



SPLIT TYPE ROOM AIR CONDITIONER

CEILING type (50Hz)

SERVICE MANUAL



Models

Indoor unit	Outdoor unit
RY-45FA	RO-45FA
RY-45UA	RO-45UA

CONTENTS

SPECIFICATIONS	1
DIMENSIONS	2
REFRIGERANT SYSTEM DIAGRAM	4
CIRCUIT DIAGRAM	5
INDOOR PCB CIRCUIT DIAGRAM	7
OUTDOOR PCB CIRCUIT DIAGRAM	9
ERROR DISPLAY	10
DISASSEMBLY ILLUSTRATION	11
PARTS LIST	23
STANDARD ACCESSORIES	25

SPECIFICATIONS

TYPE	COOLING	COOLING & HEATING
INDOOR UNIT	RY-45FA	RY-45UA
OUTDOOR UNIT	RO-45FA	RO-45UA
COOLING CAPACITY (kW)	12.7	12.7
HEATING CAPACITY (kW)	----	14.3

ELECTRICAL DATA

POWER SOURCE	(V)	400	
	(ϕ /Hz)	3 / 50	
RUNNING CURRENT (A)	COOLING	7.7	7.7
	HEATING	----	7.7
INPUT WATTS (kW)	COOLING	4.38	4.38
	HEATING	----	4.39
E.E.R. (kW/kW)	COOLING	2.90	2.90
	HEATING	----	3.26
STARTING CURRENT (A)	67	67	
MOISTURE REMOVAL (ℓ /hr)	5.0	5.0	

COMPRESSOR

TYPE	Hermetic type, 2 poles, 3-phase, Induction moto, Scroll		
CODE	BN52YEAMT		
REFRIGERANT R410A (g)	3,400	3,400	

FAN MOTOR

FAN SPEED (r.p.m.)	INDOOR	HIGH	1,100	1,100
		MED	1,000	1,000
		LOW	850	850
	OUTDOOR		780	780
AIR FLOW	INDOOR	(m ³ /h)	1,850	1,850
	OUTDOOR		6,100	6,100

DIMENSIONS

INDOOR UNIT	H x W x D (mm)	240 x 1,660 x 700
OUTDOOR UNIT	H x W x D (mm)	1,165 x 900 x 330

WEIGHT

INDOOR UNIT	GROSS / NET (kg)	62 / 49	61 / 48
OUTDOOR UNIT	GROSS / NET (kg)	116 / 109	120 / 113

MAX PIPE LENGTH / HEIGHT (m)	50 / 30
REMOTE CONTROLLER TYPE	WIRELESS

ADDITIONAL REFRIGERANT CHARGE (R410A)

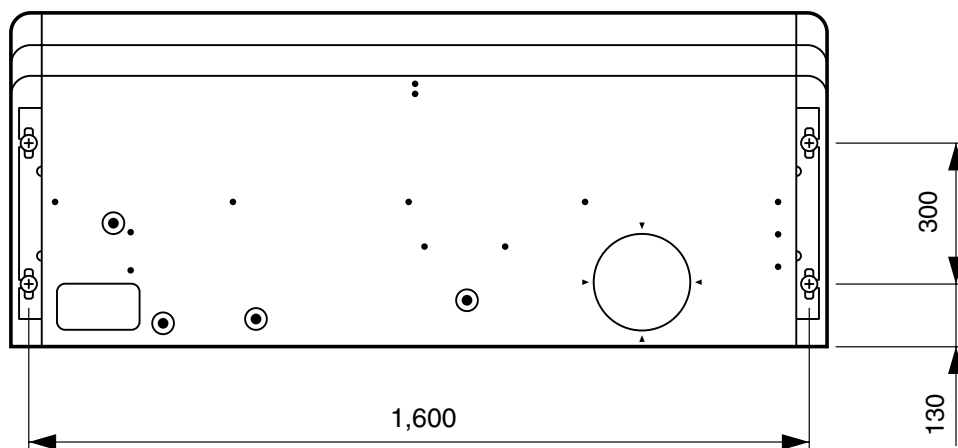
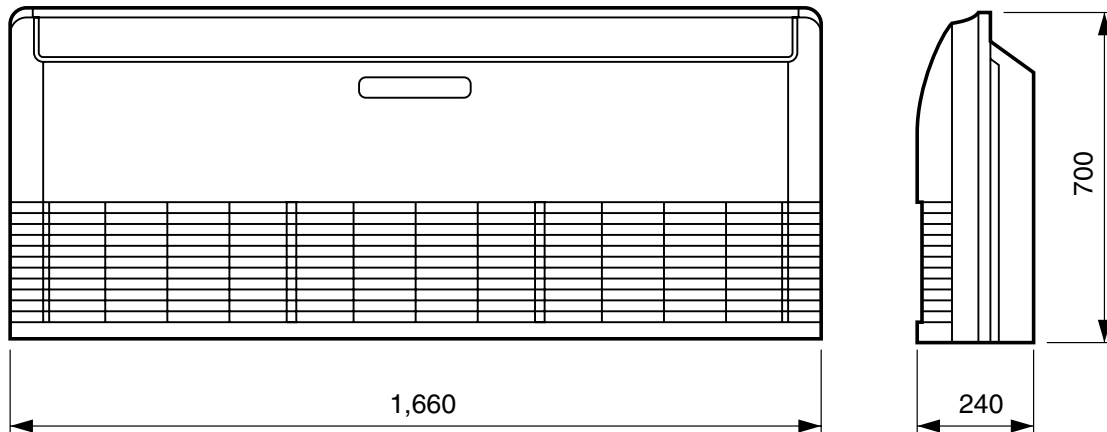
FULL CHARGE AMOUNT	PIPE LENGTH 10 m (33 ft)	3,400 g (119.9 oz)	3,400 g (119.9 oz)
	20 m (66 ft)	3,400 g (119.9 oz)	3,400 g (119.9 oz)
	30 m (99 ft)	3,800 g (134.0 oz)	3,800 g (134.0 oz)
	40 m (132 ft)	4,200 g (148.2 oz)	4,200 g (148.2 oz)
	50 m (164 ft)	4,600 g (162.3 oz)	4,600 g (162.3 oz)
ADDITIONAL CHARGE		40 g / m (1.41oz / 3.3 ft)	

DIMENSIONS

INDOOR UNIT

(Unit : mm)

