

FUJ1
ELECTRIC

SPLIT TYPE
AIR CONDITIONER

DUCT type (50Hz)

SERVICE MANUAL



Models

Indoor unit

RD-30LAN

RD-36LAN

RD-45LAN

Outdoor unit

RO-30LB

RO-36LA

RO-45LB

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SPECIFICATIONS

TYPE	COOLING & HEATING		
INDOOR UNIT	RD-30LAN	RD-36LAN	RD-45LAN
OUTDOOR UNIT	RO-30LB	RO-36LA	RO-45LB
COOLING CAPACITY (kW)	8.5	10.0	12.5
HEATING CAPACITY (kW)	10.0	11.2	14.0

ELECTRICAL DATA

POWER SOURCE		230V 50Hz		
RUNNING CURRENT (A)	COOLING	13.0	17.9	19.5
	HEATING	11.7	13.9	17.3
INPUT WATTS (kW)	COOLING	2.96	4.08	4.45
	HEATING	2.68	3.18	3.95
E.E.R. (kW/kW)	COOLING	2.87	2.45	2.81
	HEATING	3.73	3.52	3.54
STARTING CURRENT (A)		15	15	15
MOISTURE REMOVAL (ℓ/hr)		2.5	3.0	4.0
AIRCIRCULATION-Hi (m³/hr)		2,200		2,290

COMPRESSOR

TYPE	Total enclosed type, 4 poles, 3 phase, Inverter, Twin Rotary		Hermetic type, 6 poles, 3 phase, Inverter, Scroll
DISCRIMINATION	TNB220FPBM9		ANB33FCMMT
REFRIGERANT R410A (g)	2,200		3,400

FAN MOTOR

INDOOR UNIT	DISCRIMINATION	MFA-45PTAT	MFA-45PTAT
	HI-SPEED (r.p.m.)	1,250	1,310
	MED-SPEED (r.p.m.)	1,150	1,240
	LO-SPEED (r.p.m.)	1,050	1,150
OUTDOOR UNIT	DISCRIMINATION	MFE-60PO	MFE-60PO
	(r.p.m.)	Cool 850 / Heat 900	Up Fan 850 / Down Fan 750

DIMENSIONS

INDOOR UNIT	H x W x D (mm)	270 x 1,135 x 700	
OUTDOOR UNIT	H x W x D (mm)	830 x 900 x 330	1,290 x 900 x 330

WEIGHT

INDOOR UNIT	GROSS / NET (kg)	50 / 43	52 / 45
OUTDOOR UNIT	GROSS / NET (kg)	70 / 64	112 / 105

TYPE	COOLING & HEATING		
INDOOR UNIT	RD-30LAN	RD-36LAN	RD-45LAN
OUTDOOR UNIT	RO-30LB	RO-36LA	RO-45LB

NOISE LEVEL

INDOOR UNIT	HI-SPEED (dB)	43.0		44.0
	MED-SPEED (dB)	41.0		42.0
	LO-SPEED (dB)	39.0		40.0
OUTDOOR UNIT	COOL (dB)	53.0	54.0	54.0
	HEAT (dB)	55.0	55.0	55.5

Note : Static pressure : 30Pa

Duct length : Inlet 1m, Outlet 2m

REFRIGERANT CHARGE (R410A)

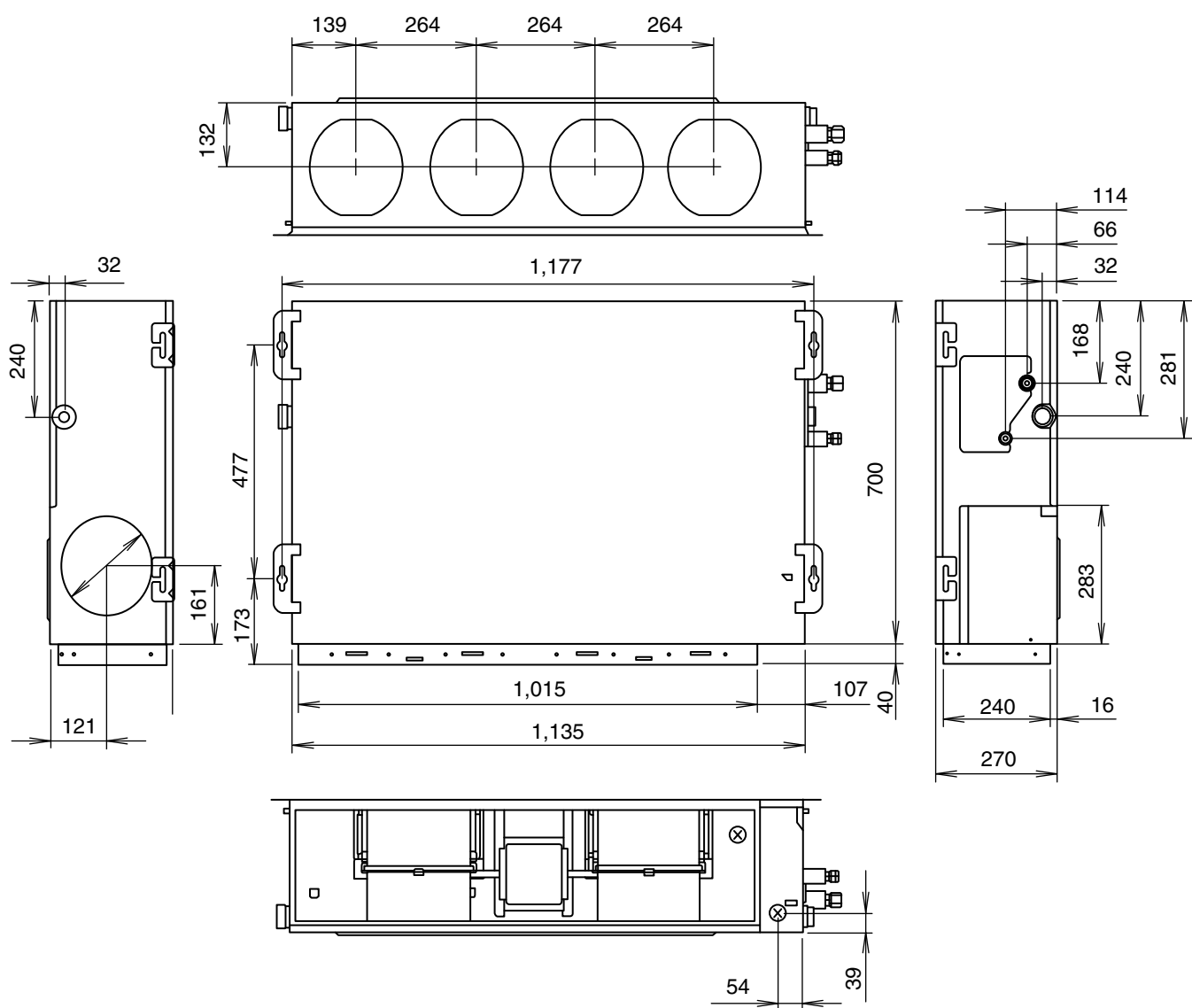
MAX PIPE LENGTH (m)		50	70
MAX PIPE HEIGHT (m)		30	30
FULL CHARGE AMOUNT	PIPE LENGTH 15 m	2,200 g	3,400 g
	20 m	2,400 g	3,400 g
	30 m	2,800 g	3,800 g
	40 m	3,200 g	4,200 g
	50 m	3,600 g	4,600 g
	60 m	----	5,000 g
	70 m	----	5,400 g
ADDITIONAL REFRIGERANT		40 g / m	

DIMENSIONS

INDOOR UNIT

Models : RD-30LAN
RD-36LAN
RD-45LAN

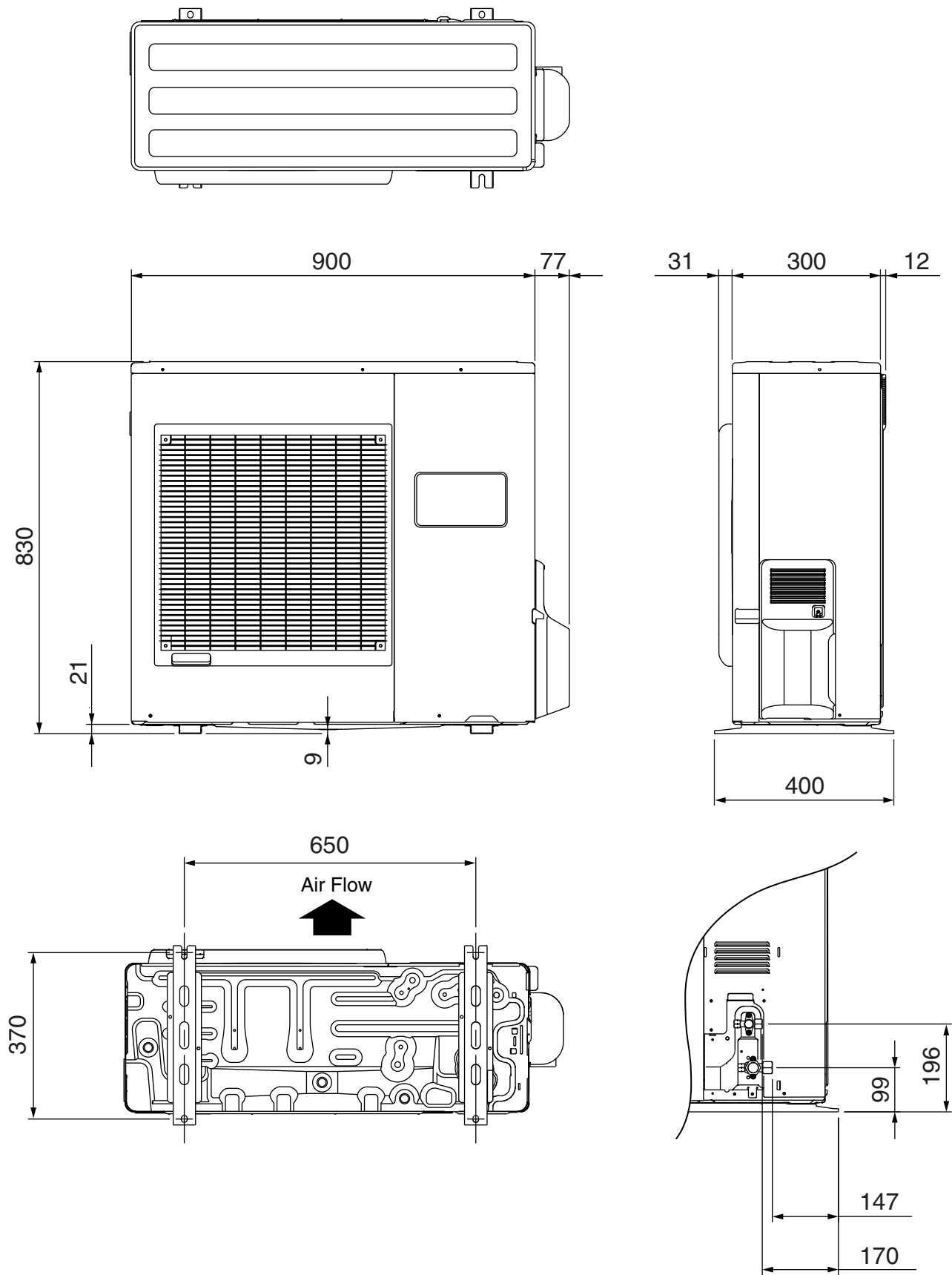
(Unit : mm)



