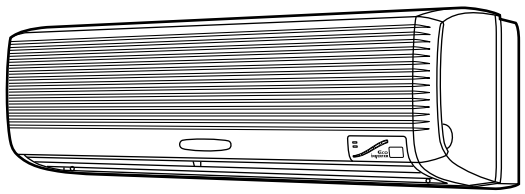
SHARP SERVICE MANUAL

S6831AYX138E/



SPLIT TYPE
ROOM AIR CONDITIONERS

INDOOR UNIT

MODELS **AH-X108E AY-X108E**
AH-X138E AY-X138E

OUTDOOR UNIT

AU-X108E AE-X108E
AU-X138E AE-X138E

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

Models			INDOOR UNIT		OUTDOOR UNIT	
			AH-X108E	AH-X138E	AU-X108E	AU-X138E
Cooling capacity		kW	2.8 (0.9 ~ 3.2)	3.6 (0.9 ~ 3.9)	2.8 (0.9 ~ 3.2)	3.6 (0.9 ~ 3.9)
Moisture removal		Liters/h	1.1	1.3	1.1	1.3

*** Electrical data**

Phase		-	Single			
Rared frequency		Hz	50			
Rated voltage range		V	198 to 264			
Rated voltage		V	220 - 240			
Rated current		A	4.5 - 4.1	6.2 - 5.9	4.5 - 4.1	6.2 - 5.9
Rated input		W	930	1220	930	1220
Power factor		%	94 - 95	89 - 86	94 - 95	89 - 86
Compressor	Type		Hermetically sealed rotary type			
	Model		HV237A1-S15DK			
	Oil charge		455cc(SUNISO 4GSD)			
Refrigerant system	Evaporator		Grooved tube type			
	Condenser		Corrugate Fin and Grooved tube type			
	Control		Capillary tube			
Refrigerant volume			850g	870g	850g	870g
Noise level (at cooling)	High	dB(A)	39	42	43	48
	Med.	dB(A)	33	36	-	-
	Low	dB(A)	28	30	-	-

Fan system

Drive			Direct drive			
Air flow quantity (at cooling)	High	m^3/min.	10.0	11.0	25.0	26.0
	Med.	m^3/min.	6.6	7.4	-	-
	Low	m^3/min.	5.1	5.9	-	-
Fan			Cross flow fan		Propeller fan	

Connections

Refrigerant coupling			Flare type			
Refrigerant tube size Gas, Liquid			3/8", 1/4"	1/2", 1/4"	3/8", 1/4"	1/2", 1/4"
Drain pipng mm (Inches)			O.D ø 18 (45/64)			

Others

Safety device			Compressor: Thermal protector			
			Fan motors: Thermal fuse			
			Fuse, Micro computer control			
Air filter			Polypropylene net (Washable)			
Net dimensions	Width	mm	790 (31-3/32)		728 (28-21/32)	
	Height	mm	270 (10-5/8)		530 (20-7/8)	
	Depth	mm	188 (7-13/32)		250 (9-27/32)	
Net weight		kg	9	9	32	39

Note: The condition of star(*) marked item are 'IEC 378'.

Models			INDOOR UNIT		OUTDOOR UNIT	
			AY-X108E	AY-X138E	AE-X108E	AE-X138E
Cooling capacity		kW	2.8 (0.9 ~ 3.2)	3.6 (0.9 ~ 3.9)	2.8 (0.9 ~ 3.2)	3.6 (0.9 ~ 3.9)
Heat pump Heating capacity		kW	3.7 (0.9 ~ 5.0)	4.8 (1.0 ~ 6.2)	3.7 (0.9 ~ 5.0)	4.8 (1.0 ~ 6.2)
Moisture removal		Liters/h	1.1	1.3	1.1	1.3

***Electrical data**

Phase		-	Single			
Rared frequency		Hz	50			
Rated voltage range		V	198 to 264			
Rated voltage		V	220 - 240			
Rated current	Cool	A	4.5 - 4.1	6.2 - 5.9	4.5 - 4.1	6.2 - 5.9
	Heat	A	5.0 - 4.6	7.4 - 6.9	5.0 - 4.6	7.4 - 6.9
Rated input	Cool	W	930	1220	930	1220
	Heat	W	1050	1500	1050	1500
Power factor	Cool	%	94 - 95	89 - 86	94 - 95	89 - 86
	Heat	%	95 - 95	92 - 91	95 - 95	92 - 91
Compressor	Type		Hermetically sealed rotary type			
	Model		HV237A1-S15DK			
	Oil charge		455cc(SUNISO 4GSD)			
Refrigerant system	Evaporator		Grooved tube type			
	Condenser		Corrugate Fin and Grooved tube type			
	Control		Capillary tube			
Refrigerant volume			850g	870g	850g	870g
De-Ice system			Micro computer controled reverse system			
Noise level (at cooling)	High	dB(A)	39	42	43	48
	Med.	dB(A)	33	36	-	-
	Low	dB(A)	28	30	-	-

Fan system

Drive			Direct drive			
Air flow quantity (at cooling)	High	m^3/min.	10.0	11.0	25.0	26.0
	Med.	m^3/min.	6.6	7.4	-	-
	Low	m^3/min.	5.1	5.9	-	-
Fan			Cross flow fan		Propeller fan	

Connections

Refrigerant coupling			Flare type			
Refrigerant tube size Gas, Liquid			3/8", 1/4"	1/2", 1/4"	3/8", 1/4"	1/2", 1/4"
Drain pipng mm (Inches)			O.D ø 18 (45/64)			

Others

Safety device			Compressor: Thermal protector			
			Fan motors: Thermal fuse			
			Fuse, Micro computer control			
Air filter			Polypropylene net (Washable)			
Net dimensions	Width	mm	790 (31-3/32)		728 (28-21/32)	
	Height	mm	270 (10-5/8)		530 (20-7/8)	
	Depth	mm	188 (7-13/32)		250 (9-27/32)	
Net weight		kg	9	9	32	39

Note: The condition of star(*) marked item are 'IEC 378'.

EXTERNAL DIMENSIONS

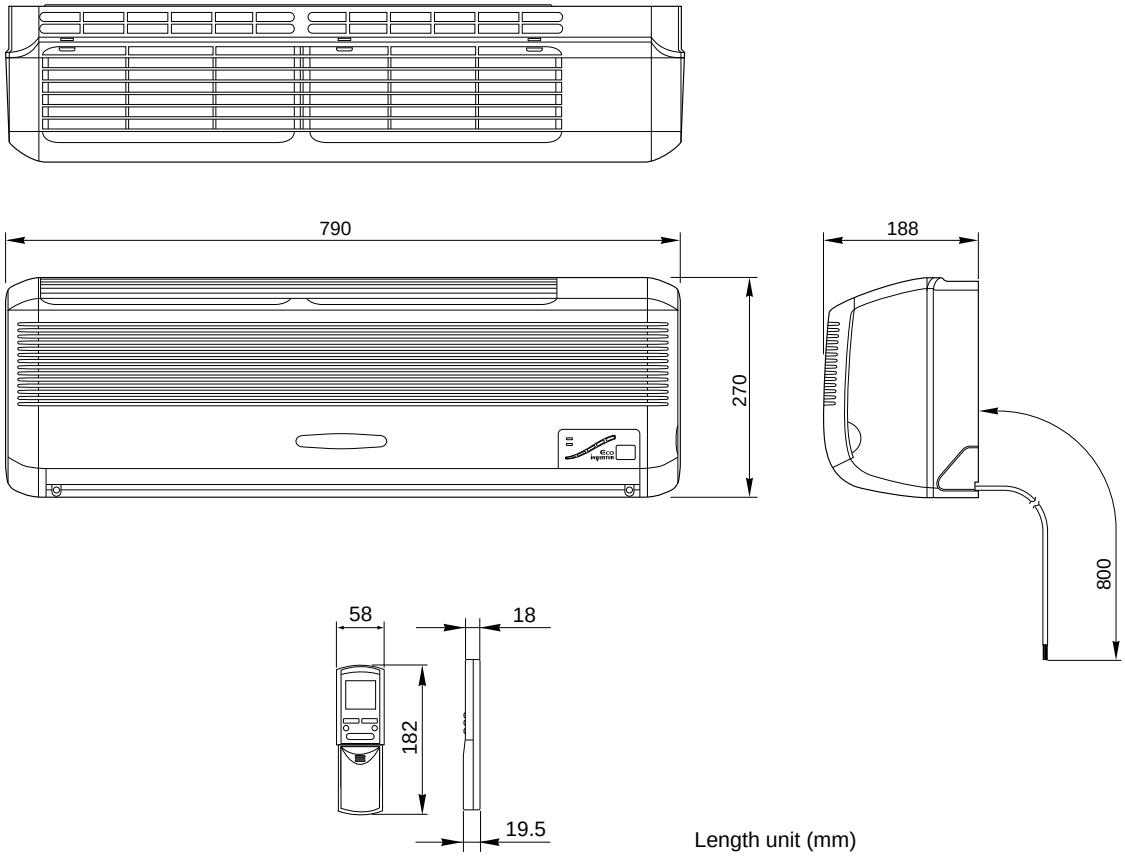


Figure E-1. INDOOR UNIT

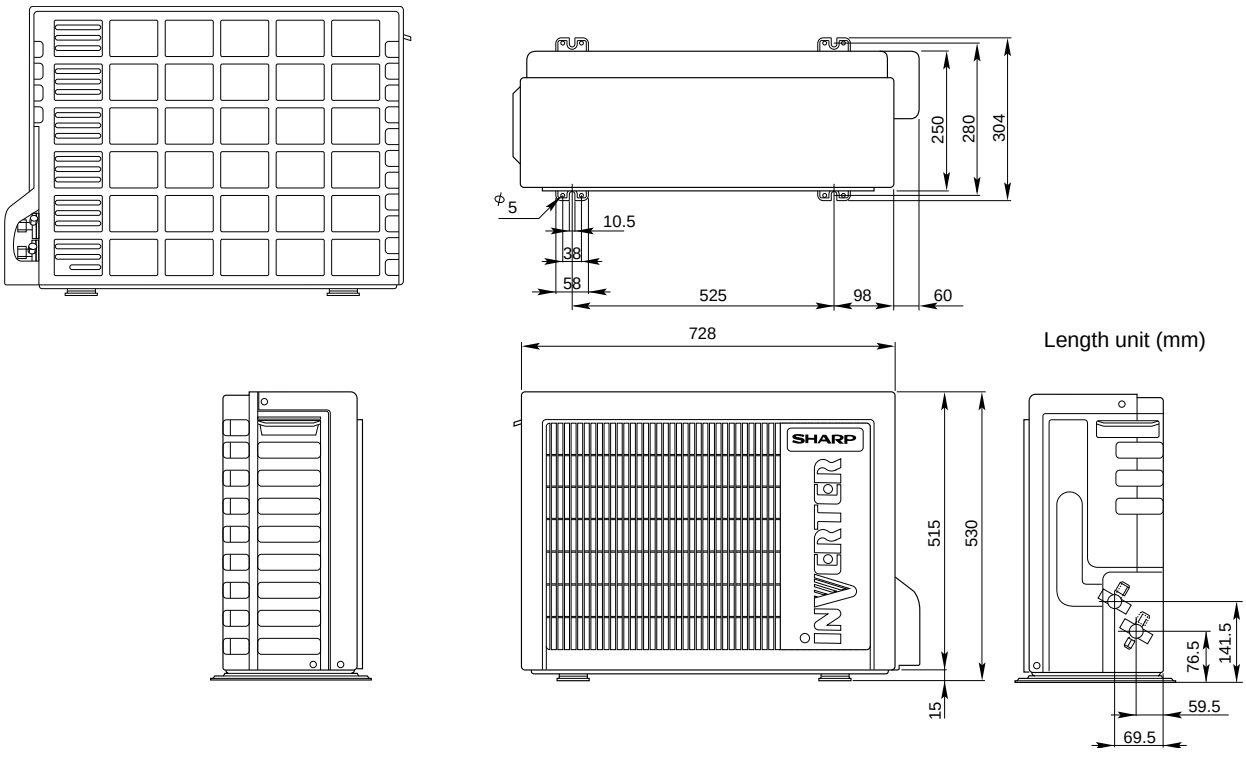
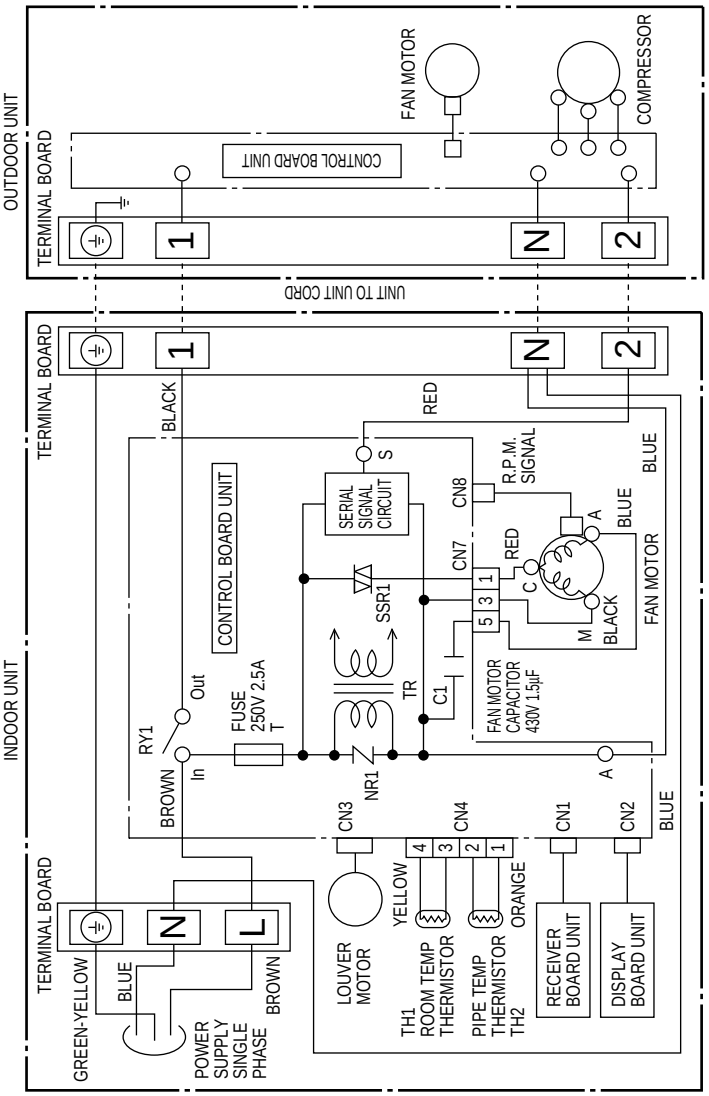


