

Split type air conditioner
Ceiling type (50Hz)



SERVICE MANUAL



Indoor unit	Outdoor unit
ABHG45LRTA	AOHG45LBTC

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SPECIFICATIONS

ELECTRICAL DATA

INDOOR UNIT		ABHG45LRTA
OUTDOOR UNIT		AOHG45LBTC
TYPE		Cooling & Heating
POWER SUPPLY		230V, 50Hz, Single phase
Cooling	CAPACITY	12.1 kW
	POWER CONSUMPTION	4.29 kW
	EER	2.82 kW/kW
	OPERATING CURRENT	18.7 A
	MAXIMUM CURRENT	23.5 A
	DEHUMIDIFICATION	4.0 L/h
Heating	CAPACITY	13.3 kW
	POWER CONSUMPTION	3.84 kW
	COP	3.46 kW/kW
	OPERATING CURRENT	16.8 A
	MAXIMUM CURRENT	23.5 A

DIMENSIONS

H x W x D

INDOOR UNIT	240 x 1,660 x 700 mm
OUTDOOR UNIT	914 x 970 x 370 mm

WEIGHT

Net / Shipping

INDOOR UNIT	46 kg / 58 kg
OUTDOOR UNIT	75 kg / 84 kg

FAN MOTOR

INDOOR UNIT	MFH-45RVL
OUTDOOR UNIT	MFE-45WVN

FAN REVOLUTION

INDOOR UNIT	High	1,200 rpm
	Medium	1,000 rpm
	Low	830 rpm
	Quiet	680 rpm
OUTDOOR UNIT	Cooling	890 rpm
	Heating	890 rpm

AIR CIRCULATION

INDOOR UNIT	High	2,100 m3/h
	Medium	1,700 m3/h
	Low	1,400 m3/h
	Quiet	1,100 m3/h
OUTDOOR UNIT	Cooling	4,650 m3/h
	Heating	4,650 m3/h

NOISE LEVEL

INDOOR UNIT	High	49 dB
	Medium	45 dB
	Low	39 dB
	Quiet	34 dB
OUTDOOR UNIT	Cooling	58 dB
	Heating	58 dB

COMPRESSOR

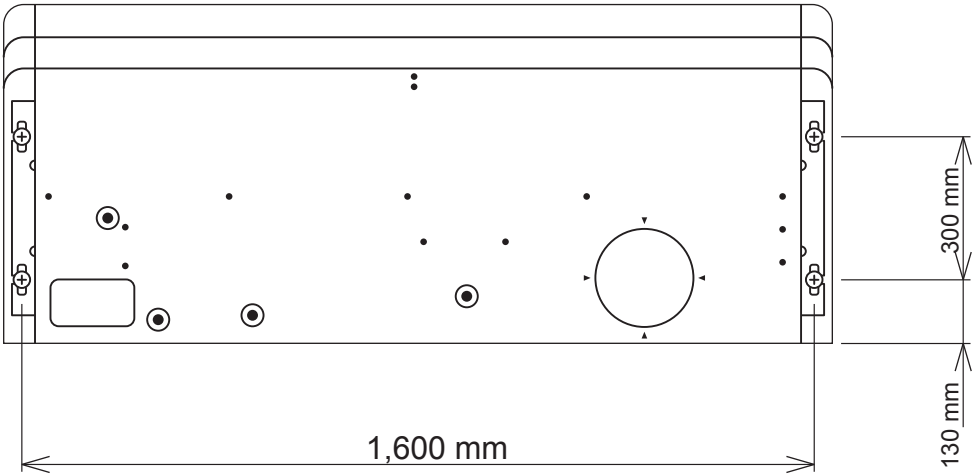
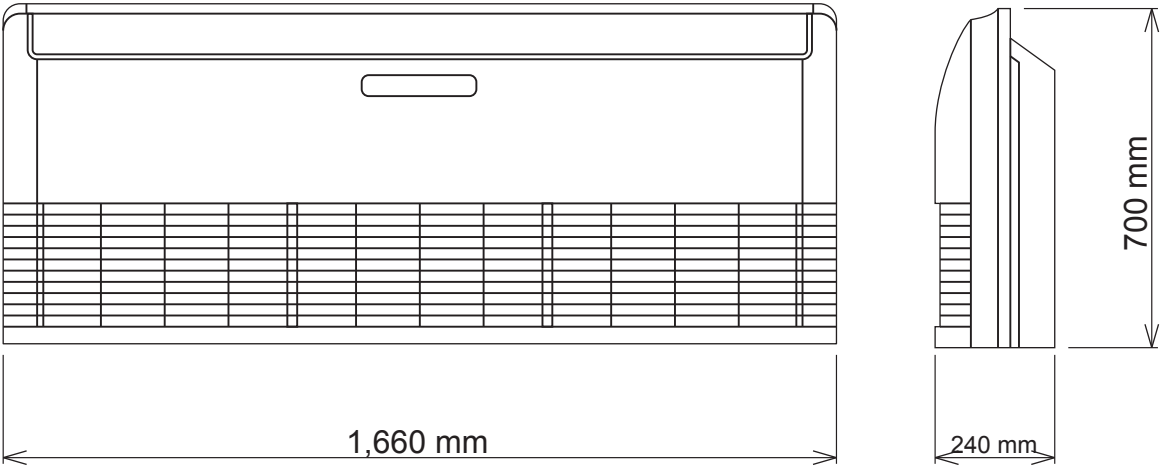
COMPRESSOR TYPE	Hermetic motor compressor, 6 poles, Brushless DC motor, 2 cylinder rotary compressor
DISCRIMINATION	N-TF30HD1A
WEIGHT (with oil)	15.4 kg

REFRIGERANT

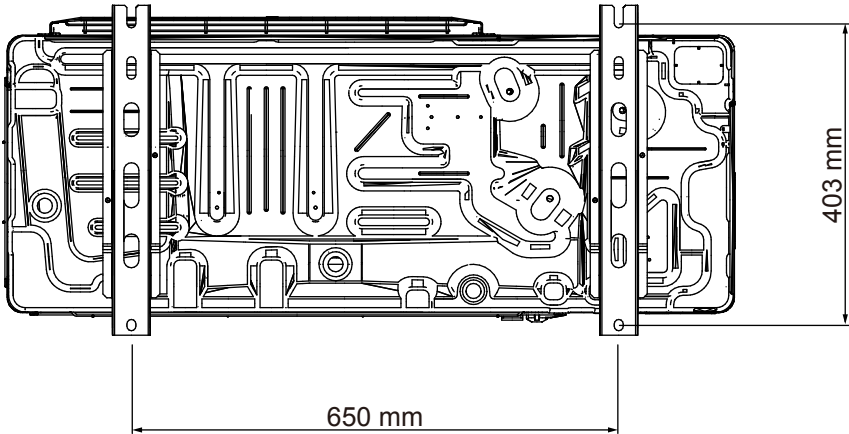
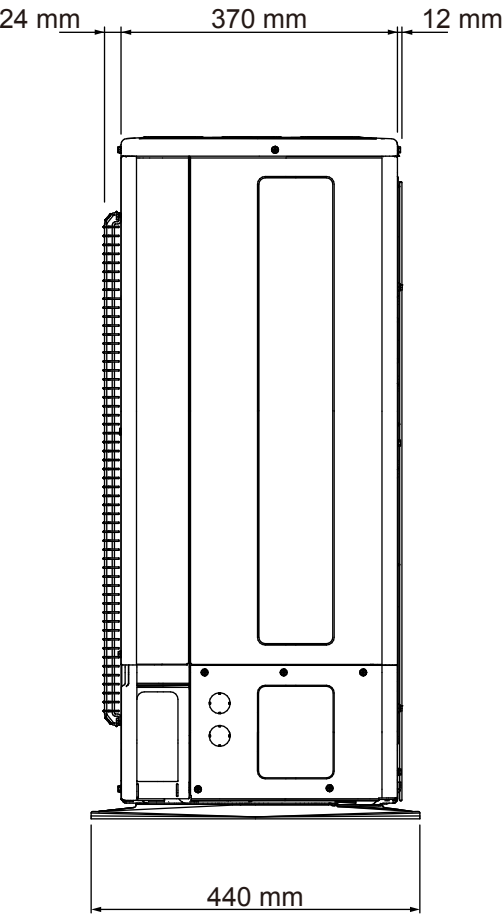
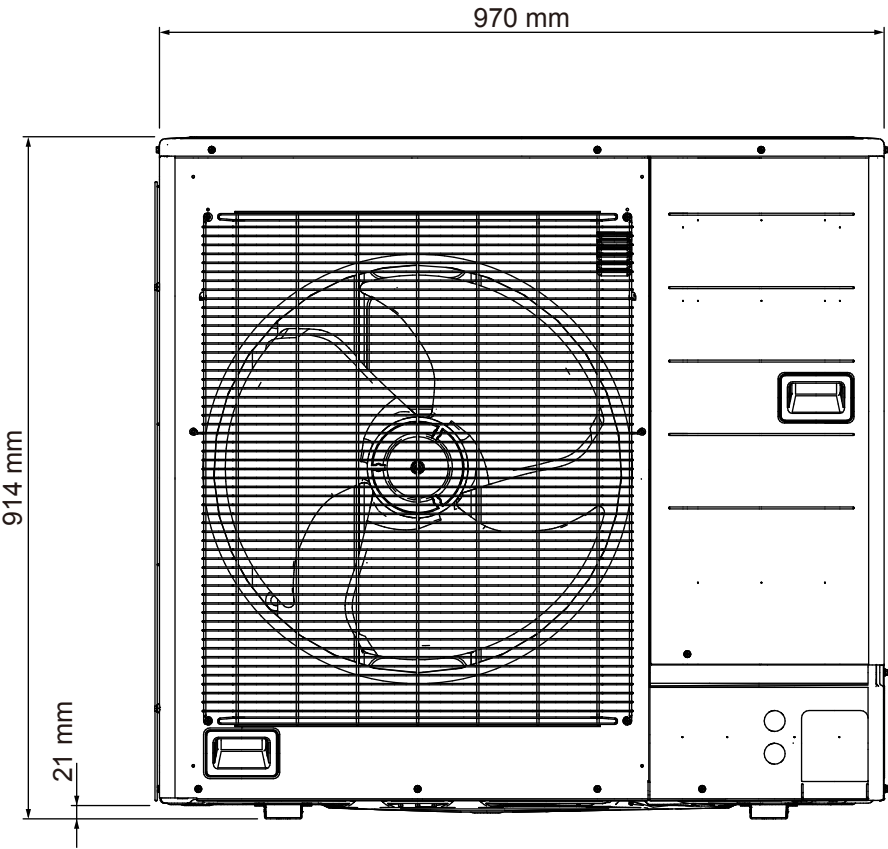
PRECHARGED REFRIGERANT		2,900 g
REFRIGERANT TYPE		R410A
FULL CHARGE	Piping length 20 m	2,900 g
	30 m	3,300 g
	40 m	3,700 g
	50 m	4,100 g
ADDITIONAL CHARGE		40 g/m
MAXIMUM PIPING HEIGHT DIFFERENCE		30 m

