

SPLIT TYPE
AIR CONDITIONER
DUCT TYPE (50Hz)



SERVICE MANUAL



Indoor unit	Outdoor unit
ARHG90LHTA	AOHG90LRLA

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SPECIFICATIONS

ELECTRICAL DATA

INDOOR UNIT		ARHG90LHTA
OUTDOOR UNIT		AOHG90LRLA
POWER SUPPLY Indoor		Single phase 230V 50Hz
POWER SUPPLY Outdoor		Three phase 400V 50Hz
COOLING	Capacity	22.00 kW
	Power consumption	7.77 kW
	EER	2.83 kW/kW
	Rated operating current Indoor	3.5 A
	Rated operating current Outdoor	13.5 A
	Max operating current Indoor	6.0 A
	Max operating current Outdoor	14.6 A
	Moisture removal	6.0 L/h
HEATING	Capacity	27.00 kW
	Power consumption	8.18 kW
	COP	3.30 kW/kW
	Rated operating current Indoor	3.5 A
	Rated operating current Outdoor	14.1 A
	Max operating current Indoor	6.0 A
	Max operating current Outdoor	14.6 A

FAN MOTOR DISCRIMINATION

INDOOR UNIT	MFG-ZK1KA2N
OUTDOOR UNIT	MFE-ZA2VB2N

FAN REVOLUTION

INDOOR UNIT	High	1,210 rpm
	Medium	1,100 rpm
	Low	990 rpm
	Quiet	880 rpm
OUTDOOR UNIT	Cooling	Upper 730 / Lower 690
	Heating	Upper 780 / Lower 740

AIR CIRCULATION

INDOOR UNIT	High	4,300 m³/h
	Medium	3,900 m³/h
	Low	3,450 m³/h
	Quiet	3,000 m³/h
OUTDOOR UNIT	Cooling	8,400 m³/h
	Heating	9,000 m³/h

NOISE LEVEL

INDOOR UNIT	High	47 dB
	Medium	44 dB
	Low	42 dB
	Quiet	40 dB
OUTDOOR UNIT	Cooling	55 dB
	Heating	57 dB

Static pressure : 72Pa

Duct length : Inlet 1m, Outlet 2m

COMPRESSOR AND REFRIGERANT

COMPRESSOR TYPE	Scroll type, 3 pole, 3 phase, DC brushless motor	
DISCRIMINATION	ANB66FVFM	
WEIGHT (with oil)	37.6 kg	
PRECHARGED REFRIGERANT	7,100 g	
REFRIGERANT TYPE	R410A	
FULL CHARGE	Pipe length 30 m	7,100 g
	50 m	9,300 g
	70 m	11,500 g
	100 m	14,800 g
ADDITIONAL CHARGE		110 g/m
MAX PIPE HEIGHT		30 m

DIMENSIONS

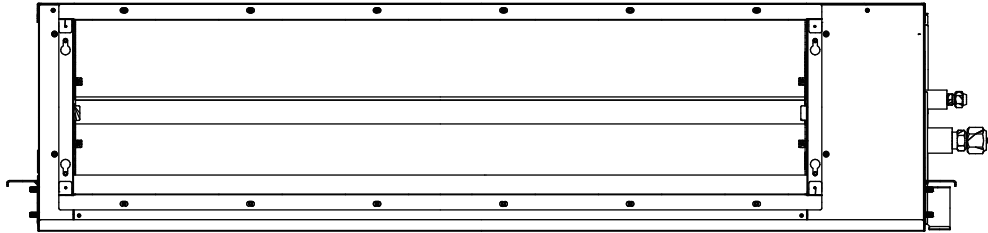
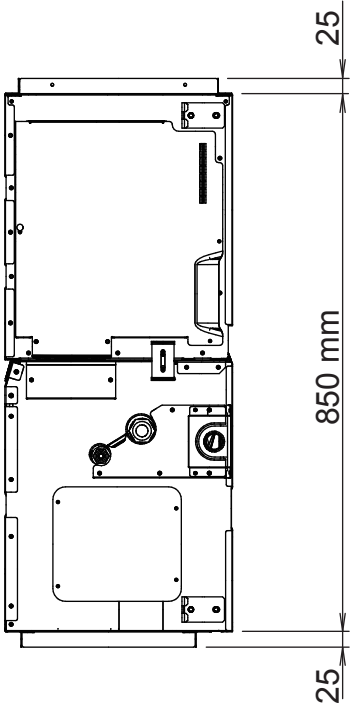
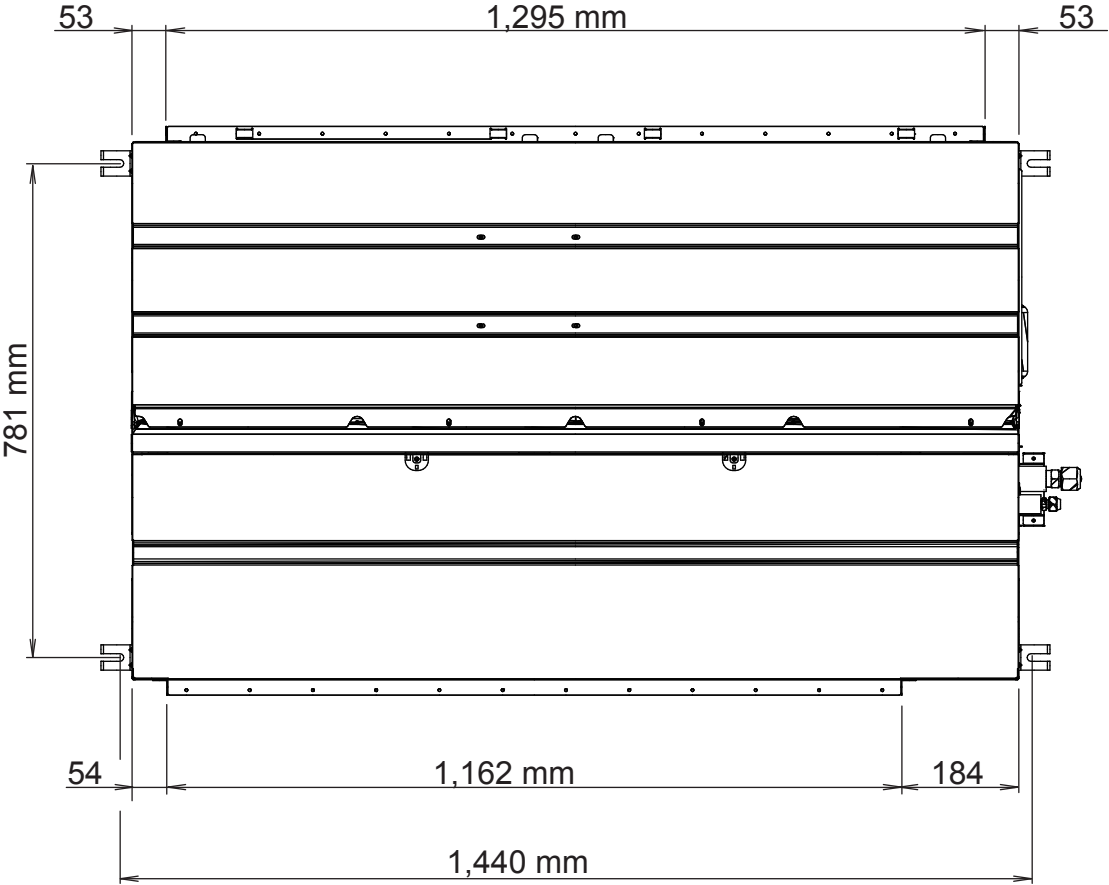
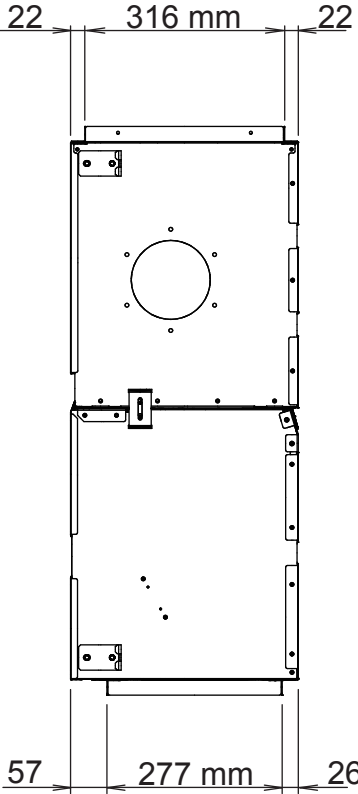
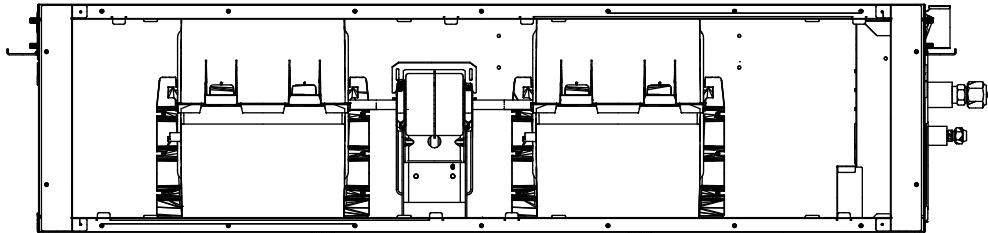
INDOOR UNIT	H x W x D	360 x 1,400 x 850 mm
OUTDOOR UNIT	H x W x D	1,428 x 1,080 x 480 mm

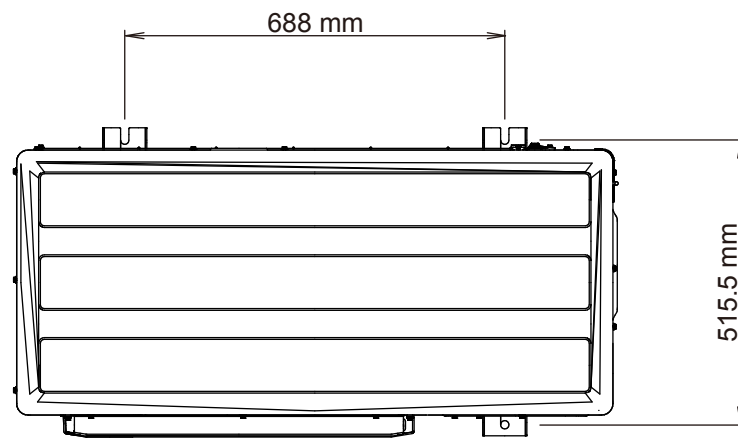
WEIGHT

INDOOR UNIT	Net / Shipping	80 kg / 91 kg
OUTDOOR UNIT	Net / Shipping	174 kg / 192 kg

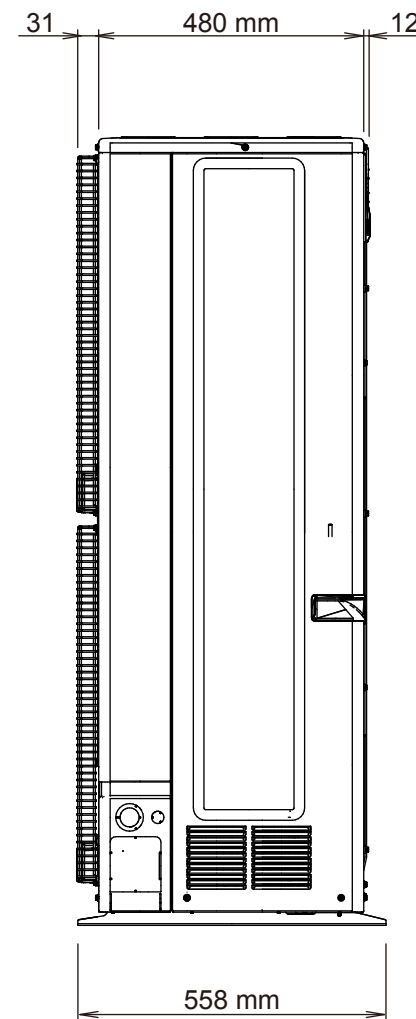
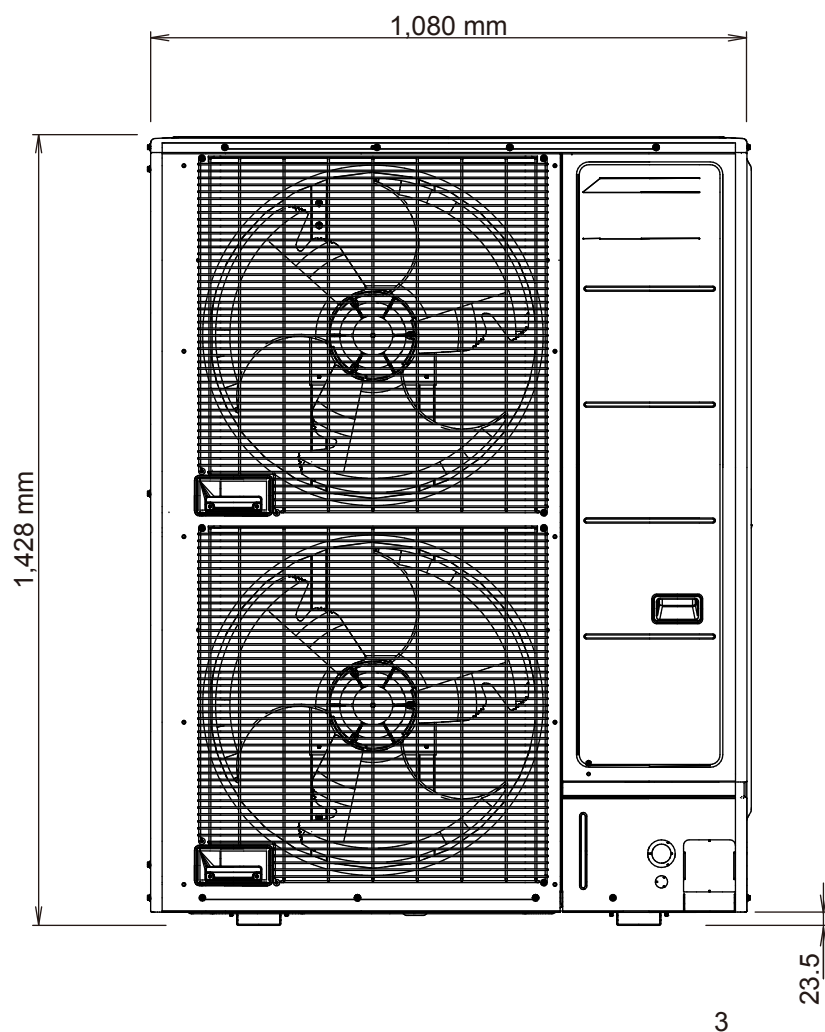
DIMENSIONS