Figure E-2. OUTDOOR UNIT

WIRING DIAGRAMS



LED INDICATION FOR SELF-DIAGNOSIS

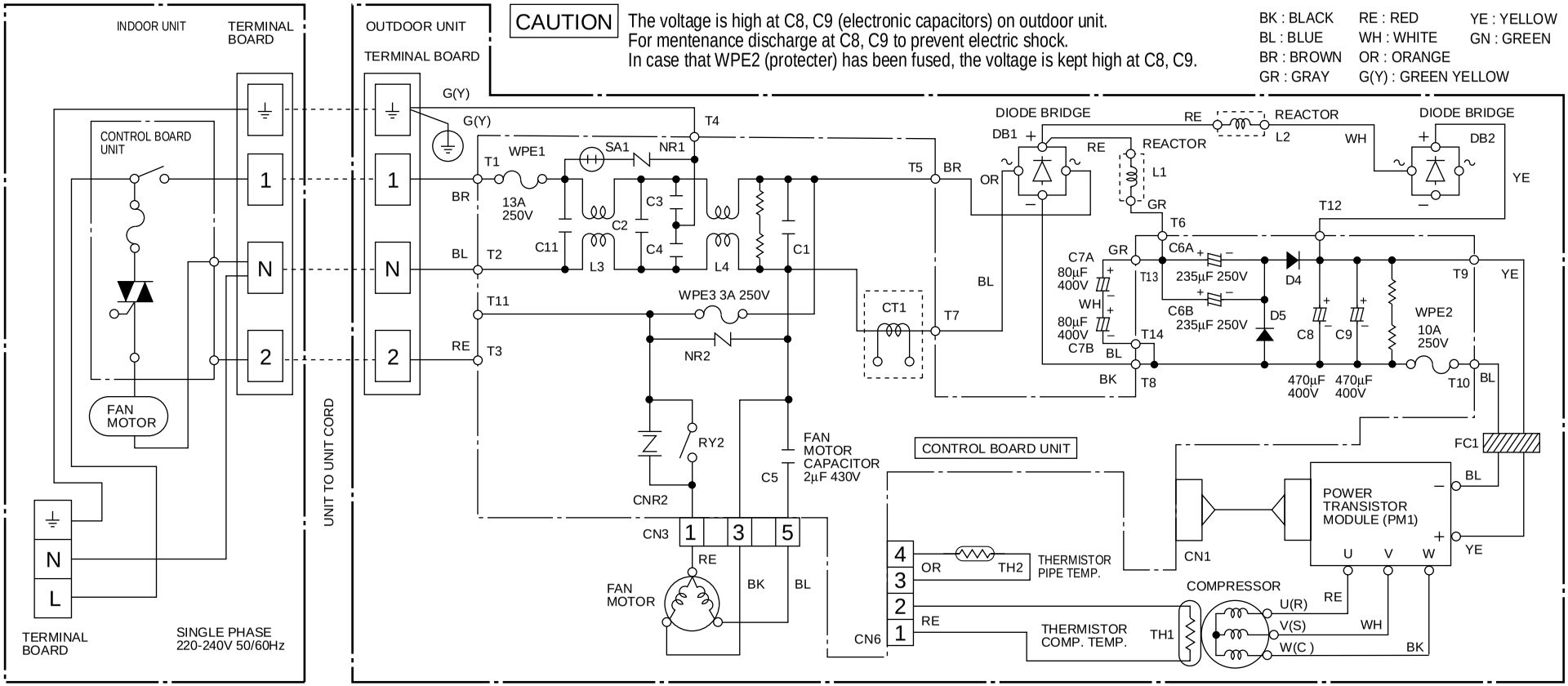
Blink steps	Malfunction part or abnormal condition
○ ○ ○ ○ ○	<LED yellow blinking> LED yellow blinks 5 times in 10 seconds.
x x x x ○	Short circuit of the outdoor thermistor
x x x ○ x	Overheat of the compressor
x x x ○ ○	Abnormal AC current
x x ○ x x	Compressor lock
x x ○ x ○	Open circuit of the outdoor thermistor
x x ○ ○ x	Power module(PM1) abnormality
x x ○ ○ ○	AC overcurrent
x ○ x x ○	4 way valve abnormality
○ x x x ○	Open circuit of serial signal line
○ x x ○ x	Short circuit of serial signal line
○ x x ○ ○	Abnomal fan motor of indoor unit

<LED red blinking> abnormal condition is indicated by the blinking pattern of LED red.

○ : LED blink x : LED no blink

< Indication of the abnormal condition >
LED yellow and LED red indicate automatically, if the set is in abnormal condition.

Figure W-1. Wiring Diagram for AH-X108E, AH-X138E, AY-X108E and AY-X138E



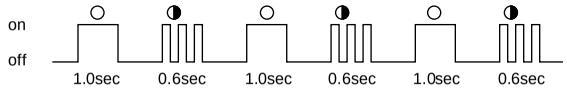
LED INDICATION OF SELF-DIAGNOSIS ON OUTDOOR UNIT

	LED BLINKING
●	LED turns on
○	Slow flashing (1 time for 2 seconds)
◑	Quick flashing (3 times for 2 seconds)

NO	LED indication pattern	Mulfunction part or abnormal condition
	○	Normal
1	●	Abnormal signal line
2	○◑	Compressor lock
3	○◑◑	Overheat of the compressor
4	○◑◑◑	Power module (PM1) abnormality

NO	LED indication pattern	Mulfunction part or abnormal condition
5	○◑◑◑◑	Short circuit of the thermistor
6	○◑◑◑◑◑	Open circuit of the thermistor
7	○◑◑◑◑◑◑	AC abnormal current
8	○◑◑◑◑◑◑◑	AC overcurrent

Example : NO.2 Compressor lock



NO.3 Overheat of the compressor

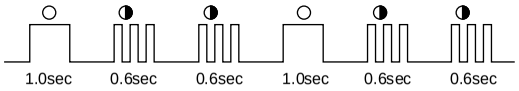
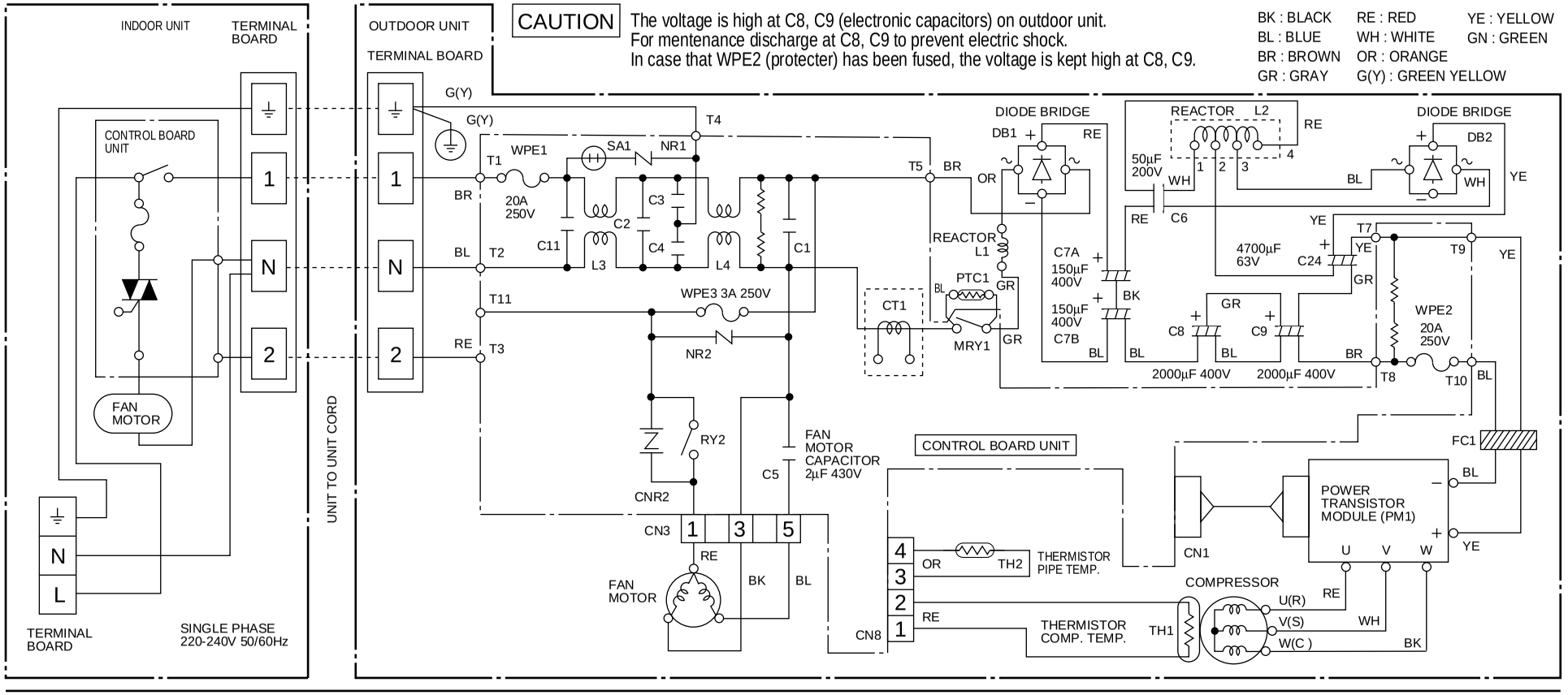


Figure W-2. Wiring Diagram for AU-X108E



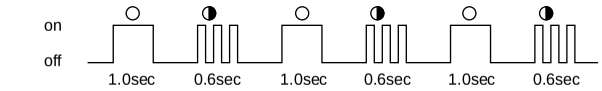
LED INDICATION OF SELF-DIAGNOSIS ON OUTDOOR UNIT

	LED BLINKING
●	LED turns on
○	Slow flashing (1 time for 2 seconds)
◑	Quick flashing (3 times for 2 seconds)

NO	LED indication pattern	Mulfunction part or abnormal condition
	○	Normal
1	●	Abnormal signal line
2	○◑	Compressor lock
3	○◑◑	Overheat of the compressor
4	○◑◑◑	Power module (PM1) abnormality

NO	LED indication pattern	Mulfunction part or abnormal condition
5	○◑◑◑◑	Short circuit of the thermistor
6	○◑◑◑◑◑	Open circuit of the thermistor
7	○◑◑◑◑◑◑	AC abnormal current
8	○◑◑◑◑◑◑◑	AC overcurrent

