

SPLIT TYPE
AIR CONDITIONER
DUCT TYPE (50Hz)

SERVICE MANUAL



Indoor unit	Outdoor unit
ARYG45LHTBP	AOYG45LBTA
ARYG54LHTBP	AOYG54LBTA

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SPECIFICATIONS

ELECTRICAL DATA

INDOOR UNIT		ARYG45LHTBP	ARYG54LHTBP
OUTDOOR UNIT		AOYG45LBTA	AOYG54LBTA
TYPE		Cooling & Heating	
POWER SOURCE		Single phase 230V 50Hz	
COOLING	Capacity	12.1 kW	13.4 kW
	Power consumption	3.59 kW	4.42 kW
	EER	3.37 kW/kW	3.03 kW/kW
	Rated operating current	15.7 A	19.4 A
	Max operating current	22.5 A	23.5 A
	Moisture removal	2.6 L/h	3.7 L/h
HEATING	Capacity	13.3 kW	16.0 kW
	Power consumption	3.44 kW	4.62 kW
	COP	3.87 kW/kW	3.46 kW/kW
	Rated operating current	15.1 A	20.2 A
	Max operating current	22.5 A	23.5 A

FAN MOTOR AND FAN REVOLUTION

INDOOR UNIT	Discrimination	MFG-ZC8KB2P	
	High	1,130 rpm	
	Medium	930 rpm	
	Low	780 rpm	
	Quiet	700 rpm	
OUTDOOR UNIT	Discrimination	MFE-45VVT	
	Cool upper fan	850 rpm	
	Cool lower fan	800 rpm	
	Heat upper fan	780 rpm	850 rpm
	Heat lower fan	750 rpm	830 rpm

AIR CIRCULATION

INDOOR UNIT	High	2,550 m ³ /h	
	Medium	2,040 m ³ /h	
	Low	1,650 m ³ /h	
	Quiet	1,430 m ³ /h	
OUTDOOR UNIT	Cooling	6,750 m ³ /h	
	Heating	6,200 m ³ /h	6,850 m ³ /h

NOISE LEVEL

INDOOR UNIT	High	39 dB	
	Medium	35 dB	
	Low	31 dB	
	Quiet	29 dB	
OUTDOOR UNIT	Cooling	55 dB	
	Heating	55 dB	57 dB

Static pressure : 60Pa

Duct length : Inlet 1m, Outlet 2m

COMPRESSOR AND REFRIGERANT

COMPRESSOR TYPE	Hermetic rotary type, 6 pole, 3 phase, DC brushless motor		
DISCRIMINATION	N-TF30HD1A		
WEIGHT (with oil)	15.4 kg		
PRECHARGED REFRIGERANT	3,350 g		
REFRIGERANT TYPE	R410A		
FULL CHARGE	Pipe length	20 m	3,350 g
		30 m	3,750 g
		40 m	4,150 g
		50 m	4,550 g
ADDITIONAL CHARGE	40 g/m		
MAX PIPING HEIGHT DIFFERENCE	30 m		

DIMENSIONS

INDOOR UNIT	H x W x D	300 x 1,400 x 700 mm
OUTDOOR UNIT	H x W x D	1,290 x 900 x 330 mm

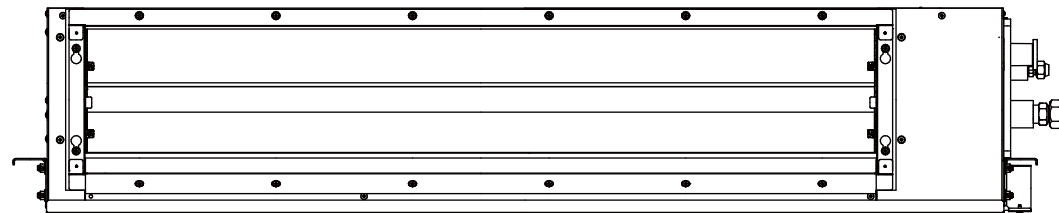
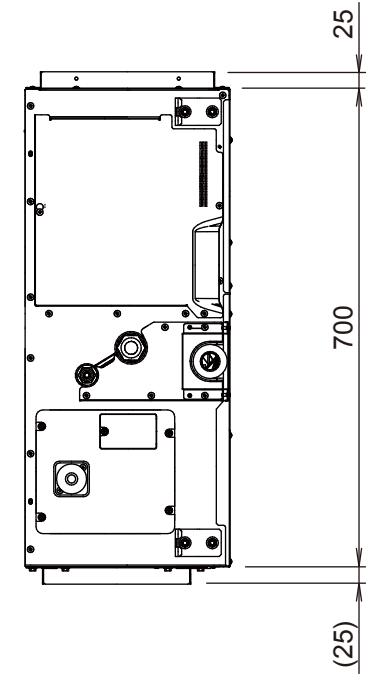
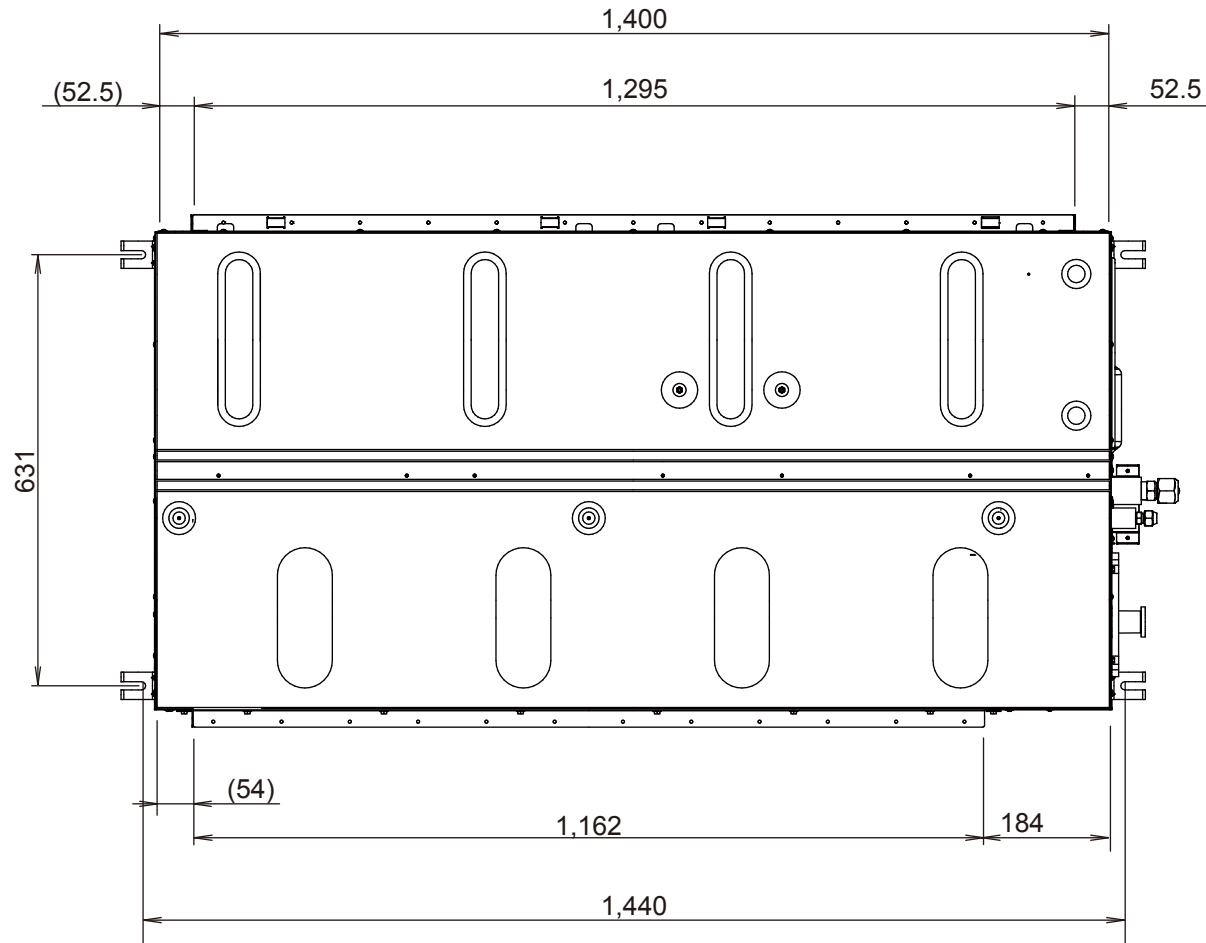
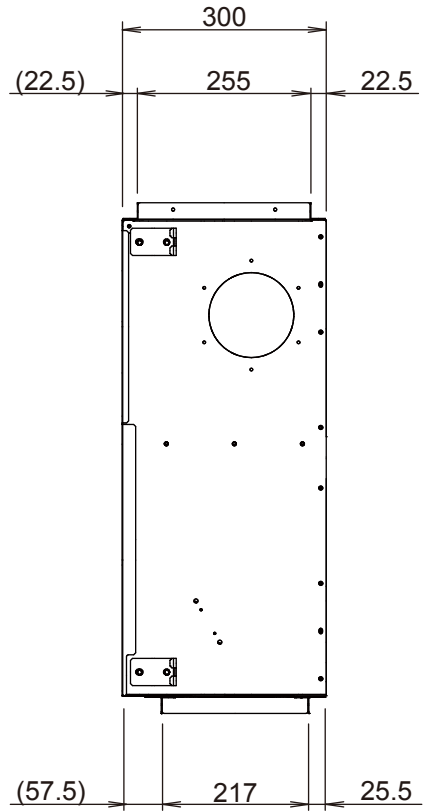
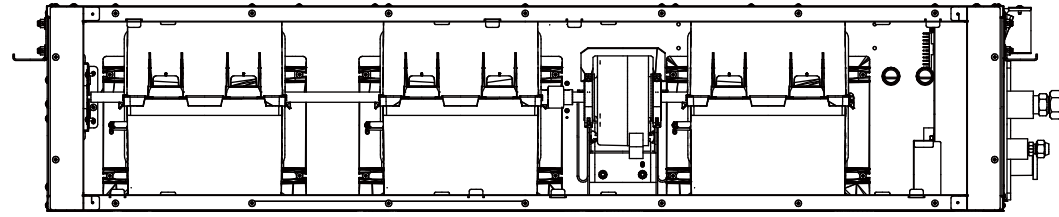
WEIGHT

