HUSSMANN® NSF®

RL with INNOVATOR II

No Heat Doors

Technical Data Sheet

P/N 0440999_Q

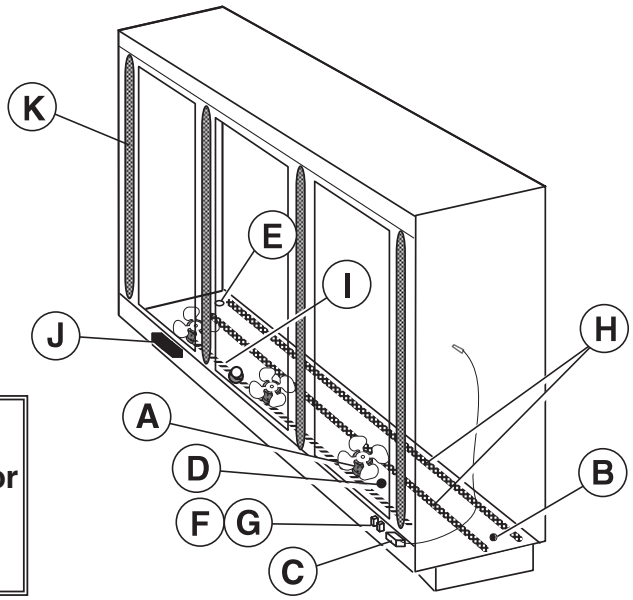
NSF® Certified

April 2017

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 #
FAN ASSEMBLIES, AND THERMOSTATS			
A.		**12W Standard 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) (RL.4480238) (6)	
G.	0342599	Fan Control Relay (208V) (RL.4480237) (7)	

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

Item	Part #	(Qty.)	Description	Wiring Item #
HEATERS				
H.			Electric Defrost Heaters – Front (208V)	(8)
	3015372	(1)	2 Door Models (HE.4850346)	
	3015373	(1)	3 Door Models (HE.4850337)	
	3015374	(1)	4 Door Models (HE.4850347)	
	3015375	(1)	5 Door Models (HE.4850323)	
			Electric Defrost Heaters — Rear (208V)	(8)
	3015376	(1)	2 Door Models (HE.4850358)	
	3015377	(1)	3 Door Models (HE.4850359)	
	3015378	(1)	4 Door Models (HE.4850360)	
	3015379	(1)	5 Door Models (HE.4850361)	
I.			Drain Pan Heater (Electric & KoolGas) (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, BALLASTS, LED FIXTURES AND POWER SUPPLY				
J.	0430330		2 Lamp Ballast (BA.4480342)	
	0454319		3 Lamp Ballast (BA.4480601)	
	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*	

Data sheet-Reach-in RL

Note: Revision Q: April 2017. Updated LED energy values. Other changes marked with a bar, circle or underline.

