

INVERTER SPLIT TYPE AIR CONDITIONER (50Hz)

DUCT type

SERVICE MANUAL



Models

Indoor unit

ARY12LUAD

ARY14LUAD

Outdoor unit

AOY12LMAKL

AOY14LMAKL

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SPECIFICATIONS

TYPE	COOLING & HEATING	
INDOOR UNIT	ARY12LUAD	ARY14LUAD
OUTDOOR UNIT	AOY12LMAKL	AOY14LMAKL
COOLING CAPACITY	3.50 kW	4.30 kW
HEATING CAPACITY	4.00 kW	4.80 kW

ELECTRICAL DATA

POWER SOURCE		230 V	
FREQUENCY		50 Hz	
RUNNING CURRENT	COOLING	5.10 A	6.00 A
	HEATING	5.80 A	6.50 A
INPUT WATTS	COOLING	1.15 kW	1.37 kW
	HEATING	1.32 kW	1.49 kW
E.E.R.	COOLING	3.04 kW/kW	3.14 kW/kW
	HEATING	3.03 kW/kW	3.21 kW/kW
MOISTURE REMOVAL		1.2 l/hr	1.5 l/hr

Note : The above list shows values at the external static pressure of 0Pa, setting the fan speed high notch.

COMPRESSOR

TYPE	Hermetic type, 4 poles, DC motor, Twin Rotary		
DISCRIMINATION	TNB220FPCM		
REFRIGERANT	(R410A)	1,250 g	

FAN MOTOR

AIR FLOW				
FAN SPEED	DISCRIMINATION		MFA-18NTT	MFA-18NTT
	INDOOR	HIGH-SPEED	750 r.p.m.	1,000 r.p.m.
		MED-SPEED	680 r.p.m.	860 r.p.m.
		LOW-SPEED	610 r.p.m.	720 r.p.m.
	DISCRIMINATION		MFB-24JTAT	
	OUTDOOR	HIGH-SPEED	780 r.p.m.	
		LOW-SPEED	400 r.p.m.	
AIR FLOW		INDOOR	580 m³/h	780 m³/h
		OUTDOOR	2,800 m³/h	
DIMENSIONS H x W x D		INDOOR	217 x 953 x 595 mm	
		OUTDOOR	650 x 830 x 320 mm	
WEIGHT GROSS / NET	INDOOR	29 / 25 kg		
	OUTDOOR	58 / 54 kg		

Note : The above list shows values at the external static pressure of 0Pa, setting the fan speed high notch.

NOISE LEVEL

INDOOR UNIT	HIGH-SPEED	32 dB	38 dB
	MED-SPEED	29 dB	34 dB
	LOW-SPEED	27 dB	30 dB
OUTDOOR UNIT	COOL	50 dB	50 dB
	HEAT	52 dB	52 dB

Note : Static pressure : 0Pa / Duct length : Inlet 0.5m, Outlet 1m

REFRIGERANT

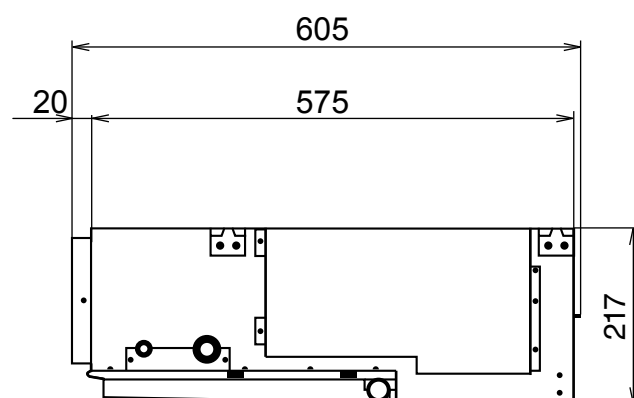
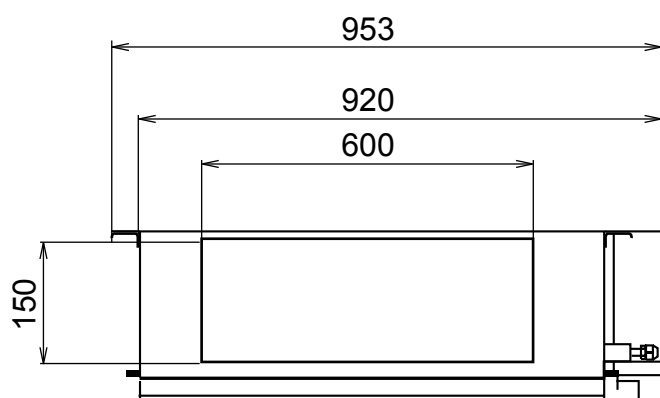
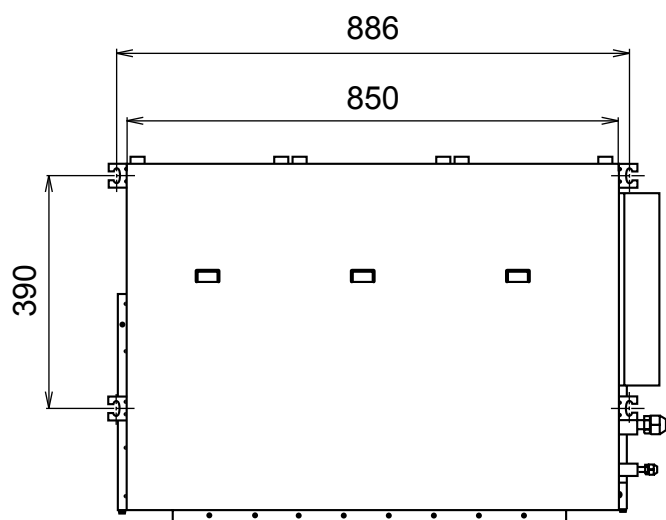
FULL CHARGE AMOUNT	PIPE LENGTH	10 m	1,250 g
		15 m	1,350 g
		20 m	1,450 g
		25 m	1,550 g
ADDITIONAL REFRIGERANT			20 g / m
MAXIMUM PIPE HEIGHT			15 m

When you dismantle indoor units which are installed, take care not to make parts fall down, especially motors.

