

SPLIT TYPE  
ROOM AIR CONDITIONER  
WALL MOUNTED TYPE

# SERVICE MANUAL



Indoor unit	Outdoor unit
ASYG09LZCA	AOYG09LZCAN
ASYG12LZCA	AOYG12LZCAN

## CONTENTS

SPECIFICATIONS.....	1
DIMENSIONS.....	2
REFRIGERANT SYSTEM DIAGRAM....	4
CIRCUIT DIAGRAM.....	5
PCB CIRCUIT DIAGRAM.....	6
ERROR DETECTION.....	8
PARTS (INDOOR UNIT).....	10
PARTS (OUTDOOR UNIT).....	16
ACCESSORIES.....	19

# SPECIFICATIONS

## ELECTRICAL DATA

TYPE		Cool & heat inverter	
INDOOR UNIT		ASYG09LZCA	ASYG12LZCA
OUTDOOR UNIT		AOYG09LZCAN	AOYG12LZCAN
POWER SUPPLY		Single phase, 230 V, 50Hz	
Cooling	CAPACITY	2.50 kW	3.50 kW
	POWER CONSUMPTION	0.480 kW	0.800 kW
	EER	5.21 kW/kW	4.38 kW/kW
	OPERATING CURRENT	2.7 A	4.0 A
	MAX OPERATING CURRENT	9.4 A	9.4 A
	DEHUMIDIFICATION	1.0 L/h	1.1 L/h
Heating	CAPACITY	3.20 kW	4.00 kW
	POWER CONSUMPTION	0.555 kW	0.760 kW
	COP	5.77 kW/kW	5.26 kW/kW
	OPERATING CURRENT	2.9 A	3.9 A
	MAX OPERATING CURRENT	11.9 A	11.9 A

## FAN MOTOR DISCRIMINATION

INDOOR UNIT	MFD-71CXAL
OUTDOOR UNIT	MFE-71TVAL

## FAN MOTOR REVOLUTION

INDOOR UNIT	High	1,100 rpm	
	Medium	940 rpm	
	Low	820 rpm	
	Quiet	600 rpm	
OUTDOOR UNIT	Cooling	590 rpm	720 rpm
	Heating	780 rpm	780 rpm

## AIR CIRCULATION

INDOOR UNIT	High	830 m <sup>3</sup> /h	
	Medium	680 m <sup>3</sup> /h	
	Low	580 m <sup>3</sup> /h	
	Quiet	380 m <sup>3</sup> /h	
OUTDOOR UNIT	Cooling	1,350 m <sup>3</sup> /h	1,680 m <sup>3</sup> /h
	Heating	1,840 m <sup>3</sup> /h	1,840 m <sup>3</sup> /h

## NOISE LEVEL

INDOOR UNIT	High	C 42 dB / H 41 dB	
	Medium	C 37 dB / H 35 dB	
	Low	C 32 dB / H 31 dB	
	Quiet	C 23 dB / H 23 dB	
OUTDOOR UNIT	Cooling	39 dB	43 dB
	Heating	47 dB	47 dB

## COMPRESSOR AND REFRIGERANT

COMPRESSOR TYPE	Hermetic type, 4 pole, 3 phase, DC inverter motor, Rotary	
DISCRIMINATION	808-884-80	
WEIGHT (with oil)	9.3 kg	
PRECHARGED REFRIGERANT	1,300 g	
REFRIGERANT TYPE	R410A	
FULL CHARGE	Pipe length 15 m	1,300 g
	20 m	1,400 g
ADDITIONAL CHARGE	20 g/m	
MAXIMUM PIPING HEIGHT	15 m	

## DIMENSIONS

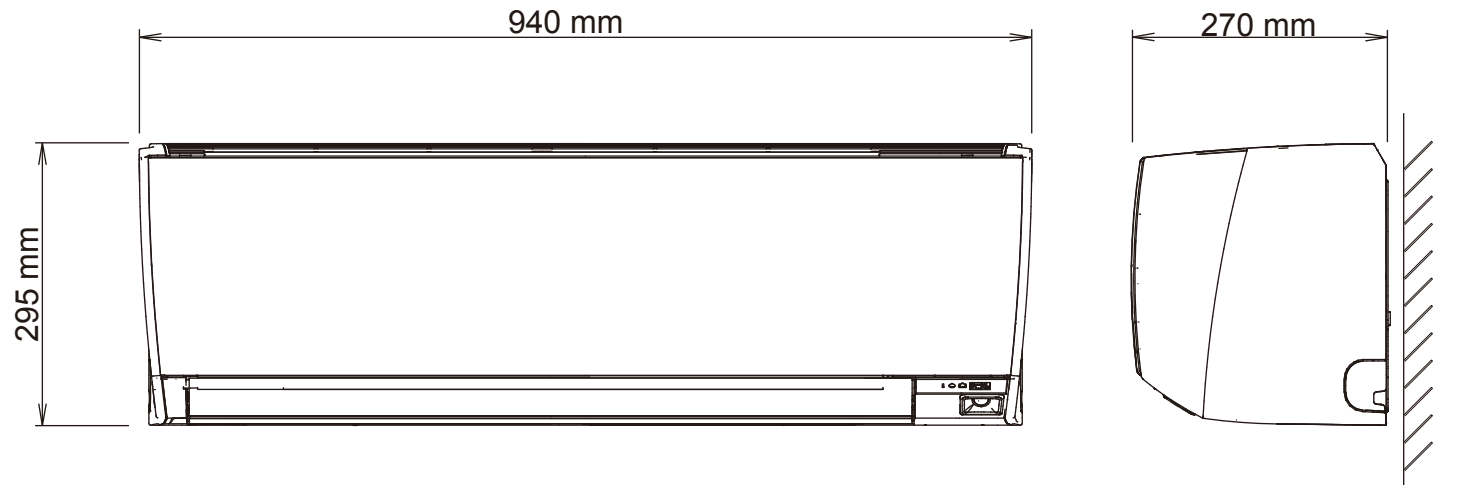
INDOOR UNIT H x W x D	295 x 940 x 270 mm
OUTDOOR UNIT H x W x D	620 x 790 x 290 mm

## WEIGHT

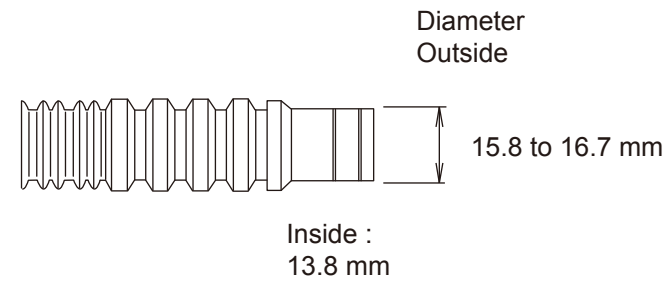
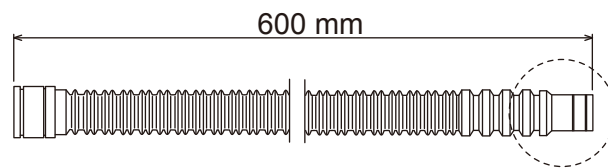
INDOOR UNIT Net / Shipping	14 kg / 17 kg
OUTDOOR UNIT Net / Shipping	39 kg / 43 kg

