

SPLIT TYPE
AIR CONDITIONER
CEILING TYPE (50 Hz)

SERVICE MANUAL



Indoor unit	Outdoor unit
ABYA36LAT	AOYA36LATL
ABYA45LAT	AOYA45LATL

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SPECIFICATIONS

ELECTRICAL DATA

TYPE		Cooling & Heating	
INDOOR UNIT		ABYA36LAT	ABYA45LAT
OUTDOOR UNIT		AOYA36LATL	AOYA45LATL
COOLING CAPACITY		10.0 kW	12.5 kW
HEATING CAPACITY		11.2 kW	14.0 kW
POWER SOURCE		230 V 50 Hz	230 V 50 Hz
RUNNING CURRENT	Cooling	13.6 A	17.0 A
	Heating	13.2 A	16.5 A
INPUT WATTS	Cooling	3.11 kW	3.89 kW
	Heating	3.02 kW	3.77 kW
E.E.R.	Cooling	3.21 kW/kW	3.21 kW/kW
	Heating	3.71 kW/kW	3.71 kW/kW
MOISTURE REMOVAL		3.0 L/hr	4.5 L/hr
AIRCIRCULATION INDOOR		2,020 m3/hr	2,250 m3/hr
AIRCIRCULATION OUTDOOR		6,600 m3/hr	6,600 m3/hr
MAXIMUM CURRENT		19.0 A	20.0 A

COMPRESSOR AND REFRIGERANT

TYPE		Hermetic type, Inverter, 4 poles, 3 phase, DC motor, Twin Rotary
DISCRIMINATION		DA420A3F-21ZA
WEIGHT (with oil)		23.7 kg
STANDARD REFRIGERANT		3,350 g
REFRIGERANT TYPE		R410A
MAX PIPE LENGTH		50 m
MAX PIPE HEIGHT		30 m
FULL CHARGE	Pipe length 20 m	3,350 g
	30 m	3,850 g
	40 m	4,350 g
	50 m	4,850 g
ADDITIONAL CHARGE		50 g/m

FAN MOTOR

INDOOR UNIT	Discrimination	MFH-45RV	MFH-45RV
	High speed	1,100 r.p.m.	1,200 r.p.m.
	Med speed	910 r.p.m.	1,000 r.p.m.
	Low speed	750 r.p.m.	830 r.p.m.
	Quiet	650 r.p.m.	680 r.p.m.
OUTDOOR UNIT	Discrimination	MFE-60PO	MFE-60PO
	Upper fan	850 r.p.m.	850 r.p.m.
	Lower fan	750 r.p.m.	750 r.p.m.

NOISE LEVEL

INDOOR UNIT	High speed	47 dB	49 dB
	Med speed	43 dB	45 dB
	Low speed	37 dB	39 dB
	Quiet	32 dB	34 dB
OUTDOOR UNIT	Cooling	54 dB	55 dB
	Heating	55 dB	56 dB

Note : Static pressure : 30Pa

Duct length : Inlet 1m, Outlet 2m

DIMENSIONS

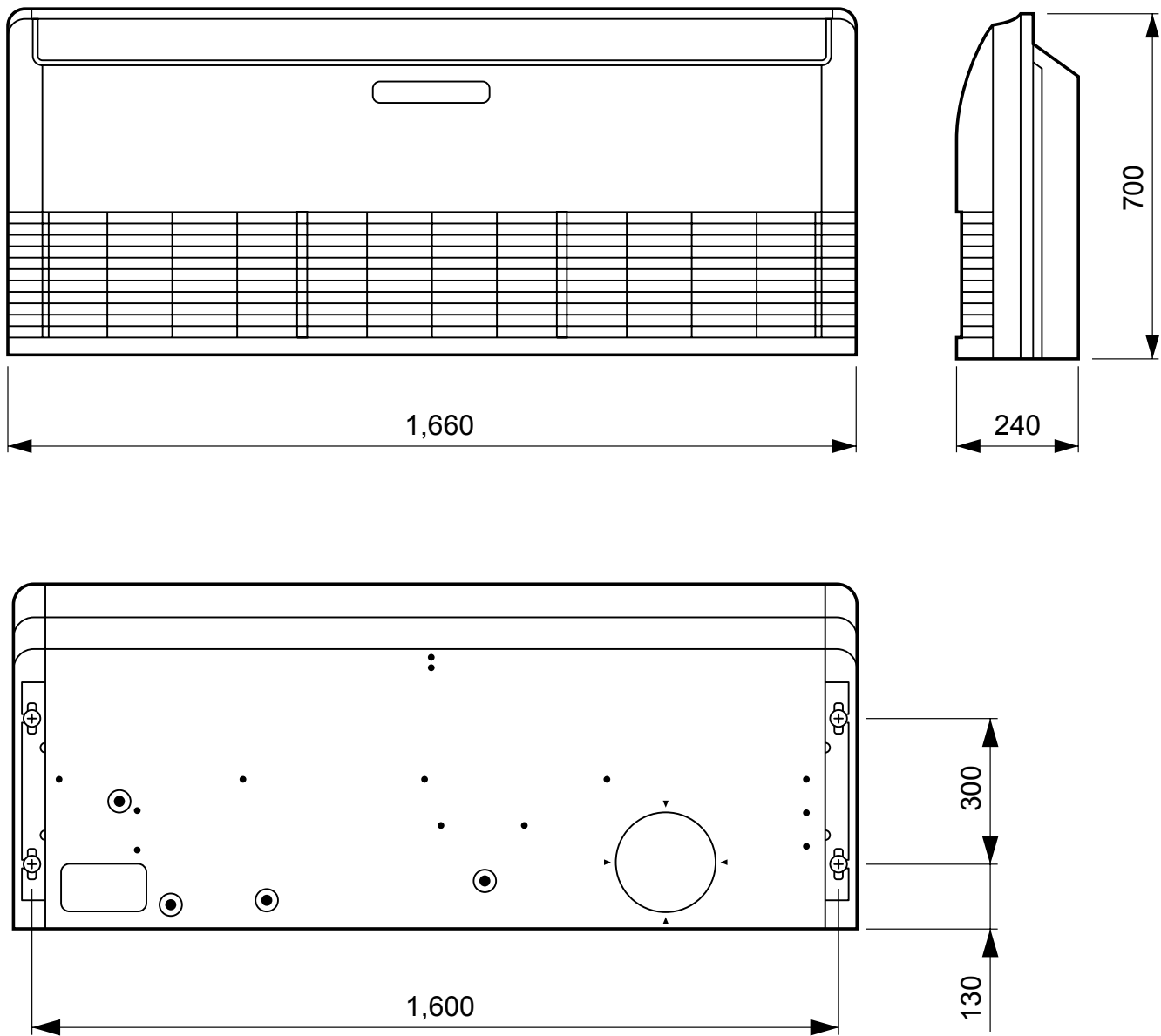
INDOOR UNIT	H x W x D	240 x 1,660 x 700 mm
OUTDOOR UNIT	H x W x D	1,290 x 900 x 330 mm

WEIGHT

INDOOR UNIT	Gross / Net	58 kg / 44 kg
OUTDOOR UNIT	Gross / Net	107 kg / 98 kg

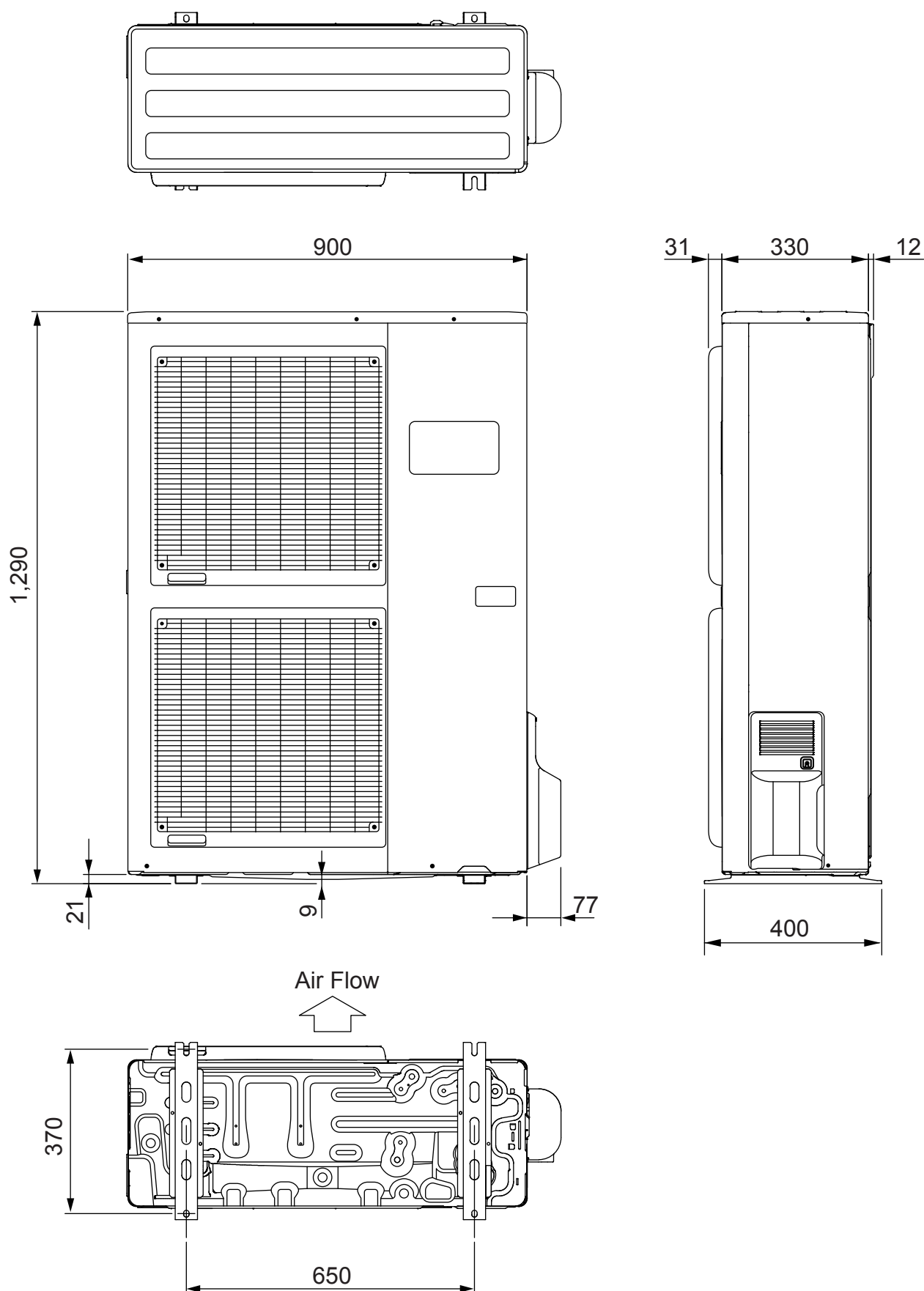
DIMENSIONS

INDOOR UNIT
(Unit : mm)



