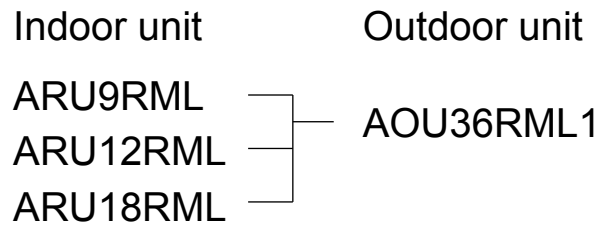


INVERTER MULTI
AIR CONDITIONER
CONCEALED CEILING TYPE

SERVICE MANUAL



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SPECIFICATIONS (INDOOR UNIT)

ELECTRICAL DATA

TYPE	Cooling & Heating		
POWER SOURCE	1 - 230 / (208) V 60 Hz		
MODEL NAME	ARU9RML	ARU12RML	ARU18RML
COOLING CAPACITY (Rated / Max)	2.8 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 / 5.60 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	1.9 Pints/h (0.9 L/h)	2.5 Pints/h (1.2 L/h)	3.4 Pints/h (1.6 L/h)
AIR CIRCULATION HIGH	294 cfm (500 m ³ /h)	412 cfm (700 m ³ /h)	494 cfm (840 m ³ /h)

Power source of specification : 230 V

FAN MOTOR

DISCRIMINATION		MFA-09PPT	MFA-14PPT	
FAN SPEED	High	1,070 r.p.m.	850 r.p.m.	1,010 r.p.m.
	Middle	880 r.p.m.	790 r.p.m.	850 r.p.m.
	Low	800 r.p.m.	700 r.p.m.	800 r.p.m.

NOISE LEVEL

NOISE LEVEL (Cool / Heat)	High	39 dB / 39 dB	36 dB / 36 dB	40 dB / 40 dB
	Middle	35 dB / 35 dB	34 dB / 34 dB	36 dB / 36 dB
	Low	32 dB / 32 dB	31 dB / 31 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	8-35/64 x 25-5/8 x 23-29/64 (217 x 650 x 596 mm)	8-35/64 x 37-1/64 x 23-29/64 inch (217 x 940 x 596 mm)
WEIGHT Net / Gross	40 lb. / 48 lb. (18 kg / 22 kg)	55 lb. / 64 lb. (25 kg / 29 kg)

SPECIFICATIONS (OUTDOOR UNIT)

ELECTRICAL DATA

TYPE		4 room multi inverter
MODEL NAME		AOU36RML1
POWER SUPPLY		230 V / 208 V
FREQUENCY		60 Hz
AIR CIRCULATION High	Cooling	2119 cfm (3,600 m3/h)
	Heating	2237 cfm (3,800 m3/h)
NOISE LEVEL	Cooling	51 dB
	Heating	53 dB

FAN MOTOR

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

COMPRESSOR AND REFRIGERANT

COMPRESSOR TYPE		Hermetic type, Inverter, 4 poles, 3-phase, DC motor, Twin Rotary
DISCRIMINATION		TNB220FPBM9
WEIGHT		14.3 kg
STANDARD REFRIGERANT		7 lb 7/8 oz (3,200 g)
REFRIGERANT TYPE		R410A
ADDITIONAL CHARGE	Total Pipe Length	164 ft (50 m) (Chargeless)
		197 ft (60 m) 8-13/16 oz (250 g)
		230 ft (70 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)

SPECIFICATIONS (COMBINATION)

ELECTRICAL DATA (230 V)

COMBINATION		ARU9RML x 3	ARU12 + ARU9 x 2	ARU12 x 2 + ARU9
COOLING CAPACITY	Rated	8.1 kW 27,600 BTU/h	8.8 kW 30,000 BTU/h	9.5 kW 32,400 BTU/h
	Max	9.7 kW 33,000 BTU/h	9.9 kW 33,800 BTU/h	10.1 kW 34,600 BTU/h
HEATING CAPACITY	Rated	9.7 kW 33,000 BTU/h	10.4 kW 35,400 BTU/h	10.8 kW 37,000 BTU/h
	Max	11.8 kW 40,200 BTU/h	11.9 kW 40,600 BTU/h	12.0 kW 41,000 BTU/h
INPUT POWER (Cooling)	Rated	2.85 kW	3.40 kW	3.90 kW
	Max	3.74 kW	4.38 kW	4.38 kW
INPUT POWER (Heating)	Rated	3.25 kW	3.65 kW	3.80 kW
	Max	4.30 kW	4.30 kW	4.30 kW
CURRENT (Cooling)	Rated	12.4 A	14.8 A	17.0 A
	Max	16.4 A	19.1 A	19.1 A
CURRENT (Heating)	Rated	14.2 A	16.0 A	16.6 A
	Max	18.8 A	18.8 A	18.8 A

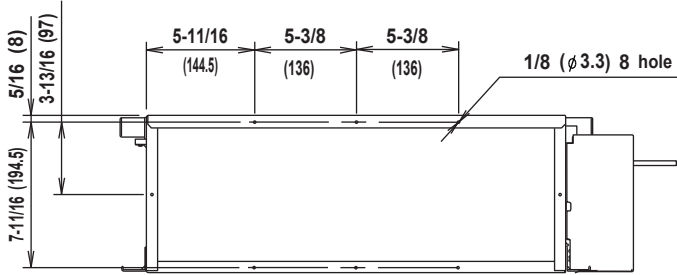
ELECTRICAL DATA (230 V)

COMBINATION		ARU12RML x 3	ARU18 + ARU9 x 2	ARU9RML x 4
COOLING CAPACITY	Rated	10.0 kW 34,000 BTU/h	10.0 kW 34,200 BTU/h	10.3 kW 35,200 BTU/h
	Max	10.4 kW 35,600 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 36,400 BTU/h
	Max	12.3 kW 42,000 BTU/h	12.3 kW 42,000 BTU/h	12.3 kW 42,000 BTU/h
INPUT POWER (Cooling)	Rated	4.15 kW	4.15 kW	4.15 kW
	Max	4.38 kW	4.38 kW	4.38 kW
INPUT POWER (Heating)	Rated	3.65 kW	3.50 kW	3.30 kW
	Max	4.30 kW	4.30 kW	3.85 kW
CURRENT (Cooling)	Rated	18.1 A	18.1 A	18.1 A
	Max	19.1 A	19.1 A	19.1 A
CURRENT (Heating)	Rated	16.0 A	15.3 A	14.5 A
	Max	18.8 A	18.8 A	16.8 A

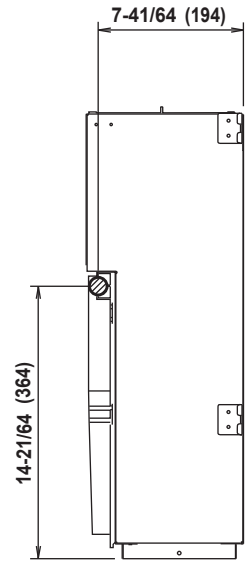
OUTLINE AND DIMENSIONS

INDOOR UNIT
ARU9RML

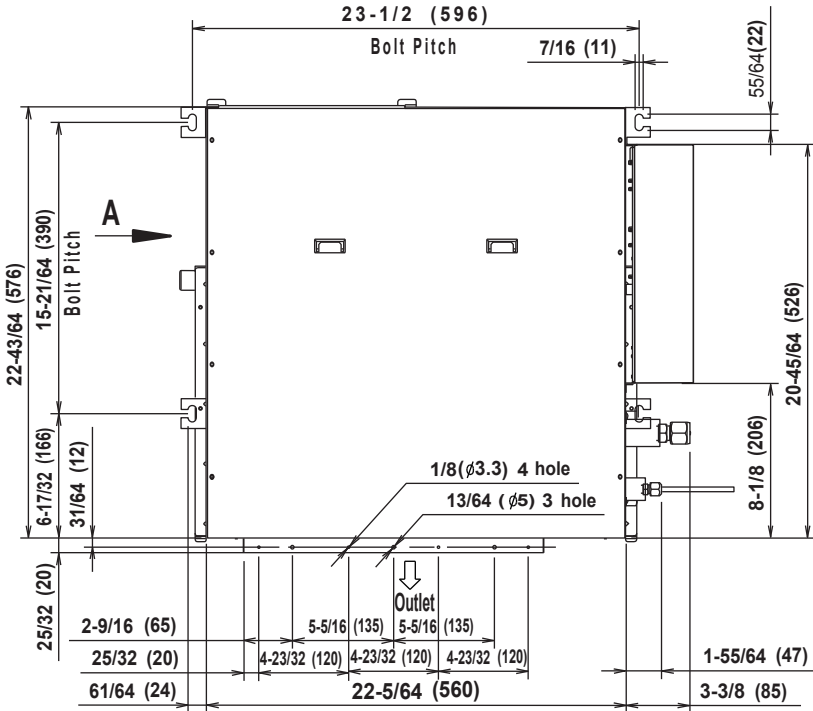
Unit : Inch (mm)



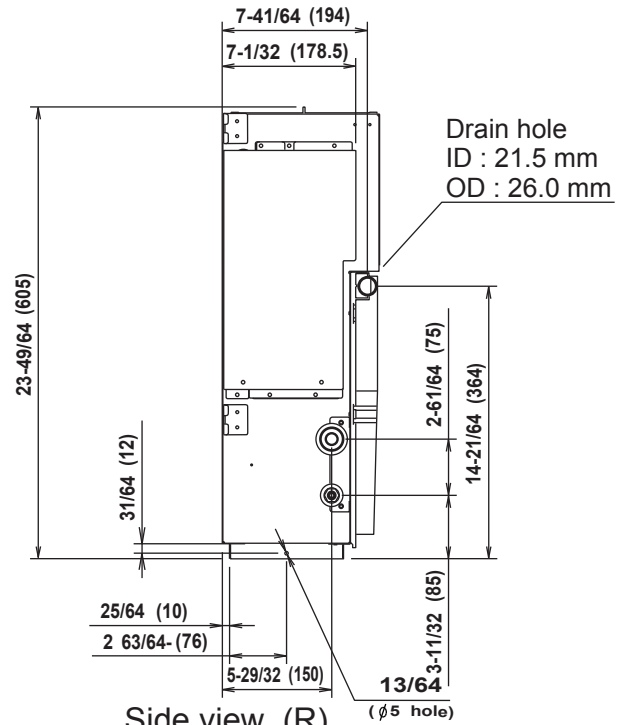
Rear view



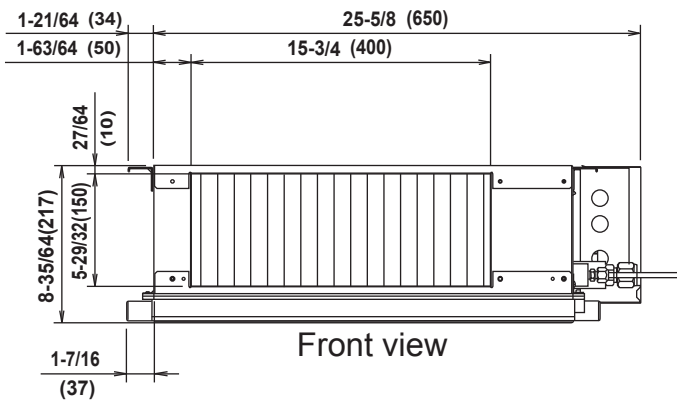
VIEW A



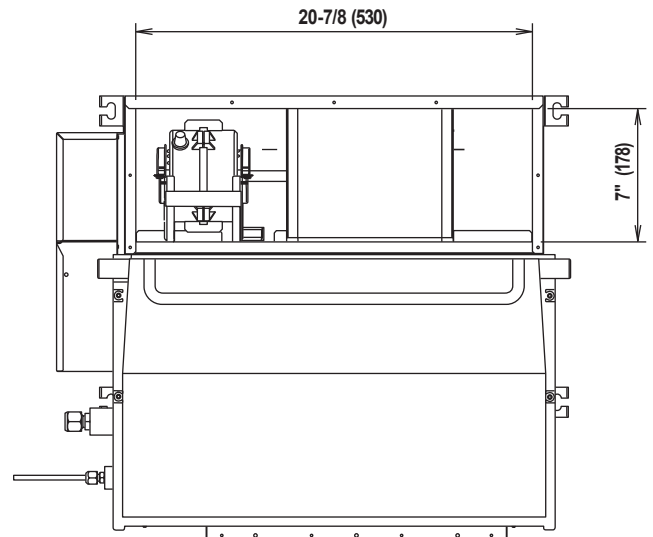
Top view



Side view (R)