# DIMENSIONS

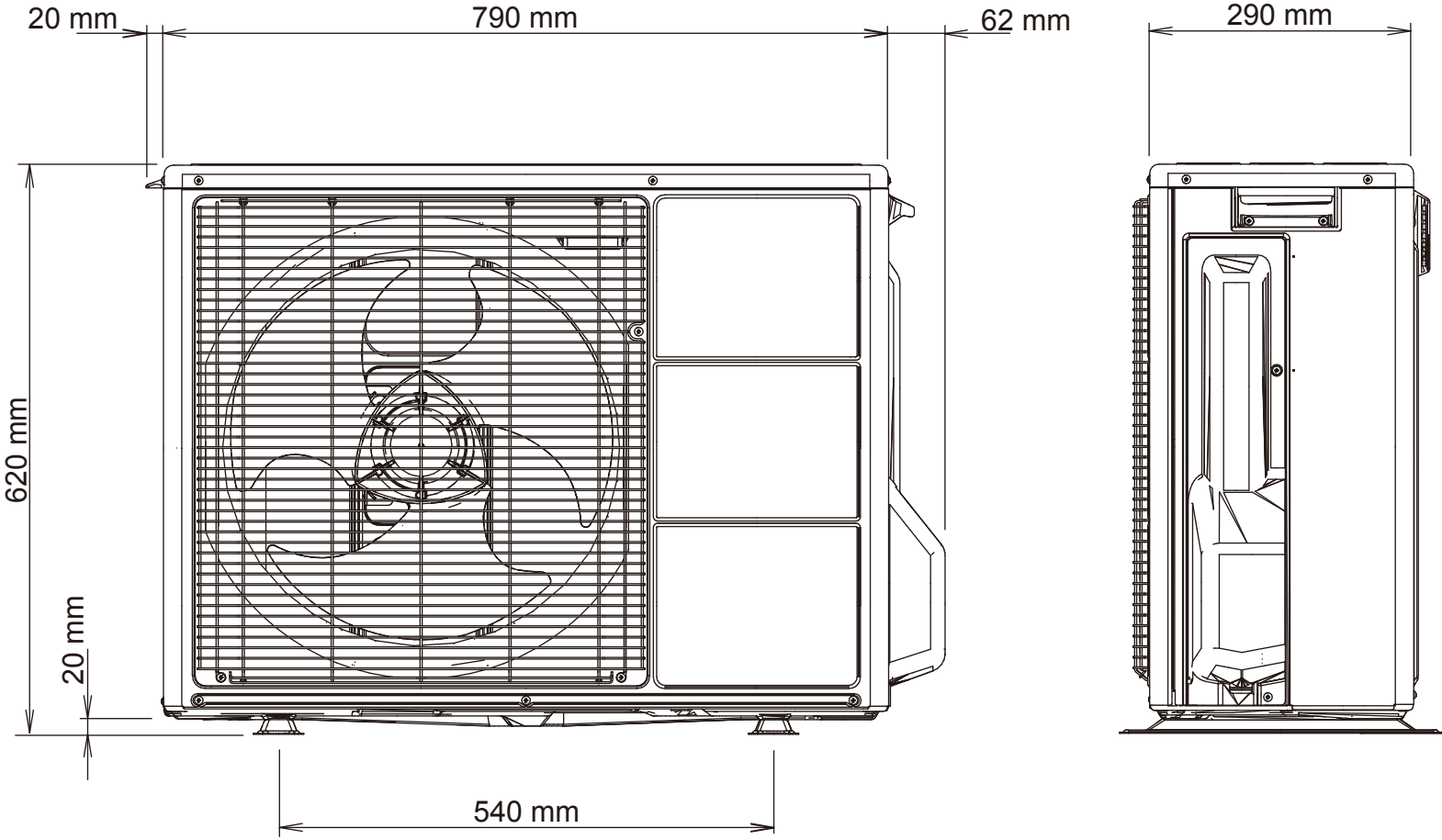
## INDOOR UNIT



Drain hose

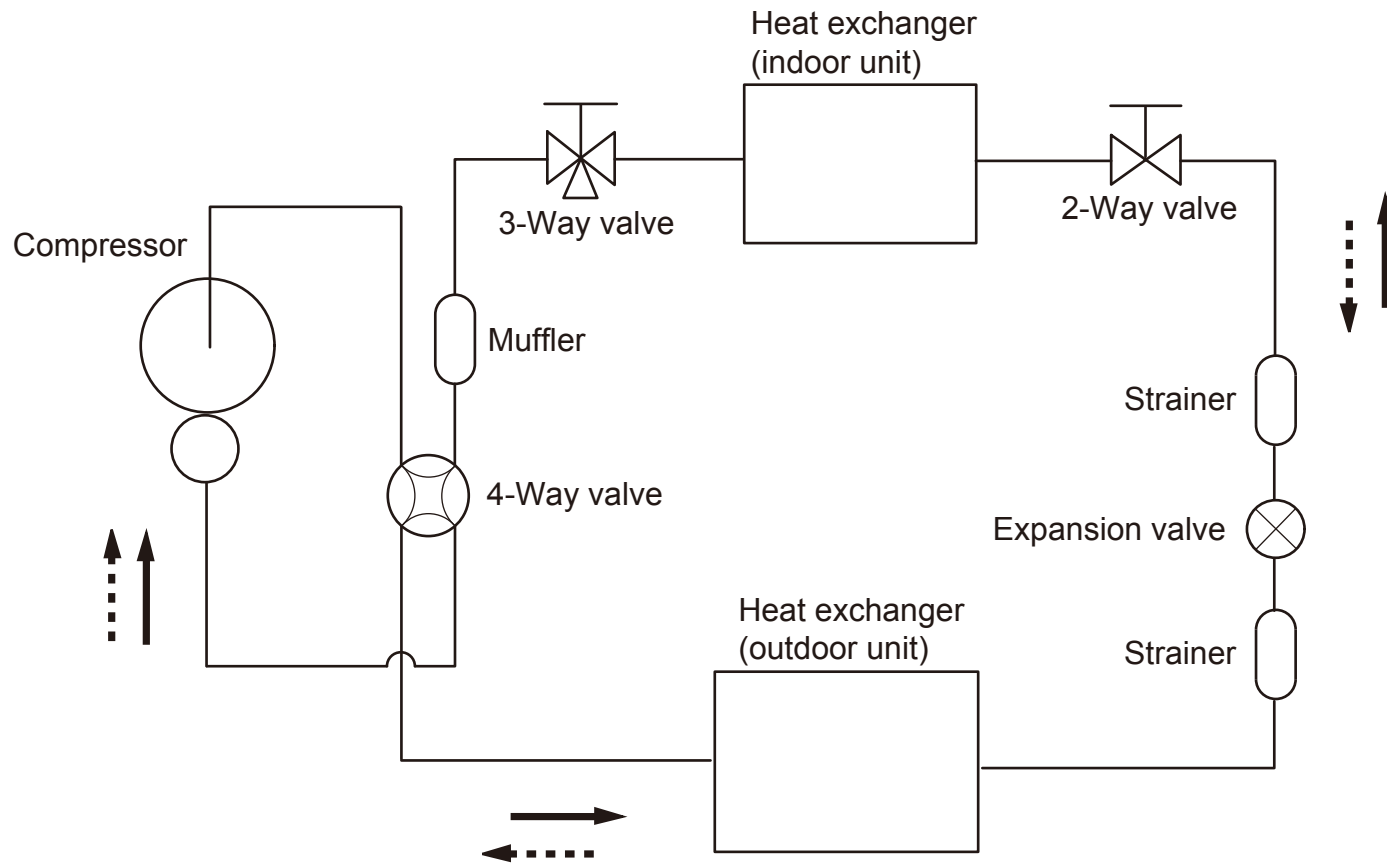


OUTDOOR UNIT





# REFRIGERANT SYSTEM DIAGRAM

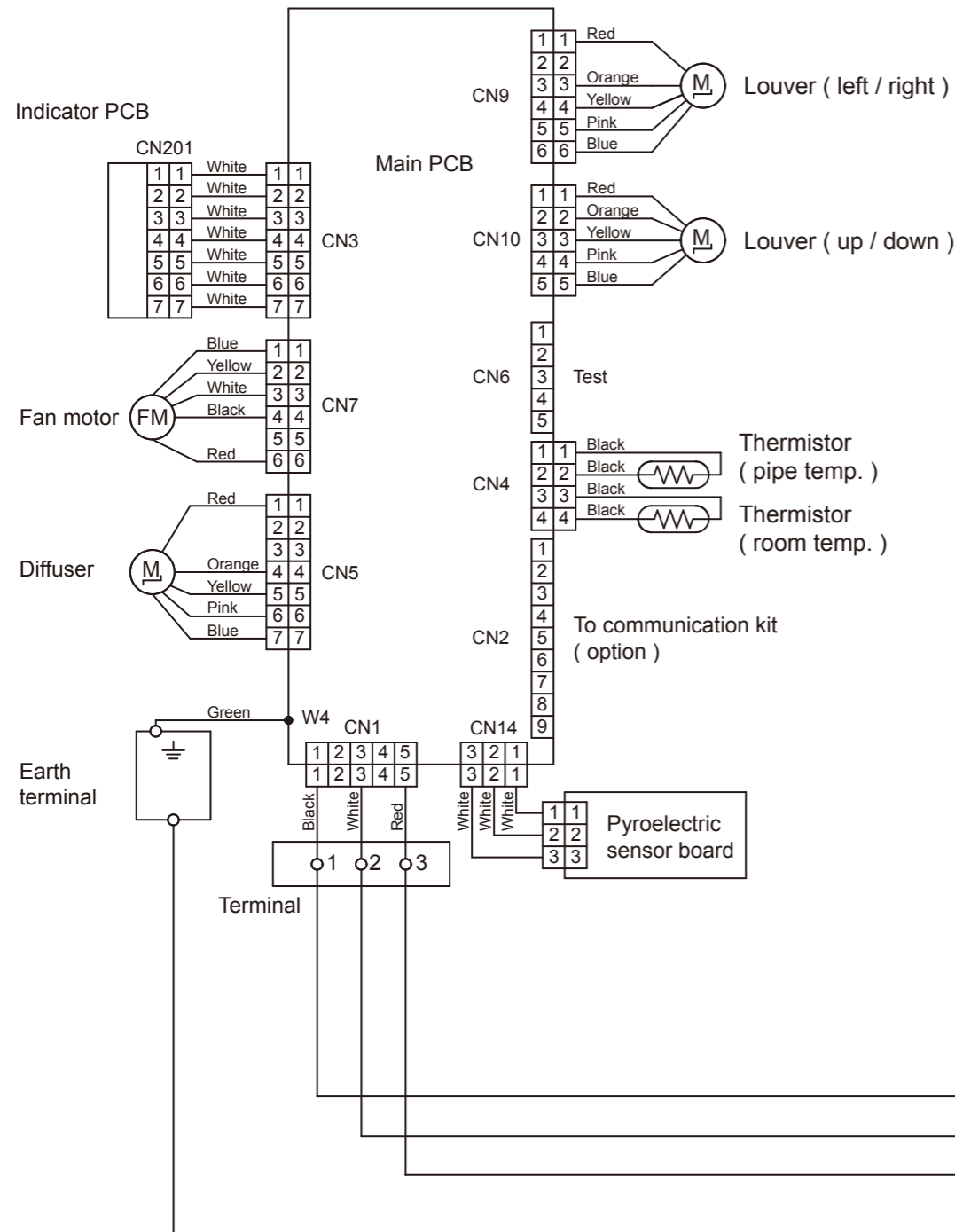


Refrigerant pipe diameter  
 Liquid : 1/4" (6.35 mm)  
 Gas : 3/8" (9.52 mm)