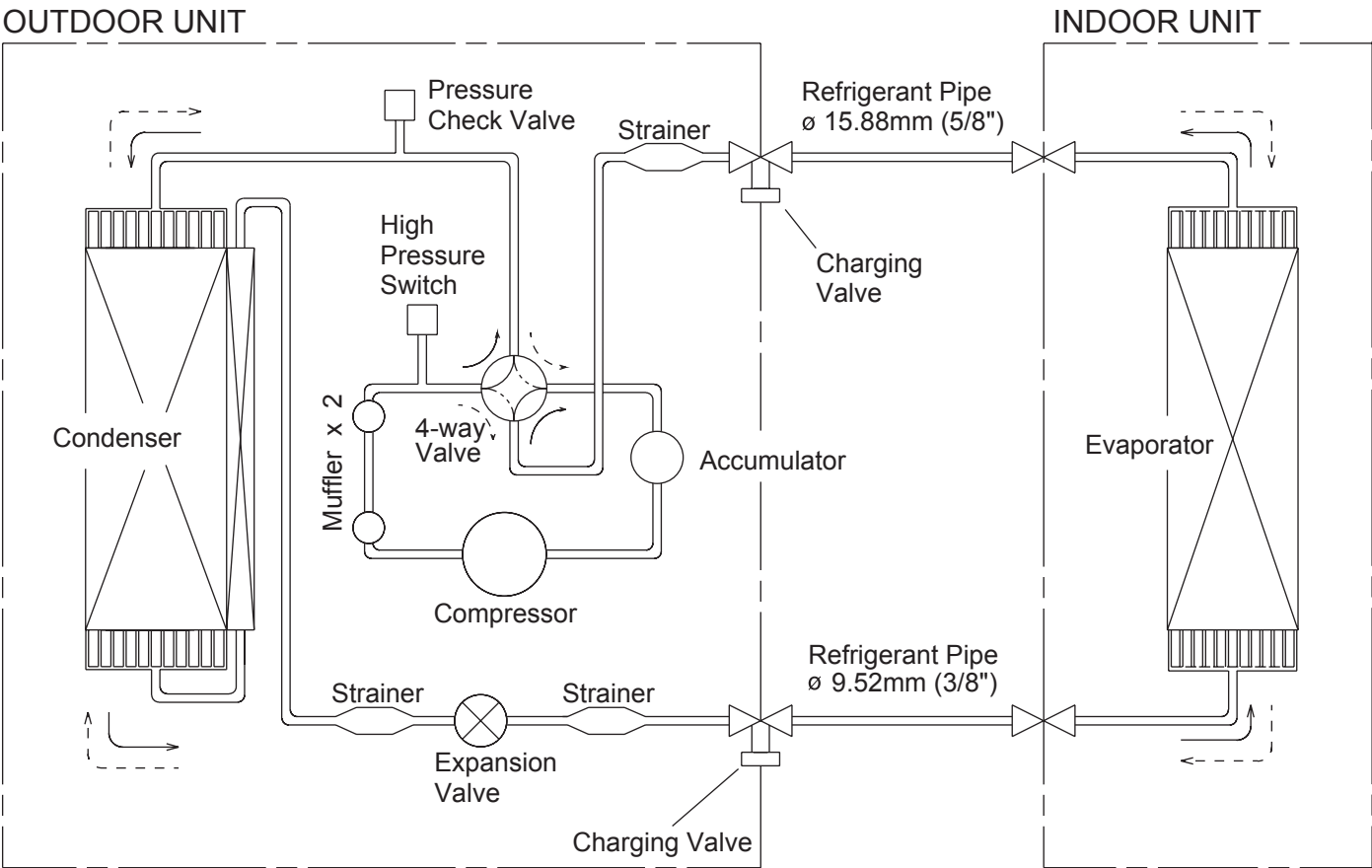
OUTDOOR UNIT

(Unit : mm)