DIMENSIONS

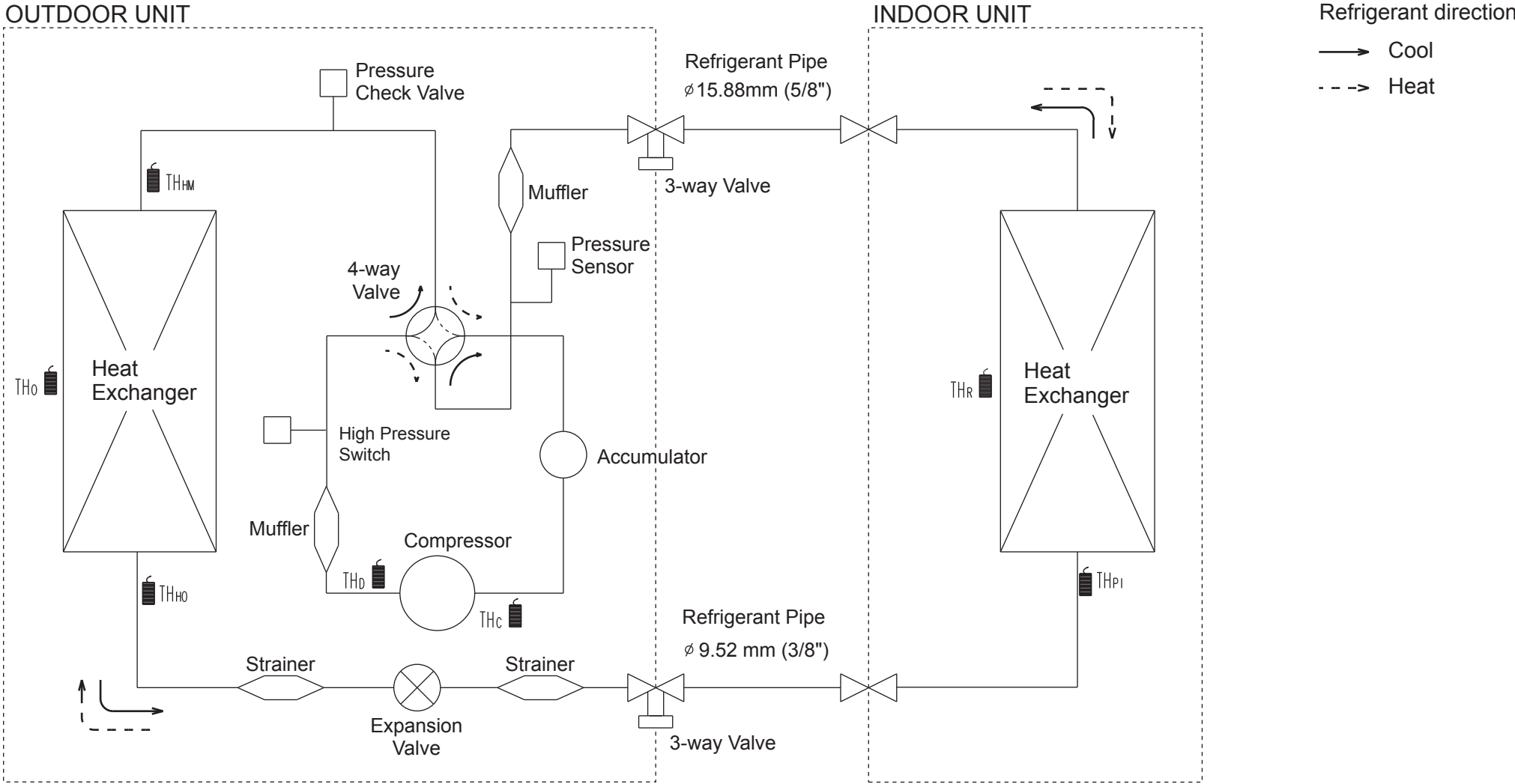
INDOOR UNIT
ABHG45LRTA



OUTDOOR UNIT
AOHG45LBTC



REFRIGERANT CIRCUIT DIAGRAM

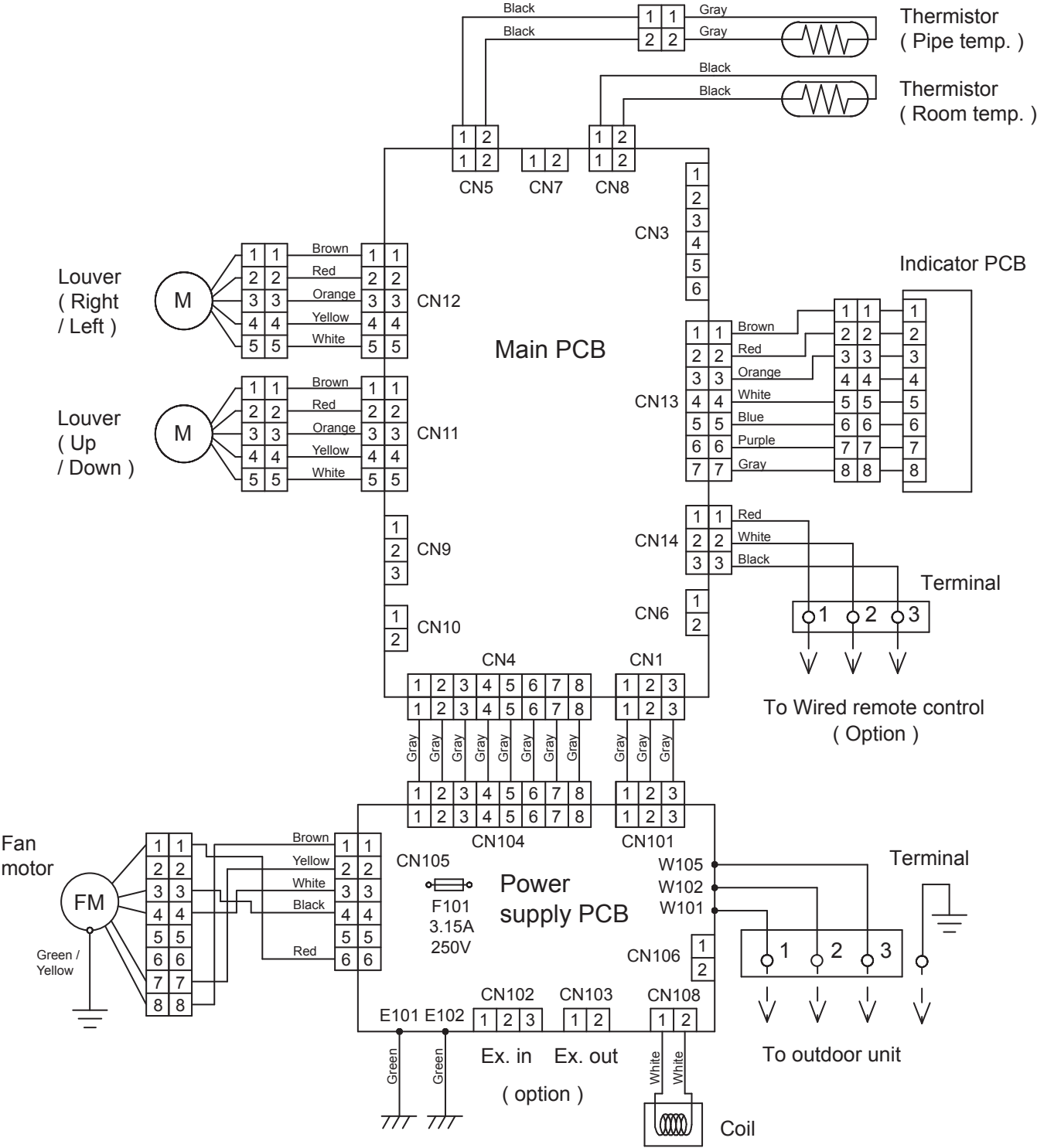


TH_C : Thermistor (Compressor)
TH_D : Thermistor (Discharge)
TH_{HM} : Thermistor (Heat Exchanger Med)
TH_{HO} : Thermistor (Heat Exchanger Out)
TH_o : Thermistor (Outdoor)

