

TECHNICAL SUPPORT MANUAL

Fan Coils

FCM4X

Safety Labeling and Signal Words

DANGER, WARNING, CAUTION, and NOTE

The signal words **DANGER, WARNING, CAUTION,** and **NOTE** are used to identify levels of hazard seriousness. The signal word **DANGER** is only used on product labels to signify an immediate hazard. The signal words **WARNING, CAUTION,** and **NOTE** will be used on product labels and throughout this manual and other manuals that may apply to the product.

DANGER - Immediate hazards which **will** result in severe personal injury or death.

WARNING - Hazards or unsafe practices which **could** result in severe personal injury or death.

CAUTION - Hazards or unsafe practices which **may** result in minor personal injury or product or property damage.

NOTE - Used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Signal Words in Manuals

The signal word **WARNING** is used throughout this manual in the following manner:



The signal word **CAUTION** is used throughout this manual in the following manner:



Signal Words on Product Labeling

Signal words are used in combination with colors and/or pictures on product labels.

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ELECTRICAL SHOCK HAZARD

Failure to turn off electric power could result in personal injury or death.

Before installing or servicing system, turn off main power to the system. There may be more than one disconnect switch, including accessory heater(s).

MODELS

- FCM4X2400AT1
- FCM4X3600AT1
- FCM4X4800AT1
- FCM4X6000AT1

FAN COIL MODEL NUMBER IDENTIFICATION GUIDE

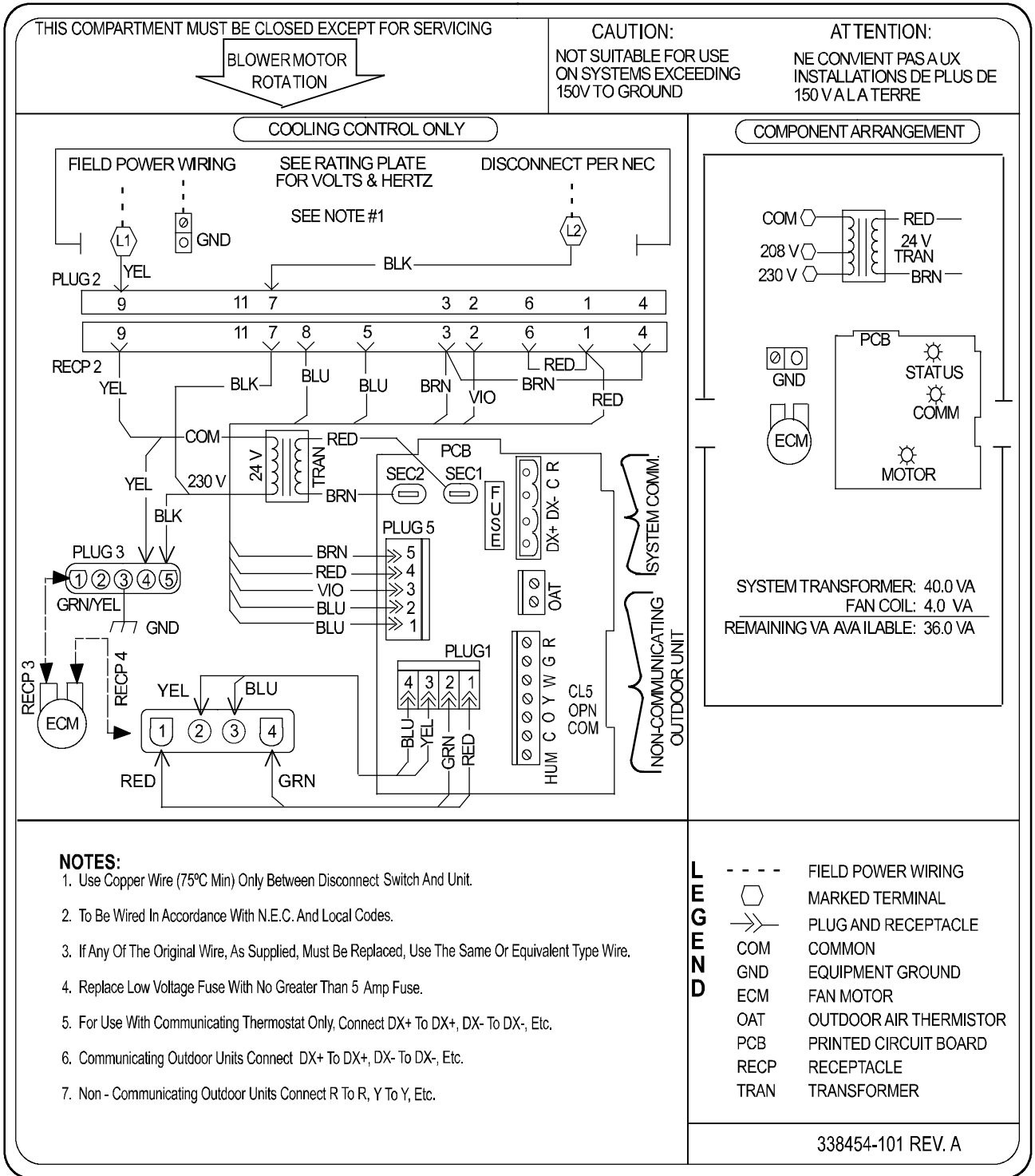
DIGIT POSITION	1	2	3	4	5	6,7,8,9	10	11
	F	C	M	4	X	2400	A	T
F = Fan Coil	UNIT							
C = Communicating	MOTOR TYPE							
M = Multiposition								
4 = Environmentally Sound R-410A			REFRIGERANT					
X = TXV					METERING DEVICE			
2400 = 24,000 BTUH = 2 tons								
3600 = 36,000 BTUH = 3 tons								
4800 = 48,000 BTUH = 4 tons								
6000 = 60,000 BTUH = 5 tons							NOMINAL CAPACITY	
A = Standard								
AT = Tin Coated Copper Tube							SALES CODE / FEATURES	

