

SPLIT TYPE
ROOM AIR CONDITIONER
WALL MOUNTED TYPE

SERVICE MANUAL



Indoor unit	Outdoor unit
ASU9RL2	AOU9RL2
ASU12RL2	AOU12RL2

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SPECIFICATIONS

INDOOR UNIT

Type				Wall mounted	
				Inverter, Heat pump	
Model name				ASU9RL2	ASU12RL2
Power supply				115 V~ 60 Hz	
Power supply intake				Outdoor unit	
Available voltage range				103.5—126.5 V	
Capacity	Cooling	Rated	kW	2.64	3.52
			Btu/h	9,000	12,000
		Min.—Max.	kW	0.5—3.1	0.9—3.7
			Btu/h	1,700—10,700	3,100—12,500
	Heating	Rated	kW	2.93	4.10
			Btu/h	10,000	14,000
		Min.—Max.	kW	0.5—3.5	0.9—4.7
			Btu/h	1,700—12,000	3,100—16,000
Heating (17°F) *1	Rated	kW	1.93	2.46	
		Btu/h	6,600	8,400	
Input power	Cooling	Rated	kW	0.83	1.20
				Min.—Max.	0.24—1.44
	Heating	Rated		0.77	1.21
				Min.—Max.	0.21—1.49
Heating (17°F) *1	Rated	0.68	0.945		
		Cooling	Rated	7.5	10.9
Heating	7.0	11.0			
EER2	Cooling	kW/kW	3.18	2.93	
		Btu/hW	10.8	10.0	
COP2	Heating	kW/kW	3.80	3.38	
		Btu/hW	13.0	11.6	
SEER2	Cooling	Btu/hW	16.00		
HSPF2	Heating	Btu/hW	9.00		
Power factor	Cooling	%	96		
	Heating		96		
Moisture removal			pints/h (L/h)	2.7 (1.3)	3.8 (1.8)
Maximum operating current*2		Cooling	A	13.0	
		Heating		13.5	15.0
Fan	Airflow rate	Cooling	HIGH	424 (720)	
			MED	353 (600)	
			LOW	247 (420)	250 (425)
			QUIET	191 (325)	
		Heating	HIGH	436 (740)	
			MED	353 (600)	
			LOW	265 (450)	
			QUIET	191 (325)	
	Type × Qty		Crossflow fan × 1		
	Motor output		W	28	
Sound pressure level*3	Cooling	HIGH	dB (A)	43	
		MED		38	
		LOW		33	
		QUIET		23	
	Heating	HIGH		44	
		MED		38	
		LOW		33	
		QUIET		23	
Heat exchanger	Dimensions (H × W × D)		in (mm)	10-1/16 × 24-13/16 × 13/16 (256 × 630 × 20)	
	Fin pitch		FPI	23	
	Rows × Stages			2 × 16	
	Pipe type			Copper	
	Fin type			Aluminum	
Enclosure	Material			Polystyrene	
	Color			White	
Dimensions (H × W × D)	Net		in (mm)	10-5/16 × 32-5/16 × 8-1/8 (262 × 820 × 206)	
	Gross			10-3/8 × 34-1/4 × 12-15/16 (263 × 870 × 328)	
Weight	Net		lb (kg)	15 (7)	
	Gross			20 (9)	
Connection pipe	Size	Liquid	in (mm)	Ø1/4 (Ø6.35)	
		Gas		Ø3/8 (Ø9.52)	
	Method			Flare	
Drain hose	Material			PP+HDPE	
	Tip diameter		in (mm)	Ø17/32 (Ø13.8) (I.D.), Ø19/32 to 21/32 (Ø15 to 16.8) (O.D.)	
Operation range	Cooling	°F (°C)		64 to 90 (18 to 32)	
		%RH		80 or less	
Remote controller	Heating	°F (°C)		60 to 88 (16 to 30)	
		Wireless			
NOTES:					
<ul style="list-style-type: none">Specifications are based on the following conditions:<ul style="list-style-type: none">Cooling: Indoor temperature of 80°F (26.67°CDB)/67°F WB (19.44°CWB), and outdoor temperature of 95°F DB (35°CDB)/75°F WB (23.9°CWB).Heating: Indoor temperature of 70°F DB (21.11°CDB)/60°F WB (15.56°CWB), and outdoor temperature of 47°F DB (8.33°CDB)/43°F WB (6.11°CWB).*1: Heating (17°F): Indoor temperature of 70°F DB (21.11°CDB)/60°F WB (15.56°CWB), and outdoor temperature of 17°F DB (-8.33°CDB)/15°F WB (-9.44°CWB).Test conditions are based on AHRI 210/240 2023.Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)					
<ul style="list-style-type: none">Protective function might work when using it outside the operation range.					
<ul style="list-style-type: none">*2: Maximum current is maximum value when operated within the operation range.					
<ul style="list-style-type: none">*3: Sound pressure level:<ul style="list-style-type: none">Measured values in manufacturer's anechoic chamber.Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.					

M condition							
Model name				ASU9RL2		ASU12RL2	
Capacity	Cooling	Rated	kW	2.64	3.52		
			Btu/h	9,000	12,000		
		Min.—Max.	kW	0.5—3.1	0.9—3.7		
			Btu/h	1,700—10,700	3,100—12,500		
	Heating	Rated	kW	2.93	4.10		
			Btu/h	10,000	14,000		
		Min.—Max.	kW	0.5—3.5	0.9—4.7		
			Btu/h	1,700—12,000	3,100—16,000		
	Heating (17°F) *	Rated	kW	1.93	2.46		
			Btu/h	6,600	8,400		
Input power	Cooling	Rated	kW	0.83	1.20		
		Min.—Max.		0.24—1.44	0.23—1.44		
	Heating	Rated		0.77	1.21		
		Min.—Max.		0.21—1.49	0.21—1.66		
	Heating (17°F) *	Rated		0.680	0.945		
Current	Cooling	Rated	A	7.5	10.9		
	Heating			7.0	11.0		
EER	Cooling		kW/kW	3.18	2.93		
			Btu/hW	10.8	10.0		
COP	Heating		kW/kW	3.80	3.38		
			Btu/hW	13.0	11.6		
SEER	Cooling		Btu/hW		16.0		
HSPF	Heating		Btu/hW		9.0		
Power factor	Cooling		%		96		
	Heating				96		
NOTES: Specifications are based on the following conditions: <ul style="list-style-type: none">Cooling: Indoor temperature of 80°F (26.67°CDB)/67°F WB (19.44°CWB), and outdoor temperature of 95°F DB (35°CDB)/75°F WB (23.9°CWB).Heating: Indoor temperature of 70°F DB (21.11°CDB)/60°F WB (15.56°CWB), and outdoor temperature of 47°F DB (8.33°CDB)/43°F WB (6.11°CWB).*: Heating (17°F): Indoor temperature of 70°F DB (21.11°CDB)/60°F WB (15.56°CWB), and outdoor temperature of 17°F DB (-8.33°CDB)/15°F WB (-9.44°CWB).Test conditions are based on AHRI 210/240 2017.Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)							