OUTDOOR UNIT

Models : RO-30LB
RO-36LA

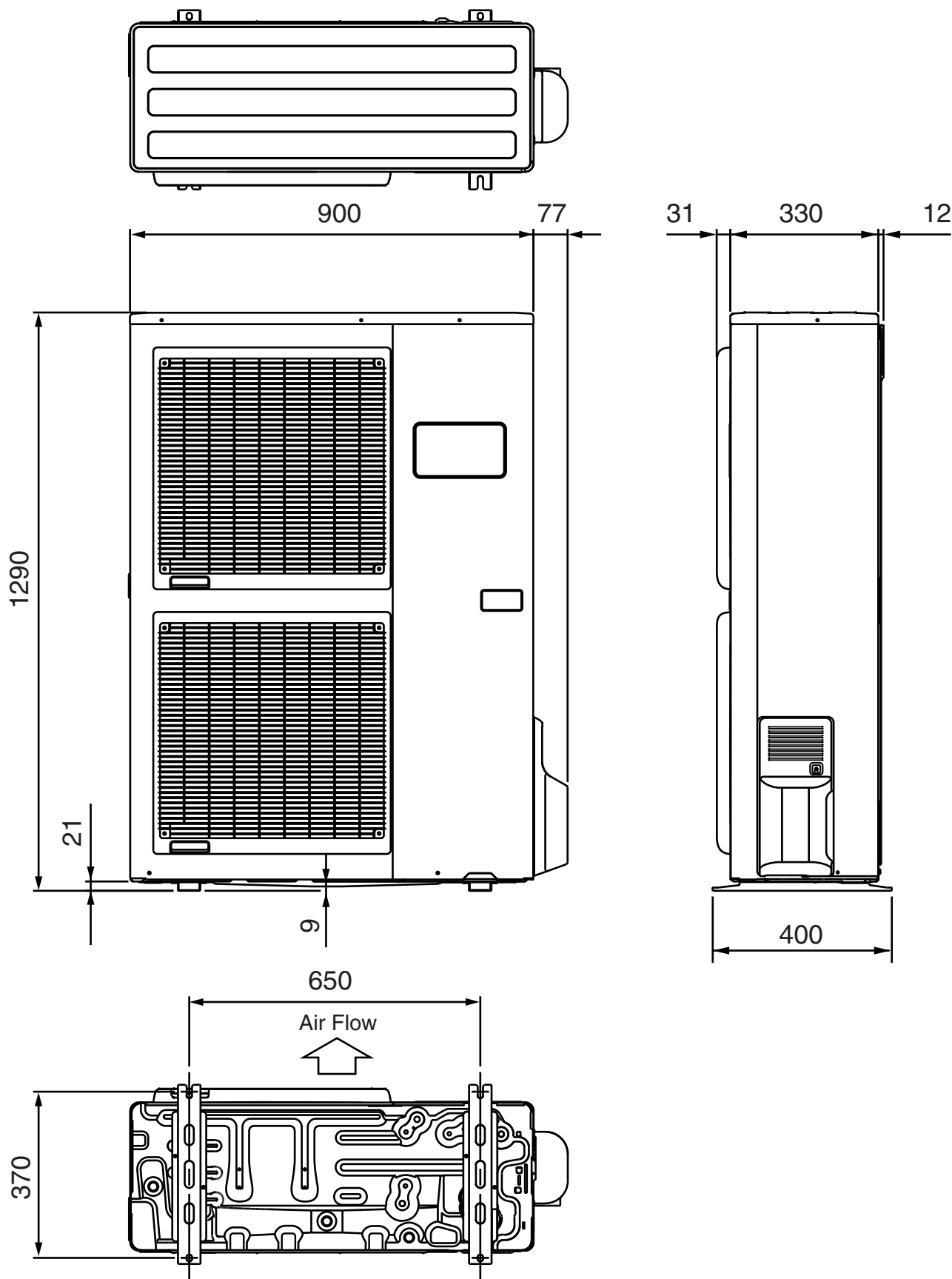
(Unit : mm)



OUTDOOR UNIT

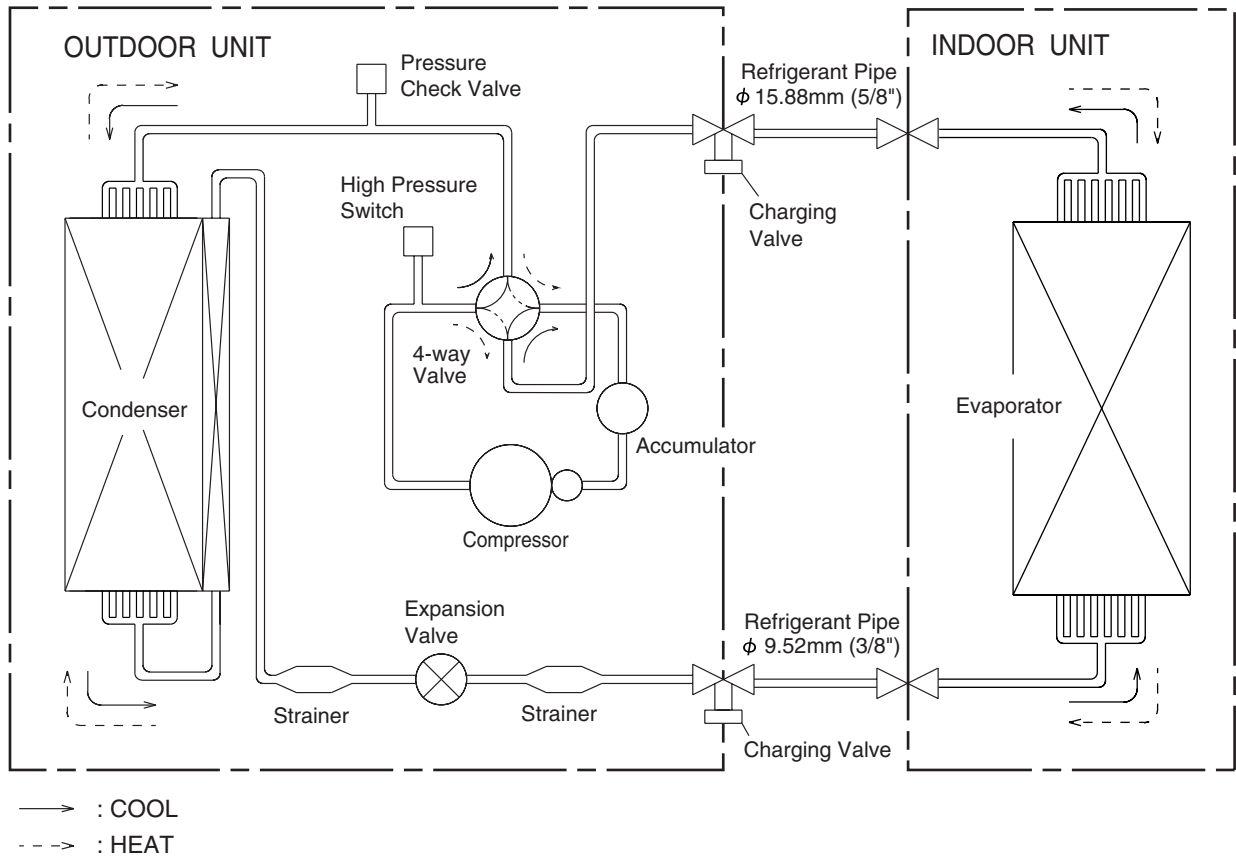
Model : RO-45LB

(Unit : mm)

