

SERVICE MANUAL



Indoor unit	Outdoor unit
RDG12KHTAP	ROG12KBTB
RDG14KHTAP	ROG14KBTB
RDG18KHTAP	ROG18KBTB
RDG22KHTAP	ROG22KBTB

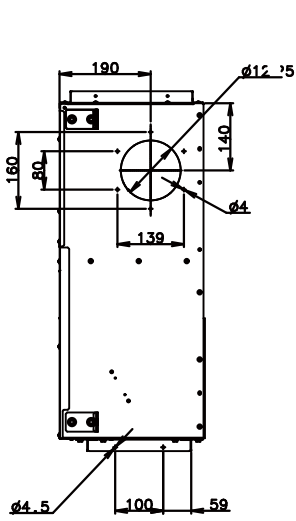
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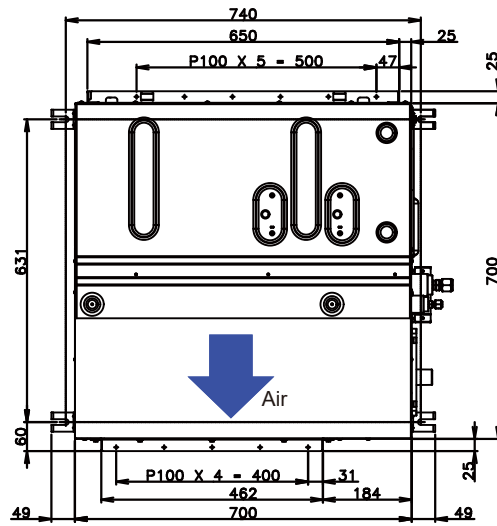
Dimensions (Indoor unit)

Models: RDG12KHTAP and RDG14KHTAP

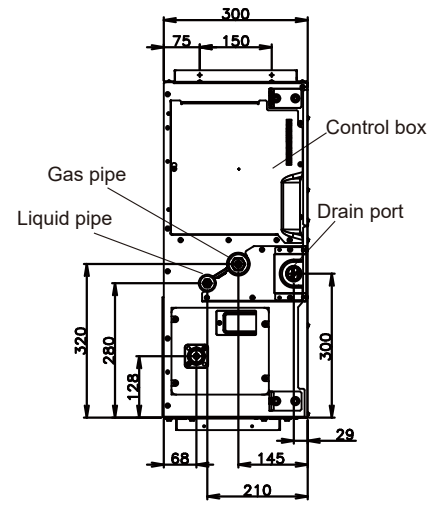
Unit: mm



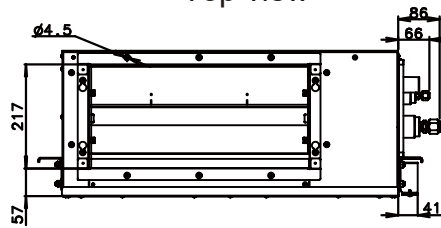
Side view (L)



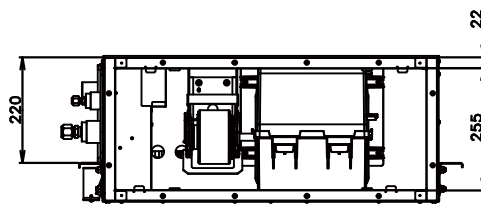
Top view



Side view (R)



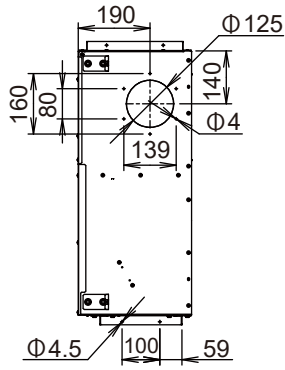
Front view



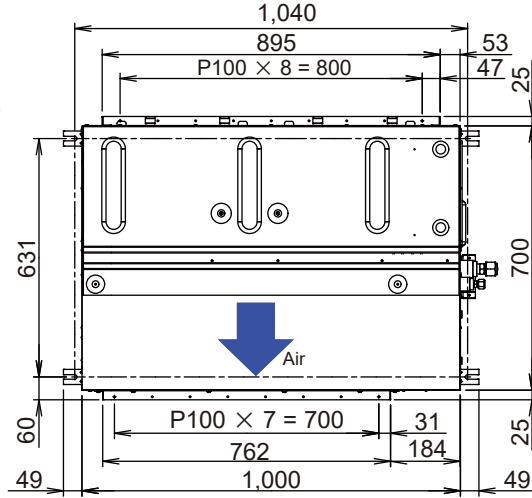
Rear view

Models: RDG18KHTAP and RDG22KHTAP

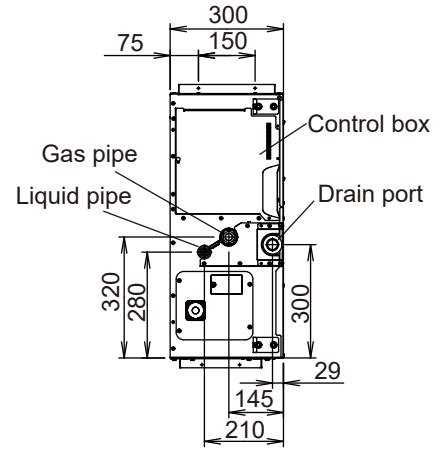
Unit: mm



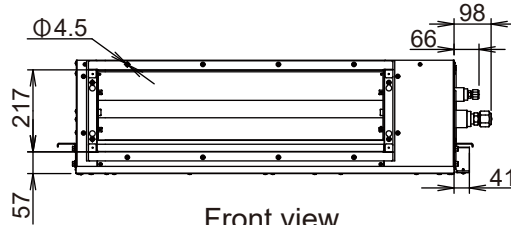
Side view (L)



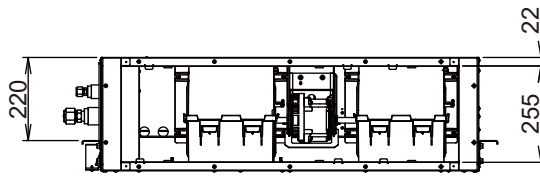
Top view



Side view (R)



Front view

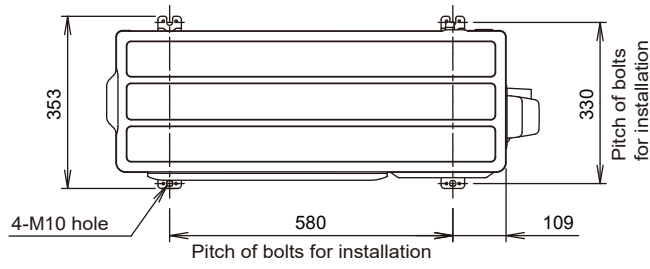


Rear view

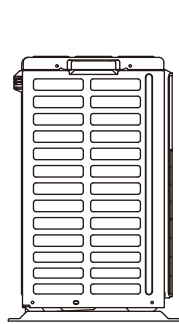
Dimensions (Outdoor unit)

Models: ROG12KBTB and ROG14KBTB

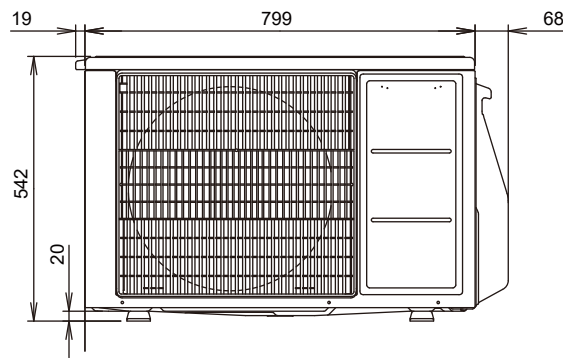
Unit: mm



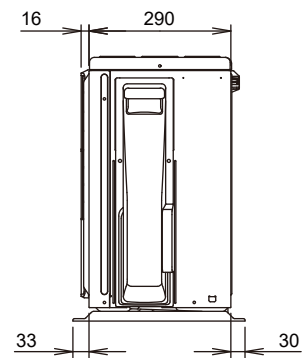
Top view



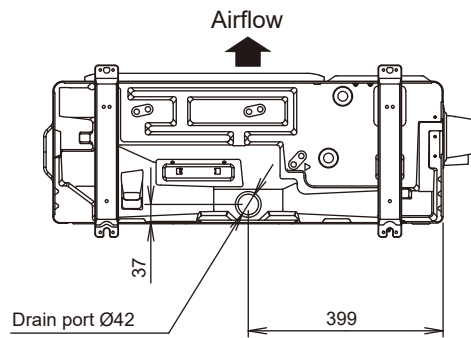
Side view



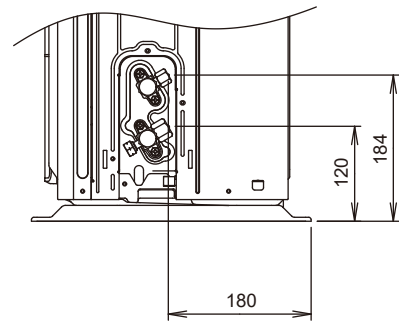
Front view



Side view



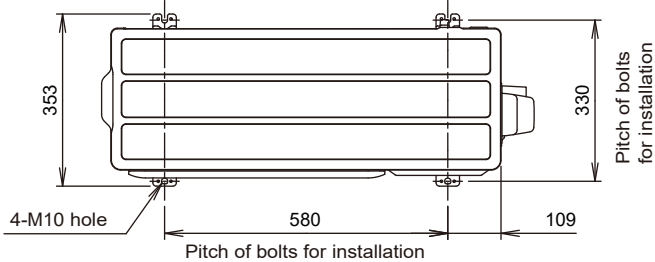
Bottom view



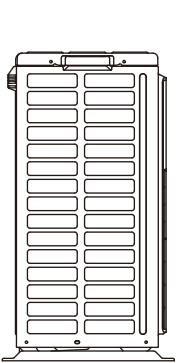
Side view (Valve part)

Models: ROG18KBTB and ROG22KBTB

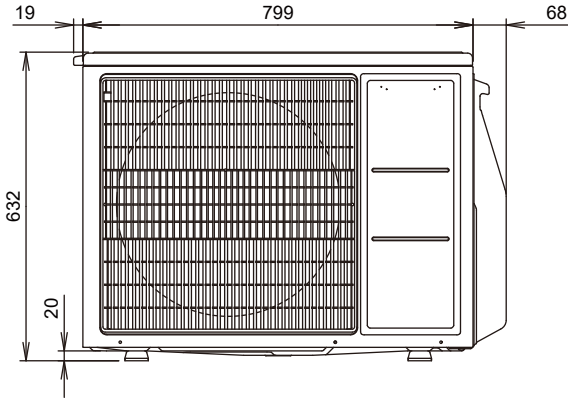
Unit: mm



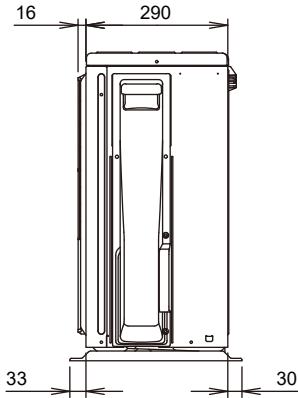
Top view



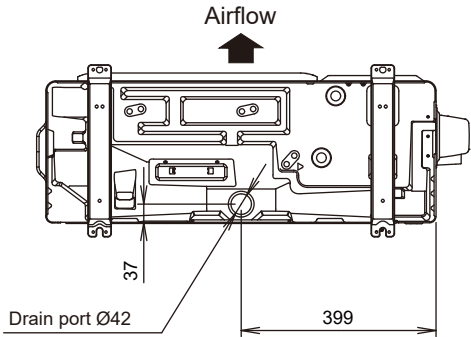
Side view



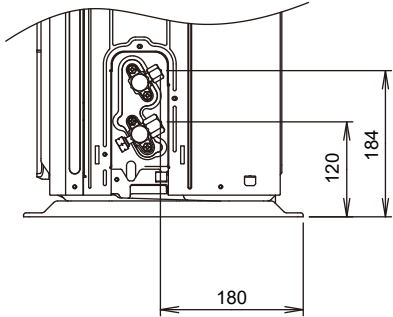
Front view



Side view



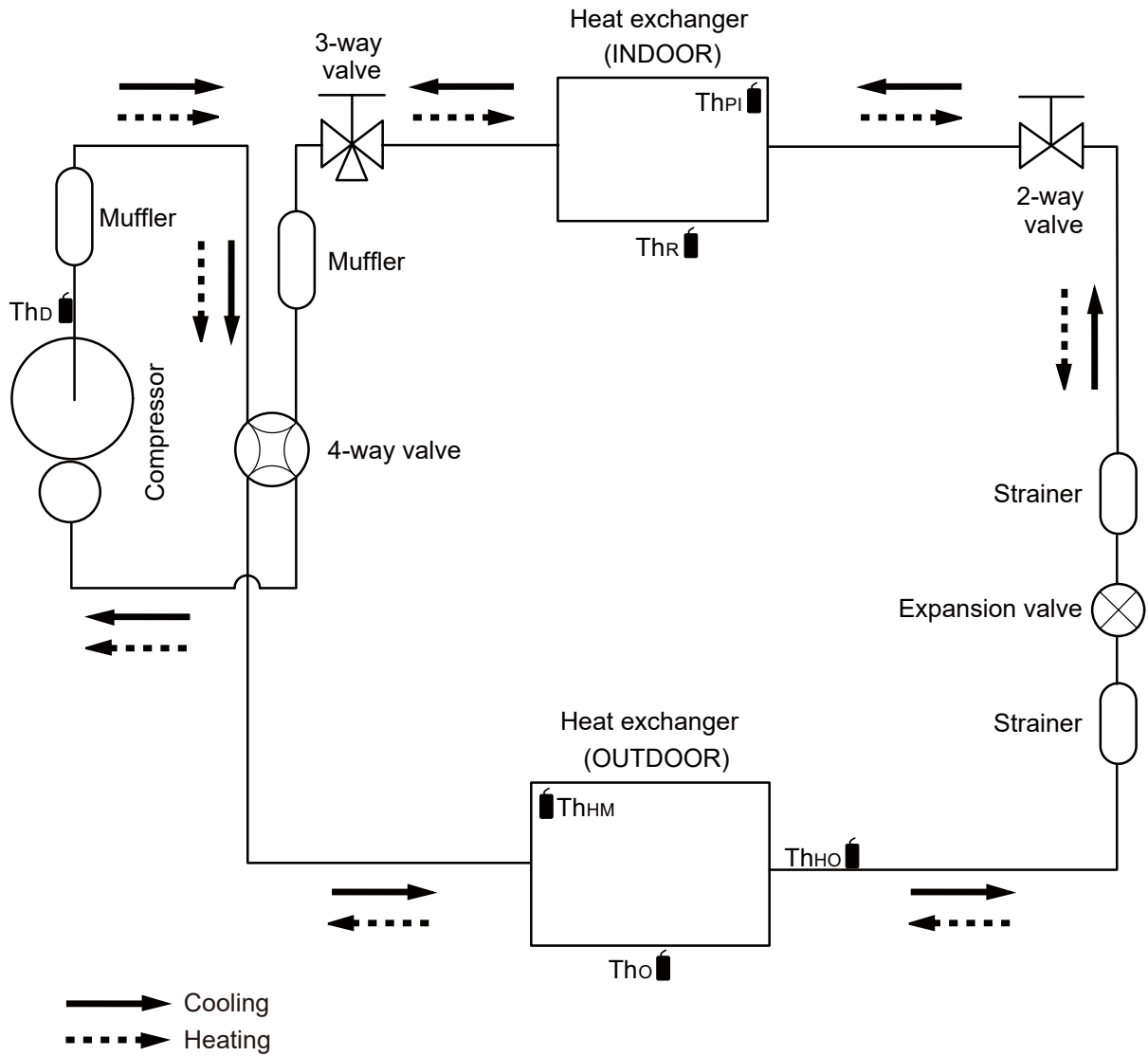
Bottom view



Side view (Valve part)

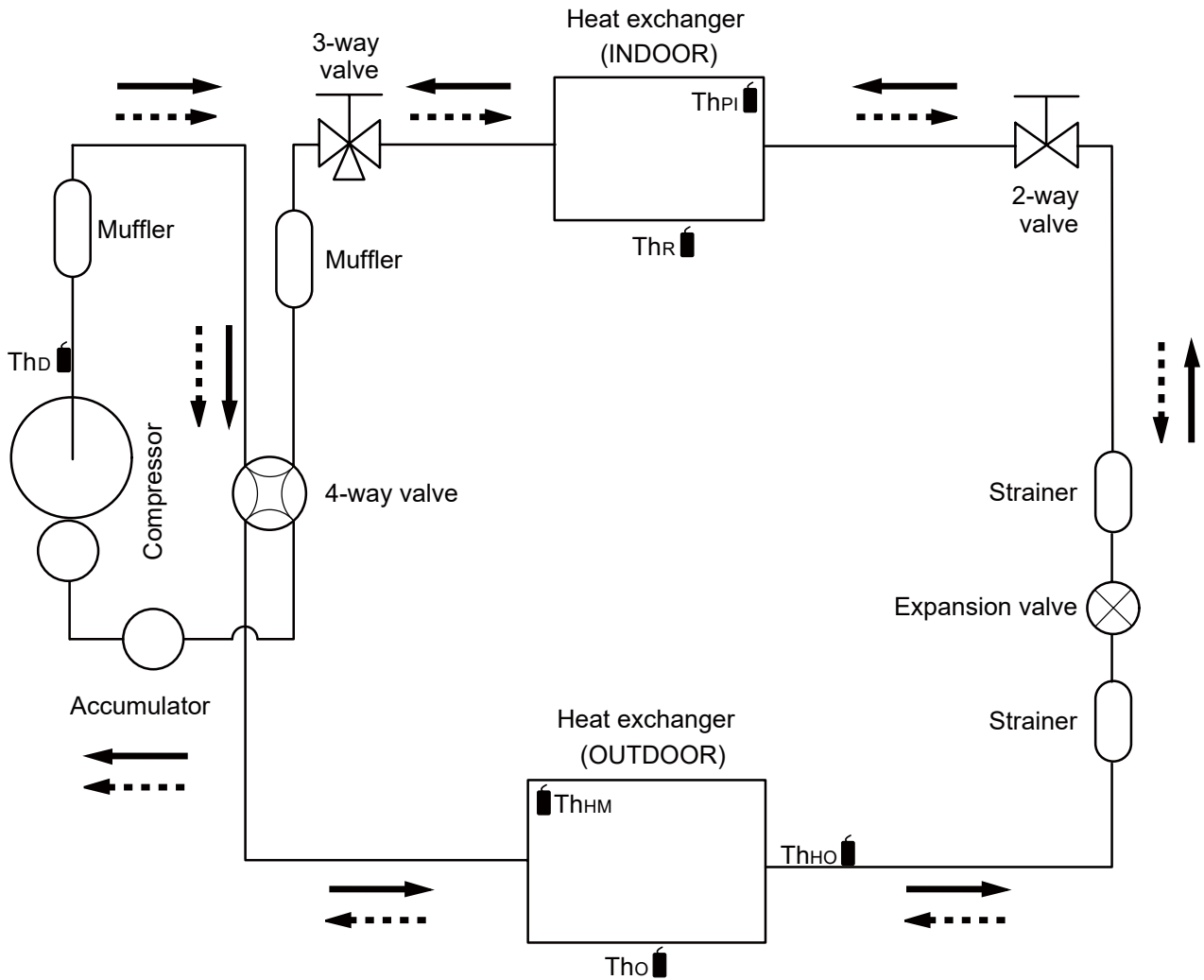
Refrigerant circuit

Models: RDG12KHTAP/ROG12KBTB and RDG14KHTAP/ROG14KBTB



- Th_D : Thermistor (Discharge temperature)
- Th_O : Thermistor (Outdoor temperature)
- Th_{HO} : Thermistor (Heat exchanger out temperature)
- Th_{HM} : Thermistor (Heat exchanger middle temperature)
- Th_R : Thermistor (Room temperature)
- Th_{PI} : Thermistor (Pipe temperature)