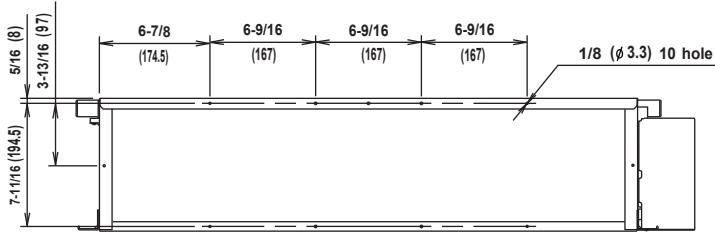
Front view



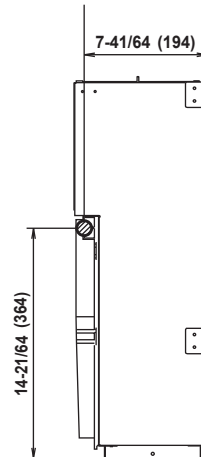
Bottom view

INDOOR UNIT
 ARU12RML
 ARU18RML

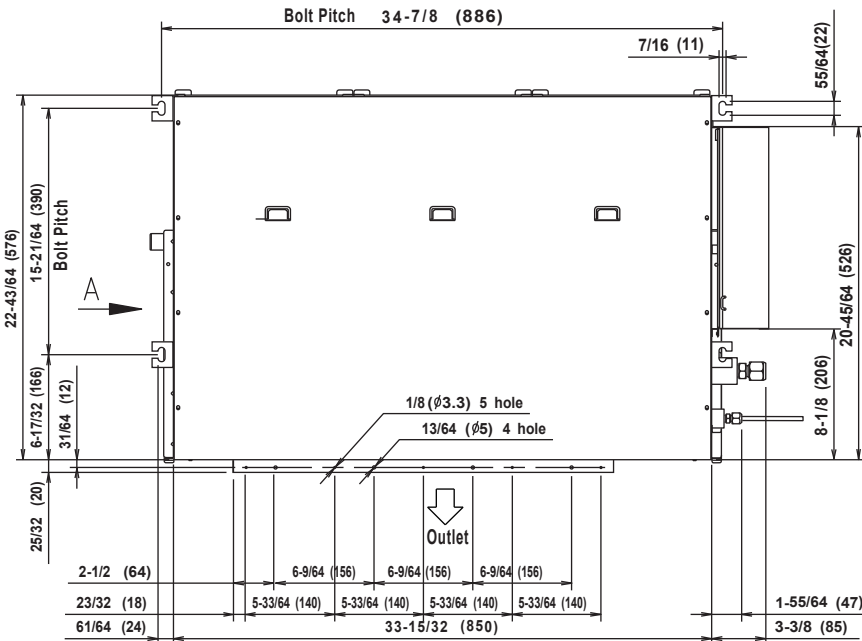
Unit : Inch (mm)



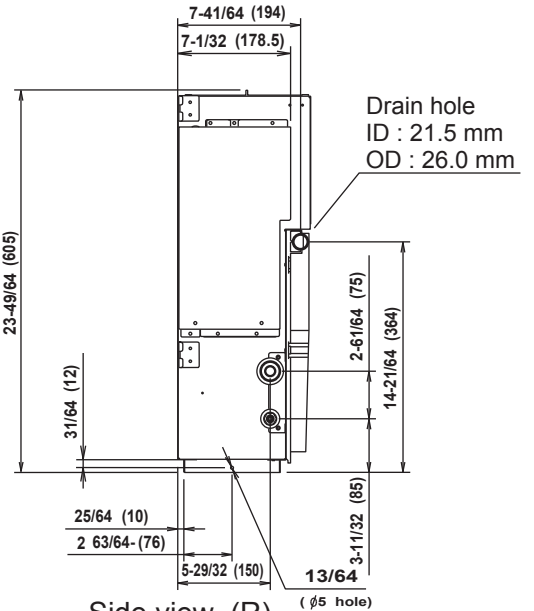
Rear view



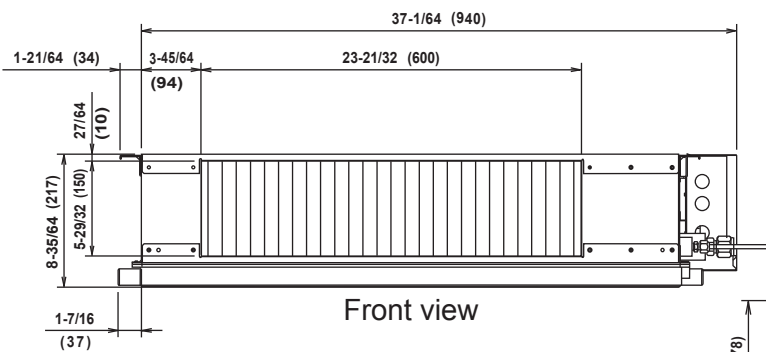
View A



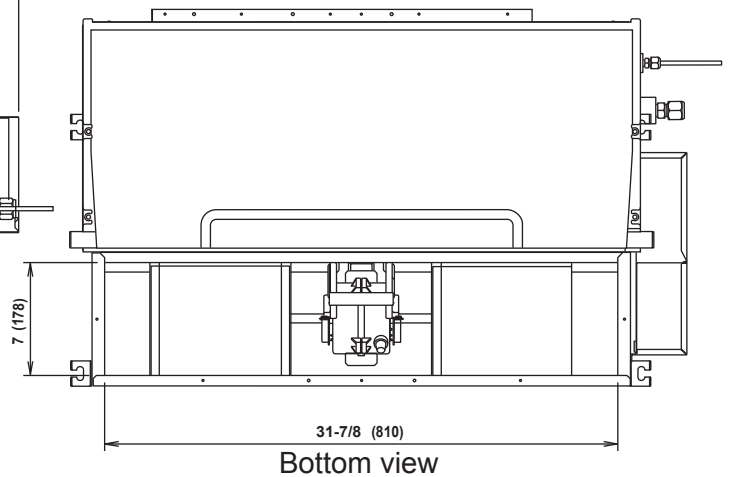
Top view



Side view (R)



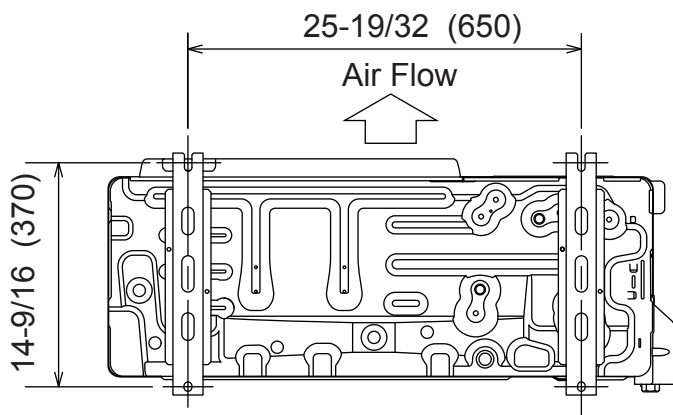
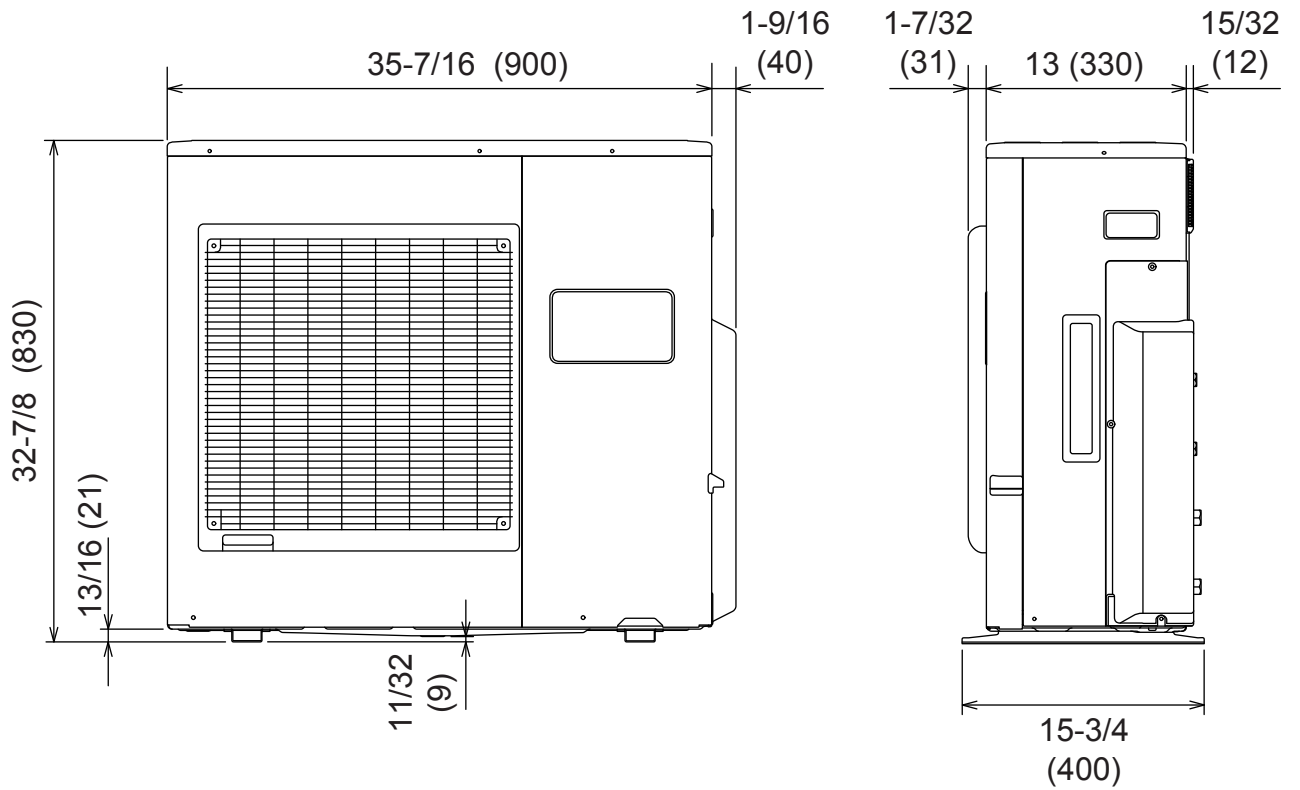
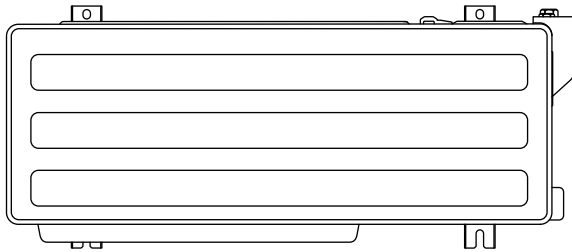
Front view