INDOOR UNIT





OUTDOOR UNIT



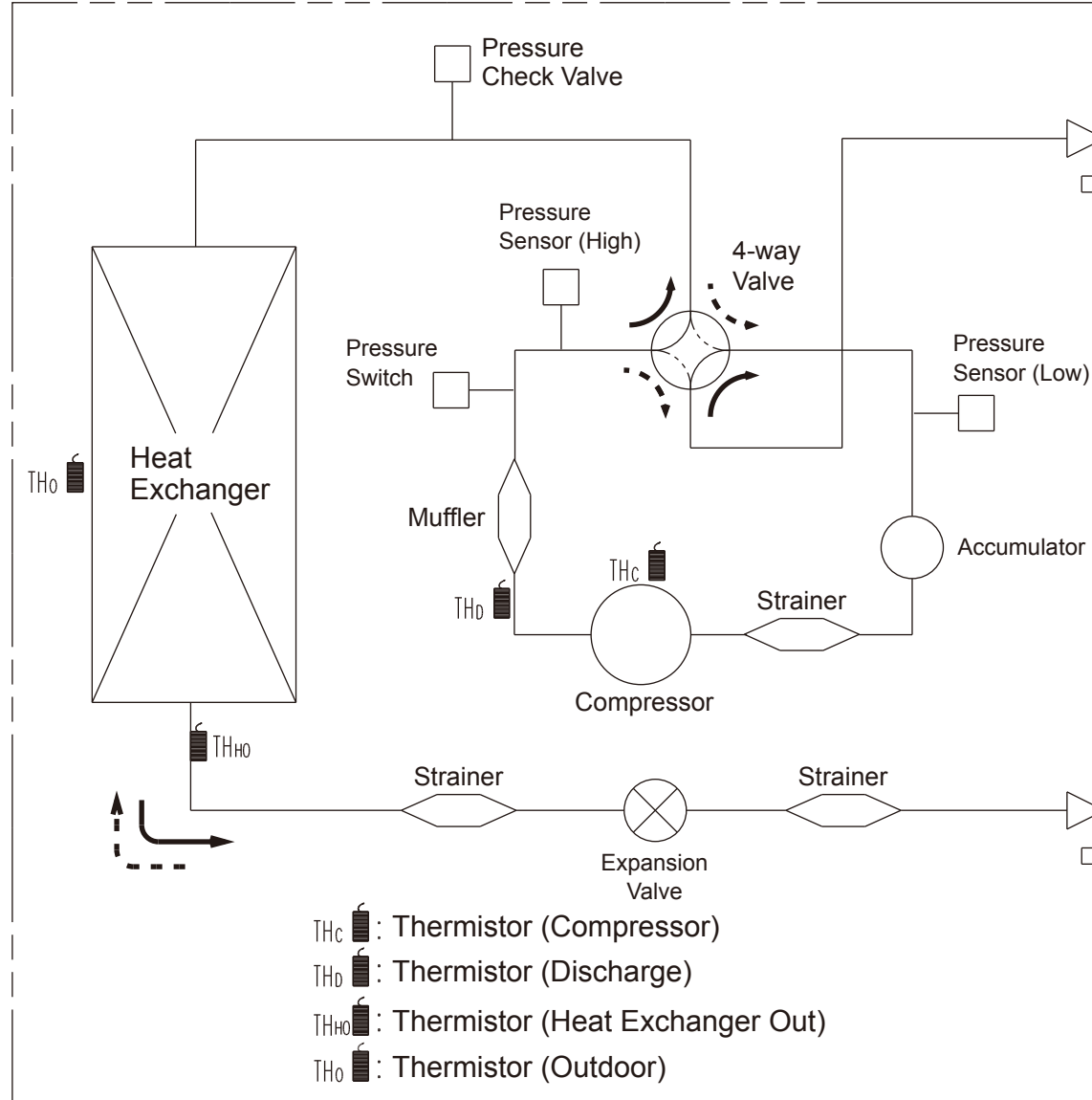
REFRIGERANT SYSTEM DIAGRAM

Refrigerant flow

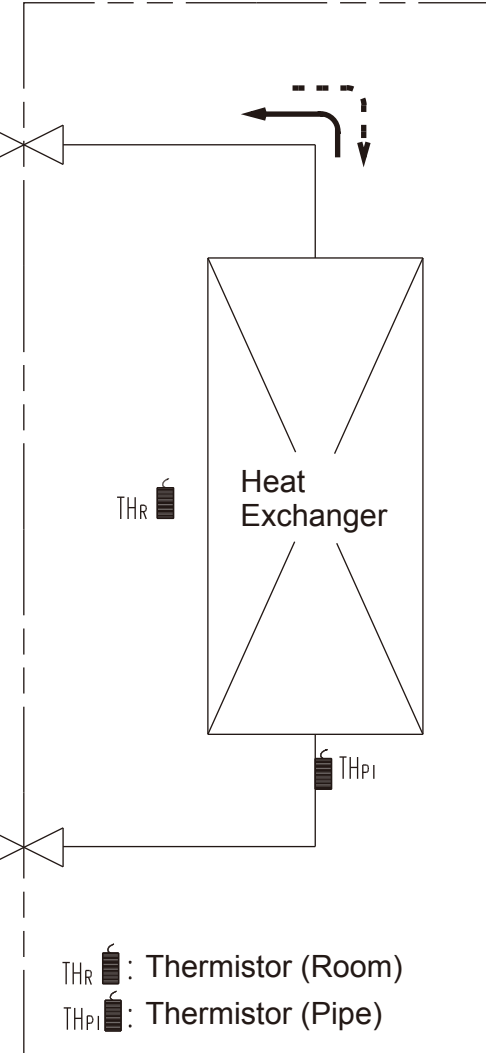
—→ : Cool

- - -→ : Heat

OUTDOOR UNIT



INDOOR UNIT



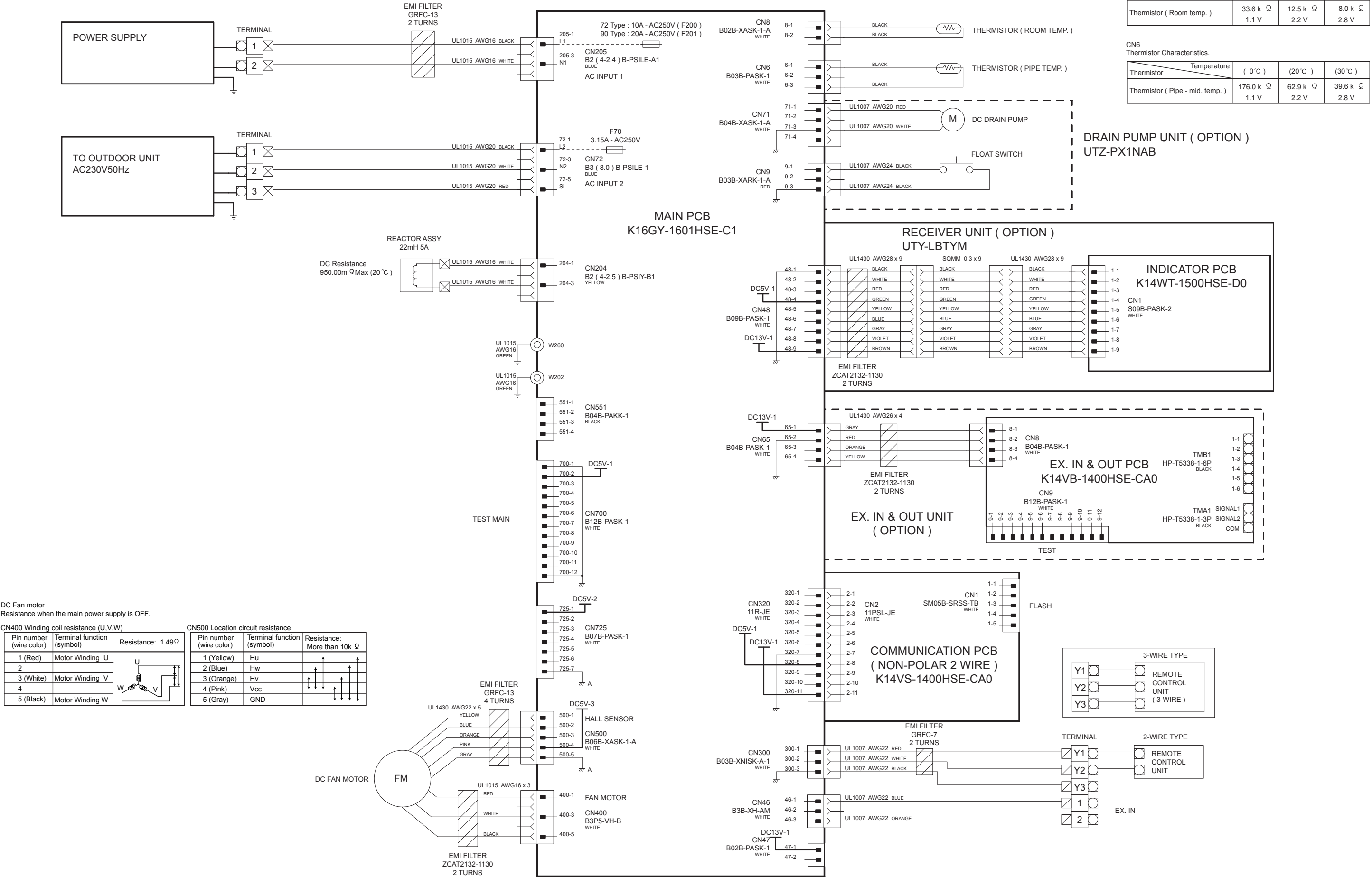
INDOOR UNIT



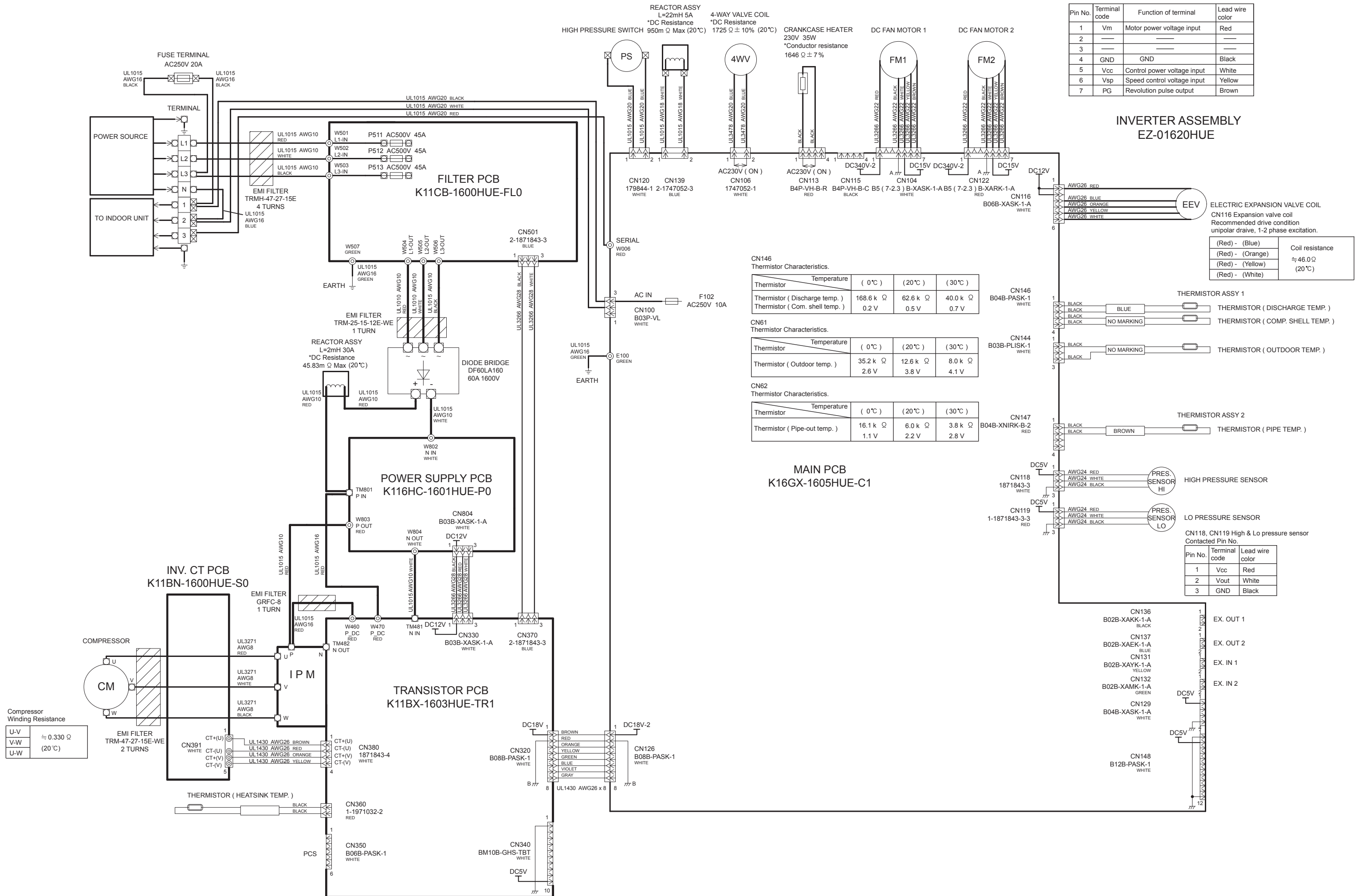
PCB CIRCUIT DIAGRAM

INDOOR UNIT

CONTROL UNIT
EZ-0160SHSE



OUTDOOR UNIT



ERROR DETECTION

INDOOR UNIT

If you use a wired type remote control, error codes will appear on the remote control display. If you use a wireless remote control, the lamps on the IR receiver unit will output error codes by way of blinking patterns. See the lamp blinking patterns and error codes in the table below. An error display is displayed only during operation. For more details, refer to the installation manual of the remote control.

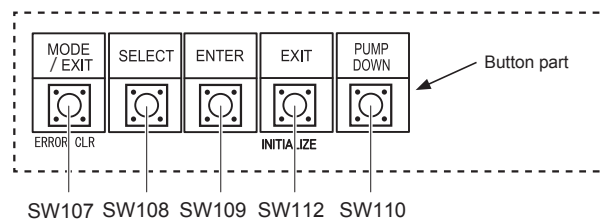
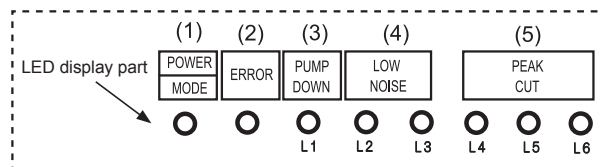
Error display			Wired remote control Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(1)	●(1)	◇	11	Serial communication error
●(1)	●(2)	◇	12	Wired remote control communication error
●(1)	●(5)	◇	15	Check run unfinished Automatic airflow adjustment error
●(1)	●(6)	◇	16	Peripheral unit transmission PCB connection error
●(1)	●(8)	◇	18	External communication error
●(2)	●(1)	◇	21	Unit number or Refrigerant circuit address setting error [Simultaneous Multi]
●(2)	●(2)	◇	22	Indoor unit capacity error
●(2)	●(3)	◇	23	Combination error
●(2)	●(4)	◇	24	• Connection unit number error (indoor secondary unit) [Simultaneous Multi] • Connection unit number error (indoor unit or branch unit) [Flexible Multi]
●(2)	●(6)	◇	26	Indoor unit address setting error
●(2)	●(7)	◇	27	Primary unit, secondary unit setup error [Simultaneous Multi]
●(2)	●(9)	◇	29	Connection unit number error in wired remote controller system
●(3)	●(1)	◇	31	Power supply interruption error
●(3)	●(2)	◇	32	Indoor unit PCB model information error
●(3)	●(3)	◇	33	Indoor unit motor electricity consumption detection error
●(3)	●(5)	◇	35	Manual auto switch error
●(3)	●(9)	◇	39	Indoor unit power supply error for fan motor
●(3)	●(10)	◇	3A	Indoor unit communication circuit (wired remote controller) error
●(4)	●(1)	◇	41	Room temp. sensor error
●(4)	●(2)	◇	42	Indoor unit heat ex. middle temp. sensor error
●(4)	●(4)	◇	44	Human sensor error
●(5)	●(1)	◇	51	Indoor unit fan motor error
●(5)	●(3)	◇	53	Drain pump error
●(5)	●(7)	◇	57	Damper error
●(5)	●(15)	◇	5U	Indoor unit error
●(6)	●(1)	◇	61	Outdoor unit reverse/missing phase and wiring error
●(6)	●(2)	◇	62	Outdoor unit main PCB model information error or communication error
●(6)	●(3)	◇	63	Inverter error
●(6)	●(4)	◇	64	Active filter error, PFC circuit error
●(6)	●(5)	◇	65	Trip terminal L error

Error display			Wired remote control Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(6)	●(8)	◇	68	Outdoor unit rush current limiting resistor temp. rise error
●(6)	●(10)	◇	6A	Display PCB microcomputers communication error
●(7)	●(1)	◇	71	Discharge temp. sensor error
●(7)	●(2)	◇	72	Compressor temp. sensor error
●(7)	●(3)	◇	73	Outdoor unit Heat Ex. liquid temp. sensor error
●(7)	●(4)	◇	74	Outdoor temp. sensor error
●(7)	●(5)	◇	75	Suction Gas temp. sensor error
●(7)	●(6)	◇	76	• 2-way valve temp. sensor error • 3-way valve temp. sensor error
●(7)	●(7)	◇	77	Heat sink temp. sensor error
●(8)	●(2)	◇	82	• Sub-cool Heat Ex. gas inlet temp. sensor error • Sub-cool Heat Ex. gas outlet temp. sensor error