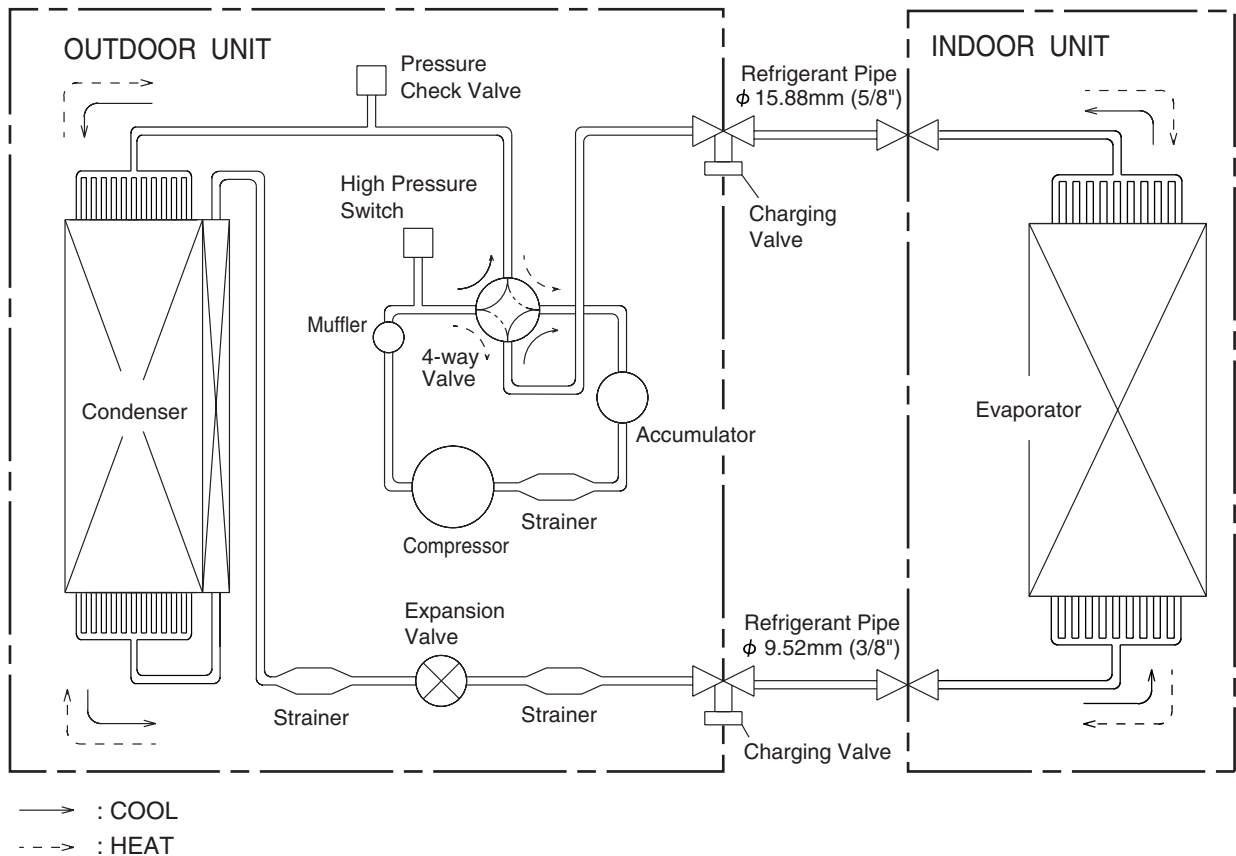


REFRIGERANT SYSTEM DIAGRAM

**Models : RD-30LAN / RO-30LB
RD-36LAN / RO-36LA**



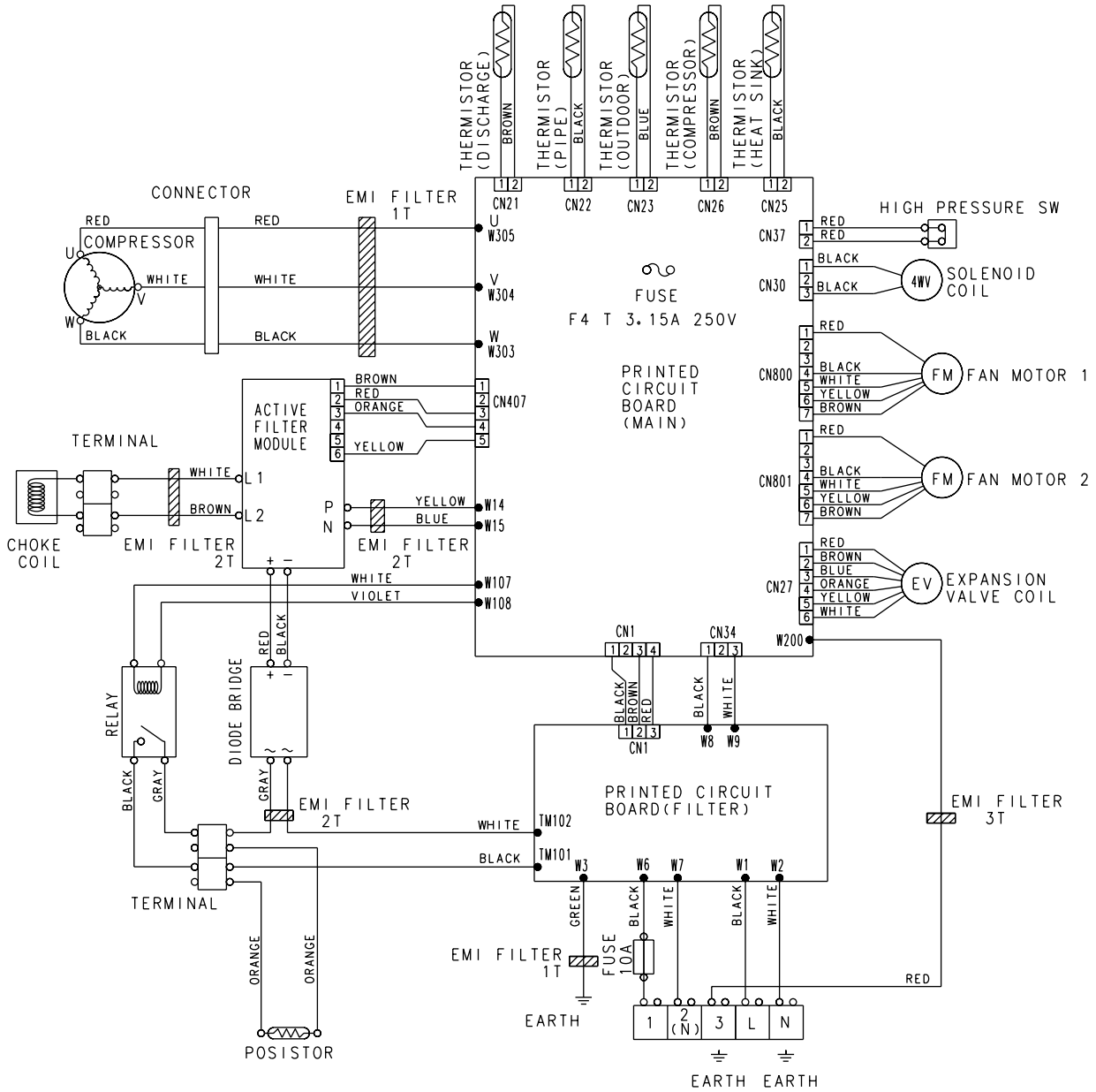
Models : RD-45LAN / RO-45LB



**Models : RD-30LAN
RD-36LAN
RD-45LAN**



Model : RO-45LB



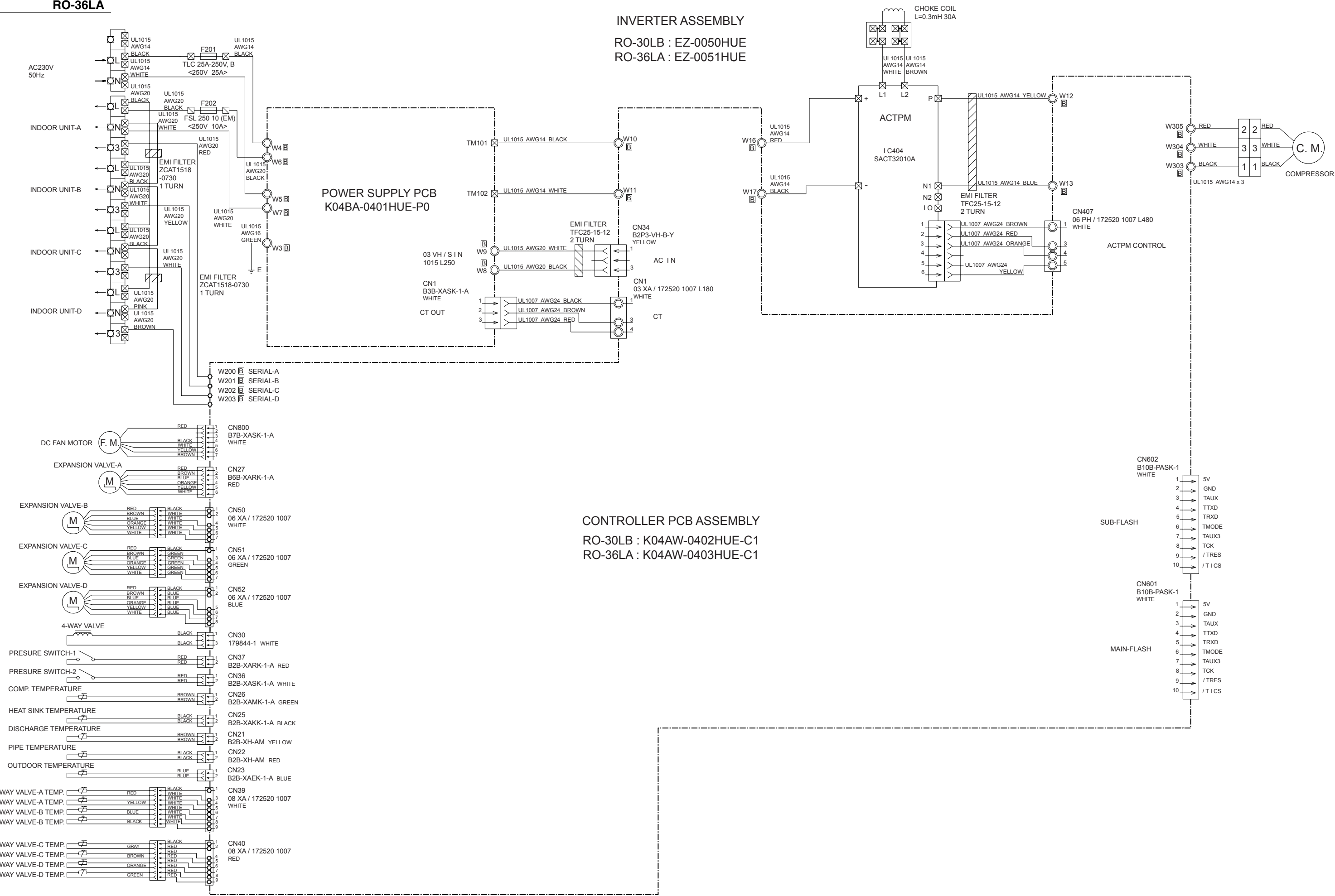
**Models : RD-30LAN
RD-36LAN
RD-45LAN**

RD-30LAN : K03BZ-0501HSE-C1
RD-36LAN : K03BZ-0502HSE-C1
RD-45LAN : K03BZ-0503HSE-C1



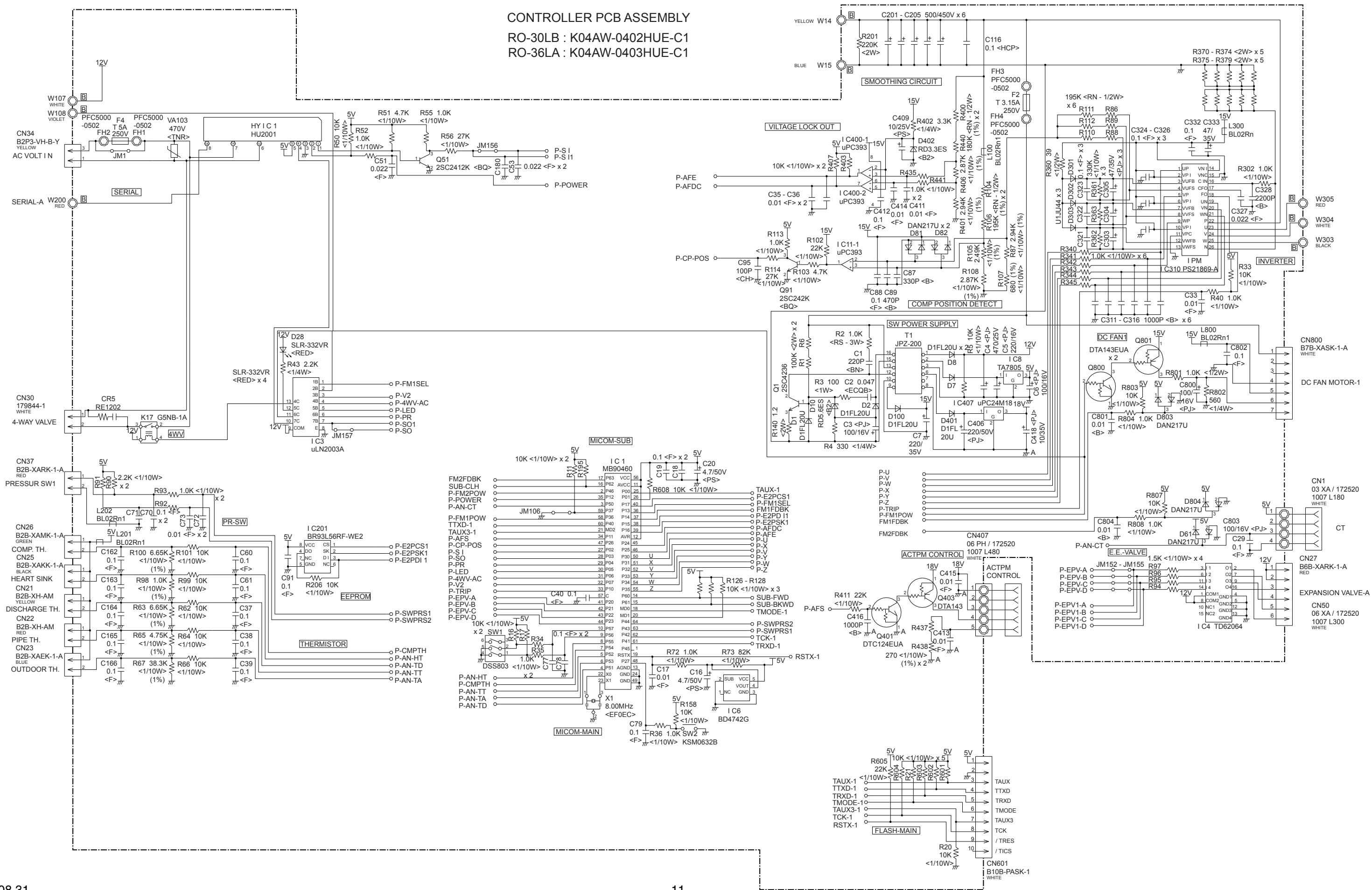
OUTDOOR PCB CIRCUIT DIAGRAM

Models : RO-30LB
RO-36LA



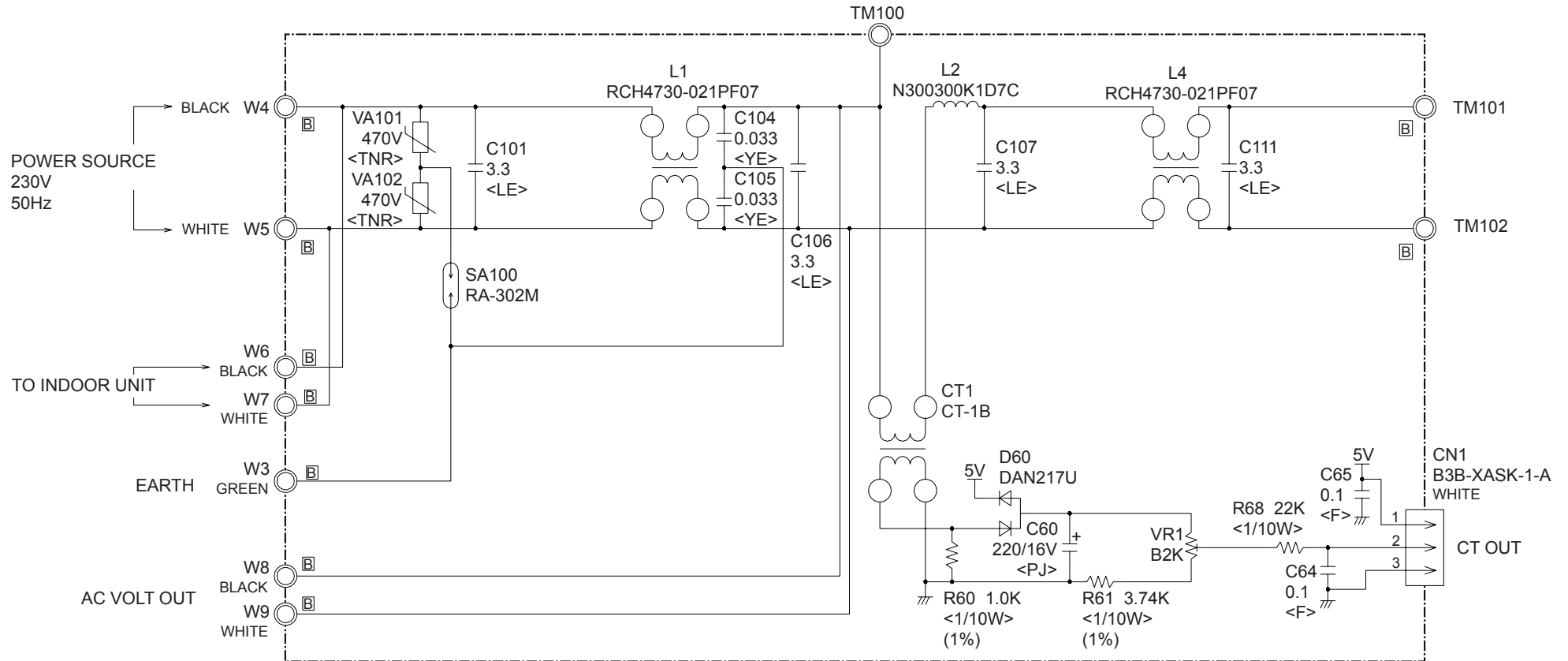
Models : RO-30LB
RO-36LA

CONTROLLER PCB ASSEMBLY
RO-30LB : K04AW-0402HUE-C1
RO-36LA : K04AW-0403HUE-C1



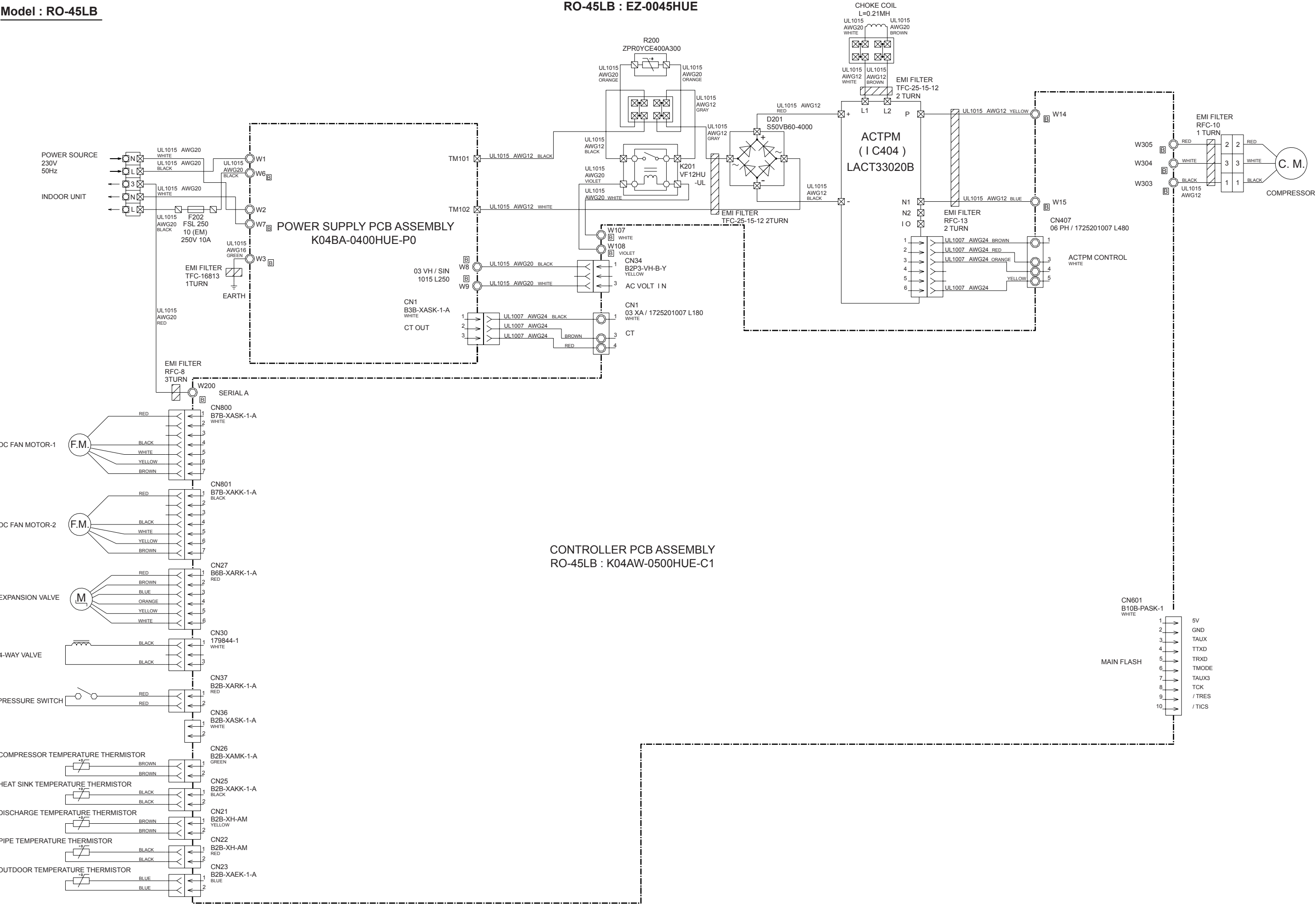
Models : RO-30LB
RO-36LA

POWER SUPPLY PCB ASSEMBLY K04BA-0401HUE-P0

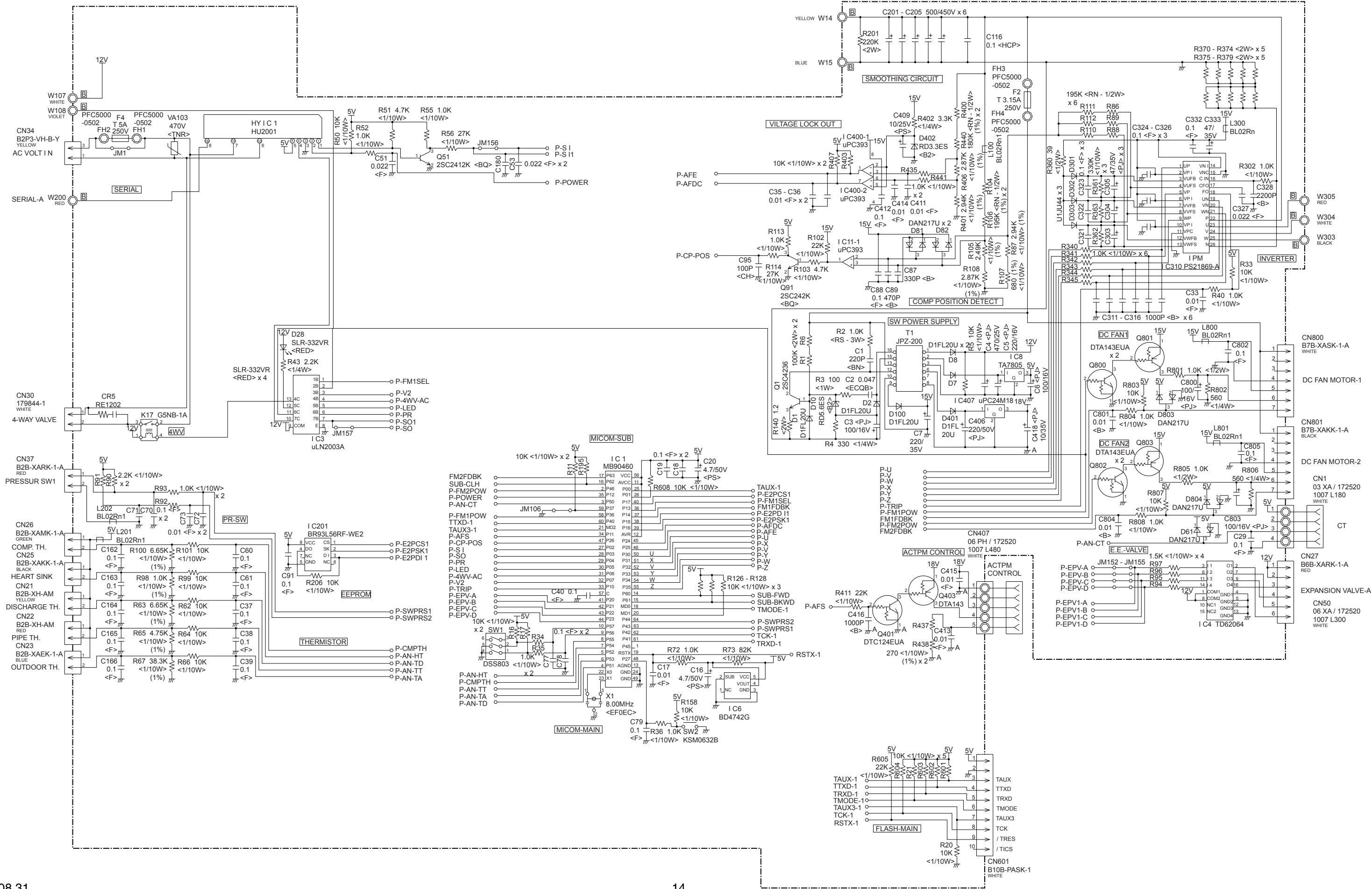


Model : RO-45LB

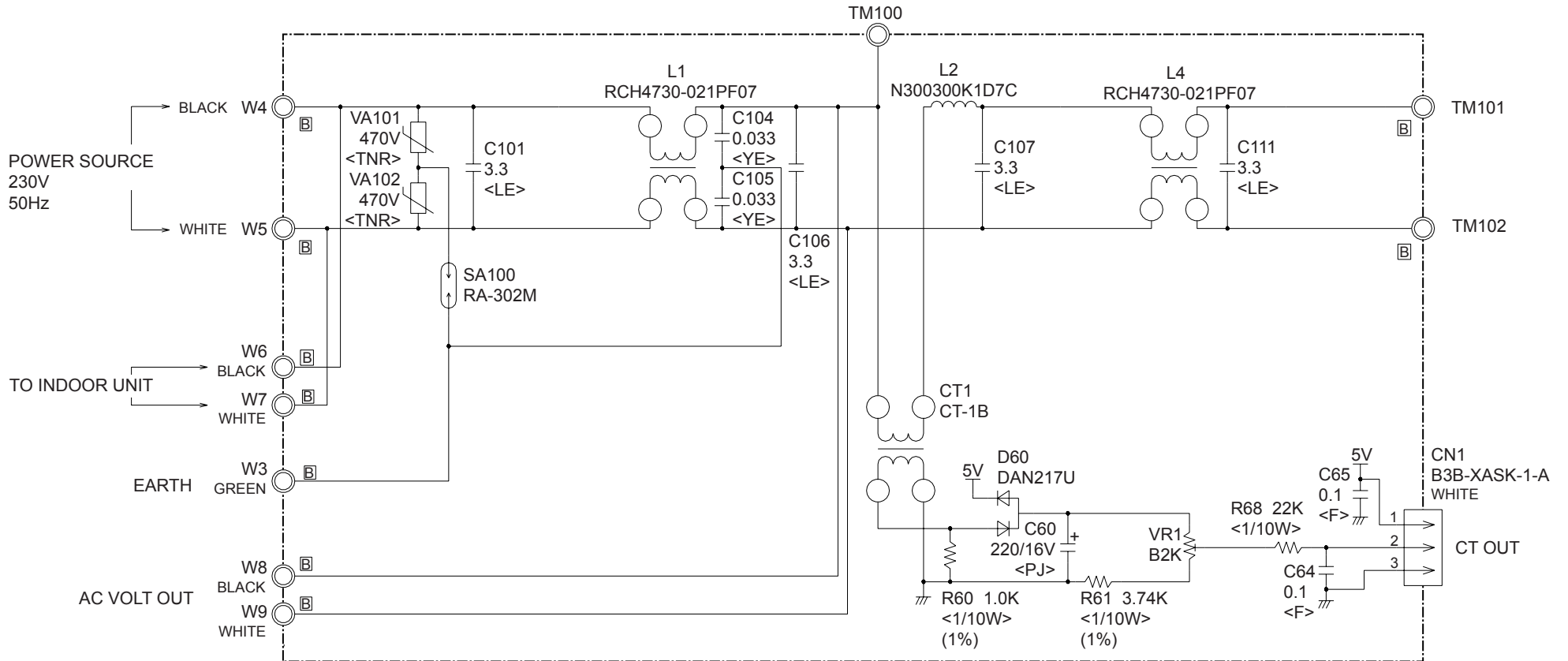
INVERTER ASSEMBLY
RO-45LB : EZ-0045HUE



CONTROLLER PCB ASSEMBLY
RO-45LB : K04AW-0500HUE-C1



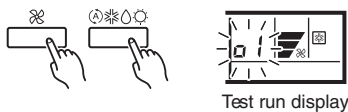
POWER SUPPLY PCB ASSEMBLY K04BA-0400HUE-P0



ERROR CONTENTS (indoor unit)

CAUTION
Supply power to the crankcase heater for at least 12 hours before the start of operation in winter.

- (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.



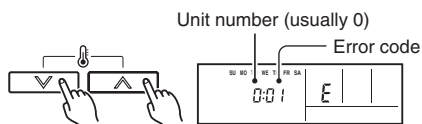
- (3) Press the start/stop button to stop the test run.

[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.

REMOTE CONTROLLER DISPLAY

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



- (3) Press the set temperature buttons $\wedge$ / $\vee$ simultaneously for 5 seconds or more to stop the self-diagnosis.

Error code	Error contents
00	Communication error (indoor unit $\longleftrightarrow$ remote controller)
