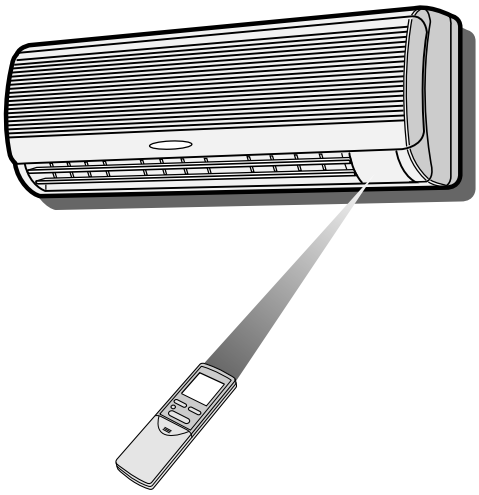
SHARP SERVICE MANUAL

S2004AYM09AE/



MULTI SPLIT SYSTEM ROOM AIR CONDITIONERS

INDOOR UNIT

MODEL **AY-M09AE**

(2 UNITS)

OUTDOOR UNIT

AE-M18AE

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

TABLE OF CONTENTS

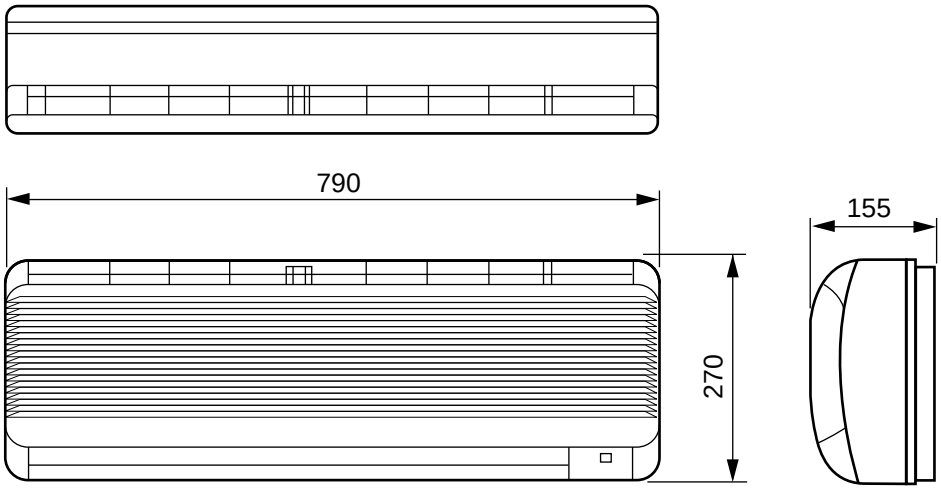
SHARP CORPORATION

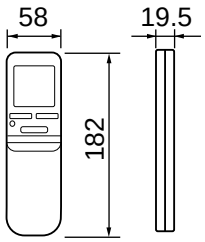
SPECIFICATIONS

ITEMS			INDOOR UNIT AY-M09AE	OUTDOOR UNIT AE-M18AE
Cooling capacity		kW	[1 unit] 2.7	[2 units] 2.5 x 2
Heatpump Heating capacity		kW	[1 unit] 3.3	[2 units] 3.2 x 2
Moisture removal		Liters/h	1.1 x 2	
★ Electrical data				
Phase		-	Single	
Rated frequency		Hz	50	
Rated voltage range		V	198 to 264	
Rated voltage		V	220 - 240	
Rated current	Cool	A	[1 unit] 4.8 - 5.1	[2 units] 9.6 - 9.8
	Heat	A	[1 unit] 5.2 - 5.5	[2 units] 9.2 - 9.5
Rated input	Cool	W	[1 unit] 1000 - 1080	[2 units] 2000 - 2100
	Heat	W	[1 unit] 1080 - 1170	[2 units] 1920 - 2060
Power factor	Cool	%	[1 unit] 95 - 88	[2 units] 95 - 89
	Heat	%	[1 unit] 94 - 89	[2 units] 95 - 90
Compressor	Type		Hermetically sealed rotary type	
	Model		2PS192D3AA02	
	Oil charge		350cc (SUNISO 4GDID)	
Refrigerant system	Evaporator		Louver fin and Grooved tube type(7mm tube)	
	Condenser		Corrugate Fin and Grooved tube type	
	Control		Capillary tube	
	Refrigerant volume		680 g x 2	
	De-ice system		Micro computer controlled reverse system	
NOise level (at cooling)	High	dB(A)	38	50
	Med.	dB(A)	31	-
	Low	dB(A)	28	-
Fan system				
Drive			Direct drive	Direct drive
Air flow quantity (at cooling)	High	m^3/min.	6.5	36
	Med.	m^3/min.	5.2	-
	Low	m^3/min.	4.5	-
Fan			Cross flow fan	Propeller fan
Connections				
Refrigerant coupling			Flare type	
Refrigerant tube size Gas, Liquid			3/8", 1/4"	
Refrigerant pipe sets No.			AZ-24H5E; 5m, AZ-24H7E; 7m	
Drain piping mm			O.D ø 18	
Others				
Safety device			Compressor: Overload protector(MRA98533)	
			Fan motors: Thermal fuse	Thermal Protector
			Fuse, Micro computer control	
Air filters			Polypropylene net (Washable)	
Net dimensions	Width	mm	790	890
	Height	mm	270	637
	Depth	mm	155	297
Net weight		kg	7	61

Note: The condition of (★) marked item are 'ISO 5151 : 1994(E), Condition T1'

EXTERNAL DIMENSIONS





Remote control

Length unit (mm)

Figure E-1. INDOOR UNIT

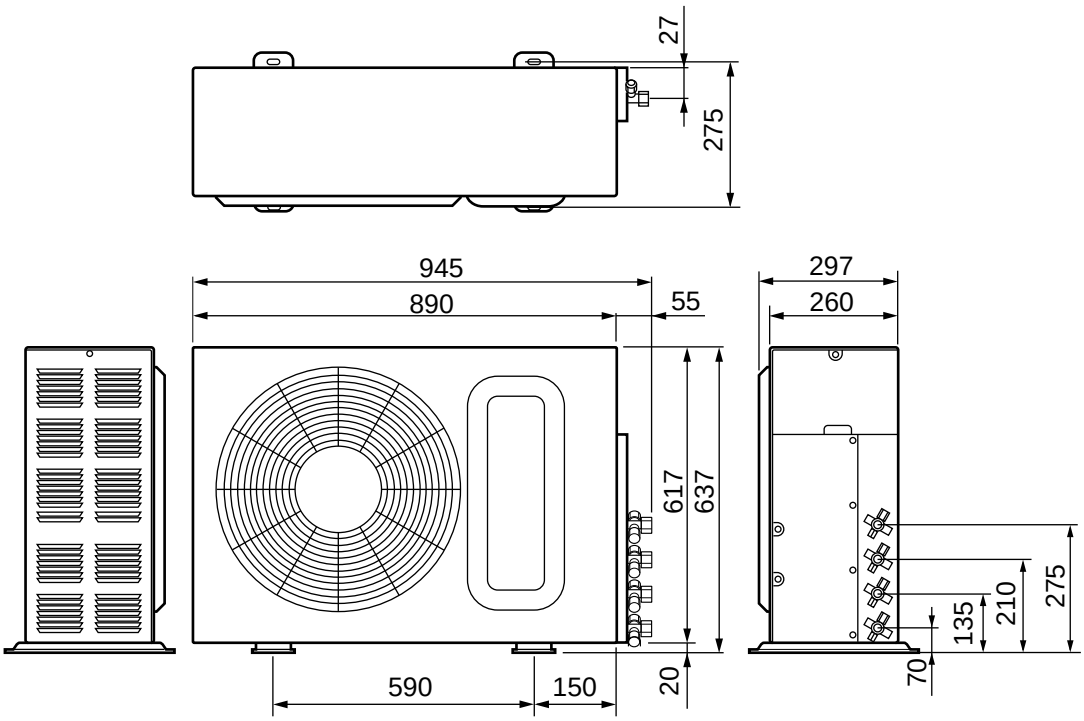
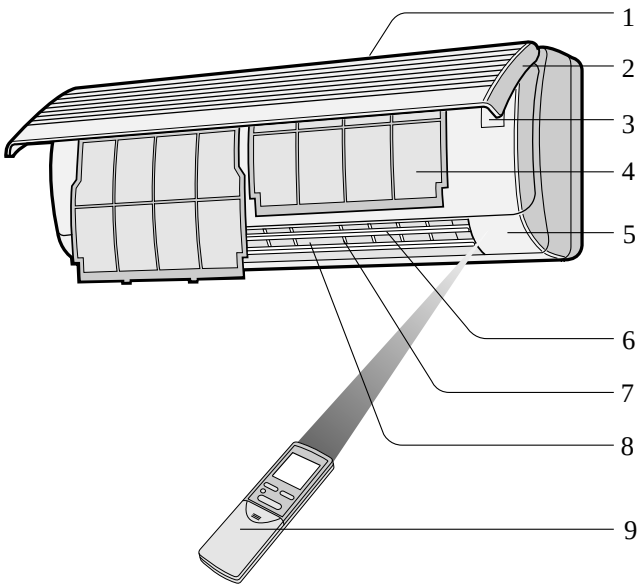


Figure E-2. OUTDOOR UNIT

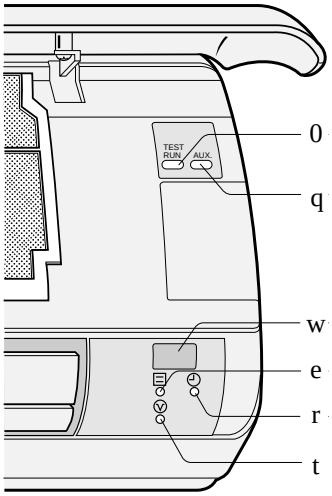
PART NAMES

INDOOR UNIT



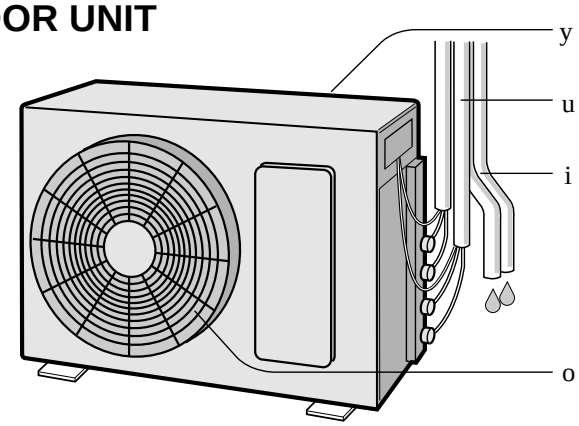
1 **Inlet (Air)**
2 **Open Panel**
3 **Operation panel**
4 **Air Filters**
5 **Indicator Panel**
6 **Vertical Adjustment Louvres**
7 **Horizontal Adjustment Louvres**
8 **Outlet (Air)**
9 **Remote Control**

To open the open panel, hold the bottom corners of the open panel and gently pull the panel outwards.



0 **TEST RUN Button**
q **AUX. Button**
w **RECEIVER Window**
e **OPERATION Lamp (Red ⊟)**
r **TIMER Lamp (Yellow ◴)**
t **BUSY Lamp (red ⓥ)**
Blinks when the unit can not operate due to the other unit operating in different mode.

OUTDOOR UNIT



y **Inlet (Air)**
u **Refrigerant Tube and Interconnecting Cord**
i **Drainage Hose**
o **Outlet (Air)**

WIRING DIAGRAMS

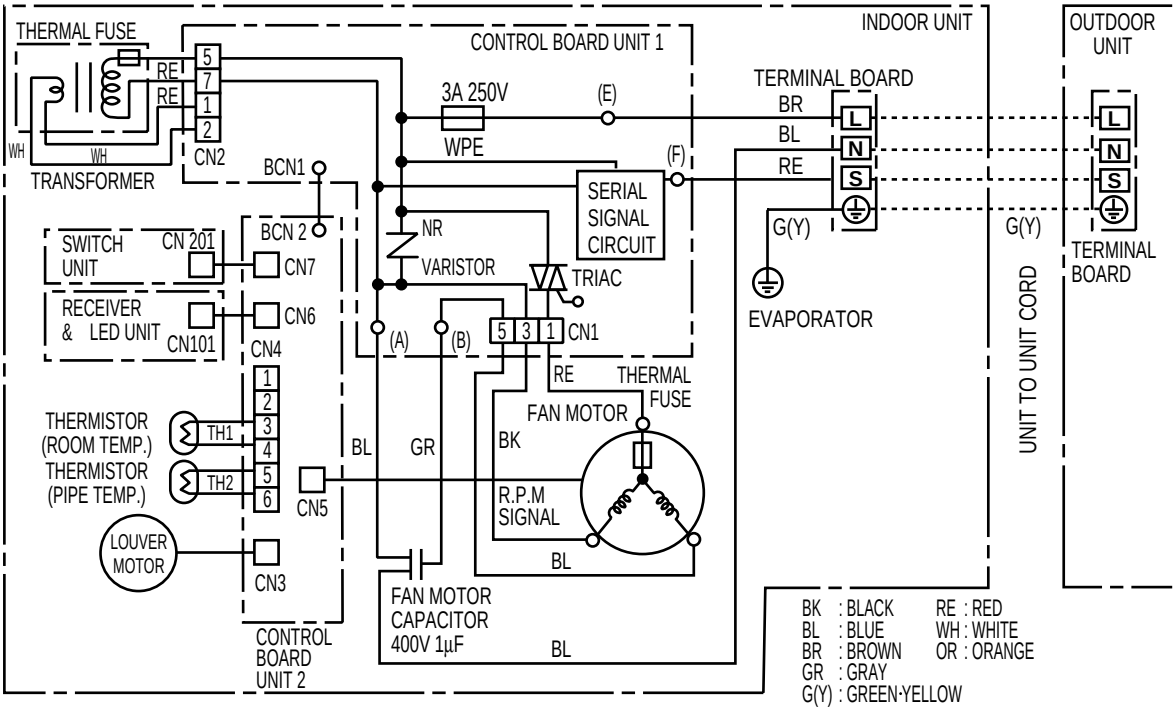


Figure W-1. Wiring Diagram for AY-M09AE

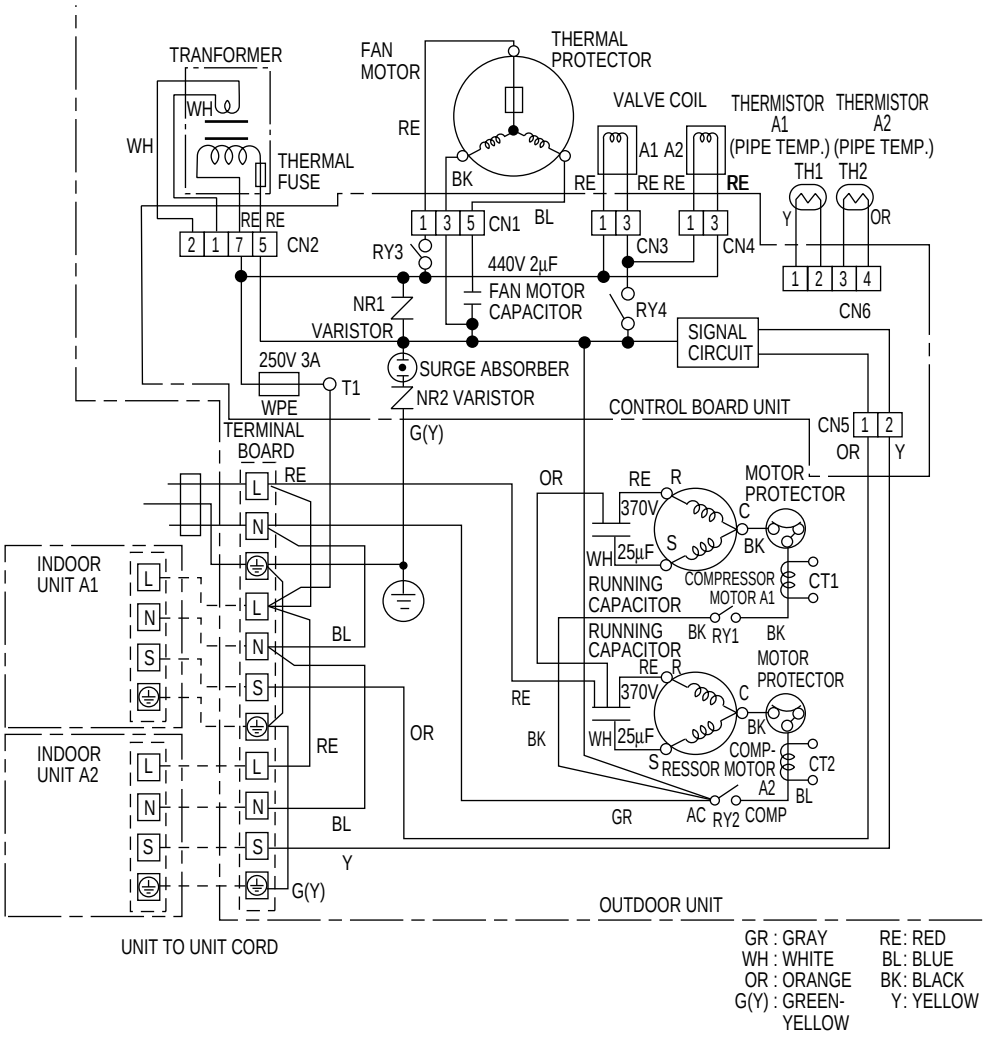


Figure W-2. Wiring Diagram for AE-M18AE

ELECTRICAL PARTS

For Model AY-M09AE and AE-M18AE

DESCRIPTION	MODEL	REMARKS	SITE
Compressor	2PS192D3AA02	220 - 240V, 50Hz, 900W	AE
Indoor fan motor	ML-A411	220 - 240V, 50Hz	AY
Outdoor fan motor	ML-A868	220 - 240V, 50Hz	AE
Indoor fan motor capacitor	-	400V, 1μF	AY
Outdoor fan motor capacitor	-	440V, 2μF	AE
Running capacitor	-	370V, 25μF	AE
Transformer	-	Primary; AC 220V, 50Hz Secondary; AC14.8V, 50Hz	AY
Fuse	-	250V, 3A	AY, AE
Reverse valve coil	-	220 - 240V, 50/60Hz	AE

