



TLV LOW VELOCITY UNIT COOLERS

SPECIFICATIONS INSTALLATION, OPERATION AND MAINTENANCE MANUAL

HIGH TEMPERATURE

(35°F / 1.7°C OR HIGHER)

MEDIUM TEMPERATURE

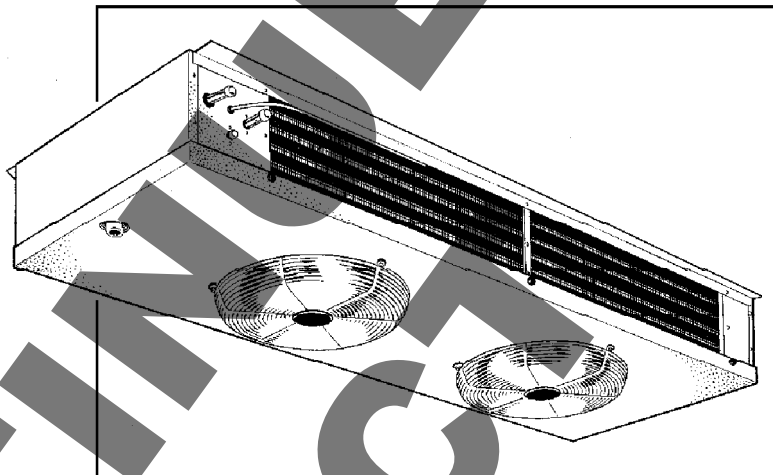
28°F TO 34°F (-2°C TO 1°C)

APPLICATIONS

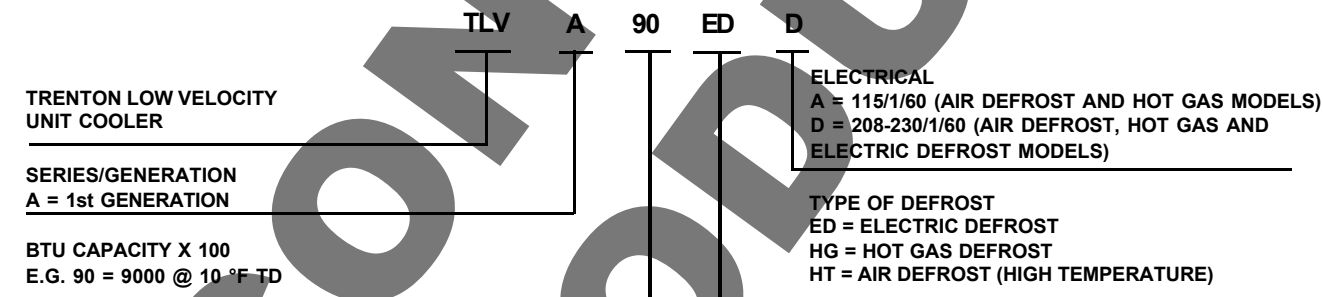
ELECTRIC OR HOT GAS DEFROST

1047128

BULLETIN T30-TLV-PDI-10



NOMENCLATURE



- Heavy gauge textured aluminum cabinet construction resists scratches/corrosion and minimizes weight for shipment, installation and service.
- Hot Gas Defrost units suitable for "Reverse Cycle" or "By-Pass" piping.
- Hinged drain pans provide easy access for cleaning internal parts.
- Easy access/quick disconnect fan, motor and mount assemblies
- Refrigerants R12, R22, R502, R134a, R404A, R407A, R407B, R407C, R507.

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CAPACITY DATA

AIR DEFROST MODEL	TLVA50HT†	TLVA70HT†	TLVA90HT†	TLVA120HT†	TLVA150HT†	TLVA180HT†	TLVA270HT†	
ELECTRIC DEFROST MODEL	TLVA50EDD	TLVA70EDD	TLVA90EDD	TLVA120EDD	TLVA150EDD	TLVA180EDD	TLVA270EDD	
HOT GAS DEFROST MODEL	N/A	N/A	TLVA90HG†	TLVA120HG†	TLVA150HG†	TLVA180HG†	TLVA270HG†	
* CAPACITY BTUH @ 1°F T.D.	500	700	900	1,200	1,500	1,800	2,700	
* CAPACITY BTUH @ 10°F T.D.	5,000	7,000	9,000	12,000	15,000	18,000	27,000	
* CAPACITY BTUH @ 15°F T.D.	7,500	10,500	13,500	18,000	22,500	27,000	40,500	
CFM	610	825	1075	1435	1780	2130	3190	
REFRIGERANT CHARGE	(lbs) **	3.2	4.4	5.6	7.4	9.4	11.2	16.8
	(Kg) **	1.46	2.00	2.54	3.36	4.26	5.08	7.62

Coil not designed to be operating below 18°F S.S.T.

