

SERVICE MANUAL



Models

Indoor unit	Outdoor unit
RCA12LALN	ROA12LACL
RCA14LALN	ROA14LACL
RCA18LALN	ROA18LACL
RCA24LALN	ROA24LACL

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SPECIFICATIONS

ELECTRICAL DATA

TYPE		Inverter cooling & heating			
INDOOR UNIT		RCA12LALN	RCA14LALN	RCA18LALN	RCA24LALN
OUTDOOR UNIT		ROA12LACL	ROA14LACL	ROA18LACL	ROA24LACL
COOLING CAPACITY		3.50 kW	4.30 kW	5.20 kW	7.10 kW
HEATING CAPACITY		4.10 kW	5.00 kW	6.00 kW	8.00 kW
POWER SOURCE		230 V 50 Hz	230 V 50 Hz	230 V 50 Hz	230 V 50 Hz
RUNNING CURRENT	Cooling	4.6 A	5.8 A	7.1 A	9.7 A
	Heating	4.9 A	5.9 A	7.3 A	9.7 A
INPUT WATTS	Cooling	1.05 kW	1.33 kW	1.62 kW	2.21 kW
	Heating	1.11 kW	1.34 kW	1.66 kW	2.21 kW
E.E.R.	Cooling	3.33 kW/kW	3.21 kW/kW	3.21 kW/kW	3.21 kW/kW
COP	Heating	3.69 kW/kW	3.71 kW/kW	3.61 kW/kW	3.61 kW/kW
MOISTURE REMOVAL		1.3 L/hr	1.5 L/hr	2.2 L/hr	2.7 L/hr
AIR CIRCULATION (HIGH)	Cooling	600 m³/hr	680 m³/hr	680 m³/hr	930 m³/hr
	Heating	600 m³/hr	800 m³/hr	800 m³/hr	930 m³/hr

FAN MOTOR

INDOOR UNIT (cool / heat)	Discrimination	MFF-24RVL			
	High speed	650 / 650 r.p.m.	730 / 830 r.p.m.	730 / 830 r.p.m.	960 / 960 r.p.m.
	Med speed	580 / 580 r.p.m.	630 / 730 r.p.m.	630 / 730 r.p.m.	850 / 880 r.p.m.
	Low speed	520 / 520 r.p.m.	540 / 630 r.p.m.	540 / 630 r.p.m.	650 / 740 r.p.m.
	Quiet	460 / 460 r.p.m.	460 / 500 r.p.m.	460 / 500 r.p.m.	500 / 580 r.p.m.
OUTDOOR UNIT (cool / heat)		770 / 700 r.p.m.	820 / 750 r.p.m.	860 / 820 r.p.m.	1,050 / 1,050 r.p.m.

NOISE LEVEL

INDOOR UNIT (cool / heat)	High speed	37 dB / 37 dB	38 dB / 43 dB	38 dB / 43 dB	49 dB / 49 dB
	Med speed	34 dB / 34 dB	34 dB / 38 dB	34 dB / 38 dB	44 dB / 45 dB
	Low speed	30 dB / 31 dB	30 dB / 34 dB	30 dB / 34 dB	36 dB / 40 dB
	Quiet	27 dB / 29 dB	27 dB / 30 dB	26 dB / 30 dB	30 dB / 33 dB
OUTDOOR UNIT (cool / heat)		47 dB / 48 dB	49 dB / 49 dB	50 dB / 50 dB	52 dB / 53 dB

DIMENSIONS

INDOOR UNIT	H x W x D	245 x 570 x 570 mm			
PANEL	H x W x D	49 x 700 x 700 mm			
OUTDOOR UNIT	H x W x D	578 x 790 x 300 mm			578 x 790 x 315 mm

WEIGHT

INDOOR UNIT	Net / Gross	15 kg / 18 kg			17 kg / 20 kg
PANEL	Net / Gross	2.6 kg / 4.5 kg			
OUTDOOR UNIT	Net / Gross	40 kg / 48 kg			44 kg / 48 kg

REFRIGERANT CHARGE (R410A)

COMPRESSOR		DA130A1F-25NA			DA150A1F-20NA
FULL CHARGE	Pipe Length 15 m	1,150 g	1,250 g	1,250 g	1,700 g
	20 m	1,250 g	1,350 g	1,350 g	1,800 g
	25 m	1,350 g	1,450 g	1,450 g	1,900 g
	30 m	---	---	---	2,000 g
ADDITIONAL REFRIGERANT		20 g/m	20 g/m	20 g/m	20 g/m

Unit : mm

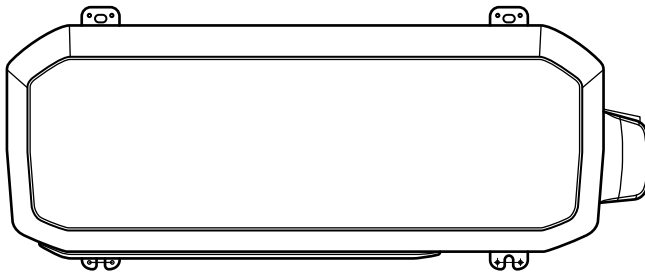
[illegible]