MICROCOMPUTER CONTROL SYSTEM

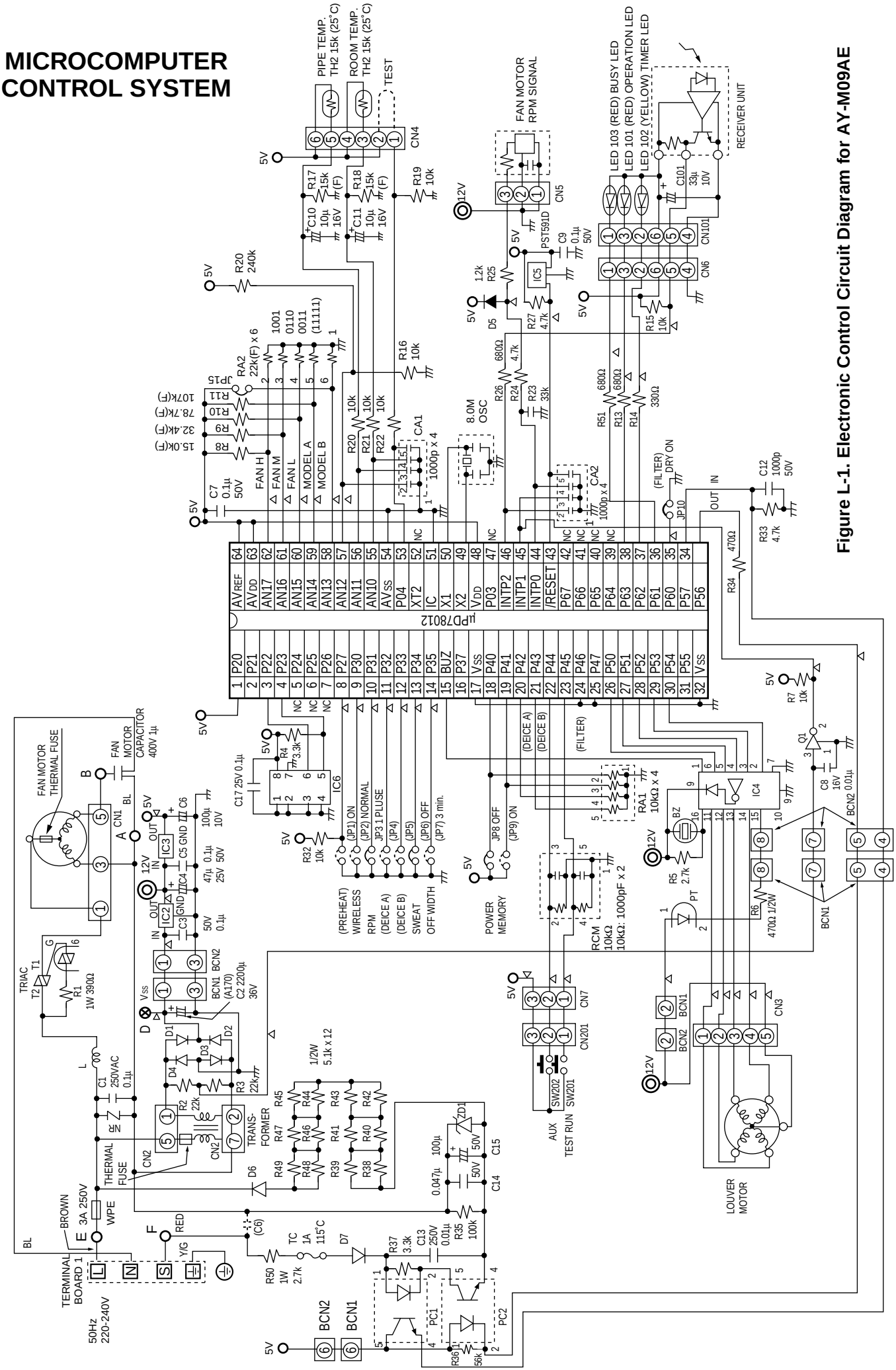


Figure L-1. Electronic Control Circuit Diagram for AY-M09AE

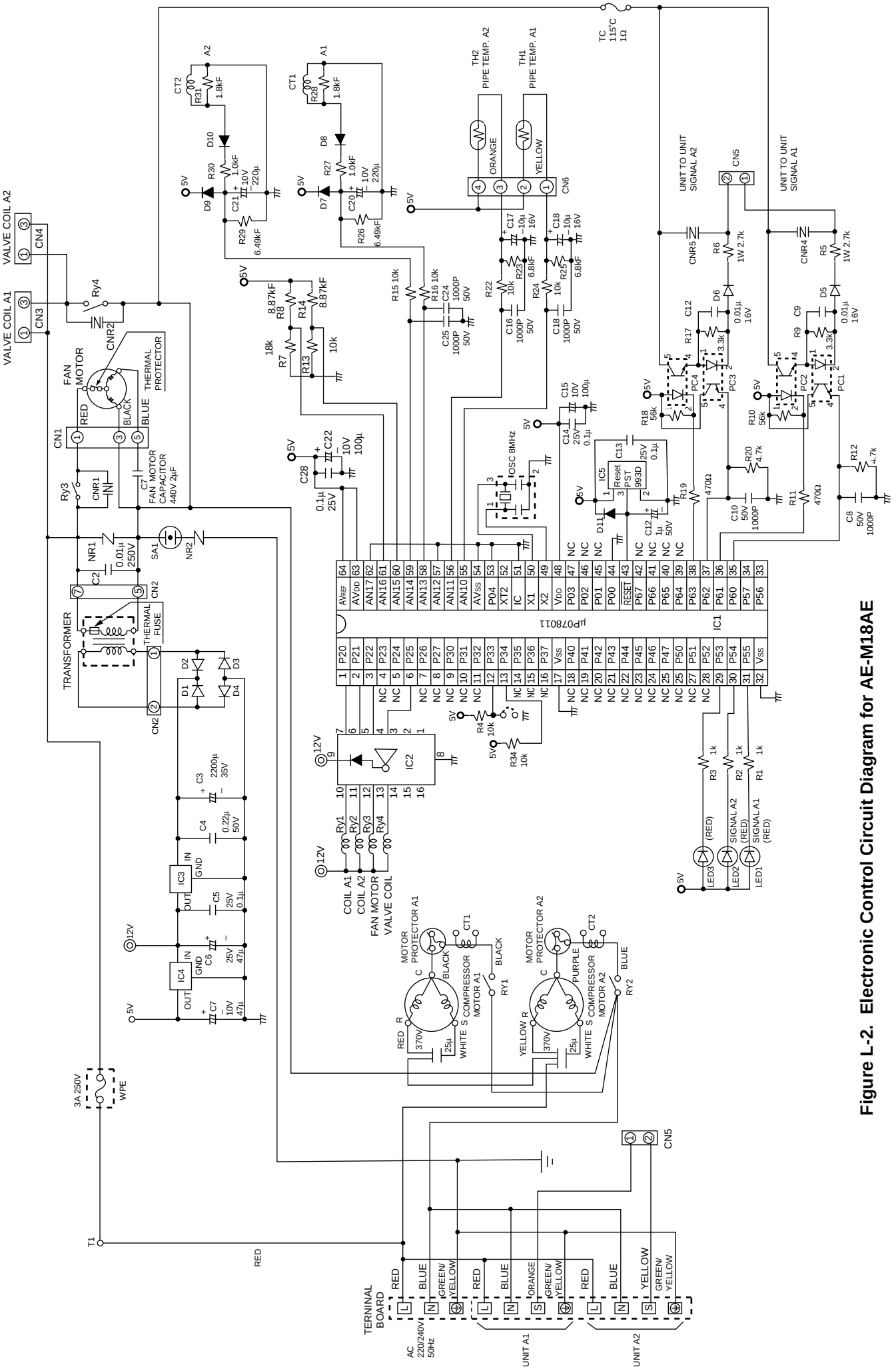


Figure L-2. Electronic Control Circuit Diagram for AE-M18AE

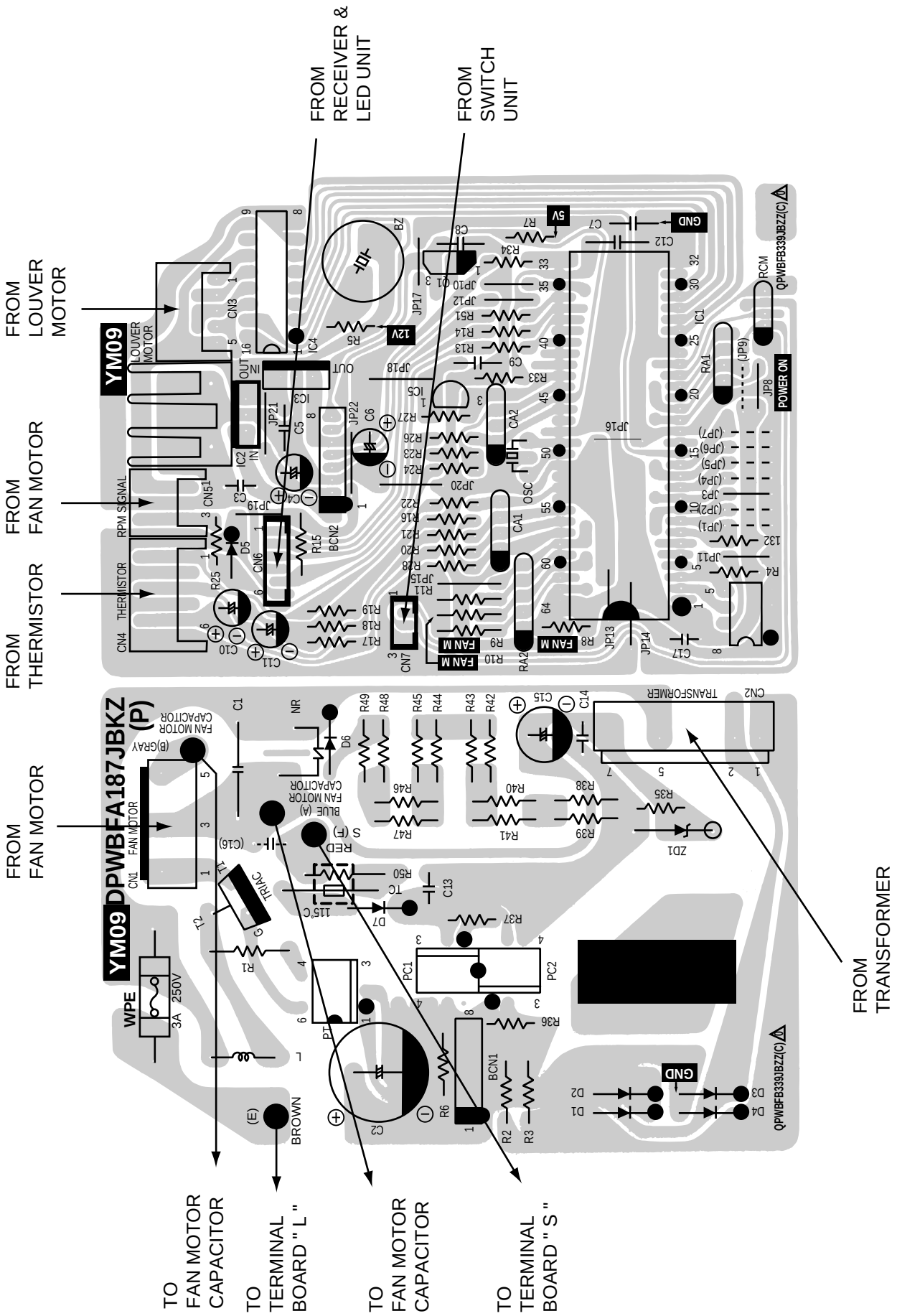


Figure L-2. Printed Wiring Board for AY-M09AE

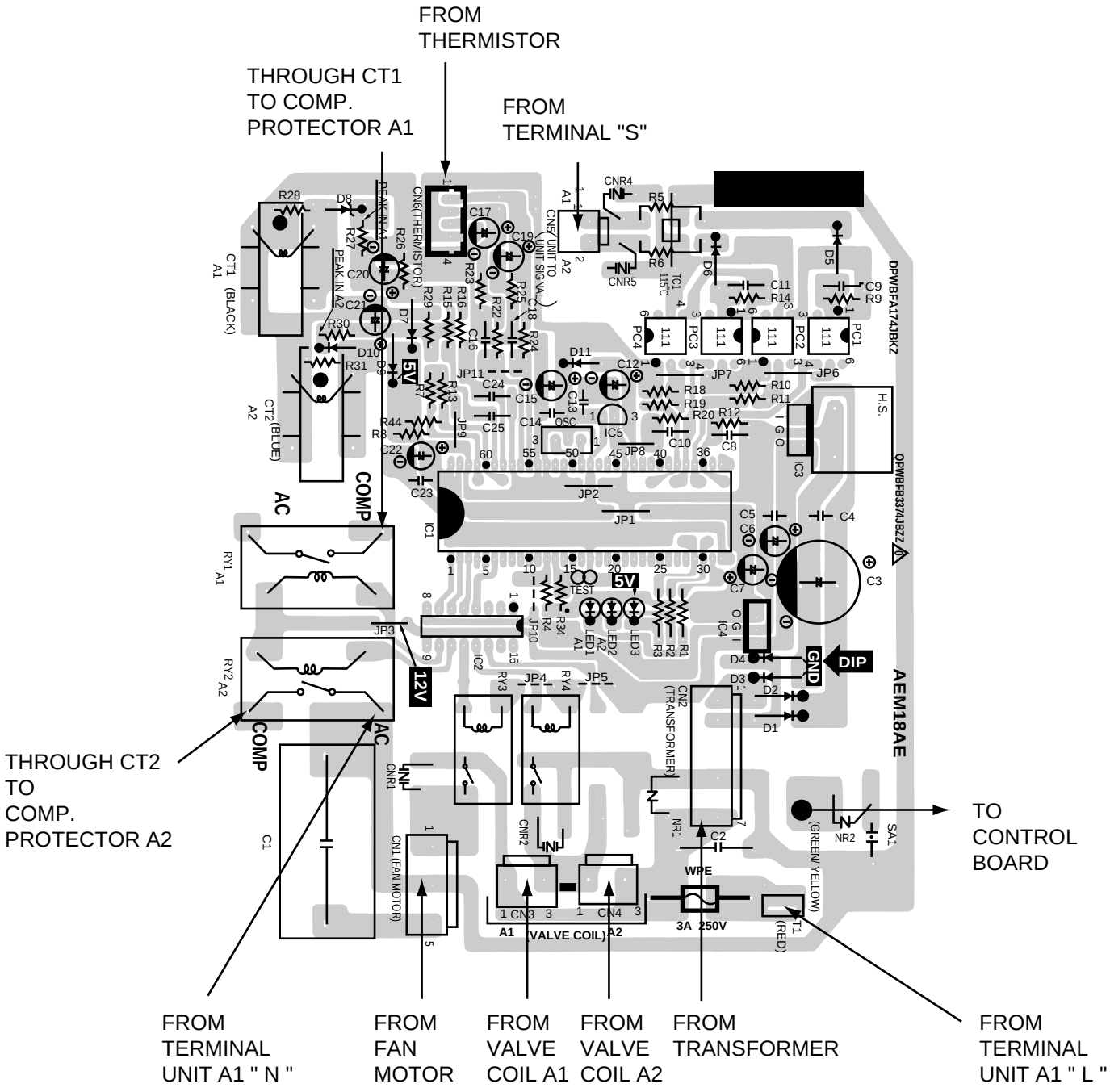


Figure L-3. Printed Wiring Board for AE-M18AE

Microcomputer (IC1) for INDOOR UNIT
The microcomputer is a CMOS, one chip, 8-bit microcomputer.
Microcomputer port allocation is as follows.

Pin No.	Terminal Name	Input Output	Function
1	P20	IN	5V
2	P21	OUT	–
3	P22	OUT	E^2PROM(IC6) clock Output
4	P23	IN/OUT	Date transmition signal
5	P24	OUT	–
6	P25	OUT	–
7	P26	OUT	–
8	P27	IN	Preheat select
9	P30	IN	Wireless select
10	P31	IN	RPM select
11	P32	IN	–
12	P33	IN	–
13	P34	IN	Sweat select
14	P35	IN	–
15	BUZ	OUT	Buzzer signal
16	P37	OUT	–
17	VSS	–	Power supply(0V)
18	P40	IN	Power on start
19	P41	IN	Auto restart
20	P42	IN	–
21	P43	IN	–
22	P44	IN	Key in signal(AUX.)
23	P45	IN	Key in signal(TEST RUN)
24	P46	IN	GND
25	P47	IN	GND
26	P50	OUT	Louver motor control
27	P51	OUT	Louver motor control
28	P52	OUT	Louver motor control
29	P53	OUT	Louver motor control
30	P54	OUT	Indoor fan motor control
31	P55	OUT	–
32	VSS	–	Power supply(0V)

Pin No.	Terminal Name	Input Output	Function
33	P56	OUT	Serial signal Output
34	P57	OUT	Serial signal Input
35	P60	IN	Dry ON select
36	P61	OUT	LED(Busy)
37	P62	OUT	LED(Timer)
38	P63	OUT	LED(Operation)
39	P64	OUT	–
40	P65	OUT	–
41	P66	OUT	–
42	P67	OUT	–
43	RESET	IN	Microcomputer reset input
44	INTP0	IN	R.P.M signal input
45	INTP1	IN	AC clock input
46	INTP2	IN	Remote control signal
47	P03	OUT	–
48	VDD	–	Power supply(5V)
49	X2	–	Internal oscillation of the microcomputer
50	X1	–	Internal oscillation of the microcomputer
51	IC	–	GND
52	XT2	–	–
53	P04	IN	Test mode
54	AVSS	–	GND
55	ANI0	IN	Room temp. thermistor signal
56	ANI1	IN	Pipe temp. thermistor signal
57	ANI2	IN	–
58	ANI3	IN	Model B select
59	ANI4	IN	Model A select
60	ANI5	IN	FAN L select
61	ANI6	IN	FAN M select
62	ANI7	IN	FAN H select
63	AVSS	–	5V
64	AVREF	–	5V

Microcomputer (IC1) for OUTDOOR UNIT

The microcomputer is a CMOS, one chip, 8-bit microcomputer.
Microcomputer port allocation is as follows.

Pin No.	Terminal Name	Input Output	Function
1	P20	OUT	Compressor relay (A1)
2	P21	OUT	Compressor relay (A2)
3	P22	OUT	Outdoor motor fan relay
4	P23	OUT	–
5	P24	OUT	–
6	P25	OUT	Valve coil
7	P26	OUT	–
8	P27	OUT	–
9	P30	OUT	–
10	P31	OUT	–
11	P32	OUT	–
12	P33	IN	–
13	P34	IN	Test1 input
14	P35	OUT	–
15	BUZ	OUT	–
16	P37	OUT	–
17	VSS	–	Power supply(0V)
18	P40	OUT	–
19	P41	OUT	–
20	P42	OUT	–
21	P43	OUT	–
22	P44	OUT	–
23	P45	OUT	–
24	P46	OUT	–
25	P47	OUT	–
26	P50	OUT	–
27	P51	OUT	–
28	P52	OUT	–
29	P53	OUT	LED(error)
30	P54	OUT	LED(serial A2)
31	P55	OUT	LED(serial A1)
32	VSS	–	Power supply(0V)

Pin No.	Terminal Name	Input Output	Function
33	P56	OUT	–
34	P57	OUT	–
35	P60	IN	Serial signal input(A1)
36	P61	OUT	Serial signal output(A1)
37	P62	IN	Serial signal input(A2)
38	P63	OUT	Serial signal output(A2)
39	P64	OUT	–
40	P65	OUT	–
41	P66	OUT	–
42	P67	OUT	–
43	RESET	–	Microcomputer reset input
44	P00	IN	GND
45	P01	OUT	–
46	P02	OUT	–
47	P03	OUT	–
48	VDD	–	Power supply(5V)
49	X2	–	Internal oscillation
50	X1	–	Internal oscillation
51	IC	–	GND
52	XT2	–	–
53	P04	IN	GND
54	AVSS	–	GND
55	ANI0	IN	Pipe temp. thermistor(A1)
56	ANI1	IN	Pipe temp. thermistor(A2)
57	ANI2	IN	GND
58	ANI3	IN	Current(A1)
59	ANI4	IN	Current(A2)
60	ANI5	IN	Revised resistance(A1)
61	ANI6	IN	Revised resistance(A2)
62	ANI7	IN	GND
63	AVSS	–	5V
64	AVREF	–	5V

FUNCTIONS

1. Temperature control characteristic

1-1 COOL operation

In the “COOL” mode, the thermostat circuit is controlled by four thermostat lines (C1 thru C4).