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

CIRCUIT DIAGRAM

INDOOR UNIT
ABHG45LRTA





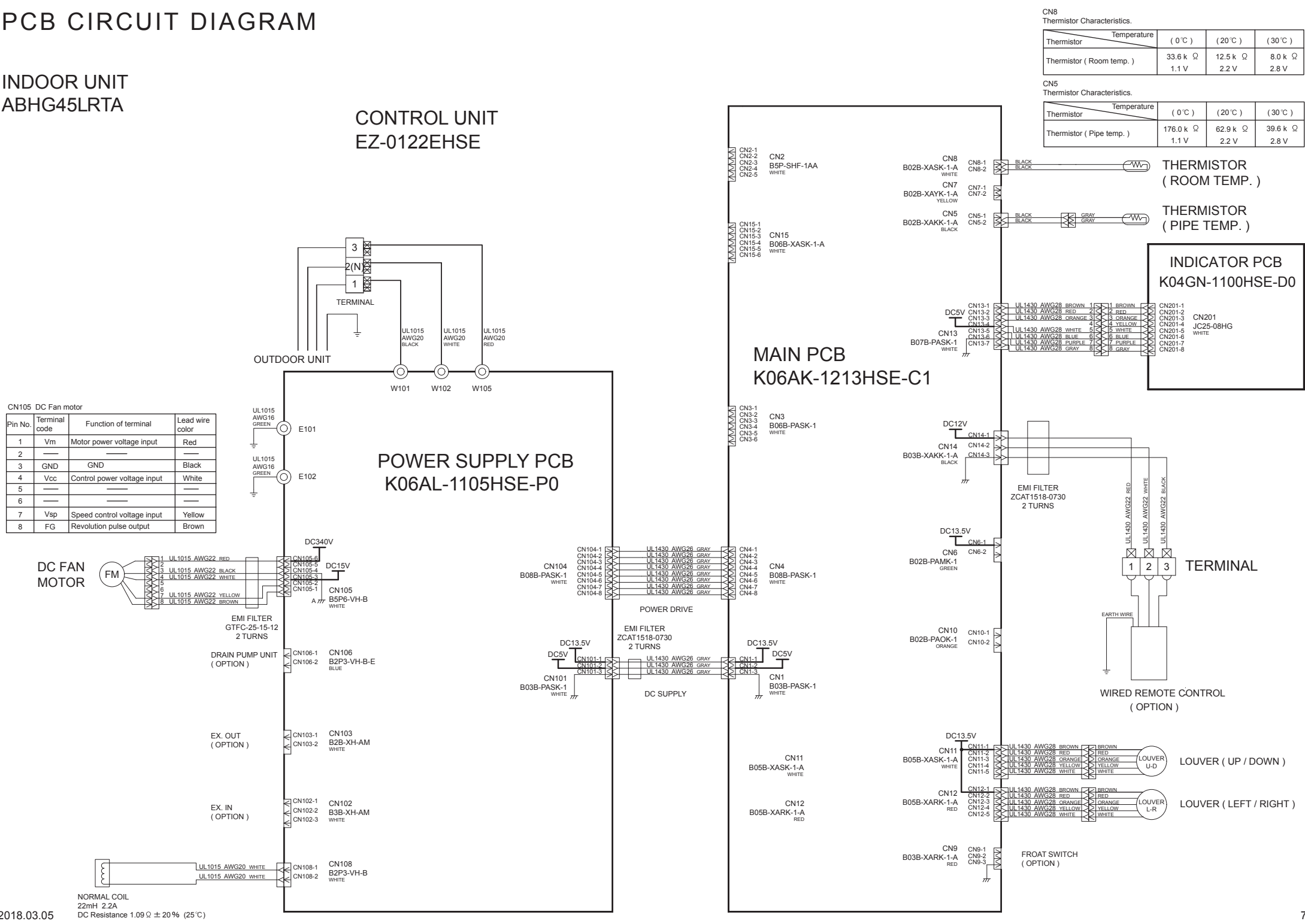
PCB CIRCUIT DIAGRAM

INDOOR UNIT
ABHG45LRTA

CONTROL UNIT
EZ-0122EHSE

CN105 DC Fan motor

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	—	—	—
6	—	—	—
7	Vsp	Speed control voltage input	Yellow
8	FG	Revolution pulse output	Brown



CN8 Thermistor Characteristics.

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

CN5 Thermistor Characteristics.

Thermistor	Temperature (0℃)	(20℃)	(30℃)
Thermistor (Pipe temp.)	176.0 k Ω 1.1 V	62.9 k Ω 2.2 V	39.6 k Ω 2.8 V

INVERTER ASSEMBLY

EZ-0170HHUE



ERROR DETECTION

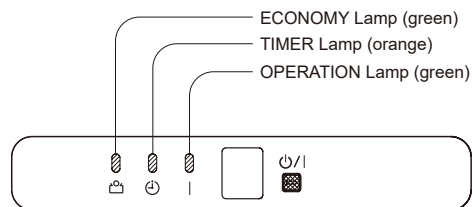
INDOOR UNIT and WIRED REMOTE CONTROL

If you use a wireless remote control, the lamp on the photo detector unit will output error codes by way of blinking patterns.

If you use a wired type remote control, error codes will appear on the remote control display. See the lamp blinking patterns and error codes in the table. An error display is displayed only during running.

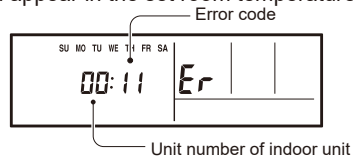
Indoor unit display

Troubleshooting at the display is possible either on the wired or wireless remote control.



Remote control

This is possible only on a wired remote control. If an error occurs, the following display will be shown. ("Er" will appear in the set room temperature display.)



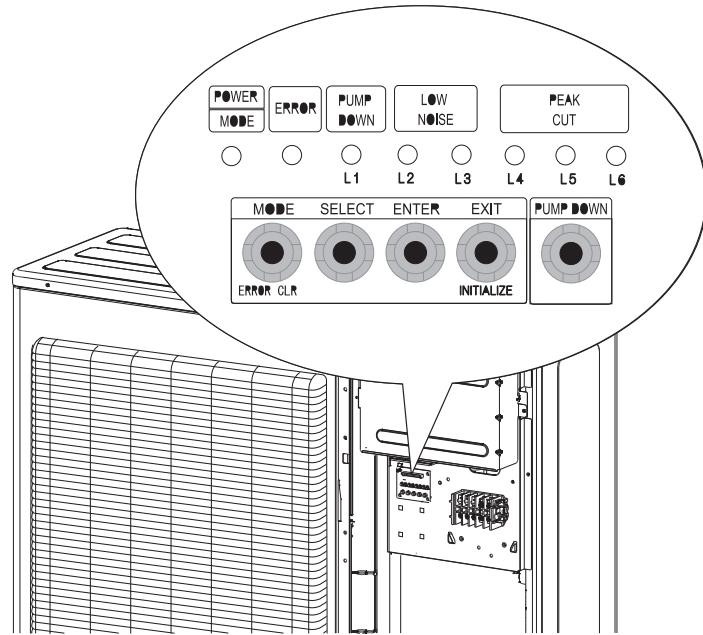
EX. Self-diagnosis

- : 0.5s on / 0.5s off
- ◇ : 0.1s on / 0.1s off
- () : Number of flashing

Indoor unit			Wired remote control	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
● (2)	● (1)	◇	21	R.C. address or Refrigerant circuit address setting error [Simultaneous Multi]
● (2)	● (2)	◇	22	Indoor unit capacity error
● (2)	● (3)	◇	23	Combination error
● (2)	● (4)	◇	24	• Connection R.C. address error (indoor secondary unit) [Simultaneous Multi] • Connection R.C. address error (indoor unit or branch unit) [Flexible Multi]
● (2)	● (7)	◇	27	Primary unit, secondary unit set-up error [Simultaneous Multi]
● (3)	● (1)	◇	31	Power supply interruption error
● (3)	● (2)	◇	32	Indoor unit PCB model information error
● (3)	● (5)	◇	35	Manual auto switch error
● (4)	● (1)	◇	41	Room temp. sensor error
● (4)	● (2)	◇	42	Indoor unit Heat Ex. Middle temp. 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)	● (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
● (6)	● (10)	◇	6A	Display PCB microcomputers communication error

Indoor unit			Wired remote control	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
● (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]

OUTDOOR UNIT



Error display mode

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.