ACCESSORIES PART NUMBER IDENTIFICATION GUIDE

	EB	AC	01	NCB	A
EB = Evaporator Blower					
AC = Accessory					
01 = Product Identifier Number					
DFS = Down Flow Slope Kit					
DFA = Down Flow "A" Kit					
DPK = Horizontal Drain Pan kit					
DSC = Disconnect Kit					
GSK = Gasket Kit					
TXVX = R410A TXV Kit					
Sales Code					

ELECTRIC HEATER MODEL NUMBER IDENTIFICATION GUIDE

	EHK	05	A	K	N	1
EHK = Electric Heater Kit						
EHC = Communicating Electric Heater Kit						
05 = 5 kW						
07 = 8 kW						
09 = 9 kW						
10 = 10 kW						
15 = 15 kW						
18 = 18 kW						
20 = 20 kW						
25 = 24 kW						
30 = 30 kW						
Sales Code						
K = 208 / 230 single-phase						
H = 208 / 230, 3-phase						
KC = 208 / 230, supplied as single phase, field convertible to 3-phase						
HC = 208 / 230 supplied as 3-phase, field convertible to single phase						
N = No Protection						
F = Fused						
B = Breaker						
Engineering Code						



Models:

- FCM4X2400AT1
- FCM4X3600AT1
- FCM4X4800AT1
- FCM4X6000AT1

PHYSICAL DATA				
MODEL	FCM4X			
SIZE	24	36	48	60
COIL				
Refrigerant Metering Device	R-410A REFRIGERANT TXV			
TXV Size	2 Ton	3 Ton	4 Ton	5 Ton
Configuration	A	Slope	A	A
Rows—Fins/In.	3 / 14.5			
Face Area (Sq Ft)	3.46	3.46	5.93	7.42
MATCHES OUTDOOR UNIT SIZES				
Nominal Cooling Tons	1.5, 2, 2.5, 3	2, 2.5, 3, 3.5	2.5, 3, 3.5, 4	3, 3.5, 4, 5
FAN				
Air Discharge	Upflow, Downflow, Horizontal			
CFM/Ton (Nominal)	350+			
Motor HP (ECM)	1/2	1/2	1/2	3/4
Filter 21-1/2-in (546 mm) x	16-3/8-in (417 mm)	19-7/8-in (505 mm)	19-7/8-in (505 mm)	23-5/16-in (592 mm)
CABINET CONFIGURATION OPTIONS				
	1-piece	1-piece	1-piece	Modular

PERFORMANCE DATA

AIRFLOW DELIVERY — COOLING, HEATING, ELECTRIC HEATING MODES

The FCM4X fan coils will provide airflow at a rate that is requested by the wall control during air conditioning or heat pump heating (without electric heat) modes. The nominal airflow for both heating and cooling modes is 350 cfm/ton nominal size of the outdoor unit installed. The airflow actually requested by the wall control is modified by its internal algorithms for zoning, comfort or efficiency concerns. Refer

to the documentation for the wall control for more information on how the wall control controls the fan coil. Safe operation of electric heaters requires airflow delivery at or above the minimum CFM for electric heater application listed in the chart below. The fan coil will adjust its airflow delivery to maintain safe airflow as operating mode and staging conditions require.