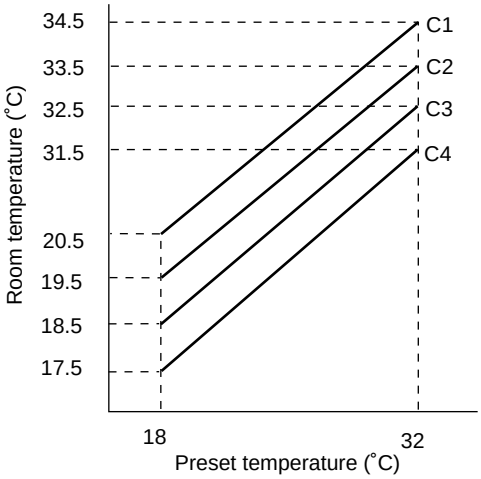


Figure Y-1

1-2 DRY operation

In the “DRY” mode, the thermostat circuit is controlled by three thermostat lines (D1 thru D3).

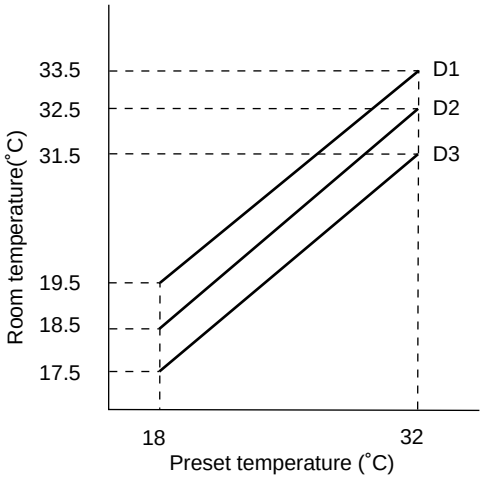


Figure Y-2

1-3 HEAT operation

In the “HEAT” mode, the thermostat circuit is controlled by six thermostat lines (H01 thru H4).

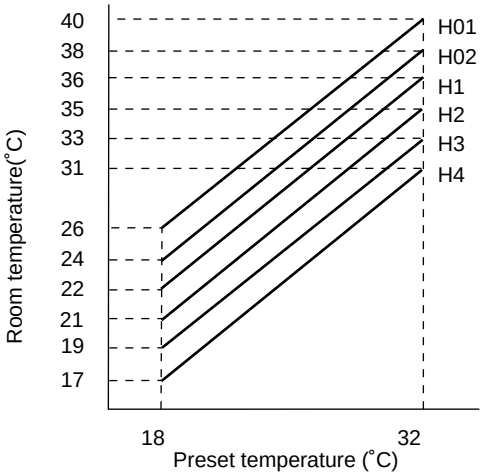


Figure Y-3

2. Operation modes

The indoor fan motor is controlled in the indoor unit, and the outdoor fan motor, compressor, and reverse valve are controlled in the outdoor fan motor.

The operation mode of the outdoor unit is basically decided by the indoor operation mode.

When the outdoor unit operation mode is heat, and the indoor unit operation mode is cool or dry, or the outdoor unit operation is heat, the Busy - LED in the indoor unit flikers. When the operation mode of the indoor unit(called "A1", "A2") changes, the opeartion mode of the outdoor unit changes in Table Y-1.

Table Y-1

Present mode			New mode		
Indoor unit		Outdoor unit	Indoor unit		Outdoor unit
A1	A2		A1	A2	
OFF	OFF	OFF	OFF	HEAT	HEAT
				COOL	COOL
				DRY	DRY
				FAN ONLY	FAN ONLY
HEAT	HEAT or OFF	HEAT	HEAT	HEAT	HEAT
				COOL※	
				DRY※	
				FAN ONLY	
COOL	COOL or OFF	COOL	COOL	HEAT※	COOL
				COOL	
				DRY	
				FAN ONLY	
DRY	DRY or OFF	DRY	DRY	HEAT※	DRY
				COOL	
				DRY	
				FAN ONLY	
FAN ONLY	FAN ONLY or OFF	FAN ONLY	FAN ONLY	HEAT	HEAT
				COOL	COOL
				DRY	DRY
				FAN ONLY	FAN ONLY

※The busy : LED of the indoor unit flickers.

2-1 COOL operation

The compressor turns on or off, at the thermostat lines C3 and C4. The outdoor fan motor is also controlled with the compressor.

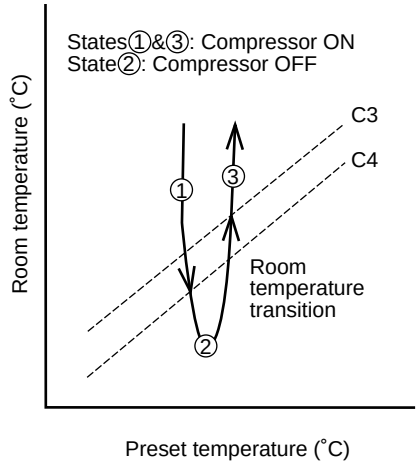


Figure Y-4

2-2 DRY operation

On the switch on, the compressor always starts to operate for 2 minutes with fan speed “D” (slower than “UL”).

The microcomputer reads the room temperature 2 minutes after this first compressor operation. This room temperature is set as the preset temperature automatically.

The preset temperature ranges from 18˚C to 32˚C. When the room temperature is below 18˚C, the preset temperature is set to 18˚C, and when the room temperature is over 32˚C, the preset temperature is set to 32˚C.

Dry operation is divided into three zones (Cooling zone, Dehumidifying zone and Circulating zone) by thermostat lines (D1 to D3), and the compressor and the fan motor are controlled in each zone as shown in Table Y-2.

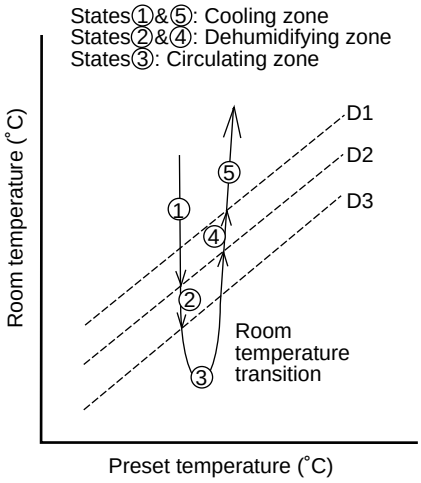


Figure Y-5

Table Y-2

	Compressor	Fan speed
Cooling zone	ON	"UL"
Dehumidifying zone	ON	"D"
Circulating zone	OFF	"D" or "OFF"

2-3 Heat operation

The compressor turns on or off, at State ②, turns on continuously at State ① & ③.

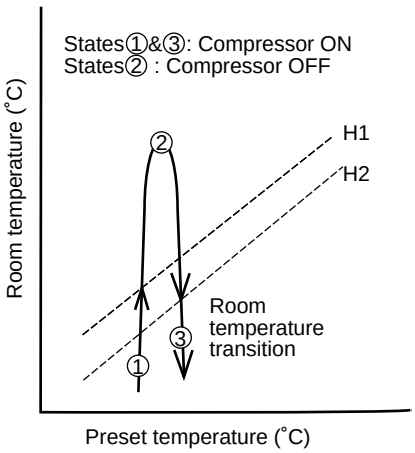


Figure Y-6

2-4 Fan only operation
The indoor fan motor always turns on.

3. Fan speed

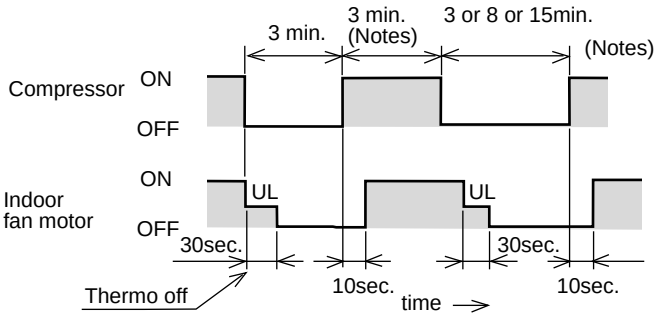
Fan speeds are given by the indoor fan motor, "H", “M”, “L” and “UL” which are available in the following operation mode.

Table Y-3

FAN Switch	HEAT	COOL	FAN ONLY
HIGH	H	M	M
LOW	M	L	L
SOFT	L	UL	UL

4. Hot-Keep

This function automatically controls the on-off operation of the indoor fan motor in accordance with the on-off operation of the compressor during the heating operation, thereby preventing the air conditioner from delivering a cold air when the compressor is off.
When the room temperature exceeds the thermostat line “H1”, the compressor is turned off, and the indoor fan motor is turned off after rotating at “UL” for 30 seconds.
3 minutes after turning off the compressor, the compressor is turned on for 3 minutes. (below thermostat line H01). While over H01, the compressor is off.
At 10 seconds after turning on the compressor, the indoor fan motor is turned on.
The next compressor OFF time is for 3, 8 or 15 minutes according to the room temperature (the time increases with a rise of room temperature) when 3 minutes elapse after turning on the compessor (the compressor is off when compressor OFF time is 15 minutes).



Notes: Compressor is off when compressor OFF time is 15 minutes.

Figure Y-7

5. Preheat air flow

This function is intended to prevent cold air from being discharged when the heating operation starts or when defrosting.
When the indoor pipe temperature is below 29˚C at the begining of the heat operation or after defrosting, the indoor fan motor stays.
When the indoor pipe temperature gets higher than 29˚C, the fan motor is turned on at speed “UL” after compensation of starting.
When the indoor pipe temperature exceeds 35˚C, the specified fan speed is restored. When the indoor pipe temperature falls below 30˚C, the fan speed shifts down to “UL”. And, when the indoor pipe temperature falls below 24˚C, the fan motor turns off. Then, over 29˚C , it turns on again at speed “UL”.

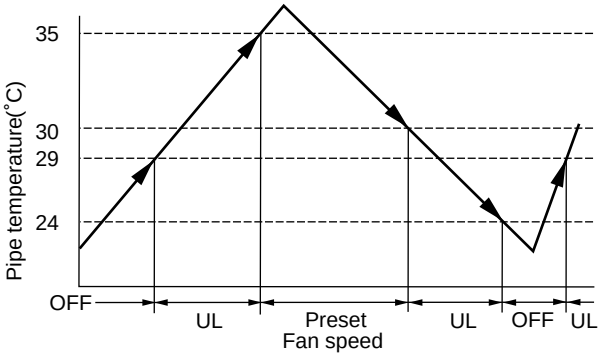


Figure Y-8

6. Overheating protection system

When overloading occurs during the heating operation, this system controls the outdoor fan motor according to the indoor pipe temperature to prevent the overloading of the compressor and restrain the rise in high pressure.
When the indoor pipe temperature exceeds 53˚C, the outdoor fan motor is turned off, and when the indoor pipe temperature falls 48˚C, the outdoor fan motor turns on.
If 3 minutes elapse after turning off outdoor fan motor, the outdoor fan motor is turned on, when the indoor pipe falls 53˚C.

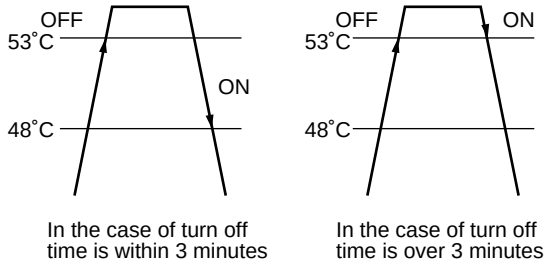


Figure Y-8

7. Current control

This system, in order to prevent overcurrent during heating operation, controls the outdoor fan motor and changes the indoor fan motor speed by detecting total current.

When the current exceeds P1, the compressor is automatically stopped. (during heat or cool or dry operation)

When the current exceeds P2, the outdoor fan motor is automatically turned off, and when the current falls below P4, the outdoor fan motor is turned on.

When the current exceeds P3 and the indoor fan speed shifts down because of cold air (5. Preheat air flow), the changes in the indoor fan speed shifts up as follows, from "D" to "UL", or from "UL" to "L". And when the current falls bellow P5, the indoor fan speed shift up is canceled.

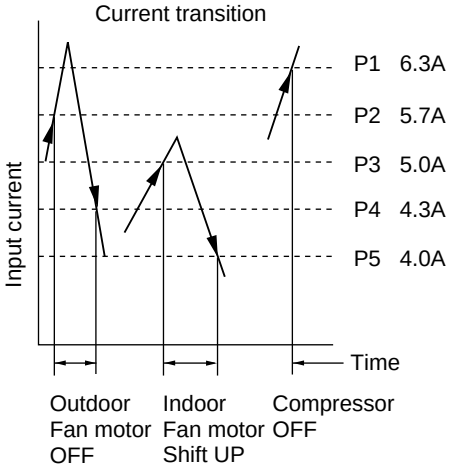


Figure Y-10

8. Freeze preventive

When the indoor pipe temperature falls below -1˚C during cool operation or dry operation, the compressor is turned off.

9. Defrost

The defrost timer (integrating the operation time of compressor) counts time with microcomputer during heat operation.

40 minutes later after starting to operation, or 30 minutes later after defrost, when the outdoor pipe temperature falls -5˚C, the defrosting is started, and when the outdoor pipe temperature exceeds 11˚C, the defrosting is ended.

In the defrost operation, first the compressor is turned off, the san speed is set yo "UL" and the outdoor fan motor is turned off.

30 seconds later the inddor fan motor is turned off, 50 seconds later the reverse valve is turned off, and 60 seconds later the compressor is turned on.

In the end of defrosting the compressor is turned off, the outdoor fan motor is turned on, 50 seconds later the reverse valve is turned on, 60 seconds lateer the compressor is turned on, starting heat operation.

At this time, the indoor fan motor is turned off or the fan spedd is set to "UL" if preheat air flow function is effective.

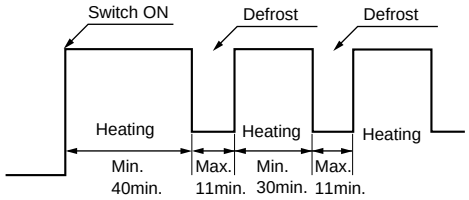


Figure Y-11

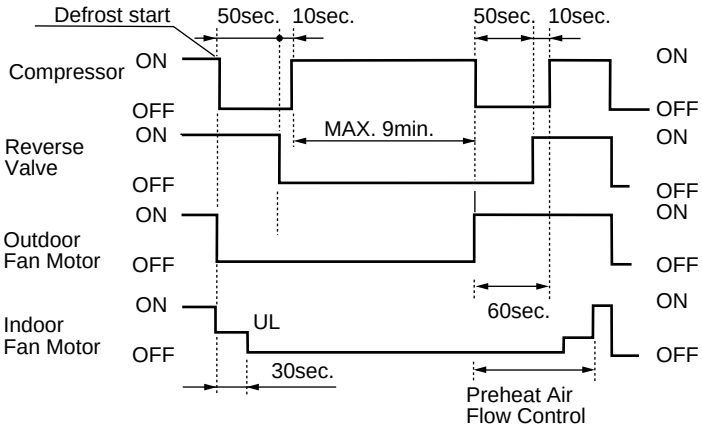


Figure Y-12

10. Delayed operation of the reverse valve

When the heat operation is shut down or the operating mode is switched from heat to cool or dry, or vice versa, the reverse valve is switched after 3 minutes.

11. Test run

If the “TEST RUN” button in the unit is pushed during suspension of operation, cool test operation starts. At this time, the fan speed is set to “AUTO”.

If this button is pushed during operation, the test operation starts in current operation mode. The operation LED (red) flickers during test run.

In cool and heat mode continuous compressor on operation is performed. In dry mode the operation is in dehumidifying zone. In fan only mode the indoor fan motor runs continusly.

12.Timer

12-1 24-HOUR PROGRAMMABLE ON/OFF TIMER

ON-TIMER or OFF-TIMER can be independently programmed. When the unit operates during one hour after the OFF-time is set, thermostat setting is automatically shifted (+1˚C in cool operation and dry operation, -3˚C in heat operation, but, 16˚C set temperature at the lowest).

When the ON-timer is set in heat operation and cool operation, operation starts before 0 to 30 minutes(depends on the room temperature) so that preset temperature is obtaind at set time.

12-2 ONE-HOUR TIMER

When ONE-HOUR timer is set, the unit turns off automatically after one hour. The one hour timer operation has priority over other time operation, such as the TIMER ON and TIMER OFF. If the ONE-HOUR TIMER button is pressed again during operation, the unit will operate additionally for another one hour.

13. Automatic air conditioning

When automatic air conditioning is selected, the operation mode and preset temperature are set automatically according to the room temperature on starting operation.

Table Y-4

Room temperature at operation start	Operation Mode	Preset Temperature
Above 28˚C	COOL	26˚C
26˚C ~ 28˚C		25˚C
24˚C ~ 26˚C		24˚C
21˚C ~ 24˚C	DRY	Room temperature at operation start
Below 21˚C	HEAT	23˚C

14. Automatic fan speed

When the automatic fan speed is selected in cool or heat operation, the fan speed is automatically changed by the thermostat lines C1 to C3 in cool operation, and H1 to H4 in heat operation.

a.COOL operation

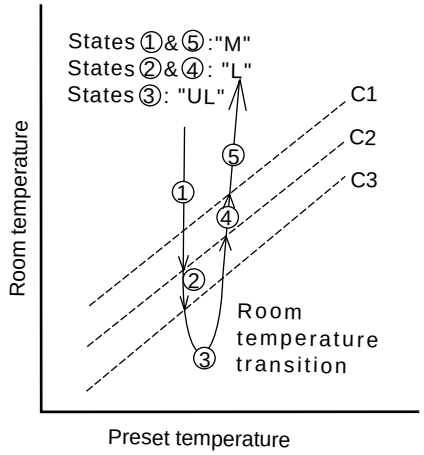


Figure Y-13

b. HEAT operation

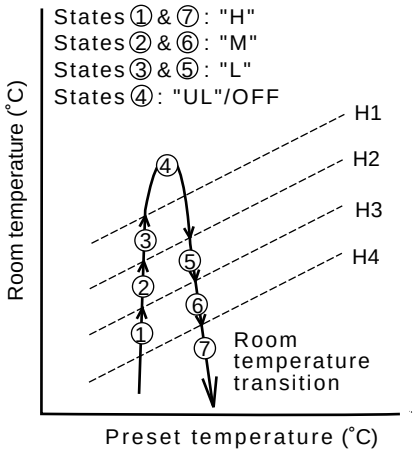


Figure Y-14

15. Outputs in each operation mode

Table Y-5

Mode		Compressor	Outdoor Fan Motor	Indoor Fan Motor	Valve Coil
COOL	Cooling	ON	ON	ON	OFF
	Circulating	OFF	OFF	ON	OFF
HEAT	Normal	ON	ON	ON	ON
		OFF	OFF	ON/UL/OFF	ON
	Preheat Air Flow Control	ON	ON	UL/OFF	ON
	ON Defrost	ON	OFF	OFF	OFF
DRY	Cooling			L/UL	OFF
	Dehumidifying	ON	ON	UL/D	OFF
	Circulating	OFF	OFF	D/OFF	OFF
FAN ONLY		OFF	OFF	ON	OFF

16. Power on start

If the connecting wire "POWER ON" (JP8) is cut on the PWB ass'y, when the power is supplied by turning on a circuit breaker, the air conditioner automatically starts of operation in "AUTO".(Refer to Figure L-1. Electronics Control Circuit Diagram.)

17. AUTO RESTART

Power failure occurs during operation, the unit will retart in the same operation mode as before after power recovery.

18.Test mode

18-1 Indoor unit

Make terminals 1 and 2 of connector CN4 short-circuited and supply the power.

Hereby the timer's period becomes shortened. In this test mode, the control times are shortend as follows.

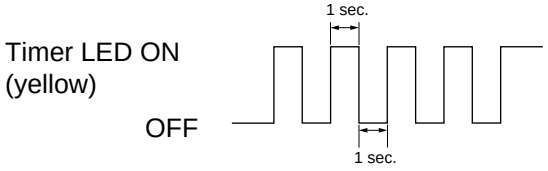
The operation LED flicker's period in Test run — not shortened
The protector timer — not shortened
The defrost timer — not shortened
Other controls; 1/60 (ex.; 3 min. to 3 sec.)