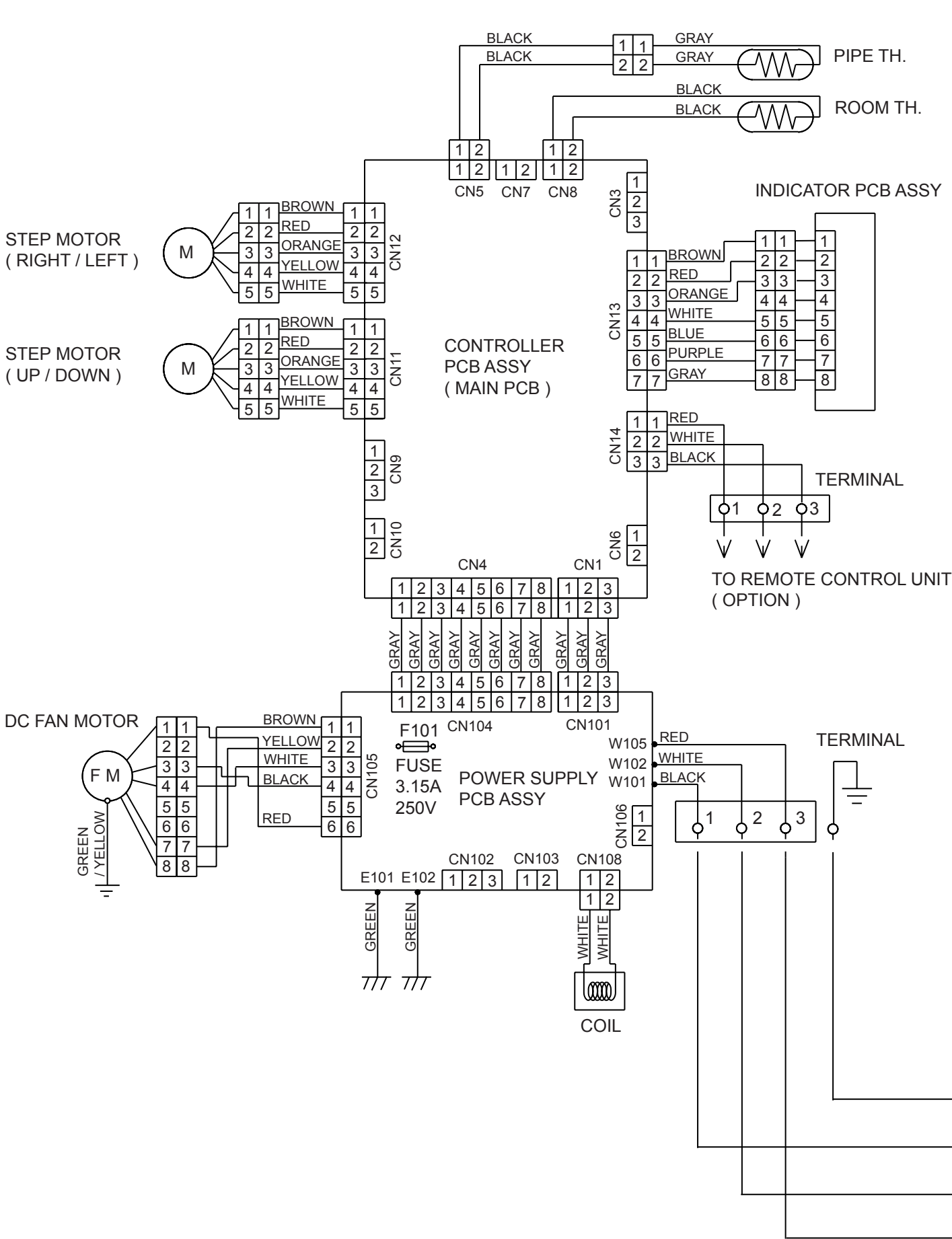
REFRIGERANT SYSTEM DIAGRAM

Refrigerant direction
——> : Cool
- - -> : Heat

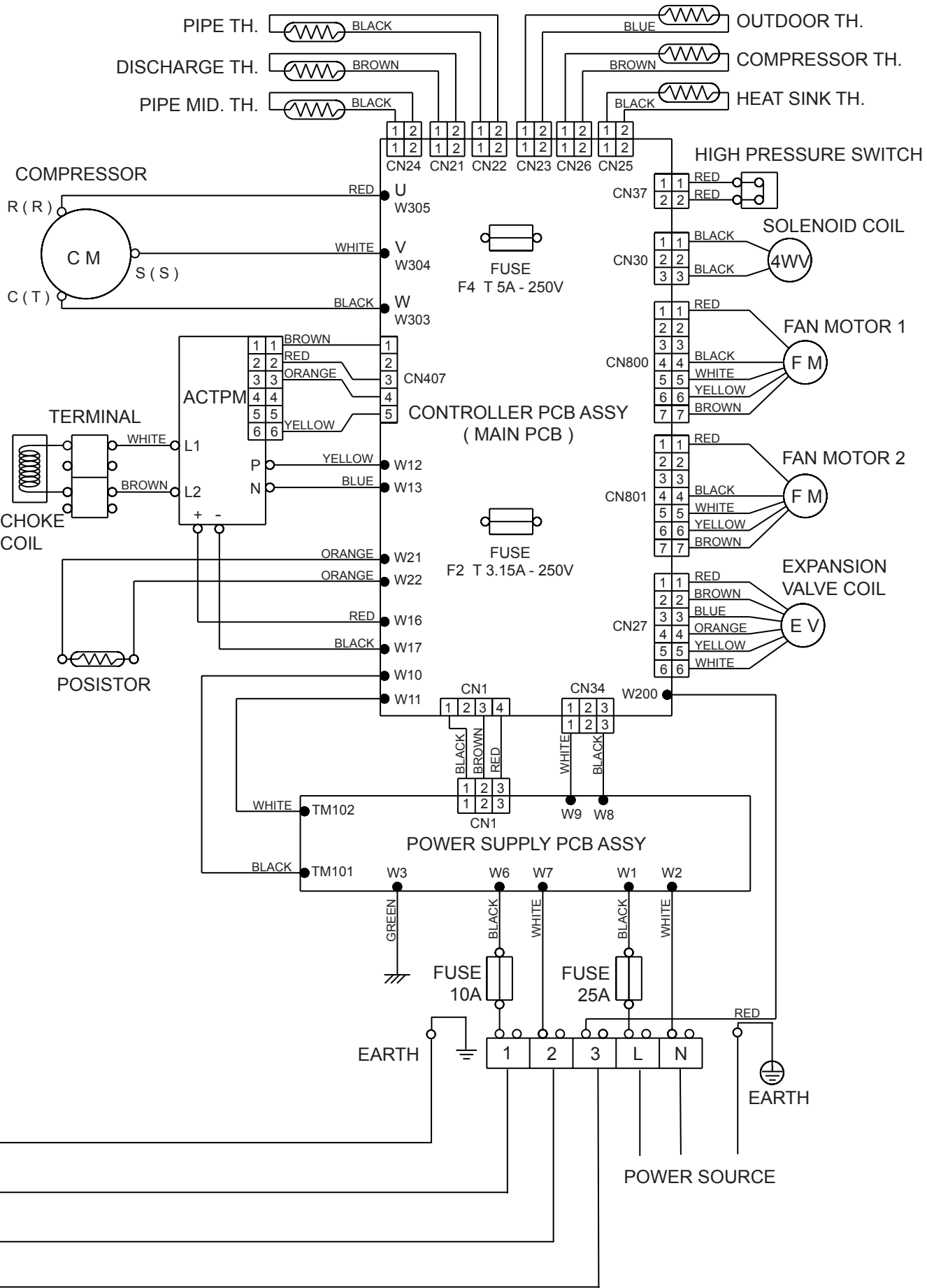


CIRCUIT DIAGRAM

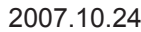
INDOOR UNIT



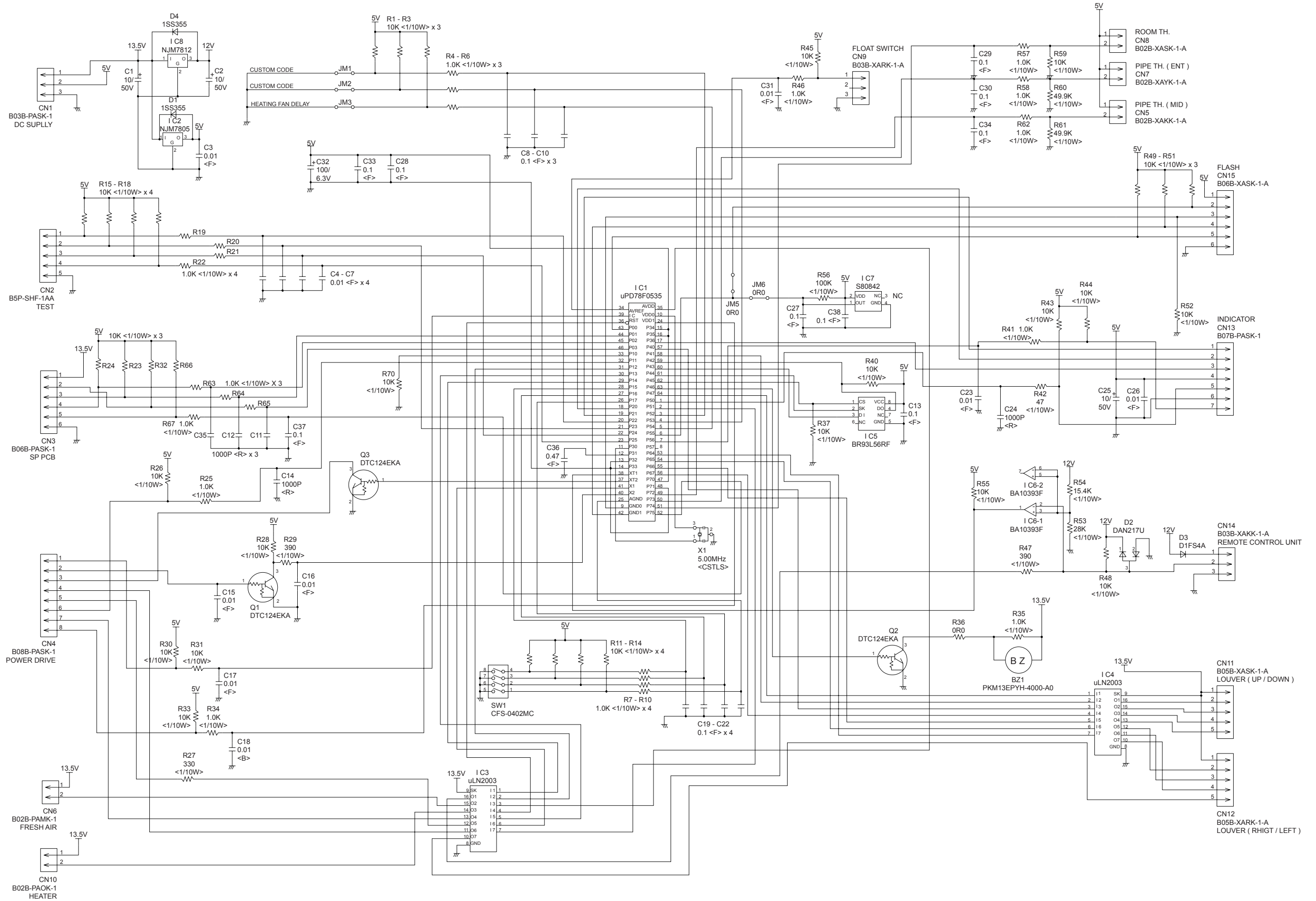
OUTDOOR UNIT



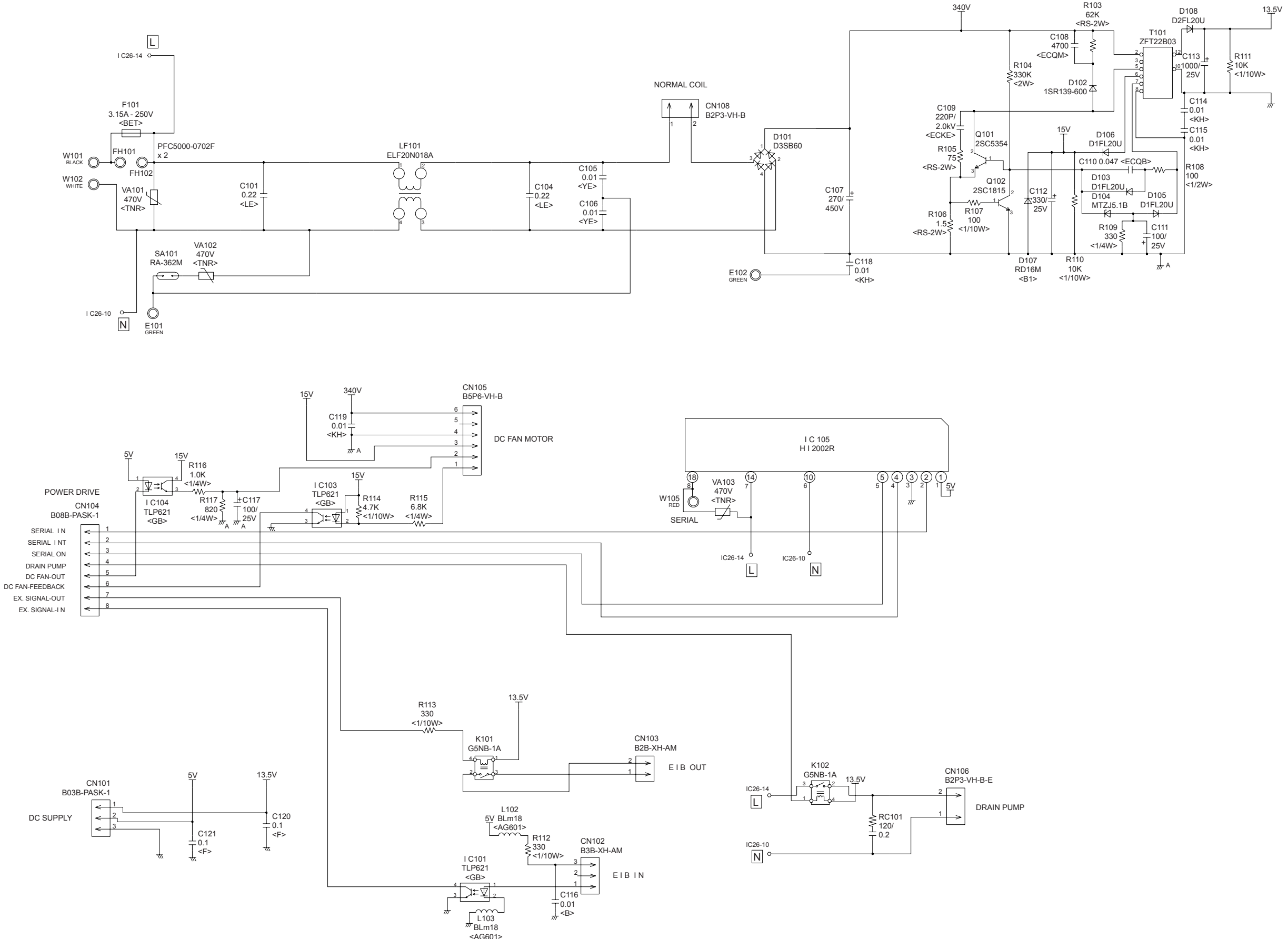
CONTROL UNIT
ABYA36LAT : EZ-0061EHSE
ABYA45LAT : EZ-0061DHSE