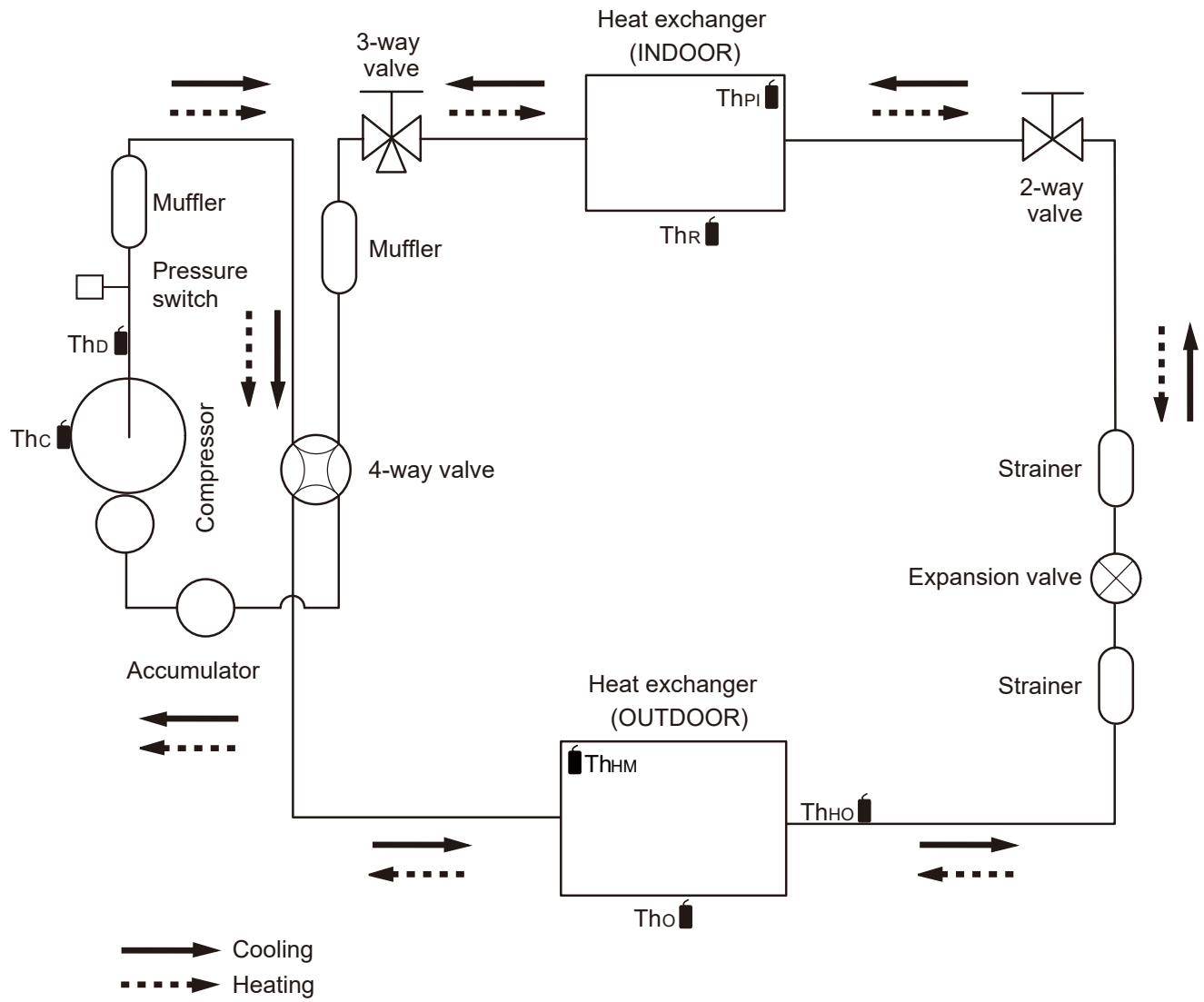
Models: RDG18KHTAP/ROG18KBTB



Cooling
 Heating

- Th_D : Thermistor (Discharge temperature)
- Th_O : Thermistor (Outdoor temperature)
- Th_{HO} : Thermistor (Heat exchanger out temperature)
- Th_{HM} : Thermistor (Heat exchanger middle temperature)
- Th_R : Thermistor (Room temperature)
- Th_{PI} : Thermistor (Pipe temperature)

Models: RDG22KHTAP/ROG22KBTB

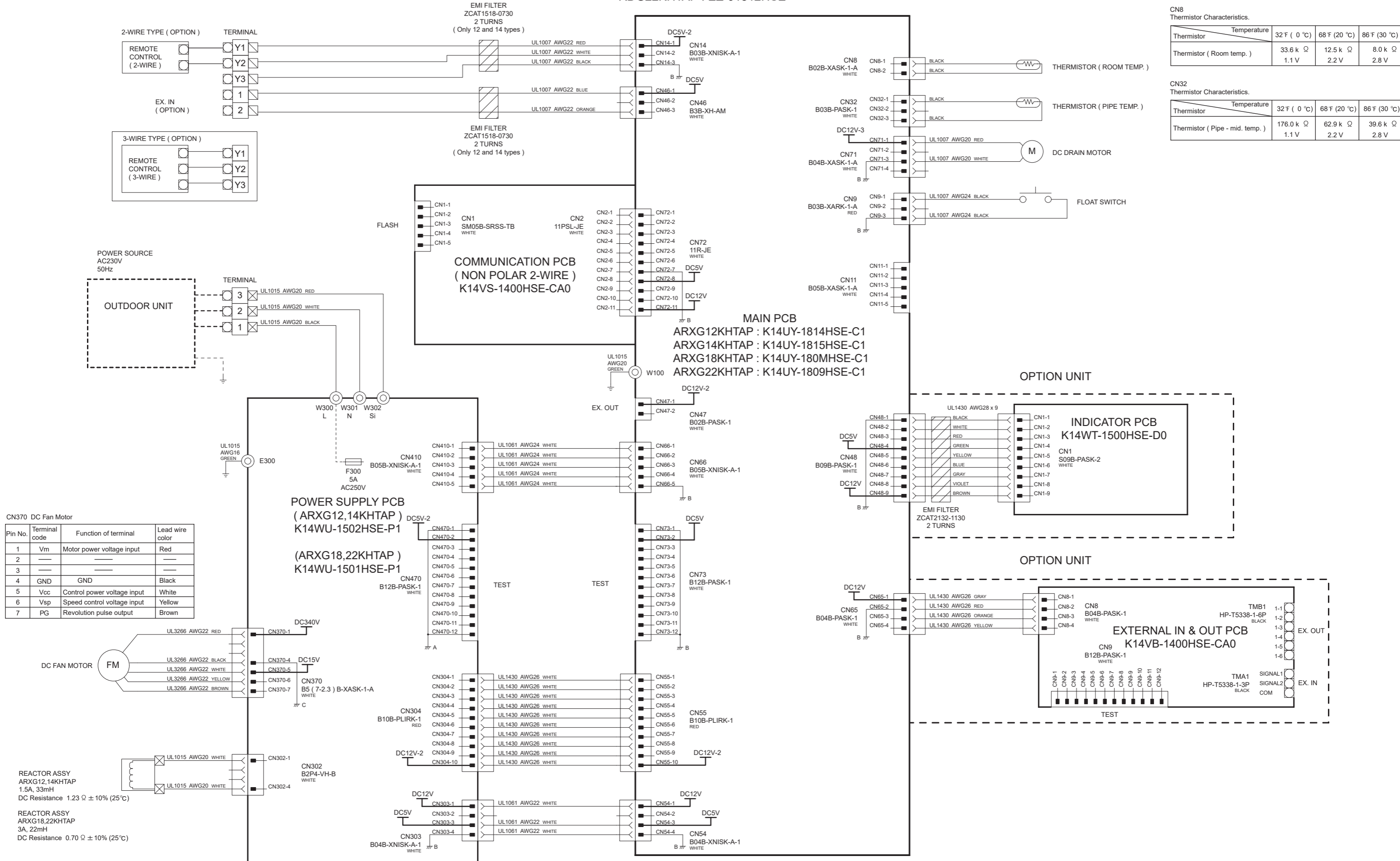


- Th_c : Thermistor (Compressor temperature)
- Th_d : Thermistor (Discharge temperature)
- Th_o : Thermistor (Outdoor temperature)
- Th_{ho} : Thermistor (Heat exchanger out temperature)
- Th_{hm} : Thermistor (Heat exchanger middle temperature)
- Th_r : Thermistor (Room temperature)
- Th_{pi} : Thermistor (Pipe temperature)

INDOOR PRINTED CIRCUIT BOARD CIRCUIT DIAGRAM

Models :
ARXG12-22KHTAP

CONTROL UNIT
RDG12KHTAP : EZ-01828HSE
RDG14KHTAP : EZ-01829HSE
RDG18KHTAP : EZ-0181WHSE
RDG22KHTAP : EZ-01812HSE



CN8 Thermistor Characteristics.

Thermistor	Temperature	32 F (0 °C)	68 F (20 °C)	86 F (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	32 F (0 °C)	68 F (20 °C)	86 F (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

CN370 DC Fan Motor

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

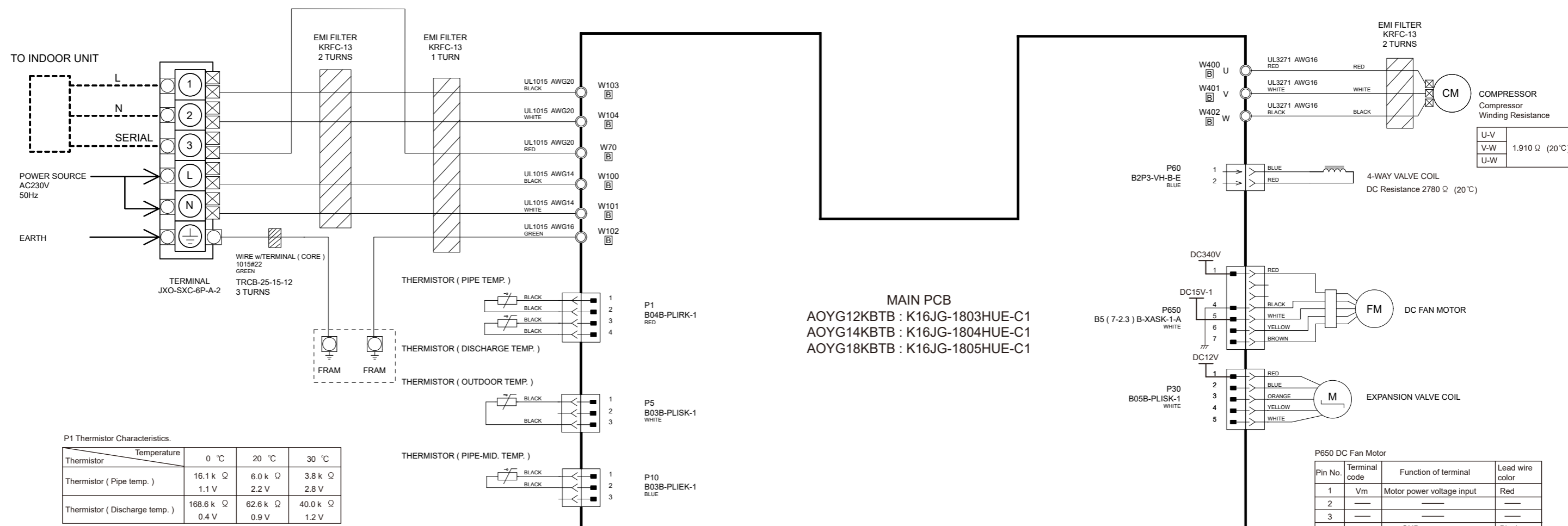
REACTOR ASSY
ARXG12,14KHTAP
1.5A, 33mH
DC Resistance 1.23 Ω ± 10% (25°C)

REACTOR ASSY
ARXG18,22KHTAP
3A, 22mH
DC Resistance 0.70 Ω ± 10% (25°C)

OUTDOOR PRINTED CIRCUIT BOARD CIRCUIT DIAGRAM

Models :
AOYG12-18KBTB

INVERTER ASSEMBLY
ROG12KBTB : EZ-018SHUE
ROG14KBTB : EZ-018THUE
ROG18KBTB : EZ-018THUE



COMPRESSOR
Compressor Winding Resistance

U-V	1.910 Ω (20 °C)
V-W	
U-W	

4-WAY VALVE COIL
DC Resistance 2780 Ω (20 °C)

P650 DC Fan Motor

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

P30 Expansion Valve Coil
Recommended Drive Condition
Unipolar Drive, 1-2 Phase Excitation.

1(Red) - 2(Blue)	Coil resistance ≈ 46.0 Ω (20 °C)
1(Red) - 3(Orange)	
1(Red) - 4(Yellow)	
1(Red) - 5(White)	

P1 Thermistor Characteristics.

Thermistor	Temperature	0 °C	20 °C	30 °C
Thermistor (Pipe temp.)	Resistance	16.1 k Ω	6.0 k Ω	3.8 k Ω
	Voltage	1.1 V	2.2 V	2.8 V
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

P5 Thermistor Characteristics.

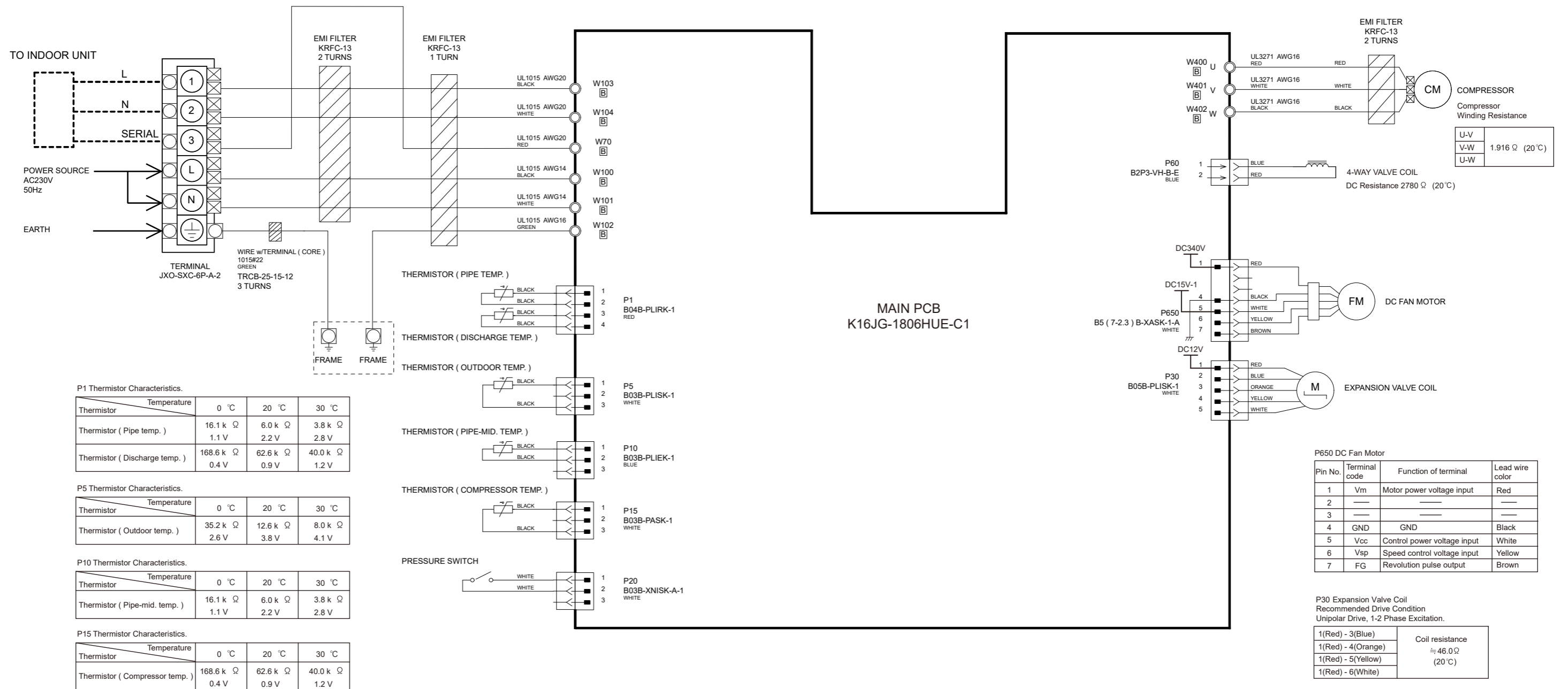
Thermistor	Temperature	0 °C	20 °C	30 °C
Thermistor (Outdoor temp.)	Resistance	35.2 k Ω	12.6 k Ω	8.0 k Ω
	Voltage	2.6 V	3.8 V	4.1 V

P10 Thermistor Characteristics.

Thermistor	Temperature	0 °C	20 °C	30 °C
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

MAIN PCB
AOYG12KBTB : K16JG-1803HUE-C1
AOYG14KBTB : K16JG-1804HUE-C1
AOYG18KBTB : K16JG-1805HUE-C1

INVERTER ASSEMBLY
EZ-0118YHUE



Error codes

If you use a wired type remote controller, error codes will appear on the remote controller display. If you use a wireless remote controller, 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 controller.

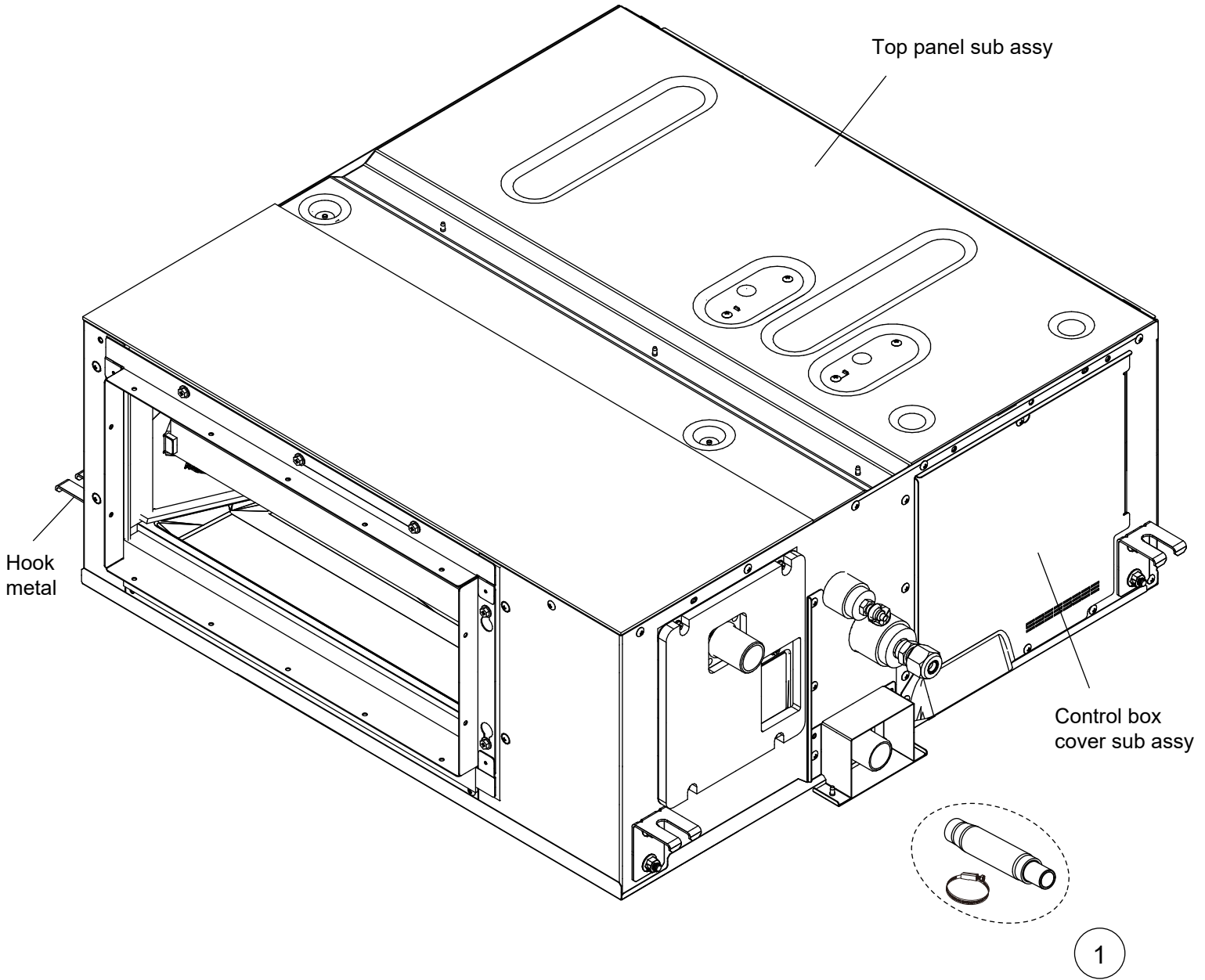
Error display			Wired remote controller Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(1)	●(1)	◇	11	Serial communication error
●(1)	●(2)	◇	12	Wired remote controller communication error
●(1)	●(5)	◇	15	Check run unfinished Automatic airflow adjustment error
●(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

Error display			Wired remote controller Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(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)	●(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]

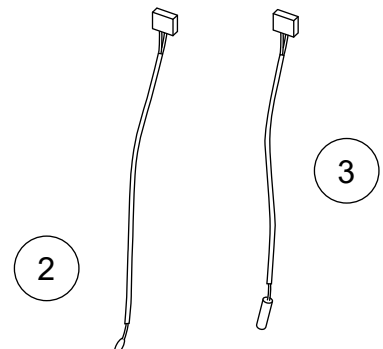
Display mode ● : 0.5s ON / 0.5s OFF
 ◇ : 0.1s ON / 0.1s OFF
 () : Number of flashing