Bottom view

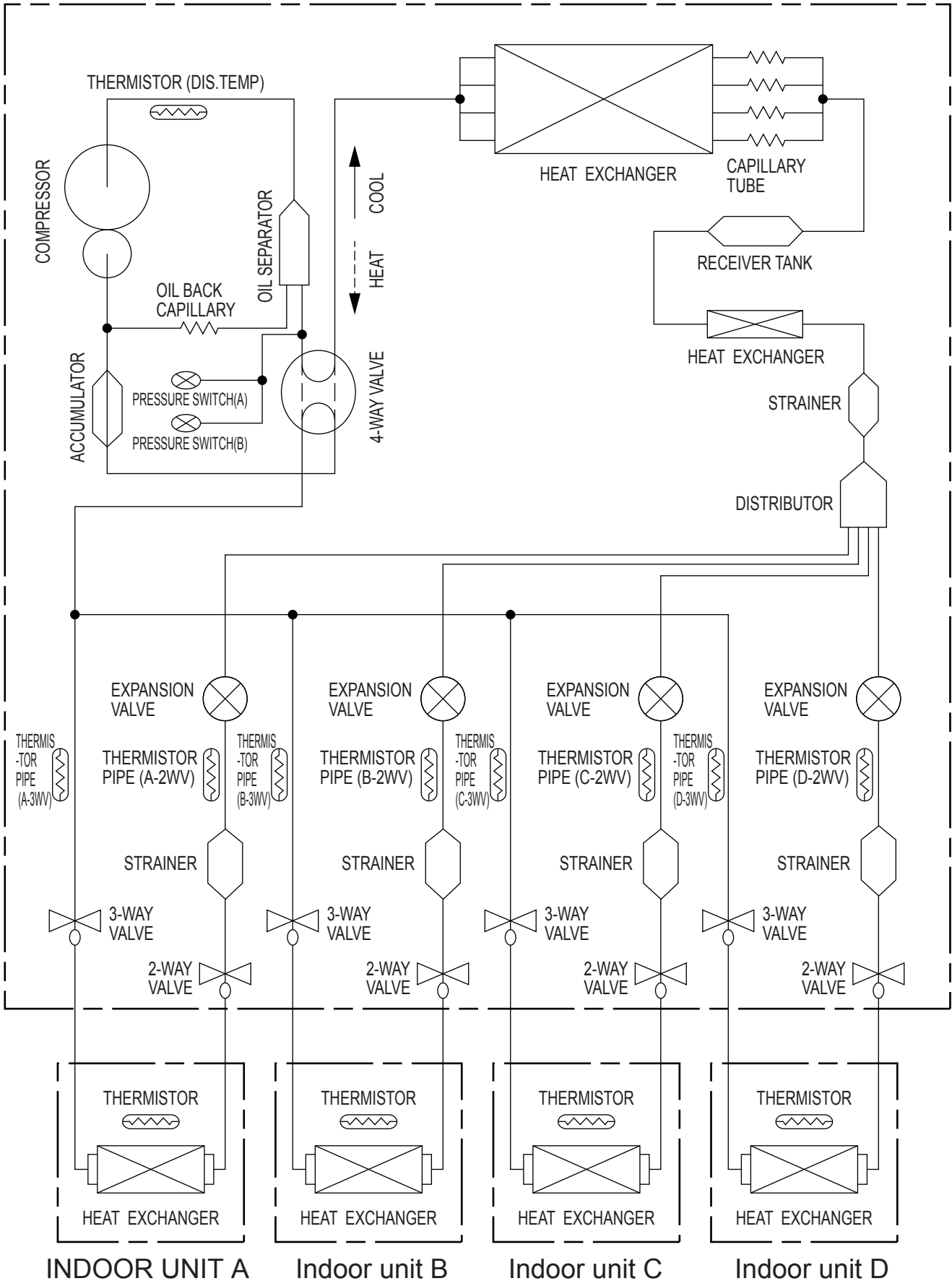
OUTDOOR UNIT

Unit : inch (mm)