Liquid pipe

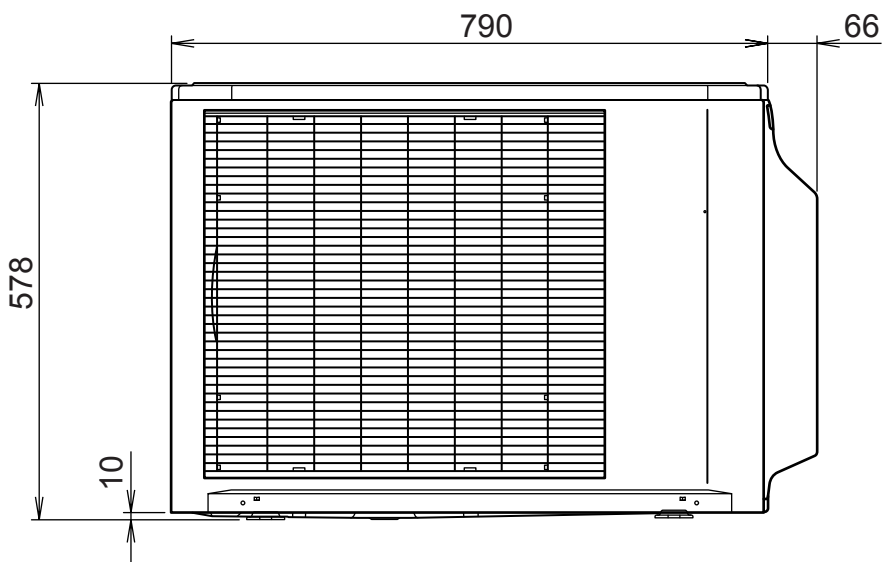
Gas pipe

OUTDOOR UNIT
 ROA12LACL
 ROA14LACL
 ROA18LACL

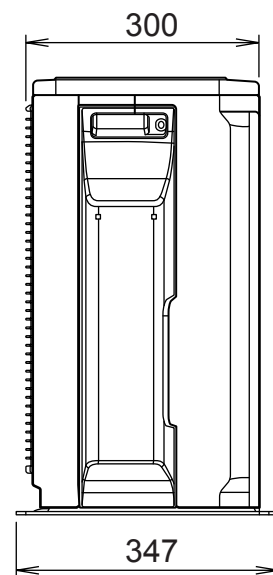
Unit : mm



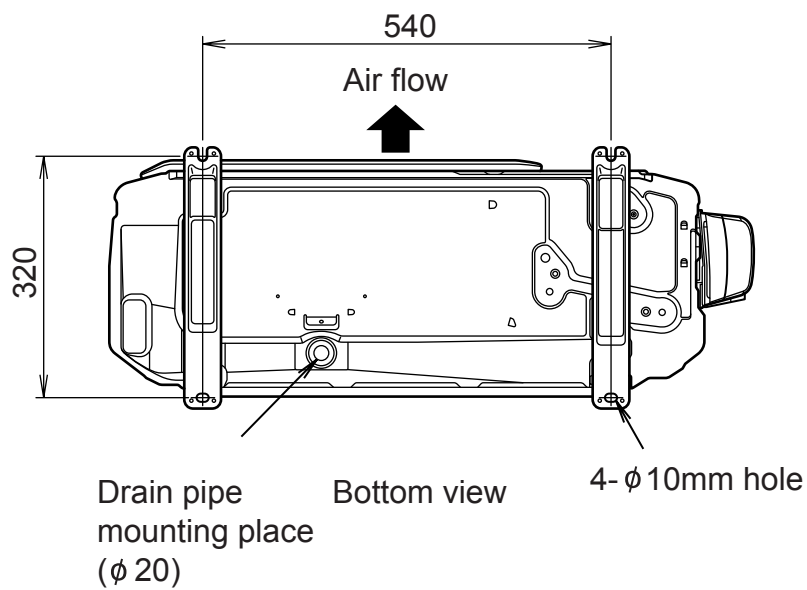
Top view



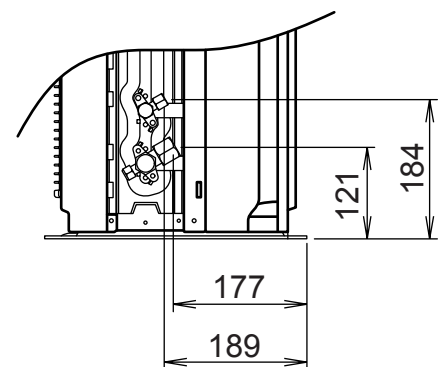
Front view



Side view

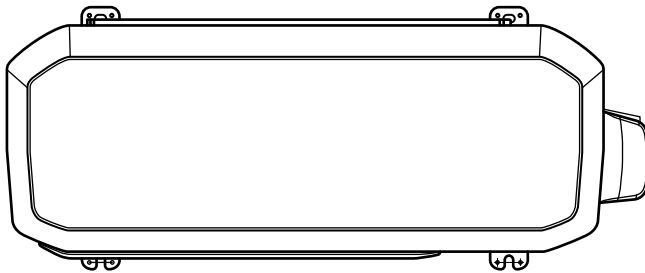


Bottom view

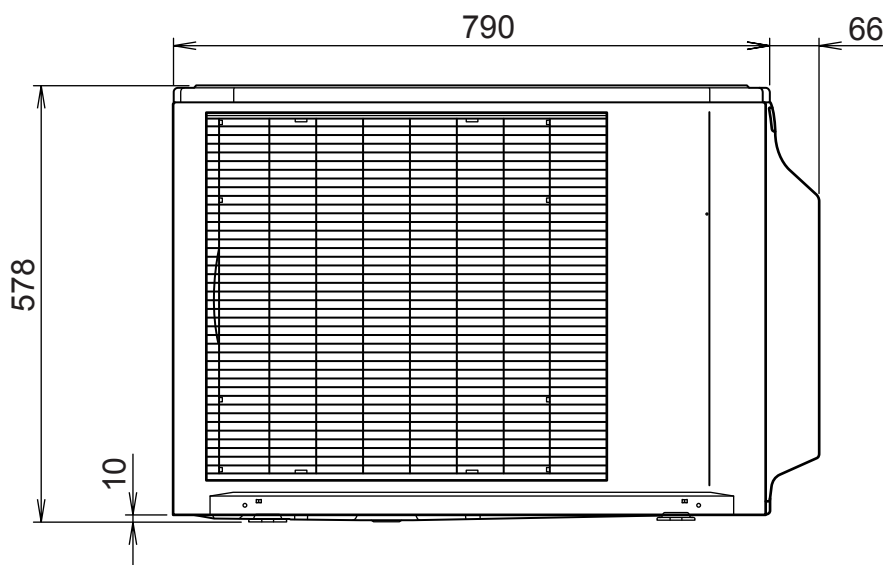


OUTDOOR UNIT
ROA24LACL

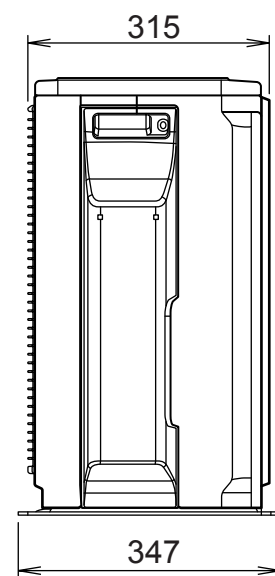
Unit : mm



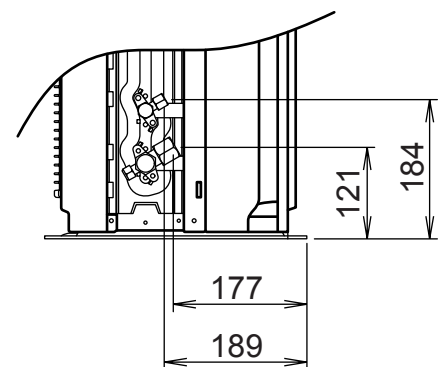
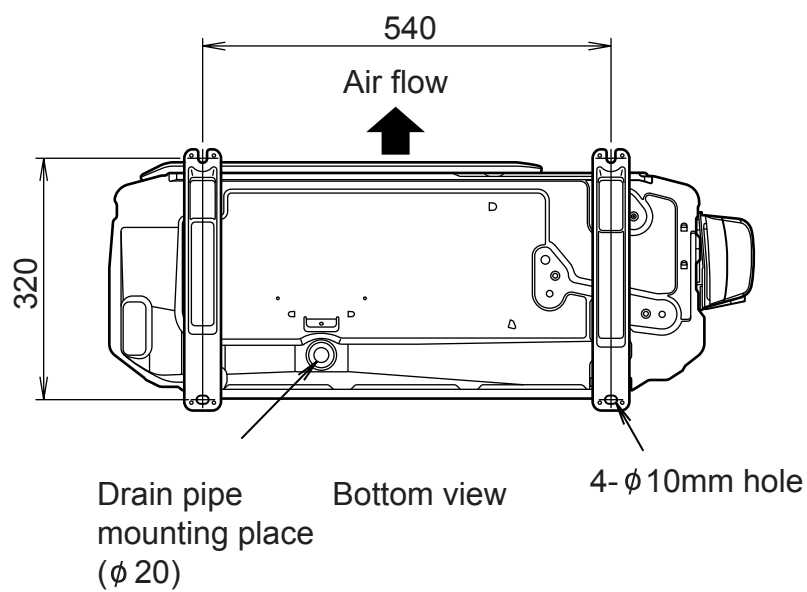
Top view



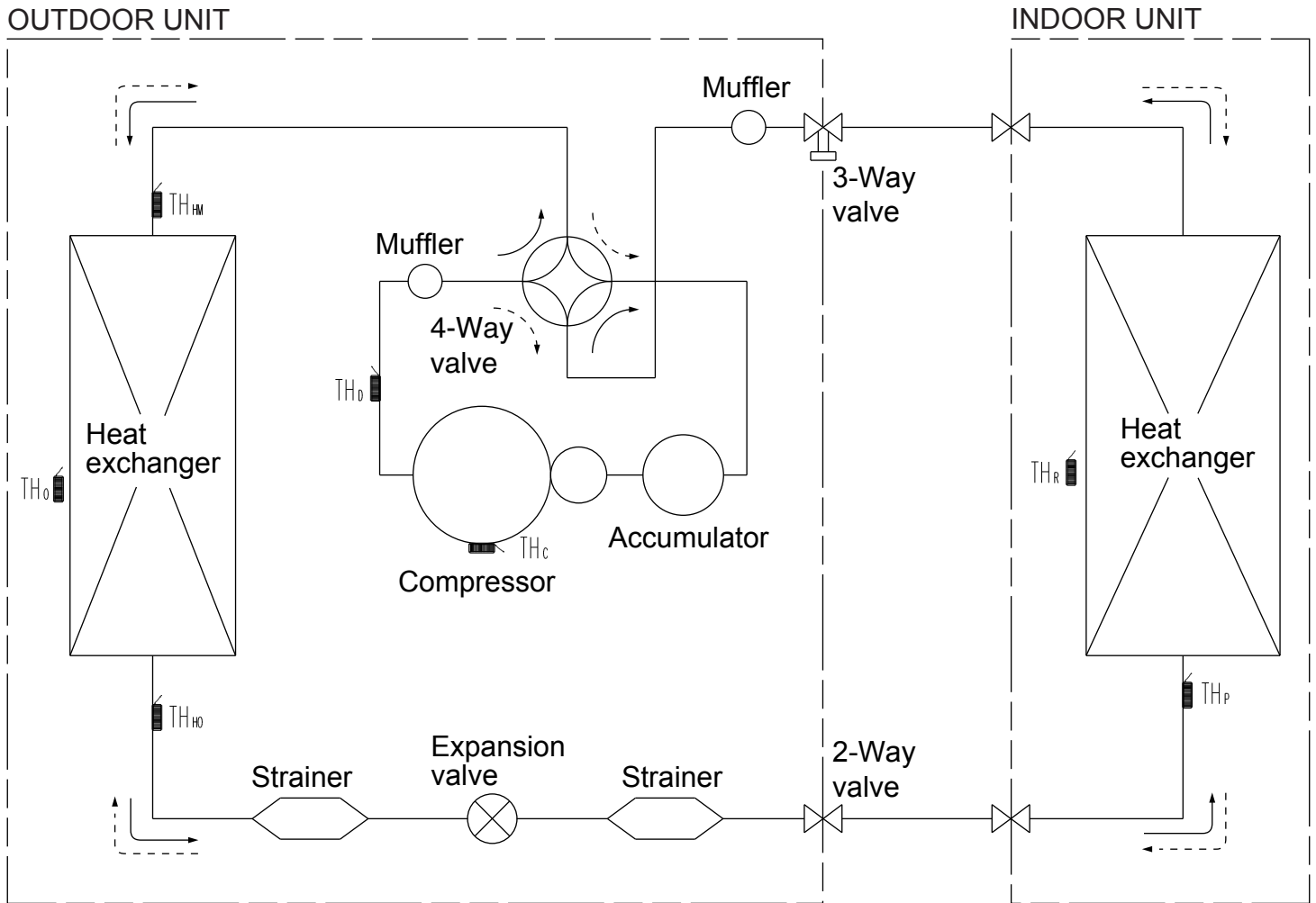
Front view



Side view



REFRIGERANT SYSTEM DIAGRAM



TH_c : Compressor thermistor
 TH_d : Discharge pipe thermistor
 TH_m : Heat exchanger thermistor (Meddle)
 TH_o : Heat exchanger thermistor (Out)
 TH_o : Outdoor thermistor

TH_p : Pipe thermistor
 TH_r : Room thermistor

<Refrigerant pipe diameter>

RCA12LALN / ROA12LACL

Liquid : 1/4" (6.35 mm)

Gas : 3/8" (9.52 mm)

RCA14LALN / ROA14LACL

RCA18LALN / ROA18LACL

Liquid : 1/4" (6.35 mm)

Gas : 1/2" (12.70 mm)

RCA24LALN / ROA24LACL

Liquid : 1/4" (6.35 mm)

Gas : 5/8" (15.88 mm)

