft [m^3/m]
[2] Computed using ARI 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**
	2 Dr	***3 Dr***	***4 Dr***	***5 Dr***	***(each)***
lb *(kg)*	895 (407)	1122 (510)	1518 (690)	1870 (850)	55 (25)

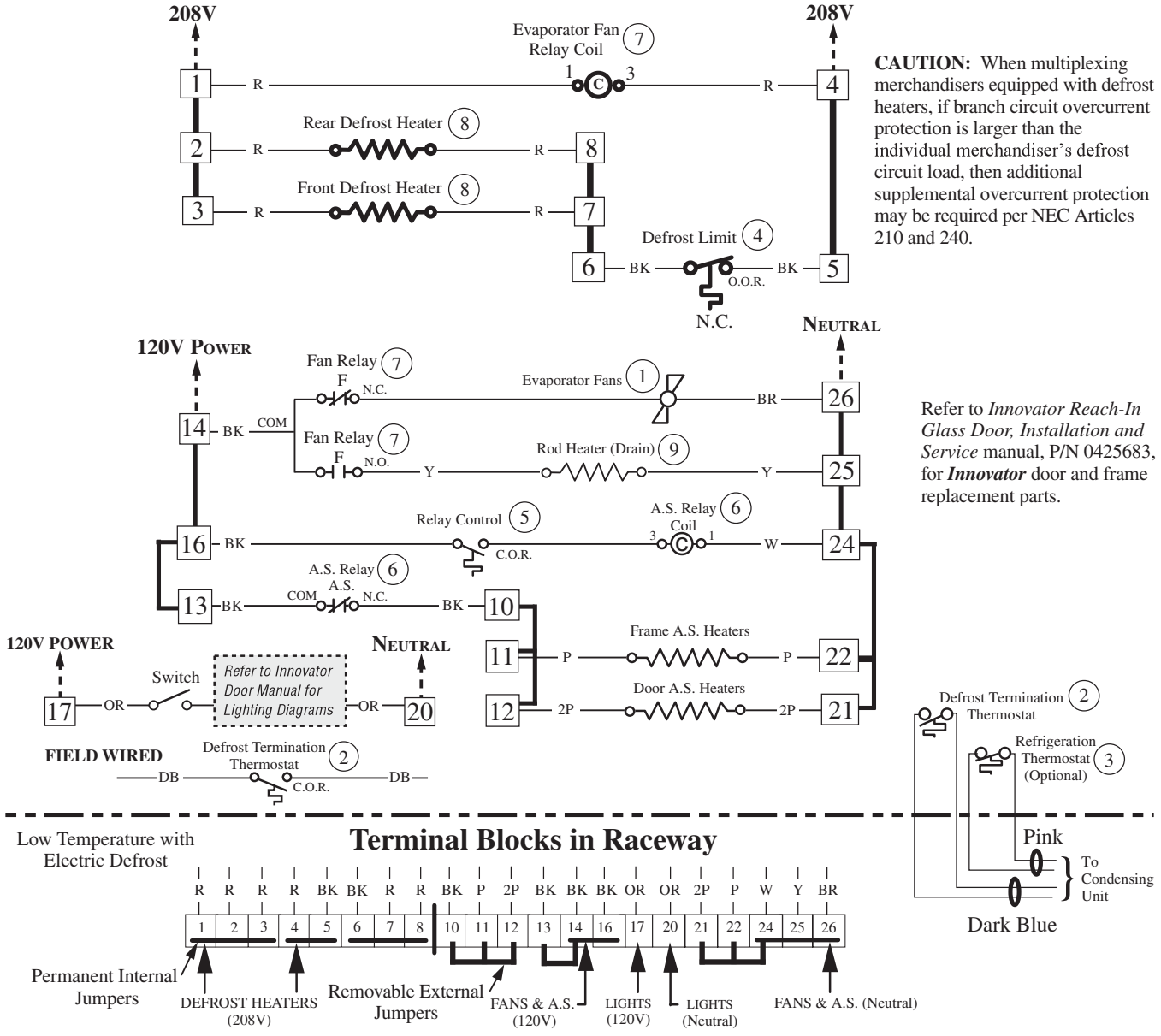
[4] Actual weights will vary according to optional kits included.