Parts

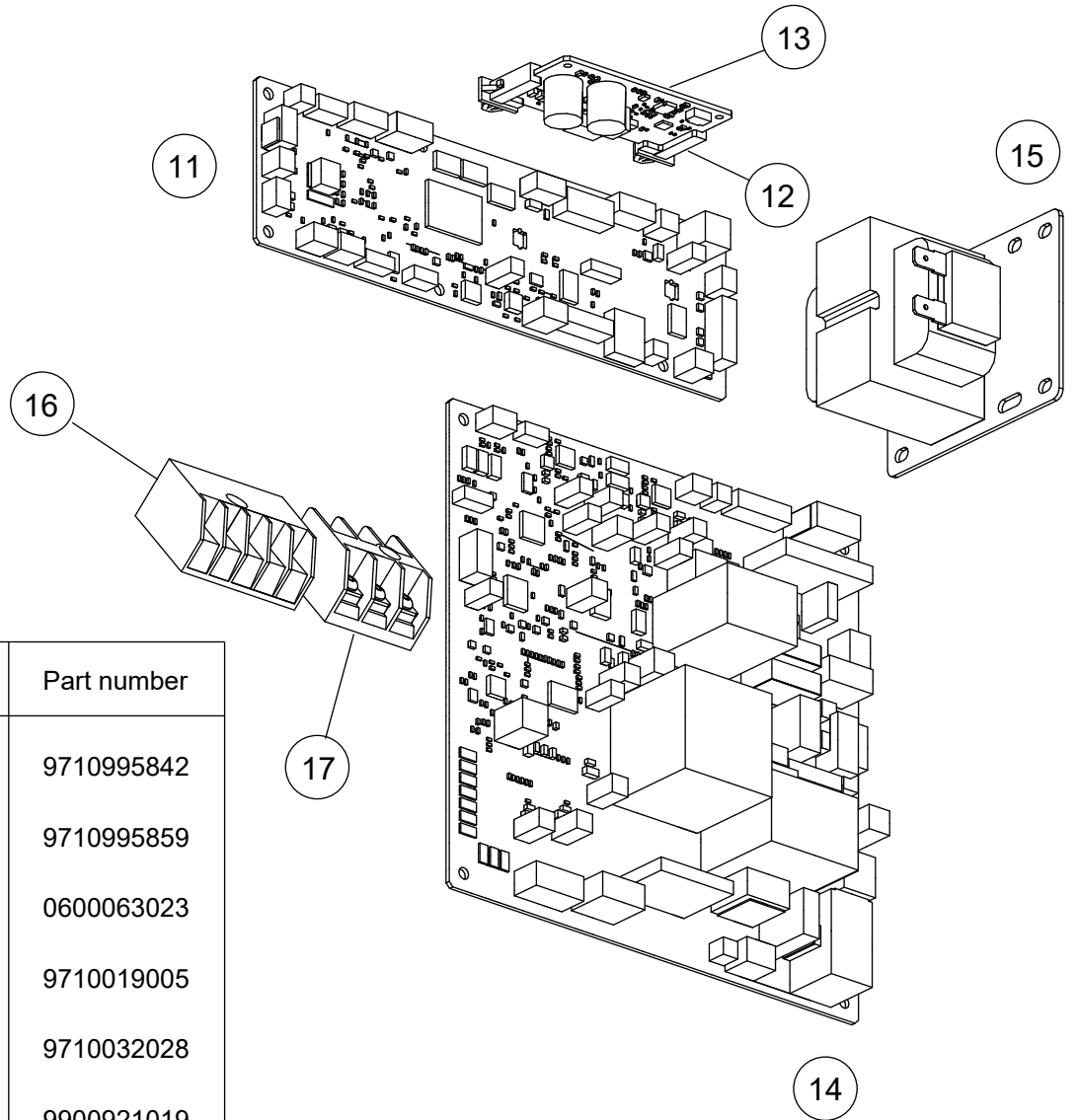
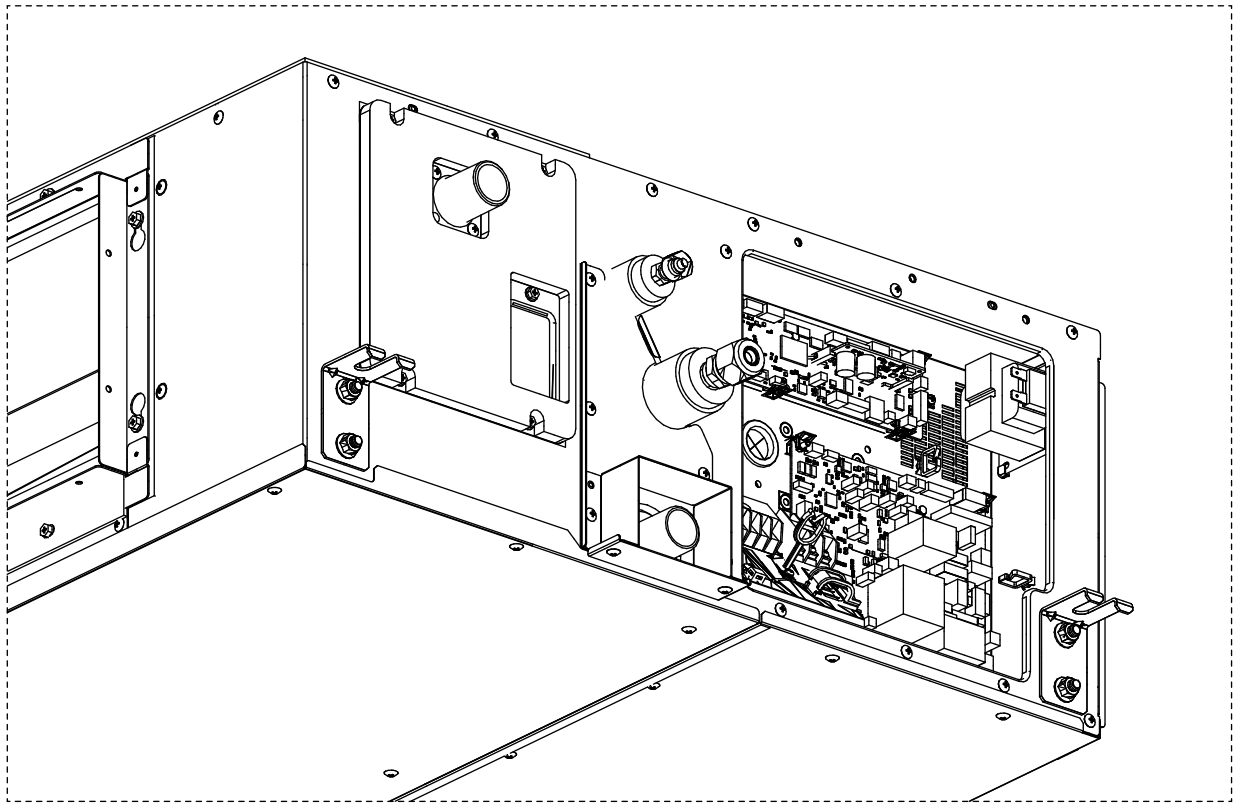
INDOOR UNIT
RDG12KHTAP
RDG14KHTAP



Ref.	Description	Part number
1	Hose sub assy	9378450196
2	Room Thermistor	9703299278
3	Pipe Thermistor	9900892005

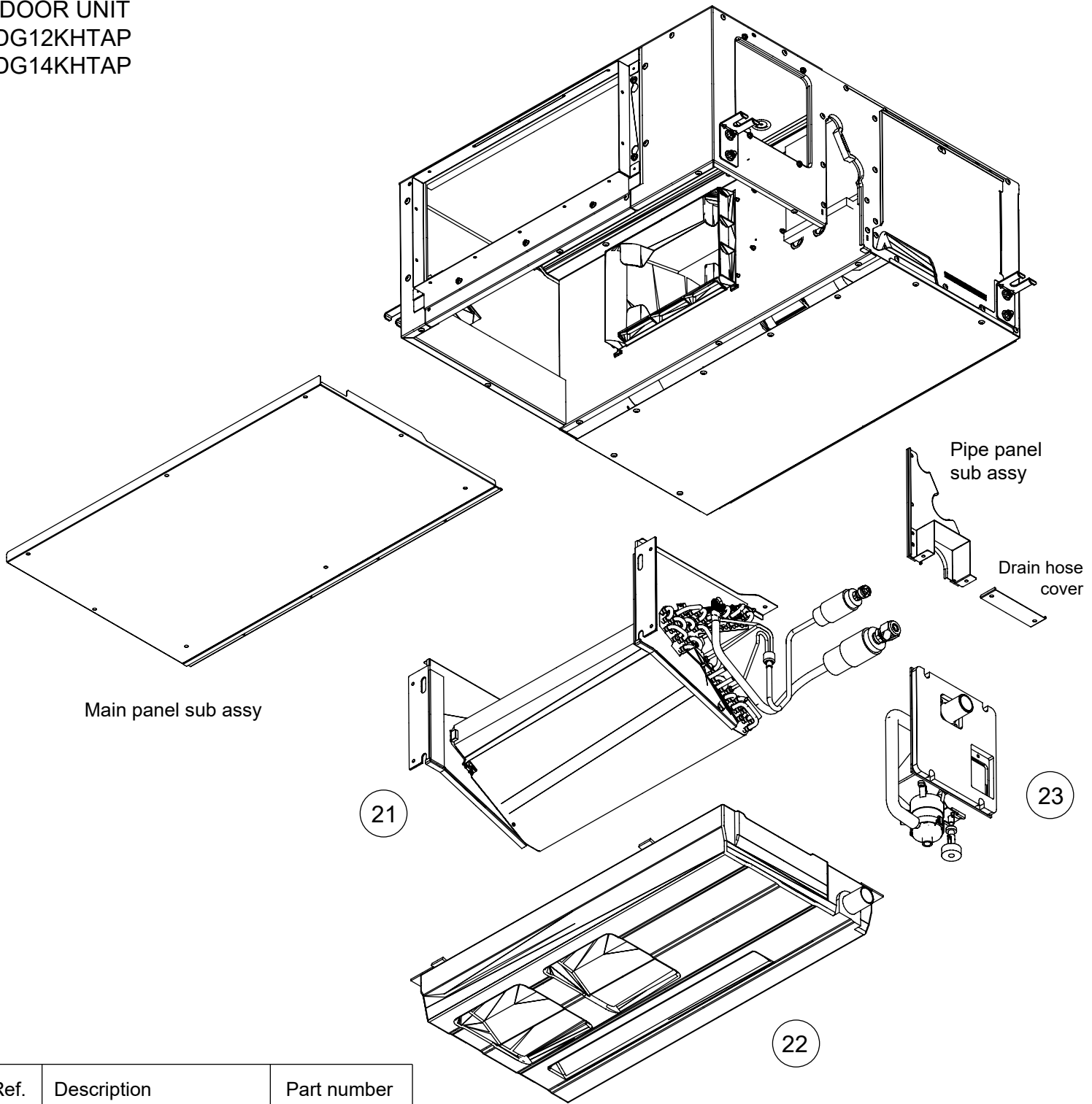


INDOOR UNIT
RDG12KHTAP
RDG14KHTAP

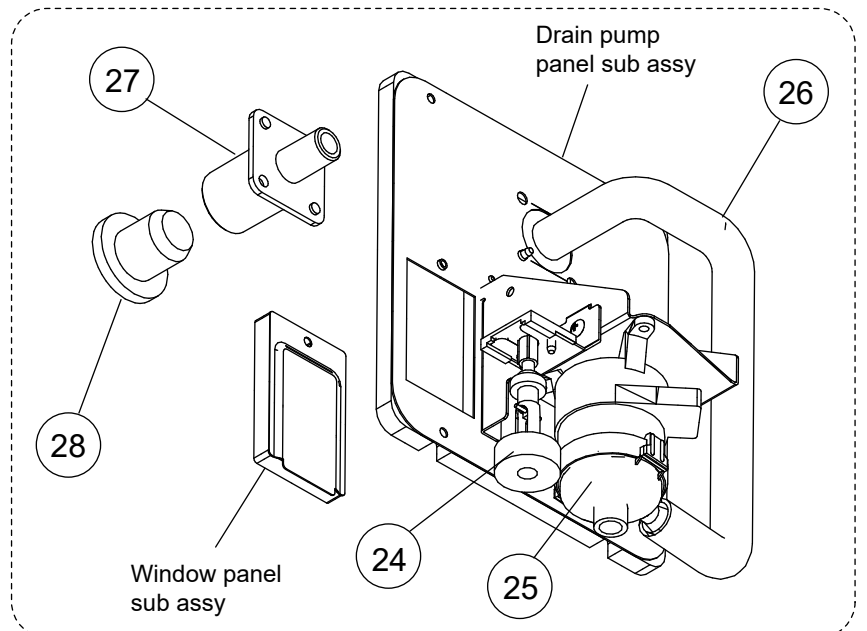


Ref.	Description	Part number
11	Main PCB (12KHTAP)	9710995842
11	Main PCB (14KHTAP)	9710995859
12	Holder	0600063023
13	Communication PCB	9710019005
14	Power Supply PCB	9710032028
15	Reactor Assy	9900921019
16	Terminal (Remote)	9900896003
17	Terminal (Power)	9900568009

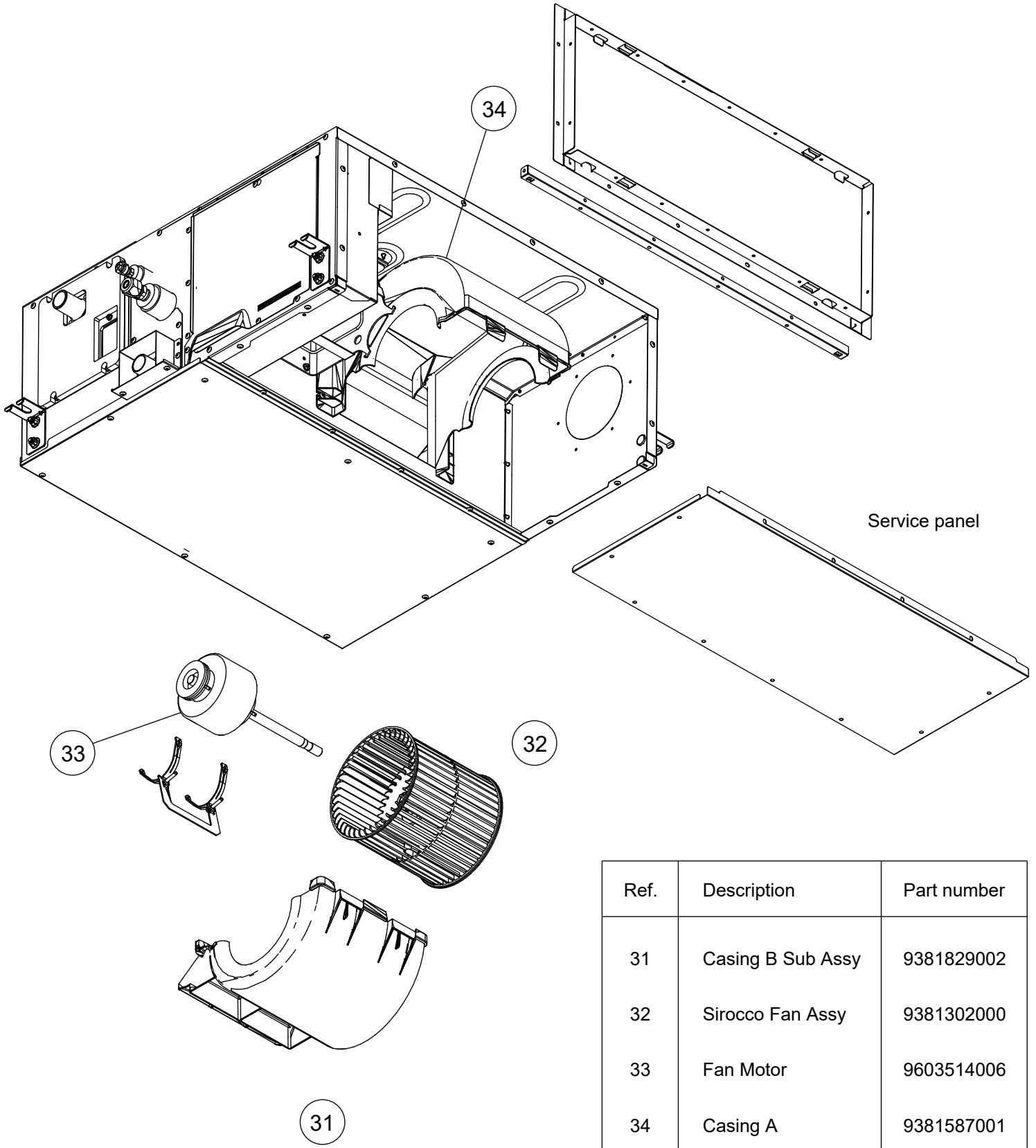
INDOOR UNIT
RDG12KHTAP
RDG14KHTAP



Ref.	Description	Part number
21	Evaporator total assy	9383816024
22	Drain pan sub assy	9381752034
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

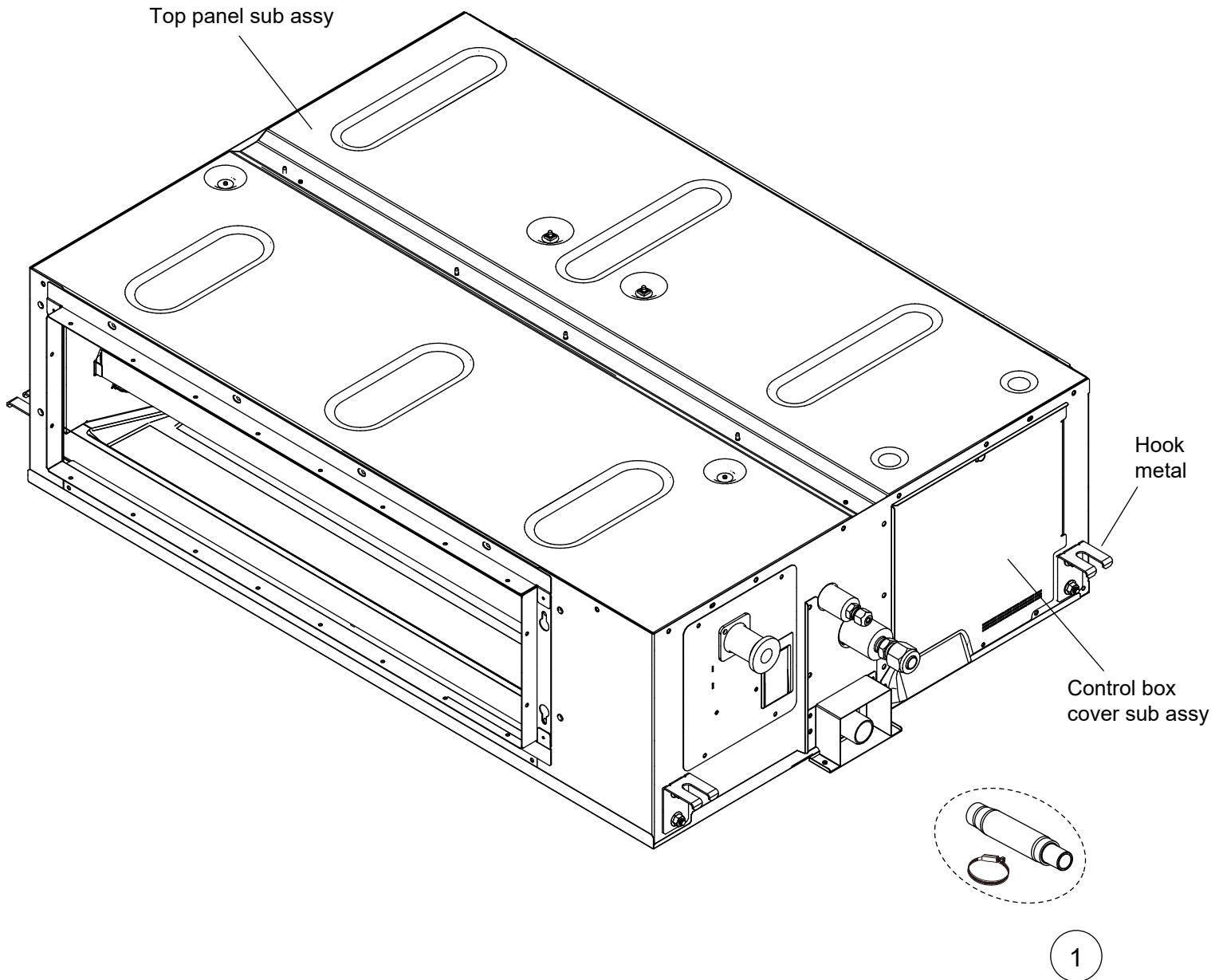


INDOOR UNIT
RDG12KHTAP
RDG14KHTAP

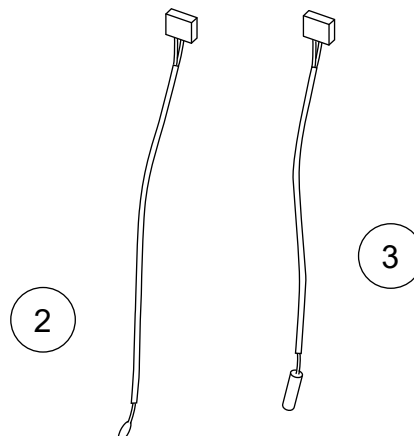


Ref.	Description	Part number
31	Casing B Sub Assy	9381829002
32	Sirocco Fan Assy	9381302000
33	Fan Motor	9603514006
34	Casing A	9381587001

