FRIEDRICH

SPLIT TYPE AIR CONDITIONER

CASSETTE type (60Hz)

SERVICE MANUAL

Refrigerant R410A

Models

Indoor unit	Outdoor unit
MC24Y3F	MR24UY3F

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SPECIFICATIONS

TYPE	COOLING & HEATING
INDOOR UNIT	MC24Y3F
OUTDOOR UNIT	MR24UY3F
COOLING CAPACITY	22,200 / 22,200 BTU/h
HEATING CAPACITY	24,200 / 24,200 BTU/h

ELECTRICAL DATA

POWER SOURCE		1 ϕ 230 / 208 V 60Hz
RUNNING CURRENT	COOLING	9.2 / 10.1 A
	HEATING	10.4 / 11.4 A
INPUT WATTS	COOLING	2.10 / 2.10 kW
	HEATING	2.37 / 2.37 kW
E.E.R.	COOLING	3.10 / 3.10 kW/kW
	HEATING	3.00 / 3.00 kW/kW
STARTING CURRENT		9.5 A
MOISTURE REMOVAL		3.0 l/hr
AIRCIRCULATION -High		1,050 m^3/hr

COMPRESSOR

TYPE	Total enclosed type, 4 poles, Inverter, Twin Rotary
DISCRIMINATION	TNB220FPBM9
REFRIGERANT R410A	4 lb 3 oz, 1,900 g

FAN MOTOR

INDOOR UNIT (Cool / Heat)	DISCRIMINATION	MFA-24RPT
	HIGH-SPEED	490 r.p.m. / 440 r.p.m.
	MED-SPEED	430 r.p.m. / 380 r.p.m.
	LOW-SPEED	360 r.p.m. / 330 r.p.m.
	S-LOW-SPEED	- / 250 r.p.m.
OUTDOOR UNIT (Cool / Heat)	DISCRIMINATION	MFE-45ROM
	HIGH-SPEED	850 r.p.m. / 900 r.p.m.

DIMENSIONS

INDOOR UNIT H x W x D	9-3/4" x 32-3/4" x 32-3/4" inch (246 x 830 x 830 mm)
OUTDOOR UNIT H x W x D	32-3/4" x 35-1/2" x 13" inch (830 x 900 x 330 mm)

WEIGHT

INDOOR UNIT	Gross / Net	44 kg / 34 kg
OUTDOOR UNIT	Gross / Net	70 kg / 64 kg

NOISE LEVEL

INDOOR UNIT	HIGH-SPEED	45.0 dB
	MED-SPEED	43.0 dB
	LOW-SPEED	38.0 dB
OUTDOOR UNIT	COOL	53.0 dB
	HEAT	55.0 dB

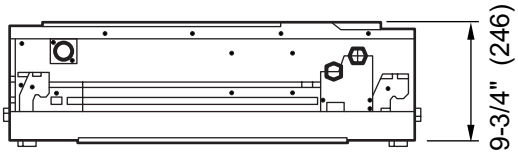
REFRIGERANT CHARGE (R410A)

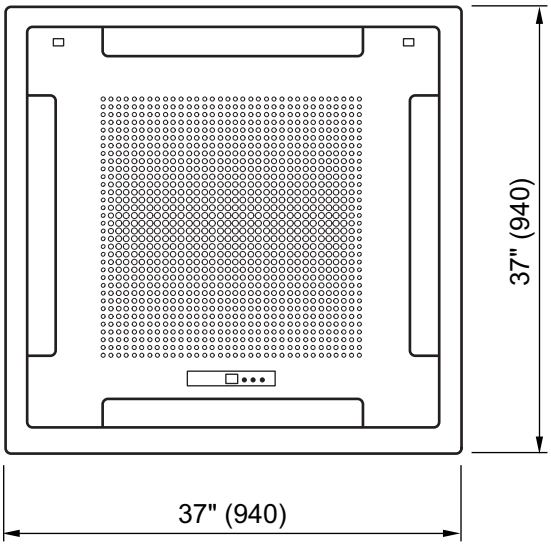
MAX PIPE LENGTH		50 m
MAX PIPE HEIGHT		30 m
FULL CHARGE AMOUNT Pipe Length	49 ft. (15 m)	4 lb 3 oz (1,900 g)
	66 ft. (20 m)	4 lb 10 oz (2,100 g)
	98 ft. (30 m)	5 lb 8 oz (2,500 g)
	131 ft. (40 m)	6 lb 6 oz (2,900 g)
	164 ft. (50 m)	7 lb 5 oz (3,300 g)
ADDITIONAL REFRIGERANT		0.424 oz / ft. (40 g / m)

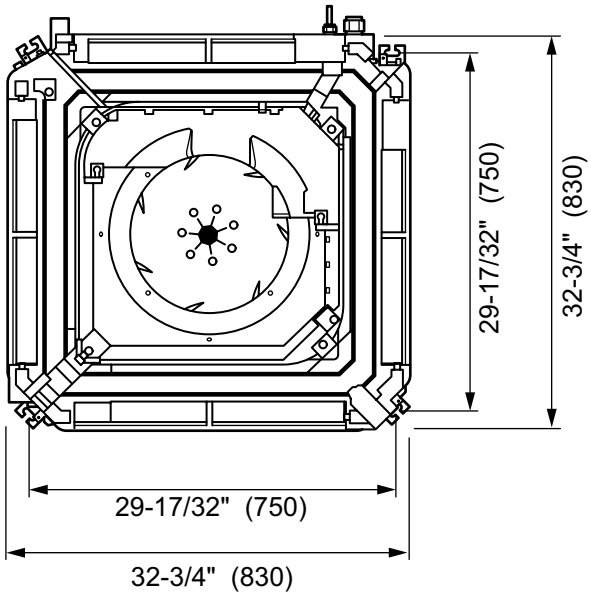
DIMENSIONS

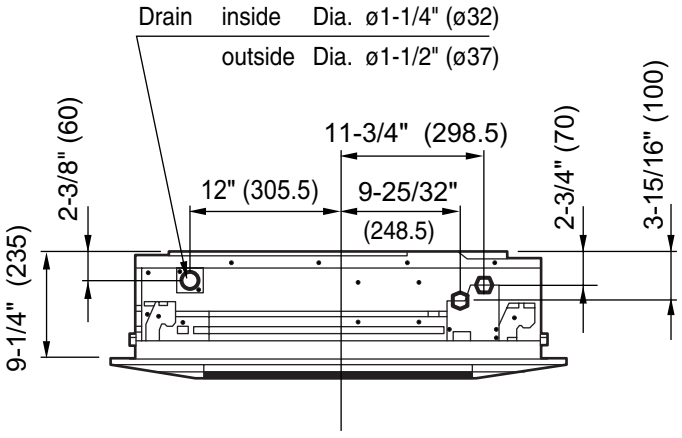
INDOOR UNIT
unit : inch (mm)