FCM4X FAN COIL AIRFLOW DELIVERY CHART (CFM) — ELECTRIC HEATING MODELS								
MODEL FCM4X	OUTDOOR UNIT CAPACITY BTUH	ELECTRIC HEATER KW RANGE						
		5	7-9	10	15	20	24-25	30
24	EMERGENCY	625	625	675	775	950	—	—
	18,000	625	625	675	—	—	—	—
	24,000	650	725	775	900	—	—	—
	30,000	800	875	875	925	1125	—	—
	36,000	975	975	975	1025	1125	—	—
36	EMERGENCY	675	700	775	850	1050	—	—
	24,000	675	875	875	1100	1150	—	—
	30,000	800	875	875	1100	1150	—	—
	36,000	975	975	1025	1150	1250	—	—
	42,000	1125	1125	1125	1150	1350	—	—
48	EMERGENCY	675	700	775	850	1050	1400	1425
	30,000	800	875	875	1100	1150	—	—
	36,000	975	975	1025	1150	1250	—	—
	42,000	1125	1125	1125	1150	1250	—	—
	48,000	1305	1305	1305	1305	1350	1500	1600
60	EMERGENCY	1050	1050	1050	1050	1125	1750	1750
	36,000	1050	1050	1100	1350	1350	—	—
	42,000	1125	1125	1150	1350	1350	—	—
	48,000	1300	1300	1300	1350	1500	1750	1750
	60,000	1625	1625	1625	1625	1750	1750	1750

Note 1: Emergency - Air conditioner with electric heater application, or emergency heat.

Note 2: These airflows are minimum airflows as UL listed.

Note 3: Dashed entry indicates that the heater/fan coil/outdoor unit combination is not approved. Do not apply.

AIRFLOW PERFORMANCE CORRECTION FACTORS			
HEATER KW	ELEMENTS	STATIC PRESSURE CORRECTION (in wc)	
		Sizes 24-48	Size 60
0	0	+ .02	+ .03
5	1	+ .01	+ .02
7, 10	2	0	0
9, 15	3	- .02	- .03
20	4	- .04	- .06
18, 25, 30	6	- .06	- .10

The FCM4X airflow performance table was developed using fan coils with 10kW electric heaters (2 elements) in the units. For fan coils with heaters made up of a different number of elements, the external available static at a given CFM from the table may be corrected by adding or subtracting pressure. Use table for this correction.

FACTORY-INSTALLED FILTER STATIC PRESSURE DROP (in wc)									
MODEL FCM4X	CFM								
	400	600	800	1000	1200	1400	1600	1800	2000
24	0.020	0.044	0.048	0.072	0.100	—	—	—	—
36	—	0.020	0.035	0.051	0.070	0.092	—	—	—
48	—	—	0.035	0.051	0.070	0.092	0.120	—	—
60	—	—	—	0.038	0.053	0.070	0.086	0.105	0.133

AIR DELIVERY PERFORMANCE CORRECTION COMPONENT PRESSURE DROP (in wc) AT INDICATED AIRFLOW (DRY TO WET COIL)											
MODEL FCM4X	CFM										
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
24	0.012	0.016	0.022	0.028	0.034	0.040	0.049	—	—	—	—
36	—	0.026	0.034	0.042	0.052	0.063	0.075	0.083	0.091	0.098	0.110
48	—	0.006	0.008	0.010	0.012	0.015	0.017	0.020	0.023	0.027	0.030
60	CFM										
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
60	0.013	0.016	0.018	0.020	0.023	0.027	0.030	0.034	0.039	0.044	0.048

NOTE: Subtract the above pressure drop corrections from unit airflow data when that component or condition is used. The remaining external static pressure will be available for the duct system.

UNITS WITHOUT ELECTRIC HEAT					
UNIT SIZE FCM4X	VOLTS-PHASE	FLA	MIN CKT AMPS	BRANCH CIRCUIT	
				Min Wire Size Awg*	Fuse/Ckt Bkr Amps
24	208/230-1	4.3	5.4	14	15
36	208/230-1	4.3	5.4	14	15
48	208/230-1	4.3	5.4	14	15
60	208/230-1	6.8	8.5	14	15

* Use copper wire only to connect unit. If other than uncoated (non-plated) 75°C ambient, copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used consult applicable tables of the National Electric Code (ANSI/NFPA 70).