OUTLINE AND DIMENSIONS

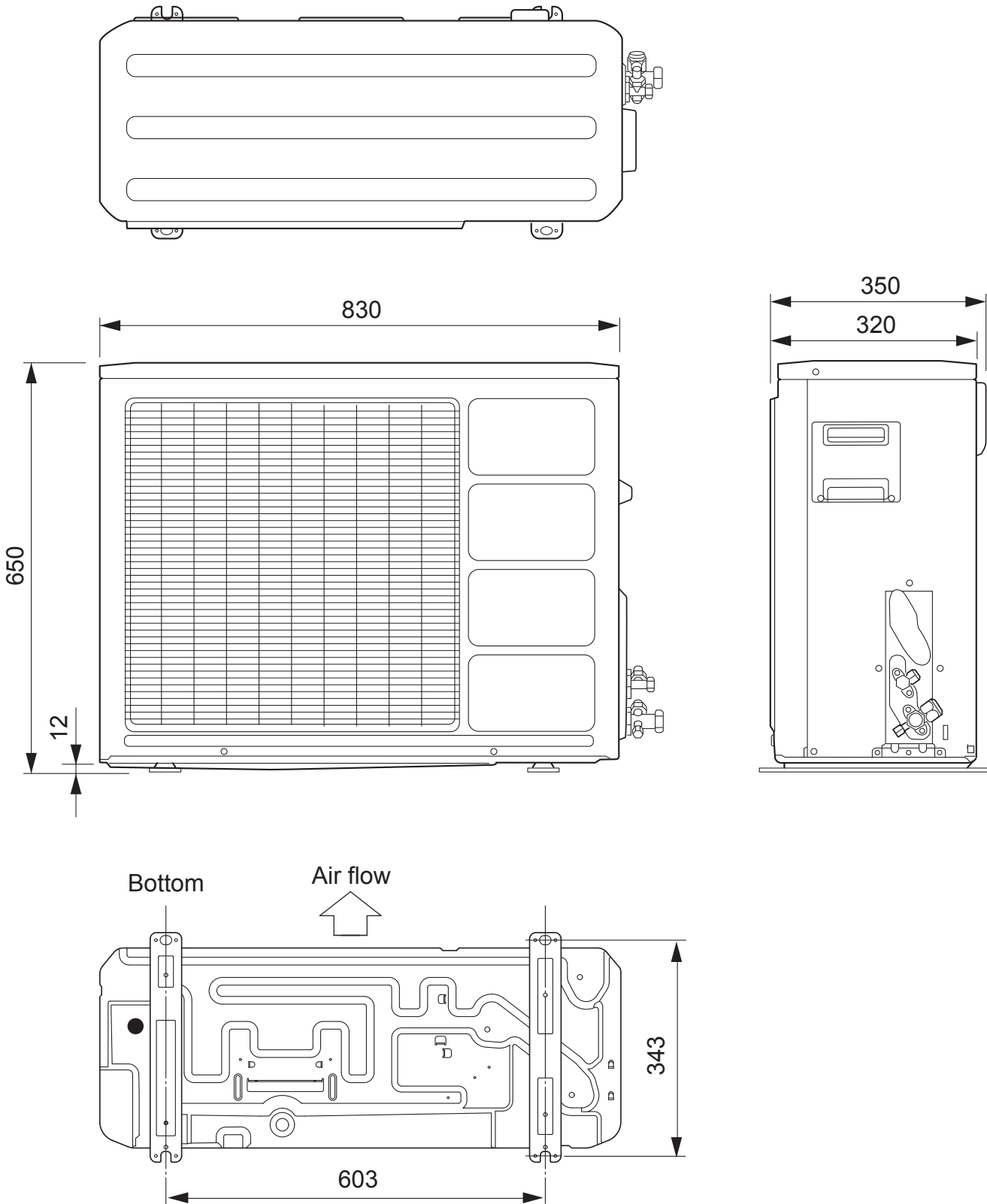
INDOOR UNIT
(unit : mm)

Models :
ARY12LUAD
ARY14LUAD

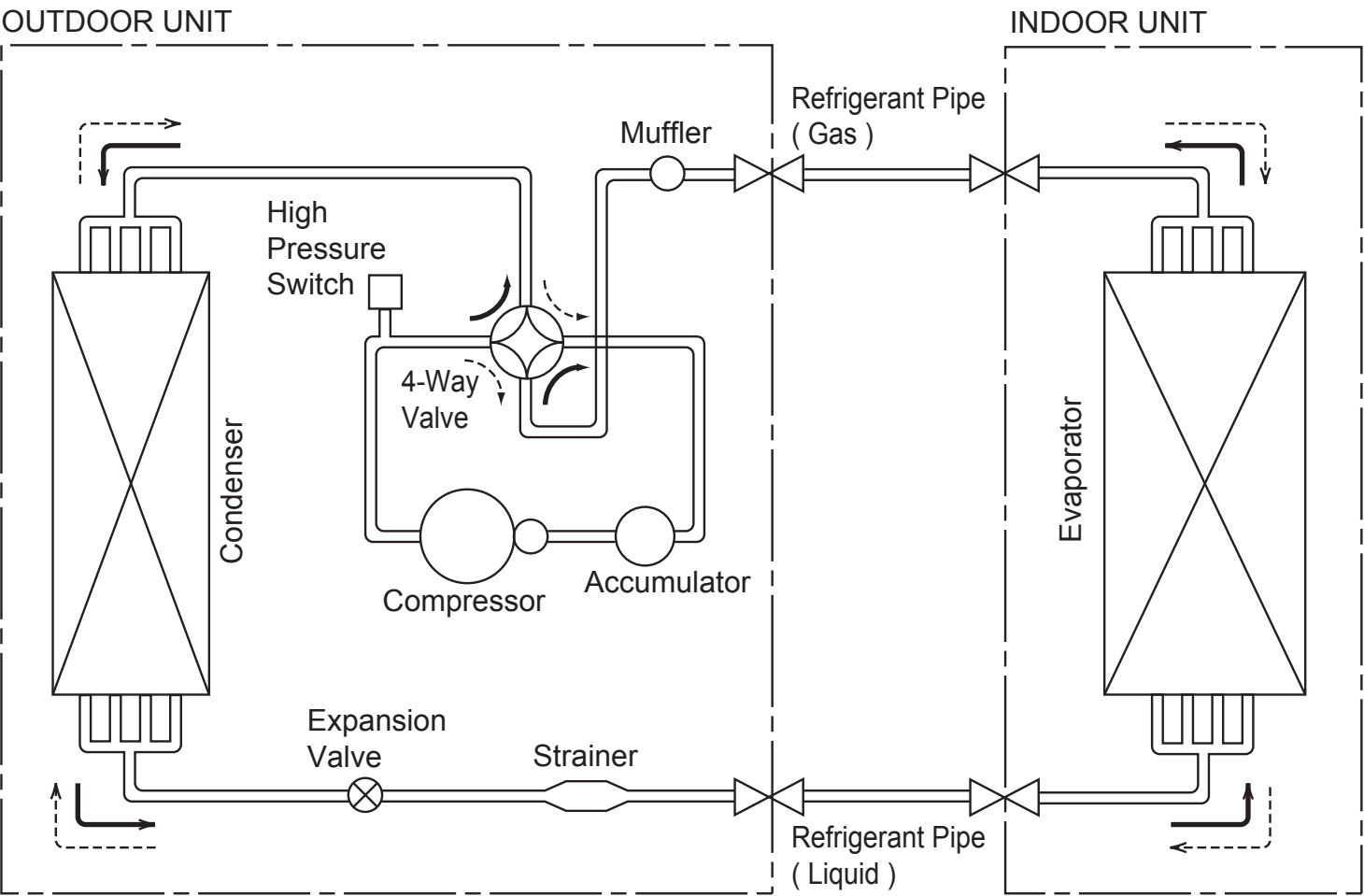


OUTDOOR UNIT
(unit : mm)

Models :
AOY12LMAKL
AOY14LMAKL



REFRIGERANT SYSTEM DIAGRAM



Refrigerant direction

- Cooling
- Heating

Refrigerant pipe diameter

ARY12LUAD

- Gas pipe : 9.52 mm (3/8 inch)
- Liquid pipe : 6.35 mm (1/4 inch)

ARY14LUAD

- Gas pipe : 12.70 mm (1/2 inch)
- Liquid pipe : 6.35 mm (1/4 inch)