† Insert voltage code A = 115/1/60, D = 208-230/1/60

* Capacity rated with R-22 @ +20°F

** R-22 @ +20°F S.S.T. with coil 30% full

ELECTRICAL DATA

AIR DEFROST (115 & 220-230/1/60)

MODEL	NO. of FANS	115/1/60			208-230/1/60		
		F.L.A.	M.C.A.	M.O.P.	F.L.A.	M.C.A.	M.O.P.
TLVA50HT	2	2.4	3.9	15	1.2	2.0	15
TLVA70HT	2	2.4	3.9	15	1.2	2.0	15
TLVA90HT	2	2.4	3.9	15	1.2	2.0	15
TLVA120HT	2	4.8	7.8	15	2.4	3.9	15
TLVA150HT	2	4.8	7.8	15	2.4	3.9	15
TLVA180HT	2	4.8	7.8	15	2.4	3.9	15
TLVA270HT	3	7.2	10.2	15	3.6	5.1	15

ELECTRIC DEFROST (220-230/1/60)

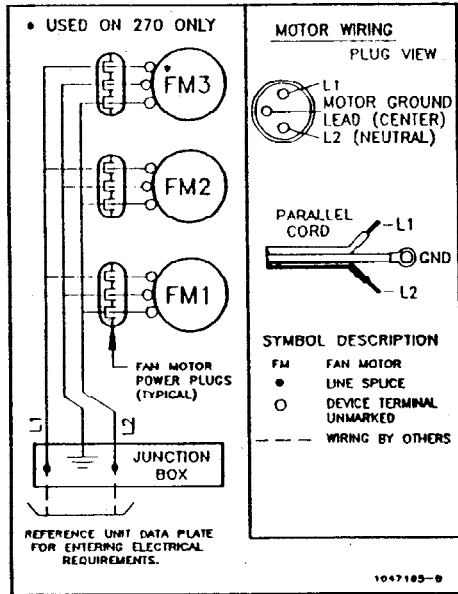
MODEL	NO. of FANS	FAN MOTOR F.L.A.	DEFROST HTR F.L.A.	F.L.A.	M.C.A.	M.O.P.
TLVA50EDD	2	1.2	8.7	9.9	10.2	15
TLVA70EDD	2	1.2	11.0	12.2	12.5	20
TLVA90EDD	2	1.2	13.0	14.2	14.5	20
TLVA120EDD	2	2.4	15.6	18.0	18.6	30
TLVA150EDD	2	2.4	18.8	21.2	21.8	30
TLVA180EDD	2	2.4	21.3	23.7	24.3	40
TLVA270EDD	3	3.6	29.8	33.4	34.3	50

HOT GAS DEFROST (115 & 208-230/1/60)

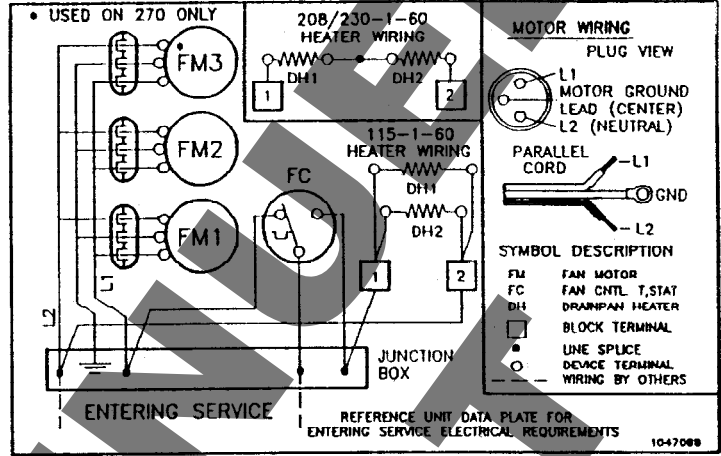
MODEL	NO. of FANS	115/1/60					208-230/1/60				
		FAN MOTOR	DRAIN PAN	TOTAL F.L.A.	M.C.A.	M.O.P.	FAN MOTOR	DRAIN PAN	TOTAL F.L.A.	M.C.A.	M.O.P.
TLVA90HG	2	2.4	5.0	7.4	3.9	15	1.2	2.5	3.7	2.0	15
TLVA120HG	2	4.8	5.0	9.8	7.8	15	1.2	2.5	3.7	3.9	15
TLVA150HG	2	4.8	6.3	11.1	7.8	15	1.2	3.2	4.4	3.9	15
TLVA180HG	2	4.8	6.1	10.9	7.8	15	2.4	3.1	5.5	3.9	15
TLVA270HG	3	7.2	7.5	14.7	10.2	15	2.4	3.8	6.2	5.1	15