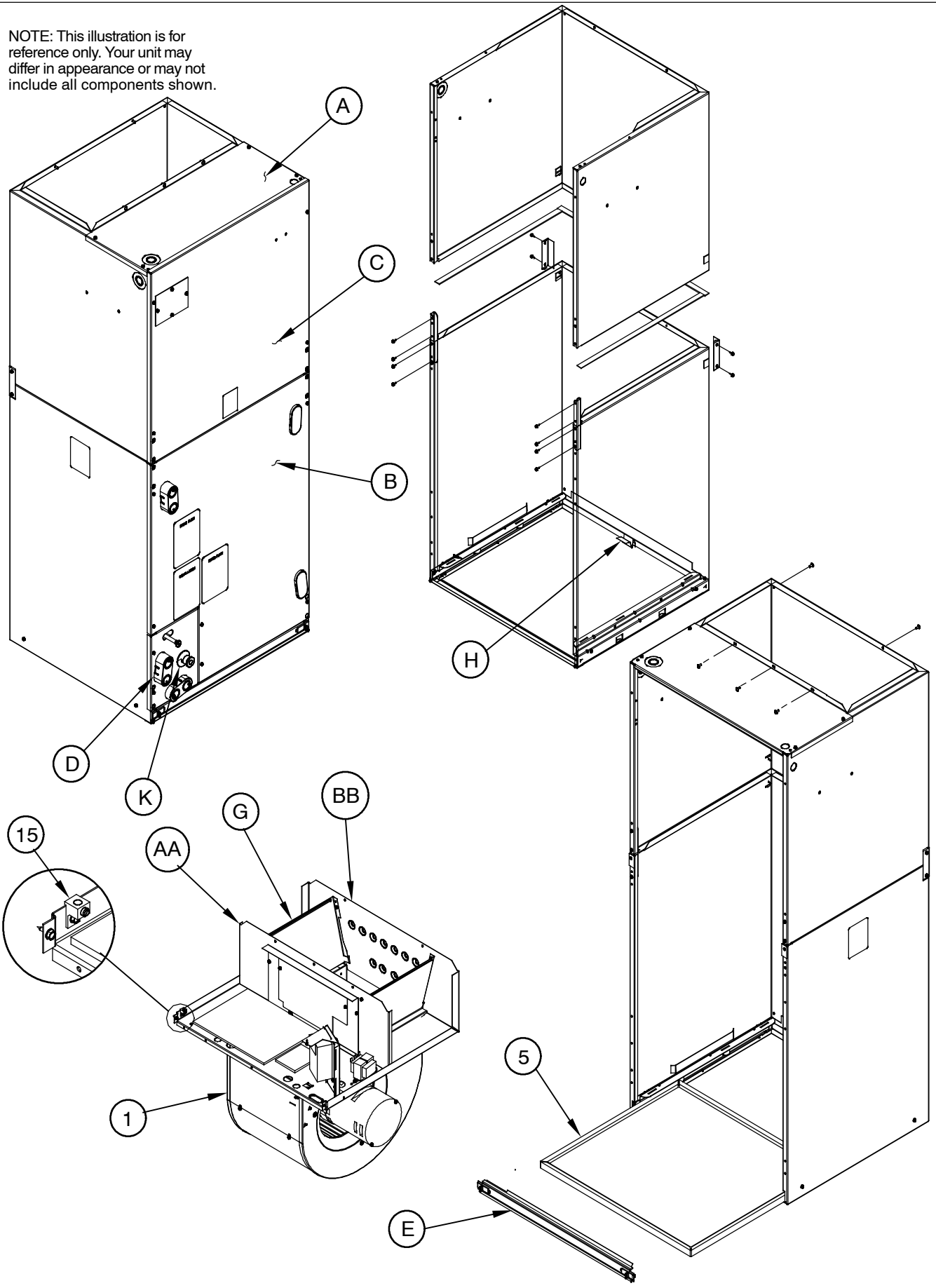
NOTE: If branch circuit wire length exceeds 100 ft / 30.5 m, consult NEC 210-19a to determine maximum wire length. Use 2% voltage drop.