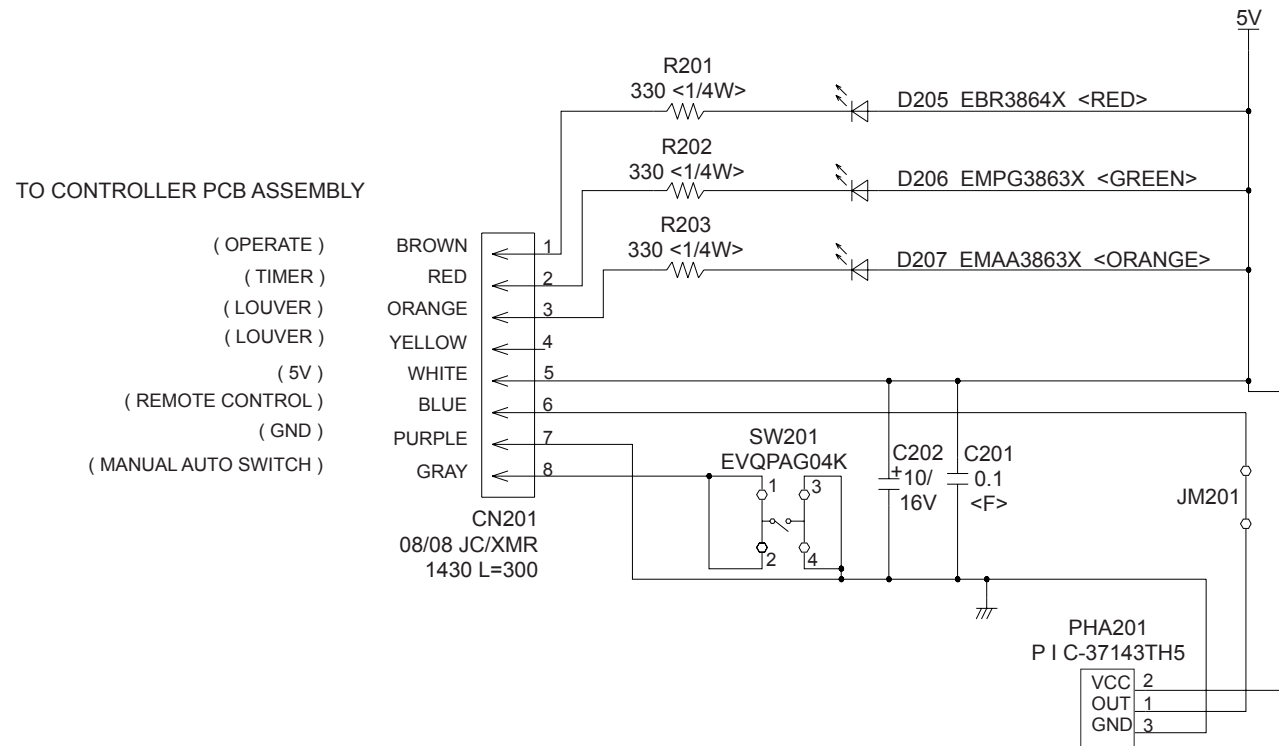
ABYA45LAT : K06AK-0606HSE-C1



INDOOR UNIT
POWER SUPPLY PCB ASSEMBLY
K06AL-0606HSE-P0

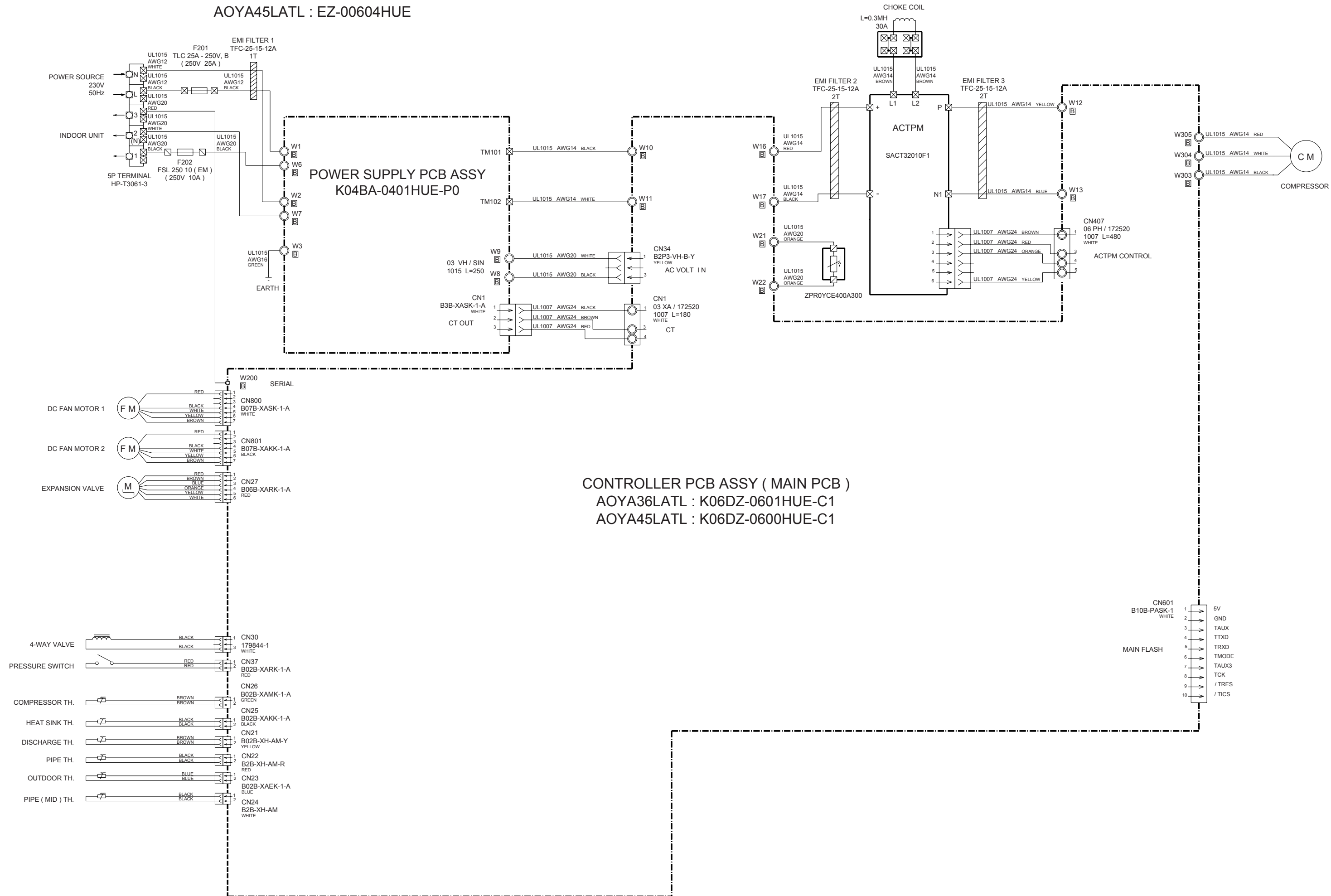


INDOOR UNIT
INDICATOR PCB ASSEMBLY
K04GN-0402HSE-D0

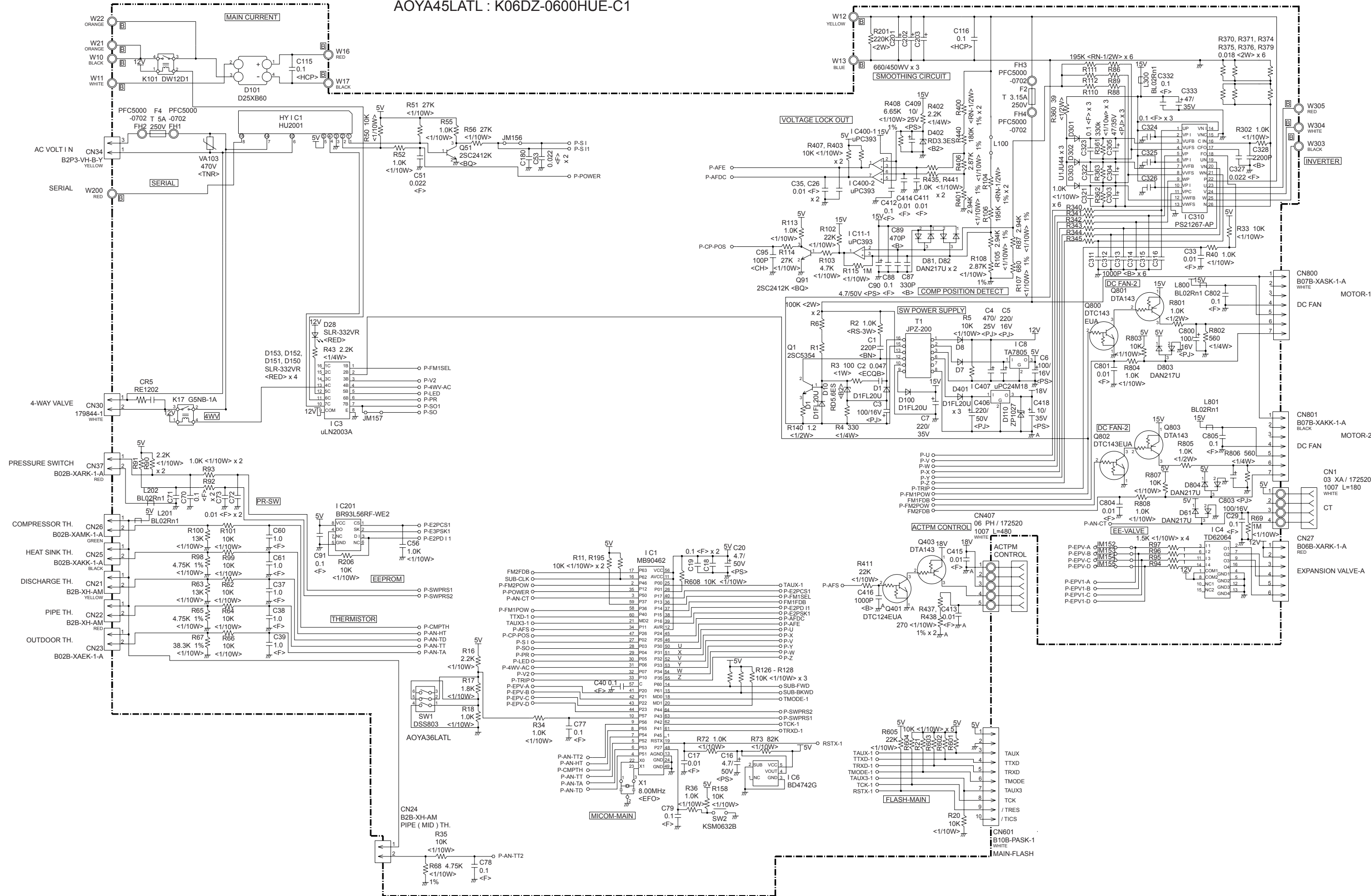


OUTDOOR PCB CIRCUIT DIAGRAM

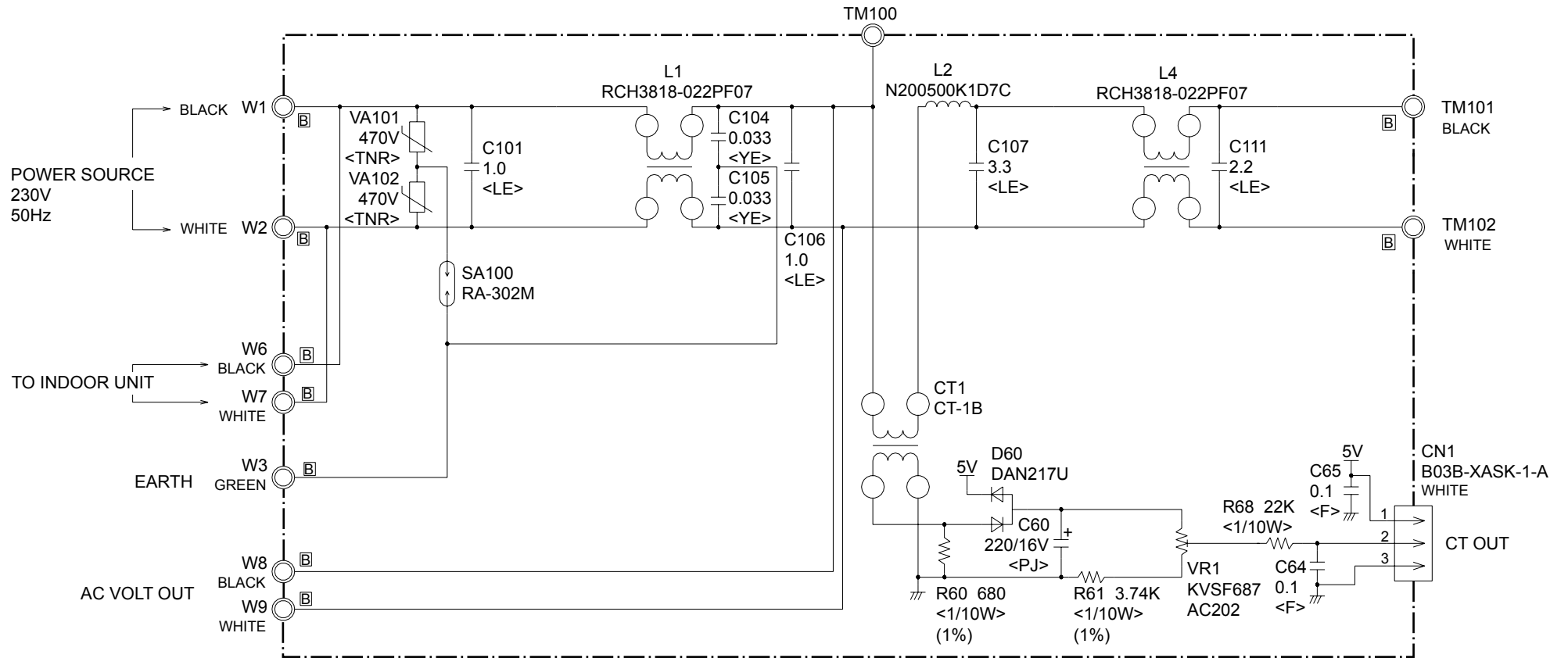
INVERTER ASSEMBLY
AOYA36LATL : EZ-00603HUE
AOYA45LATL : EZ-00604HUE



CONTROLLER PCB ASSEMBLY (MAIN PCB)
AOYA36LATL : K06DZ-0601HUE-C1
AOYA45LATL : K06DZ-0600HUE-C1



OUTDOOR UNIT
POWER SUPPLY PCB ASSEMBLY
K04BA-0401HUE-P0

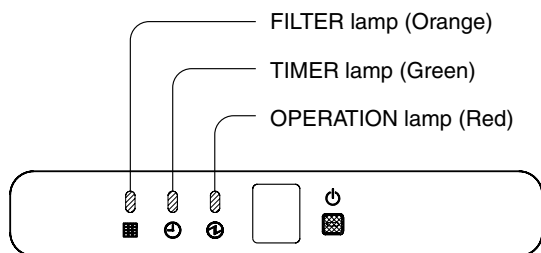


ERROR CONTENTS

INDOOR UNIT

(Troubleshooting with the indoor display)

Troubleshooting at the display is possible either on the wired or wireless remote control.



The OPERATION, TIMER and FILTER lamp operate as follows table according to the error contents.

Error contents	OPERATION lamp (RED)	TIMER lamp (GREEN)	FILTER lamp (ORANGE)
Indoor signal error	×	○	×
Wired remote controller abnormal	×	(8 times) ○	×
Indoor room temperature sensor error	(2 times) ○	(2 times) ○	×
Indoor heat exchanger temperature sensor (middle) error	(2 times) ○	(3 times) ○	×
Indoor heat exchanger temperature sensor (inlet) error	(2 times) ○	(4 times) ○	×
Float switch operated	(2 times) ○	(6 times) ○	×
Outdoor discharge pipe temperature sensor error	(3 times) ○	(2 times) ○	×
Outdoor heat exchanger temperature sensor (outlet) error	(3 times) ○	(3 times) ○	×
Outdoor temperature sensor error	(3 times) ○	(4 times) ○	×
Heatsink thermistor error	(3 times) ○	(7 times) ○	×
Compressor temperature sensor error	(3 times) ○	(8 times) ○	×
2-way valve temperature sensor error	(3 times) ○	×	(2 times) ○
3-way valve temperature sensor error	(3 times) ○	×	(3 times) ○
Outdoor heat exchanger temperature sensor (middle) error	(3 times) ○	×	(4 times) ○
Indoor manual auto switch abnormal	(4 times) ○	(2 times) ○	×
Power supply frequency detection error	(4 times) ○	(4 times) ○	×
IPM protection	(5 times) ○	(2 times) ○	×
CT error	(5 times) ○	(3 times) ○	×
Compressor location error	(5 times) ○	(5 times) ○	×
Outdoor fan error	(5 times) ○	(6 times) ○	×
Connected indoor unit abnormal	(5 times) ○	(7 times) ○	×
Outdoor unit computer communication error	(5 times) ○	(8 times) ○	×
Indoor fan abnormal	(6 times) ○	(2 or 3 times) ○	×
Discharge temperature error	(7 times) ○	(2 times) ○	×
Excessive high pressure protection on cooling	(7 times) ○	(3 times) ○	×
4-way valve abnormal	(7 times) ○	(4 times) ○	×
Pressure switch abnormal	(7 times) ○	(5 times) ○	×
Compressor temperature error	(7 times) ○	(6 times) ○	×
Active filter abnormal	(8 times) ○	(2 or 3 times) ○	×
PFC circuit error	(8 times) ○	(4 times) ○	×

○: 0.5s ON/0.5s OFF (Flash) ×: OFF

OUTDOOR UNIT LEDS

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

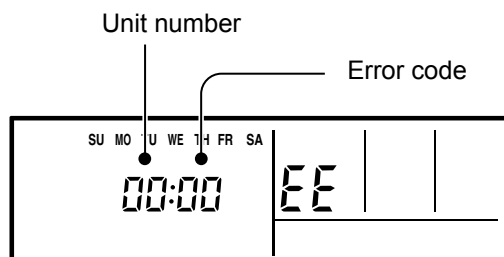
When a malfunction occurs in the outdoor unit, the LED on the circuit board lights to indicate the error. Refer to the following table for the description of each error according to the LED.

LED	Error contents
1 flash	Communication error (Indoor unit - Outdoor unit)
2 flash	Discharge pipe temperature sensor
3 flash	Outdoor heat exchanger temperature (outlet) sensor
4 flash	Outdoor temperature sensor
5 flash	Outdoor heat exchanger temperature (mid) sensor
6 flash	Discharge pipe temperature abnormal
7 flash	Compressor temperature sensor
8 flash	Heat sink temperature sensor
9 flash	Pressure switch abnormal
10 flash	Compressor temperature 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)
5 sec. on/ 1 sec. off repeat	Protect operation
1 sec. on/ 1 sec. off repeat	Pump down operation
off	No error

WIRED REMOTE CONTROL

If an error occurs, the following display will be shown.
("EE" will appear in the set room temperature display.)

If "CO" appears in the unit number display, there is a remote control error.
Refer to the installation instruction sheet included with the remote control.



