



F R I E D R I C H

INVERTER MULTI
AIR CONDITIONER
WALL MOUNTED type

SERVICE MANUAL



Indoor unit		Outdoor unit
MW09Y3FM	}	MR36TQY3F
MW12Y3FM		
MW18Y3FM		

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SPECIFICATIONS (INDOOR UNIT)

ELECTRICAL DATA

TYPE	COOLING & HEATING		
MODEL NAME	MW09Y3FM	MW12Y3FM	MW18Y3FM
POWER SOURCE	1 - 230 / (208) V 60Hz		
COOLING CAPACITY (Rated / Max)	2.7 kW / 3.3 kW 9,500 / 11,300 BTU/h	3.5 kW / 4.0 kW 12,000 / 13,600 BTU/h	5.2 kW / 5.55 kW 17,800 / 19,000 BTU/h
HEATING CAPACITY (Rated / Max)	3.2 kW / 3.8 kW 11,000 / 13,000 BTU/h	4.1 kW / 4.5 kW 14,000 / 15,400 BTU/h	6.0 kW / 6.7 kW 20,500 / 23,000 BTU/h
MOISTURE REMOVAL	1.7 Pts/hr (0.8 L/hr)	2.0 Pts/hr (1.1 L/hr)	4.9 Pts/hr (2.3 L/hr)
AIR CIRCULATION-High	324 cfm (550 m³/hr)	377 cfm (640 m³/hr)	388 cfm (660 m³/hr)

Power source of specification : 230V

FAN MOTOR

DISCRIMINATION		MFD-34ROM		
FAN SPEED (Cool / Heat)	High	1,200 / 1,200 r.p.m.	1,380 / 1,380 r.p.m.	1,480 / 1,480 r.p.m.
	Middle	1,070 / 1,070 r.p.m.	1,230 / 1,230 r.p.m.	1,380 / 1,380 r.p.m.
	Low	900 / 970 r.p.m.	1,050 / 1,110 r.p.m.	1,200 / 1,200 r.p.m.
	Quiet	800 / 850 r.p.m.	900 / 960 r.p.m.	1,060 / 1,060 r.p.m.

NOISE LEVEL

NOISE LEVEL (Cool / Heat)	High	38 dB / 38 dB	43 dB / 43 dB	45 dB / 45 dB
	Middle	34 dB / 34 dB	40 dB / 40 dB	43 dB / 43 dB
	Low	28 dB / 30 dB	33 dB / 34 dB	39 dB / 39 dB
	Quiet	25 dB / 26 dB	28 dB / 30 dB	34 dB / 34 dB

PIPING

MAXIMUM LENGTH		82 ft. (25 m)		
MAXIMUM HEIGHT		49 ft. (15 m)		
DIAMETER SIZE	Liquid	1/4 inch (6.35 mm)		
	Gas	3/8 inch (9.52 mm)		1/2 inch (12.7 mm)

MEASUREMENTS

DIMENSIONS	H x W x D	10-13/16 x 31-1/8 x 8-7/16 inch (275 x 790 x 215 mm)
WEIGHT	Net / Gross	18 lbs. / 23 lbs. (8.5 kg / 10.5 kg)

SPECIFICATIONS (OUTDOOR UNIT)

ELECTRICAL DATA

TYPE		4 room multi inverter
MODEL NAME		MR36TQY3F
POWER SUPPLY		230 / 208 V
FREQUENCY		60 Hz
AIR CIRCULATION - High	Cooling	2119 cfm (3,600 m³/hr)
	Heating	2237 cfm (3,800 m³/hr)
NOISE LEVEL	Cooling	51 dB
	Heating	53 dB

COMPRESSOR

TYPE		Hermetic type, Inverter, 4 poles, 3-phase, DC motor, Twin Rotary
DISCRIMINATION		TNB220FPBM9
REFRIGERANT	R410A	7 lb 7/8 oz (3,200 g)

FAN MOTOR

DISCRIMINATION		MFE-45ROM
HIGH-SPEED	Cooling	850 r.p.m.
	Heating	900 r.p.m.

REFRIGERANT CHARGE (R410A)

Total Pipe Length	164 ft (50.0 m)	-- (Chargeless)
ADDITIONAL CHARGE	197 ft (60.0 m)	8-13/16 oz (250 g)
	230 ft (70.0 m)	1 lb 1-5/8 oz (500 g)
ADDITIONAL CHARGE		9/32 oz/ft (25 g/m)
CHARGELESS		164 ft (50 m)
MAX PIPE LENGTH (each unit)		82 ft (25 m)
MAX PIPE LENGTH (total)		229 ft (70 m)
MAX ELEVATION (between indoor units)		49 ft (15 m)
MAX ELEVATION (between indoor and outdoor units)		49 ft (15 m)
MIN. PIPE LENGTH (each unit)		16 ft (5 m)

MEASUREMENT

DIMENSIONS	H x W x D	32-7/8 x 35-7/16 x 13 inch (835 x 900 x 330 mm)
WEIGHT	Net / Gross	149 lb / 167 lb (68 kg / 76 kg)

SPECIFICATIONS (COMBINATION)

ELECTRICAL DATA (230 V)

COMBINATION		MW09Y3FM x 3	MW12Y3FM + MW09Y3FM x 2	MW12Y3FM x 2 + MW09Y3FM
COOLING CAPACITY	Rated	8.1 kW 27,600 BTU/h	8.9 kW 30,400 BTU/h	9.7 kW 33,000 BTU/h
	Max	9.7 kW 33,000 BTU/h	9.9 kW 33,900 BTU/h	10.1 kW 34,600 BTU/h
HEATING CAPACITY	Rated	9.7 kW 33,000 BTU/h	10.4 kW 35,500 BTU/h	10.8 kW 37,000 BTU/h
	Max	11.8 kW 40,200 BTU/h	11.7 kW 40,000 BTU/h	12.0 kW 41,000 BTU/h
INPUT POWER (Cooling)	Rated	2.75 kW	3.30 kW	3.75 kW
	Max	3.74 kW	4.10 kW	4.10 kW
INPUT POWER (Heating)	Rated	2.96 kW	3.10 kW	3.30 kW
	Max	3.80 kW	4.10 kW	4.10 kW
CURRENT (Cooling)	Rated	12.0 A	14.4 A	16.4 A
	Max	16.4 A	18.0 A	18.0 A
CURRENT (Heating)	Rated	13.0 A	13.5 A	14.5 A
	Max	16.6 A	18.0 A	18.0 A

ELECTRICAL DATA (230 V)

COMBINATION		MW12Y3FM x 3	MW18Y3FM + MW09Y3FM x 2	MW09Y3FM x 4
COOLING CAPACITY	Rated	10.3 kW 35,100 BTU/h	10.3 kW 35,200 BTU/h	10.3 kW 35,200 BTU/h
	Max	10.5 kW 35,700 BTU/h	10.5 kW 36,000 BTU/h	10.5 kW 36,000 BTU/h
HEATING CAPACITY	Rated	10.9 kW 37,200 BTU/h	10.9 kW 37,200 BTU/h	10.7 kW 36,500 BTU/h
	Max	12.5 kW 42,600 BTU/h	12.3 kW 42,000 BTU/h	12.3 kW 42,000 BTU/h
INPUT POWER (Cooling)	Rated	4.00 kW	4.00 kW	4.00 kW
	Max	4.10 kW	4.10 kW	4.10 kW
INPUT POWER (Heating)	Rated	3.30 kW	3.30 kW	3.00 kW
	Max	3.80 kW	3.80 kW	3.70 kW
CURRENT (Cooling)	Rated	17.5 A	17.5 A	17.5 A
	Max	18.0 A	18.0 A	18.0 A
CURRENT (Heating)	Rated	14.5 A	14.5 A	13.1 A
	Max	16.6 A	16.6 A	16.2 A

OUTLINE AND DIMENSIONS

INDOOR UNIT

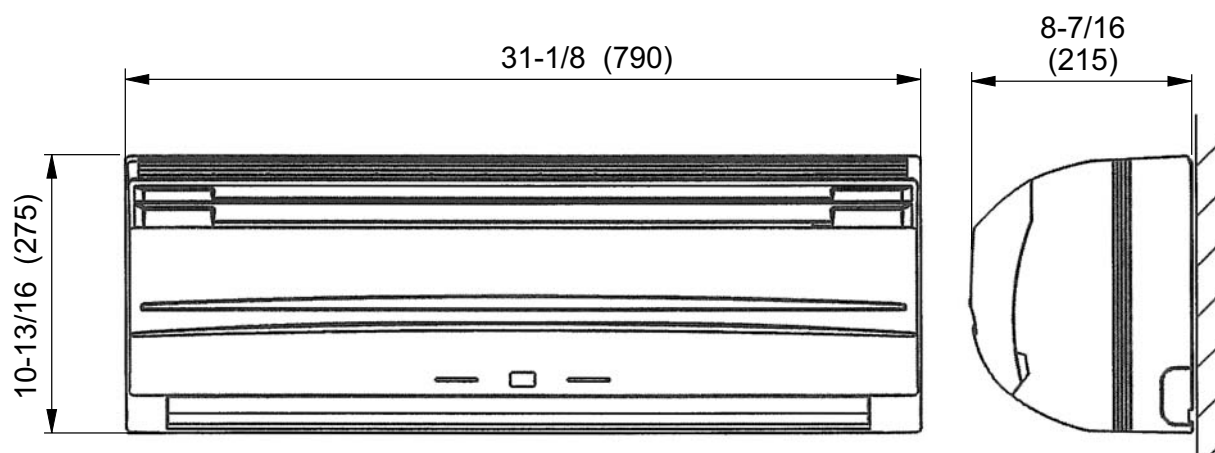
Models :

