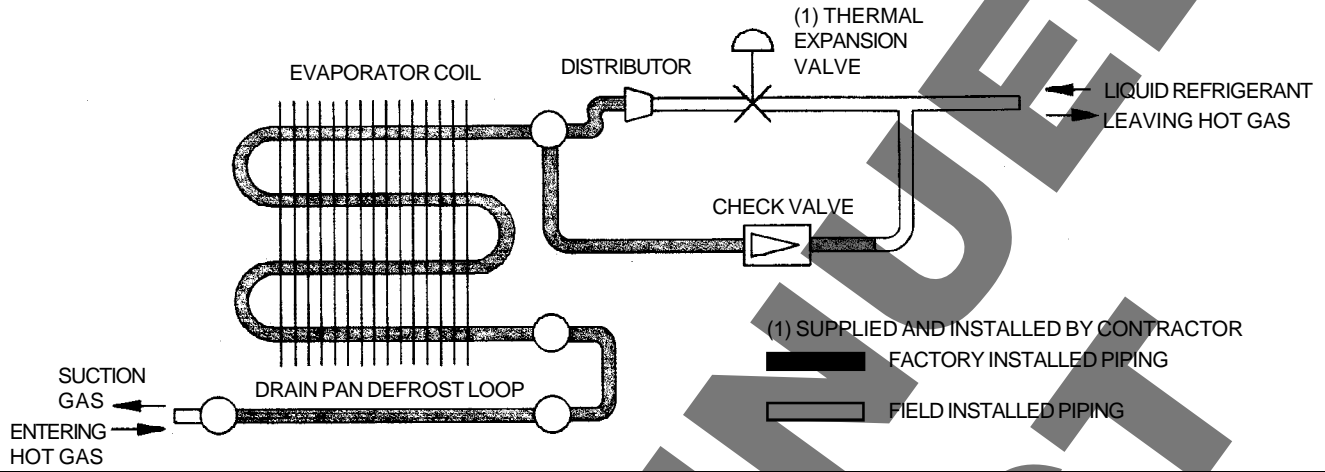
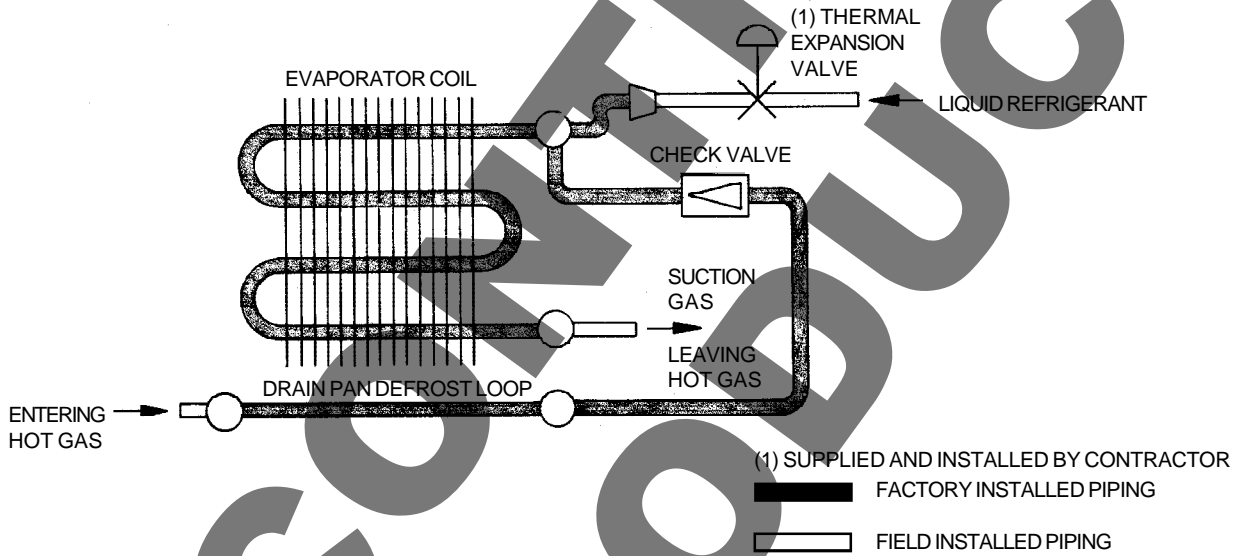


