



SPLIT TYPE ROOM AIR CONDITIONER CEILING type (50Hz)

SERVICE MANUAL



Models

Indoor unit

RY-45LA

Outdoor unit

RO-45LB

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SPECIFICATIONS

TYPE	COOLING & HEATING
INDOOR UNIT	RY-45LA
OUTDOOR UNIT	RO-45LB
COOLING CAPACITY (kW)	12.5
HEATING CAPACITY (kW)	14.0

ELECTRICAL DATA

POWER SOURCE	(V)	230
	(ϕ /Hz)	1 / 50
RUNNING CURRENT (A)	COOLING	19.5
	HEATING	18.5
INPUT WATTS (kW)	COOLING	4.45
	HEATING	4.25
E.E.R. (kW/kW)	COOLING	2.81
	HEATING	3.29
STARTING CURRENT (A)		15
MOISTURE REMOVAL (ℓ /hr)		4.0

COMPRESSOR

TYPE	Hermetic type, 6 poles, Induction motor, Scroll
DISCRIMINATION	ANB33FCMMT
REFRIGERANT R410A	3,400 g

FAN MOTOR

FAN SPEED (r.p.m.)	INDOOER	HIGH	1,200
		MED	1,100
		LOW	950
	OUTDOOR	Up Fan 850 / Down Fan750	
AIR FLOW	INDOOER	(m ³ /h)	2,000
	OURDOOR		6,600

DIMENSIONS

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

WEIGHT

INDOOR UNIT	GROSS / NET (kg)	61 / 48
OUTDOOR UNIT	GROSS / NET (kg)	112 / 105

MAX PIPE LENGTH	70 m
MAX PIPE HEIGHT	30 m
REMOTE CONTROLLER TYPE	WIRELESS

ADDITIONAL REFRIGERANT CHARGE (R410A)

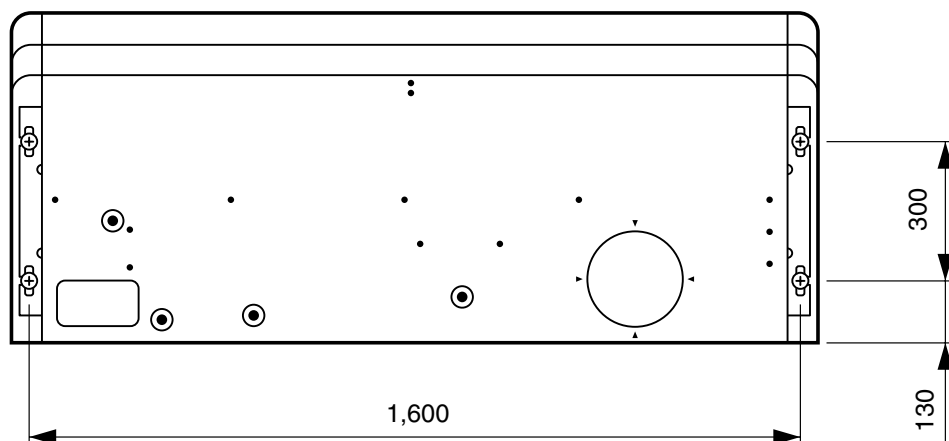
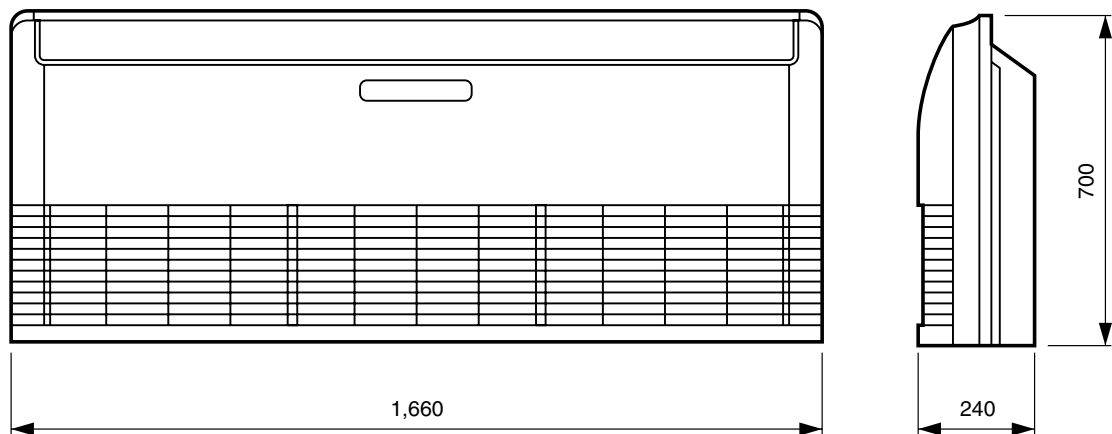
FULL CHARGE AMOUNT	PIPE LENGTH	20 m (66 ft)	3,400 g (119.9 oz)
		30 m (99 ft)	3,800 g (134.0 oz)
		40 m (132 ft)	4,200 g (148.2 oz)
		50 m (164 ft)	4,600 g (162.3 oz)
		60 m (197 ft)	5,000 g (176.4 oz)
		70 m (230 ft)	5,400 g (190.5 oz)
ADDITIONAL CHARGE			40 g / m (0.427 oz / ft.)

DIMENSIONS

INDOOR UNIT

Model : RY-45LA

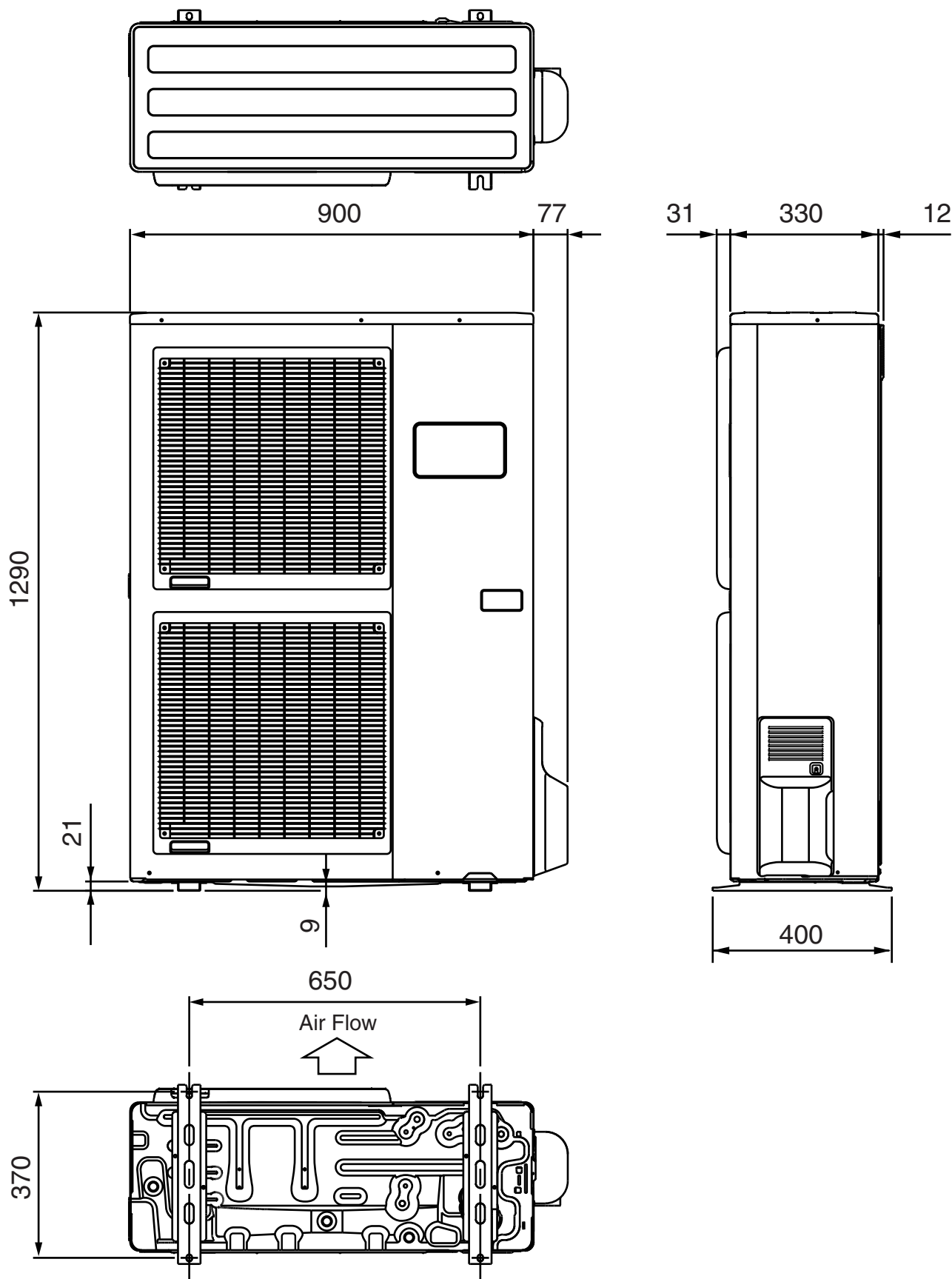
(Unit : mm)



