

Service and Parts Manual



F R I E D R I C H



Models

Indoor Units

MW09Y3H

MW12Y3H

Outdoor Units

MR09Y3H

MR12Y3H

CUSTOMER SATISFACTION and QUALITY ASSURANCE

Friedrich is a conscientious manufacturer, concerned about customer satisfaction, product quality, and controlling warranty costs. As an Authorized Service Provider you play a vital role in these areas. By adhering to the policies and procedures you provide us with vital information on each warranty repair you complete. This information is used to identify product failure trends, initiate corrective action, and improve product quality, thereby further reducing warranty expenses while increasing customer satisfaction levels.

FRIEDRICH AUTHORIZED PARTS DEPOTS

AAA Refrigeration Service

1322 24th Street, Suite B
Kenner, Louisiana 70062
504-464-7444
877-813-7444

The Gabbert Company

6868 Ardmore
Houston, Texas 77054
713-747-4110
800-458-4110

Reeve Air Conditioning, Inc.

2501 South Park Road
Hallandale, Florida 33009
954-962-0252
800-962-3383

Alamo Service Company

1450 North Flores Street
San Antonio, Texas 78212
210-227-2450
800-328-2450

Johnstone Supply of Woodside

27-01 Brooklyn Queens Expway
Woodside, New York 11377
718-545-5464
800-431-1143

TECHNICAL SUPPORT CONTACT INFORMATION



F R I E D R I C H

FRIEDRICH AIR CONDITIONING CO.

10001 Reunion Place, Ste. 500, San Antonio, TX 78216
(210) 546-0500 877-599-5665 x 261 FAX (210) 546-0630
Email: tac@friedrich.com
www.friedrich.com

Printed in the U.S.A.

SPECIFICATIONS

ELECTRICAL DATA

TYPE		Cool & heat inverter	
INDOOR UNIT		MW09Y3H	MW12Y3H
OUTDOOR UNIT		MR09Y3H	MR12Y3H
COOLING CAPACITY		8,500 BTU/h (2.50 kW)	11,500 BTU/h (3.40 kW)
HEATING CAPACITY		10,000 BTU/h (2.93 kW)	14,000 BTU/h (4.11 kW)
POWER SOURCE		208 / 230 V	208 / 230 V
FREQUENCY		60 Hz	60 Hz
RUNNING CURRENT	Cooling	3.3 A	4.3 A
	Heating	3.6 A	5.2 A
INPUT WATTS	Cooling	0.68 kW	0.92 kW
	Heating	0.76 kW	1.12 kW
E.E.R.	Cooling	12.5 BTU/Wh (3.68 kW/kW)	12.5 BTU/Wh (3.69 kW/kW)
COP	Heating	13.16 BTU/Wh (3.86 kW/kW)	12.5 BTU/Wh (3.67 kW/kW)
MOISTURE REMOVAL		2.7 Pts/h (1.3 L/h)	3.8 Pts/h (1.8 L/h)
AIR CIRCULATION HIGH		447 cfm (760 m ³ /h)	
MAXIMUM CURRENT	Cooling	6.0 A	6.5 A
	Heating	7.5 A	9.0 A

FAN MOTOR

POWER SOURCE		230 V	
INDOOR UNIT Cooling	High speed	1,300 r.p.m.	
	Middle speed	1,130 r.p.m.	
	Low speed	900 r.p.m.	
	Quiet	650 r.p.m.	
INDOOR UNIT Heating	High speed	1,300 r.p.m.	
	Middle speed	1,130 r.p.m.	
	Low speed	950 r.p.m.	
	Quiet	680 r.p.m.	
OUTDOOR UNIT Cooling		730 r.p.m.	860 r.p.m.
OUTDOOR UNIT Heating		650 r.p.m.	760 r.p.m.

NOISE LEVEL

INDOOR UNIT Cooling	High speed	43 dB	43 dB
	Middle speed	38 dB	38 dB
	Low speed	33 dB	33 dB
	Quiet	22 dB	22 dB
INDOOR UNIT Heating	High speed	43 dB	43 dB
	Middle speed	38 dB	38 dB
	Low speed	33 dB	33 dB
	Quiet	22 dB	22 dB
OUTDOOR UNIT Cooling		46 dB	49 dB
OUTDOOR UNIT Heating		46 dB	49 dB

COMPRESSOR AND REFRIGERANT

COMPRESSOR TYPE		Hermetic type, 4 pole, 3 phase, DC inverter motor, Rotary	
DISCRIMINATION		5SS072XAA	DA89X1C-20FZ2
WEIGHT (with oil)		13 lb (5.9 kg)	20 lb (9.2 kg)
PRECHARGED REFRIGERANT		25 oz (700 g)	30 oz (850 g)
REFRIGERANT TYPE		R410A	R410A
FULL CHARGE	Pipe length 49 ft (15 m)	25 oz (700 g)	30 oz (850 g)
	66 ft (20 m)	28 oz (800 g)	34 oz (950 g)
ADDITIONAL REFRIGERANT		0.21 oz/ft (20 g/m)	
MAXIMUM PIPING HEIGHT		49 ft (15 m)	

DIMENSIONS

INDOOR UNIT	H x W x D	11-1/32 x 31-3/32 x 7-25/32 inch (280 x 790 x 198 mm)
OUTDOOR UNIT	H x W x D	21-1/4 x 25-31/32 x 11-13/32 inch (540 x 660 x 290 mm)

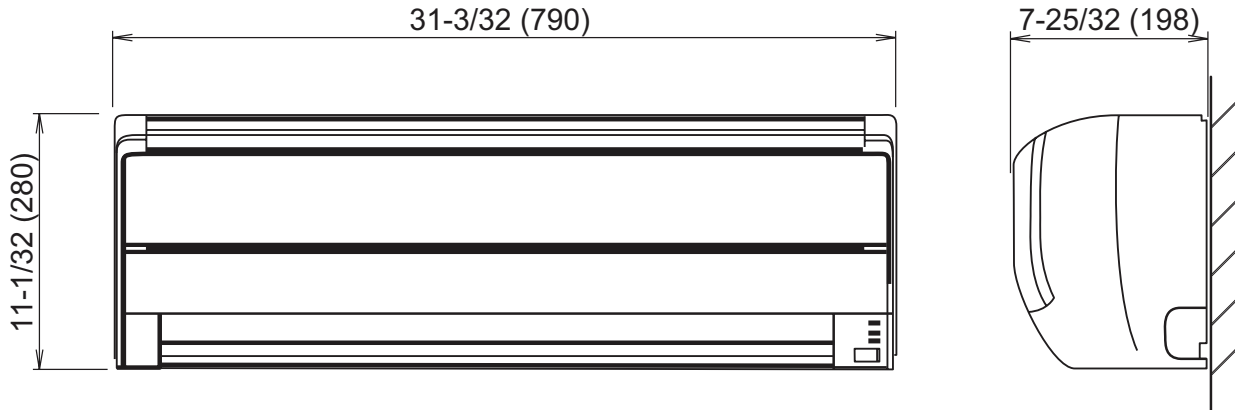
WEIGHT

INDOOR UNIT Shipping / Net	21 lb / 16.5 lb (9.5 kg / 7.5 kg)	
OUTDOOR UNIT Shipping / Net	62 lb / 55 lb (28 kg / 25 kg)	75 lb / 68 lb (34 kg / 31 kg)

DIMENSIONS

unit : inch (mm)

INDOOR UNIT



Refrigerant pipe length

Liquid : $15\frac{3}{16}$ inch (386 mm)

Gas : $12\frac{15}{16}$ inch (329 mm)