WIRING DIAGRAMS

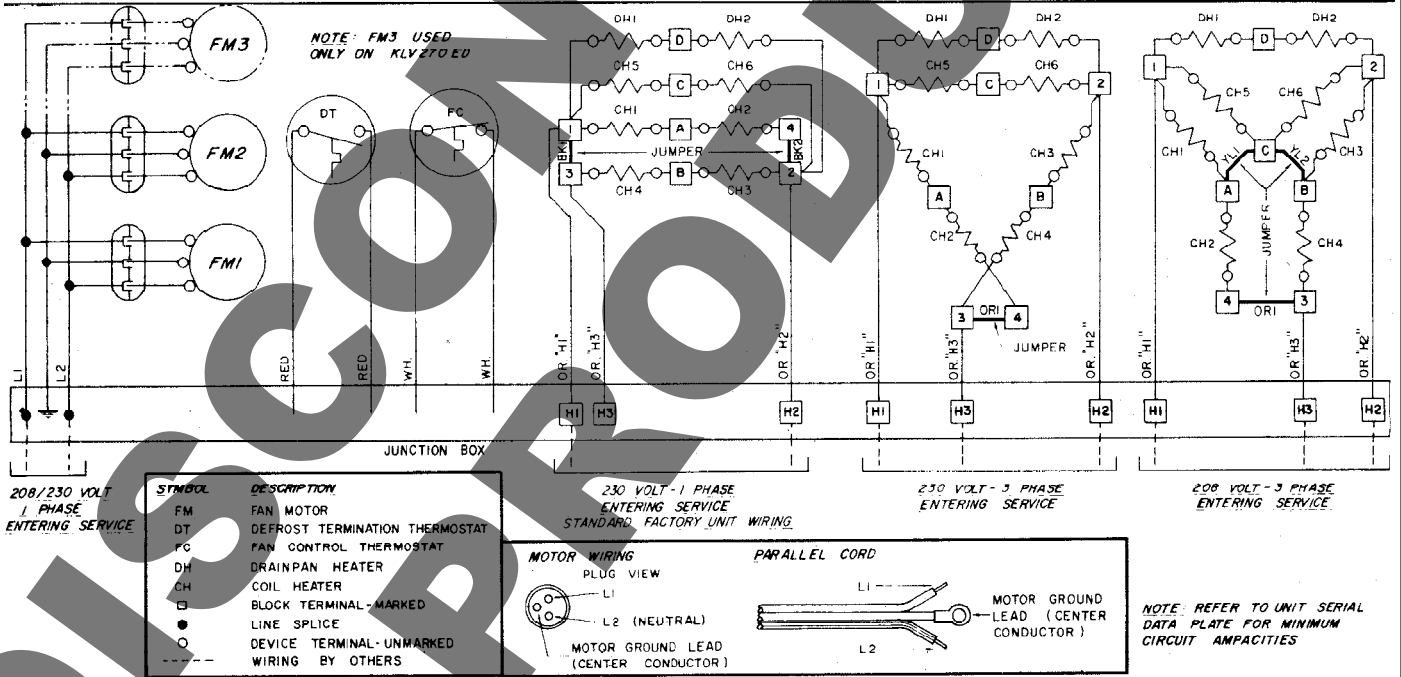
AIR DEFROST MODELS



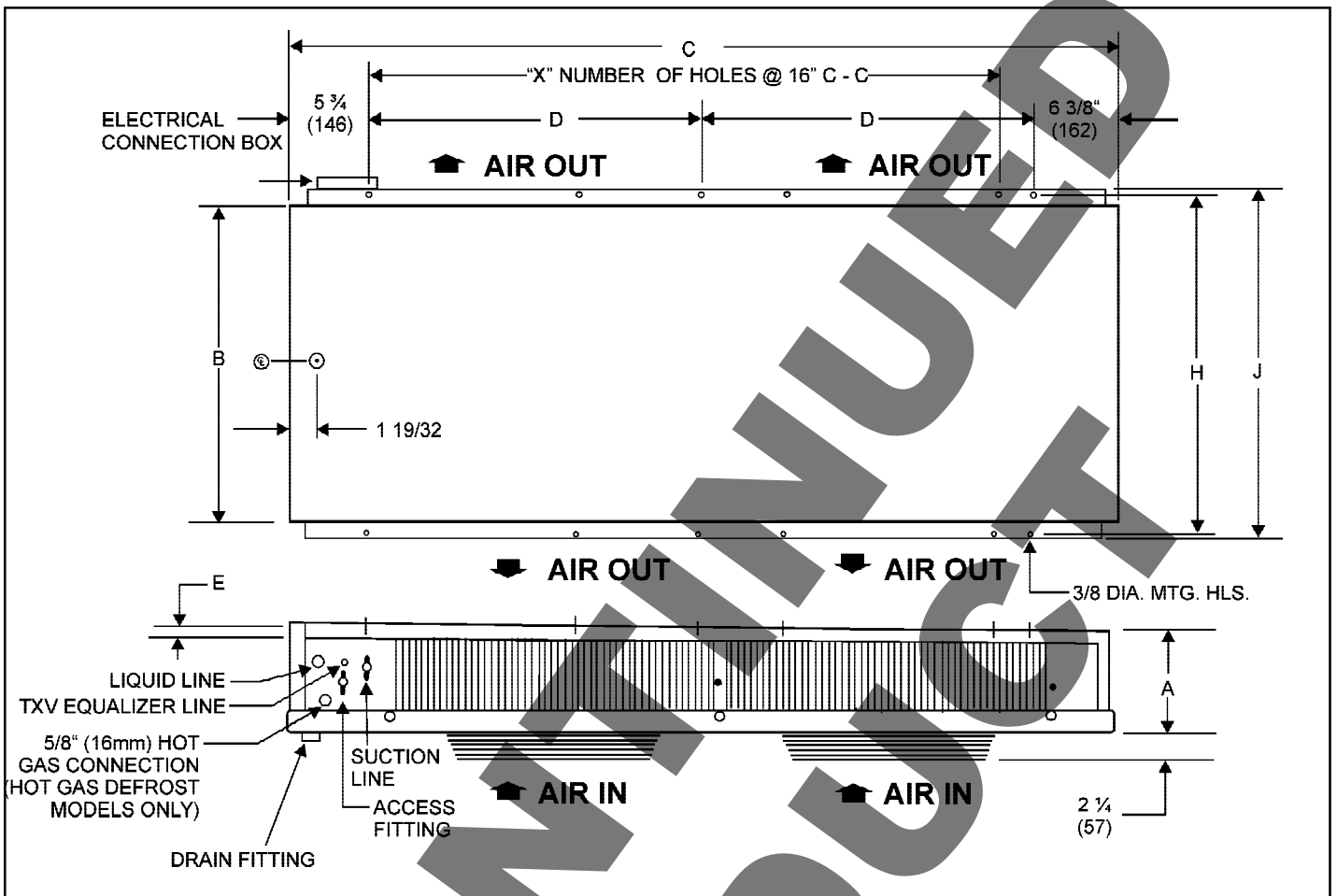
HOT GAS DEFROST MODELS



ELECTRIC DEFROST MODELS



DIMENSIONAL DATA



MODEL NO.	A	B	C	D	E	H	J	X	CONNECTIONS				APPROX. SHIPPING WEIGHT	
	IN.	IN.	IN.	MTG. HLS IN.	IN.	IN.	IN.	NO. OF	COIL	SUCT.	EXT.	DRAIN	LBS.	KG.
	MM.	MM.	MM.	MM.	MM.	MM.	MM.	MTG. HLS.	INLET O.D.	O.D.	EQUAL O.D.	F.P.T.		
TLVA050	7 5/16	24 1/8	62 7/8	25 3/8	7/8	25 7/8	26 5/8	4	5/8	5/8	1/4	3/4	155	70.3
	186	613	1597	644	22	657	676		16	16	6	19		
TLVA070	8 9/16	24 1/8	71 3/8	29 5/8	7/8	25 7/8	26 5/8	5	5/8	5/8	1/4	3/4	190	86.2
	217	613	1813	752	22	657	676		16	16	6	19		
TLVA090	8 9/16	24 1/8	87 7/8	37 7/8	7/8	25 7/8	26 5/8	6	5/8	7/8	1/4	3/4	230	104.3
	217	613	2232	962	22	657	676		16	22	6	19		
TLVA120	11 1/16	26 1/8	87 7/8	37 7/8	7/8	27 7/8	28 5/8	6	5/8	7/8	1/4	3/4	265	120.2
	281	664	2232	962	22	708	727		16	22	6	19		
TLVA150	11 1/16	26 1/8	106 7/8	47 3/8	1 7/8	27 7/8	28 5/8	7	5/8	1 1/8	1/4	3/4	315	142.9
	281	664	2715	1203	48	708	727		16	29	6	19		
TLVA180	13 9/16	26 1/8	103 3/8	45 5/8	1 7/8	27 7/8	28 5/8	7	5/8	1 1/8	1/4	3/4	340	154.2
	344	664	2626	1159	48	708	727		16	29	6	19		
TLVA270	16 1/16	26 1/8	125 7/8	56 7/8	1 7/8	27 7/8	28 5/8	8	5/8	1 1/8	1/4	3/4	455	206.6