OUTDOOR UNIT

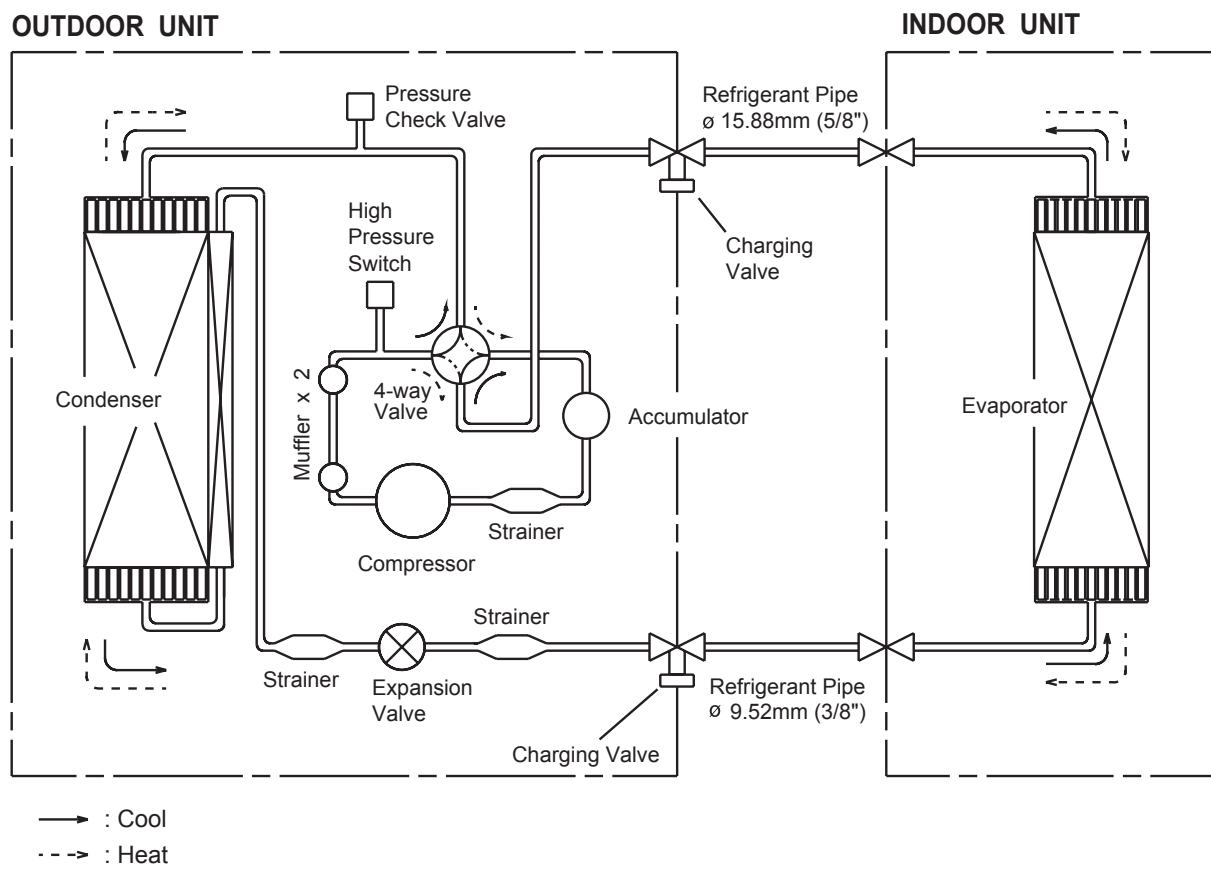
Model : RO-45LB

(Unit : mm)