Example : NO.2 Compressor lock



NO.3 Overheat of the compressor

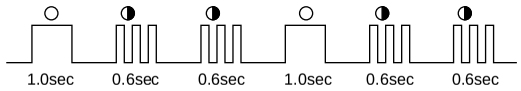
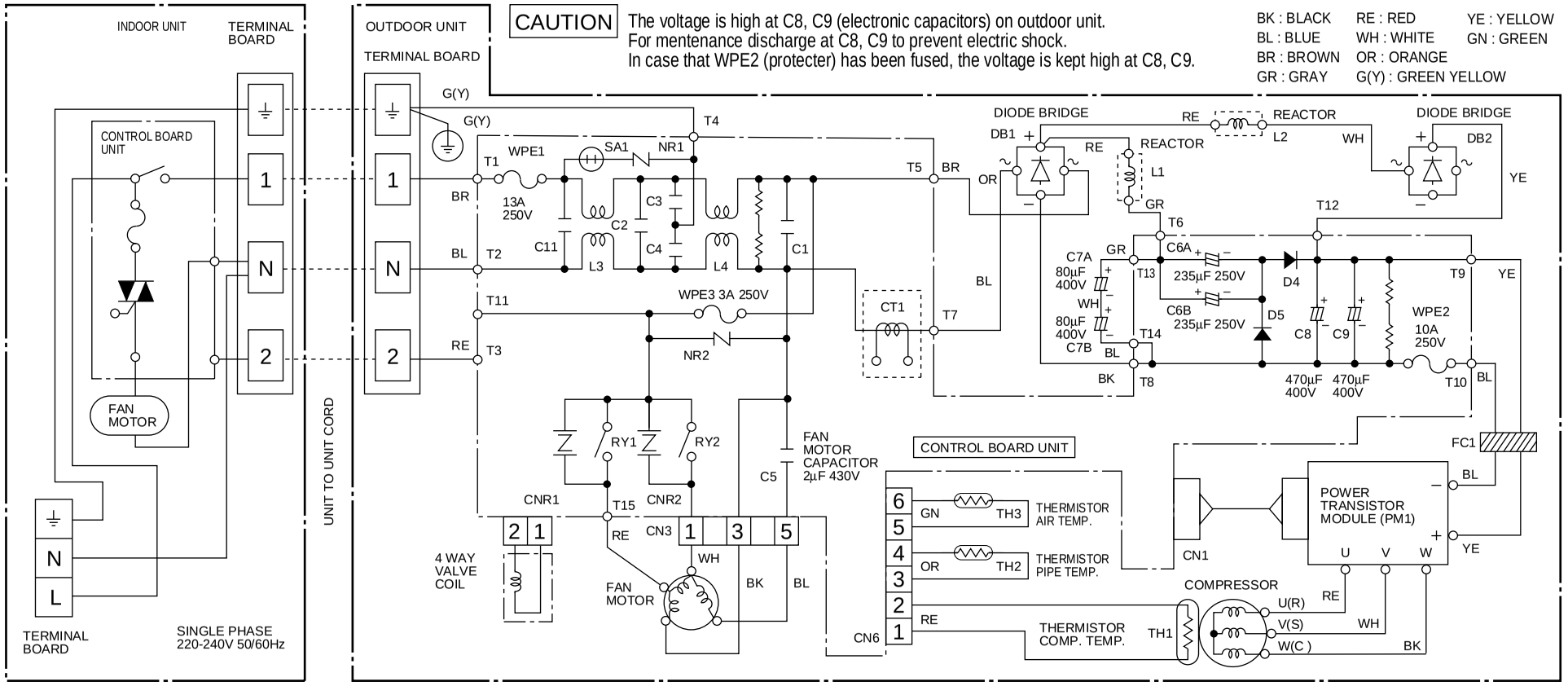


Figure W-3. Wiring Diagram for AU-X138E



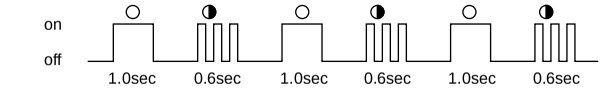
LED INDICATION OF SELF-DIAGNOSIS ON OUTDOOR UNIT

	LED BLINKING
●	LED turns on
○	Slow flashing (1 time for 2 seconds)
◑	Quick flashing (3 times for 2 seconds)

NO	LED indication pattern	Mulfunction part or abnormal condition
	○	Normal
1	●	Abnormal signal line
2	○◑	Compressor lock
3	○◑◑	Overheat of the compressor
4	○◑◑◑	Power module (PM1) abnormality

NO	LED indication pattern	Mulfunction part or abnormal condition
5	○◑◑◑◑	Short circuit of the thermistor
6	○◑◑◑◑◑	Open circuit of the thermistor
7	○◑◑◑◑◑◑	AC abnormal current
8	○◑◑◑◑◑◑◑	AC overcurrent
9	○◑◑◑◑◑◑◑◑	4 WAY VALVE error

Example : NO.2 Compressor lock



NO.3 Overheat of the compressor

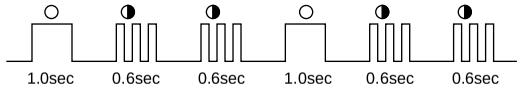
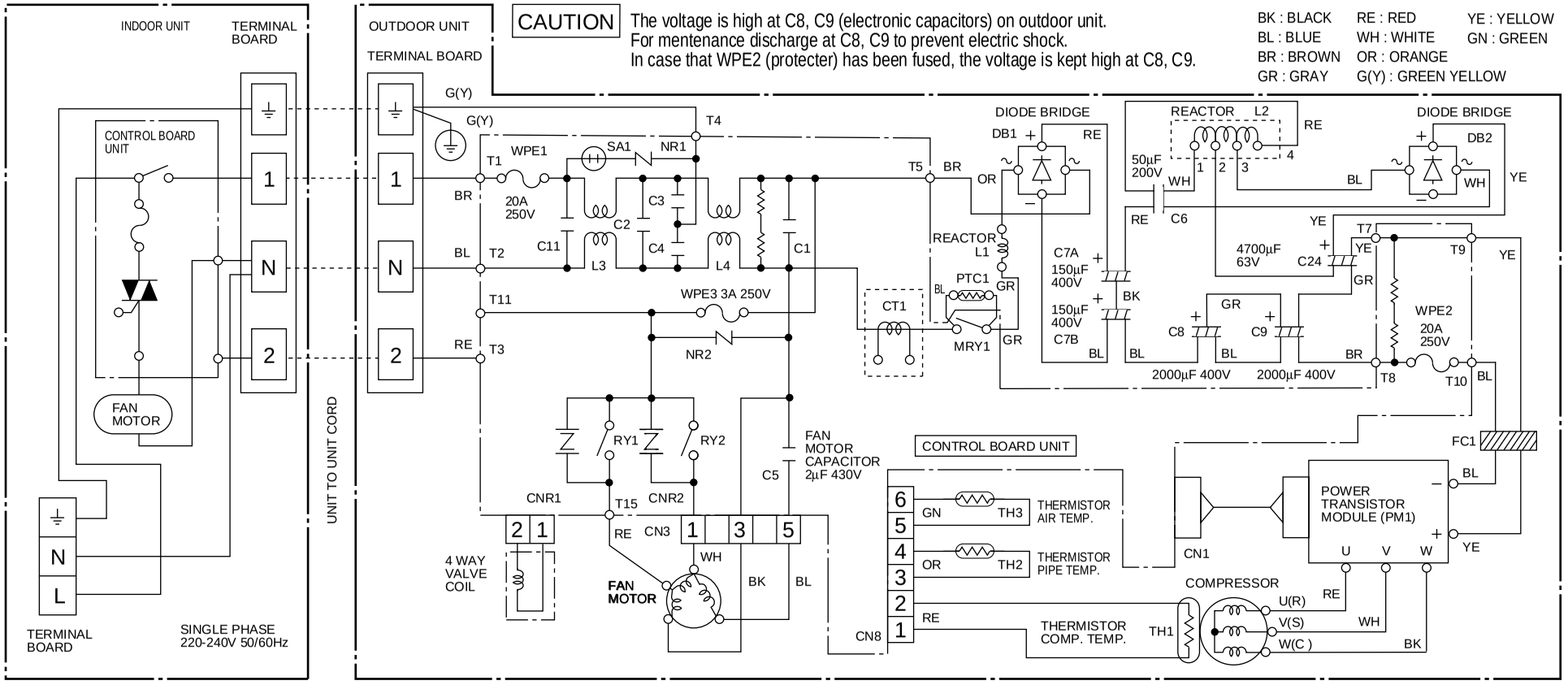


Figure W-4. Wiring Diagram for AE-X108E



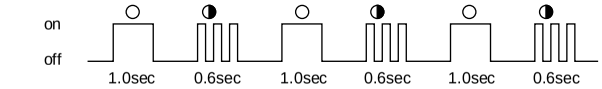
LED INDICATION OF SELF-DIAGNOSIS ON OUTDOOR UNIT

	LED BLINKING
●	LED turns on
○	Slow flashing (1 time for 2 seconds)
◑	Quick flashing (3 times for 2 seconds)

NO	LED indication pattern	Mulfunction part or abnormal condition
	○	Normal
1	●	Abnormal signal line
2	○◑	Compressor lock
3	○◑◑	Overheat of the compressor
4	○◑◑◑	Power module (PM1) abnormality

NO	LED indication pattern	Mulfunction part or abnormal condition
5	○◑◑◑◑	Short circuit of the thermistor
6	○◑◑◑◑◑	Open circuit of the thermistor
7	○◑◑◑◑◑◑	AC abnormal current
8	○◑◑◑◑◑◑◑	AC overcurrent
9	○◑◑◑◑◑◑◑◑	4 WAY VALVE error

Example : NO.2 Compressor lock



NO.3 Overheat of the compressor

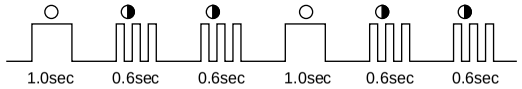


Figure W-5. Wiring Diagram for AE-X138E

ELECTRICAL PARTS

For Model AH-X108E and AU-X108E

DESCRIPTION	MODEL	REMARKS	SITE
Indoor fan motor	ML-A486	220 - 240V, 50Hz	AH
Indoor fan motor capacitor	–	430V, 1.5µF	AH
Transformer	–	Primary; AC 230V, 50Hz Secondary; AC14.5V, 50Hz	AH
Fuse	–	250V, 2.5A	AH
Compressor	HV237A1-S15DK	3-PHASE Induction motor	AU
Outdoor fan motor	ML-A720	220 - 240V, 50Hz	AU
Outdoor fan motor capacitor	–	430V, 2.0µF	AU
WPE1	–	QFS-GA015JBE0(10A, 250V)	AU
WPE2	–	QFS-AA047JBE0(13A, 250V)	AU
WPE3	–	QFS-GA008JBE0(3A, 250V)	AU

For Model AY-X108E and AE-X108E

DESCRIPTION	MODEL	REMARKS	SITE
Indoor fan motor	ML-A486	220 - 240V, 50Hz	AY
Indoor fan motor capacitor	–	430V, 1.5µF	AY
Transformer	–	Primary; AC 230V, 50Hz Secondary; AC14.5V, 50Hz	AY
Fuse	–	250V, 2.5A	AY
Compressor	HV237A1-S15DK	3-PHASE Induction motor	AE
Outdoor fan motor	ML-A719	220 - 240V, 50Hz	AE
Outdoor fan motor capacitor	–	430V, 2.0µF	AE
WPE1	–	QFS-GA015JBE0(10A, 250V)	AE
WPE2	–	QFS-AA047JBE0(13A, 250V)	AE
WPE3	–	QFS-GA008JBE0(3A, 250V)	AE

For Model AH-X138Eand AU-X138E

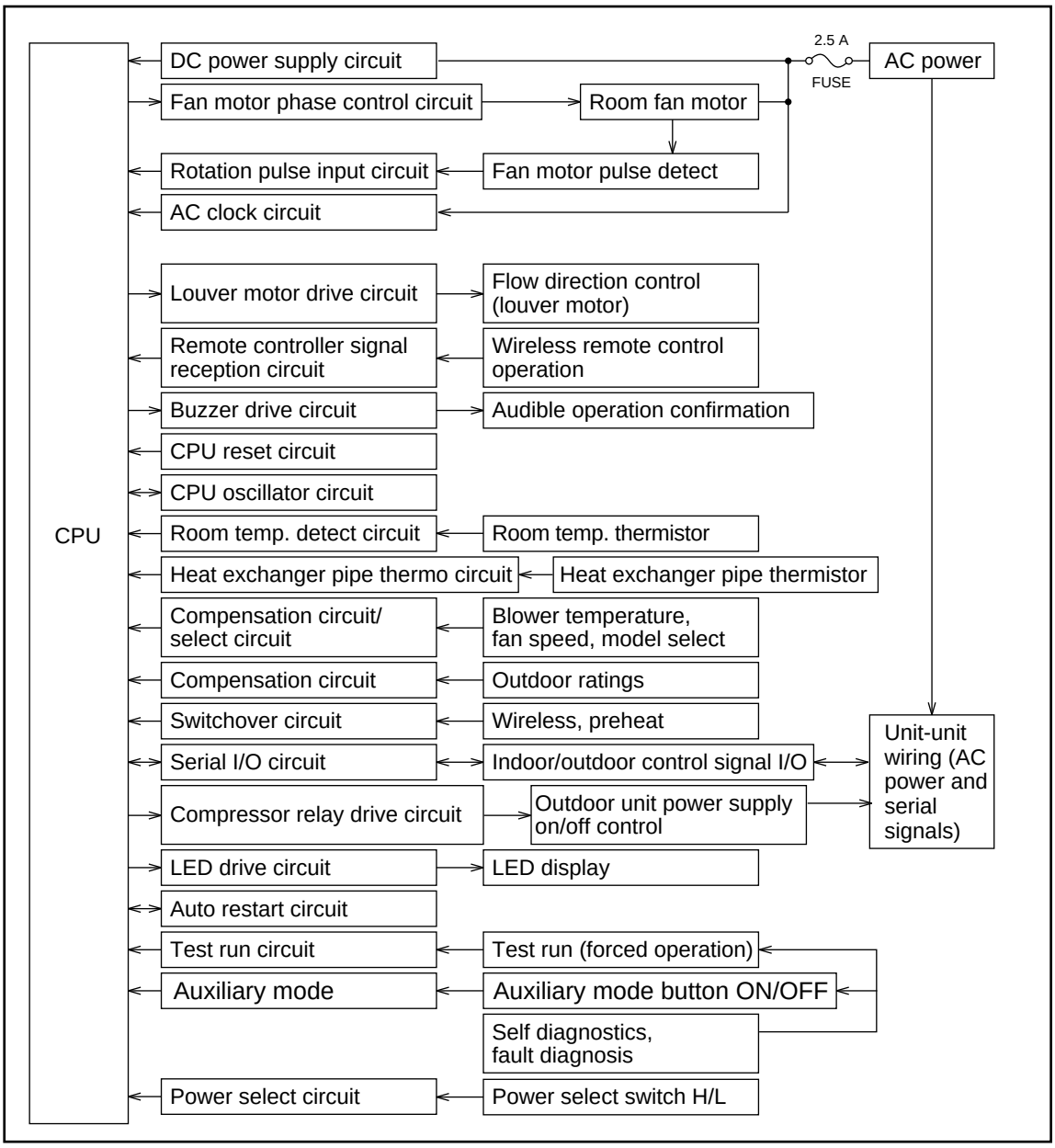
DESCRIPTION	MODEL	REMARKS	SITE
Indoor fan motor	ML-A486	220 - 240V, 50Hz	AH
Indoor fan motor capacitor	–	430V, 1.5μF	AH
Transformer	–	Primary; AC 230V, 50Hz Secondary; AC14.5V, 50Hz	AH
Fuse	–	250V, 2.5A	AH
Compressor	HV237A1-S15DK	3-PHASE Induction motor	AU
Outdoor fan motor	ML-A723	220 - 240V, 50Hz	AU
Outdoor fan motor capacitor	–	430V, 2.0μF	AU
WPE1	–	QFS-GA014JBE0(20A, 250V)	AU
WPE2	–	QFS-GA019JBE0(20A, 250V)	AU
WPE3	–	QFS-GA008JBE0(3A, 250V)	AU