INDOOR UNIT	Net / Shipping	46 kg / 55 kg
OUTDOOR UNIT	Net / Shipping	86 kg / 94 kg

DIMENSIONS

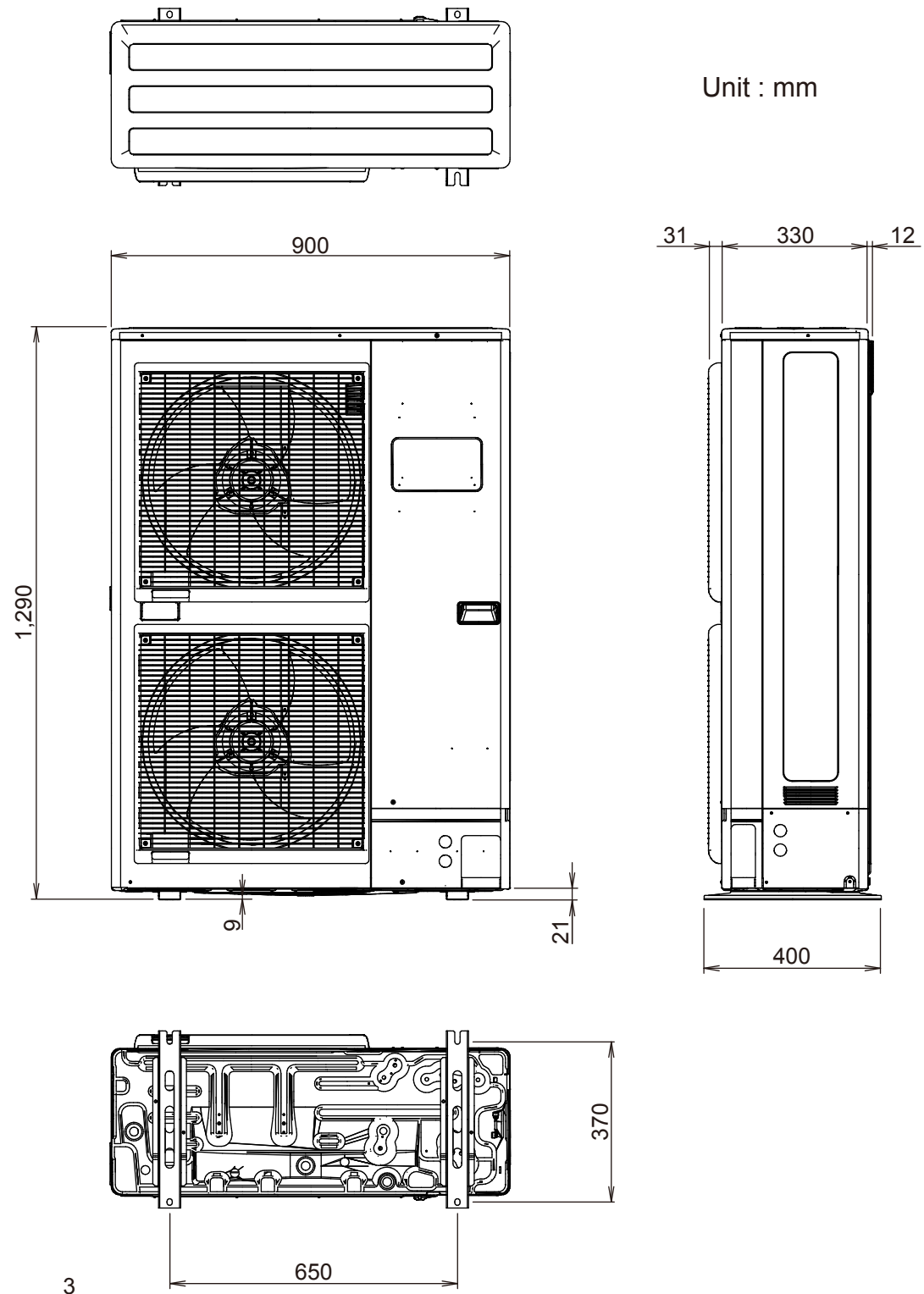
INDOOR UNIT

Unit : mm



OUTDOOR UNIT

Unit : mm

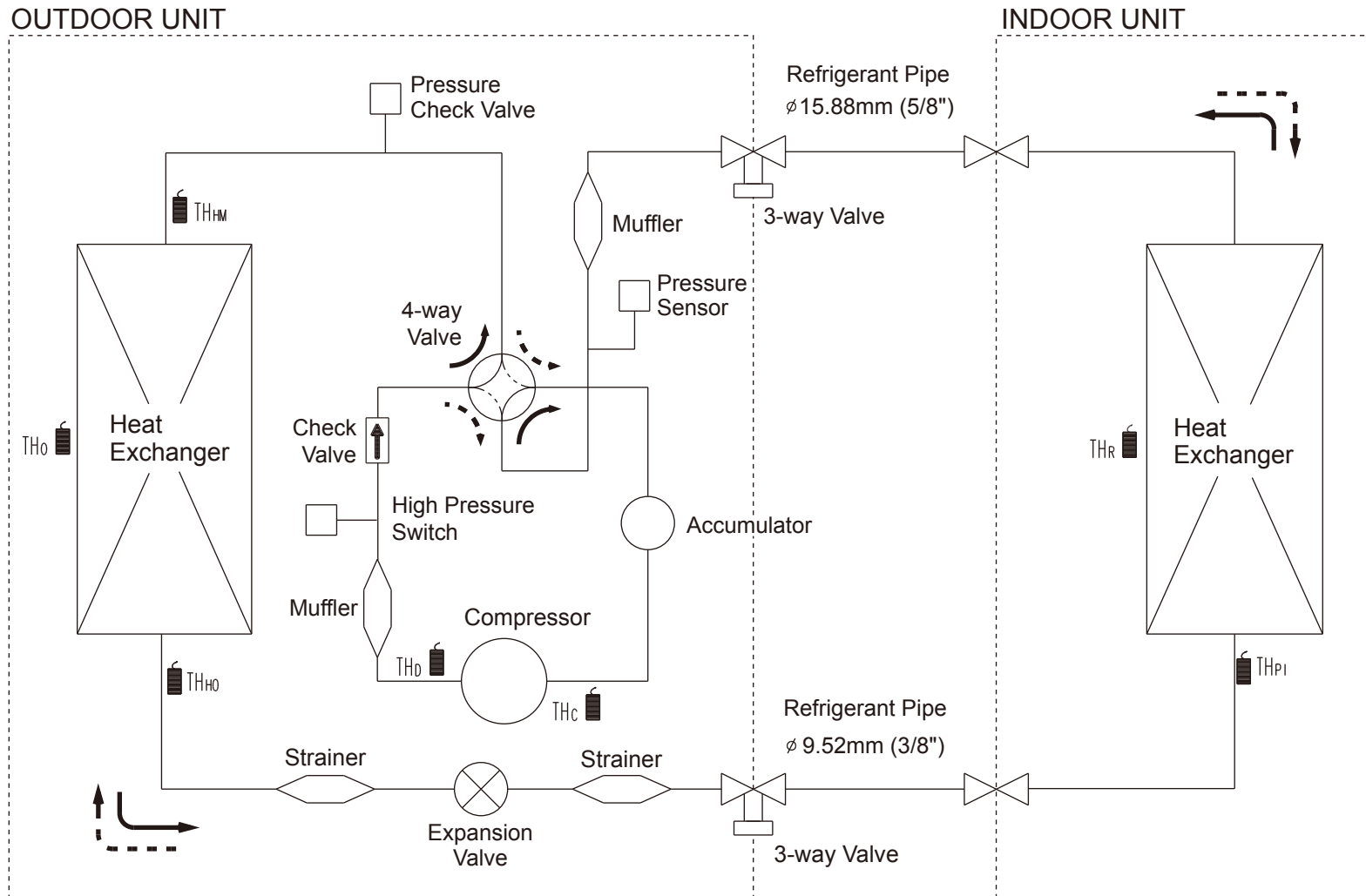


REFRIGERANT SYSTEM DIAGRAM

Refrigerant direction

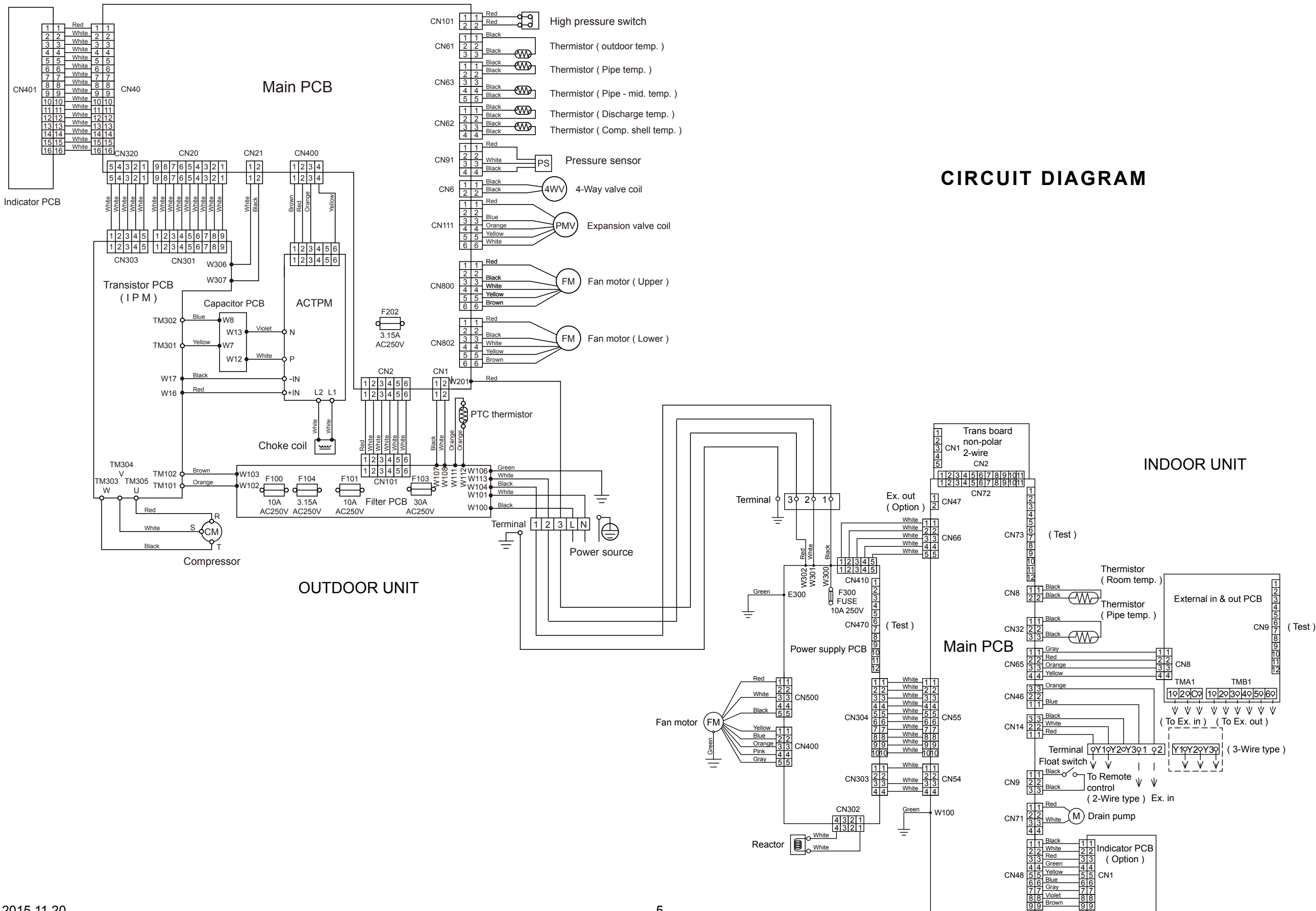
→ Cool

---→ Heat



- TH_c : Thermistor (Compressor)
- TH_d : Thermistor (Discharge)
- TH_{HM} : Thermistor (Heat Exchanger Med)
- TH_{HO} : Thermistor (Heat Exchanger Out)
- TH_o : Thermistor (Outdoor)