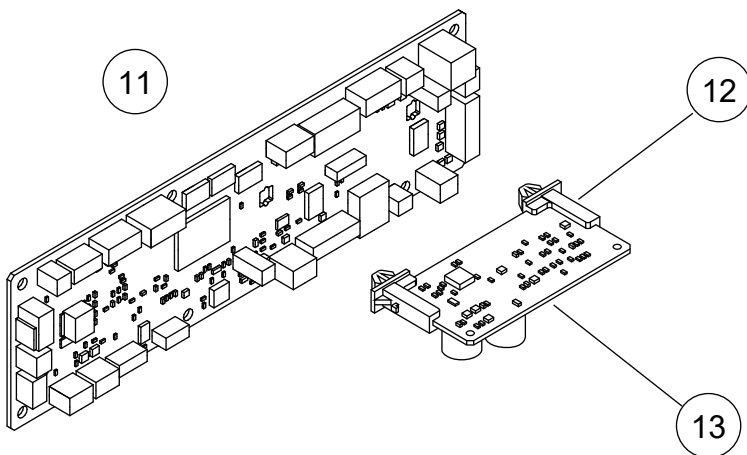
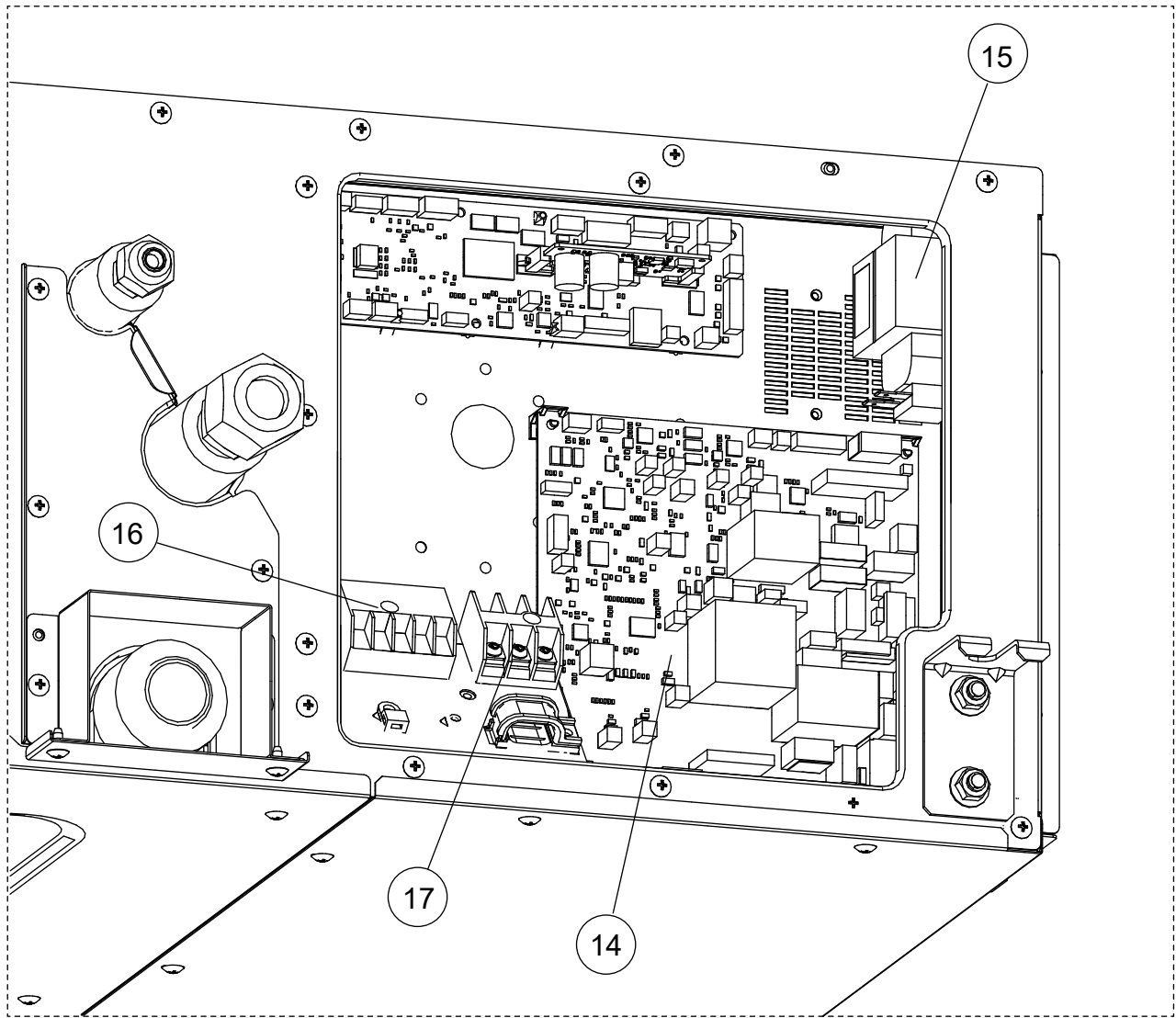
INDOOR UNIT
RDG18KHTAP
RDG22KHTAP



Ref.	Description	Part number
1	Hose sub assy	9378450196
2	Room thermistor	9703299278
3	Pipe thermistor	9900892005

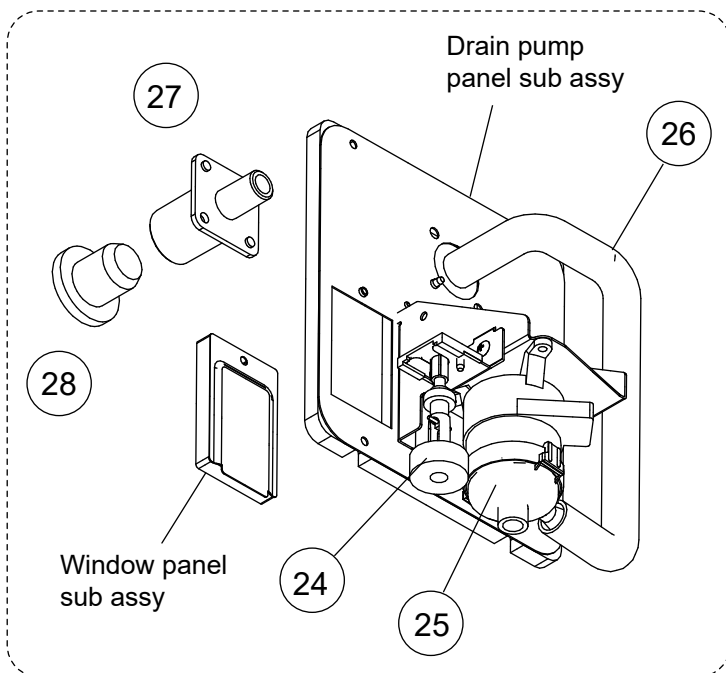
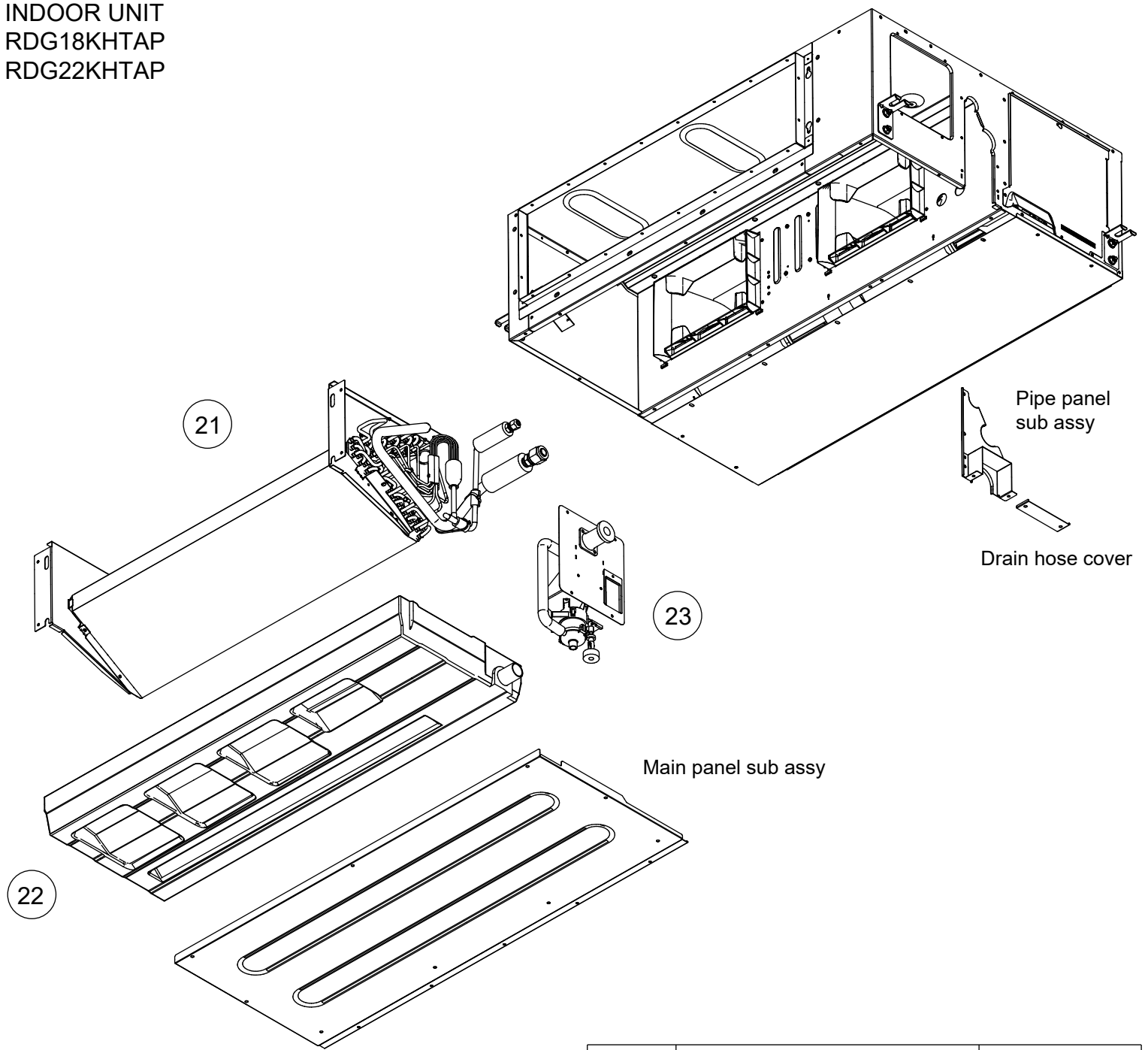


INDOOR UNIT
RDG18KHTAP
RDG22KHTAP



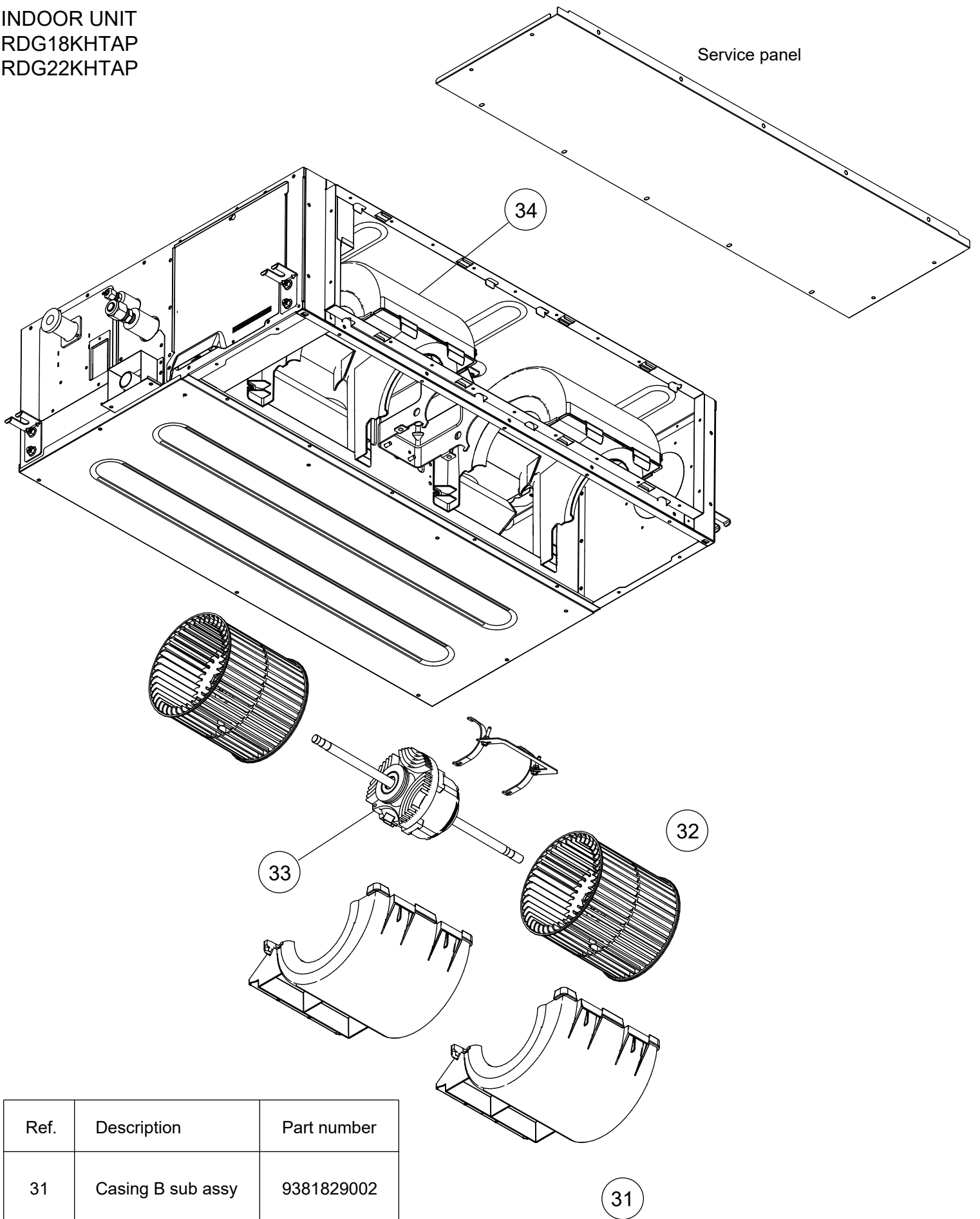
Ref.	Description	Part number
11	Main PCB (18KHTAP)	9710995736
11	Main PCB (22KHTAP)	9710995620
12	Holder	0600063023
13	Communication PCB	9710019005
14	Power Supply PCB	9710032011
15	Reactor Assy	9900898014
16	Terminal (Remote)	9900896003
17	Terminal (Power)	9900568009

INDOOR UNIT
RDG18KHTAP
RDG22KHTAP



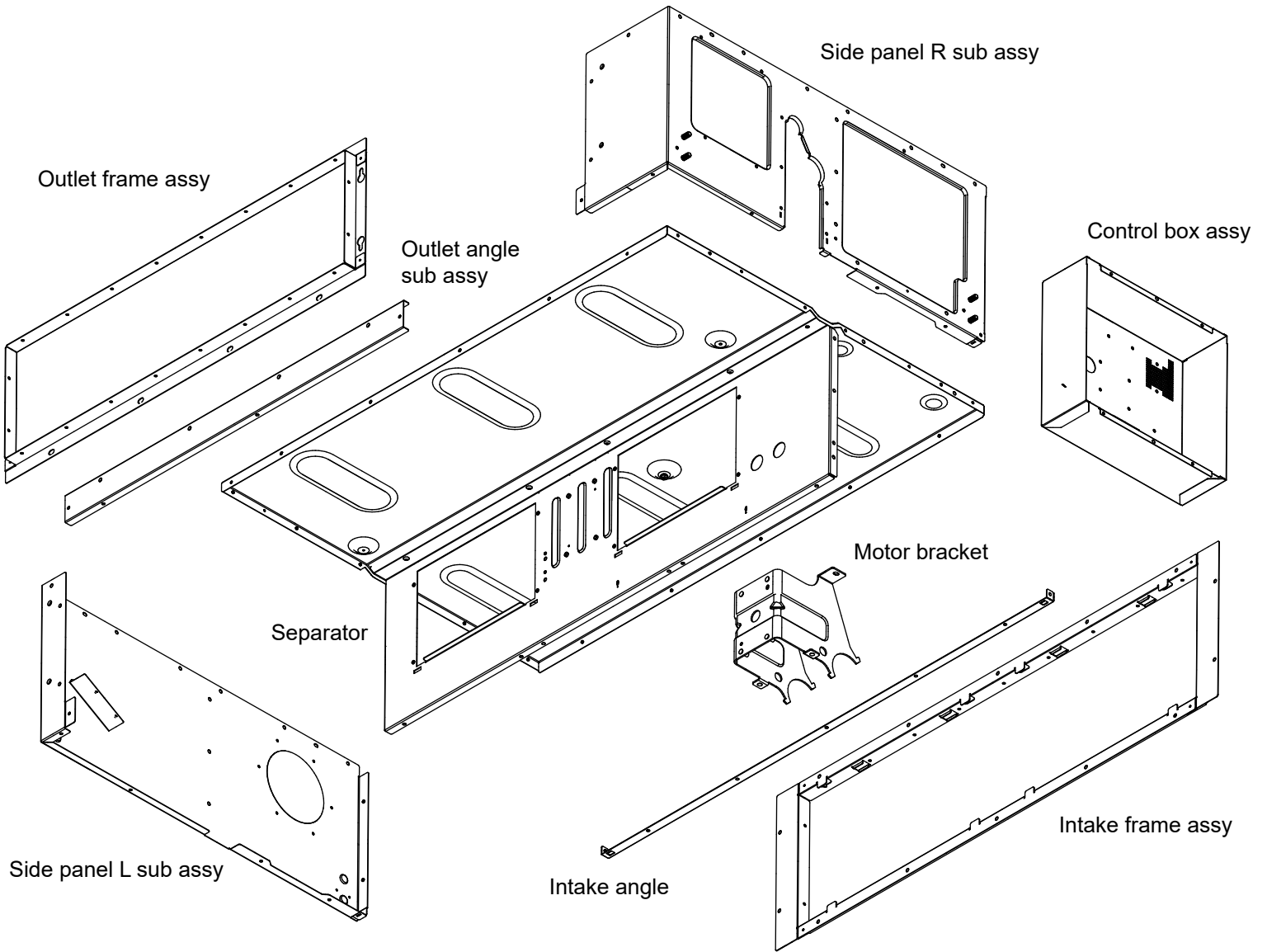
Ref.	Description	Part number
21	Evaporator Total Assy	9374517961
22	Drain Pan Sub Assy	9381752027
23	Drain Pump Sub Assy	9381766017
24	Float Switch	9900465070
25	Pump Assy	9900890018
26	Drain Hose	9381576005
27	Drain Port	9381565009
28	Drain Cap	9381578009

INDOOR UNIT
RDG18KHTAP
RDG22KHTAP

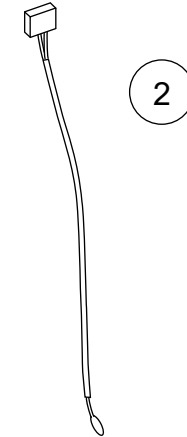
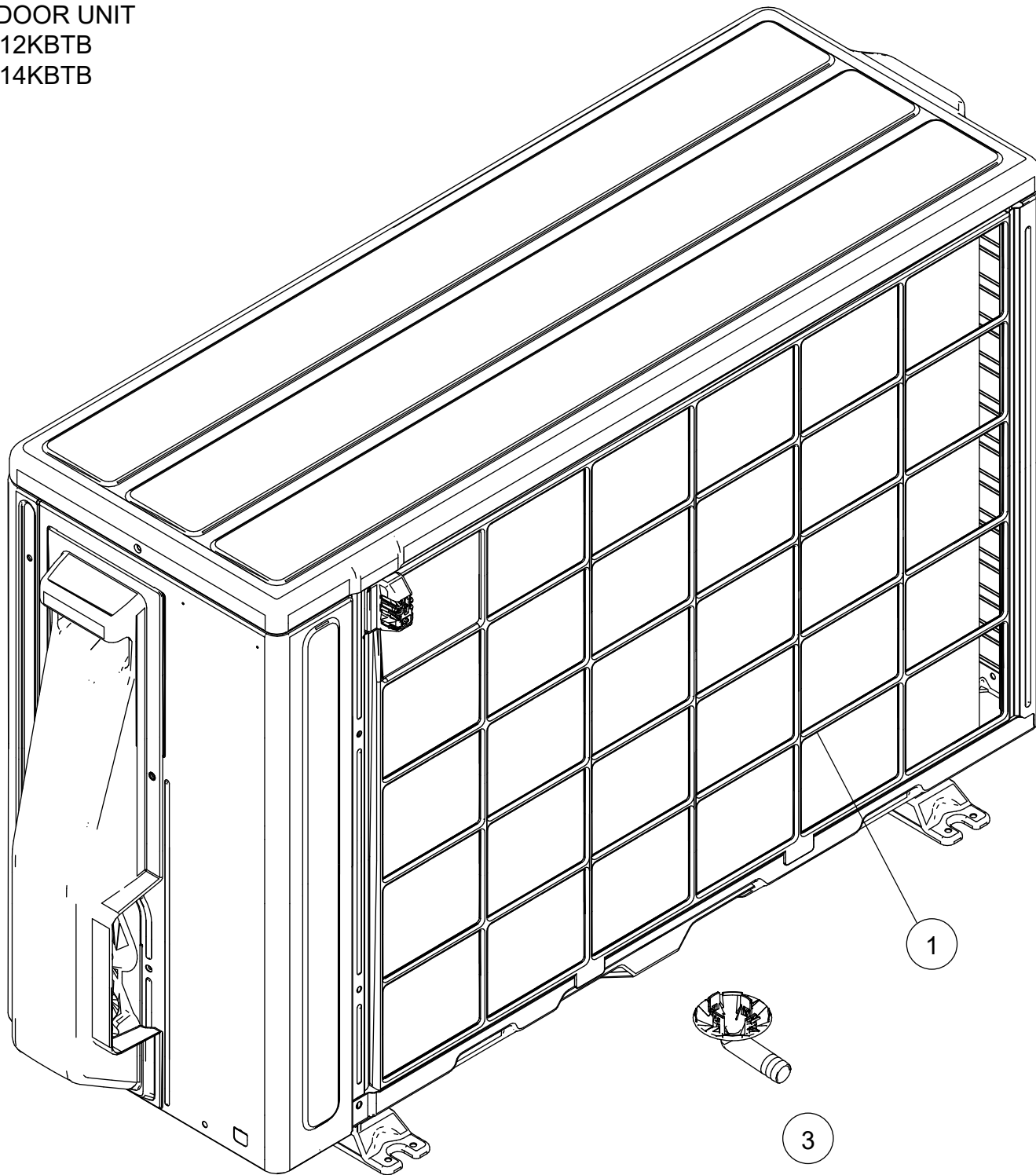


Ref.	Description	Part number
31	Casing B sub assy	9381829002
32	Sirocco fan assy	9381302000
33	Fan motor	9603479015
34	Casing A	9381587001