FLA — Full Load Amps

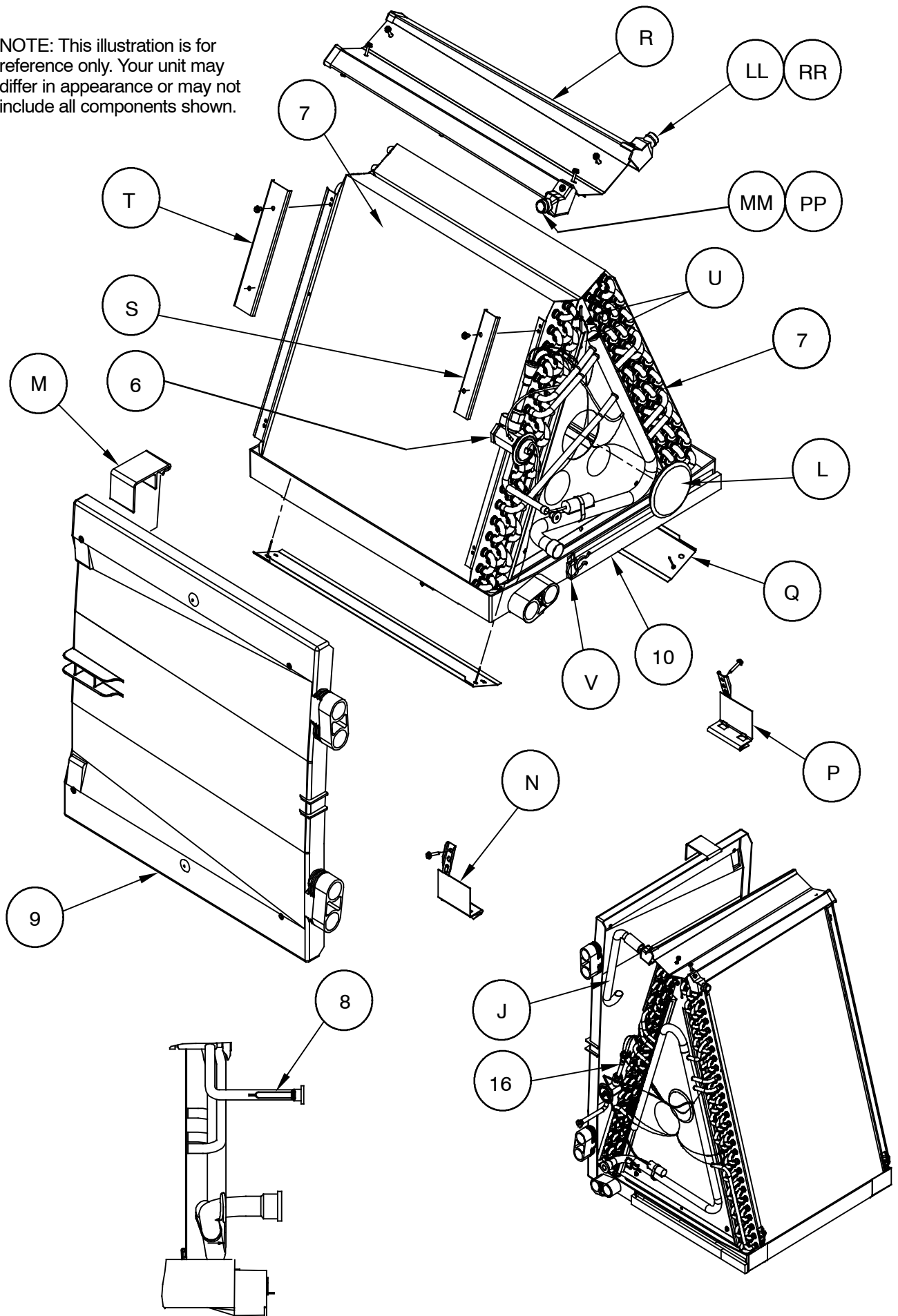
ELECTRIC HEATER INTERNAL PROTECTION			
HEATER kW	PHASE	FUSES QTY / SIZE	CKT BKR QTY / SIZE*
5	1	—	1/60
8	1	—	1/60
9	1/3	—	—
10	1	—	1/60
15	1	2/30, 2/60	2/60
15	3	—	—
18	3	—	—
20	1	4/60	2/60
24	3/1	6/60	—
30	3/1	6/60	—

* All circuit breakers are 2 pole.