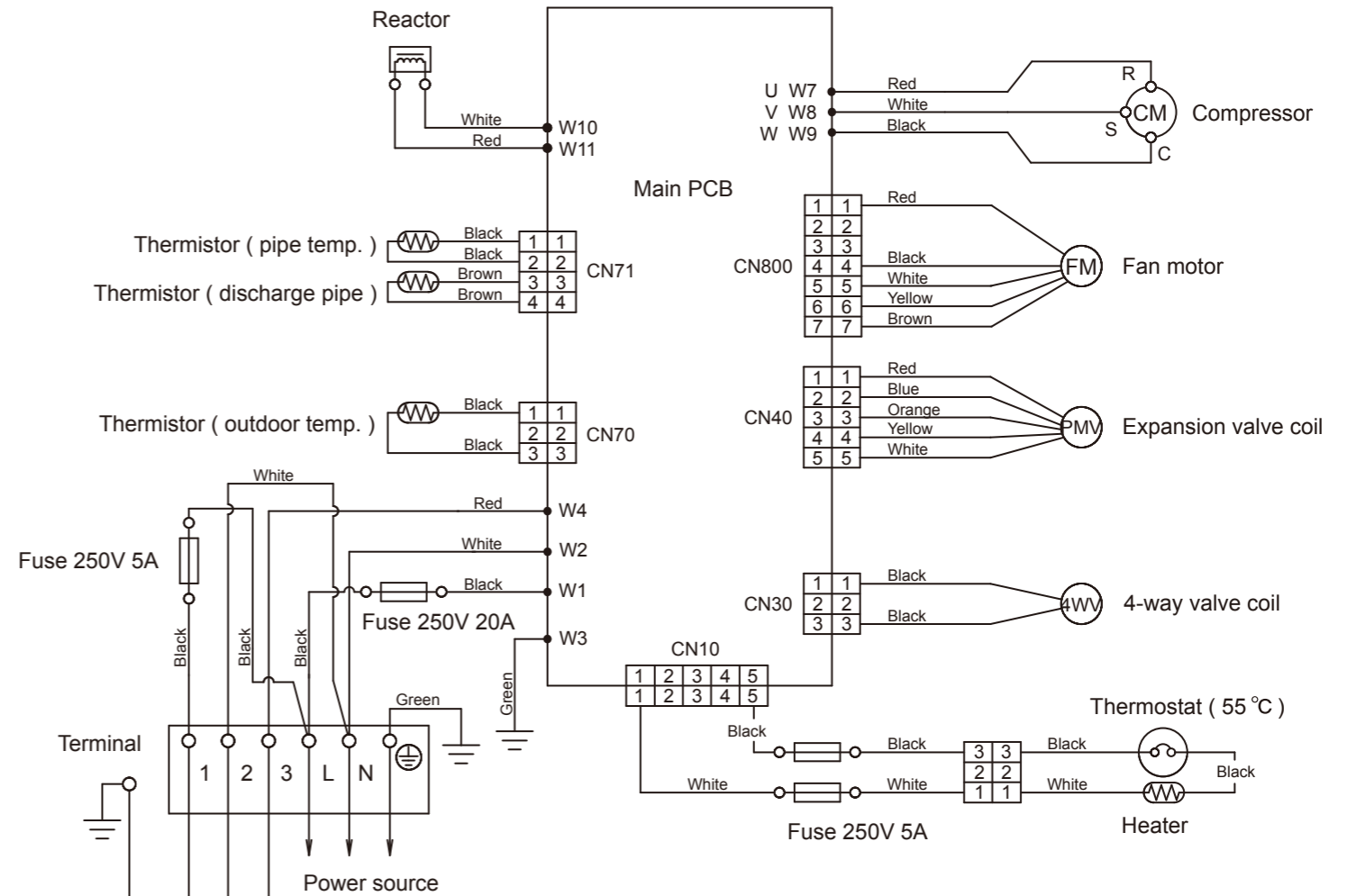
Refrigerant direction  
 ———▶ Cooling  
 .....▶ Heating

# CIRCUIT DIAGRAM

## INDOOR UNIT



## OUTDOOR UNIT



# PCB CIRCUIT DIAGRAM

CONTROL UNIT  
 ASYG09LZCA : EZ-0165HSE  
 ASYG12LZCA : EZ-0166HSE

OUTDOOR UNIT

TERMINAL

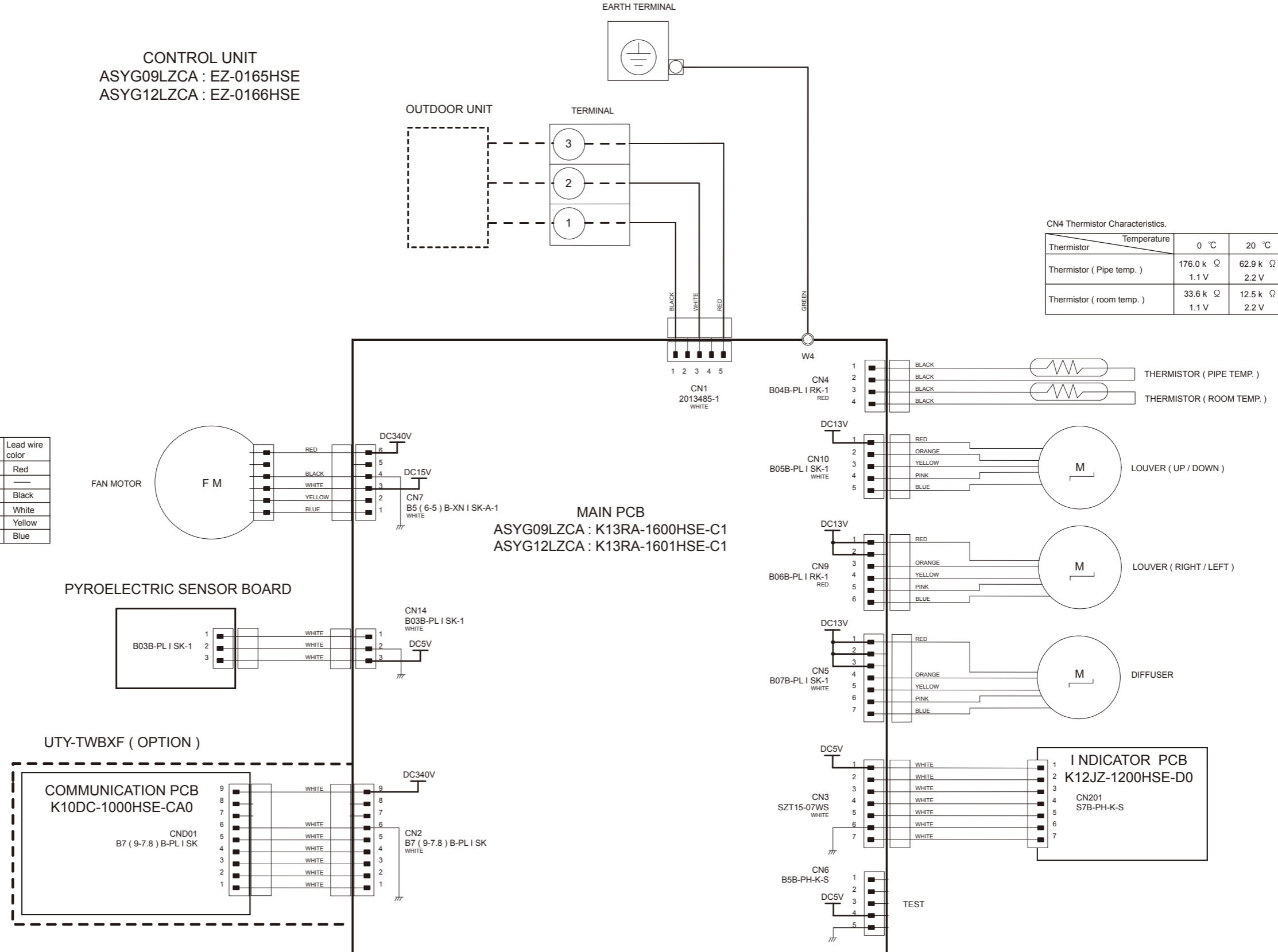
EARTH TERMINAL

CN4 Thermistor Characteristics.

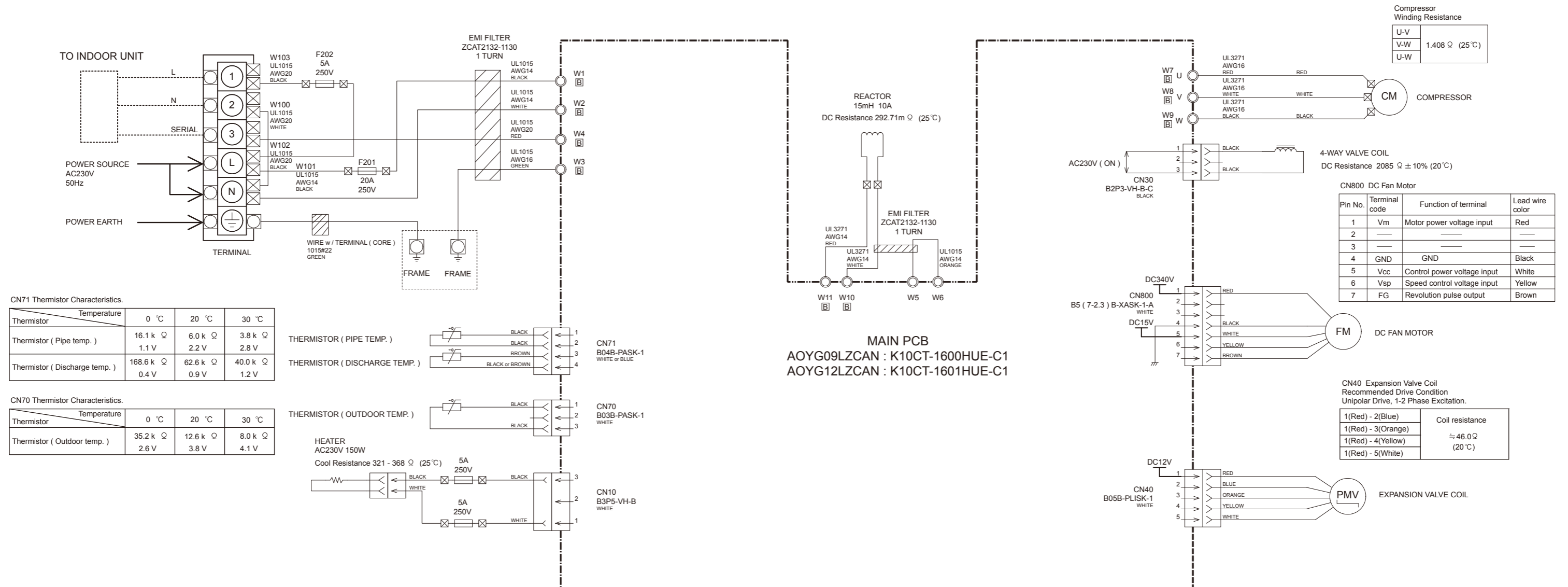
Thermistor	Temperature	0 °C	20 °C	30 °C
Thermistor ( Pipe temp. )	Resistance	176.0 k Ω	62.9 k Ω	39.6 k Ω
	Voltage	1.1 V	2.2 V	2.8 V
Thermistor ( room temp. )	Resistance	33.6 k Ω	12.5 k Ω	8.0 k Ω
	Voltage	1.1 V	2.2 V	2.8 V

CN7 DC Fan motor

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



INVERTER ASSEMBLY  
 AOYG09LZCAN : EZ-0162HUE  
 AOYG12LZCAN : EZ-0163HUE



Compressor Winding Resistance

U-V	1.408 Ω (25 °C)
V-W	
U-W	

CN800 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

CN40 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)	

CN71 Thermistor Characteristics.