18-2 Outdoor unit

Make terminals and of connector short circuited and supply the power. Hereby the timer's period becomes shorted. In this test mode, the control times are shorted 1/10

19. Trouble suspension

When indoor fan motor is out of order or compressor lock occurs, the compressor, indoor fan motor, outdoor fan motor, and louver are all stopped and the operation LED(red) turned off and the timer LED(yellow) turns on or off as follows.



In this case, when "ON/OFF" button in the remote control or "AUX" button in the unit is pushed, the unit is out of "Trouble suspension".

TROUBLE SHOOTING GUIDE

Trouble diagnosis

This unit has a fuction to diagnose major troubles by itself.
Six kinds of troubles can be detected and informed.
Before repair, first call up the trouble information with the self-disgnosis function, and check it.

1. Self-diagnosis function

(1) In case of some troubles(error No. 1 thru 3), the operation will be stopped if any trouble occurs.
LED on the indoor unit will ficker to automatically inform the trouble occurrence.
The timer LED fickers as shown in Fig. T-1.(The operation LED is turns off.)

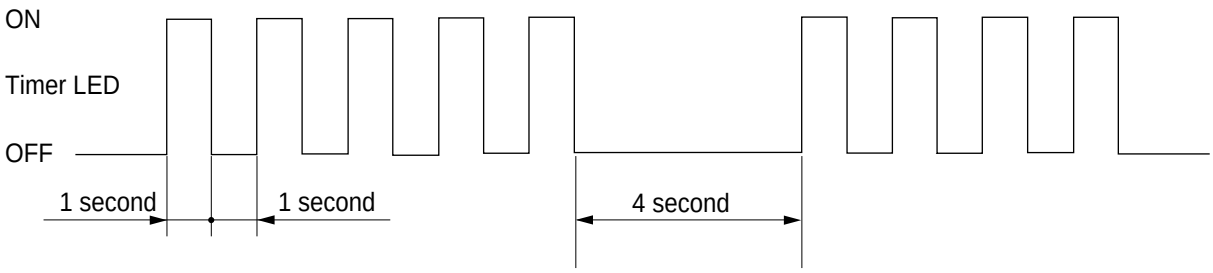
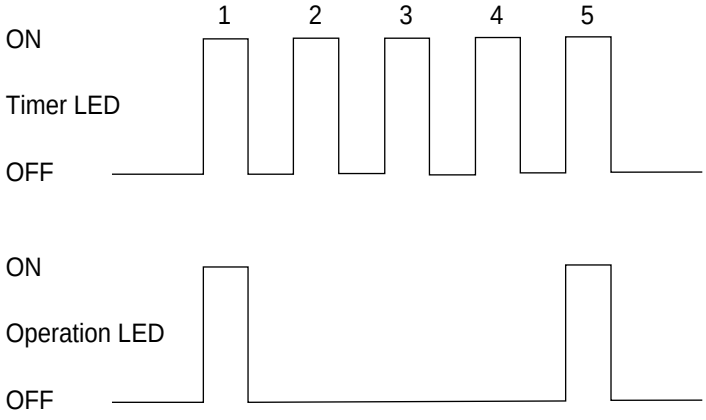


Fig. T-1

(2) Call up of trouble information(For details, refer to the self-diagnosis table in Page 20.)
When the operation is stopped, continuously press both AUX button and TEST RUN button for 5 seconds, the error information display mode will be selected to ficker the timer LED and operation LED in order to display the error information.
Even through the buttons are released, it will be continously displayed to erase the error display, press the "OI" Button in the remote control or AUX button.

Example : Wiring connector between the units is improper.
Note : If the power plug is disconnected, the memory of the error information will be erased.



※ If the timer LED fickers 5 times, it will be regarded as one block information will be displayed depending on the state of the operation LED.

Fig. T-2

2. For the other errors which are not displayed by the self-diagnosis, refer to the troubleshooting flow chart in Page 21.

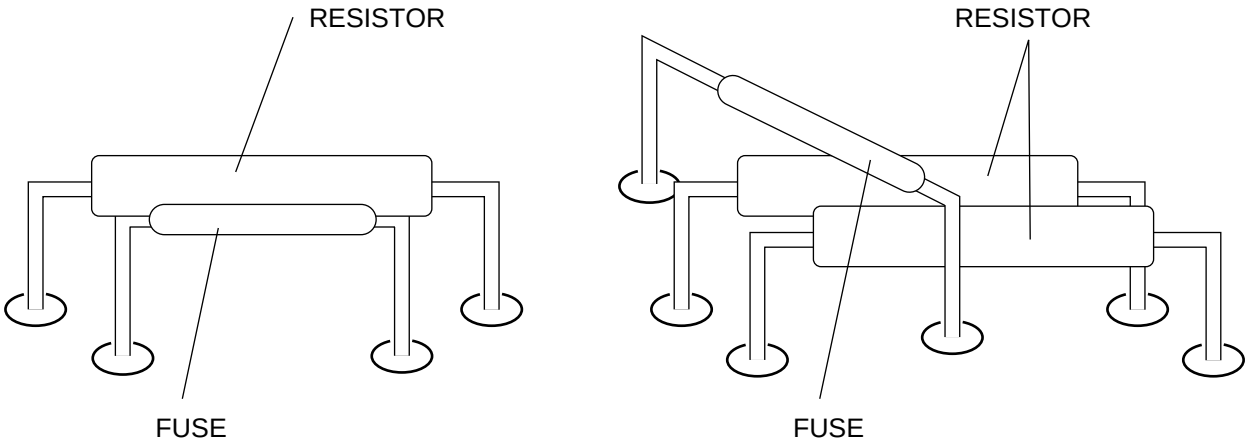
Method to repair the control circuit which does not work due to improper wiring between the units

Since a part in the control circuit may be broken, replace the following parts.
Using the tester, check the thermal fuse for continuity(after turning off the power supply and disconnecting CN5 of the outdoor unit.)

(1) Control circuit of indoor unit
   1) Thermal fuse TC 115˚C
   2) Photo coupler PC1 PC111L

(2) Control circuit of outdoor unit
   1) Thermal fuse TC 115˚C
   2) Photo coupler PC2 PC111L (Room A1)
      PC4 PC111L (Room A2)

(3) Procedure to install the thermal fuses in the control circuits of the indoor and outdoor units.



INDOOR SIDE **OUTDOOR SIDE**

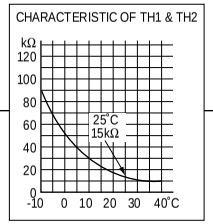
Fig. T-3

(Caution)
(1) Closely install the fuse on the resistor.
   (The mass production type is bonded with silicon rubber.)
(2) Solder the fuse for the shortest possible time.
   If it is done for a long time, the fuse may be off.

The fuse of the outdoor unit is commonly used in both the rooms A1 and A2.

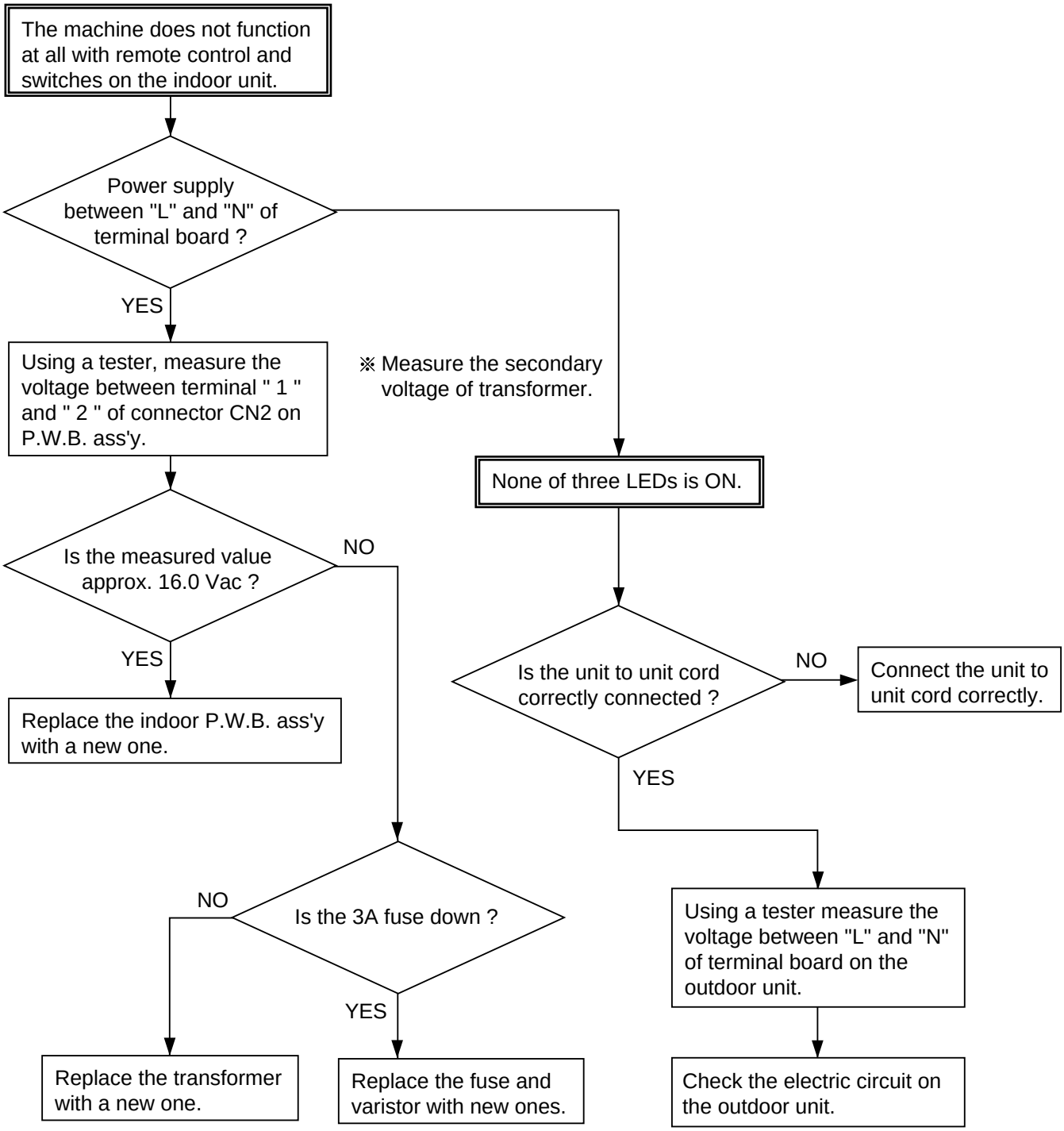
Self-diagnosis table (error information call-up)

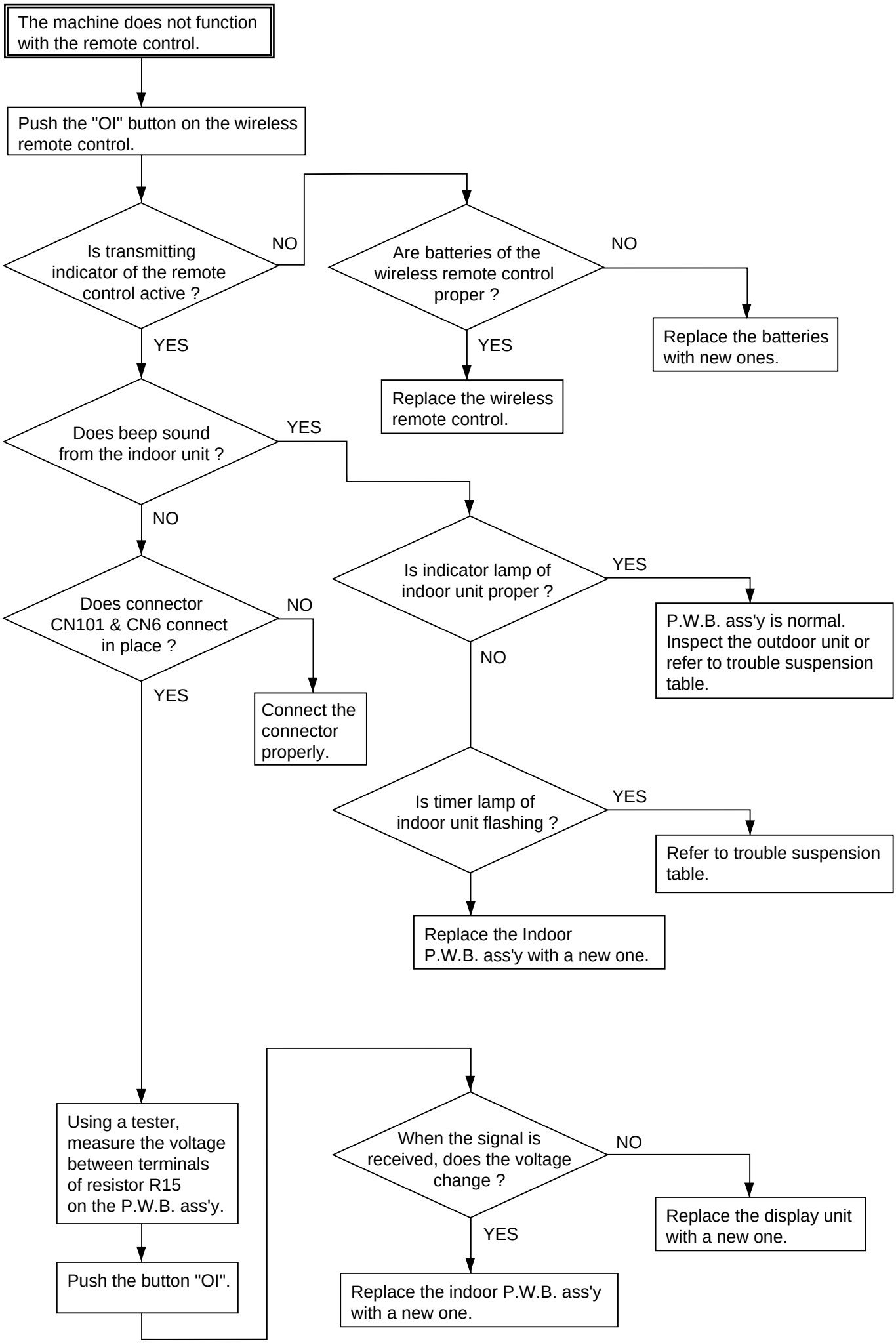
◯ : Turns ON. ✕ : Turns OFF. ⊗ : Flickering at 2 seconds intervals. ◎ : Flickering at 0.2 seconds intervals.

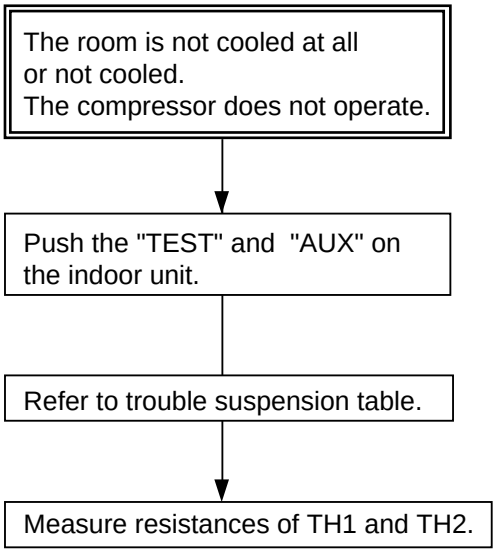
Error No.	Display with operation LED of indoor unit	Outdoor unit display LED			Diagnosis content		Check item	Remedy
	It is ON at the same time when timer LED is ON. 1 2 3 4 5 ◯x◯x◯x◯x◯ – 4 sec. OFF	LED 1 Room A1 Serial SIGNAL	LED 2 Room A2 Serial SIGNAL	LED 3 Error display	Content	Relevant unit		
—	✕✕✕✕✕	⊗	⊗	✕	No diagnosis information.	—		
1	◯✕✕◯◯	⊗	⊗	✕	• Indoor fan motor rotates poorly.	Indoor	(1) Does indoor fan rotate ? (2) Check the connected and soldered state of CN5. (3) Is rotation pulse input to the terminals No. 2 and 3 of CN5. ?	(1) Fan or fan motor locked ⟶ Replace (2) Correct the connecting solder or replace the control board unit.
2	✕✕◯✕✕	⊗	⊗	◯	• Compressor is locked.	Outdoor	(1) Check the voltage of the power supply for 198 to 264V. Check that the voltage drops when the compressor is started. (2) Check the running capacitor. (3) Check the wiring and correction of the power supply to the compressor.	(1) Improve the power supply. (2) Replace the running capacitor. (3) Connect the wiring connection. (4) Replace the compressor.
3	◯✕✕✕◯ ◯✕✕◯✕	◯ ◎	◯ ◎	✕ ✕	• Wiring connection between the unit is improper.	Indoor or outdoor	(1) Correct the wiring between the unit. (2) Is LED 1 or LED 2 ON on the outdoor unit ?	(1) Since the parts of the control circuit may be broken, replace the control circuit in the indoor and outdoor units. For the circuit repairing method, refer to Page 19. (2) Unless LED flickers or lights, the outdoor control circuit does not operate. Refer to trouble shooting flow chart in Page 21 ~ 23.
4	◯✕◯✕✕ ◯✕◯✕◯	⊗	⊗	✕	• Indoor thermistor is defective. Short circuit (0Ω) • Indoor thermistor is defective. Open circuit	Indoor	(1) Check the connection of the thermistor connector CN4. (2) Check the resistance of the thermistor. 	(1) Improve connection state. (2) Replace the thermistor.
5	✕✕✕✕◯ ✕✕◯✕◯	⊗	⊗	◯	• Outdoor thermistor is defective. Short circuit (0Ω) • Outdoor thermistor is defective. Open circuit	Outdoor	(1) Check the connector of the thermistor connector CN5. (2) Check the resistance of the thermistor.	(1) Improve connection state. (2) Replace the thermistor.
6	✕✕✕◯◯	⊗	⊗	◯	• No current flows in the compressor.	Outdoor	(1) Is RY1(room A1) or RY2(room A2) on ? (For check try to TEST RUN the indoor unit.) (2) Check the connection of compressor from RY1 and RY2. (3) Check compressor motor protector for activation.	(1) Replace the outdoor control board unit. (2) Connect the wiring connection. (3) Connect the cause of the overloaded operation.