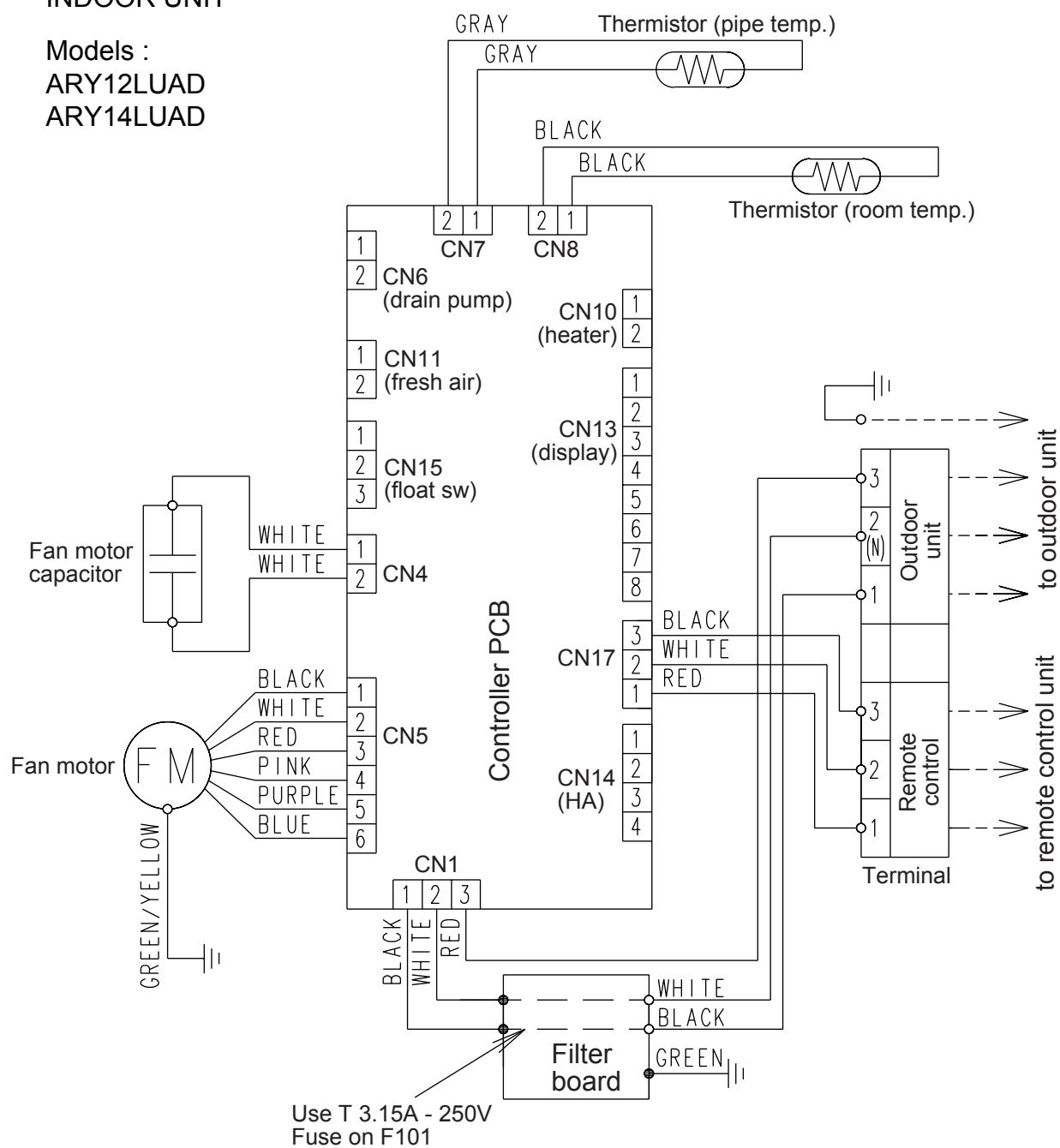
CIRCUIT DIAGRAM

INDOOR UNIT

Models :