	408	664	3197	1445	48	708	727		16	29	6	19		

THERMOSTATIC EXPANSION VALVE SELECTION

AIR DEFROST			SPORLAN VALVE MODEL			ALCO VALVE MODEL		
MODEL	T.D. °F	CAPACITY BTUH	REFRIGERANT R-22	REFRIGERANT R502/R404A/R507	REFRIGERANT R134a	REFRIGERANT R-22	REFRIGERANT R502/R404A/R507	REFRIGERANT R134a
TLV50	10	5,000	EGVE-1/2	EGSE-1/2	EGJE-1/2	HFES-1/2-HC	HFES-1/4-SC	HFES-1/2-MC
	15	7,500	EGVE-3/4				HFES-1/2-SC	HFES-3/4-MC
TLV70	10	7,000		EGVE-1	EGSE-1	EGJE-1	HFES-1	HFES-1-SC
	15	10,500	HFES-1/2-SC					HFES-3/4-MC
TLV90	10	9,000	EGVE-1	EGSE-1	EGJE-1	HFES-1	HFES-1-SC	HFES-1-MC
	15	13,500					HFES-1-SC	HFES-1-MC
TLV120	10	12,000	EGVE-1-1/2	EGSE-1-1/2	EGJE-1-1/2	HFES-1-1/2-HC	HFES-1-1/4-SC	HFES-1-1/2-MC
	15	18,000		EGSE-1				HFES-1-MC
TLV150	10	15,000	EGVE-1-1/2	EGSE-1-1/2	EGJE-1-1/2	HFES-2	HFES-1-1/2-SC	HFES-1-3/4-MC
	15	22,500						HFES-1-1/2-HC
TLV180	10	18,000	EGVE-2	EGSE-2	EGJE-2	HFES-2	HFES-2-SC	HFES-2-1/2-MC
	15	27,000	EGVE-3					SSE-3
TLV270	10	27,000	EGVE-3	SSE-3	SJE-3	HFES-3	HFES-3-1/2-SC	HFES-4-MC
	15	40,500						HFES-4-MC

SELECTIONS BASED ON 100°F LIQUID.

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.

LOCATION

The unit location in the room should be selected to ensure uniform air distribution throughout the entire space to be refrigerated. The unit should be located away from door openings to prevent excessive frost build-up.

INSTALLATION

1. Select the expansion valve best suited to the coil and the application on the basis of the manufacturer's ratings. A 1/4" (6.3mm) O.D. equalizer line has been provided for externally equalized expansion valves. Drip pan is supplied with unit to collect condensation from expansion valve if mounted exterior to unit.

2. Ensure that the unit is mounted to a perfectly level ceiling (ensures proper drainage during the defrost period). The drain connection is 3/4" (19mm) female pipe thread. The drain line should be run from the drain connection, sloping at least 4" (102mm) per foot. A trap outside the room will prevent warm air from entering through the tubing. Connection should be made to proper drainage facilities that comply with local regulations.

3. Refrigerant line sizes are important and should be the same size as the coil connections, or larger, depending on the length of run. If in doubt, consult "Recommended refrigerant line sizes" charts. (Engineering Manuals or other recognized sources of information).