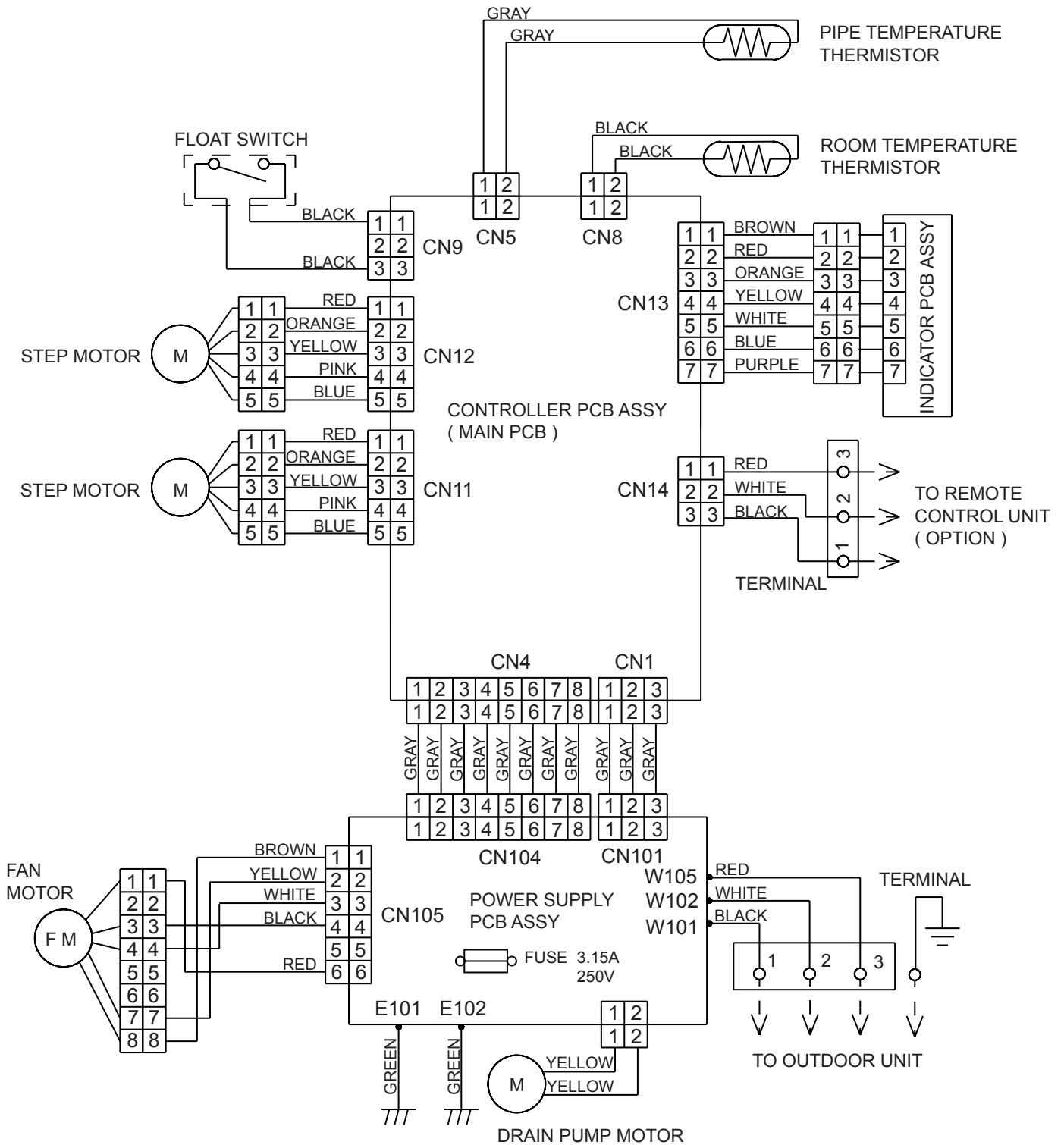
<Refrigerant direction>

→ Cooling

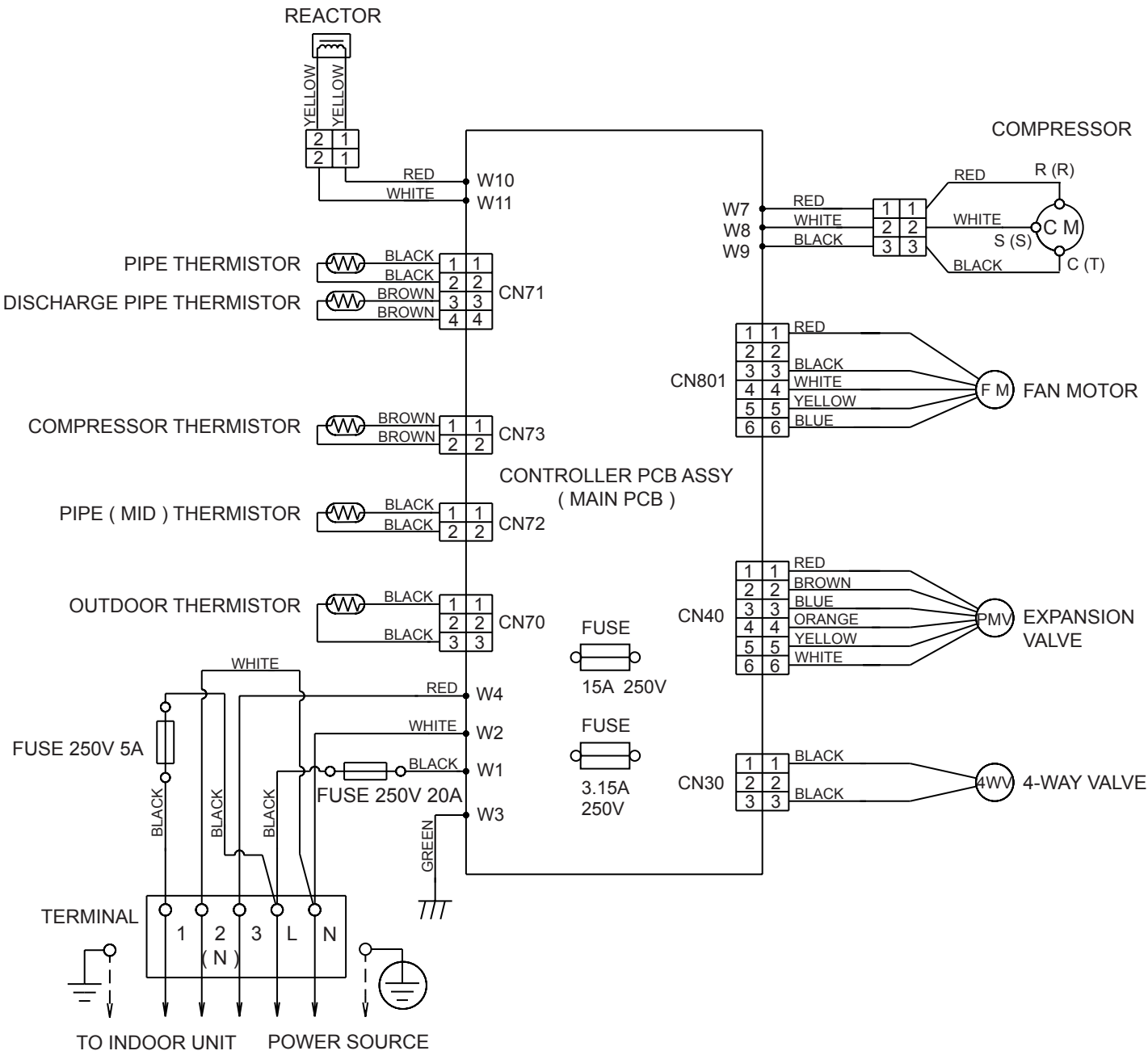
--- Heating

CIRCUIT DIAGRAM

INDOOR UNIT

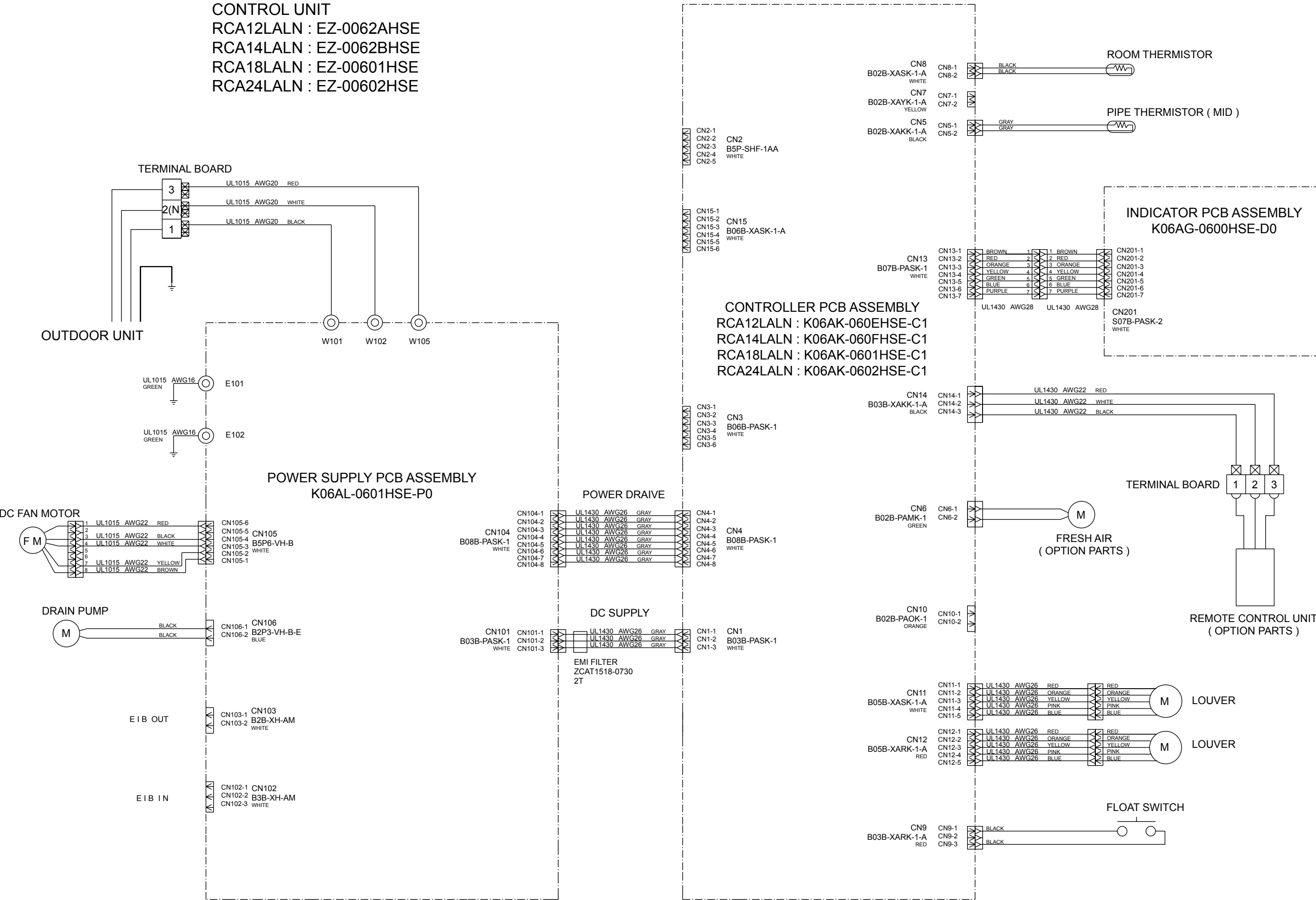


OUTDOOR UNIT



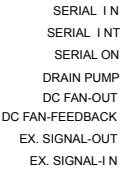
INDOOR PCB CIRCUIT DIAGRAM

CONTROL UNIT
RCA12LALN : EZ-0062AHSE
RCA14LALN : EZ-0062BHSE
RCA18LALN : EZ-00601HSE
RCA24LALN : EZ-00602HSE

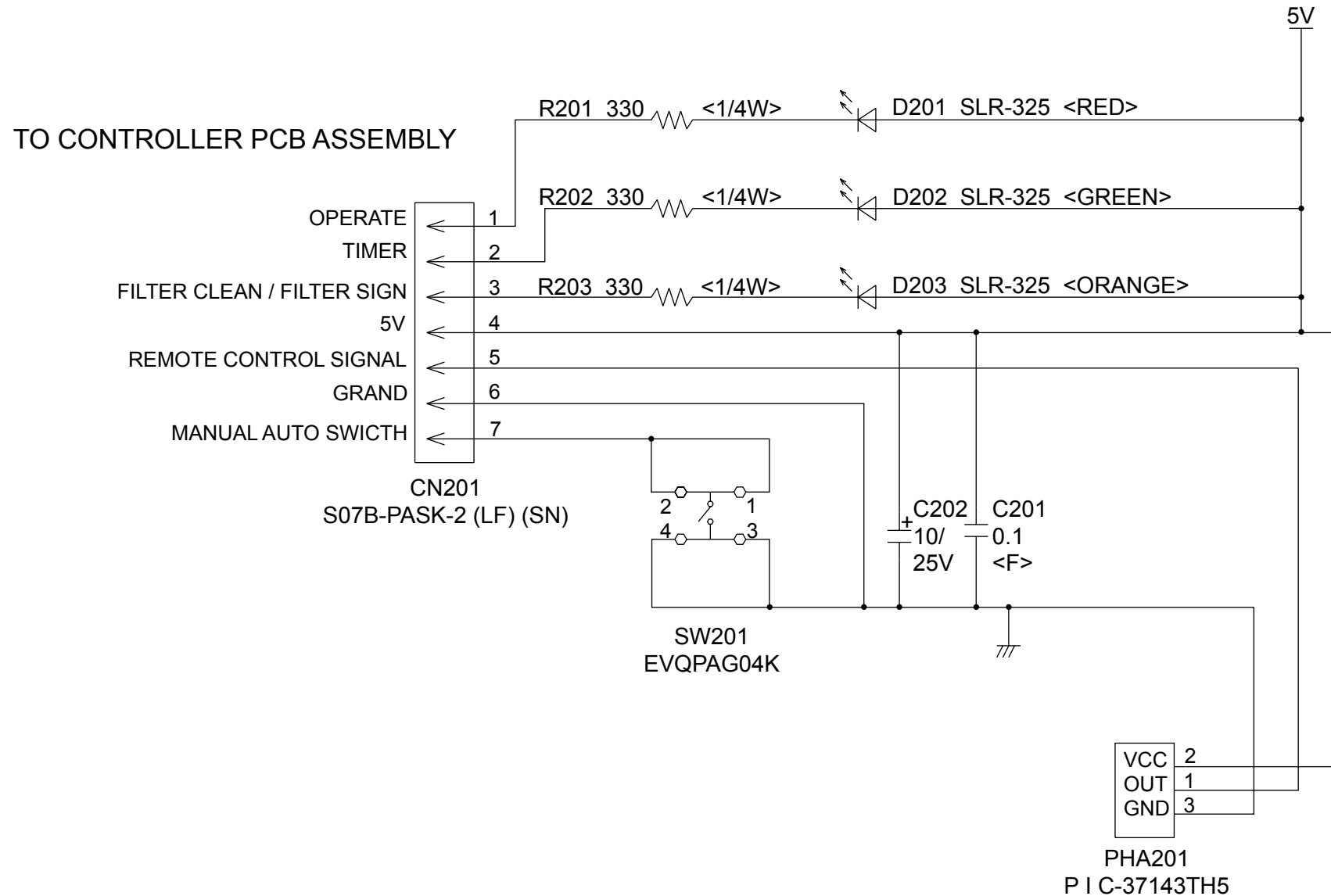


RCA24LALN : K06AK-0602HSE-C1

K06AL-0601HSE-P0

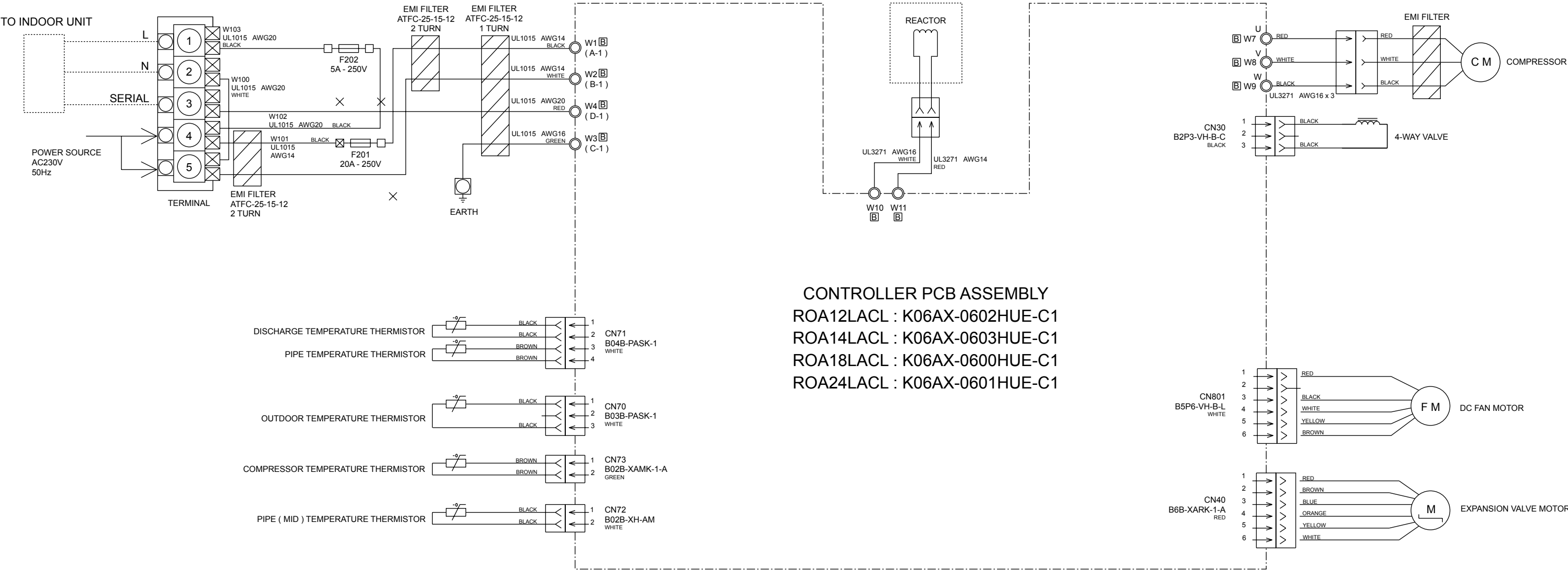


INDOOR UNIT
INDICATOR PCB ASSEMBLY