01	Communication error (indoor unit $\longleftrightarrow$ 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
0E	Outdoor high pressure abnormal
11	Model abnormal
12	Indoor fan abnormal
13	Outdoor signal abnormal
14	Outdoor EEPROM abnormal
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 $\longrightarrow$ multicontroller)
1d	2 way valve sensor error
1E	Expansion valve error
1F	Connection indoor unit error

ERROR CONTENTS (outdoor unit)

⚠ CAUTION

Always turn on the power 12 hours prior to the start of the operation in order to ensure compressor protection

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.

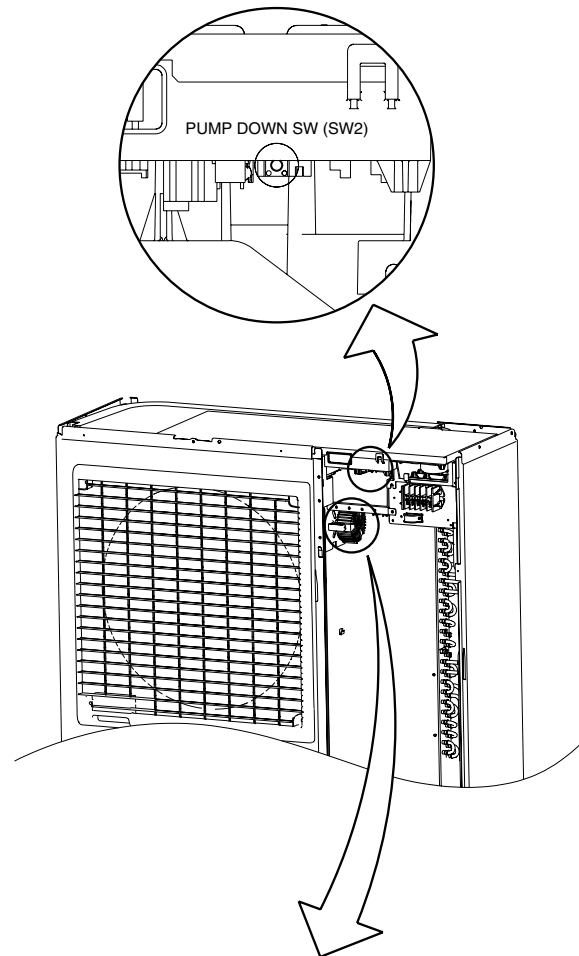
LED	Error contents
1 flash	Communication error (Indoor unit - Outdoor unit)
2 flash	Discharg pipe temperature sensor
3 flash	Outdoor heat exchanger temperature sensor
4 flash	Outdoor temperature sensor
7 flash	Compressor temperature sensor
8 flash	Heat sink temperature sensor
9 flash	Pressure switch 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)
5 sec. ON/ 1 sec. OFF repeated	Protect operation
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) Press the push-button switch (SW2) on the circuit board once.
The LED on the circuit board starts flashing (one second ON/one second OFF). This indicates the start of PUMP DOWN operation.
When the switch is pressed while the compressor is in operation, PUMP DOWN operation starts automatically.
When the switch is pressed while the compressor is in stop, the compressor starts to operate automatically, and then move on to PUMP DOWN operation.
- (2) PUMP DOWN operation continues for about 1 minute. When PUMP DOWN operation is completed, the compressor stops automatically.
Then close the 2-way valve and 3-way valve immediately.
- (3) Turn the power off.