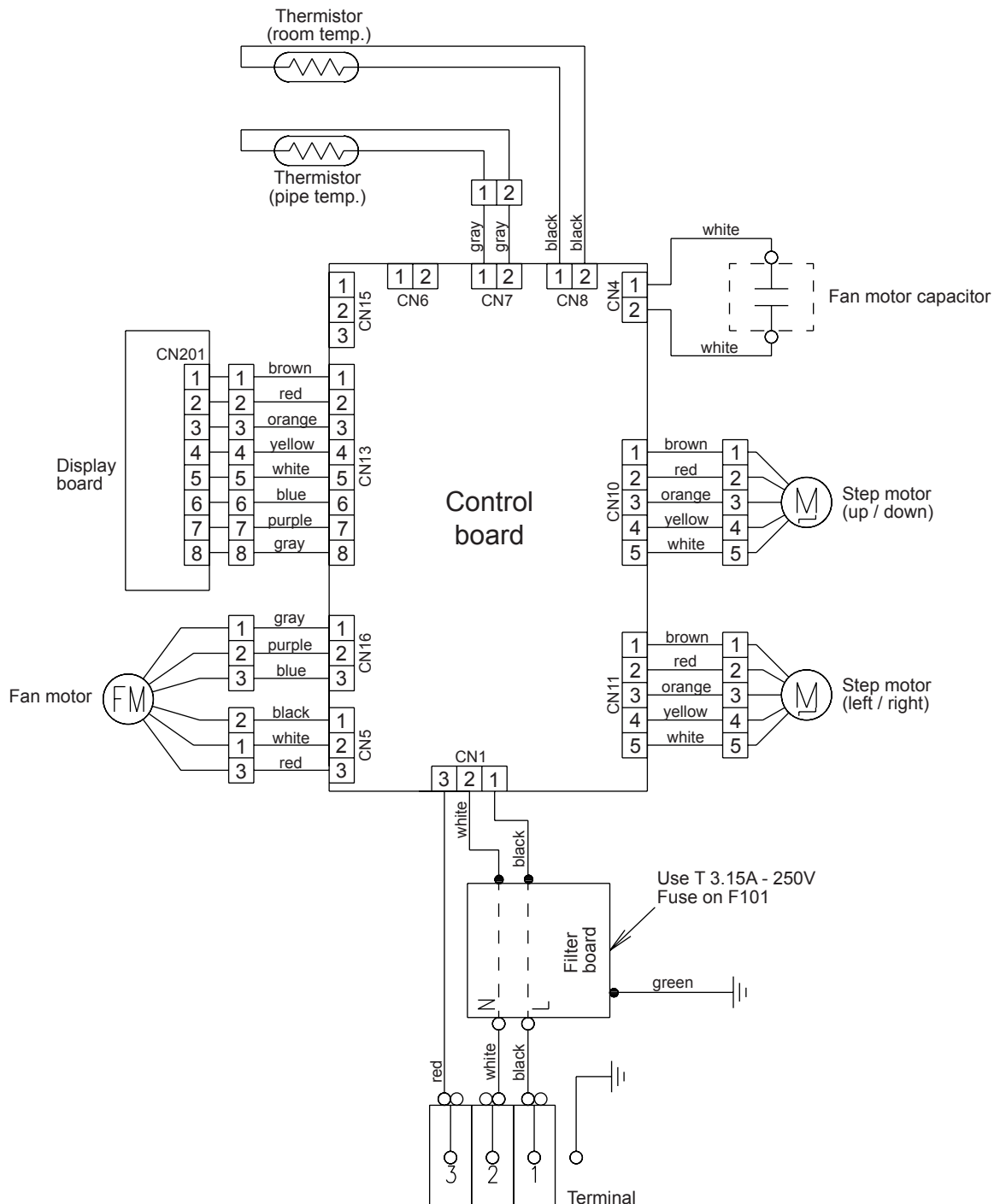
REFRIGERANT SYSTEM DIAGRAM

Model : RY-45LA / RO-45LB

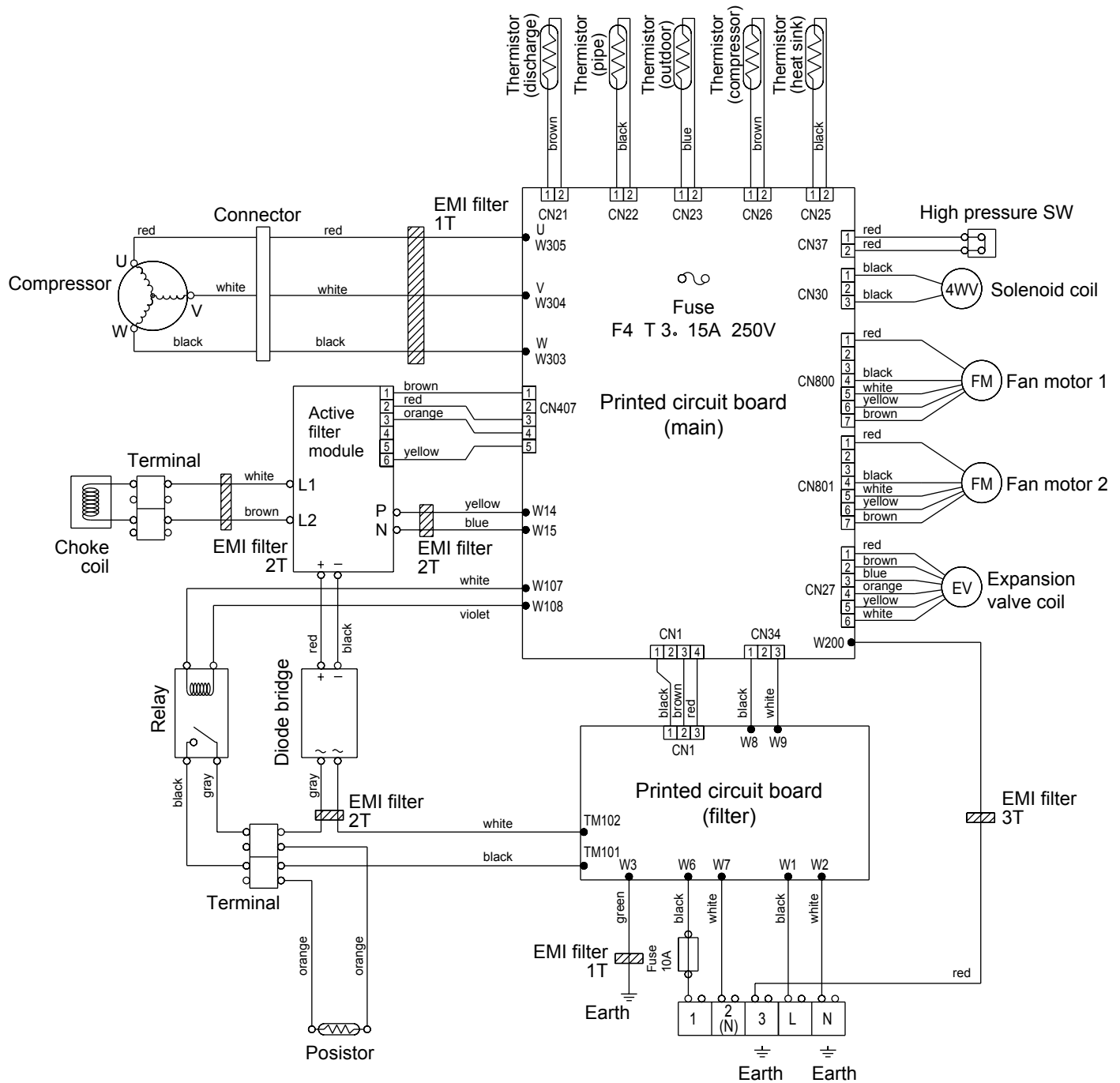


CIRCUIT DIAGRAM

Model : RY-45LA



Model : RO-45LB

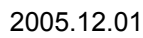


Model : RY-45LA

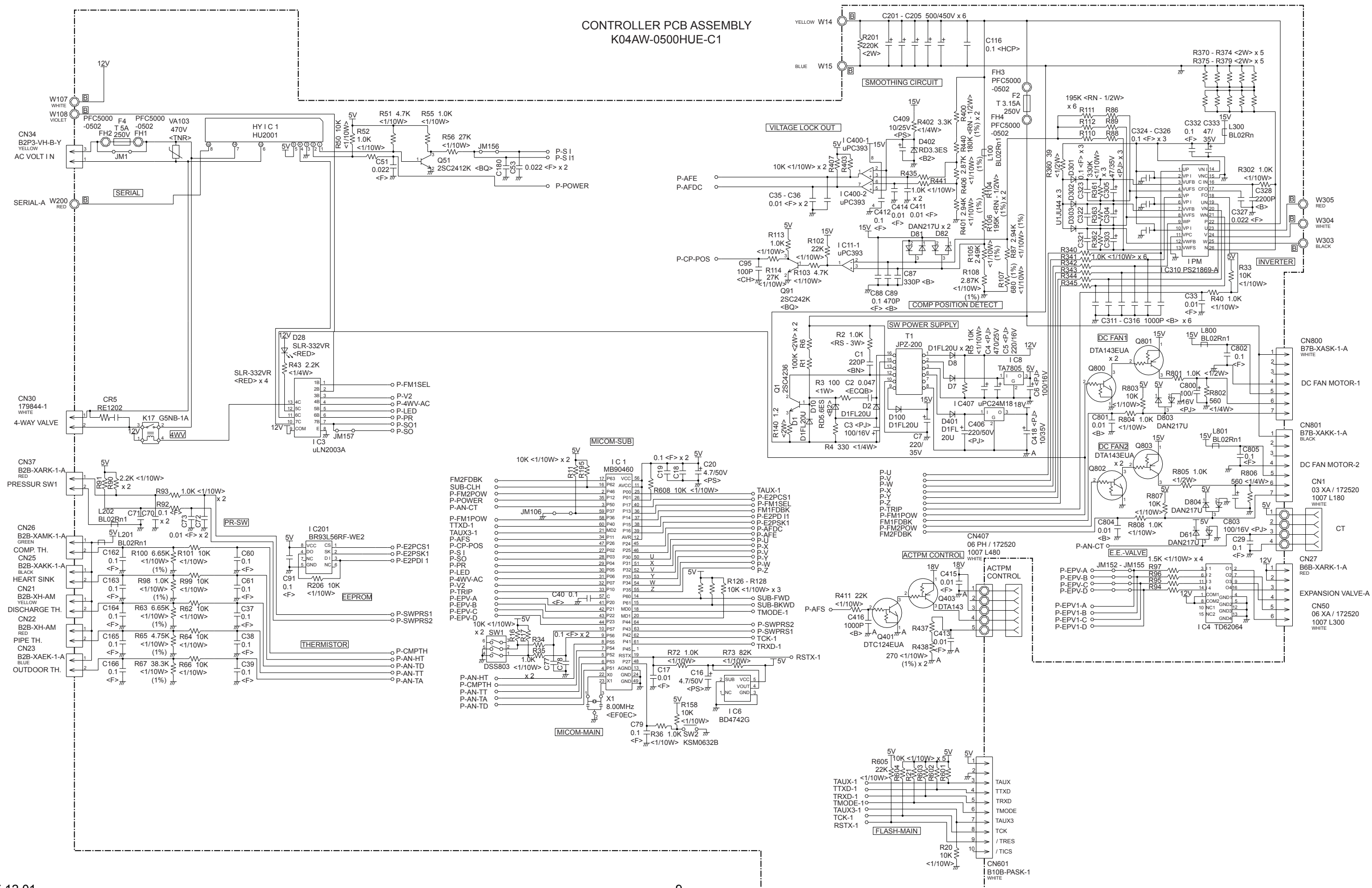
K01AL-050HHSE-C1



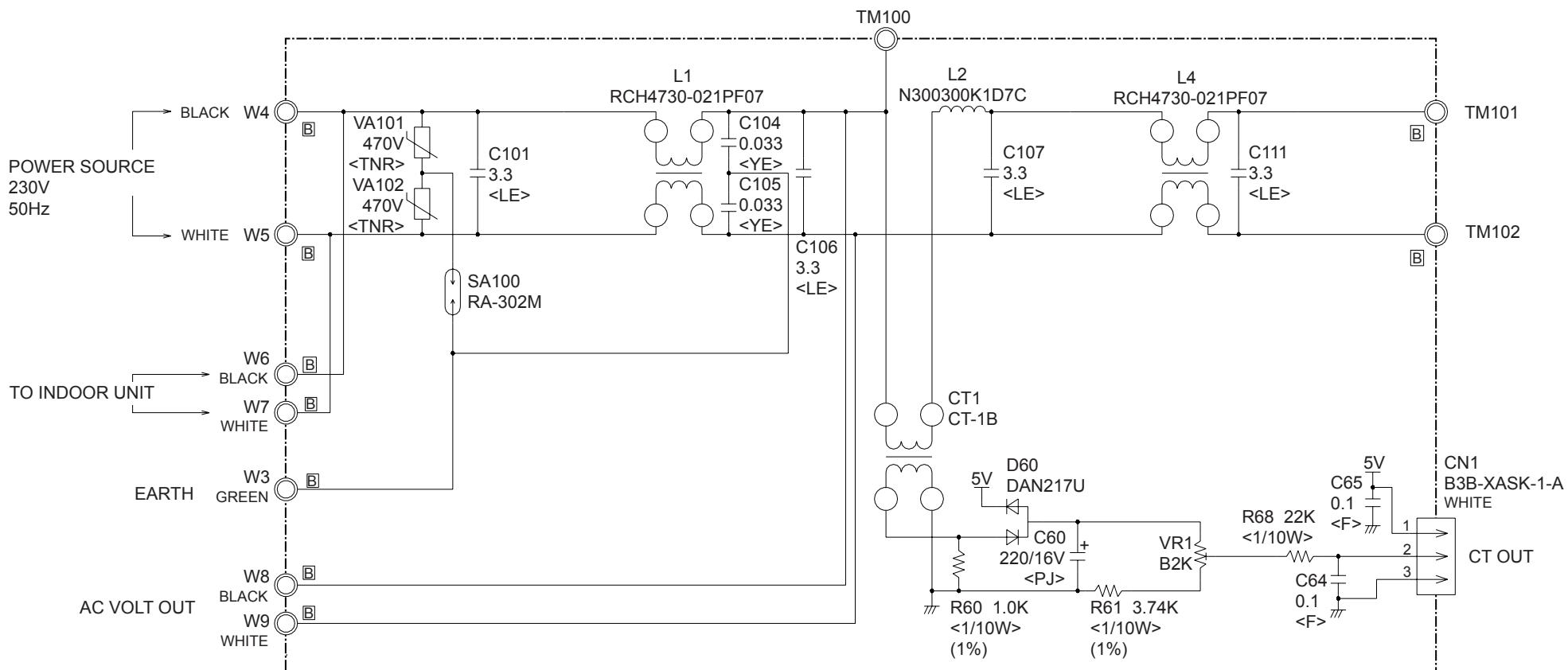
Model : RO-45LB



Model : RO-45LB

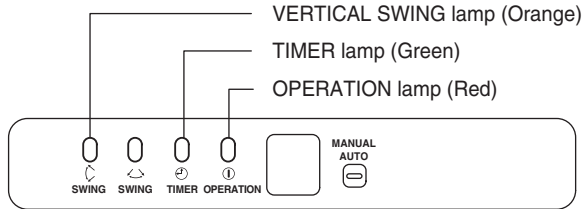


POWER SUPPLY PCB ASSEMBLY
K04BA-0400HUE-P0



ERROR CONTENTS (Indoor unit)

Operation can be checked by lighting and flashing of the display section OPERATION, TIMER, and VERTICAL SWING lamps. Perform judgment in accordance with the following.