K06AG-0600HSE-D0



OUTDOOR PCB CIRCUIT DIAGRAM

INVERTER ASSEMBLY
ROA12LACL : EZ-0060RHUE
ROA14LACL : EZ-0060SHUE
ROA18LACL : EZ-0069HUE
ROA24LACL : EZ-006AHUE



POWER SOURCE
AC230V
50Hz

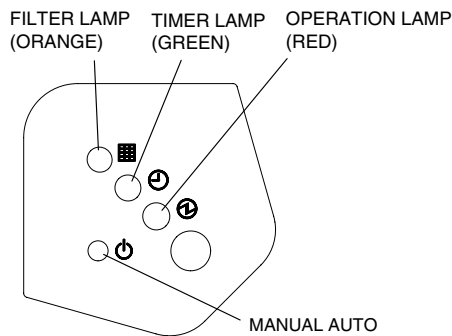
LINE FILTER



ERROR CONTENTS

INDOOR UNIT

Troubleshooting at the indoor unit display
(Troubleshooting at the display is available
either on the wired or wireless remote control.)



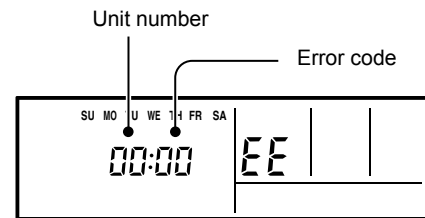
The OPERATION, TIMER and FILTER lamp operate as follows table according to the error contents.