Error code	Error contents
01	Serial reverse transfer error
13	Serial forward transfer error
26	Communication error (Main PCB → Display PCB)
27	Communication error (Display PCB → Main PCB)
00	Wired remote controller abnormal
02	Indoor room temperature sensor error
04	Indoor heat exchanger temperature sensor (middle) error
28	Indoor heat exchanger temperature sensor (inlet) error
09	Float switch operated
0C	Outdoor discharge pipe temperature sensor error
06	Outdoor heat exchanger temperature sensor (outlet) error
0A	Outdoor temperature sensor error
15	Compressor temperature sensor error
1d	2-way valve temperature sensor error
1E	3-way valve temperature sensor error
29	Outdoor heat exchanger temperature sensor (middle) error
20	Indoor manual auto switch abnormal
2A	Power supply frequency detection error
17	IPM protection
18	CT error
1A	Compressor location error
1b	Outdoor fan error
1F	Connected indoor unit abnormal
1c	Outdoor unit computer communication error
12	Indoor fan abnormal
0F	Discharge temperature error
24	Excessive high pressure protection on cooling
2c	4-way valve abnormal
16	Pressure switch abnormal
2b	Compressor temperature error
19	Active filter abnormal
25	PFC circuit error

SPECIAL INSTALLATION SETTING

PUMP DOWN (Refrigerant collecting operation)

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

1. When the product is stopped:

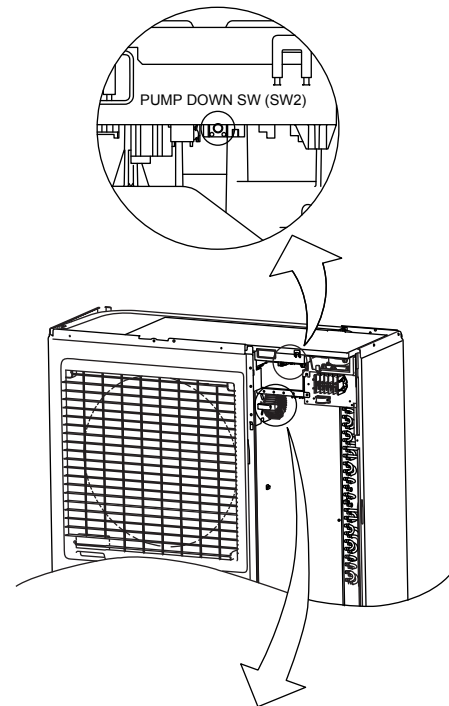
①	Press the PUMP DOWN switch on the outdoor unit. (The LED on the outdoor unit circuit board starts flashing.) (1 sec. on / 1 sec. off repeated)
②	The pump down operation (cooling operation) begins right away. After operation starts, close the three-way valve (liquid).
③	After 2 - 3 minutes, operation 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 starts flashing (1 sec. on / 1 sec. off repeated), and operation stops. At this point, recovery has not been completed, so do not close the three-way valves. (liquid and gas)
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.

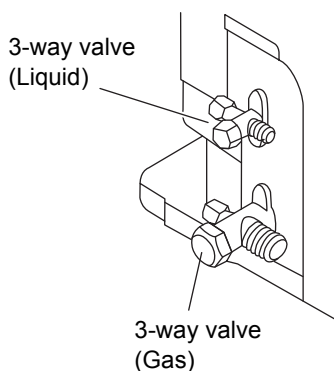
*When the pump down operation is repeated, temporarily disconnect the power supply after opening the closed valves (both liquid and gas). Reconnect the power supply after 2 - 3 minutes and perform the pump down operation.

*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.

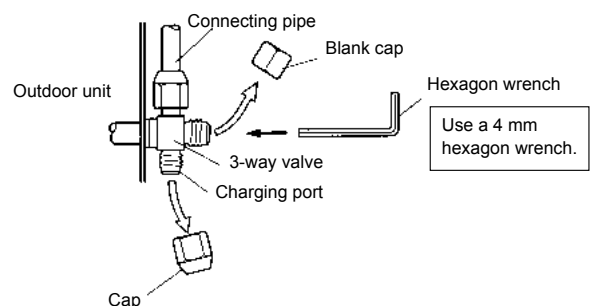


⚠ DANGER

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

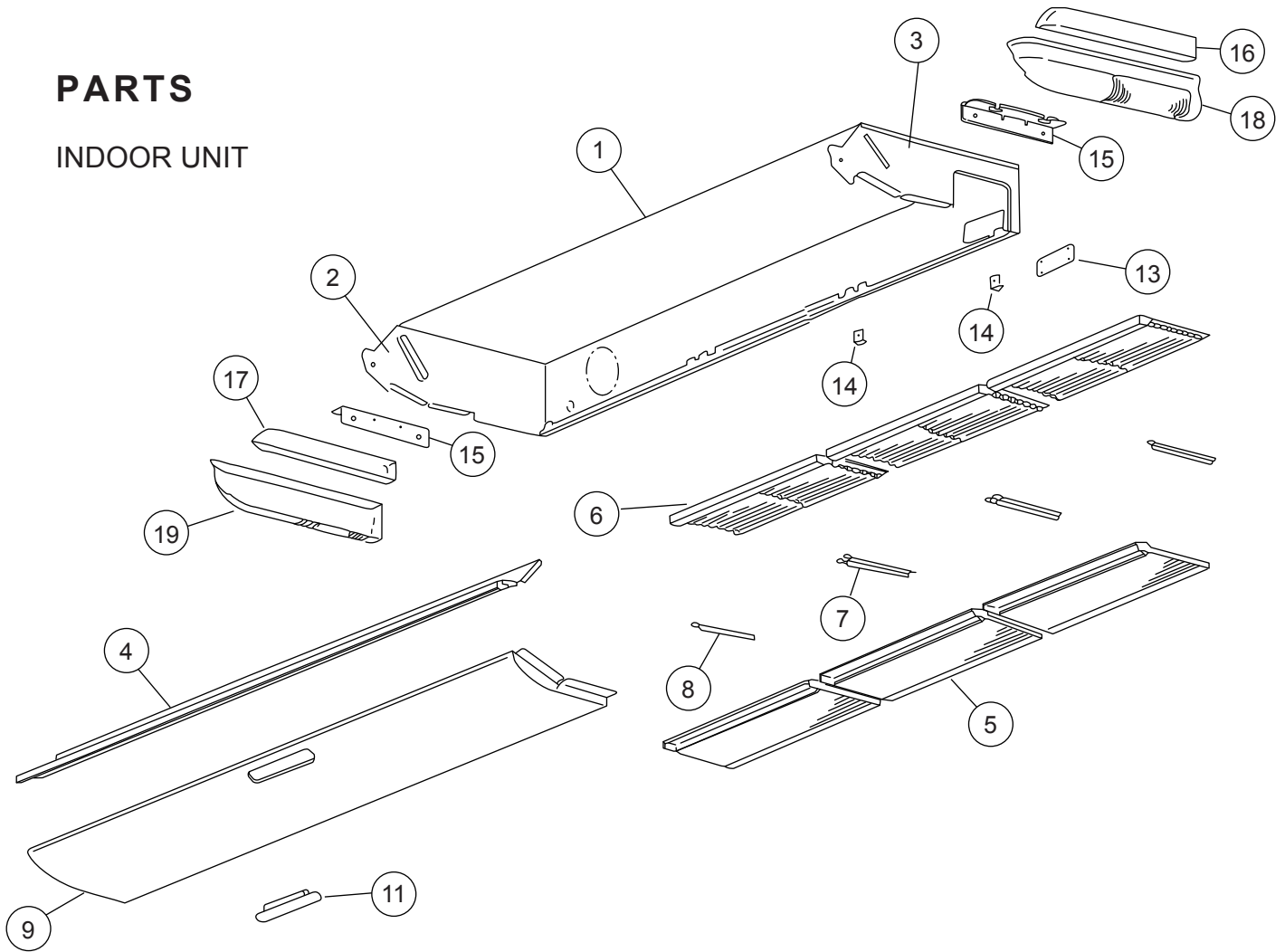


		Tightening torque
Blank cap	6.35 mm (1/4 in.)	20 to 25 N-m (200 to 250 kgf-cm)
	9.52 mm (3/8 in.)	20 to 25 N-m (200 to 250 kgf-cm)
	12.70 mm (1/2 in.)	25 to 30 N-m (250 to 300 kgf-cm)
	15.88 mm (5/8 in.)	30 to 35 N-m (300 to 350 kgf-cm)
	19.05 mm (3/4 in.)	35 to 40 N-m (350 to 400 kgf-cm)
Charging port cap		10 to 12 N-m (100 to 120 kgf-cm)
Spindle (Hexagon wrench)		6 to 7 N-m (60 to 70 kgf-cm)

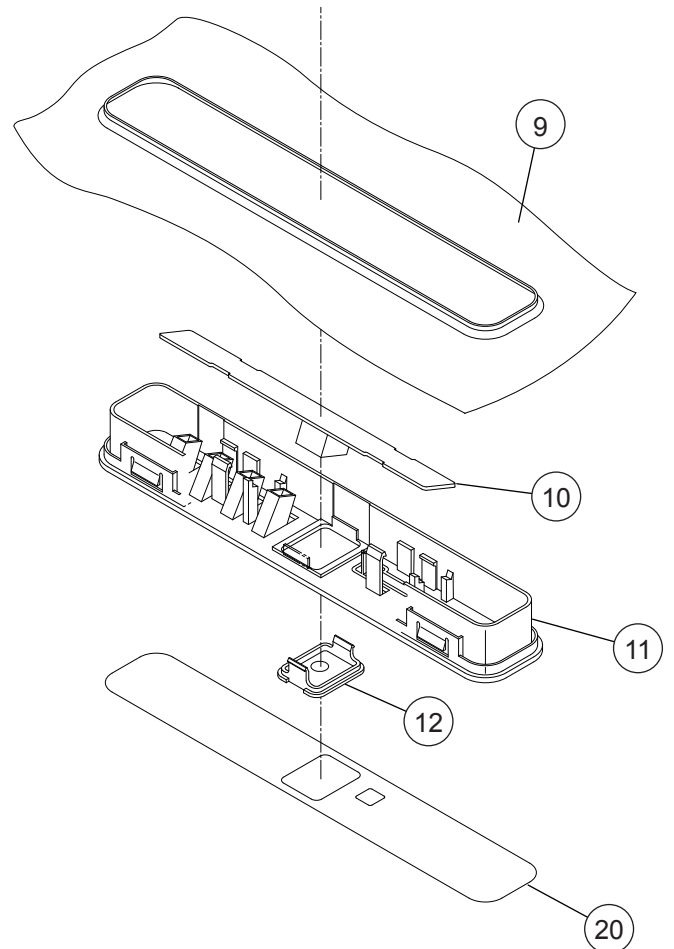


PARTS

INDOOR UNIT



Ref.	Description	Part number
1	Kit (Base Sub Assy)	9371360010
2	Panel Left Sub Assy	9360427014
3	Kit (Panel Right Assy)	9371361017
4	Cover (Top)	9359737001
5	Intake Grille	9359738008
6	Air Filter	9359739005
7	Filter Guide R	9359692003
8	Filter Guide L	9359693000
9	Front Panel	9359734000
10	Indicator PCB Assy	9705891036
11	PCB Holder	9359736004
12	Receiver Cover	9359714002
13	Hole Cover	9359691006
14	Hinge Plate (Grille)	9359694007
15	Hanger Bracket	9359742005
16	Cover (Decoration)-R	9359744009
17	Cover (Decoration)-L	9359745006
18	Kit (Side Cover R)	9371364018
19	Kit (Side Cover L)	9371365015
20	Badge	9359735083