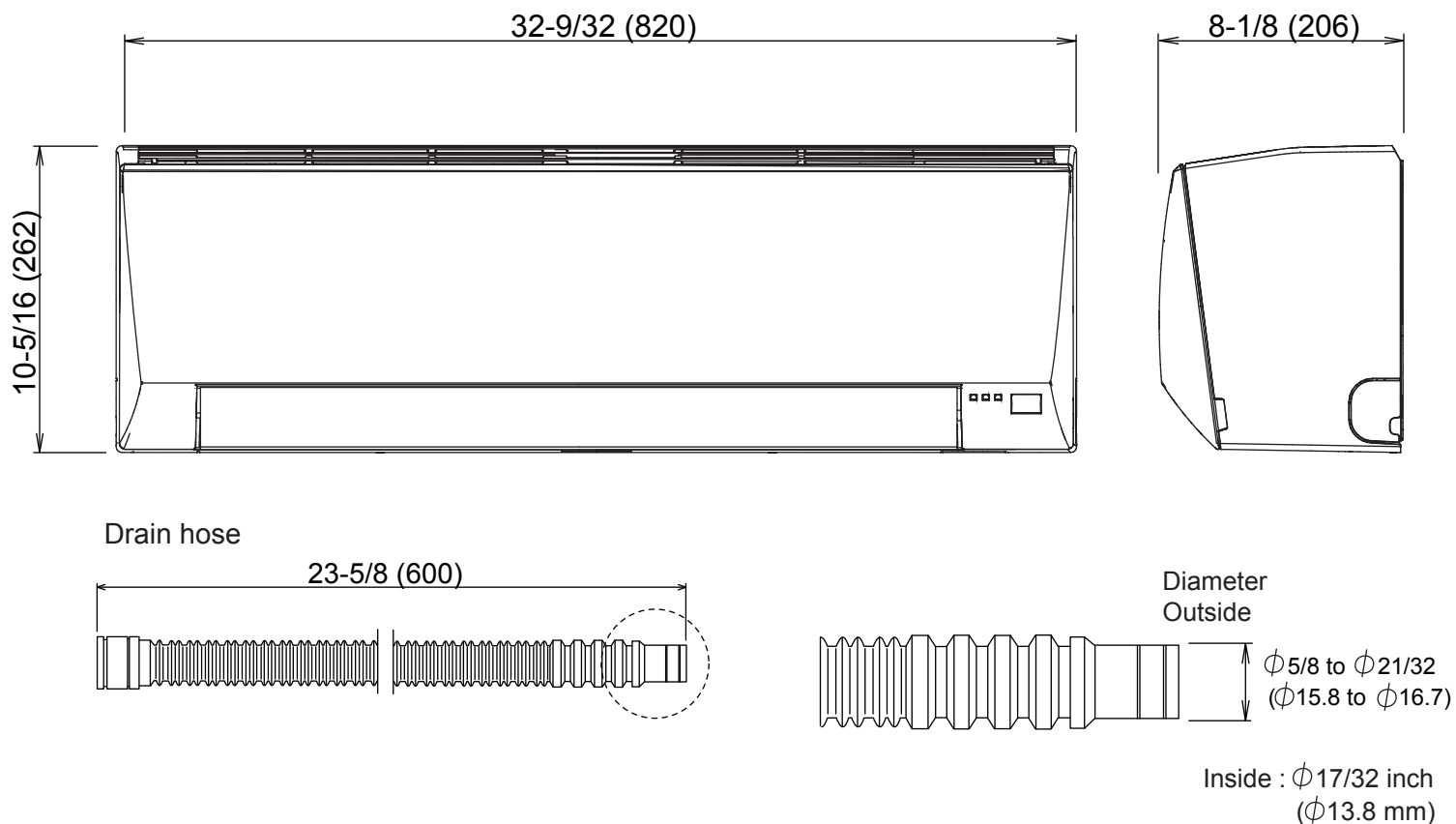
OUTDOOR UNIT

Type				Inverter, Heat pump		
Model name				AOU9RL2	AOU12RL2	
Power supply				115 V~ 60 Hz		
Power supply intake				Outdoor unit		
Available voltage range				103.5—126.5 V		
Starting current			A	7.5	11.0	
Fan	Airflow rate	Cooling	CFM (m³/h)	1,012 (1,720)	1,077 (1,830)	
		Heating		889 (1,510)	942 (1,600)	
	Type × Qty			Propeller fan × 1		
Motor output			W	23		
Sound pressure level *1		Cooling	dB (A)	47	51	
		Heating		48	51	
Heat exchanger type		Dimensions (H × W × D)	in (mm)	19-13/16 × 25-9/16 × 11/16 (504 × 650 × 18.2)	Main 1: 19-13/16 × 24-1/8 × 11/16 (504 × 612 × 18.2) Main 2: 19-13/16 × 25-4/16 × 11/16 (504 × 642 × 18.2)	
		Fin pitch	FPI	20	Main 1: 18 Main 2: 18	
		Rows × Stages		1 × 24	Main 1: 1 × 24 Main 2: 1 × 24	
		Pipe type		Copper tube		
		Fin type	Type (Material)	Aluminum		
			Surface treatment	PC fin		
Compressor	Type			DC rotary		
	Motor output			610		
Refrigerant		Type	R410A			
		Charge	lb oz	1 lb 7 oz	1 lb 12 oz	
			g	650	800	
Refrigerant oil		Type	POE (VG74)			
		Amount	in³ (cm³)	22.6 (370)		
Enclosure		Material		Steel sheet		
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0		
Dimensions (H × W × D)	Net	in (mm)	21-1/4 × 26 × 11-11/32 (540 × 660 × 290)			
	Gross		24-1/16 × 31-3/8 × 15-13/16 (611 × 797 × 401)			
Weight	Net	lb (kg)	64 (29)	68 (31)		
	Gross		68 (31)	73 (33)		
Connection pipe	Size	Liquid	in (mm)	Ø1/4 (Ø6.35)		
		Gas		Ø3/8 (Ø9.52)		
	Method		Flare			
	Pre-charge length		ft (m)	49 (15)		
	Max. length			66 (20)		
	Max. height difference			49 (15)		
	Additional charge			0.22 (20)		
Operation range		Cooling	°F (°C)	14 to 115 (-10 to 46)		
		Heating		14 to 75 (-10 to 24)		
Drain hose		Material		LDPE		
		Tip diameter	in (mm)	Ø1/2 (Ø13.0) (I.D.), Ø5/8 to 11/16 (Ø16.0 to 16.7) (O.D.)		
NOTES: <ul style="list-style-type: none">Specifications are based on the following conditions:<ul style="list-style-type: none">Cooling: Indoor temperature of 80°FDB (26.67°CDB) / 67°FWB (19.44°CWB), and outdoor temperature of 95°FDB (35°CDB) / 75°FWB (23.9°CWB).Heating: Indoor temperature of 70°FDB (21.11°CDB) / 60°FWB (15.56°CWB), and outdoor temperature of 47°FDB (8.33°CDB) / 43°FWB (6.11°CWB).Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)Protective function might work when using it outside the operation range.*1: Sound pressure level<ul style="list-style-type: none">Measured values in manufacturer's anechoic chamber.Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.						

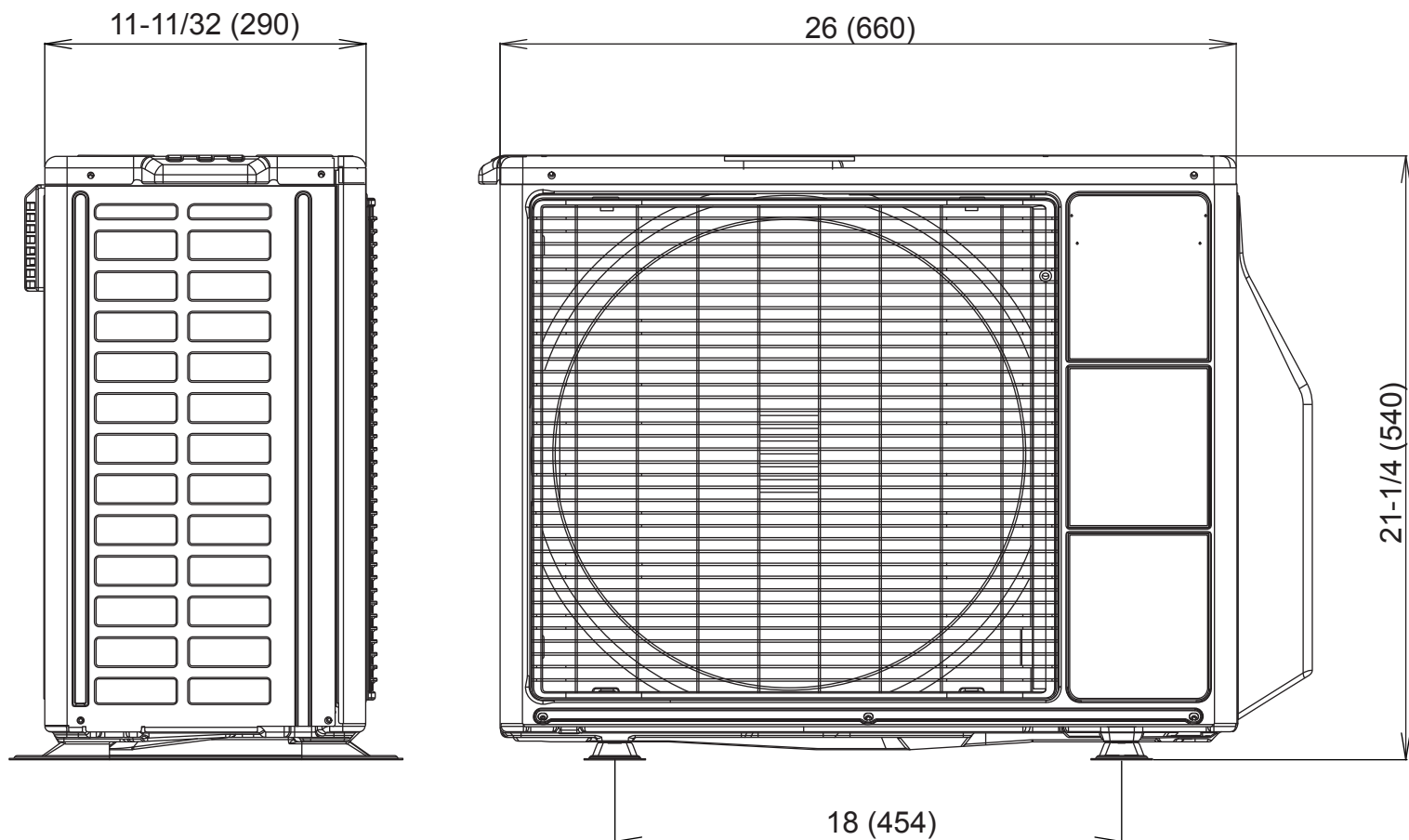
DIMENSIONS

unit : inch (mm)