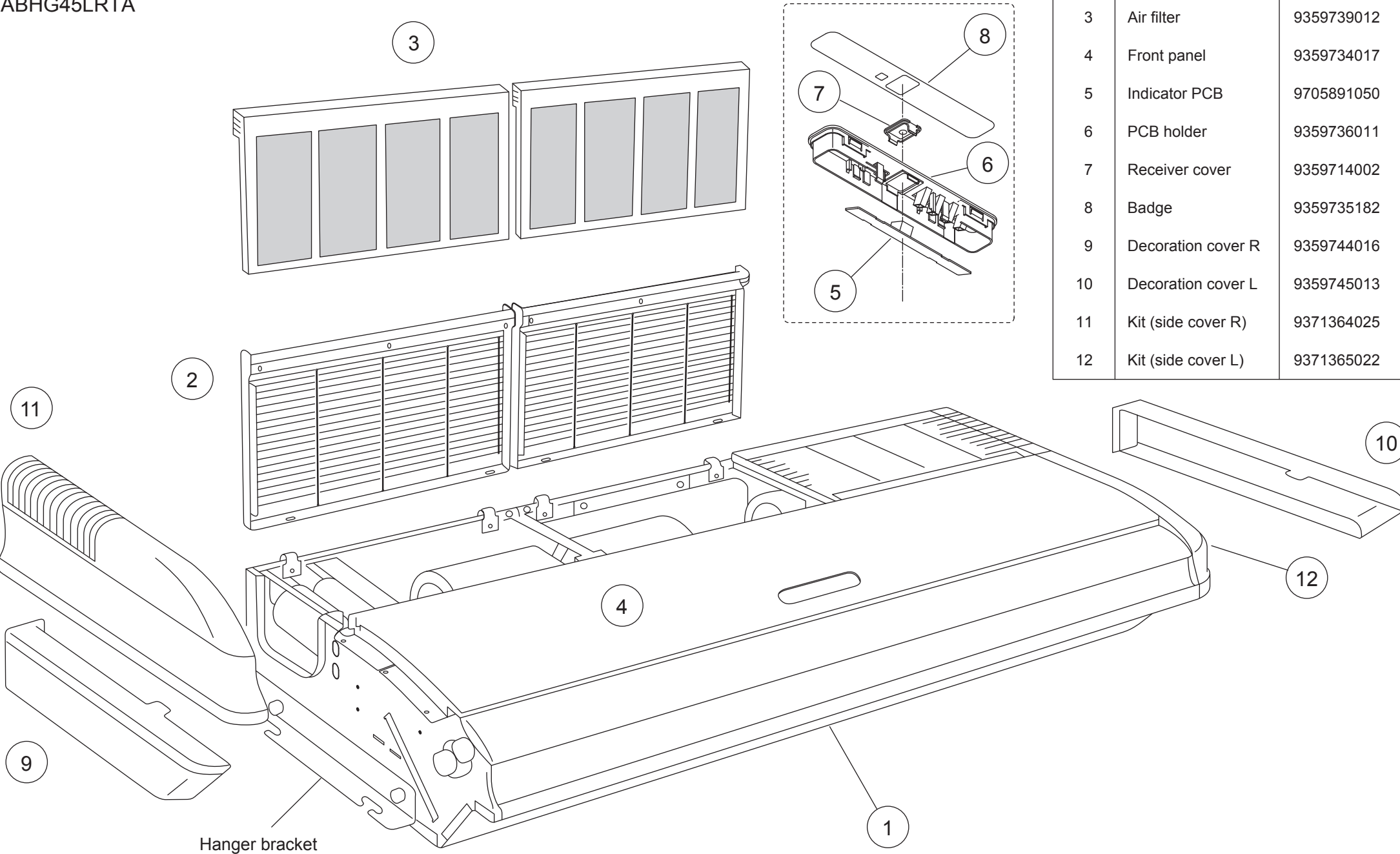
For details, refer to the table.

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)	○	●	●	○		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