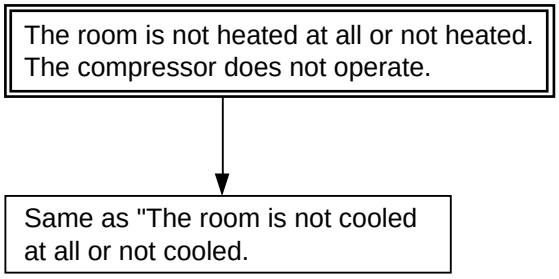
TROUBLESHOOTING GUIDE OF CONTROL CIRCUIT

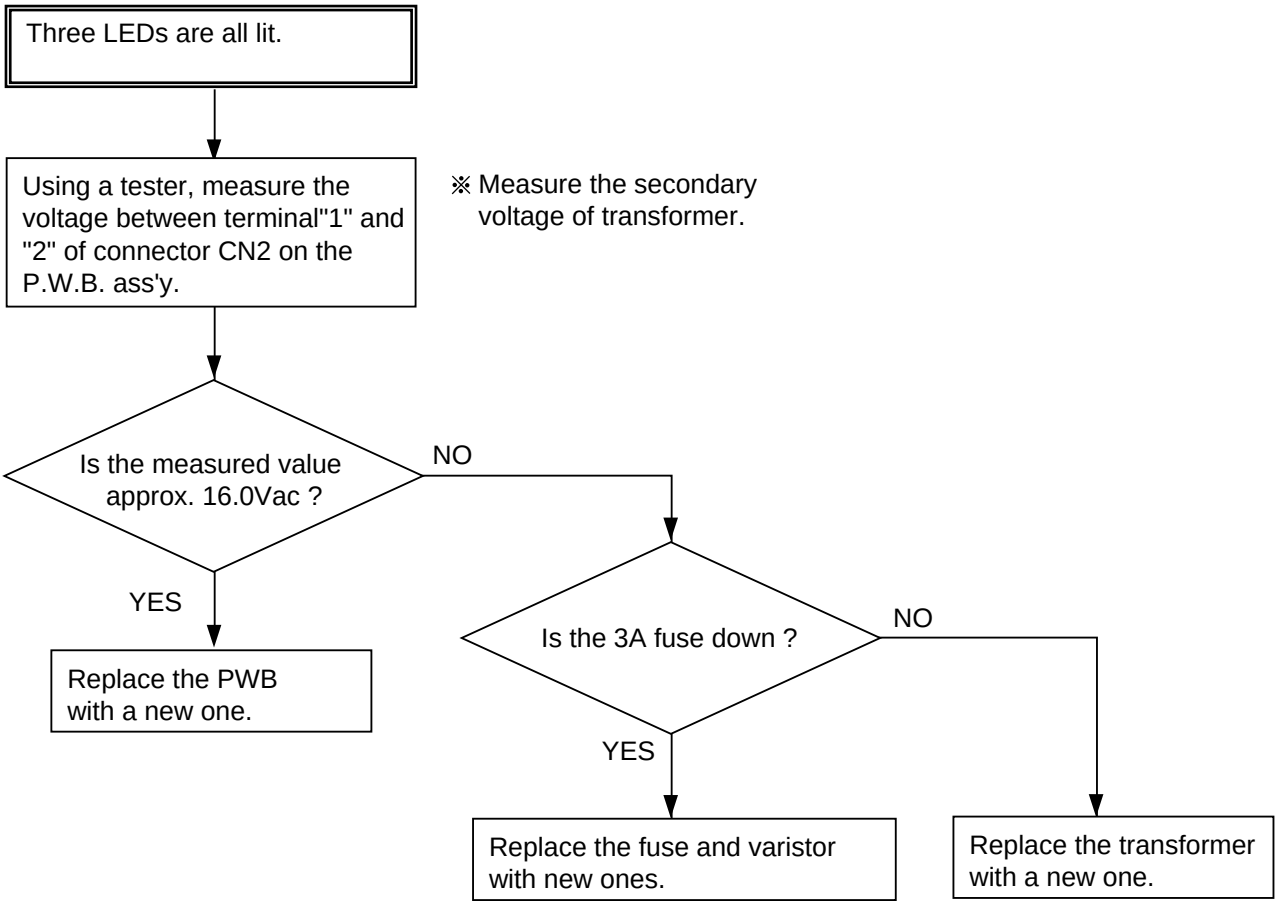
Note : Do not check two indoor units at the same time. Be sure to check them one by one.




The machine does not function with the remote control.
Push the "OI" button on the wireless remote control.
Is transmitting indicator of the remote control active ?
NO
YES
Are batteries of the wireless remote control proper ?
NO
YES
Replace the batteries with new ones.
Replace the wireless remote control.
Does beep sound from the indoor unit ?
YES
NO
Does connector CN101 & CN6 connect in place ?
NO
YES
Connect the connector properly.
Is indicator lamp of indoor unit proper ?
YES
NO
P.W.B. ass'y is normal. Inspect the outdoor unit or refer to trouble suspension table.
Is timer lamp of indoor unit flashing ?
YES
Refer to trouble suspension table.
Replace the Indoor P.W.B. ass'y with a new one.
Using a tester, measure the voltage between terminals of resistor R15 on the P.W.B. ass'y.
Push the button "OI".
When the signal is received, does the voltage change ?
NO
YES
Replace the display unit with a new one.
Replace the indoor P.W.B. ass'y with a new one.


The room is not cooled at all or not cooled.
The compressor does not operate.
Push the "TEST" and "AUX" on the indoor unit.
Refer to trouble suspension table.
Measure resistances of TH1 and TH2.


The room is not heated at all or not heated.
The compressor does not operate.
Same as "The room is not cooled at all or not cooled.


Three LEDs are all lit.
Using a tester, measure the voltage between terminal"1" and "2" of connector CN2 on the P.W.B. ass'y.
※ Measure the secondary voltage of transformer.
Is the measured value approx. 16.0Vac ?
NO
YES
Replace the PWB with a new one.
Is the 3A fuse down ?
NO
YES
Replace the fuse and varistor with new ones.
Replace the transformer with a new one.

REFRIGERATION CYCLE

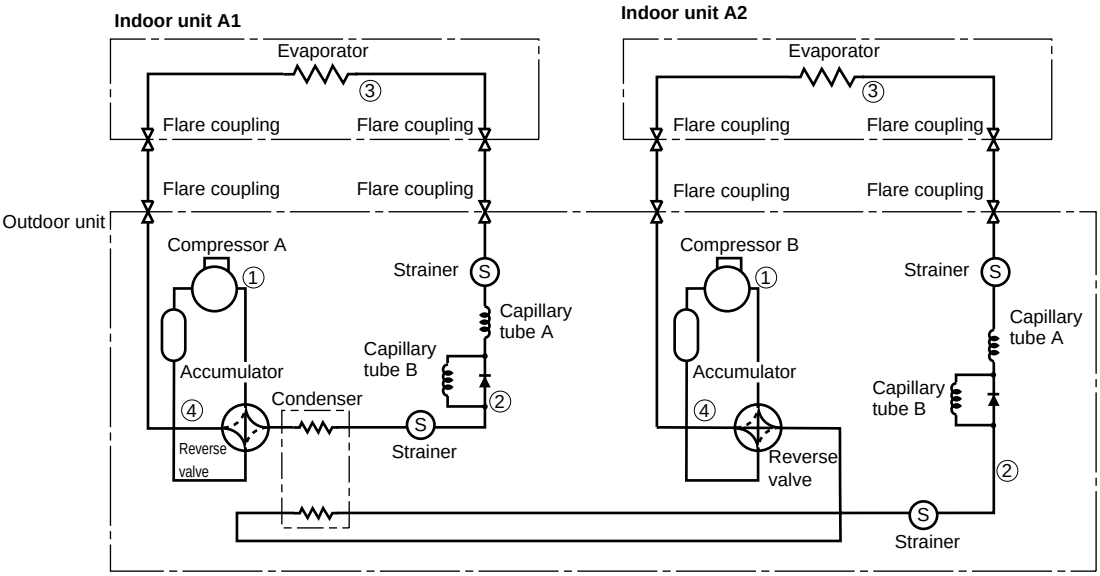
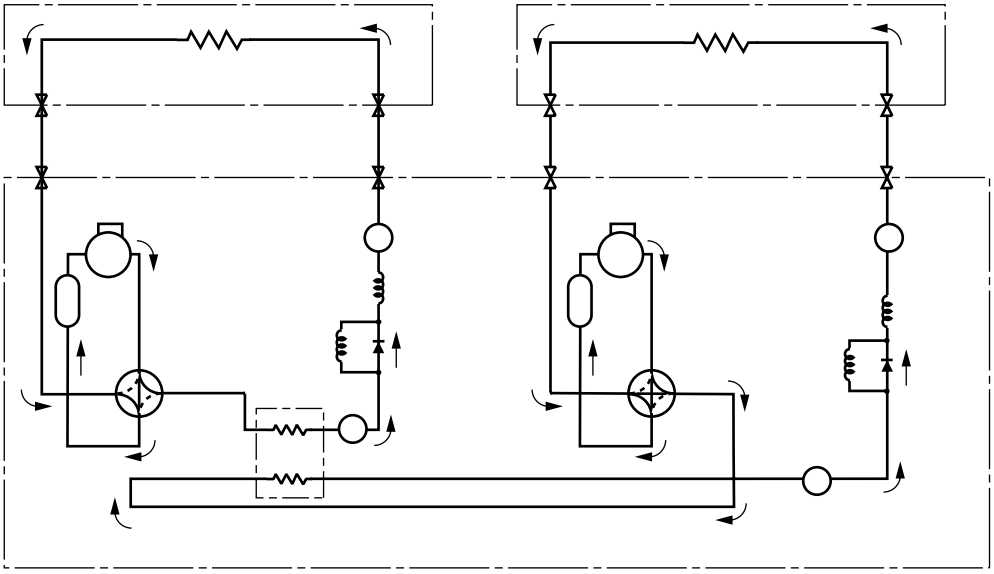
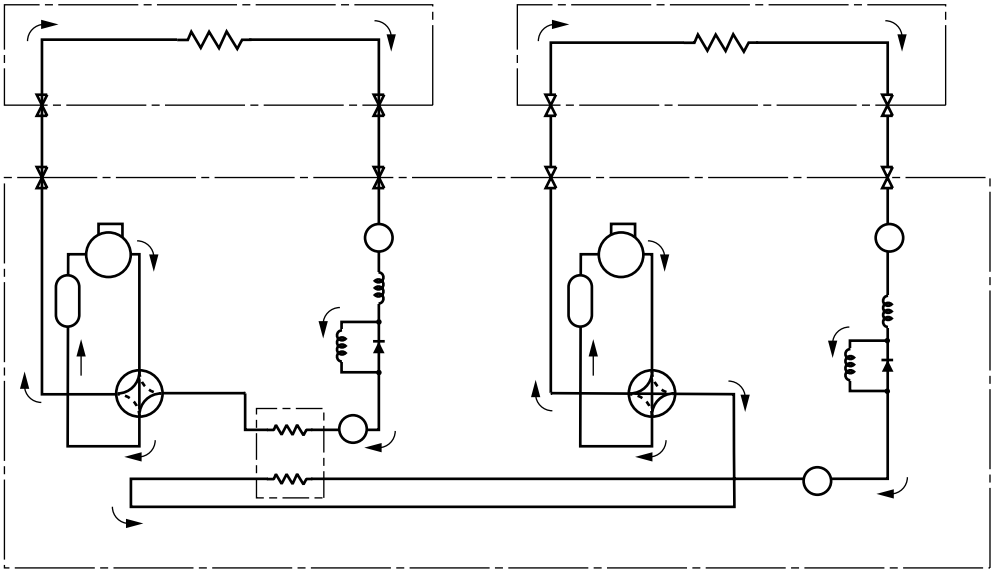


Figure R-1. Refrigeration Cycle for AY-M09AE



At Cooling



At Heating

Figure R-2. Flow of Refrigerant

Cycle temperature and service port pressure
(ISO Cooling and heating condition)

NO. condition	Cooling	
	1 unit running	2 units running
①	88˚C	90˚C
②	42˚C	47˚C
③	9˚C	10˚C
④	13˚C	10˚C
※Service port pressure	0.47MPa	0.48MPa

※ ····· Gauge pressure

NO. condition	Heating	
	1 unit running	2 units running
①	89˚C	88˚C
②	3˚C	2˚C
③	39˚C	41˚C
④	0˚C	-1˚C
※Service port pressure	1.78MPa	1.75MPa

※ ····· Gauge pressure

ISO Cooling and Heatpump condition

	Indoor side		Outdoor side	
	Dry-bulb temp. (˚C)	Relative humidity (%)	Dry-bulb temp. (˚C)	Relative humidity (%)
Cooling	27	47	35	40
Heating	20	37	7	87

Dimension of Capillary tube

	O.D.	I.D.	L
Capillary tube A	ø 2.7	ø 1.5	350
Capillary tube B	ø 2.7	ø 1.5	500

PERFORMANCE CURVES

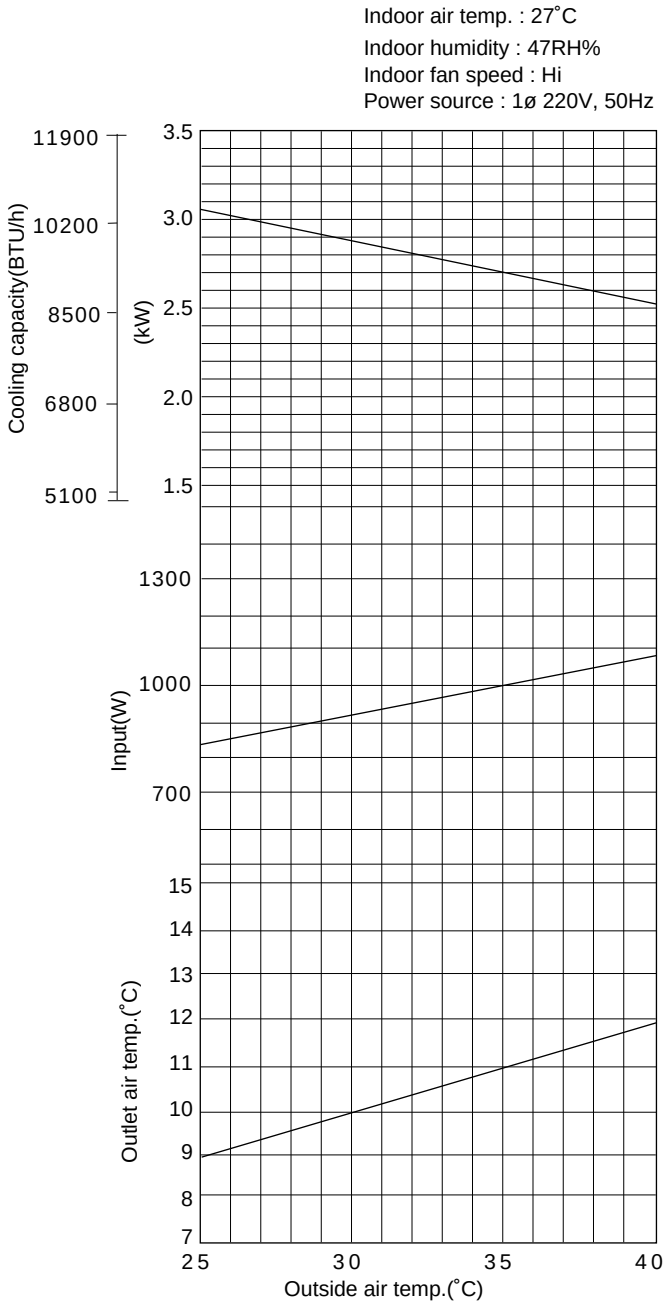


Figure P-1. At Cooling for AY-M09AE (1 unit running)

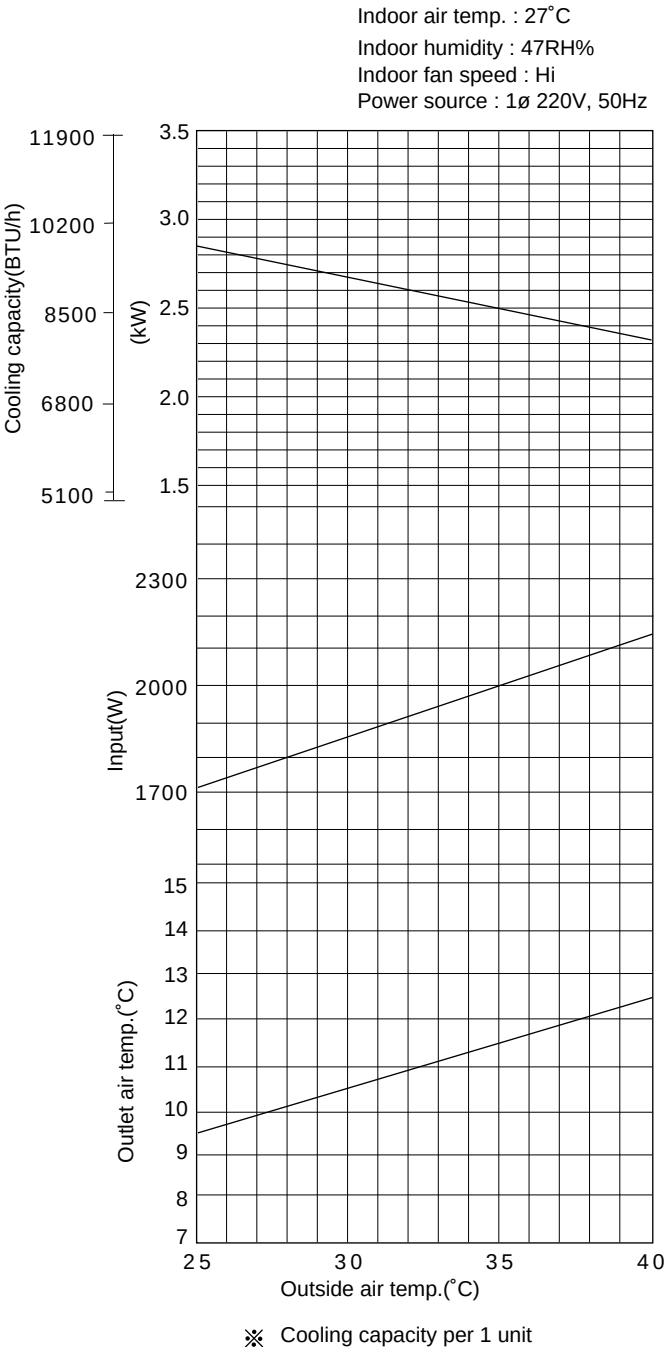


Figure P-2. At Cooling for AY-M18AE (2 units running)

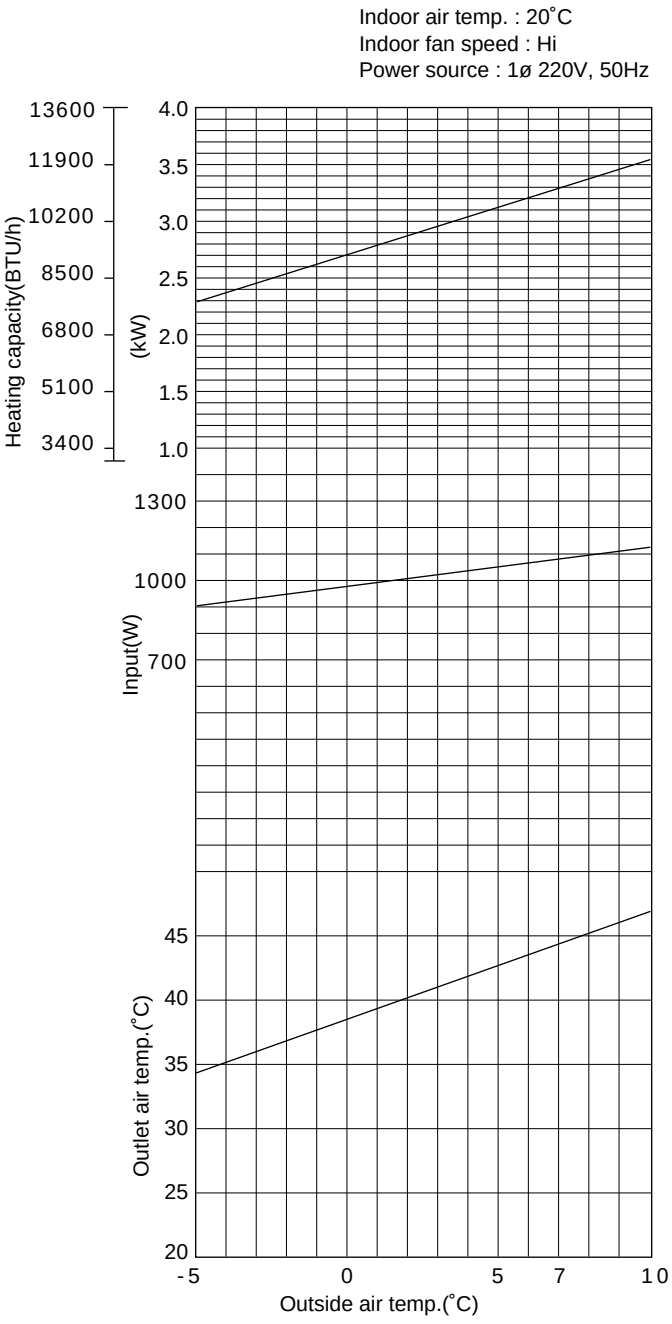


Figure P-3. At Heating for AY-M09AE (1 unit running)