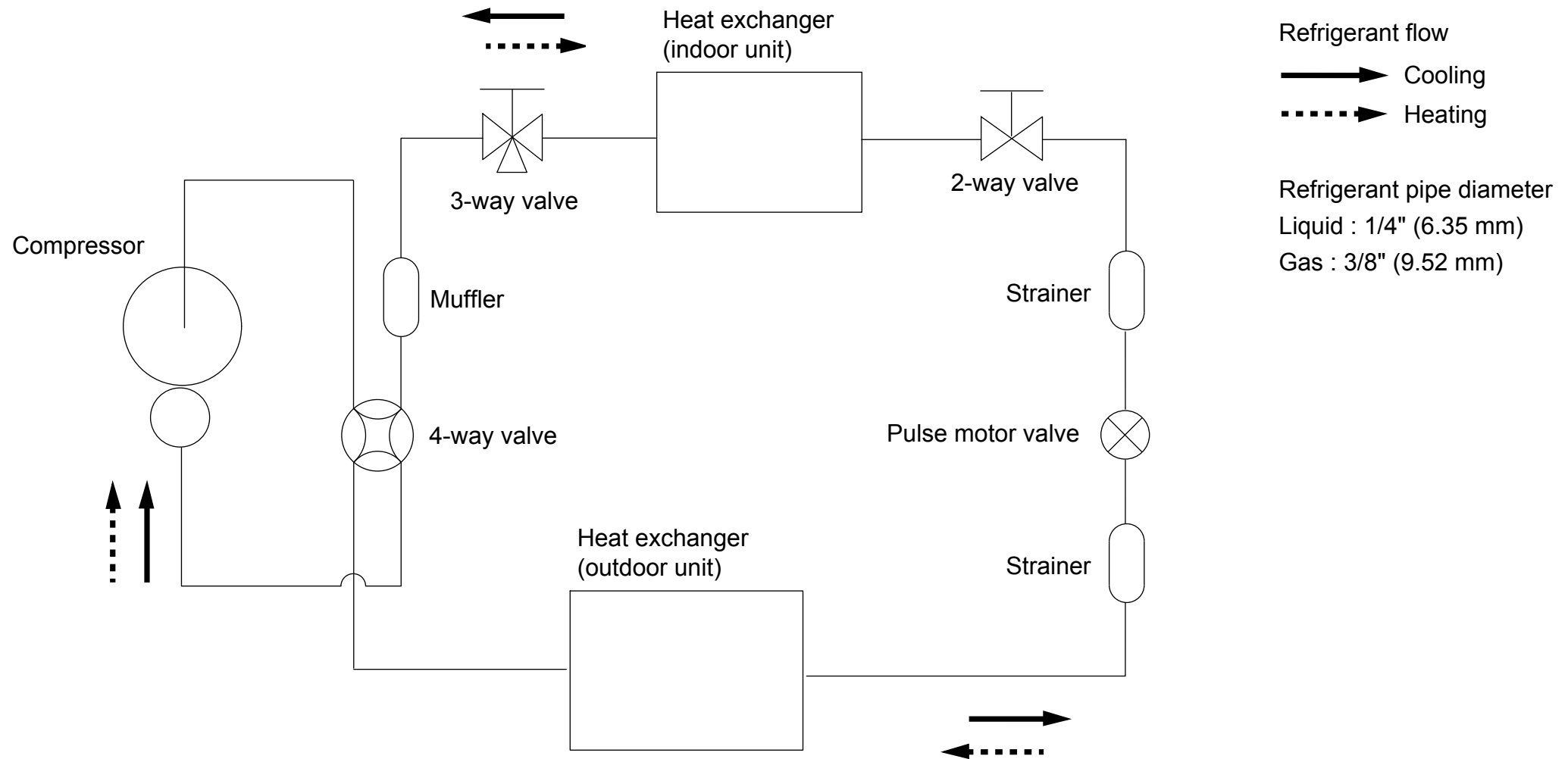
INDOOR UNIT



OUTDOOR UNIT

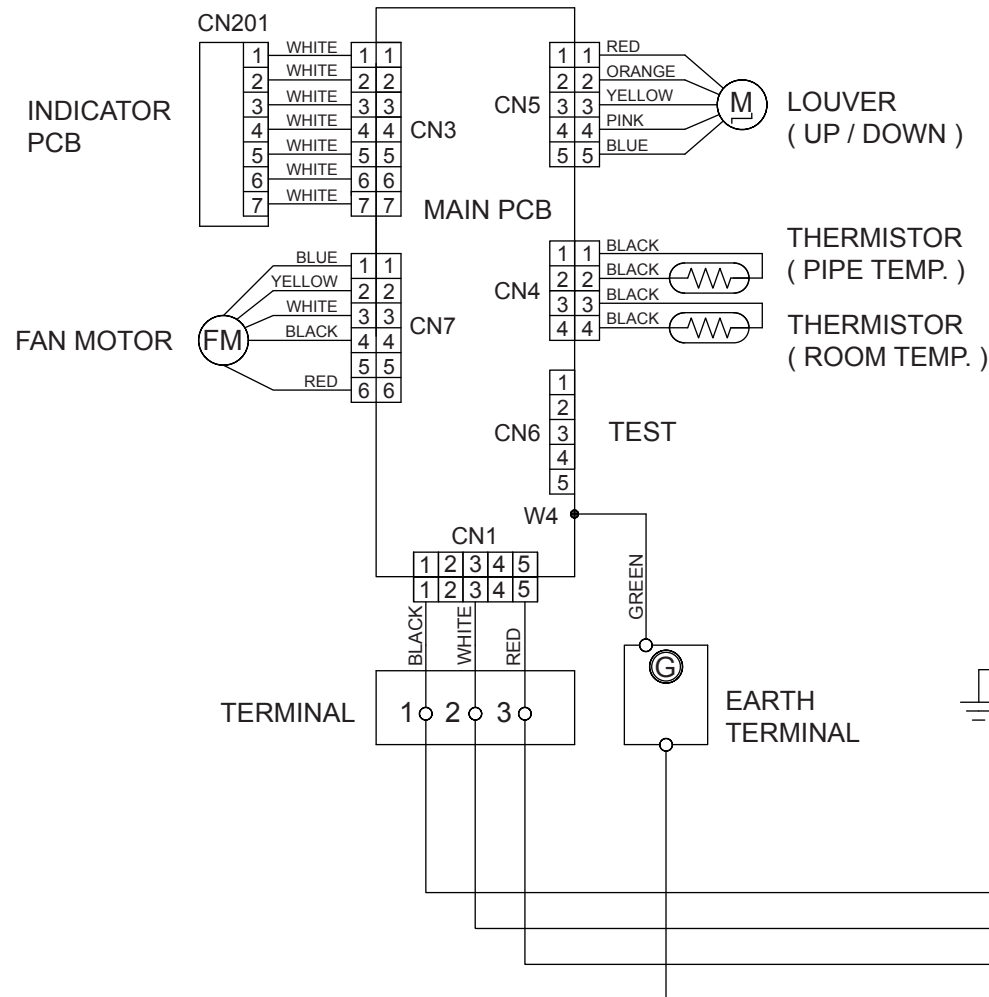


REFRIGERANT SYSTEM DIAGRAM

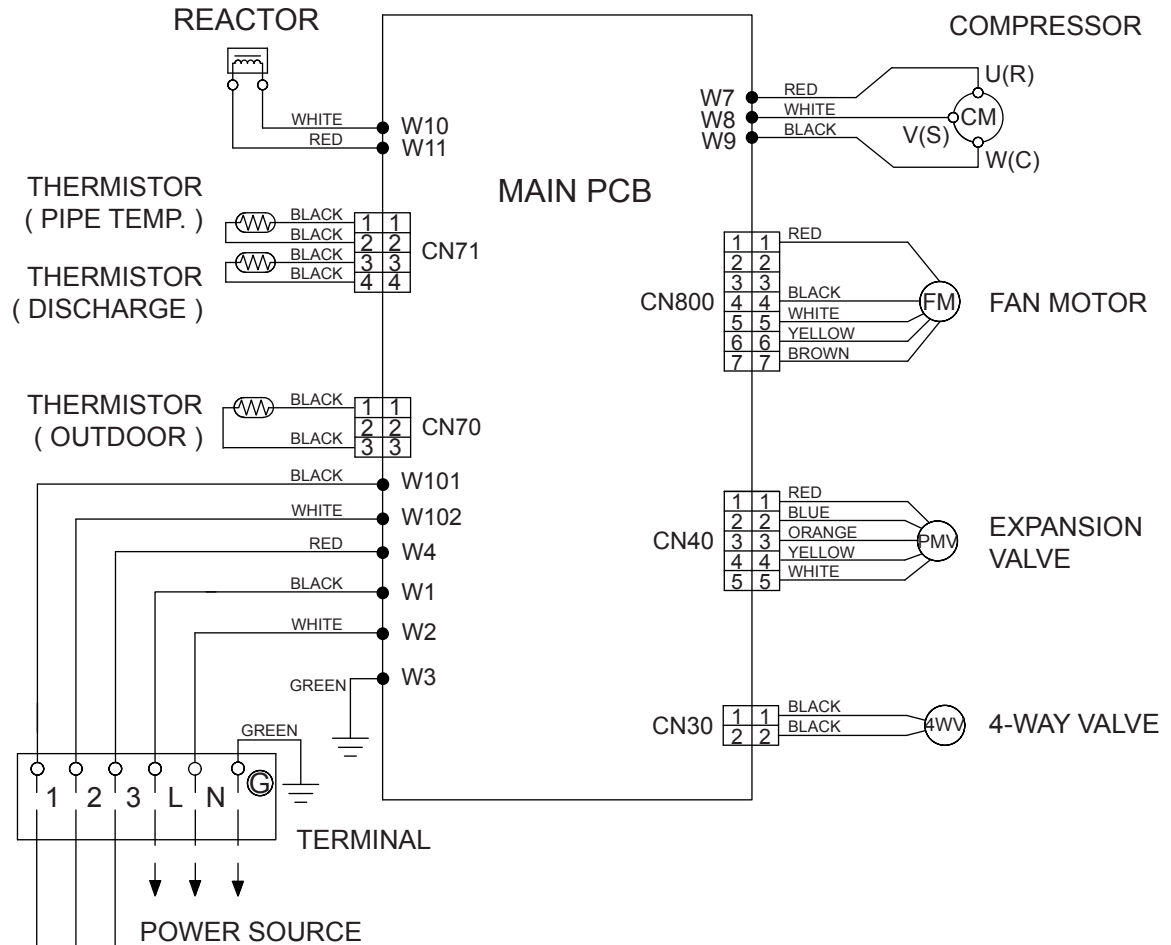


CIRCUIT DIAGRAM

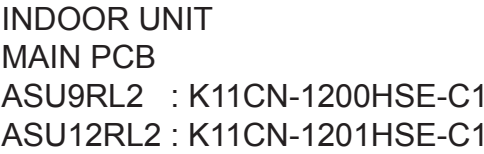
INDOOR UNIT



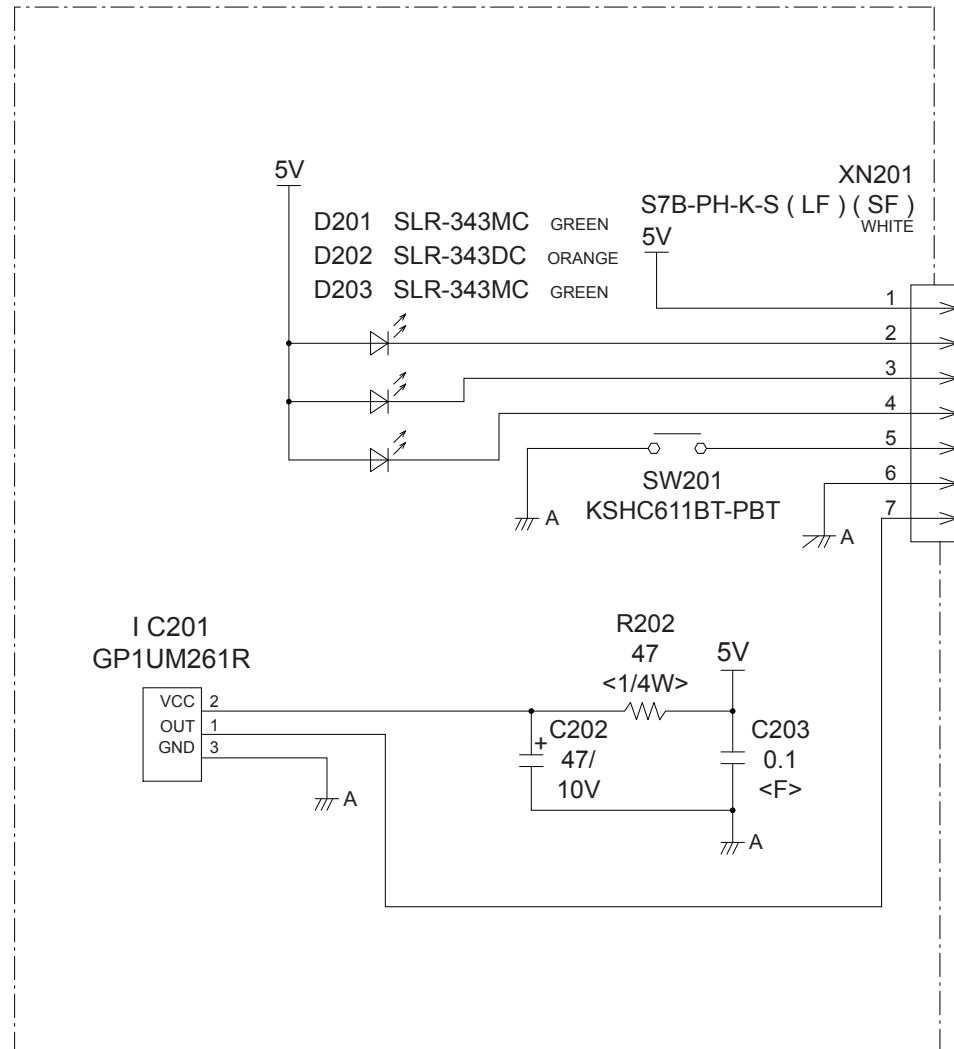
OUTDOOR UNIT



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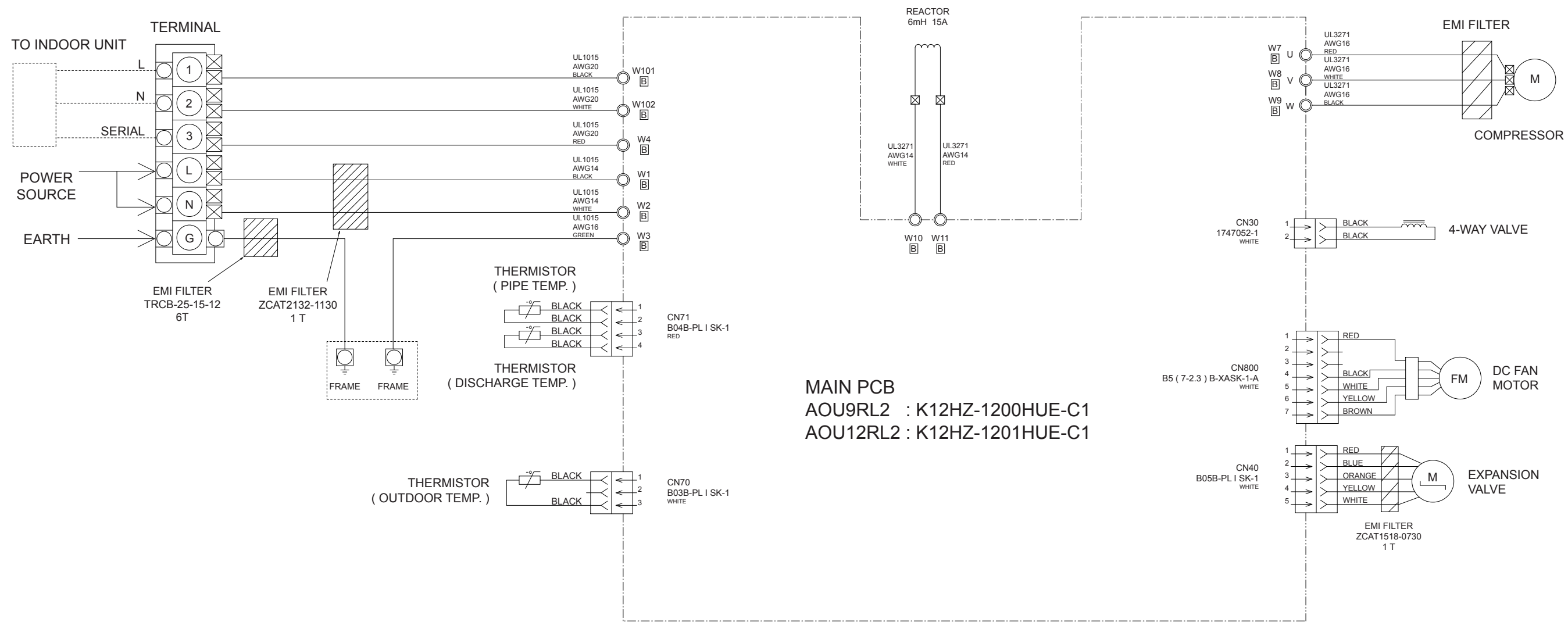