Thermistor	Temperature	0 °C	20 °C	30 °C
Thermistor ( Pipe temp. )		16.1 k Ω	6.0 k Ω	3.8 k Ω
		1.1 V	2.2 V	2.8 V
Thermistor ( Discharge temp. )		168.6 k Ω	62.6 k Ω	40.0 k Ω
		0.4 V	0.9 V	1.2 V

CN70 Thermistor Characteristics.

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

# ERROR DETECTION

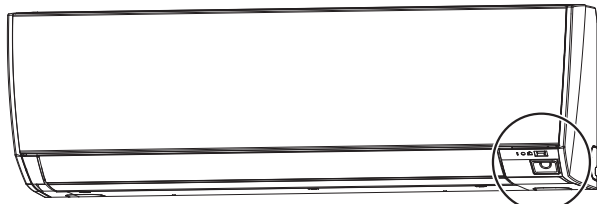
## INDOOR UNIT REMOTE CONTROL

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 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 operation.



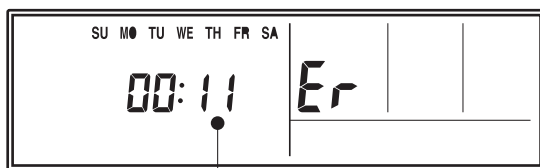
OPERATION indicator lamp (green)

TIMER indicator lamp (orange)

ECONOMY indicator lamp (green)

Wired remote control display (Option)

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



Error code

Indoor unit lamps			Wired remote control	Description
OPERATION (green)	TIMER (orange)	ECONOMY (green)		
● (1)	● (1)	◇	11	Serial communication error
● (1)	● (2)	◇	12	Wired remote control communication error
● (1)	● (5)	◇	15	Check run unfinished
● (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 unit) [Simultaneous Multi] •Connection unit number error (indoor unit orbranch unit) [Flexible Multi]
● (2)	● (7)	◇	27	Master unit,slave unit set-up error [Simultaneous Multi]
● (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)	● (8)	◇	58	Intake grill 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

Indoor unit lamps			Wired remote control	Description
OPERATION (green)	TIMER (orange)	ECONOMY (green)		
● (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 error
● (9)	● (9)	◇	99	4-way 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

● : 0.5s ON / 0.5s OFF

◇ : 0.1s ON / 0.1s OFF

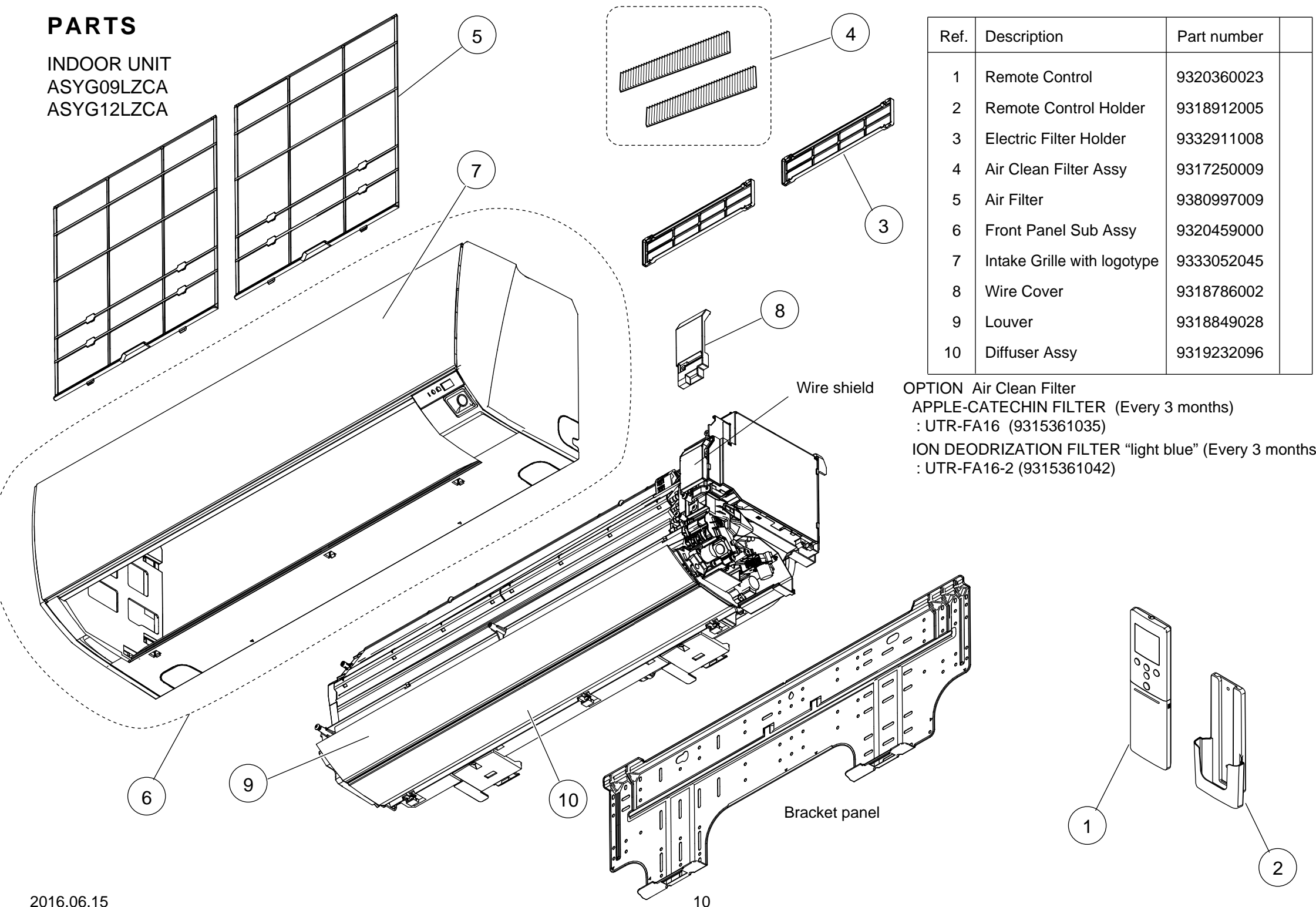
( ) : Number of flashing

### OUTDOOR UNIT

LED	ERROR
on	Discharge temperature abnormal
0.5 second on / 0.5 second off	IPM overcurrent protection
0.1 second on / 0.1 second off	Thermistor abnormal
2.0 second on / 2.0 second off	CT abnormal
0.1 second on / 2.0 second off	Compressor location abnormal
5.0 second on / 5.0 second off	Fan abnormal

# PARTS

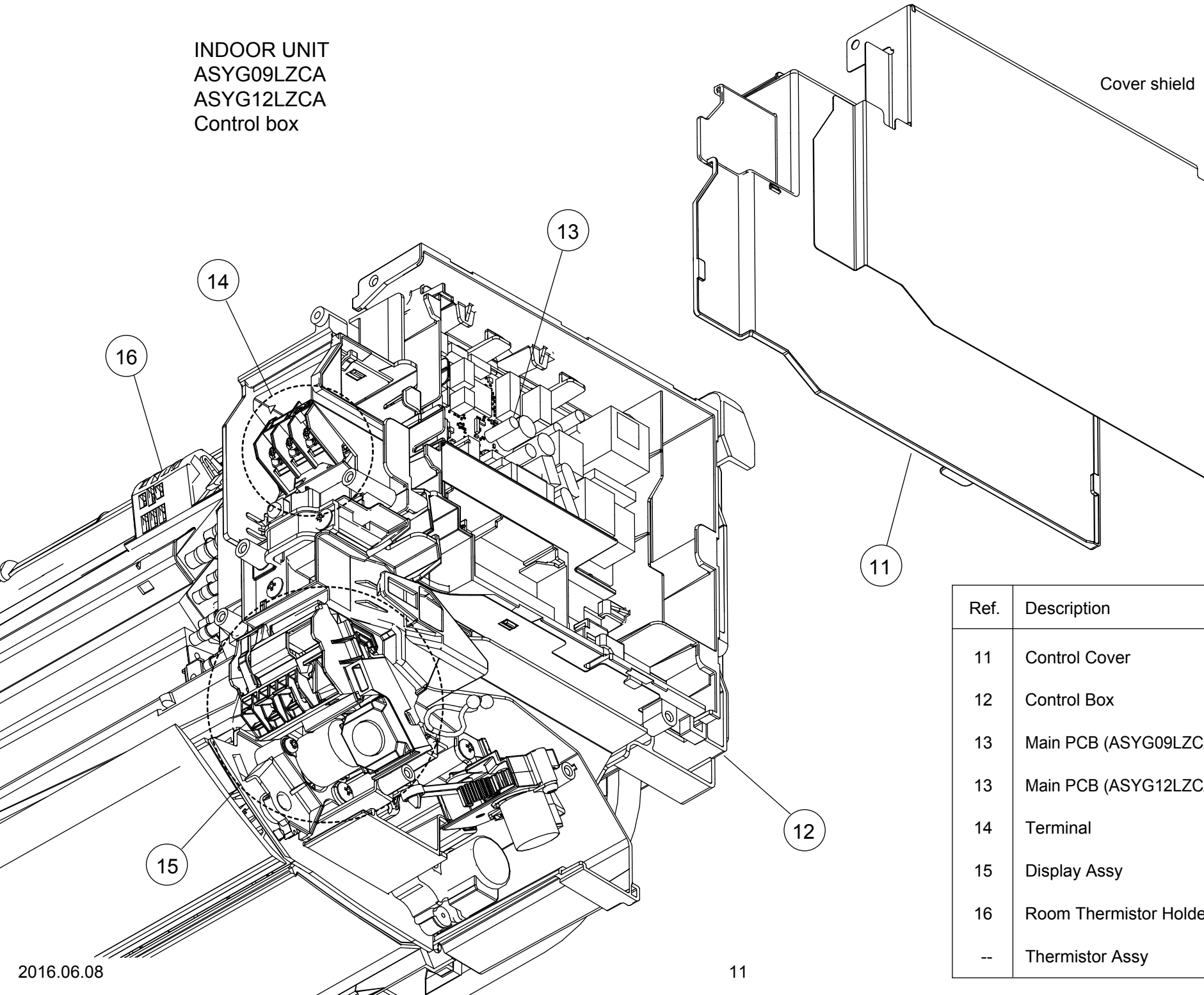
INDOOR UNIT  
ASYG09LZCA  
ASYG12LZCA



Ref.	Description	Part number
1	Remote Control	9320360023
2	Remote Control Holder	9318912005
3	Electric Filter Holder	9332911008
4	Air Clean Filter Assy	9317250009
5	Air Filter	9380997009
6	Front Panel Sub Assy	9320459000
7	Intake Grille with logotype	9333052045
8	Wire Cover	9318786002
9	Louver	9318849028
10	Diffuser Assy	9319232096