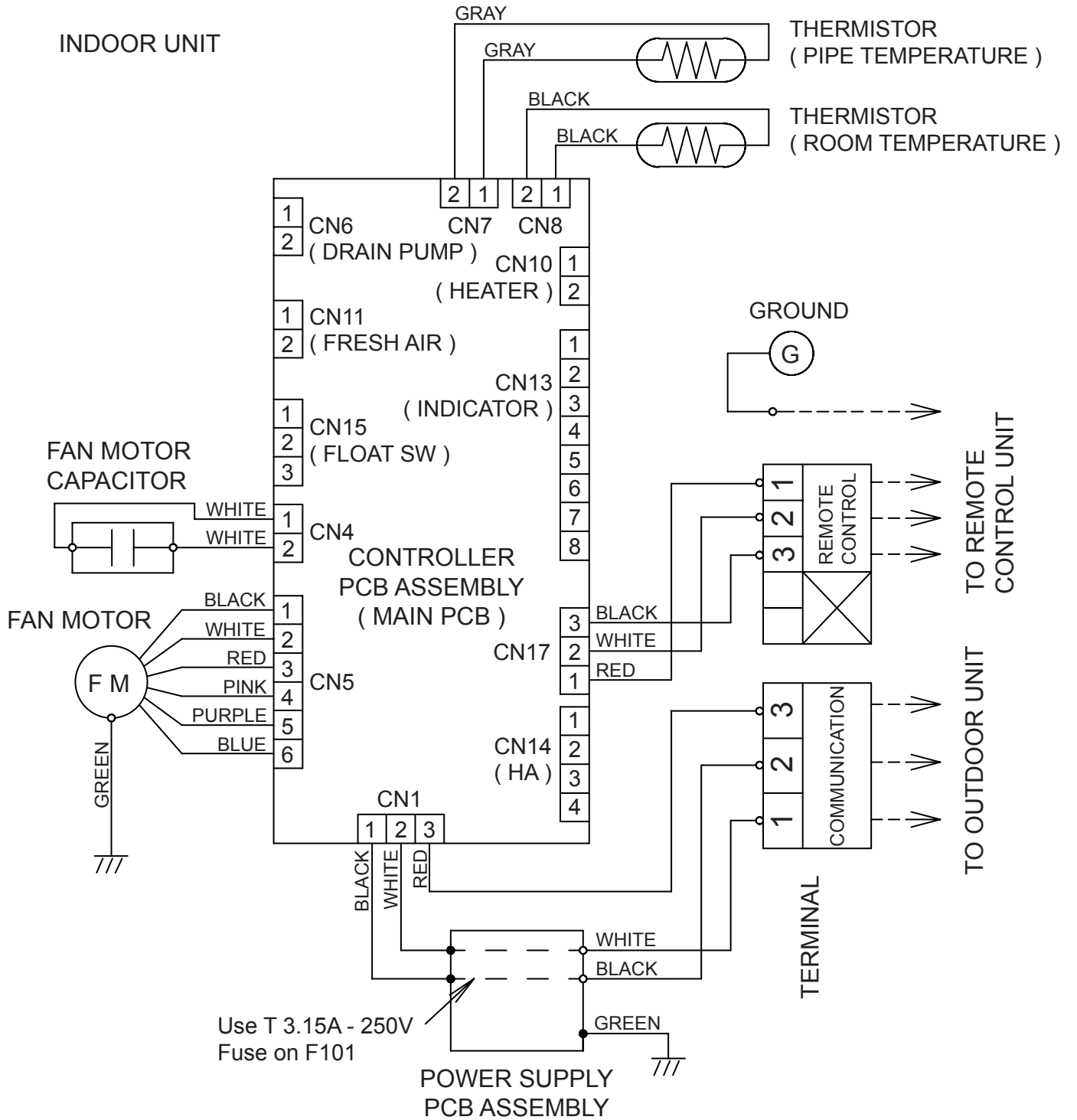


REFRIGERANT SYSTEM DIAGRAM

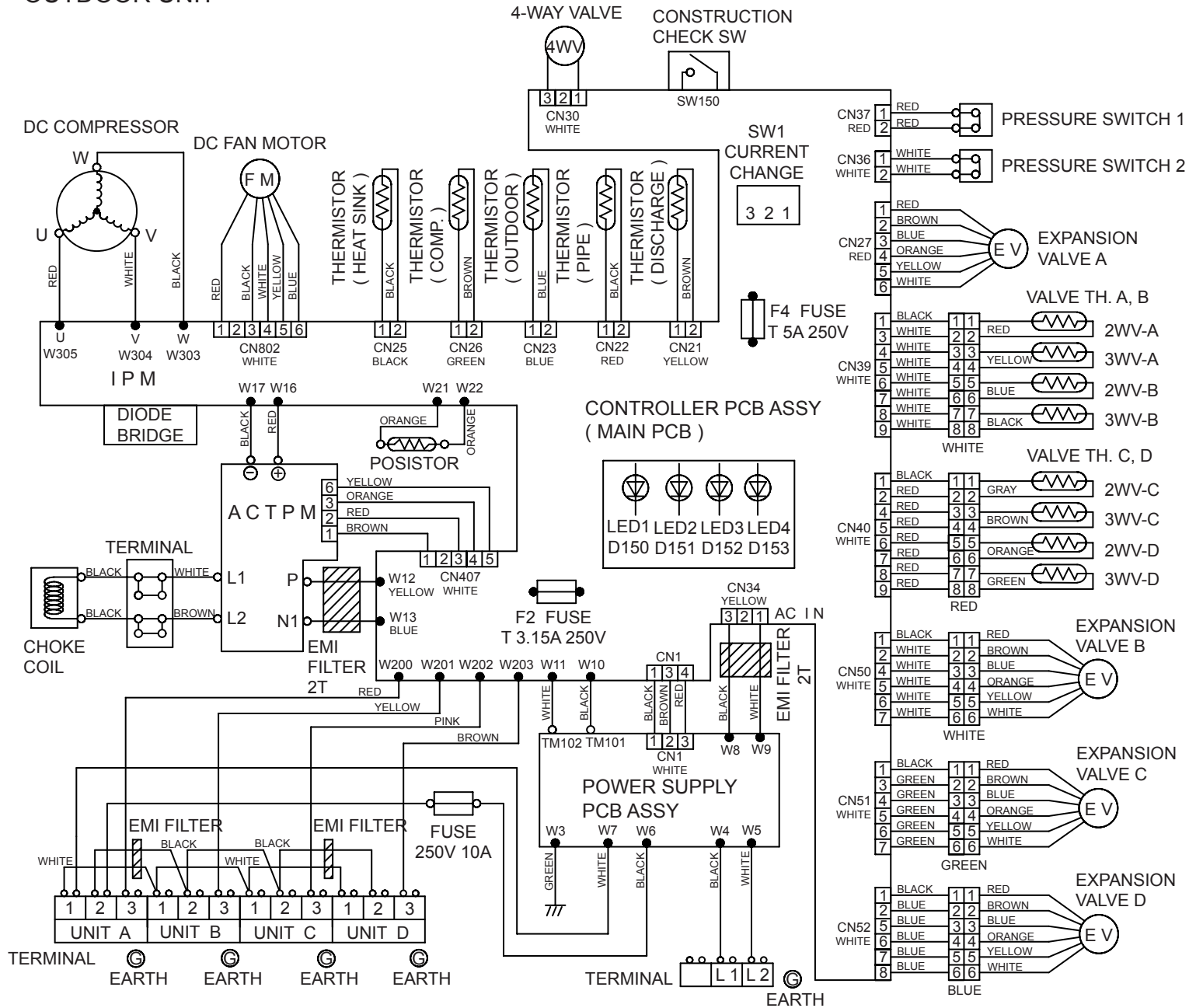
OUTDOOR UNIT



CIRCUIT DIAGRAM



OUTDOOR UNIT



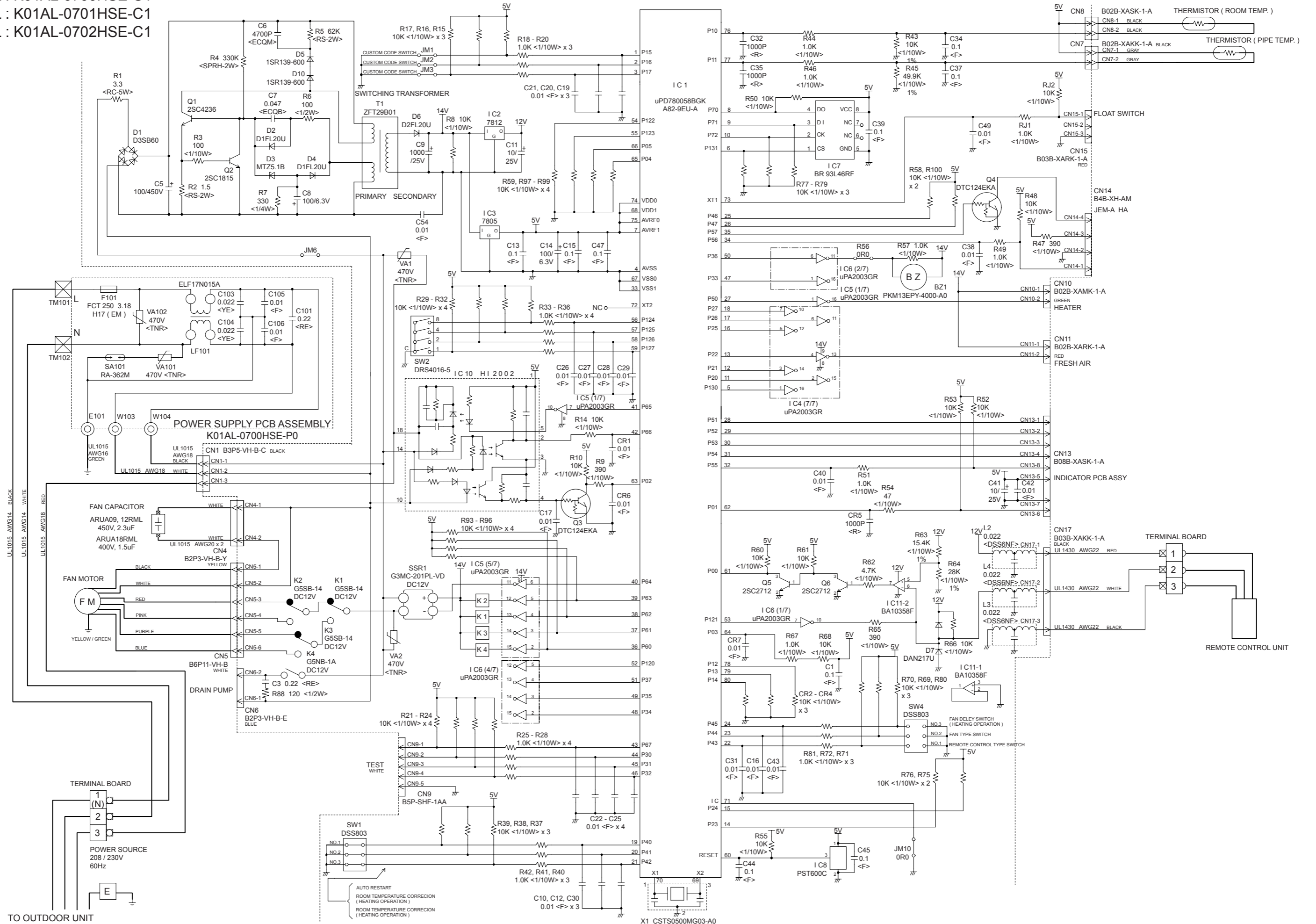
INDOOR PCB CIRCUIT DIAGRAM

CONTROLLER PCB ASSEMBLY (MAIN PCB)

ARU09RML : K01AL-0700HSE-C1

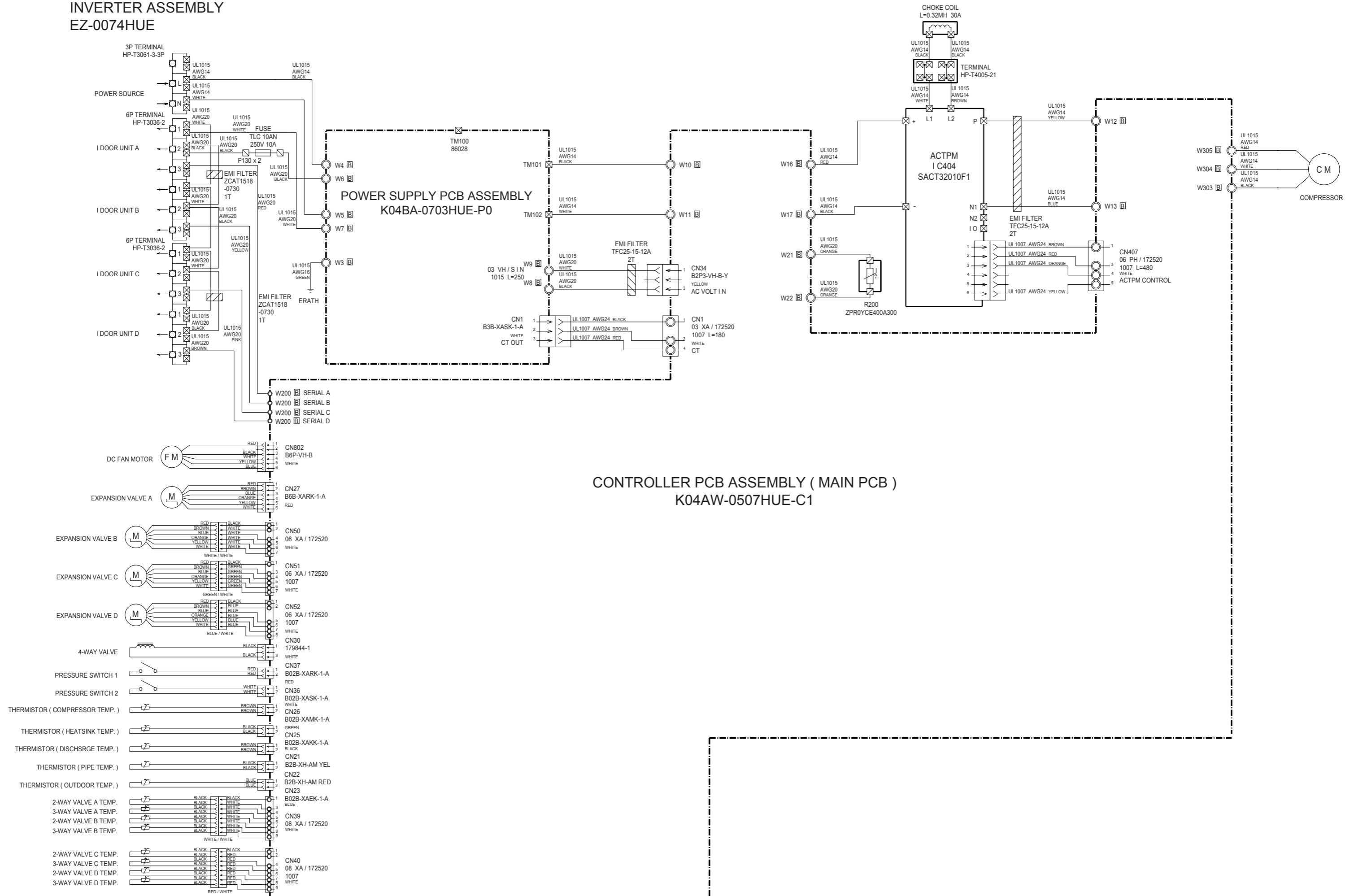
ARU12RML : K01AL-0701HSE-C1

ARU18RML : K01AL-0702HSE-C1



OUTDOOR PCB CIRCUIT DIAGRAM

INVERTER ASSEMBLY EZ-0074HUE



ERROR CONTENTS

INDOOR UNIT

Error contents		Error display					Wired remote controller display (option) CODE No.
		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	01	
	Indoor unit - Wired remote controller	off	8 flashes	off	off	00	
Indoor unit temperature error	Room temp. sensor error	2 flashes	2 flashes	off	off	02 or 03	
	Heat exchanger temp. sensor error	2 flashes	3 flashes	off	off	04 or 05	
Outdoor unit temperature error	Discharge pipe temp. sensor error	3 flashes	2 flashes	off	off	0C or 0d	
	Heat exchanger temp. sensor error	3 flashes	3 flashes	off	off	06 or 07	
	Outdoor temp. sensor error	3 flashes	4 flashes	off	off	0A or 0b	
	2 way valve temp. sensor error	3 flashes	off	2 flashes	off	1d	
	3 way valve temp. sensor error	3 flashes	off	3 flashes	off	1E	
	Heat sink temp. sensor error	3 flashes	7 flashes	off	off	0E	
Indoor unit control system error	Compressor temp. sensor error	3 flashes	8 flashes	off	off	15	
	MANUAL AUTO button error	4 flashes	2 flashes	off	off	20	
	50Hz / 60Hz distinguish error	4 flashes	4 flashes	off	off	---	
	Electronic Air clean filter error	4 flashes	7 flashes	off	off	21	
Outdoor unit control system error	Electronic Air clean filter error	4 flashes	8 flashes	off	off	22	
	Current trip error	5 flashes	2 flashes	off	off	17	
	CT error	5 flashes	3 flashes	off	off	18	
	Compressor position error	5 flashes	5 flashes	off	off	1A	
	Fan motor error	5 flashes	6 flashes	off	off	1b	
	Connected indoor unit error	5 flashes	7 flashes	off	off	1F	
Indoor unit fan motor error	Main CPU - sub CPU communication error	5 flashes	8 flashes	off	off	1C	
	Fan motor error	6 flashes	2 flashes	off	off	12	
Refrigerant system error	Fan motor error	6 flashes	3 flashes	off	off	12	
	Discharge pipe temp. error	7 flashes	2 flashes	off	off	0F	
	High pressure error	7 flashes	3 flashes	off	off	14	
Added function error	High pressure switch error	7 flashes	6 flashes	off	off	16	
	Active filter error	8 flashes	2 - 3 flashes	off	off	19	
Indoor unit connect error	Indoor unit model error	blinking	blinking	blinking	blinking	11	