INDOOR UNIT
INDICATOR PCB
K11CO-1100HSE-D0



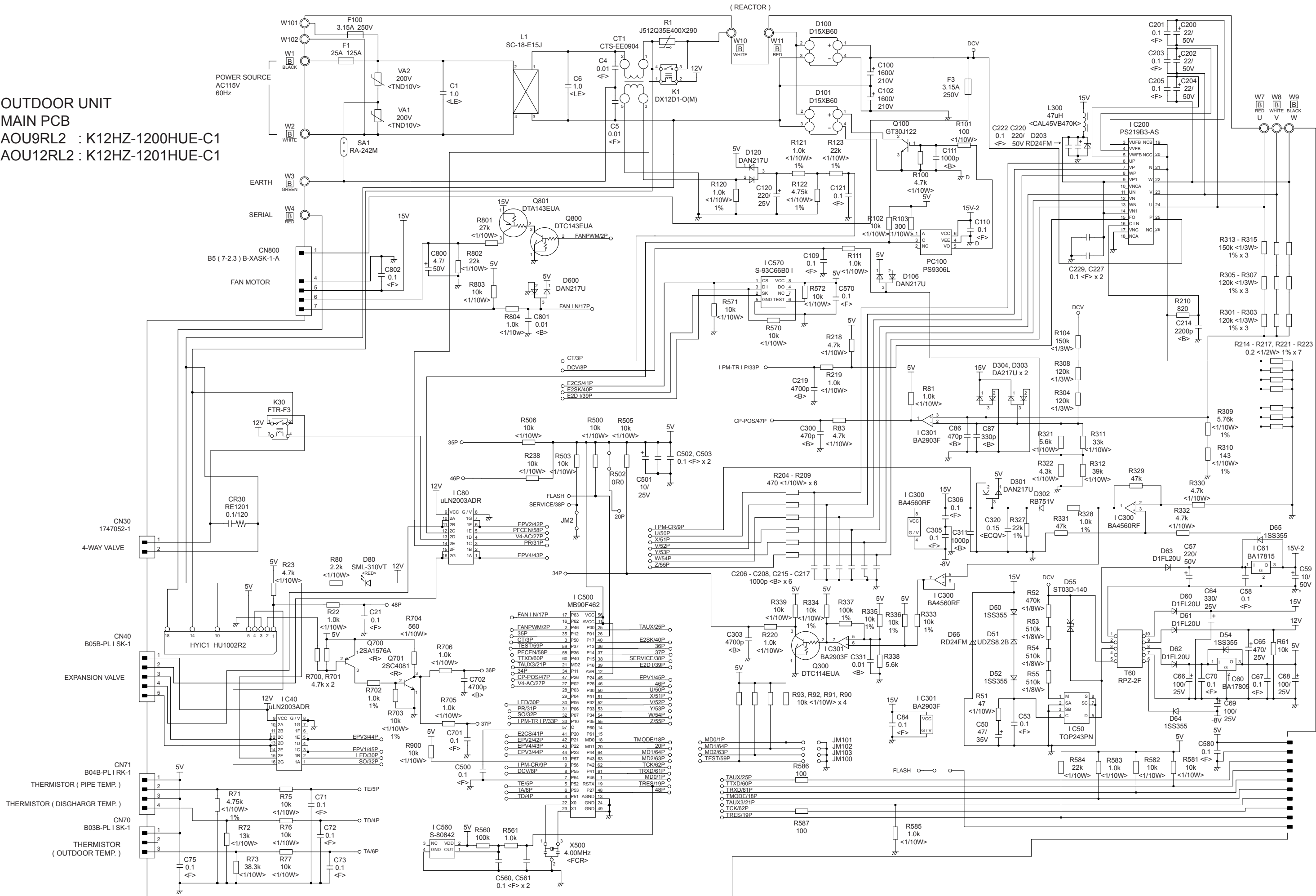
OUTDOOR PCB
CIRCUIT DIAGRAM

INVERTER ASSEMBLY
AOU9RL2 : EZ-012FHUE
AOU12RL2 : EZ-012LHUE



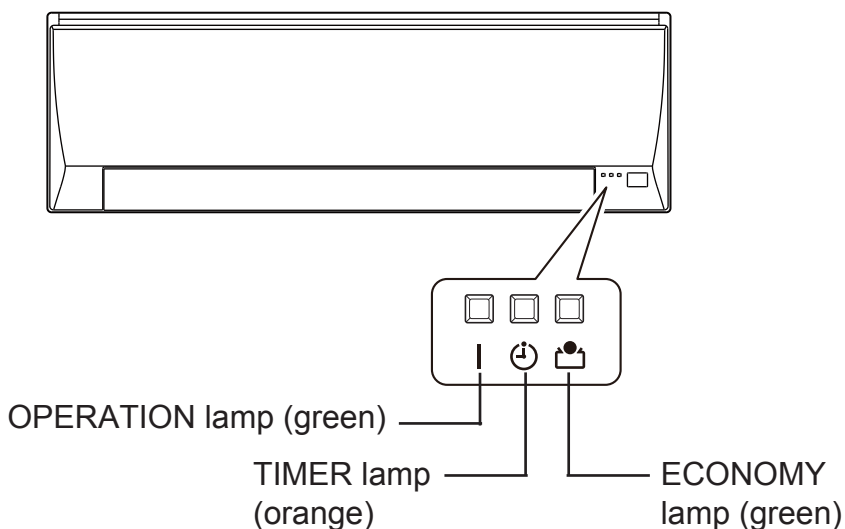
OUTDOOR UNIT
MAIN PCB

AOU9RL2 : K12HZ-1200HUE-C1
AOU12RL2 : K12HZ-1201HUE-C1



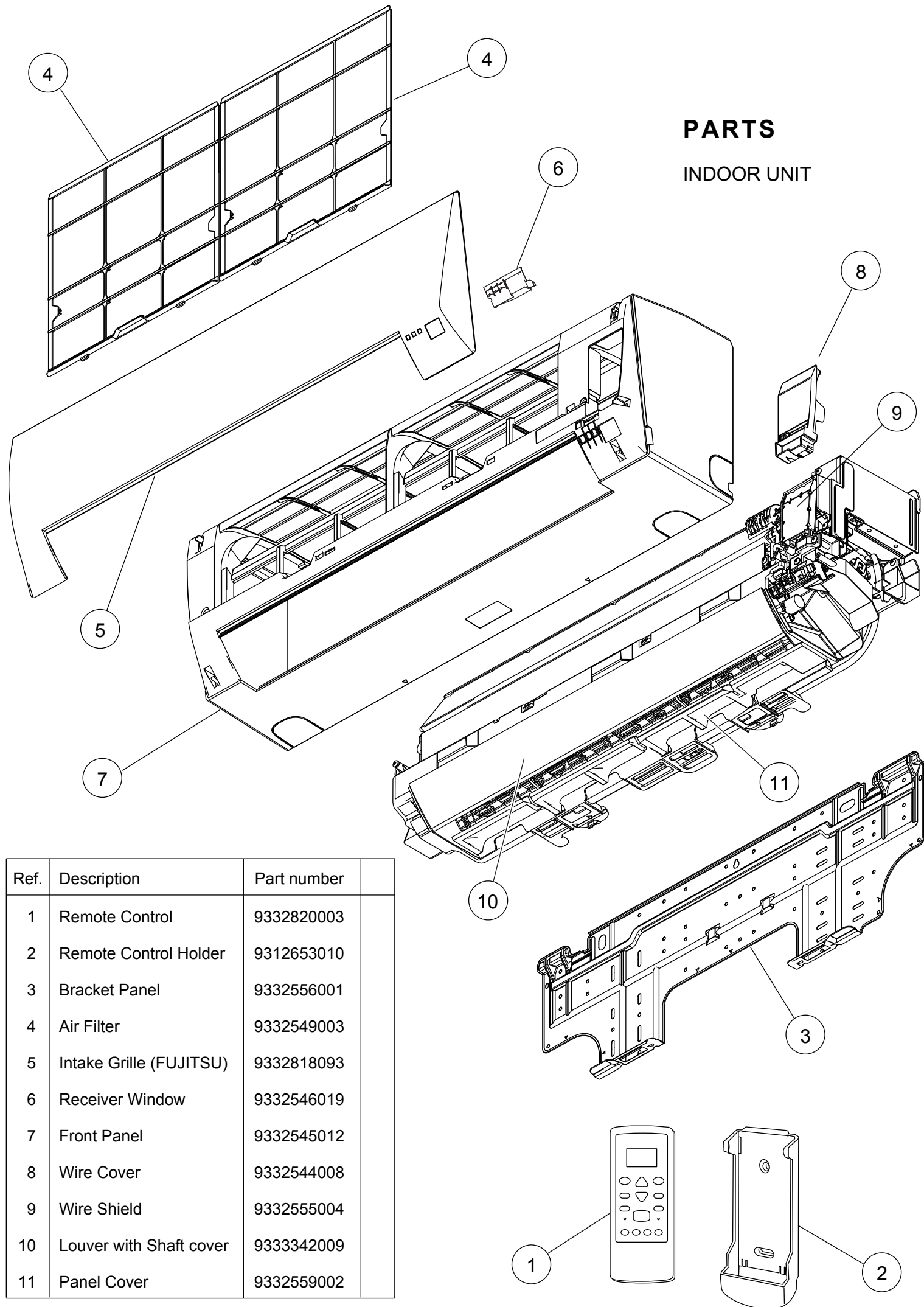
ERROR DETECTION

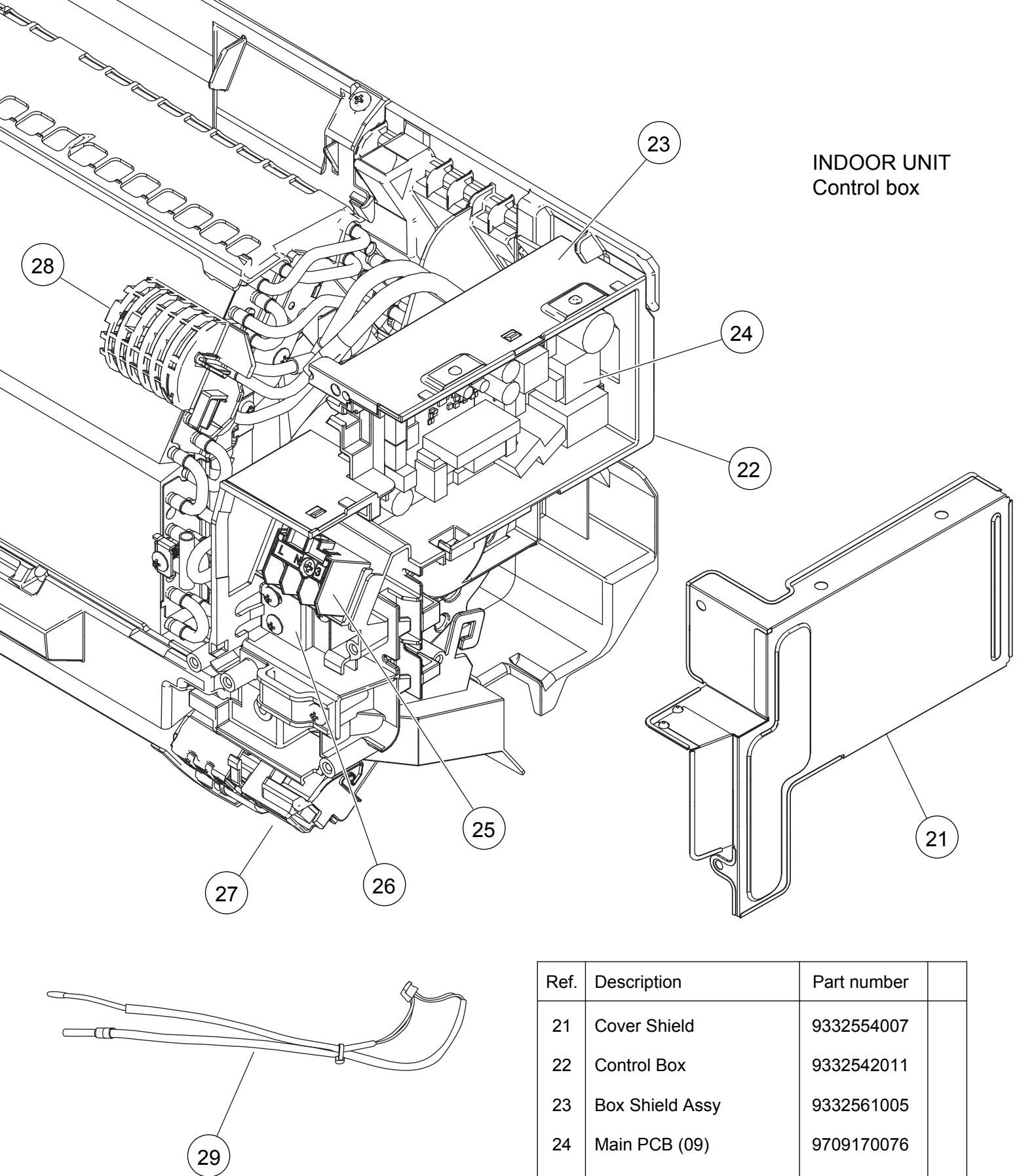
TROUBLESHOOTING
with the indoor unit display



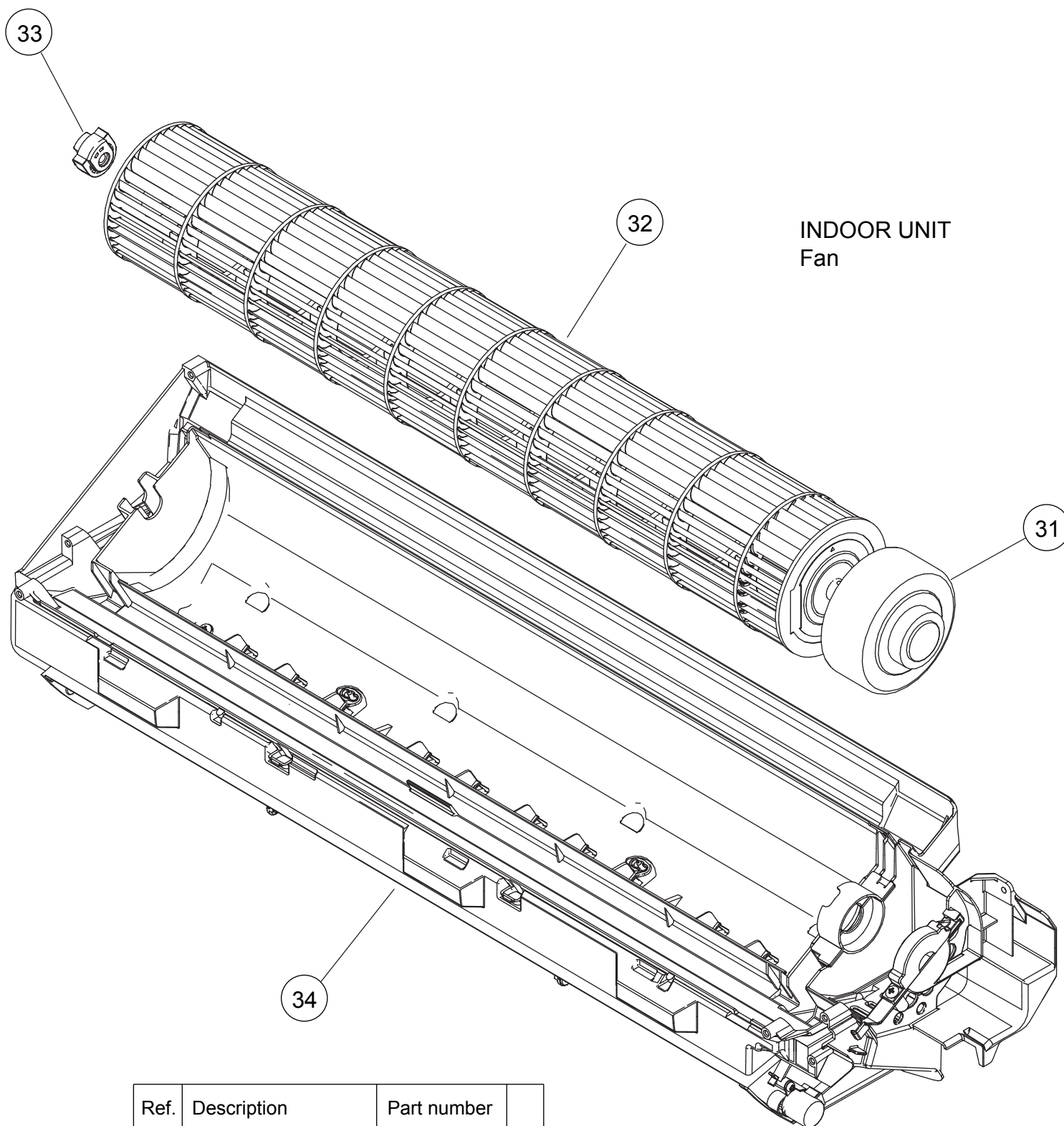
Error	OPERATION	TIMER	ECONOMY
Serial communication error	1 flash	1 flash	Rapid flash (0.1s on / 0.1s off)
Indoor unit PCB model information error	3	2	
Manual auto switch error	3	5	
Room temp. sensor error	4	1	
Indoor unit Heat Ex. Middle temp.sensor error	4	2	
Indoor unit fan motor error	5	1	
Indoor unit error	5	15	
Outdoor unit main PCB model information error or communication error	6	2	
Inverter error	6	3	
Active filter error, PFC circuit error	6	4	
Trip terminal L error	6	5	
Display PCB microcomputers communication error	6	10	
Discharge temp. sensor error	7	1	
Outdoor unit Heat Ex. liquid temp. sensor error	7	3	
Outdoor temp. sensor error	7	4	
Current sensor error	8	4	
Trip detection	9	4	
Compressor rotor position detection error	9	5	
Outdoor unit fan motor error	9	7	
4-way valve error	9	9	
Discharge temp. error	10	1	

(0.5s on / 0.5s off)