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

ELECTRICAL

1. Wire system in accordance with governing standards and local codes. See wiring diagram on page 6 for typical wiring arrangement.

2. For ease of identifying the proper wiring terminals, unit wiring is color coded and terminal block connections are identified.

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.
8. Pour enough water into the drain pan to allow a good check on drainage and seal the trap.

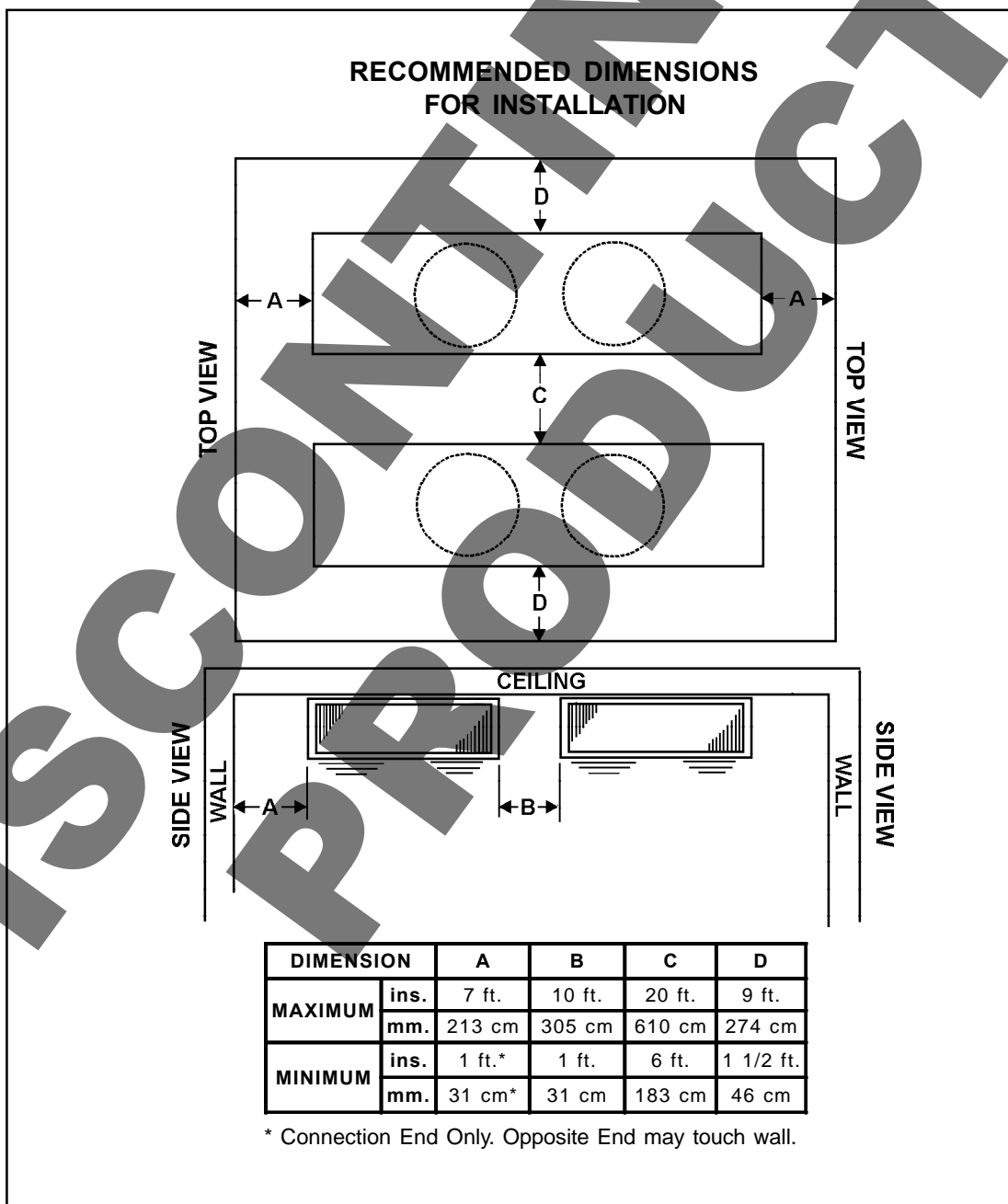
AFTER START UP

1. Check the oil level to be sure the oil charge is correct.
2. On initial start up the fans do not start until coil temperature is pulled down to approximately 26°F (-3°C) on the electric defrost coil and 35 °F (2 °C) on the hot gas oil. Also, it is normal for the fans to cycle a few times until the room temperature is pulled down.
3. Fan delay control is factory installed on suction line for reverse cycle defrost operation. Refer to Fig. 1 Location A.
4. If coil is to be used for Hot Gas Defrost with the distribution by-pass method, fan delay must be moved from suction line to hot gas inlet line. Refer to Fig. 1, Location B.
5. In general, evaporators running with a TD of 10°F should have a superheat reading of 8° to 10°F. For evaporators with a higher TD, the superheat should be 10° to 12°F.