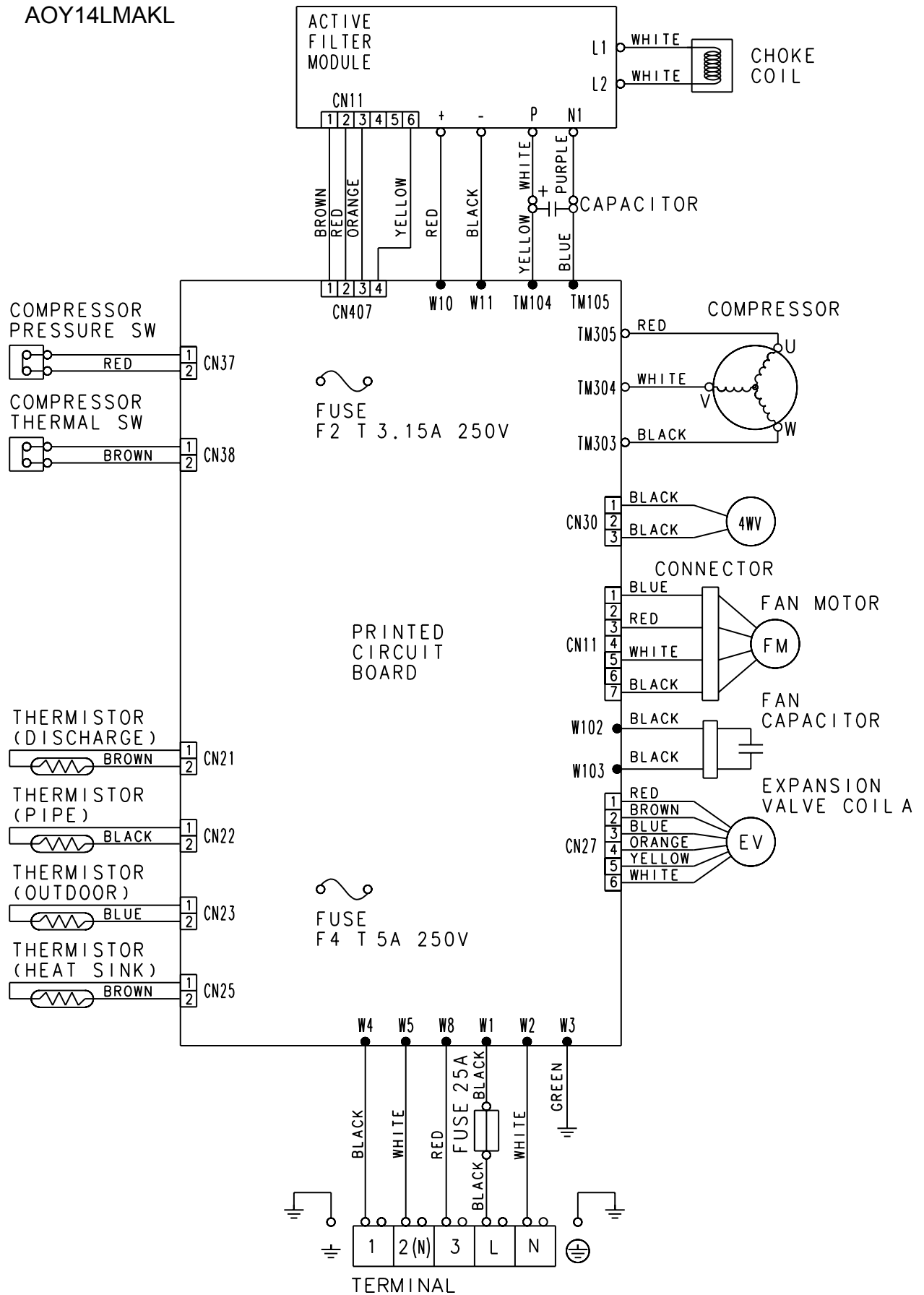
ARY12LUAD

ARY14LUAD



OUTDOOR UNIT

Models :
AOY12LMAKL
AOY14LMAKL

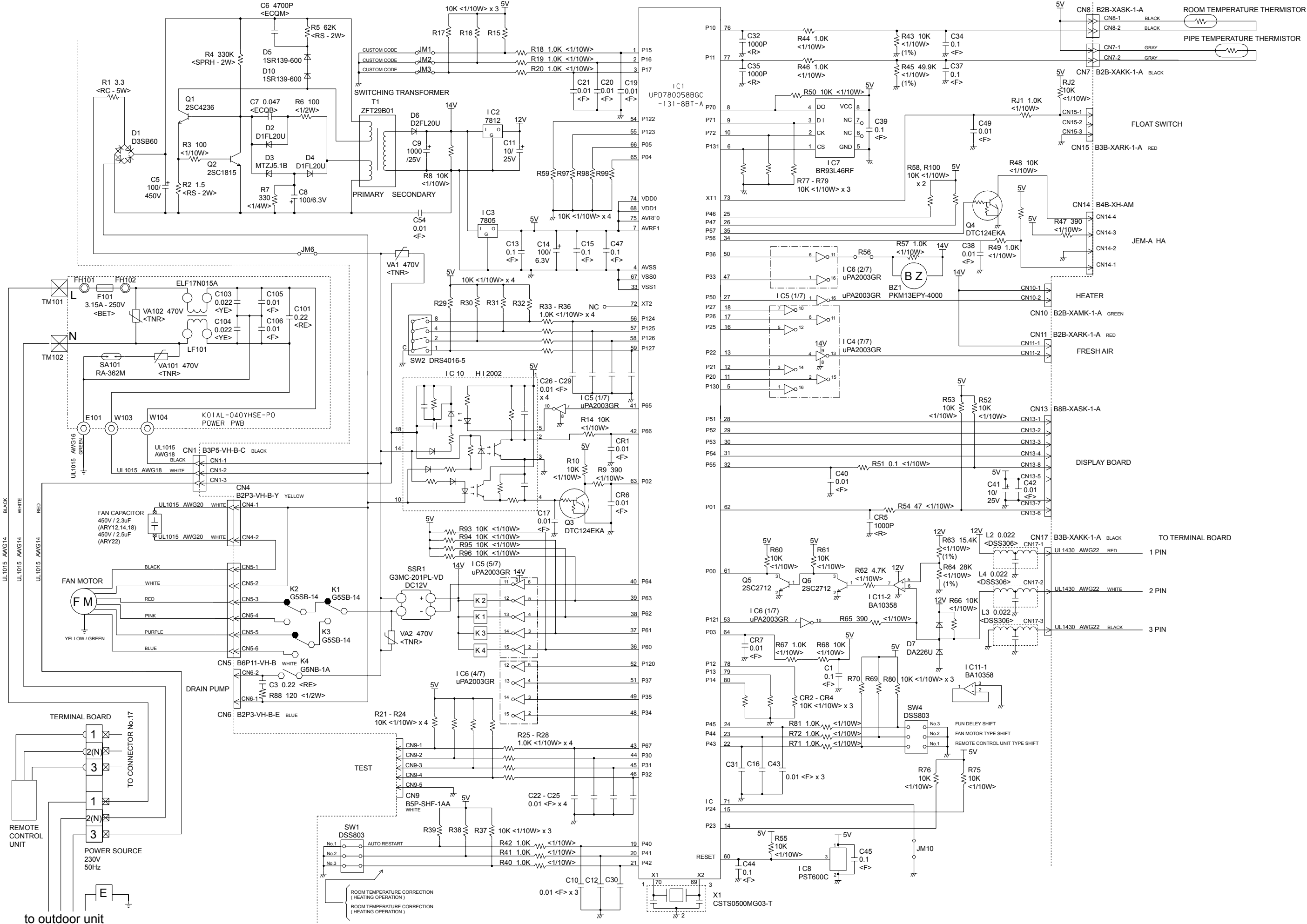


INDOOR PCB CIRCUIT DIAGRAM

CONTROLLER PCB ASSY (main PCB)

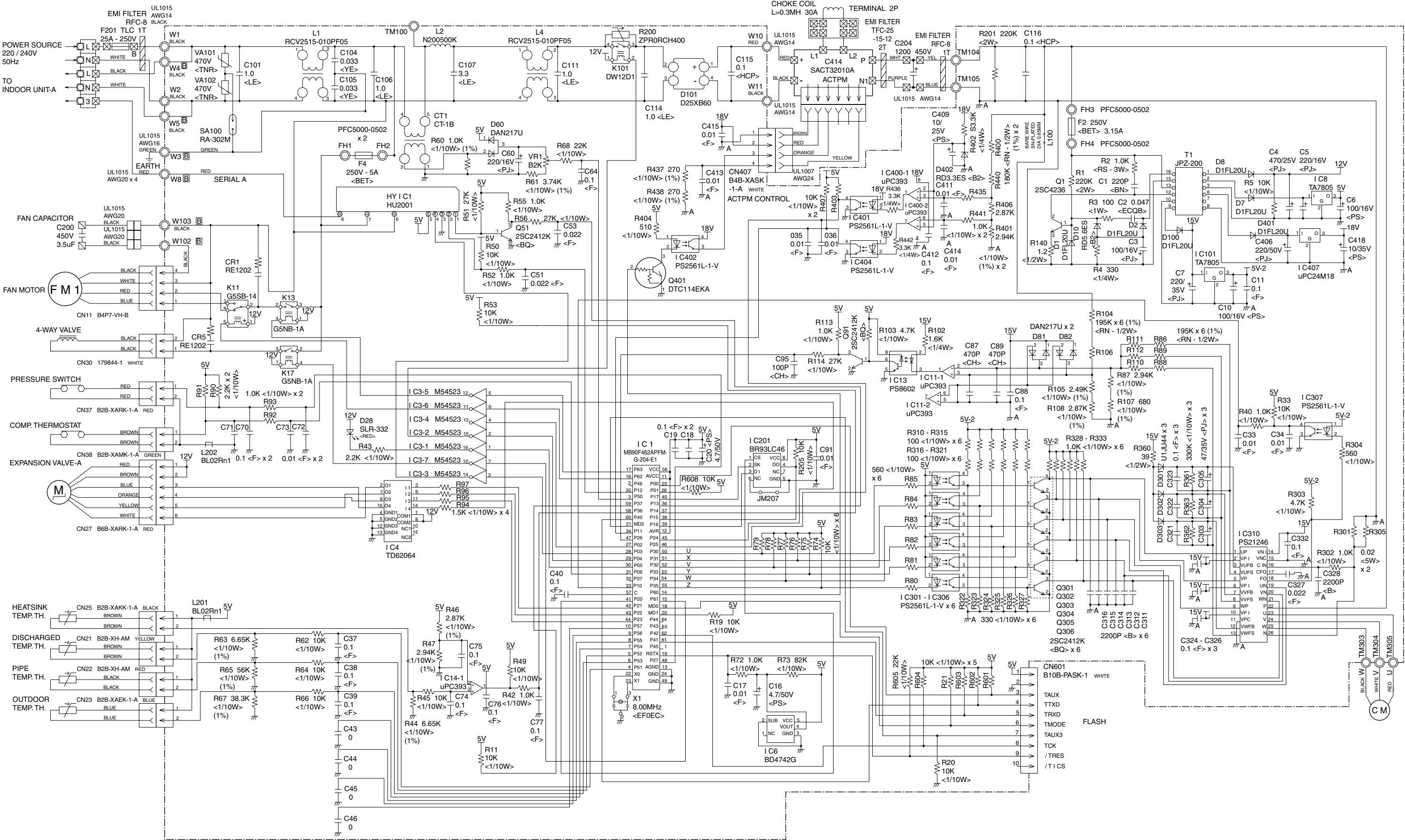
ARY12LUAD : K01AL-0412HSE-C1

ARY14LUAD : K01AL-0411HSE-C1



OUTDOOR PCB CIRCUIT DIAGRAM

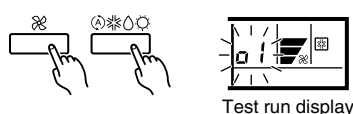
CONTROLLER PCB ASSEMBLY
AOY12LMAKL : K03AV-0501HUE-C1
AOY14LMAKL : K03AV-0502HUE-C1



ERROR CONTENTS

INDOOR UNIT

- (1) Stop the air conditioner operation.
- (2) Press the master control button and the fan control button simultaneously for 2 seconds or more to start the test run.