HOT GAS DEFROST REFRIGERATION PIPING SCHEMATICS

REVERSE CYCLE DEFROST SYSTEM

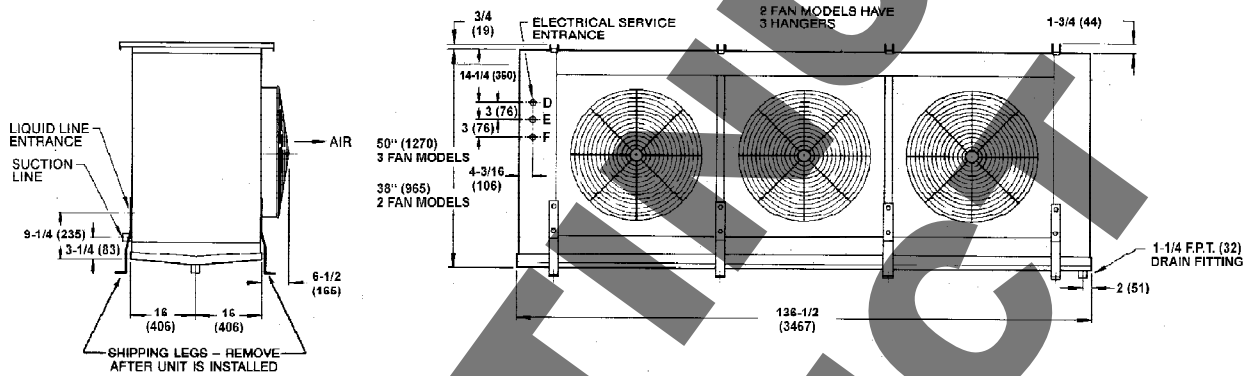
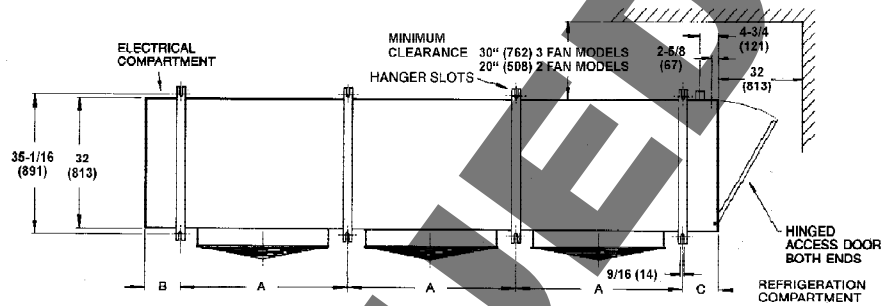


3 - PIPE DEFROST SYSTEM



AIR AND ELECTRIC DEFROST MODELS

ELECTRICAL SERVICE ENTRANCE KNOCKOUTS		
	2 FAN MODELS	3 FAN MODELS
Motors - D	7/8" Dia. 22mm	7/8" & 1-3/32" Dia. 22mm & 28mm
Controls - E	7/8" Dia. 22mm	7/8" Dia. 22mm
Heaters - F	1-3/32", 1-23/64" & 1-23/32" Dia. 22mm, 35mm & 44mm	1-3/32", 1-23/64" & 123/32" Dia. 22mm, 35mm & 44mm