TEST RUNNING

When the air conditioner is run by pressing the remote control unit test run button, the OPERATION, TIMER, and VERTICAL SWING lamps flash slowly at the same time.

ERROR

The OPERATION, TIMER, and VERTICAL SWING lamps operate as follows according to the error contents.

OPERATION lamp (RED)	TIMER lamp (GREEN)	SWING lamp (ORANGE)	Error contents
○	○	×	Indoor EEPROM abnormal
○	○	○	Outdoor EEPROM abnormal
(2 times) ●	○	×	Indoor room temperature sensor open
(2 times) ●	○	○	Indoor room temperature sensor short-circuited
(3 times) ●	○	×	Indoor heat exchanger temperature sensor open
(3 times) ●	○	○	Indoor heat exchanger temperature sensor short-circuited
(4 times) ●	○	×	Float switch operated
(5 times) ●	○	×	Indoor signal abnormal
(5 times) ●	○	○	Outdoor signal abnormal
(6 times) ●	○	×	Indoor fan abnormal
○	(2 times) ●	×	Outdoor power source connection abnormal
○	(3 times) ●	×	Outdoor heat exchanger temperature sensor open
○	(3 times) ●	○	Outdoor heat exchanger temperature sensor short-circuited
○	(4 times) ●	×	Outdoor temperature sensor open
○	(4 times) ●	○	Outdoor temperature sensor short-circuited
○	(5 times) ●	×	Outdoor discharge pipe temperature sensor or compressor temperature sensor open
○	(5 times) ●	○	Outdoor discharge pipe temperature sensor or compressor temperature sensor short-circuited
○	(6 times) ●	×	Outdoor high pressure abnormal
○	(7 times) ●	×	Outdoor discharge pipe temperature or compressor temperature sensor abnormal

○ : 0.1s ON/0.1s OFF (flash) × : OFF
● : 0.5s ON/0.5s OFF (flash)

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.

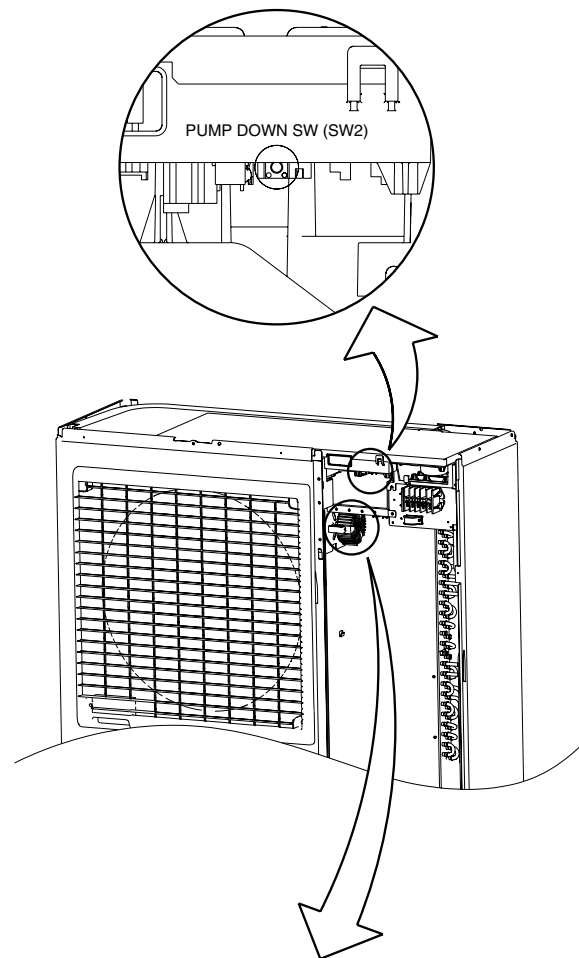
LED	Error contents
1 flash	Communication error (Indoor unit - Outdoor unit)
2 flash	Discharg pipe temperature sensor
3 flash	Outdoor heat exchanger temperature sensor
4 flash	Outdoor temperature sensor
7 flash	Compressor temperature sensor
8 flash	Heat sink temperature sensor
9 flash	Pressure switch 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.