- TH_R : Thermistor (Room)
- TH_{PI} : Thermistor (Pipe)



CIRCUIT DIAGRAM

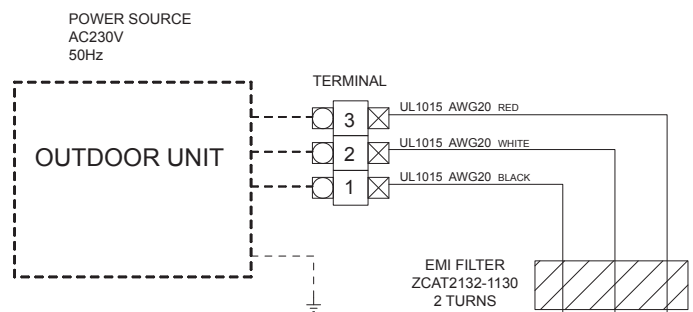
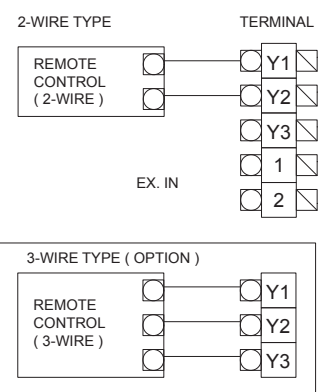
INDOOR UNIT

OUTDOOR UNIT

PCB CIRCUIT DIAGRAM

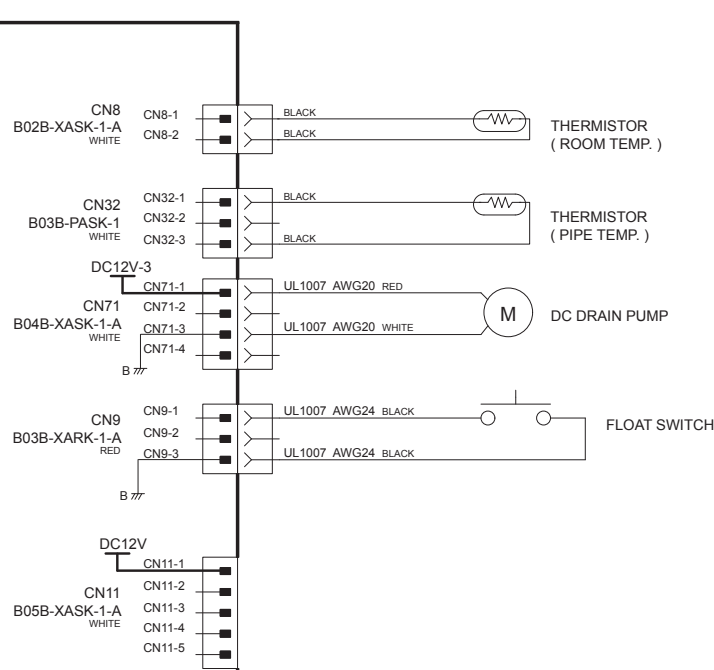
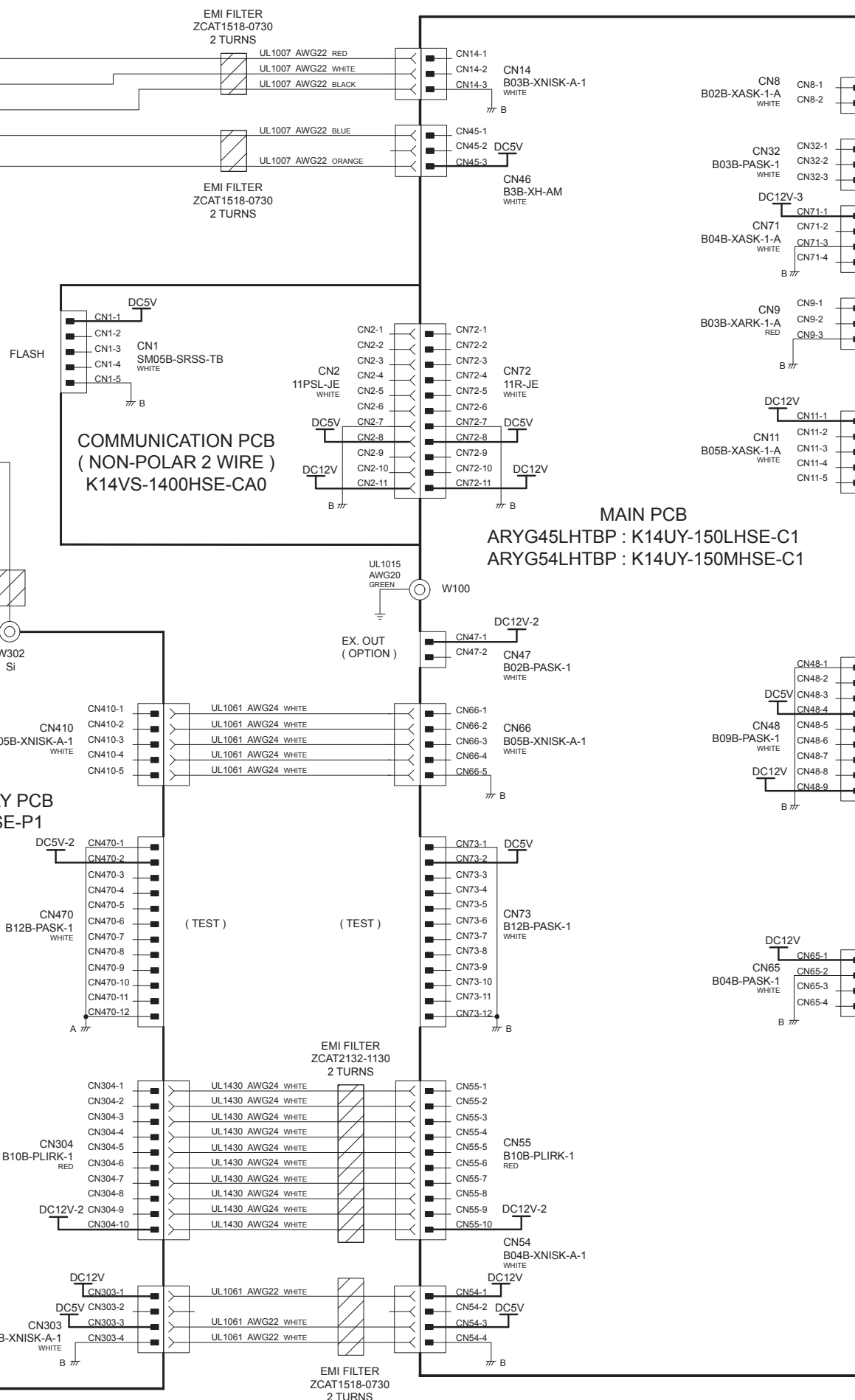
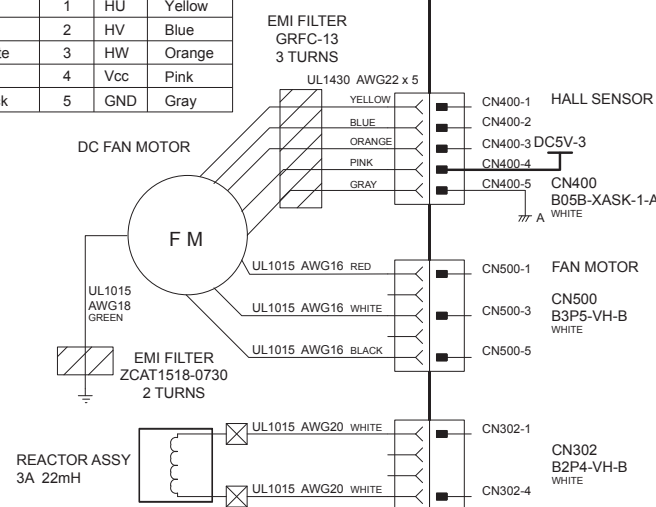
INDOOR UNIT

CONTROL UNIT ARYG45LHTBP : EZ-01508HSE ARYG54LHTBP : EZ-01509HSE



CN400, CN500 DC Fan motor

Power			Sensor		
1	U	Red	1	HU	Yellow
2	—	—	2	HV	Blue
3	V	White	3	HW	Orange
4	—	—	4	Vcc	Pink
5	W	Black	5	GND	Gray