INDOOR UNIT
RDG18KHTAP
RDG22KHTAP

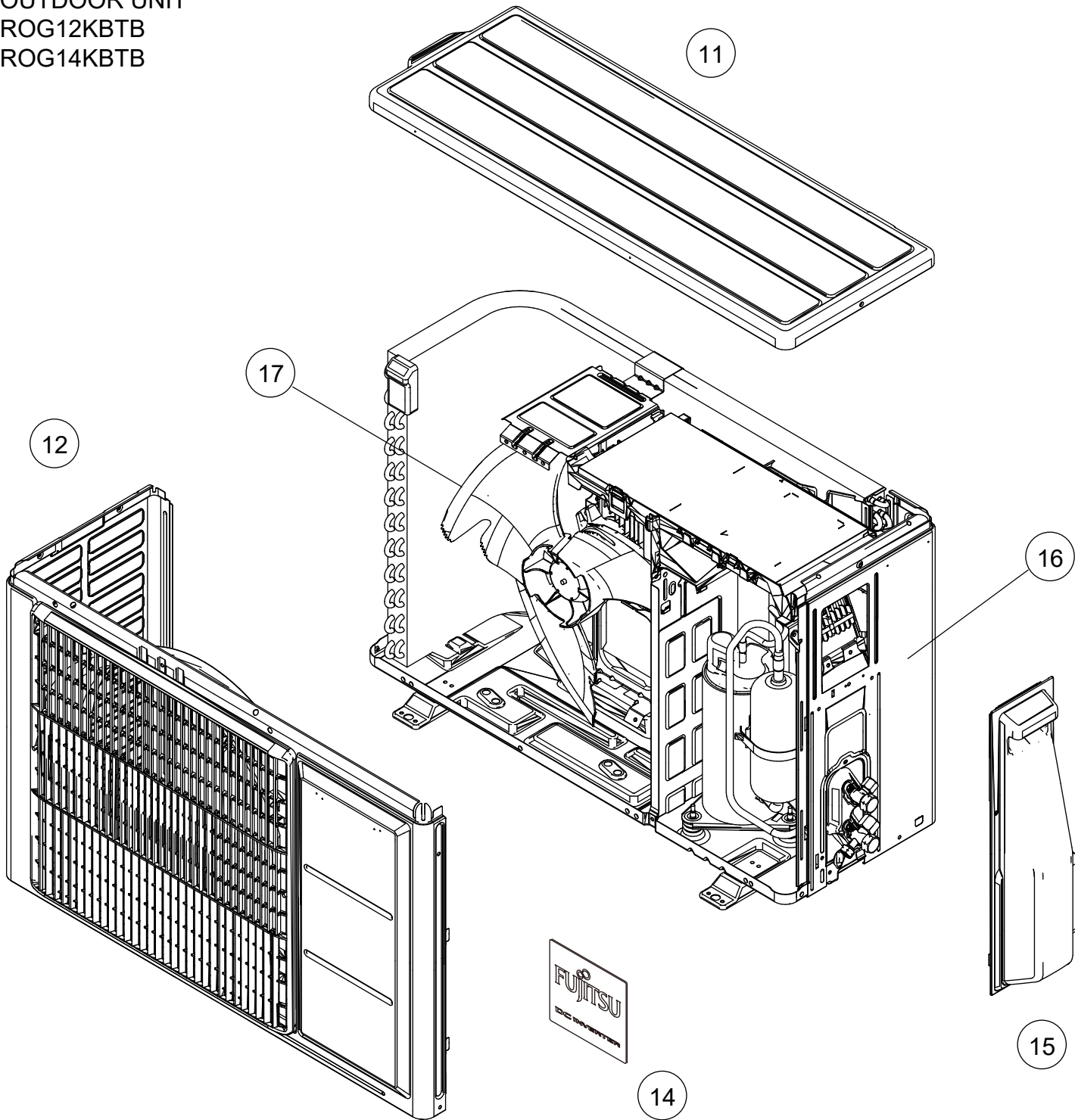


OUTDOOR UNIT
 ROG12KBTB
 ROG14KBTB

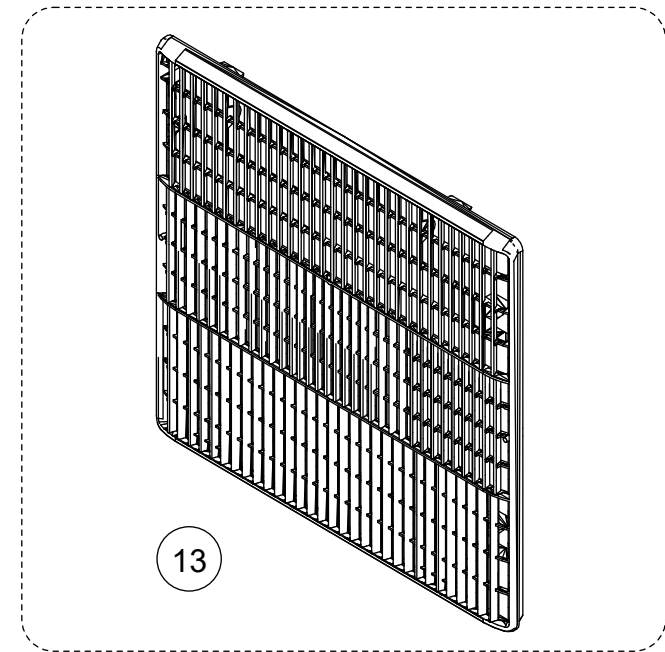


Ref.	Description	Part number
1	Protective net assy	9322811011
2	Outdoor thermistor	9900565060
3	Drain pipe	9322144003

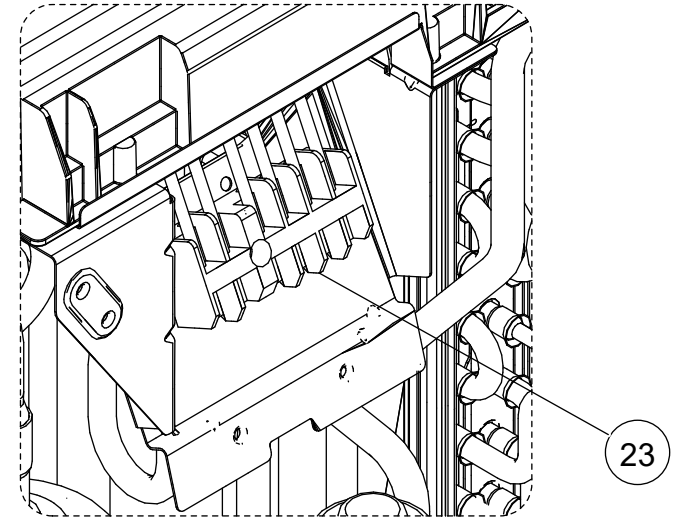
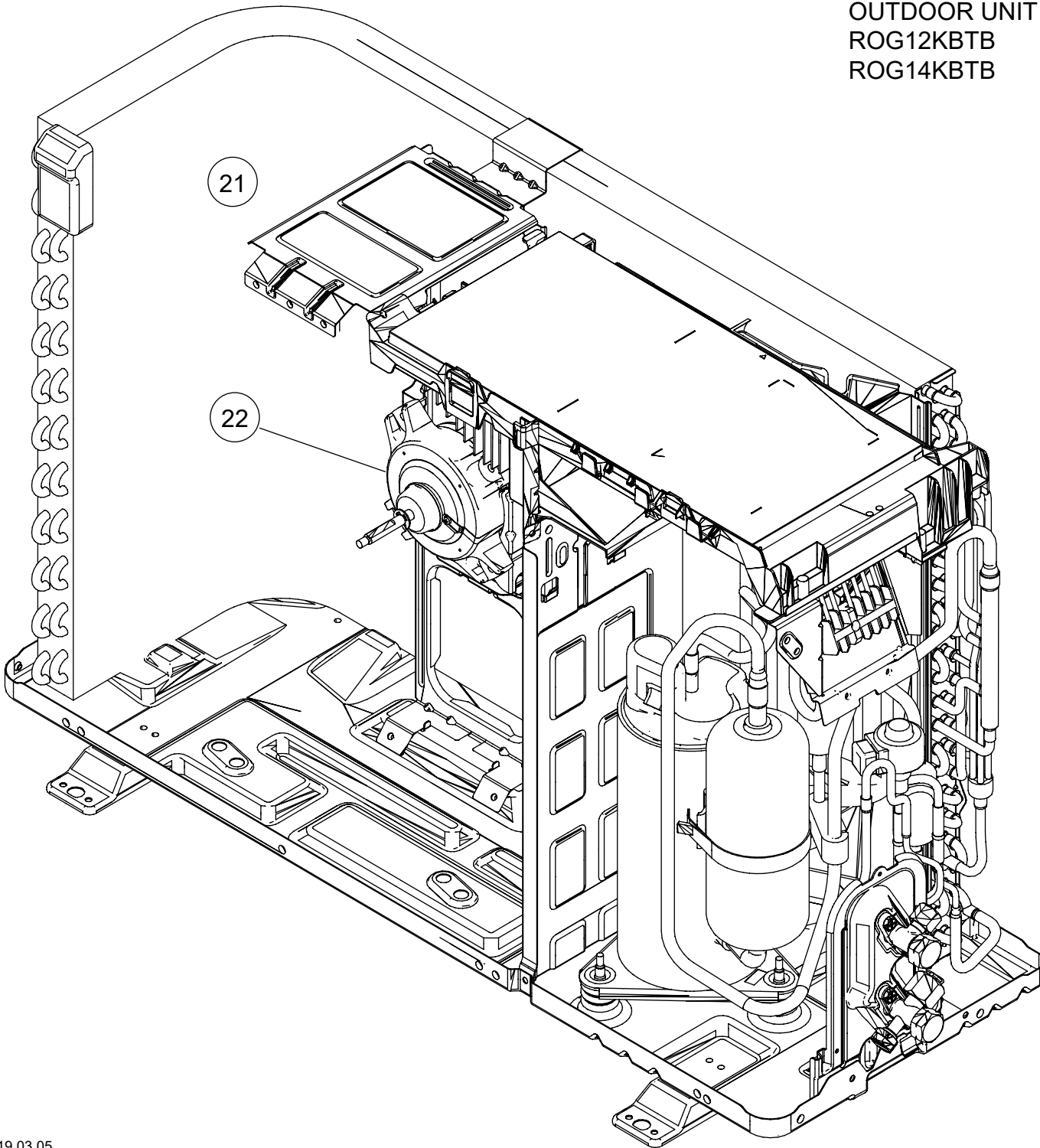
OUTDOOR UNIT
 ROG12KBTB
 ROG14KBTB



Ref.	Description	Part number
11	Top panel assy	9322556028
12	Front panel assy	9322555014
13	Blow grille	9322135001
14	Emblem	9319151007
15	Switch cover assy	9322570000
16	Cabinet right assy	9322552020
17	Propeller fan	9322136008

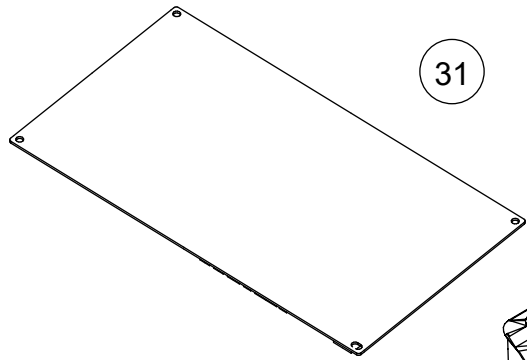


OUTDOOR UNIT
 ROG12KBTB
 ROG14KBTB

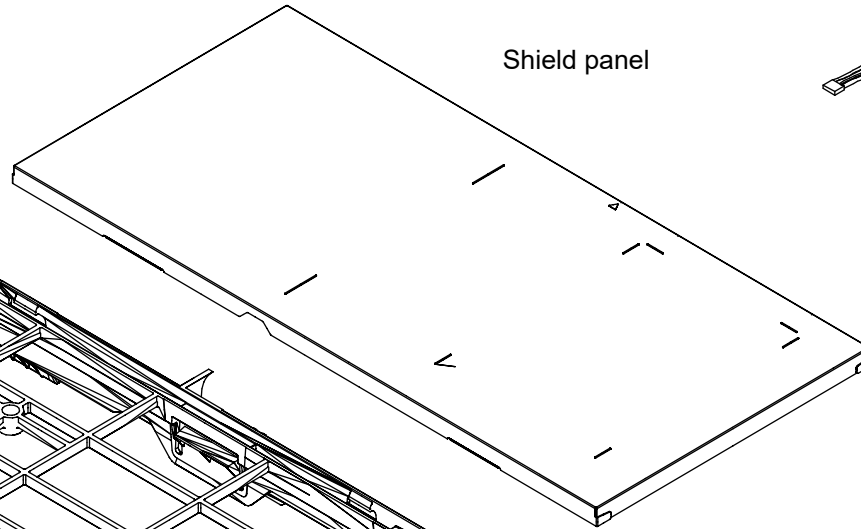


Ref.	Description	Part number
21	Motor bracket assy	9322553010
22	Brushless motor	9603657017
23	Terminal	9900435028

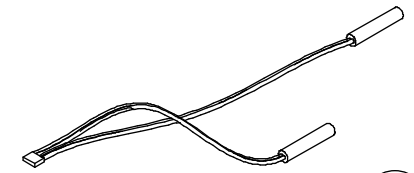
OUTDOOR UNIT
 ROG12KBTB
 ROG14KBTB



31

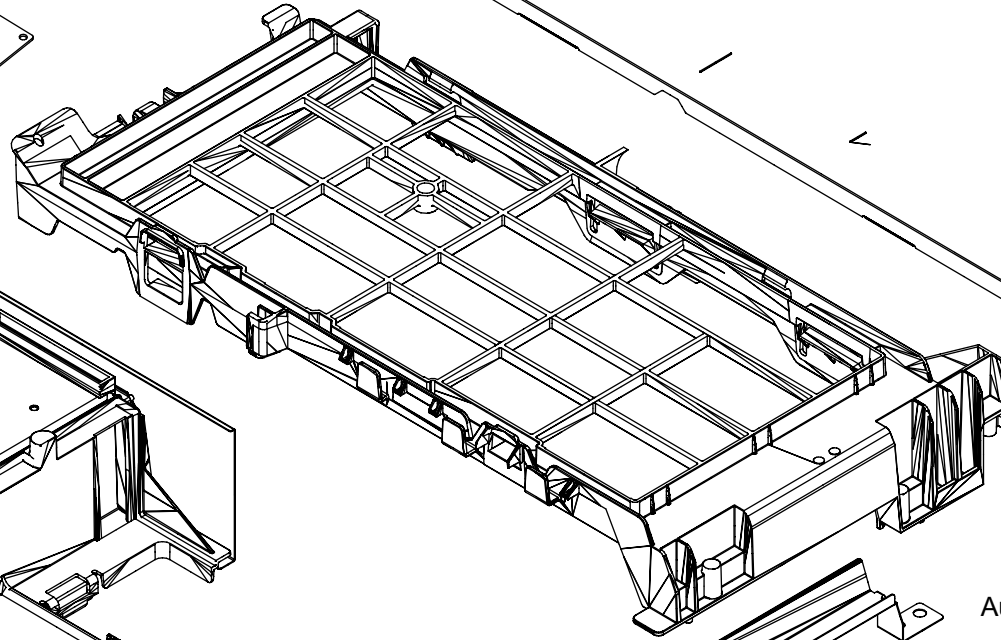
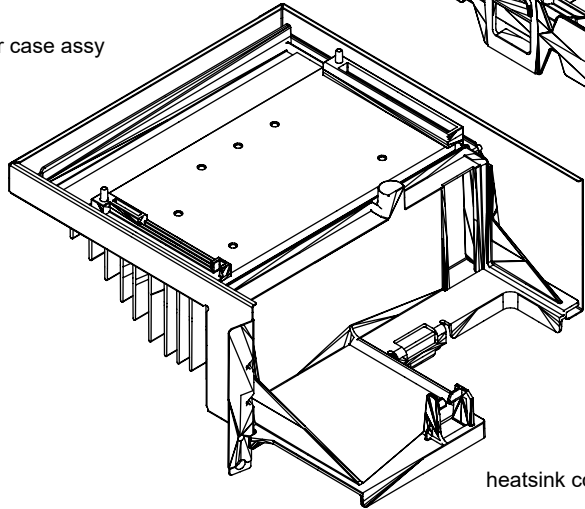


Shield panel



33

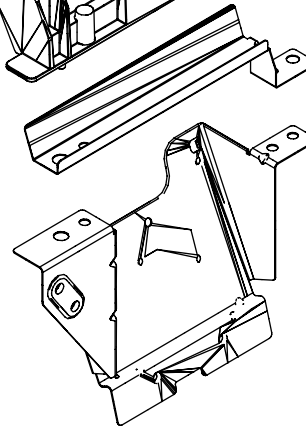
Inverter case assy



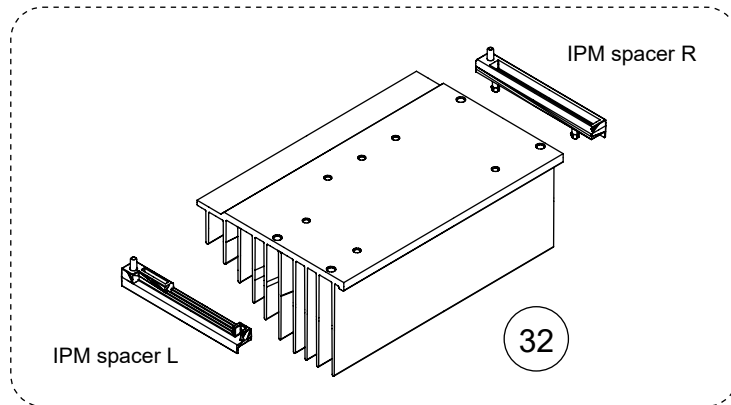
PWB Holder

heatsink cover

Auxiliary plate



Terminal
bracket assy



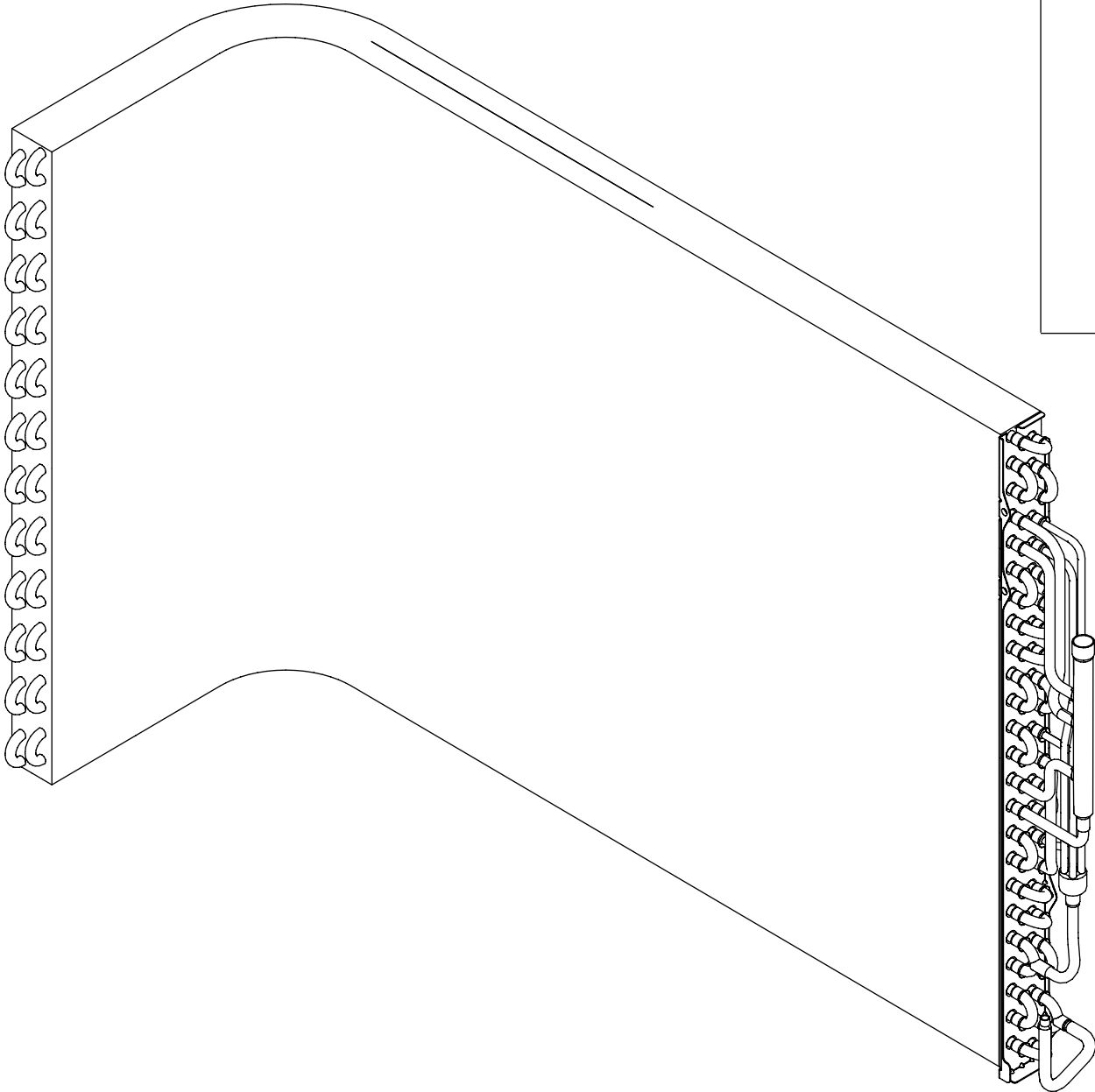
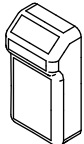
32

Ref.	Description	Part number
31	Main PCB (12)	9709685327
31	Main PCB (14)	9709685334
32	Heatsink	9322420015
33	Thermistor assy	9900727062
---	Heat exchanger thermistor	9900984014