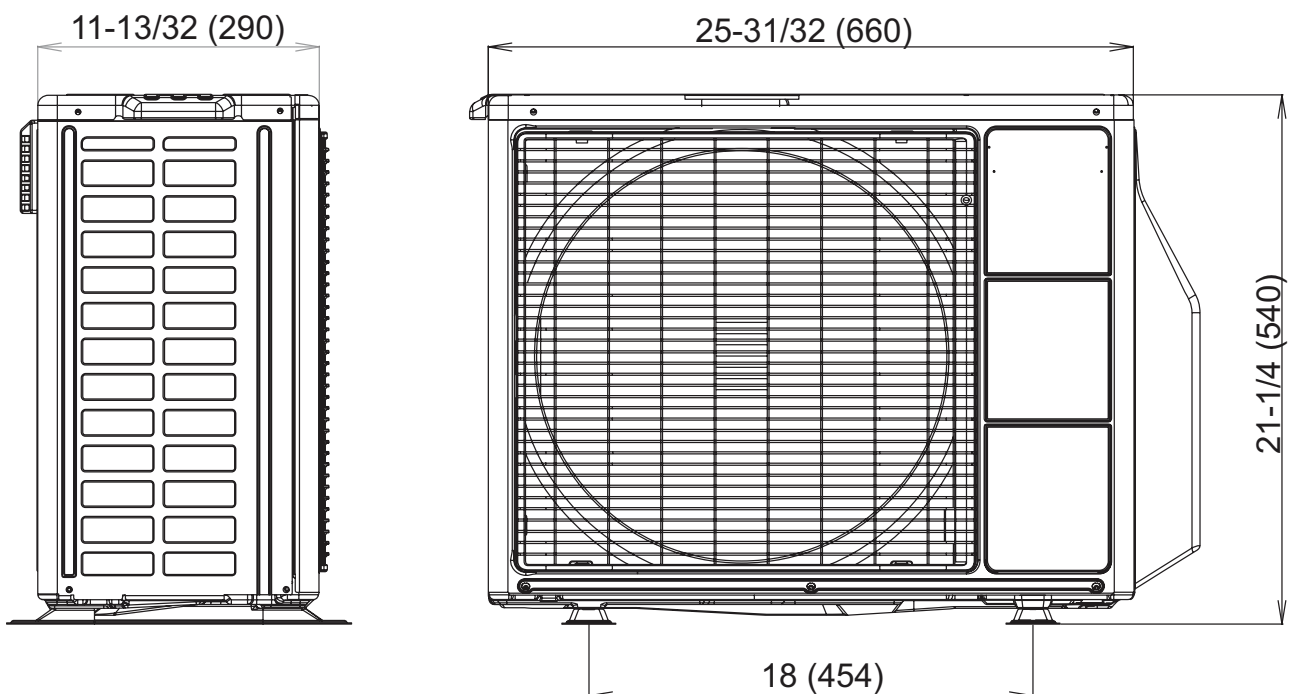
Drain hose length : $23\frac{5}{8}$ inch (600 mm)

Drain pipe diameter

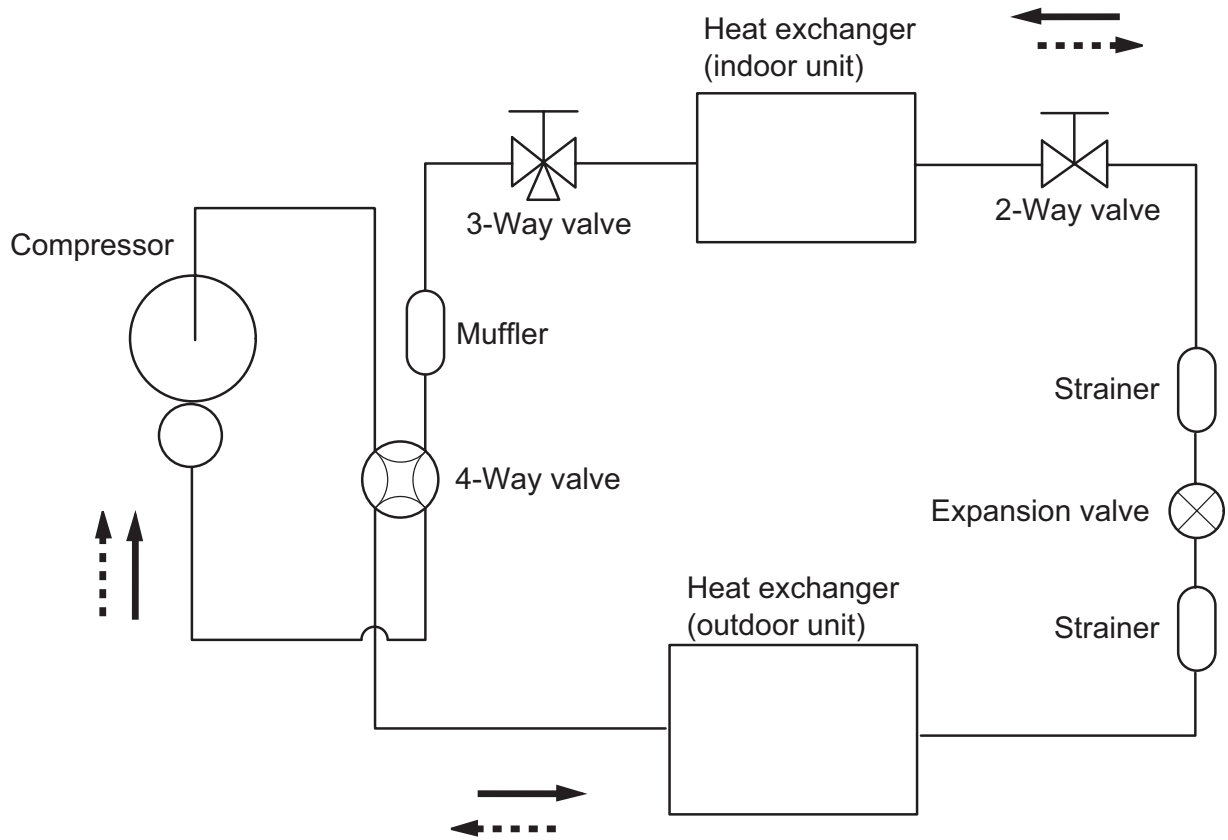
Inside : $\frac{5}{8}$ inch (15.8 mm)

Outside : $1\frac{9}{64}$ inch (29 mm)

OUTDOOR UNIT



REFRIGERANT SYSTEM DIAGRAM



Refrigerant direction

————→ Cooling flow

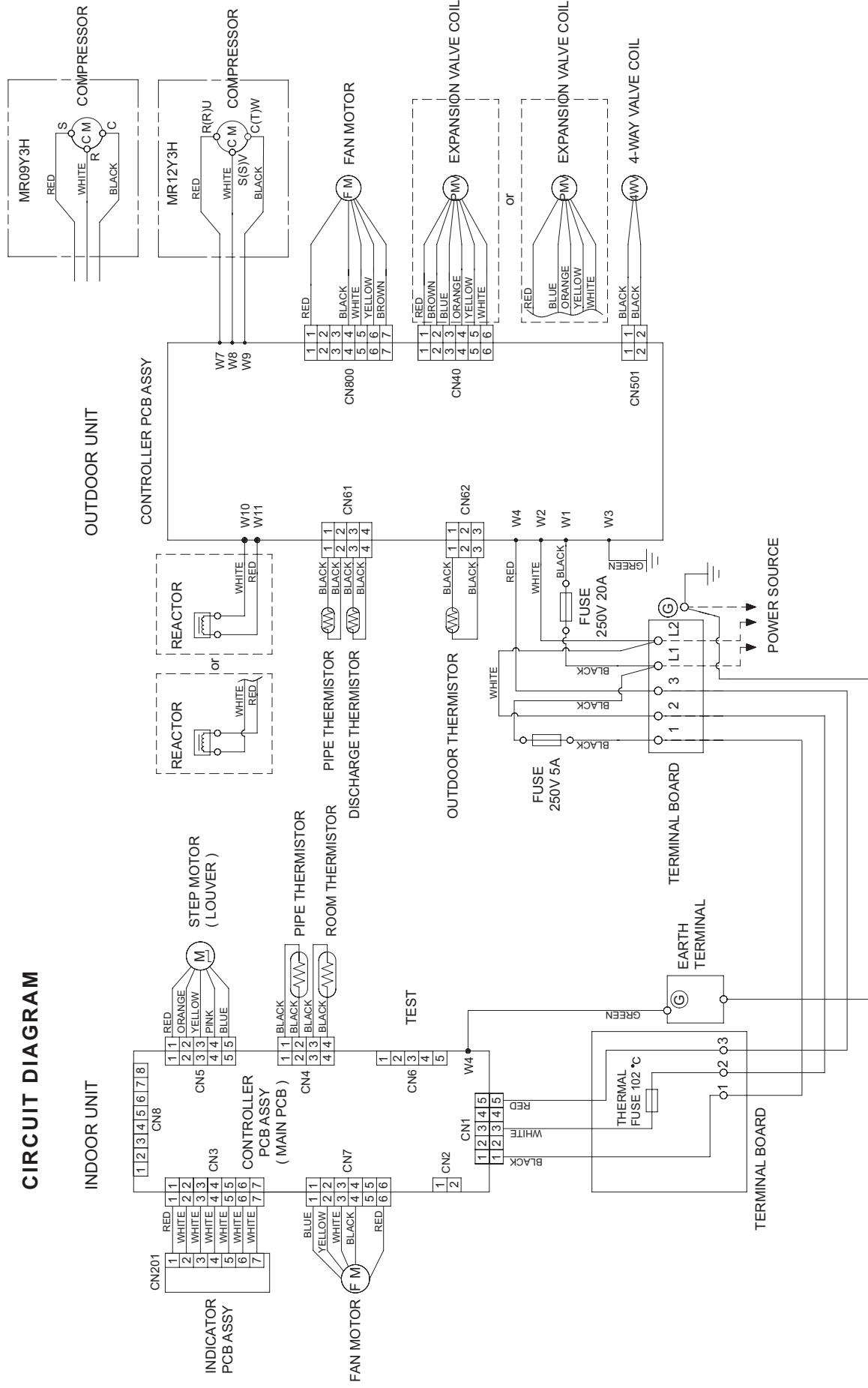
-----→ Heating flow

Refrigerant pipe diameter

Liquid : 1/4" (6.35 mm)

