

# **INSTALLATION AND MAINTENANCE MANUAL**

## ***Flow-Temp and Low Velocity unit coolers***

***Bulletin No. IOM 110.2***

***January, 2002***



### ***Inspection***

When the equipment is received, the number of crates and cartons should be checked against the bill of lading for possible shortages. Any damage should be noted immediately and a report given to the freight carrier and the factory. It is the customer's responsibility to file all freight claims with the carrier.

### ***Installation***

Installation and maintenance must be preformed by qualified personnel who are familiar with the local codes and regulations and who are experienced with this type of equipment. Unit name plates should be checked to make sure voltages are in agreement with the power available. Caution: Avoid contact with sharp edges and coil surface as they are potential hazards.

### ***Location***

Determine the best location for the unit cooler in the room to be refrigerated. Placement of the unit should be centered in the room and away from an open door to keep warm, outside air from being drawn into the unit. This dual discharge unit, draws air up through the fan blades and discharges out the coils length. Proper clearances should be maintained for proper air flow and service access to the unit as follows: 18" minimum between each coil and wall: 12" on each end of the unit. Before unit is raised into position all packaging should be removed making sure the unit is not set on the drain fitting or refrigerant connections. The unit should be supported on 5/16" minimum rod hangers at all mounting slots. To meet NSF requirements, the unit must be positioned flush with the ceiling and all gaps properly caulked.

## ***Drain Line***

The drain line should be pitched at a minimum of 4" per foot to allow proper drainage and should exit the room as soon as possible. The drain line should be insulated and sealed where it passes thru the wall and trapped outside the refrigerated area and protected from freezing. In rooms with temperatures below 34° F, the drain line should be heated and insulated.

## ***Refrigerant Connections***

Refrigerant connections should be installed in accordance with all applicable codes and using good refrigeration practices. A suction line trap must be installed prior to any risers in the suction line. Horizontal suction lines should be sloped to provide proper oil return to the compressor. Suction lines should be properly insulated to prevent sweating and higher return gas temperatures.

## ***Expansion Valve***

Expansion valves are to be installed in accordance with the valve manufacturer's recommendations. The external equalizer line must be connected. Proper location of the sensing bulb is extremely important to the performance of the coil. Good thermal contact to the suction line is essential. On solder type valves, a wet cloth wrapped around the valve during installation will help protect it from overheating and damage during the installation process. Superheat settings should be checked after the system has balanced out at the desired room temperature. On systems sized for a 10° to 12° F TD, the valve should be adjusted to maintain 4° to 6° F superheat. Higher evaporator TD will allow a higher superheat setting. On multiple evaporator systems, the piping should be arranged such that the flow from any valve cannot affect the bulb of another.

## ***Wiring***

Wiring should be done in accordance with all national and local codes. Electric defrost units are supplied with a temperature sensing defrost termination switch which will terminate the defrost at a preset temperature. A fan delay switch is also provided to allow the coil to cool down prior to the fans restarting after the defrost cycle. The time clock should be adjusted to have a maximum 30 minute override to prevent overheating and steaming of the coils. Typically one to two defrosts per day are recommended however, the number of defrosts are ultimately dictated by the usage of the box and the actual amount of frost buildup on the coils.