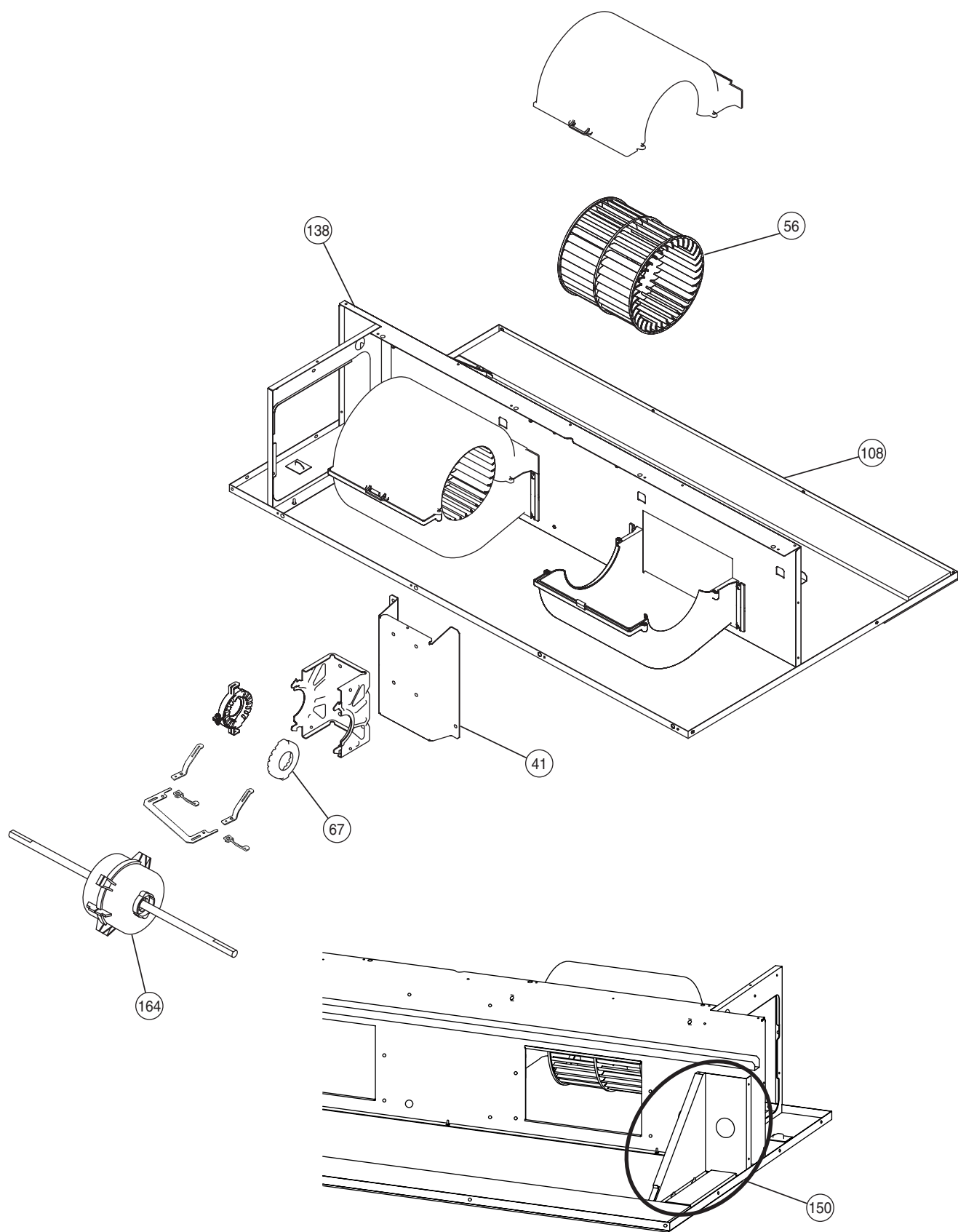


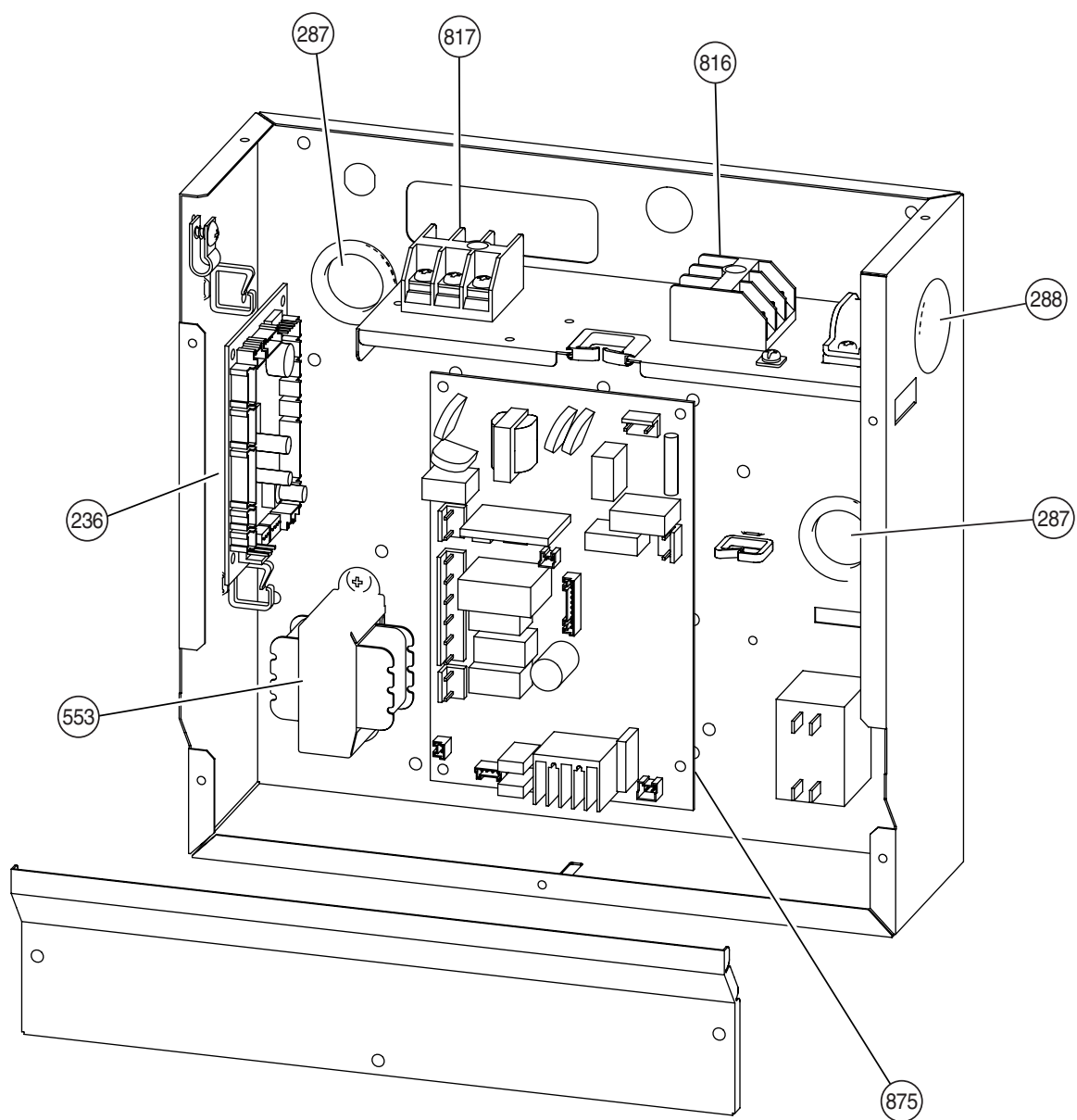
⚠ DANGER

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

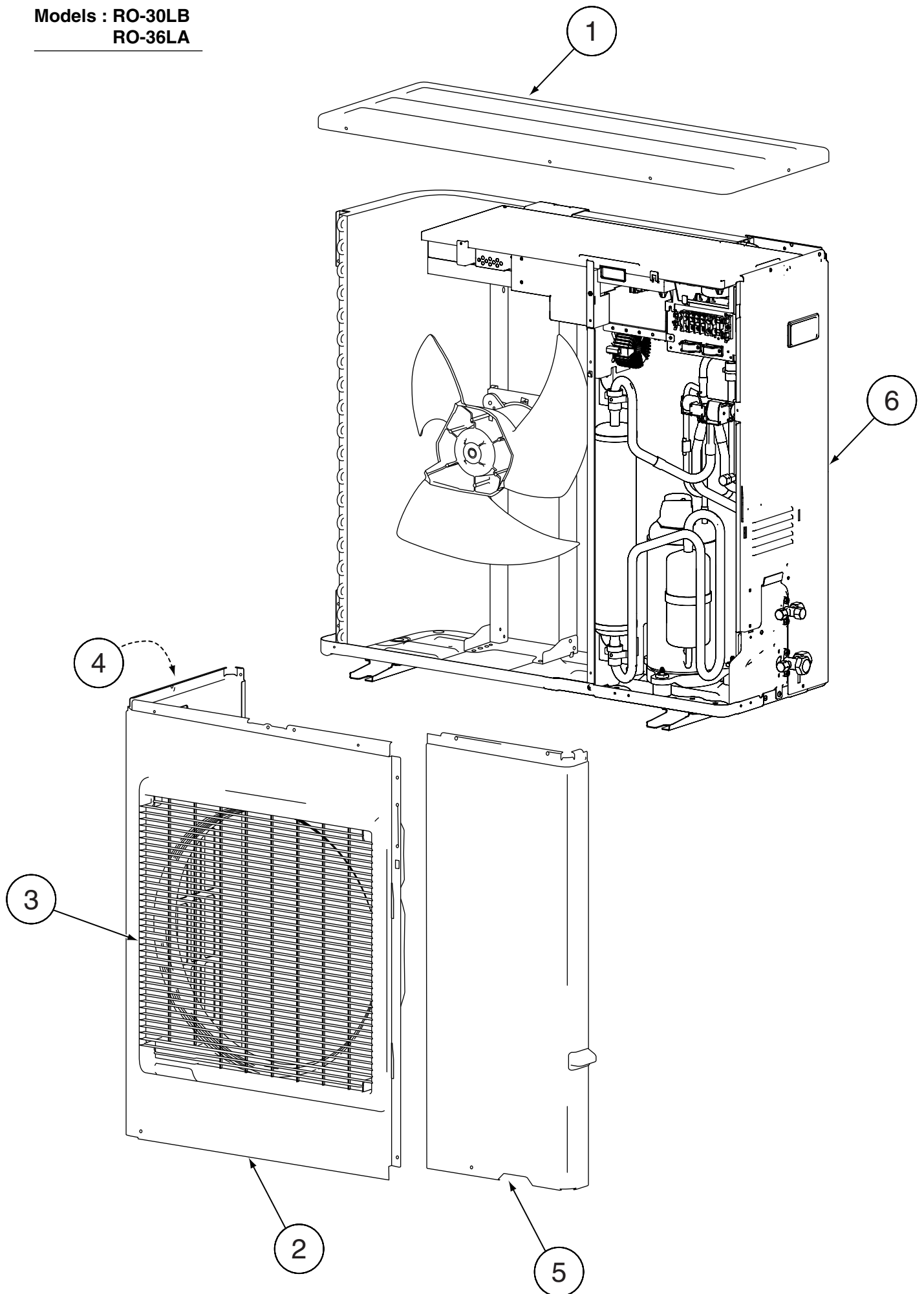
**Models : RD-30LAN
RD-36LAN
RD-45LAN**



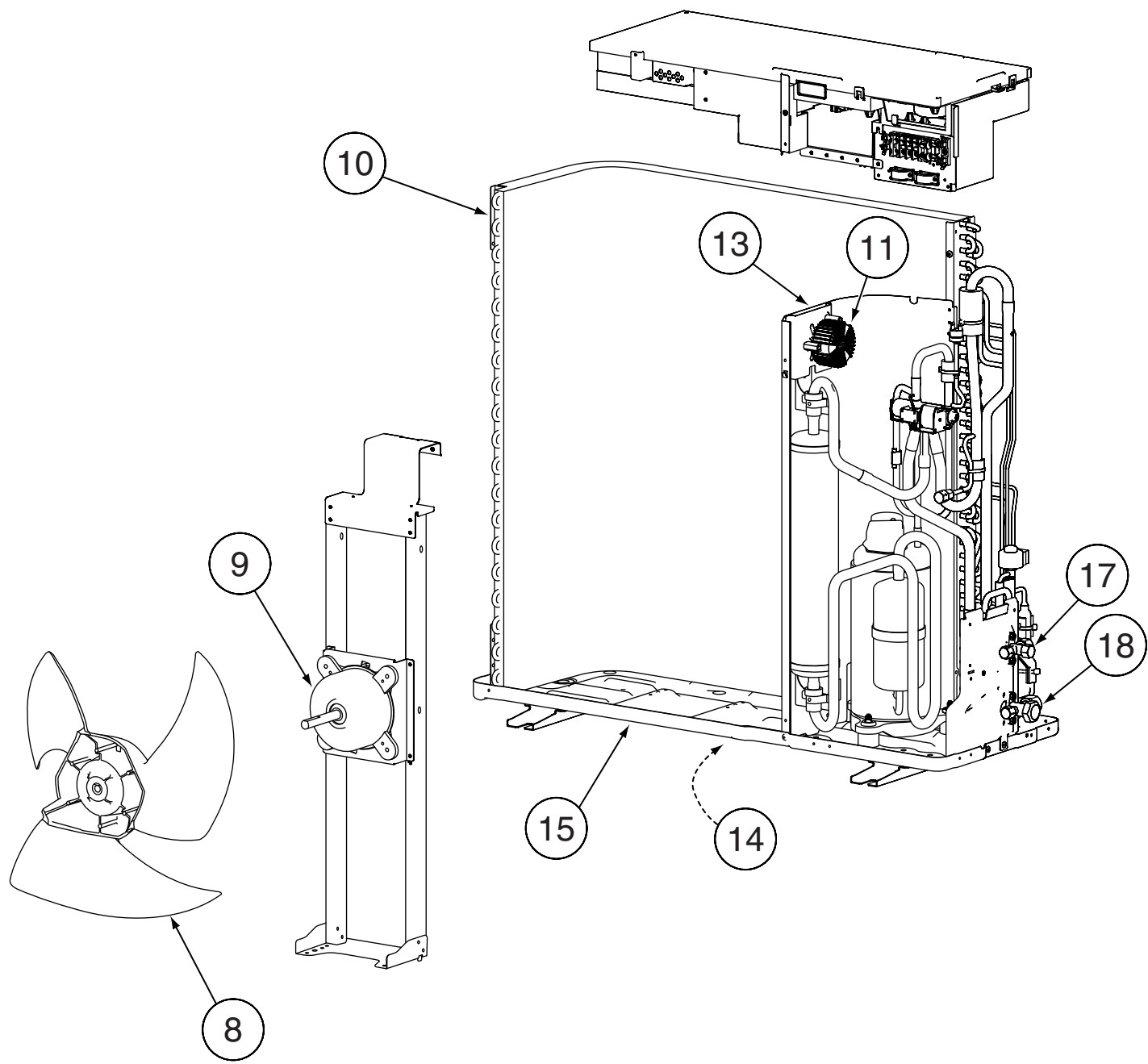




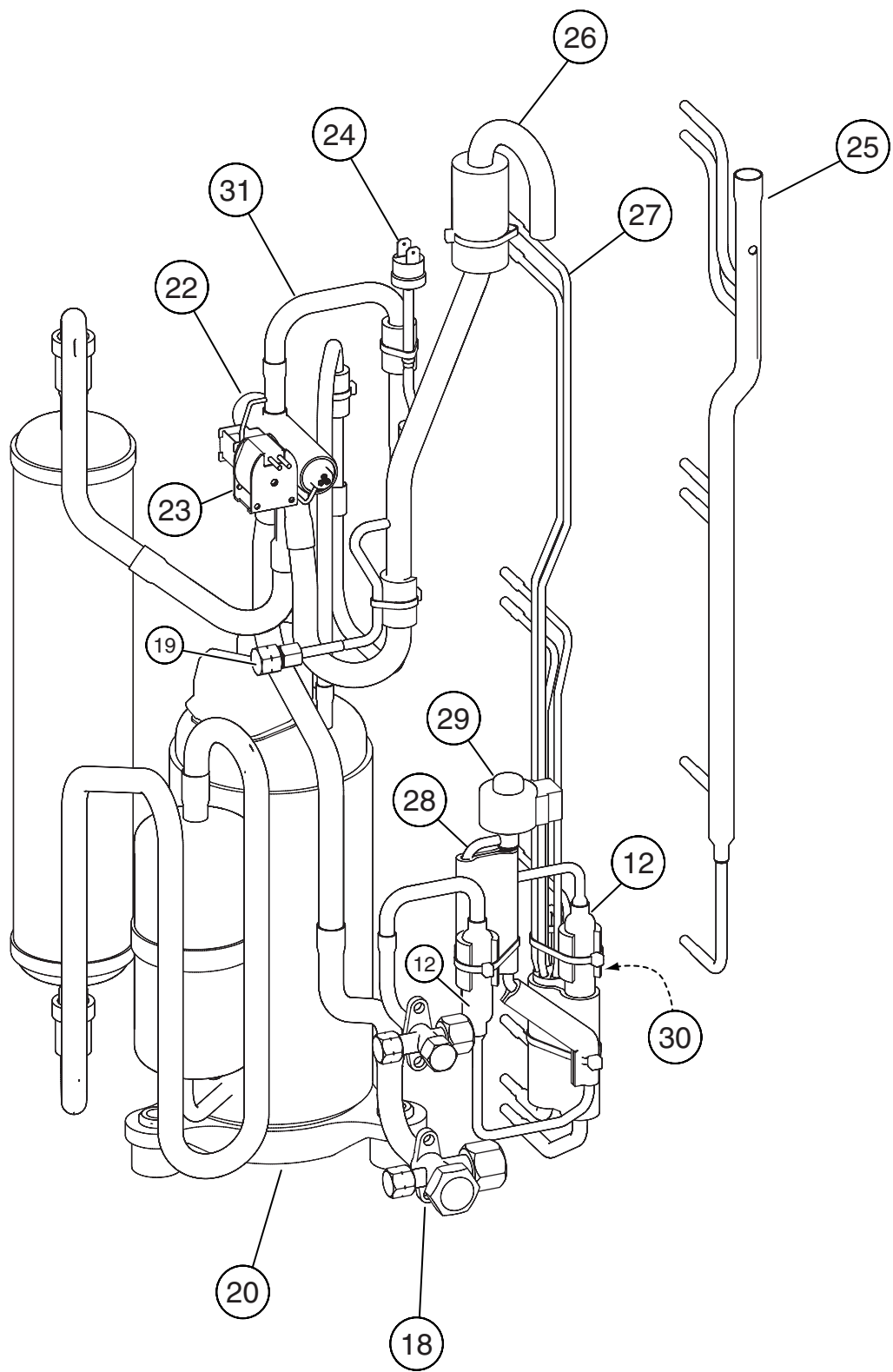
Models : RO-30LB
RO-36LA



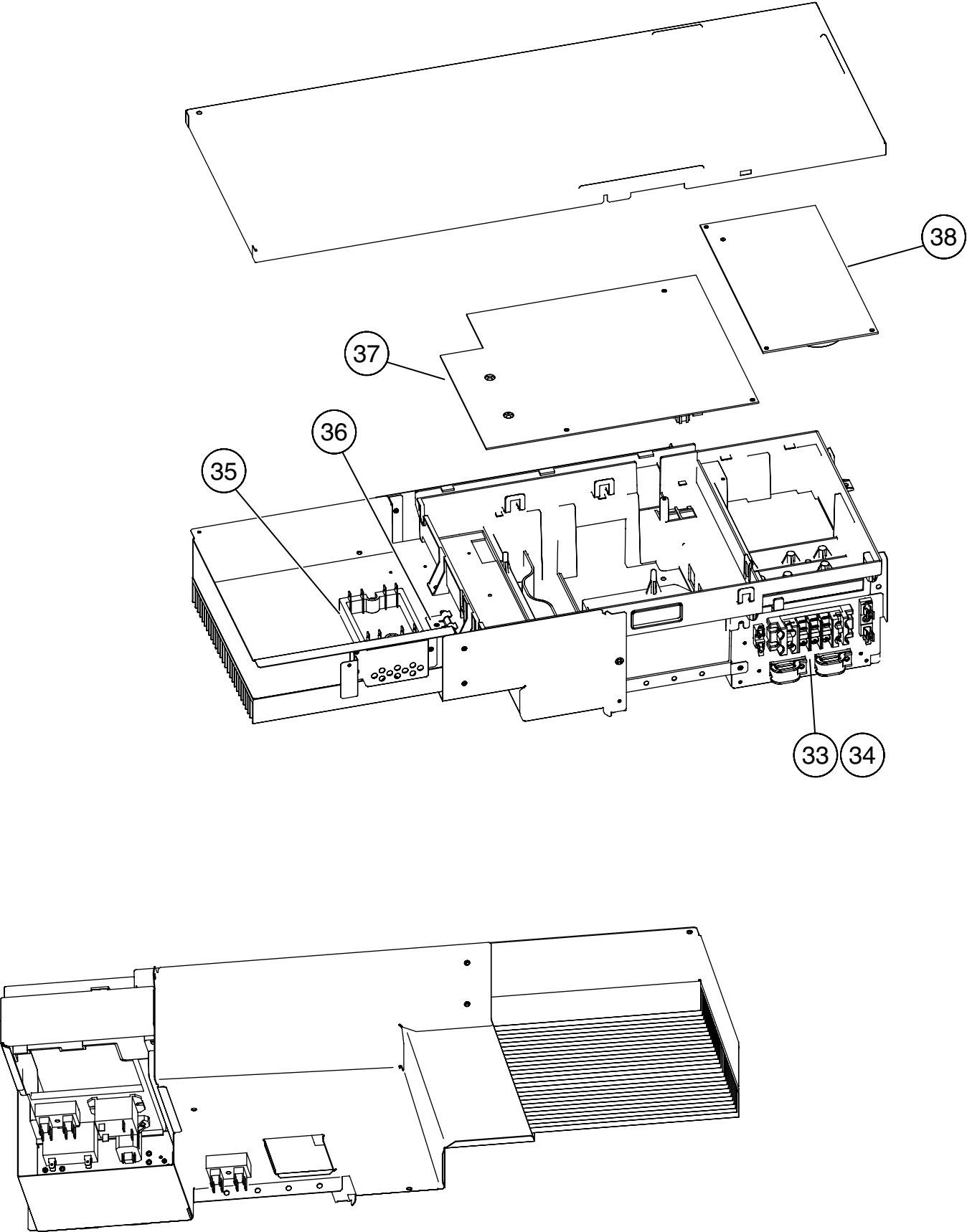
Models : RO-30LB
RO-36LA



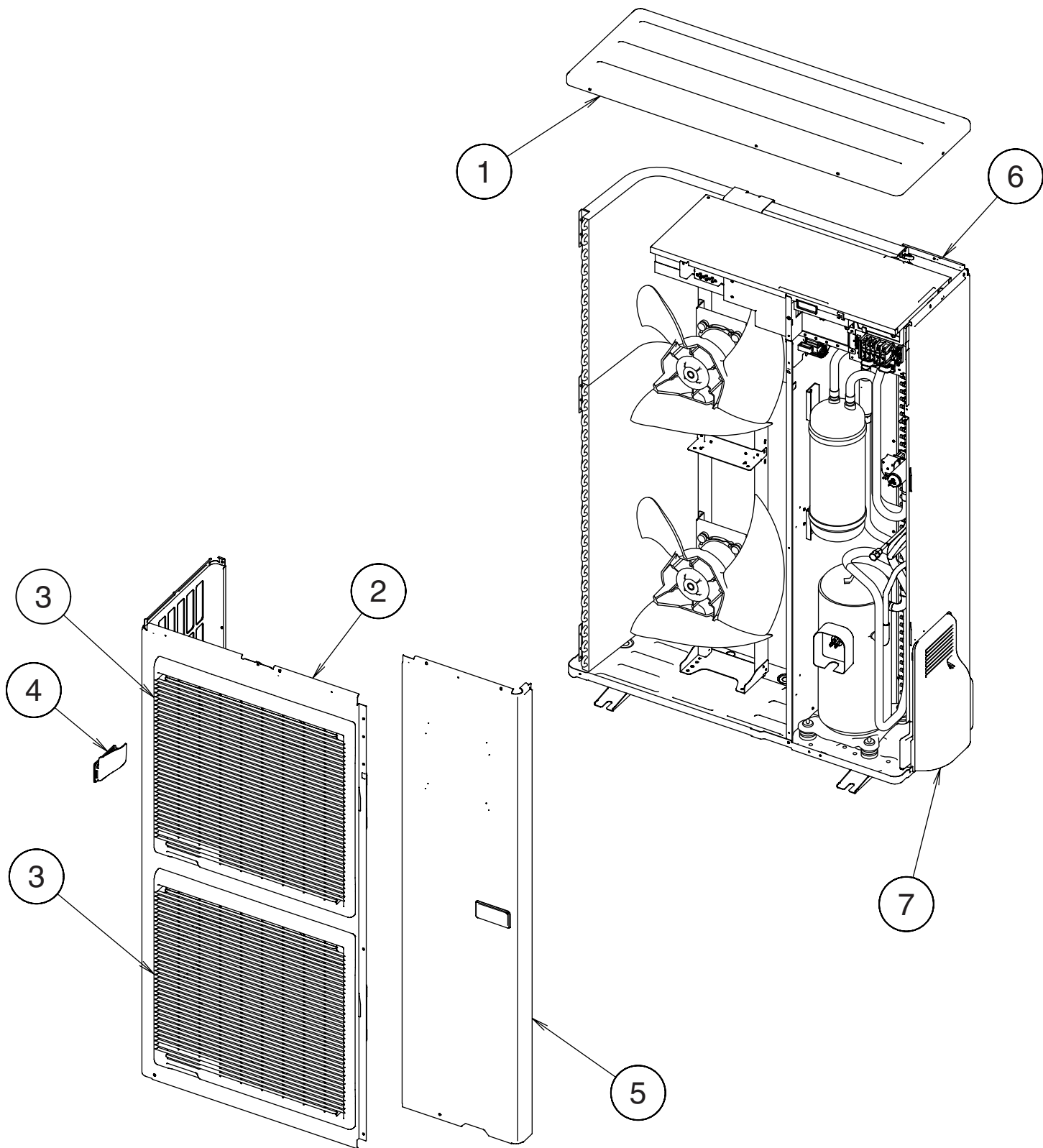
Models : RO-30LB
RO-36LA

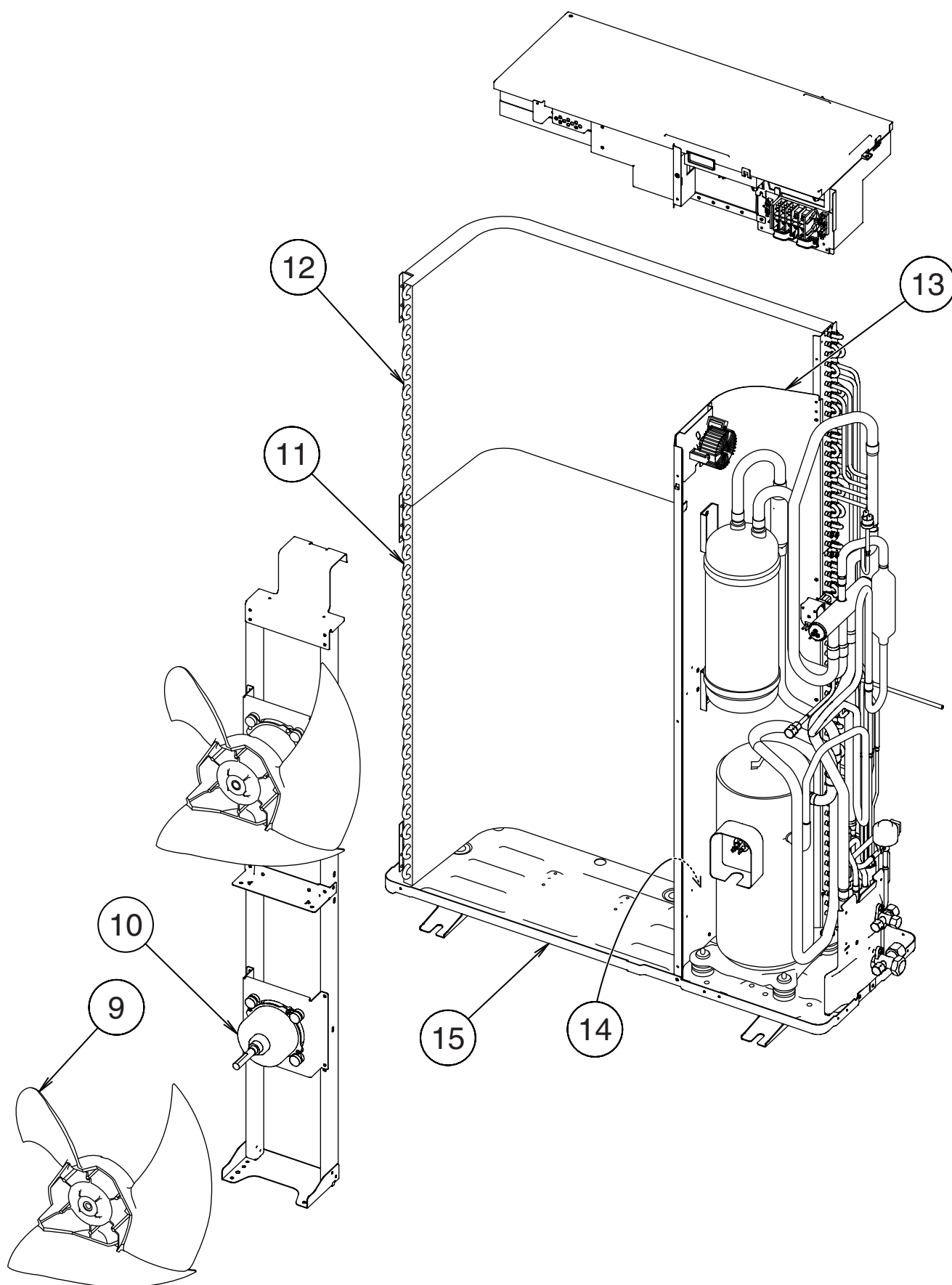


Models : RO-30LB
RO-36LA

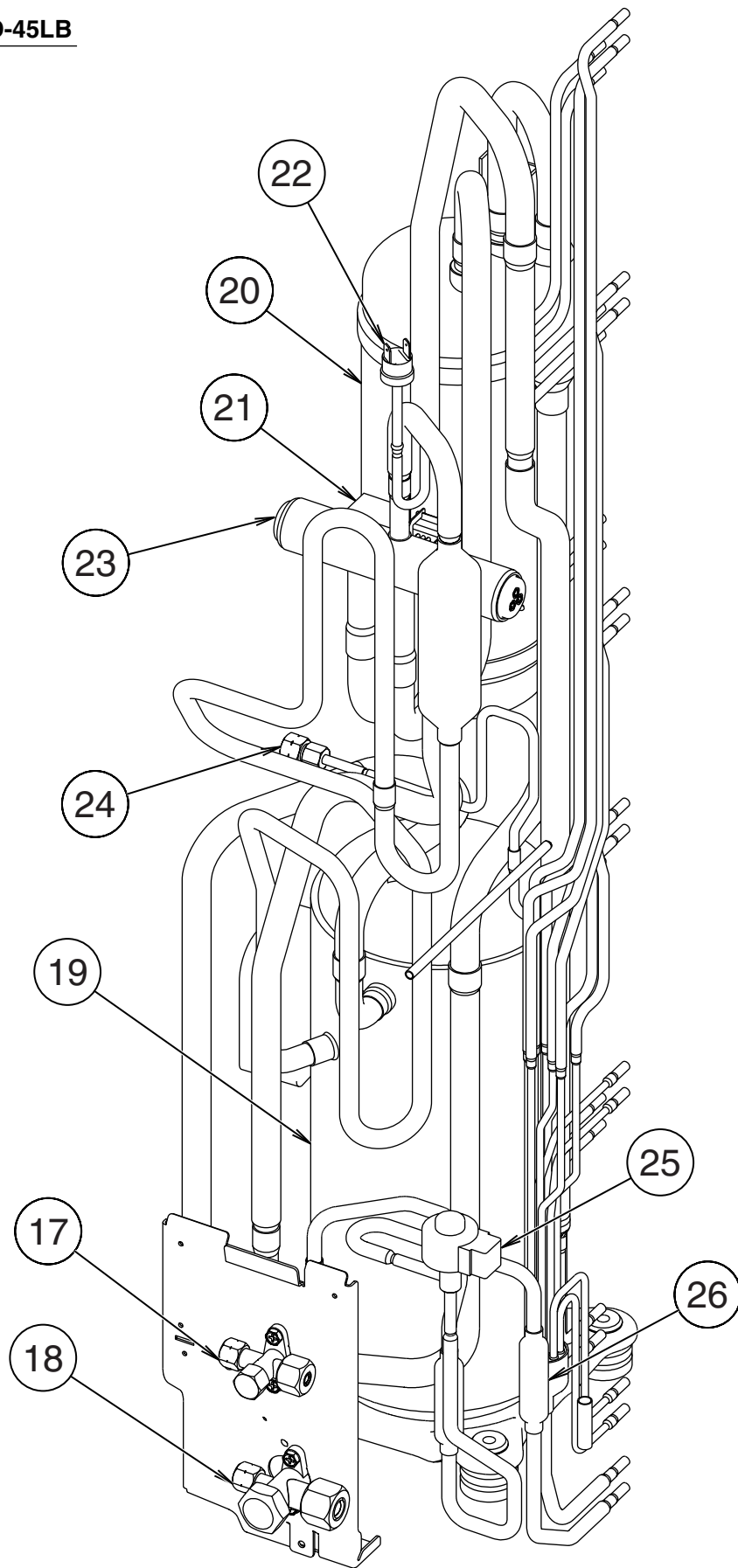


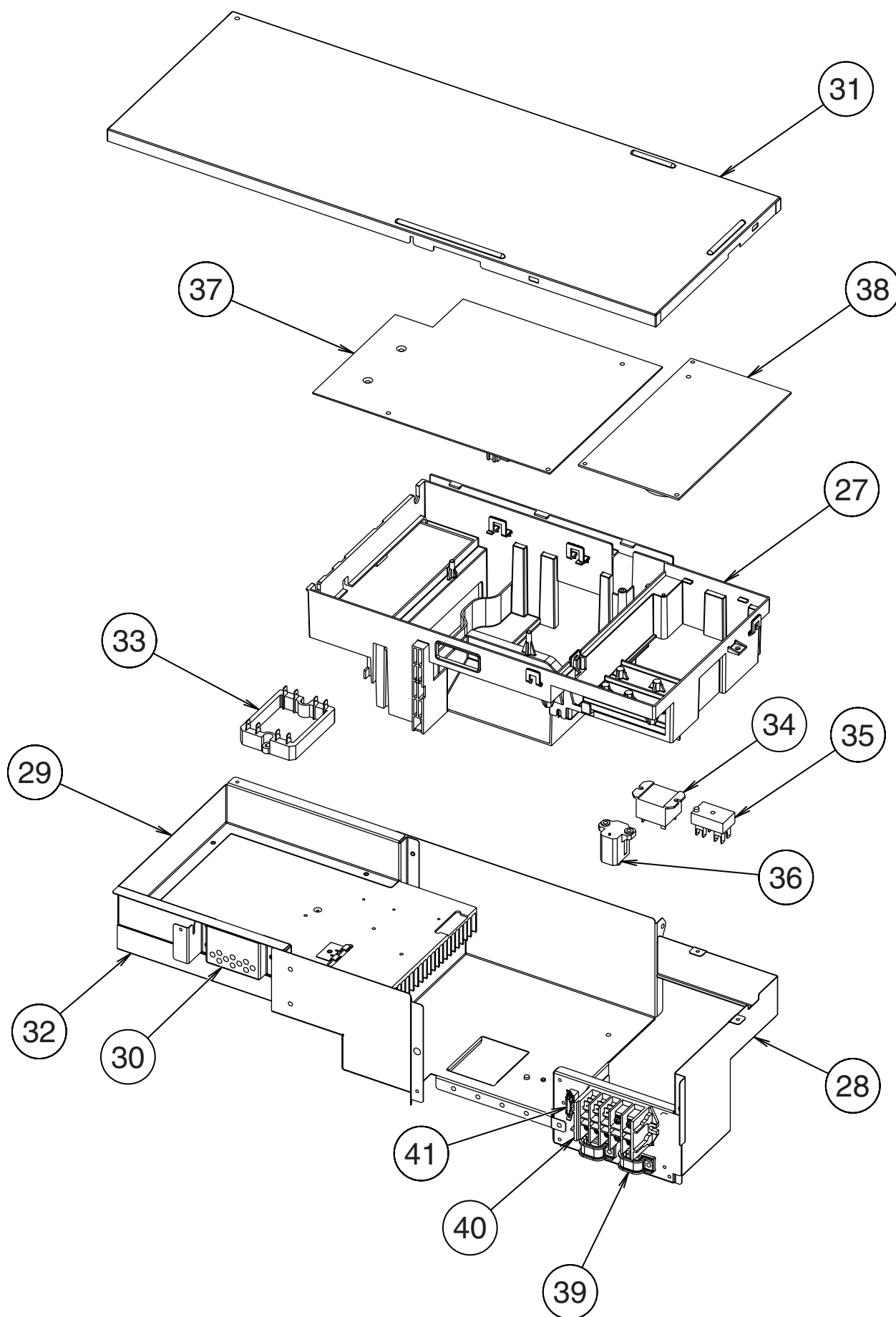
Model : RO-45LB





Model : RO-45LB





PARTS LIST

INDOOR UNIT

Ref. No.	Description	Part No.			Ord. Q'ty
		RD-30LAN	RD-36LAN	RD-45LAN	
20	Control Cover-A Sub Assy	9374516018	9374516018	9374516018	
41	Bracket Motor Assy	9374230013	9374230013	9374230013	
56	Sirocco Fan Assy	9356531022	9356531022	9356531022	
67	Rubber	313659068604	313659068604	313659068604	
72	Cabinet-L Sub Assy	9374509010	9374509010	9374509010	
73	Cabinet-R Sub Assy	9374508013	9374508013	9374508013	
74	Intake Cover Sub Assy	9374512010	9374512010	9374512010	
75	Outlet Panel Sub Assy	9374510016	9374510016	9374510016	
108	Base Sub Assy	9374504015	9374504015	9374504015	
138	Separate Wall Assy	9374228010	9374228010	9374228010	
146	Evaporator Assy	9374518012	9374518012	9372585047	
150	Bracket (Eva.)-R	9374207015	9374207015	9374207015	
160	Drain Pan Sub Assy	9374513017	9374513017	9374513017	
164	Motor, Induction	9600830093	9600830093	9600830093	
236	Controller PCB Assy	9705246133	9705246140	9705246157	
		(K03BZ-0501HSE-C1)	(K03BZ-0502HSE-C1)	(K03BZ-0503HSE-C1)	
287	Cap (Power)	9352173011	9352173011	9352173011	
288	One Touch Bush	9374407019	9374407019	9374407019	
324	Main Panel Sub Assy	9374511013	9374511013	9374511013	
325	Intake Frame Assy	9374216017	9374216017	9374216017	
553	Transformer (Power)	9704129017	9704129017	9704129017	
764	Drain Cap	9356541007	9356541007	9356541007	
816	Terminal-3P	9703345012	9703345012	9703345012	
817	Terminal-3P	9306489045	9306489045	9306489045	
875	Power Supply PCB Assy	9705668065	9705668065	9705668065	
----	Thermistor Spring-A	313728262708	313728262708	313728262708	
----	Room Temperature Thermistor	9703299025	9703299025	9703299025	
----	Pipe Temperature Thermistor	9703297021	9703297021	9703297021	
----	Remote Control Unit Assy	9372266014	9372266014	9372266014	
----	Motor Band-A Assy	9374647019	9374647019	9374647019	
----	Wire w/Connector	9704856012	9704856012	9704856012	
----	Wire w/Connector	9705245020	9705245020	9705245020	
----	Wire w/Connector	9705243026	9705243026	9705243026	
----	Wire w/Connector	9705244023	9705244023	9705244023	

OUTDOOR UNIT

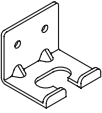