Gas : 3/8" (9.52 mm)

CIRCUIT DIAGRAM

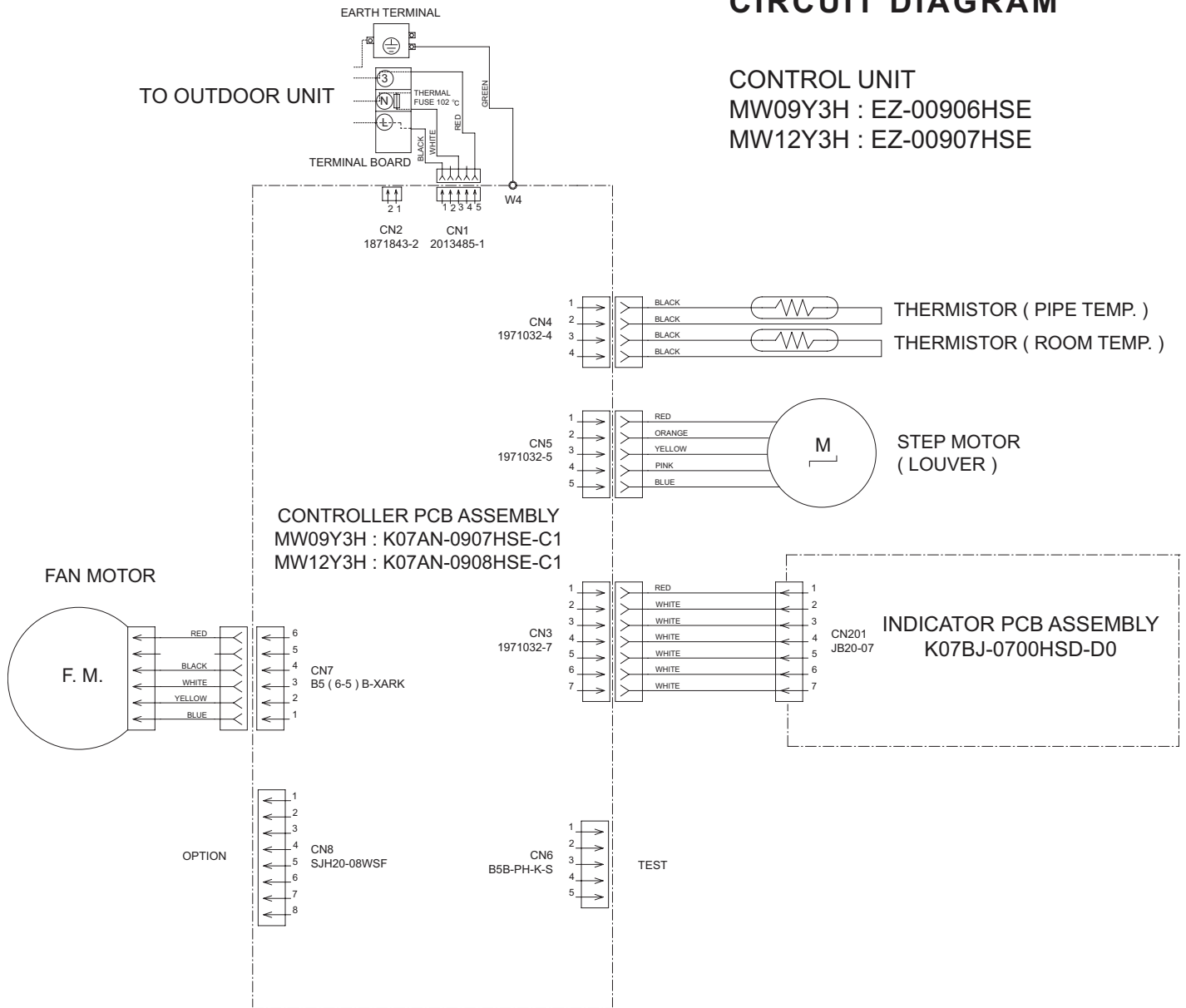


INDOOR PCB CIRCUIT DIAGRAM

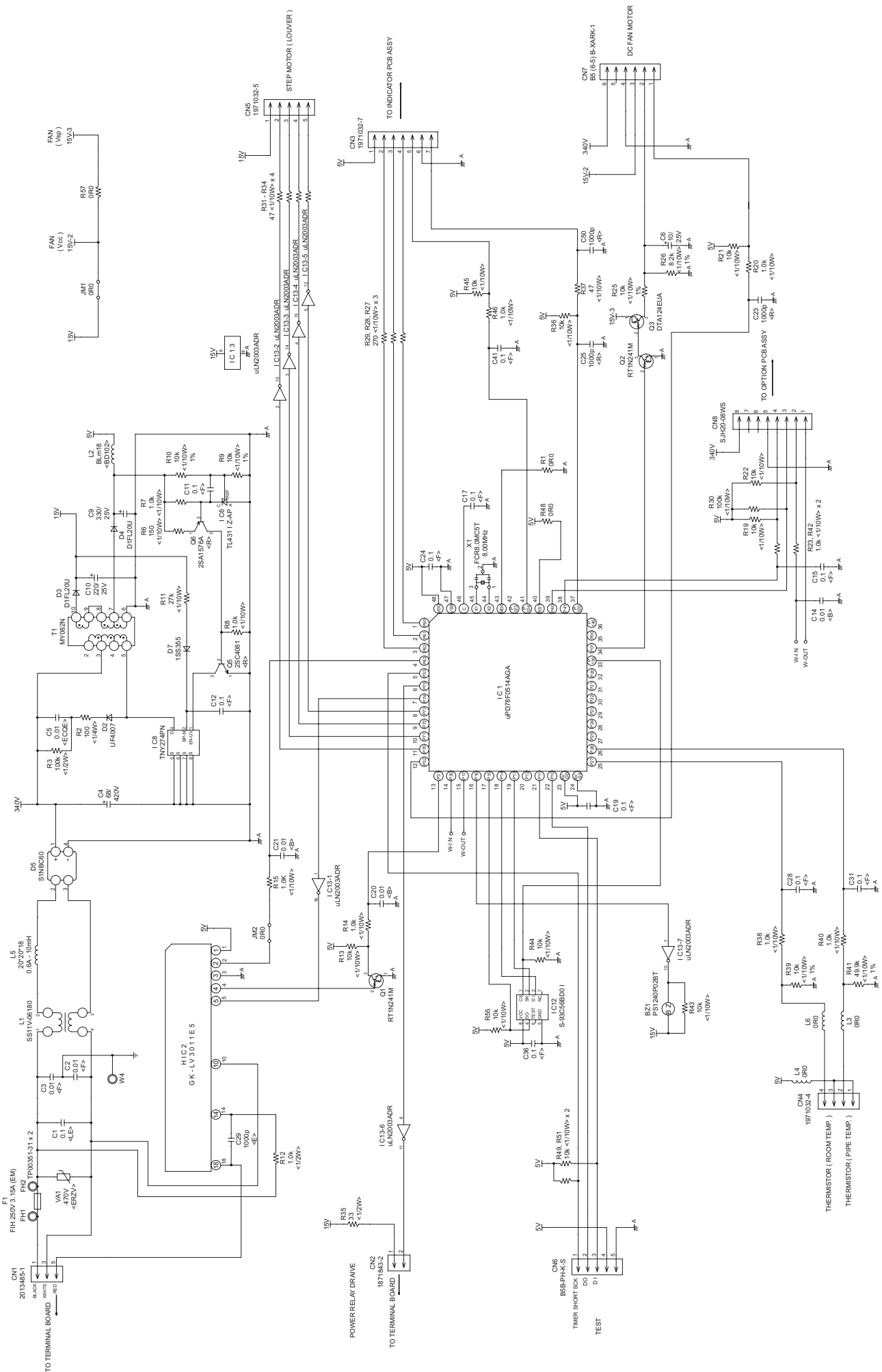
CONTROL UNIT

MW09Y3H : EZ-00906HSE

MW12Y3H : EZ-00907HSE



INDOOR UNIT CONTROLLER PCB ASSEMBLY (MAIN PCB) MW09Y3H : K07AN-0907HSE-C1 MW12Y3H : K07AN-0908HSE-C1



The schematic diagram illustrates the LED control circuit for the 1061 L=230. The circuit is powered by a 5V source. A manual/auto switch (SW201) controls the LEDs through three diodes: D201 (SLR-343MC, <GREEN>), D202 (SLR-343DC, <ORANGE>), and D203 (SLR-343YC, <YELLOW>). The switch is connected to a 5V source and the LEDs. The LEDs are connected to a 7-pin connector (CN201) with pin 1 to 7. The