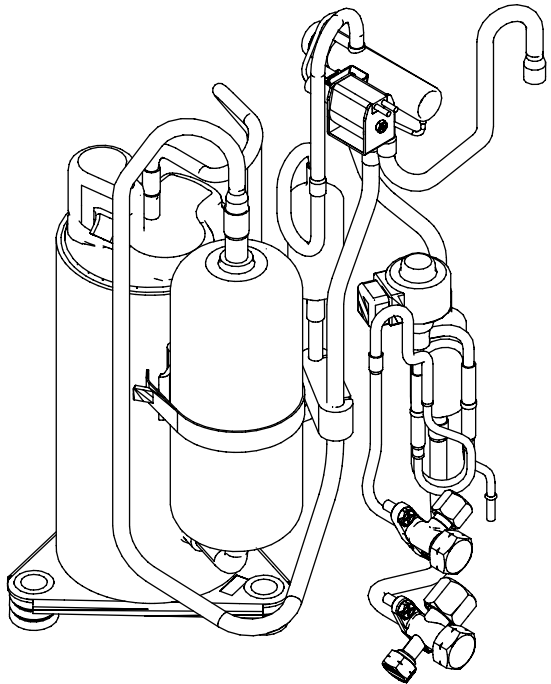
OUTDOOR UNIT
 ROG12KBTB
 ROG14KBTB

41

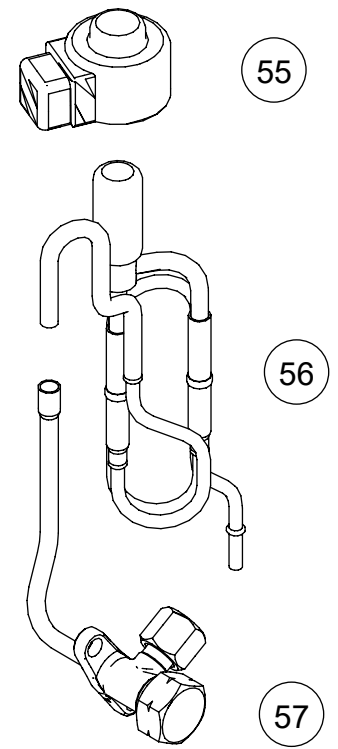
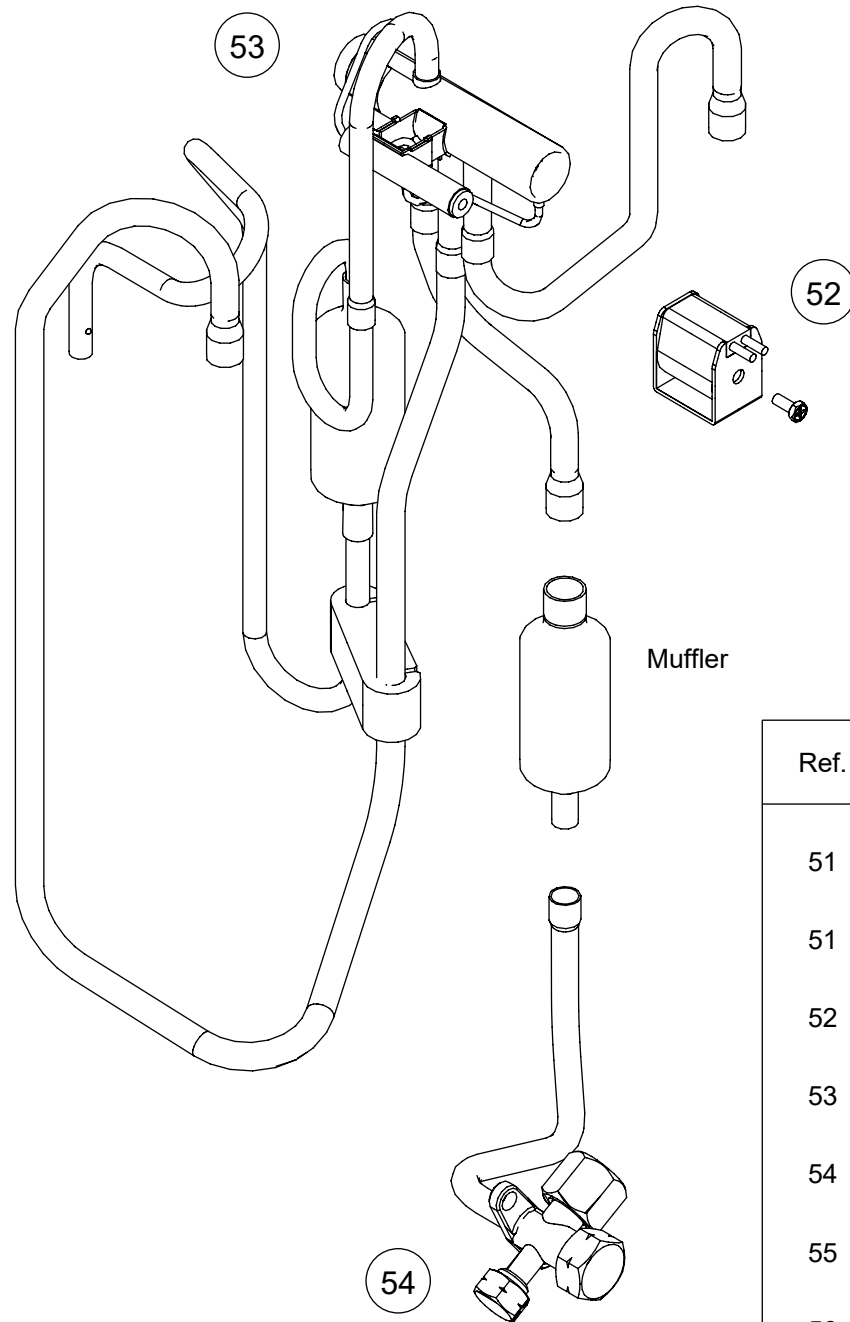
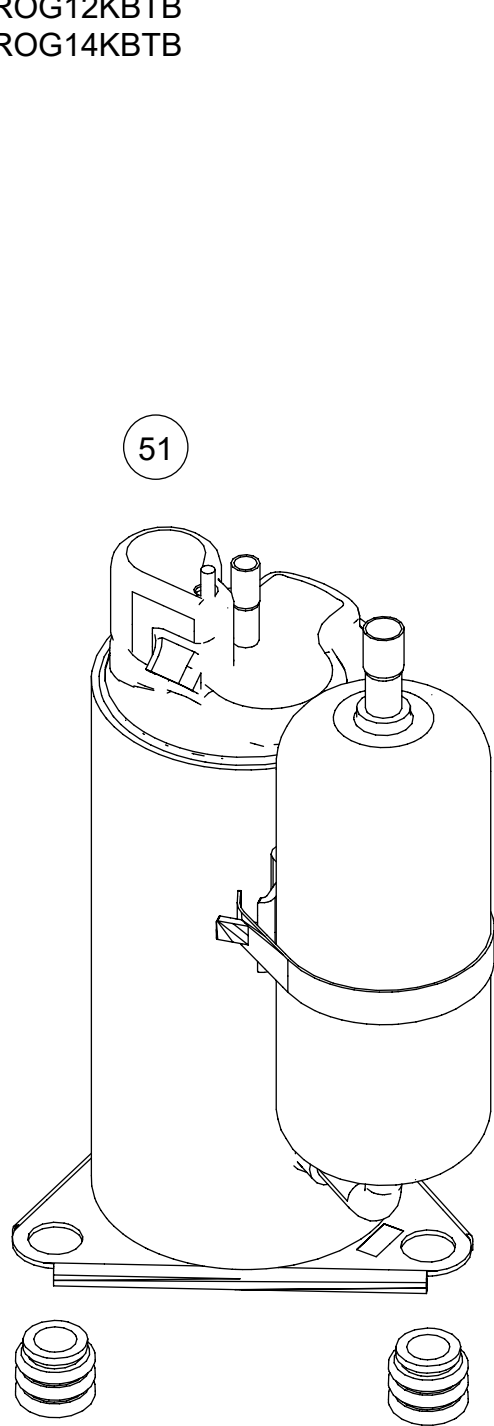
Hair pin cushion



Ref.	Description	Part number
41	Heat exchanger unit (Condenser total assy+ Thermistor holder pipe+ Hair pin cushion)	9323834132
-	S-insulator B	9322535009
-	S-insulator F	9322536006
-	S-insulator H	9322537003
-	S-insulator V	9323045002

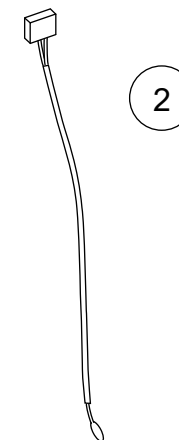
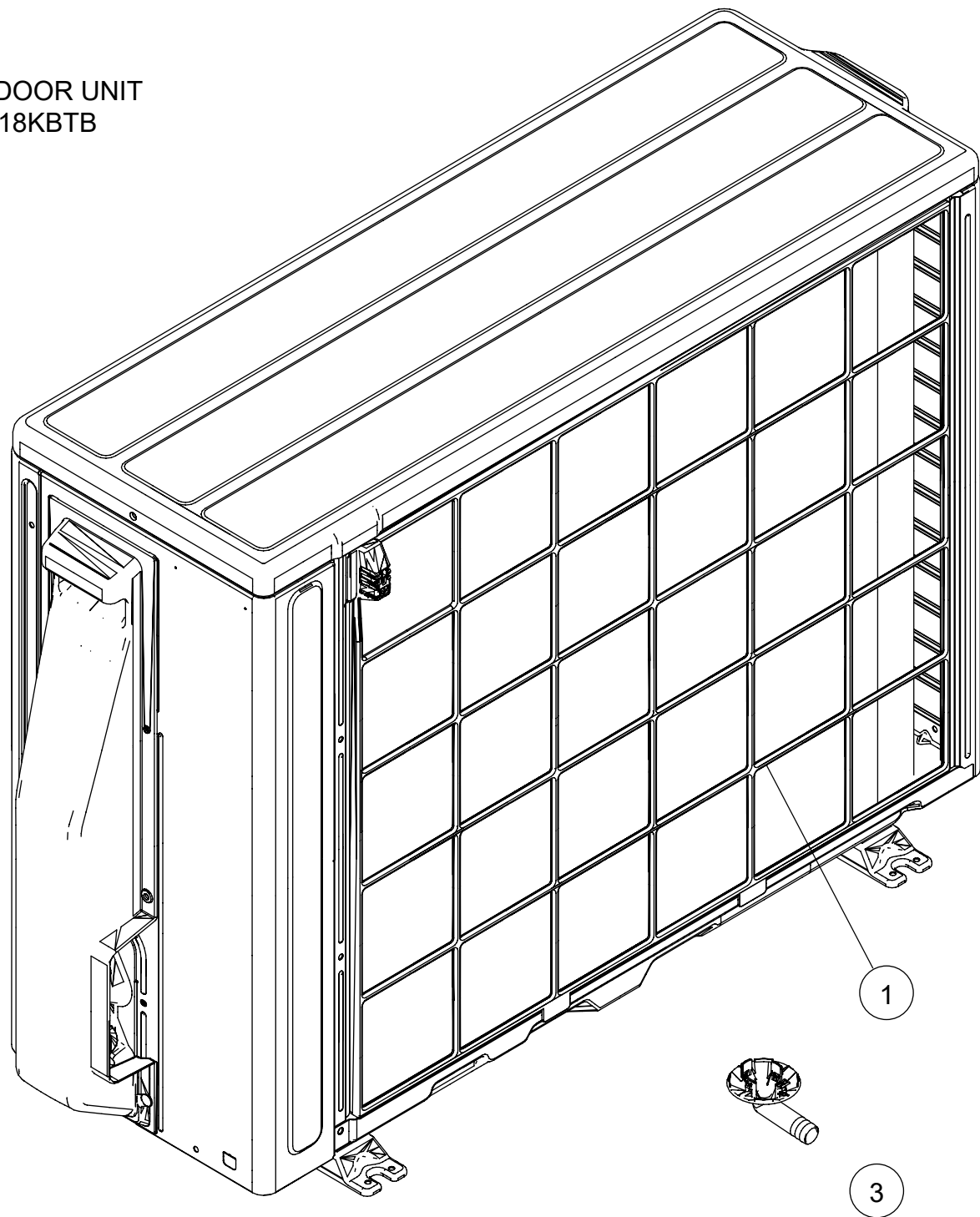


OUTDOOR UNIT
 ROG12KBTB
 ROG14KBTB



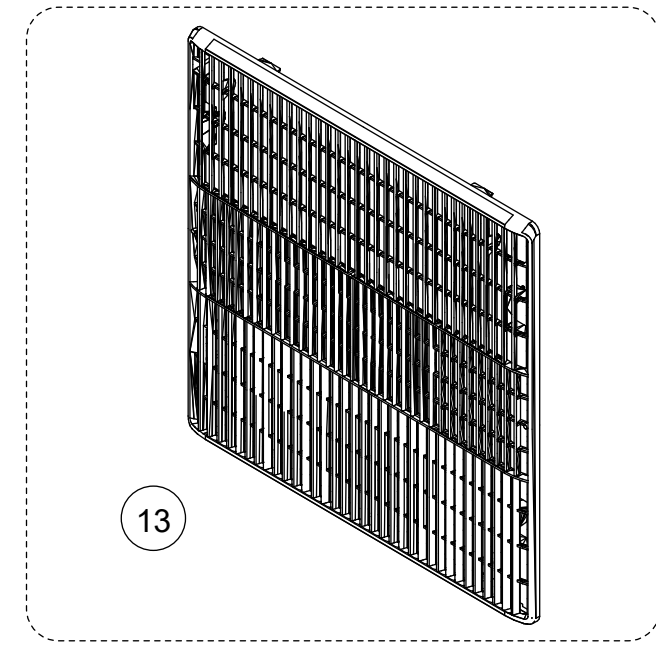
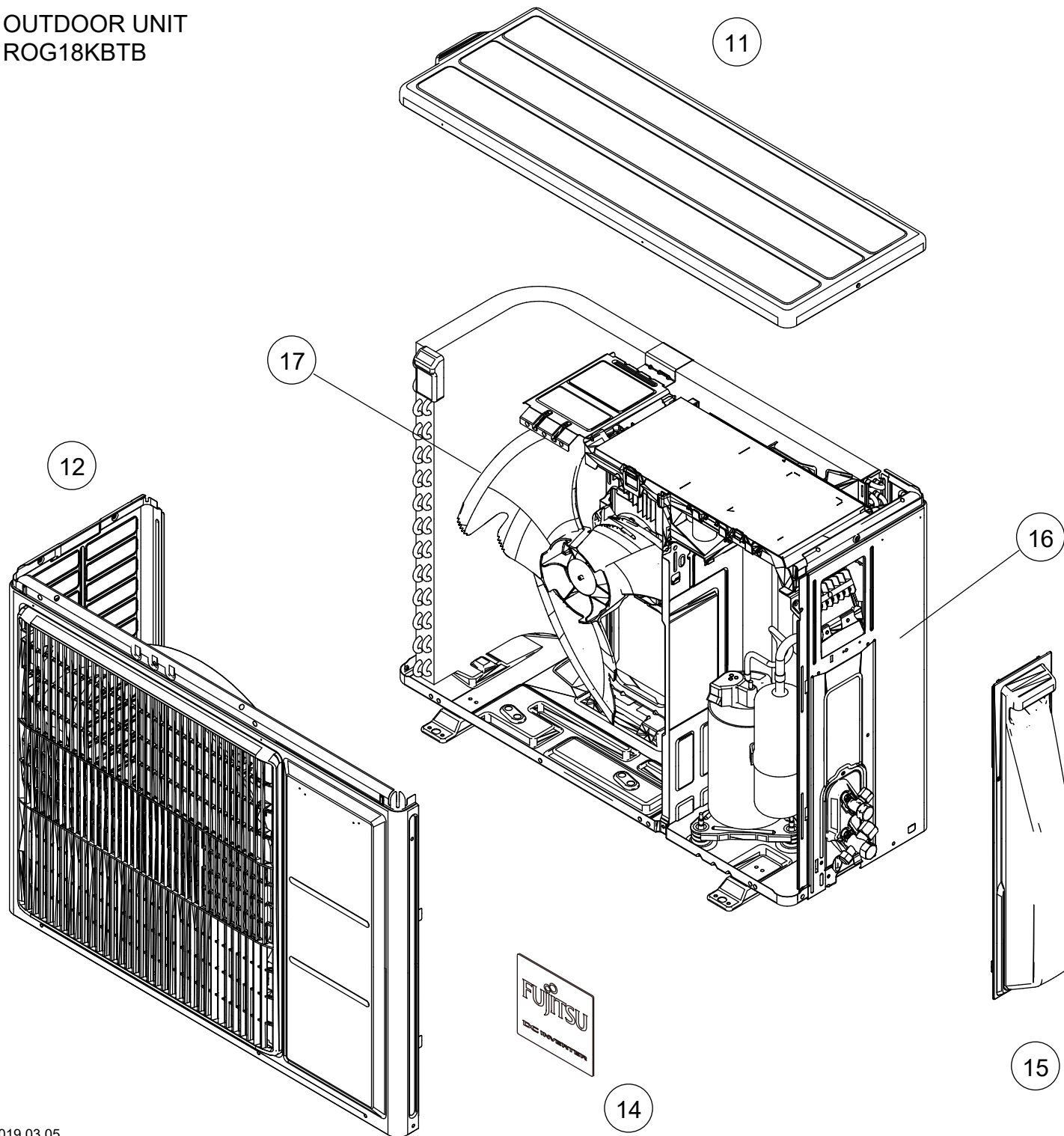
Ref.	Description	Part number
51	Compressor assy (12)	9322431004
51	Compressor assy (14)	9322433008
52	Solenoid	9970195006
53	4-way valve assy	9322445001
54	3-way valve assy	9322475008
55	Expansion valve coil	9970173028
56	Pulse motor valve assy	9322463029
57	2-way valve assy	9322474001

OUTDOOR UNIT
ROG18KBTB



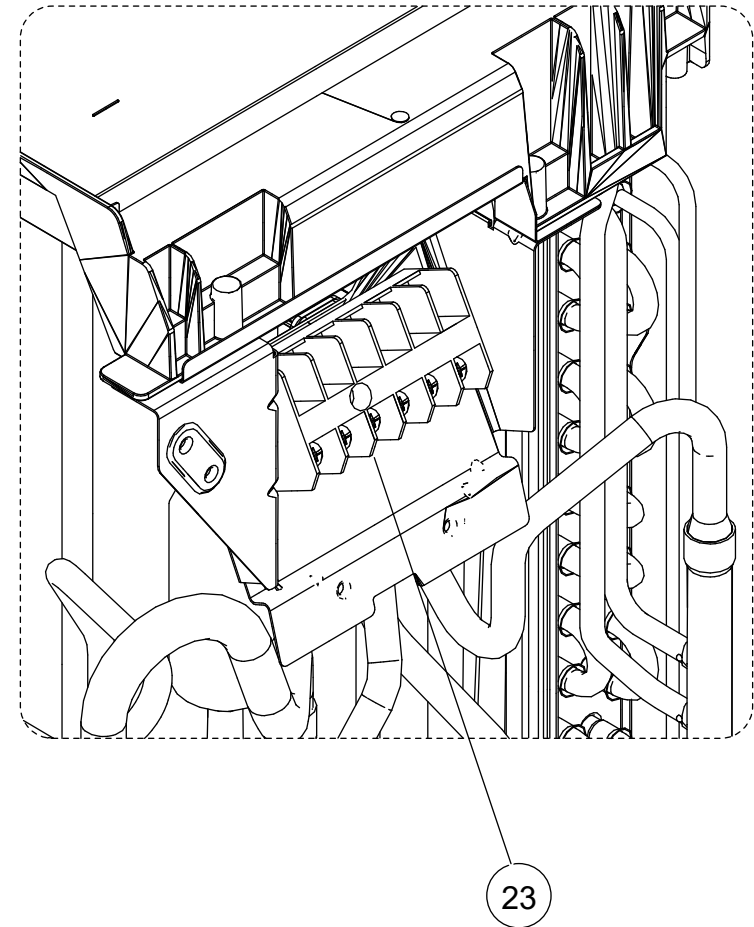
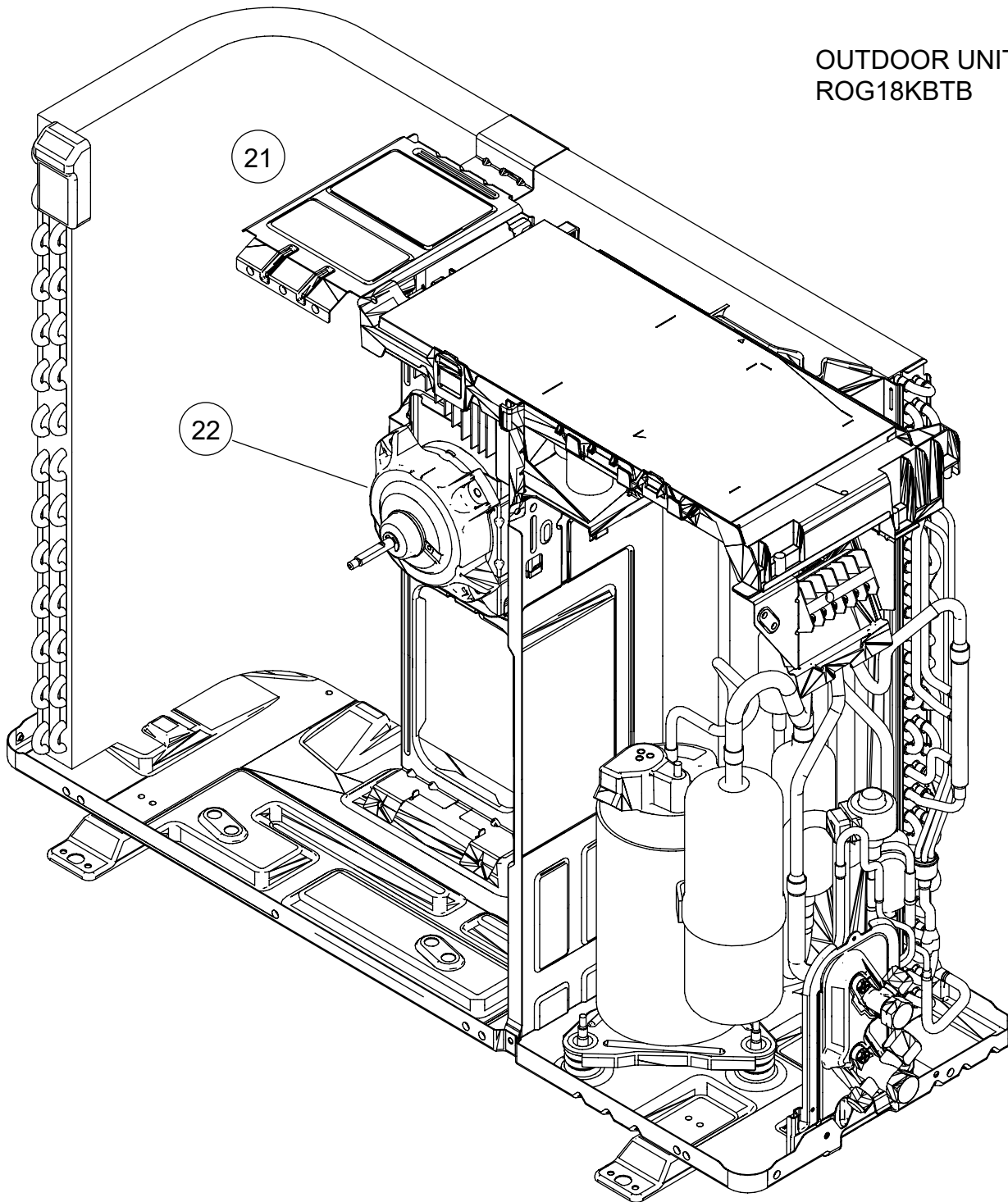
Ref.	Description	Part number
1	Protective net assy	9322811028
2	Outdoor thermistor	9900565060
3	Drain pipe	9322144003