OPTION Air Clean Filter  
APPLE-CATECHIN FILTER (Every 3 months)  
: UTR-FA16 (9315361035)  
ION DEODORIZATION FILTER "light blue" (Every 3 months)  
: UTR-FA16-2 (9315361042)

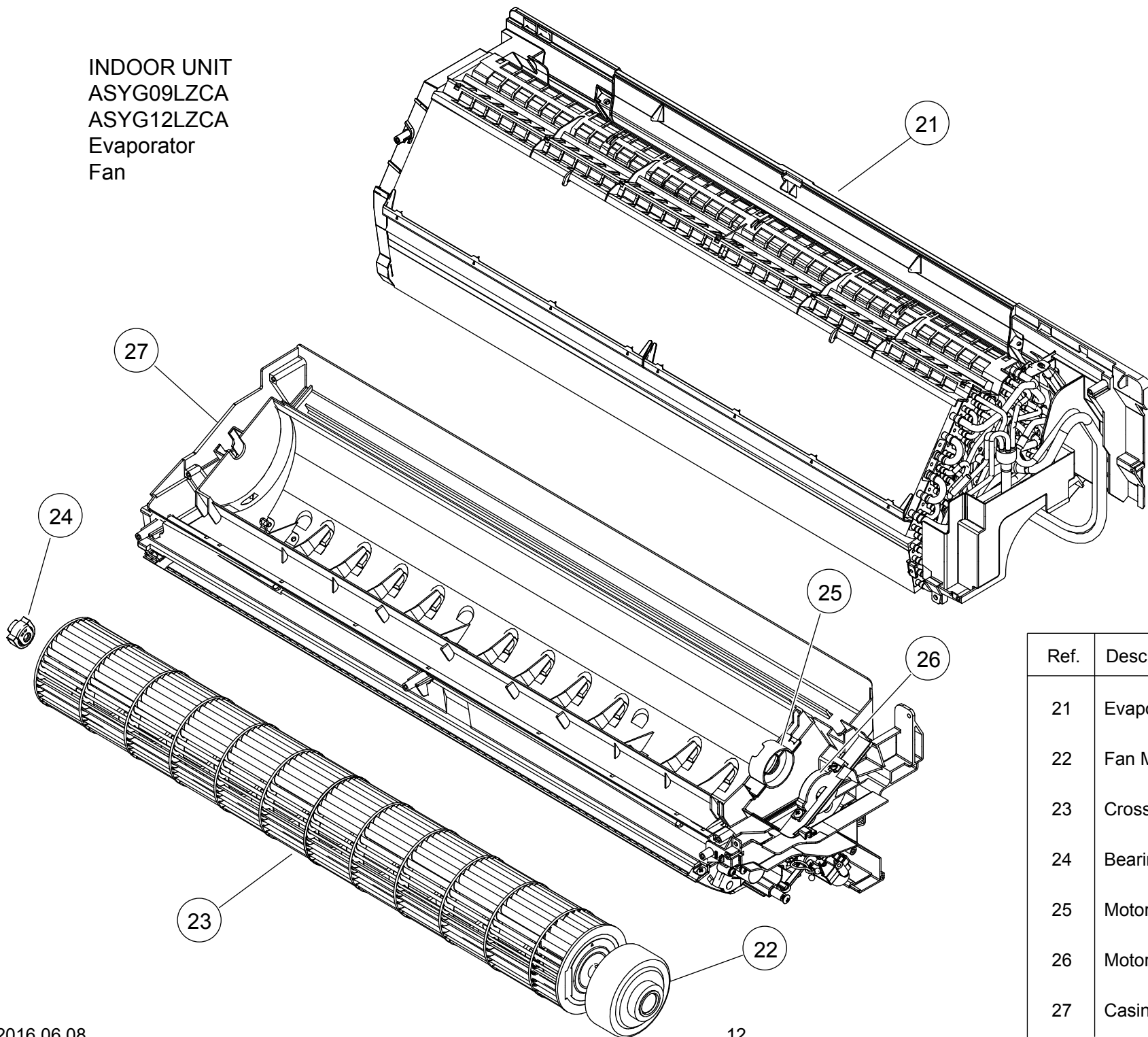
INDOOR UNIT  
 ASYG09LZCA  
 ASYG12LZCA  
 Control box



Ref.	Description	Part number
11	Control Cover	9318757019
12	Control Box	9380996002
13	Main PCB (ASYG09LZCA)	9709622162
13	Main PCB (ASYG12LZCA)	9709622179
14	Terminal	9900720025
15	Display Assy	9709642023
16	Room Thermistor Holder	9379930000
--	Thermistor Assy	9900627003