connector is labeled with pin numbers 1, 2, 3, 4, 5, 6, and 7, and the corresponding LED colors: 1 (GREEN), 2 (ORANGE), 3 (YELLOW), 4 (RED), 5 (BLUE), 6 (VIOLET), and 7 (WHITE). The connector is also labeled with the part number 07 JB20 / GIC and the length 1061 L=230.

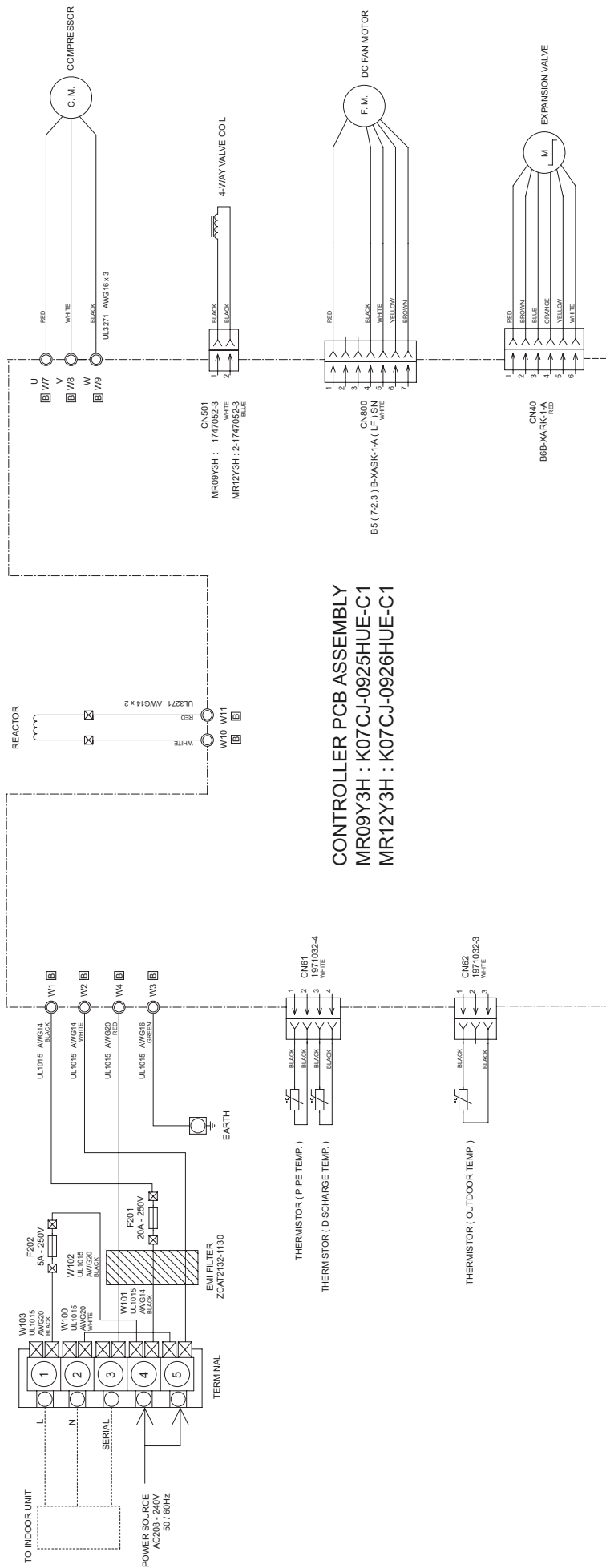
The microcontroller (C201, GP1UM261RKVF) is connected to the 5V source and ground. Its VCC pin (2) is connected to the 5V source, and its GND pin (3) is connected to ground. The microcontroller's OUT pin (1) is connected to the timing network, which consists of a capacitor C202 (47/10V), a resistor R202 (47 <1/4W>), and a capacitor C203 (0.1 <F>). The timing network is connected to the 5V source and ground.