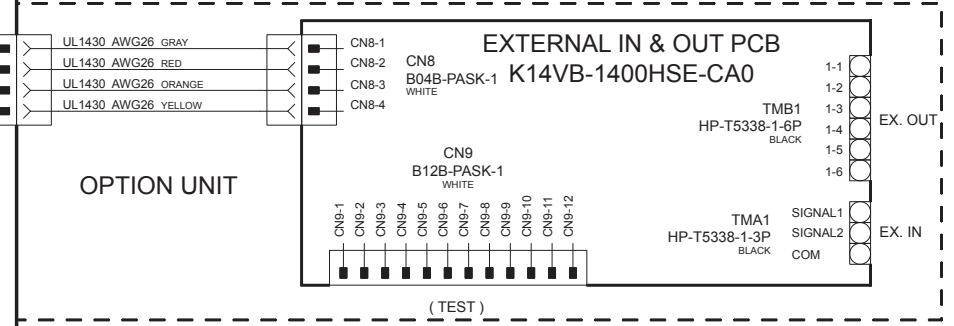
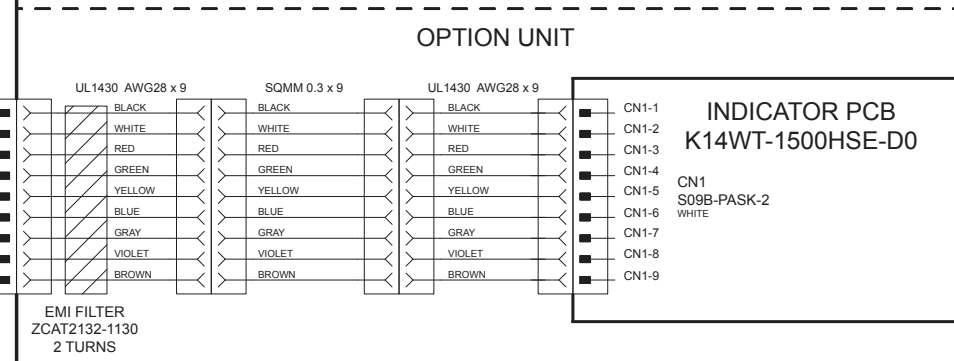


CN8 Thermistor Characteristics.

Thermistor	Temperature	(0°C)	(20°C)	(30°C)
Thermistor (Room temp.)		33.6 k Ω	12.5 k Ω	8.0 k Ω
		1.1 V	2.2 V	2.8 V

CN32 Thermistor Characteristics.

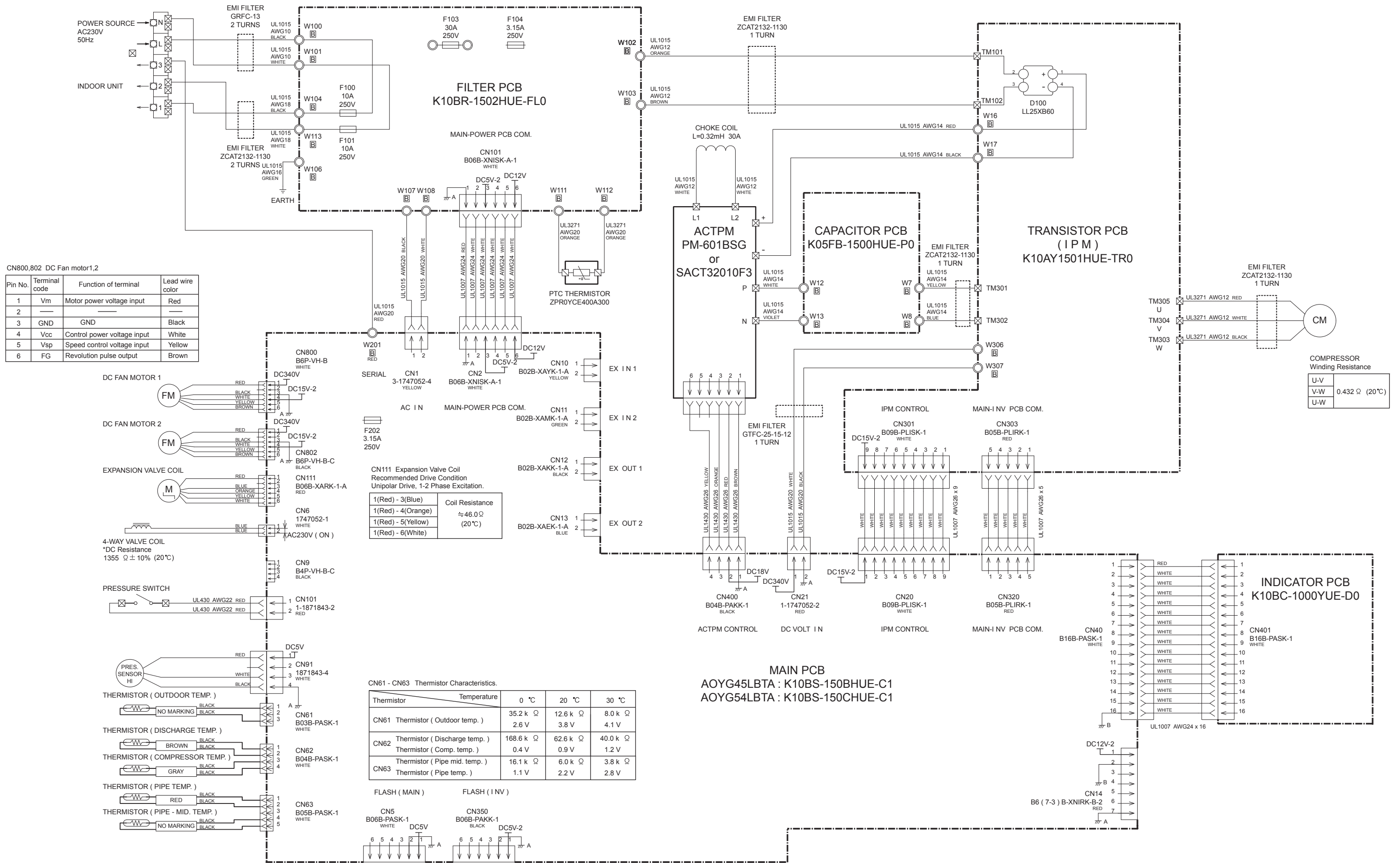
Thermistor	Temperature	(0°C)	(20°C)	(30°C)
Thermistor (Pipe - mid. temp.)		176.0 k Ω	62.9 k Ω	39.6 k Ω
		1.1 V	2.2 V	2.8 V



OUTDOOR UNIT

INVERTER ASSEMBLY

AOYG45LBTA : EZ-015LHUE
AOYG54LBTA : EZ-015MHUE



CN800,802 DC Fan motor1,2

Pin No.	Terminal code	Function of terminal	Lead wire color
1	Vm	Motor power voltage input	Red
2			
3	GND	GND	Black
4	Vcc	Control power voltage input	White
5	Vsp	Speed control voltage input	Yellow
6	FG	Revolution pulse output	Brown

CN111 Expansion Valve Coil Recommended Drive Condition Unipolar Drive, 1-2 Phase Excitation.

Coil Resistance
1(Red) - 3(Blue)
1(Red) - 4(Orange)
1(Red) - 5(Yellow)
1(Red) - 6(White)
≈46.0Ω (20°C)

CN61 - CN63 Thermistor Characteristics.

Thermistor	Temperature	0 °C	20 °C	30 °C
CN61 Thermistor (Outdoor temp.)	Resistance	35.2 k Ω	12.6 k Ω	8.0 k Ω
	Voltage	2.6 V	3.8 V	4.1 V
CN62 Thermistor (Discharge temp.)	Resistance	168.6 k Ω	62.6 k Ω	40.0 k Ω
	Voltage	0.4 V	0.9 V	1.2 V
CN63 Thermistor (Pipe mid. temp.)	Resistance	16.1 k Ω	6.0 k Ω	3.8 k Ω
	Voltage	1.1 V	2.2 V	2.8 V

COMPRESSOR Winding Resistance

U-V	0.432 Ω (20°C)
V-W	
U-W	

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.

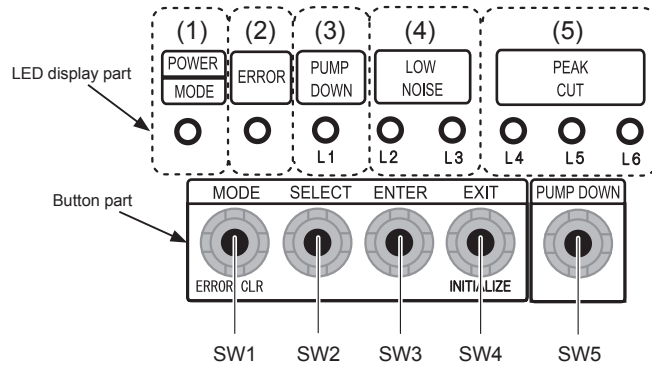
Error display			Wired remote control Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(1)	●(1)	◇	11	Serial communication error
●(1)	●(2)	◇	12	Wired remote control communication error
●(1)	●(5)	◇	15	Check run unfinished Automatic airflow adjustment error
●(1)	●(6)	◇	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	LOW NOISE			PEAK CUT	
MODE		(L1)	(L2)	(L3)	(L4)	(L5)	(L6)
●	Blink (Hi speed)	○	○	○	○	○	○

Sign "○": Lights off, "●": Lights on

- Check that the "ERROR" LED blinks, then press the [Enter] button once.
- For details, refer to the following table.