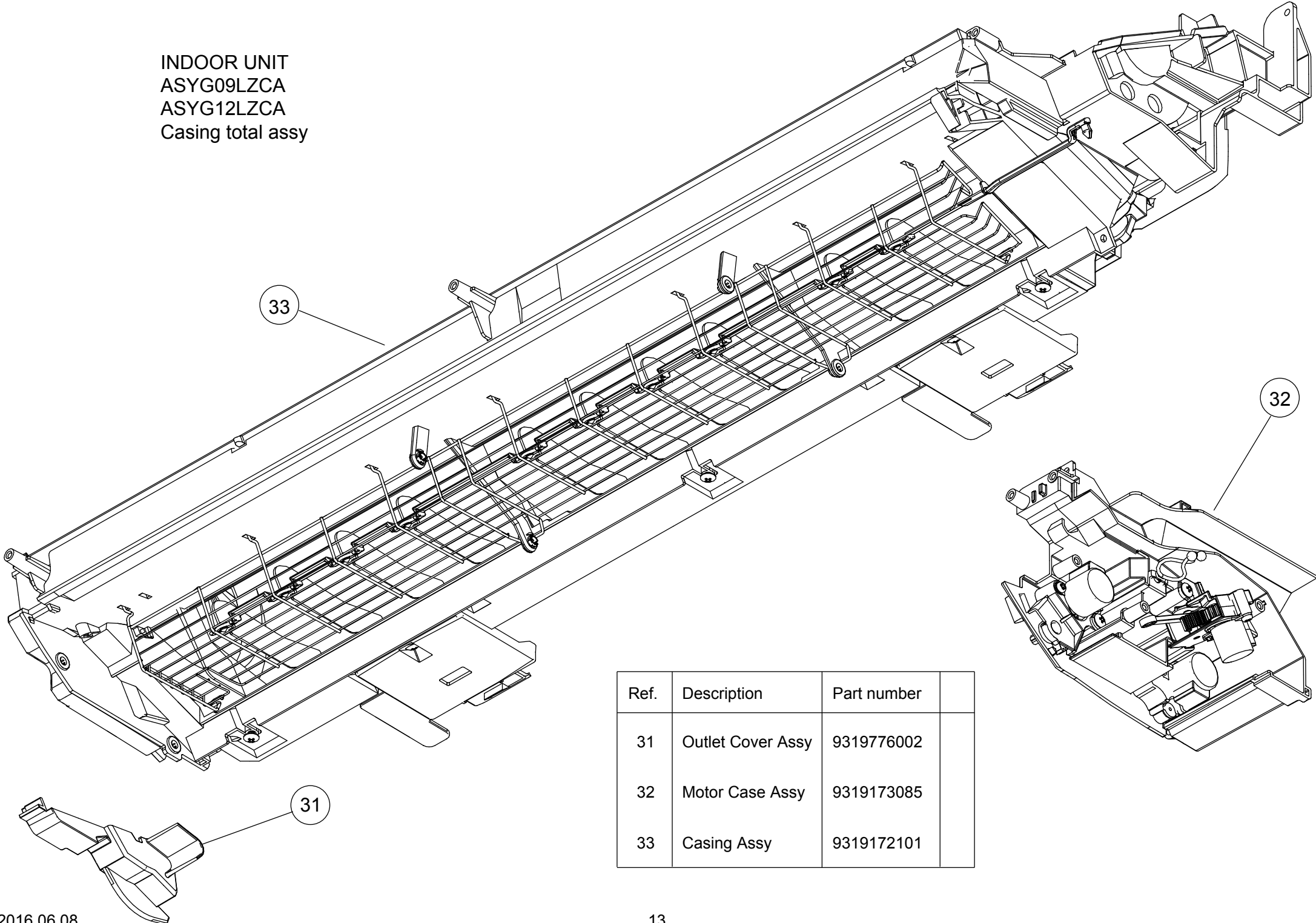


INDOOR UNIT  
 ASYG09LZCA  
 ASYG12LZCA  
 Evaporator  
 Fan



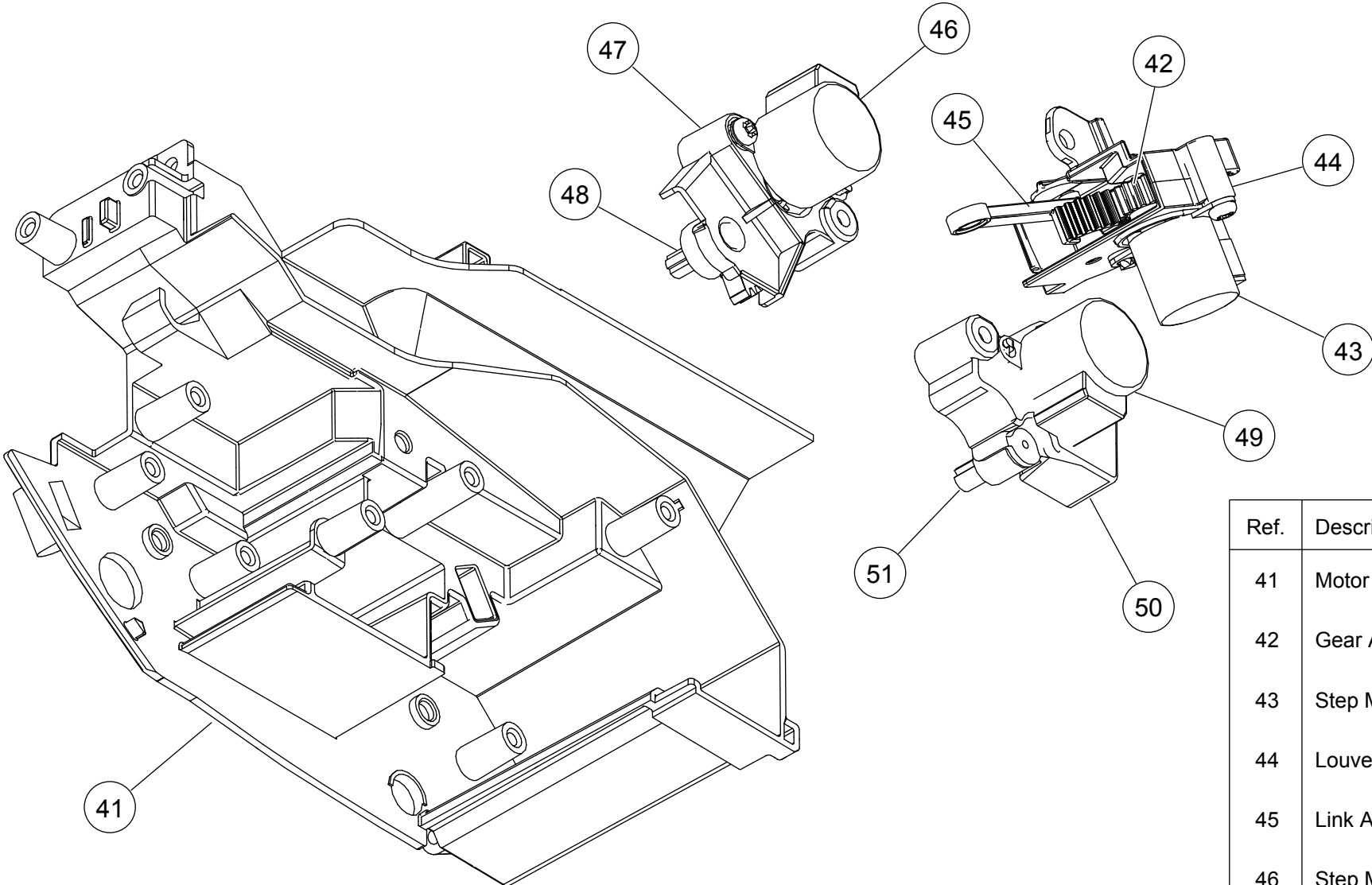
Ref.	Description	Part number
21	Evaporator Total Assy	9319254180
22	Fan Motor	9603253011
23	Crossflow Fan Assy	9315024060
24	Bearing C Assy	9306628017
25	Motor Cover	9316568006
26	Motor Cover	9316601000
27	Casing Total Assy	9319171180

INDOOR UNIT  
 ASYG09LZCA  
 ASYG12LZCA  
 Casing total assy

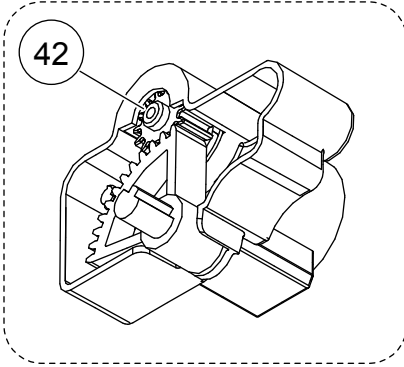
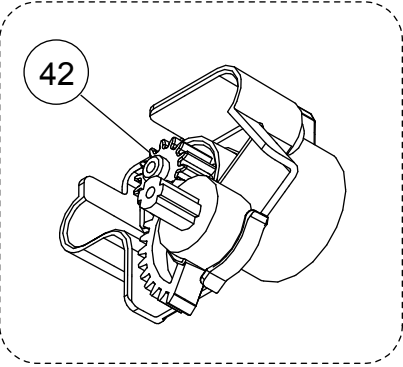


Ref.	Description	Part number	
31	Outlet Cover Assy	9319776002	
32	Motor Case Assy	9319173085	
33	Casing Assy	9319172101	

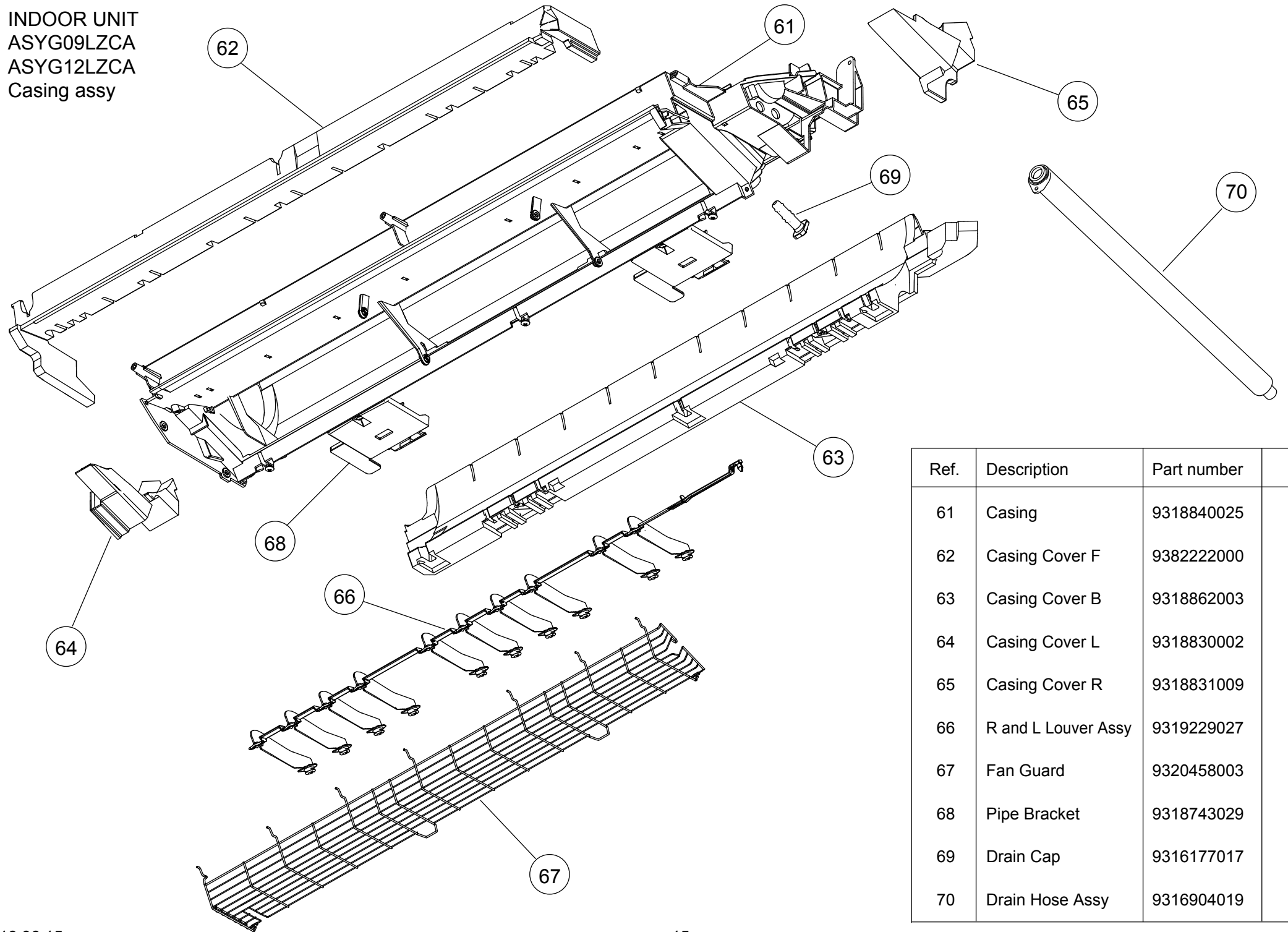
INDOOR UNIT  
 ASYG09LZCA  
 ASYG12LZCA  
 Motor case assy