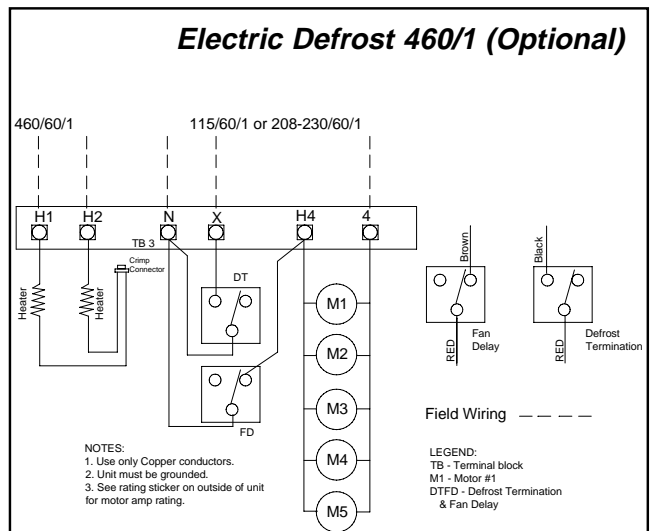
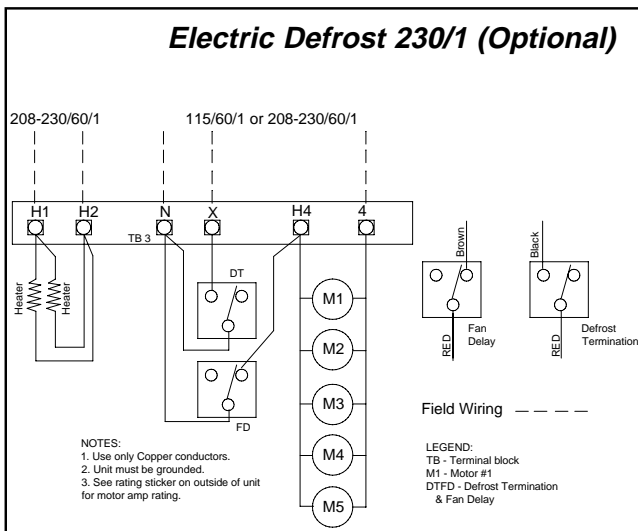
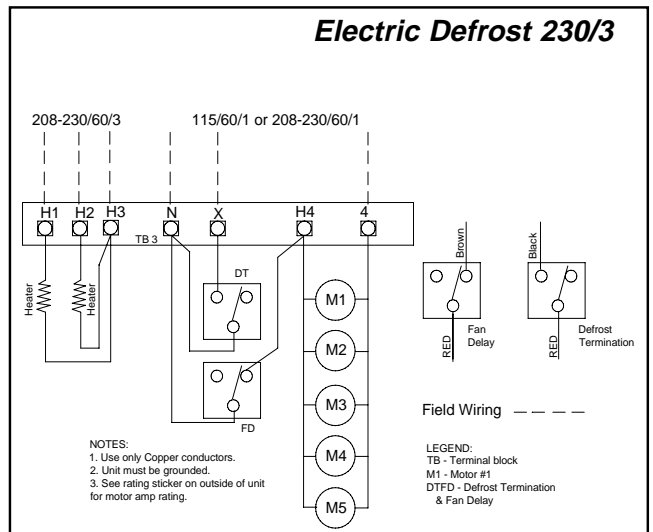
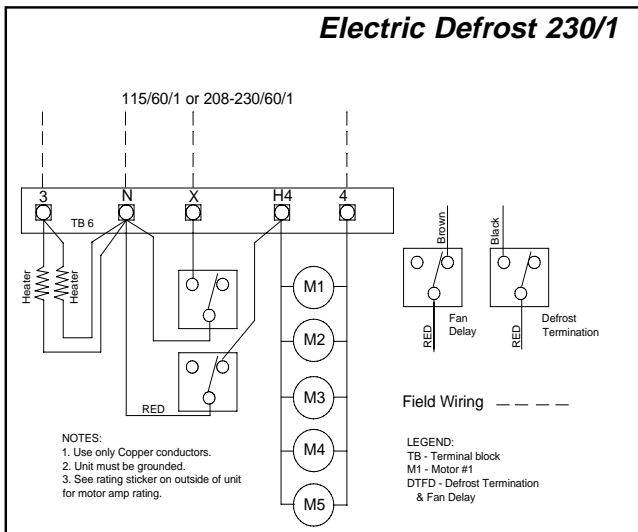
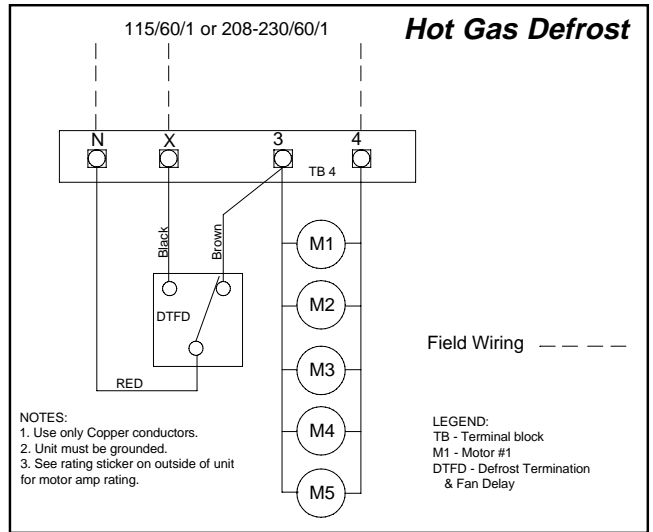
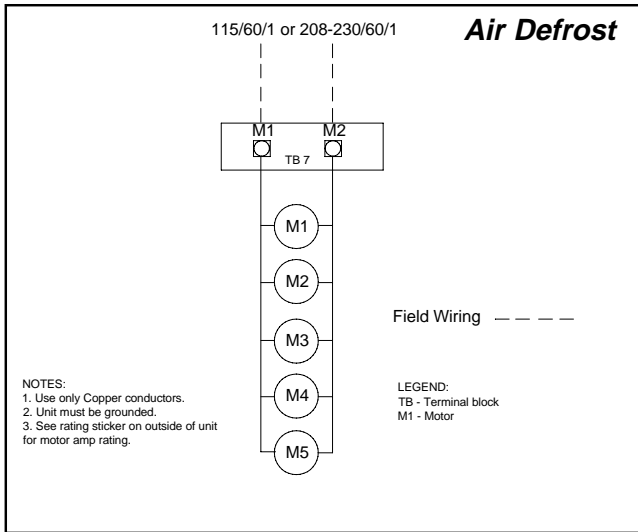
## ***Evacuation***