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) ○	×
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

Troubleshooting at the wired remote control LCD
Self diagnosis

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



Ex. Self-diagnosis

Error code	Error contents
01 13 26 27	Indoor signal error
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	
16	
2b	
19	
25	

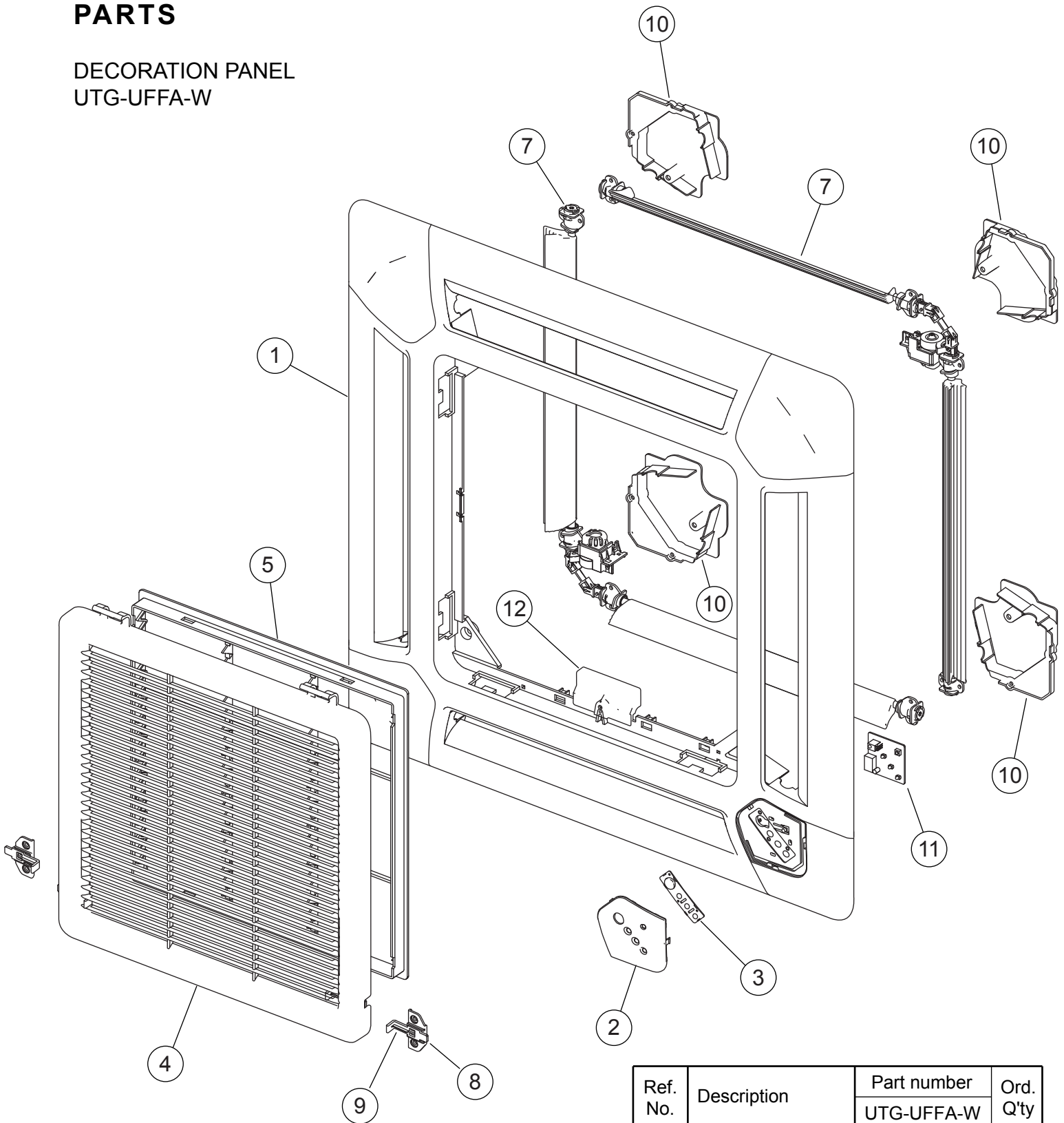
If "CO" appears in the unit number display, there is a remote controller error. Refer to the installation instruction sheet included with the remote controller.

Outdoor unit

Error contents	LED
Thermistor malfunction	on 0.1 sec / off 0.1 sec
Abnormal discharge temperature	on
Current surge protection	on 0.5 sec / off 0.5 sec
CT abnormality	on 2.0 sec / off 2.0 sec
Compressor position detection malfunction	on 0.1 sec / off 2.0 sec
Fan malfunction	on 5.0 sec / off 5.0 sec
PAM voltage abnormality	on 5.0 sec / off 0.1 sec
Timer short	on 1.0 sec / off 0.1 sec
Compressor temperature protection (permanent stop)	on 2.0 sec / off 5.0 sec
PFC surge protection (permanent stop)	on 5.0 sec / off 2.0 sec

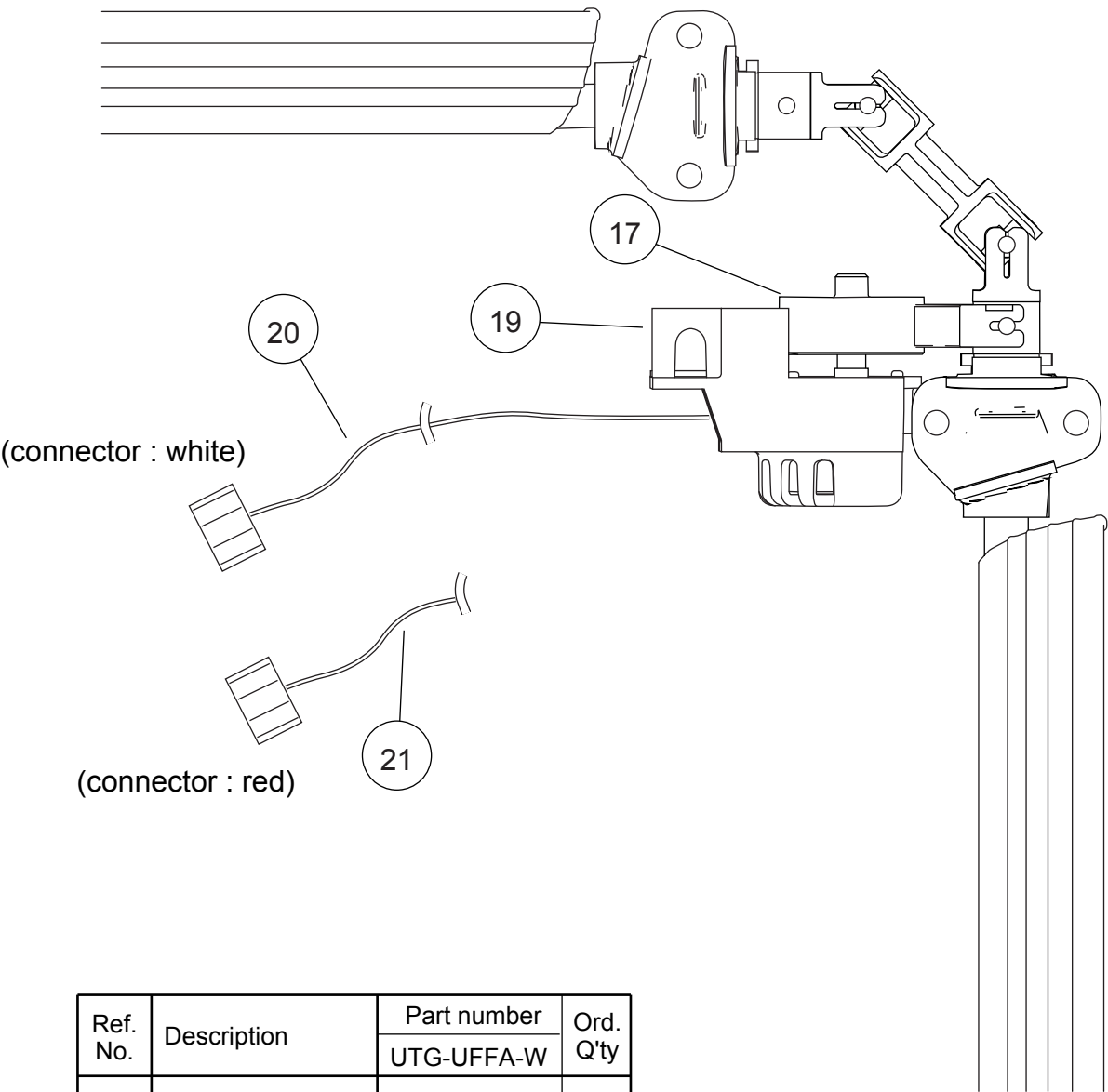
PARTS

DECORATION PANEL
UTG-UFFA-W



Ref. No.	Description	Part number	Ord. Q'ty
		UTG-UFFA-W	
1	Decoration Panel without Insulations	9375525019	
2	Display Panel	9375529031	
3	Receiver Window	9375547011	
4	Intake Grille	9375531010	
5	Long Life Filter	9375533014	
7	Flap Total Assy	9377760012	
8	Hook Bracket	9375546014	
9	Grille Hook	9375532017	
10	Panel Cover without Insulations	9375530013	
11	Indicator PCB Assy	9707371017	
12	Connector Cover	9375549015	