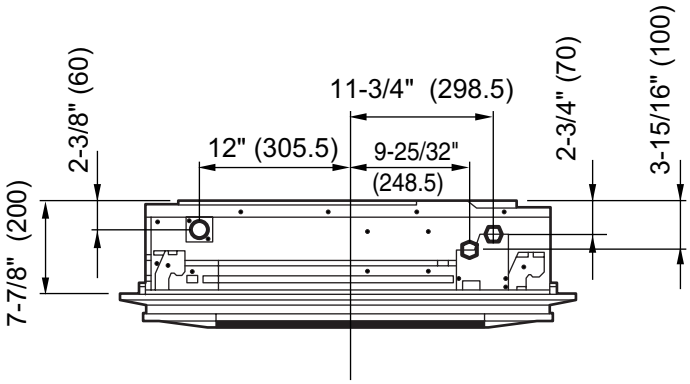




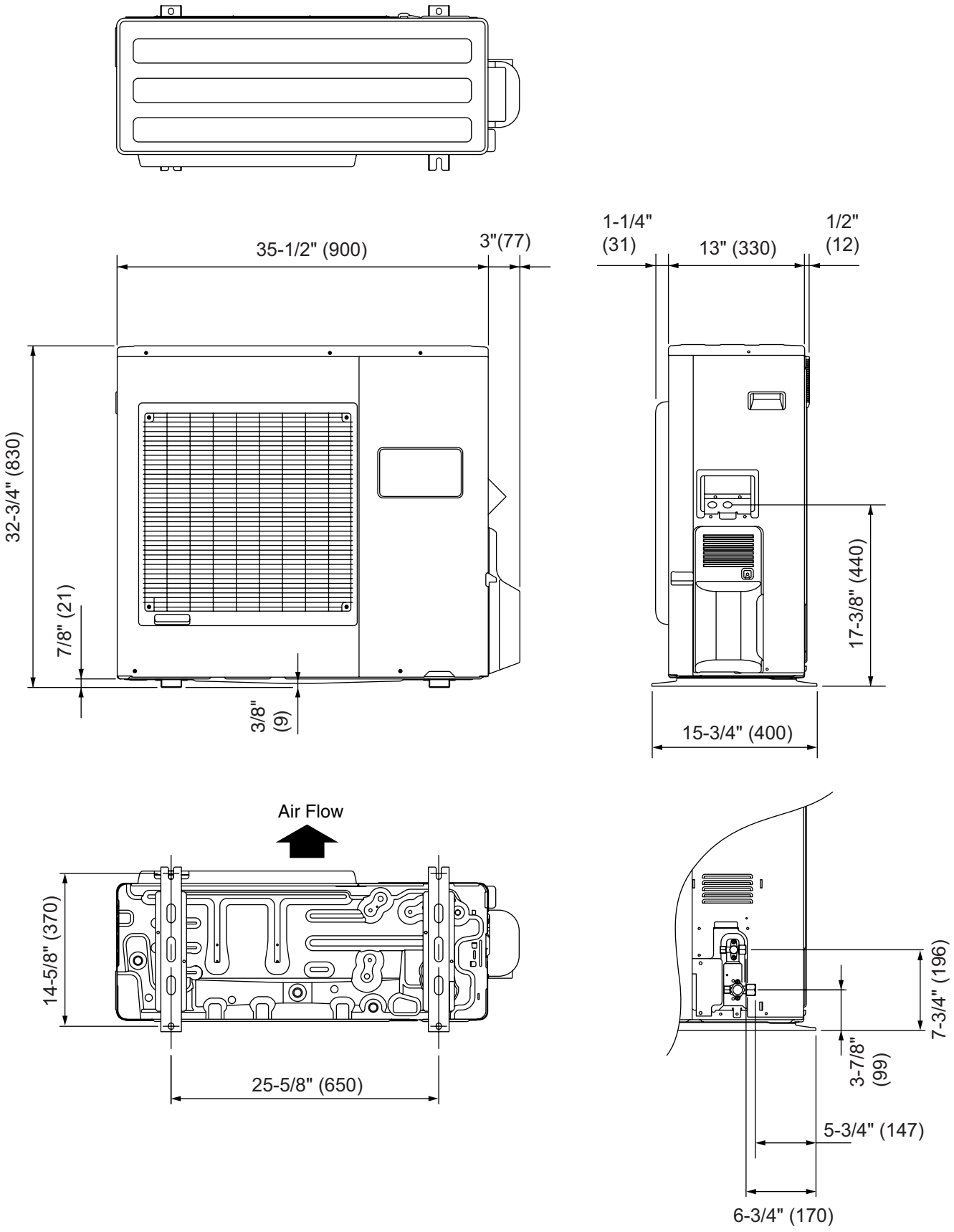




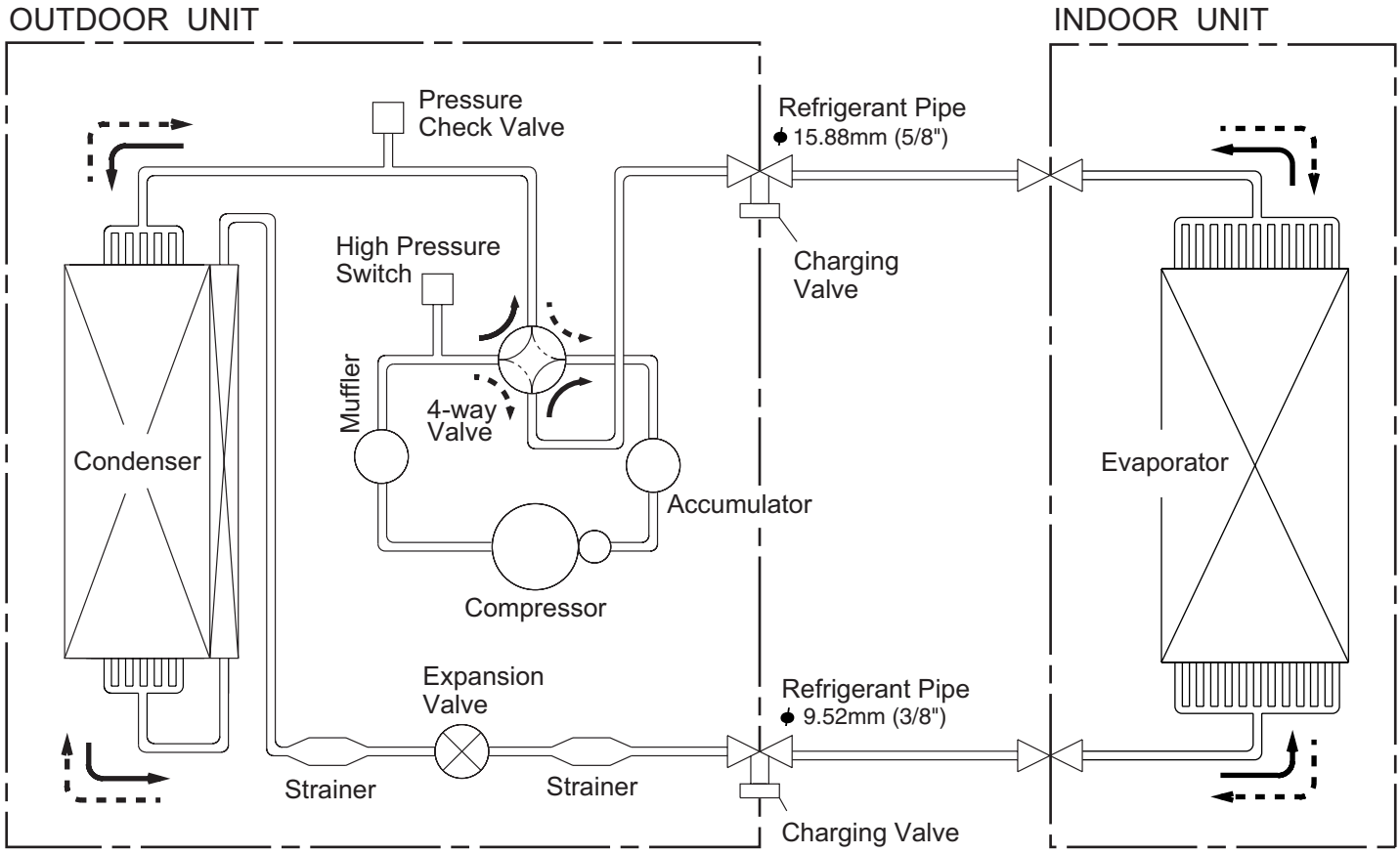




OUTDOOR UNIT
unit : inch (mm)