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

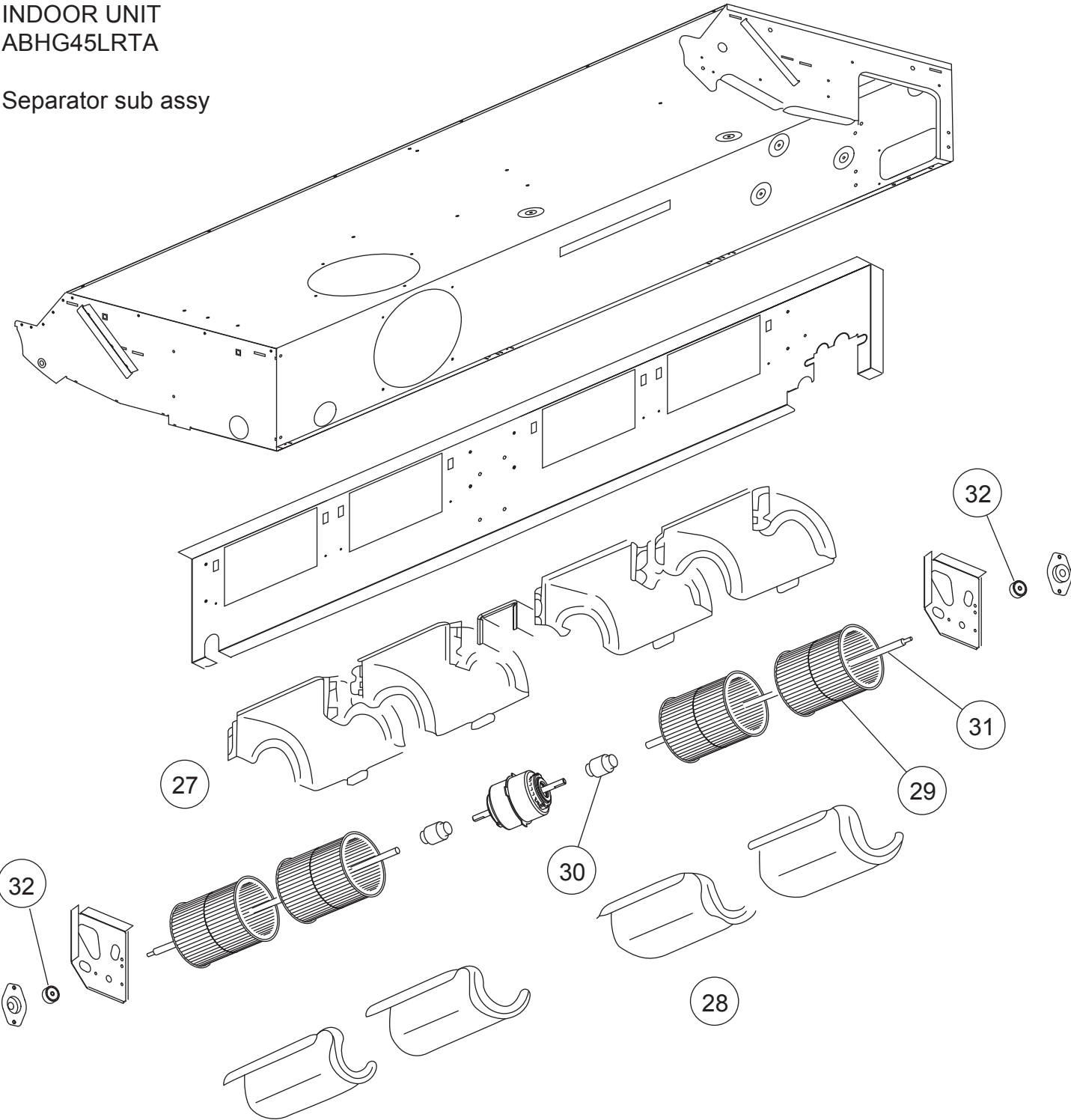
PARTS

INDOOR UNIT
ABHG45LR TA

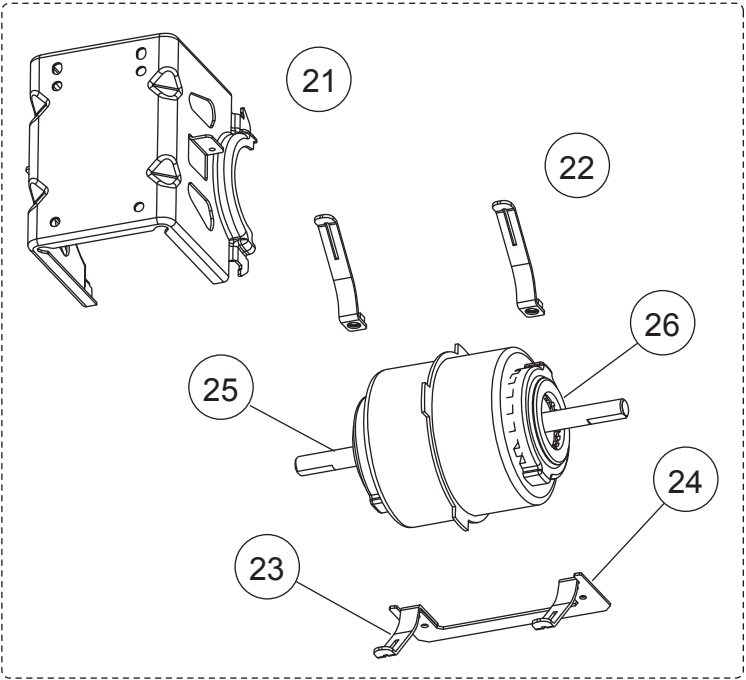


INDOOR UNIT
ABHG45LRTA

Separator sub assy



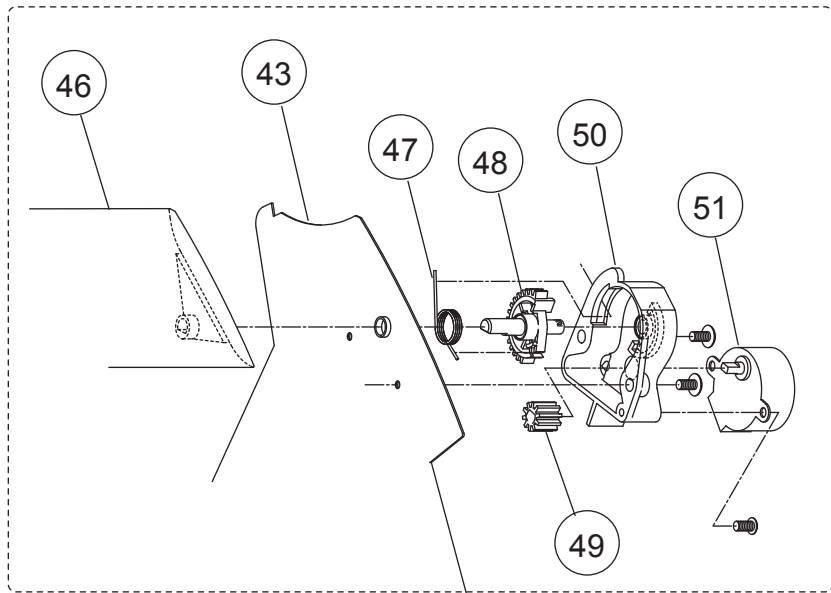
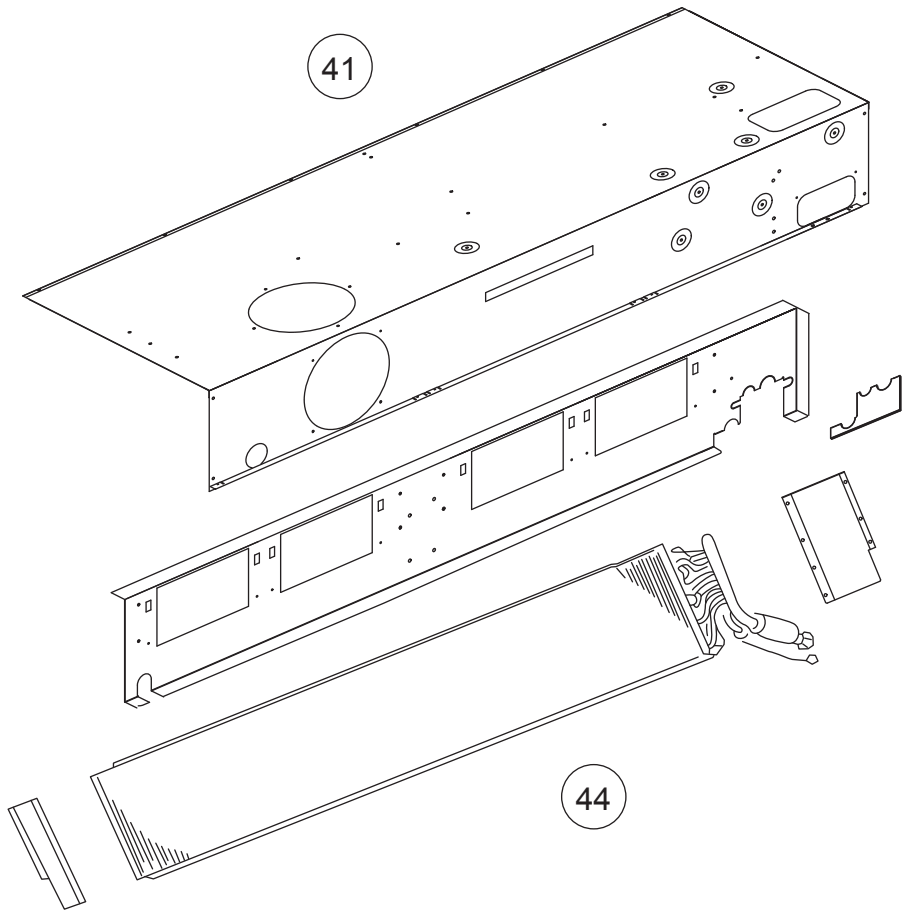
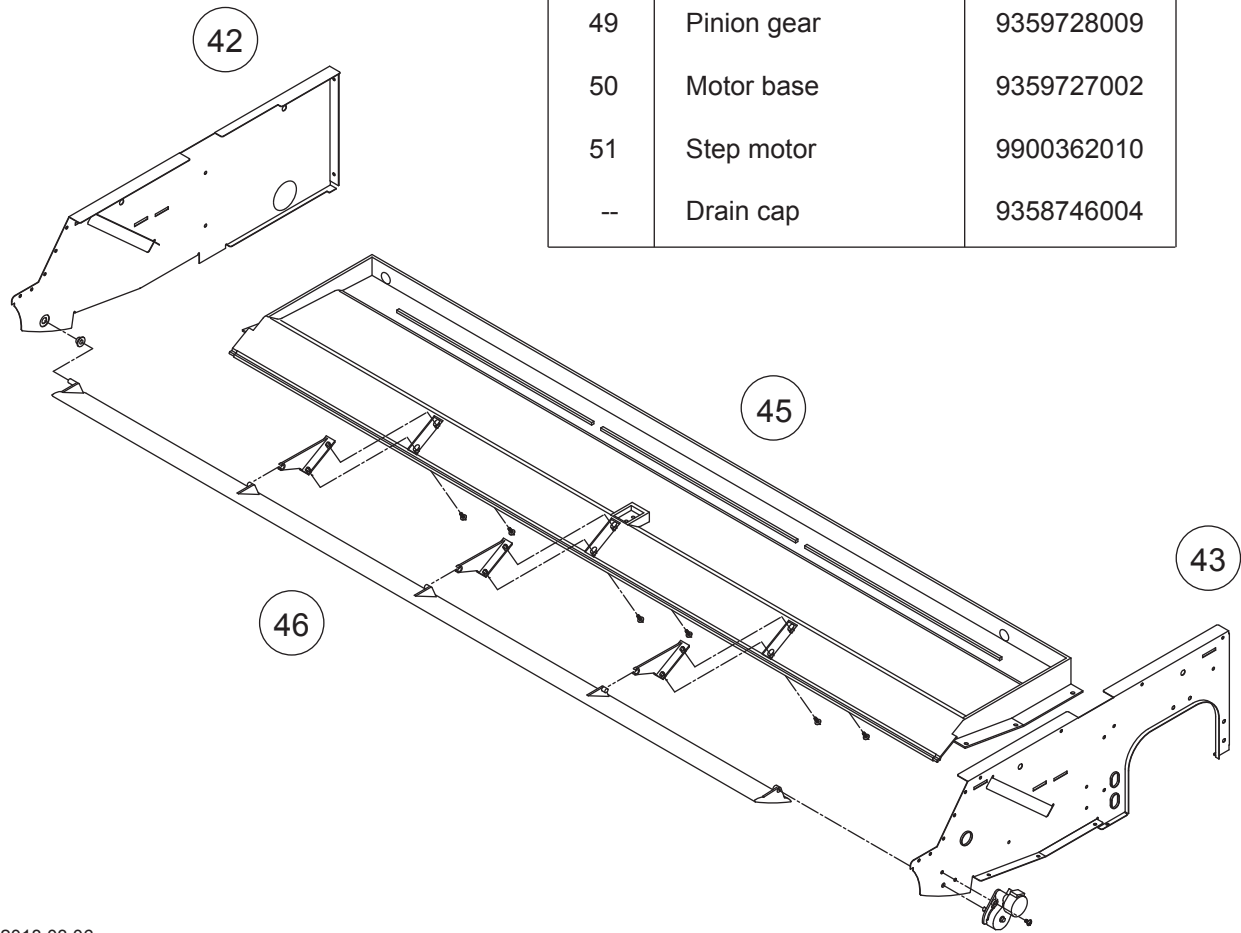
Ref.	Description	Part number
21	Motor Mount	9377999016
22	Motor Band A Assy	9374647019
23	Motor band B	9374648023
24	RFM Motor Band	9378000018
25	Fan Motor Assy	9603286019
26	Rubber (Vibration Proof)	9385102002
27	Casing	9359704003
28	Kit (Cover Casing) Sub Assy	9371367019
29	Sirocco Fan Assy	9359701002
30	Joint Assy	9378038011
31	Shaft	9359707004
32	Bearing B Assy	9357921006



INDOOR UNIT
ABHG45LRTA

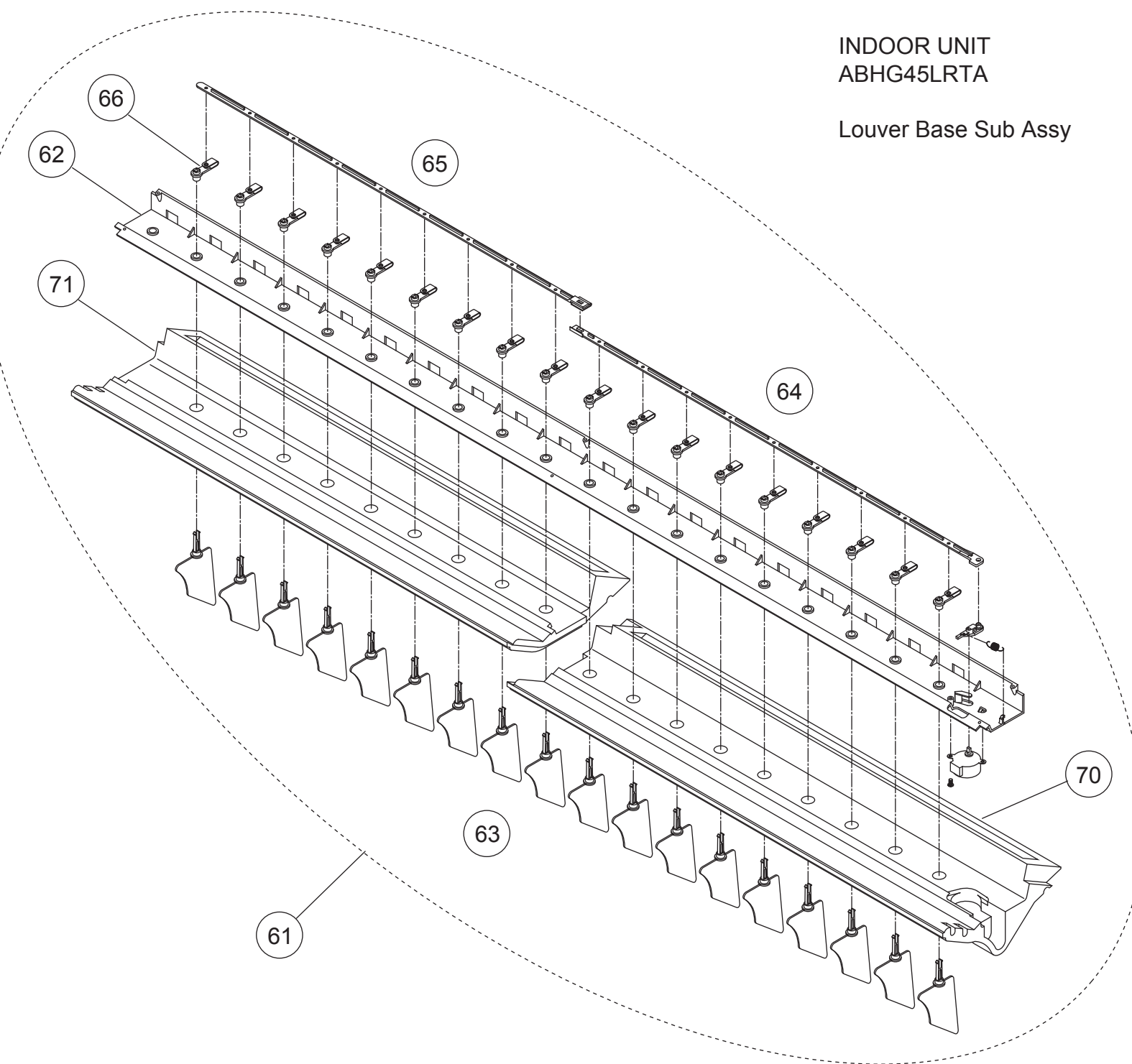
Evaporator
Drain pan
Motor base sub assy