MW09Y3FM

MW12Y3FM

MW18Y3FM

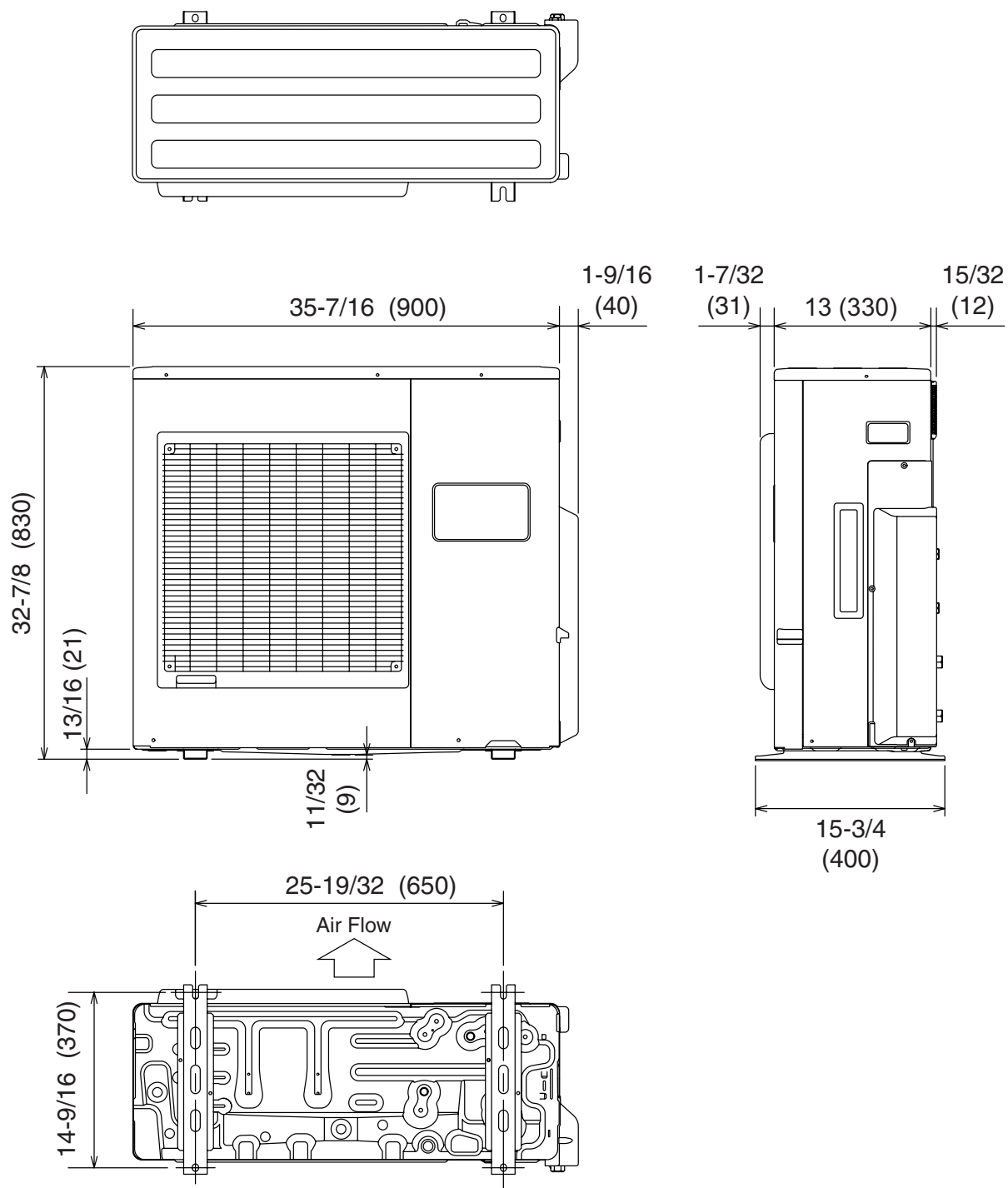
Unit : inch (mm)



OUTDOOR UNIT

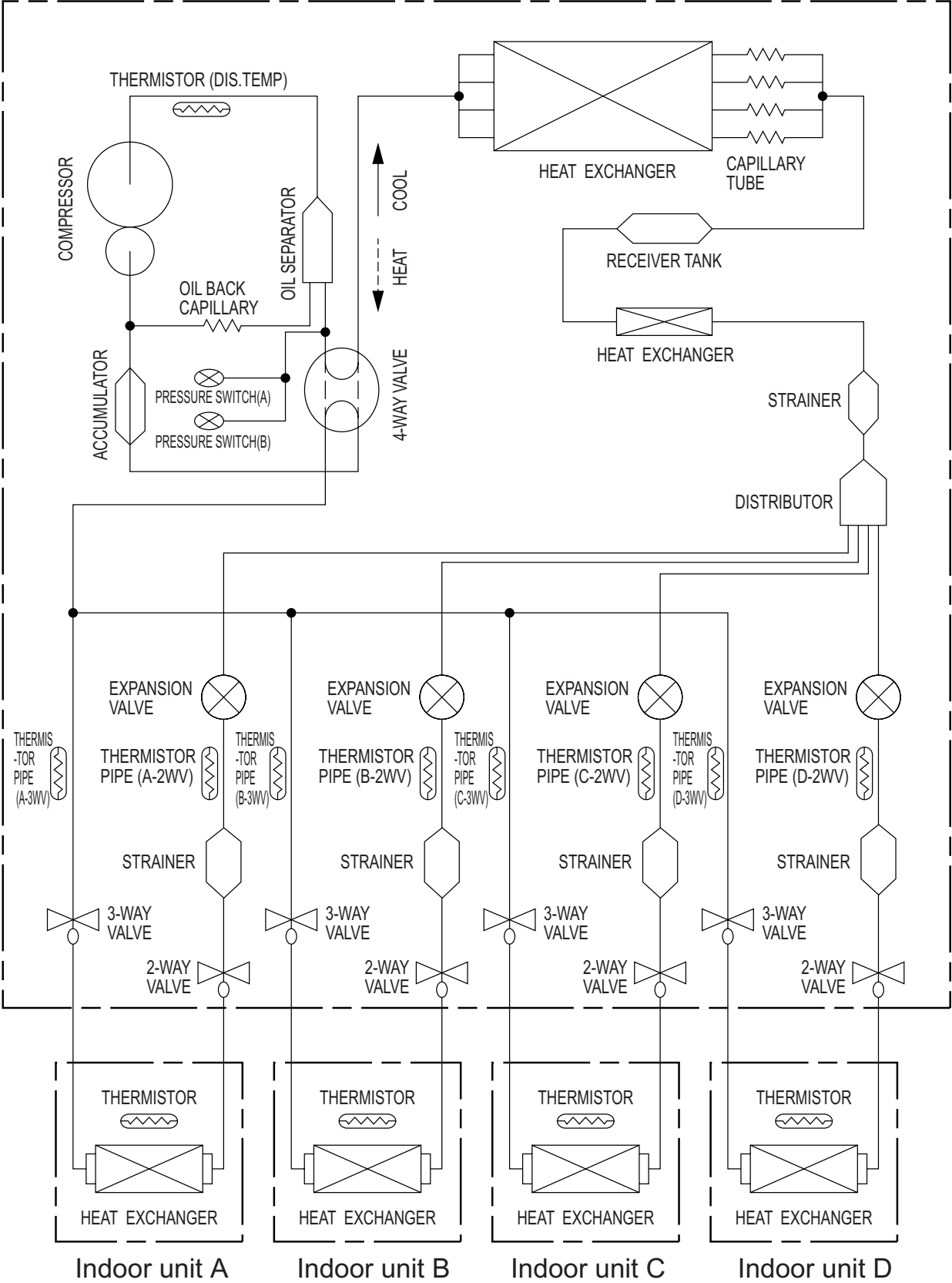
Model : MR36TQY3F

Unit : inch (mm)