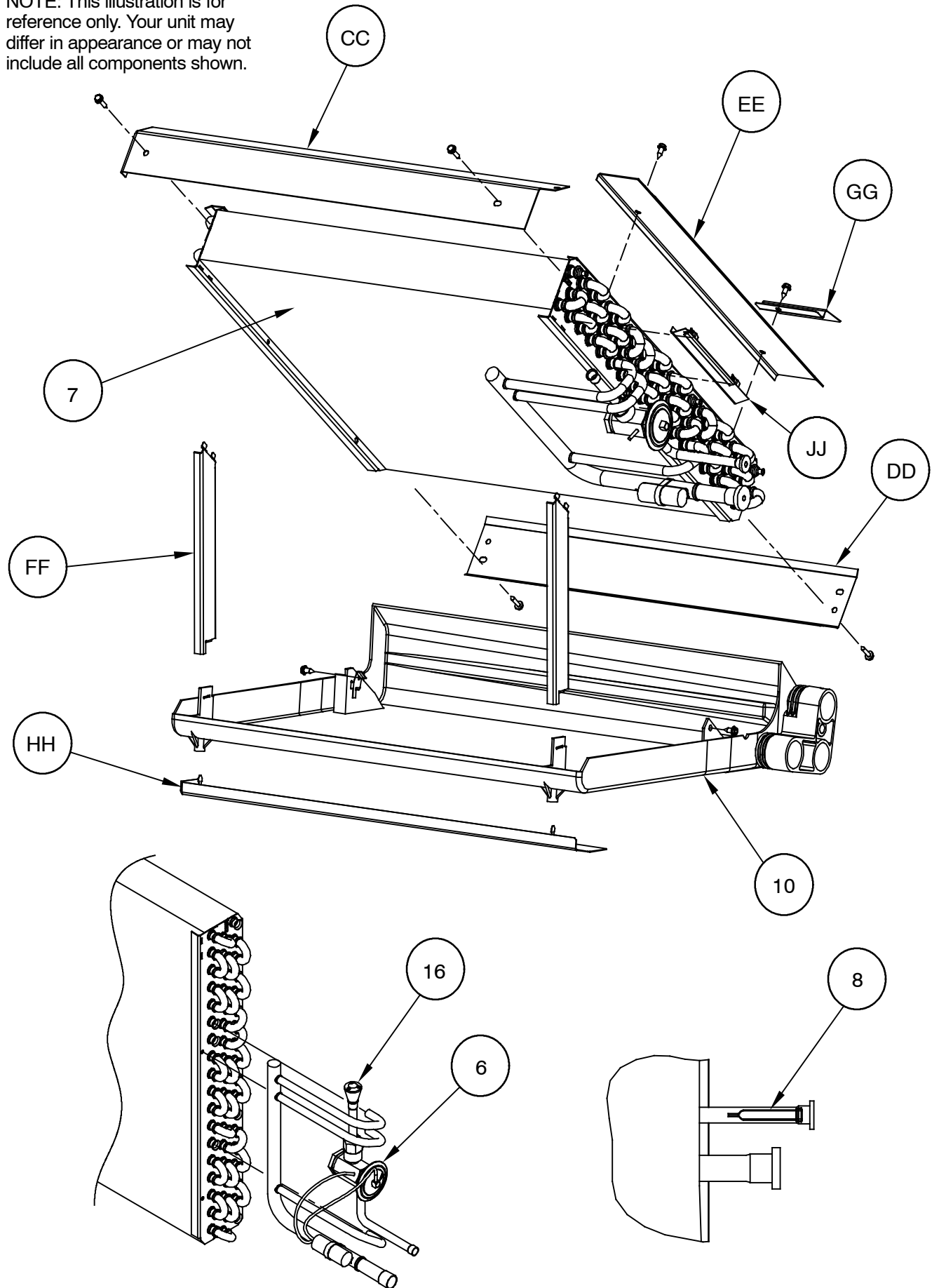
NOTE: This illustration is for reference only. Your unit may differ in appearance or may not include all components shown.