OUTDOOR PCB CIRCUIT DIAGRAM

INVERTER ASSEMBLY

MR09Y3H : EZ-009LHUE

MR12Y3H : EZ-009MHUE

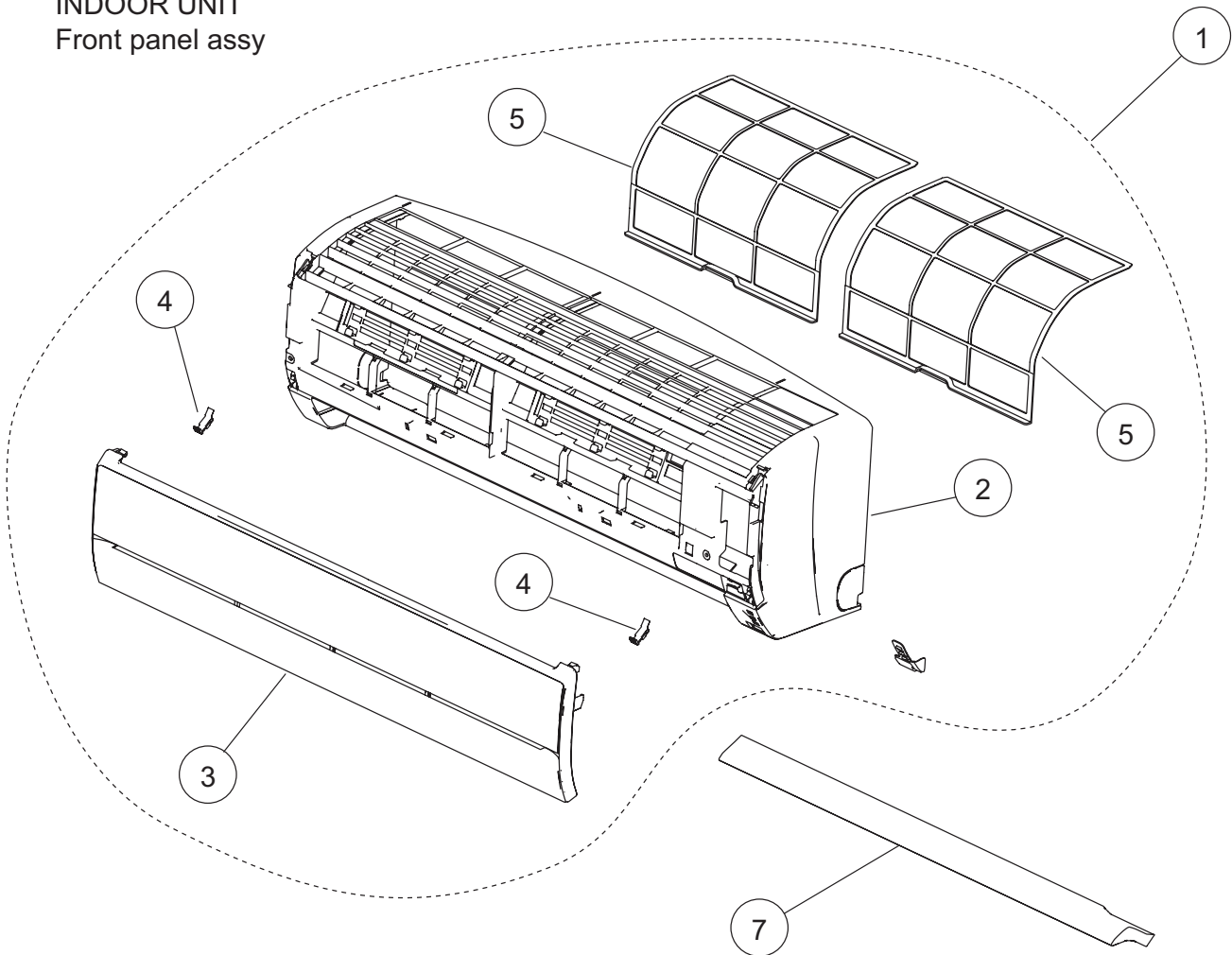


ERROR DETECTION

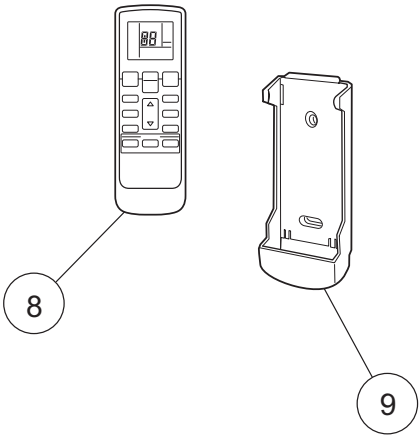
Error	Indoor unit LED			Wired remote control	Error
	Operation LED	Timer LED	Coil dry LED		
Serial signal error	Off	2 flash	off	01	Serial signal (reverse) error, at operation start up
		3 flash	off	01	Serial signal (reverse) error, during operation
		4 flash	off	13	Serial signal (forward) error, at operation start up
		5 flash	off	13	Serial signal (forward) error, during operation
		8 flash	off	00	Wired remote control error
Indoor unit thermistor error	2 flash	2 flash	off	02	Indoor air thermistor error
		3 flash	off	04	Heat exchanger middle thermistor error
Outdoor unit thermistor error	3 flash	2 flash	off	0C	Discharge pipe thermistor error
		3 flash	off	06	Heat exchanger thermistor error
		4 flash	off	0A	Outdoor air thermistor error
Indoor unit control error	4 flash	2 flash	off	20	Manual auto button welded
Outdoor unit control error	5 flash	2 flash	off	17	Current trip error
		3 flash	off	18	CT abnormal
		5 flash	off	1A	Compressor location detection error
		6 flash	off	1B	Outdoor unit fan drive system abnormal
Indoor fan motor error	6 flash	2 flash	off	12	Abnormal lock (upper fan motor)
		3 flash	off	12	Abnormal rotation (upper fan motor)
Refrigerant cycle error	7 flash	2 flash	off	0F	Discharge temperature abnormal
		3 flash	off	24	Cooling high pressure abnormal rise
Optional function error	8 flash	2 flash	off	19	Active filter abnormal (first time)
		3 flash	off	19	Active filter abnormal (second time)
		4 flash	off	25	PFC circuit error
Model information error	0.1 sec on/off	0.1 sec on/off	0.1 sec on/off	11	Model information error

PARTS

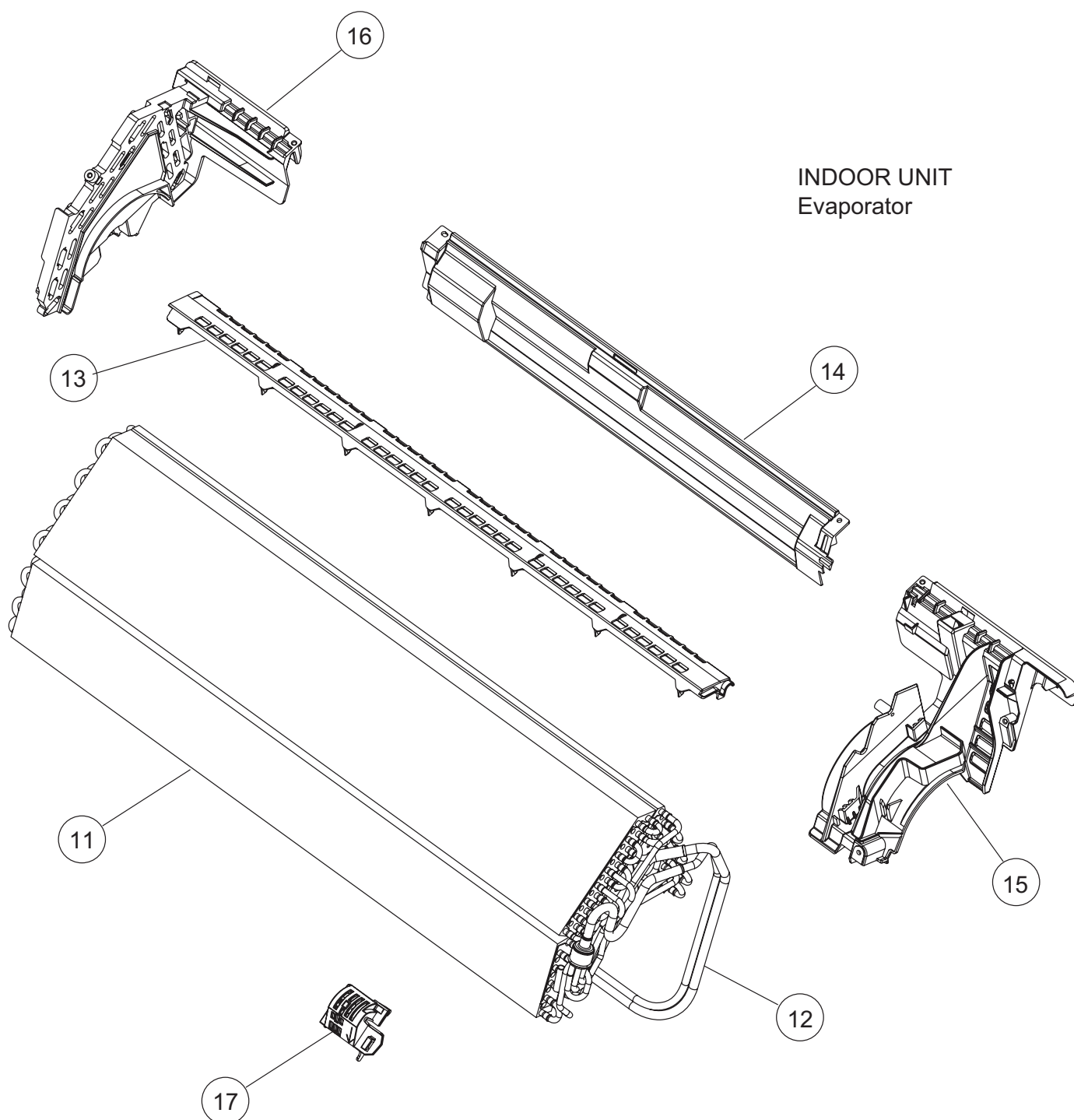
INDOOR UNIT Front panel assy



Ref.	Description	Part number	
1	Front Panel Assy	67202083	
3	Intake Grille Assy	67202067	
4	Clamper (Grille)	67202003	
5	Air Filter	67202066	
7	Panel Cover	67202215	
8	Remote Control	67202007	
9	Remote Control Holder	67201533	
--	Wire Cover	67202076	
--	Wire Shield	67202077	