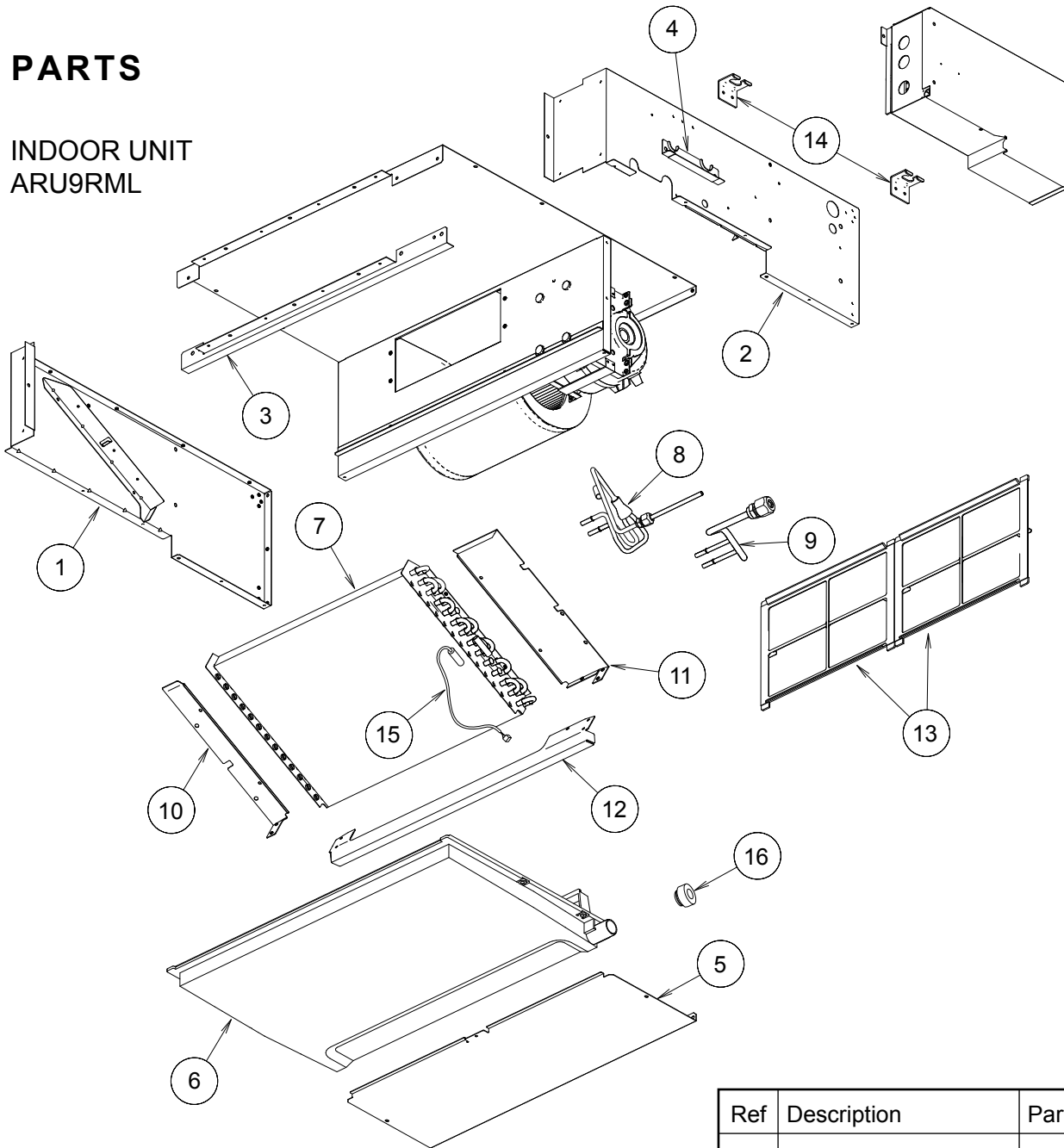
● : Slow flashing
 - : Off

OUTDOOR UNIT

	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	—	—	—

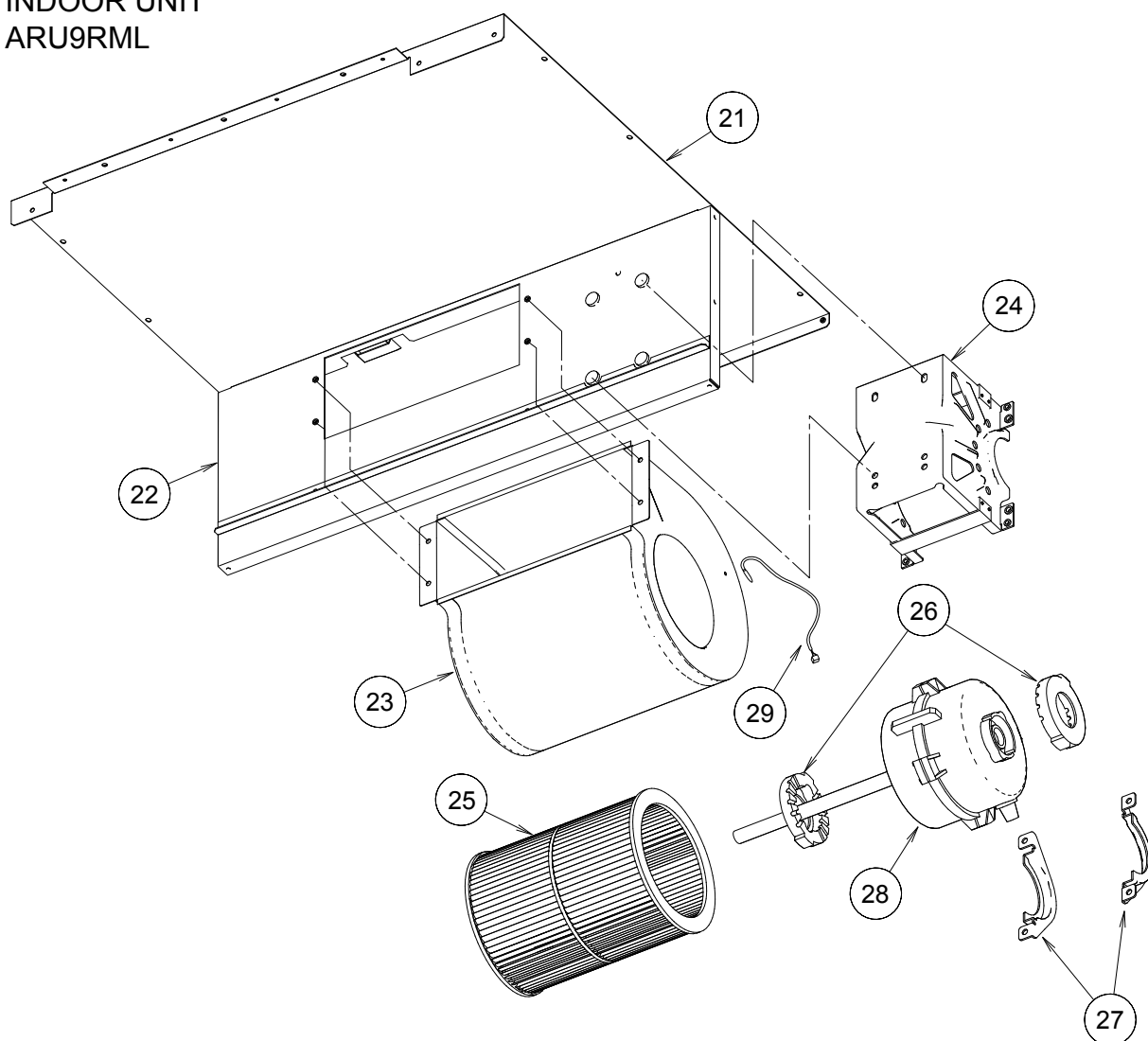
PARTS

INDOOR UNIT
ARU9RML



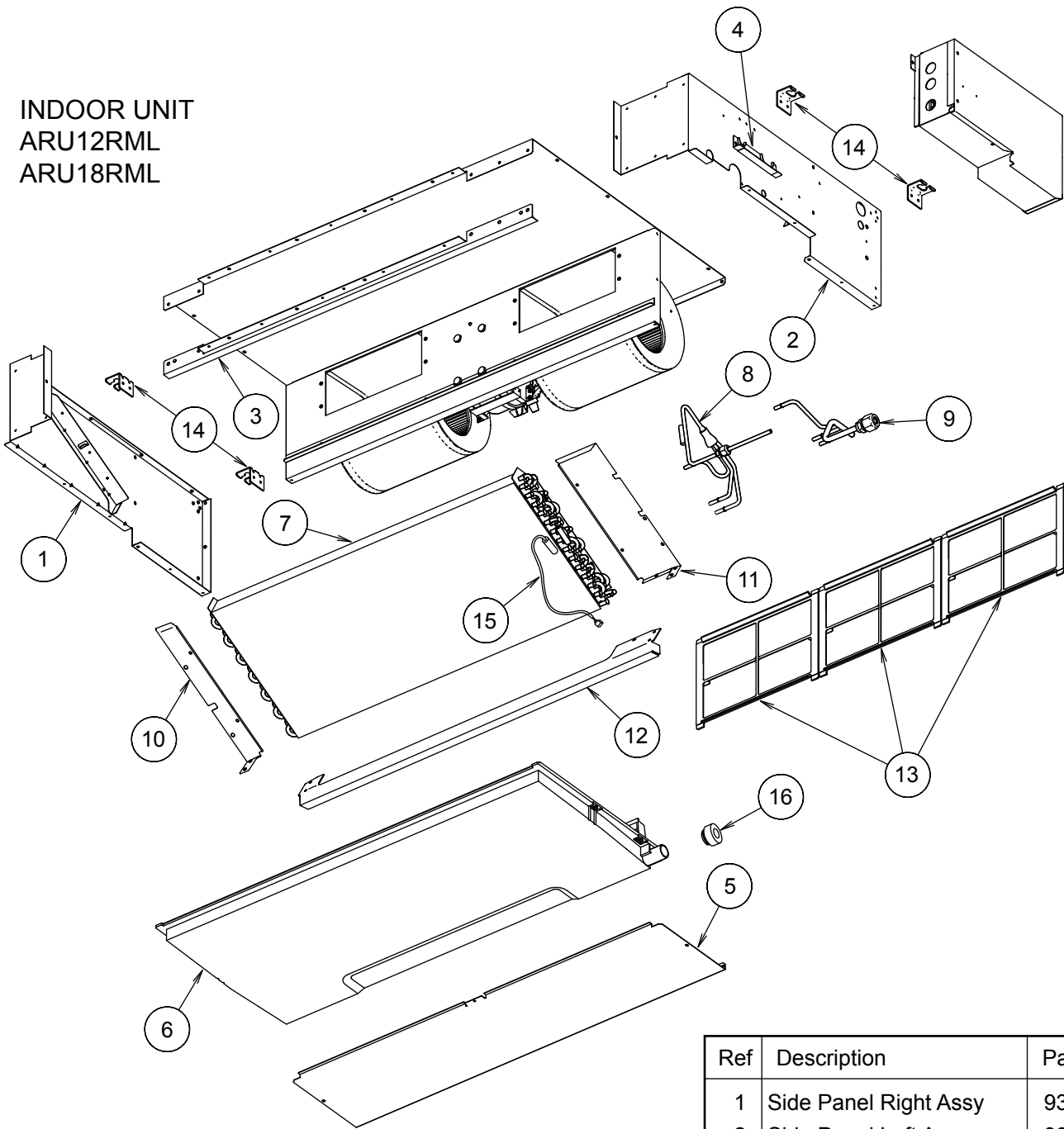
Ref	Description	Parts number
1	Side Panel Right Assy	9363411003
2	Side Panel Left Assy	9363409000
3	Front Panel Assy	9363722000
4	Piping Cover	9363330007
5	Cabinet Cover	9363325003
6	Drain Pan Sub Assy	9364502052
7	Evaporator Assy	9373255055
8	Distributor Assy	9373034070
9	Coupling Pipe Assy	9373038474
10	Bracket Eva Right	9363199000
11	Bracket Eva Left	9363198003
12	Support Plate (Eva)	9363323009
13	Air Filter	9366833017
14	Hook	9363195002
15	Thermistor (Pipe-mid)	9703297090
16	Drain Cap	9358746004