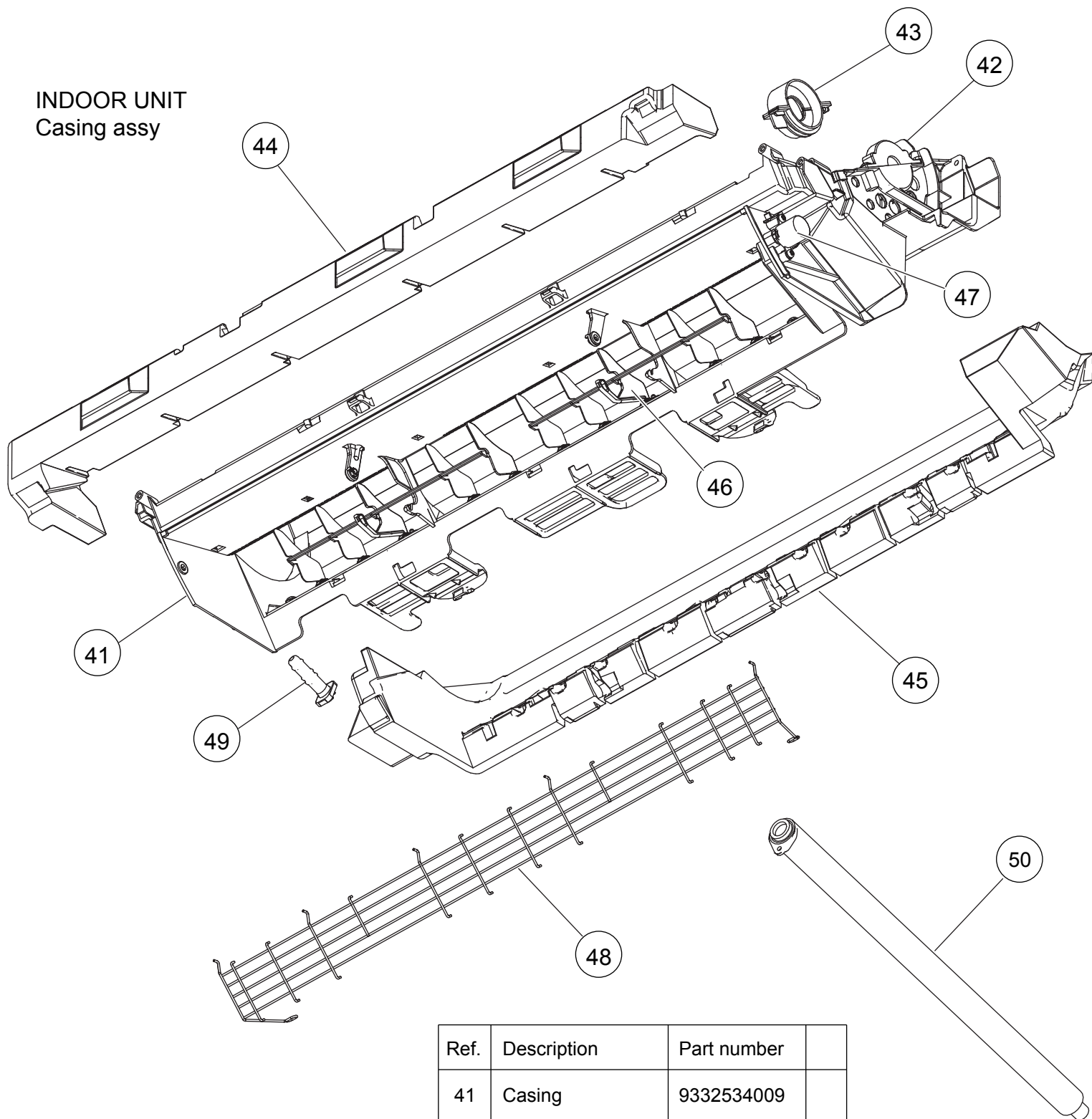


Ref.	Description	Part number	
21	Cover Shield	9332554007	
22	Control Box	9332542011	
23	Box Shield Assy	9332561005	
24	Main PCB (09)	9709170076	
24	Main PCB (12)	9709170083	
25	Terminal	9900720001	
26	Earth Terminal	9332553024	
27	Display Assy	9709173015	
28	Room Thermistor Holder	9316895003	
29	Thermistor Assy	9900714017	



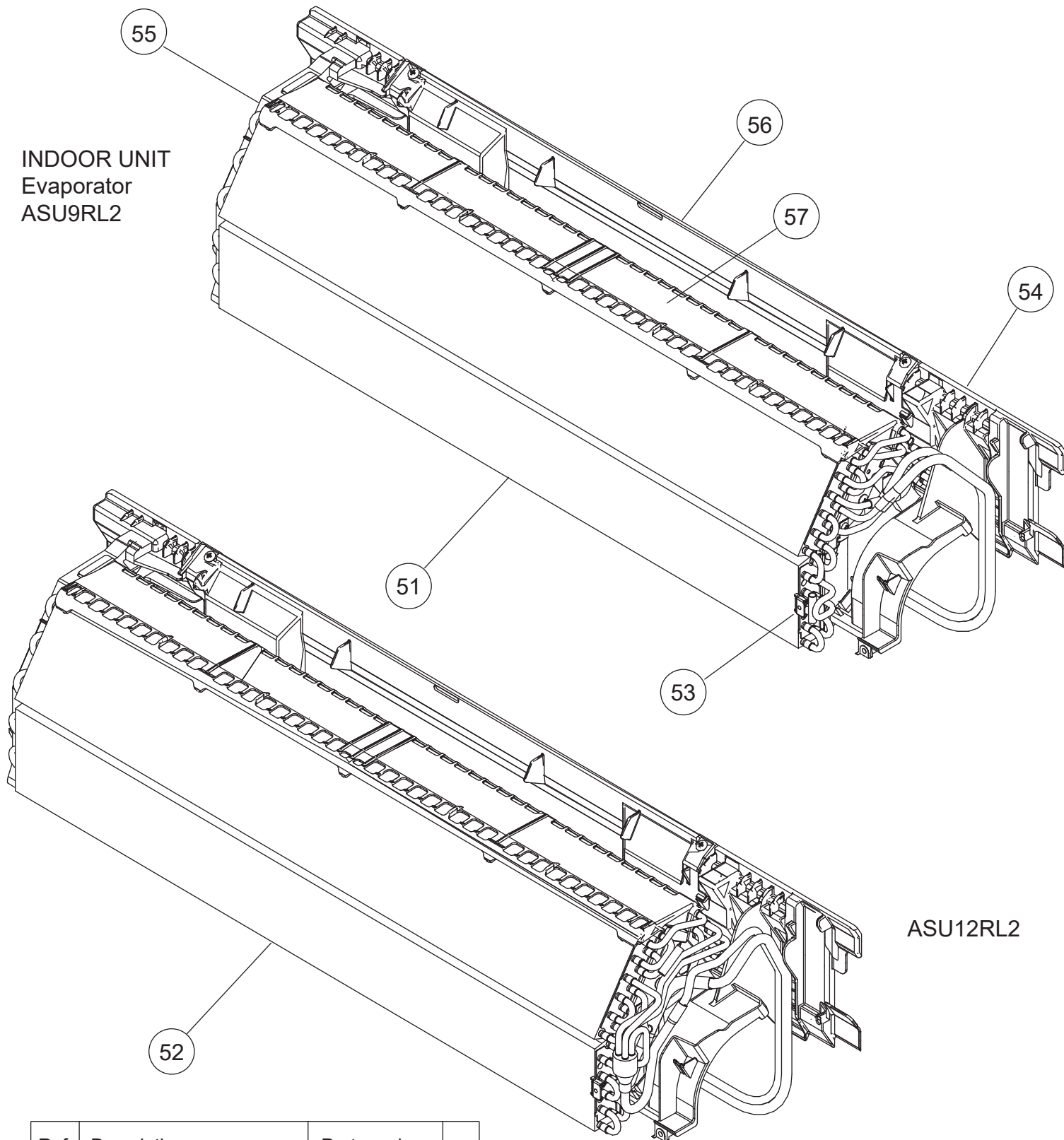
Ref.	Description	Part number	
31	Fan Motor	9603249007	
32	Crossflow Fan Assy	9316830004	
33	Bearing C Assy	9306628017	
34	Casing Assy	9332613018	

INDOOR UNIT
Casing assy



Ref.	Description	Part number	
41	Casing	9332534009	
42	Motor Cover	9316601000	
43	Motor Cover	9316568006	
44	Casing Cover F	9332558005	
45	Casing Cover B	9332557008	
46	R and L Louver	9332535006	
47	Step Motor	9900725006	
48	Fan Guard	9332551006	
49	Drain Cap	9316177017	
50	Drain Hose Assy	9316904002	

INDOOR UNIT
Evaporator
ASU9RL2

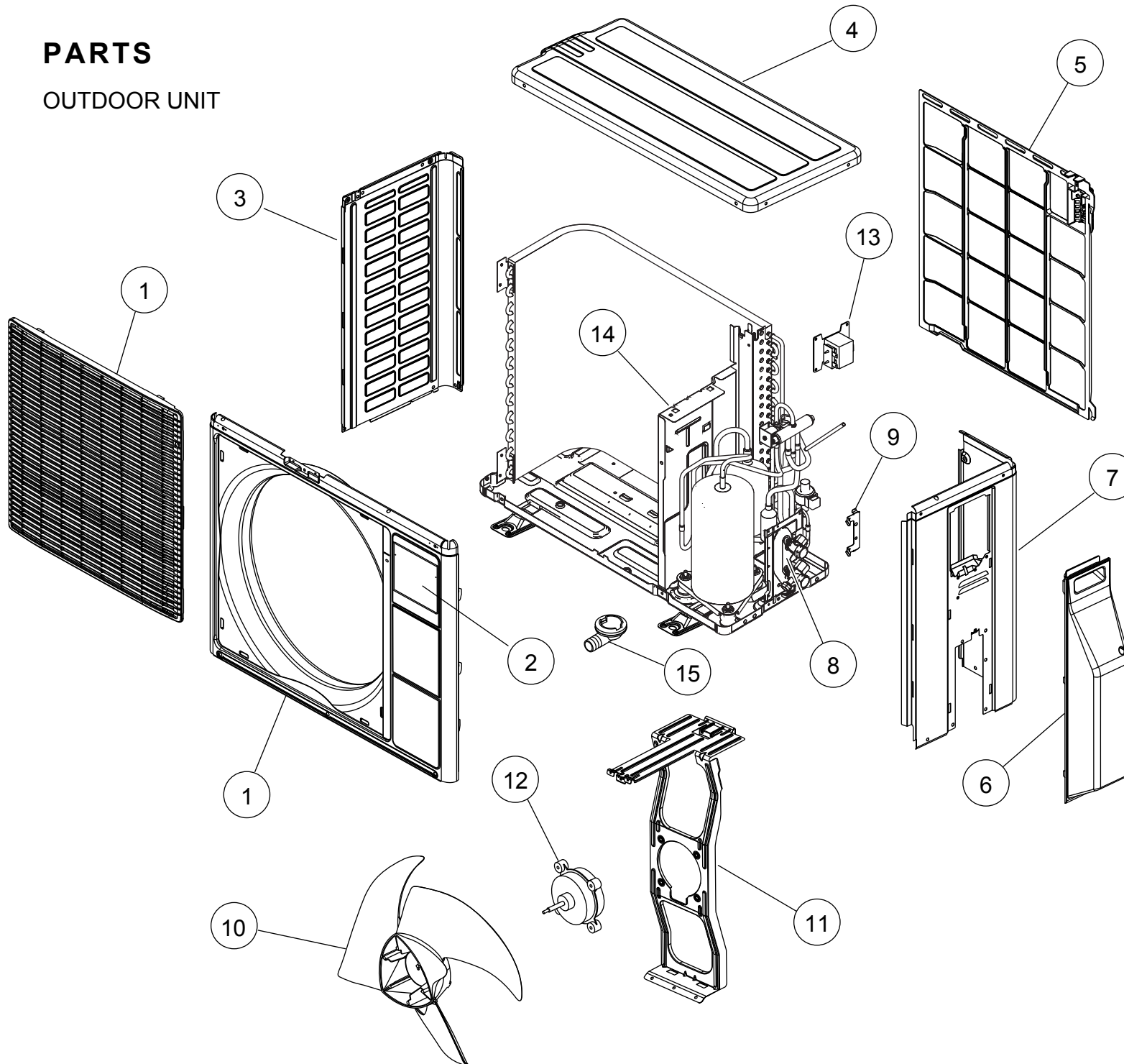


ASU12RL2

Ref.	Description	Part number	
51	Evaporator Total Assy (09)	9316893641	
52	Evaporator Total Assy (12)	9316893658	
53	Earth Terminal	9316579002	
54	Evaporator Holder R	9324154000	
55	Evaporator Holder L	9324127004	
56	Rear Bracket	9332540017	
57	Filter Guide	9332541007	