6. 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. This may be done by rotating the inner dial on the timer until the pin in the outer dial is directly opposite the timer pointer. (Paragon 8145-20 Timer by others).
7. Observe that the system goes through the cycle in DEFROST CYCLE.

MAINTENANCE

Periodic checking and cleaning of the fin surface when necessary should be done using a whisk or brush.



FAN DELAY THERMOSTAT POSITION DATA

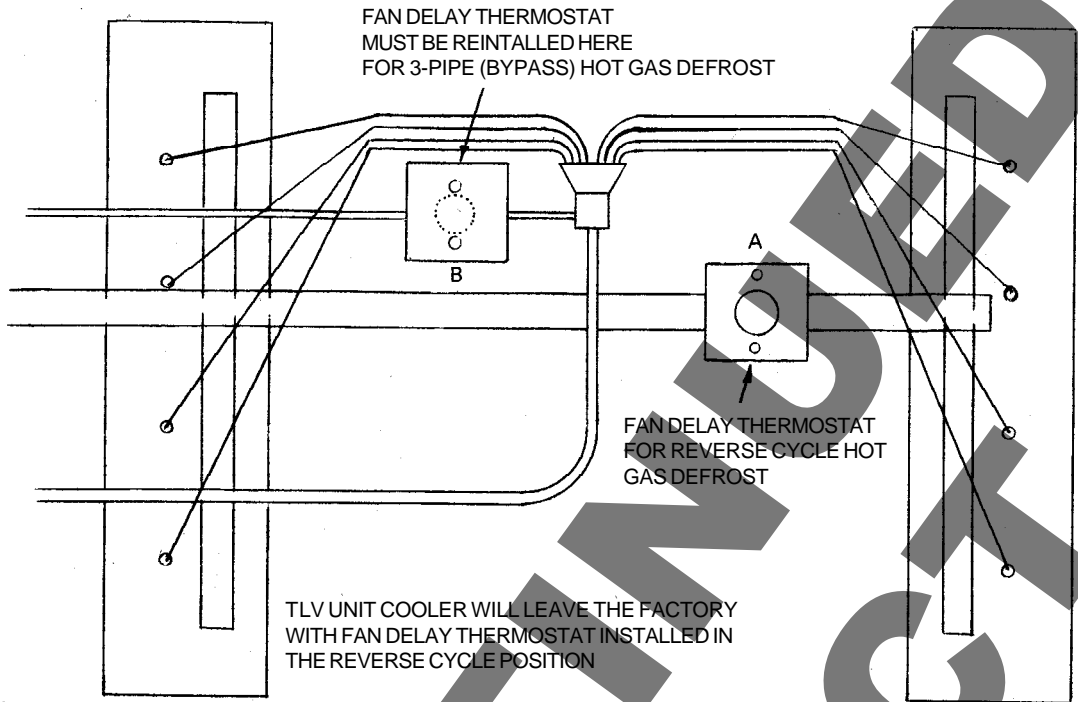


FIGURE 1

HOT GAS DEFOST (REVERSE CYCLE)