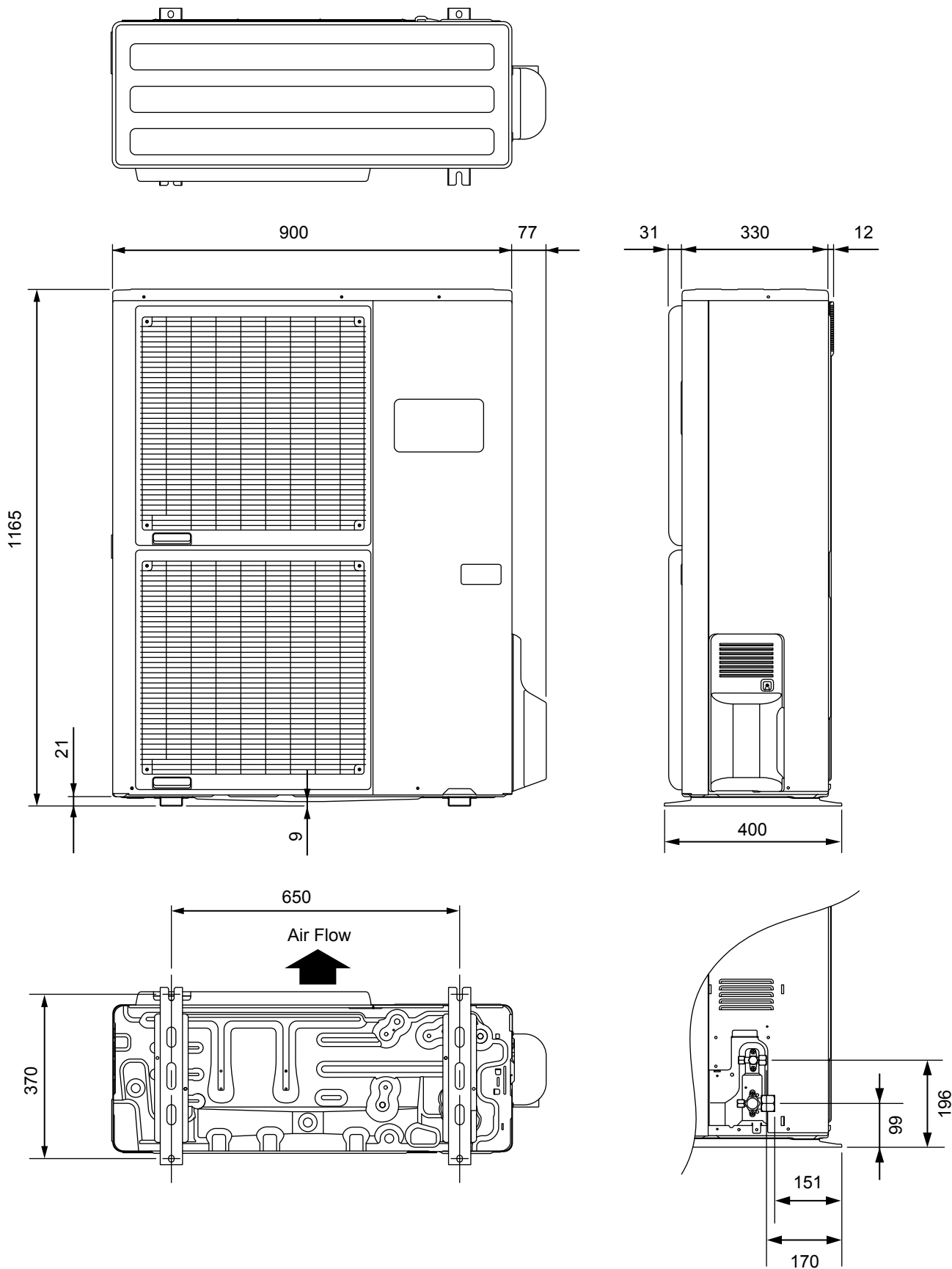
Models : RY-45FA
RY-45UA



OUTDOOR UNIT

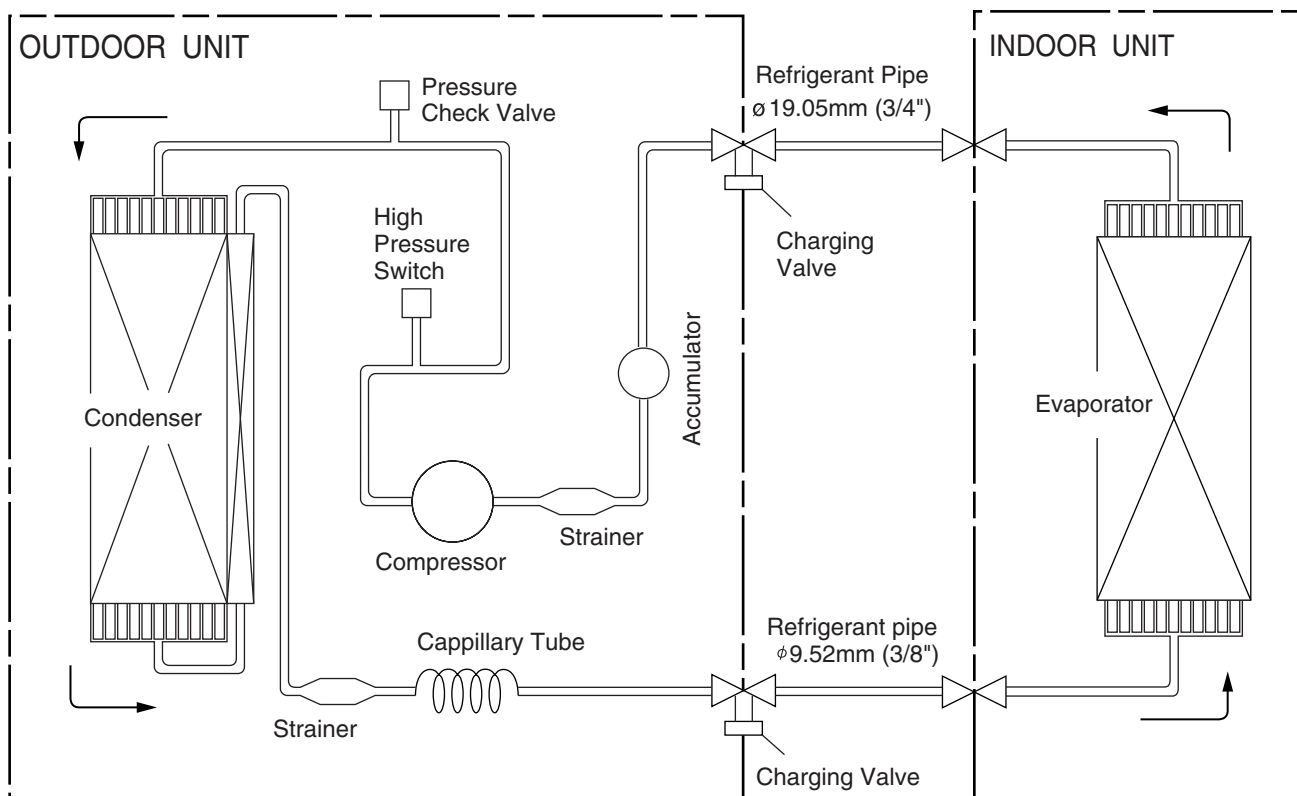
Models : RO-45FA
RO-45UA

(Unit : mm)

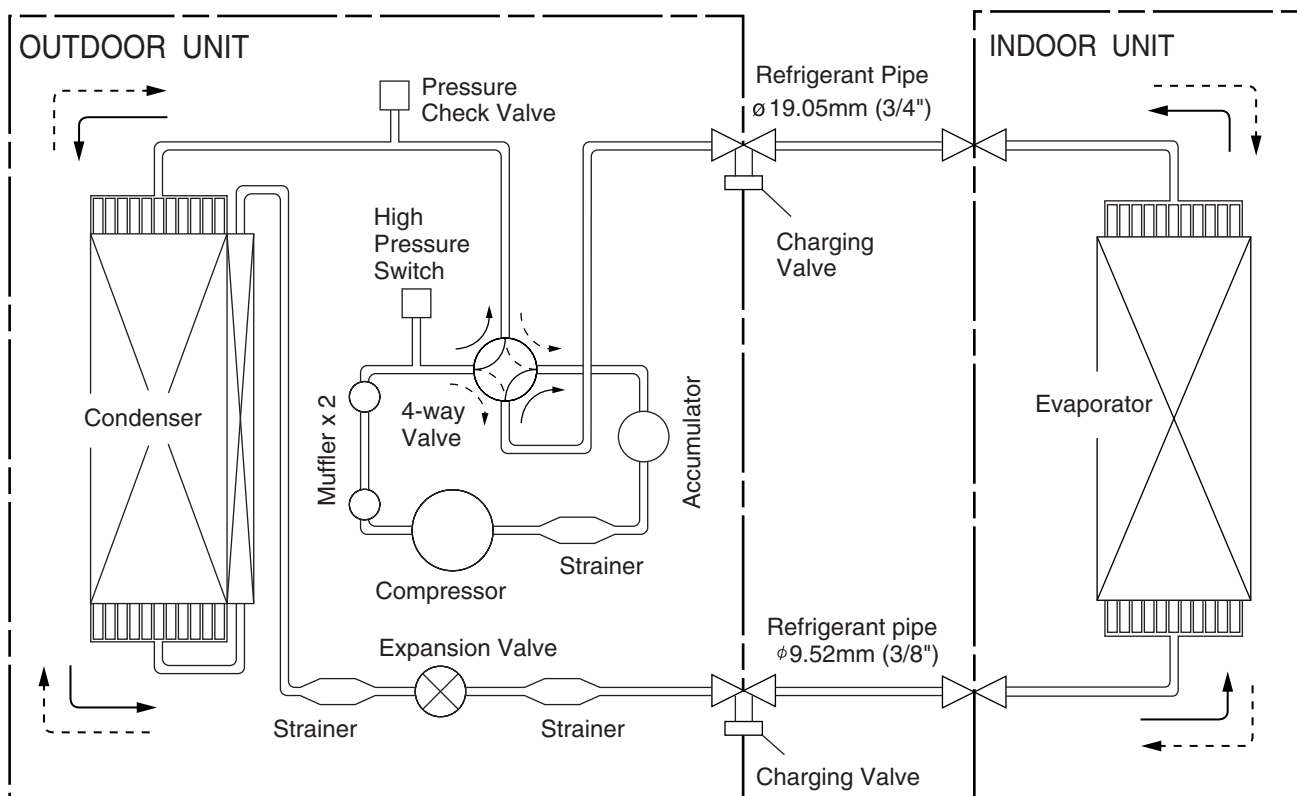


REFRIGERANT SYSTEM DIAGRAM

Models : RY-45FA / RO-45FA



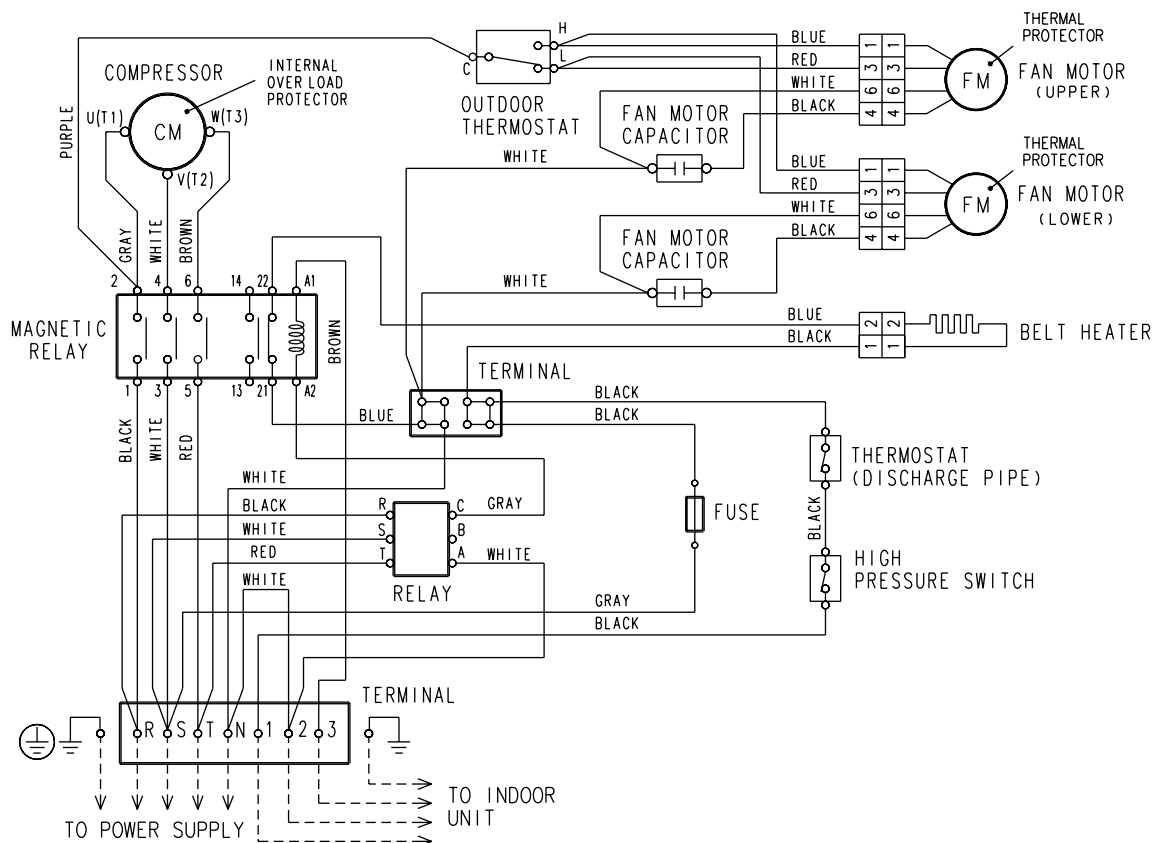
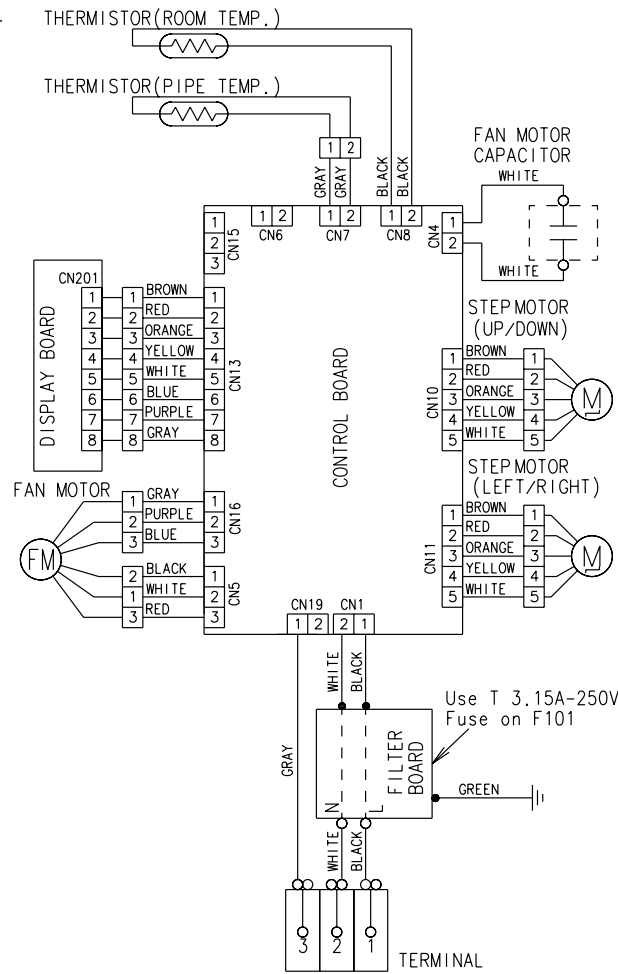
Models : RY-45UA / RO-45UA