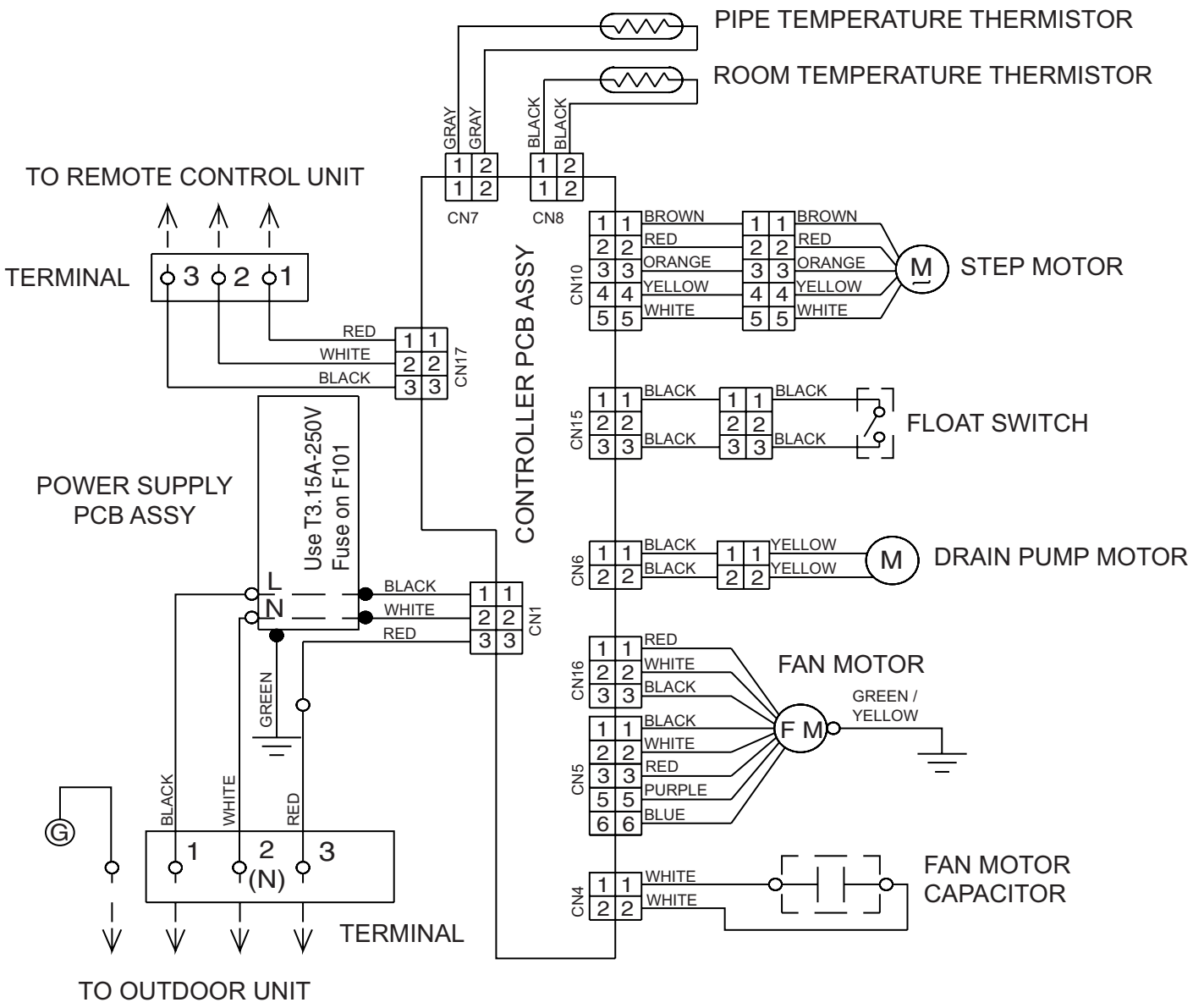


REFRIGERANT SYSTEM DIAGRAM

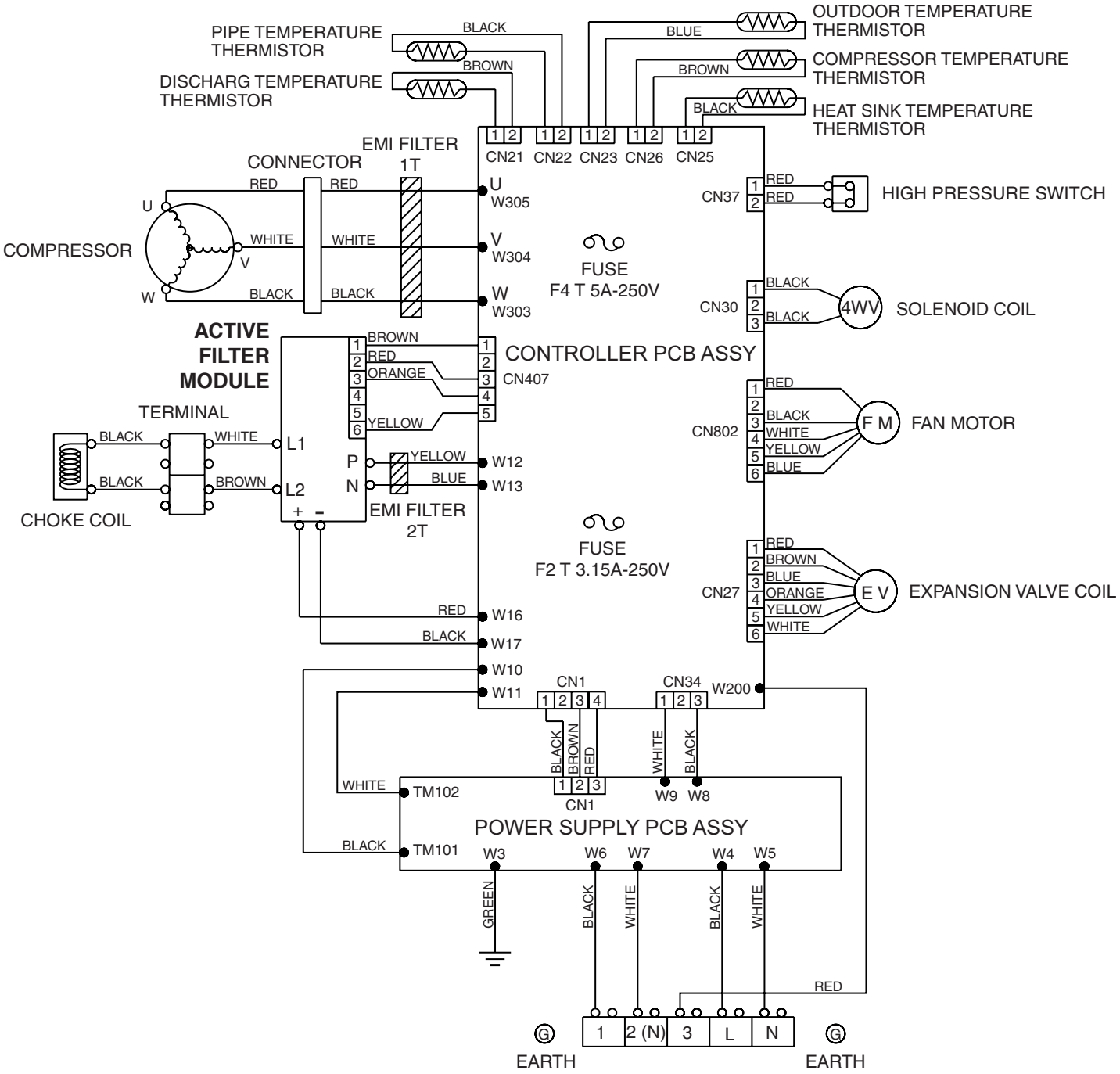


CIRCUIT DIAGRAM

INDOOR UNIT



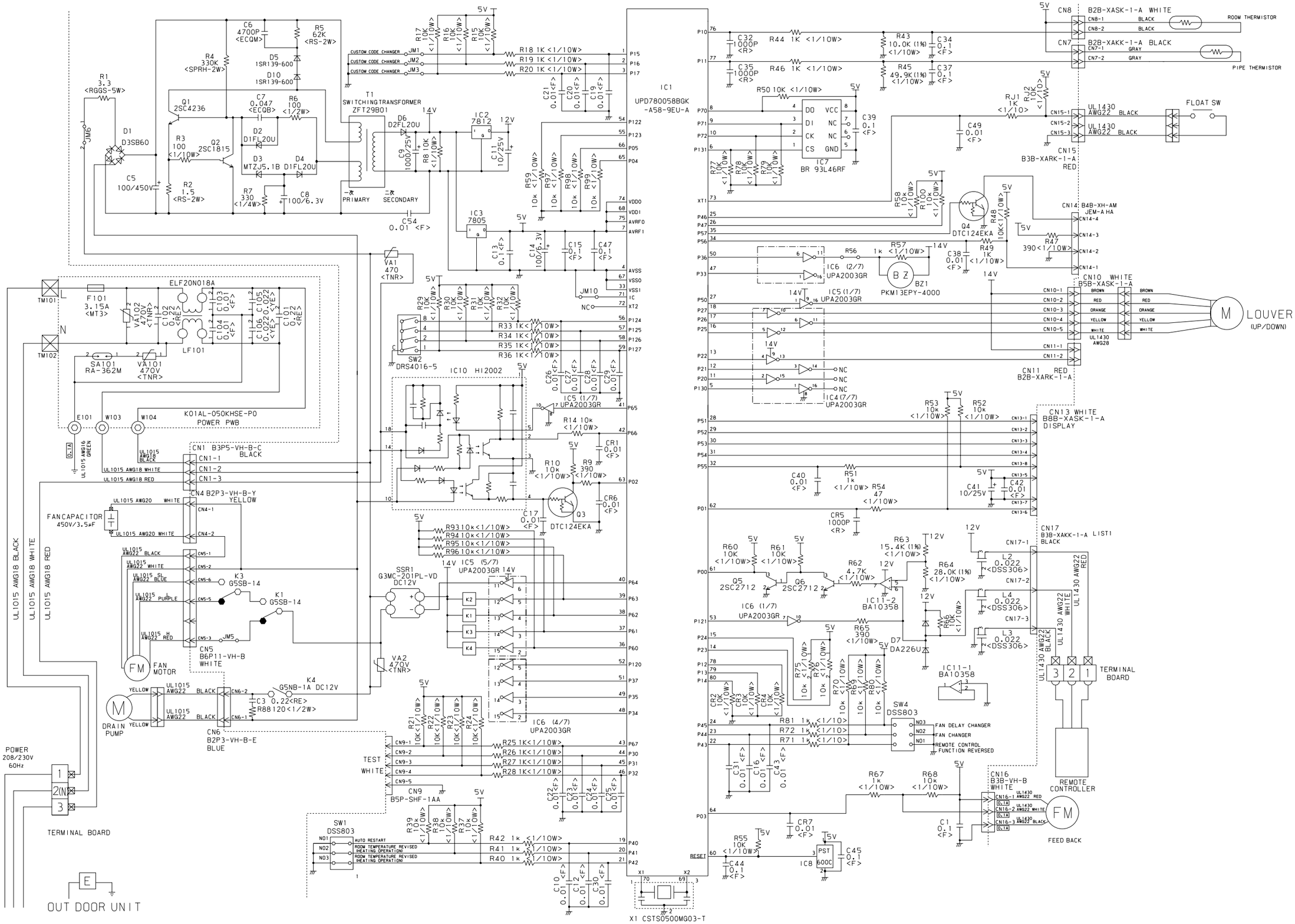
OUTDOOR UNIT



INDOOR PCB CIRCUIT DIAGRAM

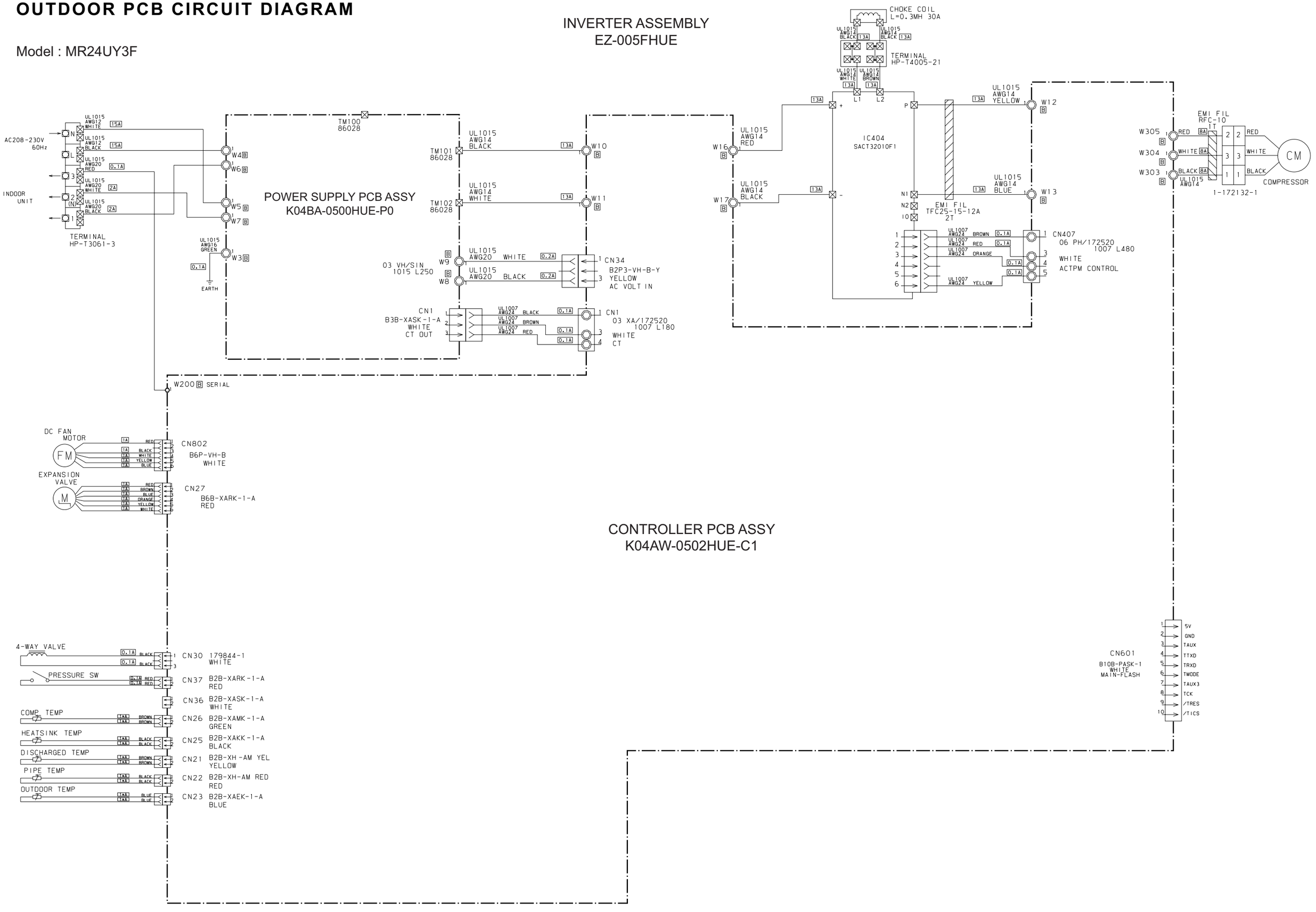
Model : MC24Y3F

CONTROLLER PCB ASSEMBLY
K01AL-050LHSE-C1

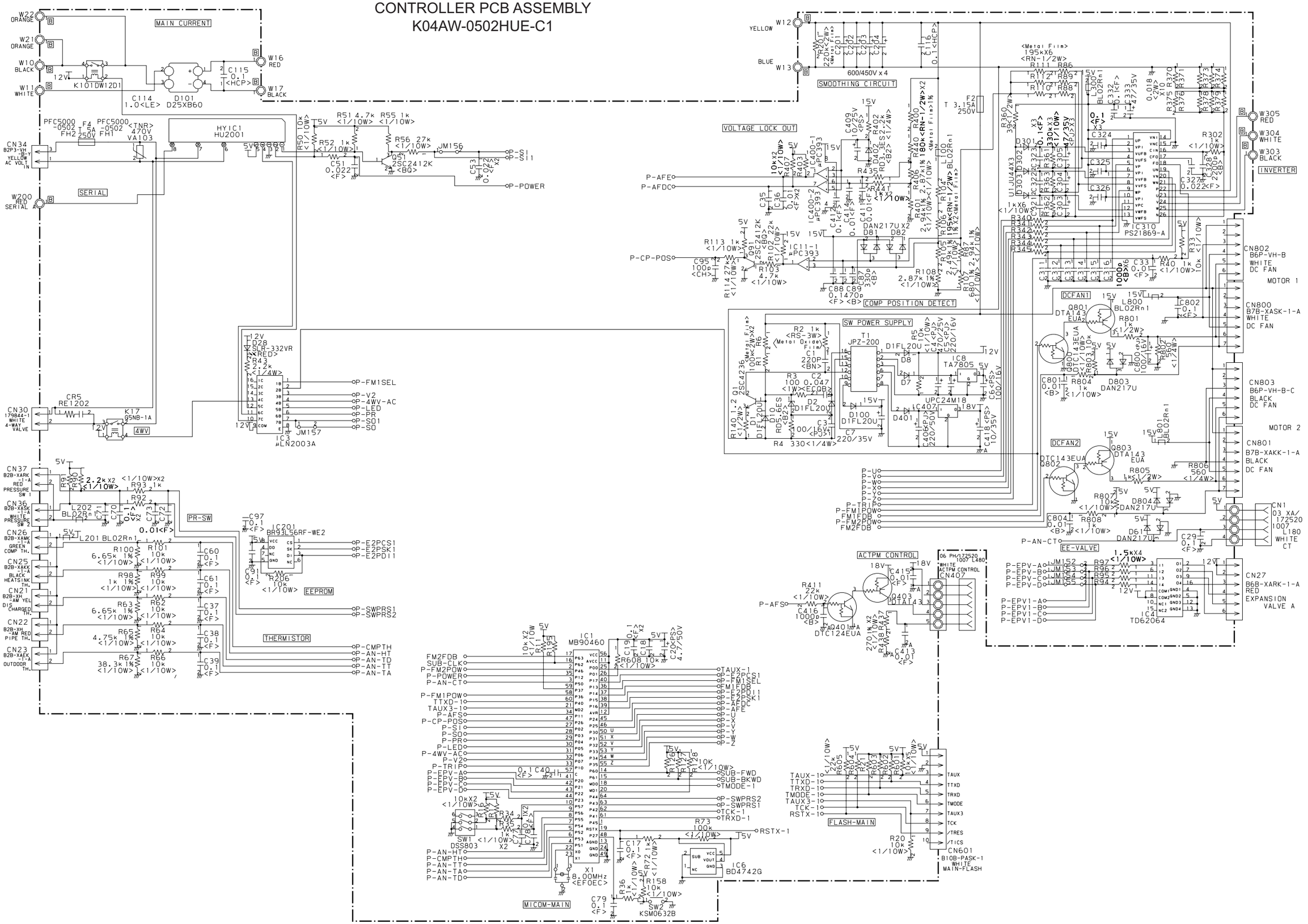


OUTDOOR PCB CIRCUIT DIAGRAM

Model : MR24UY3F

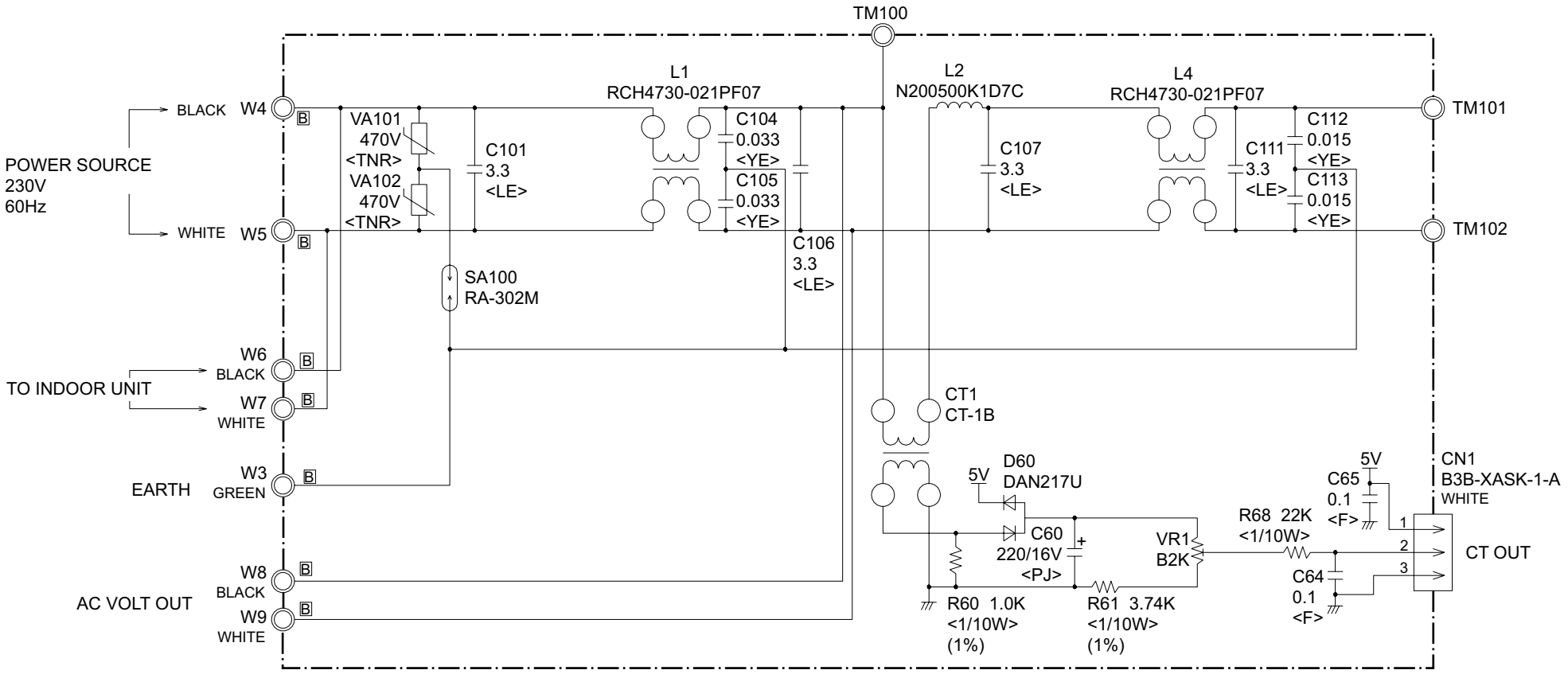


CONTROLLER PCB ASSEMBLY
K04AW-0502HUE-C1



Model : MR24UY3F

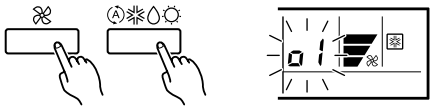
POWER SUPPLY PCB ASSEMBLY
K04BA-0500HUE-P0



2006.05.25

ERROR CONTENTS (indoor unit)

(1) Stop the air conditioner operation.
(2) Press the master control button and the fan control button simultaneously for 2 seconds or more to start the test run.



Test run display

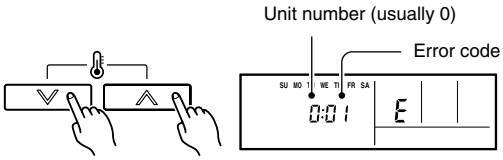
(3) Press the start/stop button to stop the test run.

[SELF-DIAGNOSIS]

When the error indication "E:EE" is displayed, follow the following items to perform the self-diagnosis. "E:EE" indicates an error has occurred.

1. REMOTE CONTROLLER DISPLAY

(1) Stop the air conditioner operation.
(2) Press the set temperature buttons ∧ / ∨ simultaneously for 5 seconds or more to start the self-diagnosis.
Refer to the following tables for the description of each error code.



Ex. Self-diagnosis

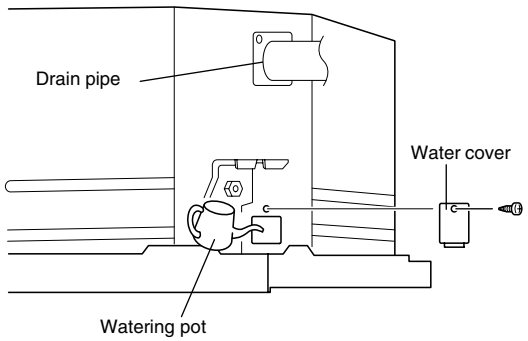
(3) Press the set temperature buttons ∧ / ∨ simultaneously for 5 seconds or more to stop the self-diagnosis.