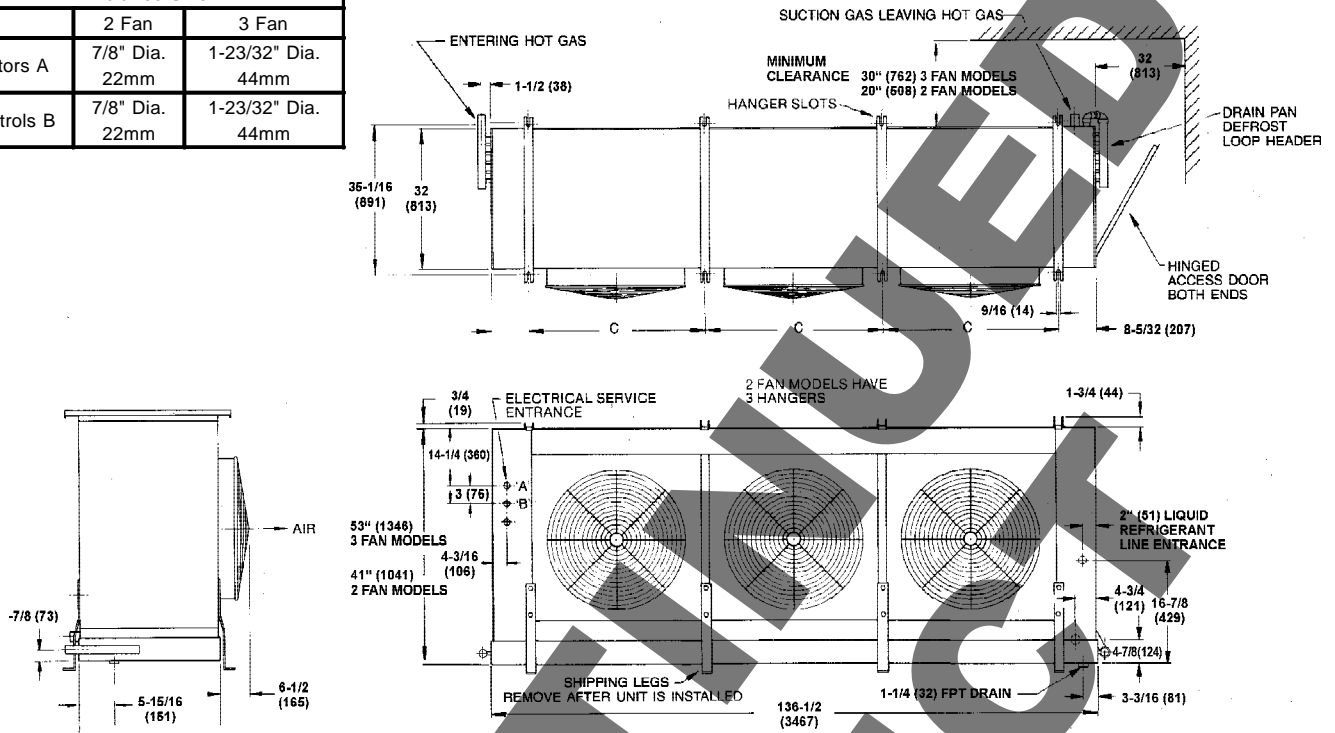
DIMENSIONS AND WEIGHTS

MODEL	HEIGHT		HANGERS						REFRIGERANT CONNECTIONS (1)		UNIT WEIGHT		
	Inches	mm	A		B		C		LIQUID R-12, R-22, R-502	SUCTION R-12, R22, R-502	Lb.	kg	
			Inches	mm	Inches	mm	Inches	mm					
AIR DEFROST	JBCA 085 A	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	830	376
	JBCA 100 A	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	900	408
	JBCA 115 A	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1000	454
	JBCA 125 A	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1100	499
	JBCA 140 A	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1225	556
	JBCA 160 A	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1305	592
	JBCA 180 A	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1390	631
ELECTRIC DEFROST MODELS	JBCA 075 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	830	376
	JBCA 090 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	900	408
	JBCA 105 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1000	454
	JBCA 120 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1100	499
	JBCA 130 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1225	556
	JBCA 150 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1305	592
	JBCA 170 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1390	631
	JBCA 068 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	830	376
	JBCA 084 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	900	408
	JBCA 099 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1000	454
	JBCA 114 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1100	499
	JBCA 122 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1225	556
	JBCA 142 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1305	592
	JBCA 163 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1390	631
	JBCA 063 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	830	376
	JBCA 078 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	900	408
	JBCA 092 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1000	454
JBCA 108 E	38	965	60 1/16	1526	8 1/16	205	8 3/16	208	1 3/8	2 1/8	1100	499	
JBCA 111 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1225	556	
JBCA 132 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1305	592	
JBCA 153 E	50	1270	40 1/16	1018	8 5/32	207	8 5/32	207	1 3/8	2 1/8	1390	631	