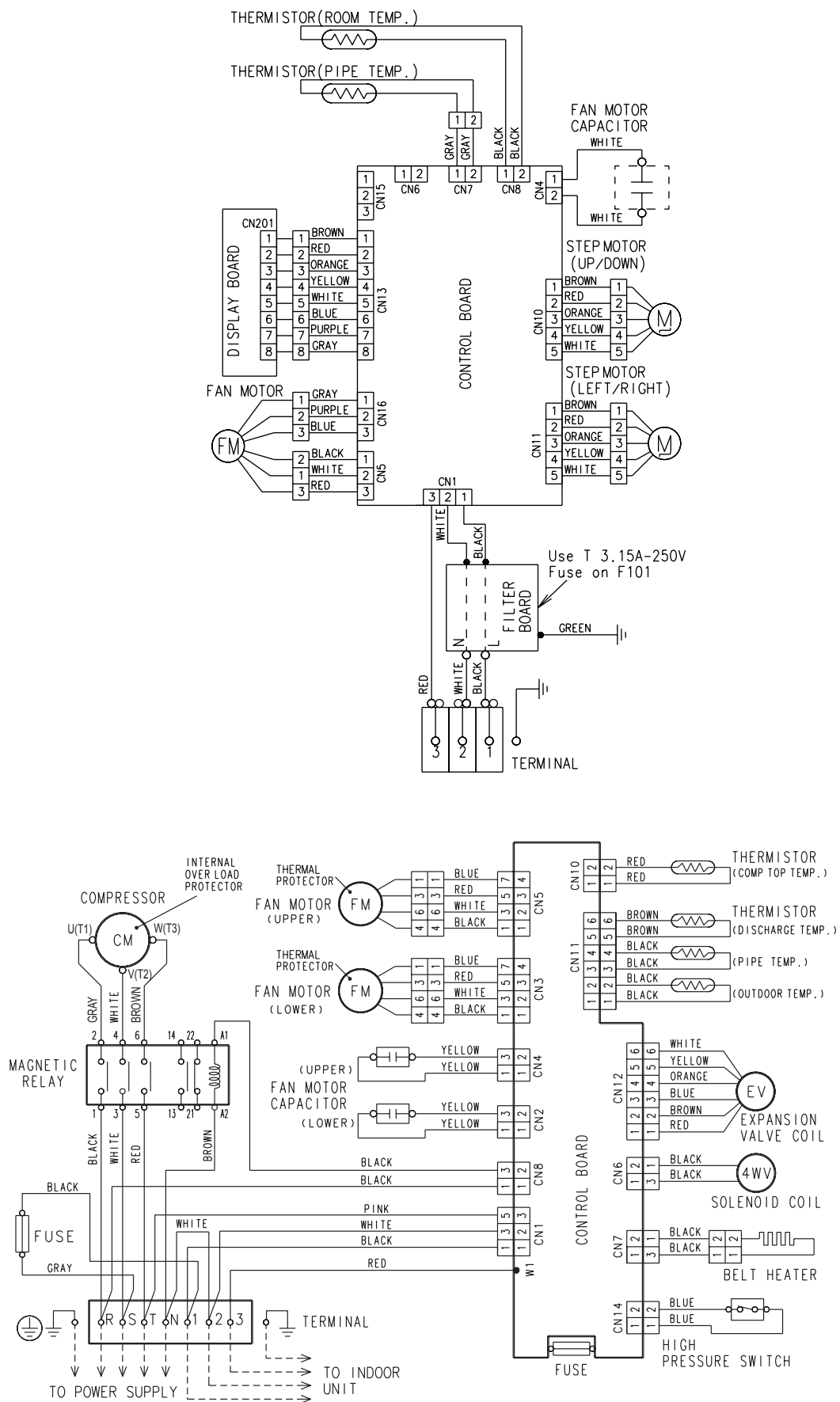
—→ : COOL
 - - -→ : HEAT

CIRCUIT DIAGRAM

Models : RY-45FA / RO-45FA



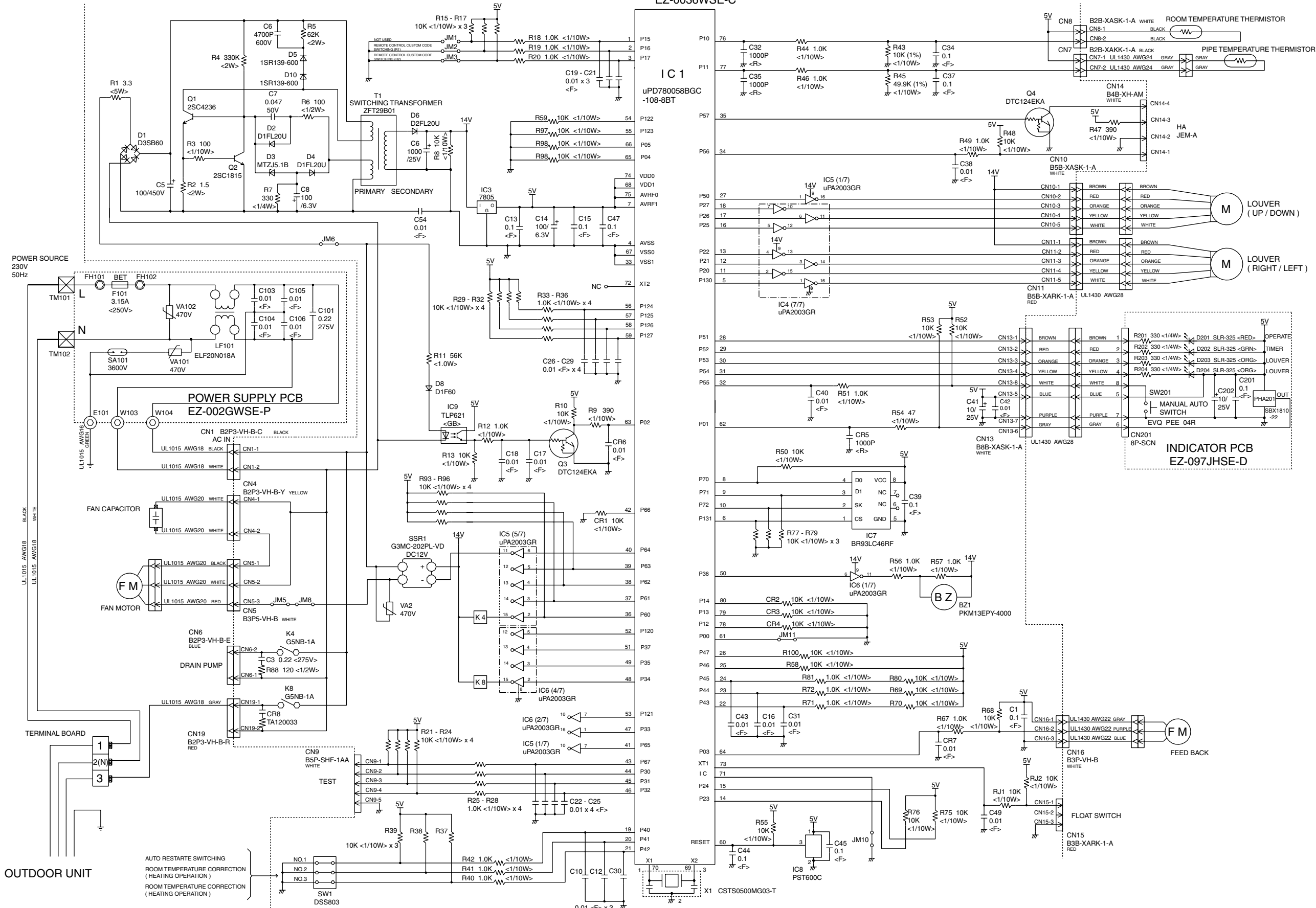
Models : RY-45UA / RO-45UA



INDOOR PCB CIRCUIT DIAGRAM

Model : RY-45FA

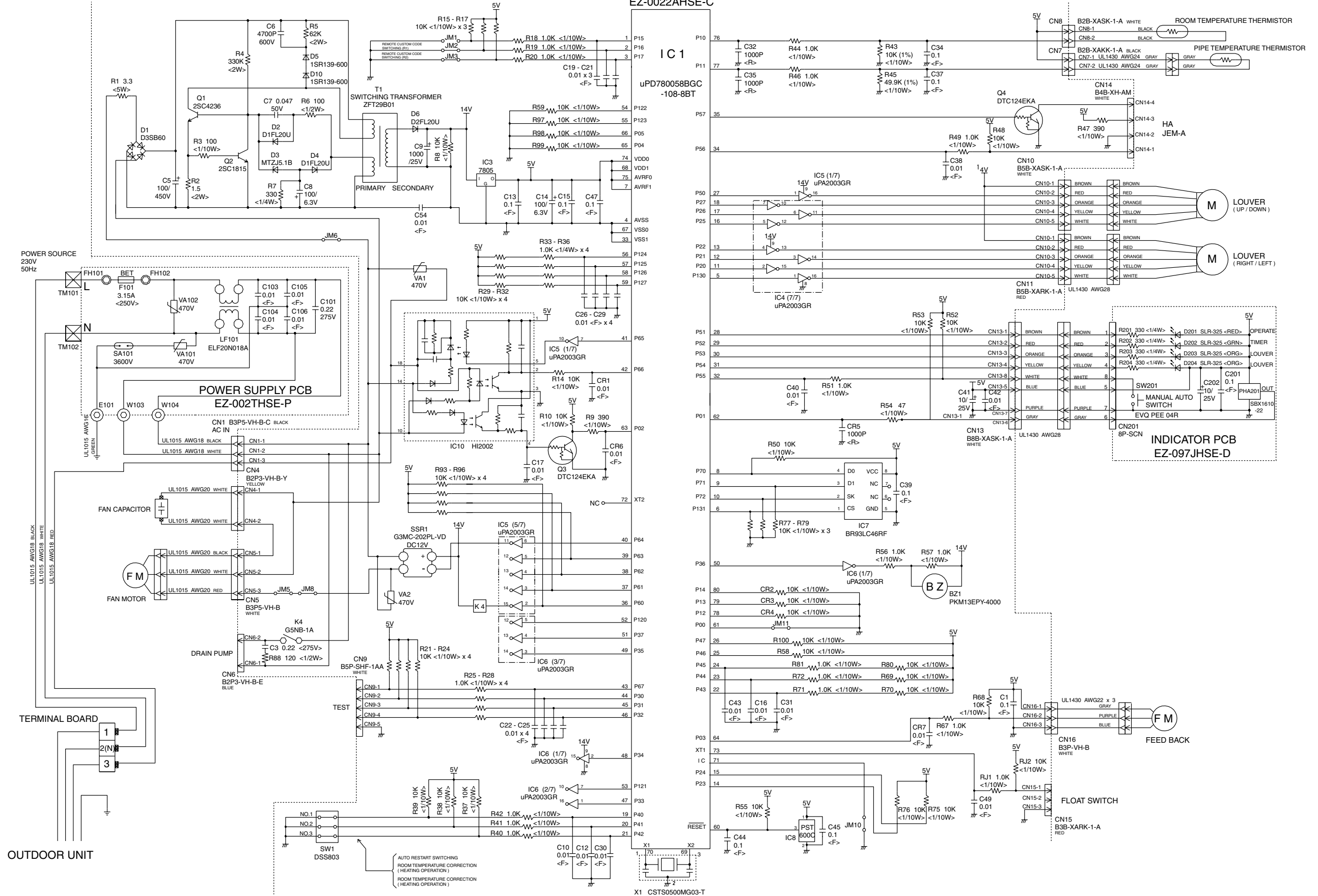
CONTROLLER PCB ASSEMBLY (MAIN PCB)
EZ-0036WSE-C