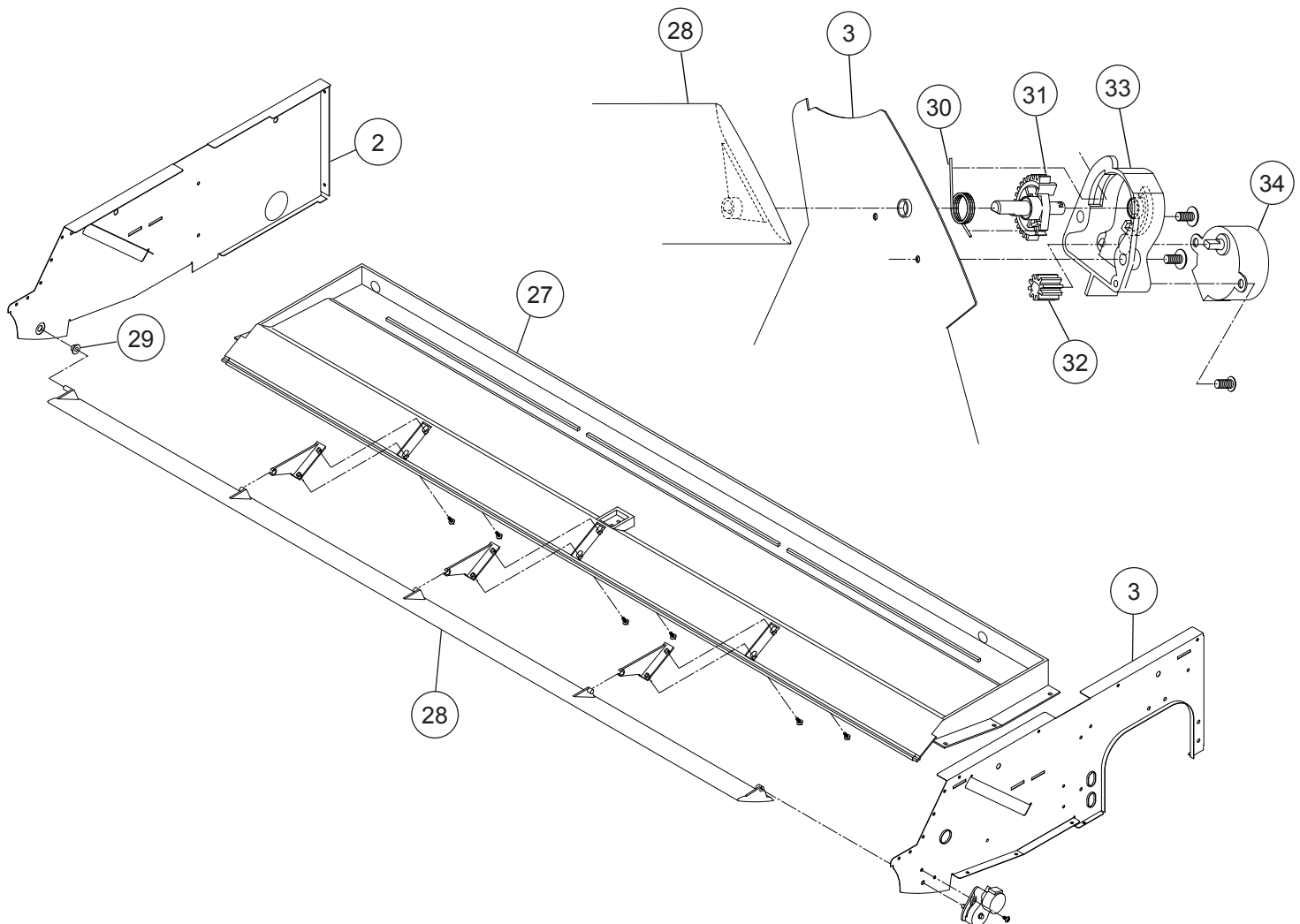
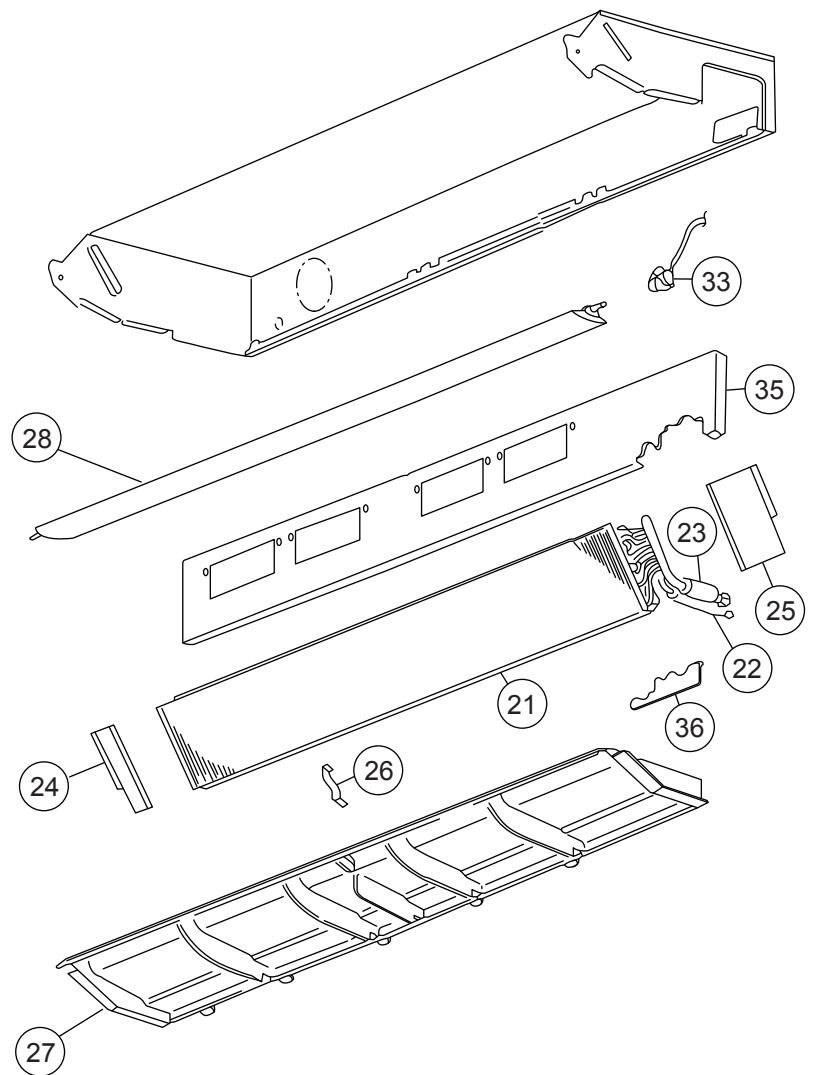


INDOOR UNIT

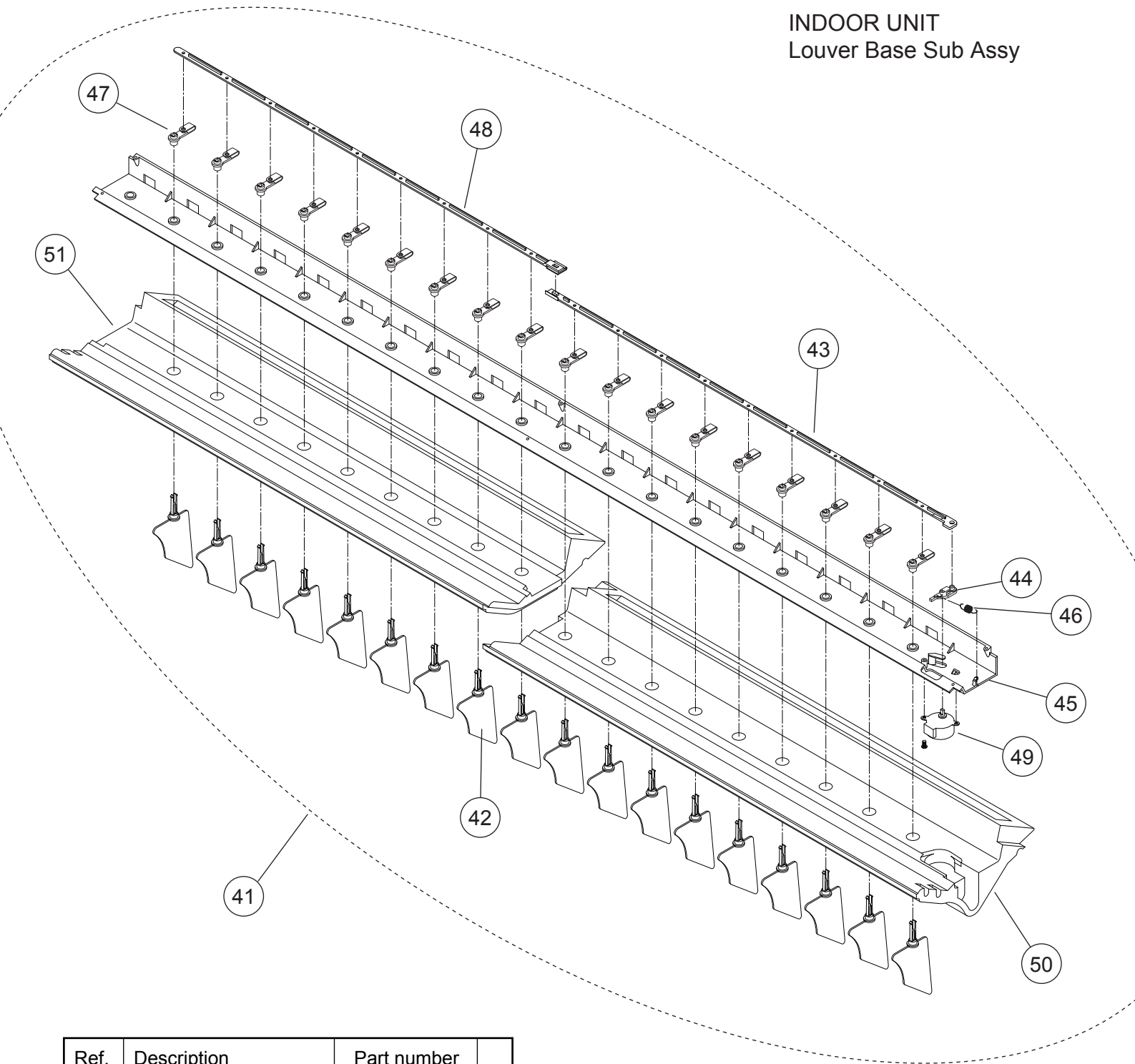
Drain pan

Flap

Ref.	Description	Part number
2	Panel Left Sub Assy	9360427014
3	Kit (Panel Right Assy)	9371361017
21	Evaporator Assy	9372585078
22	Distributor Assy	9371325378
23	Coupling Pipe Assy	9373038405
24	Kit (Panel pipe-L) Sub Assy	9371362014
25	Kit (Panel pipe-R) Sub Assy	9371363011
26	Reinforcement Metal	9359697008
27	Drain Pan Sub Assy	9360429018
28	Flap Assy	9359731009
29	Bushing	9359733003
30	Flap Spring	9359730002
31	Sector Gear	9359729006
32	Pinion	9359728009
33	Motor Base	9359727002
34	Step Motor V	9900297015
35	Kit (Separate Wall Sub Assy)	9371366029
36	Pipe Fixture Metal	9359688006
--	Drain Cap	9358746004
--	Pipe Thermistor	9900022020
--	Thermistor Spring A	313728262708

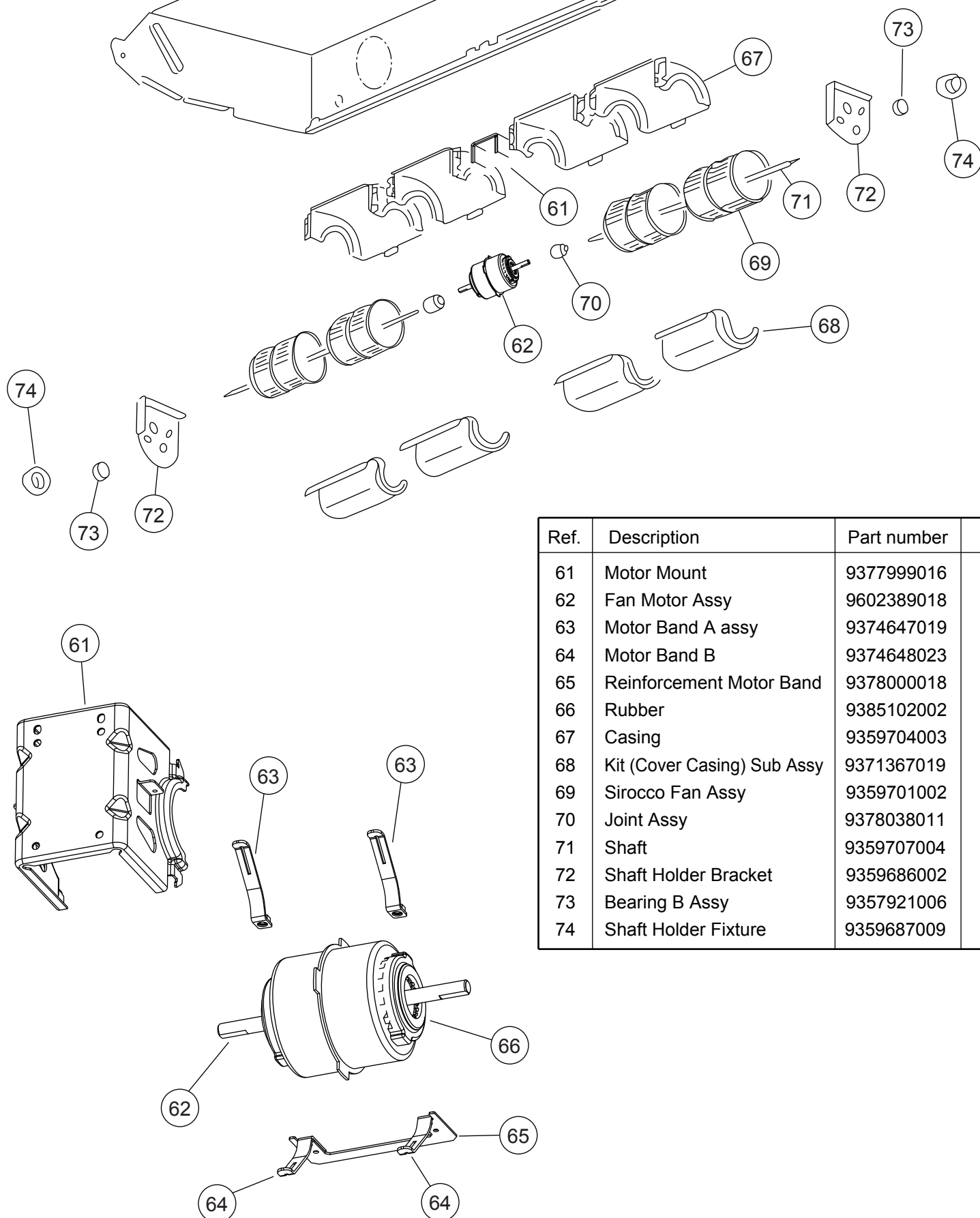


INDOOR UNIT
Louver Base Sub Assy



Ref.	Description	Part number	
41	Louver Base Sub Assy	9360432025	
42	Louver	9359719007	
43	Rod (Motor)	9359723004	
44	Louver Link	9359726005	
45	Louver Base	9359718000	
46	Louver Spring	9359720003	
47	Louver Stopper	9359724001	
48	Louver Rod	9359725008	
49	Step Motor H	9900297015	
50	Louver Insulation R	9359721000	
51	Louver Insulation L	9359722007	