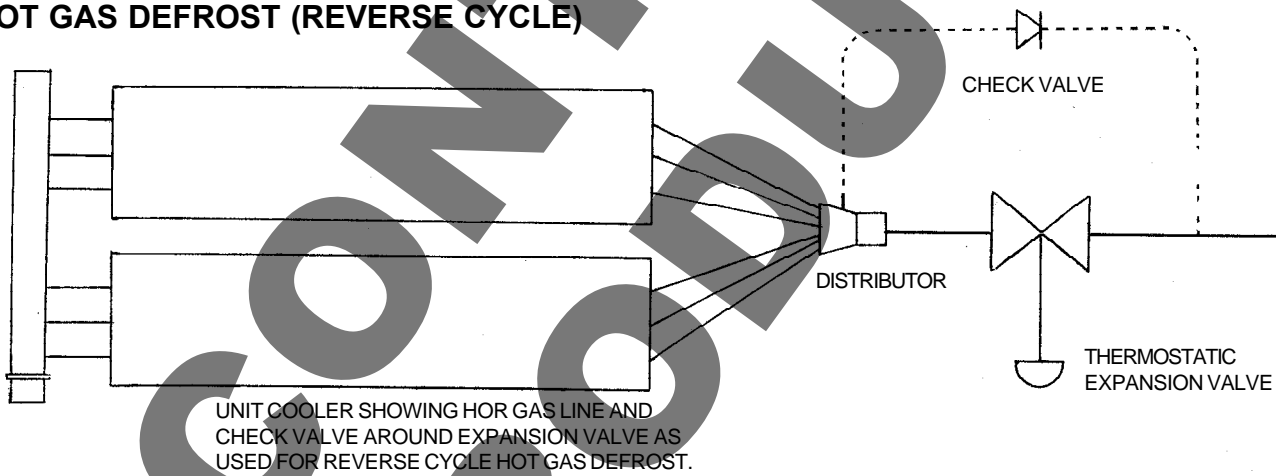


FIGURE 2

HOT GAS DEFOST (3 - PIPE OR BYPASS)

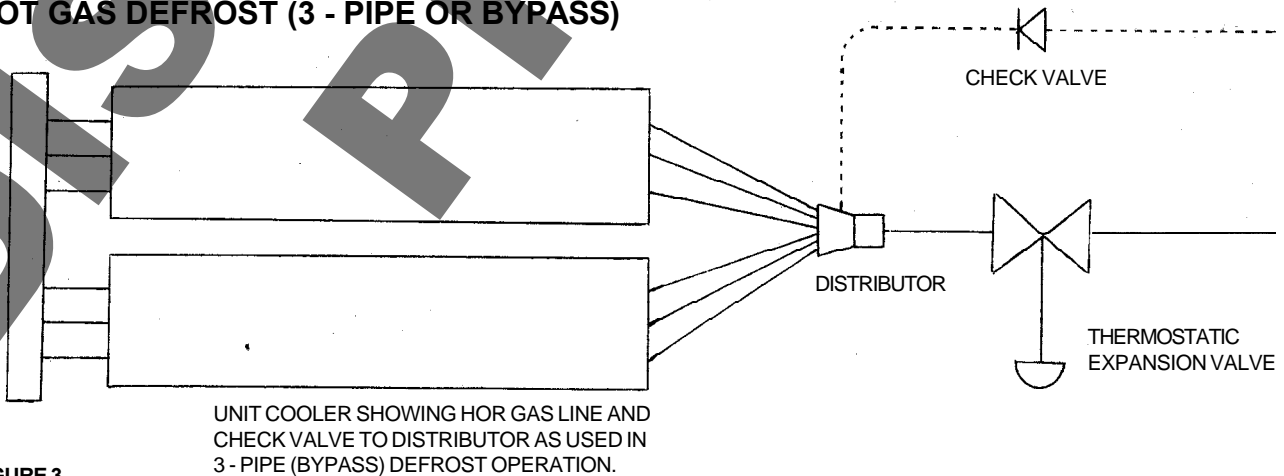


FIGURE 3

SERVICE PARTS LIST

FAN MOTORS 115/1/60 1/40HP, 1050RPM 115/1/60 1/15HP, 1050RPM 208-230/1/60 1/40HP, 1050RPM 208-230/1/60 1/15HP, 1050RPM	MODELS TLVA50, TLVA70, TLVA90 TLVA120, TLVA150, TLVA180, TLVA270 TLVA50, TLVA70, TLVA90 TLVA120, TLVA150, TLVA180, TLVA270	PART NUMBER 160363 160269 160364 160276
FAN GUARD	ALL	1043043
FAN BLADES 12" 14° 3-BLADE 12" 18° 4-BLADE 12" 24° 4-BLADE 14" 22° 4-BLADE 14" 28° 4-BLADE 14" 34° 4-BLADE	MODELS TLVA50 TLVA70 TLVA90 TLVA120 TLVA150 TLVA180, TLVA270	PART NUMBER 160387 160389 160390 160391 160392 160393

SERVICE LOG

DATE	COMMENTS

PROJECT INFORMATION

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



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