●(8)	●(3)	◇	83	Liquid pipe temp. sensor error
●(8)	●(4)	◇	84	Current sensor error
●(8)	●(6)	◇	86	• Discharge pressure sensor error • Suction pressure sensor error • High pressure switch error
●(9)	●(4)	◇	94	Trip detection
●(9)	●(5)	◇	95	Compressor rotor position detection error (permanent stop)
●(9)	●(7)	◇	97	Outdoor unit fan motor 1 error
●(9)	●(8)	◇	98	Outdoor unit fan motor 2 error
●(9)	●(9)	◇	99	4-way valve error
●(9)	●(10)	◇	9A	Coil (expansion valve) error
●(10)	●(1)	◇	A1	Discharge temp. error
●(10)	●(3)	◇	A3	Compressor temp. error
●(10)	●(4)	◇	A4	High pressure error
●(10)	●(5)	◇	A5	Low pressure error
●(13)	●(2)	◇	J2	Branch boxes error [Flexible Multi]

Display mode ● : 0.5s ON / 0.5s OFF
◇ : 0.1s ON / 0.1s OFF
) (of flashing Number

OUTDOOR UNIT ERROR CODE DISPLAY

You can determine the operating status by the lighting up and blinking of the LED lamp.



Display when an error occurs

POWER MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2) (L3)		PEAK CUT (L4) (L5) (L6)		
●	Blink (Hi speed)	○	○	○	○	○	○

Sign "○": Lights off, "●": Lights on

Check that the "ERROR" LED blinks, then press the [ENTER] button once.

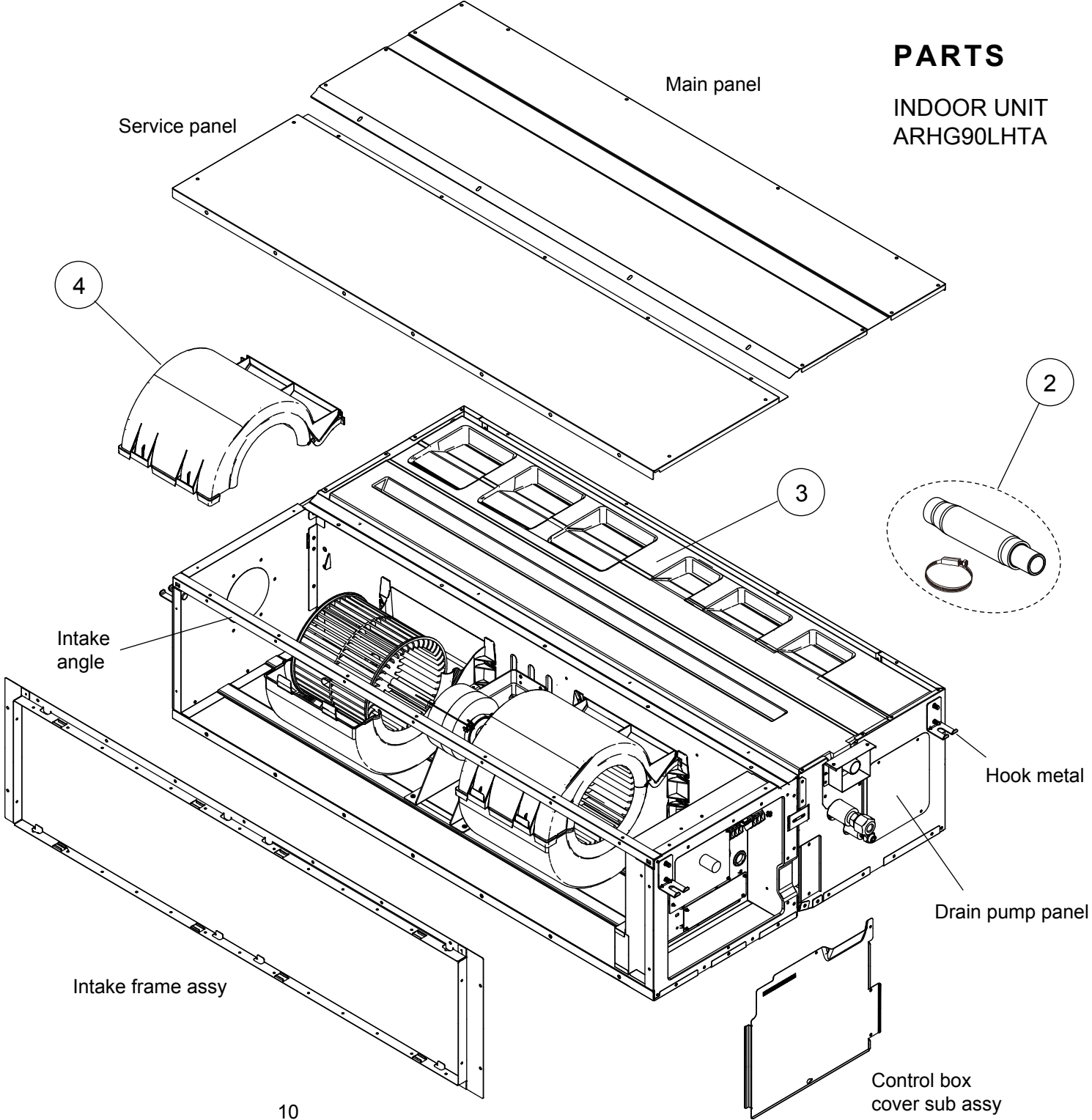
Display mode ● : Lights on
○ : Lights off
◆ : Blink (0.5s Lights on / 0.5s Lights off)
() : Number of flashing

Error code check table

LED display								DESCRIPTION	REMARK
POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT				
		(L1)	(L2)	(L3)	(L4)	(L5)	(L6)		
◆(2)	●	◆(1)	◆(1)	○	○	●	●	Serial communication error	Serial forward transmission error immediately after operation
◆(2)	●	◆(1)	◆(1)	○	●	○	○		Serial forward transmission error during operation
◆(2)	●	◆(2)	◆(2)	○	○	○	●	Indoor unit capacity error	Indoor unit capacity error
◆(2)	●	◆(5)	◆(15)	○	○	○	●	Indoor unit error	Indoor unit error
◆(2)	●	◆(6)	◆(2)	○	○	○	●	Outdoor unit main PCB error	Outdoor unit PCB model information error
◆(2)	●	◆(6)	◆(3)	○	○	○	●	Inverter PCB error	Inverter error
◆(2)	●	◆(6)	◆(5)	○	○	●	●	IPM error	Trip terminal L error
◆(2)	●	◆(7)	◆(1)	○	○	○	●	Discharge temp. sensor error	Discharge temp. sensor 1 error
◆(2)	●	◆(7)	◆(2)	○	○	○	●	Compressor temp. sensor error	Compressor temp. sensor 1 error
◆(2)	●	◆(7)	◆(3)	○	○	●	○	Outdoor unit Heat Ex. sensor error	Heat Ex. middle temp. sensor error
◆(2)	●	◆(7)	◆(3)	○	○	●	●		Outdoor unit Heat Ex. liquid temp. sensor error
◆(2)	●	◆(7)	◆(4)	○	○	○	●	Outdoor temp. sensor error	Outdoor temp. sensor error
◆(2)	●	◆(7)	◆(7)	○	○	○	●	Heat sink temp. sensor error	Heat sink temp. sensor error
◆(2)	●	◆(8)	◆(4)	○	○	○	●	Current sensor error	Current sensor 1 error (stoppage permanently)
◆(2)	●	◆(8)	◆(6)	○	●	○	○	Pressure sensor error	High pressure switch 1 error
◆(2)	●	◆(8)	◆(6)	○	○	○	●		Outdoor unit discharge pressure sensor error
◆(2)	●	◆(8)	◆(6)	○	○	●	●		Outdoor unit suction pressure sensor error
◆(2)	●	◆(9)	◆(4)	○	○	○	●	Trip detection	Trip detection
◆(2)	●	◆(9)	◆(5)	○	○	○	●	Compressor motor control error	Rotor position detection error (stoppage permanently)
◆(2)	●	◆(9)	◆(7)	○	○	●	●	Outdoor unit fan motor 1 error	Duty error
◆(2)	●	◆(9)	◆(8)	○	○	●	●	Outdoor unit fan motor 2 error	Duty error
◆(2)	●	◆(9)	◆(9)	○	○	○	●	4-way valve error	4-way valve error
◆(2)	●	◆(10)	◆(1)	○	○	○	●	Discharge temp. 1 error	Discharge temp. 1 error
◆(2)	●	◆(10)	◆(3)	○	○	○	●	Compressor temp. error	Compressor 1 temp. error
◆(2)	●	◆(10)	◆(5)	○	○	○	●	Pressure error 2	Low pressure error