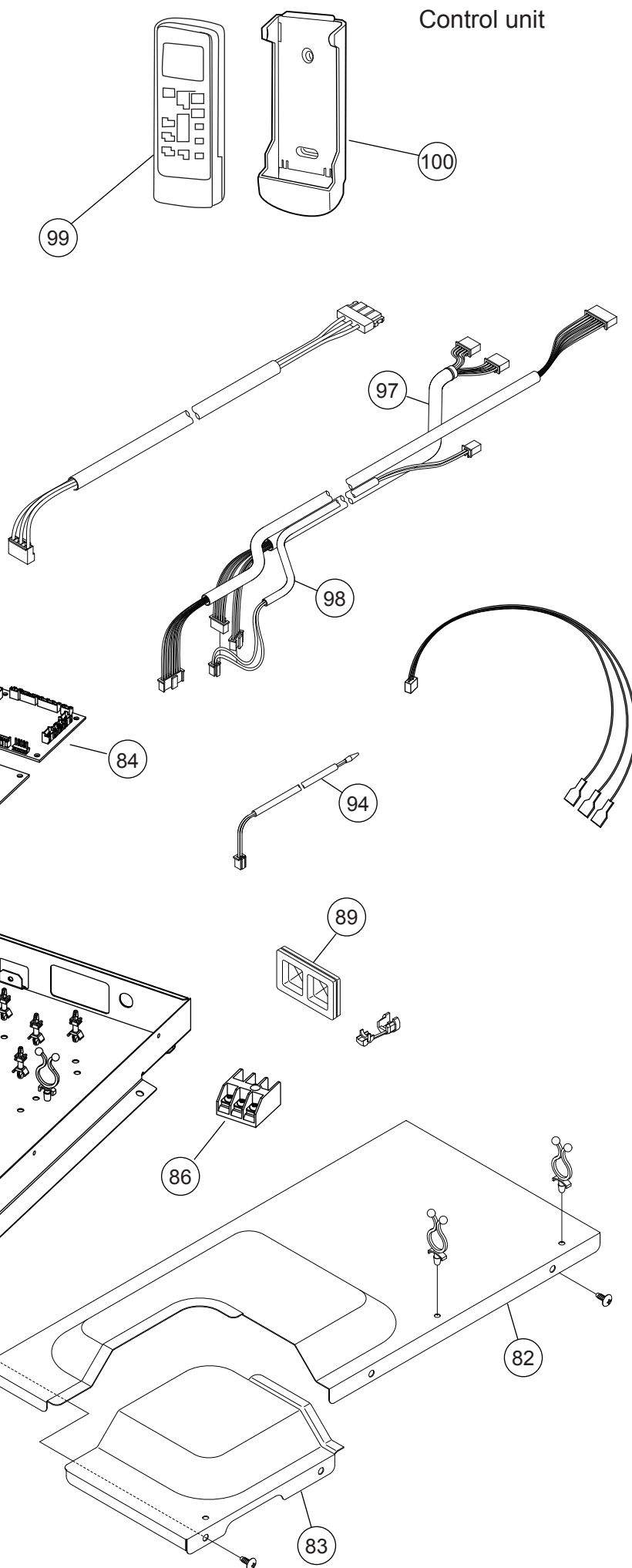
INDOOR UNIT Fan motor



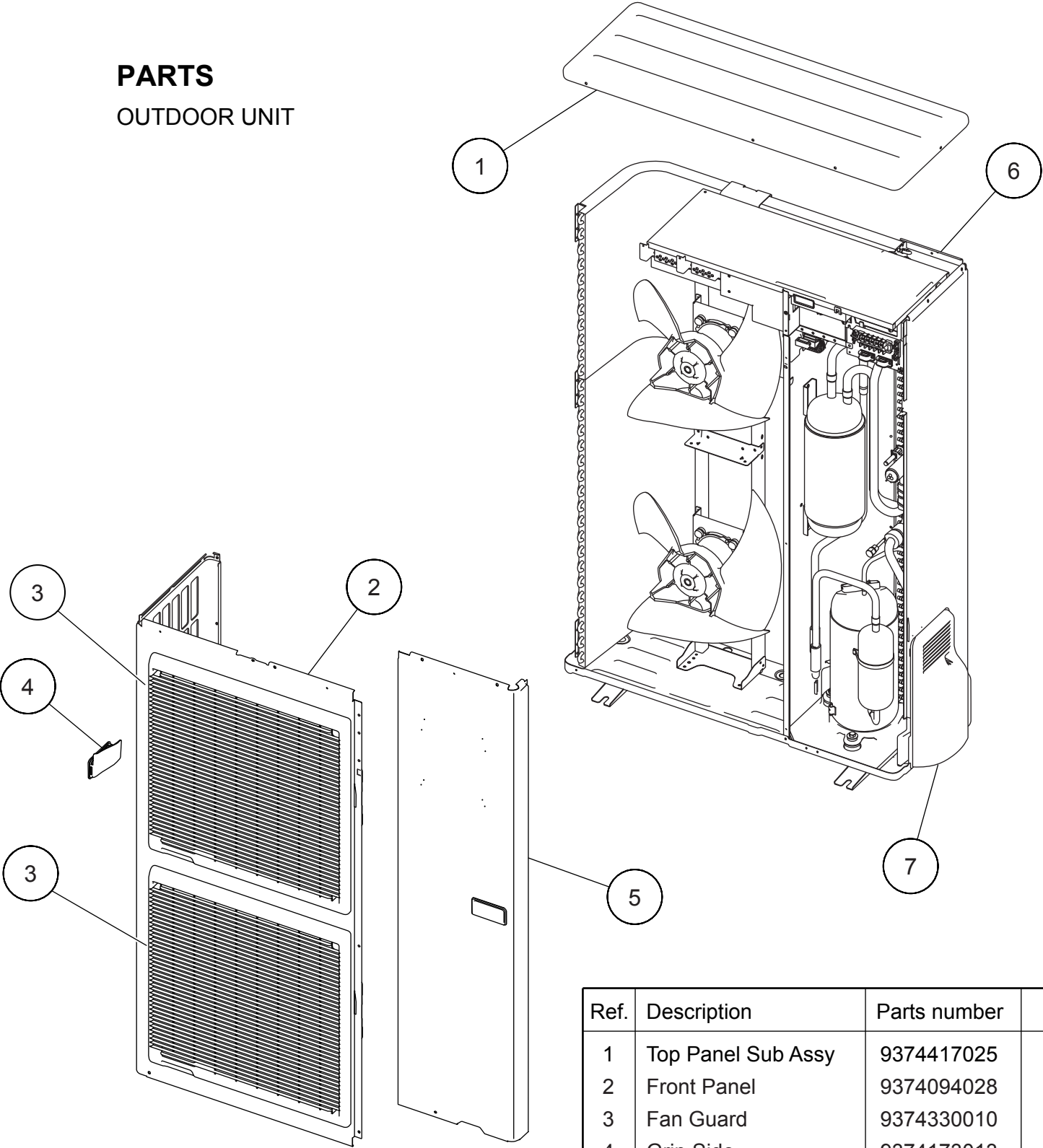
Ref.	Description	Part number	
61	Motor Mount	9377999016	
62	Fan Motor Assy	9602389018	
63	Motor Band A assy	9374647019	
64	Motor Band B	9374648023	
65	Reinforcement Motor Band	9378000018	
66	Rubber	9385102002	
67	Casing	9359704003	
68	Kit (Cover Casing) Sub Assy	9371367019	
69	Sirocco Fan Assy	9359701002	
70	Joint Assy	9378038011	
71	Shaft	9359707004	
72	Shaft Holder Bracket	9359686002	
73	Bearing B Assy	9357921006	
74	Shaft Holder Fixture	9359687009	

Ref.	Description	Part number
81	Control Box Assy	9377912015
82	Control Box A	9359712008
83	Control Box B	9359713005
84	Controller PCB Assy (36LATN)	9707393088
84	Controller PCB Assy (45LATN)	9707393071
85	Power Supply PCB Assy	9707398076
86	Terminal 3P	9703345012
87	Terminal 3P	9306489045
88	Reactor Assy	9707457018
89	Rubber Bushing	9357376004
91	Cord Clamp-A	9359820017
92	Cord Clamp-B	9359821014
93	Reactor Assy	9707457018
94	Room Thermistor	9703299025
95	Wire Assy (Connector)	9707442021
96	Wire Assy (Connector)	9703339028
97	Wire Assy (Connector)	9702319014
98	Wire Assy (Connector)	9702318017
99	Remote Control	9315885012
100	Remote Control Holder	9305642014