REFRIGERANT SYSTEM DIAGRAM

Outdoor unit



CIRCUIT DIAGRAM

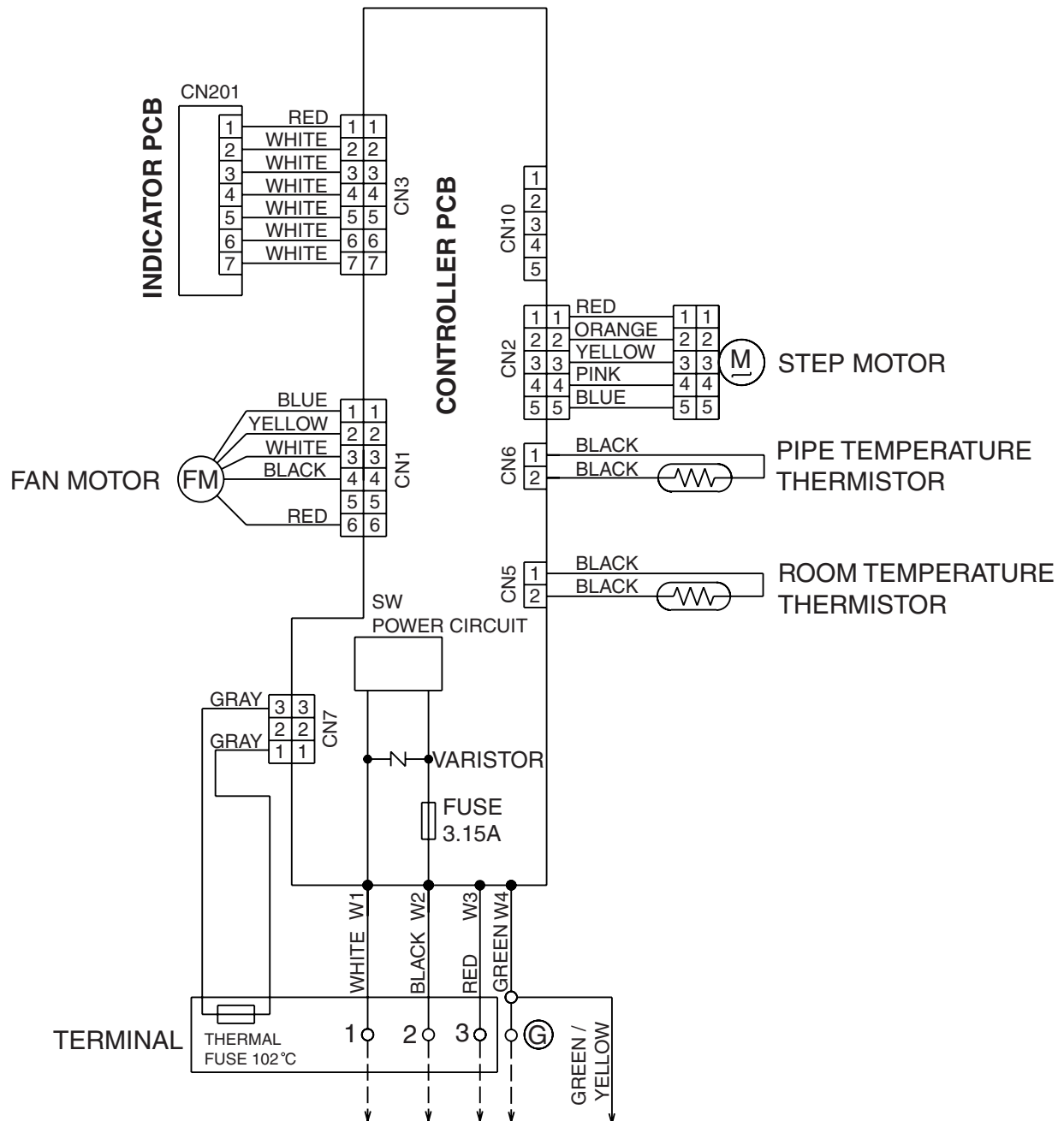
INDOOR UNIT

Models :

MW09Y3FM

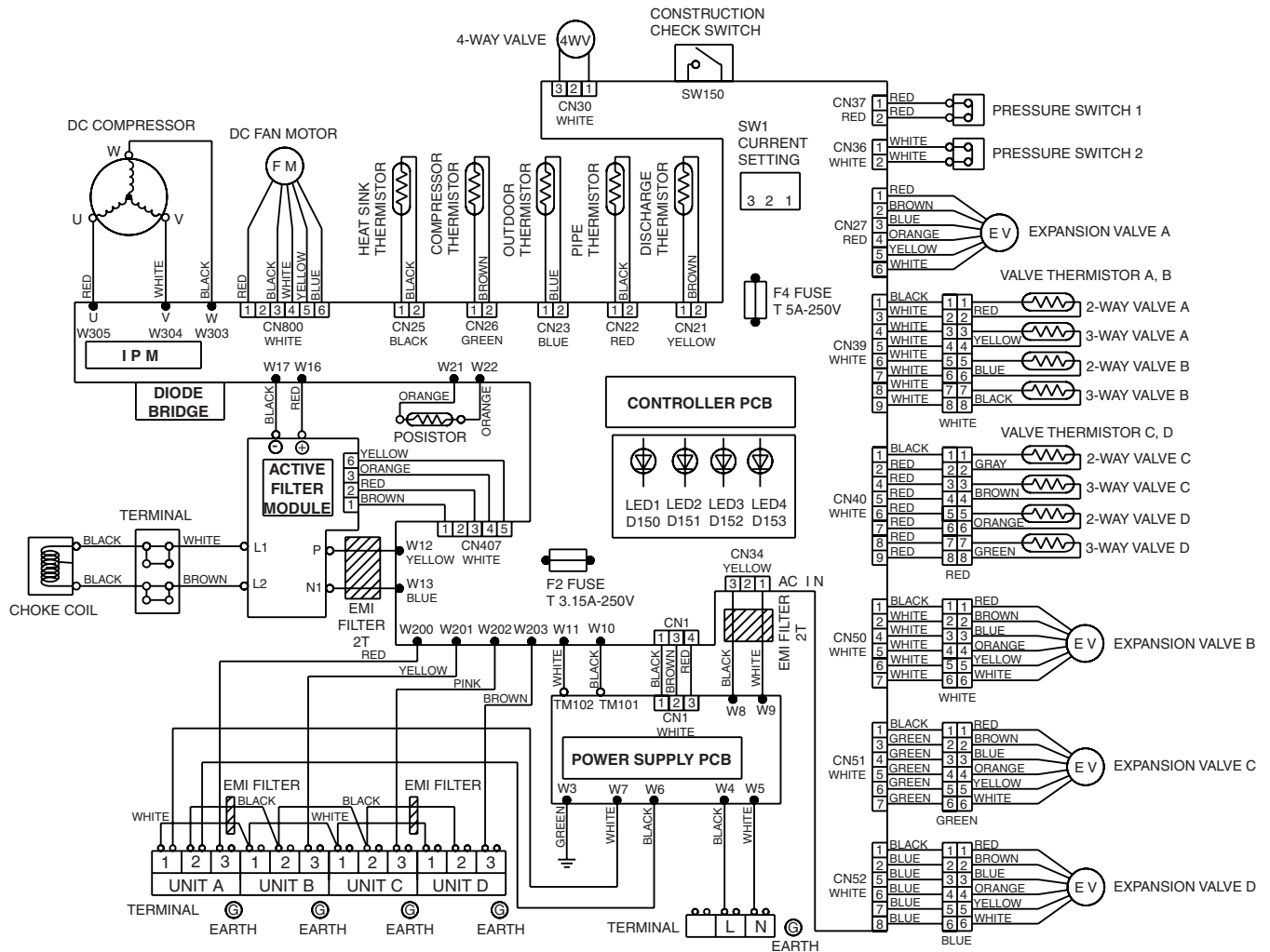
MW12Y3FM

MW18Y3FM



OUTDOOR UNIT

Model : MR36TQY3F



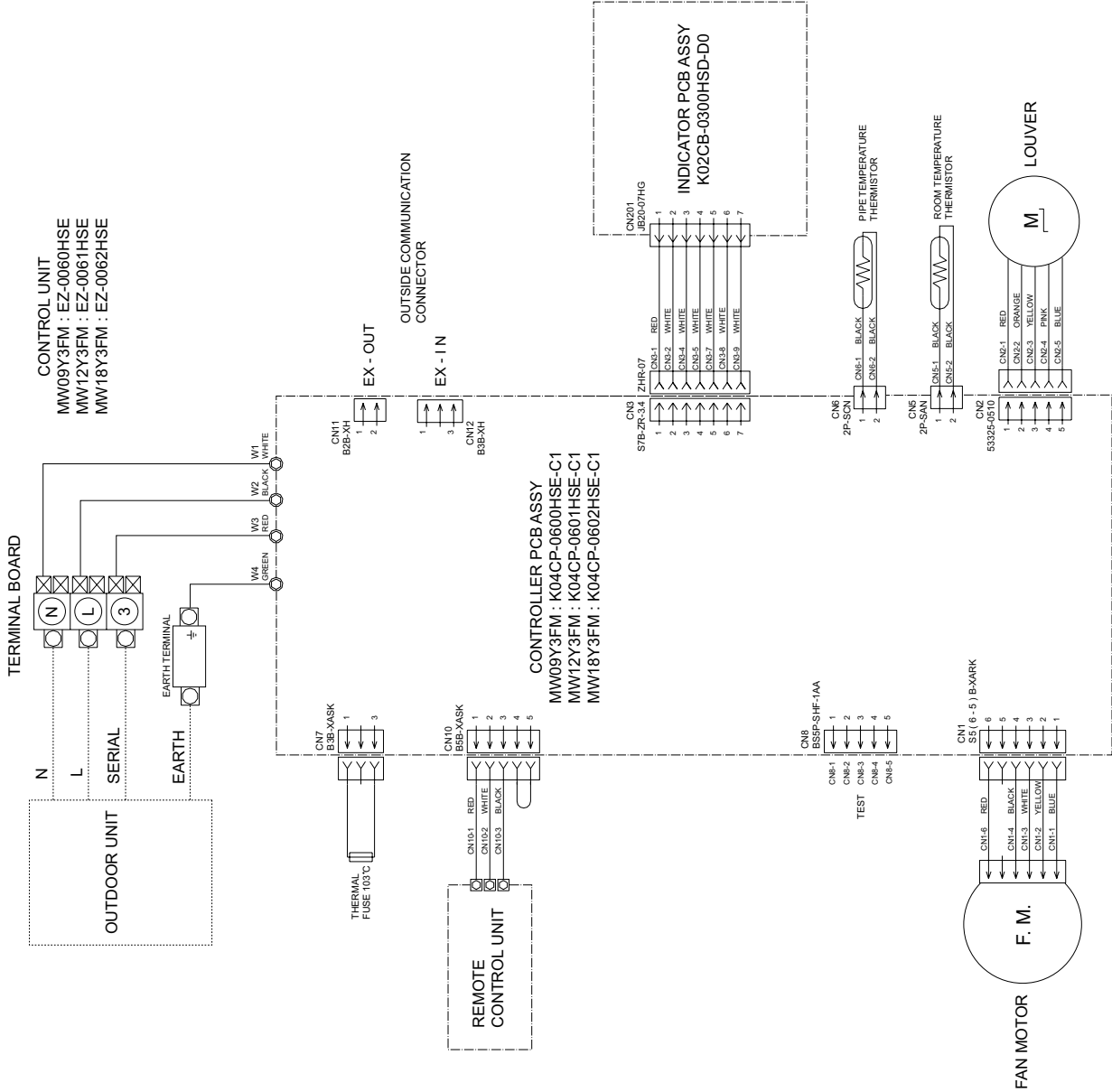
INDOOR PCB CIRCUIT DIAGRAM

Models :