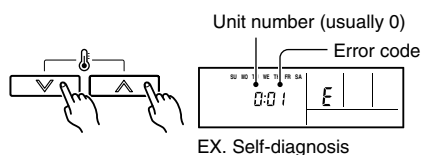
- (3) Press the start/stop button to stop the test run.

SELF-DIAGNOSIS

When the error indication "E:EE" is displayed, follow the following items to perform the self-diagnosis. "E:EE" indicates an error has occurred.

REMOTE CONTROLLER DISPLAY

- (1) Stop the air conditioner operation.
- (2) Press the set temperature buttons Δ / ∇ simultaneously for 5 seconds or more to start the self-diagnosis.
Refer to the following tables for the description of each error code.



- (3) Press the set temperature buttons Δ / ∇ simultaneously for 5 seconds or more to stop the self-diagnosis.

Error code	Error contents
00	Communication error (indoor unit $\longleftrightarrow$ remote controller)
01	Communication error (outdoor unit $\rightarrow$ indoor unit)
02	Room temperature sensor open
03	Room temperature sensor short-circuited
04	Indoor heat exchanger temperature sensor open
05	Indoor heat exchanger temperature sensor short-circuited
06	Outdoor heat exchanger temperature sensor
08	Power source connection error
09	Float switch operated
0A	Outdoor temperature sensor
0c	Discharge pipe temperature sensor
11	Model abnormal
12	Indoor fan abnormal
13	Outdoor signal abnormal
14	Outdoor EEPROM abnormal
15	Compressor temperature sensor
16	Pressure switch abnormal
17	IPM error
1A	Compressor cannot operate
1b	Outdoor fan abnormal

OUTDOOR UNIT

- (1) Is there any abnormal noise and vibration during operation ?
- (2) Will noise, wind or drain water from the unit disturb the neighbors?
- (3) Is there any gas leakage?

- Do not operate the air conditioner in the test running state for a long time.
- For the operation method, refer to the operating manual and perform operation check.

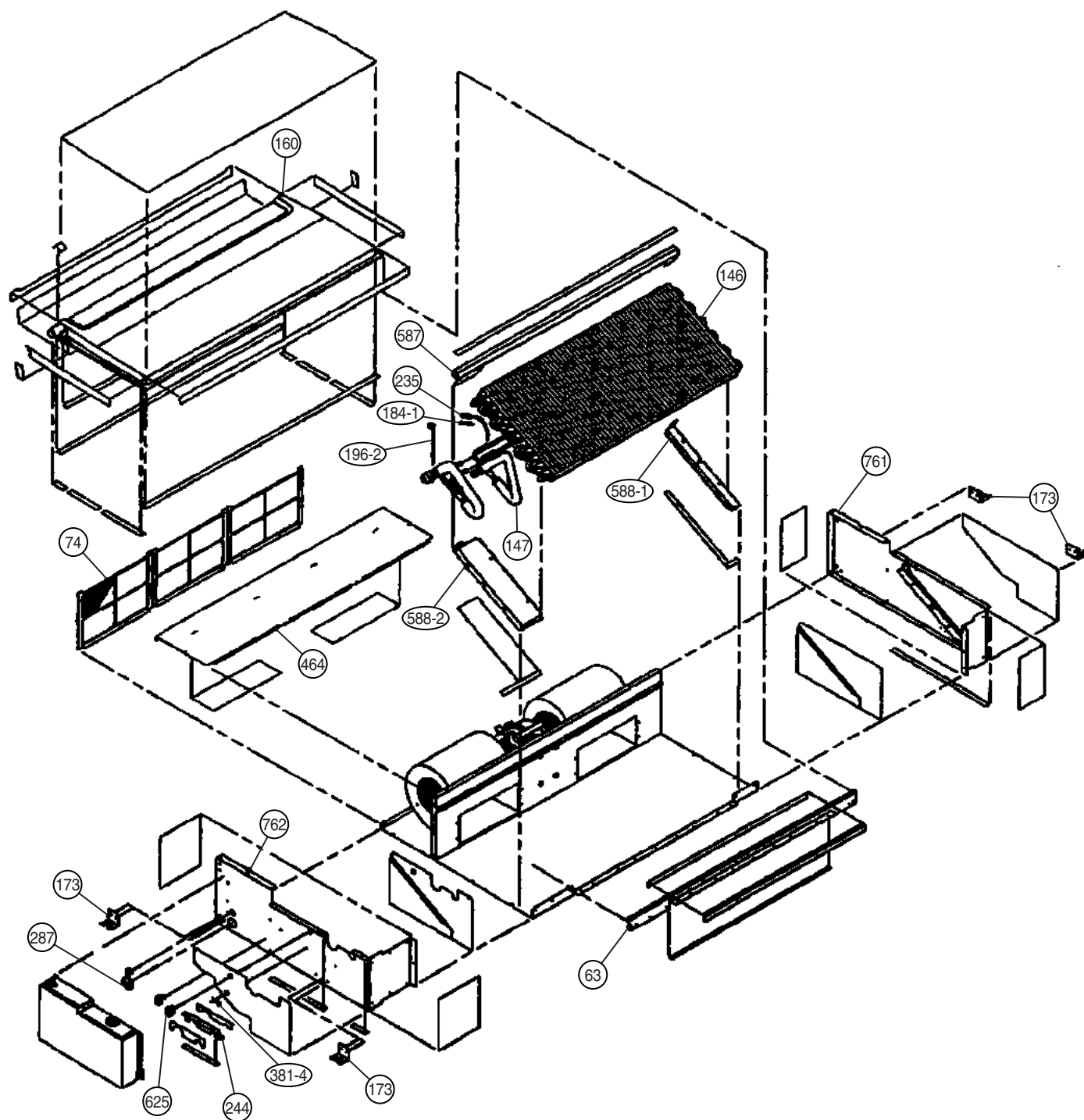
Error contents	LED (Red)
Serial signal error	1 time blink
Discharge pipe thermistor error	2 times blink
Heat exchanger thermistor error	3 times blink
Outdoor temperature thermistor error	4 times blink
Compressor thermistor error	7 times blink
Pressure switch error	8 times blink
Current trip error	10 times blink
CT error	11 times blink
Compressor position detection error	12 times blink
Compressor starting error	13 times blink
Timer error	14 times blink