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.

Low Temperature with Electric Defrost

Terminal Blocks in Raceway

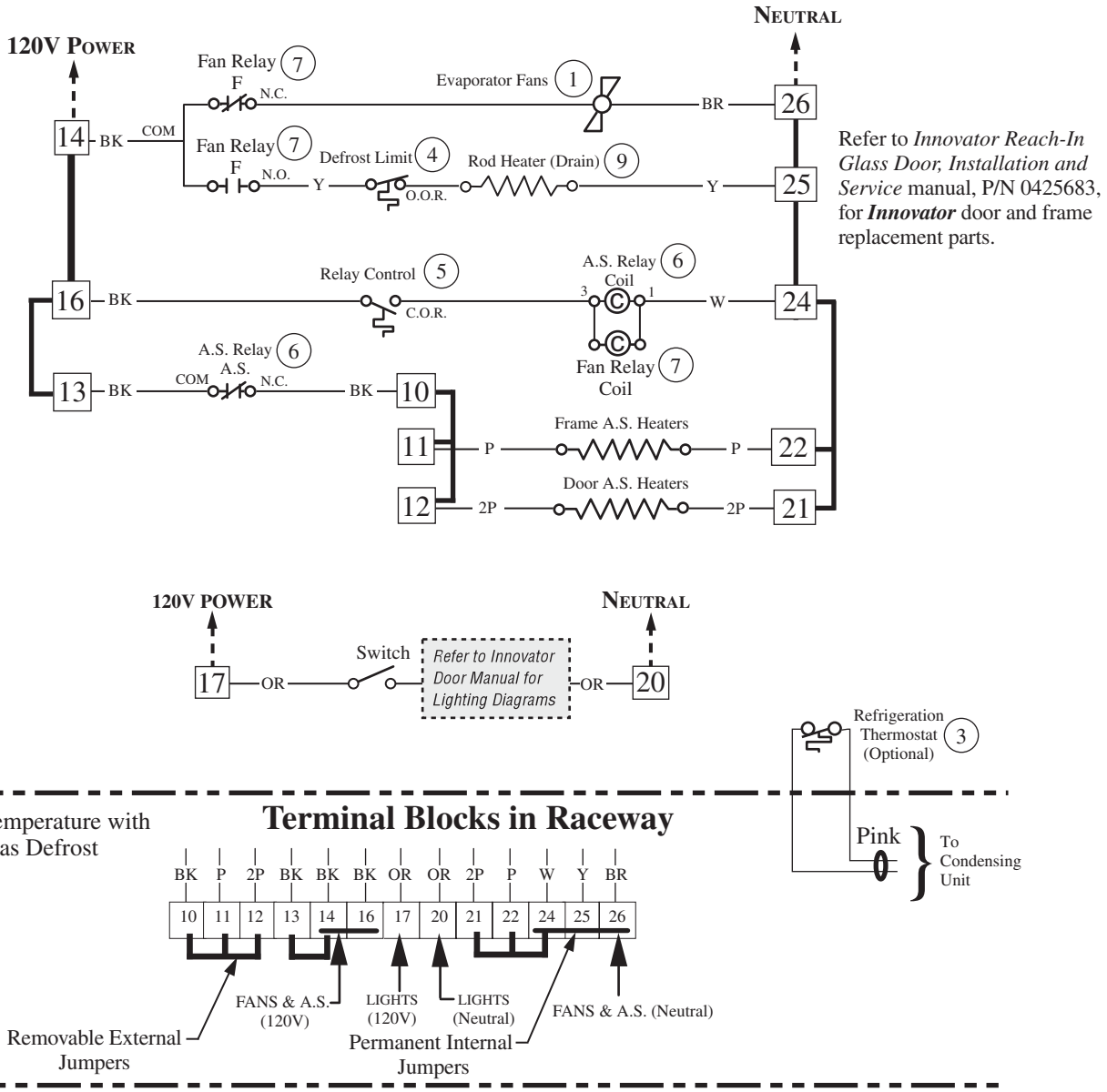
Electric Defrost Sequence – Low Temperature

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. 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.
4. 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.
5. 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
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.)



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.