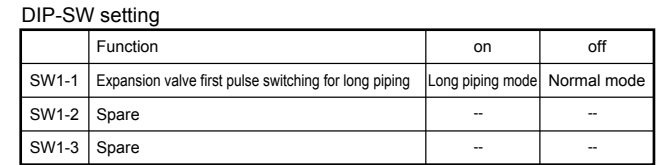
Model : RY-45UA

CONTROLLER PCB ASSEMBLY (MAIN PCB)

EZ-0022AHSE-C



Model : RO-45UA

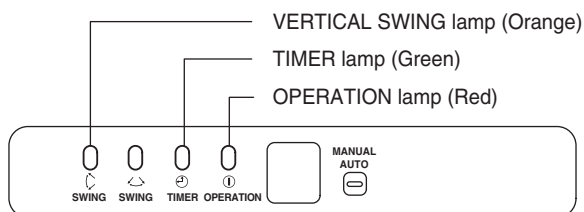


ERROR CONTENTS

1. 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)

2. OUTDOOR UNIT LEDs

Heat & Cool model (reverse cycle) only

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

LED layout

LED2 LED1

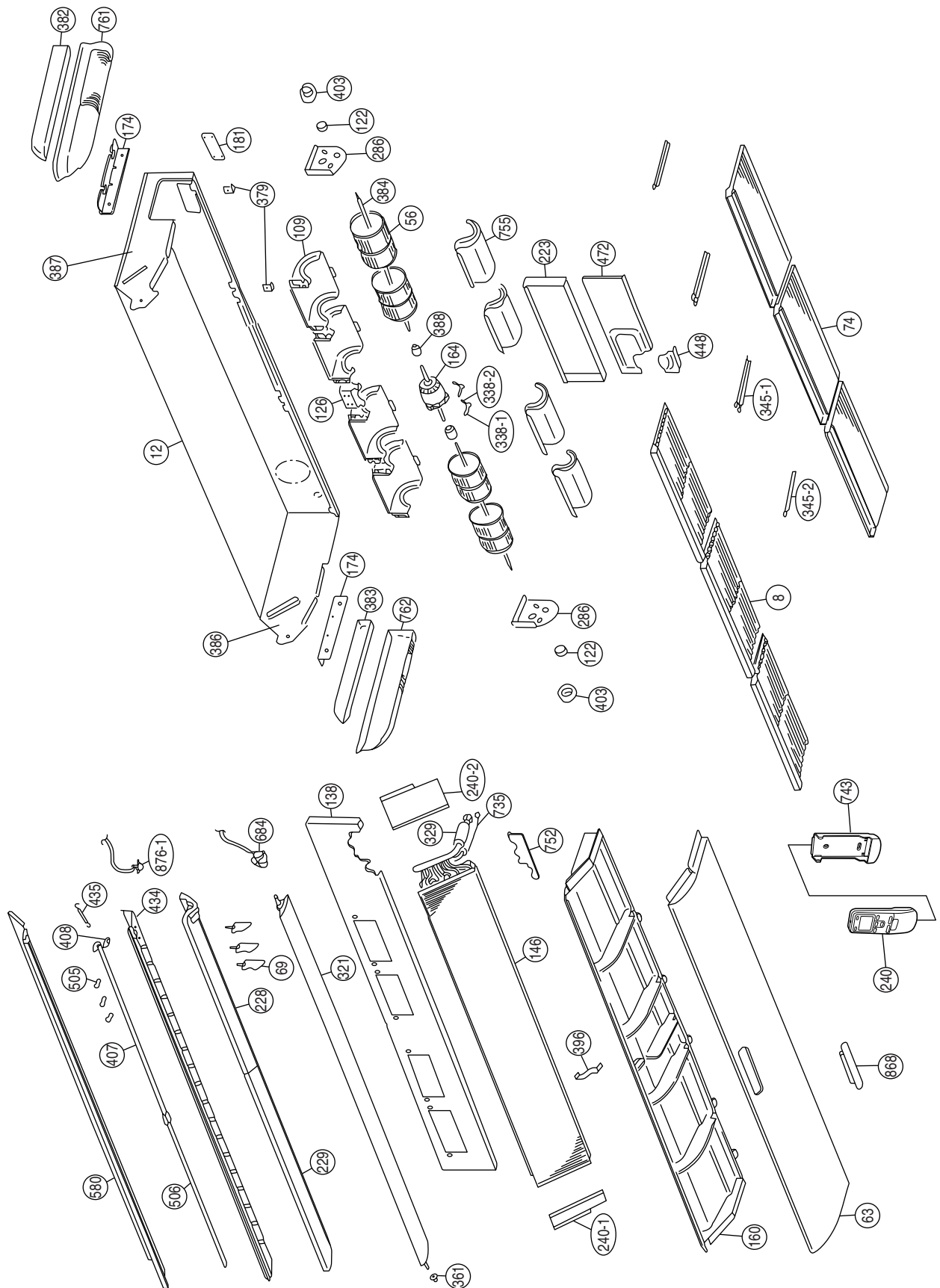


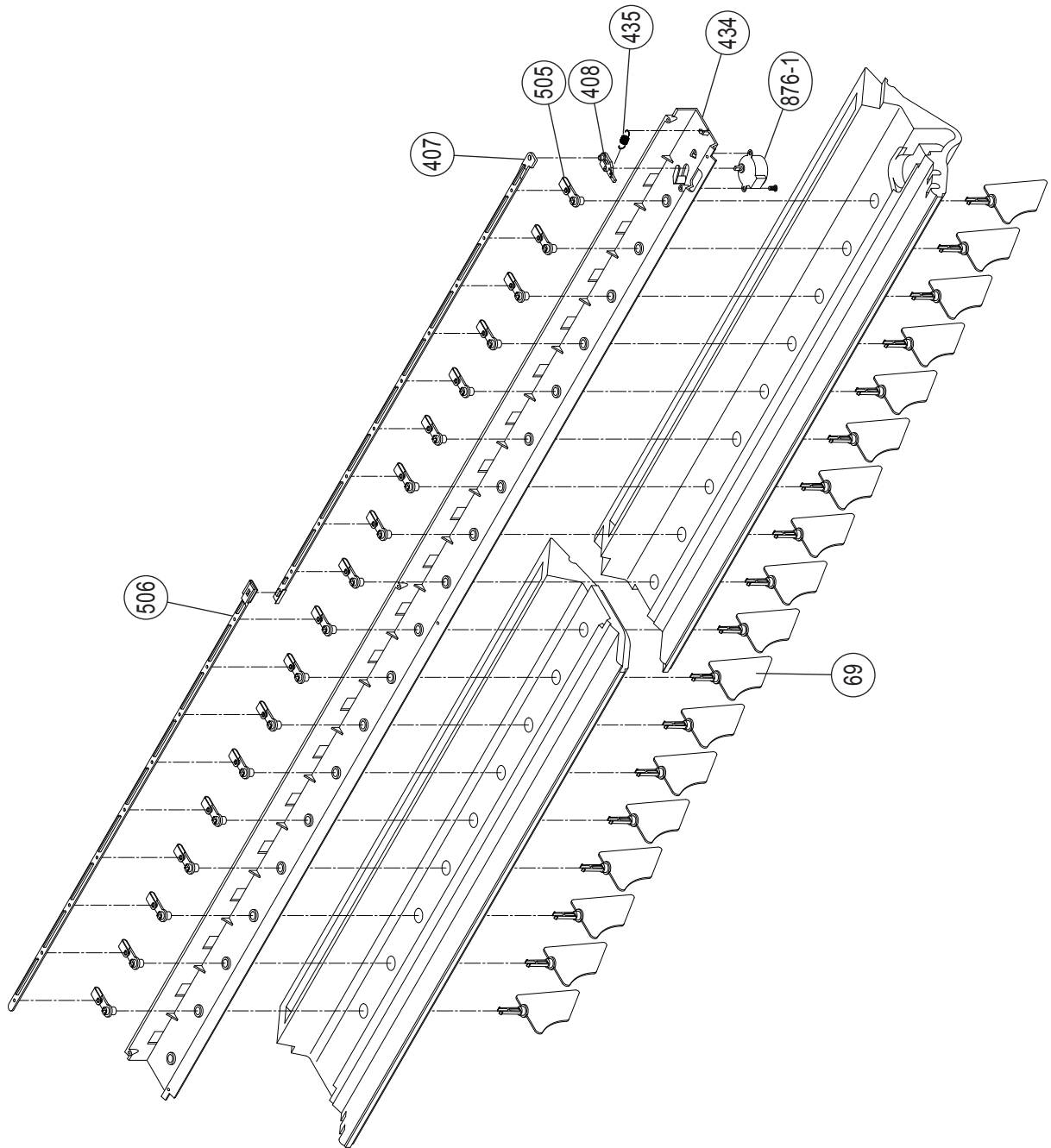
LED1	LED2	Error contents
flash	flash	Model abnormal or EEPROM abnormal
1 flash	Lighting	Power source connection error
2 flash	Lighting	Discharge temp. sensor error
3 flash	Lighting	Heat exchanger temp. sensor error
4 flash	Lighting	Outdoor temp. sensor error
5 flash	Lighting	Communication signal error
6 flash	Lighting	Indoor unit error
7 flash	Lighting	Discharge temp. abnormal
8 flash	Lighting	High pressure abnormal
9 flash	Lighting	Compressor temp. abnormal
10 flash	Lighting	Compressor temp. sensor error
Dislighting		No error. Protect operation