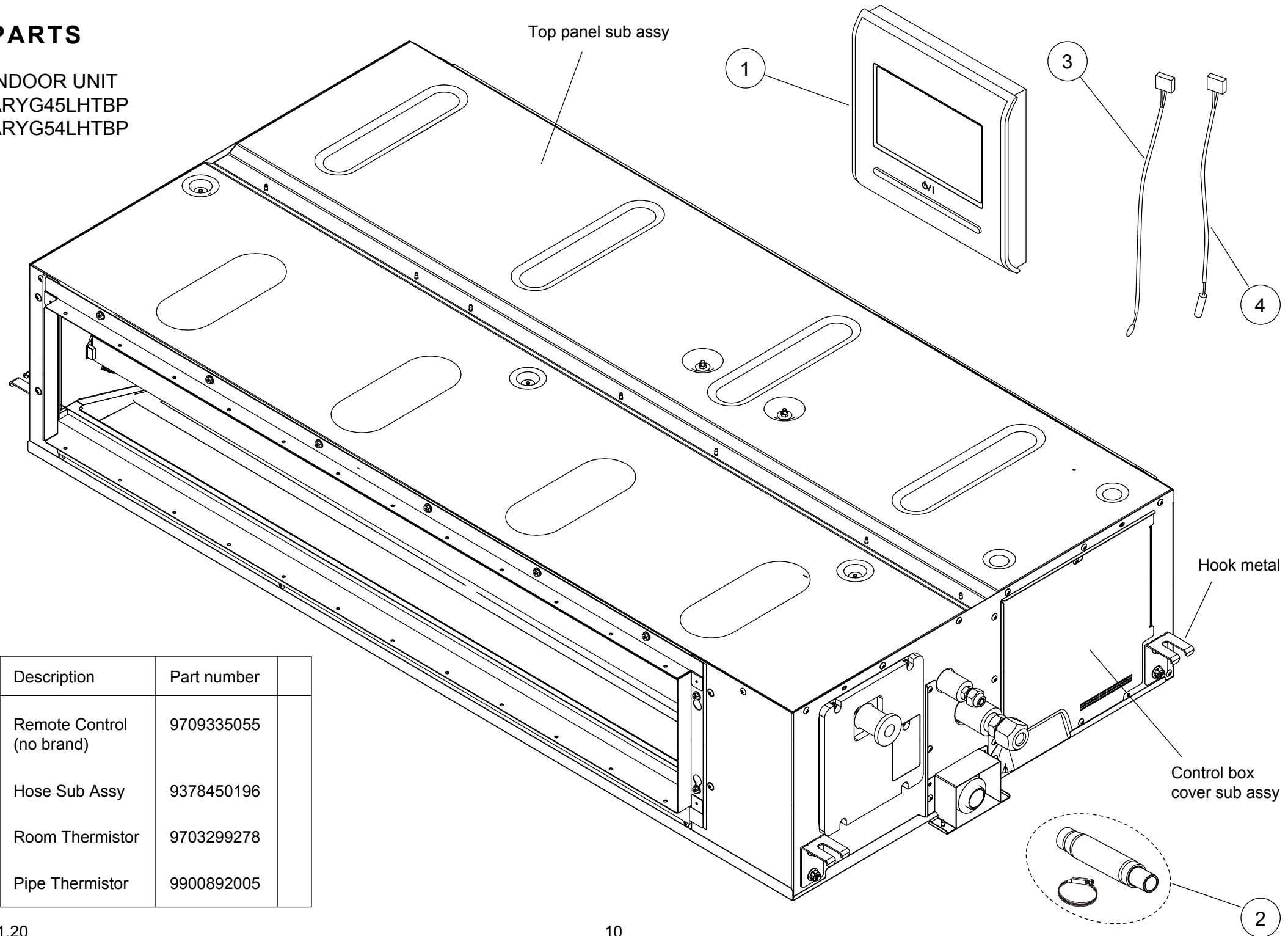
Display mode ● : ON
○ : OFF
◆ : Blink (0.5s ON / 0.5s OFF)
() : Number of flashing

Error code check table

POWER MODE	ERROR	LED display						DESCRIPTION	REMARK
		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)	○	●	●	○		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

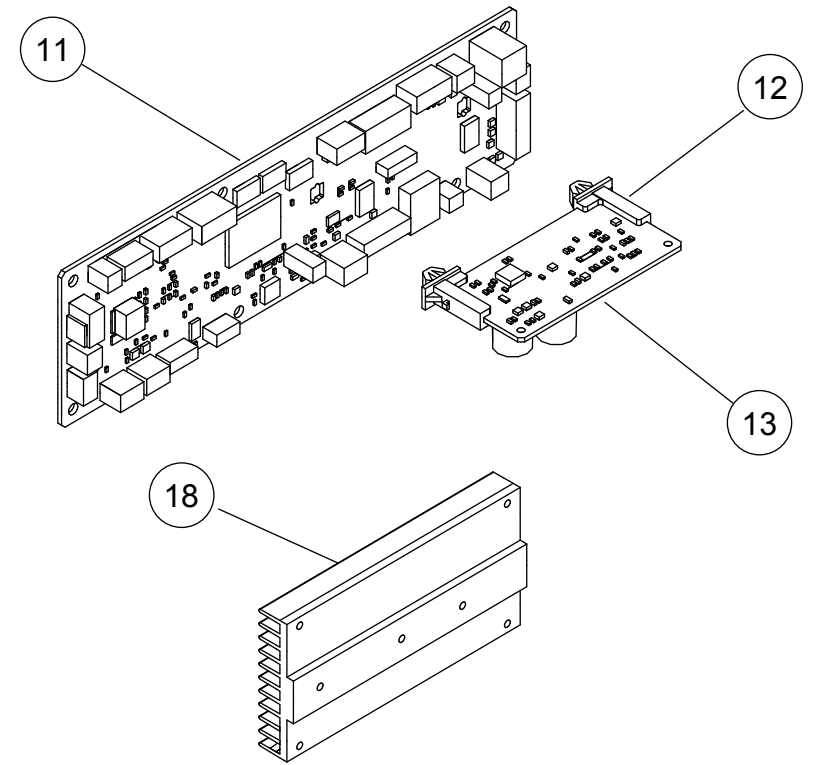
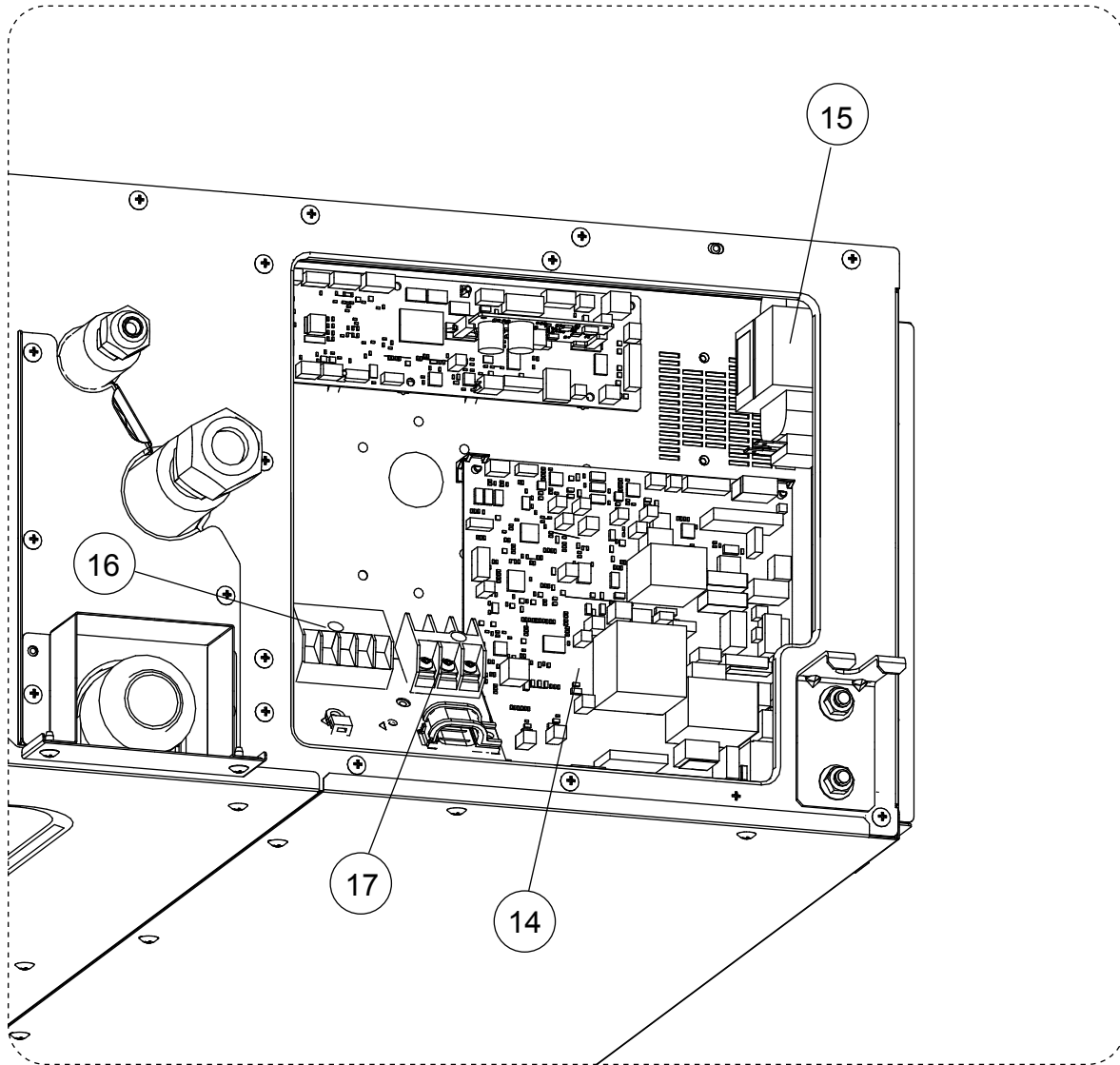
PARTS