Ref.	Description	Part number
41	Kit (base sub assy)	9371360010
42	Panel left sub assy	9360427014
43	Kit (panel right assy)	9371361017
44	Evaporator sub assy	9360428264
45	Drain pan sub assy	9360429032
46	Flap assy	9359731016
47	Flap spring	9359730002
48	Sector gear	9359729006
49	Pinion gear	9359728009
50	Motor base	9359727002
51	Step motor	9900362010
--	Drain cap	9358746004

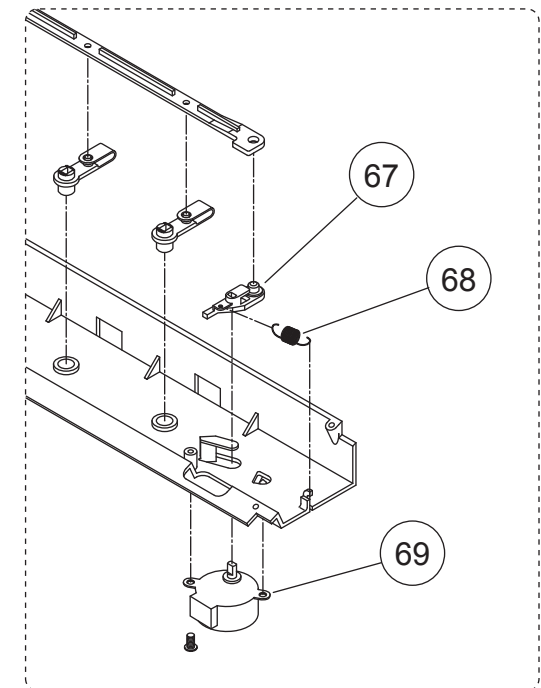


INDOOR UNIT ABHG45LRTA

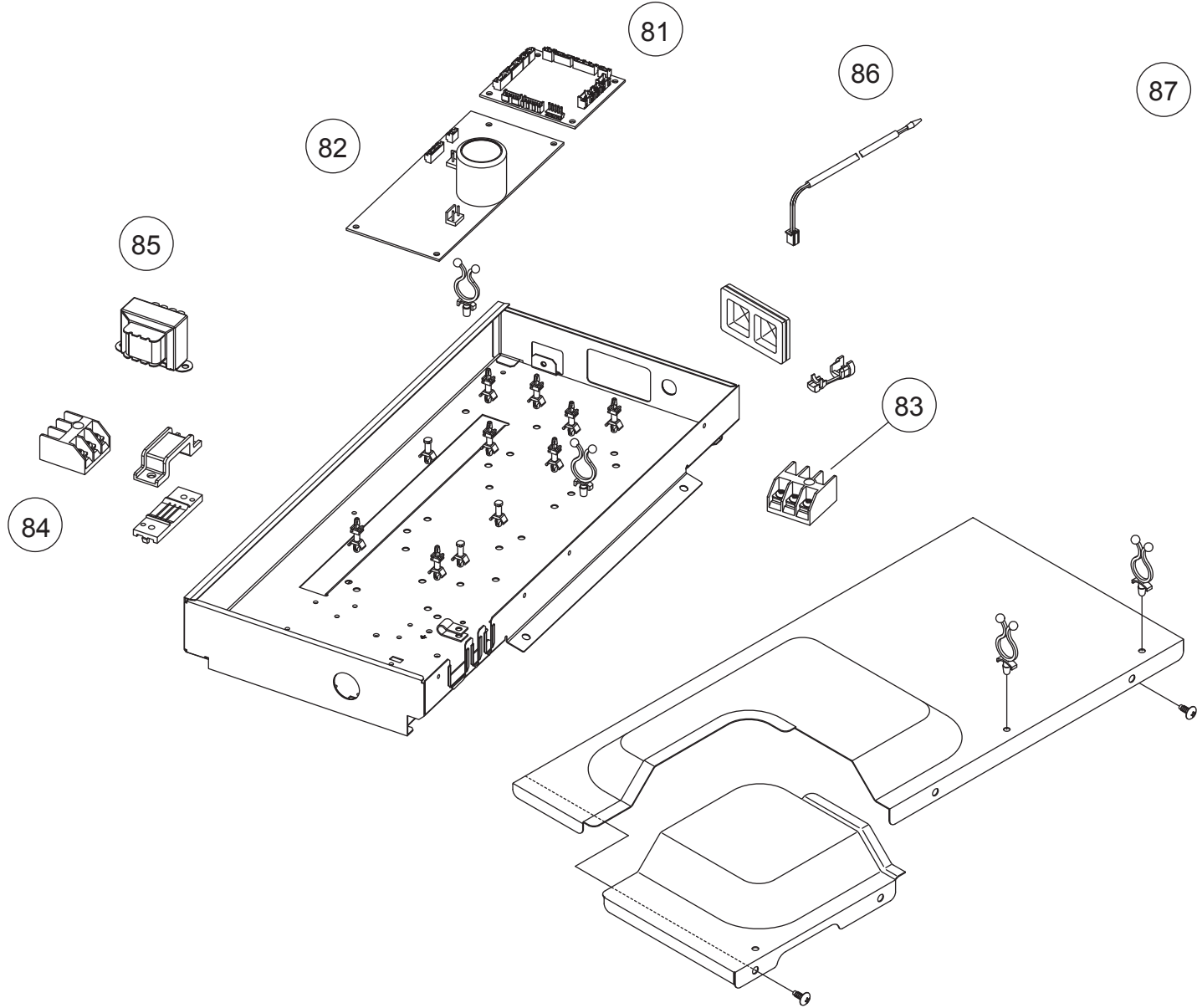
Louver Base Sub Assy



Ref.	Description	Part number
61	Louver base sub assy	9360432049
62	kit (louver base) SA	9371369013
63	Louver	9359719014
64	Motor rod	9359723004
65	Louver rod	9359725008
66	Louver stopper	9359724001
67	Louver link	9359726005
68	Louver spring	9359720003
69	Step motor H	9900297015
70	Louver insulation R	9359721000
71	Louver insulation L	9359722007



INDOOR UNIT
ABHG45LRTA
Control unit

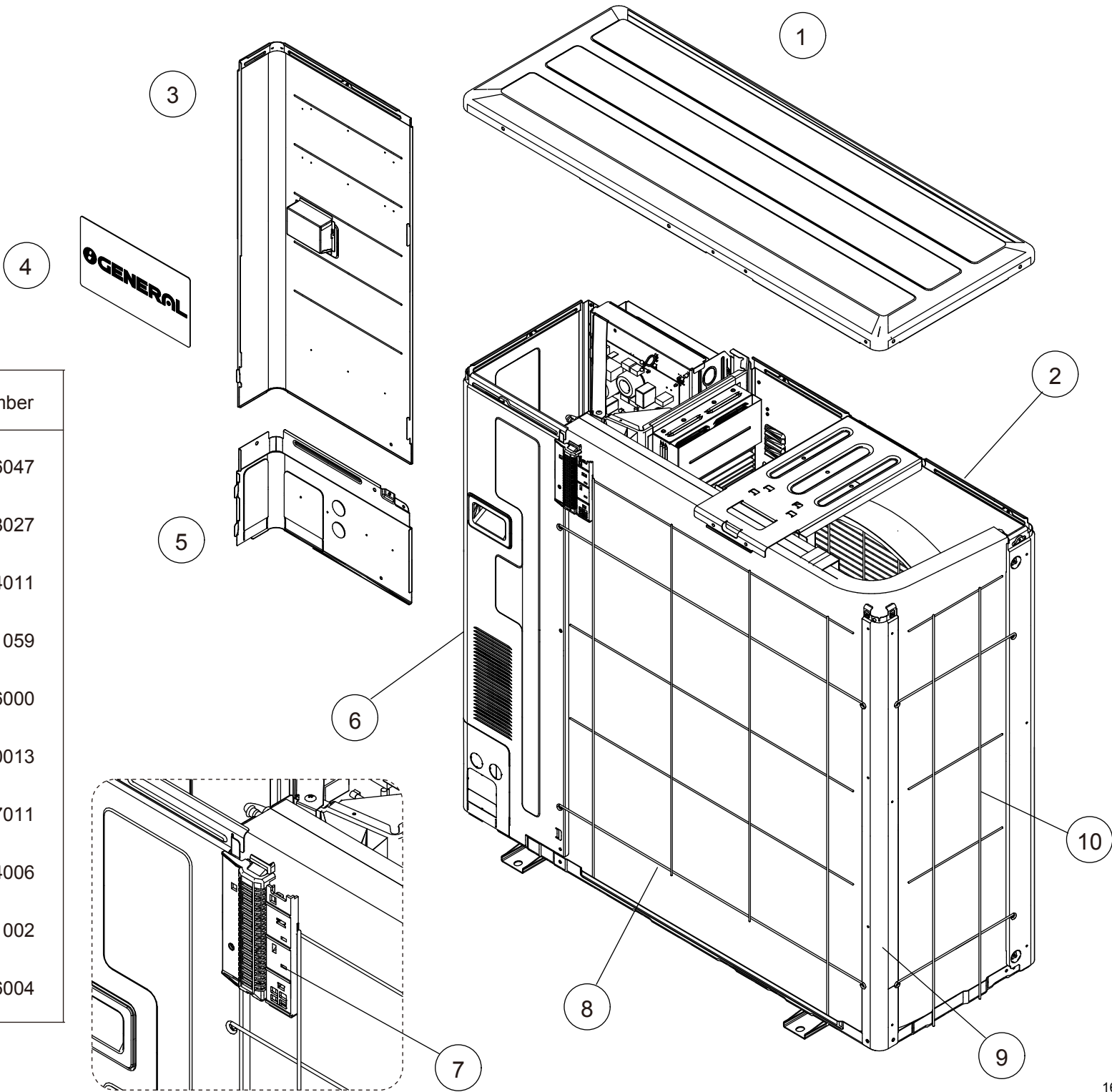


Ref.	Description	Part number
81	Main PCB	9710621291
82	Power supply PCB	9707398342
83	Terminal 3P	9703345012
84	Terminal 3P	9306489045
85	Reactor assy	9707457018
86	Room thermistor	9703299025
87	Remote control	9379219037
88	Remote control holder	9305642045
--	Pipe thermistor	9900949013