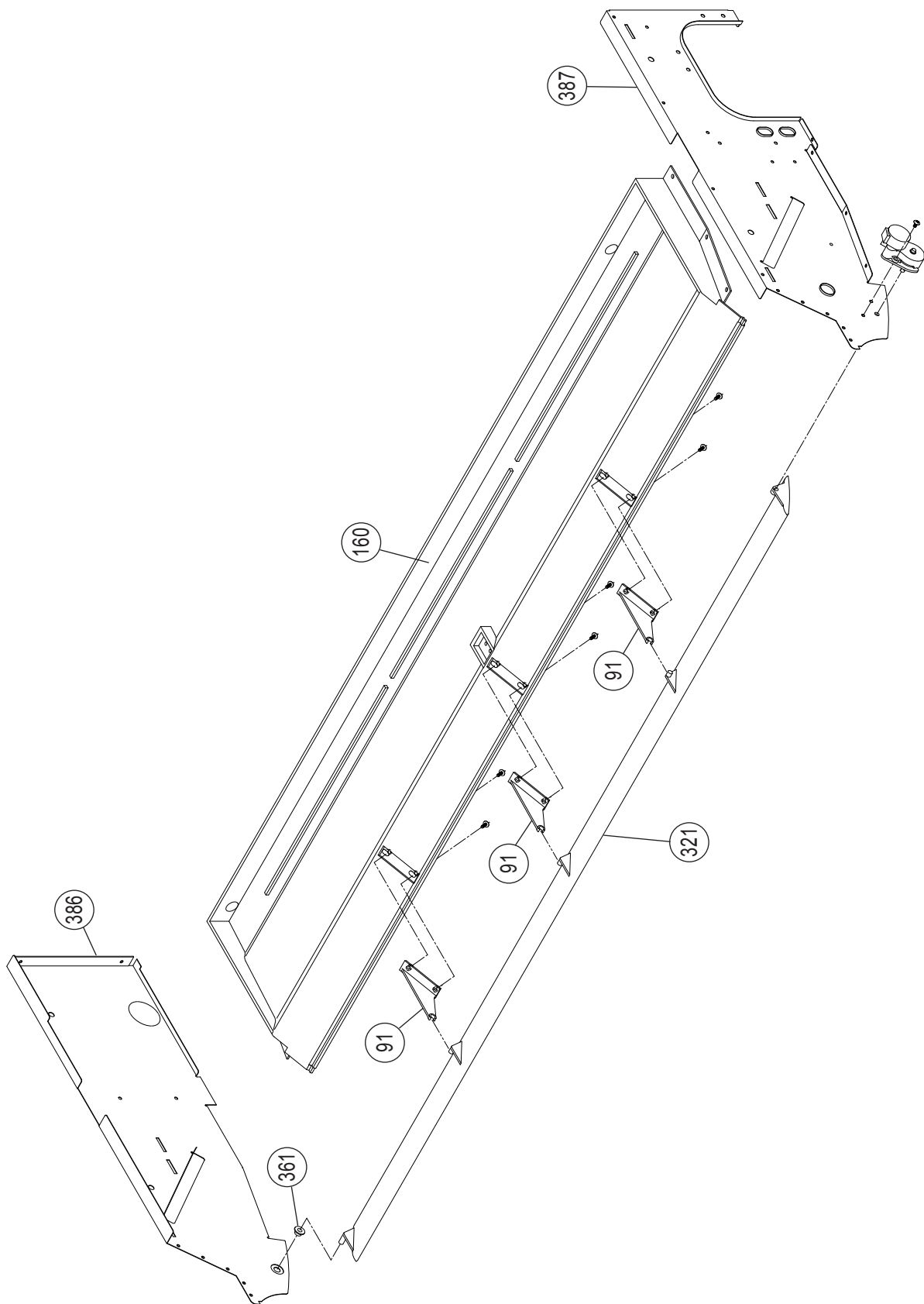
When the fault is cleared, the LED lamp goes off.

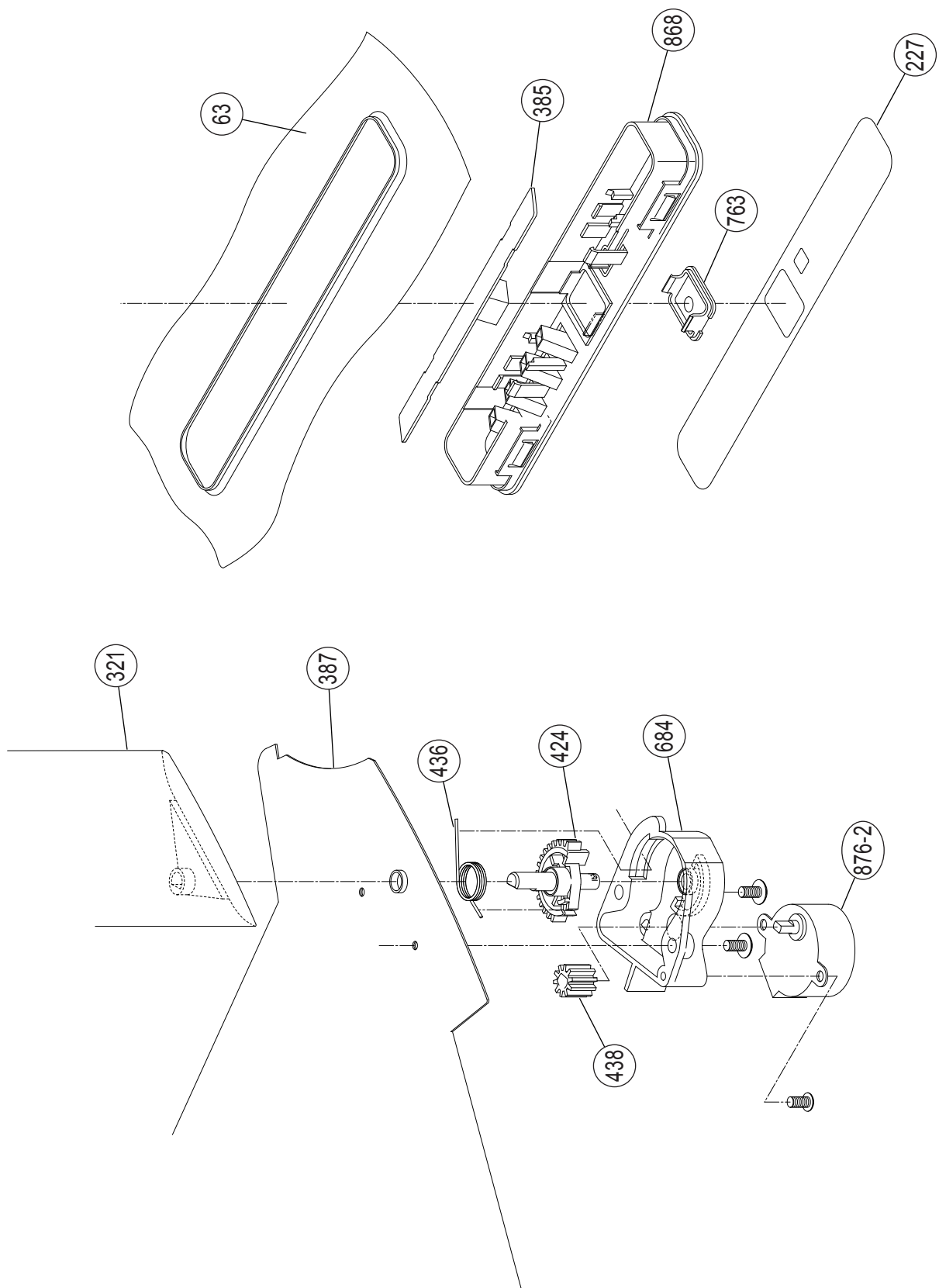
However, for discharge pipe temperature abnormal and high pressure abnormal, the LED lamp lights continuously for 24 hours, as long as the power is not turned off.