Ref. No.	Description	Part No.		Ord. Q'ty
		RO-30LB	RO-36LA	
1	Top Panel Sub Assy	9374417025	9374417025	
2	Front Panel	9374094066	9374094066	
3	Fan Guard	9374330010	9374330010	
4	Grip Side	9374173013	9374173013	
5	Service Panel Sub Assy	9374415038	9374415038	
6	Right Panel Sub Assy	9374416066	9374416066	
8	Propeller Fan Assy	9366378020	9366378020	
9	Motor, Induction	9601882015	9601882015	
10	Condenser-A Assy	9374433056	9374433056	
11	Coil Choke	9703458019	9703458019	
12	Strainer Assy	9372524015	9372524015	
13	Separate Wall Assy	9374629022	9374629022	
14	Cap Foot	9374345014	9374345014	
15	Base Assy	9374166084	9374166084	
17	3-Way Valve Assy (3/8)	9372205044	9372205044	
18	3-Way Valve Assy (5/8)	9372205075	9372205075	
19	Check Joint Assy	9372802038	9372802038	
20	Compressor Assy	9373711018	9373711018	
22	4-Way Valve	9900164010	9900164010	
23	Solenoid	9900165055	9900165055	
24	Pressure Switch	9900186012	9900186012	
25	Inlet Pipe Cond A Assy	9373461067	9373461067	
26	Inlet Pipe Cond B Assy	9373463054	9373463054	
27	Outlet Pipe Cond A Assy	9374266050	9374266050	
28	Expansion Valve Assy	9370947113	9370947113	
29	Coil (Expansion Valve)	9900057039	9900057039	
30	Distributor	9369128004	9369128004	
31	Discharge Pipe A Assy	9372264126	9372264126	
33	Terminal 2P	9701971015	9701971015	
34	Terminal 5P	9900203023	9900203023	
35	ACTPM	9703457012	9703457012	
36	Holder Thermo	9372797013	9372797013	
37	Inverter PCB Assy	9705642034	9705642041	
38	Power PCB Assy	9705647022	9705647022	
----	Fuse 25A-250V	0600086039	0600086039	
----	Fuse 3.15A-250V	0600222512	0600222512	
----	Fuse 5A-250V	0600222529	0600222529	
----	Thermistor (Outdoor Temp.)	9703516078	9703516078	
----	Heat Exchanger Thermistor	9704220042	9704220042	
----	Thermistor (Discharge)	9704219114	9704219114	
----	Compressor Thermistor	9900156022	9900156022	
----	Thermistor	9704265012	9704265012	
----	Heatsink Thermistor	9900311018	9900311018	
----	Transformer	9702334024	9702334024	
----	Varistor	0000361224	0000361224	
----	Arrester	0600280147	0600280147	
----	Relay	9900117016	9900117016	
----	Relay	9900007010	9900007010	
----	Switch Push	9703476013	9703476013	
----	Switch Slide	9701392018	9701392018	
----	Drain Pipe (I-Type)	9301102000	9301102000	
----	Drain Pipe Packing	9301143003	9301143003	
----	Drain Cap	313166024302	313166024302	

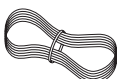
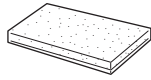
Ref. No.	Description	Parts No.	Ord. Q'ty
		RO-45LB	
1	Top Panel Sub Assy	9374417025	
2	Front Panel X	9374094028	
3	Fan Guard	9374330010	
4	Grip Side	9374173013	
5	Service Panel Sub Assy	9374415014	
6	Right Panel Sub Assy	9374416042	
7	Valve Cover	9374174010	
9	Propeller Fan Assy	9366378020	
10	Motor DC Brushless	9601882015	