MW09Y3FM

MW12Y3FM

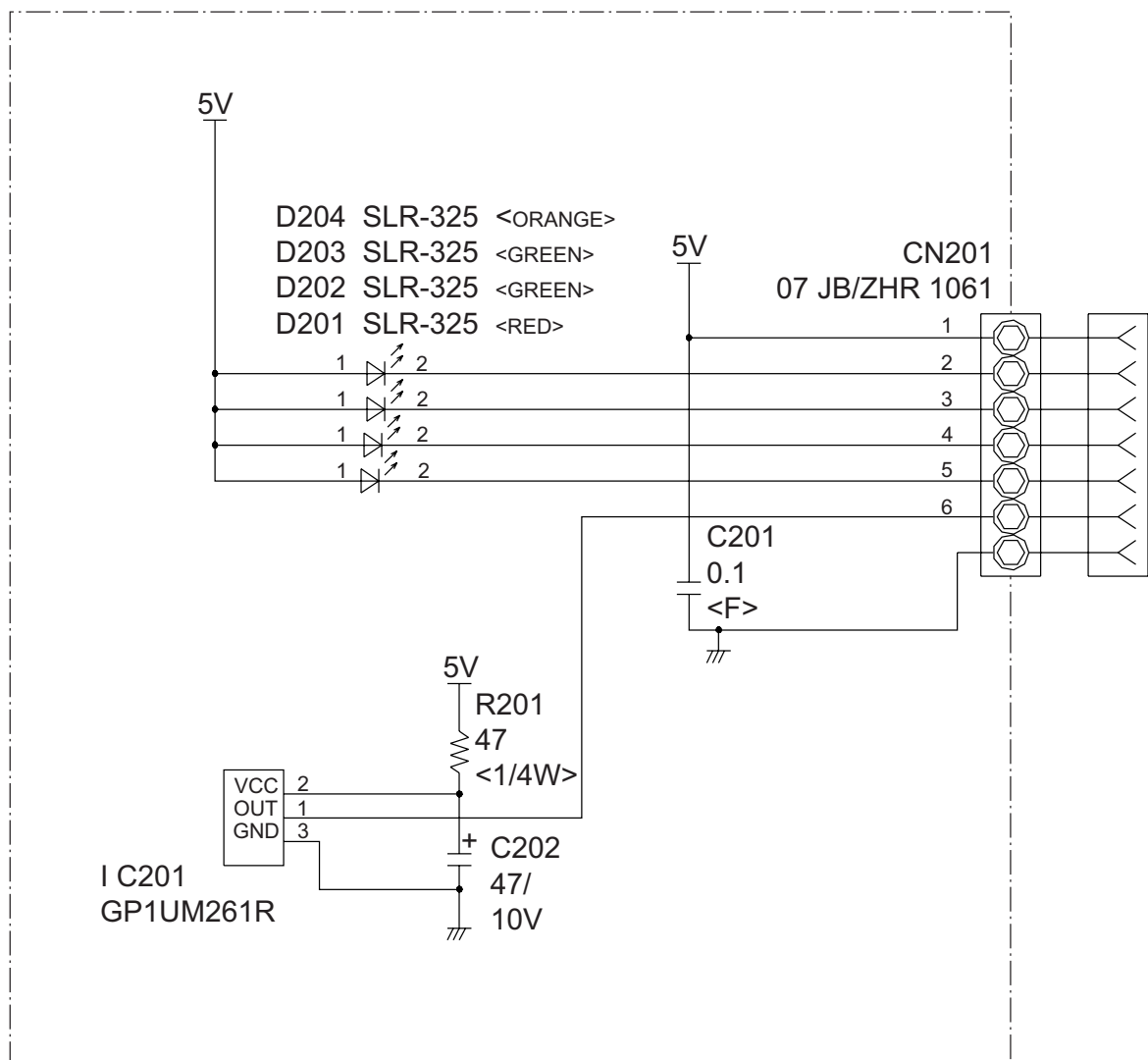
MW18Y3FM



Models :
MW09Y3FM
MW12Y3FM
MW18Y3FM

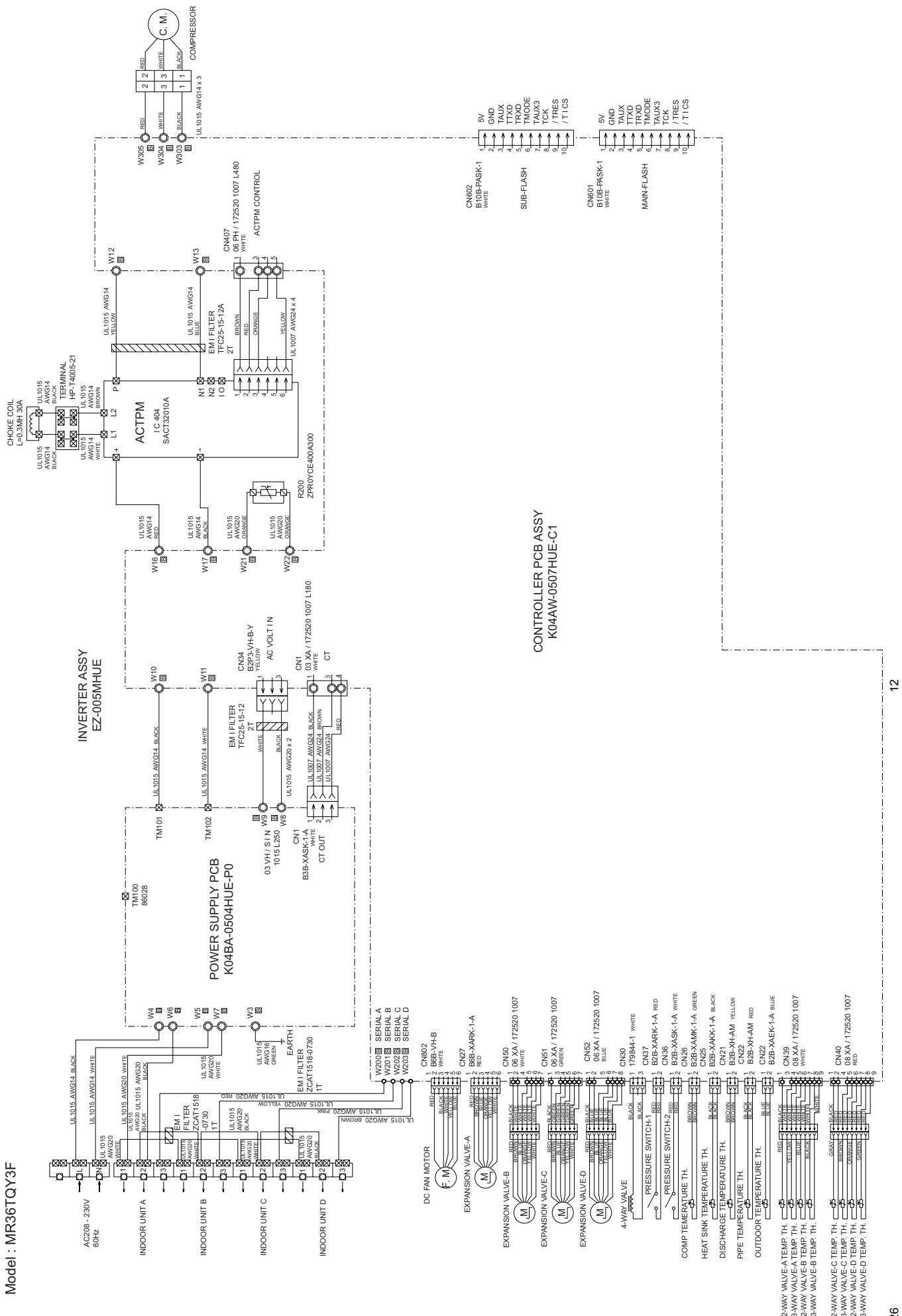
INDICATOR PCB ASSEMBLY

K02CB-0300HSD-D0



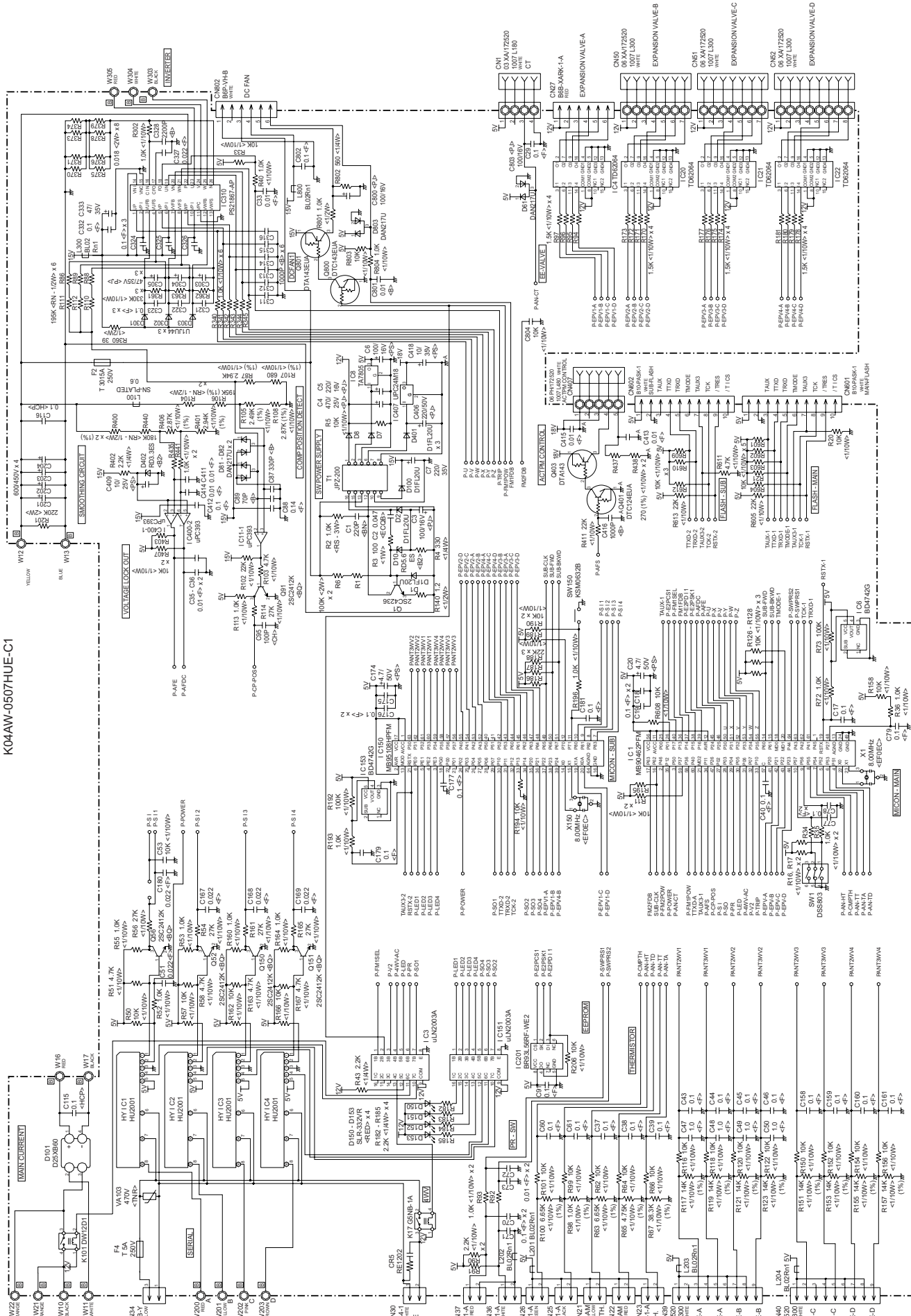
OUTDOOR PCB CIRCUIT DIAGRAM

Model : MR36TQY3F



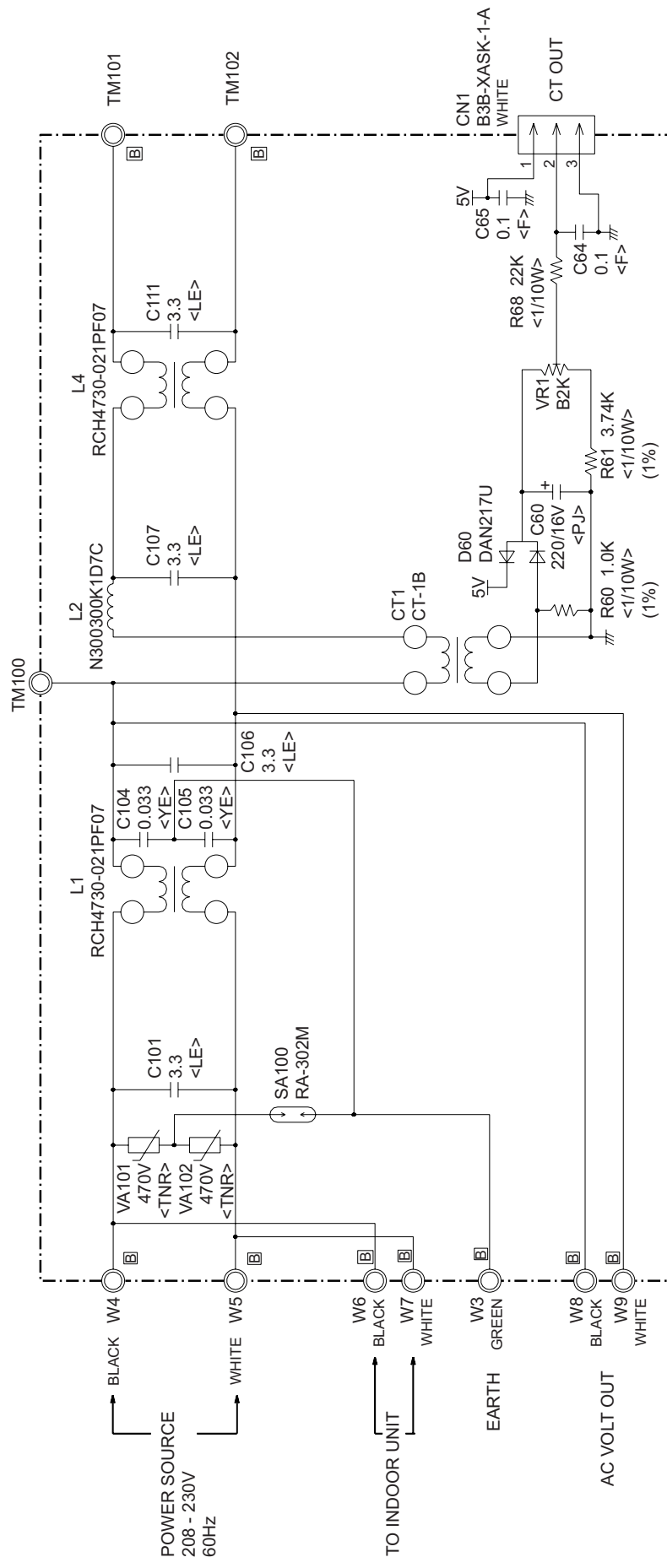
Model : MR36TQY3F

CONTROLLER PCB ASSEMBLY
K04AW-0507HUE-C1



Model : MR36TQY3F

POWER SUPPLY PCB ASSEMBLY
K04BA-0400HUE-P0



ERROR CONTENTS

INDOOR UNIT

Models :
MW09Y3FM
MW12Y3FM
MW18Y3FM

Error contents		Error display Indoor unit LED			
		OPERATION (Red)	TIMER (Green)	AIR CLEAN or QUIET (Green)	COIL DRY (Orange)
Communication error	Indoor unit - Outdoor unit	off	2 - 5 flashes	off	off
Indoor unit temperature error	Room temp. sensor error	2 flashes	2 flashes	off	off
	Heat exchanger temp. sensor error	2 flashes	3 flashes	off	off
Outdoor unit temperature error	Discharge pipe temp. sensor error	3 flashes	2 flashes	off	off
	Heat exchanger temp. sensor error	3 flashes	3 flashes	off	off
	Outdoor temp. sensor error	3 flashes	4 flashes	off	off
	2 way valve temp. sensor error	3 flashes	off	2 flashes	off
	3 way valve temp. sensor error	3 flashes	off	3 flashes	off
	Heat sinnk temp. sensor error	3 flashes	7 flashes	off	off
	Compressor temp. sensor error	3 flashes	8 flashes	off	off
Indoor unit control system error	MANUAL AUTO button error	4 flashes	2 flashes	off	off
	50Hz / 60Hz distinguish error	4 flashes	4 flashes	off	off
	Electronic Air clean filter error	4 flashes	7 flashes	off	off
	Electronic Air clean filter error	4 flashes	8 flashes	off	off
Outdoor unit control system error	Current trip error	5 flashes	2 flashes	off	off
	CT error	5 flashes	3 flashes	off	off
	Compressor position error	5 flashes	5 flashes	off	off
	Fan motor error	5 flashes	6 flashes	off	off
	Connected indoor unit error	5 flashes	7 flashes	off	off
	Main CPU - sub CPU communication error	5 flashes	8 flashes	off	off