INDOOR UNIT
ARYG45LHTBP
ARYG54LHTBP



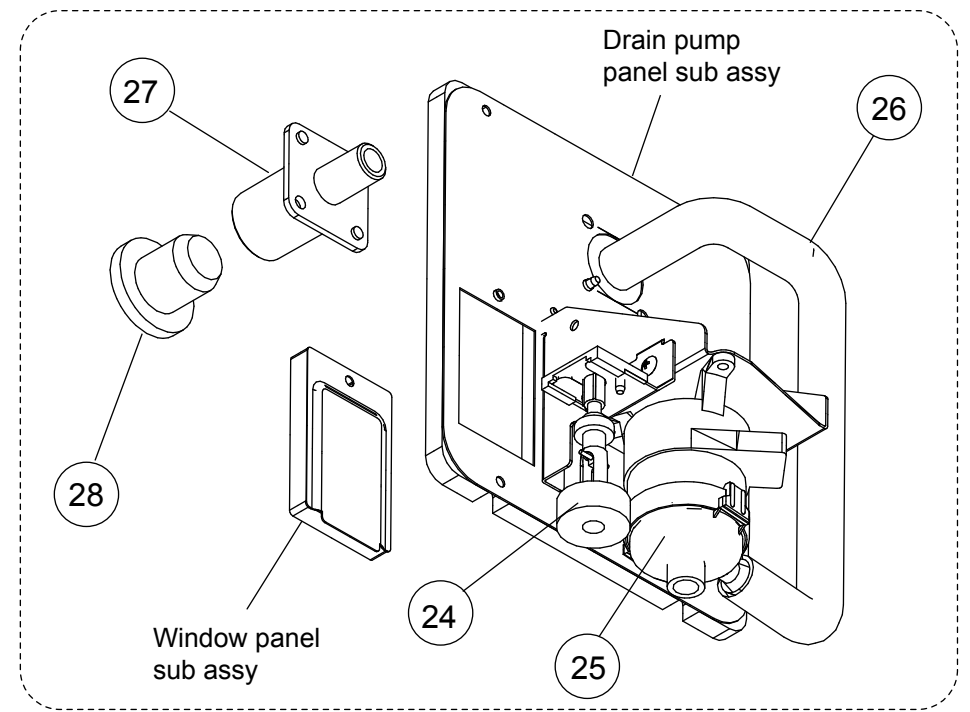
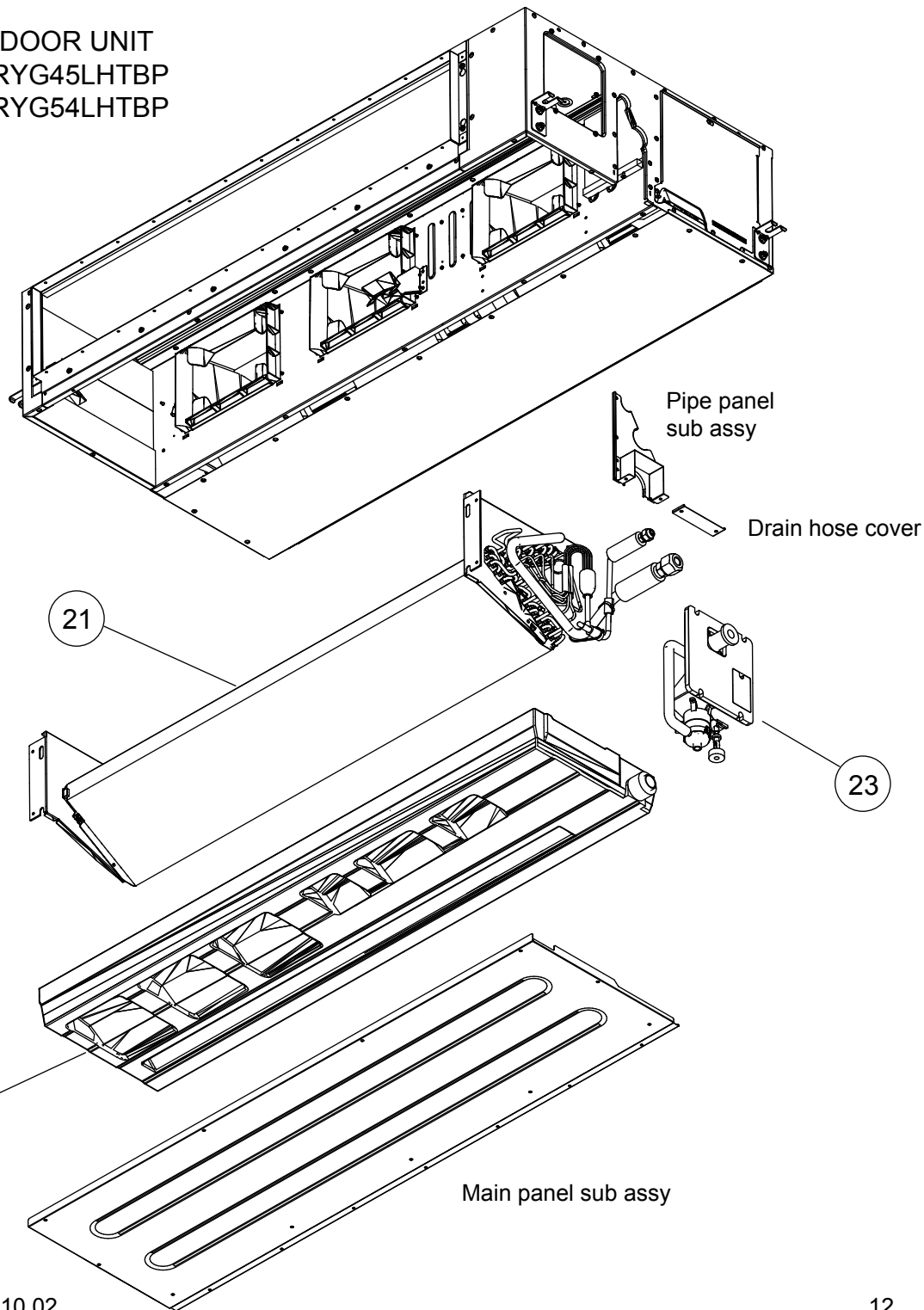
Ref.	Description	Part number
1	Remote Control (no brand)	9709335055
2	Hose Sub Assy	9378450196
3	Room Thermistor	9703299278
4	Pipe Thermistor	9900892005

INDOOR UNIT
 ARYG45LHTBP
 ARYG54LHTBP



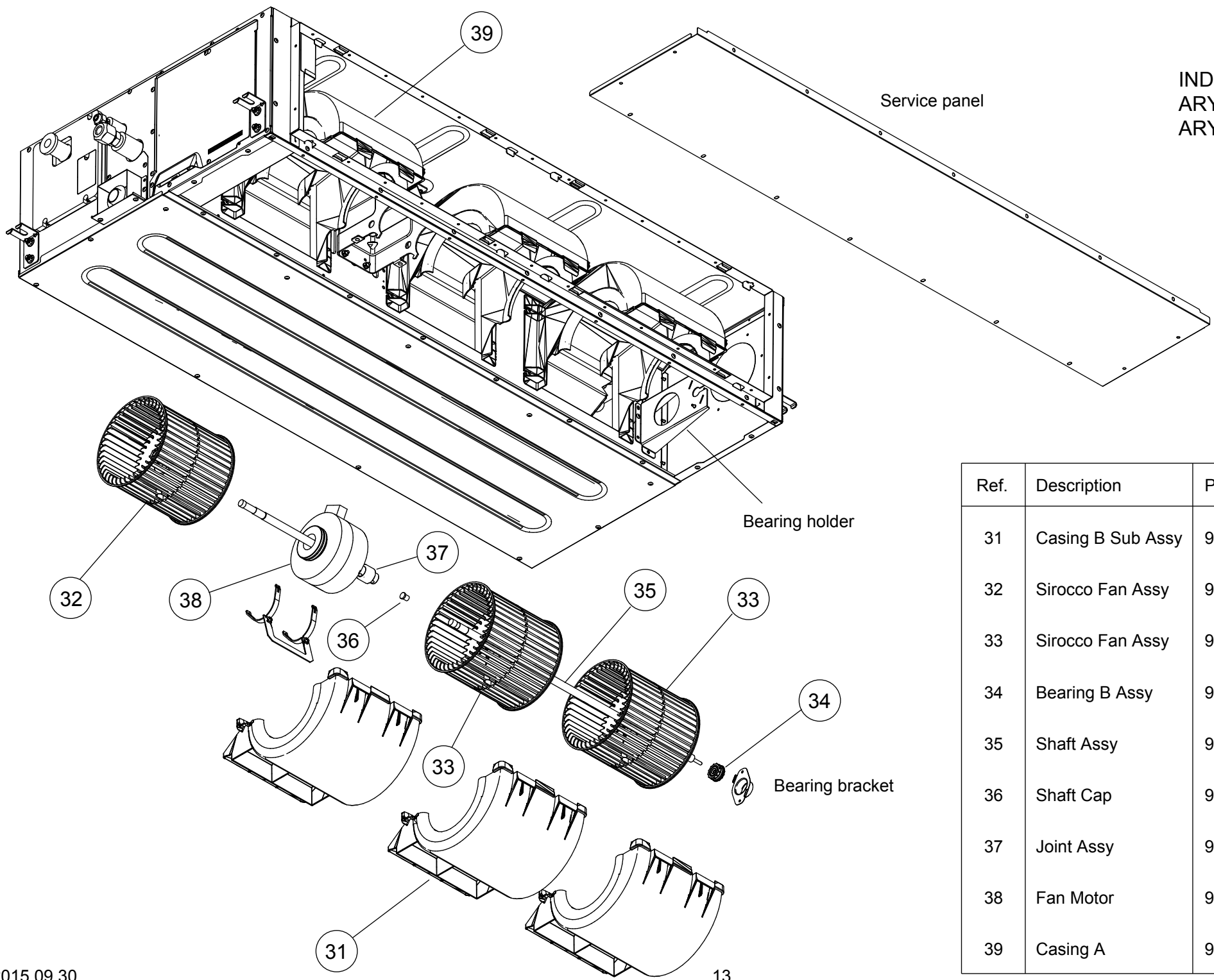
Ref.	Description	Part number
11	Main PCB (45LHTBP)	9710016264
11	Main PCB (54LHTBP)	9710016271
12	Holder	0600063023
13	Communication PCB	9710019005
14	Power Supply PCB	9710261008
15	Reactor Assy	9900898014
16	Terminal (Remote)	9900896003
17	Terminal (Power)	9900568009
18	Heatsink	9381518005