(1) O.D. in inches

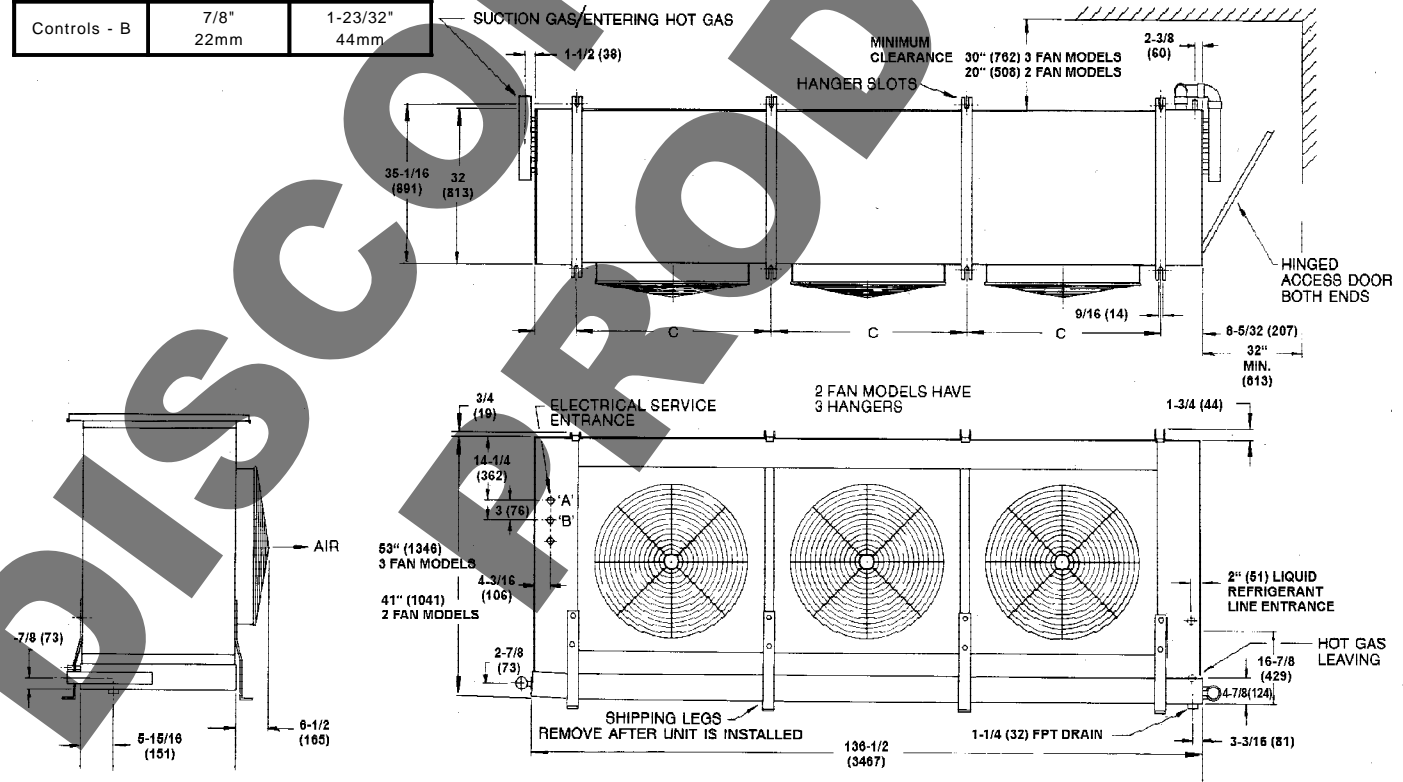
Electrical Service Entrance Size		
	2 Fan	3 Fan
Motors A	7/8" Dia. 22mm	1-23/32" Dia. 44mm
Controls B	7/8" Dia. 22mm	1-23/32" Dia. 44mm

3 PIPE DEFROST MODEL



Electrical Service Entrance Knockouts		
	2 Fan Models	3 Fan Models
Motors - A	7/8" 22mm	1-23/32" 44mm
Controls - B	7/8" 22mm	1-23/32" 44mm

REVERSE CYCLE DEFROST MODEL



DIMENSIONS AND WEIGHTS

HOT GAS DEFROST MODEL	HEIGHT		HANGERS		REFRIGERANT CONNECTIONS (1)		HOT GAS CONNECTIONS				UNIT WEIGHT	
	Inches	mm	C		LIQUID	SUCTION	3-PIPE		REVERSE		Lb.	kg
			Inches	mm	R-22, R-502 R-404A	R-22, R-502, R-404A	ENT.	LVG.	ENT.	LVG.		
JBCA 075 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	830	376
JBCA 090 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	900	408
JBCA 105 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	1000	454
JBCA 120 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	1100	499
JBCA 130 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1225	556
JBCA 150 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1305	592
JBCA 170 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1390	631
JBCA 069 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	830	376
JBCA 084 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	900	408
JBCA 099 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	1000	454
JBCA 114 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	1100	499
JBCA 122 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1225	556
JBCA 142 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1305	592
JBCA 163 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1390	631
JBCA 063 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	830	376
JBCA 078 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	900	408
JBCA 092 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	1000	454
JBCA 108 H/R	41	1041	60 1/16	1526	1 3/8	2 1/8	1 3/8	2 1/8	2 1/8	1 3/8	1100	499
JBCA 111 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1225	556
JBCA 132 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1305	592
JBCA 153 H/R	53	1346	40 1/16	1018	1 3/8	2 1/8	1 5/8	2 5/8	2 5/8	1 5/8	1390	631

(1) O.D. in inches

INSTALLATION INSTRUCTIONS

INSPECTION

Careful inspection of all parts when received for loss or damage in transit is very important - Remember, you, the consignee, must make any claim necessary against the transportation company. Shipping damage or missing parts, when discovered at the outset, will prevent later unnecessary and costly delays.