Proper evacuation is essential prior to charging of the system. This avoids many problems that may arise due to lack of detail in this step. After charging, the system should be checked through all cycles to ensure proper operation.

## ***General Maintenance***

General maintenance involves an occasional cleaning of dirt accumulation on the fans, fan guards and coils. The motors are life lubricated and do not require any regular maintenance.

# TYPICAL WIRING DIAGRAMS



# REPLACEMENT PARTS - LISTING BY PRODUCT MODEL NUMBER

MODEL NUMBER	DESCRIPTION	PART NUMBER
Electric Defrost Models	DEFROST CONTROL, DEFROST TERMINATION, (TIMER RESET) 2 WIRE	103079010
Electric Defrost Models	DEFROST CONTROL, FAN DELAY, 2 WIRE	103079009
Electric Defrost Models	HEATER SAFETY CONTROL	103079003
FL26-67, 36-100, 36-135, 46-180, LV-65, 105, 140, 150	FAN BLADE, 10" DIAM., 20° PITCH, CCW, HUBLESS	204395016
FL36-160, 46-220, 46-265, 56-370 LV-180, 215, 275, 371	FAN BLADES, 10" DIAM., 31° PITCH, CCW, HUBLESS	204395018
ALL MODELS	FAN GUARD, 12" Black Plastic	119647000
FL26-67, FL36-100	MOTOR, SHADED POLE, 9 WATT, 1550 RPM, 115 V.	103104004
LV-65, 105	MOTOR, SHADED POLE, 9 WATT, 1550 RPM, 230 V.	103104005
FL36-135, 36-160, 46-220, 46-265, 56-370	MOTOR, SHADED POLE, 16 WATT, 1550 RPM, 115 V.	103104007
LV-140, 150, 180, 215, 275, 371	MOTOR, SHADED POLE, 16 WATT, 1550 RPM, 230 V.	103104008
ALL MODELS (OPTIONAL)	MOTOR, PSC, 16 WATT, 1550 RPM, 115 V., (5 MFD CAPACITOR NOT INCLUDED)	107933001
	MOTOR, PSC, 16 WATT, 1550 RPM, 230 V., (2 MFD CAPACITOR NOT INCLUDED)	107933002
ALL MODELS (OPTIONAL)	CAPACITOR, 5 MFD, FOR 16 WATT 115 V. PSC MOTOR	202163007
	CAPACITOR, 2 MFD, FOR 16 WATT 230 V. PSC MOTOR	202163009
ALL MODELS	MOTOR MOUNT	10243000