Error code	Error contents
00	Communication error (indoor unit ◄► remote controller)
01	Communication error (indoor unit ◄► outdoor unit)
02	Room temperature sensor open
03	Room temperature sensor short-circuited
04	Indoor heat exchanger temperature sensor open
05	Indoor heat exchanger temperature sensor short-circuited
06	Outdoor heat exchanger temperature sensor
08	Power source connection error
09	Float switch operated
0A	Outdoor temperature sensor
0c	Discharge pipe temperature sensor
11	Model abnormal
12	Indoor fan abnormal

Error code	Error contents
13	Outdoor signal abnormal
14	Excessive outdoor pressure (permanent stop)
15	Compressor temperature sensor
16	Pressure switch error
17	IPM error
18	CT error
19	Active filter module (AFM) error
1A	Compressor does not operate
1b	Outdoor unit fan error
1c	Communication error (inverter ► multicontroller)
1d	2 way valve sensor error
1E	Expansion valve error
1F	Connection indoor unit error

2. CHECKING DRAINAGE

To check the drain, remove the water cover and fill with 2 to 3 of water as shown in figure.
The drain pump operates when operating in the cooling mode.



ERROR CONTENTS (outdoor unit)

1. Make a TEST RUN in accordance with the installation instruction sheet for the indoor unit.

2. OUTDOOR UNIT LEDS

When a malfunction occurs in the outdoor unit, the LED on the circuit board lights to indicate the error. Refer to the following table for the description of each error according to the LED.