DISASSMBLY ILLUSTRATION

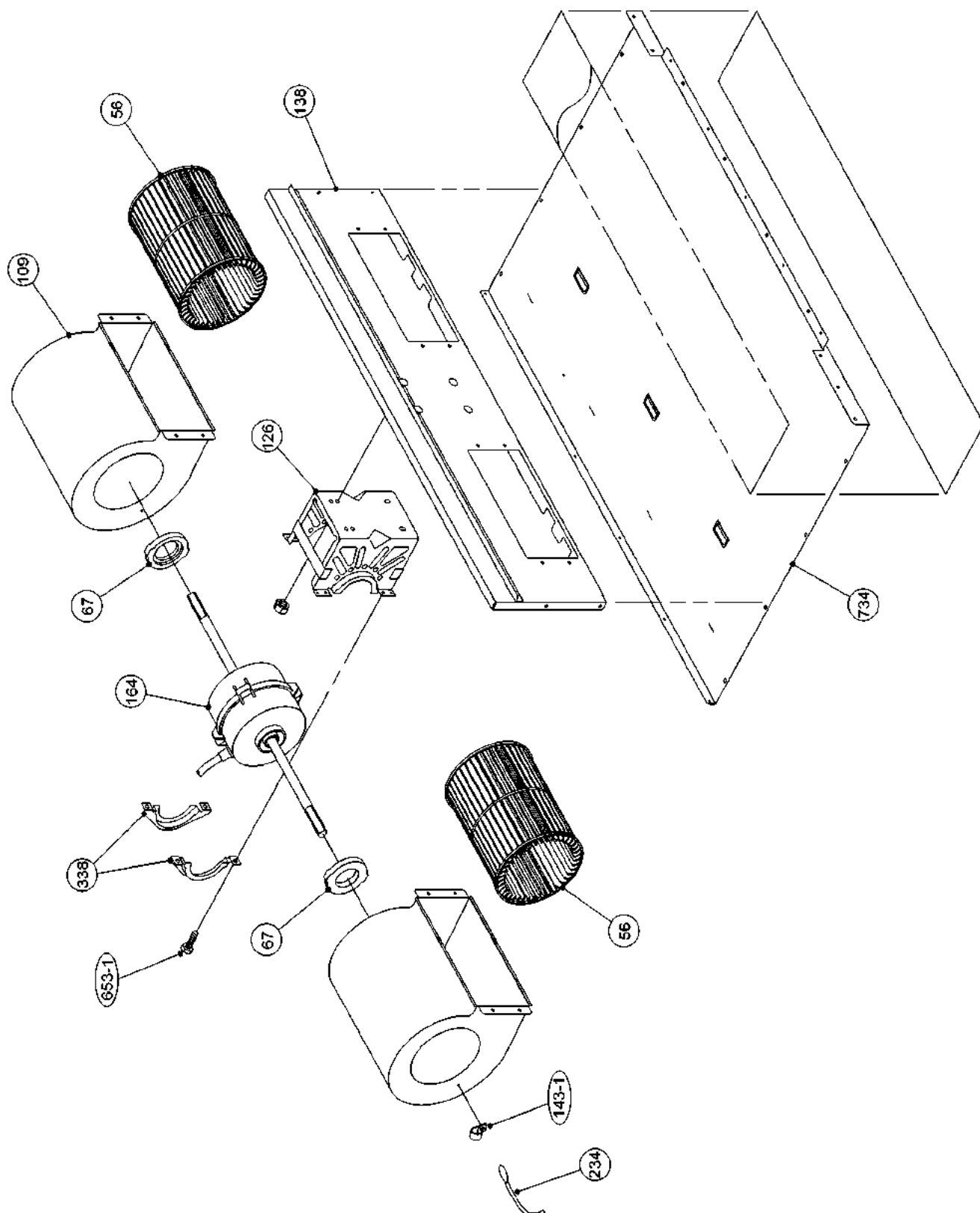
Models :