Models : RY-45FA, RY-45UA

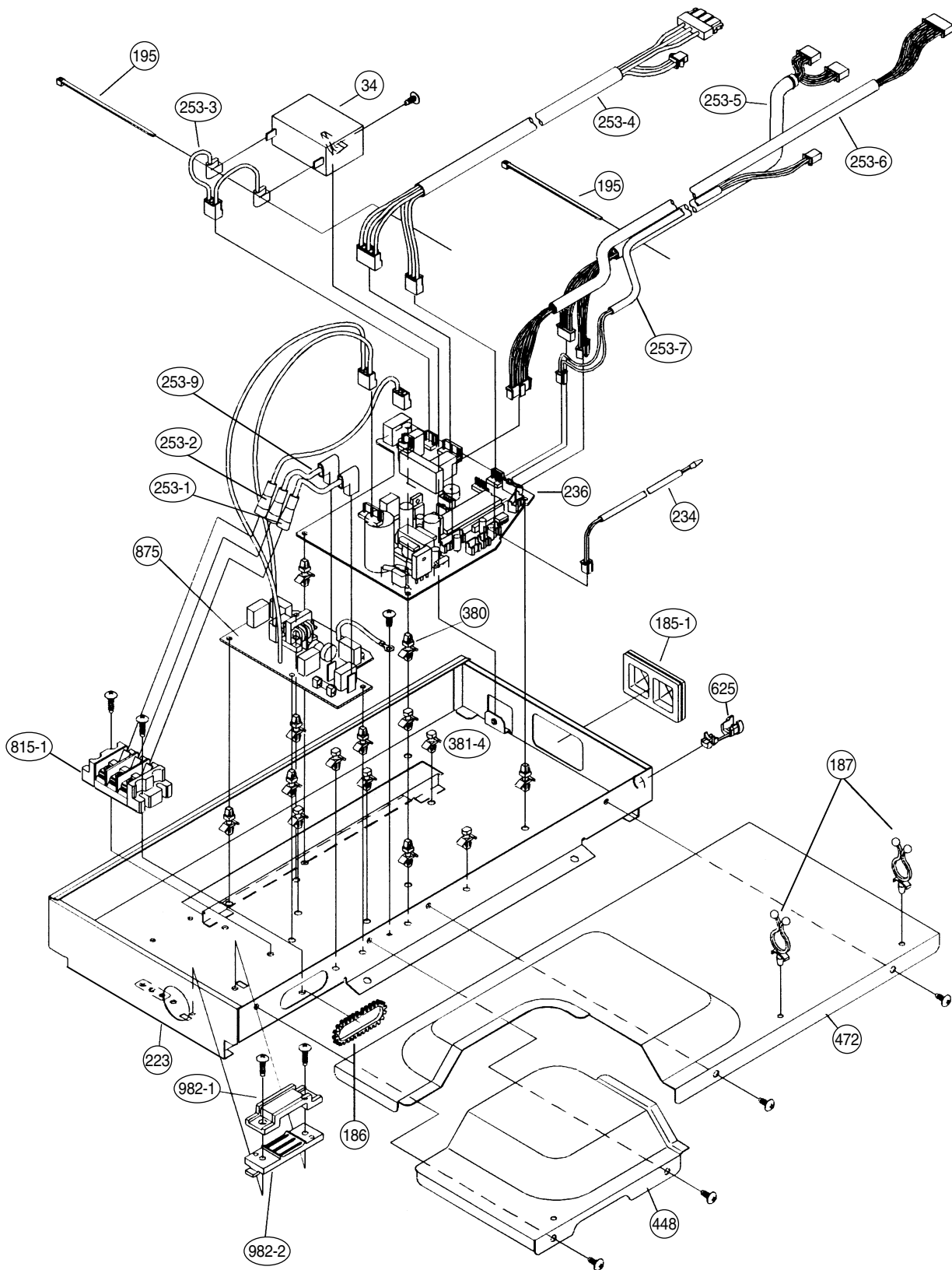




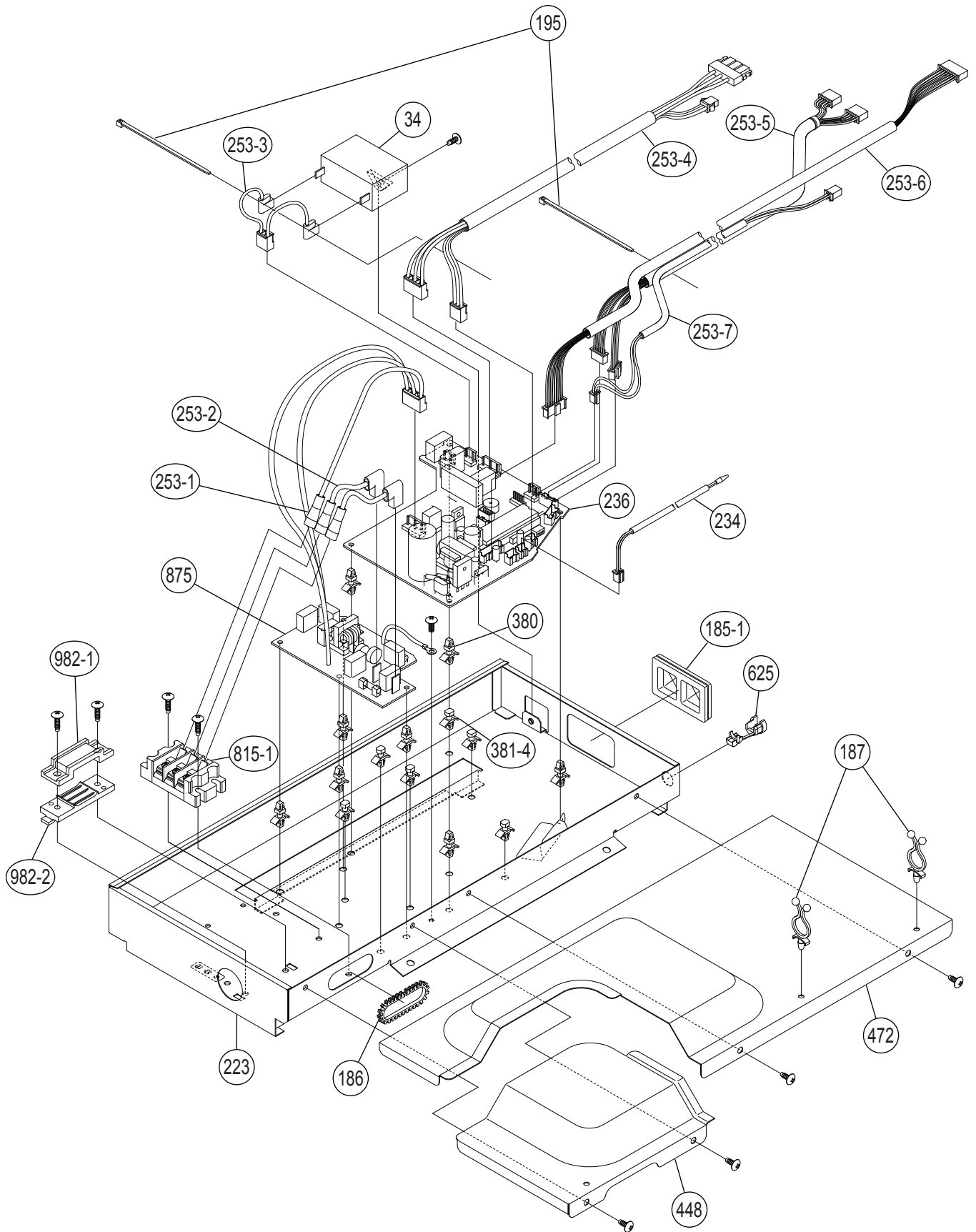




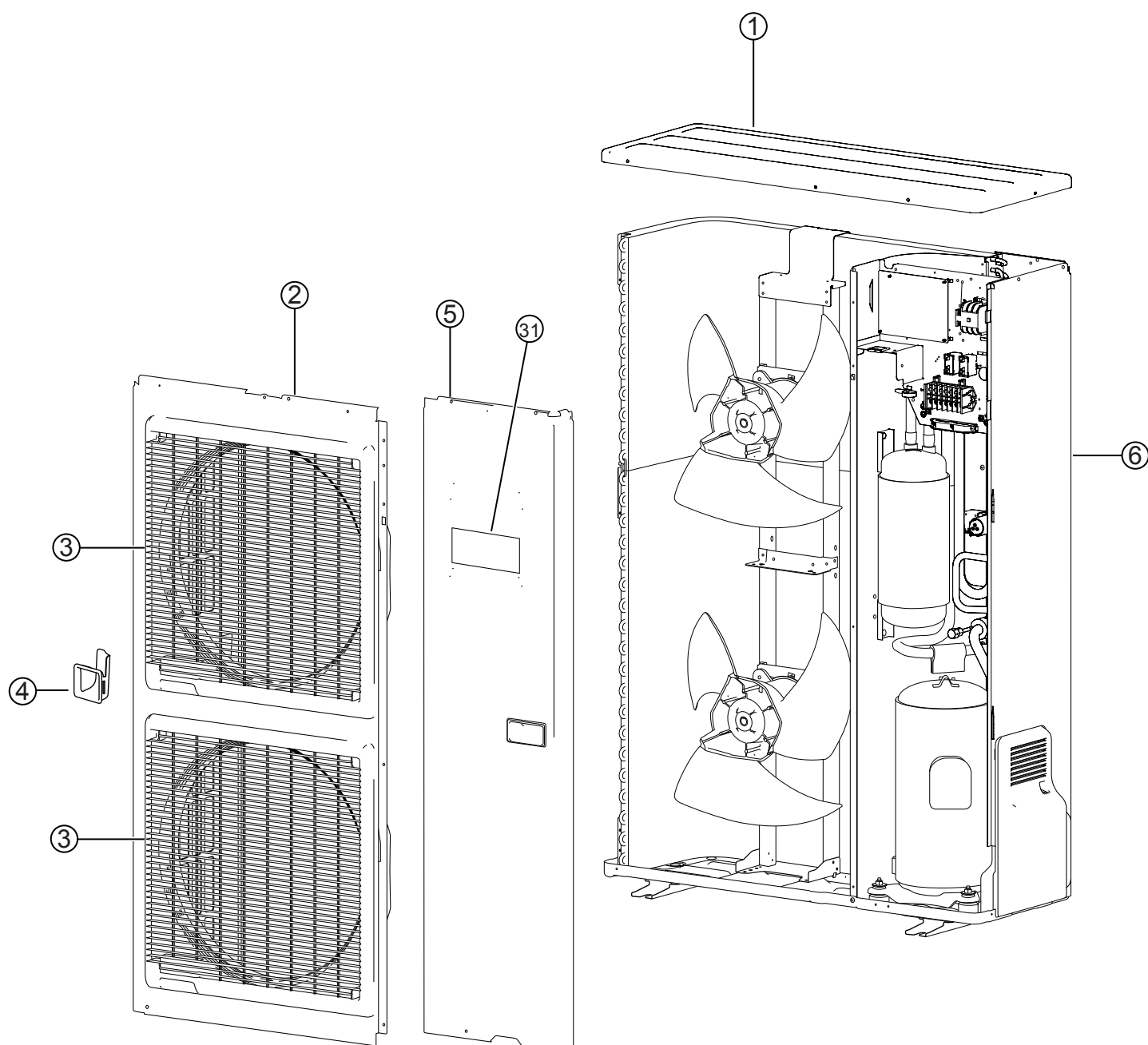
Model : RY-45FA



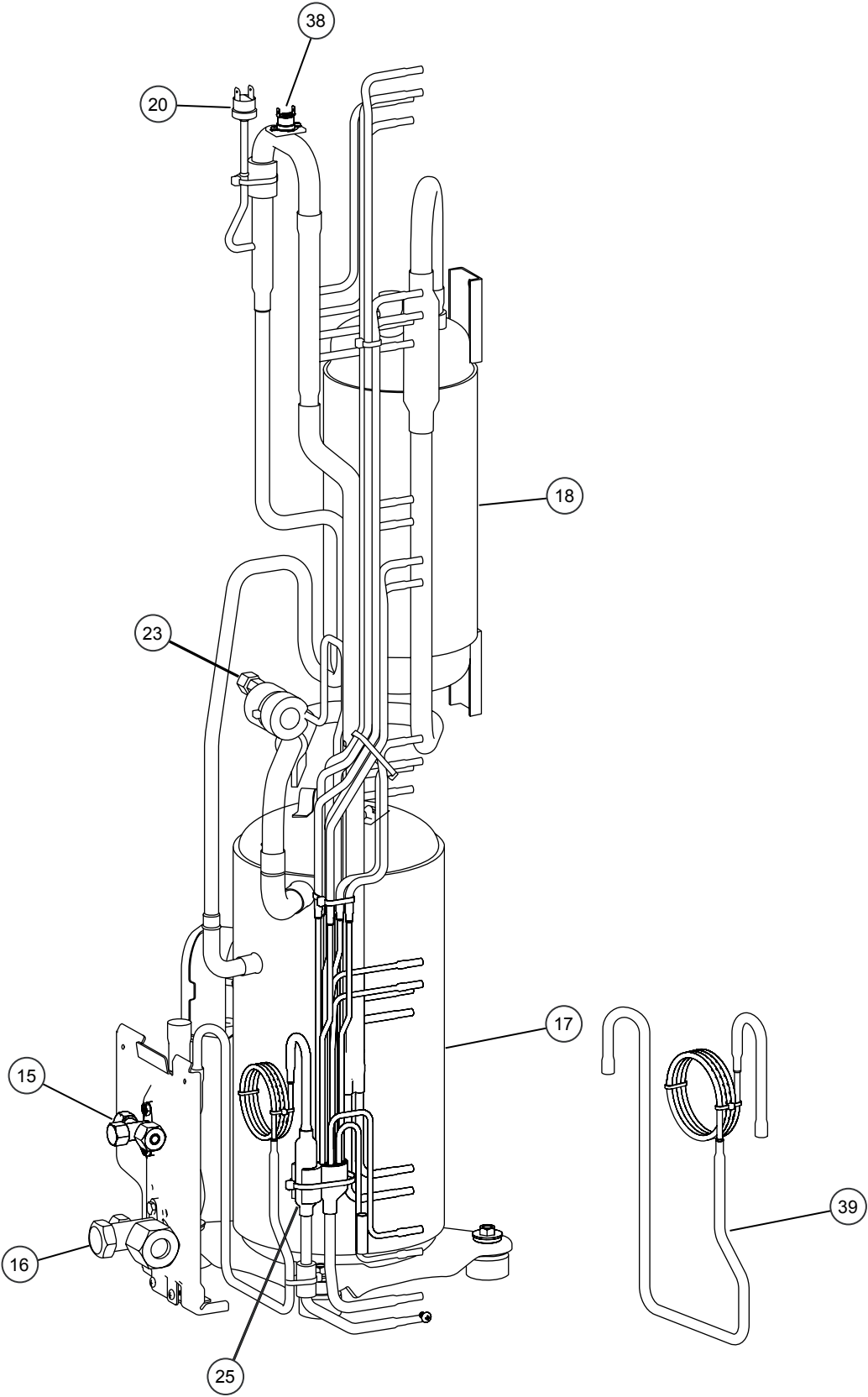
Model : RY-45UA



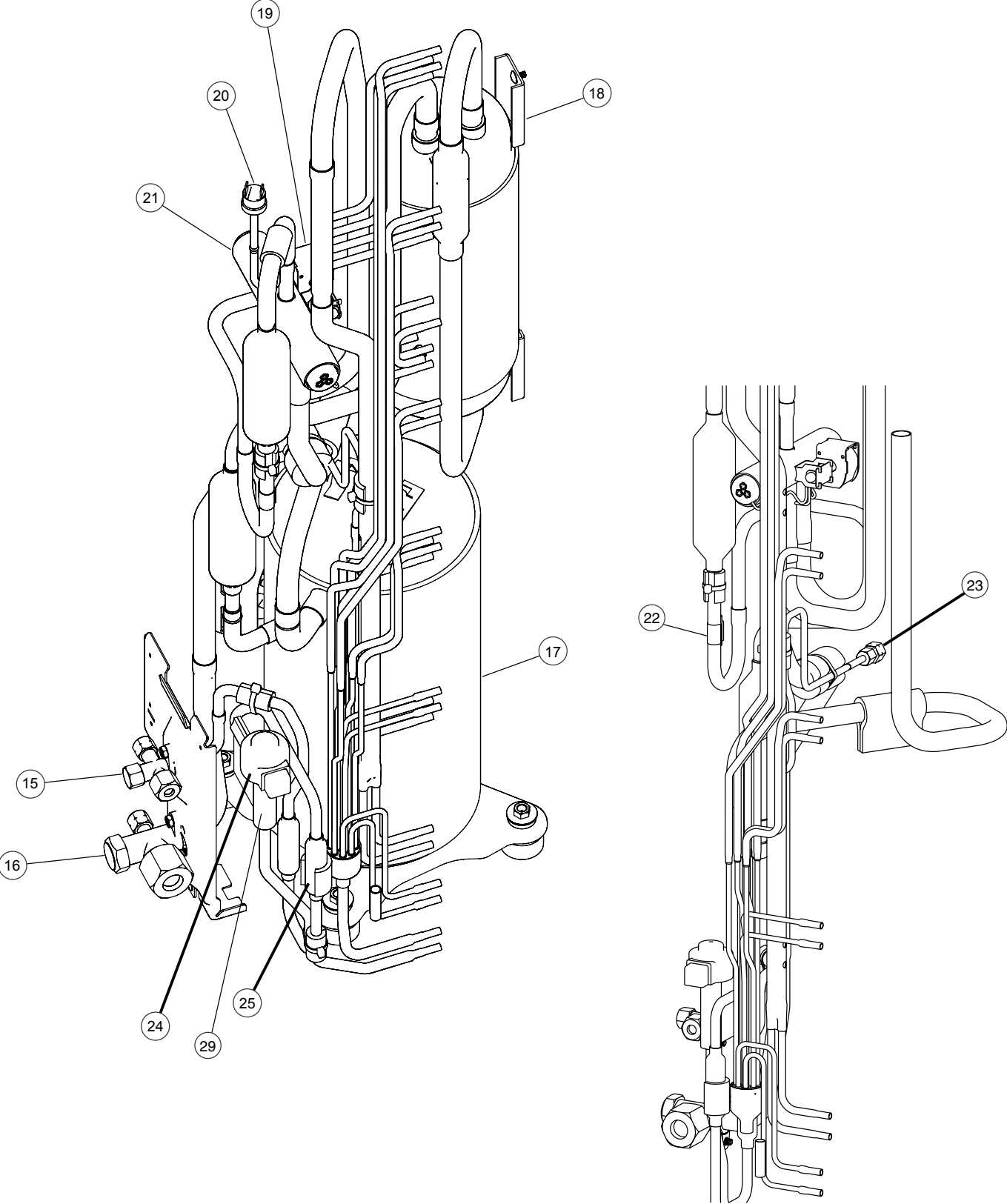
**Models : RO-45FA
RO-45UA**



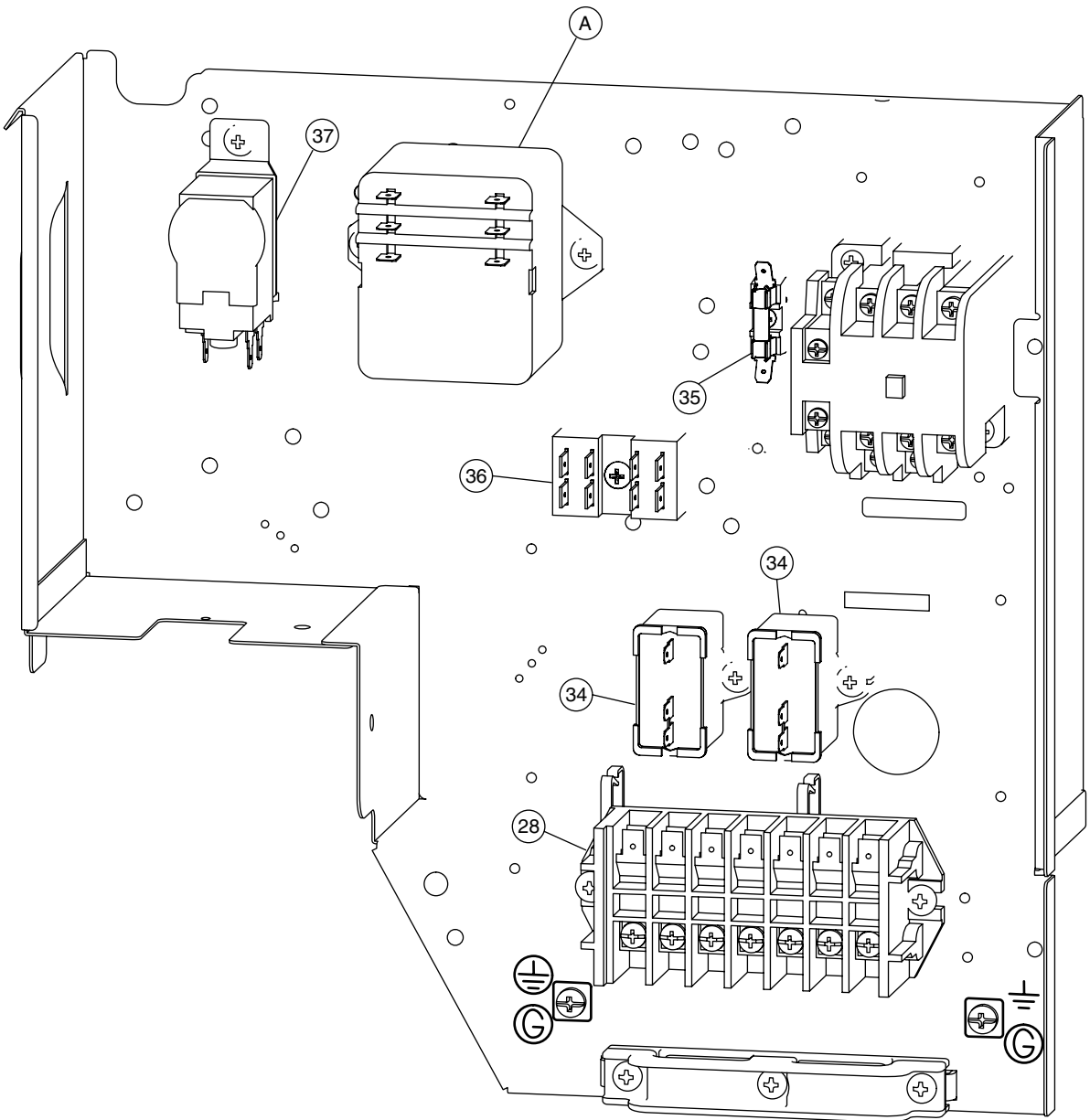
Model : RO-45FA



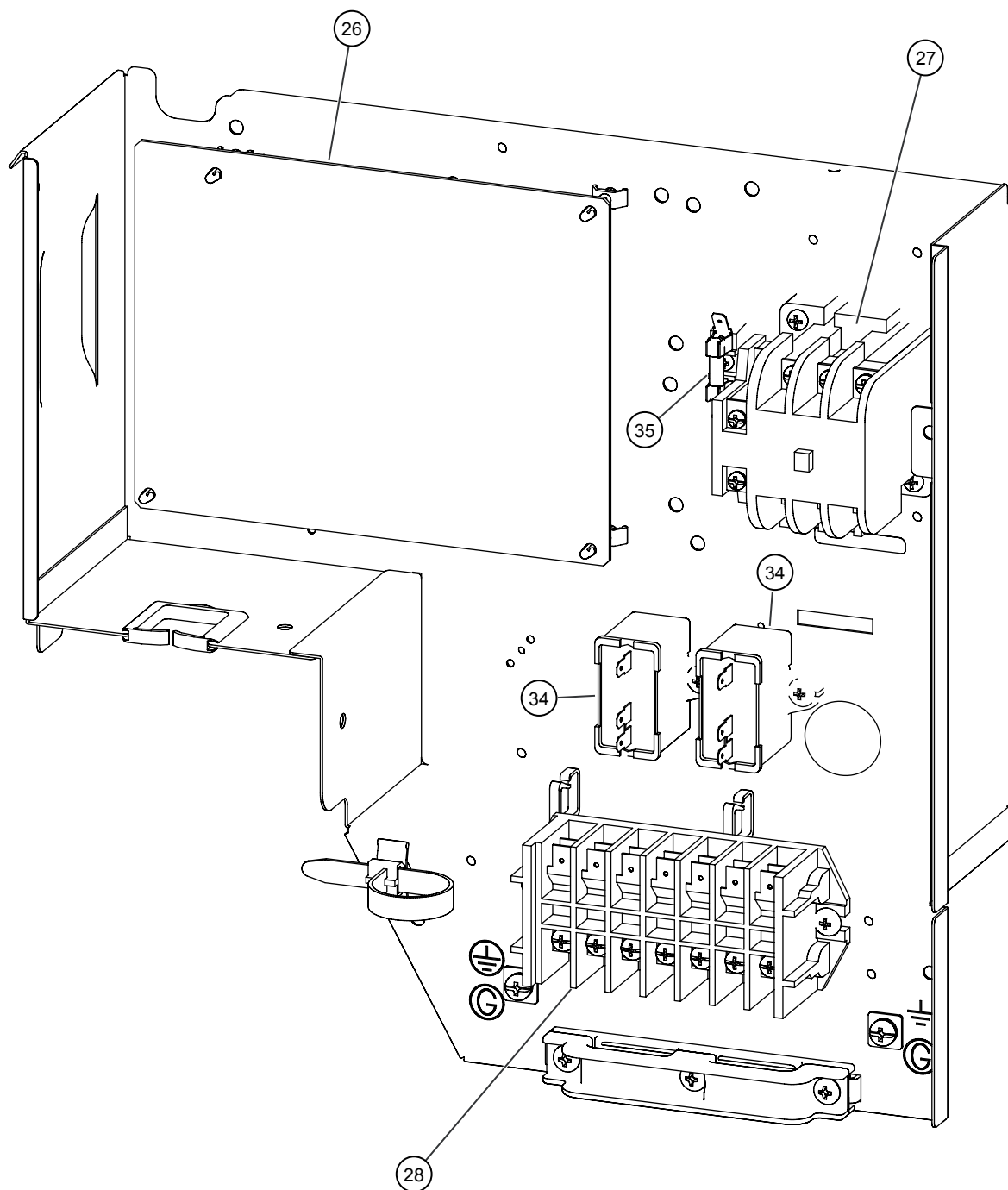
Model : RO-45UA



Model : RO-45FA



Model : RO-45UA



PARTS LIST

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

INDOOR UNIT

Ref. No.	Description	Part No.		Ord. Q'ty	Ref. No.	Description	Part No.		Ord. Q'ty
		RY-45FA	RY-45UA				RY-45FA	RY-45UA	
8	Air Filter	9359739005	9359739005		329	Coupling Pipe Assy	9373638184	9373638184	
12	Base Assy	9359680000	9359680000		338-1	Motor Fixture	9359702009	9359702009	
34	Capacitor (Fan Motor)	9900270216	9900270216		338-2	Motor Fixture-B	9359703006	9359703006	
56	Sirocco Fan Assy	9359701002	9359701002		345-1	Filter Guide-R	9359692003	9359692003	
----	Panel Sub Assy	9360436078	9360436078		345-2	Filter Guide-L	9359693000	9359693000	
63	Panel (Front)	9359734000	9359734000		361	Bushing	9359733003	9359733003	
69	Louver	9359719007	9359719007		379	Hinge Plate (Grille)	9359694007	9359694007	
74	Intake Grille	9359738008	9359738008		380	Locking Spacer KGLS-6S	313209391403	313209391403	
91	Hinge	9359699002	9359699002		381-4	Locking Spacer KGPS-6S	0600118075	0600118075	
109	Casing	9359704003	9359704003		382	Cover (Decoration)-R	9359744009	9359744009	
122	Shaft Holder-B	9357921006	9357921006		383	Cover (Decoration)-L	9359745006	9359745006	
126	Motor Fixing Table	9359681007	9359681007		384	Shaft	9359707004	9359707004	
138	Kit (Separate Wall Sub Assy)	9371366012	9371366012		385	Indicator PCB Assy	9702260019	9702260019	
----	Evaporator Sub Assy	9360428196	9360428196		386	Panel Left Assy	9359685005	9359685005	
146	Evaporator Assy	9371073040	9371073040		387	Panel Right Assy	9359683001	9359683001	
----	Drain Pan Sub Assy	9360429018	9360429018		388	Joint Assy	9359706007	9359706007	
160	Kit (Drain Pan) Sub Assy	9371368016	9371368016		396	Reinforcement Metal	9359697008	9359697008	
164	Fan Motor Assy-IN	9360457004	9360457004		403	Shaft Holder Fixture	9359687009	9359687009	
174	Hanger Bracket	9359742005	9359742005		407	Rod (Motor)	9359723004	9359723004	
181	Hole Cover	9359691006	9359691006		408	Louver Link	9359726005	9359726005	
185	Rubber Bushing	9357376004	9357376004		424	Sector Gear	9359729006	9359729006	
186	Edge Cover	9361049017	9361049017		434	Louver Base	9359718000	9359718000	
187	Clamp No. 1219	313361271706	313361271706		435	Louver Spring	9359720003	9359720003	