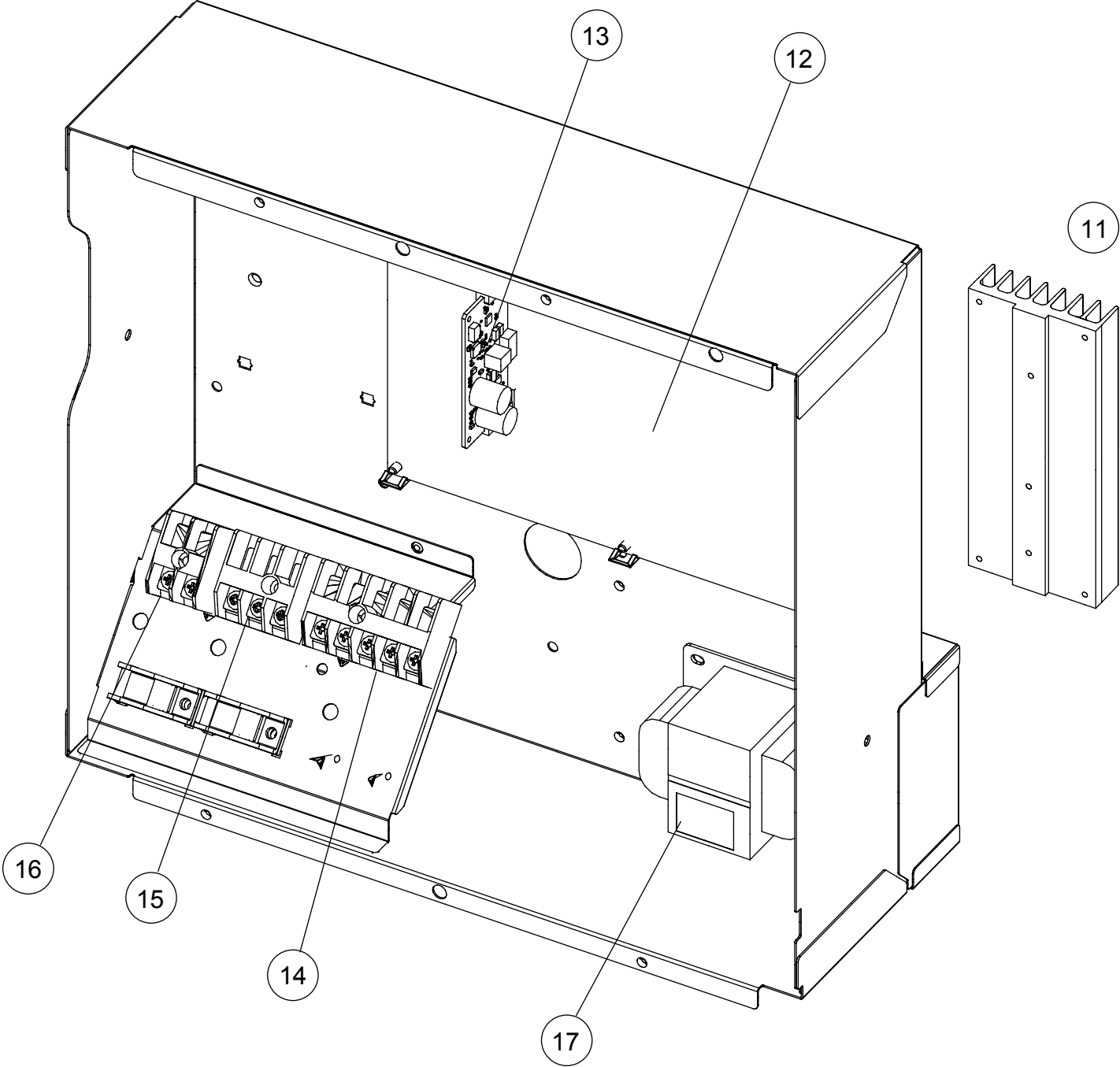
Ref.	Description	Part number
1	Remote Control	9381009039
2	Hose Sub Assy	9378450196
3	Drain Pan Sub Assy	9381752041
4	Casing B Sub Assy	9381829026
5	Room Thermistor	9703299278
6	Pipe Thermistor	9900892012

PARTS
INDOOR UNIT
ARHG90LHTA



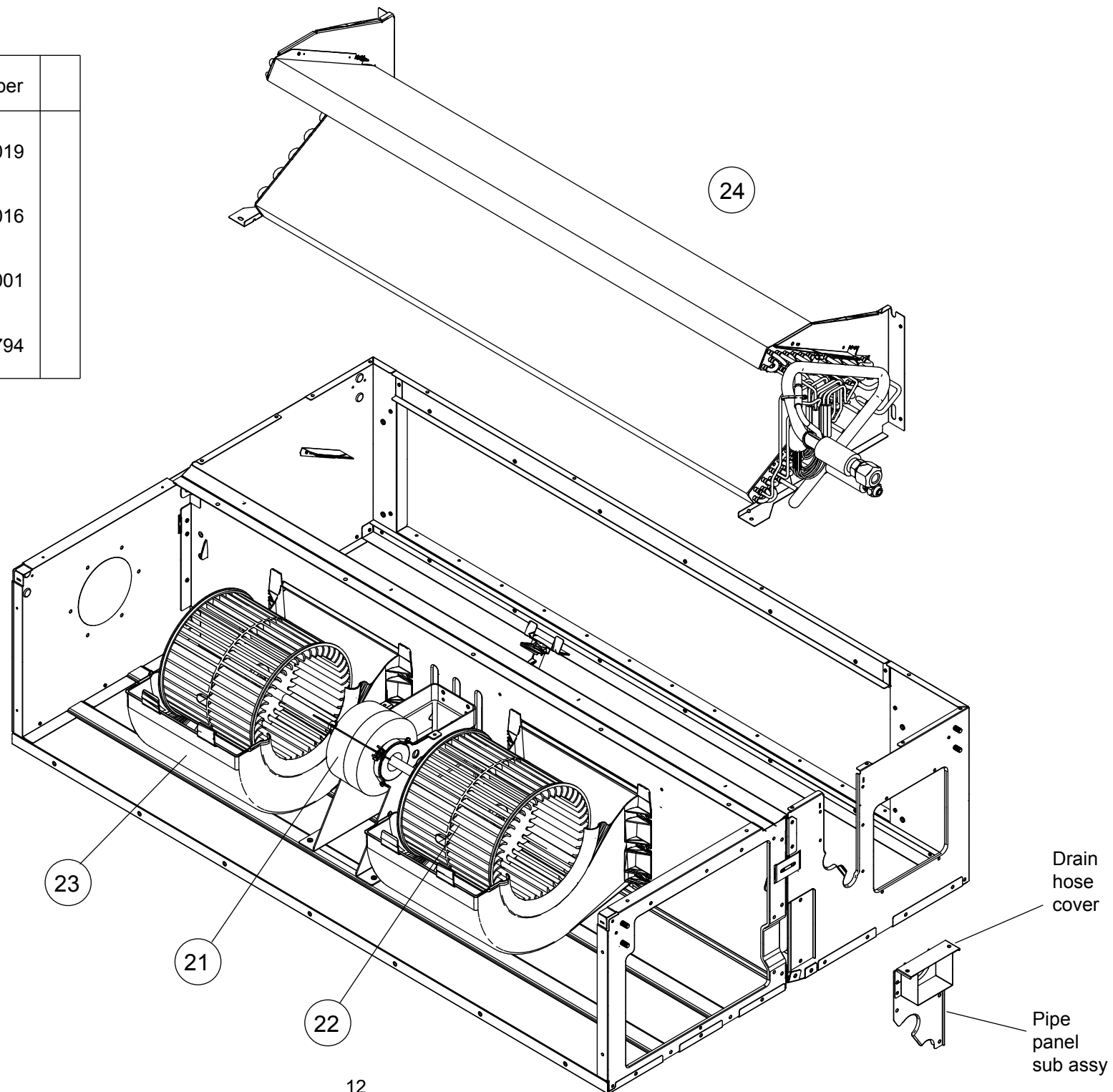
INDOOR UNIT
ARHG90LHTA

Ref.	Description	Part number	
11	Heat Sink	9382646004	
12	Main PCB	9710630019	
13	Communication PCB	9710019005	
14	Terminal (Remote)	9900896003	
15	Terminal (Serial)	9900568009	
16	Terminal (Power)	9703873027	
17	Reactor Assy	9900611019	

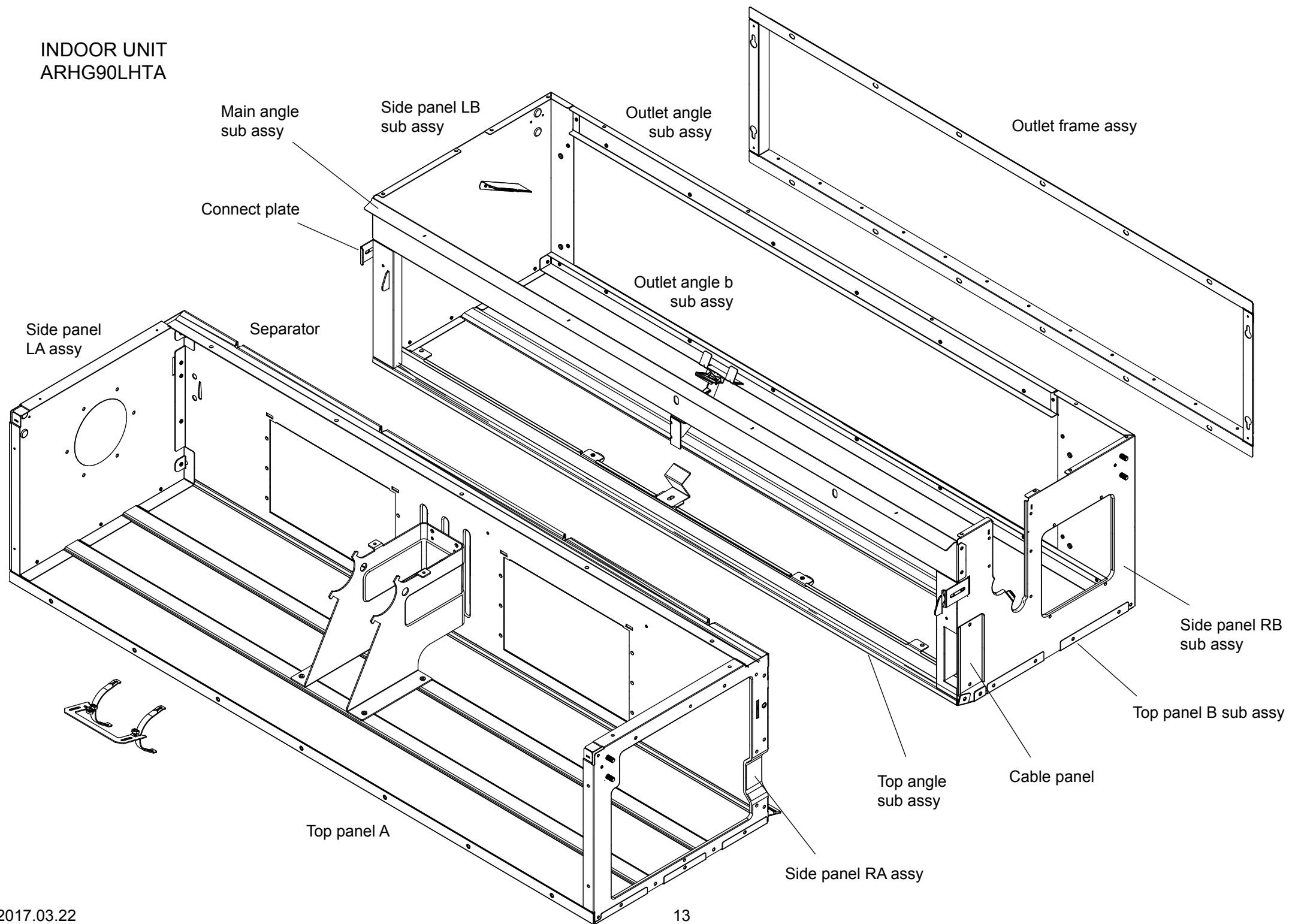


Ref.	Description	Part number	
21	Fan Motor	9603567019	
22	Sirocco Fan Assy	9381440016	
23	Casing A	9381561001	
24	Evaporator Total Assy	9374517794	