ARY12LUAD

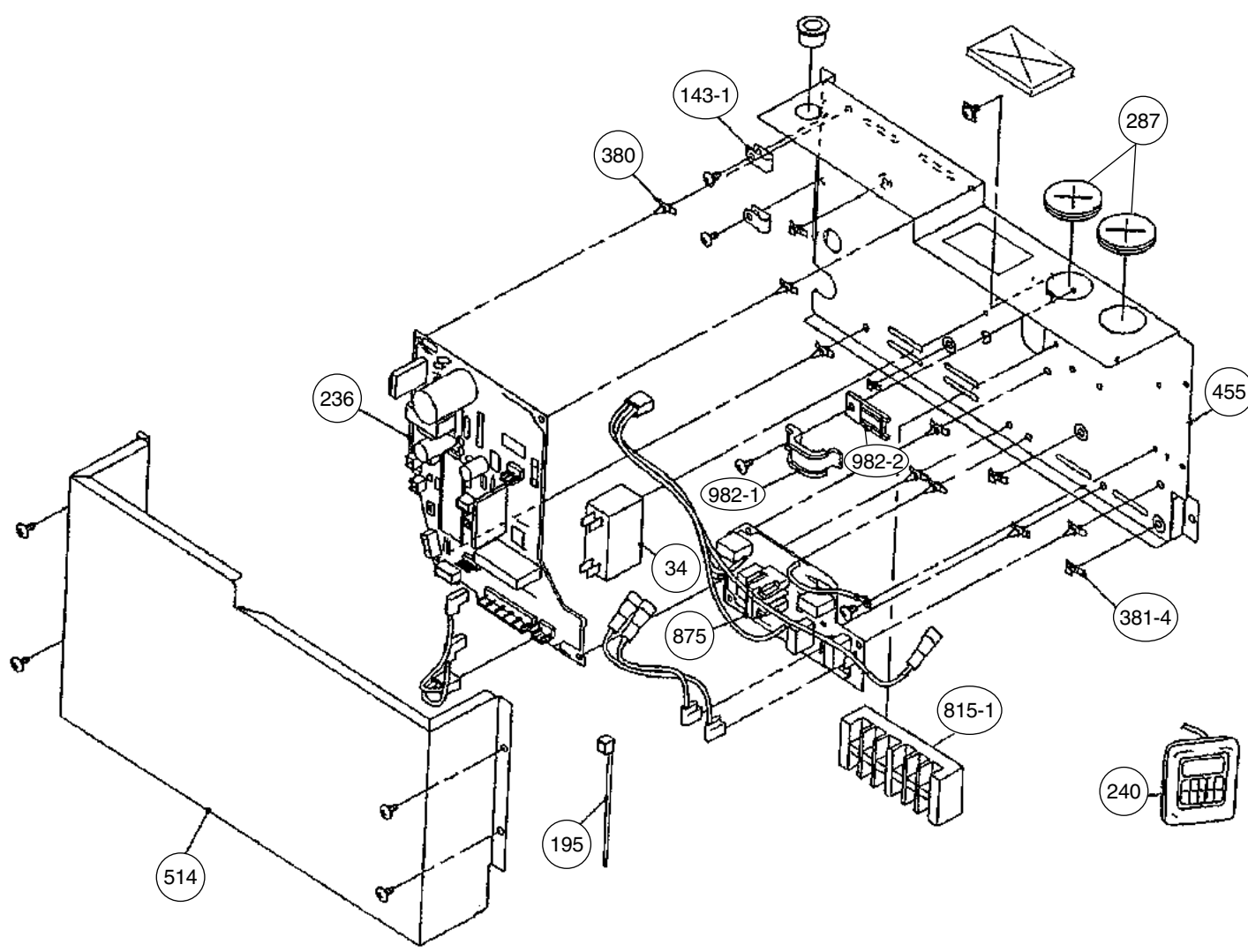
ARY14LUAD



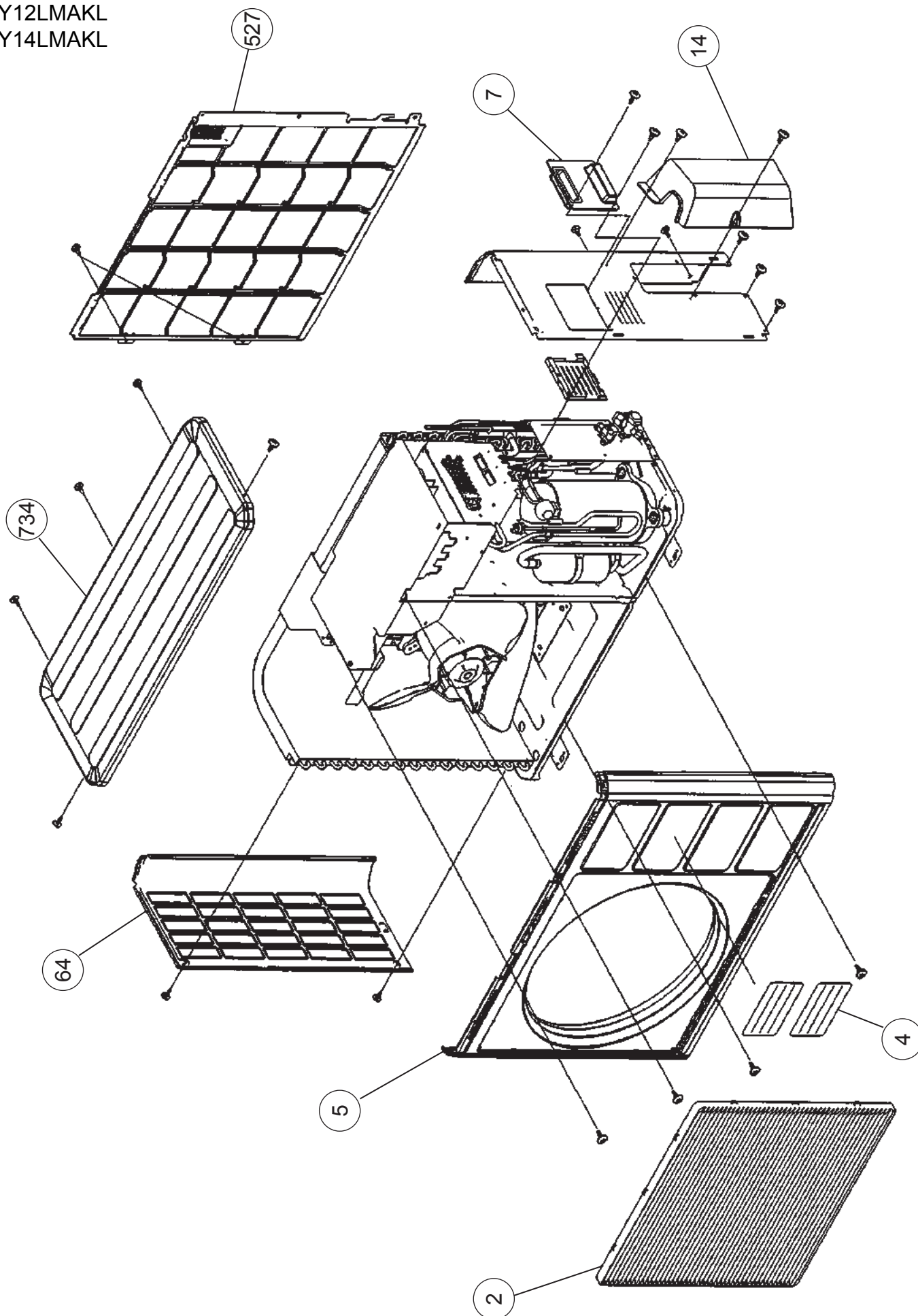
Models:
ARY12LUAD
ARY14LUAD



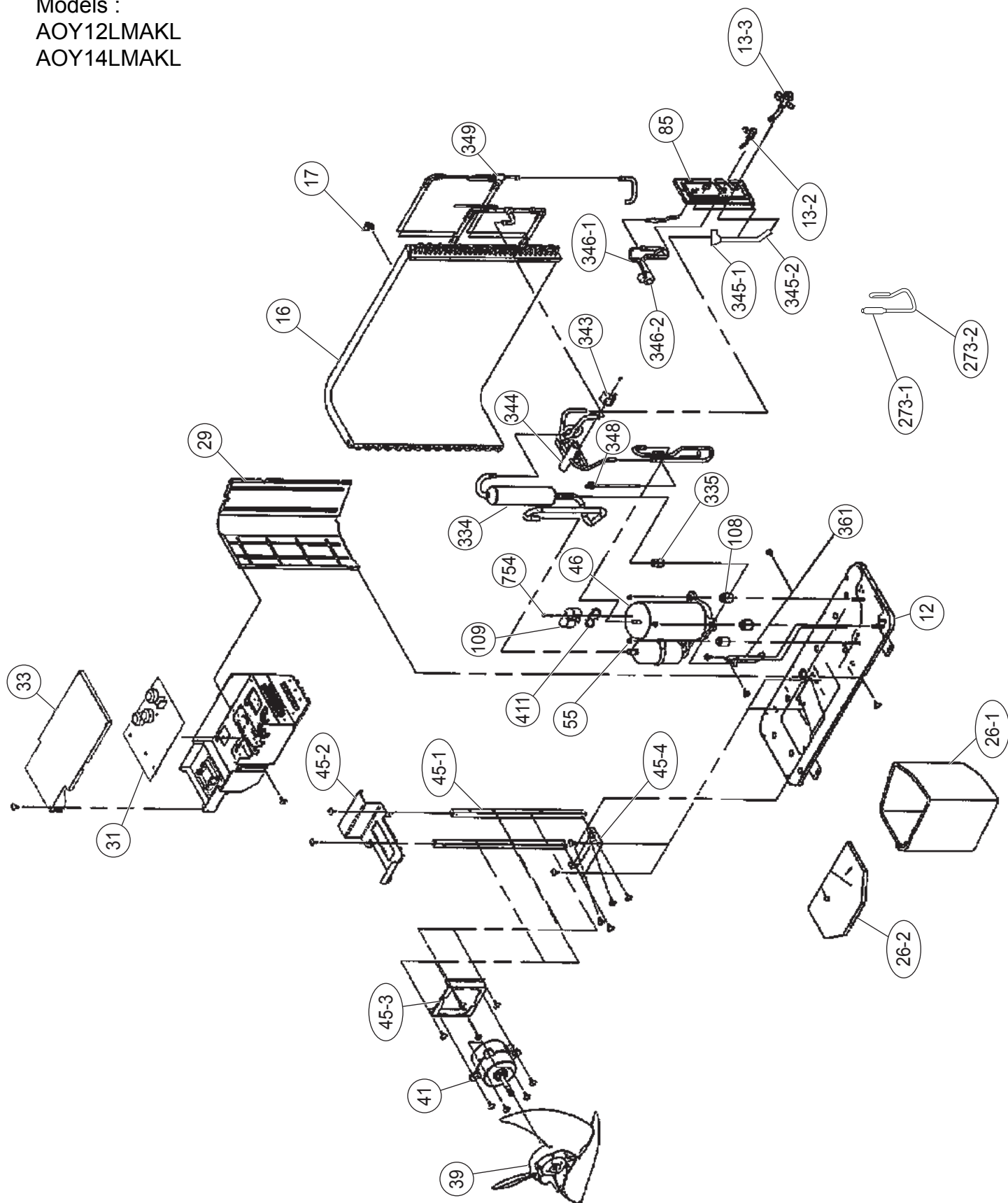
Models :
ARY12LUAD
ARY14LUAD



Models :
AOY12LMAKL
AOY14LMAKL



Models :
 AOY12LMAKL
 AOY14LMAKL



PARTS LIST

INDOOR UNIT

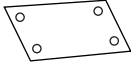
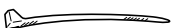
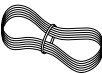
Ref. No.	Description	Part No.		Ord. Q'ty
		ARY12LUAD	ARY14LUAD	
34	Capacitor (Fan Motor)	9900270179	9900270179	
56	Sirocco Fan Assy	9358621004	9358621004	
63	Front Panel Assy	9363723007	9363723007	
67	Rubber (Vibration - proof)	313659068604	313659068604	
74	Air Filter	9366833017	9366833017	
109	Casing Assy	9363322002	9363322002	
126	Motor Fixing Table Assy	9358591000	9358591000	
138	Panel Assy (Motor)	9363401004	9363401004	
143-1	Clamp NK-3N	313361274700	313361274700	
146	Evaporator Assy	9373255024	9373255024	
147	Inlet Pipe (Eva.) Assy	9373034063	9373034063	
160	Drain Pan Assy	9364502045	9364502045	
164	Fan Motor Assy (MFA-18NTT)	9600778210	9600778210	
173	Hook Metal	9363195002	9363195002	
184-1	Thermo. Spring-A	313728262708	313728262708	
195	Clamp SKB-100	313361275805	313361275805	
196-2	Clamp SKB-150	313035356905	313035356905	
234	Thermistor Assy-Room	9703299018	9703299018	
235	Thermistor Assy-Pipe	9703297090	9703297090	
236	Controller PCB Assy	9704557988 (K01AL-0412HSE-C1)	9704557971 (K01AL-0411HSE-C1)	
240	Remote Control Unit	9372266014	9372266014	
244	Cover (Piping)	9363327007	9363327007	
287	Cap (Power)	9352173011	9352173011	
338	Motor Fixture	9358594001	9358594001	
380	Locking Spacer	313209391403	313209391403	
381-4	Spacer	0600118075	0600118075	
455	Control Box	9366299004	9366299004	
464	Cover (Cabinet)	9363400007	9363400007	
514	Control Box Cover	9363201000	9363201000	
568	Rubber Bushing	9357376004	9357376004	
587	Support Plate (Eva.)	9363404005	9363404005	
588-1	Bracket Eva. R	9363199000	9363199000	
588-2	Bracket Eva. L	9363198003	9363198003	
625	Cord Bushing	9359240006	9359240006	
653-1	CUP SCREW	9385089020	9385089020	
734	Panel Top	9363504002	9363504002	
761	Side Panel-R Assy	9363507003	9363507003	
762	Side Panel-L Assy	9363505009	9363505009	
815-1	Terminal 7P	9703403019	9703403019	
875	Filter PCB Assy	9704561251	9704561251	
982-1	Cord Clamp	9356857009	9356857009	
982-2	Cord Clamp-B	9356858006	9356858006	

OUTDOOR UNIT

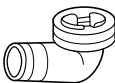
Ref. No.	Description	Part No.		Ord. Q'ty
		AOY12LMAKL	AOY14LMAKL	
2	Fan Guard	9371187013	9371187013	
4	Emblem-Rear	9351355005	9351255005	
5	Front Panel, Painted	9371924014	9371924014	
7	Connector Cover (Cabinet)	9366398004	9366398004	
12	Base Assy, Painted	9371920078	9371920078	
13-2	2-Way Valve	9372204054	9372204023	
13-3	3-Way Valve	9372205051	9372205075	
14	Valve Cover	9372796016	9372796016	
15	Condenser Sub Assy	9372313183	9372313183	
16	Condenser Assy	9372181096	9372181096	
17	Thermistor Holder Pipe	313714262805	313714262805	
26-1	Compressor Cover-A	9373730019	9374430055	
26-2	Compressor Cover-B	9373730026	9374431052	
29	Separate Wall	9372795019	9372795019	
31	Controller PCB Assy	9705285064	9705285071	
33	Control Cover	9372792018	9372792018	
39	Propeller Fan Assy	9366378013	9366378013	
41	Fan Motor Assy-IN	9601671046	9601671046	
45-1	Motor Bracket	9371929019	9371929019	
45-2	Motor Bracket-Top	9371931012	9371931012	