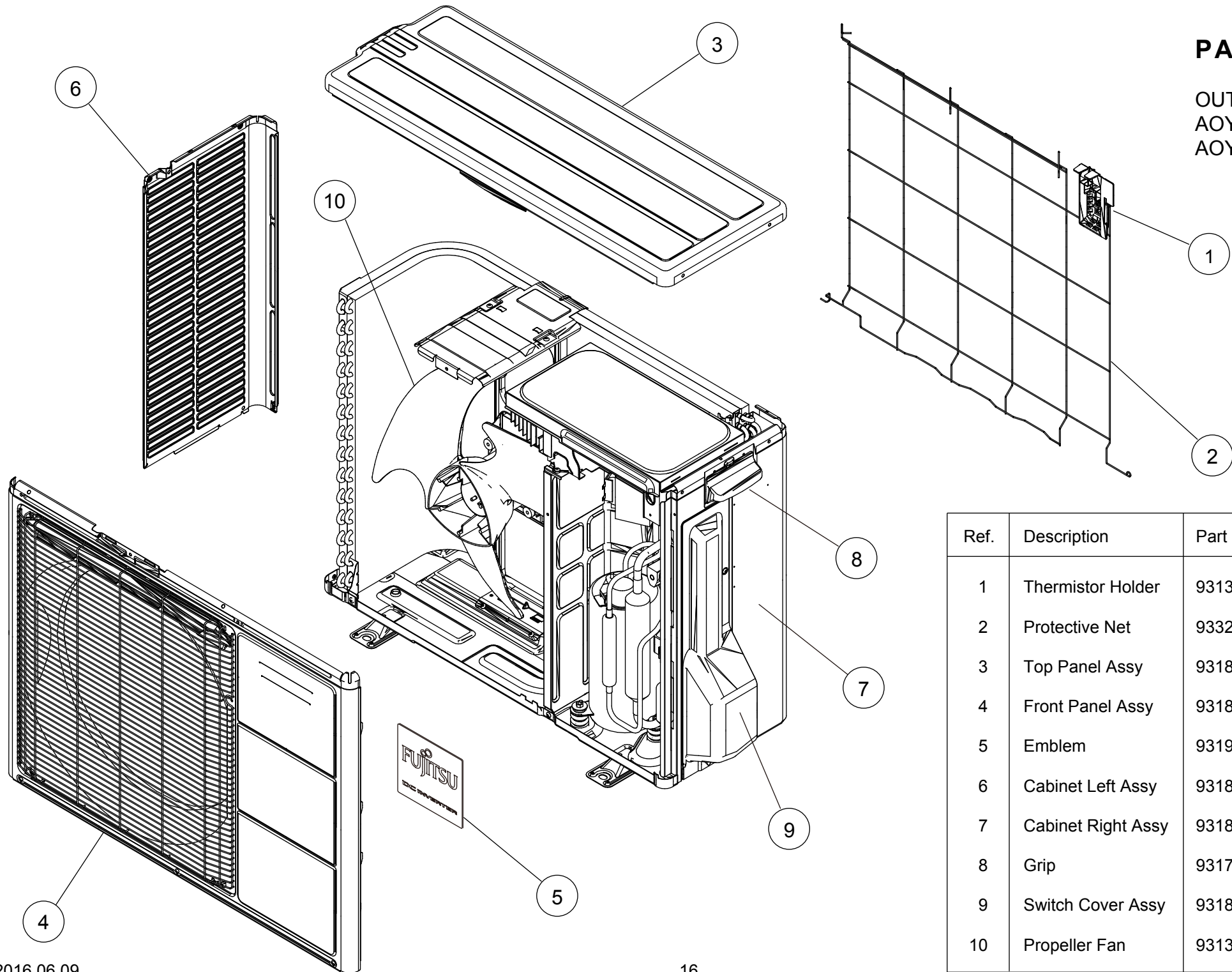
Ref.	Description	Part number
41	Motor Case	9318746020
42	Gear A	9309994003
43	Step Motor (R&L)	9900139230
44	Louver Link Holder	9319150000
45	Link A	9317507004
46	Step Motor (Louver)	9900384135
47	Gear Cover A	9318748000
48	Louver Gear A	9318749007
49	Step Motor (Diffuser)	9900384142
50	Gear Cover B	9318750003
51	Louver Gear B	9316616004



INDOOR UNIT  
 ASYG09LZCA  
 ASYG12LZCA  
 Casing assy



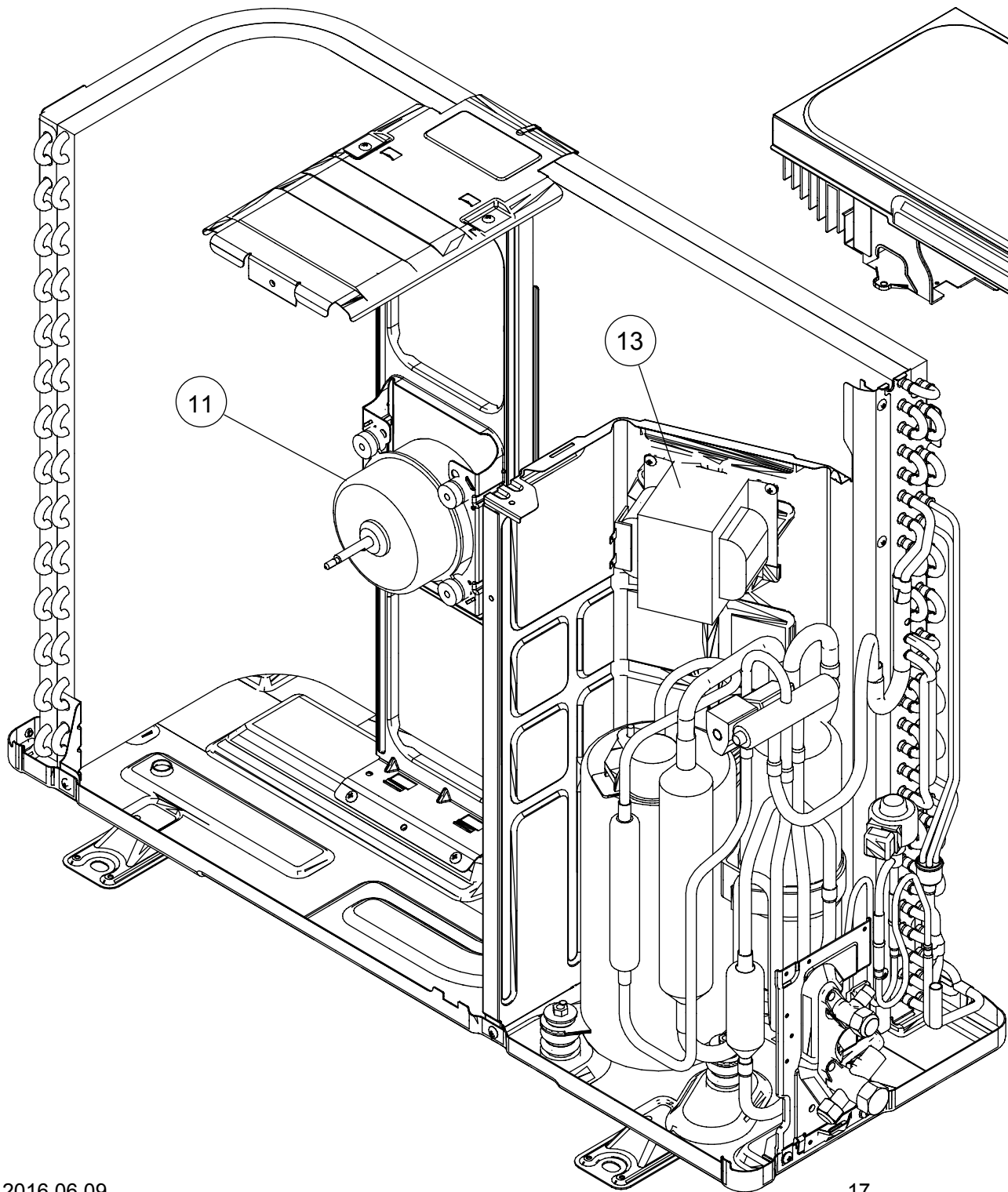
Ref.	Description	Part number
61	Casing	9318840025
62	Casing Cover F	9382222000
63	Casing Cover B	9318862003
64	Casing Cover L	9318830002
65	Casing Cover R	9318831009
66	R and L Louver Assy	9319229027
67	Fan Guard	9320458003
68	Pipe Bracket	9318743029
69	Drain Cap	9316177017
70	Drain Hose Assy	9316904019



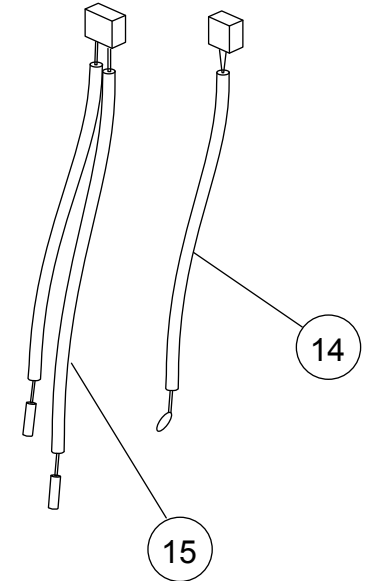
# PARTS

OUTDOOR UNIT  
 AOYG09LZCAN  
 AOYG12LZCAN

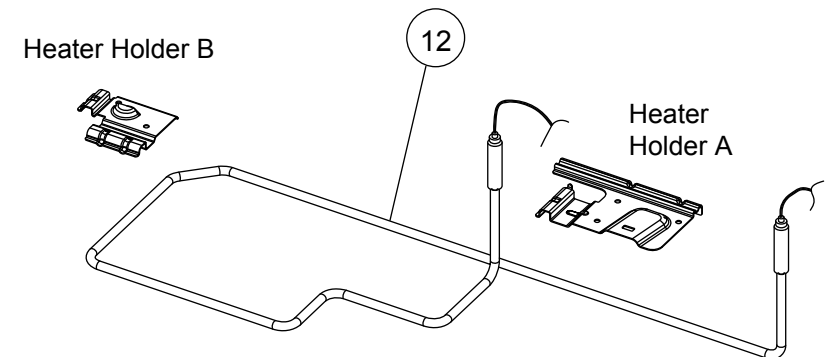
Ref.	Description	Part number
1	Thermistor Holder	9313954031
2	Protective Net	9332492002
3	Top Panel Assy	9318464023
4	Front Panel Assy	9318463125
5	Emblem	9319151007
6	Cabinet Left Assy	9318461015
7	Cabinet Right Assy	9318462005
8	Grip	9317588003
9	Switch Cover Assy	9318499001
10	Propeller Fan	9313808013