INDOOR UNIT
ARU9RML



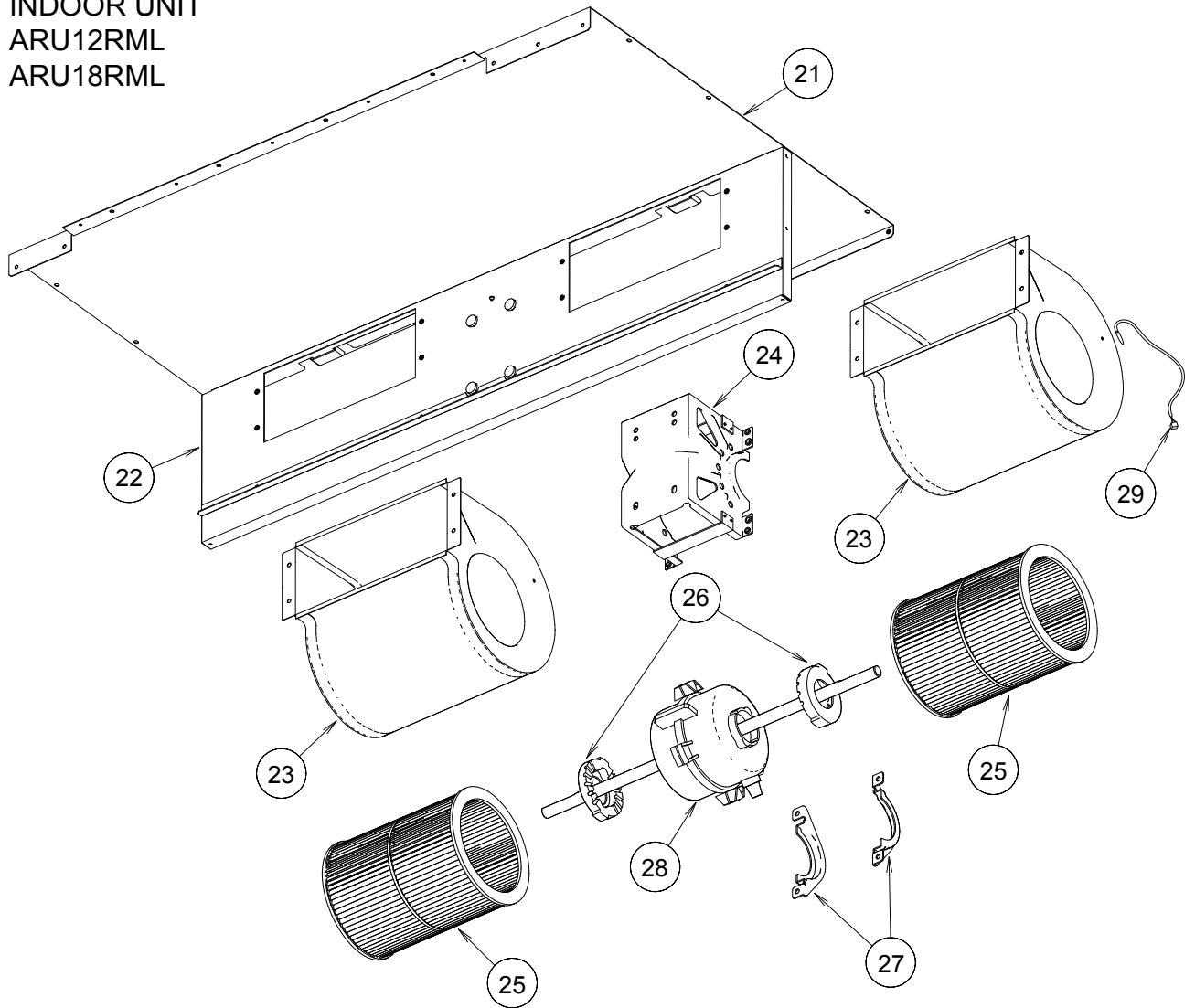
Ref	Description	Parts number
21	Top Panel	9363408003
22	Panel Assy (Motor)	9363193008
23	Casing Assy	9363322002
24	Bracket (Motor) Assy	9358591000
25	Sirocco Fan Assy	9385258006
26	Rubber (Vibration Proof)	9385102002
27	Bracket (Motor)	9358594001
28	Fan Motor	9601722021
29	Room Thermistor	9703299063

INDOOR UNIT
 ARU12RML
 ARU18RML



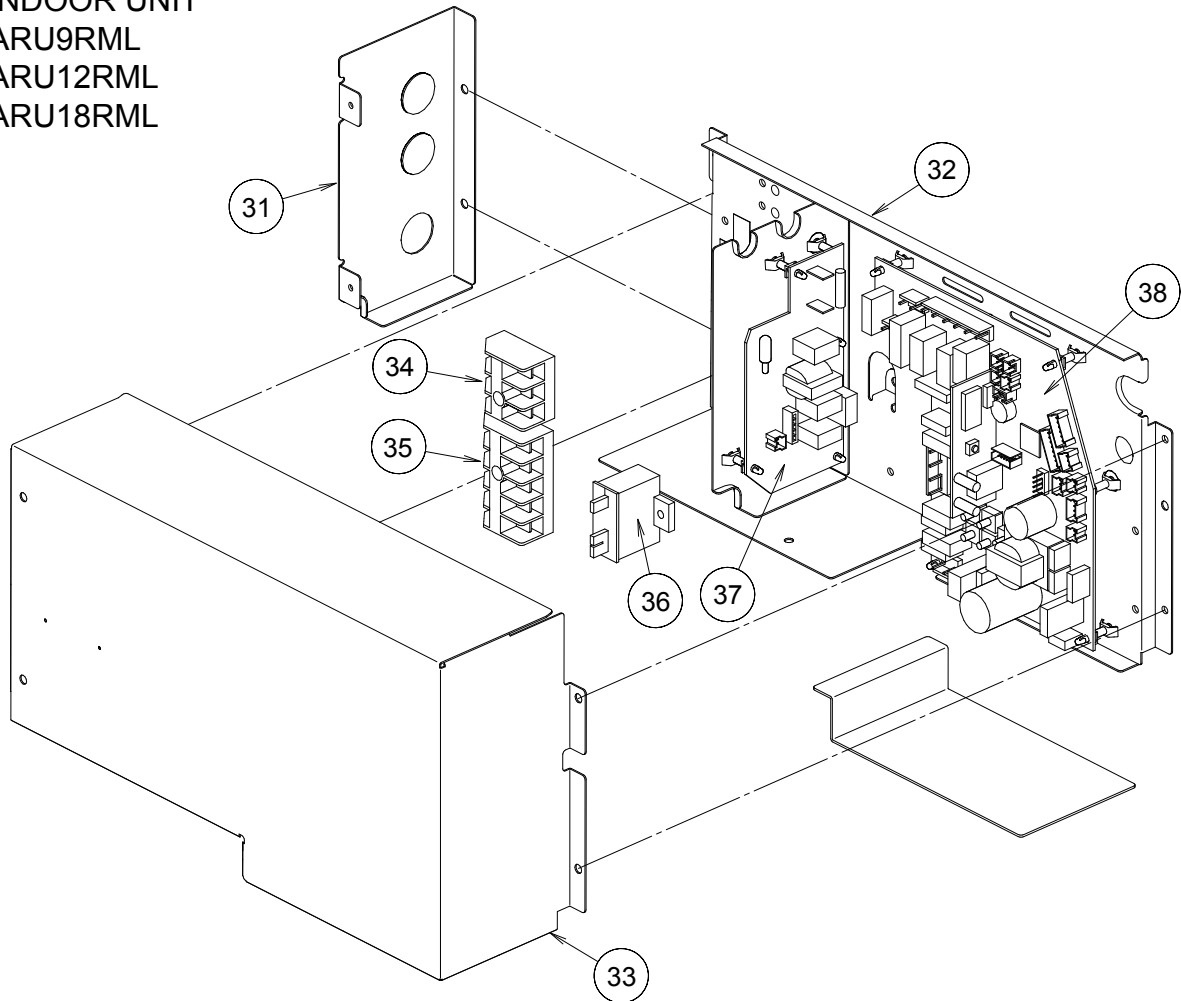
Ref	Description	Parts number
1	Side Panel Right Assy	9363507003
2	Side Panel Left Assy	9363505009
3	Front Panel Assy	9363723007
4	Piping Cover	9363327007
5	Cabinet Cover	9363400007
6	Drain Pan Sub Assy	9364502069
7	Evaporator Assy (ARU12)	9373255024
7	Evaporator Assy (ARU18)	9372972014
8	Distributor Assy (12)	9373034063
8	Inlet Pipe (Eva) Assy (18)	9372973011
9	Coupling Pipe Assy (12)	9373038092
9	Outlet (Eva) Assy (18)	9372978030
10	Bracket Eva Right	9363199000
11	Bracket Eva Left	9363198003
12	Support Plate (Eva)	9363404005
13	Air Filter	9366833017
14	Hook	9363195002
15	Thermistor (Pipe-mid)	9703297090
16	Drain Cap	9358746004

INDOOR UNIT
 ARU12RML
 ARU18RML



Ref	Description	Parts number	
		ARU12RML	ARU18RML
21	Top Panel	9363504002	9363504002
22	Panel Assy (Motor)	9363401004	9363401004
23	Casing Assy	9363322002	9363322002
24	Bracket (Motor) Assy	9358591000	9358591000
25	Sirocco Fan Assy	9385258006	9385258006
26	Rubber (Vibration Proof)	9385102002	9385102002
27	Bracket (Motor)	9358594001	9358594001
28	Fan Motor	9601723066	9601723066
29	Room Thermistor	9703299018	9703299018