Indoor unit fan motor error	Fan motor error	6 flashes	2 flashes	off	off
	Fan motor error	6 flashes	3 flashes	off	off
Refrigerant system error	Discharge pipe temp. error	7 flashes	2 flashes	off	off
	High pressure error	7 flashes	3 flashes	off	off
	High pressure switch error	7 flashes	6 flashes	off	off
Added function error	Active filter error	8 flashes	2 - 3 flashes	off	off
Indoor unit connect error	Indoor unit model error	blinking	blinking	blinking	blinking

OUTDOOR UNIT LEDS

	LED 1	LED 2	LED 3	LED 4
Communication error (indoor unit A to outdoor unit)	● 1 time	—	—	—
Communication error (indoor unit B to outdoor unit)	—	● 1 time	—	—
Communication error (indoor unit C to outdoor unit)	—		● 1 time	—
Communication error (indoor unit D to outdoor unit)	—	—	—	● 1 time
Discharge pipe temperature sensor	● 2 times	—	—	—
Outdoor heat exchanger temperature sensor	● 3 times	—	—	—
Outdoor temperature sensor	● 4 times	—	—	—
Outdoor 2way valve(A) temperature sensor	● 5 times	—	—	—
Outdoor 2way valve(B) temperature sensor	—	● 5 times	—	—
Outdoor 2way valve(C) temperature sensor	—	—	● 5 times	—
Outdoor 2way valve(D) temperature sensor	—	—	—	● 5 times
Outdoor 3way valve(A) temperature sensor	● 6 times	—	—	—
Outdoor 3way valve(B) temperature sensor	—	● 6 times	—	—
Outdoor 3way valve(C) temperature sensor	—	—	● 6 times	—
Outdoor 3way valve(D) temperature sensor	—	—	—	● 6 times
Compressor temperature sensor	● 7 times	—	—	—
Heatsink temperature sensor	● 8 times	—	—	—
Pressure switch A abnormal	● 9 times	—	—	—
Pressure switch B abnormal	● 10 times	—	—	—
Indoor unit connection capacity error	● 11 times	—	—	—
IPM error	● 12 times	—	—	—
Compressor loter location error	● 13 times	—	—	—
Compressor can not start to operate	● 14 times	—	—	—
Outdoor fan (upper) motor error	● 15 times	—	—	—
Outdoor fan (lower) motor error	● 16 times	—	—	—
Microcomputer error	● 17 times	—	—	—