For Model AY-X138E and AE-X138E

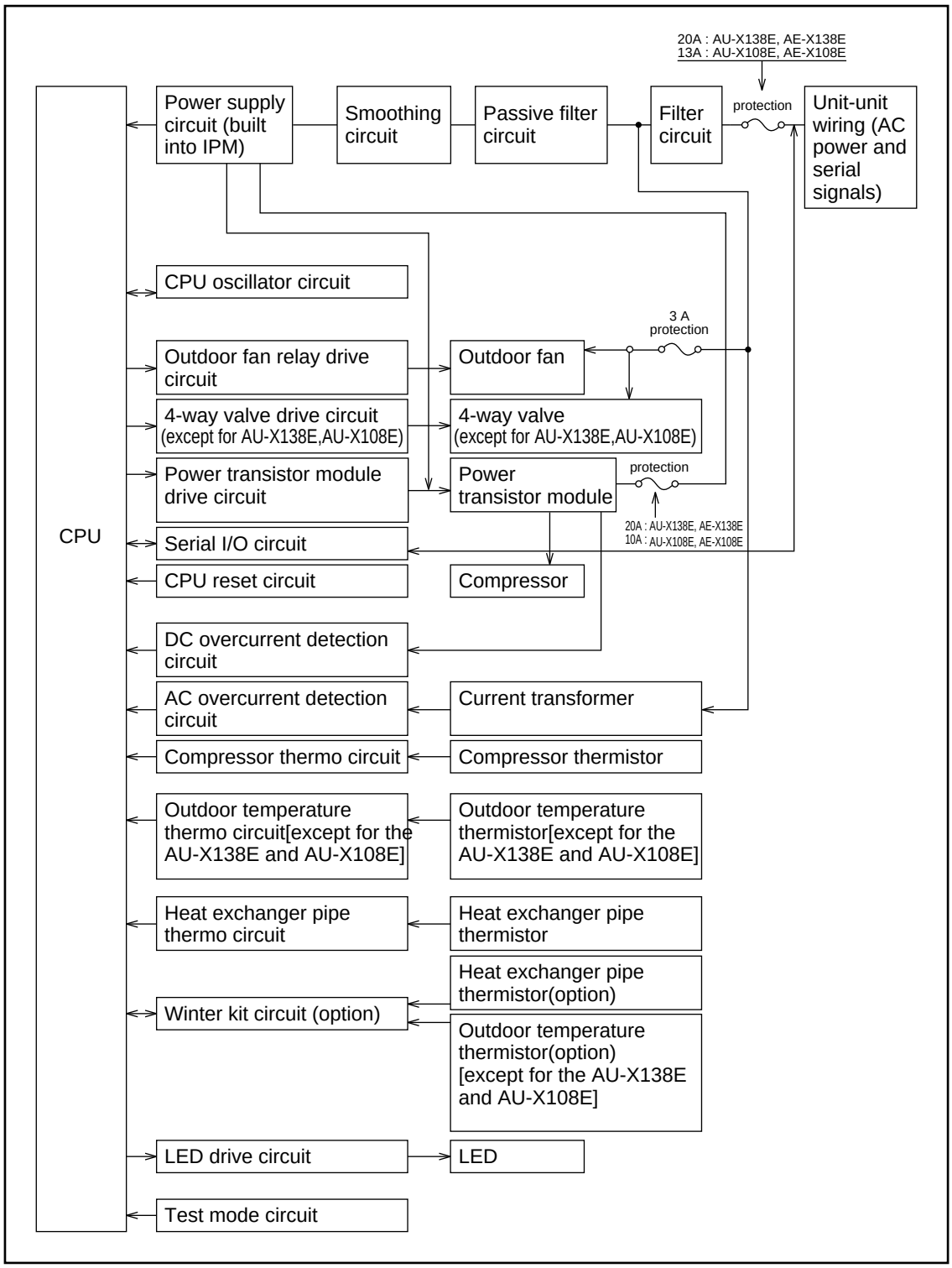
DESCRIPTION	MODEL	REMARKS	SITE
Indoor fan motor	ML-A486	220 - 240V, 50Hz	AY
Indoor fan motor capacitor	–	430V, 1.5μF	AY
Transformer	–	Primary; AC 230V, 50Hz Secondary; AC14.5V, 50Hz	AY
Fuse	–	250V, 2.5A	AY
Compressor	HV237A1-S15DK	3-PHASE Induction motor	AE
Outdoor fan motor	ML-A697	220 - 240V, 50Hz	AE
Outdoor fan motor capacitor	–	430V, 2.0μF	AE
WPE1	–	QFS-GA014JBE0(20A, 250V)	AE
WPE2	–	QFS-GA019JBE0(20A, 250V)	AE
WPE3	–	QFS-GA008JBE0(3A, 250V)	AE

BLOCK DIAGRAMS

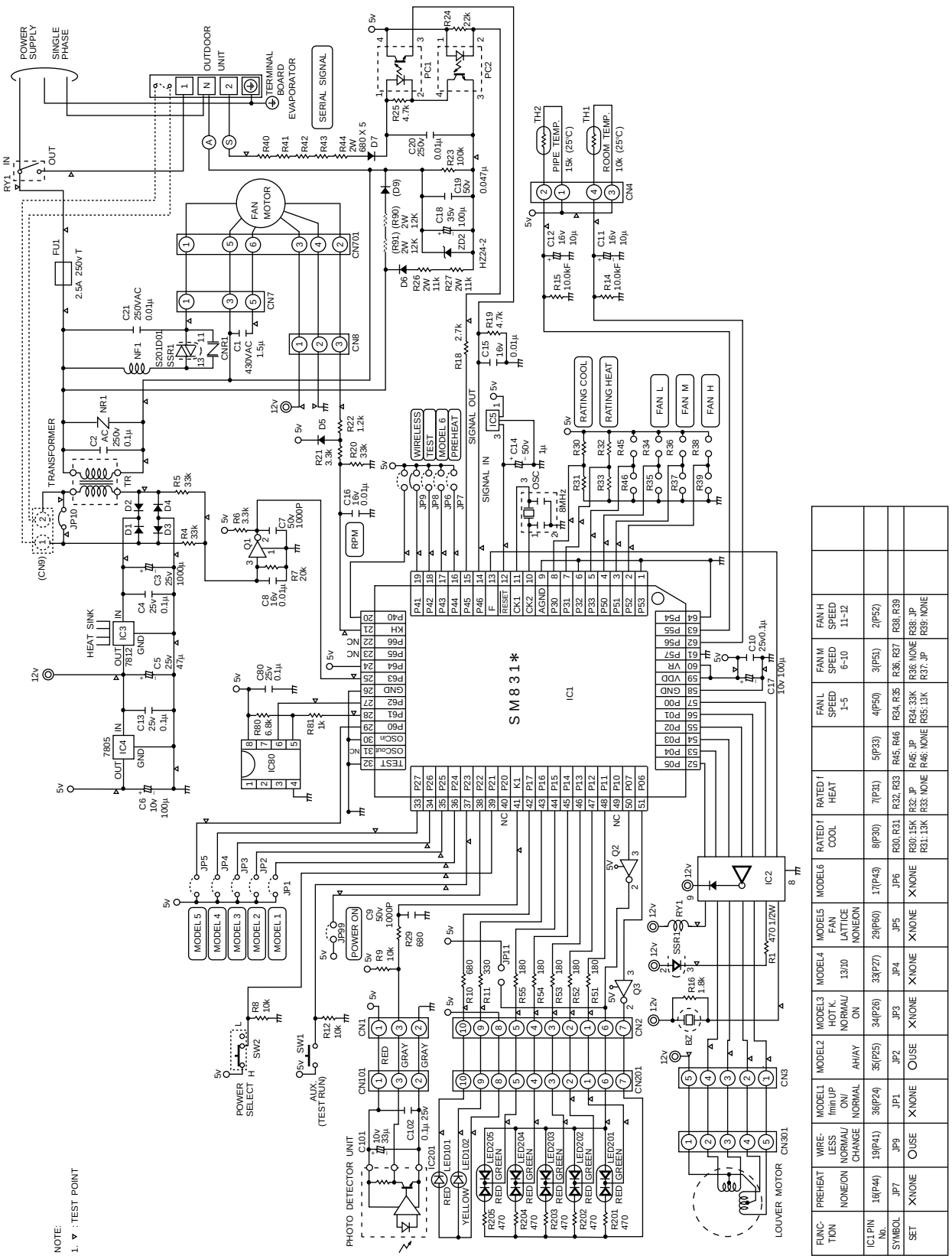
INDOOR UNIT for AH-X108E / AY-X108E / AH-X138E / AY-X138E



OUTDOOR UNIT for AE-X108E / AE-X138E / AU-X108E / AU-X138E



MICROCOMPUTER CONTROL SYSTEM



NOTE:
1. ▼ : TEST POINT

FUNC-TION	PREHEAT NONE/ON	WIRE-LESS NORMAL/ CHANGE	MODEL1 fmin UP ON/ NORMAL	MODEL2 AH/AY	MODEL3 HOT K. NORMAL/ ON	MODEL4 13/10	MODEL5 FAN LATTICE NONE/ON	MODEL6	RATED f COOL	RATED f HEAT	FAN L SPEED 1~5	FAN M SPEED 6~10	FAN H SPEED 11~12		
IC1 PIN No.	16(P44)	19(P41)	38(P24)	35(P25)	34(P26)	33(P27)	29(P60)	17(P43)	8(P30)	7(P31)	4(P50)	3(P51)	2(P52)		
SYMBOL	JP7	JP9	JP1	JP2	JP3	JP4	JP5	JP6	R30, R31	R32, R33	R34, R35	R36, R37	R38, R39		
SET	×NONE	○USE	×NONE	○USE	×NONE	×NONE	×NONE	×NONE	R30: 15K R31: 13K	R32: JP R33: NONE	R34: 33K R35: 13K	R36: NONE R37: JP	R38: JP R39: NONE		