11	Condenser A Assy	9374433018	
12	Condenser B Assy	9374434015	
13	Sepa Wall	9374135028	
14	Cap Foot	9374345014	
15	Base Assy	9374166060	
17	3-Way Valve Assy	9372205044	
18	3-Way Valve Assy	9372205075	
19	Compressor Assy	9374653010	
20	Accumulator Assy	9371615011	
21	Solenoid	9900165055	
22	Pressure Switch	9900186012	
23	4-Way Valve	9970035012	
24	Check Valve Assy	9374274017	
25	Coil (Expansion Valve)	9900190033	
26	Strainer Assy	9372524015	
27	Inverter Box A	9374603015	
28	Inverter Box B	9374625017	
29	Inverter Box C	9374605019	
30	Inverter Box Duct	9374609017	
31	Inverter Box Cover	9374608010	
32	Heat Sink A	9374607013	
33	Act-Module	9704258014	
34	Relay	9900262013	
35	Terminal	9701971015	
36	Posistor	9704265012	
37	Inverter PCB Assy	9705642065	
38	Power PCB Assy	9705647015	
39	Clamp (Cord)	9356857009	
40	Terminal	9900184025	
41	Fuse	0600376116	
---	Expansion Valve	9900170028	
---	Thermistor (Dischage)	9704219084	
---	Thermistor (Heat Exchange)	9704220066	
---	Thermistor (Out Temp)	9703516078	
---	Holder Thermo	9372797013	
---	Fuse 3.15A-250V	0600222512	
---	Fuse 5A-250V	0600222529	
---	Heatsink Thermistor	9900311018	
---	Varistor	0000361224	
---	Arrester	0600280147	
---	Relay	9900007010	
---	Switch Slide	9701392018	
---	Drain Pipe (I-Type)	9301102000	
---	Drain Pipe Packing	9301143003	

STANDARD PARTS

The following installation parts are furnished. Use them as required.

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application
Hanger 	4	For suspending the indoor unit from ceiling
Special nut A (large flange) 	4	For suspending the indoor unit from ceiling
Special nut B (small flange) 	4	
Coupler heat insulation (large) 	1	For indoor side pipe joint (large pipe)
Coupler heat insulation (small) 	1	For indoor side pipe joint (small pipe)

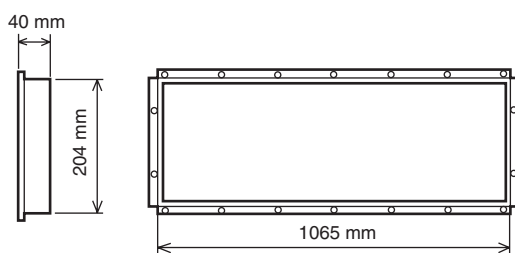
Name and Shape	Q'ty	Application
Binder 	1 (large)	For fixing the drain hose
	1 (small)	For fixing the remote controller cord
Remote controller 	1	
Tapping screw (flush heads) 	2	For installing the remote controller
Remote controller cord 	1	For connecting the remote controller
Drain hose insulation 	1	Insulates the drain hose and vinyl hose

OPTIONAL PARTS

When connecting the square duct and round duct, use the optional square flange or round flange and flexible duct.

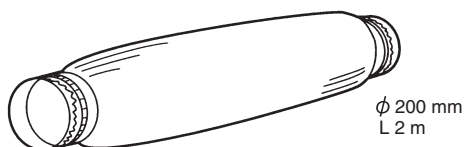
Square flange

Model name : UTD-SF045T (P/N 9098180007)



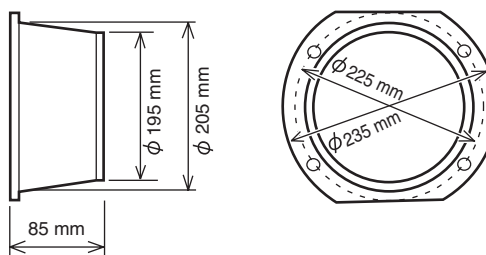
Flexible duct

Model name : UTD-RD202 (P/N 9074165004)



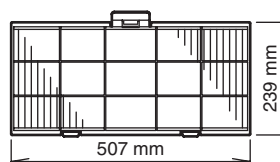
Round flange

Model name : UTD-RF204 (P/N 9093160004)



Long-life filter

Model name : UTD-LF25NA (P/N9079892004)



Simple remote controller

Model name : UTB-YPB (P/N9077582006)

Remote sensor