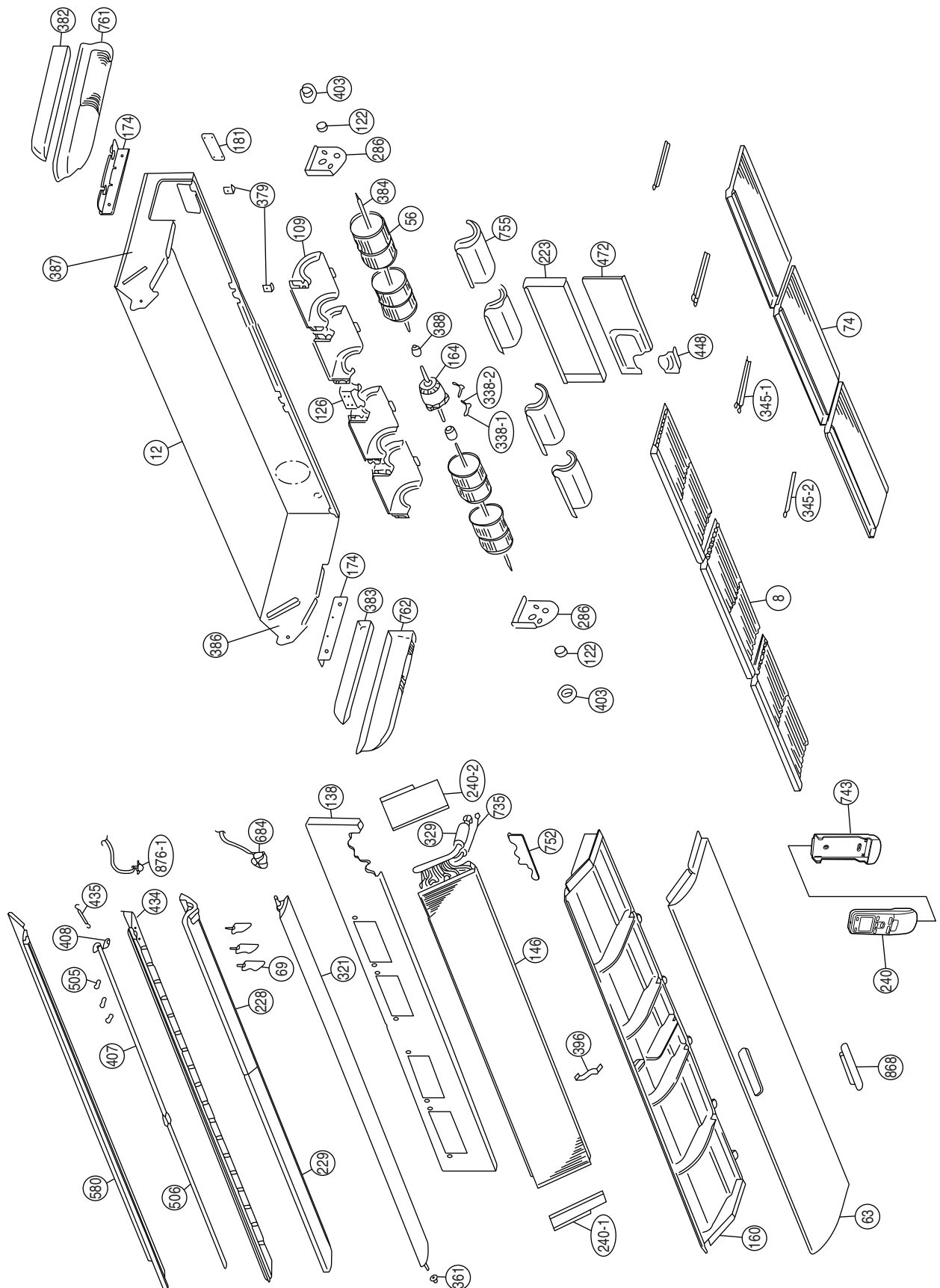


⚠ DANGER

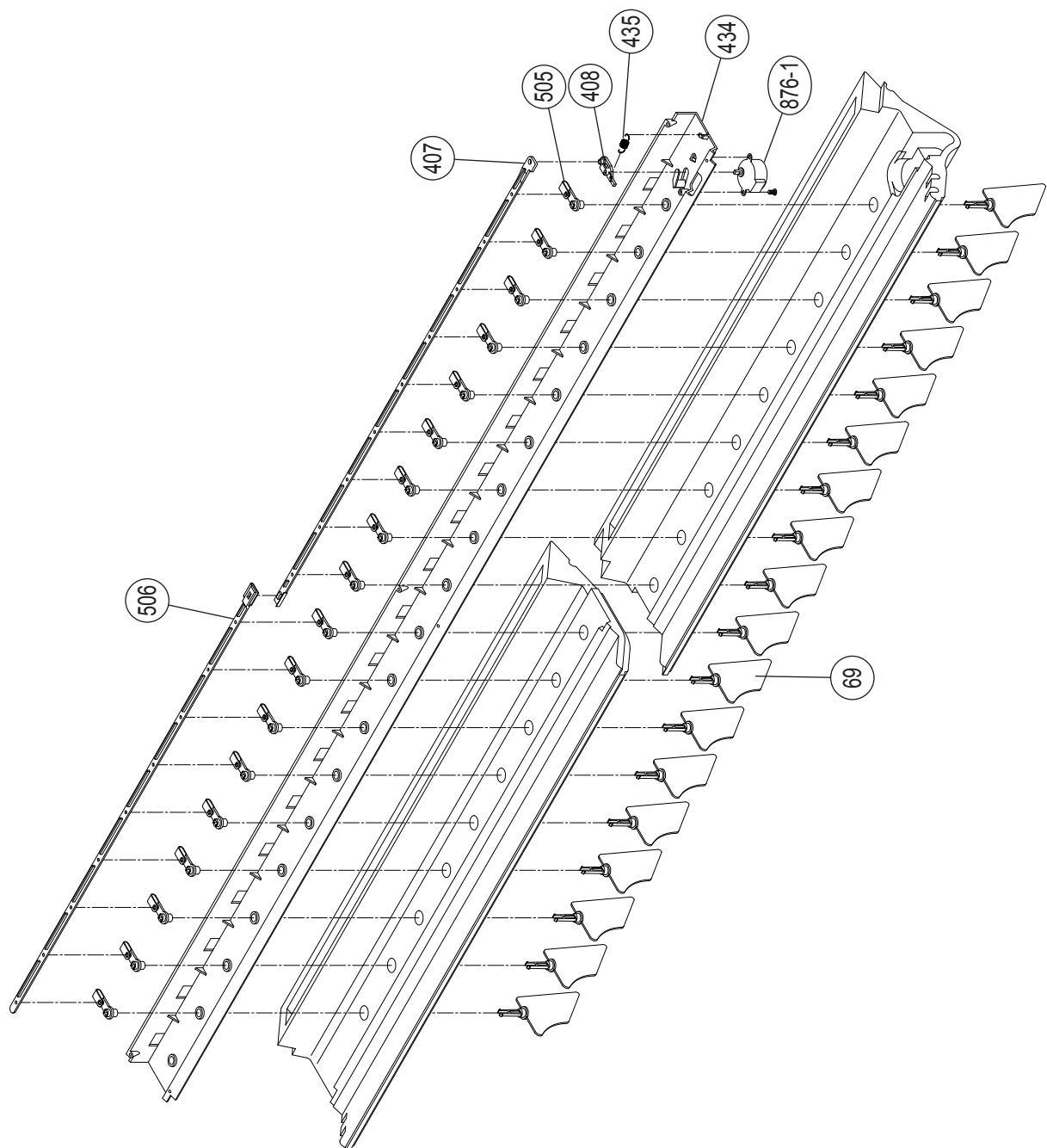
This part (Choke coil) generates high voltages.
Never touch this part.