INDOOR UNIT ARHG90LHTA

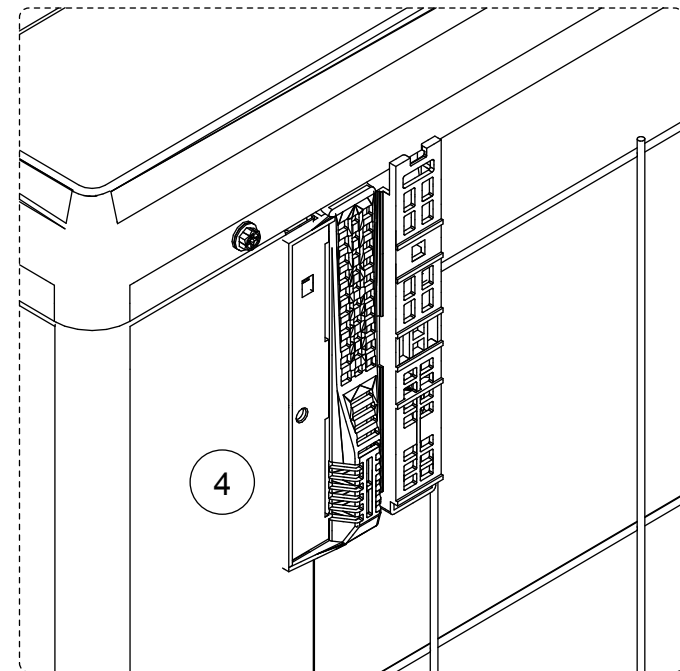
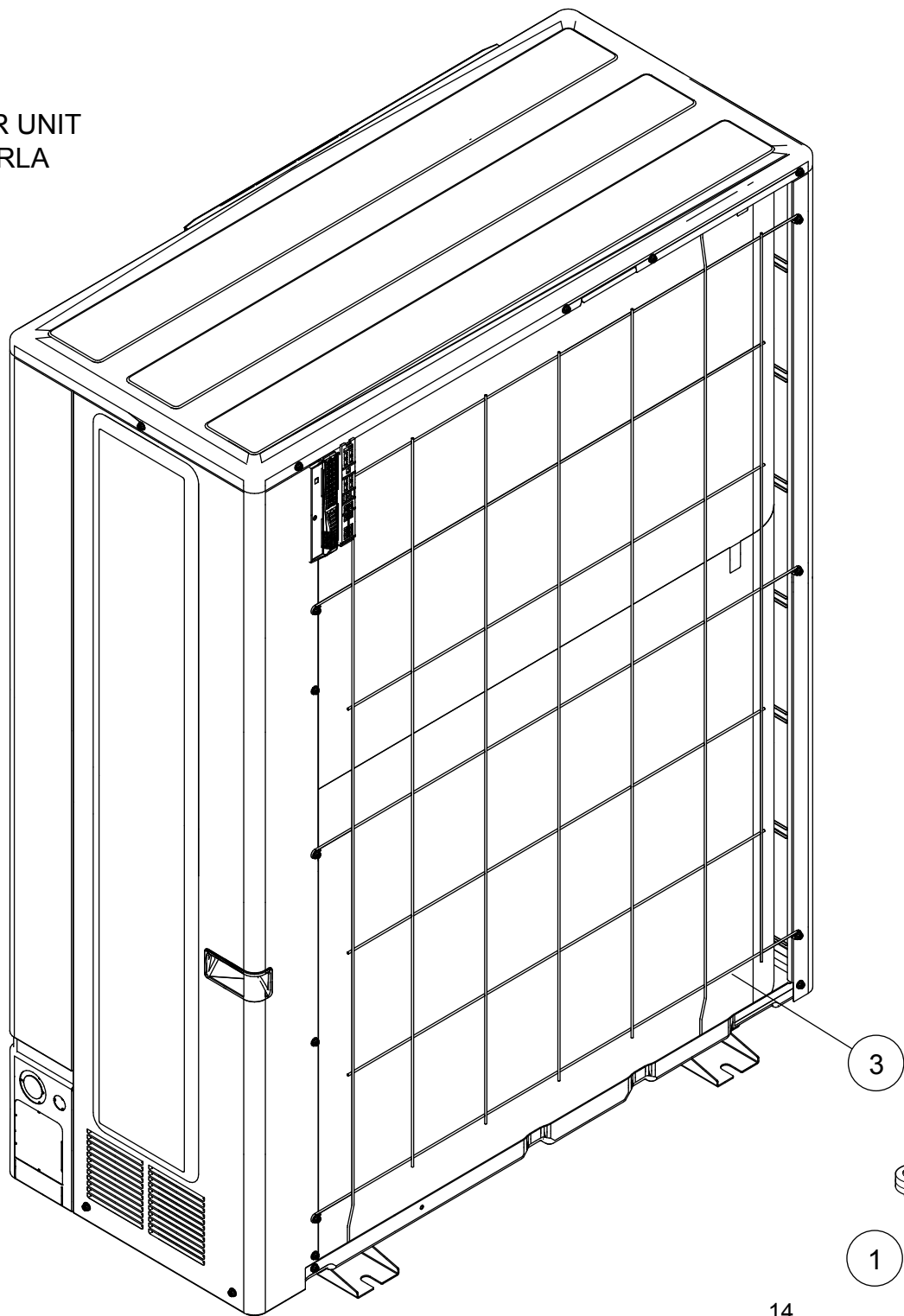


INDOOR UNIT
ARHG90LHTA

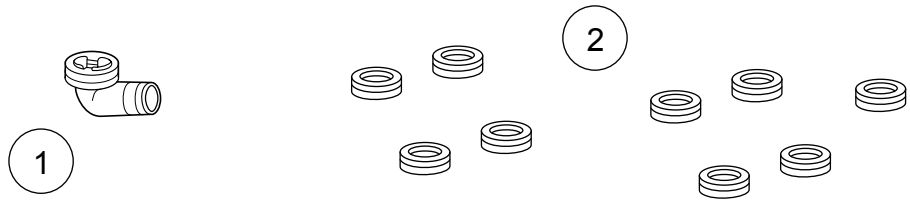


PARTS

OUTDOOR UNIT
AOHG90LRLA

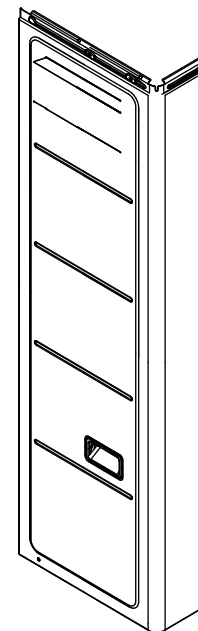
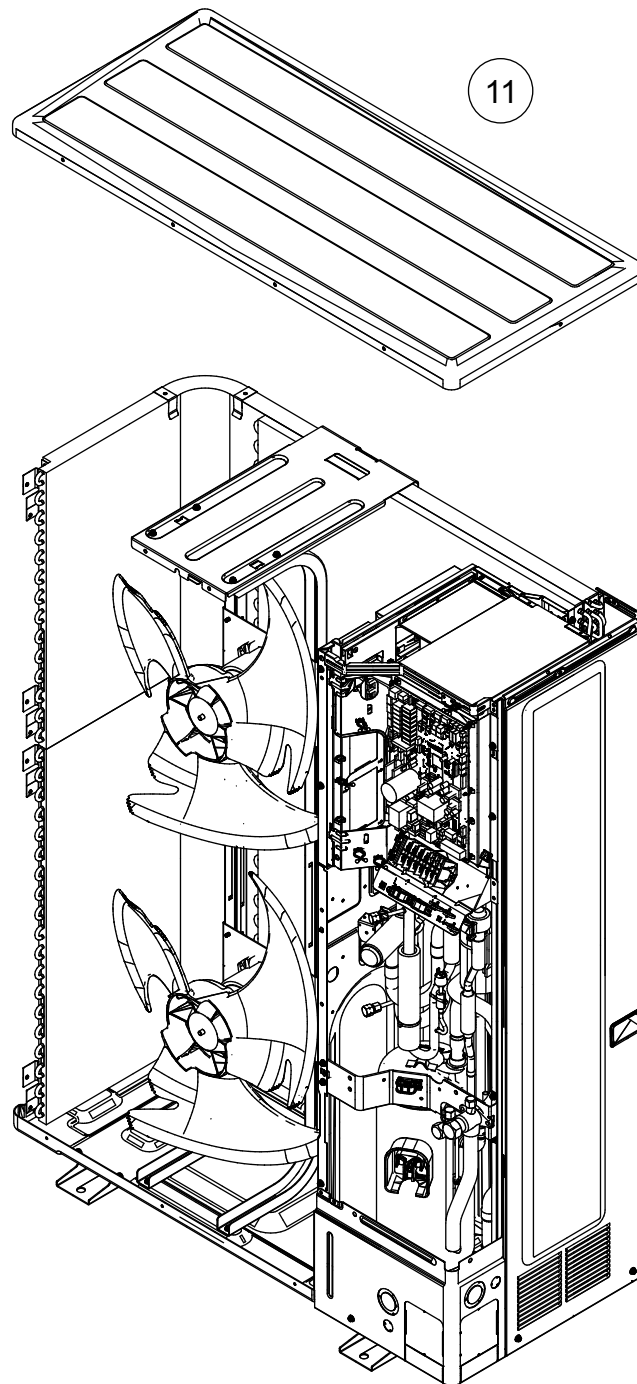
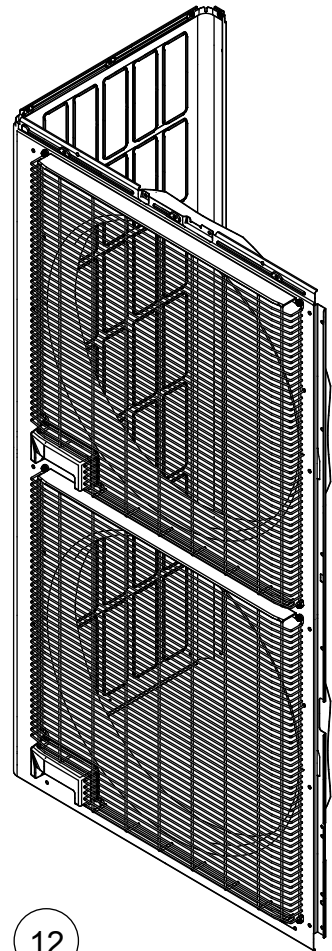


Ref.	Description	Parts number	
1	Drain Assy	9303029015	
2	Drain Cap	313166024302	
3	Protective Net	9382667009	
4	Thermo Holder	9375211011	
5	Outdoor Thermistor	9900957018	



OUTDOOR UNIT AOHG90LRLA

Ref.	Description	Parts number	
11	Top Panel Sub Assy	9379416054	
12	Front Panel Sub Assy	9380569046	
13	Sevice Panel Sub Assy	9380571056	
14	GENERAL Label	9378949003	