LED	Error contents
1 flash	Communication error (Indoor unit - Outdoor unit)
2 flash	Discharg pipe temperature sensor
3 flash	Outdoor heat exchanger temperature sensor
4 flash	Outdoor temperature sensor
7 flash	Compressor temperature sensor
8 flash	Heat sink temperature sensor
9 flash	Pressure switch abnormal
12 flash	IPM error
13 flash	Compressor rotor position cannot detect
14 flash	Compressor cannot operate
15 flash	Outdoor fan abnormal (upper fan)
16 flash	Outdoor fan abnormal (lower fan)
lighting	No error

SPECIAL INSTALLATION SETTING

PUMP DOWN (Refrigerant collecting operation)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

1. When the product is stopped:

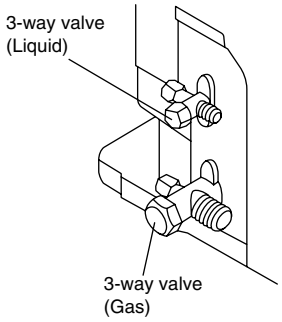
①	Press the PUMP DOWN switch on the outdoor unit. (The LED on the outdoor unit circuit board lights.)
②	The pump down operation (cooling operation) begins right away. After oparation starts, close the three-way valve (liquid).
③	After 2 - 3 minutes, operation stops. Close the three-way valve (gas) within one minute after operations stops.
④	The LED will go out three minutes after it stops.Disconnect the power supply after confirming that the LED has gone out.

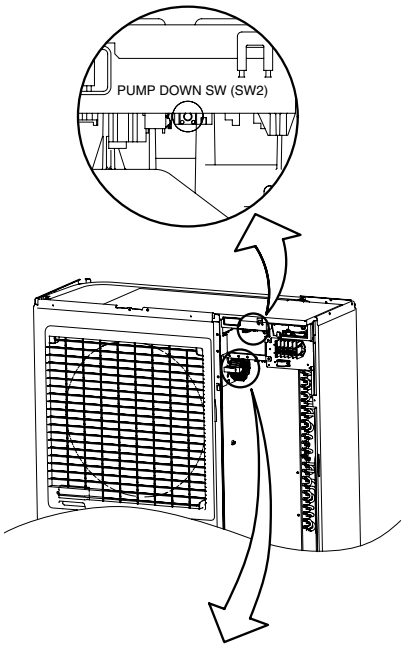
2. When the product is operating:

①	Press the PUMP DOWN switch on the outdoor unit. The LED on the outdoor unit circuit board lights, and operation stops. At this point, recovery has not been completed, so do not close the two- and three-way valves.
②	The pump down operation (cooling operation) begins after three minutes. Close the three-way valve (liquid) after operation starts.
③	After 2 - 3 minutes, operation stops. Close the three-way valve (gas) within one minute after operations stops.
④	The LED will go out three minutes after it stops. Disconnect the power supply after confirming that the LED has gone out.

*When the pump down operation is repeated, temporarily disconnect the power supply after opening the closed valves (both liquid and gas). Reconnect the power supply after 2 - 3 minutes and perform the pump down operation.

*When the start of the operation after pump down operation has been completed, temporarily disconnect the power supply after opening the closed valves (both liquid and gas).
Reconnect the power supply after 2-3 minutes and be sure to perform a test operation for cooling.



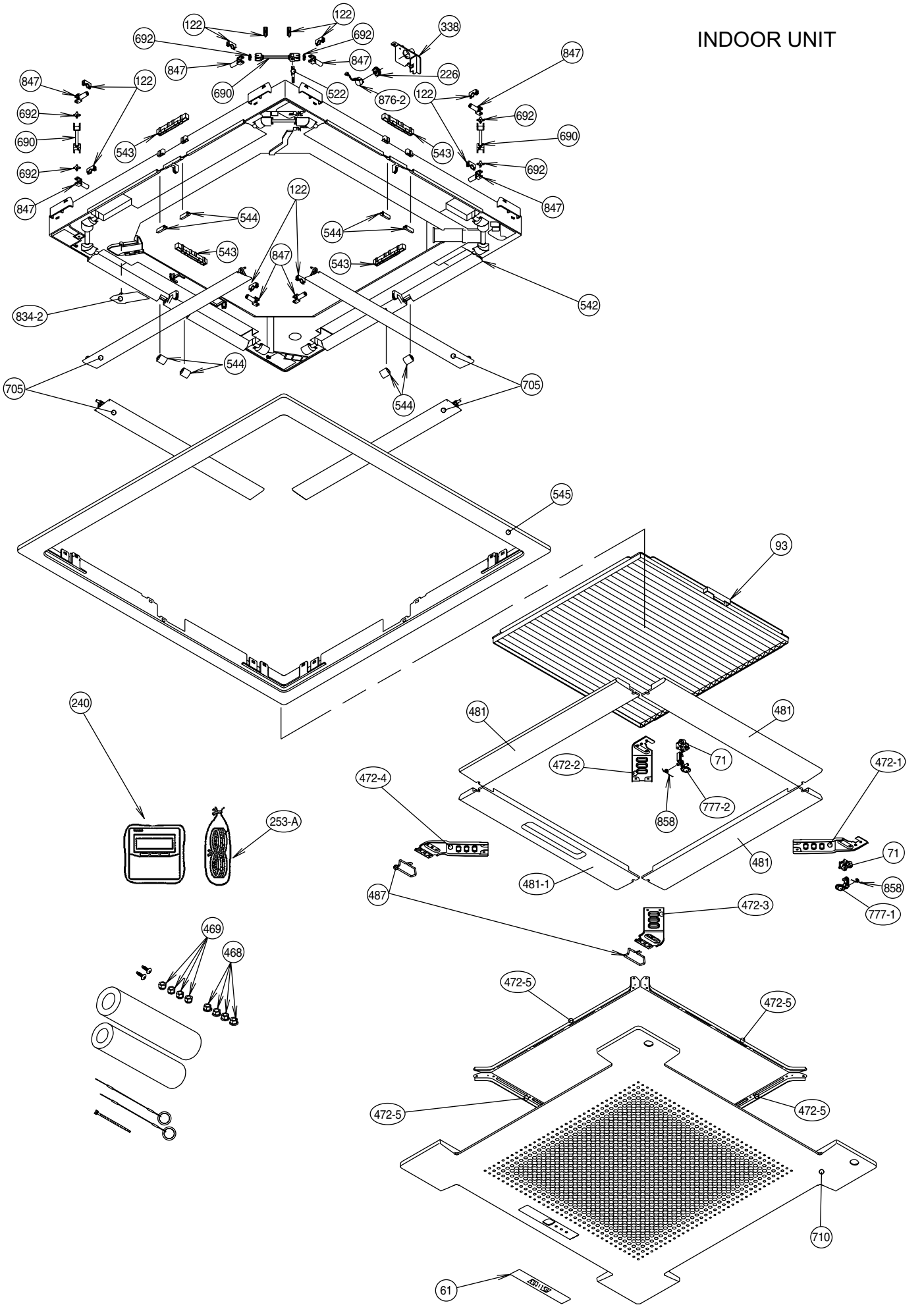


⚠ DANGER

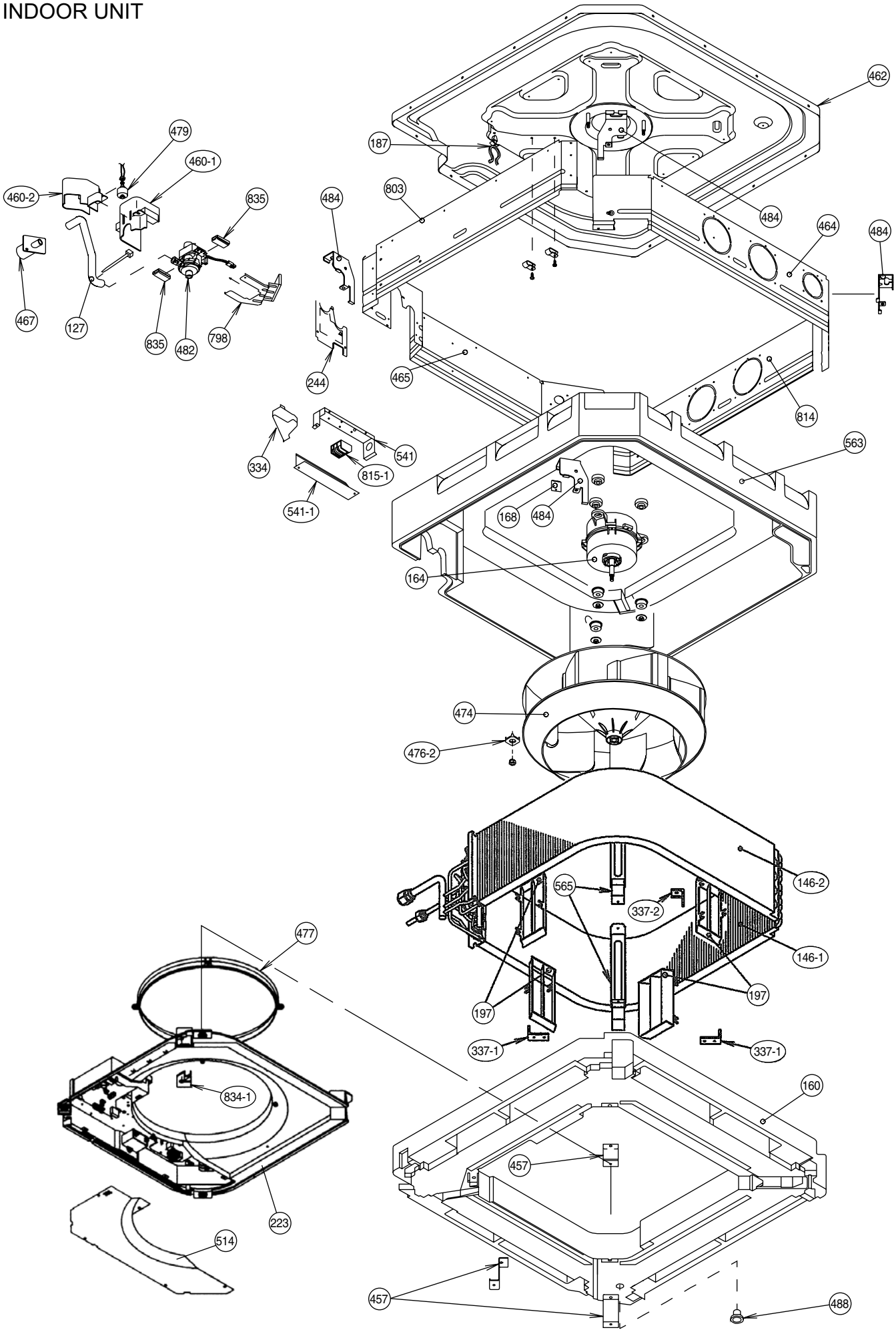
This part (Choke coil) generates high voltages. Never touch this part.