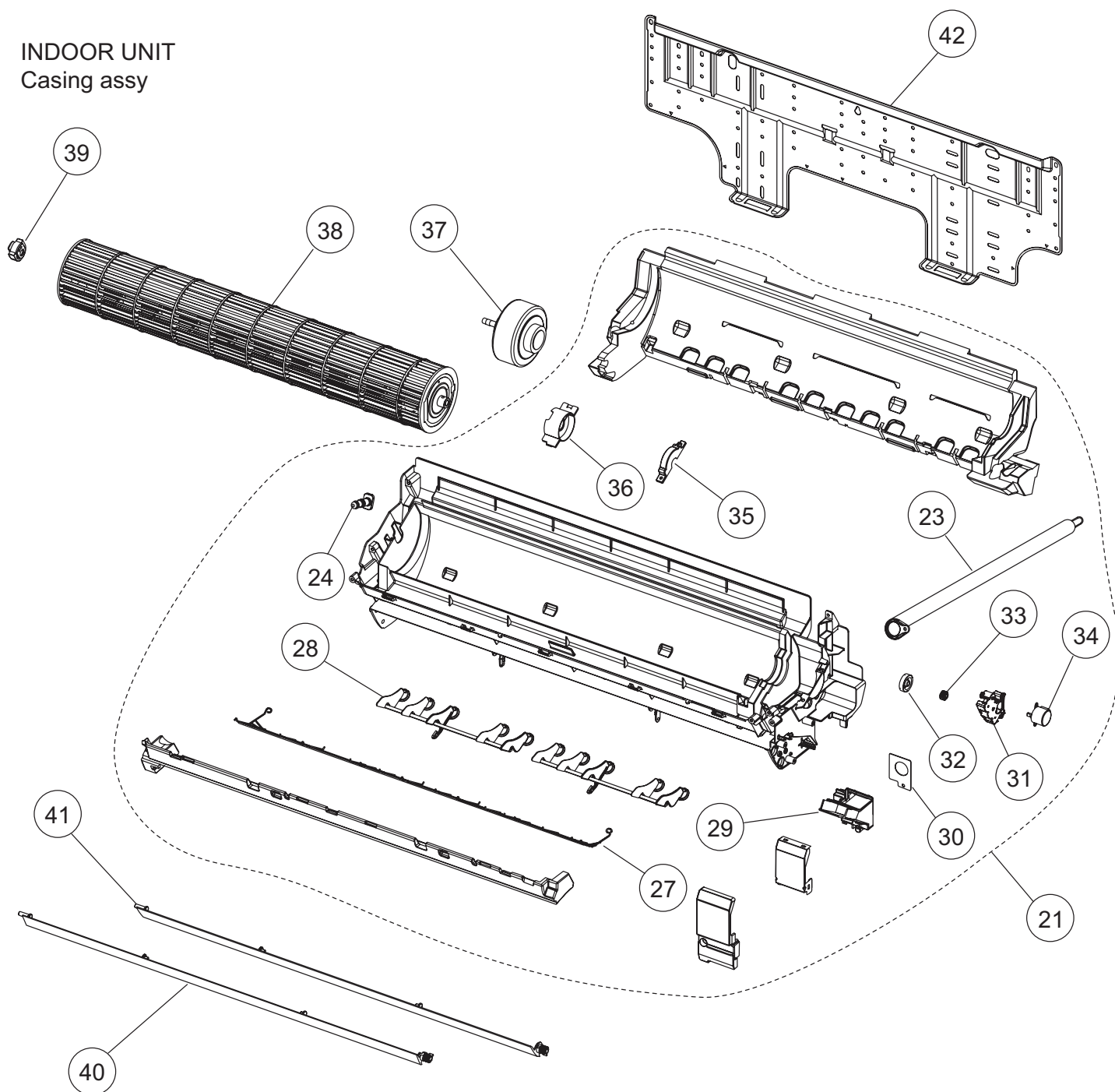


INDOOR UNIT
Evaporator



Ref.	Description	Part number	
11	Evaporator Total Assy	67202082	
12	Joint Pipe Assy	67202084	
13	Filter Guide	67202072	
14	Rear Bracket	67202071	
15	Evaporator Holder R	67202070	
16	Evaporator Holder L	67202069	
17	Room Thermistor Holder	67202018	

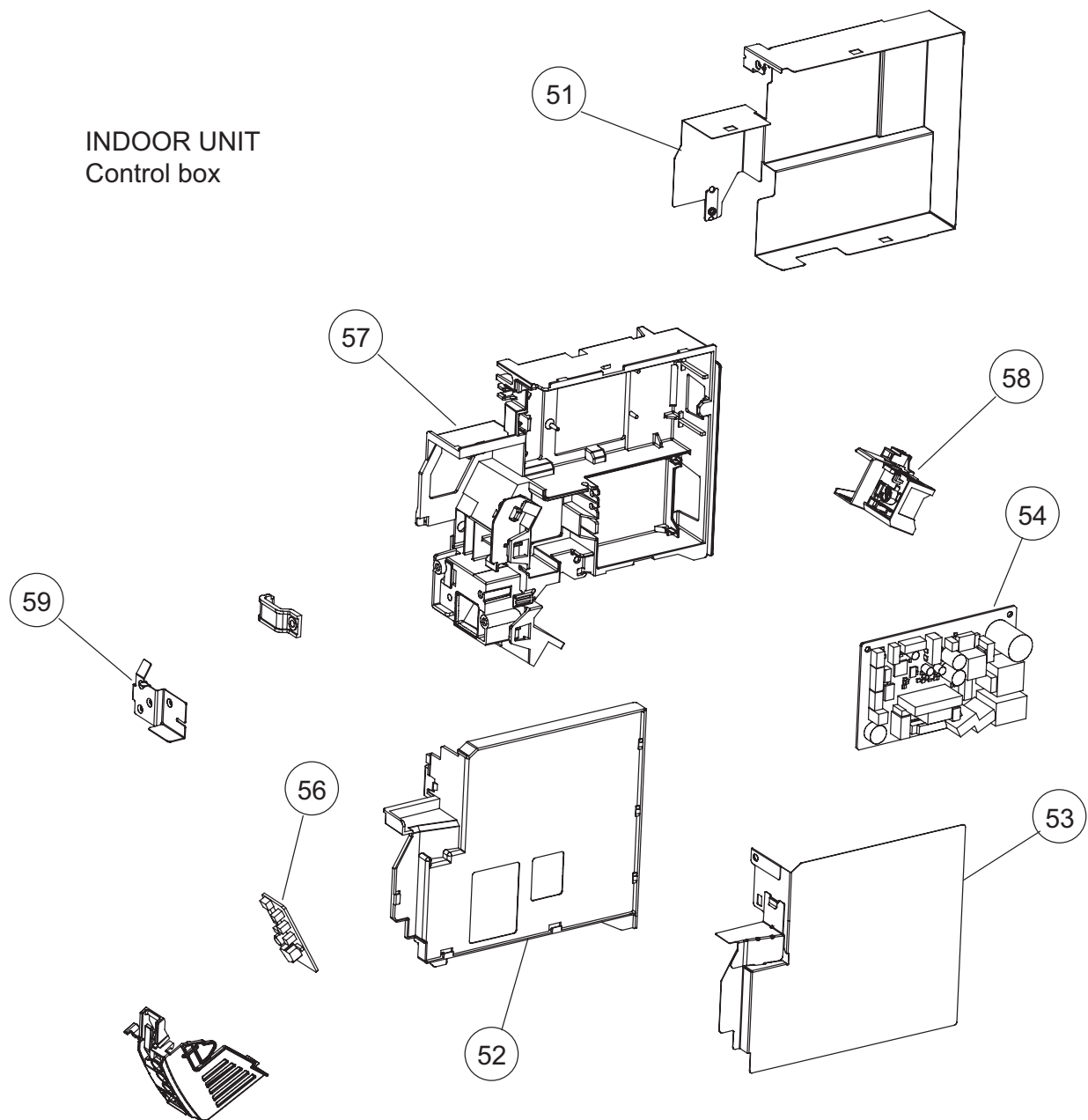
INDOOR UNIT Casing assy



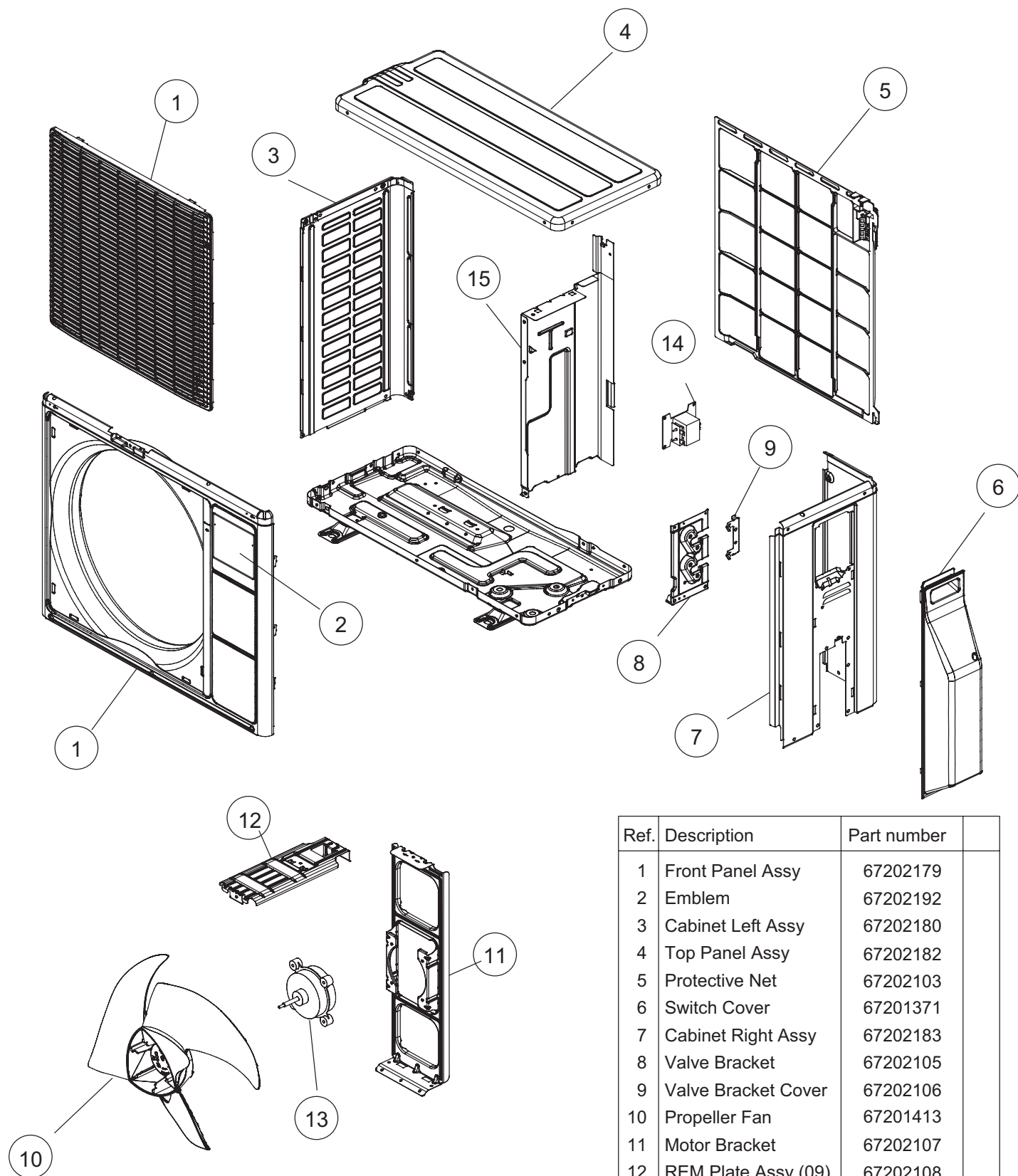
Ref.	Description	Part number
21	Casing Assy	67202080
23	Drain Hose Assy	67202030
24	Drain Cap	67202031
27	Fan Guard	67202098
28	R and L Louver B	67202063
29	Cable Guide	67202023
30	Conduit Holder	67202038
31	Louver Gear Holder	67202079