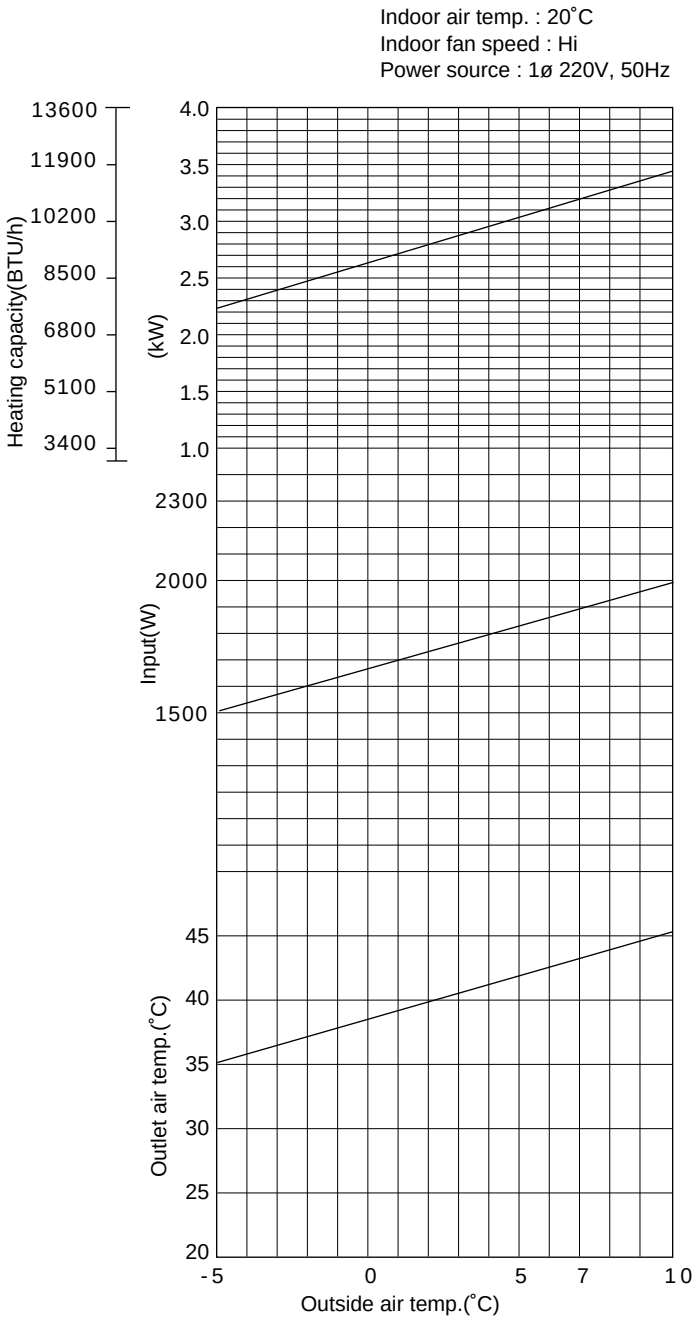


Figure P-4. At Heating for AY-M18AE (2 units running)

REFRIGERANT PIPE INSTALLATION WORKS

Refrigerant pipe length and level difference between the indoor and outdoor units.

PIPE SIZE		STANDARD PERMISSIBLE LENGTH	PERMISSIBLE LEVEL DIFFERENCE
GAS	LIQUID		
3/8"	1/4"	10 m	5 m

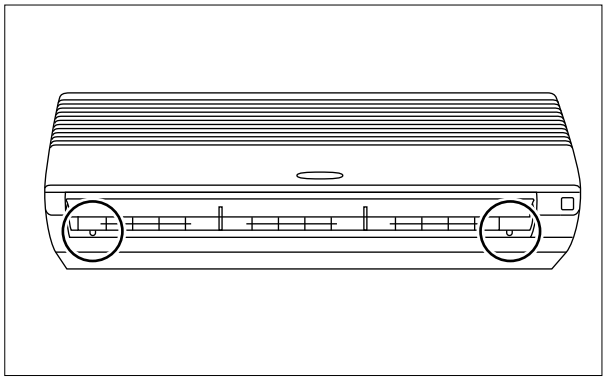
The shorter refrigerant pipe, the higher the machine capabillity. Keep the pipeline as short as possible.
If actual pipe length exceeds 7.5 m, add refrigerant(R-22), 15g per 1 m.

DISASSEMBLING PROCEDURE

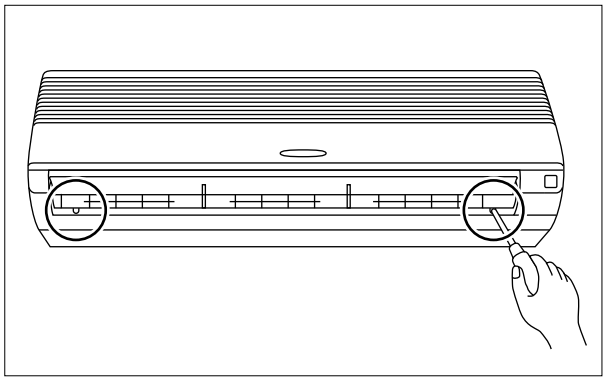
FOR INDOOR UNIT MODEL AY-M09AE

CAUTION: TURN THE CIRCUIT BREAKER OFF BEFORE ANY SERVICING

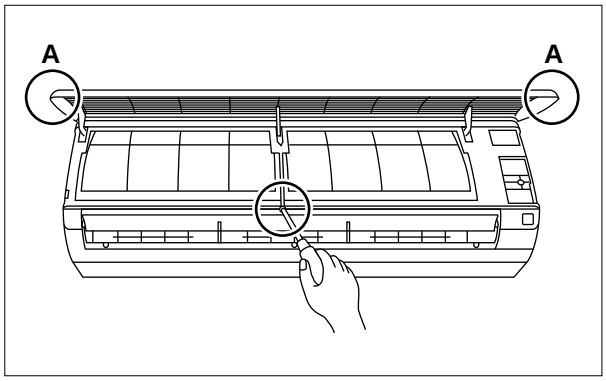
1. Remove the 2 screw covers in the front panel.



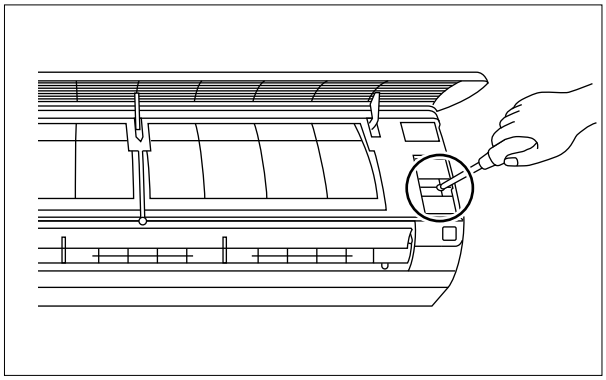
2. Remove 2 fixed screws.



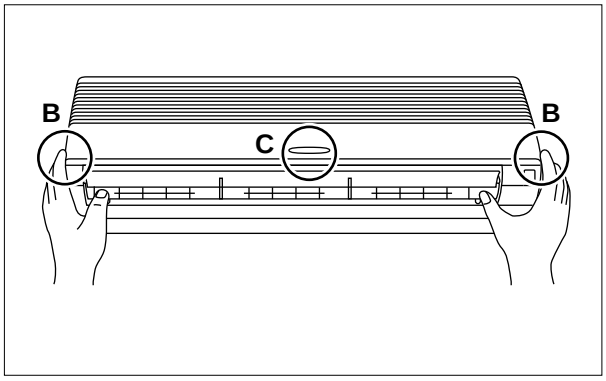
3. Pull the open panel at " A " toward you.
   Remove a fixed screw.



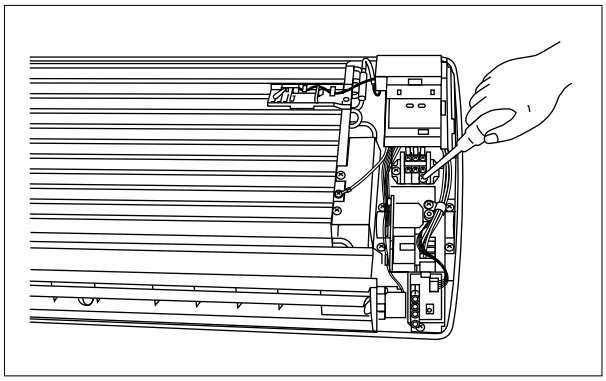
4. Loose a cord clamp screw and take it out.



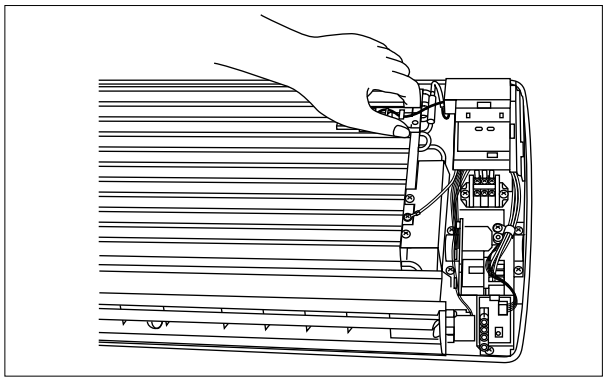
5. Close the open panel softly, and then press " B " and " C " of it securely.
   Remove the front panel ass'y as to lift up.



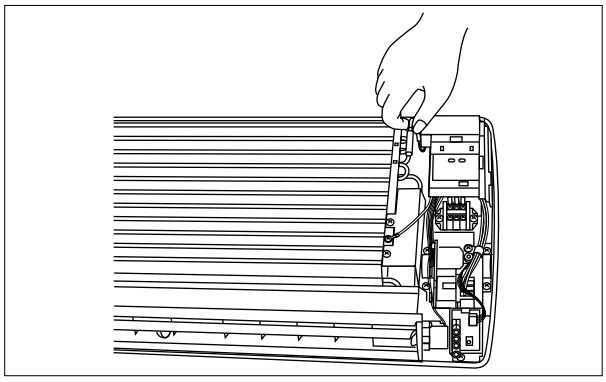
6. Loose 4 screws on the terminal board and take out the unit-to-unit cord from it.



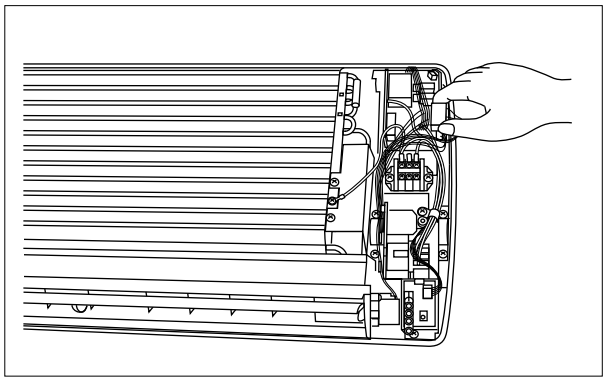
7. Take the thermistor holder off from evaporator.



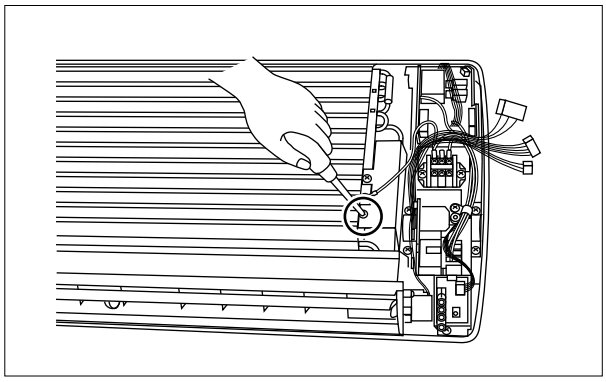
8. Take out the thermistor from evaporator.



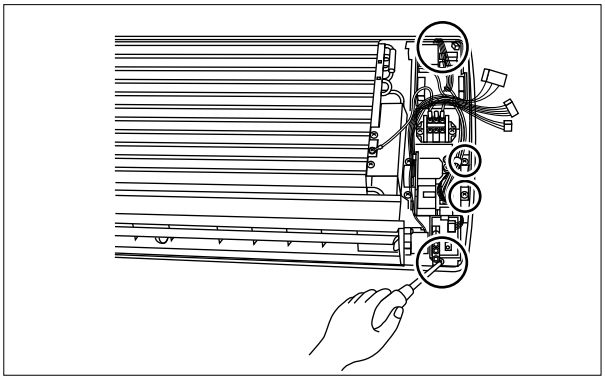
9. Disconnect fan motor connectors and others.



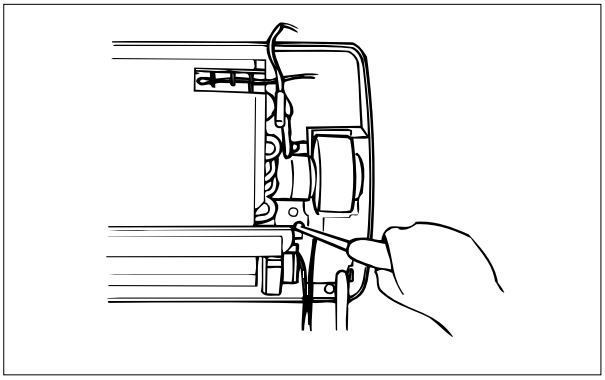
10. Loose 1 screw for a pipe cover and take it out.
Loose the earth screw.



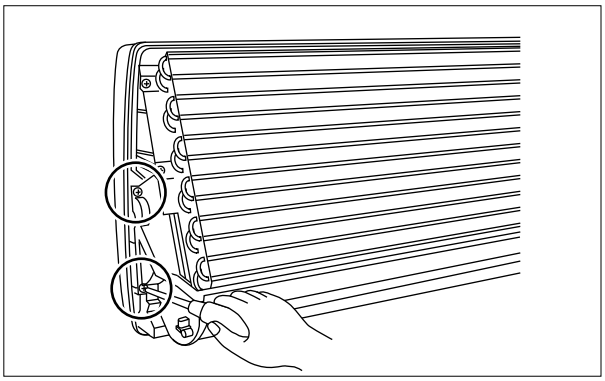
11. Loosen 4 screws fixing control box and take out control ass'y.



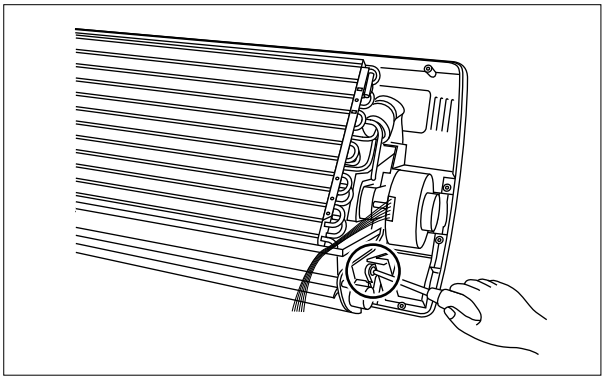
12. Loose a screw fixing drain pan ass'y.(Right side)



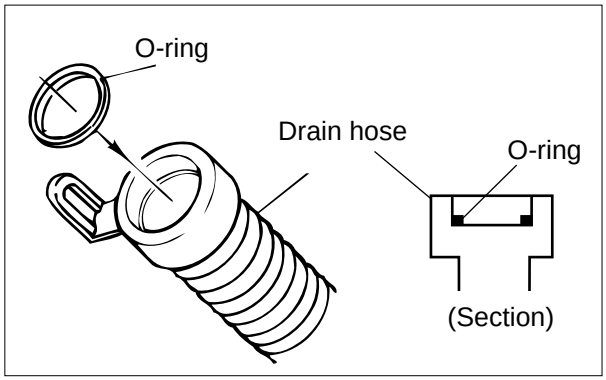
13. Loose 2 screws fixing drain pan ass'y.(Left side)



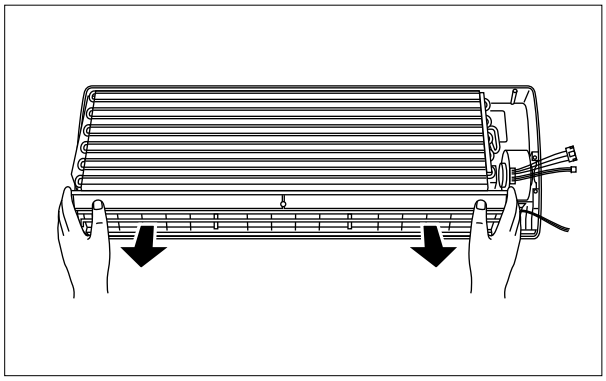
14. Loose a screw fixing drain hose.



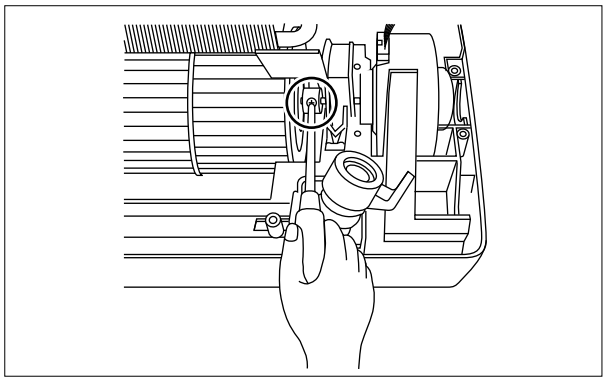
15.When assembling make sure that O-ring is fit to the drain hose.



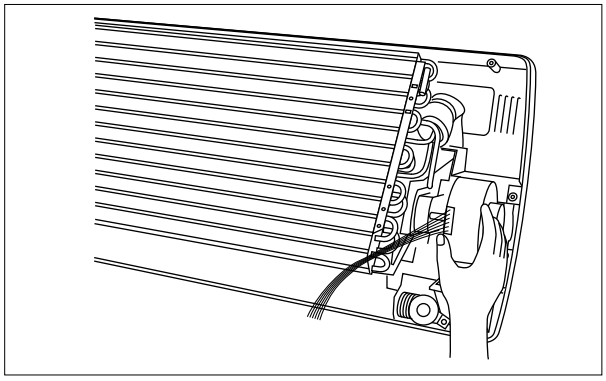
16.Take out the drain pan ass'y.



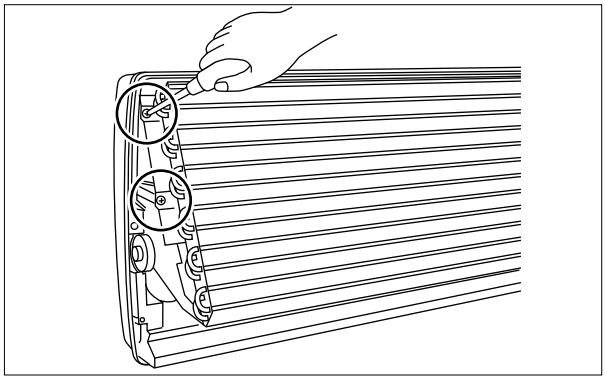
17.Loose a screw fixing cross flow fan to motor.