U.S. & CANADA 1-800-922-1919 • MEXICO 1-800-890-2900 • WWW.HUSSMANN.COM

Spanish P/N 0553987

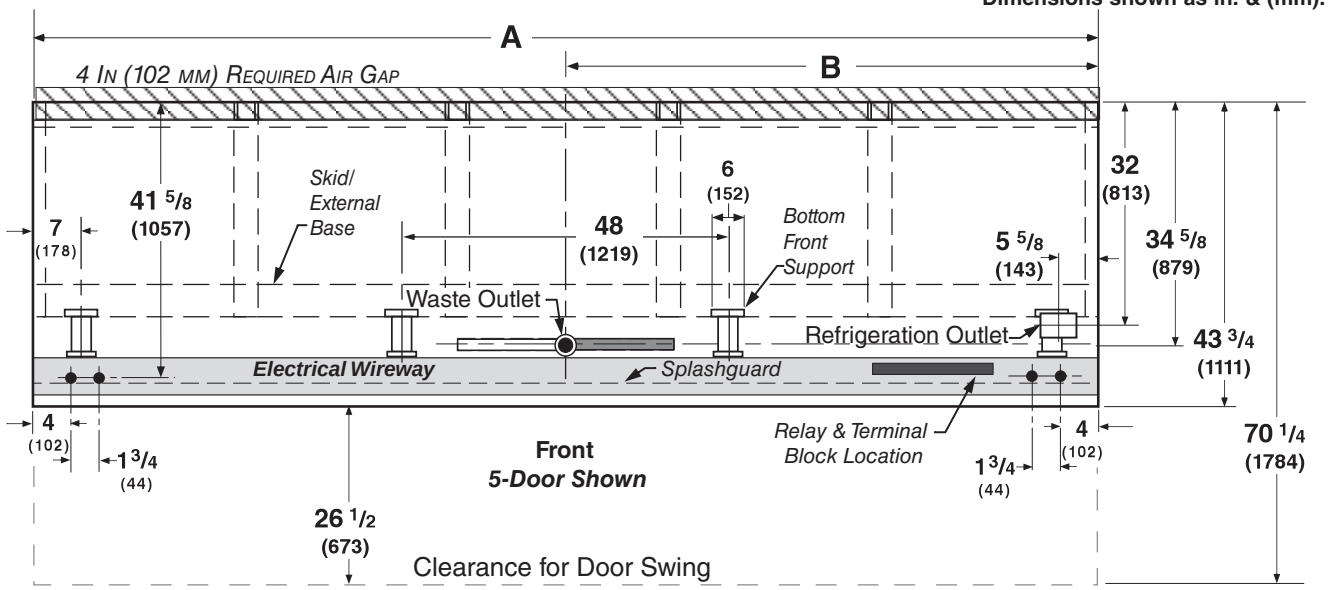
Engineering
Plan Views

Reach-In
2, 3, 4 & 5 Door

RL - RM - RMF
Plan View
06-2009

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).



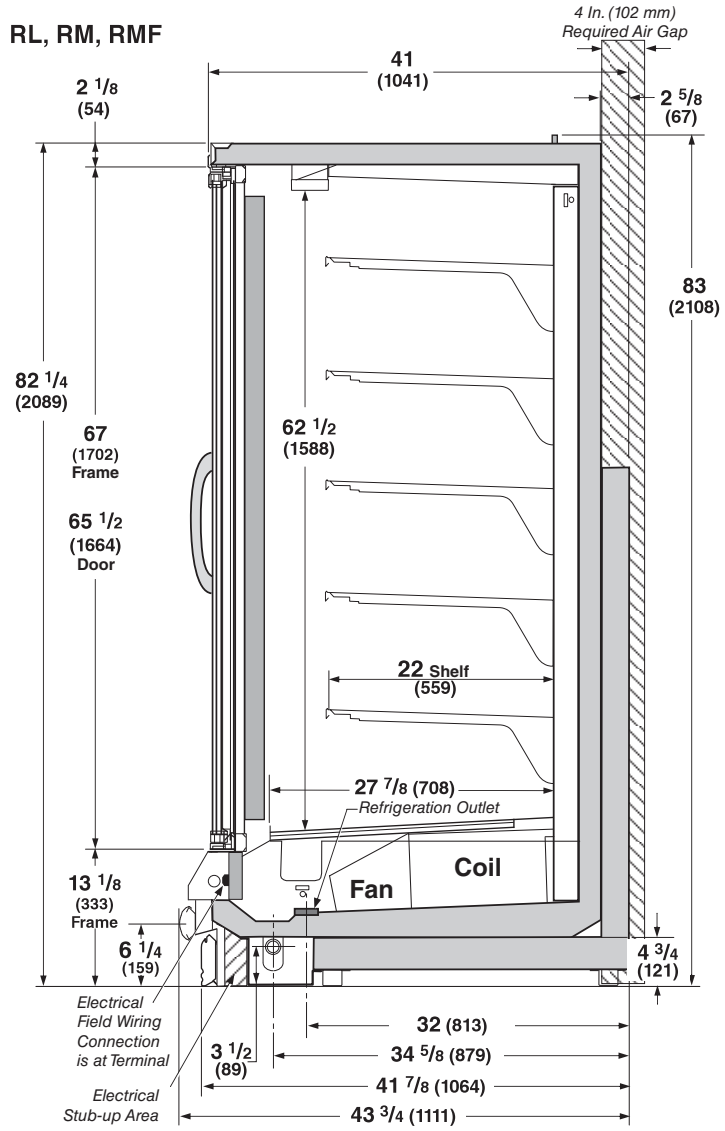
	1 Dr	2 Dr	3 Dr	4 Dr	5 Dr
General					
(A) Case Length (without ends or partitions)	31 1/2 (800)	62 (1575)	92 1/2 (2350)	122 7/8 (3121)	153 3/8 (3896)
**NOTE: Each solid end adds approximately 2 3/8 in (60 mm) to length of line up; each partition add approximately 2 3/4 in (70 mm); case to case joints can add approximately 1/8 in (3 mm) for gasket material.					
Maximum O/S dimension of case back to front *(Includes bumper. Add 26 1/2 in. (673 mm) for door swing.)*	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)
** 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 *Distance between Center and Outside supports will vary*	NA	24 (610)	24 (610)	24 (610)	24 (610)

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 doors, energy efficient fan motors, and EcoShine II LED vertical lighting.

Dimensions shown as in. & (mm).



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 NSF/ANSI (National Sanitation Foundation) Standard #7 requirements for construction, materials & cleanability.

RL

With INNOVATOR II 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.