Ref.	Description	Part number
32	Louver Gear	67202068
33	Gear A	67201206
34	Motor Step	67202097
35	Motor Cover (1)	67202062
36	Motor Cover (2)	67202022
37	Fan Motor	67202033
38	Crossflow Fan Assy	67202034
39	Shaft Holder C	67200922
40	Louver U	67202073
41	Louver Z	67202074
42	Bracket Panel	67202078

INDOOR UNIT
Control box



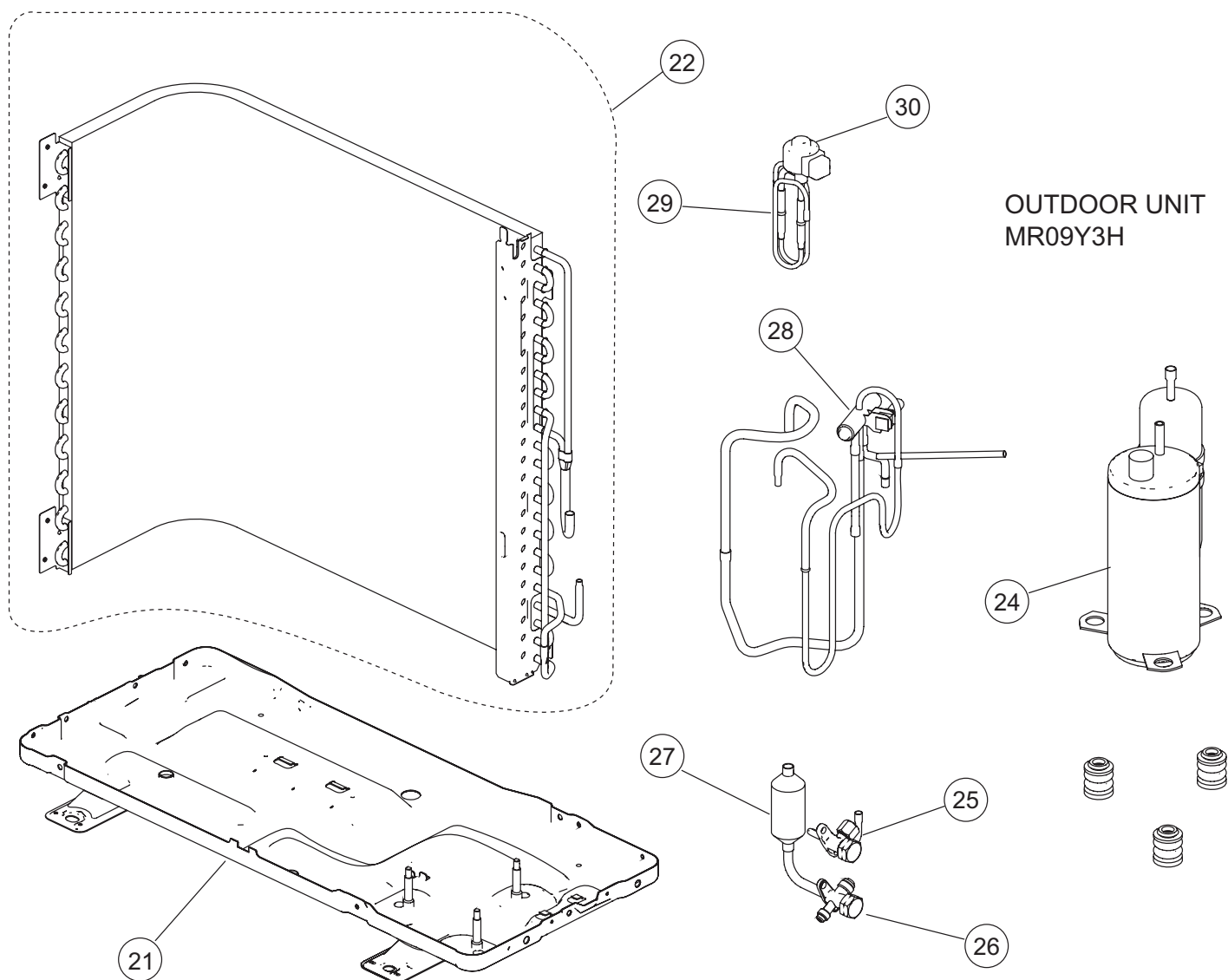
Ref.	Description	Part number	
51	Box Shield Assy	67202065	
52	Control Cover	67202075	
53	Cover Shield Assy	67202090	
54	Controller PCB Assy (09)	67202094	
54	Controller PCB Assy (12)	67202095	
56	Display PCB Assy	67202045	
57	Control Box	67202091	
58	Terminal	67202048	
59	Earth Terminal	67202061	
--	Thermistor Assy	67202019	