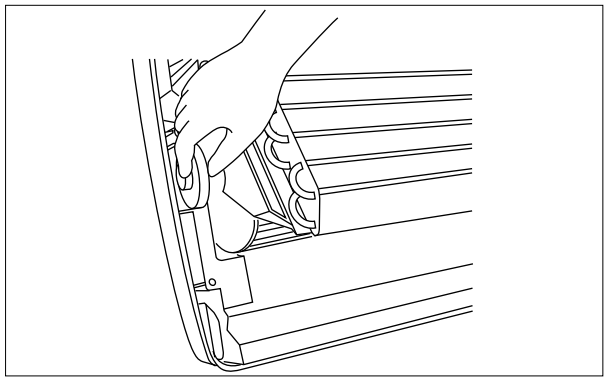
18.Slide the cross fan leftward to depart from the motor shaft and take out fan motor.



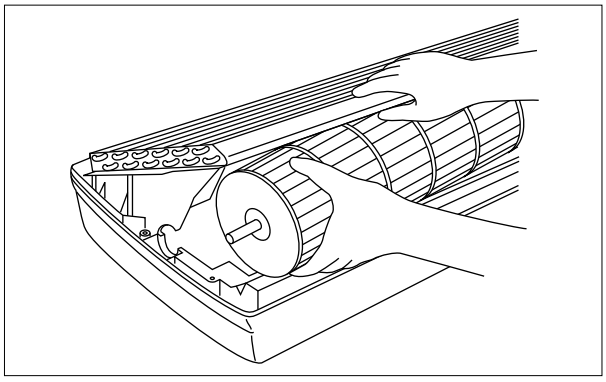
19.Loosen 2 screws fixing evaporator.



20.Take out the fan bearing ass'y.



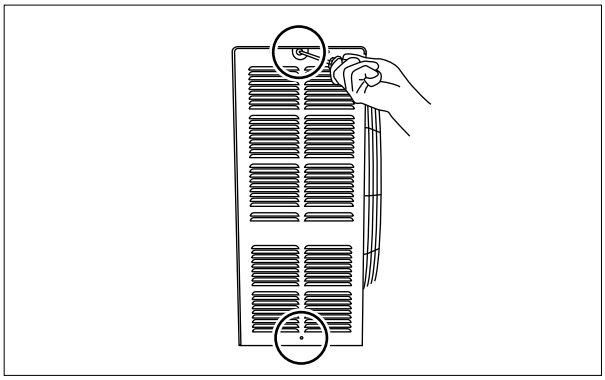
21.Take out the cross flow fan while slightly lifting the evaporator.



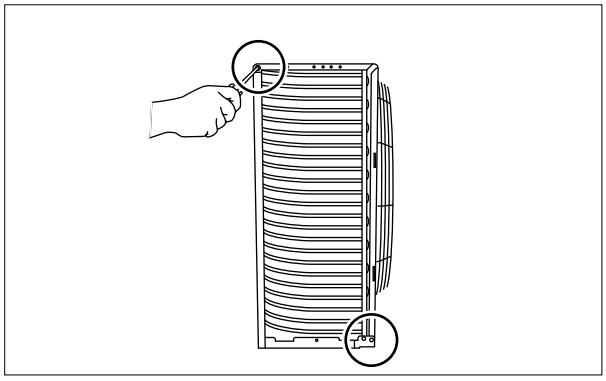
FOR OUTDOOR UNIT MODEL AE-M18AE

DISASSEMBLING PROCEDURE OF THE CONTROL BOX

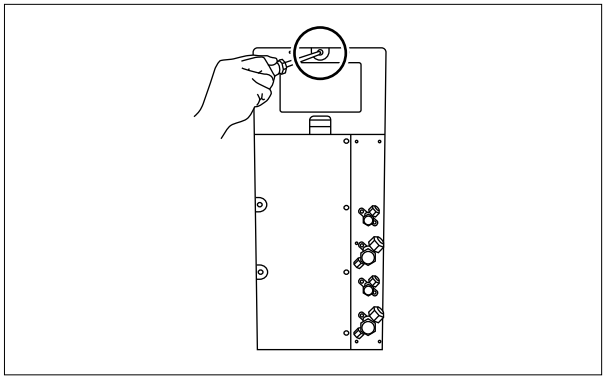
1. Loose 2 screws fixing the left side cover.



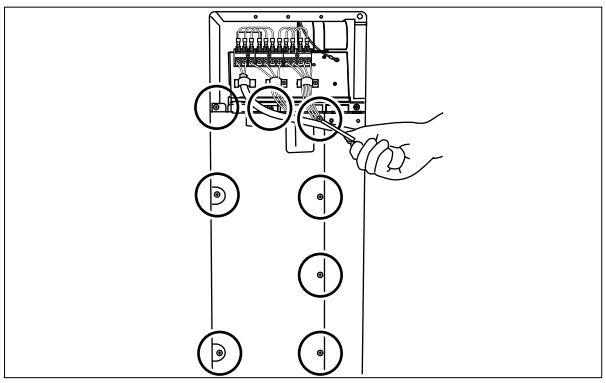
2. Loose 2 screws fixing the cabinet.



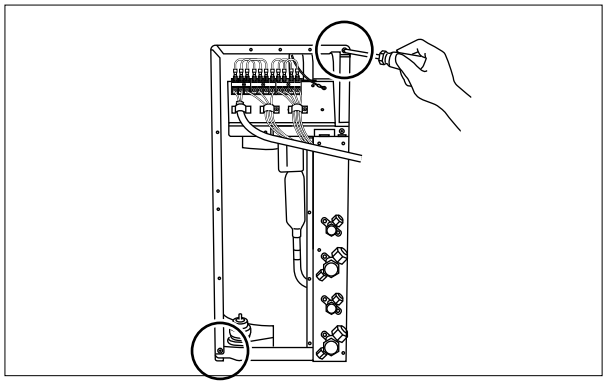
3. Loose a screw fixing the control cover.



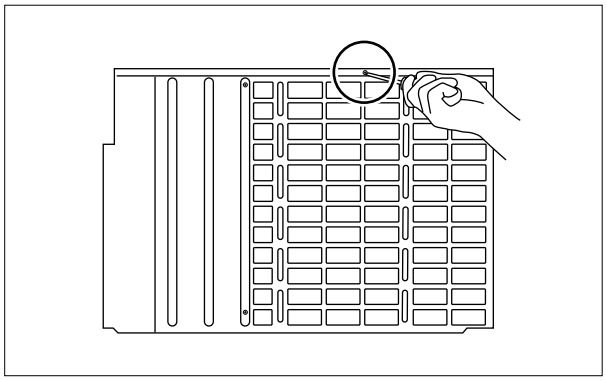
4. Loose 8 screws fixing the right side cover.



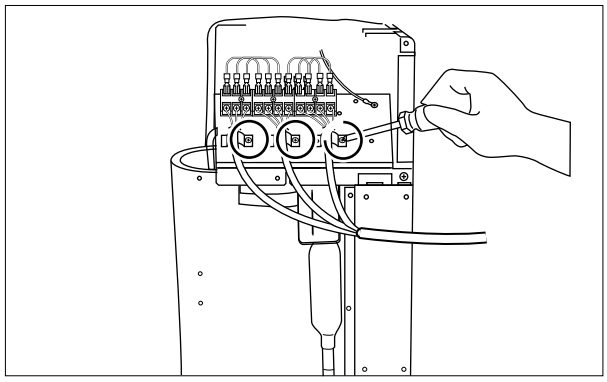
5. Loose 2 screws fixing the cabinet.



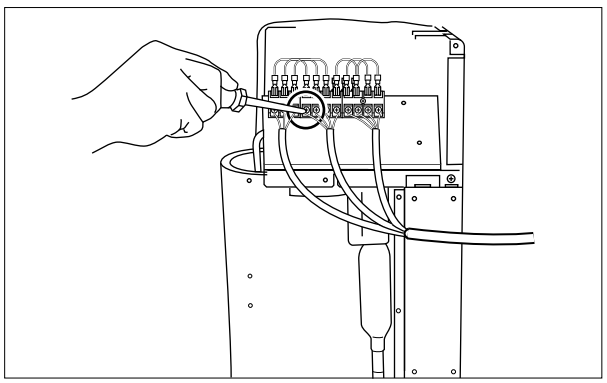
6. Loose a screw fixing the cabinet and remove the cabinet.



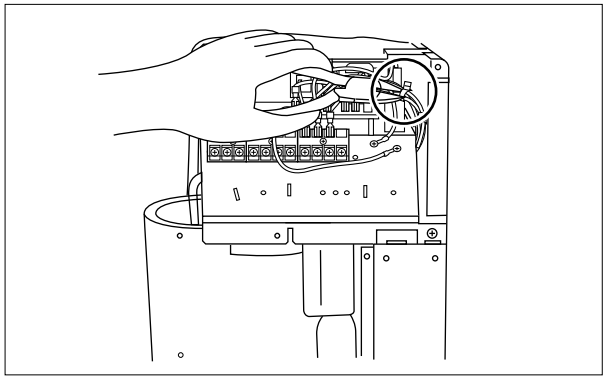
7. Loose the screws fixing the 3 cord clamps.



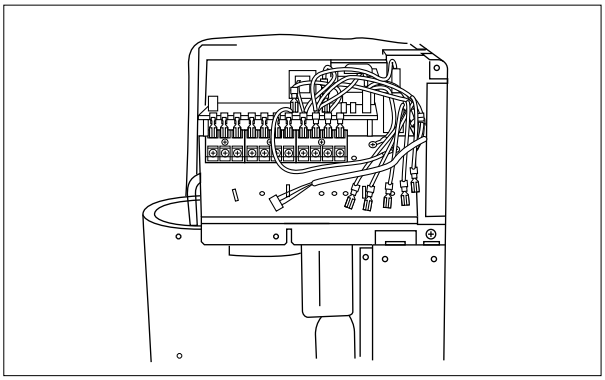
8. Remove the unit-to-unit cords of unit A1, A2 and power supply cord.



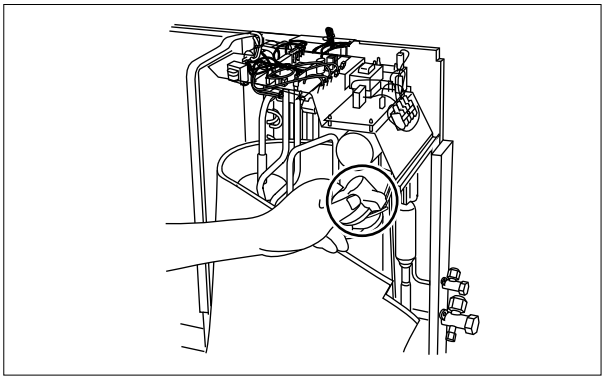
9. Cut nylon band.



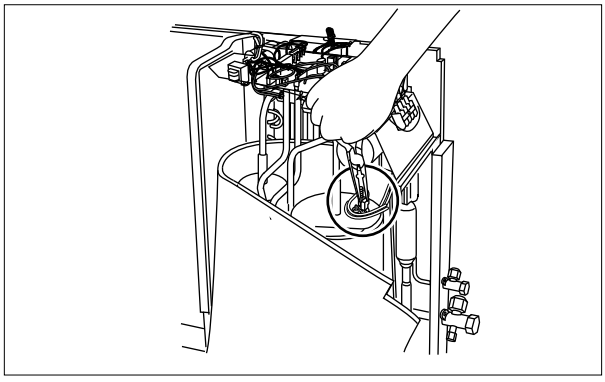
10. Remove 4 connectors.



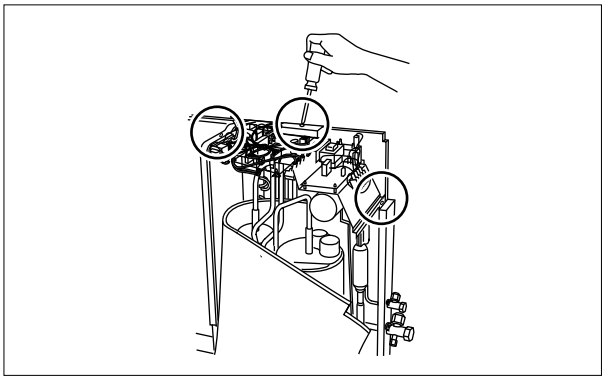
11. Remove the terminal cover of the 2 compressors.



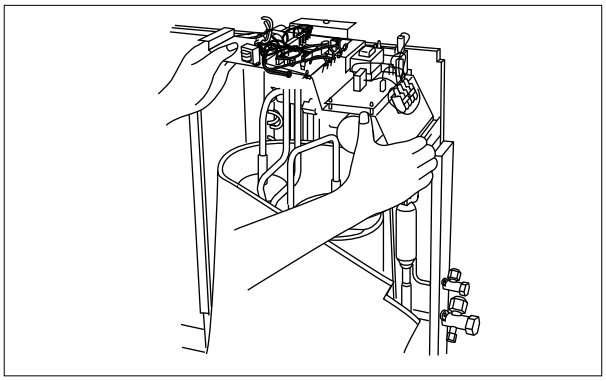
12. Remove 3 terminals of the 2 compressors each.



13. Loose 3 screws fixing the control box.

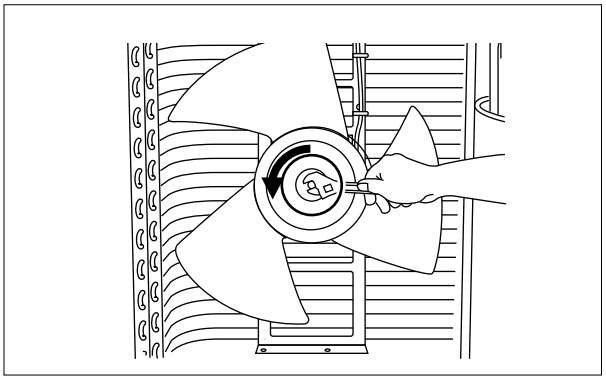


14. Take out the control box.

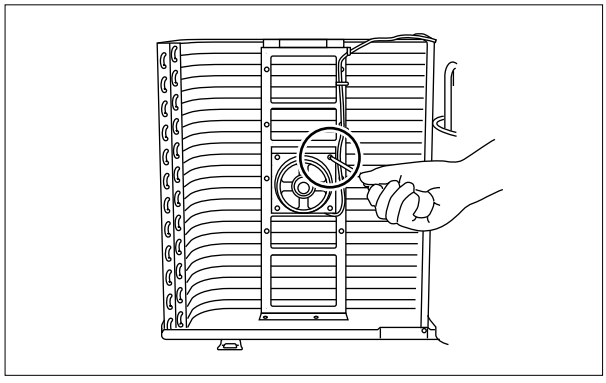


DISASSEMBLING PROCEDURE OF THE FAN

1. Loose the fan nut and fan can be taken out.



2. Fan motor is secured by 4 screws.



PUMP DOWN

Pump down is to collect the refrigerant into the outdoor unit by control of the 2 and 3-way valve and the compressor. This method is adopted in the case of unit removal for re-installation, abandonment, repair etc. Especially, pump down must be performed when abandoning the air conditioner. For environmental protection, do not cut the pipes connecting the indoor and outdoor unit and release the refrigerant into air.

Note:

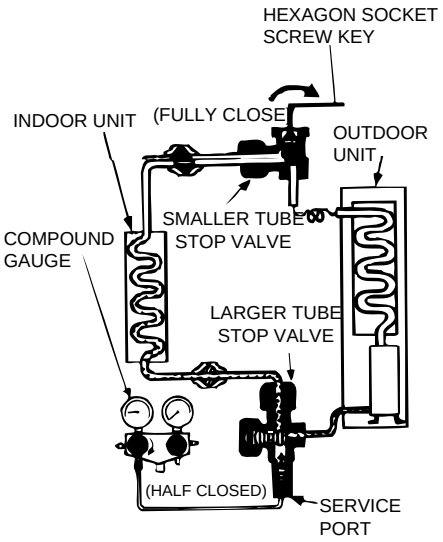
- Pump down can be performed only under cooling operation conditions.
- Perform pump down with cooling test run mode. (REFER THE FOLLOWING TEST RUN)

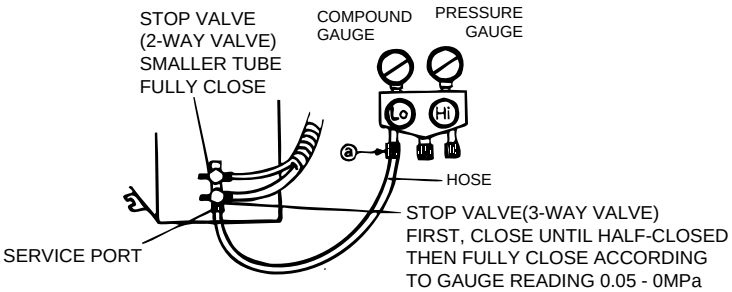
How to do perform the pump down:

(1) Stop the air conditioner operation and connect the gauge manifold(compound gauge) hose to the service point of 3-way valve.
(2) Remove the air in the hose by loosening screw a shown in the figure below.
(3) Run the air conditioner with cooling test run mode 5 minutes.
  - If pump down is performed with normal cooling operation, the protection system may work and the operation may stop.
(4) Fully close the stop valve of 2-way valve side by turming the hexagon socket screw key clockwise.
(5) Close the stop valve of 3-way valve side to half closed position.
(6) Keep running the air conditioner for 40 - 60 seconds. When the pressure of the compound gauge reads 0.05MPa, then immediately fully close the stop valve opf 3-way side.
(7) Disconnect the hose and attach the service port cap as it was before.

Cautions:

If you run the air conditioner until the pressure drops below 0.05MPa, Indoor unit side become negative pressure. As a result, moisture or dust in the air will enter into the indoor unit.
Thereforte, stop the air conditioner when 0.05MPa.

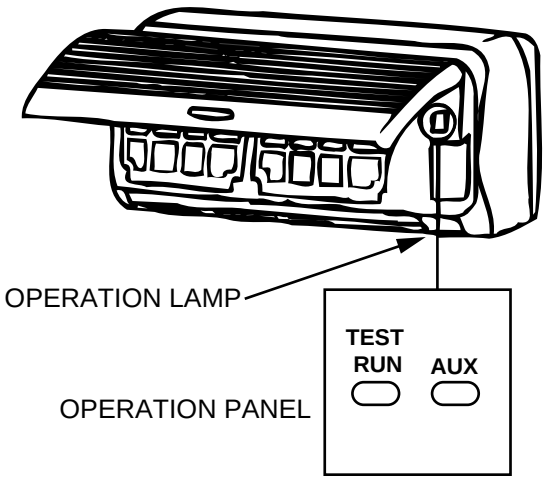




TEST RUN

(1) Push the TEST RUN button on the operation panel of the indoor unit.
The operation lamp flashes and the unit operates in the cooling mode.

(2) Push the AUX. button to stop the TEST RUN operation.