PARTS

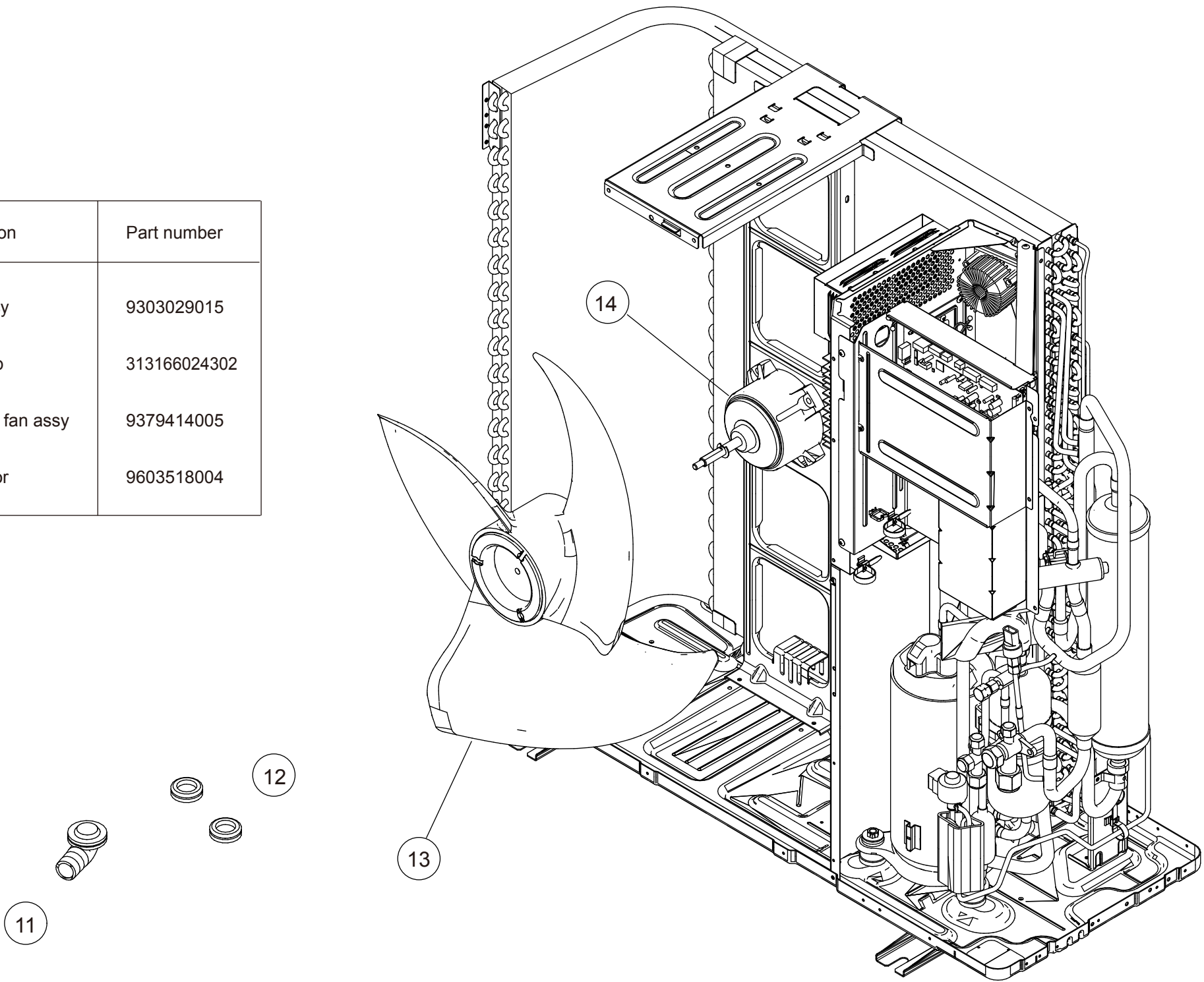
OUTDOOR UNIT
AOHG45LBTC

Ref.	Description	Part number
1	Top panel sub assy	9379416047
2	Front panel sub assy	9379418027
3	Service panel sub assy	9379424011
4	Rear emblem	9372171059
5	Pipe cover front sub assy	9381906000
6	Right panel sub assy	9379420013
7	Thermo holder	9374177011
8	Rear net	9379404006
9	Left panel	9379431002
10	Left net	9379396004

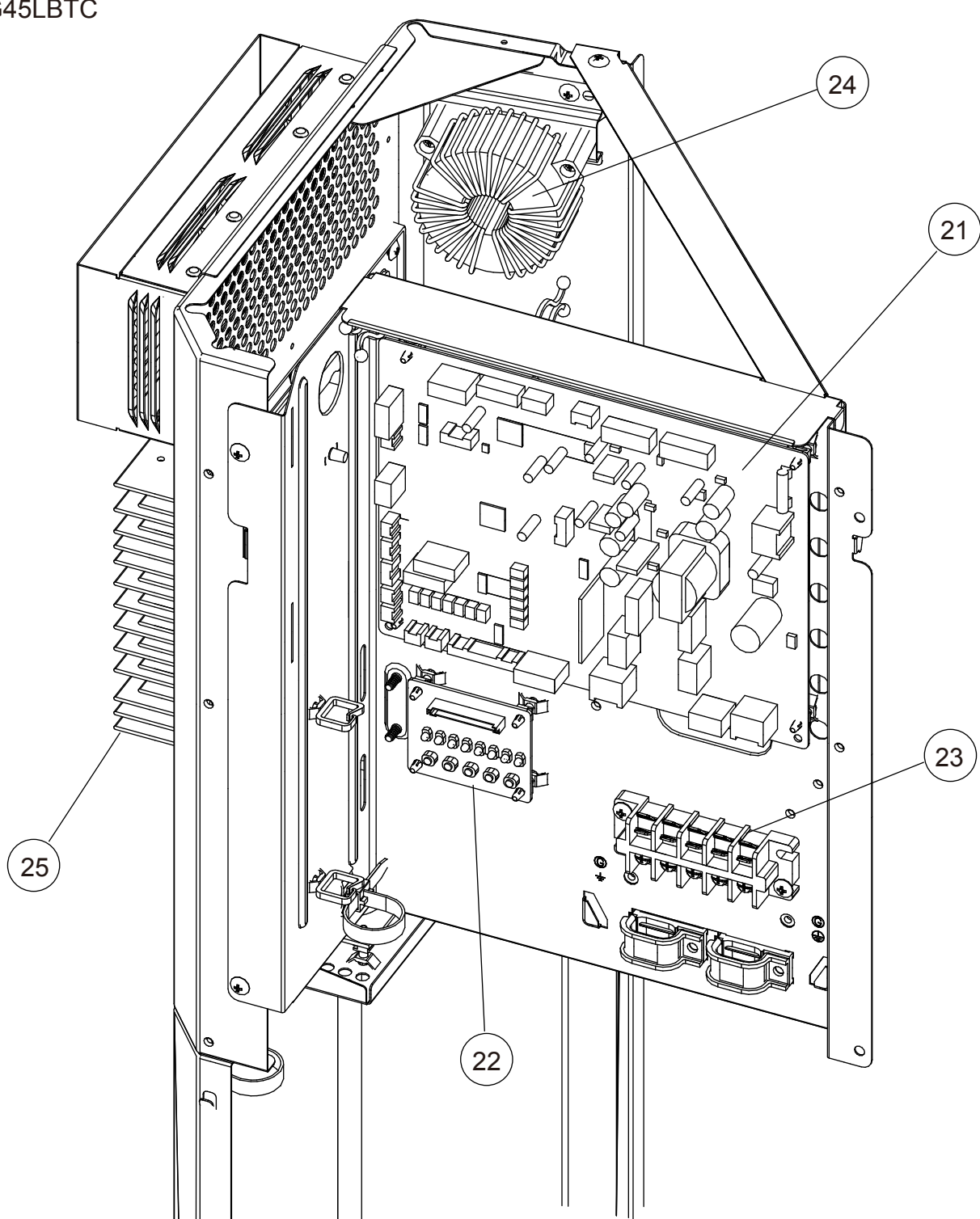


OUTDOOR UNIT
AOHG45LBTC

Ref.	Description	Part number
11	Drain assy	9303029015
12	Drain cap	313166024302
13	Propeller fan assy	9379414005
14	Fan motor	9603518004