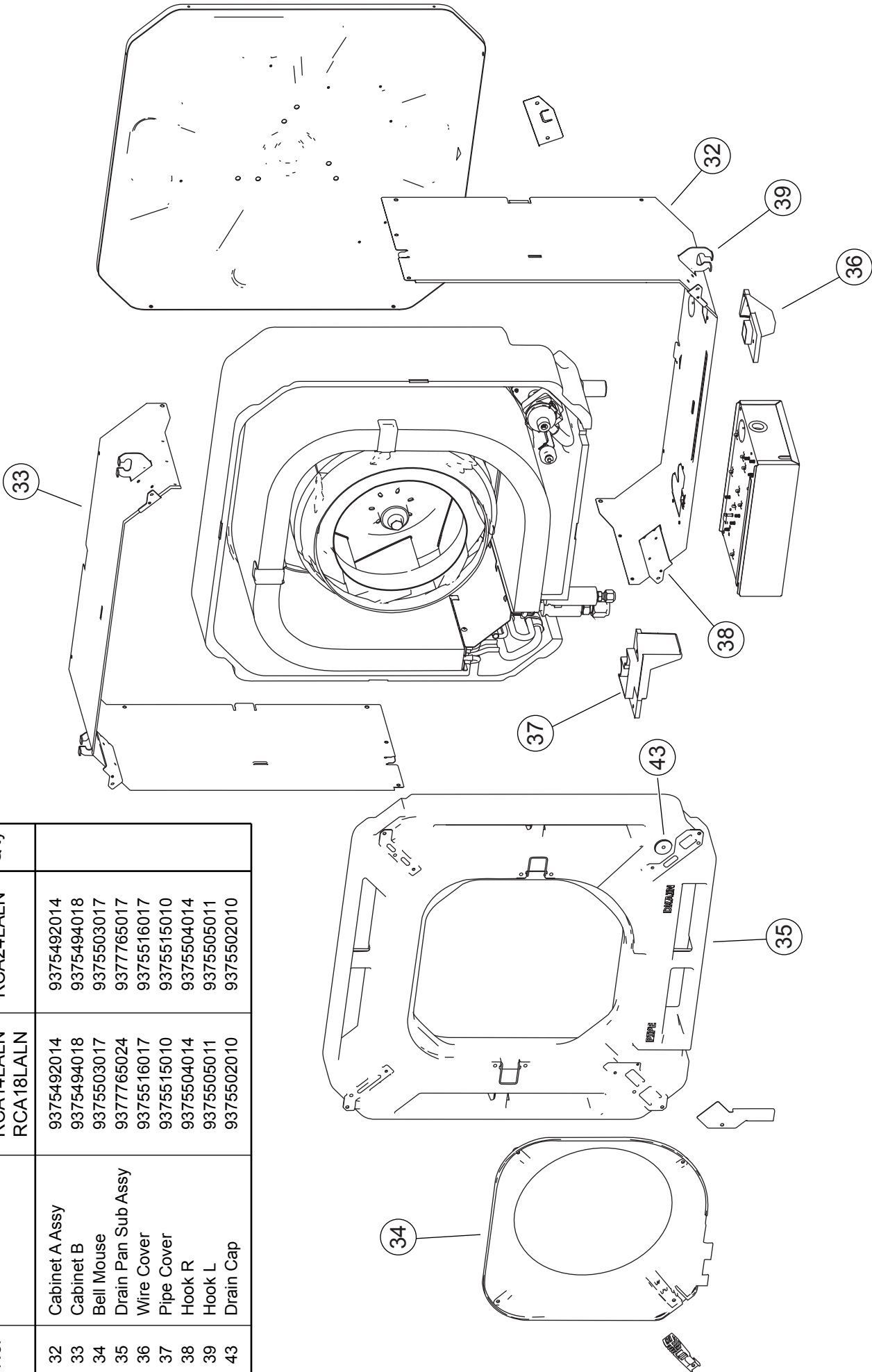
DECORATION PANEL
UTG-UFFA-W
Flap total assy
Motor holder assy



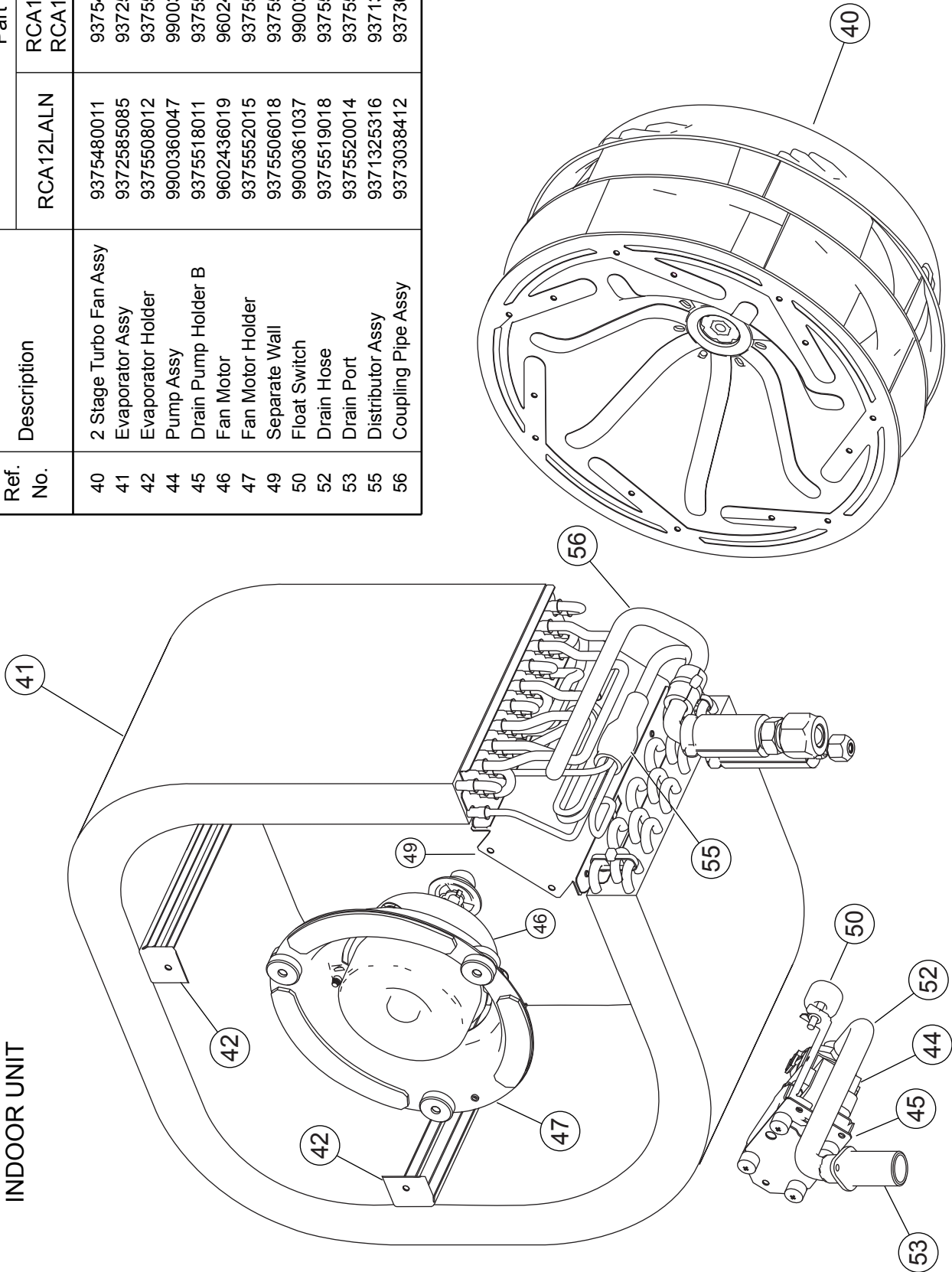
Ref. No.	Description	Part number	Ord. Q'ty
		UTG-UFFA-W	
17	Gear A	9375536015	
19	Motor Holder	9375535018	
20	Step Motor (white connector)	9900139070	
21	Step Motor (red connector)	9900139087	

INDOOR UNIT

Ref. No.	Description	Part number			Ord. Q'ty
		RCA12LALN	RCA14LALN	RCA24LALN	
32	Cabinet A Assy	9375492014		9375492014	
33	Cabinet B	9375494018		9375494018	
34	Bell Mouse	9375503017		9375503017	
35	Drain Pan Sub Assy	9377765024		9377765017	
36	Wire Cover	9375516017		9375516017	
37	Pipe Cover	9375515010		9375515010	
38	Hook R	9375504014		9375504014	
39	Hook L	9375505011		9375505011	
43	Drain Cap	9375502010		9375502010	