OUTDOOR UNIT
ROG18KBTB



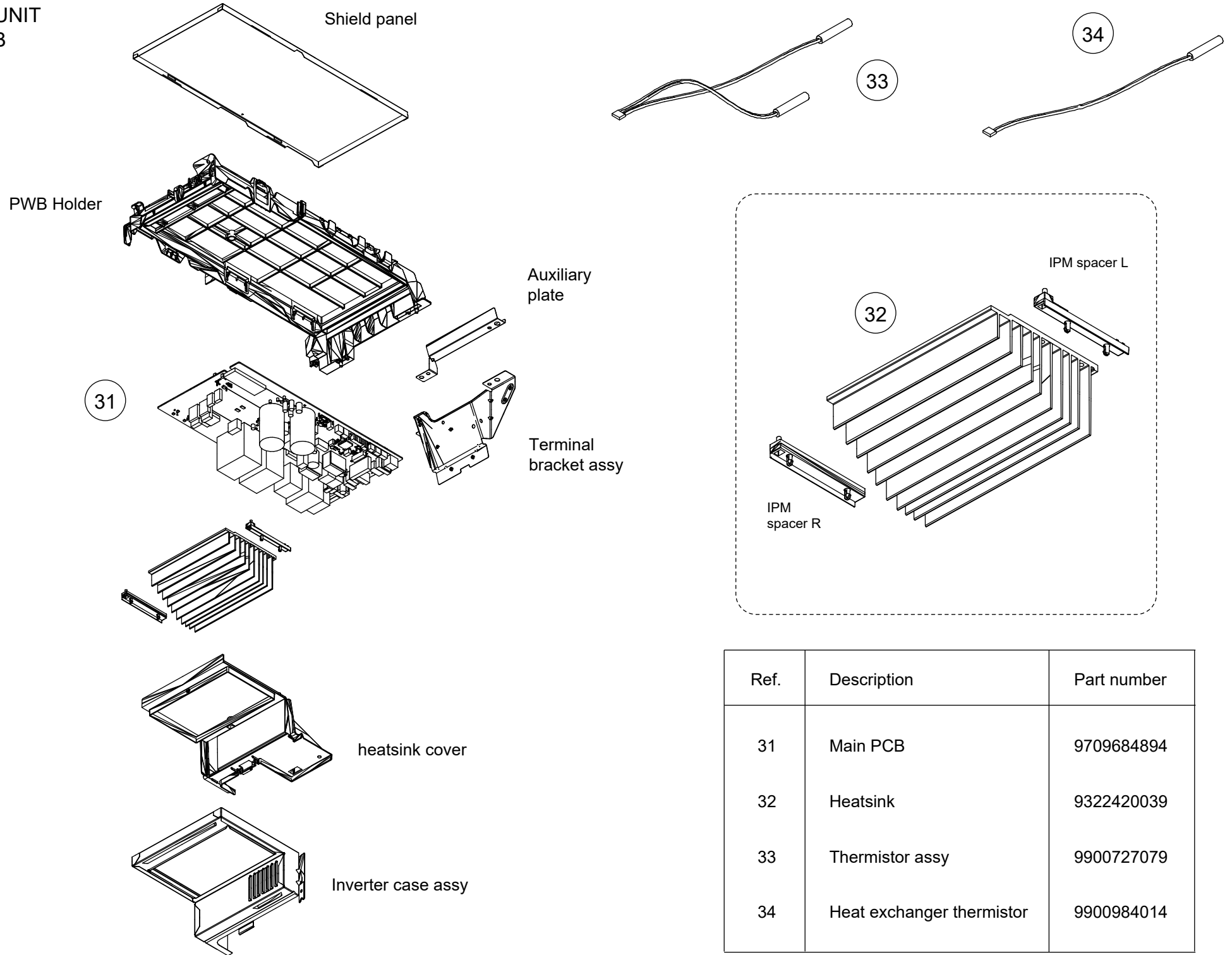
Ref.	Description	Part number
11	Top panel assy	9322556028
12	Front panel assy	9322555021
13	Blow grille	9322149008
14	Emblem	9319151007
15	Switch cover assy	9322570024
16	Cabinet right assy	9322552099
17	Propeller fan	9322150004

OUTDOOR UNIT
ROG18KBTB



Ref.	Description	Part number
21	Motor bracket assy	9322553027
22	Brushless motor	9603601003
23	Terminal	9900435028

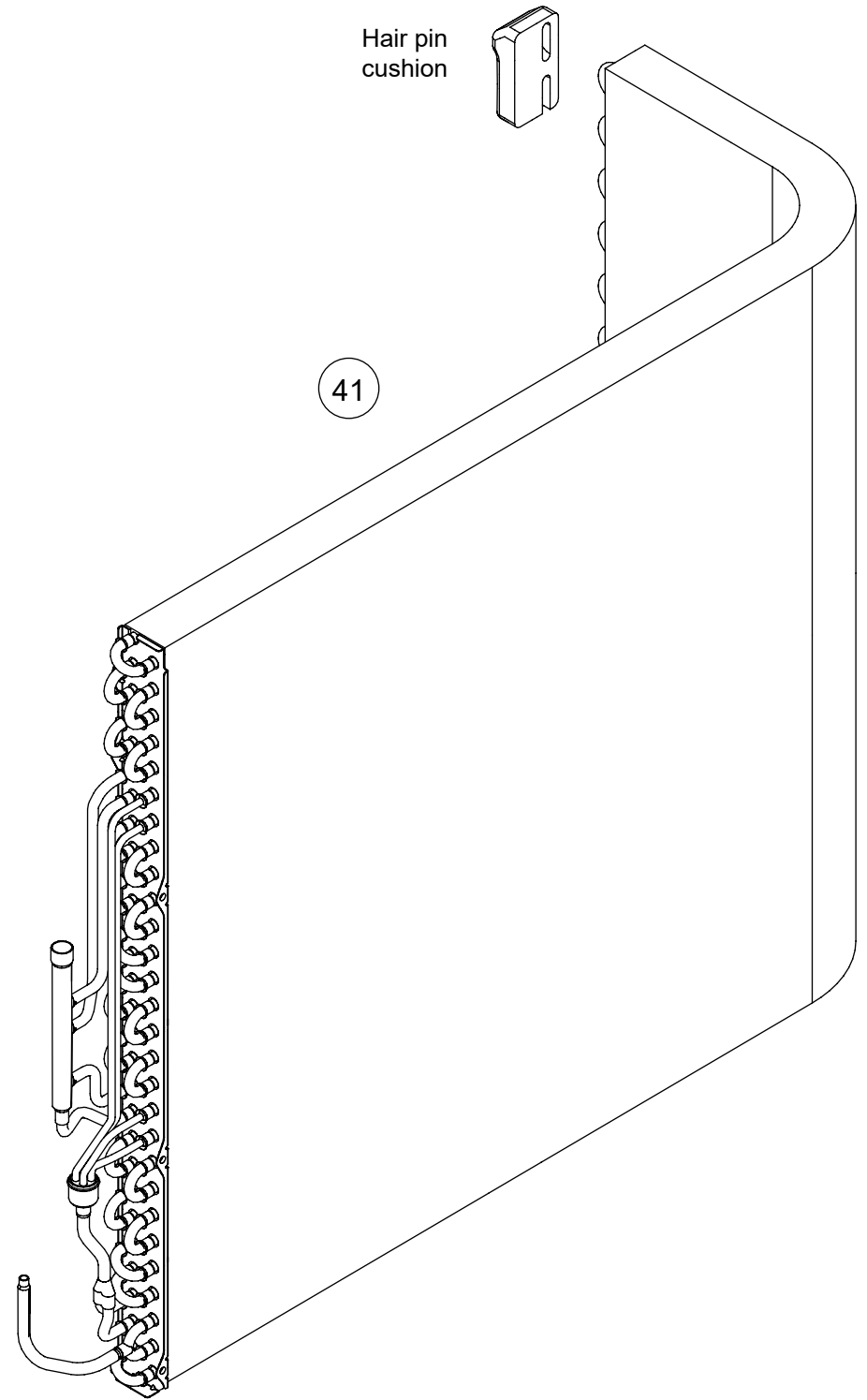
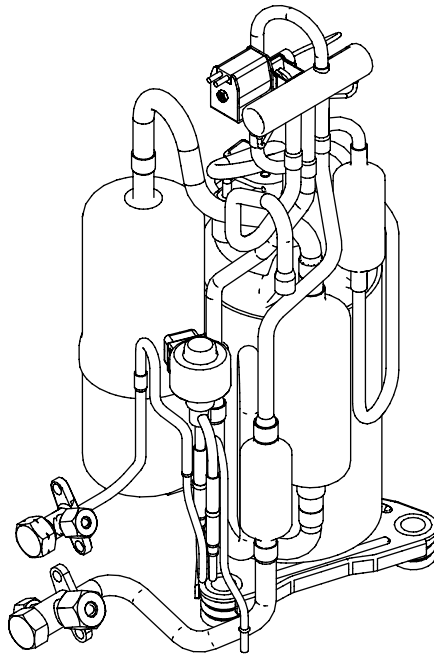
OUTDOOR UNIT
ROG18KBTB



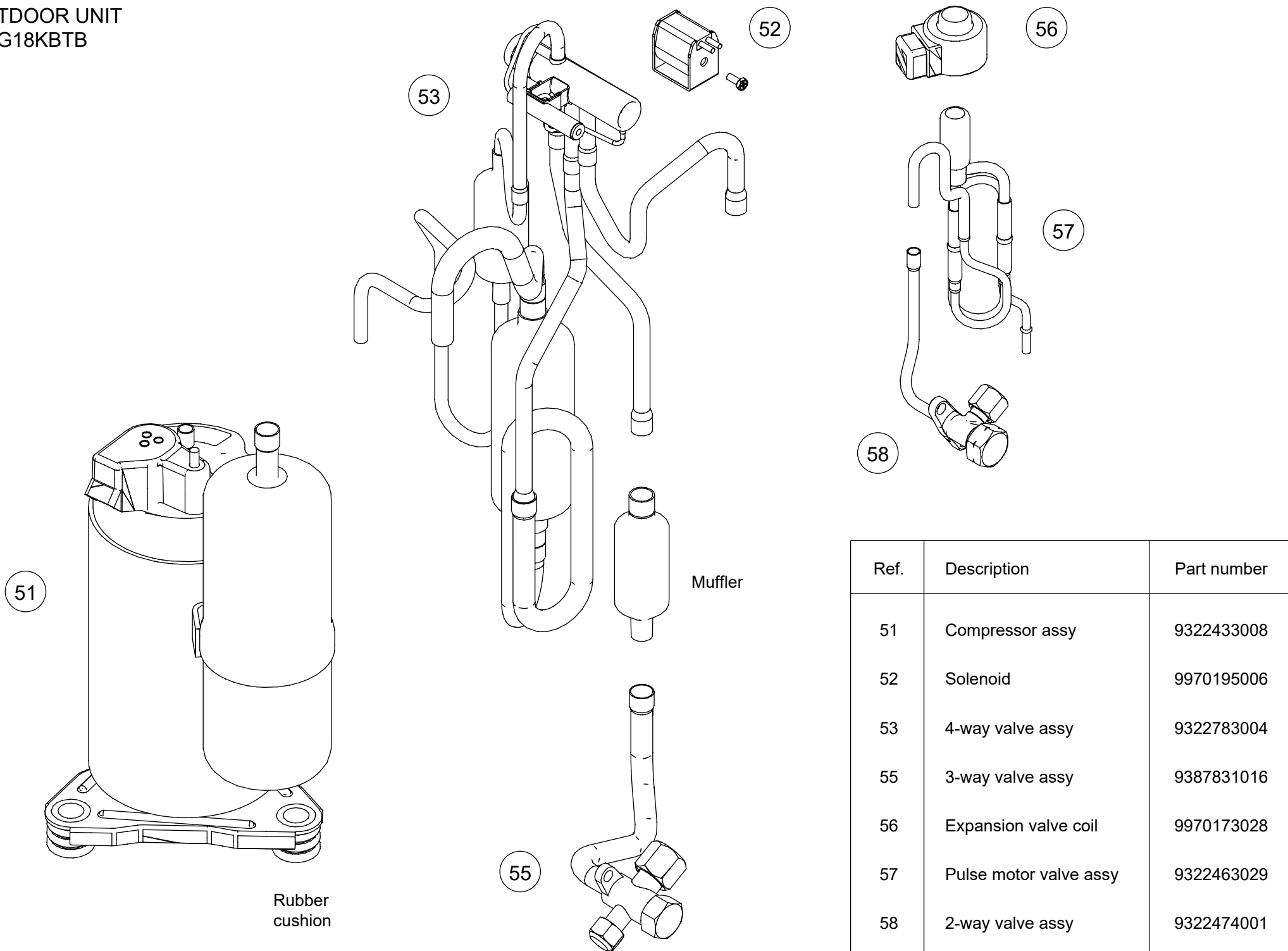
Ref.	Description	Part number
31	Main PCB	9709684894
32	Heatsink	9322420039
33	Thermistor assy	9900727079
34	Heat exchanger thermistor	9900984014

OUTDOOR UNIT
ROG18KBTB

Ref.	Description	Part number
41	Heat exchanger unit (Condenser total assy+ Thermistor holder pipe+ Hair pin cushion)	9323834194
-	S-insulator B	9322500007
-	S-insulator F	9322847003
-	S-insulator H	9322501004
-	S-insulator V	9323045002

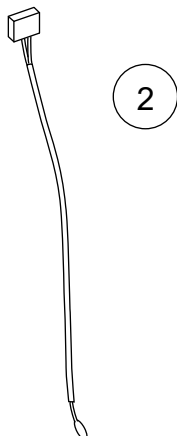
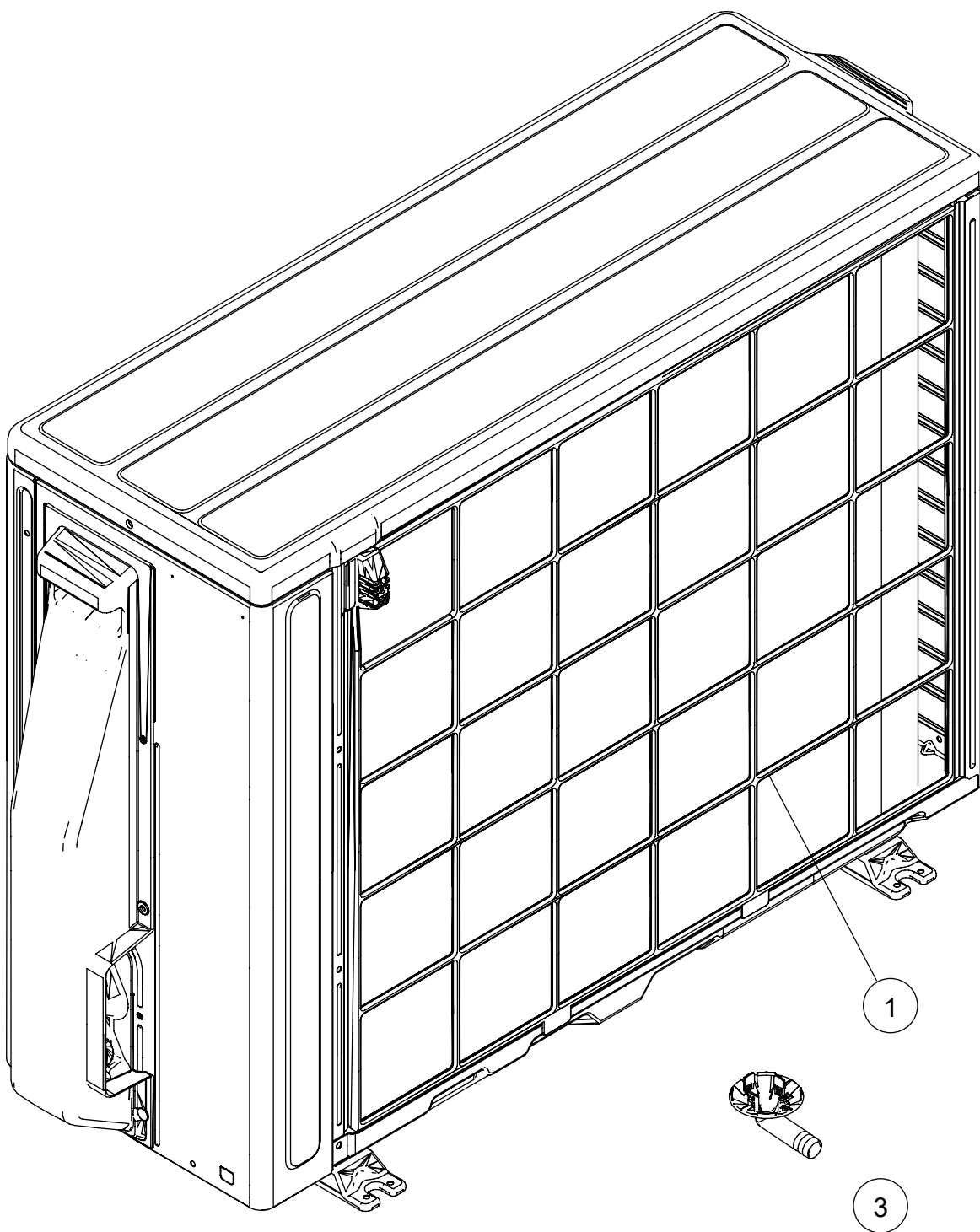


OUTDOOR UNIT
ROG18KBTB



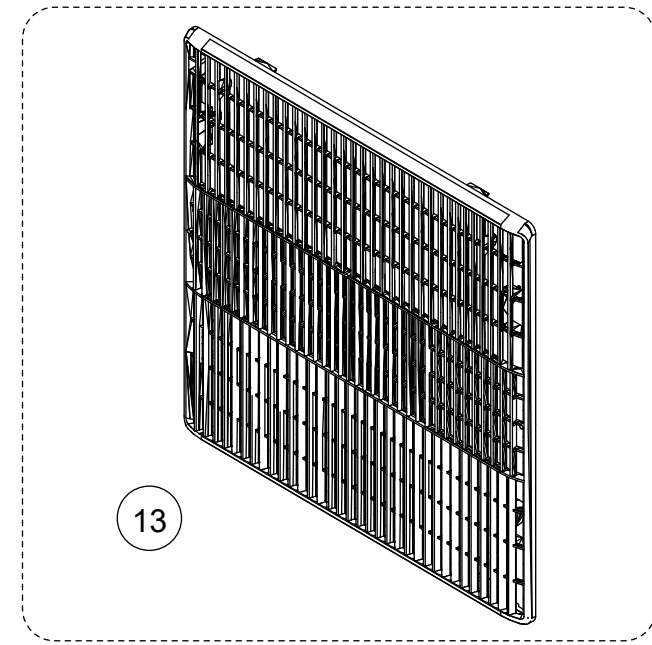
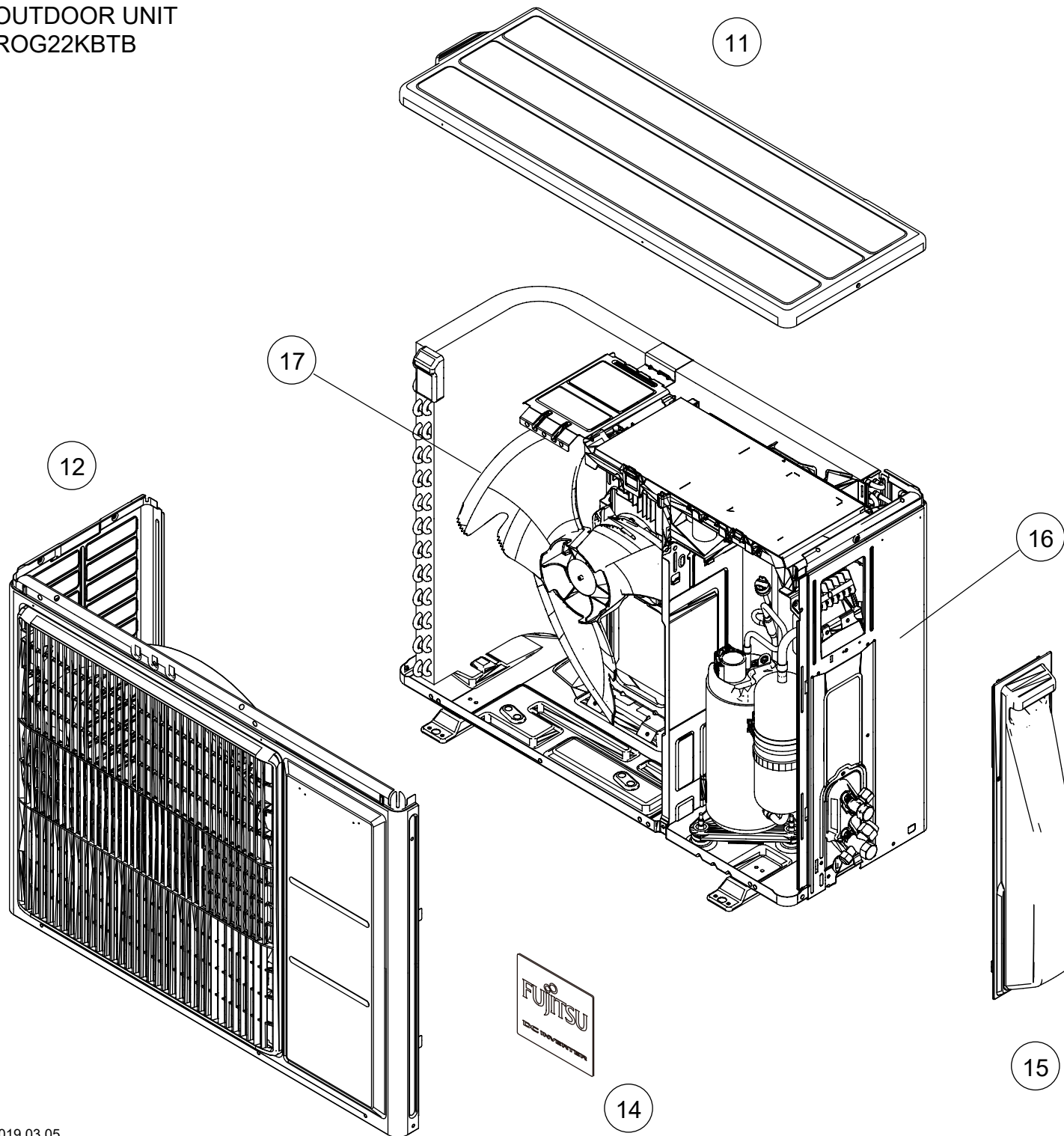
Ref.	Description	Part number
51	Compressor assy	9322433008
52	Solenoid	9970195006
53	4-way valve assy	9322783004
55	3-way valve assy	9387831016
56	Expansion valve coil	9970173028
57	Pulse motor valve assy	9322463029
58	2-way valve assy	9322474001