REPLACEMENT PARTS LIST [AY-M09AE]

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
		CABINET AND UNIT PARTS		
1- 1	CMOT-A273JBK0	Fan motor sub ass'y	1	BN
1- 2	NFANCA042JBE0	Cross flow fan	1	BC
1- 3	CSRA-A488JBKZ	Drain pan ass'y	1	BM
1- 4	MJNTPA040JBFF	Louver link	3	AC
1- 5	MLOV-A135JBFF	Vertical louver A	9	AC
1- 6	MLOV-A136JBFF	Vertical louver B	3	AC
1- 7	MLOV-A133JBFE	Horizontal louver A	1	AK
1- 8	MLOV-A134JBFE	Horizontal louver B	1	AK
1- 9	PPACGA002JBE0	O ring	1	AA
1-10	RMOT-A050JBE0	Louver motor	1	AY
1-11	PGUMMA071JBE0	Motor cushion	1	AN
1-12	LHLD-A197JBFP	Louver holder	4	AC
1-13	PGUMMA086JBE0	Motor cushion	1	AG
1-14	PCOV-A190JBE0	Drain cover	1	AE
1-15	CHLD-A053JBK0	Bearing ass'y	1	AL
1-16	LHLD-A187JBFB	Tube holder	1	AC
1-17	PSHE-A099JBE0	Evaporator sheet	1	AH
1-18	LSPR-A006JBE0	Sheet spring	2	AB
1-19	DCHS-A386JBKZ	Cabinet ass'y	1	BA
1-20	DWAK-A797JBKZ	Panel ass'y	1	BE
1-21	PFILMA077JBEB	Air filter	2	AN
1-22	HDEC-B084JBEA	Display cover	1	AF
1-23	HBDG-A059JBEA	Badge	1	AH
1-24	LHLD-A209JBFA	Front panel hinge R	1	AF
1-25	MARMPA012JBFA	Open panel hinge L	1	AD
1-26	MARMPA013JBFA	Open panel hinge R	1	AD
1-27	LHLD-A208JBFA	Front panel hinge L	1	AD
1-28	PBOX-A120JBK0	Louver gear ass'y	1	AZ
1-29	NBRG-A026JBFA	Louver bushing	2	AB
1-30	PSHE-A098JBE0	Evaporator seal	1	AC
1-31	TLABPA175JBR0	Louver label	1	AB
1-32	TSPC-D397JBRA	Name label	1	AE
1-33	PGUMSA046JBE0	Damper rubber	1	AD
1-34	HPNL-A097JBFC	Open panel	1	AW
1-35	PFPFPB074JBE0	Thermistor insulator	1	AB
1-36	PHOS-A015JBE0	Drain hose	1	AL
1-37	LHLD-A204JBF0	Motor holder	1	AE
1-38	PSEL-B417JBE0	Aluminum tape	1	AC
1-39	PSEL-B418JBE0	Aluminum tape	1	AD
1-40	PSEL-B494JBE0	Aluminum sheet	1	AD
1-41	PSEL-B492JBE0	Box-sheet	1	AC
1-42	TLAB-B722JBEZ	Label	1	AE
		CONTROL BOX PARTS		
2- 1	FSGY-A072JBK0	Display unit	1	AX
2- 2	FPWBFA024JBK0	Switch board unit	1	AM
2- 3	QTAN-A327JBZZ	Terminal board	1	AS
2- 4	RFIL-A096JBE0	Coil	1	AS
2- 5	DPWBFA187JBKZ	Control board unit	1	BM
2- 6	QFS-GA027JBEZ	Fuse	1	AD
2- 7	RH-VZA037JBE0	Varistor	1	AE
2- 8	RTRN-A182JBE0	Transformer	1	AY
2- 9	RC-HZA195JBE0	Fan motor capacitor	1	AL
2-10	RTHM-A296JBE0	Thermistor	1	AN
2-11	LHLD-A190JBF0	Thermistor holder	1	AG
2-12	DBOX-A026JBK0	Control box ass'y	1	AT
2-13	HPNLCA497JBF0	Control box cover	1	AF
2-14	HPNLCA616JBE0	Control panel	1	AE
2-15	VHRPC111LY2-6	Photo coupler(PC1, PC2)	2	AK
2-16	LHLD-A266JBFB	Cord clamp	1	AF
2-17	TLABCB302JBR0	Wiring diagram	1	AD
2-18	PSHE-A076JBE0	Protection cover	1	AC
2-19	PGUMMA095JBE0	Wire cushion	1	AA
2-20	PCOV-A191JBE0	LED holder	1	AC
2-21	RH-IXA592JBZZ	Micro computer	1	AC
2-22	RH-IZA149JBE0	Integrated circuit	1	AE
2-23	RIC—-A022BDE0	Integrated circuit	1	AE
2-24	VHIIR2411//-6	Integrated circuit	1	AE
2-25	VHIPST591D/-3	Integrated circuit	1	AE
2-26	VHIBR24C01A-6	Integrated circuit	1	AF
2-27	RH-SZA007JBE0	Triac	1	AK
2-28	QFS-TA037JBE0	Thermal fuse(TC)	1	AF
2-29	RC-QZA096JBE0	Film capacitor	1	AE

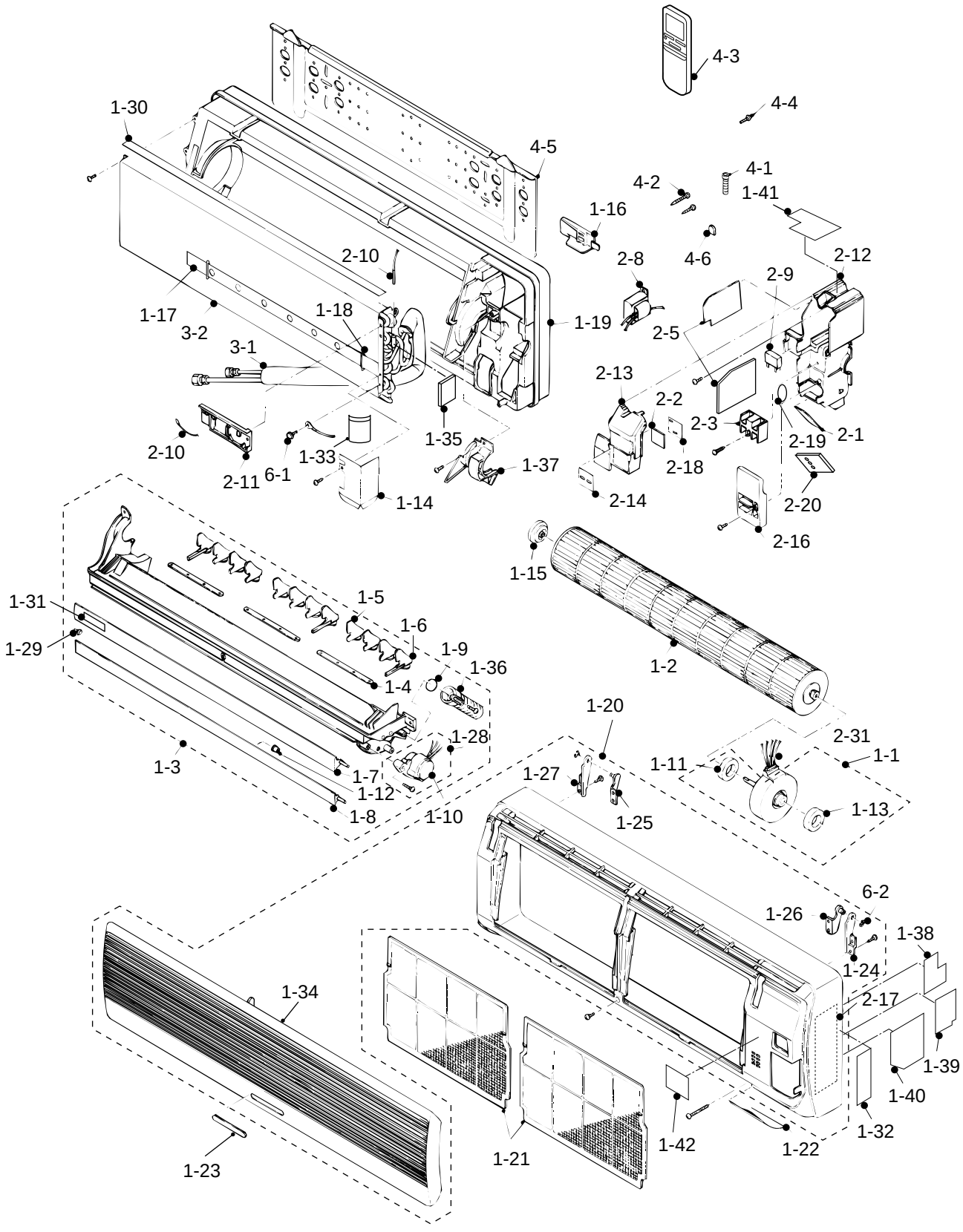
REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
2-30	RTRN-A181JBE0	Current transfomer	1	AN
2-31	QW-VZC636JBE0	Fan motor lead wire	1	AG
		CYCLE PARTS		
3- 1	CPIPCA640JBK0	Pipe ass'y	1	BA
3- 2	PEVA-A399JBE0	Evaporator	1	BQ
		ACCESSORY PARTS		
4- 1	LX-NZ0247JBE0	Special nut	7	AB
4- 2	XTTSD45P30000	Tapping screw	6	AA
4- 3	CRMC-A489JBE0	Remote controller	1	BG
4- 4	LX-BZA106JBE0	Special screw	1	AE
4- 5	PPLTNA022JBP0	Mounting plate	1	BC
4- 6	FCOV-A013JBFS	Screw cover	2	AC
		SCREW AND RING		
6- 1	LX-BZA075JBE0	Special screw	1	AA
6- 2	XREUW50-06000	Ring	2	AC

HOW TO ORDER REPLACEMENT PARTS

To have your order filled prompty and correctly, please furnish the following information.

1. MODEL NUMBER 2. REF. NO.
3. PART NO. 4. DESCRIPTION

INDOOR UNIT FOR MODEL AY-M09AE



REPLACEMENT PARTS LIST [AE-M18AE]

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
		CABINET AND UNIT PARTS		
1- 1	LSUB-A010JBP0	Motor stay sub angle	2	AG
1- 2	CMOTLA868JBEZ	Fan motor	1	BP
1- 3	NFANPA037JBFA	Propeller fan	1	AZ
1- 4	LANGKA045JBP0	Motor stay angle	1	AU
1- 5	PSKR-A101JBW0	Bulkhead	1	AQ
1- 6	GPLTMA051JBTA	Side cover R	1	AW
1- 7	CFTA-A250JBK0	Cont.box cover ass'y	1	AW
1- 8	GPLTMA047JBTA	Side cover L	1	AR
1- 9	GCAB-A124JBTA	Cabinet	1	BD
1-10	GGADFA028JBTA	Fan guard	1	AZ
1-11	PSEL-A792JBE0	Bulkhead insulator	1	AD
1-12	PSPF-A739JBEZ	Compressor cover	1	AY
1-13	PSEL-0617JBE0	Cabinet seal	3	AA
1-14	TSPC-D413JBRZ	Name label	1	AF
1-15	TLABBA100JBRA	Sharp badge	1	AE
1-16	CCHS-A645JBT0	Base pan ass'y	1	BR
1-17	PSEL-0625JBE0	Angle seal	3	AA
1-18	PSEL-B721JBE0	Insulator	1	AM
1-19	LBSHCA022JBF0	Bushing	1	AE
1-21	PSEL-A959JBE0	Flare C. insulator	1	AC
1-22	PSEL-A942JBE0	Flare coup. insulator	2	AC
1-23	PSEL-B941JBE0	Cabinet seal 2	1	AD
1-24	PCOV-A588JBEZ	Box cover	1	AK
1-25	LSUB-A012JBP0	Motor stay sub angle	2	AG
1-26	PSEL-C004JBEZ	Insulator	1	AF
1-27	PSEL-C005JBEZ	Insulator	1	AD
		CONTROL BOX PARTS		
2- 1	CW-VZA297JBKZ	Comp cord A1 ass'y	1	BD
2- 2	CW-VZA298JBKZ	Comp cord A2 ass'y	1	BD
2- 3	RC-HZA316JBE0	Running capacitor	2	AY
2- 4	RC-HZA248JBE0	Fan motor capacitor	1	AP
2- 5	QFS-TA037JBE0	Thermal fuse(TC)	1	AF
2- 6	QTAN-A326JBZZ	Terminal board	1	AT
2- 7	LHLD-0261JBM0	Cord holder	3	AB
2- 8	PBOX-A195JBW0	Control box	1	AN
2- 9	LBNDKA017JBW0	Capacitor clamp	1	AC
2-10	TLABCB303JBR0	Wiring diagram	1	AD
2-11	DPWBFA174JBK0	Control board unit	1	BR
2-12	VHRPC111LY2-6	Photo coupler	4	AK
2-13	RTRN-A181JBE0	Transformer(CT1)	1	AN
2-14	RH-VZA020JBE0	Varistor(CNR1 - CNR4)	4	AE
2-15	QFS-GA027JBE0	Fuse	1	AD
2-16	RH-IXA267JBE0	Microcomputer(IC1)	1	AV
2-17	VHIIR2411//-6	Integrated circuit(IC2)	1	AE
2-18	RH-IZA149JBE0	Integrated circuit(IC3)	1	AE
2-19	RIC—-A022BDE0	Integrated circuit(IC4)	1	AE
2-20	RRLYJA032JBE0	Relay(RY1, RY2)	2	AU
2-21	RRLYJA060JBE0	Relay(RY3,RY4)	2	AK
2-22	RC-HZA248JBE0	Capacitor(C1)	1	AP
2-23	RH-VZA044JBE0	Surge absorber(SA1)	1	AG
2-24	RTRN-A182JBE0	Transformer(TR)	1	AY
2-25	RH-VZA037JBE0	Varistor(NR1,NR2)	2	AE
2-26	RTHM-A350JBZZ	Thermistor	1	AT
2-27	PPLT-A191JBEZ	Insulating plate	1	AM
		CYCLE PARTS		
3- 1	PCMPRA183JBE0	Compressor	1	CK
3- 2	PCON-A432JBP0	Condenser	1	CF
3- 3	DVLV-A369JBK0	2way valve unit	2	BC
3- 4	LX-NZ0133JBE0	Flare nut	2	AE
3- 5	LX-NZA081JBE0	Bonnet	4	AG
3- 6	PCAP-A006JBF0	Nut bonnet	2	AC
3- 7	DVLV-A272JBK0	3 way valve unit	2	BF
3- 8	LX-NZ0134JBE0	Flare nut	2	AF
3- 9	LX-NZA034JBE0	Service nut	2	AD
3-10	PCAP-A007JBE0	Nut bonnet	2	AB
3-11	PCPY-A726JB10	Capillary tube C	2	AM
3-12	PCPY-A725JB10	Capillary tube H	2	AM
3-13	PSRN-A040JBE0	Strainer	2	AN
3-14	GLEG-A073JBE0	Compressor cushion	6	AD
3-15	MSPR-A005JBE0	OCR spring	2	AB
3-16	LX-NZA026JBE0	Special nut	6	AC
3-17	LBND-A046JBE0	Wire fixing bnad	1	AE

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
3-18	PCOV-A002JBE0	Terminal cover	2	AE
3-19	PPIPCB449JBE0	Check valve	2	AM
3-20	RHOG-A115JBE0	Protector	2	AM
3-21	LX-NZA081JBE0	Bonnet	2	AG
3-22	PGUMSA033JBE0	Damper rubber	2	AH
3-23	PMUF-A026JBE0	Muffler	2	AL
3-25	MSPR-A027JBE0	Thermistor spring	2	AB
3-26	CCIL-A082JBK0	Coil ass'y	2	AV
3-27	PVLVXA009JBE0	Reserse valve	2	BE
3-28	LX-NZA002JBE0	Special nut	2	AA
3-29	PSEN-A005JBK0	Flare nut ass'y	2	AG
3-30	PSEN-A004JBK0	Flare nut ass'y	2	AE
3-31	PGUM-0035JBE0	Damper rubber	1	AG

ACCESSORY PARTS

4- 1	TINS-A630JBR0	Installation manual	1	AH
4- 2	TINS-A637JBRZ	Installation manual	1	AH
4- 3	LPFT-0030JBF0	Drain joint	1	AB
4- 4	TINSEA242JBR0	Operation manual	1	AT

SCREWS AND NUT

6- 1	LX-BZA078JBE0	Special screw	8	AB
6- 2	LX-NZ0128JBE0	Special nut	1	AB
6- 3	LX-BZA076JBE0	Special screw	10	AA
6- 4	LX-BZA075JBE0	Special screw	1	AA
6- 5	LX-CZA038WRE0	Special screw	2	AA
6- 6	LX-BZA127JBE0	Special screw	1	AC

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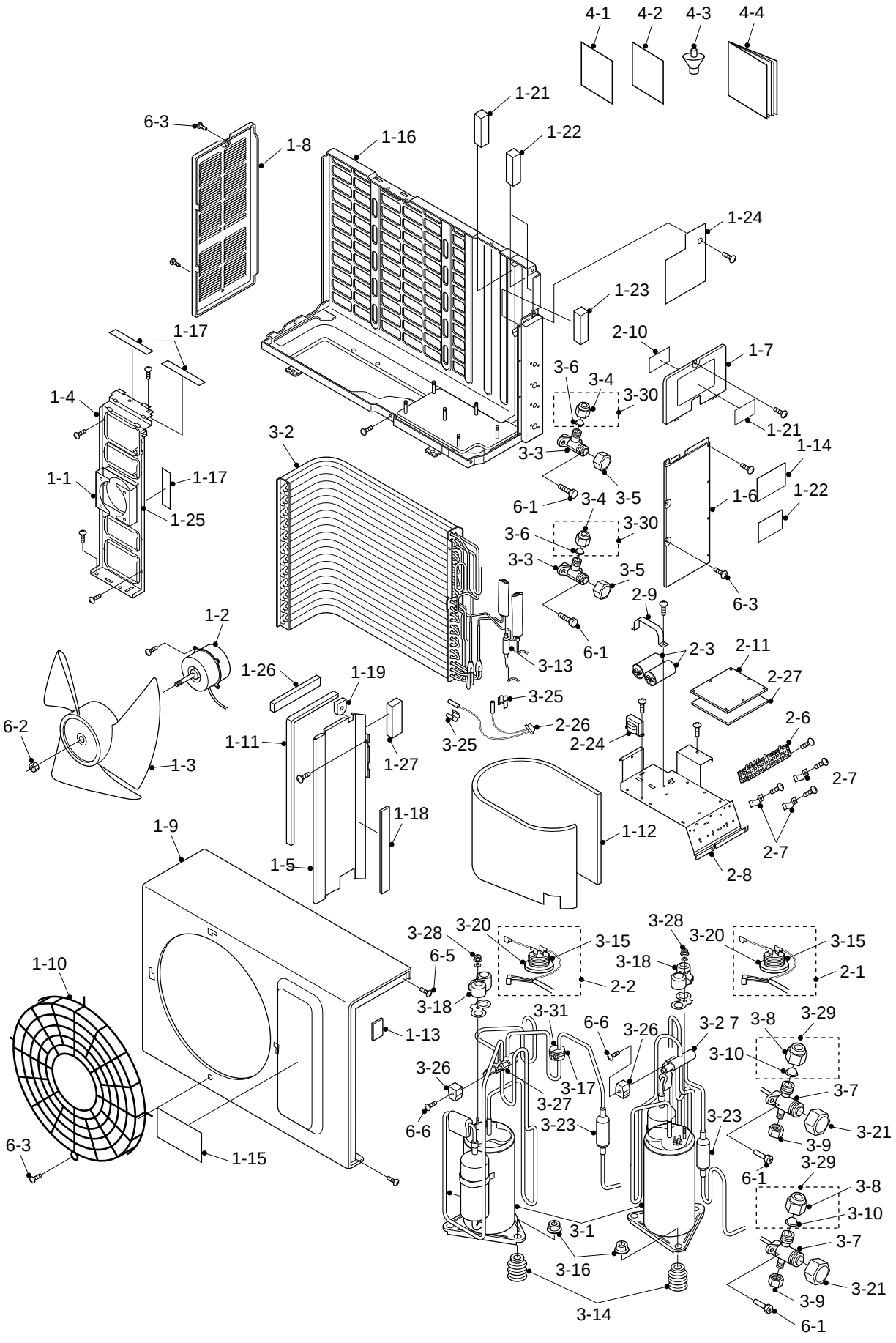
OUTDOOR UNIT FOR MODEL AE-M18AE



SHARP