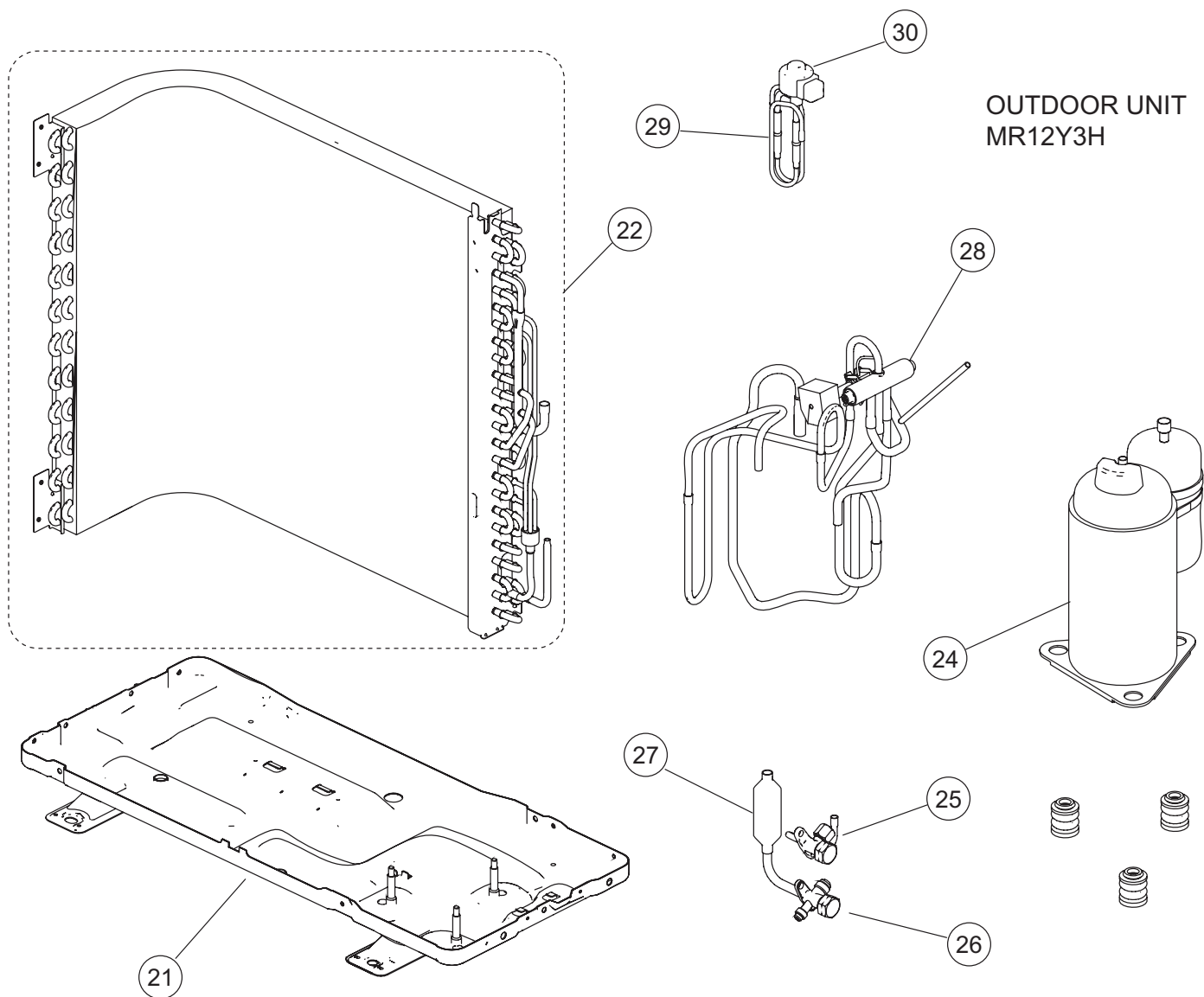
PARTS

OUTDOOR UNIT
MR09Y3H
MR12Y3H

Ref.	Description	Part number	
1	Front Panel Assy	67202179	
2	Emblem	67202192	
3	Cabinet Left Assy	67202180	
4	Top Panel Assy	67202182	
5	Protective Net	67202103	
6	Switch Cover	67201371	
7	Cabinet Right Assy	67202183	
8	Valve Bracket	67202105	
9	Valve Bracket Cover	67202106	
10	Propeller Fan	67201413	
11	Motor Bracket	67202107	
12	REM Plate Assy (09)	67202108	
12	REM Plate Assy (12)	67202109	
13	Fan Motor (09)	67202184	
13	Fan Motor (12)	67202111	
14	Reactor Assy	67202112	
15	Separator Assy	67202181	
--	Drain Pipe	67201709	

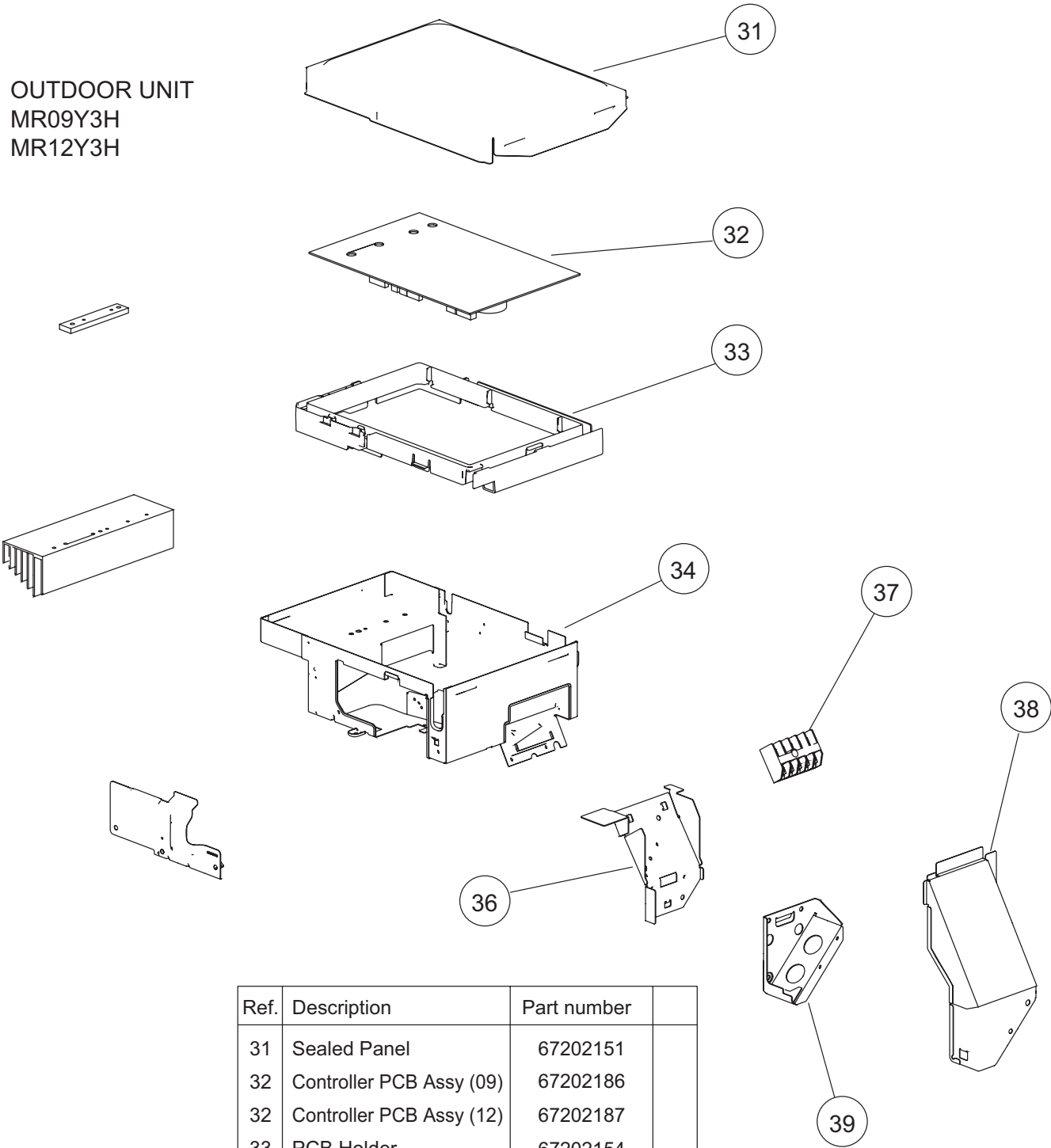


Ref.	Description	Part number	
21	Base Assy	67202163	
22	Condenser Total Assy	67202141	
24	Compressor Assy	67202119	
25	2 way Valve Assy	67202127	
26	3 way Valve Assy	67202129	
27	Muffler	67202130	
28	4 way Valve	67202131	
29	Pulse Motor Valve Assy	67202139	
30	Expansion Valve Coil	67201422	
--	Solenoid	67202140	



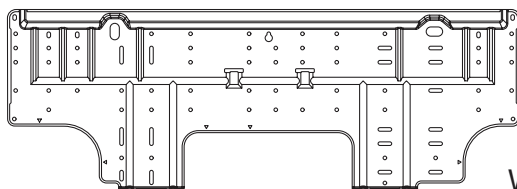
Ref.	Description	Part number	
21	Base Assy	67202164	
22	Condenser Total Assy	67202145	
24	Compressor Assy	67202125	
25	2 way Valve Assy	67202127	
26	3 way Valve Assy	67202129	
27	Muffler	67202133	
28	4 way Valve	67202134	
29	Pulse Motor Valve Assy	67202139	
30	Expansion Valve Coil	67201422	
--	Solenoid	67202144	

OUTDOOR UNIT
MR09Y3H
MR12Y3H



Ref.	Description	Part number	
31	Sealed Panel	67202151	
32	Controller PCB Assy (09)	67202186	
32	Controller PCB Assy (12)	67202187	
33	PCB Holder	67202154	
34	Inverter Case Assy	67202155	
36	Terminal Bracket	67202157	
37	Terminal 5P	67201450	
38	Terminal Cover Assy	67202158	
39	Bracket Conduit	67202160	
--	Outdoor Thermistor	67202161	
--	Thermistor Assy	67202162	

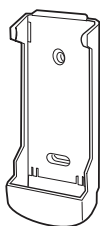
ACCESSORIES



Wall hook bracket
67202078



Remote control
67202007



Remote control holder
67201533

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