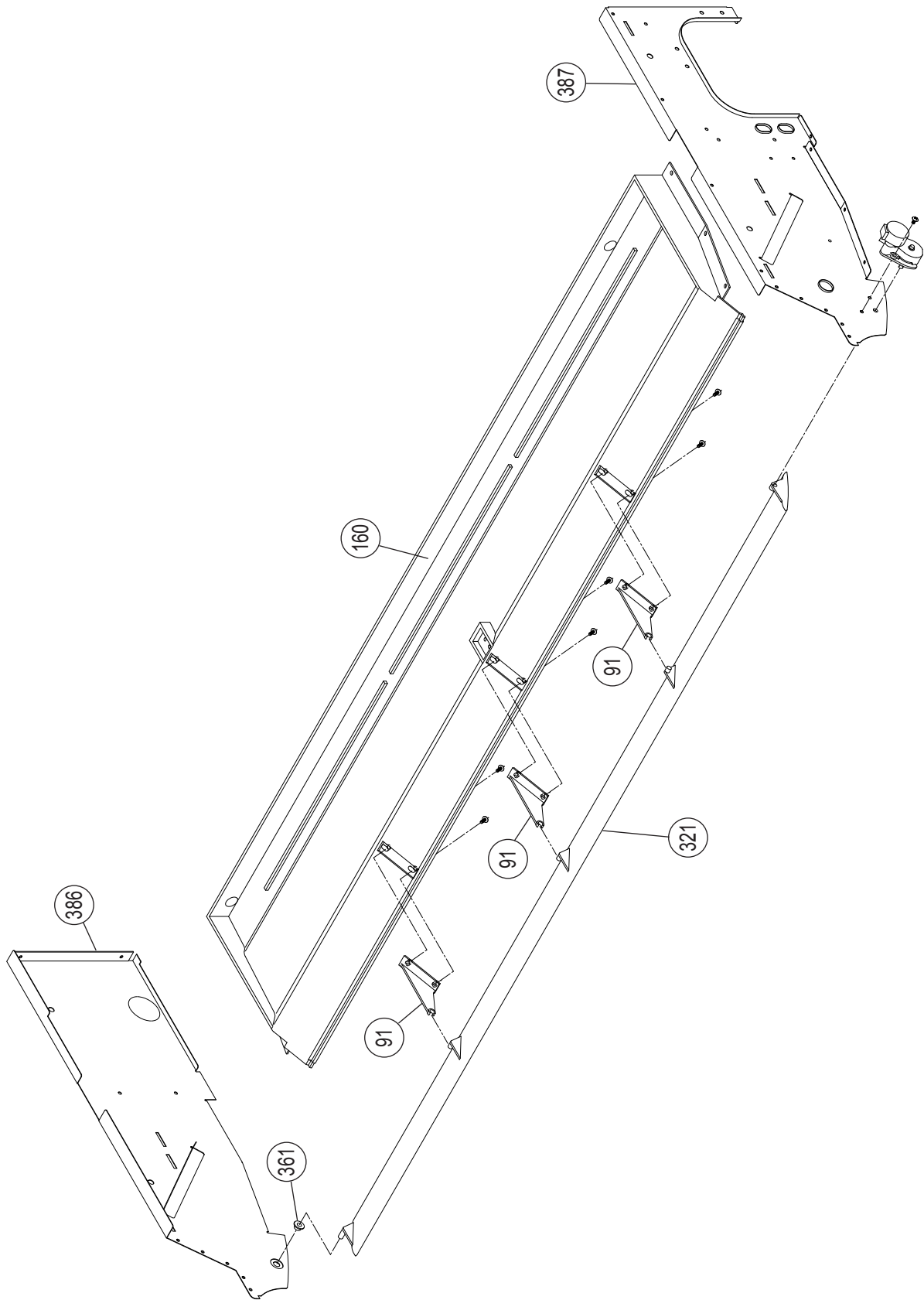
DISASSEMBLY ILLUSTRATION

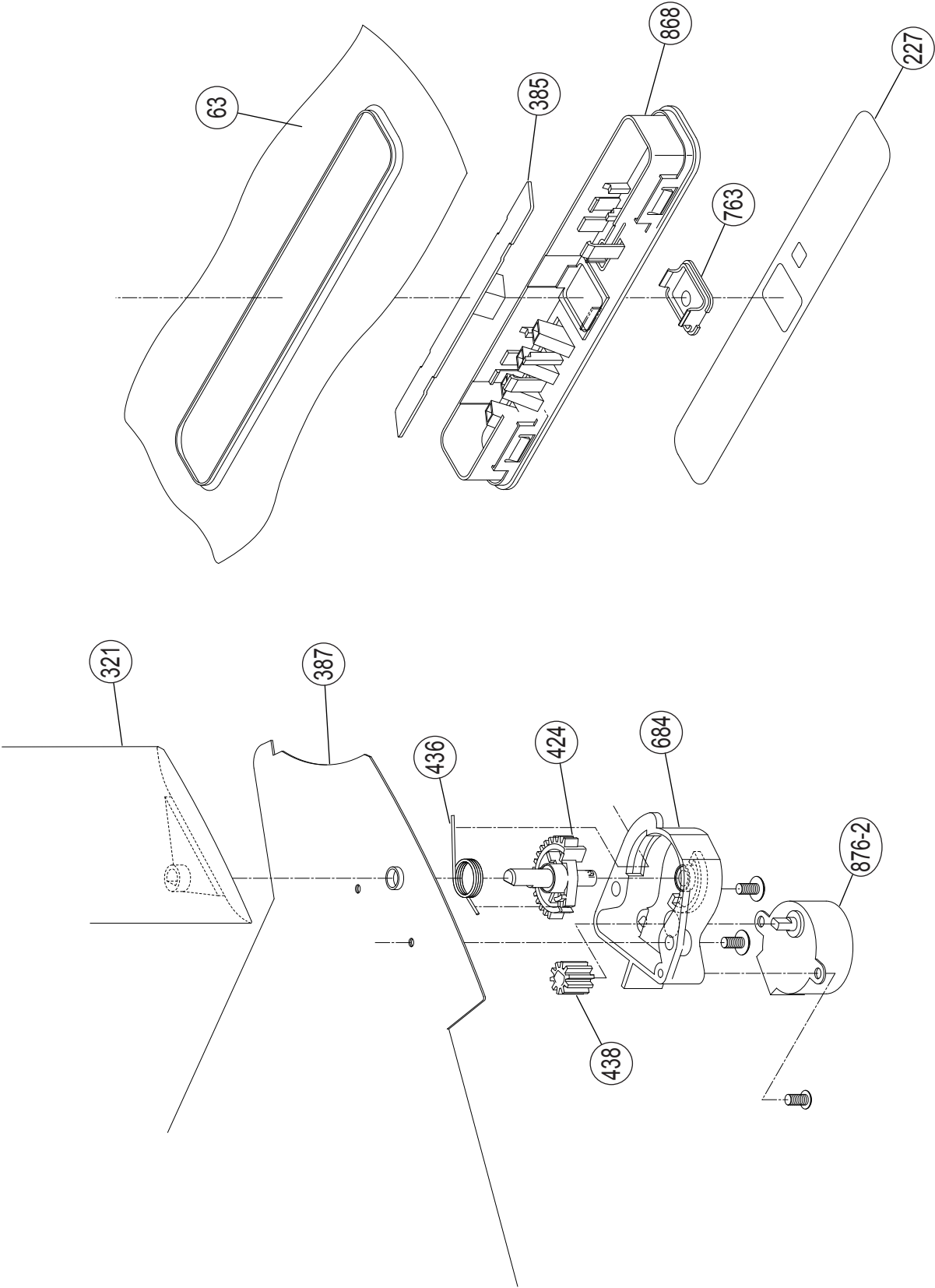
Model : RY-45LA



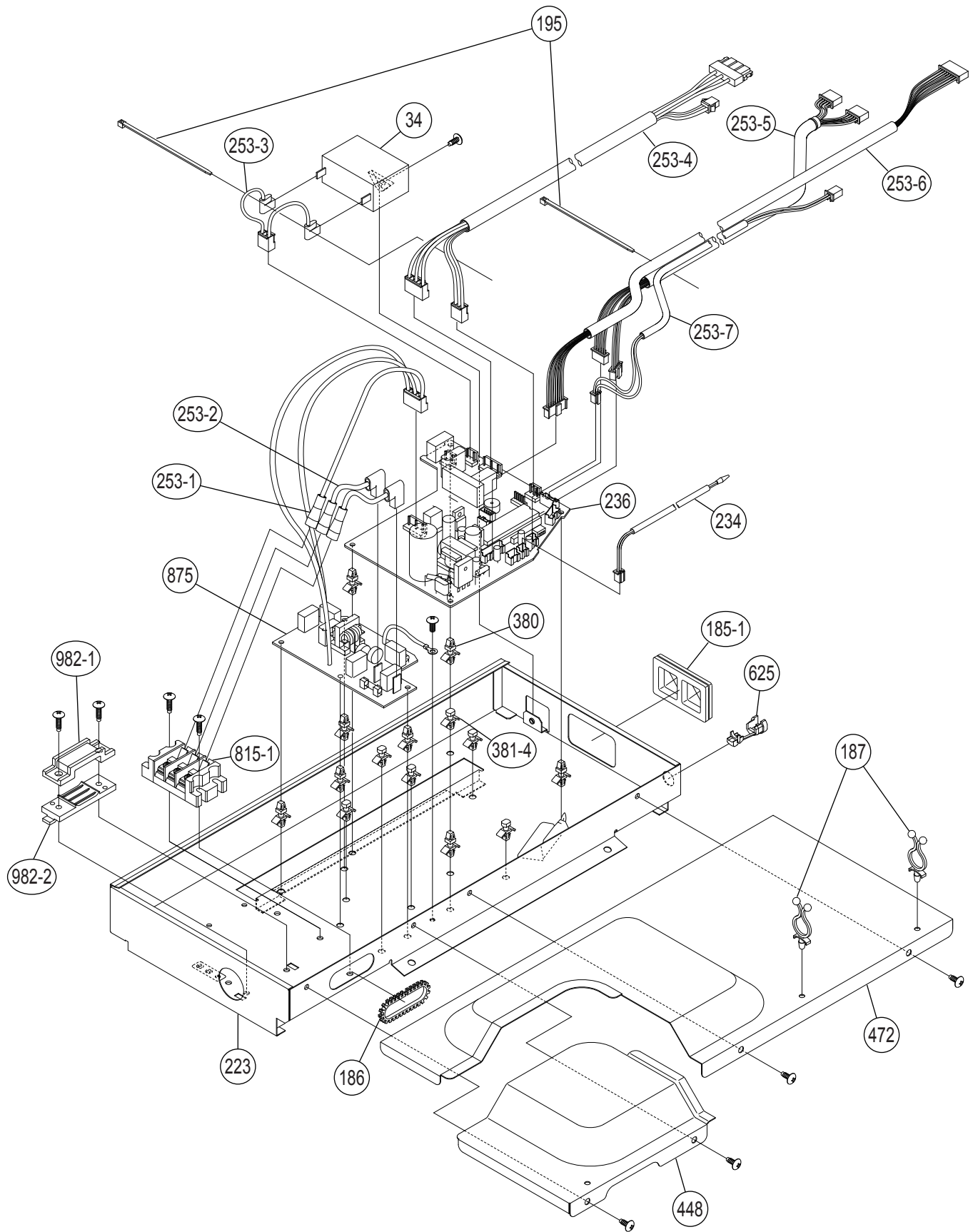
Model : RY-45LA



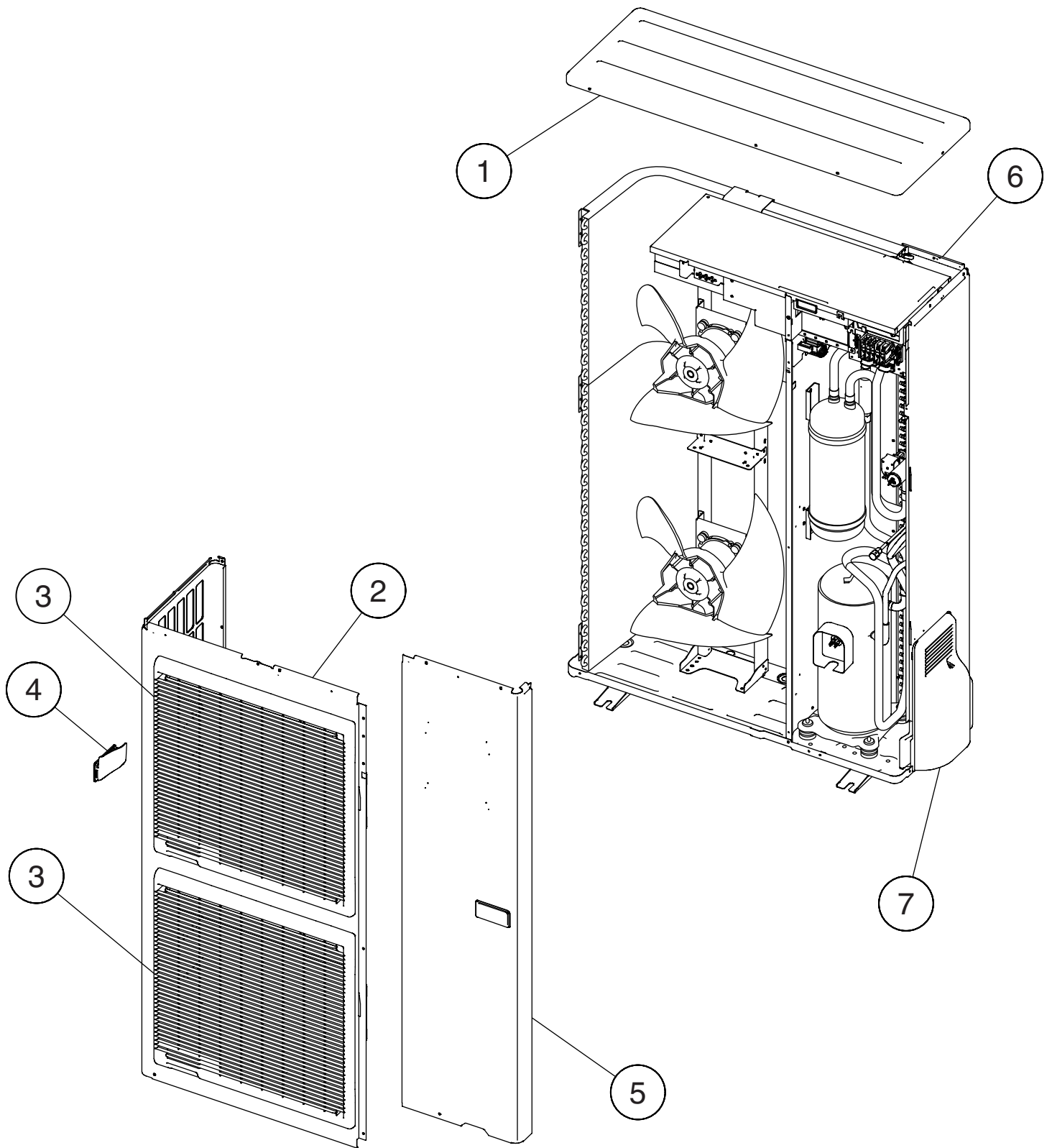




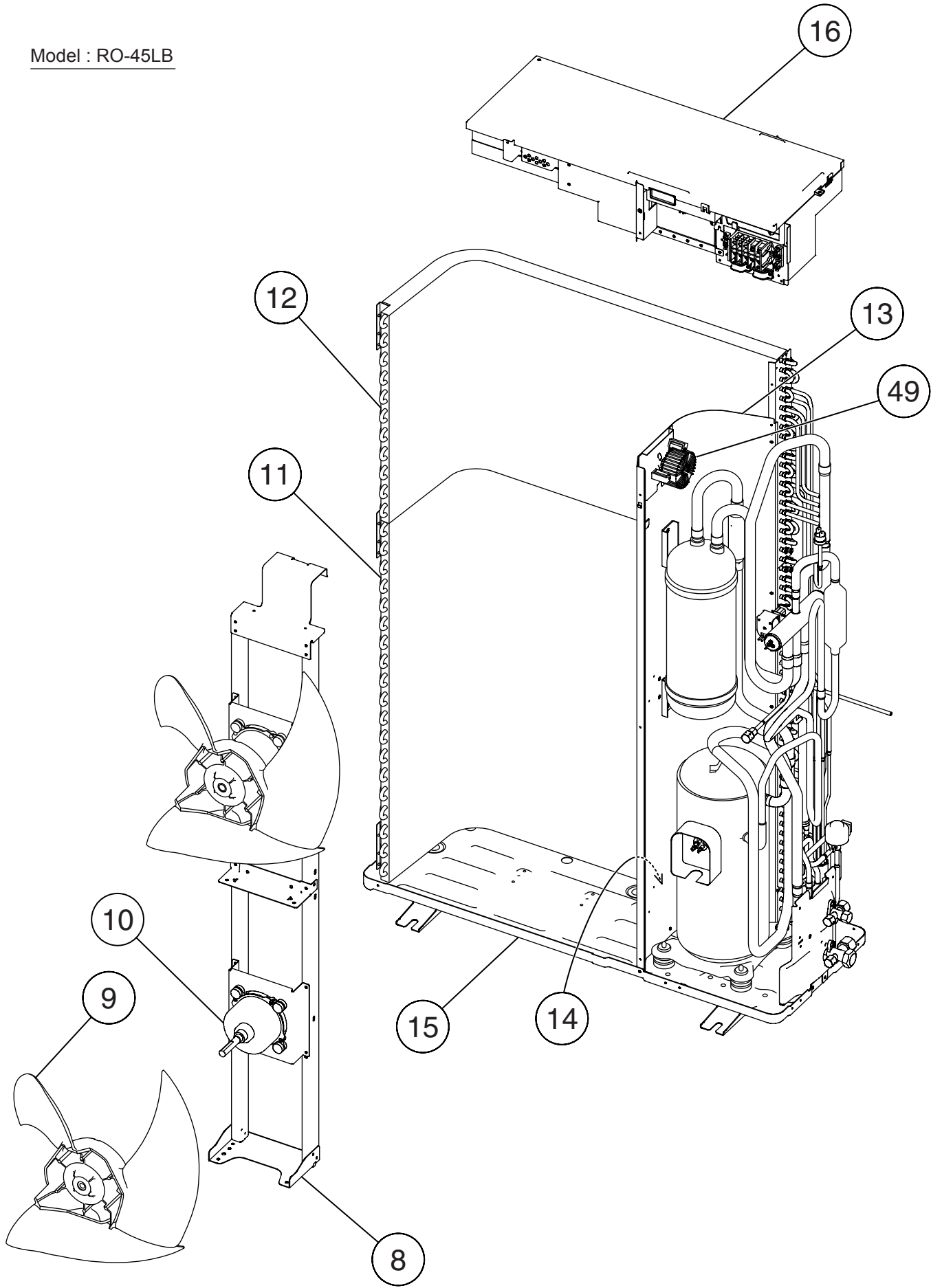
Model : RY-45LA



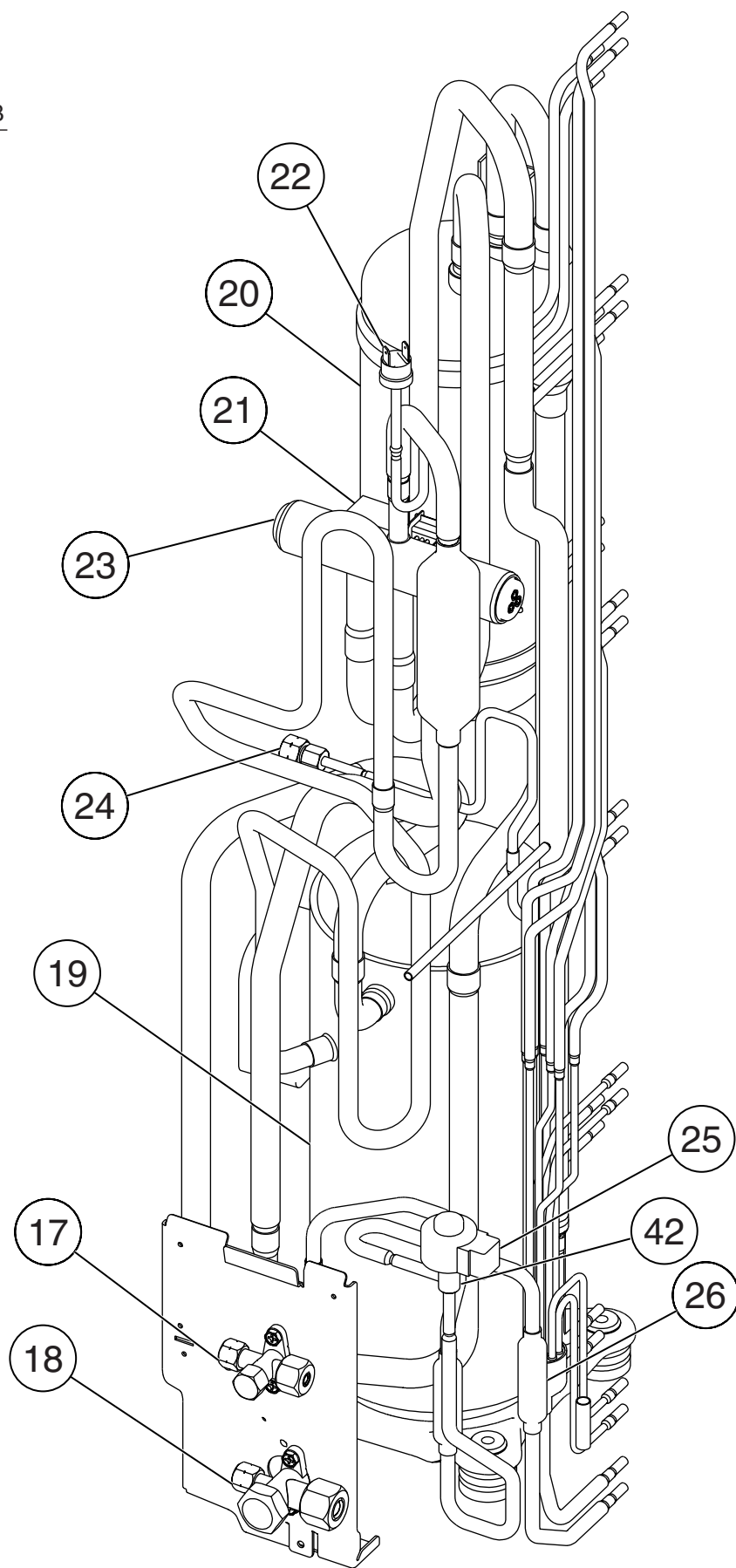
Model : RO-45LB

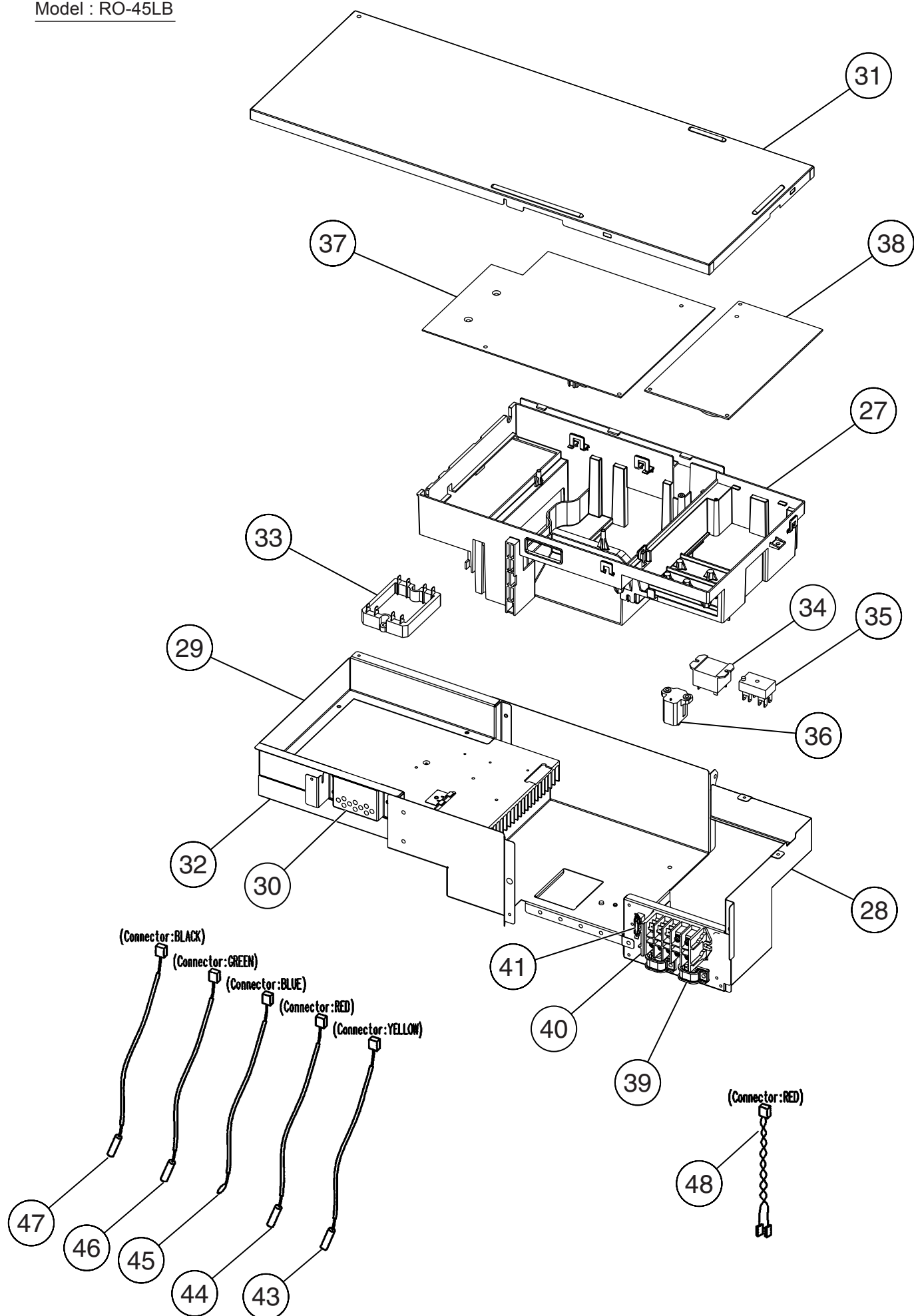


Model : RO-45LB



Model : RO-45LB





PARTS LIST

INDOOR UNIT

Ref. No.	Description	Part No.	Ord. Q'ty	Ref. No.	Description	Part No.	Ord. Q'ty
		RY-45LA				RY-45LA	
8	Air Filter	9359739005		338-1	Motor Fixture	9359702009	
12	Base Assy	9359680000		338-2	Motor Fixture-B	9359703006	
34	Capacitor (Fan Motor)	9900270216		345-1	Filter Guide-R	9359692003	
56	Sirocco Fan Assy	9359701002		345-2	Filter Guide-L	9359693000	
----	Panel Sub Assy	9360436078		361	Bushing	9359733003	
63	Panel (Front)	9359734000		379	Hinge Plate (Grille)	9359694007	
69	Louver	9359719007		380	Locking Spacer KGLS-6S	313209391403	
74	Intake Grille	9359738008		381-4	Locking Spacer KGPS-6S	0600118075	
91	Hinge	9359699002		382	Cover (Decoration)-R	9359744009	
109	Casing	9359704003		383	Cover (Decoration)-L	9359745006	
122	Shaft Holder-B	9357921006		384	Shaft	9359707004	
126	Motor Fixing Table	9359681007		385	Indicator PCB Assy	9702260019	
138	Kit (Separate Wall Sub Assy)	9371366012		386	Panel Left Assy	9359685005	
----	Evaporator Sub Assy	9360428219		387	Panel Right Assy	9359683001	
146	Evaporator Assy	9371073040		388	Joint Assy	9359706007	
----	Drain Pan Sub Assy	9360429018		396	Reinforcement Metal	9359697008	
160	Kit (Drain Pan) Sub Assy	9371368016		403	Shaft Holder Fixture	9359687009	
164	Fan Motor Assy-IN	9360457004		407	Rod (Motor)	9359723004	