● : Slow flashing

- : Off

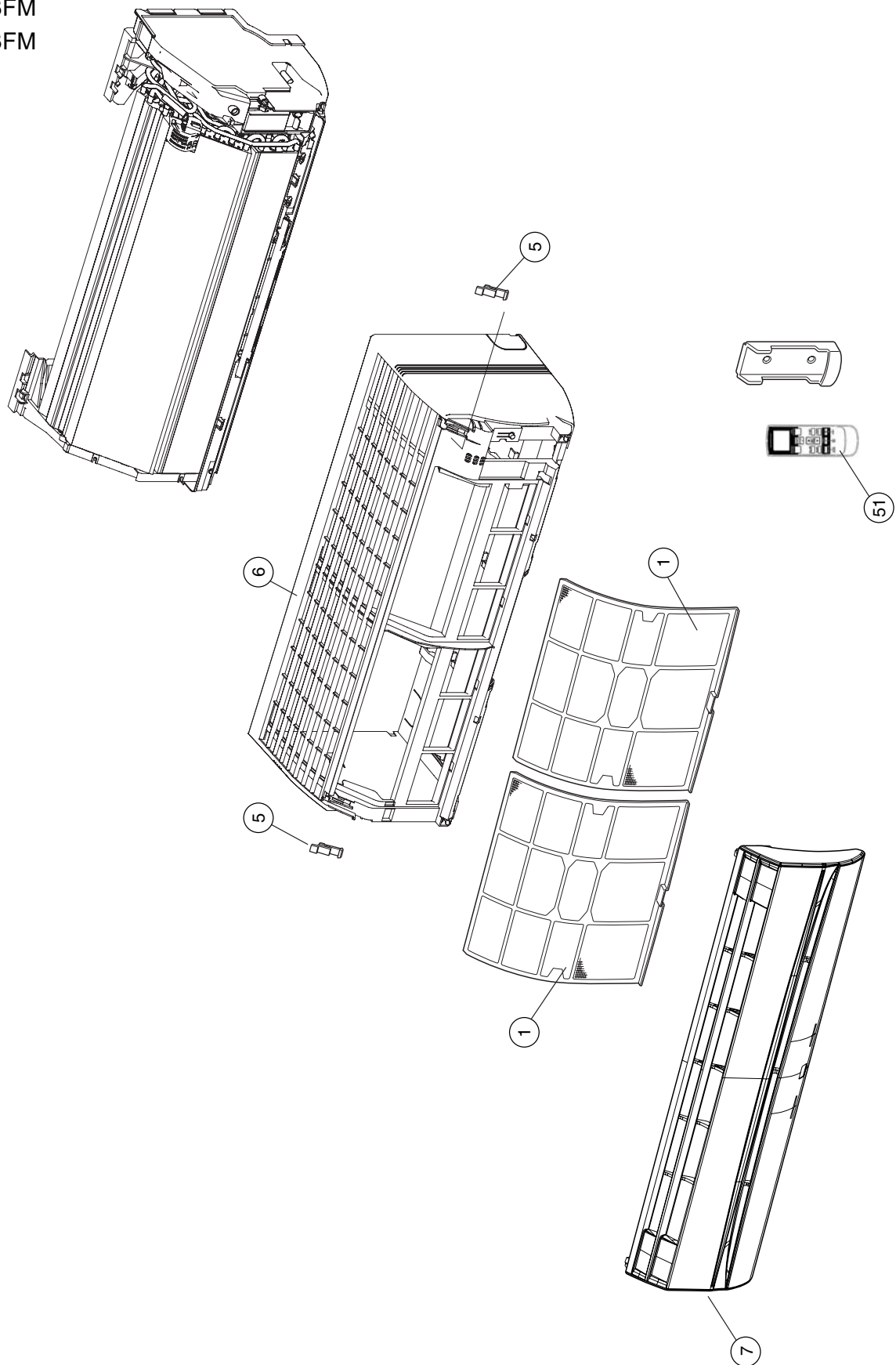
DISASSEMBLY ILLUSTRATION

Models :