Ensure that the electrical characteristics are as ordered. Save all tags and instruction sheets for reference by installer and owner.

LOCATION

The unit location in the room should be selected to ensure uniform air distribution throughout the entire space to be refrigerated. Make sure that the fan does not blow directly out or pull in through an opened door and that the product does not obstruct the free circulation of air.

When installing the unit adjacent to a wall, sufficient clearance must be provided to allow free air movement to the coil.

Clearance must be provided at each end of the unit to allow access to refrigerant piping and electrical compartment.

See dimensional drawings for clearance requirements.

INSTALLATION

Note: These units draw air through the coil and discharge air from the fan side (see P. 4).

JBC Unit Coolers are supplied with shipping legs to allow units to be shipped in an upright position. Units are lifted into place with shipping skid attached to mounting legs.

Slotted hanger brackets take 1/2" (12.7mm) hanger rods. For fast, convenient mounting, install washer and nuts on hanger rods prior to lifting units. Rods may be lifted into slots and are held securely in place by tangs on hangers

After unit coolers are hung in place, remove shipping legs from units by removing the two 5/16" (8mm) bolts from each shipping leg.

Note: Shipping legs must be removed to allow hinged drain pan to open.

DRAIN LINE

If unit cooler is mounted flush to ceiling, the staggered height hanger will provide a positive pitch for drainage of condenser.

If units are suspended below the ceiling, the installer should provide adequate pitch to the unit by adjusting the location of the hanger rod nuts.

Note: Check for adequate drainage by pouring water into the drain pan.

Insulated copper tube should be run from the drain connection, sloping at least 4" (102mm) per foot. A trap outside of the room will prevent warm air entering through the tubing. Connection should be made to proper drainage facilities that comply with local regulations.

If room temperatures are below freezing, it is necessary to heat the drain line to prevent condensate from freezing in the drain line. Electric heating cable or electric tape (by others) is used for this purpose. The drain line heater should be connected for continuous operation; it is also recommended that the drain line be insulated. A heat output of 20 watts per lineal foot of 1" (25mm) drain line in a 0°F (-18 °C) room is usually satisfactory. 115 volt cable and tape is available from your local refrigeration wholesaler. Two 115 volts heaters (by others) of the same wattage may be wired for use on 230 volt system

ELECTRICAL

Wire system in accordance with governing standards and local codes. See wiring diagrams on P. 4 for unit cooler wiring diagram.

Page 2 shows operating current, minimum ampacity and maximum fuse sizing for fan motors.

Note: Electrical wiring is to be sized in accordance with minimum ampacity rating.

The defrost termination thermostats, fan delay thermostats and defrost heater safety thermostat are factory supplied and factory wired to a terminal block. See figure and component identification diagram on wiring diagram for electrical compartment arrangement.

A hinged end panel provides quick access to the electrical compartment.

INSTALLATION INSTRUCTIONS

AFTER START UP

1. Check the oil level to be sure the oil charge is correct.
2. On the initial start up, the fans do not start until coil temperature is pulled down to approximately 26 °F (-3 °C)
Also, it is normal for the fans to cycle a few times until the room temperature is pulled down.
3. After the room is pulled down make sure that the expansion valve is properly set so that the coil frosts evenly all the way through.
4. Heavy moisture loads are usually encountered when starting the system for the first time. This will cause a rapid build-up of frost on the unit cooler. During the initial pull down, we suggest that the frost build-up be watched and defrosted manually as required.

MAINTENANCE

1. Periodic checking and cleaning of the coil surface when necessary should be done, using a whisk or brush. Drain pans are hinged to provide convenient access to the inside coil surface.
2. Motors are permanently lubricated type and require no further lubrication.

REFRIGERATION SYSTEM

Refrigerant line sizes are important and should be the same size as the coil connections, or larger, depending on the length of run. Consult recommended refrigerant line sizes charts (KeepRite Refrigeration Engineering Manual or other recognized sources of information) when sizing refrigerant lines.

Refrigerant piping and control systems should be designed to prevent possible liquid slugging of the compressors on start-up after the defrost cycle.

Select an externally equalized expansion valve best suited to the coil and the application on the basis of the manufacturer's ratings. Install the expansion valve in the refrigeration piping compartment.

A 1/4" (6mm) O.D. equalizer line has been provided for the externally equalized expansion valve connection.

A Schrader valve fitting is supplied at the suction gas header to provide convenient pressure readings.

The refrigerant distributor is sized and installed at the factory and is supplied with a factory sized nozzle.

A hinged end panel provides quick access to the refrigeration piping compartment.