195	Clamp SKB-100	313361275805	313361275805		436	Flap Spring	9359730002	9359730002	
223	Control Box Assy	9359708001	9359708001		438	Pinion	9359728009	9359728009	
227	Badge	9359735045	9359735045		448	Control Box-B	9359713005	9359713005	
228	Insulation (Louver)-R	9359721000	9359721000		472	Control Box-A	9359712008	9359712008	
229	Insulation (Louver)-L	9359722007	9359722007		505	Louver Stopper	9359724001	9359724001	
234	Room Temperature Thermistor	9703299025	9703299025		506	Louver Rod	9359725008	9359725008	
----	Pipe Temperature Thermistor	9900022020	9900022020		580	Cover (Top)	9359737001	9359737001	
----	Thermistor Spring-A	313728262708	313728262708		625	Cord Bushing	9359240006	9359240006	
236	Controller PCB Assy	9704557360 (EZ-0036WSE-C)	9704557261 (EZ-0022AHSE-C)		684	Motor Base	9359727002	9359727002	
240	Remote Control Unit	9371190020	9371190013		735	Distributor Assy	9360455000	9360455000	
240-1	Kit (Panel pipe-L) Sub Assy	9371362014	9371362014		743	Remote Control Unit Holder	9305642014	9305642014	
240-2	Kit (Panel pipe-R) Sub Assy	9371363011	9371363011		752	Pipe Fixture Metal	9359688006	9359688006	
253-1	Wire Assy (Connector)	9702321017	9702321017		755	Kit (Cover Casing) Sub Assy	9371367019	9371367019	
253-2	Wire Assy (Connector)	9702322014	9702322014		761	Side Cover-R	9359740001	9359740001	
253-3	Wire Assembly	9702311018	9702311018		762	Side Cover-L	9359741008	9359741008	
253-4	Wire Assy (Connector)	9702323011	9702323011		763	Receiver Cover	9359714002	9359714002	
253-5	Wire Assy (Connector)	9702319014	9702319014		815-1	Terminal-3P	9900203016	9900203016	
253-6	Wire Assy (Connector)	9702317010	9702317010		868	PCB Holder	9359736004	9359736004	
253-7	Wire Assy (Connector)	9702318017	9702318017		875	Power Supply PCB Assy	9704561138	9704561060	
253-9	Wire Assembly	9704847010	-----		876-1	Motor, Step-H	9360479013	9360479013	
286	Shaft Holder Bracket	9359686002	9359686002		876-2	Motor, Step-V	9360307026	9360307026	
321	Flap Assy	9359731009	9359731009		982-1	Cord Clamp-A	9359820017	9359820017	
					982-2	Cord Clamp-B	9359821014	9359821014	

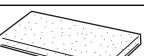
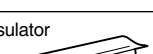
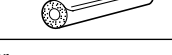
OUTDOOR UNIT

Ref. No.	Description	Part No.		Ord. Q'ty
		RO-45FA	RO-45UA	
1	Top Panel Sub Assy	9374417018	9374417018	
2	Front Panel-L, Painted	9374094042	9374094042	
3	Fan Guard	9374330010	9374330010	
4	Side Grip	9374173013	9374173013	
5	Service Panel Sub Assy	9374415021	9374415021	
6	Right Panel Sub Assy	9374416028	9374416028	
7	Motor Bracket Sub Assy	9374418022	9374418022	
8	Propeller Fan Assy	9366378013	9366378013	
9	Motor, Induction	9601671060	9601671060	