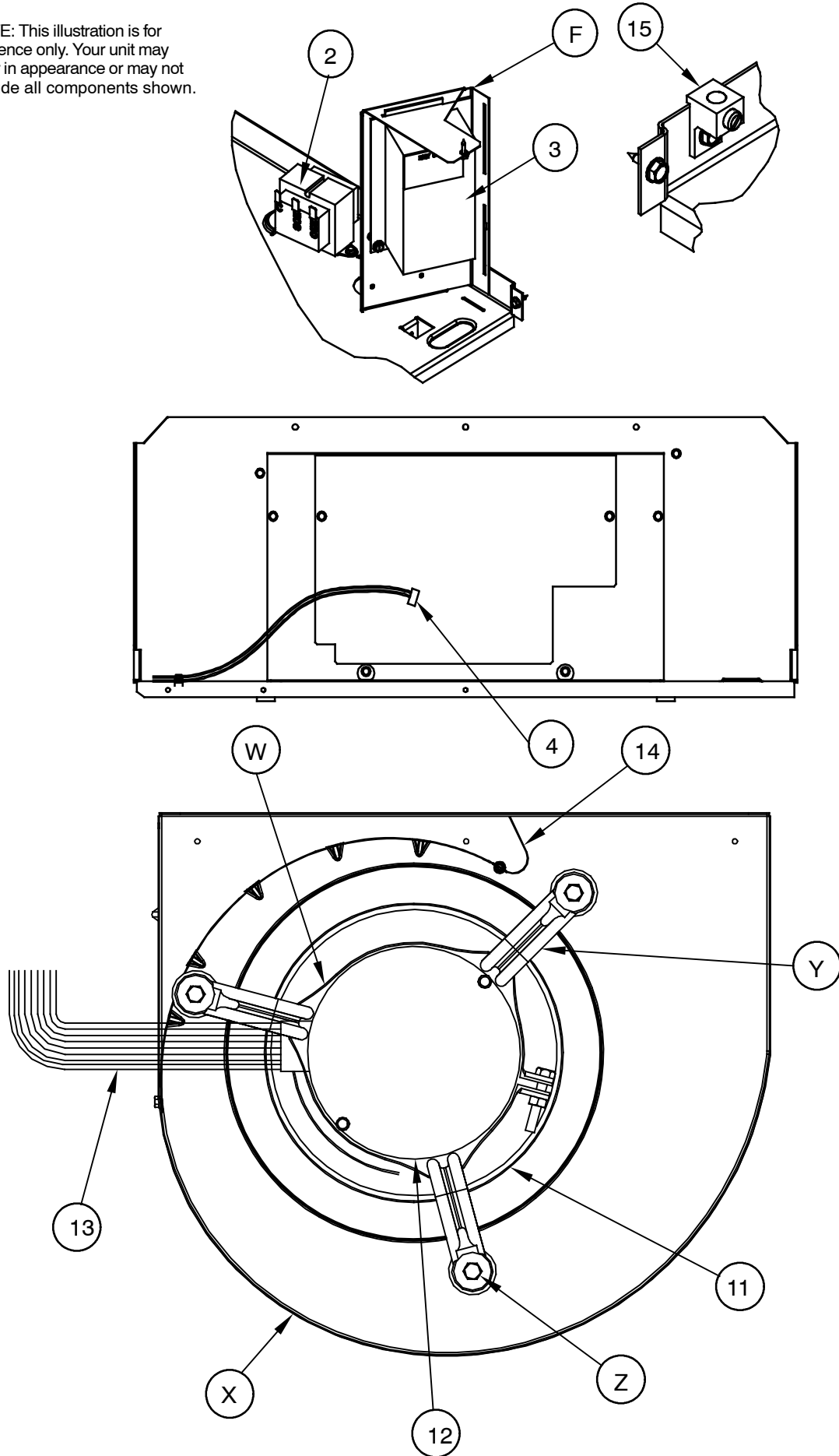
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FCM4X PARTS LIST						
KEY NO.	DESCRIPTION	PART NO.	FCM4X2400AT1	FCM4X3600AT1	FCM4X4800AT1	FCM4X6000AT1
01	BLOWER ASSY	1184557	1	-	-	-
01	BLOWER ASSY	1184558	-	1	1	-
01	BLOWER ASSY	1184559	-	-	-	1
02	TRANSFORMER	1170676	1	1	1	1
03	BOARD CIRCUIT	1184554	1	1	1	1
04	HARNESS ASSY BLOWER	1171676	1	1	1	1
05	FILTER LO EFF	1171652	1	-	-	-
05	FILTER LO EFF	1171653	-	1	1	-
05	FILTER LO EFF	1171654	-	-	-	1
06	TXV	1172348	1	-	-	-
06	TXV	1172349	-	1	-	-
06	TXV	1172350	-	-	1	1
07	COIL AND HEADER ASY	1183574	1	-	-	-
07	COIL AND HEADER ASY	1179023	-	1	-	-
07	COIL AND HEADER ASY	1179025	-	-	1	-
07	COIL AND HEADER ASY	1179026	-	-	-	1
08	STRAINER	1171740	1	1	1	1
09	CONDENSATE PAN	1179727	1	-	-	-
09	CONDENSATE PAN	1179674	-	-	1	-
09	CONDENSATE PAN	1179728	-	-	-	1
10	CONDENSATE PAN ASY	1184560	1	-	-	-
10	CONDENSATE PAN ASY	1185625	-	1	-	-
10	CONDENSATE PAN ASY	1184561	-	-	1	-
10	CONDENSATE PAN ASY	1184562	-	-	-	1
11	WHEEL BLOWER	1171744	1	-	-	-
11	WHEEL BLOWER	1171741	-	1	1	1
12	MOTOR BLOWER	1184563	1	1	1	-
12	MOTOR BLOWER	1184564	-	-	-	1
13	HARNESS ASSY BLOWER ECMX	1184571	1	1	1	1
14	CUTOFF	1171571	1	-	-	-
14	CUTOFF	1171568	-	1	1	1
15	LUG GROUND	1170677	1	1	1	1
16	DISTRIBUTOR ASY	1171924	1	-	-	-
16	DISTRIBUTOR ASY	1172888	-	1	-	-
16	DISTRIBUTOR ASY	1171606	-	-	1	-
16	DISTRIBUTOR ASY	1171605	-	-	-	1
A	PANEL ASSY TOP INSUL	1172361	1	-	-	-
A	PANEL ASSY TOP INSUL	1172363	-	1	1	-
A	PANEL ASSY TOP INSUL	1172336	-	-	-	1
AA	PLATE HEATER	1171584	1	-	-	-
AA	PLATE HEATER	1171581	-	1	1	-
AA	PLATE HEATER	1171582	-	-	-	1
B	DOOR ASSY LOWER INSUL	1172369	1	-	-	-
B	DOOR ASSY LOWER INSUL	1172340	-	1	-	-
B	DOOR ASSY LOWER INSUL	1172341	-	-	1	-
B	DOOR ASSY LOWER INSUL	1172342	-	-	-	1
BB	DECK BLOWER	1171586	1	-	-	-
BB	DECK BLOWER	1171588	-	1	1	-
BB	DECK BLOWER	1171589	-	-	-	1
C	DOOR ASSY UPPER INSUL	1172345	1	-	-	-