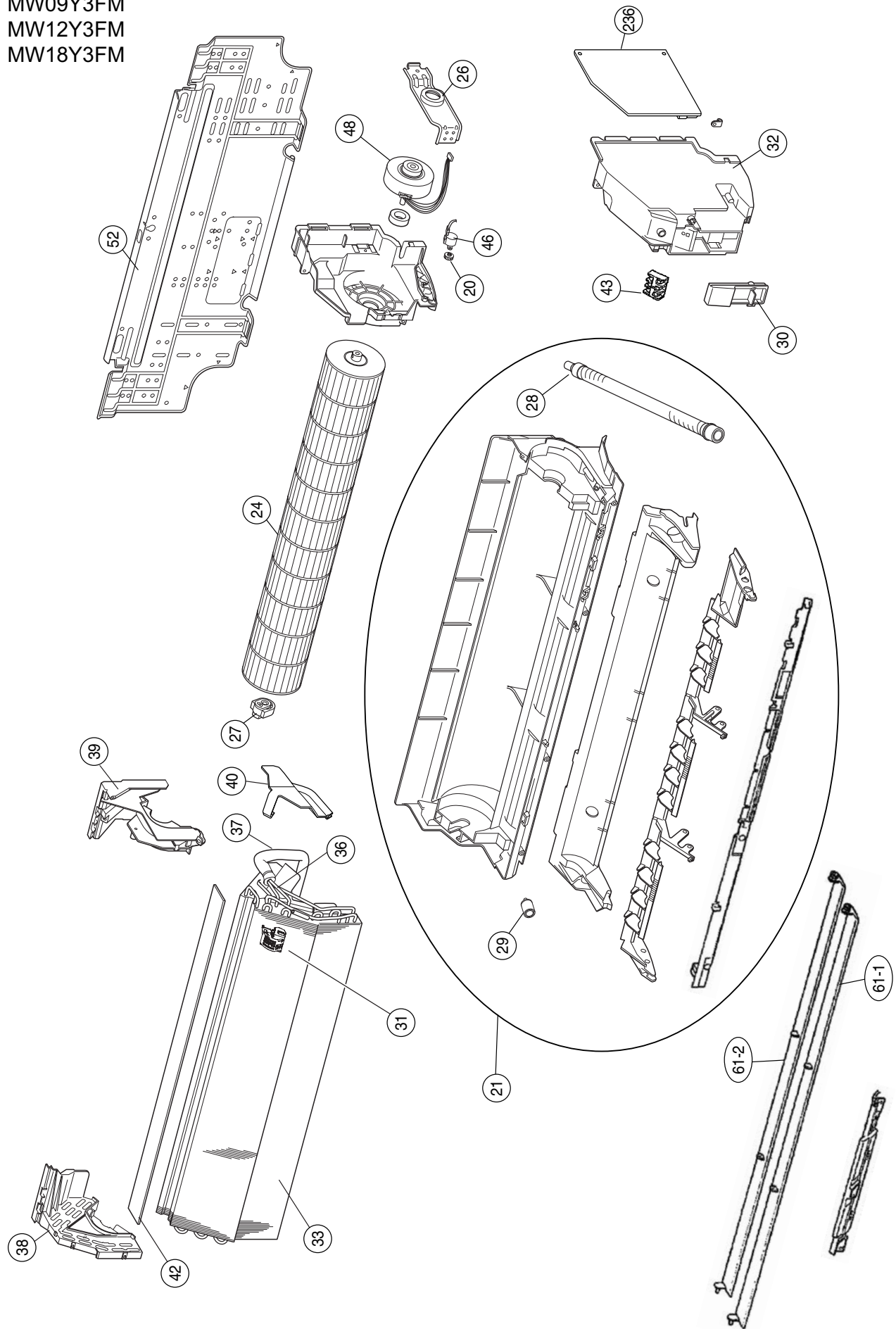
MW09Y3FM

MW12Y3FM

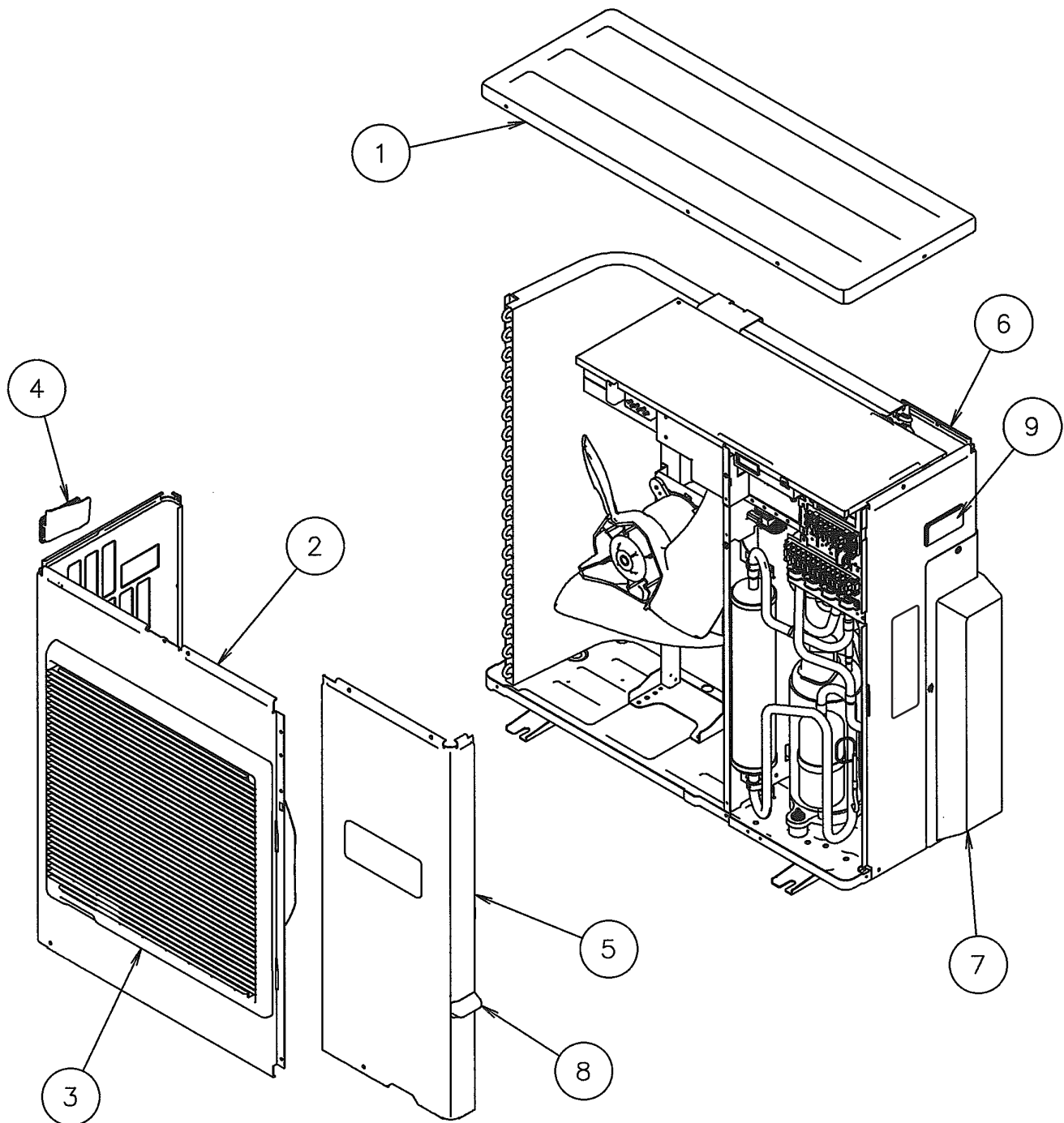
MW18Y3FM



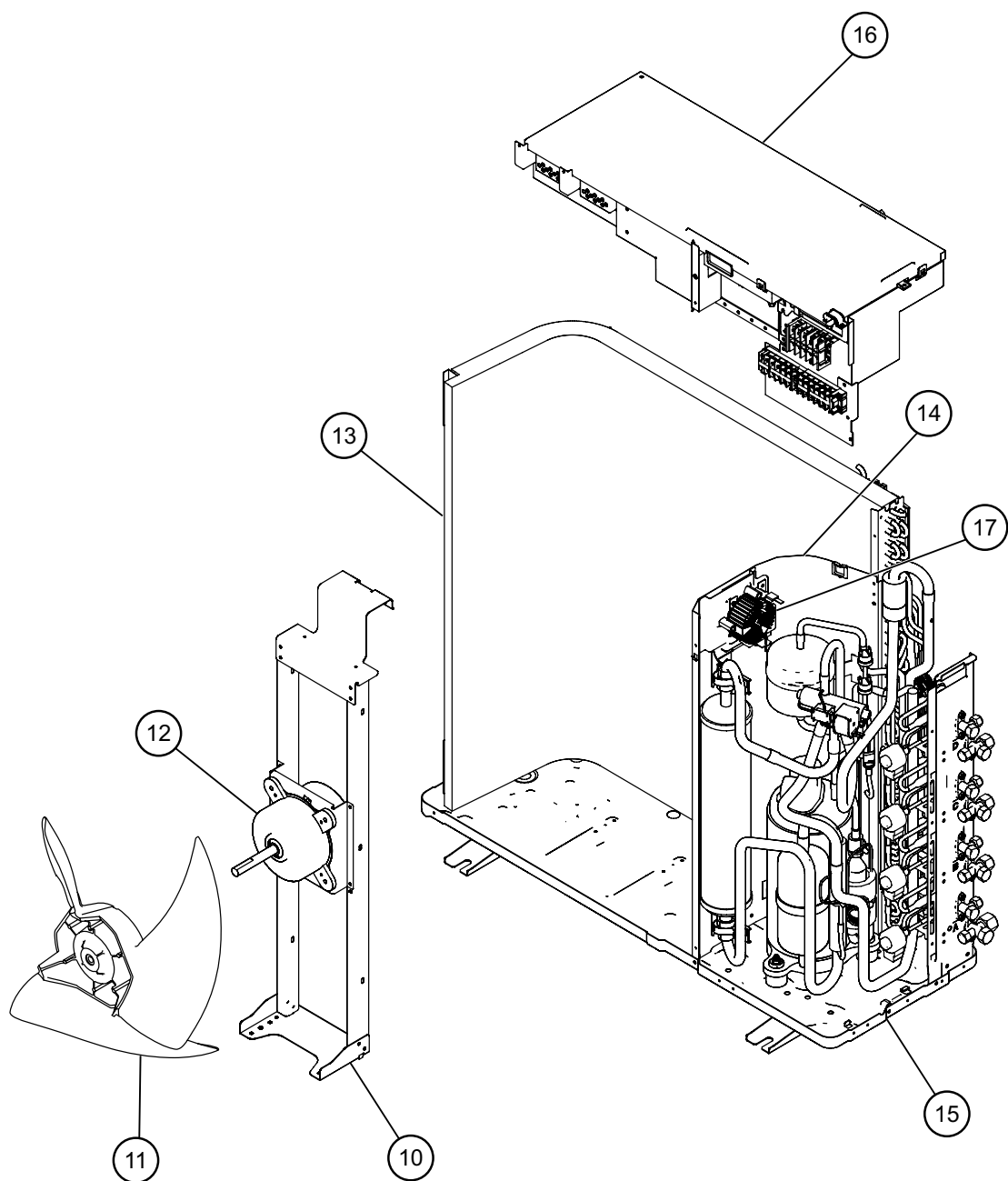
Models :
 MW09Y3FM
 MW12Y3FM
 MW18Y3FM



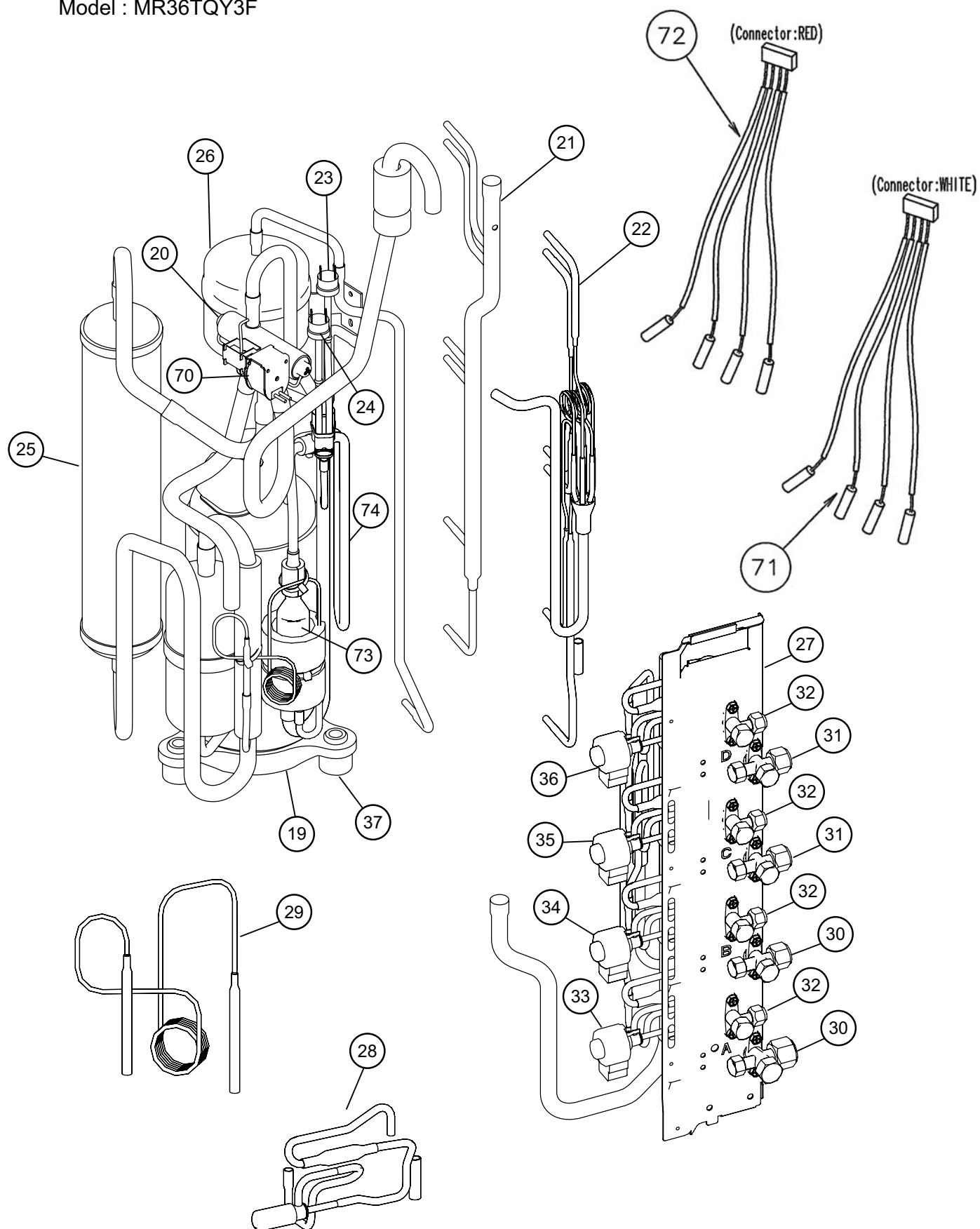
Model : MR36TQY3F



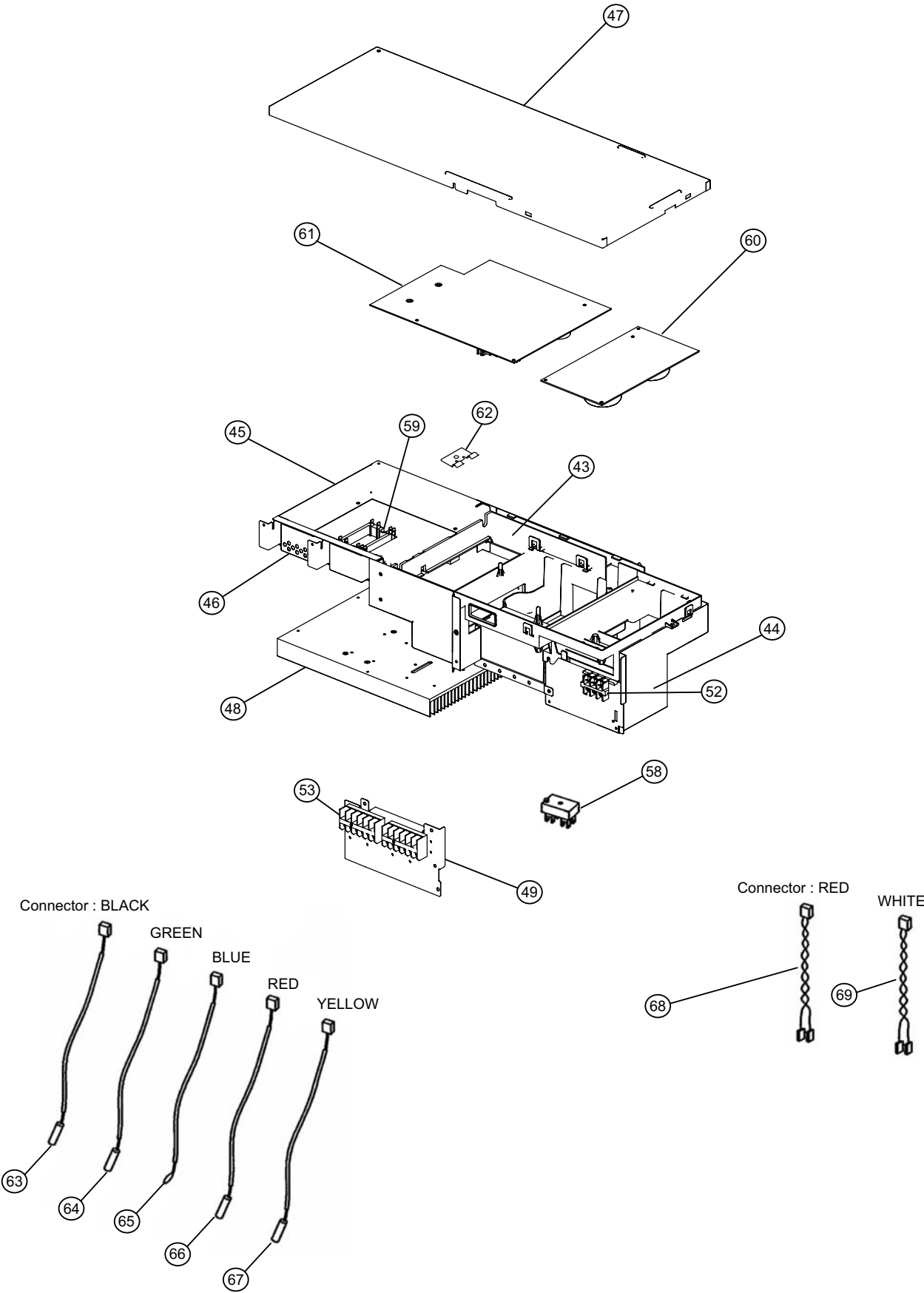
Model : MR36TQY3F



Model : MR36TQY3F



Model : MR36TQY3F



PARTS LIST

INDOOR UNIT

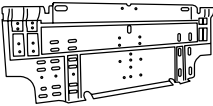
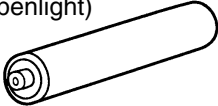
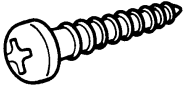
Ref. No.	Description	Part No.			Ord. Q'ty
		MW09Y3FM	MW12Y3FM	MW18Y3FM	
1	Air Filter	9309997011	9309997011	9309997011	
5	Clamper (Grille)	9306755010	9306755010	9306755010	
6	Front Panel	9309999053	9309999053	9309999053	
7	Intake Grille Assy	9313566043	9313566043	9313566043	
20	Gear-A	9309994003	9309994003	9309994003	
21	Casing Assy	9312112074	9312112074	9312112074	
24	Crossflow Fan Assy	9307836015	9307836015	9307836015	
26	Clamp (Motor)	9310102008	9310102008	9310102008	
27	Shaft Holder-C Assy	9306628017	9306628017	9306628017	
28	Drain Hose Assy	9305550029	9305550029	9305550029	
29	Drain Cap Assy	9314493010	9314493010	9314493010	
30	Wire Clamper	9311946014	9311946014	9311946014	
31	Holder (Room Thermistor)	9311948018	9311948018	9311948018	
32	Cover (Switch)	9313943011	9313943011	9313943011	
33	Evaporator Total Assy	9313099015	9313099015	9313099015	
36	Joint Pipe Assy	9313792015	9313792015	9313792015	
37	Insulation (Pipe)-E	9304607007	9304607007	9304607007	
38	Holder (Evaporator)-L Assy	9313174019	9313174019	9313174019	
39	Holder (Evaporator)-R	9309983014	9309983014	9309983014	
40	Water Seal	9312912018	9312912018	9312912018	
42	Air Seal	9310611005	9310611005	9310611005	
43	Terminal	9701955114	9701955114	9701955114	
46	Step Motor	9900139025	9900139025	9900139025	
48	Fan Motor Assy	9602109012	9602109012	9602109012	
51	Remote Control Unit	9315260017	9315260017	9315260017	
52	Bracket Panel	9310001004	9310001004	9310001004	
61-1	Flow Control Panel-U Assy	9312368020	9312368020	9312368020	
61-2	Flow Control Panel-Z Assy	9312369027	9312369027	9312369027	
236	Controller PCB Assy	9707193053	9707193060	9707193077	
		(K04CP-0600HSE-C1)	(K04CP-0601HSE-C1)	(K04CP-0602HSE-C1)	
---	Pipe Temperature Thermistor	9702039042	9702039042	9702039042	
---	Room Temperature Thermistor	9700801108	9700801108	9700801108	
---	Indicator PCB Assy	9705039032	9705039032	9705039032	
---	Evaporator B Assy	-----	-----	9311275022	

OUTDOOR UNIT

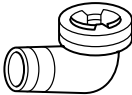
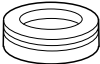
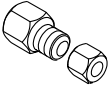
Ref. No.	Description	Part No.	Ord. Q'ty	Ref. No.	Description	Part No.	Ord. Q'ty
		MR36TQY3F				MR36TQY3F	
1	Top Panel Sub Assy	9374417025		41	Washer (Rubber)	9358078006	
2	Front Panel M	9374094066		42	Frange Nut	9358079003	
3	Fan Guard	9374330010		43	Inverter Box A	9374603015	
4	Grip Side	9374173013		44	Inverter Box B Assy	9374625024	