INDOOR UNIT
ARYG45LHTBP
ARYG54LHTBP



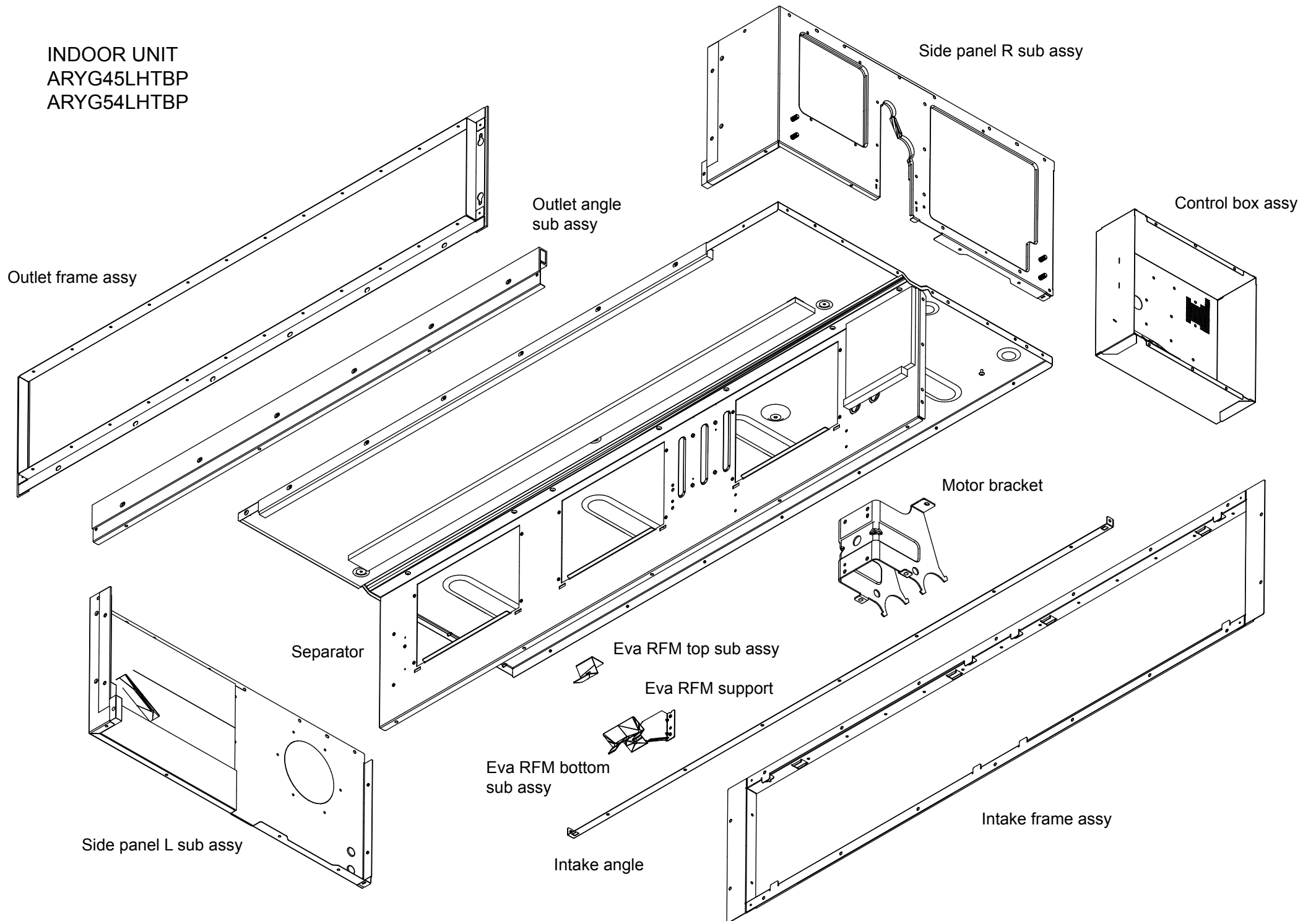
Ref.	Description	Part number
21	Evaporator Total Assy	9374517381
22	Drain Pan Sub Assy	9381752003
23	Drain Pump Sub Assy	9381766017
24	Float Switch	9900465070
25	Pump Assy	9900890018
26	Drain Hose	9381576005
27	Drain Port	9381565009
28	Drain Cap	9381578009

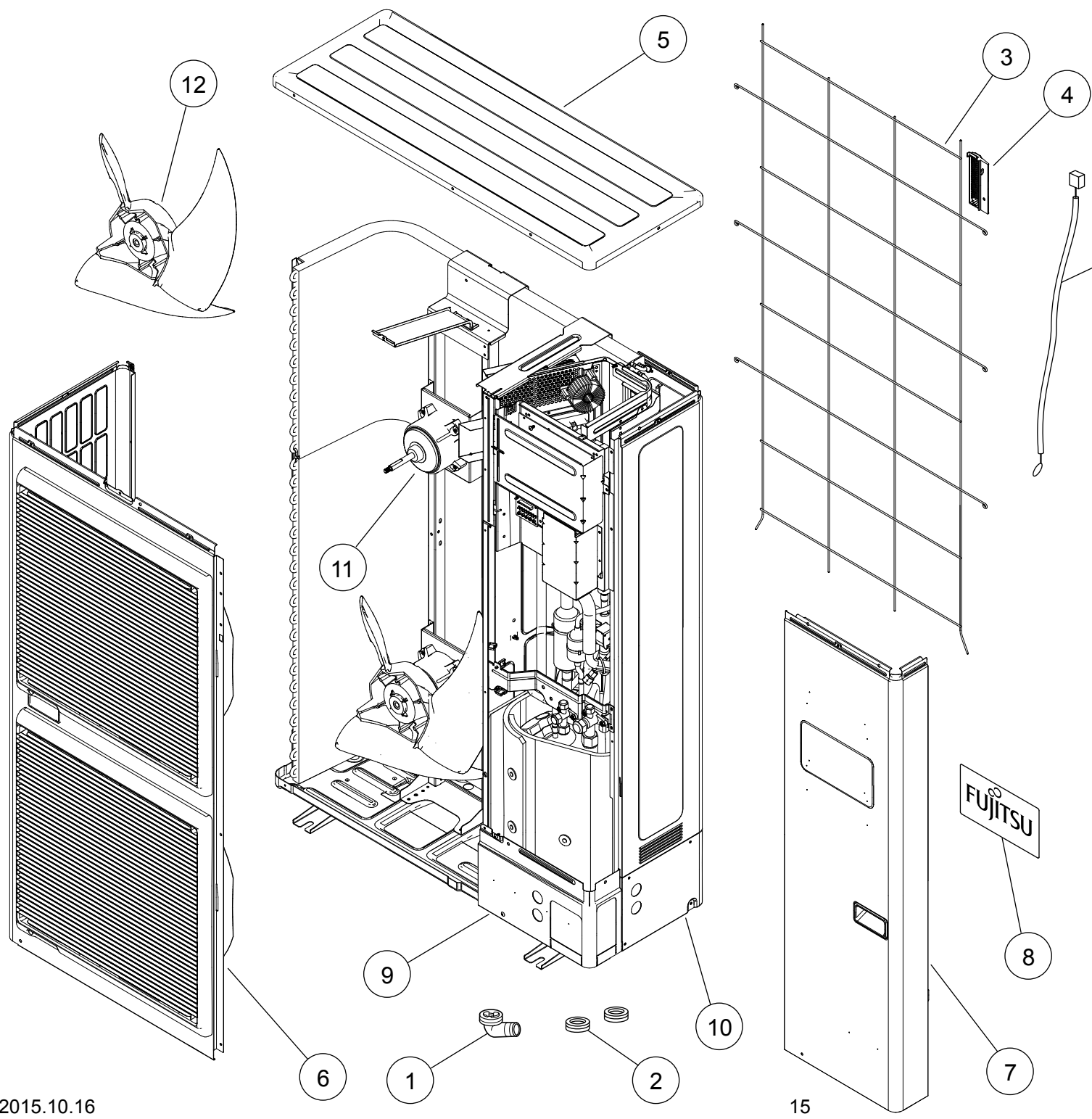
INDOOR UNIT
 ARYG45LHTBP
 ARYG54LHTBP



Ref.	Description	Part number
31	Casing B Sub Assy	9381829002
32	Sirocco Fan Assy	9381302000
33	Sirocco Fan Assy	9381302017
34	Bearing B Assy	9357921006
35	Shaft Assy	9381052028
36	Shaft Cap	9381814015
37	Joint Assy	9378038035
38	Fan Motor	9603480011
39	Casing A	9381587001

INDOOR UNIT
ARYG45LHTBP
ARYG54LHTBP



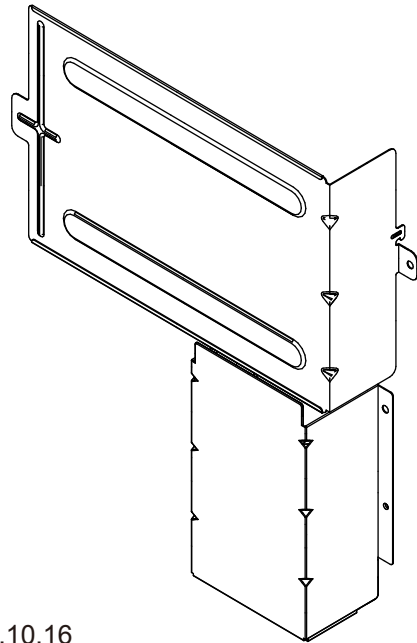
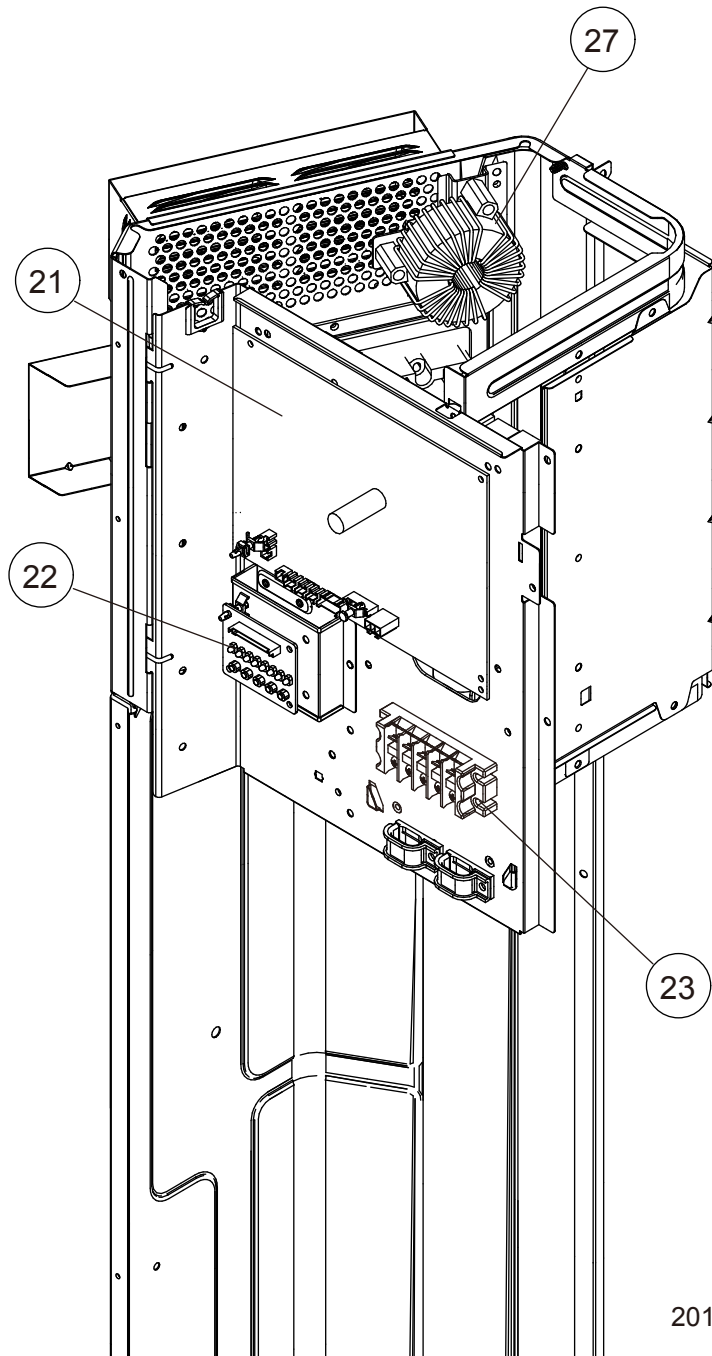