OUTDOOR UNIT
ROG22KBTB



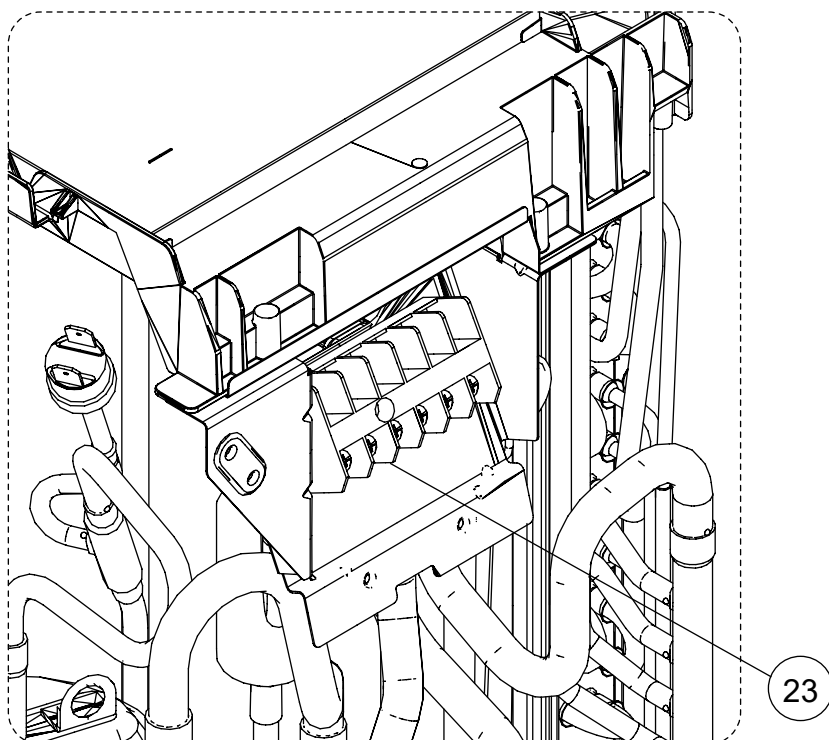
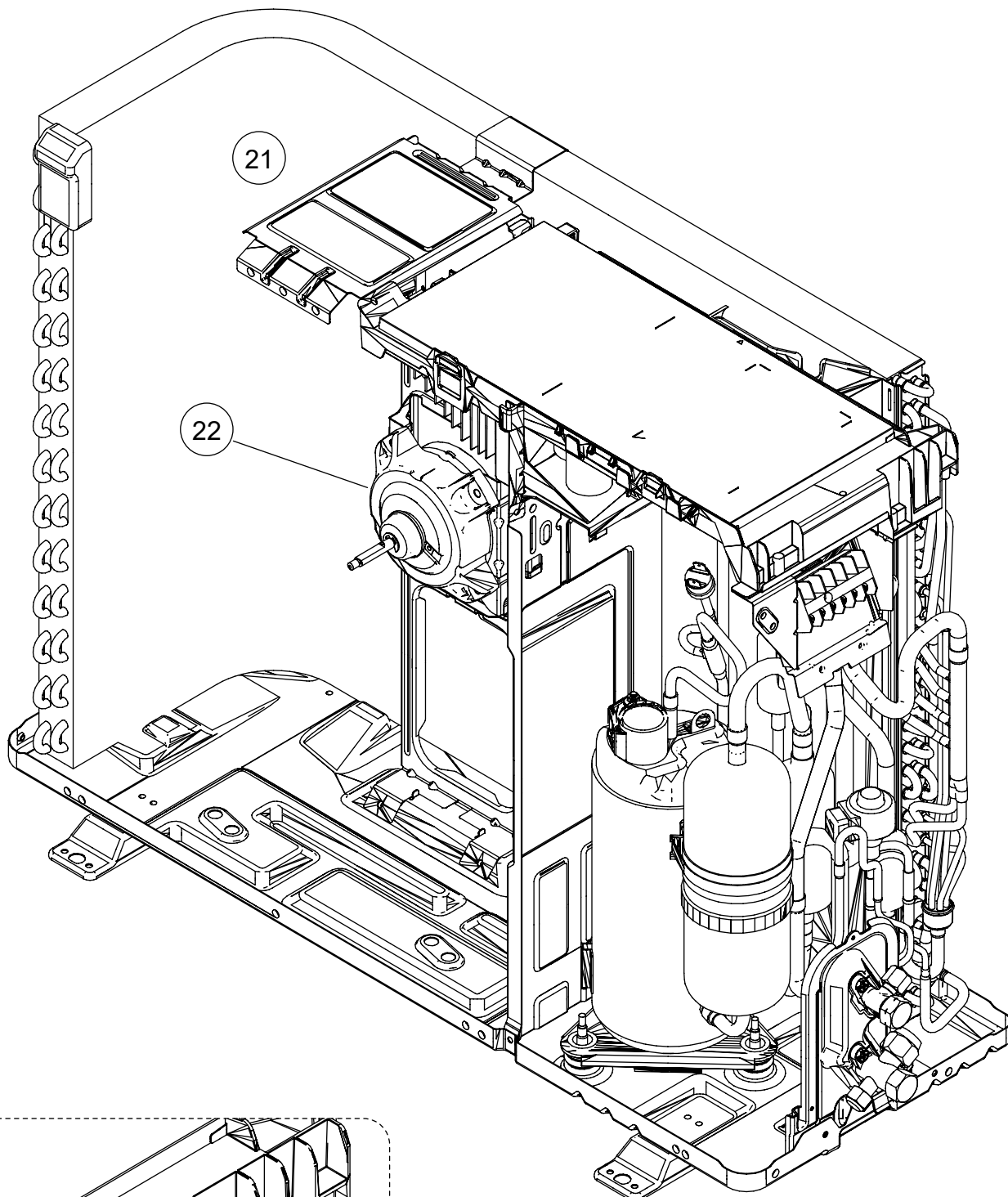
Ref.	Description	Part number
1	Protective net assy	9322811028
2	Outdoor thermistor	9900565060
3	Drain pipe	9322144003

OUTDOOR UNIT
ROG22KBTB



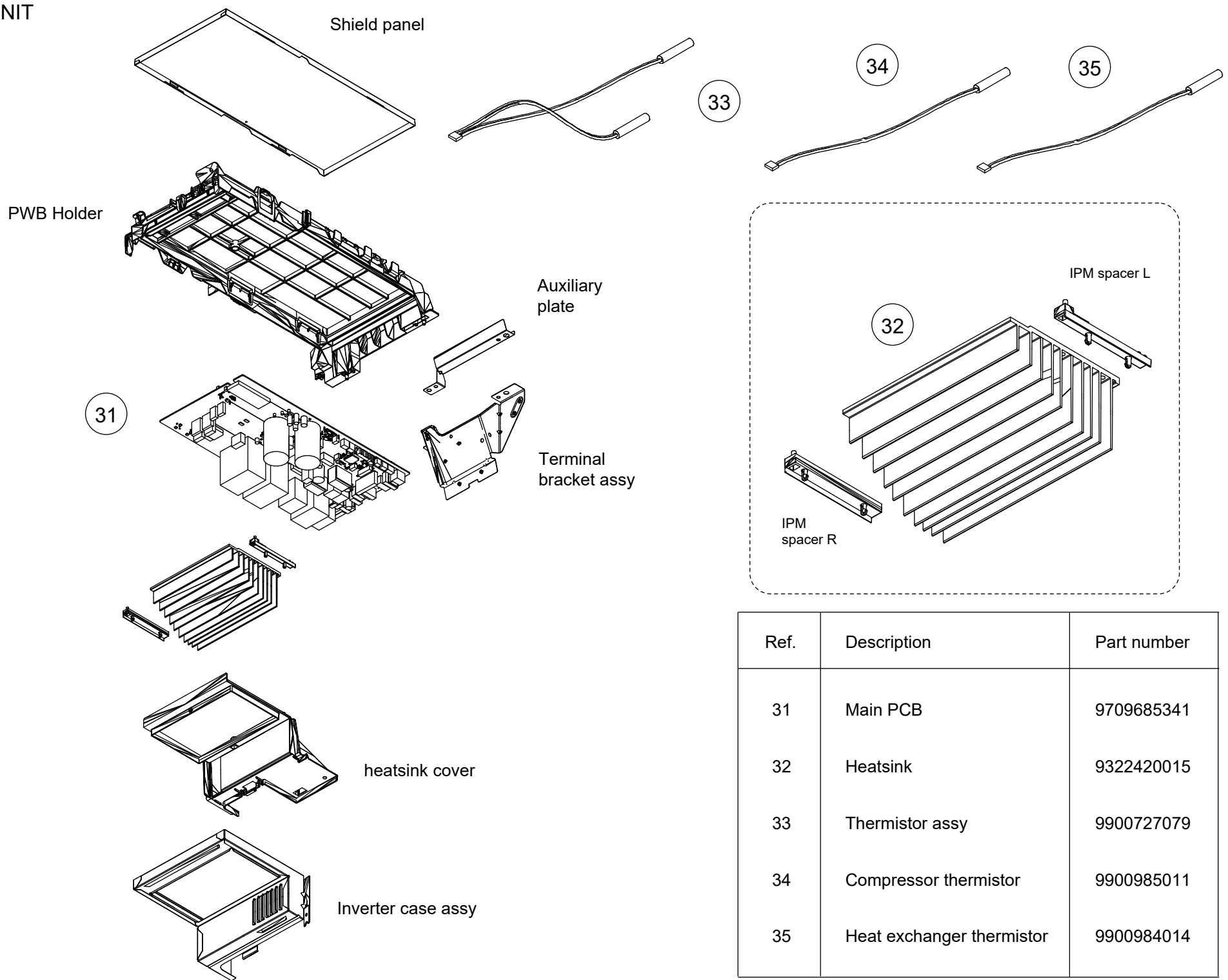
Ref.	Description	Part number
11	Top panel assy	9322556028
12	Front panel assy	9322555021
13	Blow grille	9322149008
14	Emblem	9319151007
15	Switch cover assy	9322570024
16	Cabinet right assy	9322552099
17	Propeller fan	9322150004

OUTDOOR UNIT
ROG22KBTB



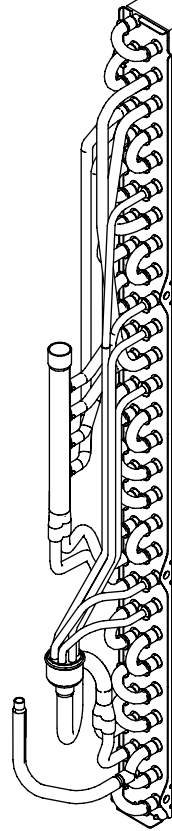
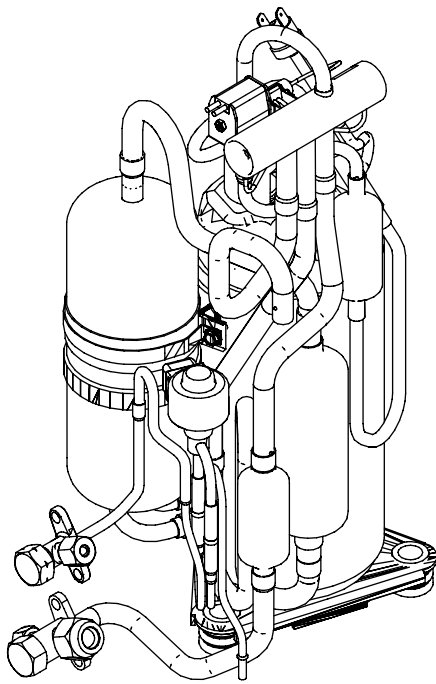
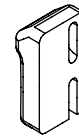
Ref.	Description	Part number
21	Motor bracket assy	9322553027
22	Brushless motor	9603601003
23	Terminal	9900435028

OUTDOOR UNIT
ROG22KBTB



Ref.	Description	Part number
31	Main PCB	9709685341
32	Heatsink	9322420015
33	Thermistor assy	9900727079
34	Compressor thermistor	9900985011
35	Heat exchanger thermistor	9900984014

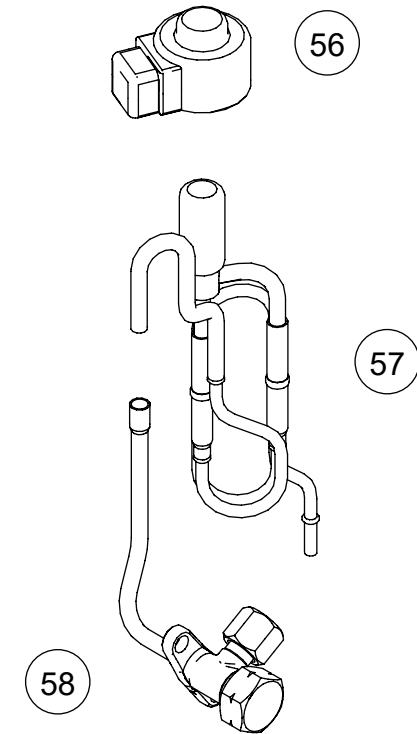
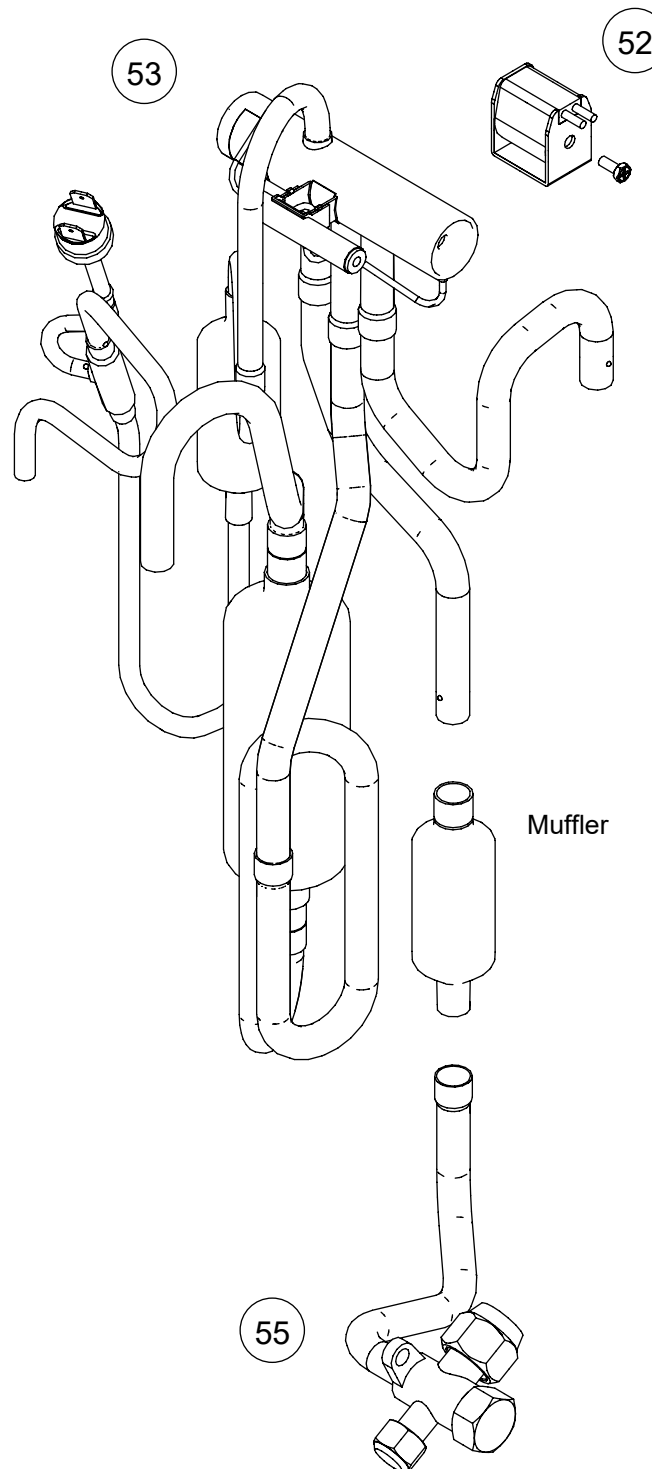
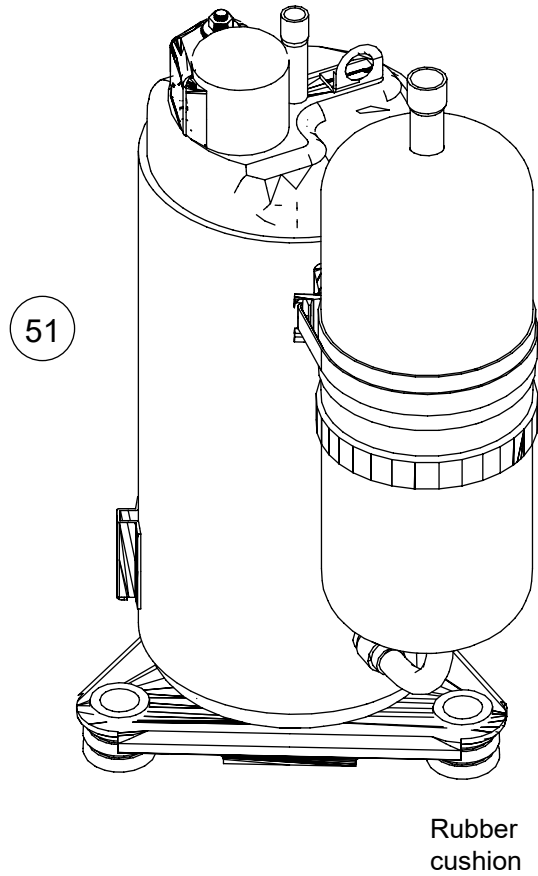
Hair pin
cushion



41

Ref.	Description	Part number
41	Heat exchanger unit (Condenser total assy+ Thermistor holder pipe+ Hair pin cushion)	9323834330
-	S-insulator B	9322503008
-	S-insulator F	9322847003
-	S-insulator H	9322501004
-	S-insulator V	9323045002
-	S-insulator K	9322824004


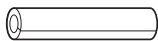







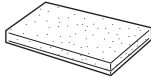

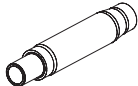
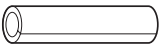

OUTDOOR UNIT
ROG22KBTB




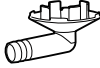
Ref.	Description	Part number
51	Compressor	9810521002
52	Solenoid	9970195006
53	4-way valve assy	9383129018
55	3-way valve assy	9387831016
56	Expansion valve coil	9970173028
57	Pulse motor valve assy	9322463029
58	2-way valve assy	9322474001

Accessories

Models: RDG12KHTAP, RDG14KHTAP, RDG18KHTAP, and RDG22KHTAP

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Coupler heat insulation (small)		1
Operating manual (CD-ROM)		1	Cable tie (large)		4
Installation manual		1	Cable tie (medium)		1
Special nut A (large flange)		4	Cable tie (small)		1
Special nut B (small flange)		4	Drain hose insulation		1
Washer		8	Drain hose		1
Coupler heat insulation (large)		1	Hose band		1

**Models: ROG12KBTB, ROG14KBTB, ROG18KBTB,
and ROG22KBTB**

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Drain pipe		1

1903G4808