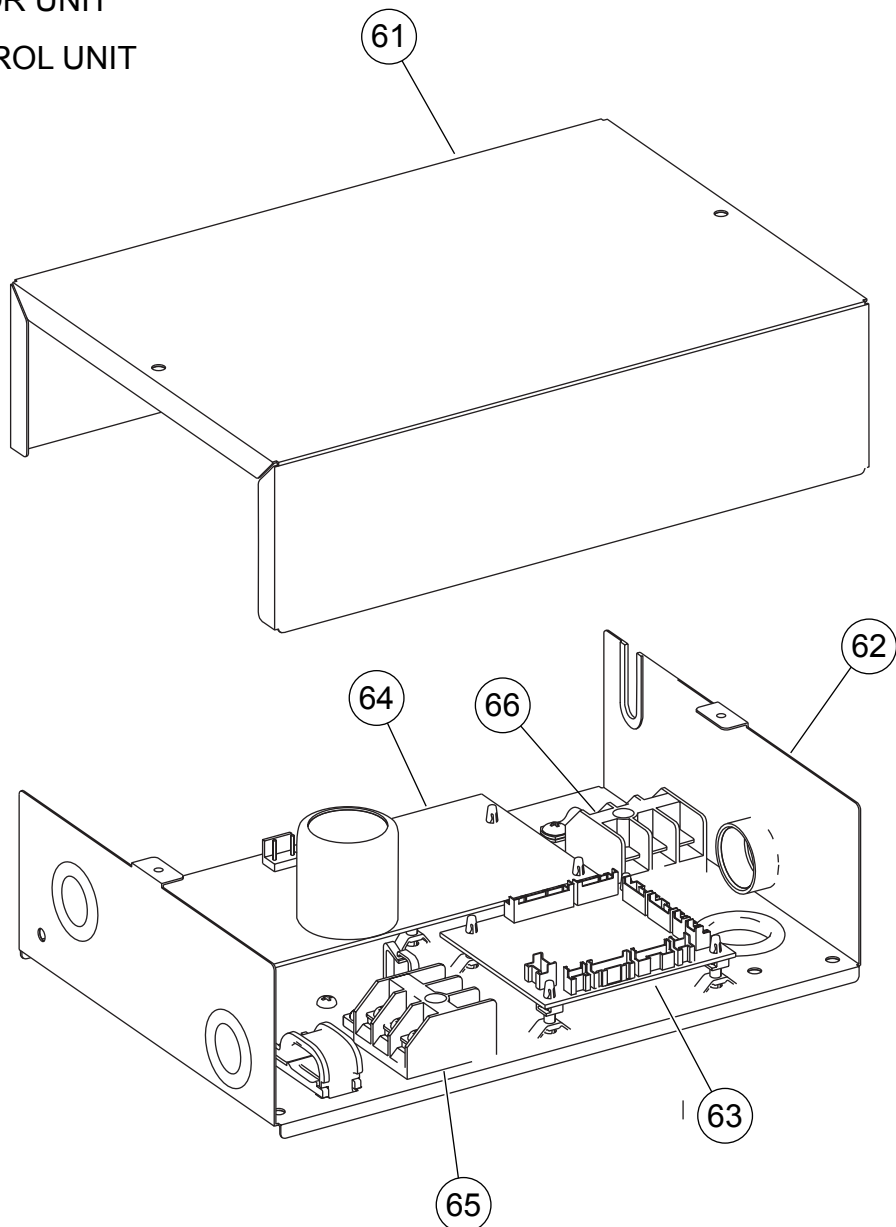


INDOOR UNIT



Ref. No.	Description	Part number			Ord. Q'ty
		RCA12LALN	RCA14LALN RCA18LALN	RCA24LALN	
40	2 Stage Turbo Fan Assy	9375480011	9375480011	9375480011	
41	Evaporator Assy	9372585085	9372585054	9372585061	
42	Evaporator Holder	9375508012	9375508012	9375507015	
44	Pump Assy	9900360047	9900360047	9900360047	
45	Drain Pump Holder B	9375518011	9375518011	9375518011	
46	Fan Motor	9602436019	9602436019	9602436019	
47	Fan Motor Holder	9375552015	9375552015	9375552015	
49	Separate Wall	9375506018	9375506018	9375506018	
50	Float Switch	9900361037	9900361037	9900361037	
52	Drain Hose	9375519018	9375519018	9375519018	
53	Drain Port	9375520014	9375520014	9375520014	
55	Distributor Assy	9371325316	9371325316	9371325330	
56	Coupling Pipe Assy	9373038412	9373038368	9373038375	

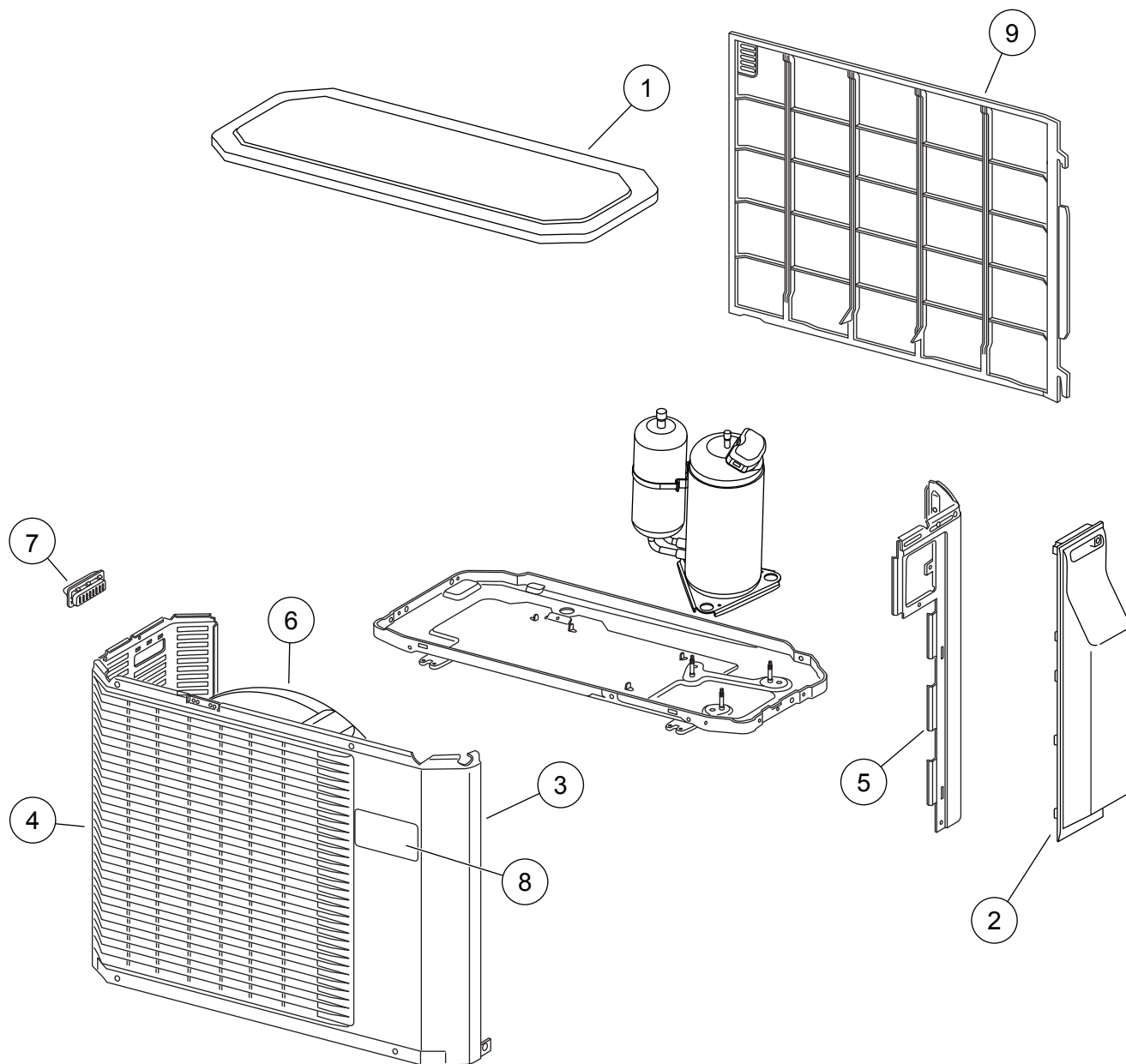
INDOOR UNIT
CONTROL UNIT



Ref. No.	Description	Part number				Ord. Q'ty
		RCA12LALN	RCA14LALN	RCA18LALN	RCA24LALN	
61	Control Box Cover	9375512019	9375512019	9375512019	9375512019	
62	Control Box A	9375511012	9375511012	9375511012	9375511012	
63	Controller PCB Assy	9707393156	9707393163	9707393026	9707393033	
64	Puwer Supply PCB Assy	9707398021	9707398021	9707398021	9707398021	
65	Terminal	9306489045	9306489045	9306489045	9306489045	
66	Terminal	9703345012	9703345012	9703345012	9703345012	
---	Pipe Thermistor	9703297014	9703297014	9703297014	9703297014	
---	Room Thermistor	9703299223	9703299223	9703299223	9703299223	