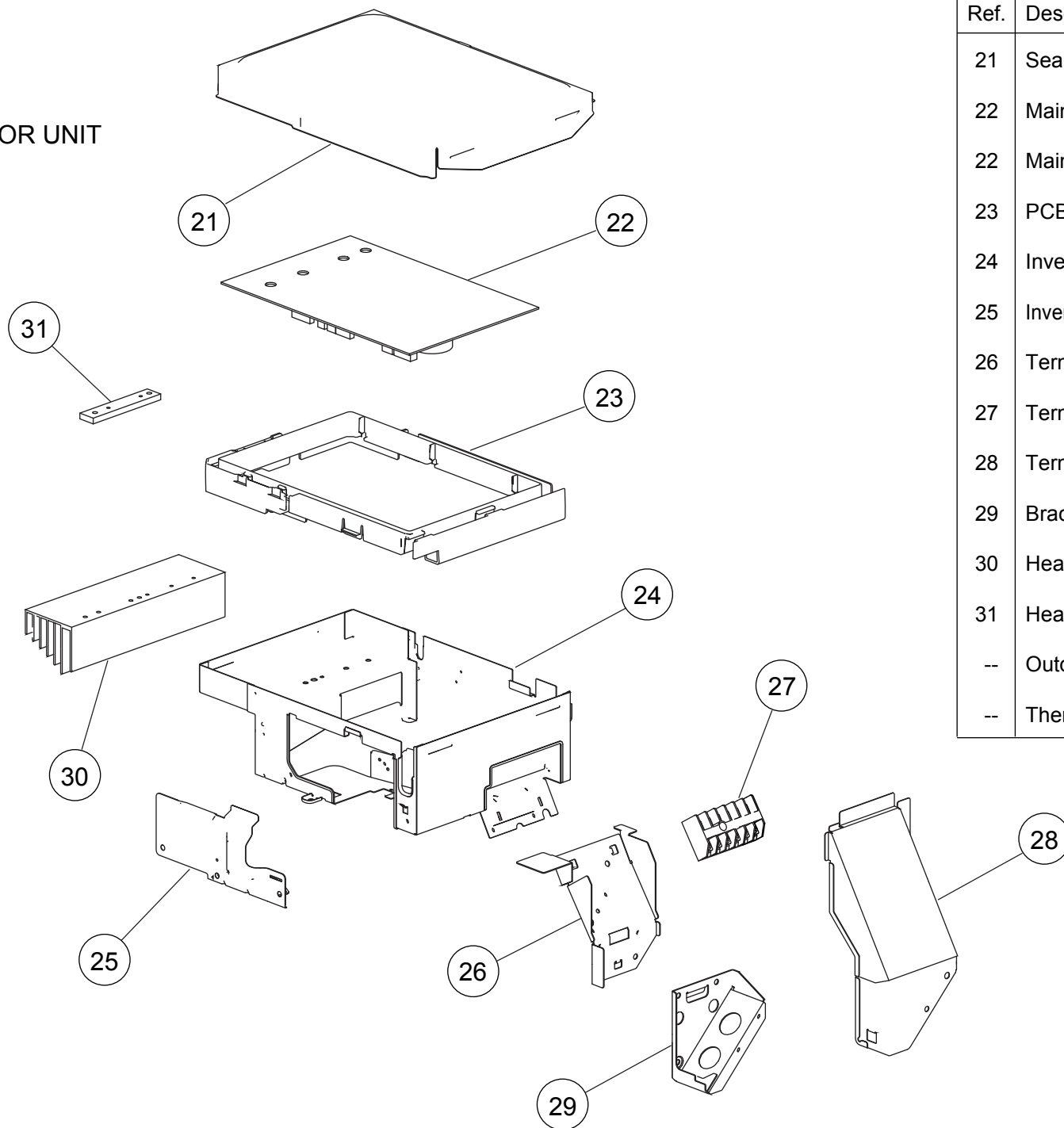
PARTS

OUTDOOR UNIT



Ref.	Description	Part number
1	Front Panel Assy	9317789035
2	Emblem	9317903011
3	Cabinet Left Assy	9317813006
4	Top Panel Assy	9317939034
5	Protective Net	9331262019
6	Switch Cover	9313940027
7	Cabinet Right Assy	9331336079
8	Valve Bracket	9316523012
9	Valve Bracket Cover	9331683005
10	Propeller Fan	9309909014
11	Motor Bracket (9)	9332289022
11	Motor Bracket (12)	9332289039
12	Fan Motor	9603074005
13	Reactor Assy	9900419011
14	Separator Assy	9317927017
15	Drain Pipe Assy	9303029022

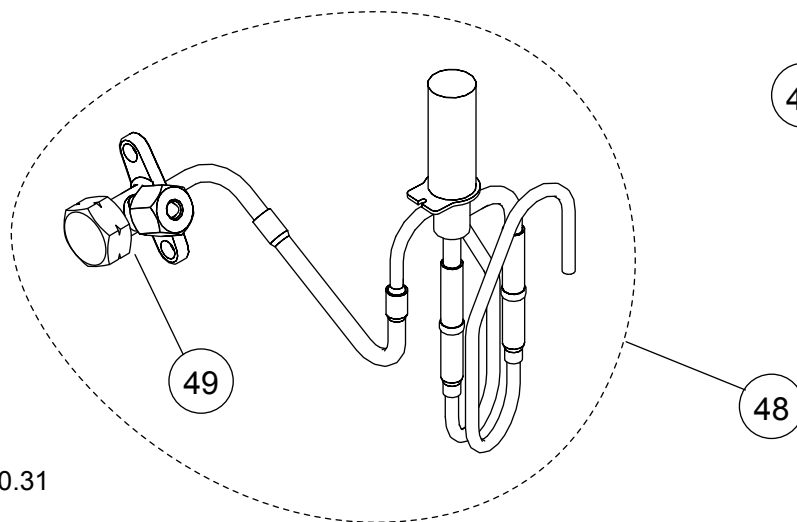
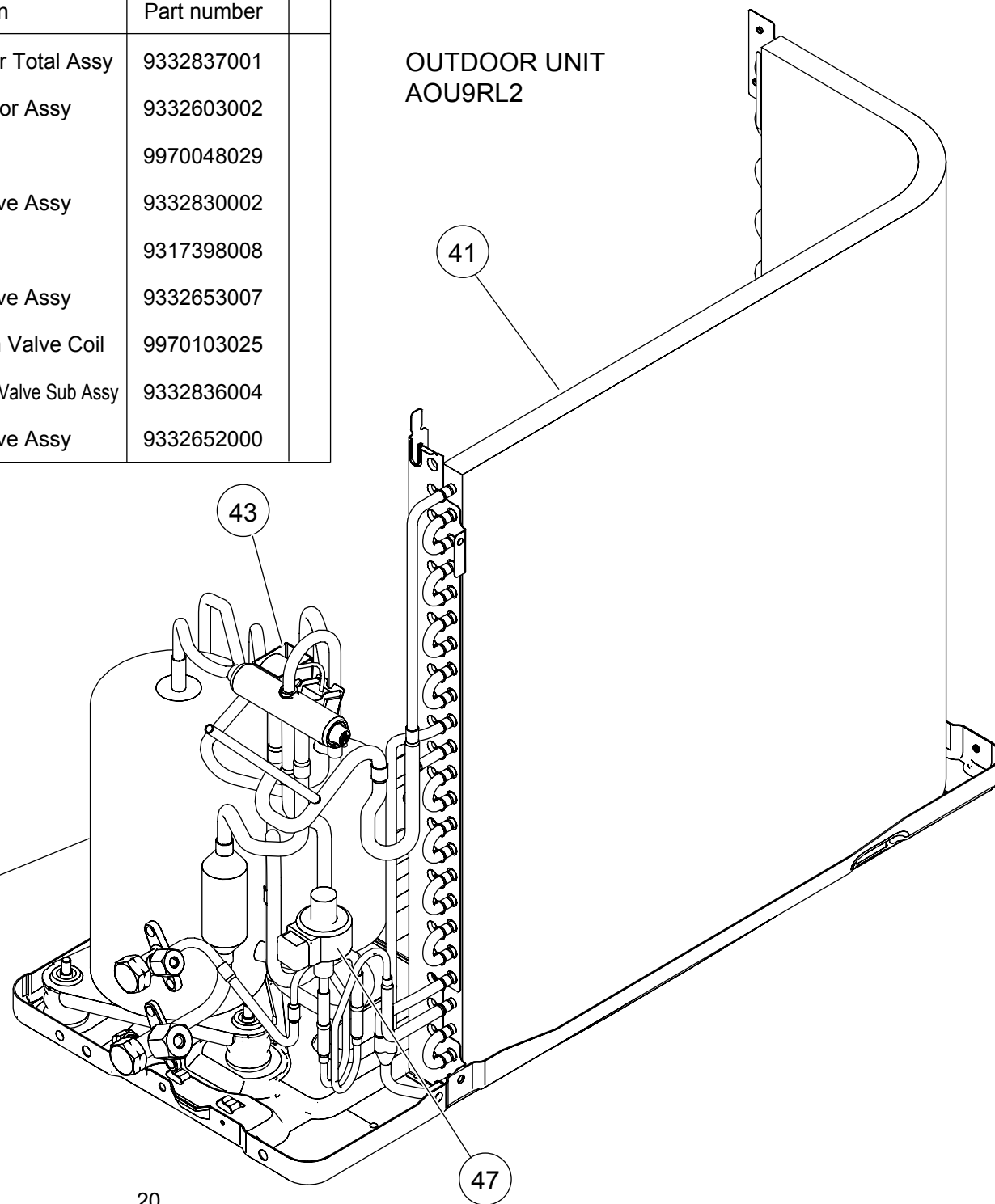
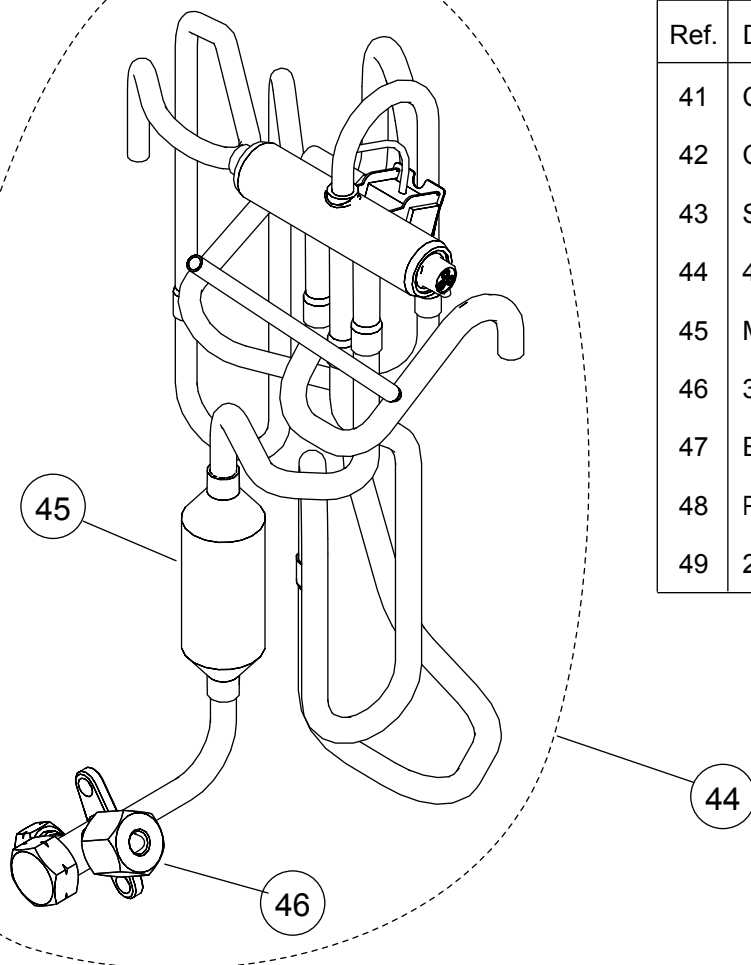
OUTDOOR UNIT