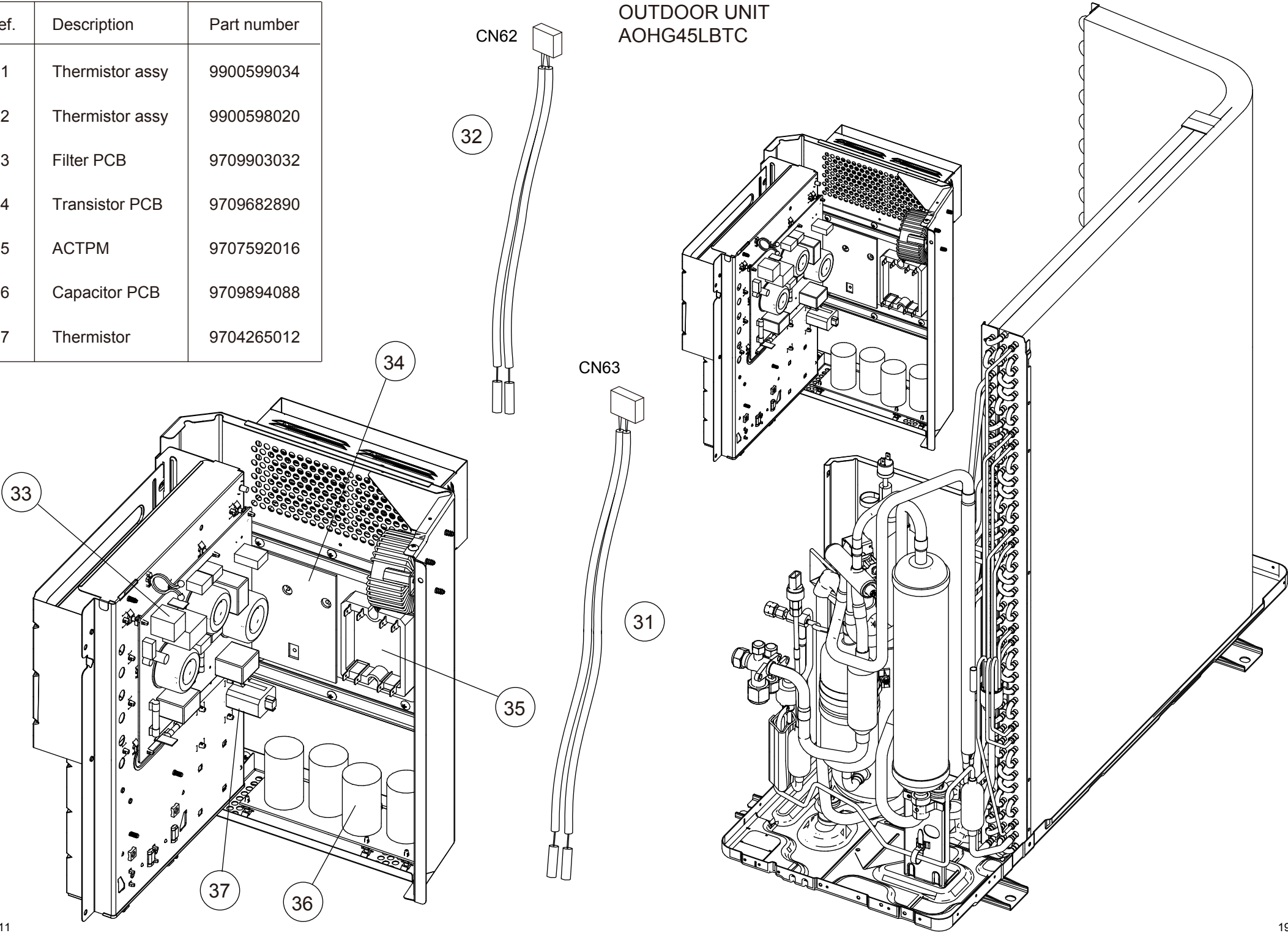
OUTDOOR UNIT
AOHG45LBTC



Ref.	Description	Part number
21	Main PCB	9709904527
22	Display PCB	9708678016
23	Terminal 5P	9900203023
24	Choke coil	9900624019
25	Heatsink	9380358008
26	Outdoor thermistor	9900820015

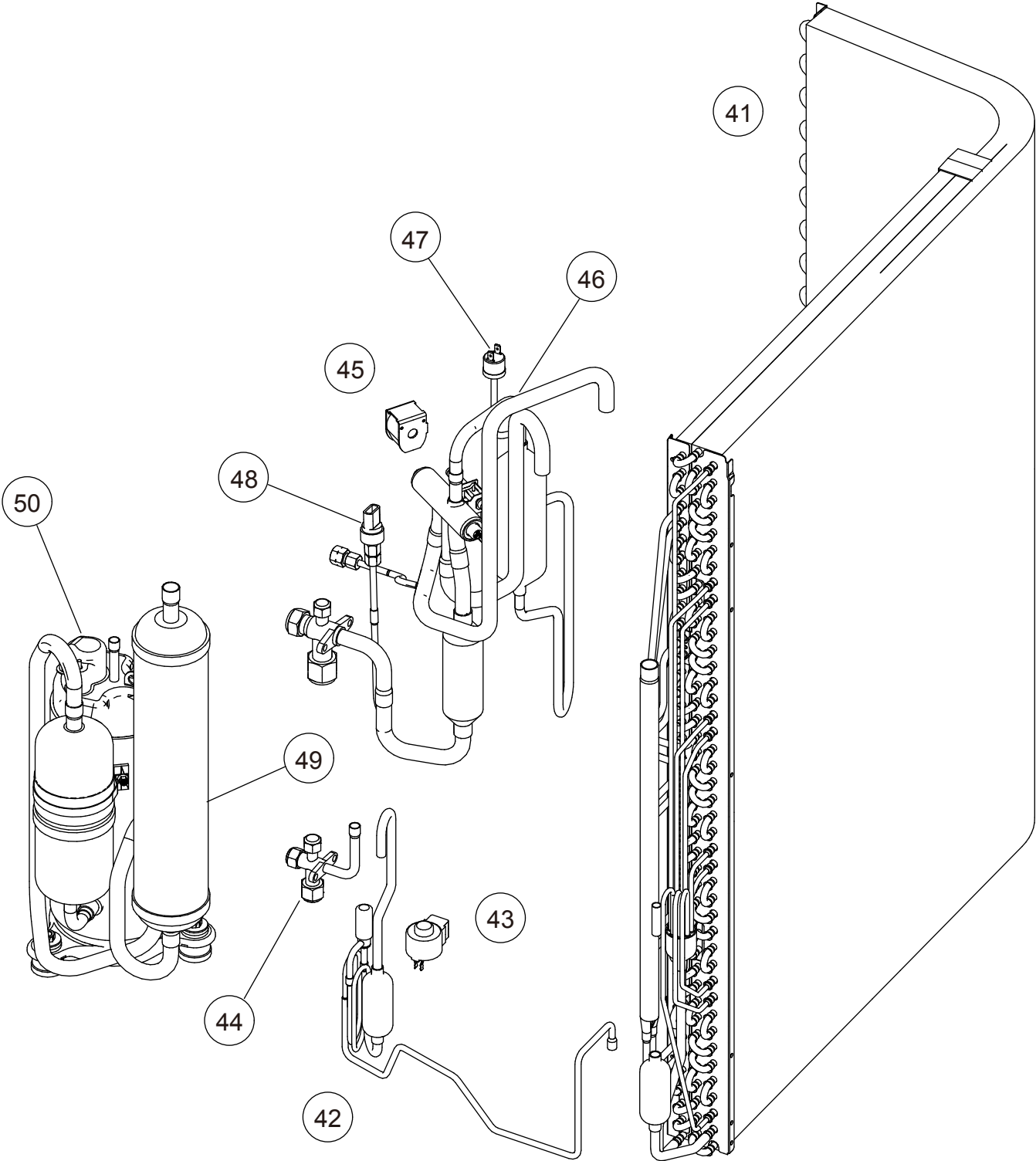
Ref.	Description	Part number
31	Thermistor assy	9900599034
32	Thermistor assy	9900598020
33	Filter PCB	9709903032
34	Transistor PCB	9709682890
35	ACTPM	9707592016
36	Capacitor PCB	9709894088
37	Thermistor	9704265012

OUTDOOR UNIT
AOHG45LBTC



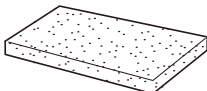


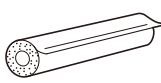



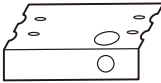


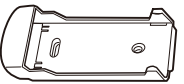


OUTDOOR UNIT
AOHG45LBTC

Ref.	Description	Part number
41	Condenser AB sub assy	9374420575
42	Expansion valve assy	9370947274
43	Coil (expansion valve)	9970096044
44	3-way valve assy	9379077019
45	Solenoid	9970055041
46	4-way valve assy	9374425495
47	Pressure switch	9900186012
48	Sensor	9970178023
49	Accumulator sub assy	9374426232
50	Compressor	9810153005
-	Compressor cover A	9378851276
-	Compressor cover B	9378612020
-	Compressor cover C	9380252016

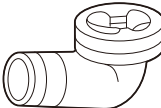




ACCESSORIES

INDOOR UNIT ABHG45LRTA

Name and Shape	Q'ty	Application	Part number
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 (gas pipe)	9378173569
Coupler heat insulator (small) 	1	For indoor side pipe joint (liquid pipe)	9378173521
Cable tie 	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
Remote control 	1	For air conditioner operation	9379219037
Remote control holder 	1	For installing remote control on the wall	9305642045
Battery 	2	For remote control	0600185541
Tapping screw 	2	For mounting the remote control holder	0700019036

OUTDOOR UNIT AOHG45LBTC

Name and Shape	Q'ty
Drain pipe  For outdoor unit drain piping work	1
Drain cap  For outdoor unit drain piping work	2
One-touch bush  For power supply cable and connection cable installation	2

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