SYSTEM CHECK

1. All wiring should be in accordance with local codes.
2. All refrigerant lines should be properly sized and checked for any possible leaks.
3. Be sure system is charged with the proper refrigerant.
4. Make sure that the expansion valve thermal bulb is securely strapped to the suction line.
5. The system should include a liquid line drier and strainer.
6. The suction, discharge and receiver service valves must be open.
7. Check that the fans turn freely and turn in clock wise rotation.
8. Pour enough water into the drain pan to allow a good check on drainage and seal the trap.

AIR DEFROST MODELS

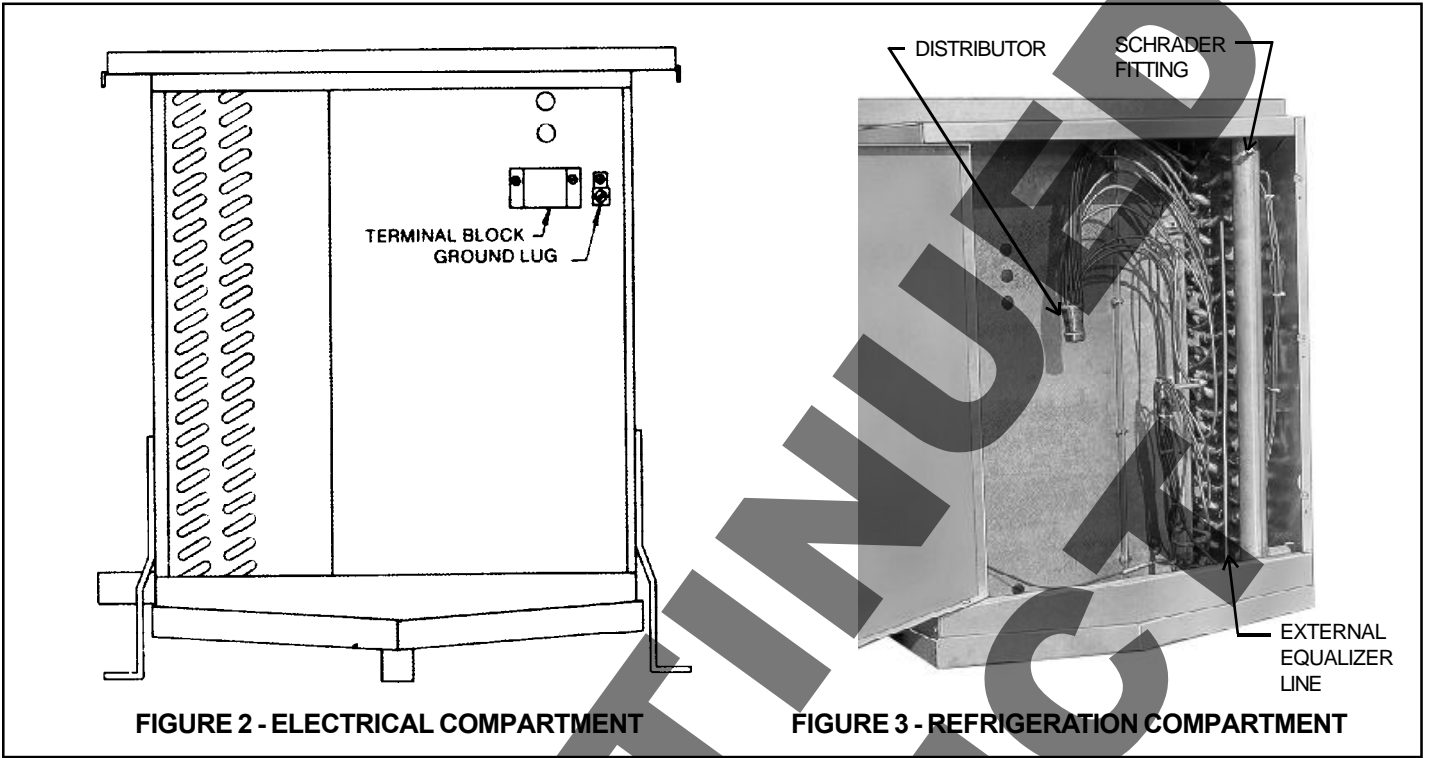


FIGURE 2 - ELECTRICAL COMPARTMENT

FIGURE 3 - REFRIGERATION COMPARTMENT

ELECTRIC DEFROST MODELS

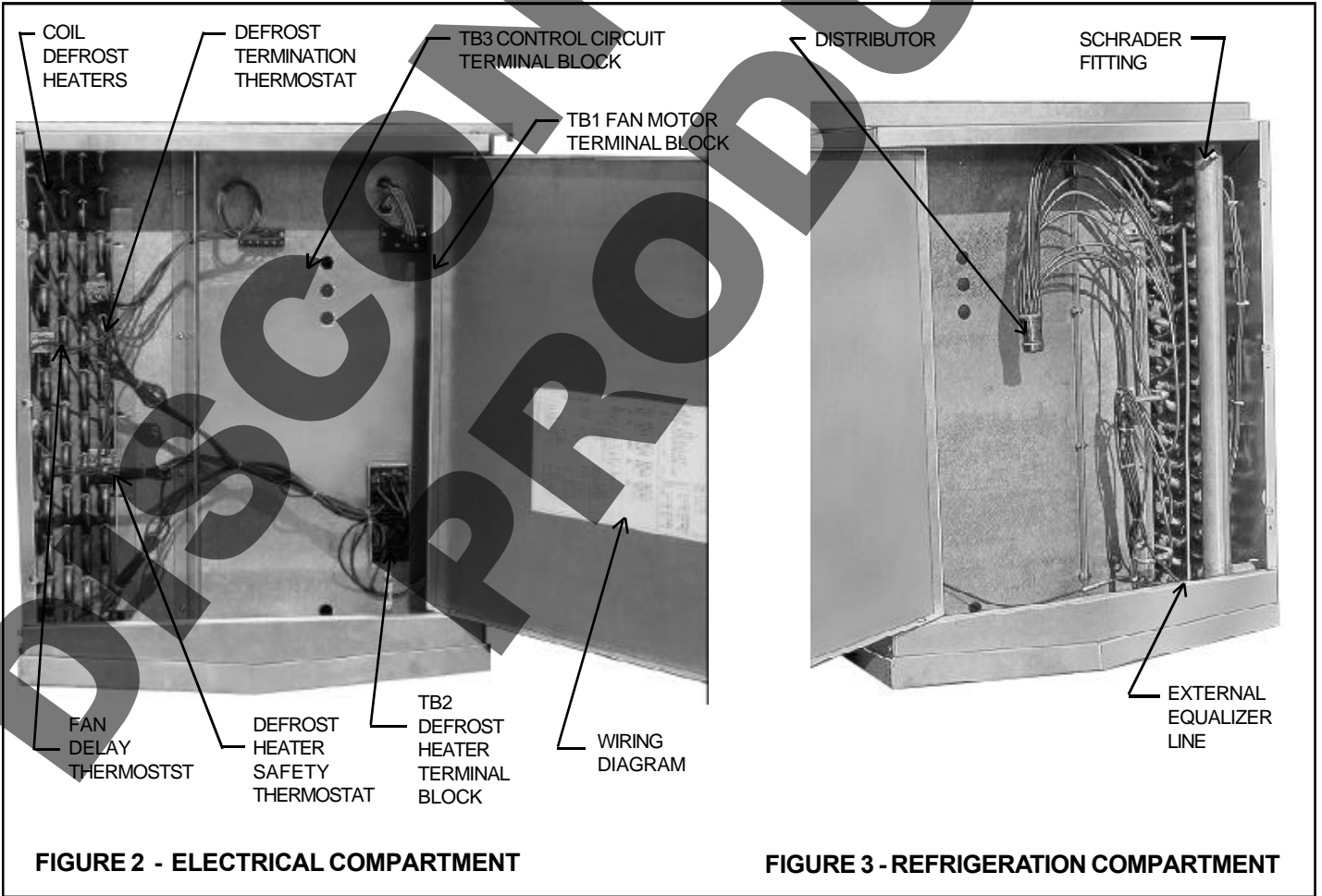
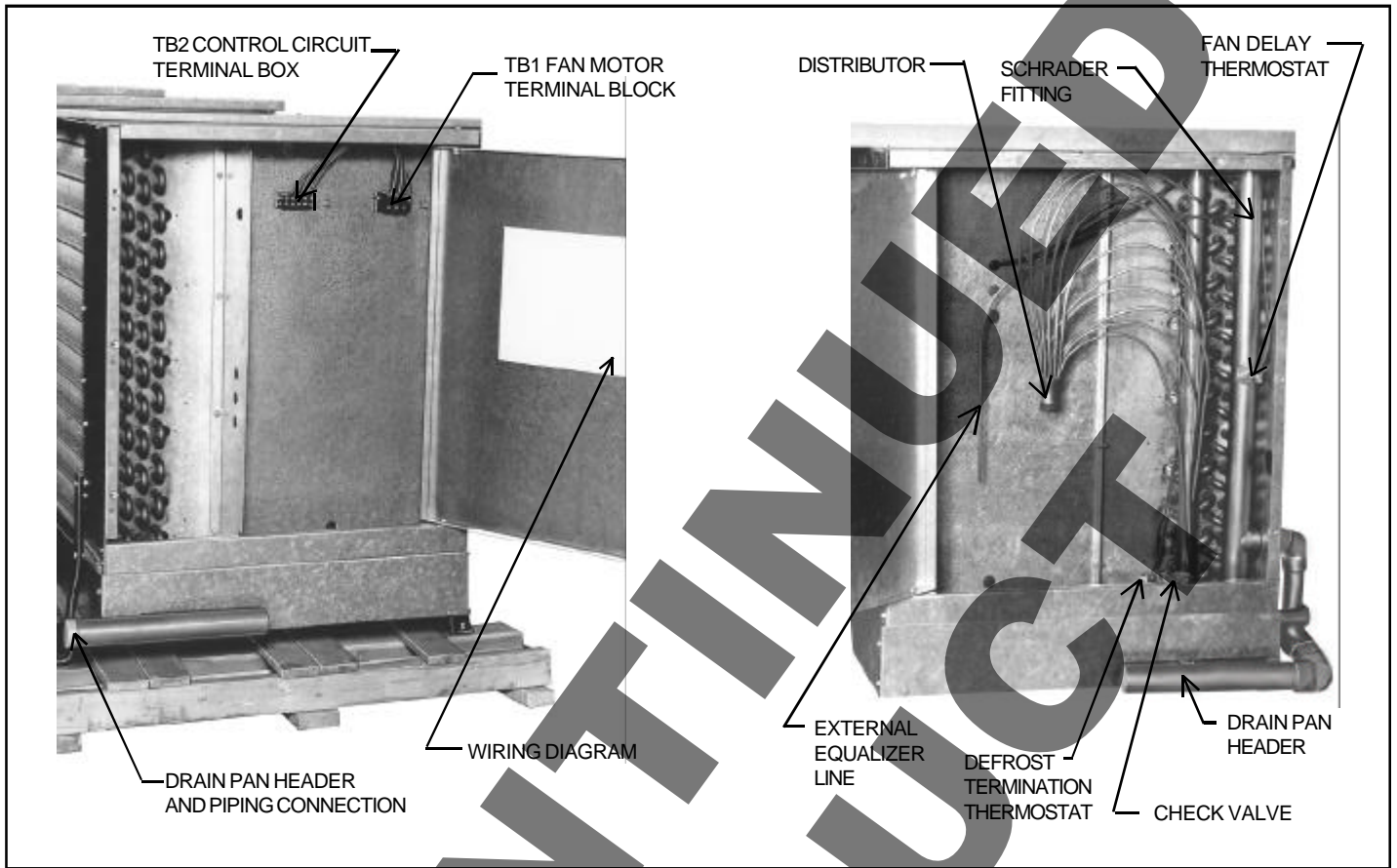