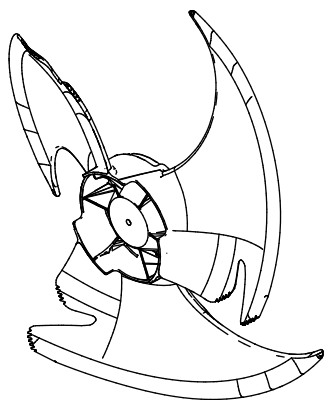


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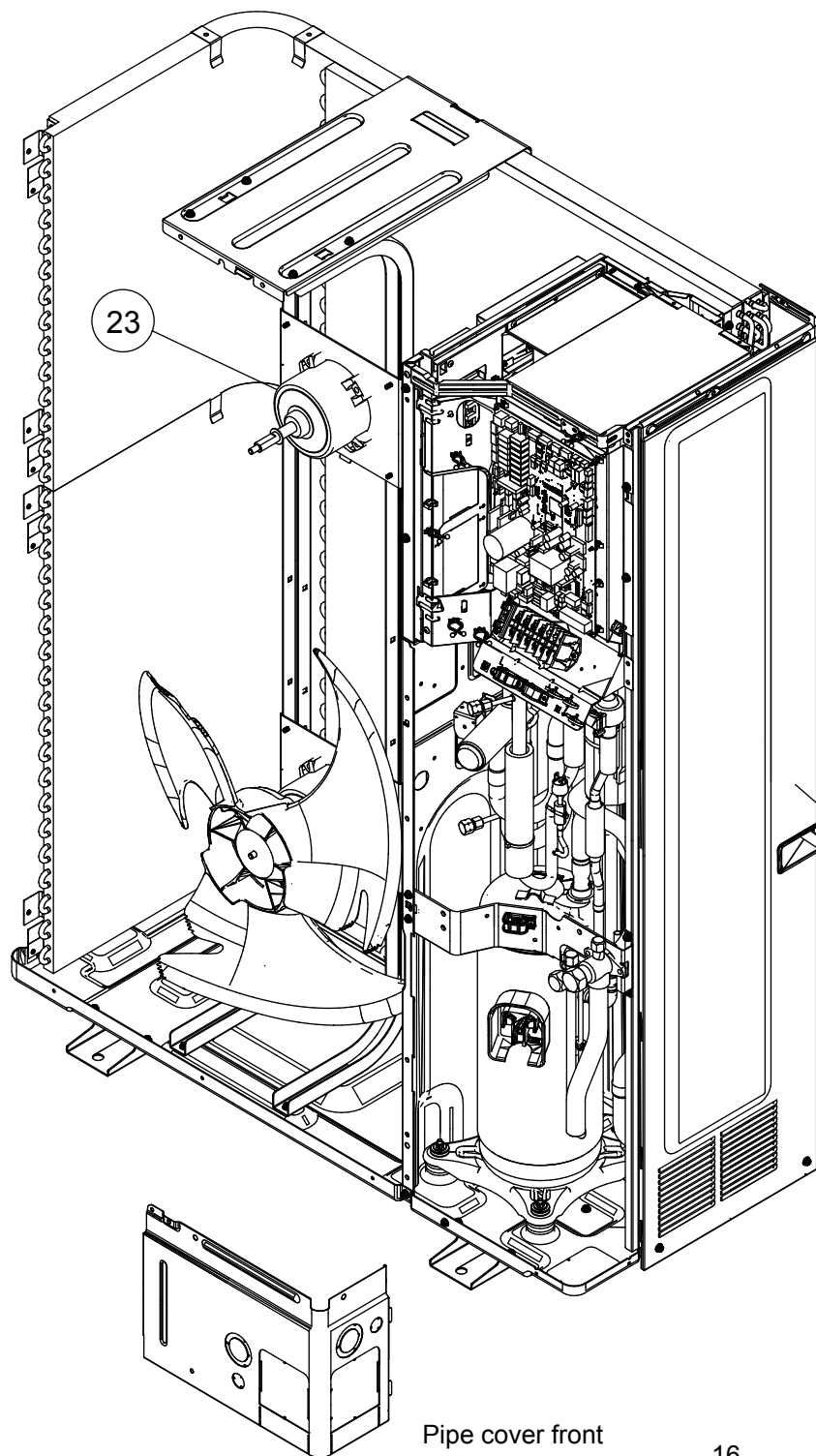
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11

12

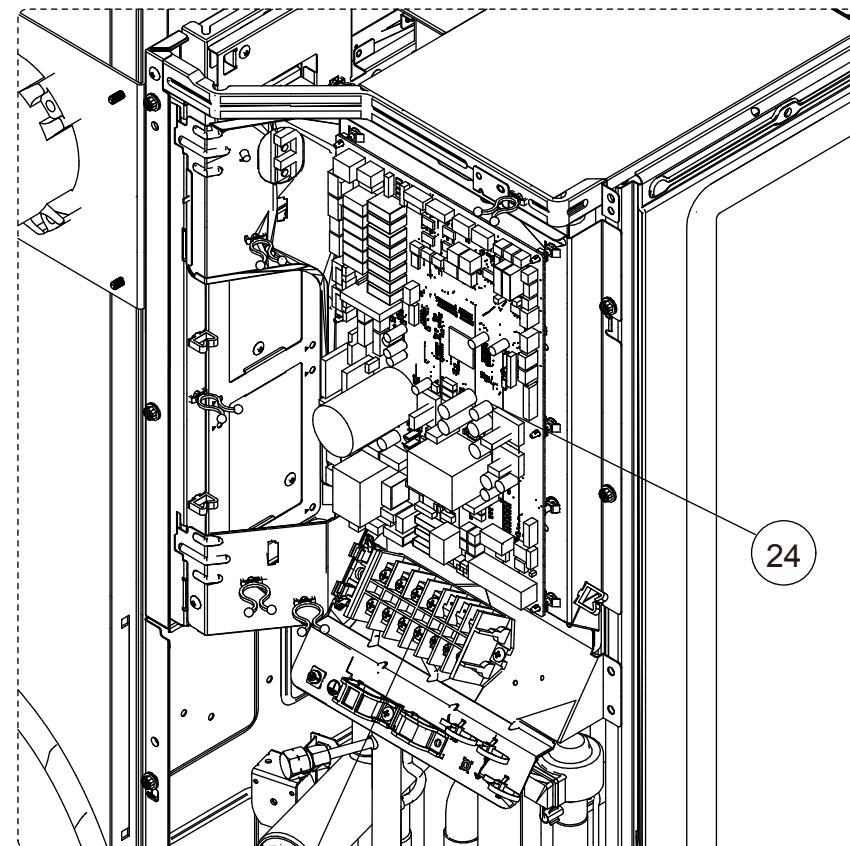


22



OUTDOOR UNIT
AOHG90LRLA

Pipe cover front



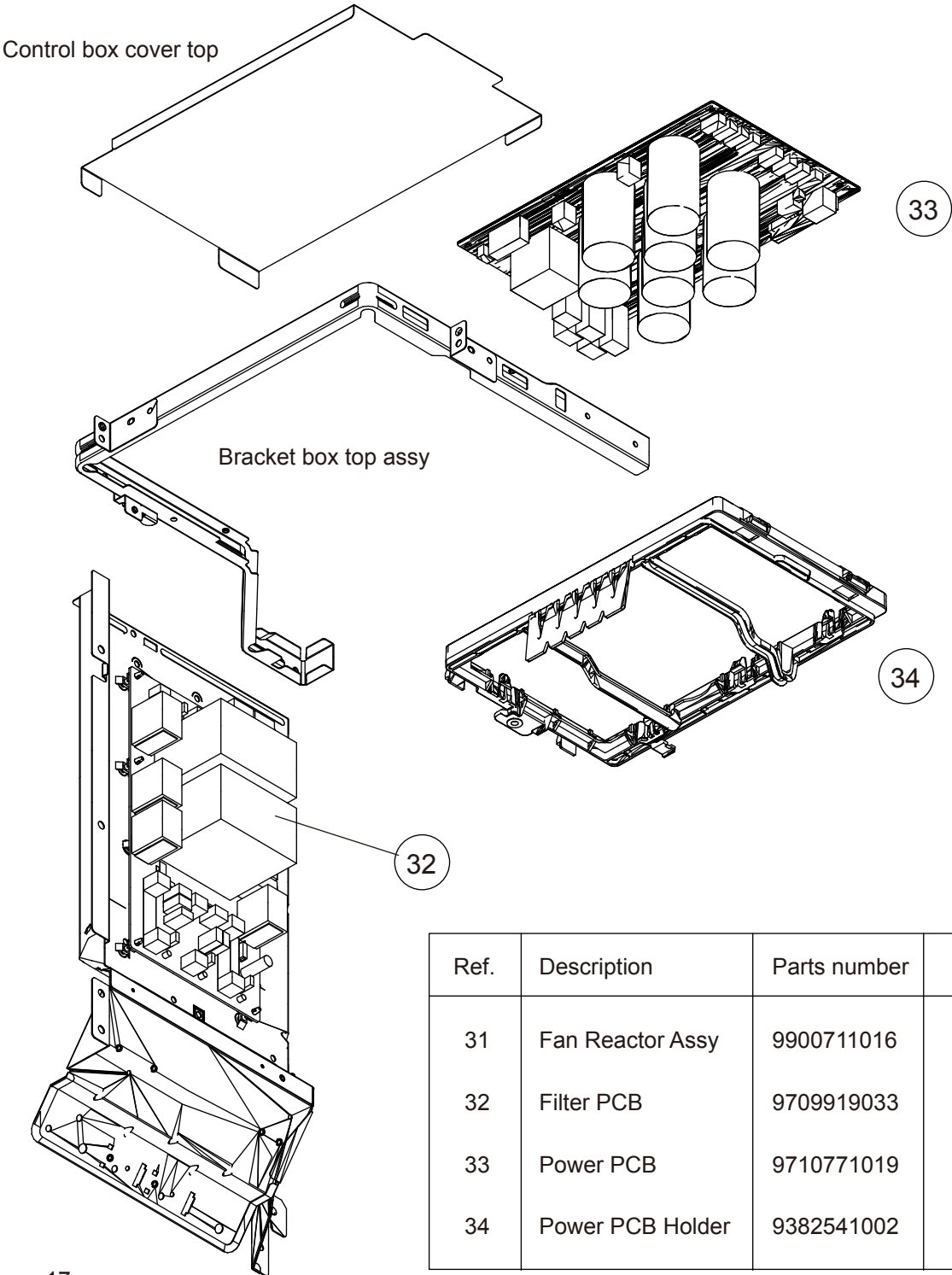
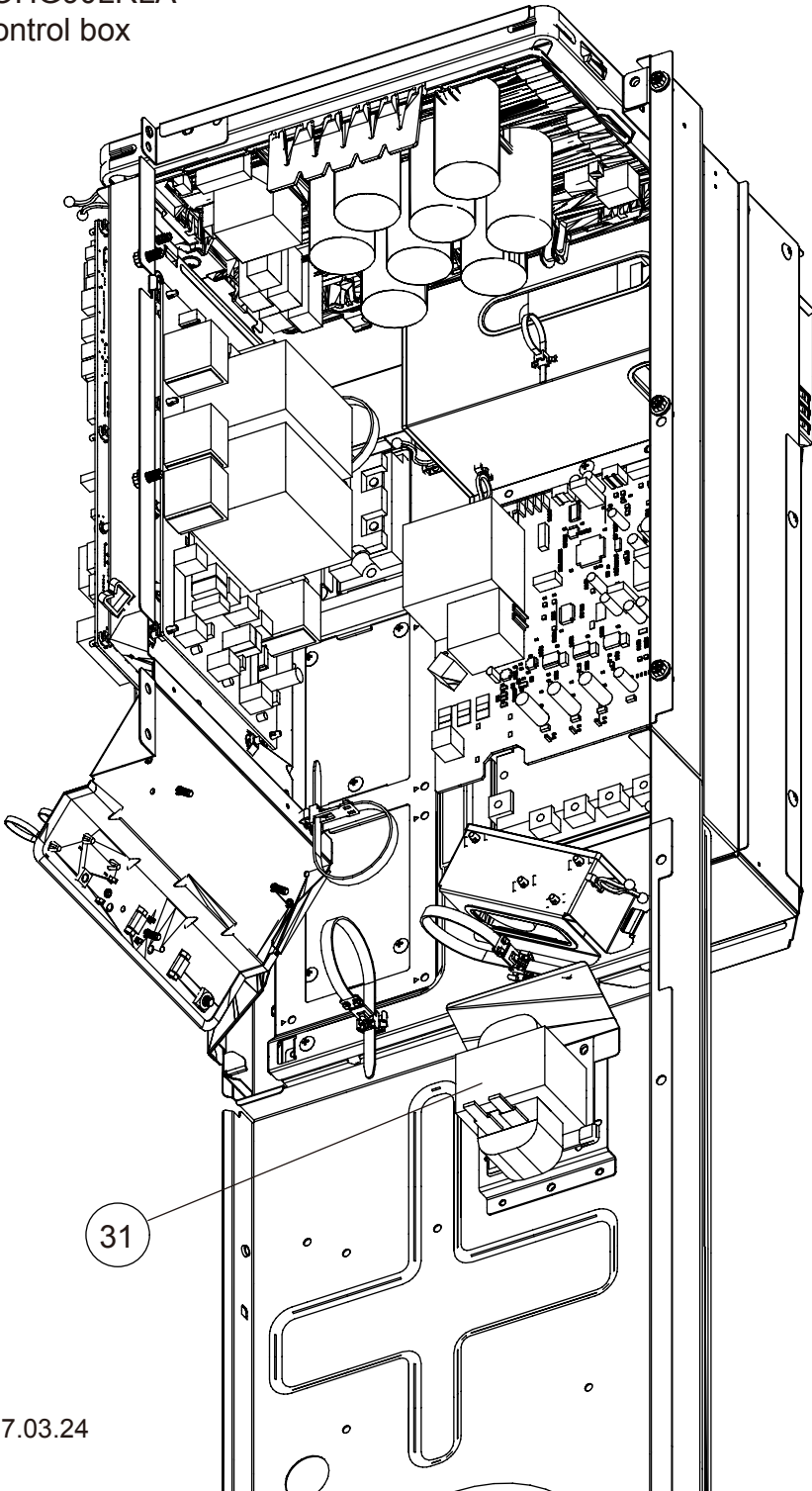
24

21

25

Ref.	Description	Parts number	
21	Right Panel Sub Assy	9380570059	
22	Propeller Fan	9382350000	
23	Motor DC Brushless	9603561017	
24	Main PCB	9710757051	
25	Terminal	9900569006	