INDOOR UNIT Control unit

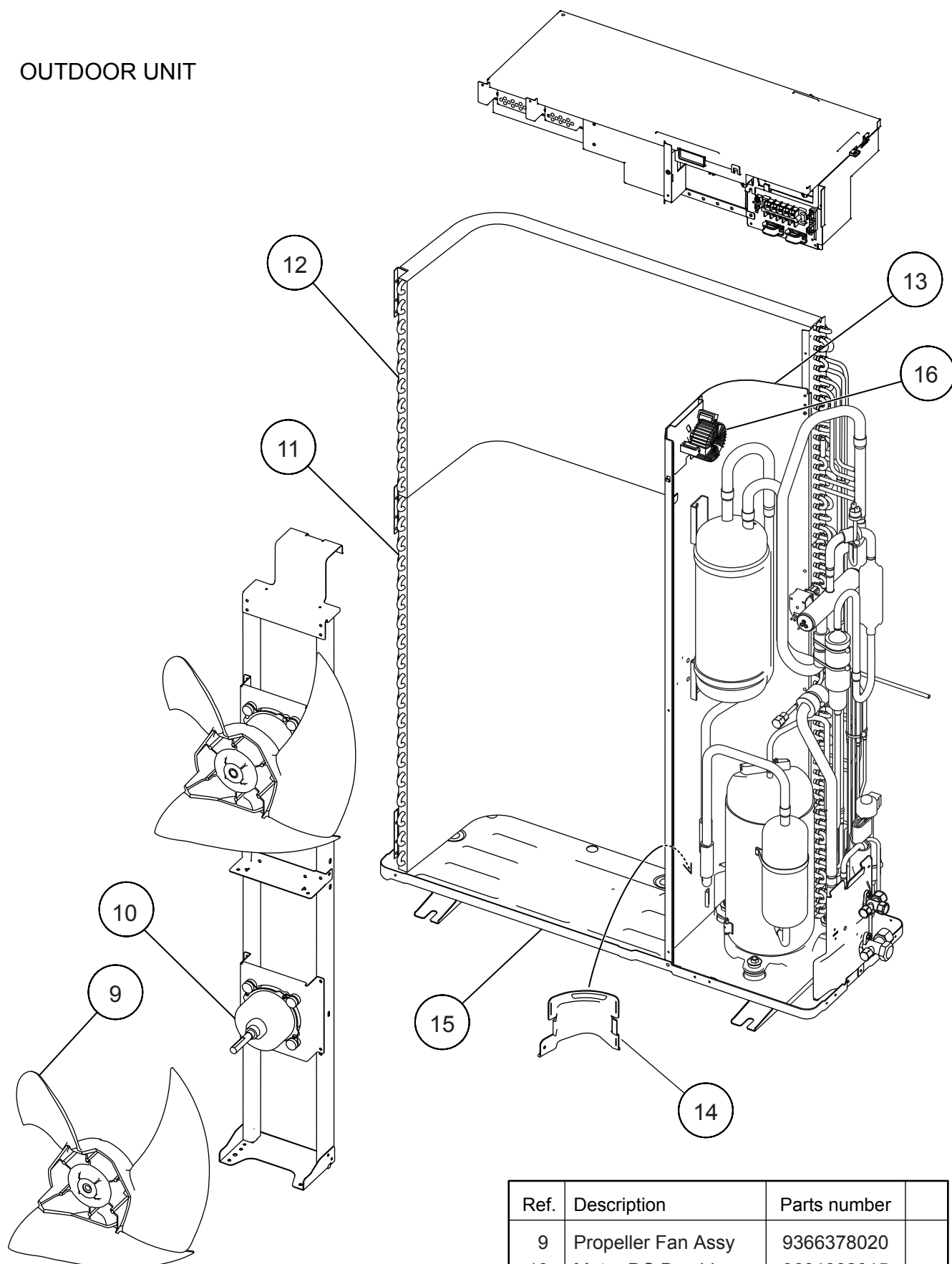


PARTS OUTDOOR UNIT



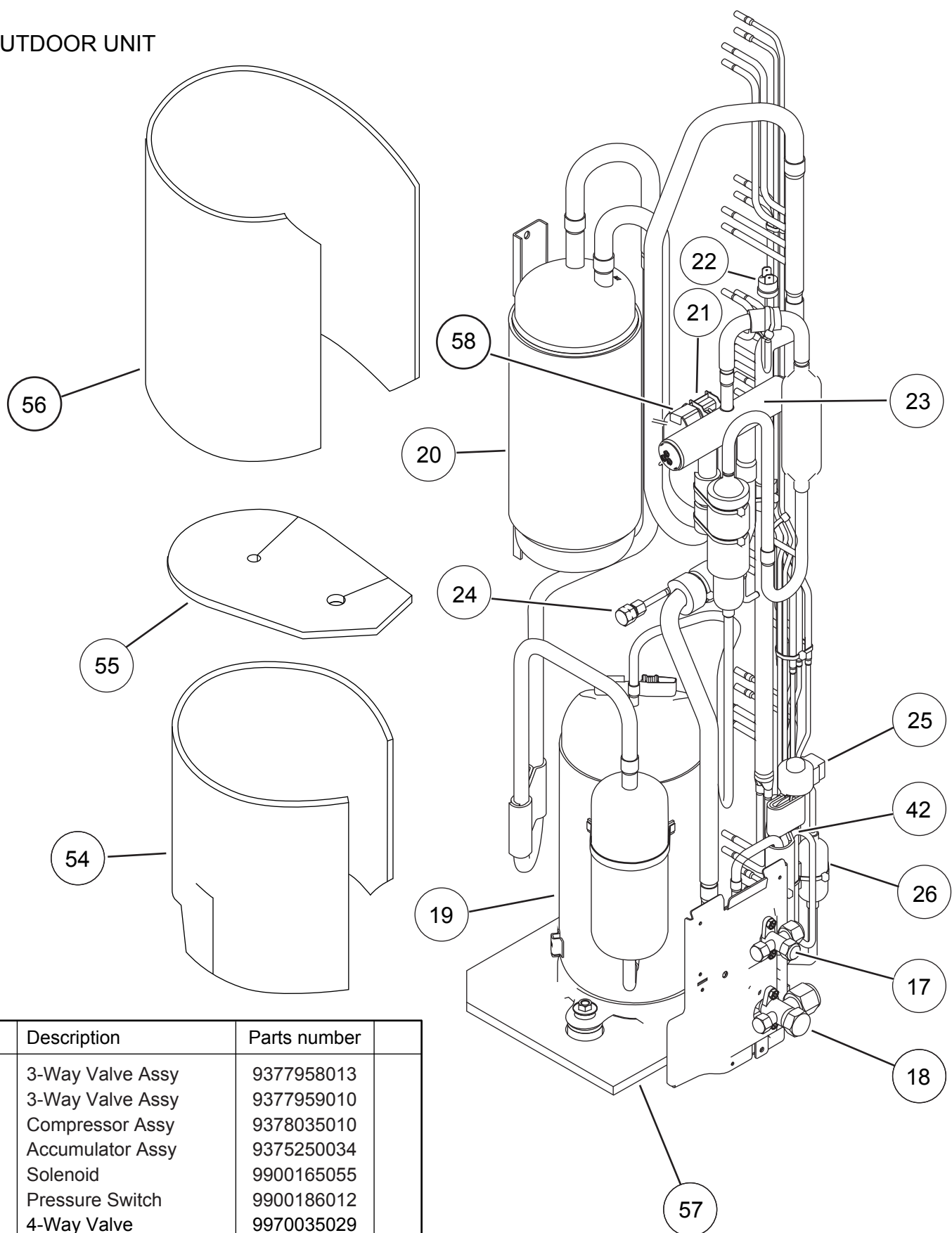
Ref.	Description	Parts number	
1	Top Panel Sub Assy	9374417025	
2	Front Panel	9374094028	
3	Fan Guard	9374330010	
4	Grip Side	9374173013	
5	Service Panel Sub Assy	9374415069	
6	Right Panel Sub Assy	9374416141	
7	Valve Cover	9374174010	
--	Emblem Rear	9351355005	

OUTDOOR UNIT



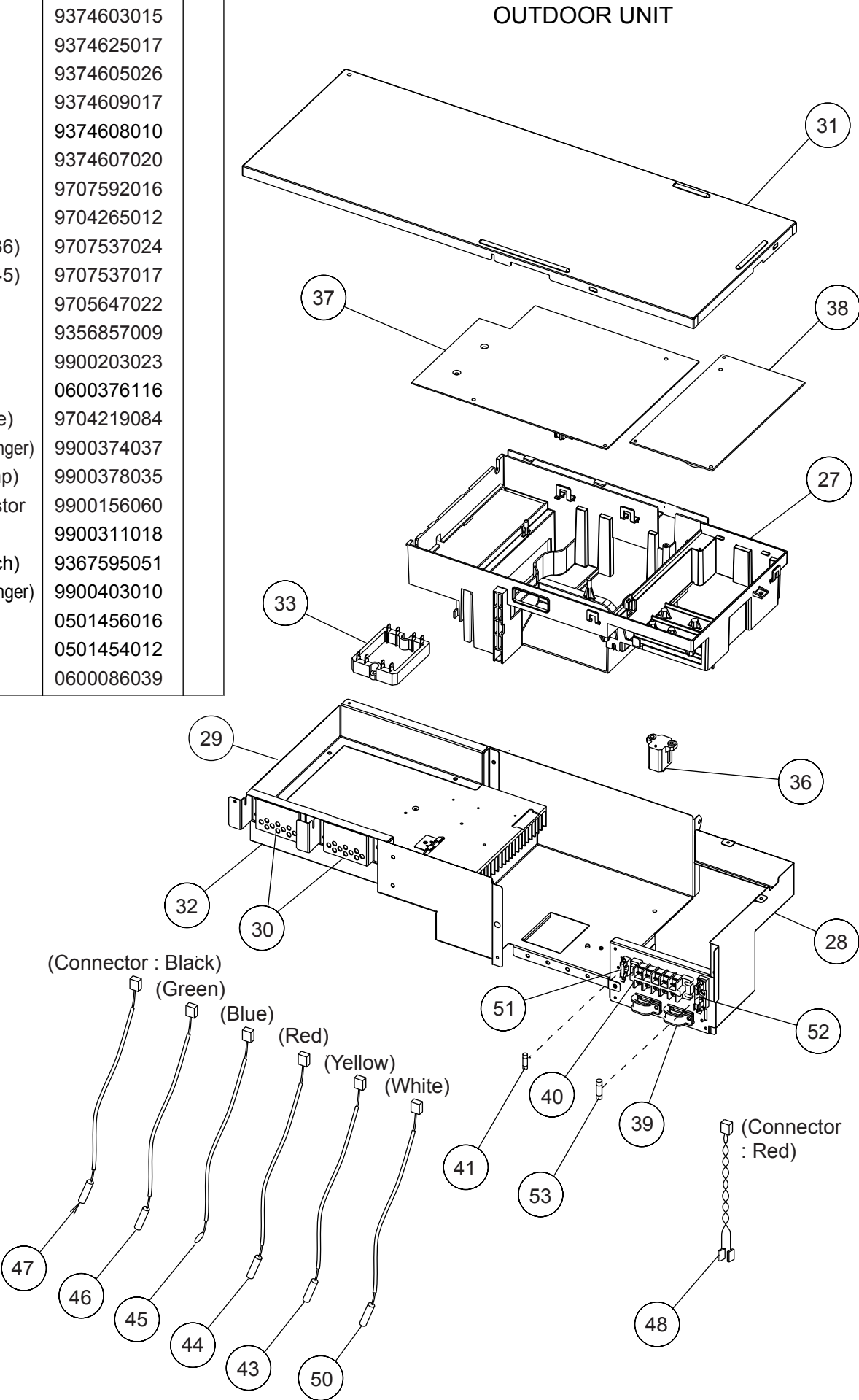
Ref.	Description	Parts number
9	Propeller Fan Assy	9366378020
10	Motor DC Brushless	9601882015
11	Condenser A Assy	9374433018
12	Condenser B Assy	9374434015
13	Sepa Wall	9374629015
14	Cap Foot	9374345014
15	Base Assy	9374166046
16	Coil Choke	9703458019

OUTDOOR UNIT



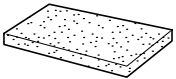
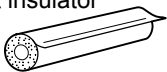
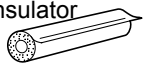
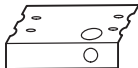
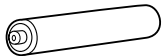
Ref.	Description	Parts number	
17	3-Way Valve Assy	9377958013	
18	3-Way Valve Assy	9377959010	
19	Compressor Assy	9378035010	
20	Accumulator Assy	9375250034	
21	Solenoid	9900165055	
22	Pressure Switch	9900186012	
23	4-Way Valve	9970035029	
24	Check Valve Assy	9374274017	
25	Coil (Expansion Valve)	9900197025	
26	Strainer Assy	9372524039	
42	Expansion Valve Assy	9370947175	
54	Compressor Cover A	9374430109	
55	Compressor Cover B	9374431106	
56	Compressor Cover C	9372067086	
57	Compressor Cover D	9375382025	
58	Solenoid	9900165055	

Ref.	Description	Parts number	
27	Inverter Box A	9374603015	
28	Inverter Box B	9374625017	
29	Inverter Box C	9374605026	
30	Inverter Box Duct	9374609017	
31	Inverter Box Cover	9374608010	
32	Heat Sink B	9374607020	
33	ACTPM	9707592016	
36	Posistor	9704265012	
37	Inverter PCB Assy (36)	9707537024	
37	Inverter PCB Assy (45)	9707537017	
38	Power PCB Assy	9705647022	
39	Clamp (Cord)	9356857009	
40	Terminal	9900203023	
41	Fuse (Small)	0600376116	
43	Thermistor (Dischage)	9704219084	
44	Thermistor (Heat Exchanger)	9900374037	
45	Thermistor (Out Temp)	9900378035	
46	Compressor Thermistor	9900156060	
47	Heatsink Thermistor	9900311018	
48	Wire (Pressure Switch)	9367595051	
50	Thermistor (Heat Exchanger)	9900403010	
51	Fuse Holder (Small)	0501456016	
52	Fuse Holder (Large)	0501454012	
53	Fuse (Large)	0600086039	

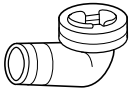
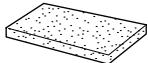


ACCESSORIES

INDOOR UNIT

Name and Shape	Q'ty	Application	Part number
Drain hose insulation 	1	Adhesive type 70 x 230	9360464002
VT wire 	1	For fixing the drain hose L 280 mm	313806350303
Coupler heat insulator (large) 	2	For indoor side pipe joint (large pipe)	9350716029
Coupler heat insulator (small) 	1	For indoor side pipe joint (small pipe)	9352766015
Nylon fastener 	Large 4	For fixing the coupler heat insulator	9301501001
	Small 4		312300787605
Special nut A (large flange) 	4	For installing indoor unit	313005446653
Special nut B (small flange) 	4	For installing indoor unit	313005446759
Installation template 	1	For positioning the indoor unit	9360022004
Auxiliary pipe assembly 	1	For connecting the piping	9374714025
Remote control 	1	For air conditioner operation	9315885012
Remote control holder 	1	For installing remote control on the wall	9305642014
Battery 	2	For remote control	0600185534
Tapping screw 	2	For mounting the remote control holder	0700019098

OUTDOOR UNIT

Name and Shape	Q'ty	Application	Part number
Drain pipe 	1	For outdoor unit drain piping work (May not be supplied, depending on the model)	9303029015
Drain cap 	2		313166024302
Installation (seal) 	1	For filling in a gap at the entrance of connection cords	9374756018