174	Hanger Bracket	9359742005		408	Louver Link	9359726005	
181	Hole Cover	9359691006		424	Sector Gear	9359729006	
185-1	Rubber Bushing	9357376004		434	Louver Base	9359718000	
186	Edge Cover	9361049017		435	Louver Spring	9359720003	
187	Clamp No. 1219	313361271706		436	Flap Spring	9359730002	
195	Clamp SKB-100	313361275805		438	Pinion	9359728009	
223	Control Box Assy	9359708001		448	Control Box-B	9359713005	
227	Badge	9359735045		472	Control Box-A	9359712008	
228	Insulation (Louver)-R	9359721000		505	Louver Stopper	9359724001	
229	Insulation (Louver)-L	9359722007		506	Louver Rod	9359725008	
234	Room Temperature Thermistor	9703299025		580	Cover (Top)	9359737001	
----	Pipe Temperature Thermistor	9900022020		625	Cord Bushing	9359240006	
----	Thermistor Spring-A	313728262708		684	Motor Base	9359727002	
236	Controller PCB Assy	9705914216		735	Distributor Assy	9360455000	
240	Remote Control Unit	9371190013		743	Remote Control Unit Holder	9305642014	
240-1	Kit (Panel pipe-L) Sub Assy	9371362014		752	Pipe Fixture Metal	9359688006	
240-2	Kit (Panel pipe-R) Sub Assy	9371363011		755	Kit (Cover Casing) Sub Assy	9371367019	
253-1	Wire Assy (Connector)	9702321017		761	Side Cover-R	9359740001	
253-2	Wire Assy (Connector)	9702322014		762	Side Cover-L	9359741008	
253-3	Wire Assembly	9702311018		763	Receiver Cover	9359714002	
253-4	Wire Assy (Connector)	9702323011		815-1	Terminal-3P	9900203016	
253-5	Wire Assy (Connector)	9702319014		868	PCB Holder	9359736004	
253-6	Wire Assy (Connector)	9702317010		875	Power Supply PCB Assy	9704561060	
253-7	Wire Assy (Connector)	9702318017		876-1	Motor, Step-H	9360479013	
253-9	Wire Assembly	9702311018		876-2	Motor, Step-V	9360307026	
286	Shaft Holder Bracket	9359686002		982-1	Cord Clamp-A	9359820017	