Ref.	Description	Part number	
21	Sealed Panel	9331256025	
22	Main PCB (09)	9709369005	
22	Main PCB (12)	9709369012	
23	PCB Holder	9331261012	
24	Inverter Case Assy	9331279086	
25	Inverter Case Cover	9331258012	
26	Terminal Bracket	9317689021	
27	Terminal 6P	9900016098	
28	Terminal Cover Assy	9317898041	
29	Bracket Conduit	9313938017	
30	Heat Sink A	9331263030	
31	Heat Sink B	9314090028	
--	Outdoor Thermistor	9900565008	
--	Thermistor Assy	9900628000	

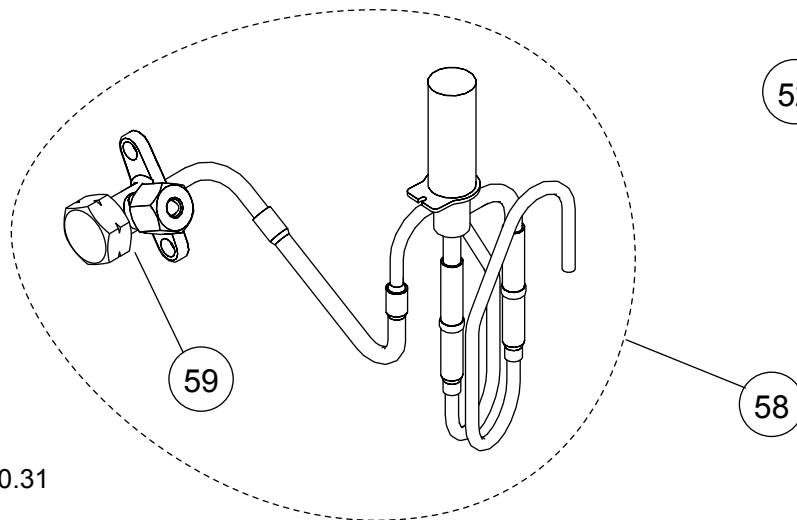
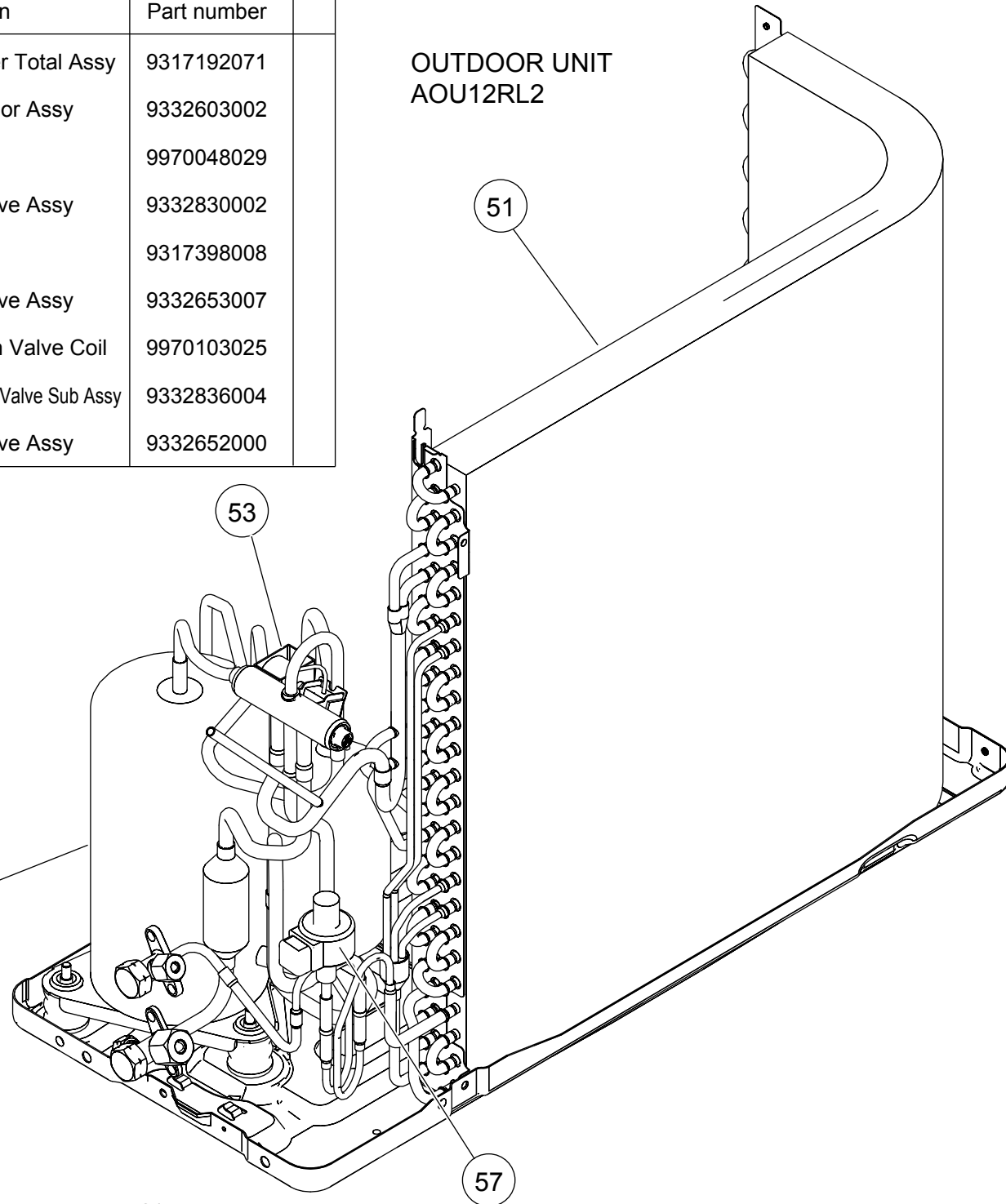
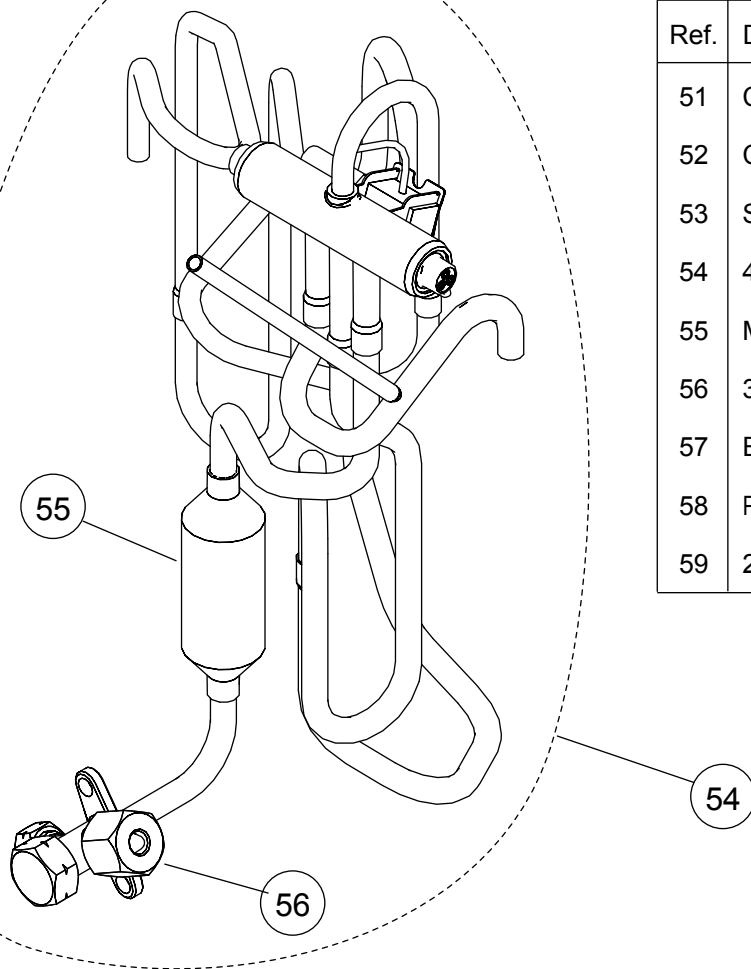
Ref.	Description	Part number
41	Condenser Total Assy	9332837001
42	Compressor Assy	9332603002
43	Solenoid	9970048029
44	4-way Valve Assy	9332830002
45	Muffler	9317398008
46	3-way Valve Assy	9332653007
47	Expansion Valve Coil	9970103025
48	Pulse Motor Valve Sub Assy	9332836004
49	2-way Valve Assy	9332652000

OUTDOOR UNIT AOU9RL2



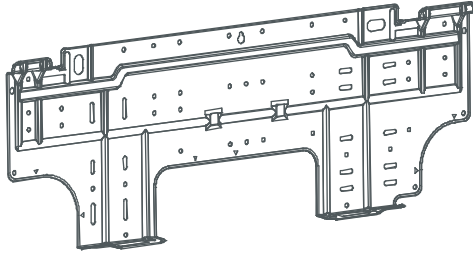
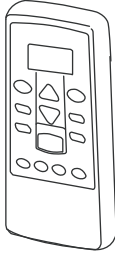

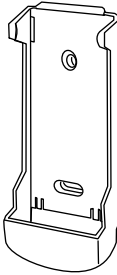
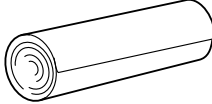
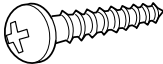
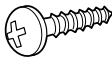
Ref.	Description	Part number
51	Condenser Total Assy	9317192071
52	Compressor Assy	9332603002
53	Solenoid	9970048029
54	4-way Valve Assy	9332830002
55	Muffler	9317398008
56	3-way Valve Assy	9332653007
57	Expansion Valve Coil	9970103025
58	Pulse Motor Valve Sub Assy	9332836004
59	2-way Valve Assy	9332652000

OUTDOOR UNIT AOU12RL2

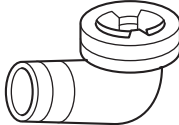


ACCESSORIES

INDOOR UNIT

Name and Shape	Part number
Wall hook bracket 	9332556001
Remote control 	9332820003
Battery (penlight) 	0600185541
Remote control holder 	9312653010
Cloth tape 	9310519004
Tapping screw (big) (ϕ 4 x 25) 	0700076046
Tapping screw (small) (ϕ 3 x 12) 	0700019036

OUTDOOR UNIT

Name and Shape	Part number
Drain pipe assy 	9303029022