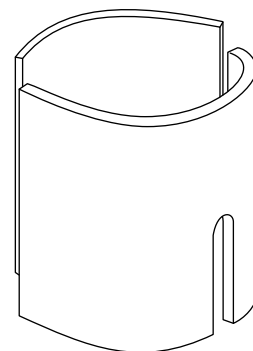
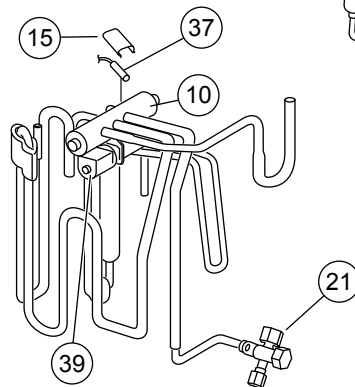
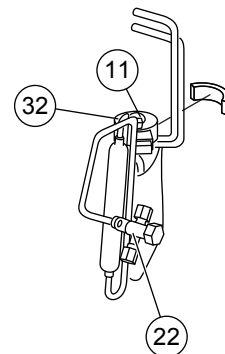
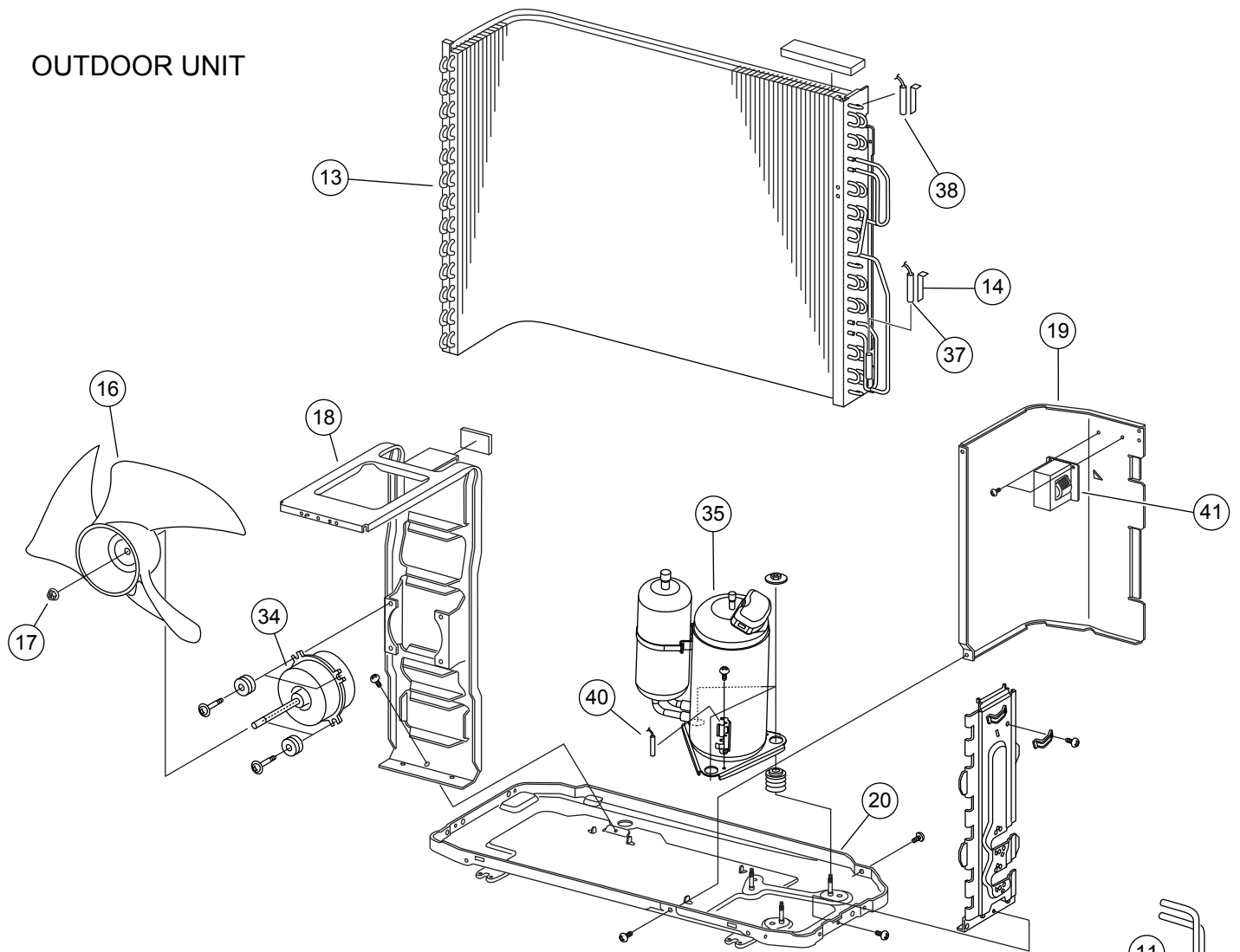
PARTS

OUTDOOR UNIT



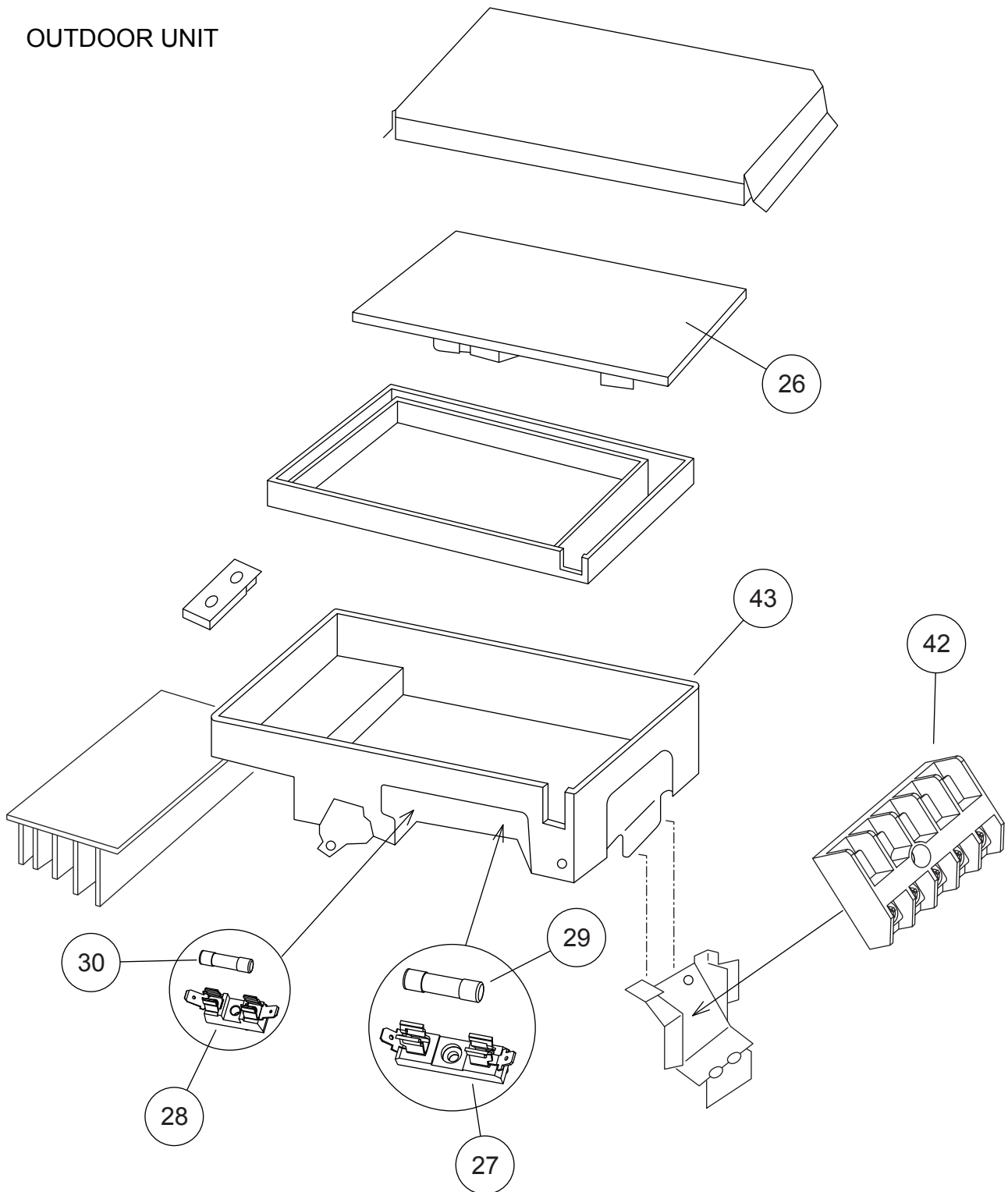
Ref. No.	Description	Part number		Ord. Q'ty
		ROA12LACL ROA14LACL ROA18LACL	ROA24LACL	
1	Top Panel Assy	9309230057	9309230057	
2	Cover (Switch) Assy	9309237032	9309237032	
3	Cabinet Assy	9314809040	9314809019	
4	Blow Down Grille	9308884015	9308884015	
5	Cabinet Right Assy	9309236011	9309236028	
6	Fan Ring	9308885012	9308885012	
7	Grip	9308880017	9308880017	
8	Emblem	9312637034	9312637034	
9	Protective Net	9315319012	9315033017	

OUTDOOR UNIT



Ref. No.	Description	Part number		Ord. Q'ty
		ROA12, 14, 18LACL	ROA24LACL	
10	4-Way Valve	9900047016	9900163013	
11	Pulse Motor Valve Assy	9311641018	9315310019	
13	Condenser Assy	9311382027	9315302014	
14	Thermistor Spring A	313728262708	313728262708	
15	Thermistor Spring	9300089012	9300089012	
16	Propeller Fan	9309909014	9309909014	
17	Nut	9304902003	9304902003	
18	Motor Bracket	9308872012	9308872029	
19	Separator Assy	9312971015	9312971015	
20	Base Assy	9308869081	9315296030	
21	3-Way Valve Assy	9315159014	9315414014	
22	2-Way Valve Assy	9313064013	9313062019	
32	Expansion Valve Coil	9900057039	9900057039	
34	Fan Motor	9602133017	9602451012	
35	Compressor Assy	9313763039	9315297037	
37	Thermistor Assy	9900148027	9900148027	
38	Heat Exchanger Thermistor	9900403010	9900403010	
39	Solenoid Coil	9970033018	9970055010	
40	Compressor Thermistor	9900156046	9900156046	
41	Reactor Assy	9900354015	9900354015	
---	Outdoor Thermistor	9900210045	9900210045	
---	Distributor	---	9315387011	
---	Condenser Assy B	---	9315303011	

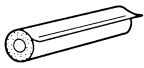
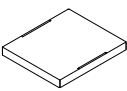
OUTDOOR UNIT



Ref. No.	Description	Part number				Ord. Q'ty
		ROA12LACL	ROA14LACL	ROA18LACL	ROA18LACL	
26	Inverter PCB Assy	9707427035	9707427042	9707427011	9707427028	
27	Fuse Holder	0501454012	0501454012	0501454012	0501454012	
28	Fuse Holder	0501456016	0501456016	0501456016	0501456016	
29	Fuse	0600382018	0600382018	0600382018	0600382018	
30	Fuse	0600372163	0600372163	0600372163	0600372163	
42	Terminal	9703874031	9703874031	9703874031	9703874031	
43	Inverter Case Assy	9315690012	9315690012	9315690012	9315690012	

STANDARD ACCESSORIES

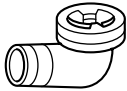
INDOOR UNIT

Name and Shape	Q'ty	Application
Coupler heat insulation 	2	For indoor side pipe joint
Special nut A (large flange) 	4	For installing indoor unit
Special nut B (small flange) 	4	For installing indoor unit
Template (Carton top) 	1	For cealing openings cutting Also used as packing

DECORATION PANEL

Name and Shape	Q'ty	Application
Connector cover 	4	For covering connector
Screw 	4	For mounting decoration panel
Screw 	1	For mounting connector cover

OUTDOOR UNIT

Name and Shape	Q'ty	Application	Part number
Drain pipe 	1	For outdoor unit drain piping work.	9303029015
Adapter assy 		To connect 12,000 BTU model	9370244007