Figure L-1. Electronic Control Circuit Diagram for AH-X108E

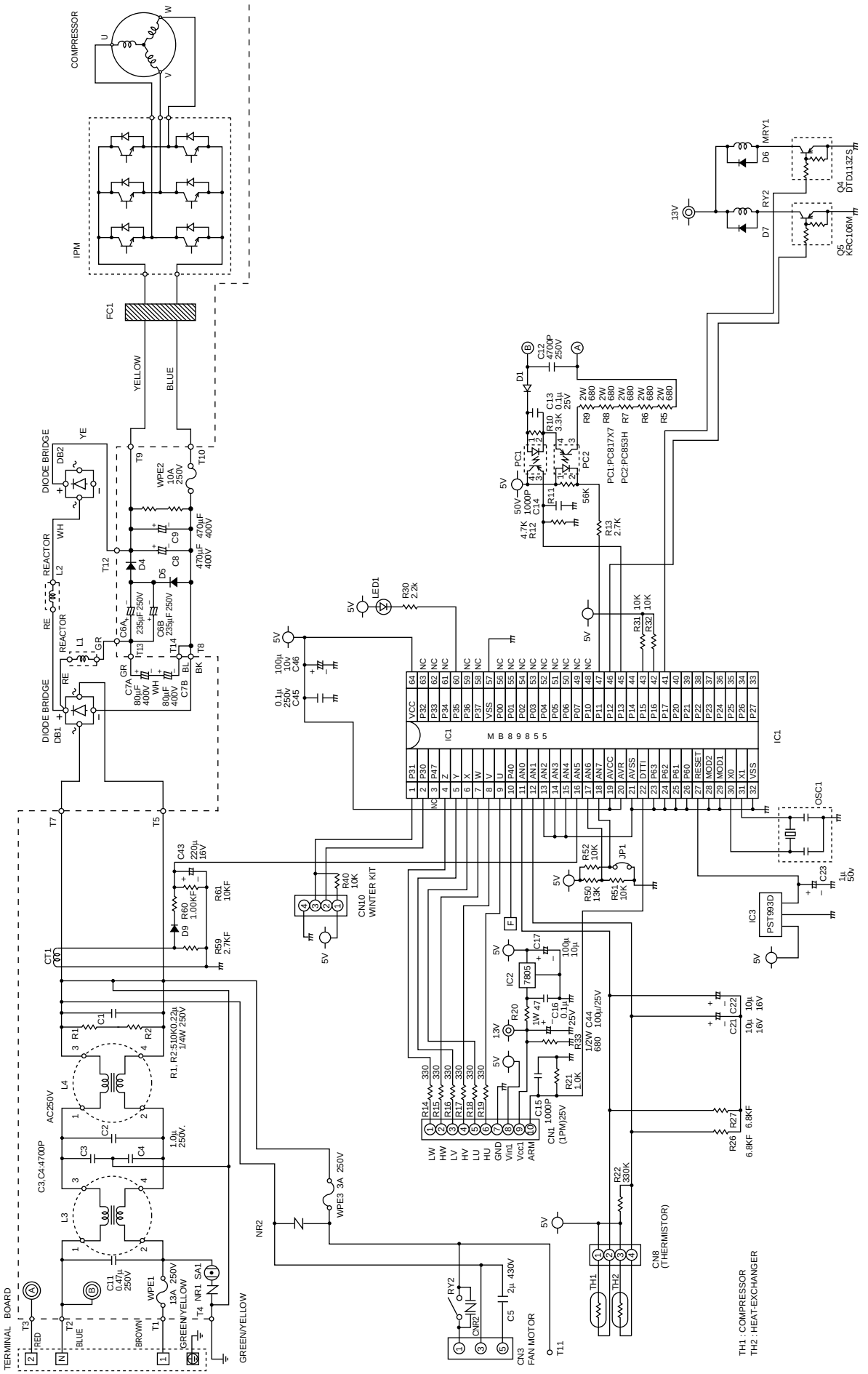
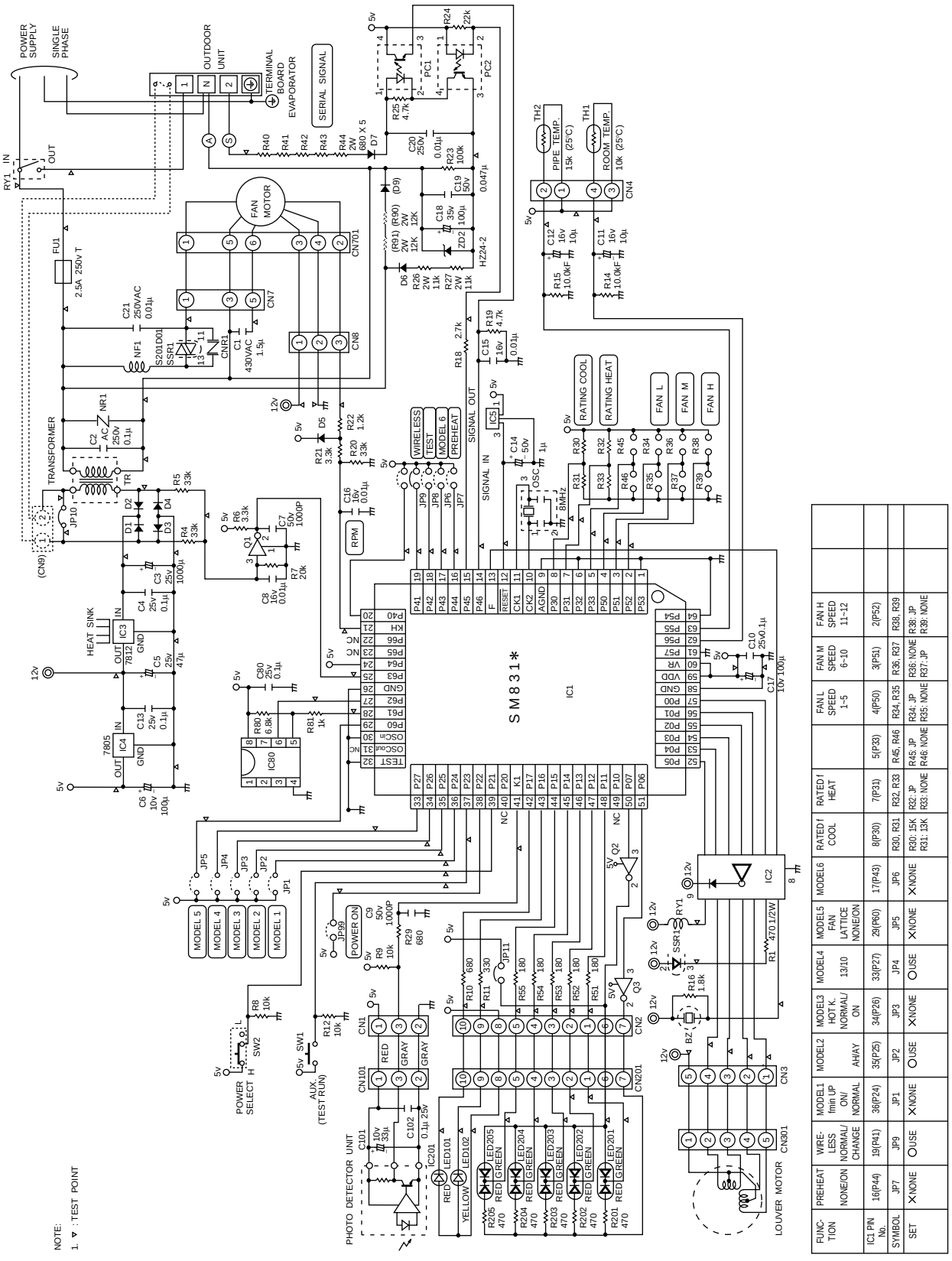


Figure L-2. Electronic Control Circuit Diagram for AU-X108E



FUNC-TION	PREHEAT NONE/ON	WIRE-LESS NORMAL/ CHANGE	MODEL1 fmin UP ON/ NORMAL	MODEL2 AH/AY	MODEL3 HOT K. NORMAL/ ON	MODEL4 13/10	MODEL5 FAN LATTICE NONE/ON	MODEL6	RATED I COOL	RATED I HEAT	FAN L SPEED 1-5	FAN M SPEED 6-10	FAN H SPEED 11-12		
IC1 PIN No.	16(P44)	19(P41)	36(P24)	35(P25)	34(P26)	33(P27)	29(P60)	17(P43)	8(P30)	7(P31)	4(P50)	3(P51)	2(P52)		
SYMBOL	JP7	JP9	JP1	JP2	JP3	JP4	JP5	JP6	R30, R31	R32, R33	R34, R35	R36, R37	R38, R39		
SET	✕NONE	○USE	✕NONE	○USE	✕NONE	○USE	✕NONE	✕NONE	R30: 15K R31: 13K	R32: JP R33: NONE	R34: JP R35: NONE	R36: NONE R37: JP	R38: JP R39: NONE		

Figure L-3. Electronic Control Circuit Diagram for AH-X138E

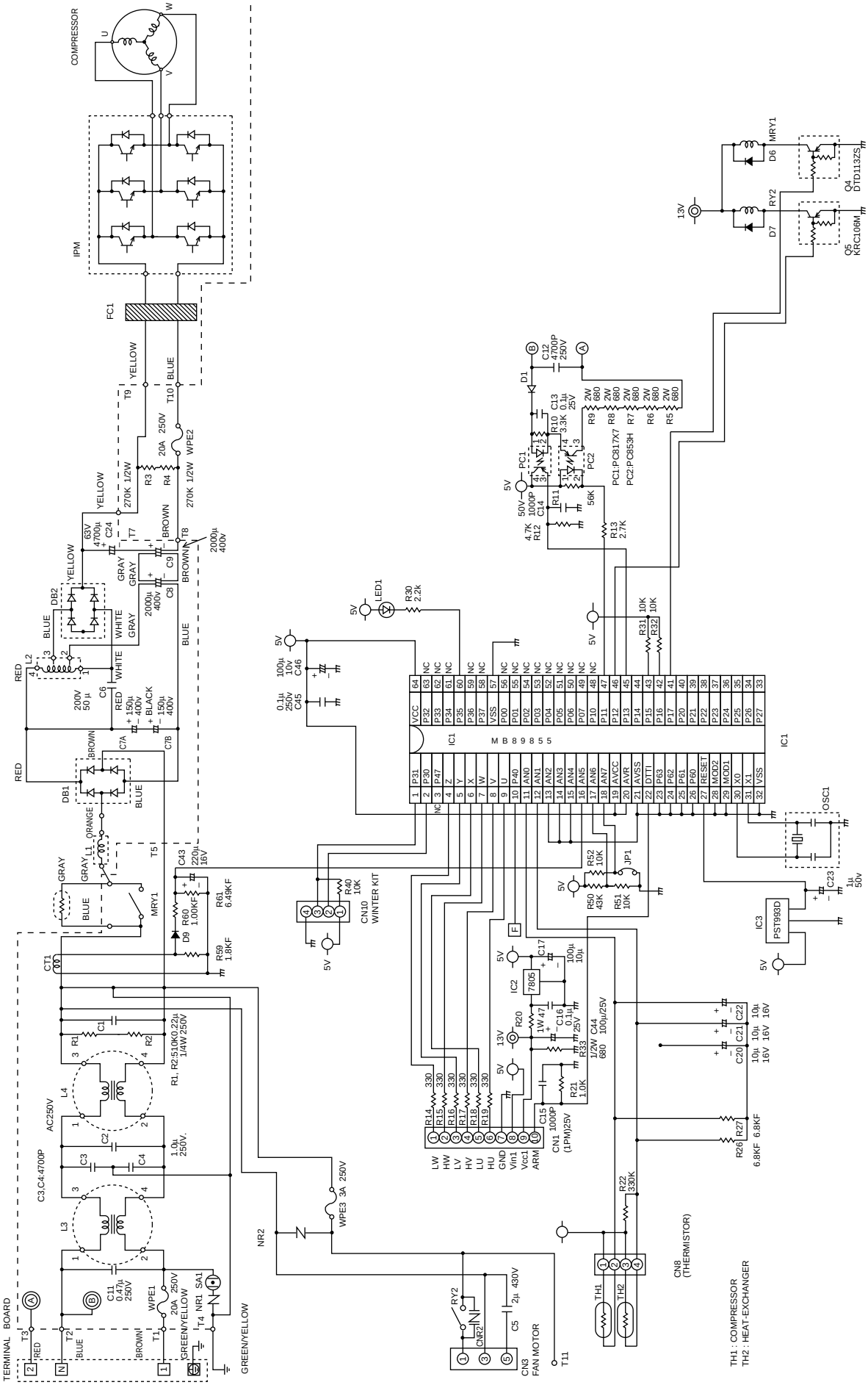
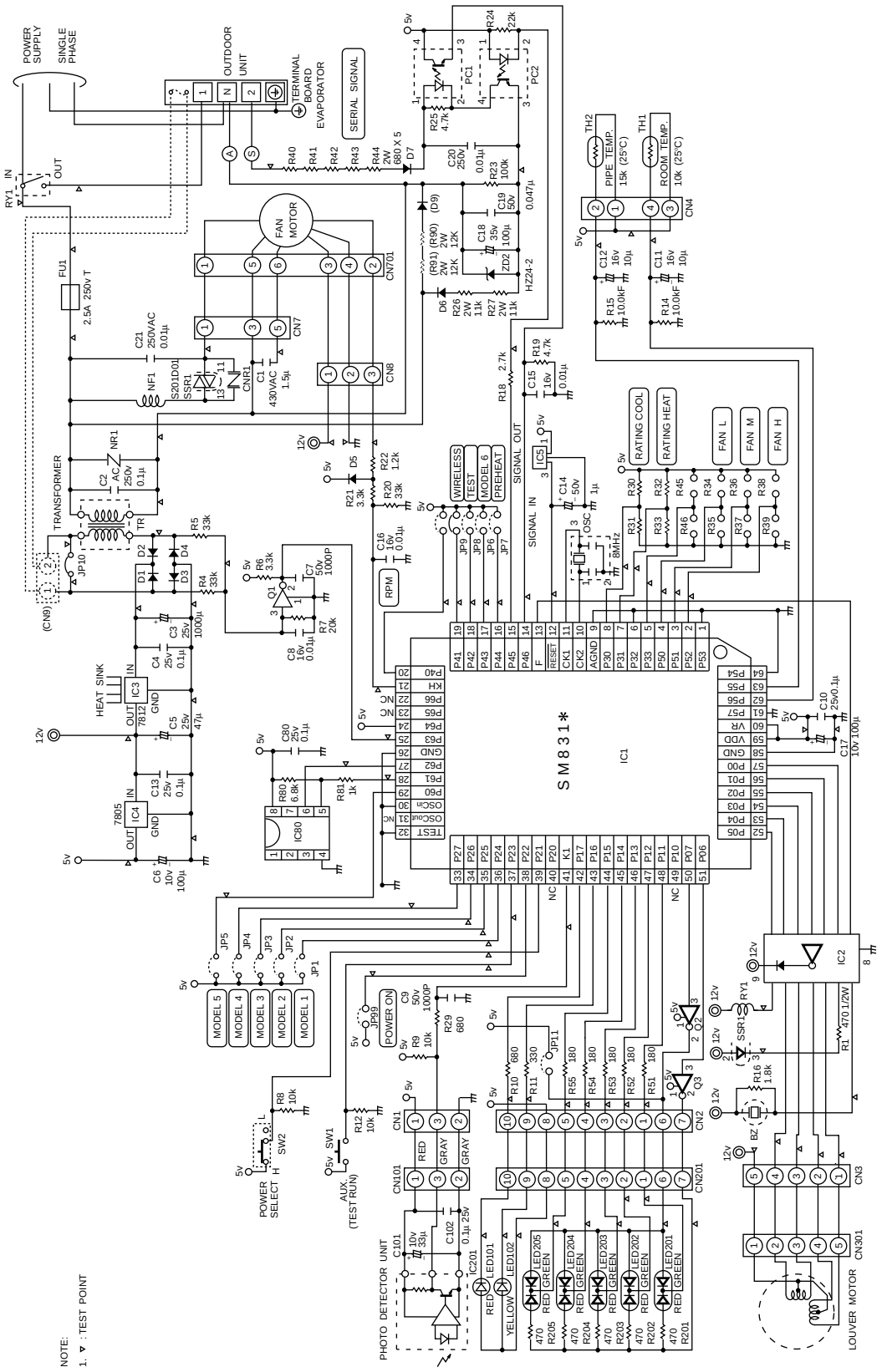