Model name : UTD-RS100 (P/N9072619004)

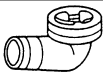
⚠ WARNING

- ① For the air conditioner to operate satisfactorily, install it as outlined in this installation instruction sheet.
- ② Connect the indoor unit and outdoor unit with the room air conditioner piping and cords available standards parts. This installation instruction sheet describes the correct connections using the installation set available from our standard parts.
- ③ Installation work must be performed in accordance with national wiring standards by authorized personnel only.
- ④ Also, do not use an extension cord.
- ⑤ Do not turn on the power until all installation work is complete.
- ⑥ Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation.
- ⑦ There is not extra refrigerant in the outdoor unit for air purging.
- ⑧ Use a vacuum pump for R410A exclusively.
- ⑨ Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.
- ⑩ Use a clean gauge manifold and charging hose for R410A exclusively.
- ⑪ If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

- Be careful not to scratch the air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
- Let the customer keep this installation instruction sheet because it is used when the air conditioner is serviced or moved.

STANDARD PARTS

The following installation parts are furnished.
Use them as required.

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 	2	
Insulation (seal) 	1	For filling in a gap at the entrance of connection cords

CONNECTION PIPE REQUIREMENT

⚠ CAUTION

The maximum lengths of this product are shown in the following table. If the units are further apart than this, correct operation can not be guaranteed.

Model Type	Diameter		Pipe length		Maximum height (between indoor and outdoor)
	Liquid	Gas	MAX.	MIN.	
30,000 BTU/h class	9.52 mm (3/8 in.)	15.88 mm (5/8 in.)	50 m	5 m	30 m
36,000 BTU/h class			70 m		
45,000 BTU/h class					
54,000 BTU/h class					

- Use pipe with water-resistant heat insulation.

⚠ CAUTION

Install heat insulation around both the gas and liquid pipes. Failure to do so may cause water leaks.
Use heat insulation with heat resistance above 120 !C. (Reverse cycle model only)
In addition, if the humidity level at the installation location of the refrigerant piping is expected to exceed 70%, install heat insulation around the refrigerant piping. If the expected humidity level is 70-80%, use heat insulation that is 15 mm or thicker and if the expected humidity exceeds 80%, use heat insulation that is 20 mm or thicker.
If heat insulation is used that is not as thick as specified, condensation may form on the surface of the insulation.
In addition, use heat insulation with heat conductivity of 0.045 W/(mK) or less (at 20 !C).