10	Condenser-A Assy	9374433070	9374433032	
11	Condenser-B Assy	9374434053	9374434039	
12	Separate Wall-L	9374135028	9374135028	
13	Cap Foot	9374345014	9374345014	
14	Base Assy	9374166022	9374166022	
15	3-Way Valve Assy	9372205044	9372205044	
16	3-Way Valve Assy	9372205099	9372205099	
17	Compressor Assy	9374251018	9374251018	
18	Accumulator Assy	9371615011	9371615011	
19	Solenoid	-----	9900165055	
20	Pressure Switch	9900276010	9900186012	
21	4-Way Valve	-----	9900164010	
22	Discharge Temperature Thermistor	-----	9900277017	
23	Check Valve Assy	9374274017	9374274017	
24	Coil (Expansion Valve)	-----	9900190026	
25	Strainer Assy	9372524015	9372524015	
26	Controller PCB Assy	-----	9705677029	
27	Magnetic Relay	-----	9900227012	
28	Terminal-7P	9363276039	9363276039	
29	Expansion Valve	-----	9900170011	
31	Emblem Rear	9361328006	9361328006	
34	Capacitor (Fan Motor)	9900270049	9900270049	
35	Fuse	0600376086	0600376086	
36	Terminal-2P	9701971015	-----	
37	Thermostat (Outdoor)	9900275013	-----	
38	Thermostat (Overheat)	9354061002	-----	
39	Capillary Assy	9372197356	-----	
A	Relay	9900287016	-----	
----	Thermistor Assy	-----	9900274016	
----	Drain Cap	-----	313166024302	
----	Drain Pipe	-----	9301102000	

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

STANDARD ACCESSORIES

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.	
			RY-45FA	RY-45UA
Remote control unit 	1	Use for air conditioner operation	9371190020 (AR-JW2)	9371190013 (AR-JW1)
Battery (pen light) 	2	For remote control unit	0600185534	0600185534
Remote control unit holder 	1	For mounting the remote control unit	9305642014	9305642014
Tapping screw (ϕ 3 x 12) 	2	For remote control unit holder installation	301141533125	301141533125
Drain hose insulation 	1	Adhesive type 70 x 230	9360464002	9360464002
VT wire 	1	For fixing the drain hose L 280 mm	313806350303	313806350303
Coupler heat insulator (large) 	2	For indoor side pipe joint (large pipe)	9350716029	9350716029
Coupler heat insulator (small) 	1	For indoor side pipe joint (small pipe)	9352766015	9352766015
Nylon fastener 	Large 4	For fixing the coupler heat insulator	9301501001	9301501001
	Small 4		312300787605	312300787605
Special nut A (large flange) 	4	For installing indoor unit	313005446653	313005446653
Special nut B (small flange) 	4	For installing indoor unit	313005446759	313005446759
Installation template 	1	For positioning the indoor unit	9360022004	9360022004
Auxiliary pipe assembly 	1	For connecting the piping	9374714049	9374714049

OUTDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.	
			RO-45FA	RO-45UA
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	9374756018