DISASSEMBLY ILLUSTRATION

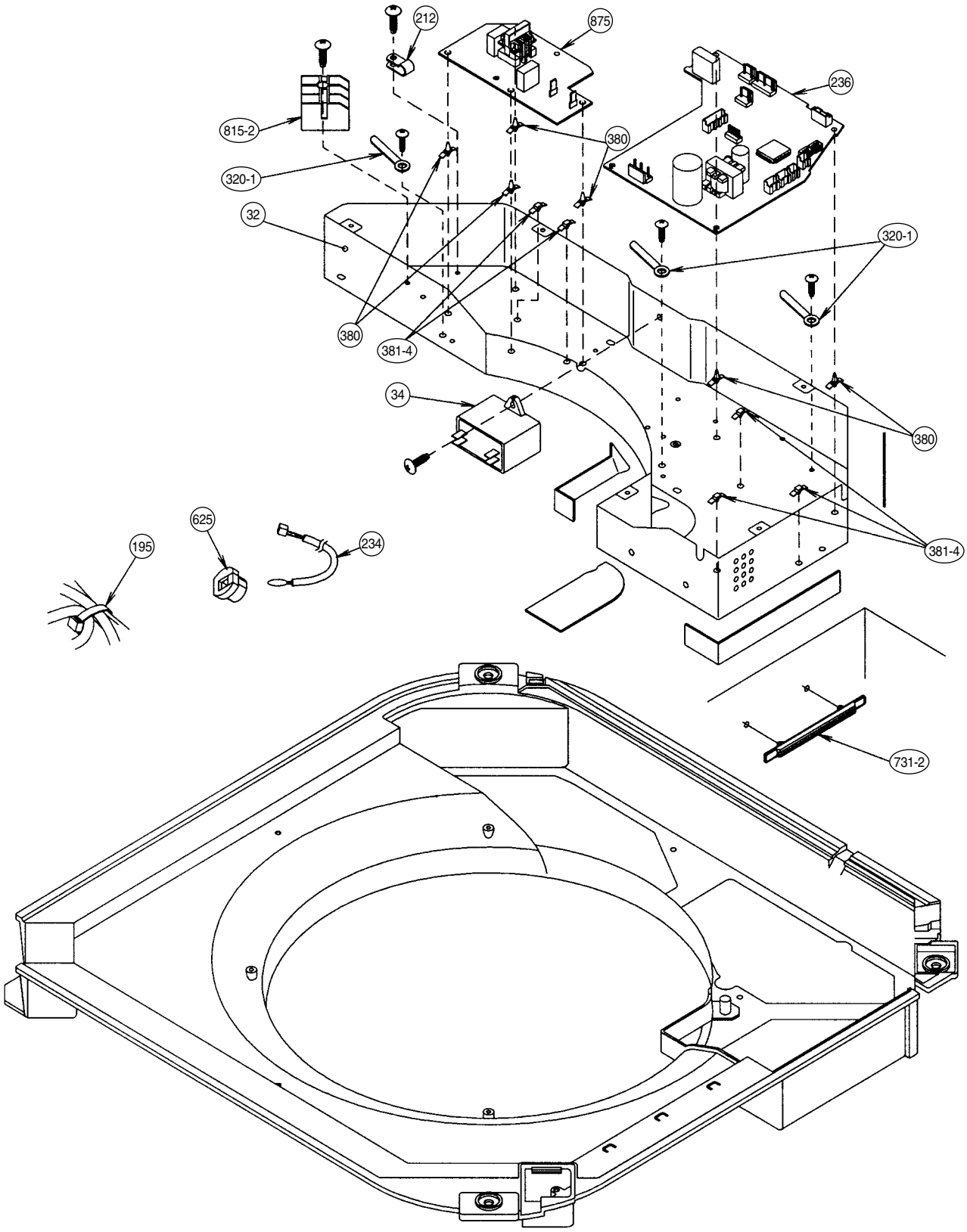
INDOOR UNIT



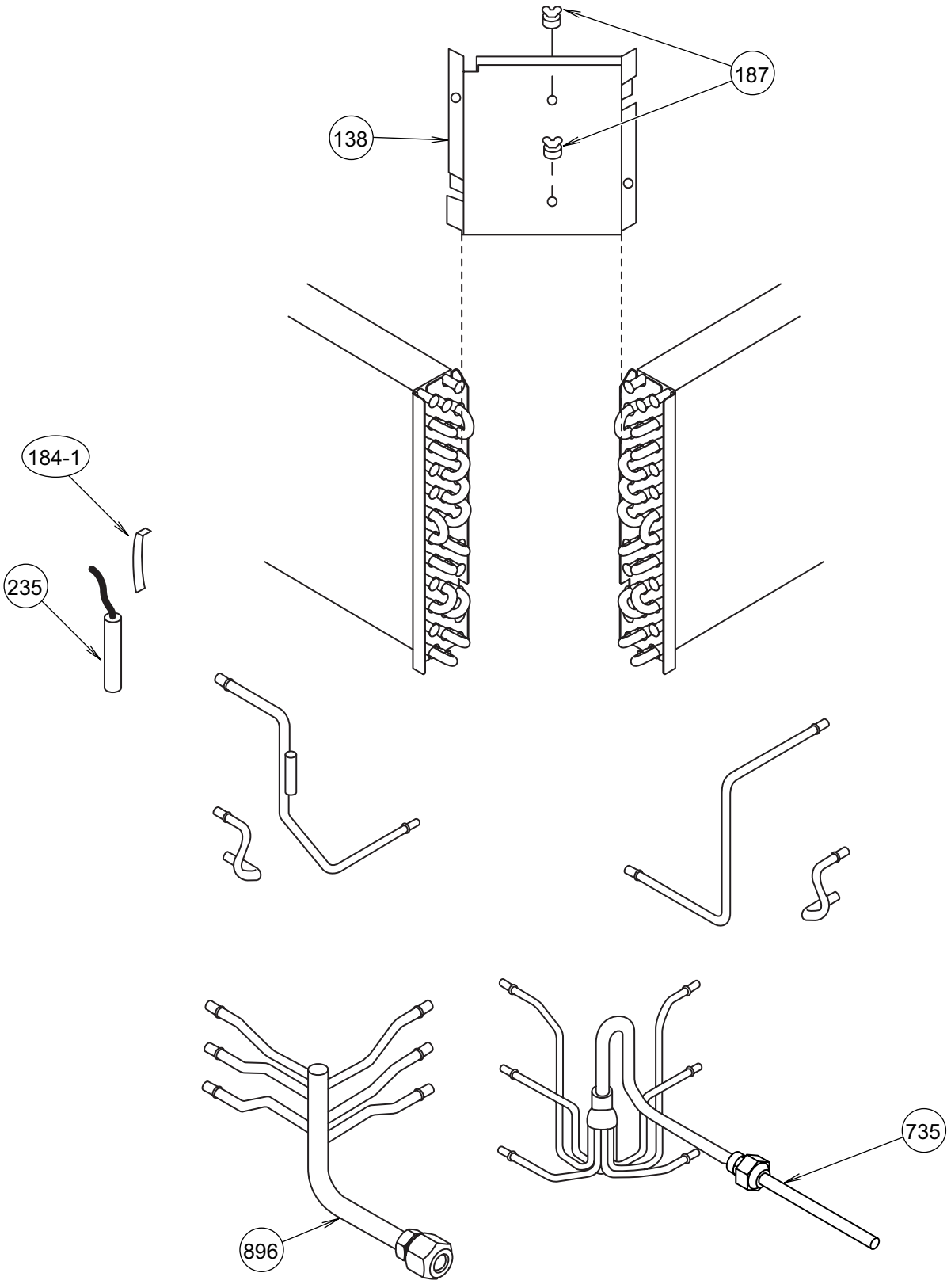
INDOOR UNIT


462
479
460-1
460-2
835
187
803
484
484
464
484
467
127
835
482
798
244
465
814
563
334
541
815-1
541-1
168
484
164
474
476-2
146-2
565
337-2
146-1
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197
337-1
337-1
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834-1
160
457
223
514
457
488

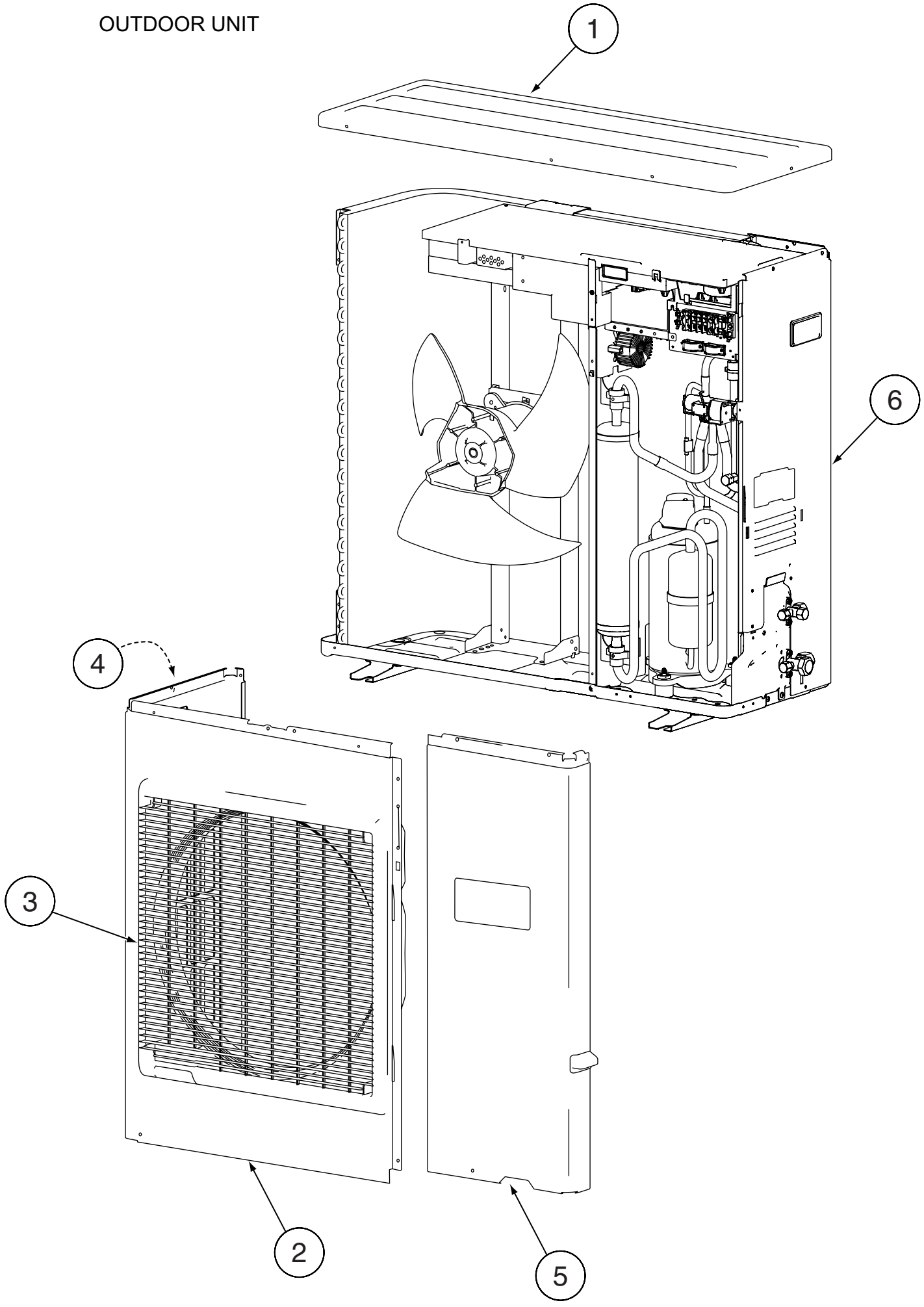
INDOOR UNIT


212
875
236
815-2
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320-1
32
320-1
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381-4
34
380
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381-4
731-2