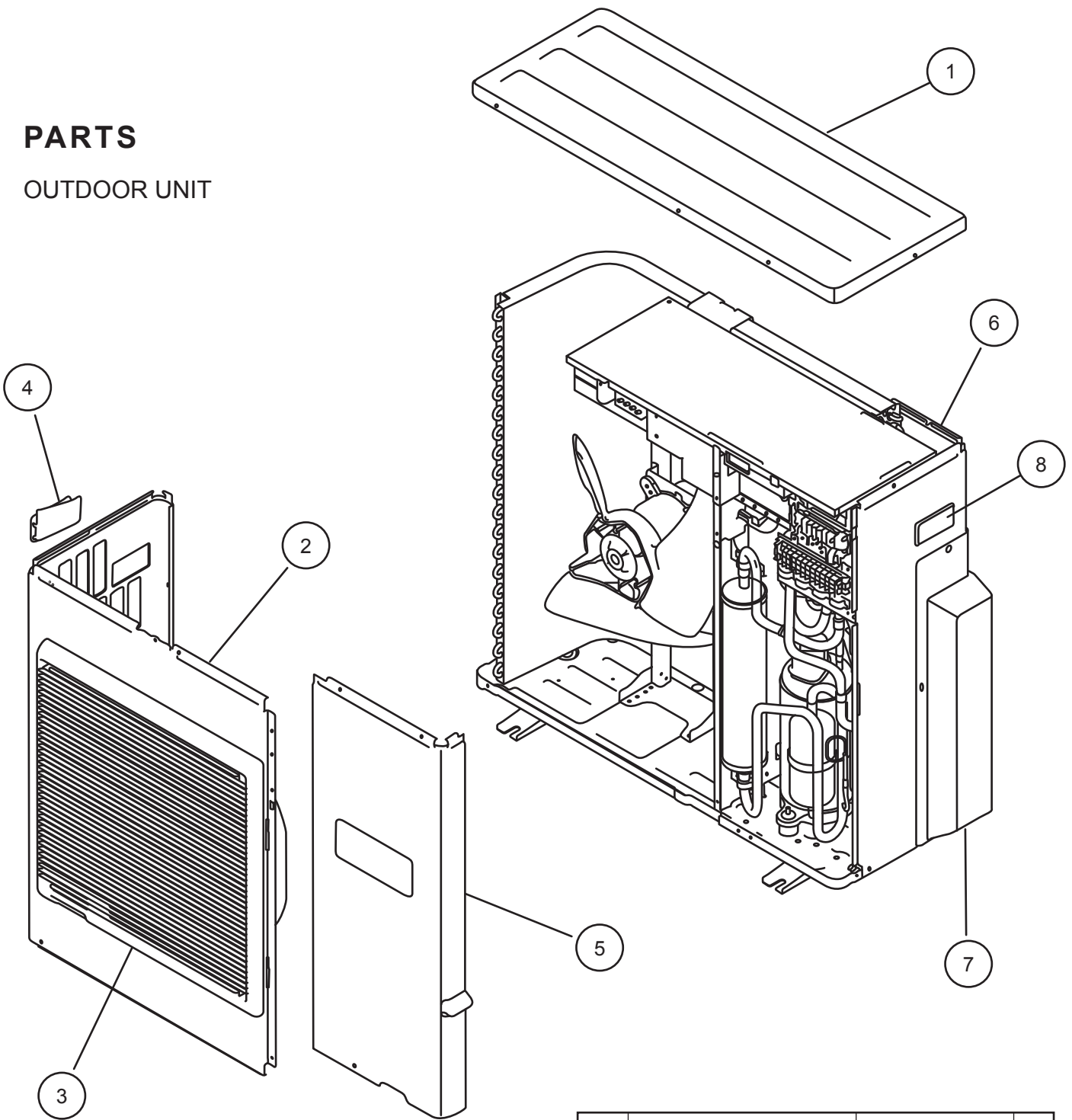
INDOOR UNIT
 ARU9RML
 ARU12RML
 ARU18RML



Ref	Description	Parts number		
		ARU9RML	ARU12RML	ARU18RML
31	Plate Box A	9374910014	9374910014	9374910014
32	Control Box Assy	9374908011	9374908011	9374908011
33	Control Box Cover	9374913015	9374913015	9374913015
34	Terminal 3P	9306489083	9306489083	9306489083
35	Terminal 5P	9703874017	9703874017	9703874017
36	Capacitor Plastic	9900270179	9900270070	9900270070
37	Power Supply PCB	9704561381	9704561381	9704561381
38	Controller PCB	9705914360	9705914377	9705914384
--	Remote Control	9372266137	9372266137	9372266137

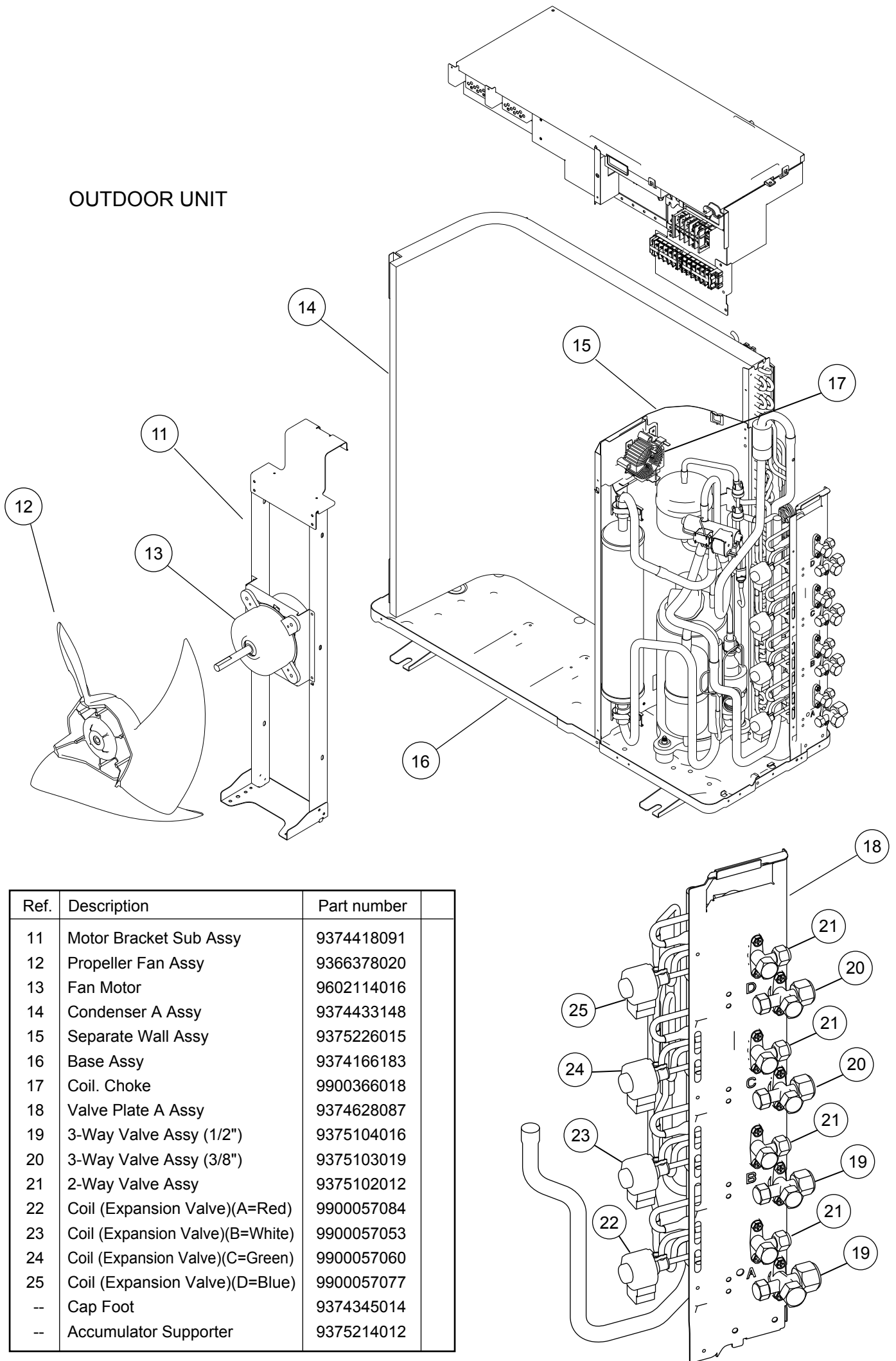
PARTS

OUTDOOR UNIT



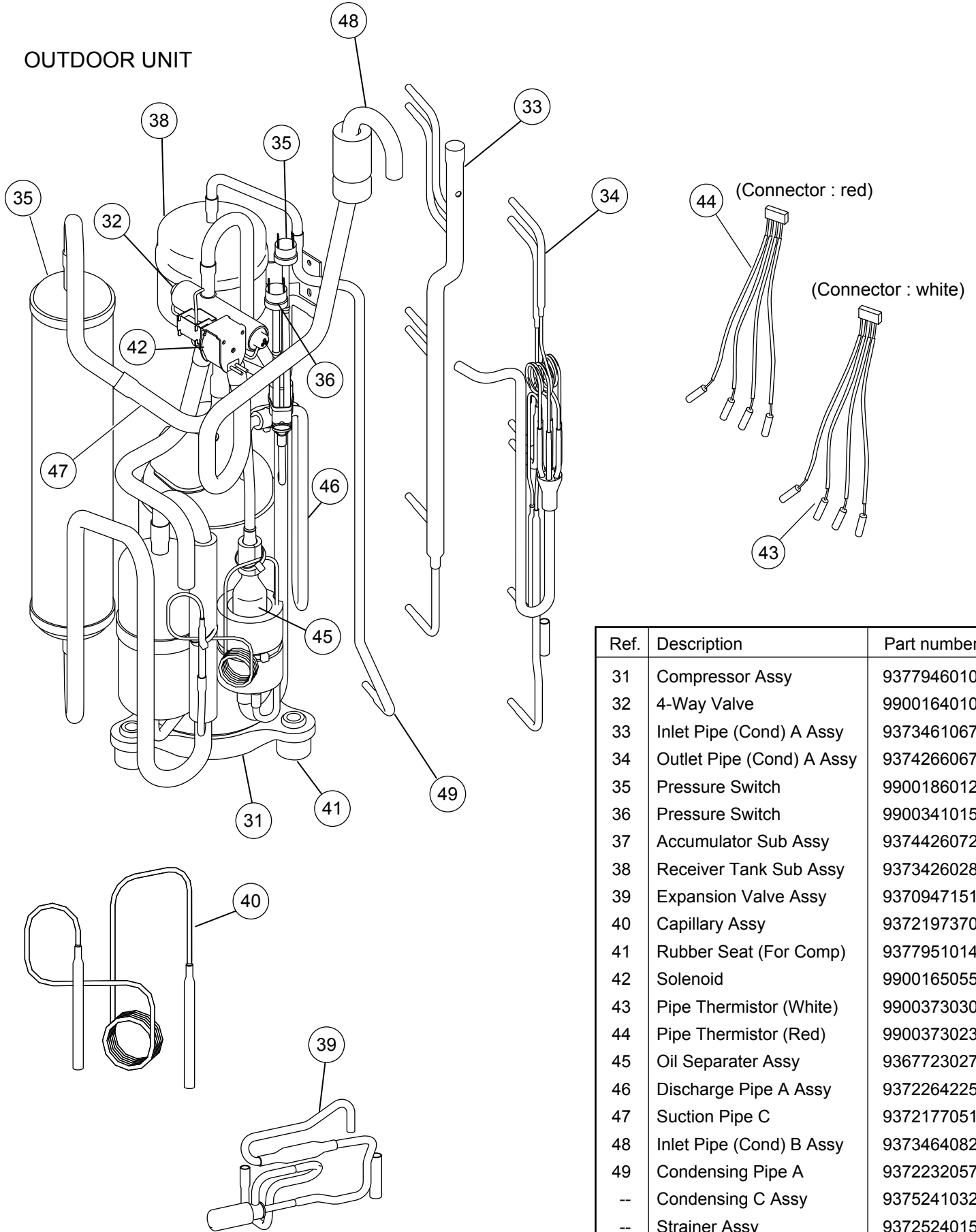
Ref.	Description	Part number
1	Top Panel Sub Assy	9374417025
2	Front Panel	9374094066
3	Fan Guard	9374330010
4	Grip Side	9374173013
5	Service Panel Sub Assy	9374415038
6	Right Panel	9374599066
7	Valve Cover Sub Assy	9374827015
8	Grip	9374172016
--	Emblem	9351355005
--	Protective Net	9375381011
--	Drain Assy	9303029015
--	Drain Cap	313166024302