FCM4X PARTS LIST (continued)						
KEY NO.	DESCRIPTION	PART NO.	FCM4X2400AT1	FCM4X3600AT1	FCM4X4800AT1	FCM4X6000AT1
C	DOOR ASSY UPPER INSUL	1183697	-	1	-	-
C	DOOR ASSY UPPER INSUL	1172346	-	-	1	-
C	DOOR ASSY UPPER INSUL	1172347	-	-	-	1
CC	BRACKET COIL	1171650	-	1	-	-
D	DOOR ASSY FITTING INSUL	1172344	1	-	-	-
D	DOOR ASSY FITTING INSUL	1172339	-	1	-	-
D	DOOR ASSY FITTING INSUL	1172344	-	-	1	1
DD	SHIELD COND PAN	1172328	-	1	-	-
E	DOOR ASSY FILTER	1171934	1	-	-	-
E	DOOR ASSY FILTER	1171935	-	1	1	-
E	DOOR ASSY FILTER	1171936	-	-	-	1
EE	EXTENSION COIL	1171580	-	1	-	-
F	BARRIER LOW VOLTAGE	1171922	1	1	1	1
FF	SUPPORT COIL	1171667	-	1	-	-
G	BAFFLE DIFFUSER	1171569	1	1	1	1
GG	BAFFLE COIL	1171644	-	1	-	-
H	SPRING	1172554	1	1	1	1
HH	SUPPORT COND PAN	1171664	-	1	-	-
J	TUBE DRAIN	1172337	1	-	1	1
JJ	CHANNEL COND	1171645	-	1	-	-
K	GROMMET SUCTION	1171622	1	1	1	-
K	GROMMET SUCTION	1173772	-	-	-	1
L	PLUG BUTTON	1173764	1	-	1	1
LL	FITTING DRAIN	1171636	1	-	1	1
M	SUPPORT PAN	1172636	-	-	1	1
MM	FITTING DRAIN	1171635	1	-	1	1
N	BRACKET COIL	1171574	2	-	2	2
P	BRACKET COIL	1171575	2	-	2	2
PP	CAP	1174949	1	-	1	1
Q	SHIELD COND PAN	1172328	2	-	2	2
R	AIR SEAL ASSY	1171640	1	-	-	-
R	AIR SEAL ASSY	1171641	-	-	1	1
RR	CAP	1174950	1	-	1	1
S	TROUGH CNDS	1171920	1	-	-	-
S	TROUGH CNDS	1171638	-	-	1	1
T	TROUGH CNDS	1171637	1	-	1	1
U	BAFFLE DRIP	1171921	2	-	-	-
U	BAFFLE DRIP	1171647	-	-	2	-
U	BAFFLE DRIP	1171648	-	-	-	2
V	RING DRIP	1171649	1	-	1	-
V	RING DRIP	1172329	-	-	-	1
W	BAND MTR MOUNT	1171733	1	1	1	1
X	HOUSING BLOWER FAN	1177066	1	-	-	-
X	HOUSING BLOWER FAN	1177068	-	1	1	1
Y	ARM AND GROMMET ASSY	1173746	1	1	1	1
Z	SCREW SPECIAL	1170636	3	3	3	3
PARTS NOT SHOWN						
)	HEX HD 10AB 1/2	1177071	31	31	31	31
)	HEX HD 10AB 5/8	1177072	12	12	12	12
)	PAINT TOUCH-UP TAUPE METALLIC	1179019	1	1	1	1

FCM4X PARTS LIST (continued)						
KEY NO.	DESCRIPTION	PART NO.	FCM4X2400AT1	FCM4X3600AT1	FCM4X4800AT1	FCM4X6000AT1
)	GROMMET LIQUID	1171620	1	1	1	1
)	GROMMET	1171737	1	1	1	1