OUTDOOR UNIT  
 AOYG09LZCAN  
 AOYG12LZCAN



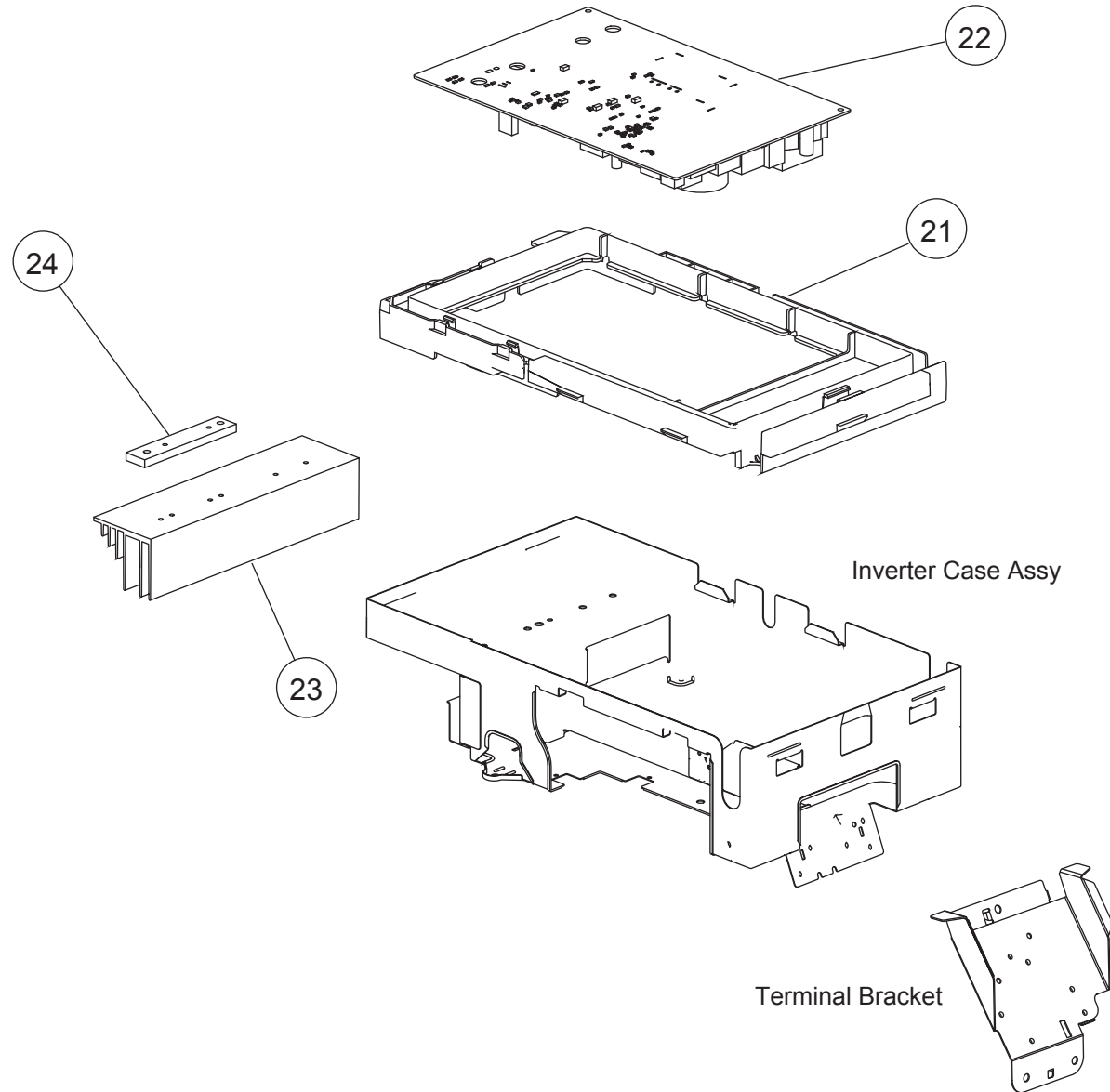
Ref.	Description	Part number
11	Fan Motor	9602724017
12	Heater Unit Assy	9900616014
13	Reactor Assy	9900611019
14	Outdoor Thermistor	9900544010
15	Thermistor Assy	9900614027



Sealed Panel

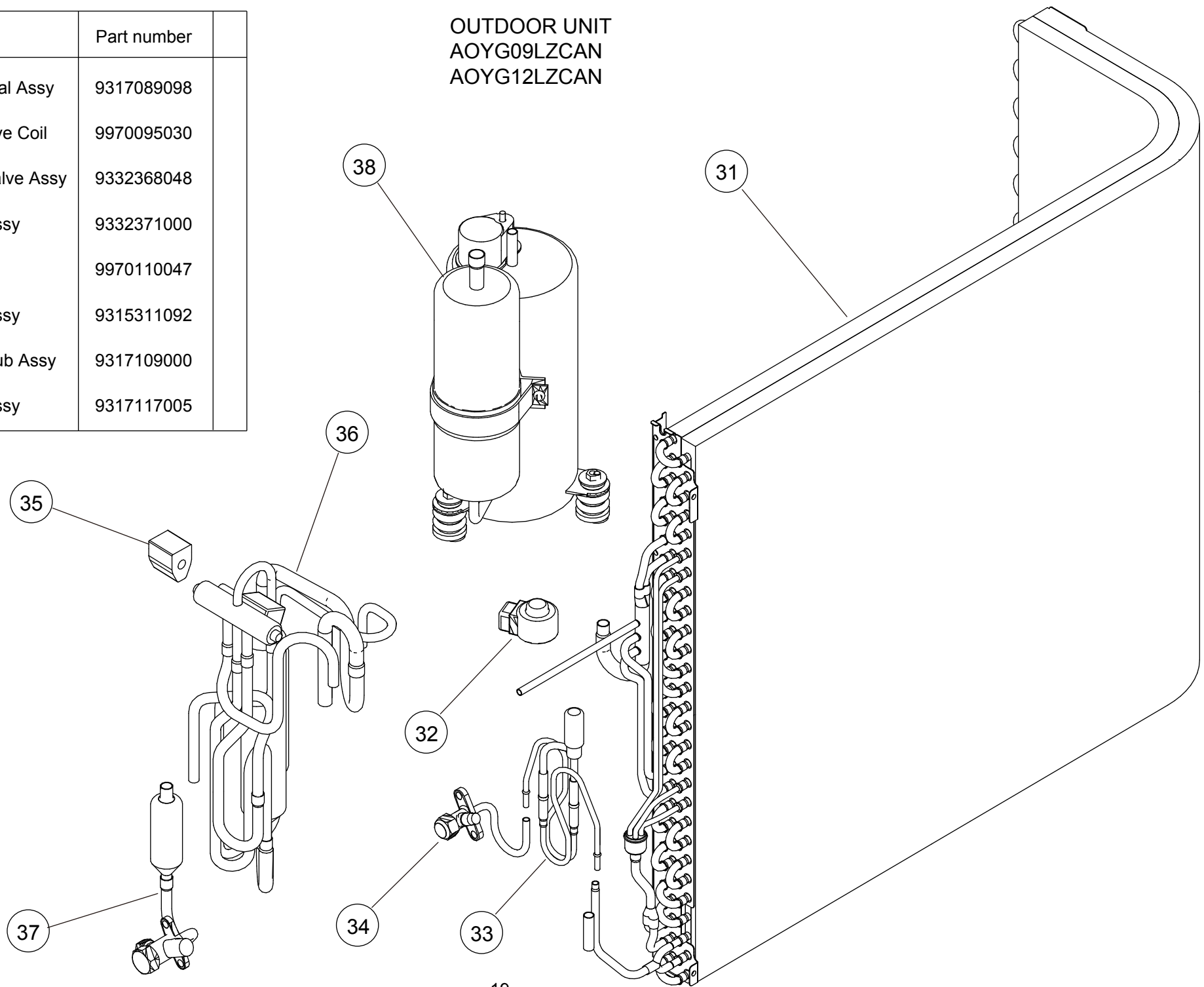
OUTDOOR UNIT  
AOYG09LZCAN  
AOYG12LZCAN

Ref.	Description	Part number
21	PCB Holder	9313074029
22	Main PCB (09) (SV)	9709681329
22	Main PCB (12) (SV)	9709681336
23	Heatsink A	9314410017
24	Heatsink B	9314090011
25	Terminal	9900435028



Ref.	Description	Part number
31	Condenser Total Assy	9317089098
32	Expansion Valve Coil	9970095030
33	Pulse Motor Valve Assy	9332368048
34	2-way Valve Assy	9332371000
35	Solenoid	9970110047
36	4-way Valve Assy	9315311092
37	3-way Valve Sub Assy	9317109000
38	Compressor Assy	9317117005

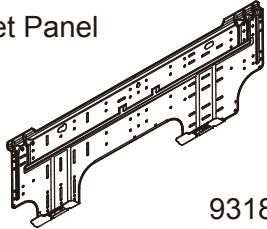




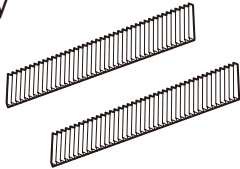
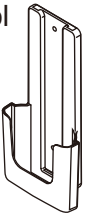
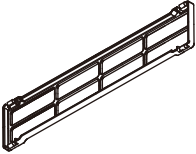
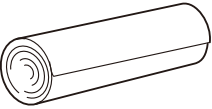
OUTDOOR UNIT  
AOYG09LZCAN  
AOYG12LZCAN





# ACCESSORIES

## INDOOR UNIT

Name and Shape	Part number	Name and Shape	Part number
Bracket Panel 	9318861013	Tapping screw (M4 x 25 mm) 	0700076046
Remote Control 	9320360023	Tapping screw (M3 x 12 mm) 	0700019036
Battery (penlight) 	0600185541	Air cleaning filter assy 	9317250009
Remote Control Holder 	9318912005	Filter holder 	9332911008
Cloth tape 	9310519004		

1604G4519