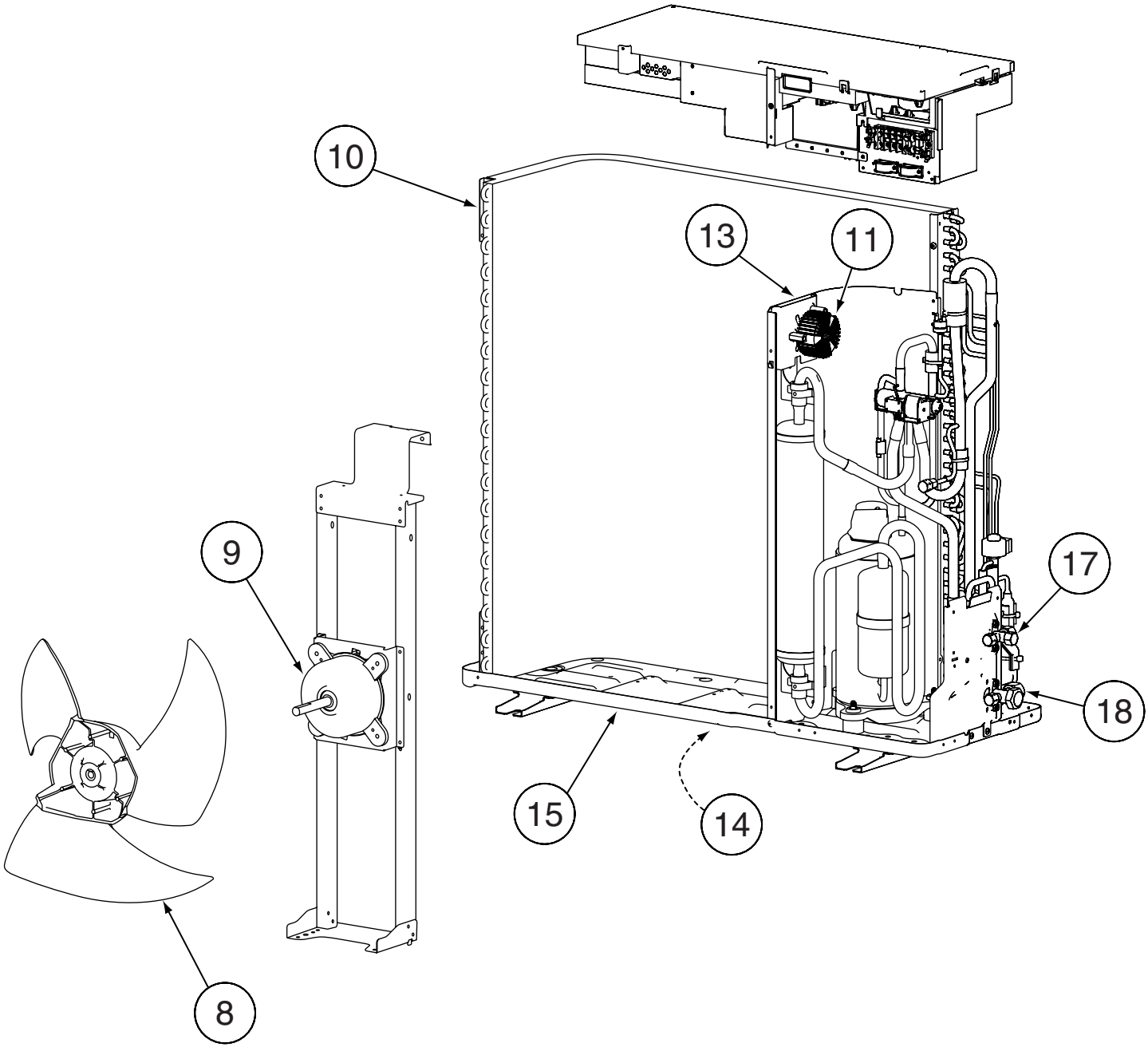
INDOOR UNIT



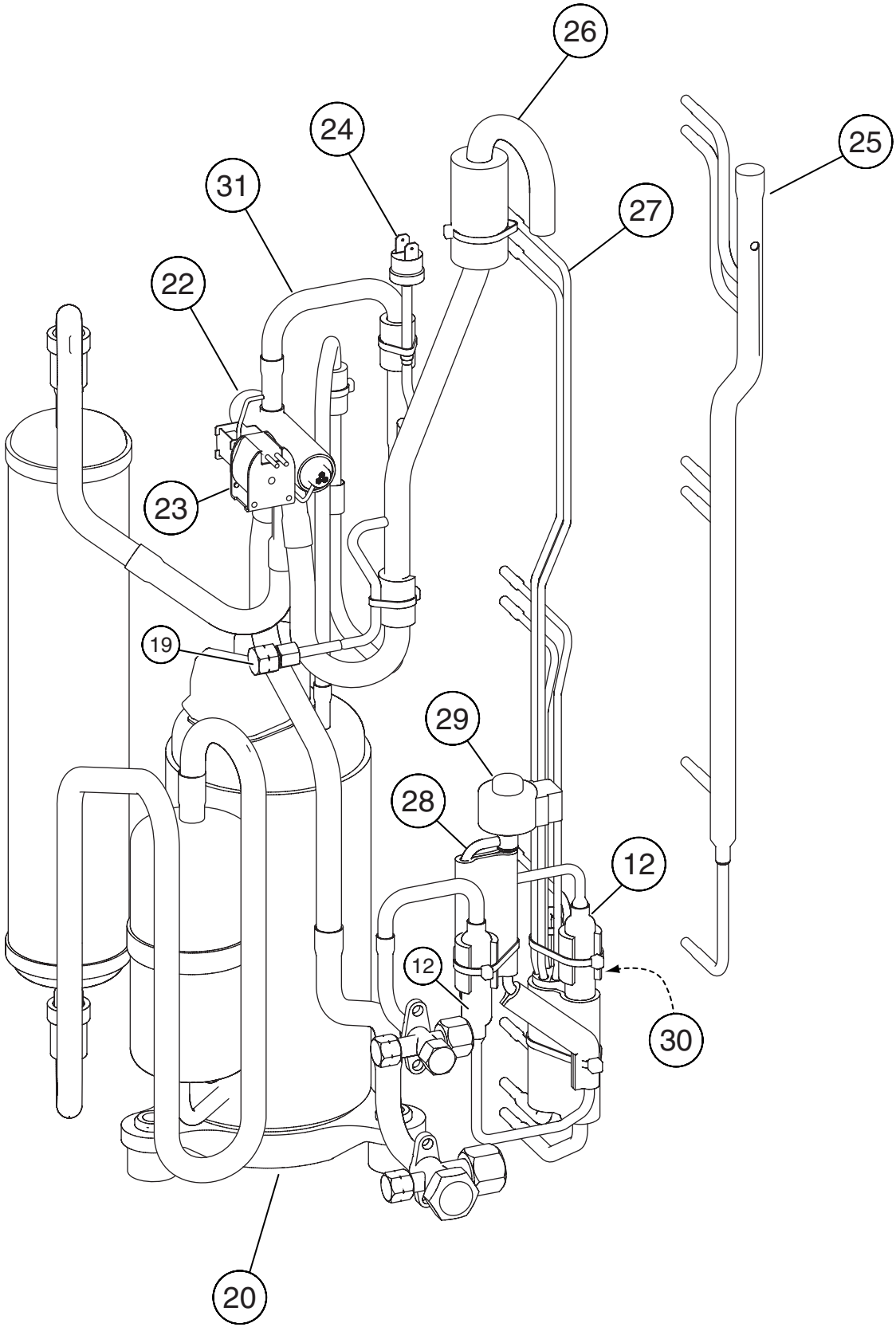
OUTDOOR UNIT



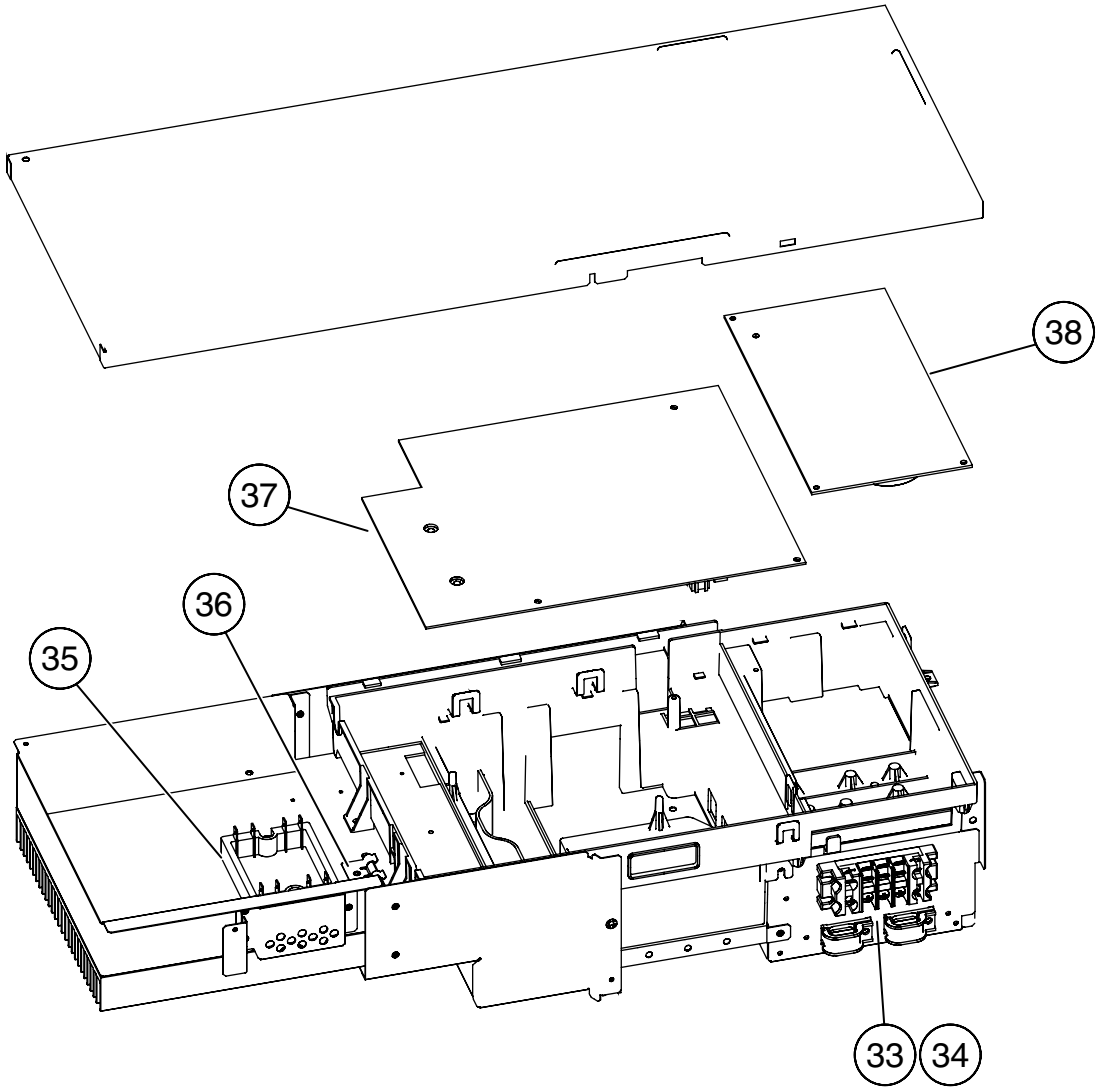
OUTDOOR UNIT

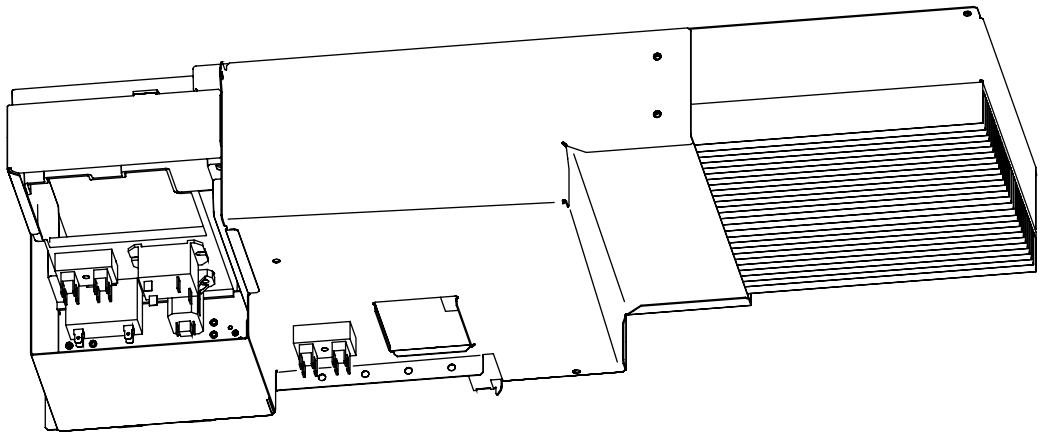


OUTDOOR UNIT



OUTDOOR UNIT





PARTS LIST

INDOOR UNIT

Ref. No	Description	Part No. MC24Y3F	Ord. Q'ty
32	Control Box Assy	67200589	
34	Capacitor (Fan Motor)	67220259	
61	Decoration Plate	67200591	
71	Holder (Hook)	67200557	
93	Filter	67200555	
122	Holder(LouverSupporter)	67200569	
127	Drain Hose	67200548	
138	Separate wall	67200600	
146-1	Evaporator-A Assy	67200601	
146-2	Evaporator-B Assy	67200602	
160	Kit (Drain Pan Sub Assy)	67200603	
164	Motor, Induction	67220260	
168	Cabinet-E	67220210	
184-1	Thermistor Spring-A	67206400	
187	Clamp No. 1219	67220226	
195	Binder-C	67220227	
197	Wind Guide Board	67220261	
212	Clamp NK-4N	67200453	
223	Control Box	67200590	
226	Motor Gear	67200572	
234	Room Temp. Thermistor	67203505	
235	Pipe Temp. Thermistor	67203506	
236	Controller PCB Assy	67203713 (K01AL-05L1HSE-C1)	
240	Remote Control Unit	67200604	
244	Pipe CoverAssy	67200605	
253-A	Wire Assy	67200606	
320-1	Wire Clamp Metal	67200607	
334	Wire Cover	67200608	
337-1	RFM (Eva.)-A	67200609	
337-2	RFM (Eva.)-B	67200610	
338	Motor Holder	67200573	
380	Locking Spacer	67207455	
381-4	Spacer	67207464	
457	RFM (Drain Pan)	67200503	
460-1	Pump Cover-A	67200611	
460-2	Pump Cover-B	67200612	
462	Panel(Top)Assy	67200592	
464	Cabinet-A Assy	67220206	
465	Cabinet-B Assy	67220207	
467	Drain Port	67200551	
468	M10 Nut-A (Large)	67207462	
469	M10 Nut-B (Small)	67207463	
472-1	RFM (Grille)-A	67200560	
472-2	RFM (Grille)-B	67200561	

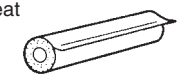
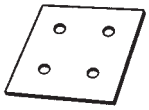
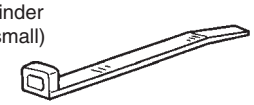
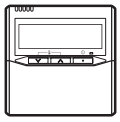
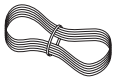
Ref. No	Description	Part No. MC24Y3F	Ord. Q'ty
472-3	RFM (Grille)-C	67200562	
472-4	RFM (Grille)-D	67200563	
472-5	RFM (Grille)-E	67200564	
474	Turbo Fan Assy	67200587	
476-2	Washer(Turbo Fan)	67207465	
479	Float Switch	67200614	
481	Insulation (Grille)-A	67200615	
481-1	Insulation (Grille)-B	67200616	
482	Pump Unit	67200617	
484	Hook	67200618	
487	Hinge Wire (Grille)	67200619	
488	Drain Pan Plug	67200550	
514	ControlBox Cover	67200542	
522	Joint Gear	67200567	
541	TerminalBase	67201709	
541-1	TerminalCover	67201708	
542	PanelBase	67200575	
543	Holder (Panel Frame)	67500576	
544	Holder (Panel Base)	67500574	
545	Panel Frame	67200577	
563	InnerBox	67200620	
565	EvaporatorHolderAssy	67200552	
625	Cord Bushing	67230030	
690	Joint-A	67200621	
692	Joint Shaft	67200622	
705	LouverAssy	67200593	
710	Intake Grille	67200623	
731-2	Holder	67200566	
735	Distributor Assy	67200595	
777-1	Hook (Grille)-A	67200558	