FOLLOWING HEATERS ARE FOR UNITS PRODUCED AFTER APRIL 1, 1994

FL26-67E, LVE-65	DEFROST HEATERS, CORE, 1970 WATTS, 50" LENGTH, 208-230/406 V. (2 REQ'D)	205221020
FL36-100E, LVE-105	DEFROST HEATERS, CORE, 2980 WATTS, 74" LENGTH, 208-230/406 V. (2 REQ'D)	205221021
FL36-135E, 36-160E, LVE-140, 150	DEFROST HEATERS, CORE, 2980 WATTS, 75" LENGTH, 208-230/406 V. (2 REQ'D)	200172049
FL46-180E, 46-220E, LVE-180, 215	DEFROST HEATERS, CORE, 1550 WATTS, 38" LENGTH, 208-230/406 V. (2 REQ'D)	200172024
FL46-265E, LVE-275	DEFROST HEATERS, CORE, 2480 WATTS, 60" LENGTH, 208-230/406 V. (2 REQ'D)	200172028
FL56-370E, LVE-371	DEFROST HEATERS, CORE, 2480 WATTS, 60" LENGTH, 208-230/406 V. (4 REQ'D)	200172028

2 FAN MODELS	DRAIN PANS	20909801
3 FAN MODELS	DRAIN PANS	20909901
4 FAN MODELS	DRAIN PANS	20861101
5 FAN MODEL	DRAIN PANS	22049001
2 FAN MODEL (OPTIONAL)	DRAIN PANS, PAINTED (WHITE)	20909801W
3 FAN MODELS (OPTIONAL)	DRAIN PANS, PAINTED (WHITE)	20910302W
4 FAN MODELS (OPTIONAL)	DRAIN PANS, PAINTED (WHITE)	20861101W
5 FAN MODEL (OPTIONAL)	DRAIN PANS, PAINTED (WHITE)	22049001W

## Physical Data

MODEL NUMBER	DIMENSIONS (in)					CONNECTIONS (in.) <sup>1</sup>			SHIP WT. (LBS)
	A	B	H	L	W	LIQUID	SUCTION	DRAIN	
FL26-67, LV-65	48	N/A	8-1/2	58-1/2	28-3/4	1/2 OD	7/8 OD	3/4 MPT	155
FL36-100, LVE-105	36	36	8-1/2	82-1/2	28-3/4	1/2 OD	7/8 OD	3/4 MPT	205
FL36-135, LVE-140	36	36	12	82-1/2	28-3/4	1/2 OD	1-1/8 OD	3/4 MPT	265
FL36-160, LVE-150	36	36	12	82-1/2	28-3/4	1/2 OD	1-1/8 OD	3/4 MPT	285
FL46-180, LVE-180	48	48	12	106-1/2	28-3/4	1/2 OD	1-1/8 OD	3/4 MPT	325
FL46-220, LVE-215	48	48	12	106-1/2	28-3/4	1/2 OD	1-1/8 OD	3/4 MPT	340
FL46-265, LVE-275	48	48	12	106-1/2	28-3/4	1/2 OD	1-1/8 OD	3/4 MPT	370
FL56-370, LVE-371	60	60	15	130-1/2	28-3/4	1/2 OD	1-1/8 OD	3/4 MPT	490

<sup>1</sup>All models require externally equalized TXV.