5	Service Panel M	9374093069		45	Inverter Box C	9374605026	
6	Right Panel M	9374599066		46	Inverter Box Duct	9374609017	
7	Valve Cover Sub Assy	9374827015		47	Inverter Box Cover	9374608010	
8	Grip Service	9374171019		48	Heat Sink A	9374607020	
9	Grip	9374172016		49	Inverter Box D	9374606023	
10	Motor Bracket Sub Assy	9374418091		52	Terminal (3P)	9900203016	
11	Propeller Fan Assy	9366378020		53	Terminal (6P)	9900016036	
12	Motor. DC Brushless	9602114016		58	Terminal	9701971015	
13	Condenser A Assy	9374433148		59	ACTPM	9703457012	
14	Separate Wall Assy S	9375226015		60	PWB Assy (Power Supply)	9705647084	
15	Base Assy	9374166183		61	PWB Assy (Controller)	9705642133	
16	Inverter Assy	9707152012		62	Holder (Thermo)	9372797013	
17	Coil. Choke	9900366018		63	Heat Sink Thermistor	9900311018	
18	Cap Foot	9374345014		64	Compressor Temp Thermistor	9900156022	
19	Compressor Sub Assy	9374423064		65	Thermistor (Outdoor Temp)	9900378035	
20	4-Way Valve Assy	9374425082		66	Heat Exchanger Thermistor	9900374020	
21	Inlet Pipe (Cond) A Assy	9373461067		67	Discharg Temp Thermistor	9704219114	
22	Outlet Pipe (Cond) A Assy	9374266067		68	Wire (Pressure Sw)(Red)	9367595037	
23	Pressure Switch A Assy	9367726028		69	Wire (Pressure Sw)(White)	9367595044	
24	Pressure Switch B Assy	9367727025		70	Solenoid	9900165055	
25	Accumulator Sub Assy	9374426072		71	Thermistor (Pipe)(White)	9900373030	
26	Receiver Tank Sub Assy	9373426028		72	Thermistor (Pipe)(Red)	9900373023	
27	Valve Plate A Assy	9374628087		73	Oil Separater Assy	9367723027	
28	Expansion Valve Assy	9370947106		74	Discharg PipeA Assy	9372264119	
29	Capillary Assy	9372197370					
30	3-Way Valve Assy (1/2")	9375104016					
31	3-Way Valve Assy (3/8")	9375103019					
32	2-Way Valve Assy	9375102012					
33	Coil (Expansion Valve)(A=Red)	9900057084					
34	Coil (Expansion Valve)(B=White)	9900057053					
35	Coil (Expansion Valve)(C=Green)	9900057060					
36	Coil (Expansion Valve)(D=Blue)	9900057077					
37	Rubber Seat (For Comp)	9358080009					
38	Gasket	9370290004					
39	Holder	9372066010					
40	Terminal Cover (Comp)	9370289008					

STANDARD ACCESSORIES

INDOOR UNIT

Name and Shape	Q'ty	Use	Part No.
Wall hook bracket 	1	For indoor unit installation	9310001004
Remote control unit 	1	Use for air conditioner operation	9315260017
Battery (penlight) 	2	For remote control unit	0600185527
Cloth tape 	1	For indoor unit installation	9310519004
Remote control unit holder 	1	Use as remote control unit holder	9305642045
Tpping screw (big) (ϕ 4 x 20) 	8	For wall hook bracket installation	0700076046
Tpping screw (small) (ϕ 3 x 12) 	2	For remote control unit holder installation	0700019036

OUTDOOR UNIT

Name and Shape	Q'ty	Use	Part No.
Drain pipe 	1	For outdoor unit drain piping work	9303029015
Drain cap 	5		313166024302
Adapter assy 12.7 mm $\rightarrow$ 9.52 mm (1/2 in.) (3/8 in.) 	1	For use when connecting models 9-12 to outdoor port A	9370244007