321	Flap Assy	9359731009		982-2	Cord Clamp-B	9359821014	
329	Coupling Pipe Assy	9373038214					

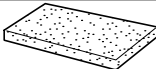
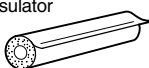
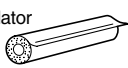
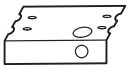
When you order parts, please make a photocopy of this page and fill the number of the parts in the "Order" column.

Outdoor unit

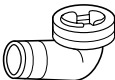
Ref. No.	Description	Parts No.	Ord. Q'ty
		RO-45LB	
1	Top Panel Sub Assy	9374417025	
2	Front Panel X	9374094028	
3	Fan Guard	9374330010	
4	Grip Side	9374173013	
5	Service Panel Sub Assy	9374415014	
6	Right Panel Sub Assy	9374416042	
7	Valve Cover	9374174010	
8	Motor Bracket Sub Assy	9374418046	
9	Propeller 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	
16	Inverter Assy	9705641068	
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	
42	Expansion Valve	9900170028	
43	Thermistor (Dischage)	9704219084	
44	Thermistor (Heat Exchange)	9704220066	
45	Thermistor (Out Temp)	9703516078	
46	Compressor Temp Thermistor	9373279020	
47	Heat Sink Thermistor	9374607013	
48	Wire (Pressure SW)	9367595051	
49	Coil, Choke	9705877016	

STANDARD ACCESSORIES

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.
Remote control unit 	1	Use for air conditioner operation	9371190013 (AR-JW1)
Battery (pen light) 	2	For remote control unit	0600185534
Remote control unit holder 	1	For mounting the remote control unit	9305642014
Tapping screw (φ 3 x 12) 	2	For remote control unit holder installation	0700019098
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

OUTDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.
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