FIGURE 2 - ELECTRICAL COMPARTMENT

FIGURE 3 - REFRIGERATION COMPARTMENT

HOT GAS DEFROST MODELS



SERVICE PARTS LIST

<u>FAN MOTORS</u>	<u>PART NUMBER</u>
1 HP ODP 208-230/3/60	1040154
1 HP OPD 460/3/60	1040155
1 HP ODP 575/3/60	1040156
MOTOR MOUNT	1040158
FAN BLADE 30"	1040158
FAN MOTOR TERMINAL BLOCK TB1	1040160
DEFROST CONTROL TERMINAL BLOCK TB2	1040161
DEFROST HEATER TERMINAL BLOCK TB3	1040162
FAN DELAY THERMOSTAT	1040240
DEFROST TERMINATION THERMOSTAT	1040239
<u>COIL DEFROST HEATERS</u>	
208-230/3/60	1040167
460/3/60	1040166
575/3/60	1040165
<u>DRAIN PAN DEFROST HEATERS</u>	
208-230/3/60	1040167
460/3/60	1040166
575/3/60	1040165
THROW BOOSTER	1040695

DISCONTINUED PRODUCT

**DISCONTINUED
PRODUCT**

PROJECT INFORMATION

System	
Model Number	Date of Start-Up
Serial Number	Service Contractor
Refrigerant	Phone
Electrical Supply	Fax



NATIONAL REFRIGERATION & AIR CONDITIONING CANADA CORP.
159 ROY BLVD., BRANTFORD, ONTARIO, CANADA N3R 7K1
PHONE: 1-800-463-9517 (519)751-0444 FAX (519)753-1140



Due to National Refrigeration's policy of continuous product improvement, we reserve the right to make changes without notice.