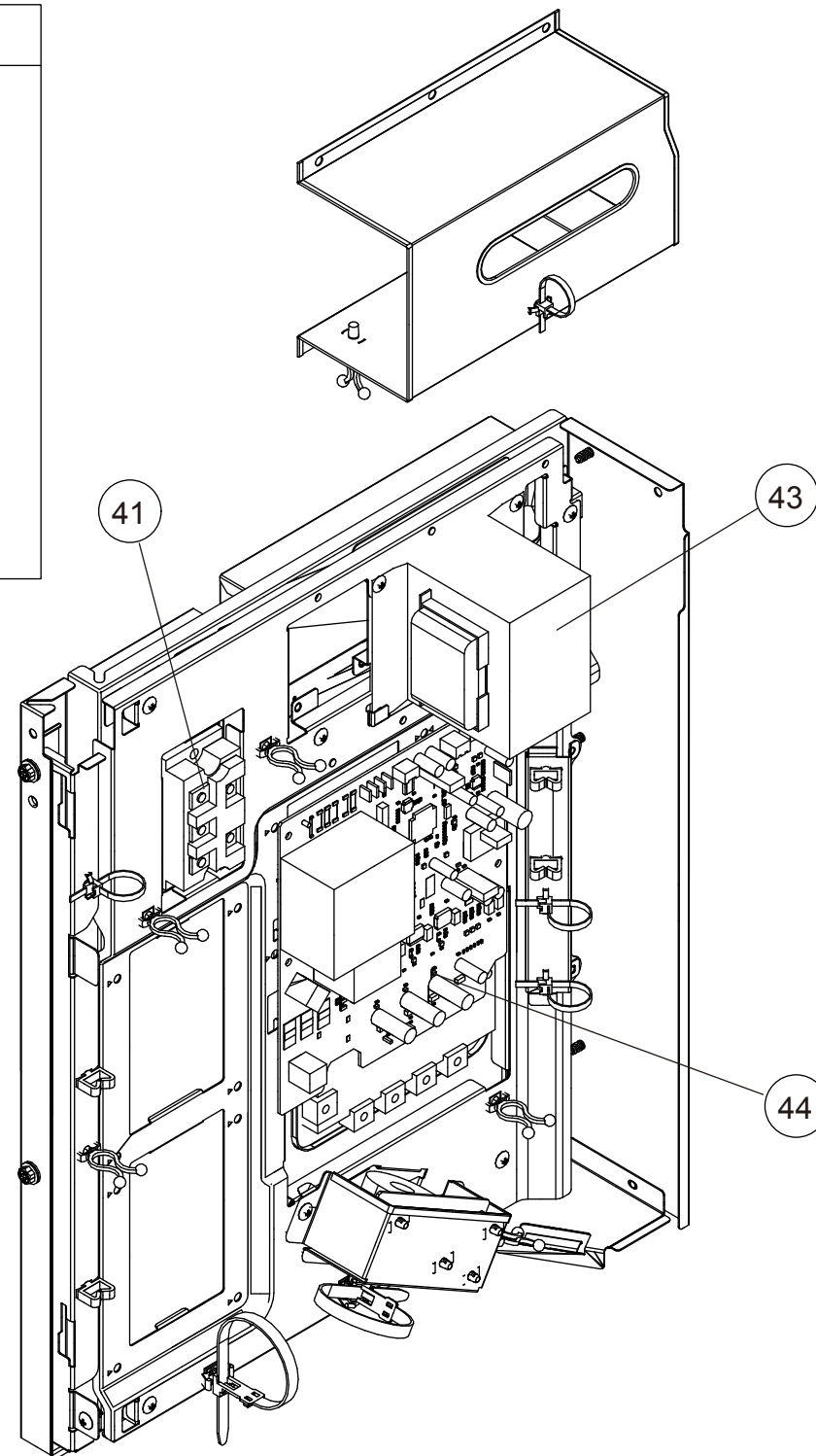
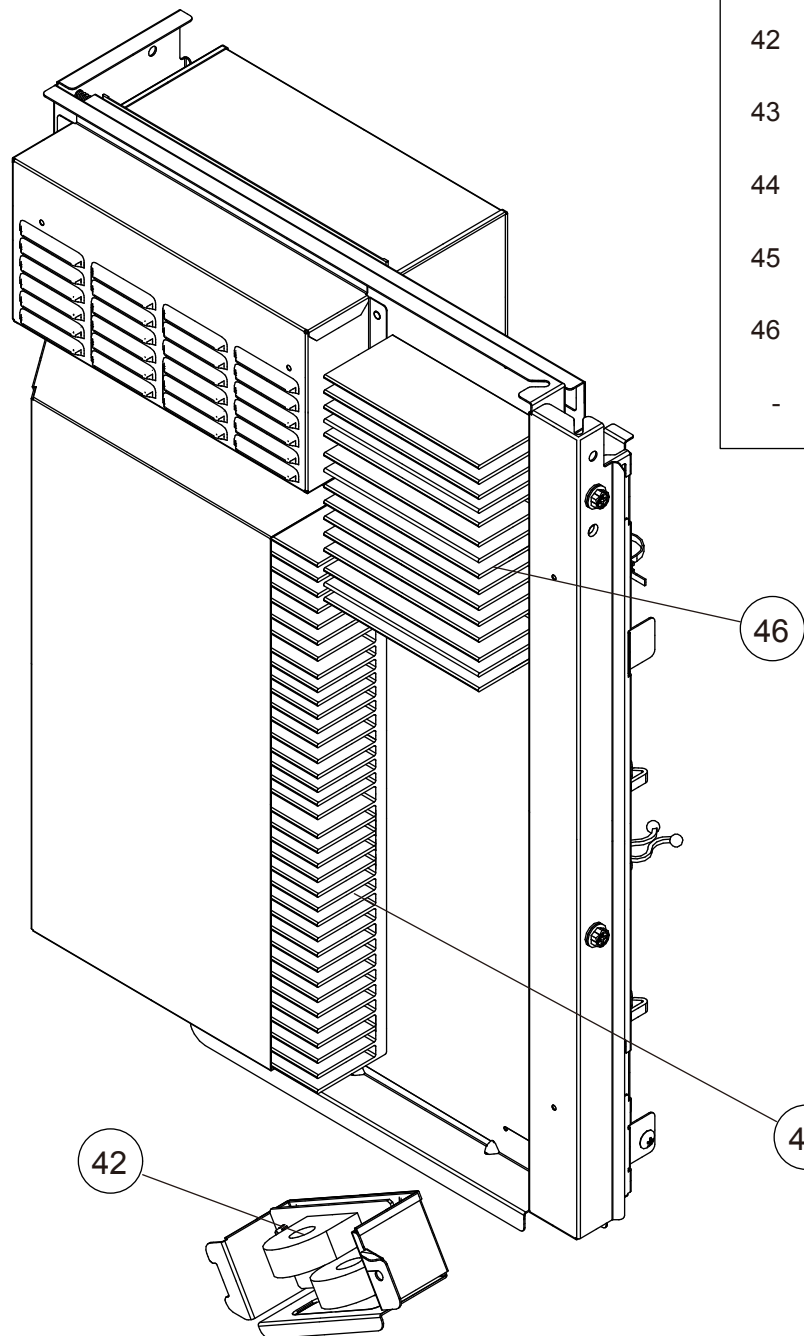
OUTDOOR UNIT
AOHG90LRLA
Control box



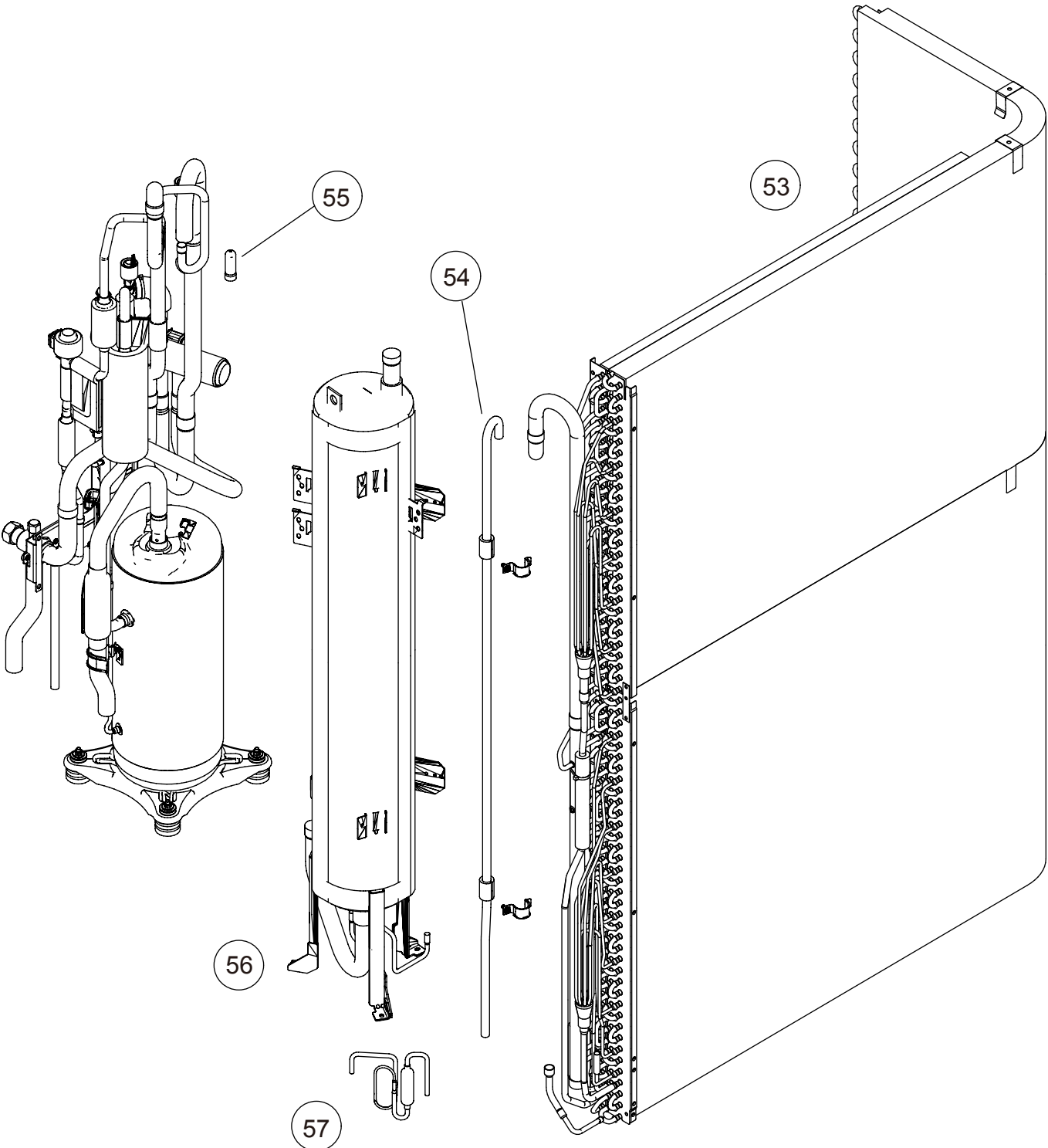
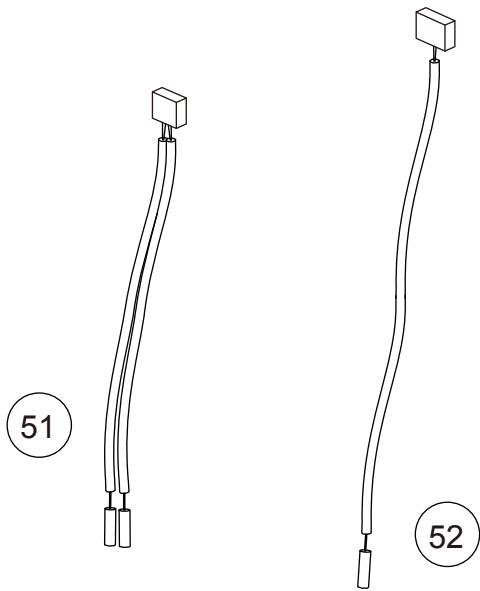
Ref.	Description	Parts number	
31	Fan Reactor Assy	9900711016	
32	Filter PCB	9709919033	
33	Power PCB	9710771019	
34	Power PCB Holder	9382541002	