45-3	Motor Bracket-Center	9371930015	9371930015	
45-4	Motor Bracket-Bottom	9371932019	9371932019	
46	Compressor Assy	9373262015	9373262015	
55	Special Nut M8	9355091008	9355091008	
64	Side Panel-L, Painted	9371926018	9371926018	
85	Valve Plate, Painted	9371928012	9371928012	
108	Rubber Seat (For Comp.)	9358080009	9358080009	
109	Terminal Cover (For Comp.)	9373264019	9373264019	
273-1	Strainer Assy	9372524015	9372524015	
273-2	Joint Pipe (2-Way)-A	9373729549	9373729495	
334	Accumulator	9368391003	9368391003	
335	Accumulator Holder Rubber	9354022010	9354022010	
343	Solenoid	9900165079	9900165079	
344	4-Way Valve	9900163013	9900163013	
345-1	Muffler	9372369029	9372369029	
345-2	Joint Pipe (3-Way)	9373729556	9373729501	
346-1	Expansion Valve Assy	9373729518	9373729518	
346-2	Coil (Expansion Valve)	9900057022	9900057022	
348	Pressure Switch Assy	9373729044	9373729044	
349	Capillary Assy	9373729433	9373729433	
361	Accumulator Support Assy	9372252017	9372252017	
411	Gasket	9373266013	9373266013	
527	Protective Net	9371934013	9371934013	
734	Top Plate	9371925011	9371925011	
754	Rubber Washer	9358078006	9358078006	
----	ACTPM	9703457012	9703457012	
----	Capacitor, Elec.	9705387010	9705387010	
----	Fuse	0600086039	0600086039	
----	Fuse Holder	0501454012	0501454012	
----	Capacitor, Plastic	9900270049	9900270049	
----	Terminal-5P	9900203023	9900203023	
----	Terminal-2P	9701971015	9701971015	
----	Hex. Bolt Socket	0700145148	0700145148	
----	Clip (Cable)	9352715006	9352715006	
----	BR Sheet	9363708042	9363708042	
----	Relay	9900117016	9900117016	
----	Compressor Presure Switch	9900186012	9900186012	
----	Compressor Thermal Switch	9373263012	9373263012	
----	Discharge Temperature Thermistor	9704219039	9704219039	
----	Heat Exchanger Thermistor	9900374020	9900374020	
----	Outdoor TemperatureThermistor	9900378011	9900378011	
----	Heat Sink Thermistor	9900195014	9900195014	

STANDARD ACCESSORIES

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.
Installation template 	1	For positioning the indoor unit	9364225005
Hanger 	4	For suspending the indoor unit from ceiling	9363195002
Tapping screw (φ 4 x 10) 	8	For installing the hanger	0700009037
Special nut A (large flange) 	4	For suspending the indoor unit from ceiling	313005446653
Special nut B (small flange) 	4		313005446759
Coupler heat insulation (large) 	1	For indoor side pipe joint (large pipe)	9350716029
Coupler heat insulation (small) 	1	For indoor side pipe joint (small pipe)	9352766015
Binder 	(Small) 1	For remote controller and remote controller cord binding	313361275805
	(Large) 4	For fixing the coupler heat insulation	312300787605
Remote controller 	1	Heat & Cooling model	9372266014
Remote controller cord 	1	For connecting the remote controller	9372714010
Tapping screw (φ 4 x 16) 	2	For installing the remote controller	0700181108
Filter 	3	For installing to indoor unit	9366833017
Drain hose insulation 	1	Insulates the drain hose and vinyl hose connection	313806217708

OUTDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application	Part No.
Drain pipe 	1	For outdoor unit drain piping work [Heat & Cool model (Reverse cycle) only]	9303029015
Drain cap 	1		313166024302
Adapter D (1/2" → 3/8") 12.70mm → 9.52mm 	1	For use when connecting model 12,000 BTU/h	9370244007

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