PARTS

OUTDOOR UNIT
 AOYG45LBTA
 AOYG54LBTA

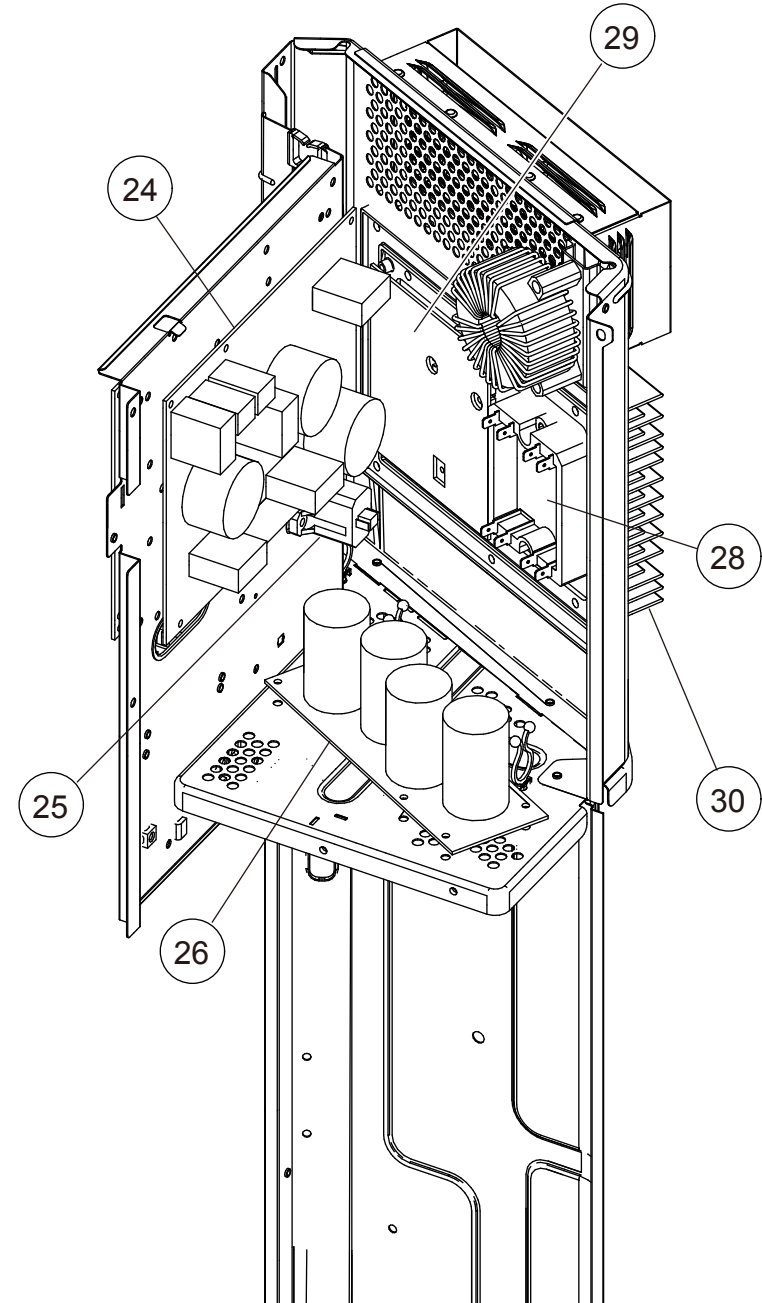
Ref.	Description	Parts number
1	Drain Assy	9303029015
2	Drain Cap	313166024302
3	Protective Net	9375381042
4	Thermo Holder	9375211011
5	Top Panel Sub Assy	9374417056
6	Front Panel Sub Assy	9374414154
7	Sevice Panel Sub Assy	9374415090
8	Emblem Rear	9351355005
9	Pipe Cover Front	9378861015
10	Right Panel Sub Assy	9374416233
11	Motor DC Brushless	9602843039
12	Propeller Fan Assy	9366378020
13	Outdoor Thermistor	9900210069

OUTDOOR UNIT
 AOYG45LBTA
 AOYG54LBTA
 Control box



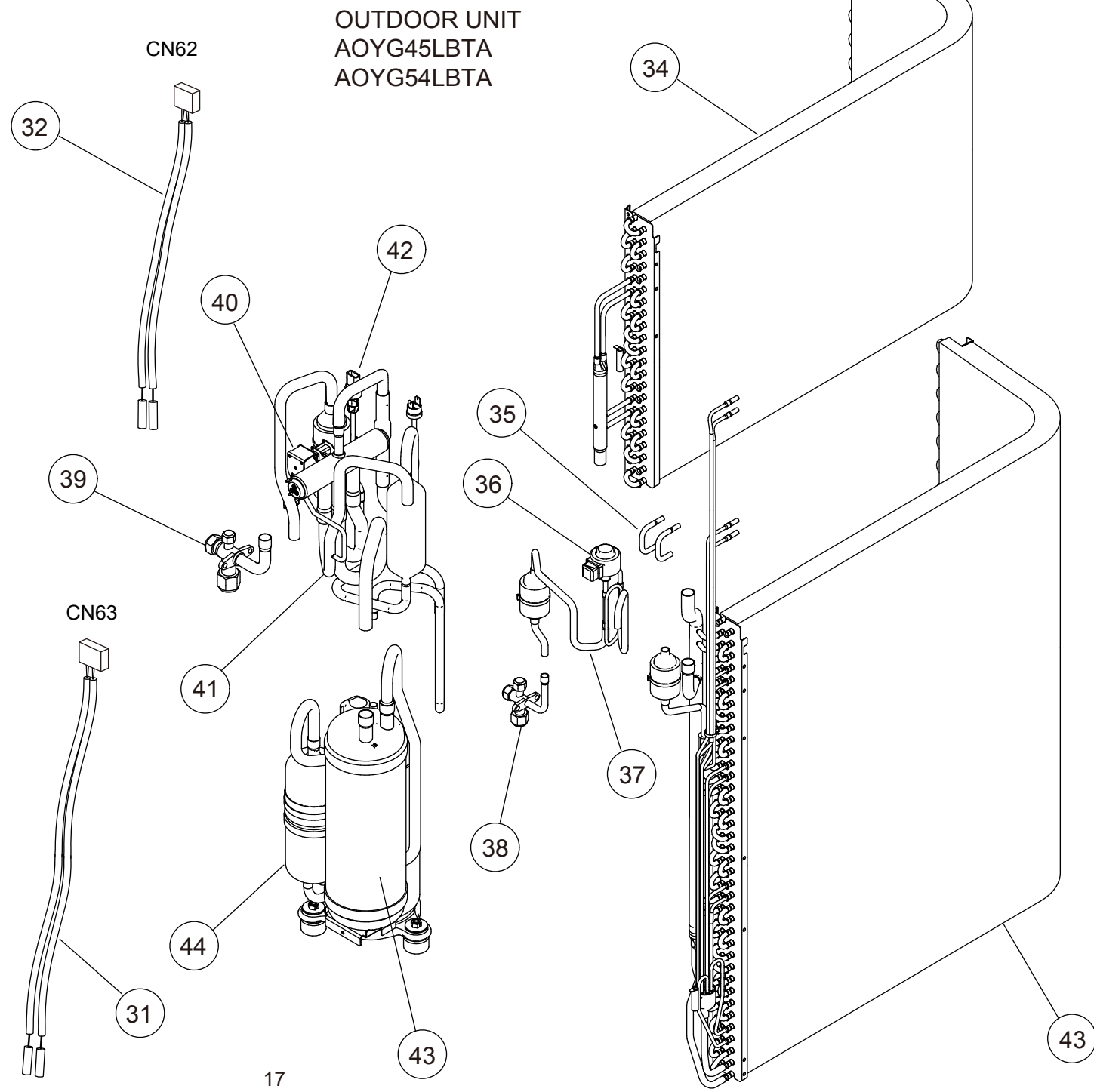
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Ref.	Description	Parts number
21	Main PCB (45)	9709904282
21	Main PCB (54)	9709904299
22	Indicator PCB	9708678016
23	Terminal	9900203023
24	Filter PCB	9709903056
25	Thermistor	9704265012
26	Capacitor PCB	9709894101
27	Choke Coil	9900624019
28	ACTPM	9707592016
29	Transistor PCB	9708646138
30	Heat Sink	9380358008















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Ref.	Description	Parts number
31	Thermistor Assy (5 pins)	9900599027
32	Thermistor Assy (4 pins)	9900598013
33	Condenser A Sub Assy	9374420261
34	Condenser B Sub Assy	9374422081
35	Bypass Pipe A	9371324043
36	Expansion Valve Coil	9970096044
37	Expansion Valve Assy	9370947243
38	3-way Valve Assy	9379077002
39	3-way Valve Assy	9379079006
40	Solenoid	9970055072
41	4-way Valve Assy	9374425235
42	Sensor	9900505080
43	Accumulator Assy	9375250065
44	Compressor	9810153005



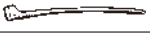





ACCESSORIES





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 (WDD type) 	1	For air conditioner operation
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

REMOTE CONTROL

Name and Shape	Q'ty	Application
Screw (M4 × 16 mm) 	2	For installing the remote controller
Cable tie (medium) 	1	For fixing the remote controller cable
Cable tie (small) 	1	For fixing the remote controller cable
Tube 	1	To protect wiring
Screw (M4 × 14 mm) 	1	For installing the remote controller cable to the indoor unit
Cable clammer 	1	For installing the remote controller cable to the indoor unit

OUTDOOR UNIT

Name and shape	Q'ty	Description
Cable tie with clip 	1	For binding power supply cable and connection cable
Drain pipe 	1	For outdoor unit drain piping work (May not be supplied, depending on the model.)
Drain cap 	2	
One-touch bush 	2	For power supply cable and connection cable installation

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