Figure L-4. Electronic Control Circuit Diagram for AU-X138E



FUNC-TION	PREHEAT NONE/ON	WIRE-LESS NORMAL/ CHANGE	MODEL1 fmin UP ON/ NORMAL	MODEL2 AH/AY	MODEL3 HOT K. NORMAL/ ON	MODEL4 13/10	MODEL5 FAN LATTICE NONE/ON	MODEL6	RATED I COOL	RATED I HEAT	FAN L SPEED 1-5	FAN M SPEED 6-10	FAN H SPEED 11-12		
IC1 PIN No.	16(P44)	19(P41)	38(P24)	35(P25)	34(P26)	33(P27)	29(P60)	17(P43)	8(P30)	7(P31)	4(P50)	3(P51)	2(P52)		
SYMBOL	JP7	JP9	JP1	JP2	JP3	JP4	JP5	JP6	R30, R31	R32, R33	R34, R35	R36, R37	R38, R39		
SET	×NONE	○USE	×NONE	×NONE	○USE	×NONE	×NONE	×NONE	R30: 15K R31: 13K	R32: 15K R33: 13K	R34: 33K R35: 13K	R36: NONE R37: JP	R38: JP R39: NONE		

Figure L-5. Electronic Control Circuit Diagram for AY-X108E

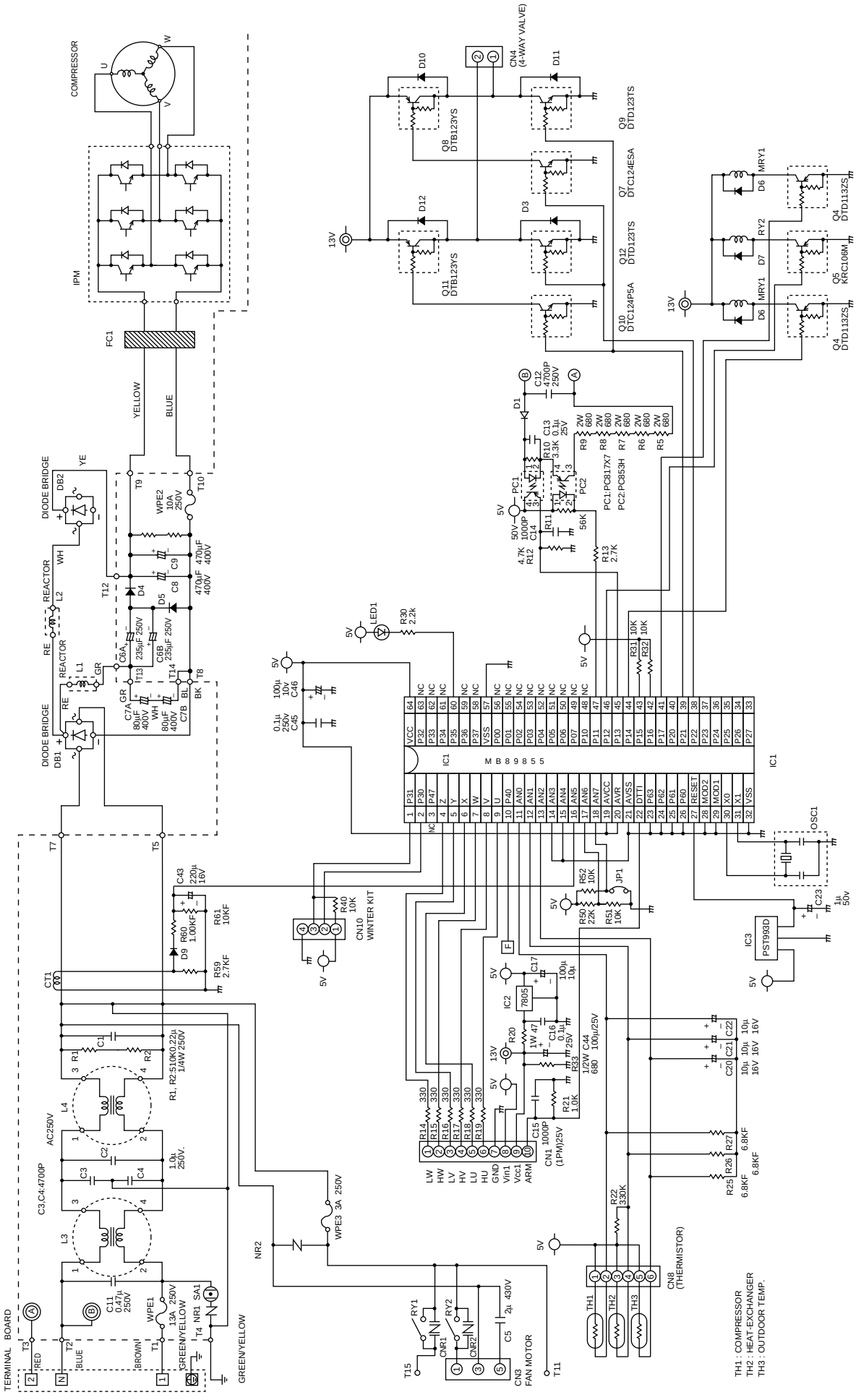
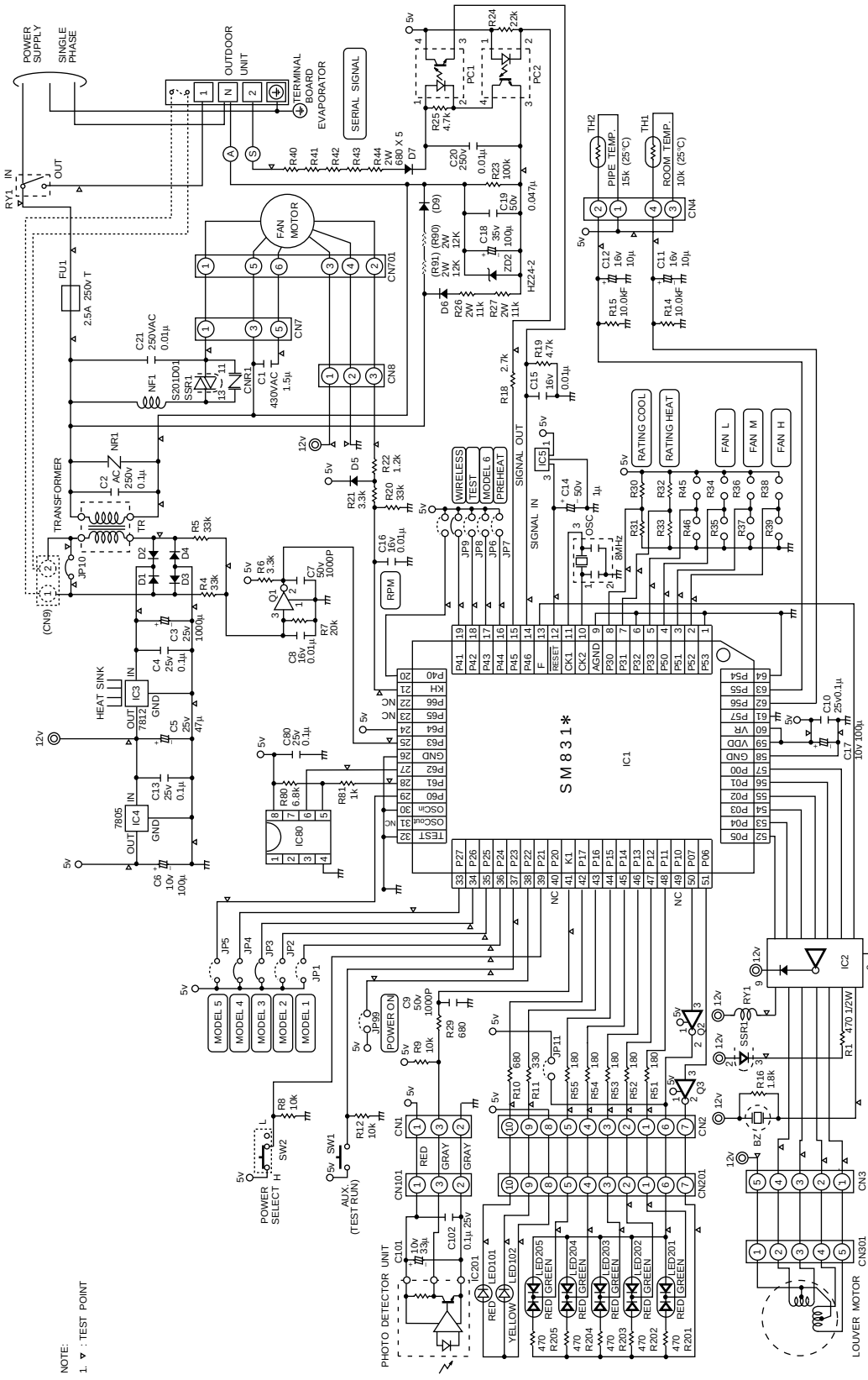


Figure L-6. Electronic Control Circuit Diagram for AE-X108E



FUNC-TION	PREHEAT NONE/ON	WIRE-LESS NORMAL/ CHANGE	MODEL1 fmin UP ON/ NORMAL	MODEL2 AH/AY	MODEL3 HOT K NORMAL/ ON	MODEL4 13/10	MODEL5 FAN LATTICE NONE/ON	MODEL6	RATED f COOL	RATED f HEAT		FAN L SPEED 1~5	FAN M SPEED 6~10	FAN H SPEED 11~12		
IC1 PIN No.	16(P44)	19(P41)	36(P24)	35(P25)	34(P26)	33(P27)	29(P60)	17(P43)	8(P30)	7(P31)	5(P33)	4(P50)	3(P51)	2(P52)		
SYMBOL	JP7	JP9	JP1	JP2	JP3	JP4	JP5	JP6	R30, R31	R32, R33	R45, R46	R34, R35	R36, R37	R38, R39		
SET	✕NONE	○USE	✕NONE	✕NONE	○USE	○USE	✕NONE	✕NONE	R30: 5.1K R31: 13K	R32: 15K R33: 13K	R45: 2.4K R46: 10K	R34: JP R35: NONE	R36: NONE R37: JP	R38: JP R39: NONE		