OUTDOOR UNIT



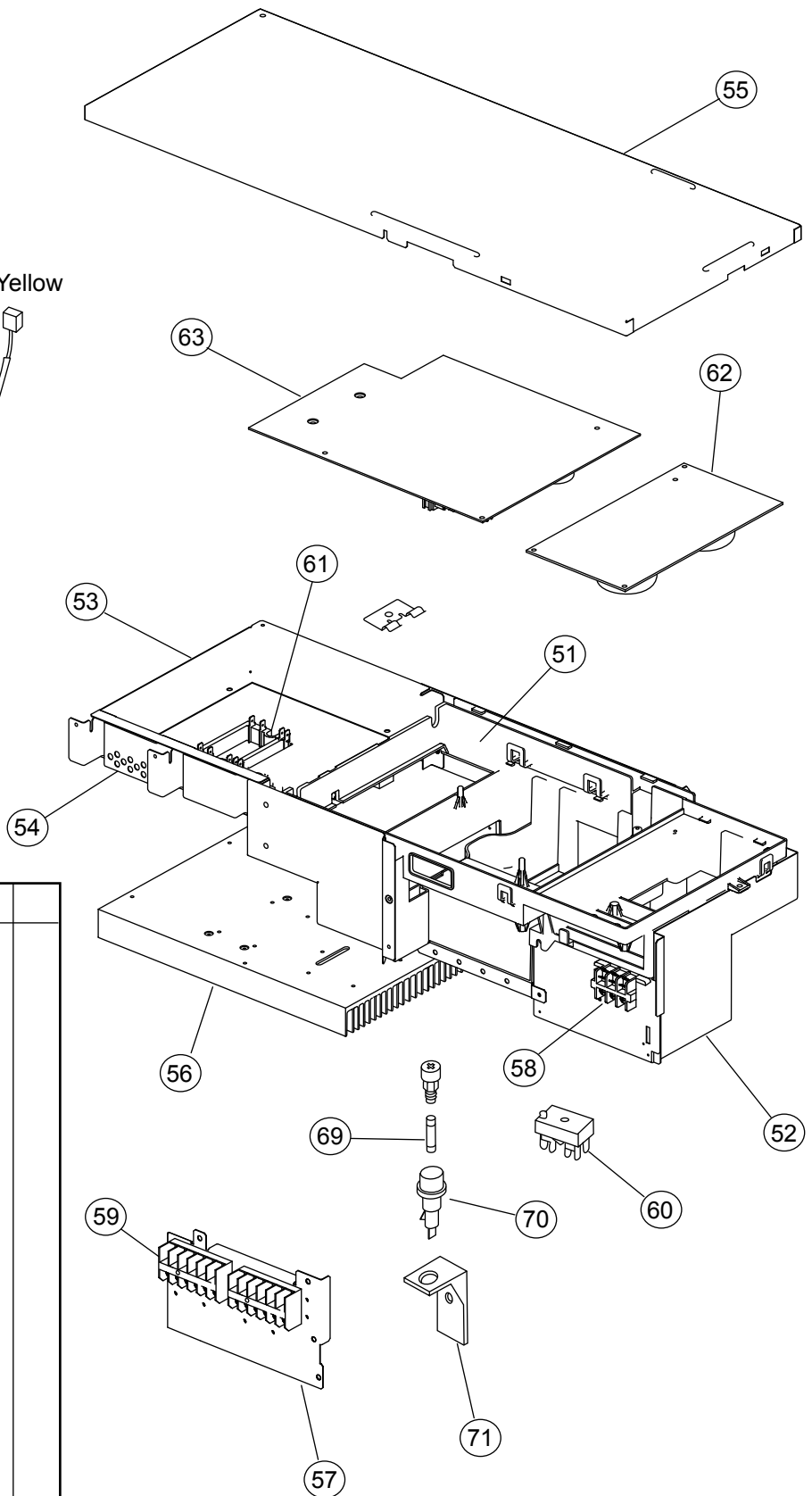
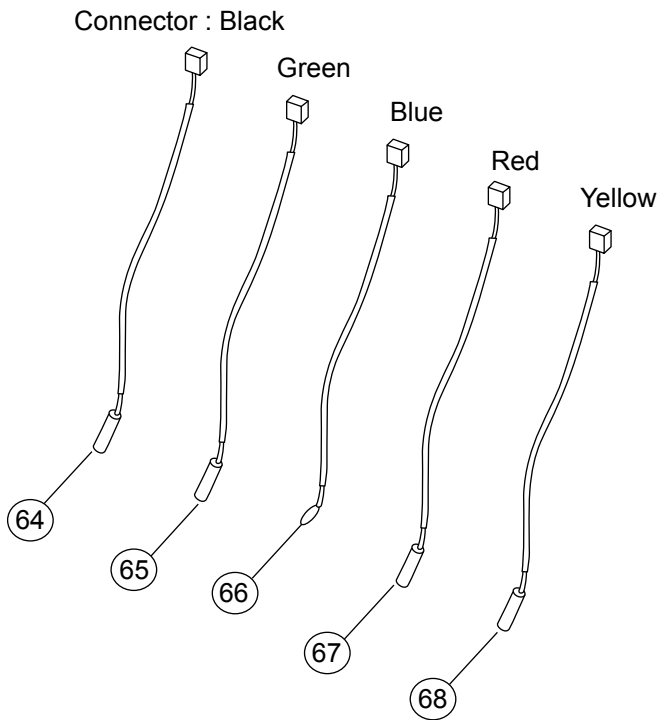
Ref.	Description	Part number
11	Motor Bracket Sub Assy	9374418091
12	Propeller Fan Assy	9366378020
13	Fan Motor	9602114016
14	Condenser A Assy	9374433148
15	Separate Wall Assy	9375226015
16	Base Assy	9374166183
17	Coil. Choke	9900366018
18	Valve Plate A Assy	9374628087
19	3-Way Valve Assy (1/2")	9375104016
20	3-Way Valve Assy (3/8")	9375103019
21	2-Way Valve Assy	9375102012
22	Coil (Expansion Valve)(A=Red)	9900057084
23	Coil (Expansion Valve)(B=White)	9900057053
24	Coil (Expansion Valve)(C=Green)	9900057060
25	Coil (Expansion Valve)(D=Blue)	9900057077
--	Cap Foot	9374345014
--	Accumulator Supporter	9375214012

OUTDOOR UNIT



Ref.	Description	Part number
31	Compressor Assy	9377946010
32	4-Way Valve	9900164010
33	Inlet Pipe (Cond) A Assy	9373461067
34	Outlet Pipe (Cond) A Assy	9374266067
35	Pressure Switch	9900186012
36	Pressure Switch	9900341015
37	Accumulator Sub Assy	9374426072
38	Receiver Tank Sub Assy	9373426028
39	Expansion Valve Assy	9370947151
40	Capillary Assy	9372197370
41	Rubber Seat (For Comp)	9377951014
42	Solenoid	9900165055
43	Pipe Thermistor (White)	9900373030
44	Pipe Thermistor (Red)	9900373023
45	Oil Separator Assy	9367723027
46	Discharge Pipe A Assy	9372264225
47	Suction Pipe C	9372177051
48	Inlet Pipe (Cond) B Assy	9373464082
49	Condensing Pipe A	9372232057
--	Condensing C Assy	9375241032
--	Strainer Assy	9372524015
--	Joint Pipe (Valve) Assy	9374840113
--	Compressor Cover A	9374430055
--	Compressor Cover B	9374431052
--	Compressor Cover C	9372067048

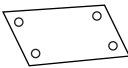












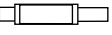





OUTDOOR UNIT



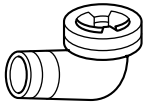
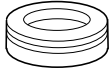
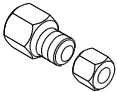
Ref.	Description	Part number
51	Inverter Box A	9374603015
52	Inverter Box B Assy	9374625024
53	Inverter Box C	9374605026
54	Inverter Box Duct	9374609017
55	Inverter Box Cover	9374608010
56	Heat Sink	9374607020
57	Inverter Box D	9374606023
58	Terminal (3P)	9900203016
59	Terminal (6P)	9900016036
60	Terminal	9900433017
61	ACTPM	9703457012
62	Power Supply PCB Assy	9705647145
63	Controller PCB Assy	9705642256
64	Heat Sink Thermistor	9900311018
65	Compressor Thermistor	9900156022
66	Thermistor (Outdoor Temp)	9900378035
67	Heat Exchanger Thermistor	9900374020
68	Discharge Thermistor	9704219114
69	Fuse	0600384029
70	Fuse Holder	0500802111
71	Fuse Holder Bracket	9378287006
--	PTC Thermistor	9704265012

ACCESSORIES

INDOOR UNIT

Name and Shape	Q'ty	Application	Part number	
			ARU9RML	ARU12, 18RML
Installation template 	1	For positioning the indoor unit	9372849019	9372935019
Hanger 	4	For suspending the indoor unit from ceiling	9363195002	9363195002
Tapping screw (φ 4 x 10) 	8	For installing the hanger	0700009037	0700009037
Special nut A (large flange) 	4	For suspending the indoor unit from ceiling	313005446653	313005446653
Special nut B (small flange) 	4		313005446759	313005446759
Coupler heat insulation (large) 	1	For indoor side pipe joint (large pipe)	9350716029	9350716029
Coupler heat insulation (small) 	1	For indoor side pipe joint (small pipe)	9352766015	9352766015
Binder 	(Small) 1	For remote controller and remote controller cord binding	313361275805	313361275805
	(Large) 4	For fixing the coupler heat insulation	312300787605	312300787605
Remote controller 	1	Heat & Cooling model	9372266137	9372266137
Remote control cord 	1	For connecting the remote controller	9372714010	9372714010
Tapping screw (φ 4 x 16) 	2	For installing the remote controller	0700181108	0700181108
Filter 	2 / 3	For installing to indoor unit	9366833017	9366833017
Drain hose insulation 	1	Insulates the drain hose and vinyl hose connection	313806217708	313806217708
Joint hose 		Adapter to connect drain hose	9377785022	9377785022
Band 		To fix joint hose	9378437012	9378437012
Drain hose insulation B (small) 		Insulation for joint hose	9378449015	9378449015
Nylonclamp 		Clamp for remote control	313361274700	313361274700
Insulation (outlet) (small) 		For the air outlet duct	9314561245	9314561245
Insulation (outlet) (large) 		For the air outlet duct	9314561252	9314561269

OUTDOOR UNIT

Name and Shape	Q'ty	Use	Part number
Drain pipe 	1	For outdoor unit drain piping work	9303029015
Drain cap 	5		313166024302
Adapter assy 12.7 mm → 9.52 mm (1/2 in.) (3/8 in.) 	1	For use when connecting models 9-12 to outdoor port A	9370244007

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