OUTDOOR UNIT
AOHG90LRLA
Control box

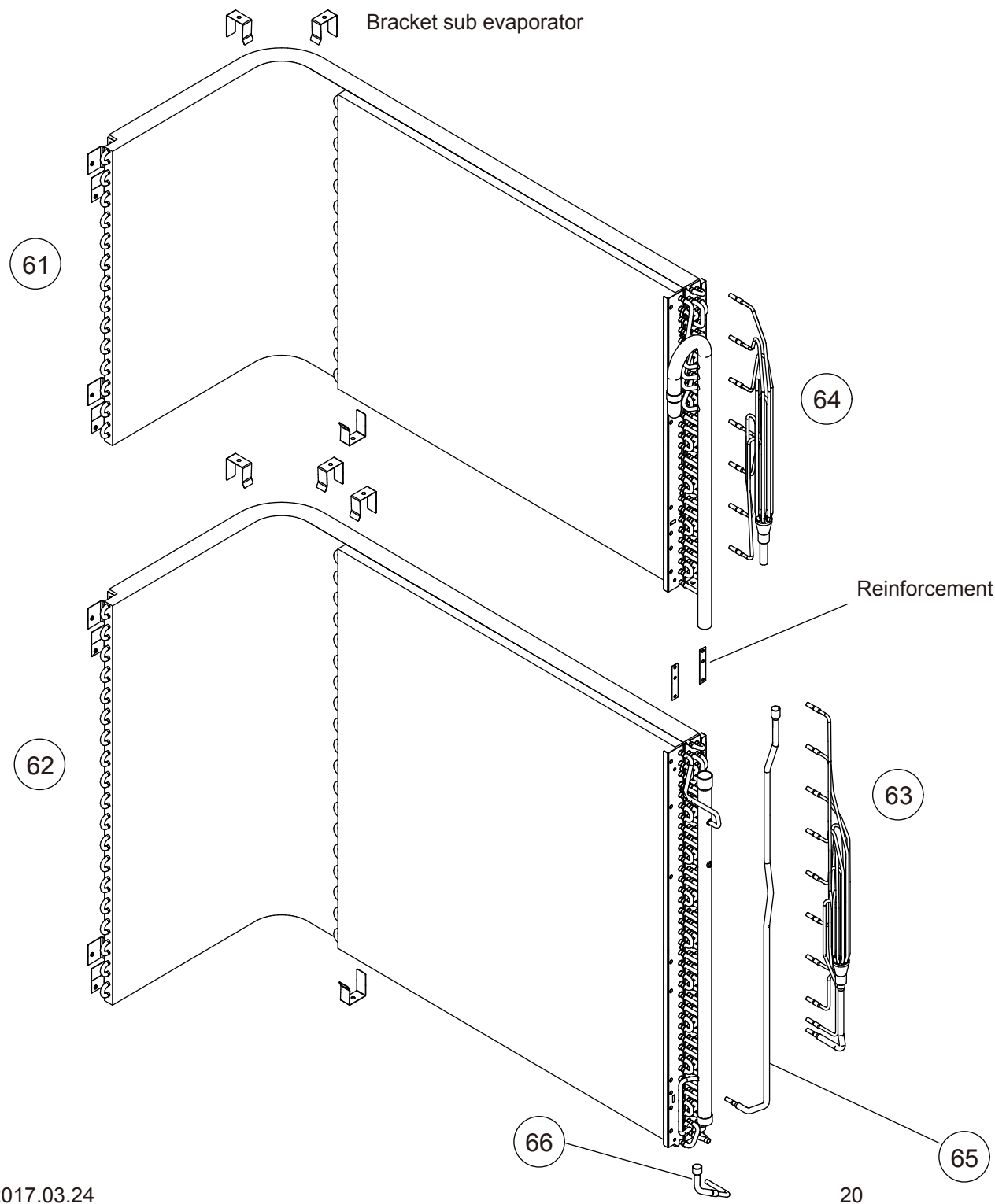
Ref.	Description	Parts number	
41	Power Diode	0001113013	
42	CT PCB	9708938028	
43	Reactor Assy	9900748012	
44	Inverter PCB	9709914120	
45	Heatsink A	9382538002	
46	Heatsink B	9382539009	
-	Heatsink Thermistor	9900518004	



OUTDOOR UNIT
AOHG90LRLA

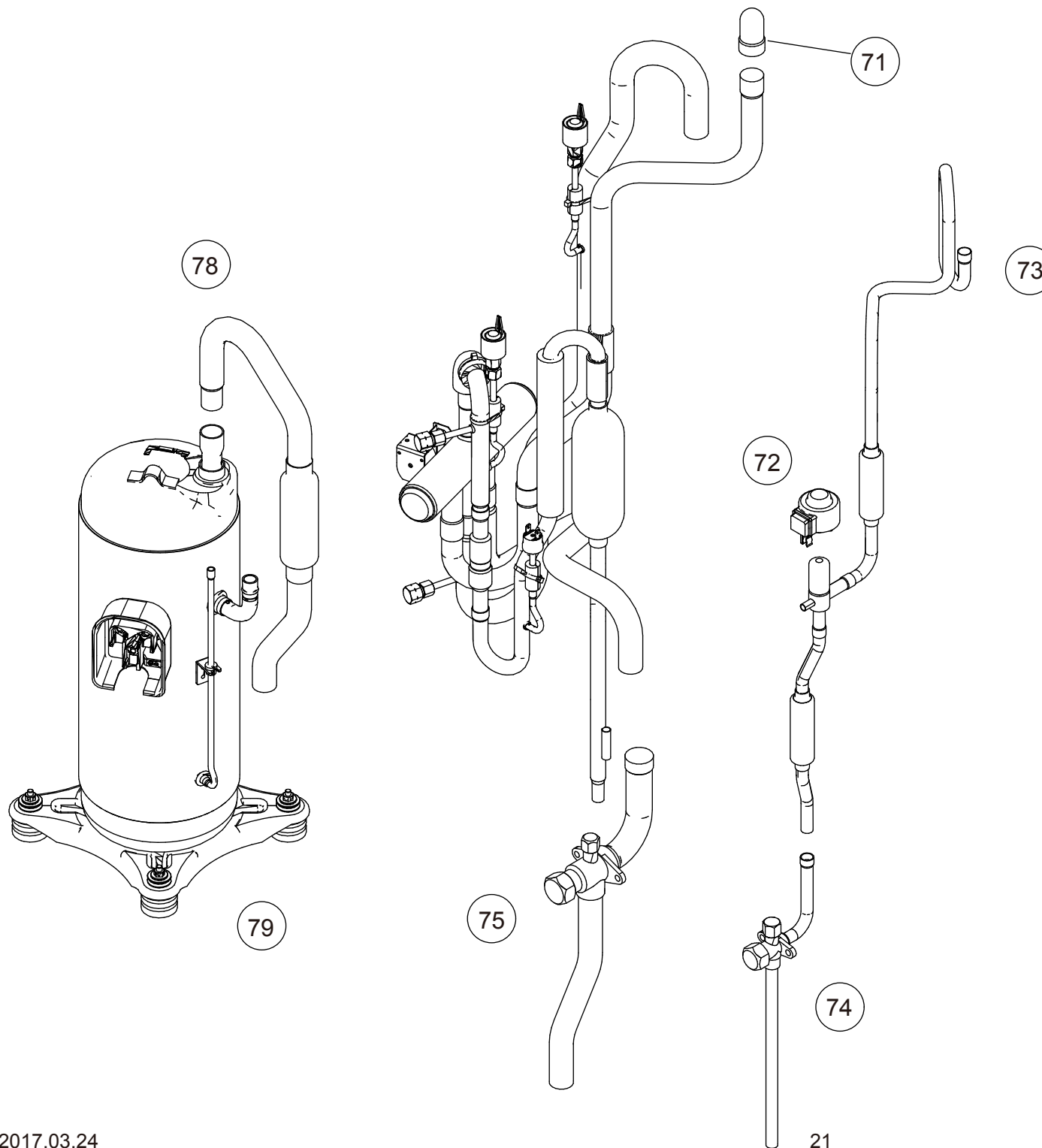


Ref.	Description	Parts number
51	Thermistor Assy	9900922023
52	Thermistor (Heat Exchanger)	9900967017
53	Condenser Total Assy	9382700003
54	Joint Pipe Distributor 1	9379046022
55	Closing Pipe A	9379239004
56	Accumulator Sub Assy	9379221085
57	Oil Return Pipe A Assy	9378745070



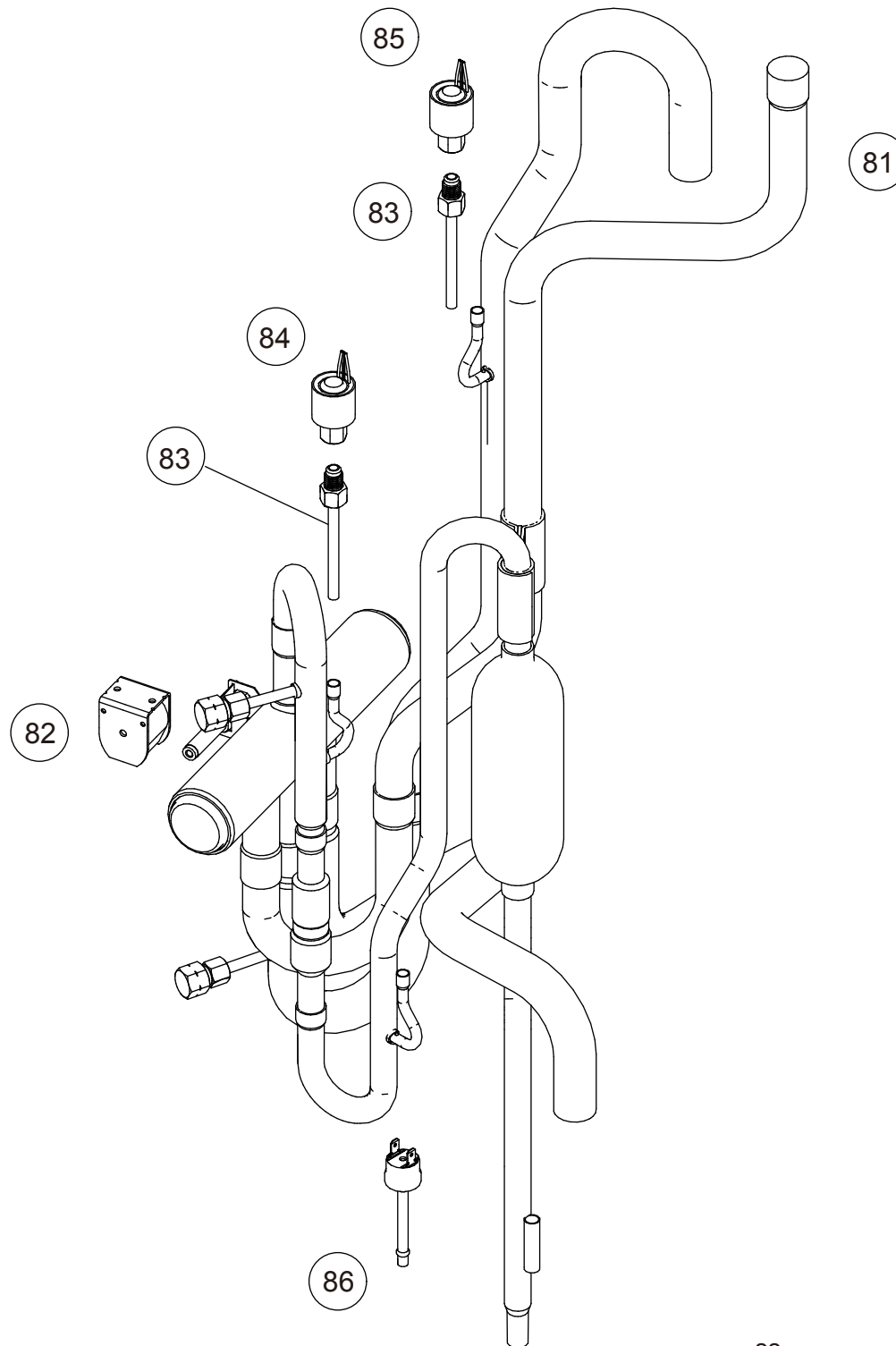
OUTDOOR UNIT
AOHG90LRLA
Evaporator total assy

Ref.	Description	Parts number	
61	Condenser A Sub Assy	9379053112	
62	Condenser B Sub Assy	9379053136	
63	Distributor A Assy	9378743175	
64	Distributor B Assy	9378743182	
65	Outlet Pipe (Distributor) A2	9378912076	
66	Joint Pipe Distributor Assy	9379045032	



OUTDOOR UNIT AOHG90LRLA

Ref.	Description	Parts number	
71	Closing Pipe B	9379239141	
72	Expansion Valve Coil	9970114007	
73	Expansion Valve Assy	9378750173	
74	3-way Valve Assy	9379039086	
75	3-way Valve Assy	9379039062	
78	Suction Pipe A Assy	9382716004	
79	Compressor Sub Assy	9379228046	
-	Belt Heater	9361140332	

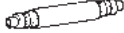


OUTDOOR UNIT AOHG90LRLA

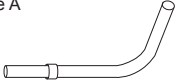
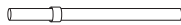
Ref.	Description	Parts number	
81	4-way Valve Sub Assy	9381449040	
82	Solenoid	9970113017	
83	Union Joint	9970091018	
84	High Pressure Sensor	9970178009	
85	Low Pressure Sensor	9970178016	
86	Pressure Switch	9900186029	

ACCESSORIES

INDOOR UNIT

Name and Shape	Q'ty	Description
Special nut A (large flange) 	4	For suspending the indoor unit from ceiling
Special nut B (small flange) 	4	
Washer 	8	
Coupler heat insulation (large) 	1	For indoor side pipe joint (gas pipe)
Coupler heat insulation (small) 	1	For indoor side pipe joint (liquid pipe)
Cable tie (large) 	4	For fixing the heat insulation
Cable tie (medium) 	1	For fixing the remote controller cable
Cable tie (small) 	1	For fixing the remote controller cable
Remote controller (UTY-RNR*Z*) 	1	For air conditioner operation (For 36/45/54 type)
Remote controller (UTY-RLR*Z*) 	1	For air conditioner operation (For 72/90 type)
Remote controller accessories	1 set	See installation manual for remote controller
Drain hose insulation 	1	Insulates the drain hose and vinyl hose
Drain hose 	1	For installing drain pipe VP25 (O.D.32, I.D.25)
Hose Band 	1	For installing drain hose

OUTDOOR UNIT

Name and shape	Q'ty	Description
Drain cap 	9	For outdoor unit drain piping work
Drain pipe 	1	For outdoor unit drain piping work
Joint pipe A 	1	For connecting gas pipe (L type)
Joint pipe B 	1	For connecting gas pipe (Straight type)
Push mount cable tie 	2	For binding connection cable
Grommet edging 	2	For power supply cable and connection cable installation. Attach to the knockout hole.