Figure L-7. Electronic Control Circuit Diagram for AY-X138E

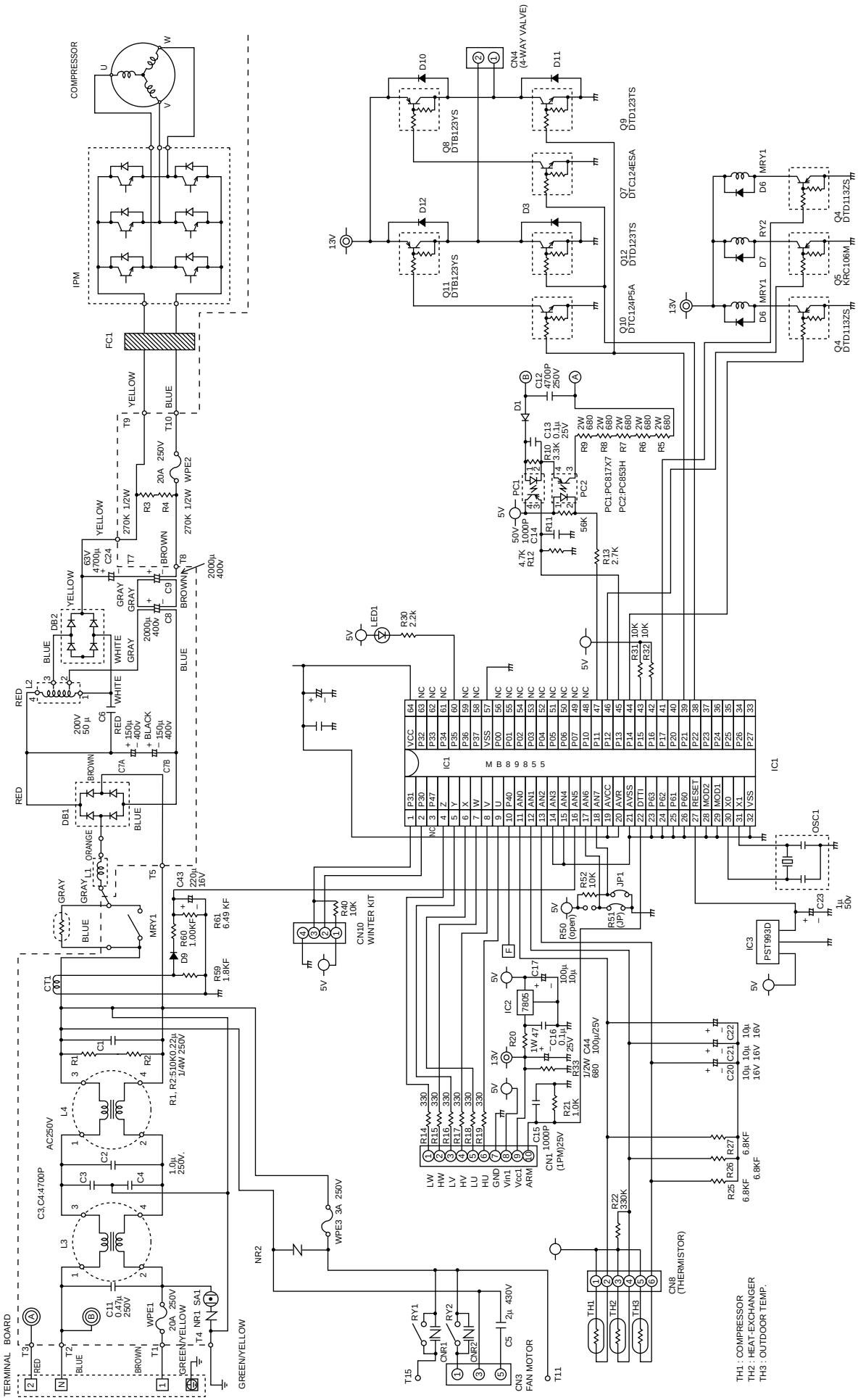


Figure L-8. Electronic Control Circuit Diagram for AE-X138E

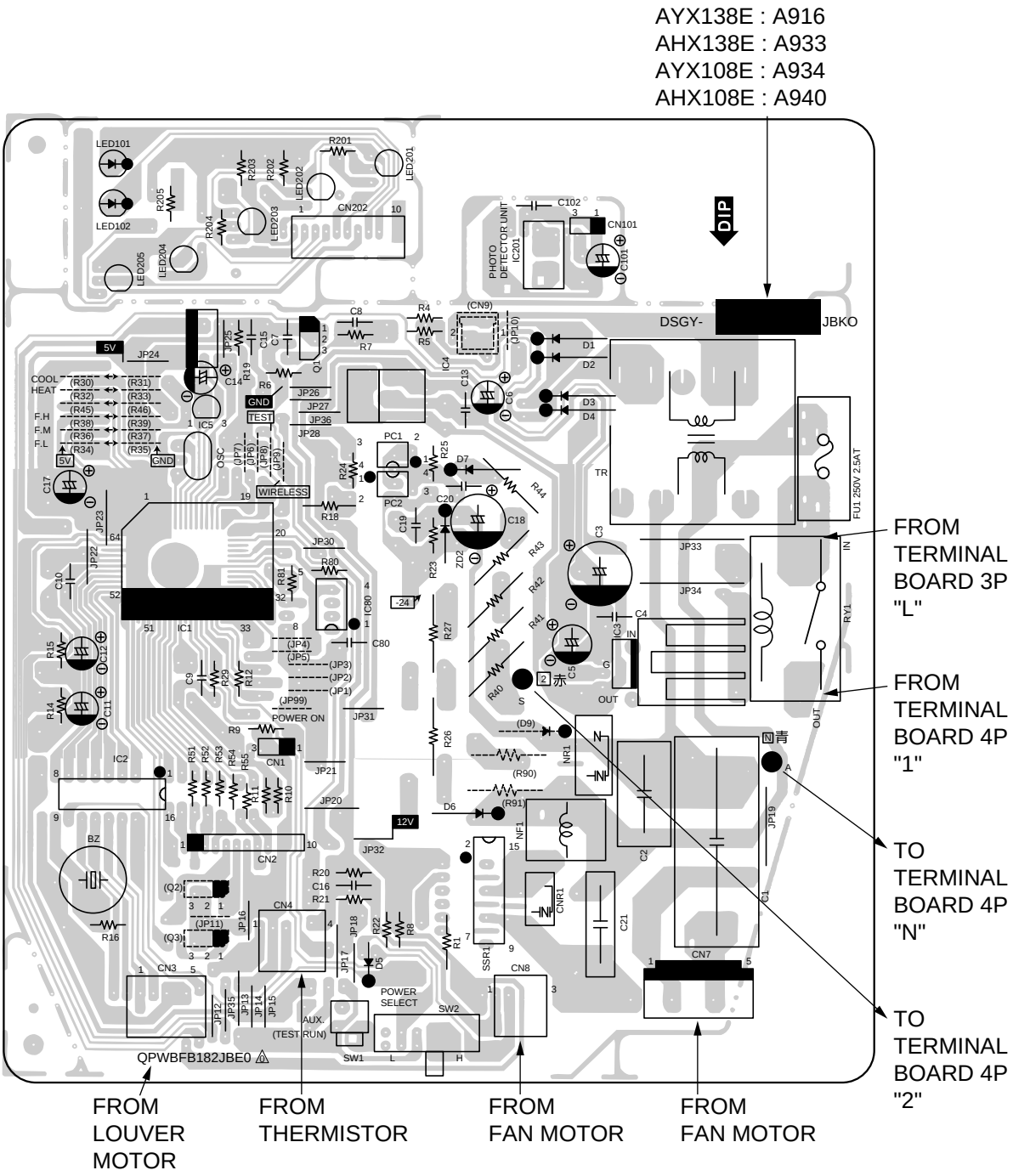


Figure L-9. Printed Wiring Board for AH-X108E, AH-X138E, AY-X108E and AY-X138E

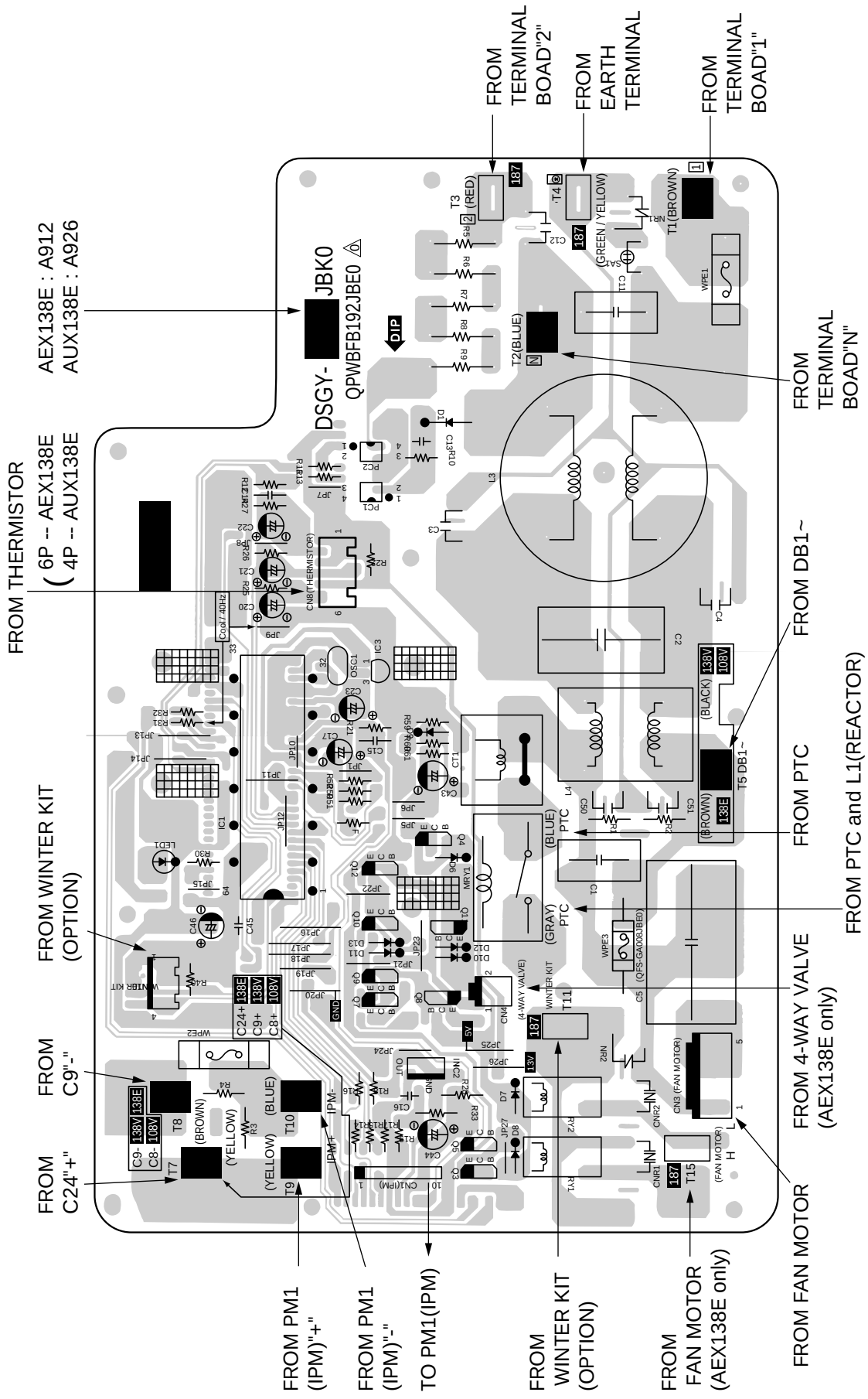


Figure L-10. Printed Wiring Board for AU-X138E and AE-X138E

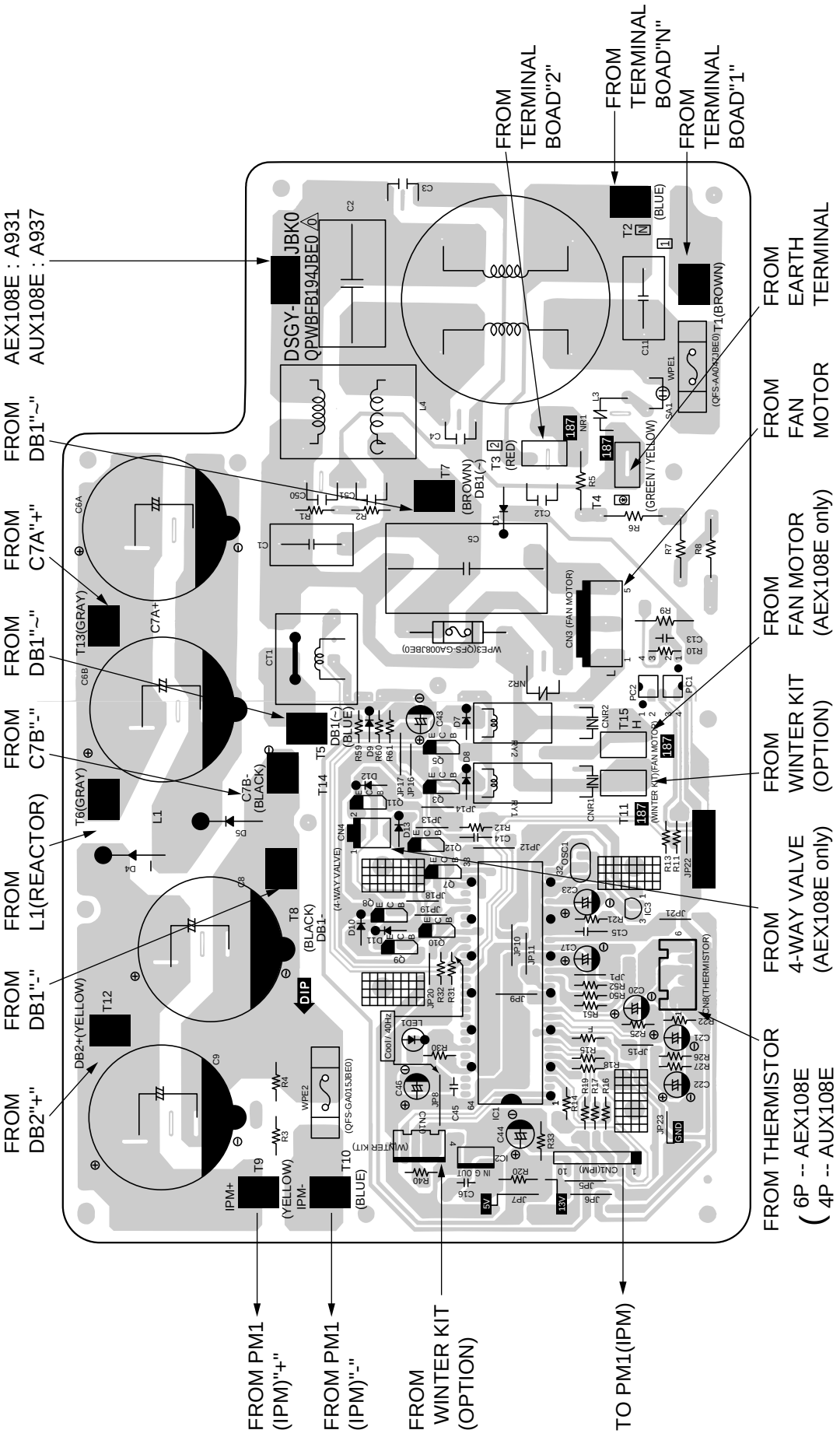


Figure L-11. Printed Wiring Board for AU-X108E and AE-X108E

FUNCTIONS

AH-X108E and AH-X138E are does not provided with the heating function.