777-2	Hook (Grille)-B	67200559	
798	Drain Pump Holder	67200594	
803	Cabinet-D	67220209	
814	Cabinet-C	67220208	
815-1	Terminal-3P	67200585	
815-2	Terminal-3P	67200584	
834-1	Cover(Wire)-A	67200596	
834-2	Cover(Wire)-B	67200597	
835	Cushion (Pump)	67200545	
847	LouverSupporter	67200570	
858	Spring (Grille)	67200565	
875	Power Supply PCB Assy	67200598	
876-2	Motor,Step	67200599	
896	Coupling Pipe Assy	67200613	

OUTDOOR UNIT

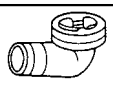
Ref. No	Description	Part No. MR24UY3F	Ord. Q'ty
1	Top Panel Sub Assy	67201640	
2	Front Panel	67201601	
3	Fan Guard	67201602	
4	Grip Side	67201603	
5	Service Panel Sub Assy	67201688	
6	Right Panel	67201605	
8	Propeller Fan Assy	67201607	
9	Motor, Induction	67201608	
10	Condenser-A Assy	67201609	
11	CoilChoke	67201633	
12	Strainer Assy	67201611	
13	Separate Wall Assy	67201647	
14	Cap Foot	67201650	
15	Base Assy	67201648	
17	3-Way Valve Assy (3/8)	67201614	
18	3-Way Valve Assy (5/8)	67201615	
19	Check Joint Assy	67201616	
20	CompressorAssy	67201689	
22	4-Way Valve	67201619	
23	Solenoid	67201681	
24	Pressure Switch	67201621	
25	Inlet Pipe Cond A Assy	67201622	
26	Inlet Pipe Cond B Assy	67201690	
27	Outlet Pipe Cond A Assy	67201691	
28	Expansion Valve Assy	67201692	
29	Coil (Expansion Valve)	67201422	
30	Distributor	67201693	
31	Discharge Pipe A Assy	67201694	
33	Terminal2P	67220181	
34	Terminal5P	67201632	
35	ACTPM	67201627	
36	Holder Thermo	67201628	
37	Inverter PCB Assy	67201695	
38	Power PCB Assy	67201696	
----	Fuse 3.15A-250V	67201697	
----	Thermistor (Outdoor Temp.)	67201686	
----	Heat Exchanger Thermistor	67201698	
----	Thermistor (Discharge)	67201635	
----	Compressor Thermistor	67201637	
----	Thermistor	67201430	
----	Heatsink Thermistor	67201685	
----	Transformer	67201699	
----	Varistor	67201700	
----	Arrester	67201701	
----	Relay	67201702	
----	Relay	67201703	
----	Switch Push	67201704	
----	Switch Slide	67201705	
----	Drain Pipe Assy	67201706	
----	Drain Cap	67201707	

STANDARD ACCESSORIES

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application
Coupler heat insulation 	2	For indoor side pipe joint
Tapping Screw (flush heads) 	2	For installing the remote controller
Special nut A (large flange) 	4	For installing indoor unit
Special nut B (small flange) 	4	For installing indoor unit
Template 	1	For ceiling hole cutting
Binder (small) 	1	For fixing the remote controller cord
Blower cover insulation 	2	For discharged air
Hook wire 	2	For installing intake grille
Remote controller 	1	
Remote controller cord 	1	For connecting the remote controller

OUTDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application
Drain pipe 	1	For outdoor unit drain piping work (May not be supplied, depending on the model.)
Drain cap 	5	