	FF	**IC**
Discharge Air (°F)	–5	–12
Evaporator (°F)	–9	–17
Unit Sizing (°F)	–12	–20
Btu/hr/Door	**FF**	**IC**
Parallel	830	900
Conventional	845	920

§ 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		
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	57 oz	1.6 kg
5Dr	4.6 lb	73 oz	2.0 kg

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

RL
With INNOVATOR II 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 Energy Efficient	0.60	0.90	1.20	1.50	36	54	72	90
220V 60Hz Standard Energy Efficient	0.30	0.45	0.60	0.75	36	54	72	90
Door Anti-sweat Heaters (on fan circuit)	**NA**							
Frame Anti-sweat Heaters (on fan circuit)								
120V 50/60Hz Standard	0.89	1.34	1.79	2.24	107	161	215	269
220V 50/60Hz Export	0.49	0.73	0.98	1.22	107	161	215	269
Minimum Circuit Ampacity								
120V 60Hz Standard Energy Efficient	1.69	2.44	3.19	3.94				
220V 60Hz Standard Energy Efficient	0.99	1.38	1.78	2.17				
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 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**
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

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]

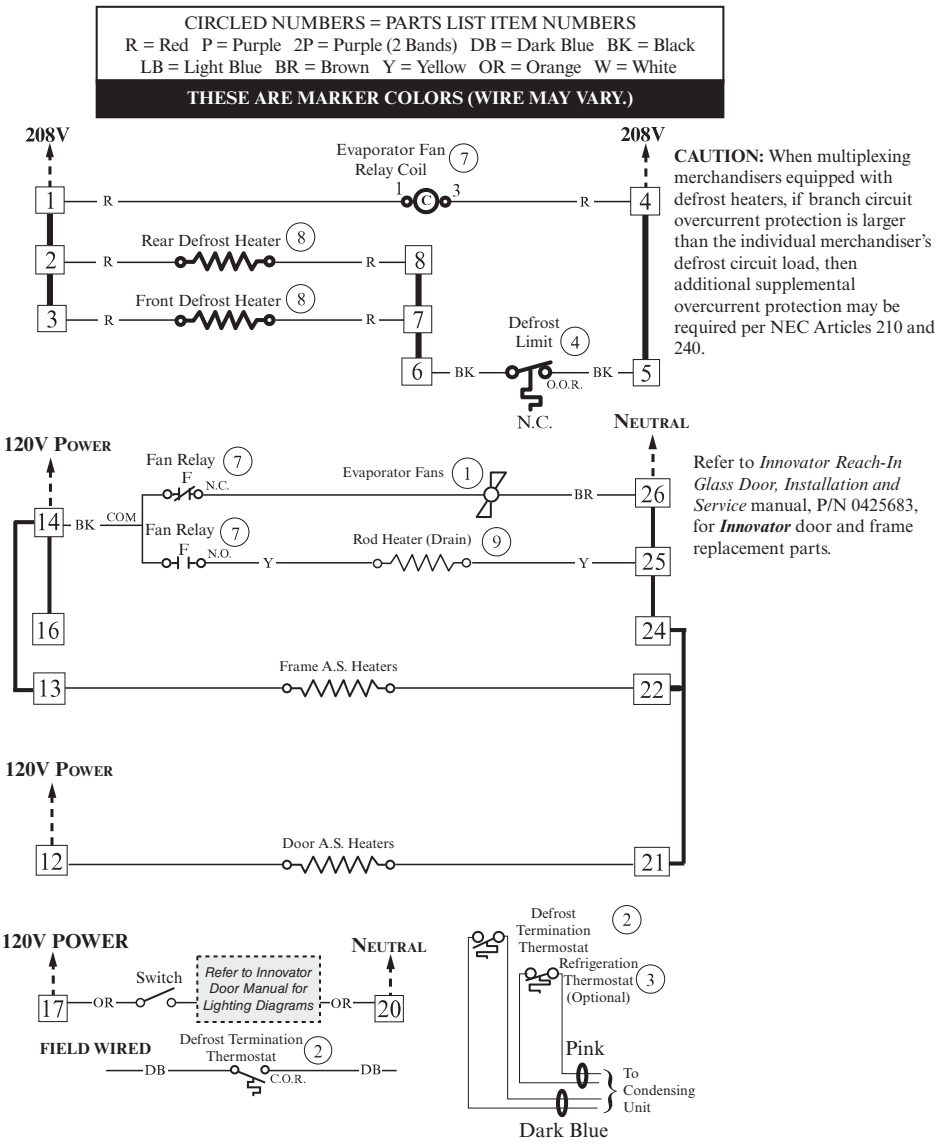
[3] Shelf surface area is composed of bottom deck plus standard shelf complement, as shown in the Hussmann ***Product Reference Guide***. The standard shelf complement for this model is (5) rows of 22-inch shelves.

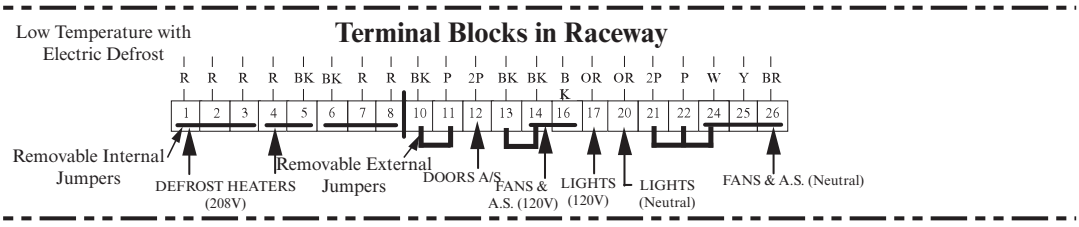
ESTIMATED SHIPPING WEIGHT [5]

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

5 Actual weights will vary according to optional kits included.

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





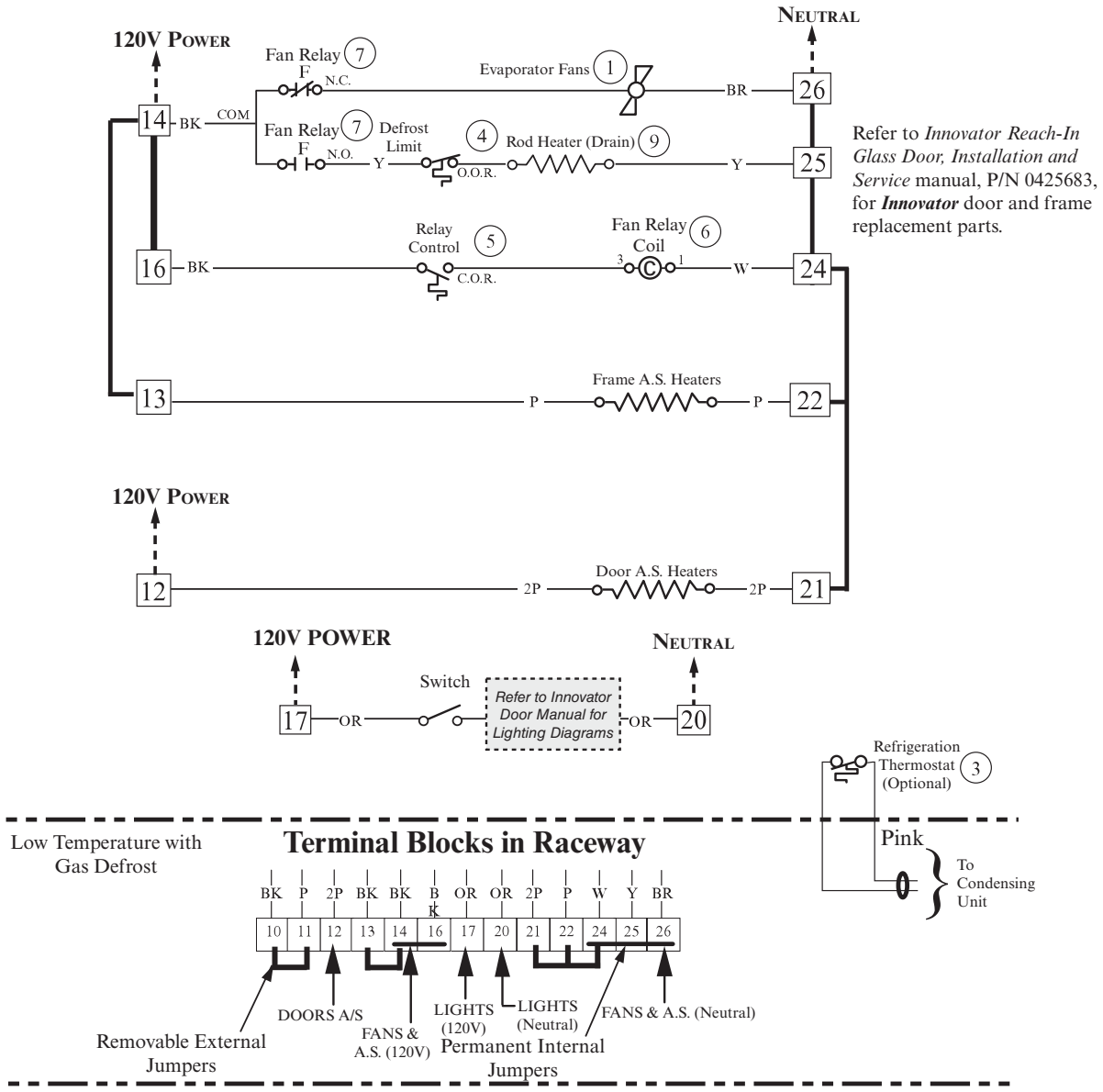
Electric Defrost Sequence - Low Temperature

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 BK = 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.