1. INDOOR UNIT

1-1 Temperature Adjustment

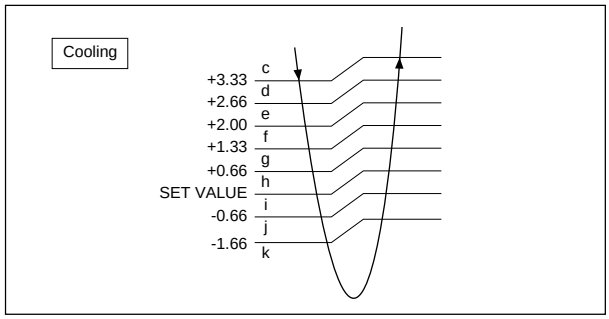
a. Normal control

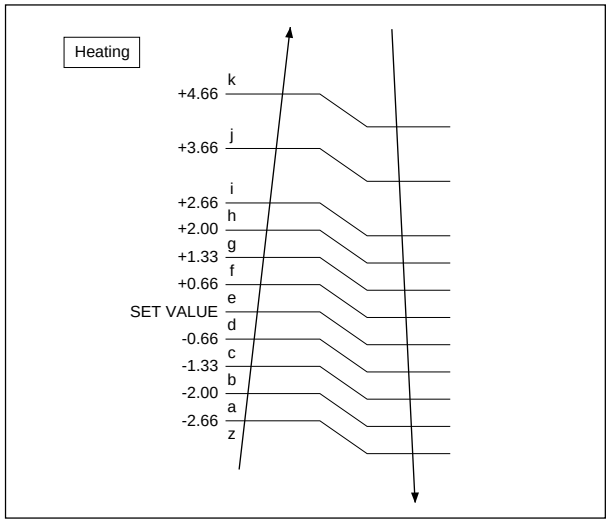
Proportional control (P control)

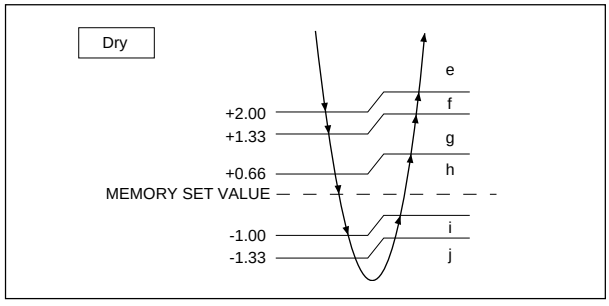
When the temperature zone changes, this control changes the frequency by one rank to move closer to the set value.

Integral control (I control)

When the temperature zone has set time in the same zone, this control changes the frequency by one rank to move closer to the set value. (Excluding the h zone.)







b. Initial control

The initial frequency is determined as shown in the tables below based on the difference between the temperature adjustment setting at the beginning of operation and the room temperature.

After operation begins, normal control is performed and therefore the correspondences in the tables below will not hold.

Cooling	
Room temp. zone	Frequency Code
c	9
d	8
e	7
f	5
g	3
h	2
i	1
j	OFF
k	OFF

Heating	
Room temp. zone	Frequency Code
k	OFF (Hot keep fan)
j	1
i	1
h	2
g	3
f	4
e	5
d	6
c	8
b	A
a	B
z	C

Dry	
Room temp. zone	Frequency Code
e	4
f	3
g	2
h	1
i	1
j	0

c. Temperature adjustment

The temperature adjustment range is changed by changing the operating mode with the operation switch.

(1) Heating

If the room temperature is in the z zone when operation begins, proportional/integral control is not performed, and the machine runs at frequency code c full power until the h zone is reached. When the h zone is reached, the frequency changes to the frequency code determined by fuzzy calculation, and after that proportional/integral control is performed.

(2) Cooling

If the room temperature is in the c zone when operation begins,proportional/integral control is not performed, and the machine runs at frequency code 9 power until the h zone is reached. When the h zone is reached, the frequency changes to the frequency code determined by fuzzy calculation, and after thatproportional/integral control is performed.

(3) Dry

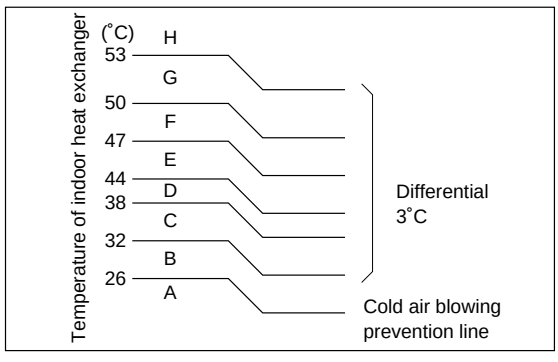
After operation begins, 2 minutes (running at the h zone) of the room temperature is stored in memory, and that becomes the set value.

(4) Circulation

The frequency code 0 is sent to the outdoor machine, and only the fan of the indoor machine runs, the compressor does not run.

1-2 Indoor fan control

This control uses the thermistor for the indoor heat exchanger to control cold air blowing prevention, the indoor fan, and overheating prevention.



(1) Control for indoor overheating prevention

If the temperature of the indoor heat exchanger exceeds the overheating prevention line during heating due to the operating frequency or the nature of the operation, this control lowers the frequency by 4 to 15 Hz. When the temperature goes below the overheating prevention line sixty seconds later, normal operation is restored.

Operating frequency	Overheating prevention line (°C)			
	Over 50 Hz	50 to 43 Hz	43 to 37 Hz	Below 37 Hz
During normal operation	54	53	52	51
During full power operation	57	56	55	54

(2) Control for indoor freezing prevention

If the temperature of the indoor heat exchanger stays below approximately 0°C for four minutes during cooling or dry, this control stops the compressor. Over 2˚C the compressor will run again.

(3) Control for cold air blowing prevention

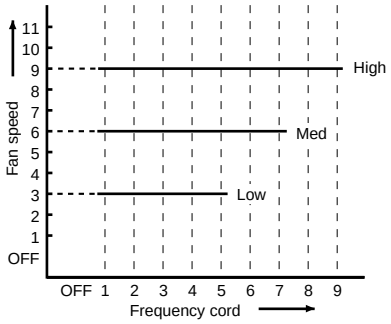
When heating begins, this control stops the indoor fan until the temperature of the indoor heat exchanger reaches 26°C. It also stops the fan if the temperature goes below 23°C during operation.

(4) Indoor fan and operating frequency

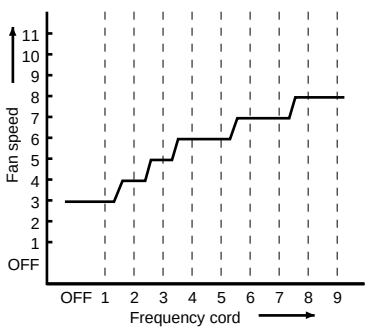
The indoor fan has 12 speeds, and changing is done in four stages, "Auto", "High", "Med", and "Low". The relations between the indoor fan speed, air quantity setting, operating frequency, and indoor heat exchanger are shown in the following charts.

COOLING

Fan speed : High / Med / Low

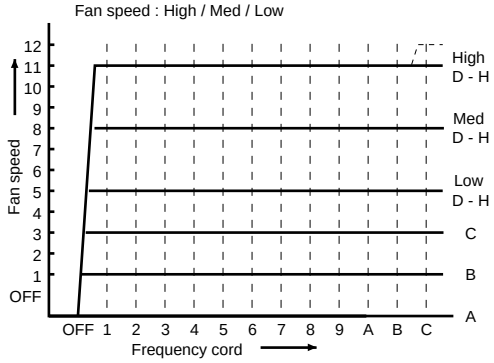


Fan speed : Automatic

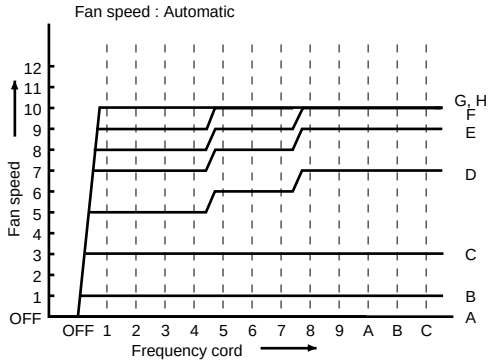


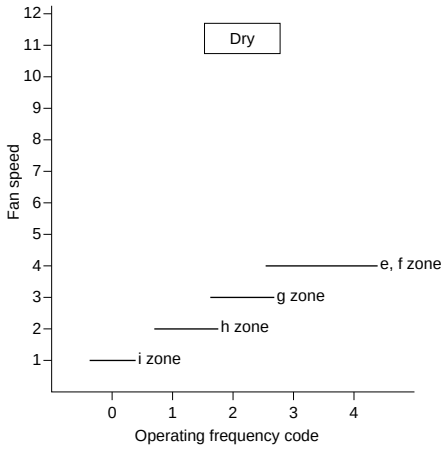
HEATING

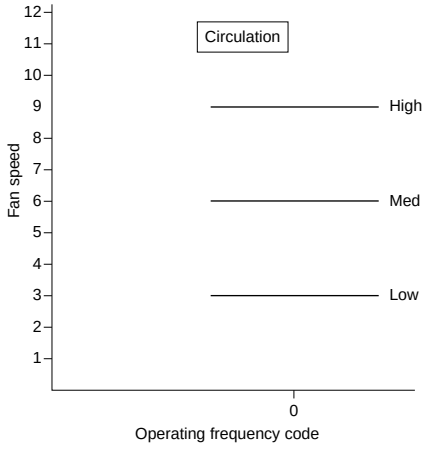
Fan speed : High / Med / Low



Fan speed : Automatic







1-3 Hot keep

If the room temperature is in the j or k zone during heating, the compressor is turned on and off to prevent overheating.

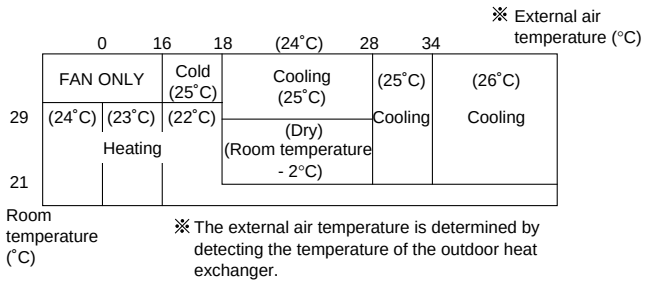
The fan goes off 30 seconds after the compressor goes off.

Zone	Compressor intermittent time	Fan
J	3 min. on - 3 min. off	Same as Compressor
K	3 min. on - 8 min. off	After "3 min. on - 3 min.off" is repeated 4 times, the compressor goes off, and only the fan continues to repeat “3 min. on - 8 min.off”.

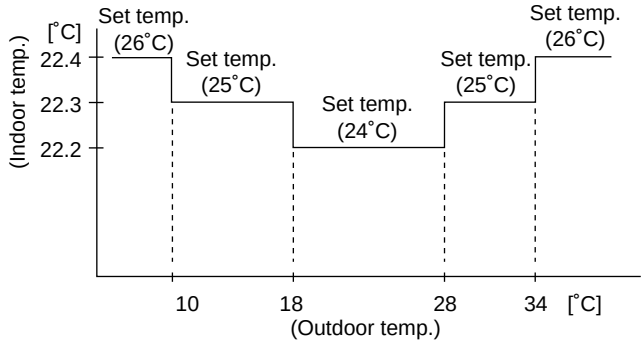
1-4 Automatic operation

The operating mode and temperature setting are determined by the room temperature and the external air temperature.

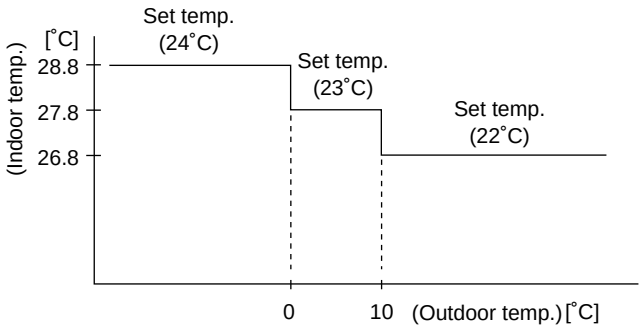
The operating mode will changeover automatically with the following conditions.



1. From cooling to heating
   Cooling mode will changeover to heating mode when condition of indoor temperature 1.8˚C lower than the set temperature conditions for 5 minutes.
2. From heating to cooling
   Heating mode will change over to cooling mode when condition of indoor temperature 4.8˚C higher than the set temperature conditions for 25 minutes under Hot keep condition.



When the set temperature is adjusted within the range of ±2˚C by the remote control's key. (▼ ▲), the changeover judgement room temp. will also be shifted within the range of ±2˚C.



1-5 ON-timer

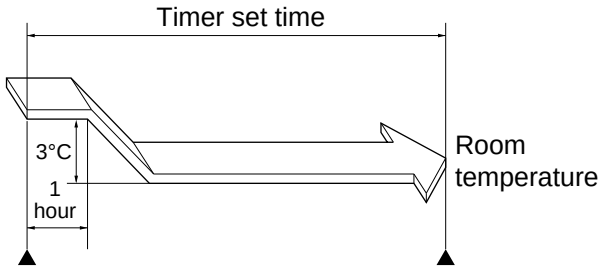
The ON-timer is set by pressing the ON-timer button. In order to attain the set temperature at the set time, the operation starting time is corrected by neuro and fuzzy computing one hour before the set time.

1-6 OFF-timer

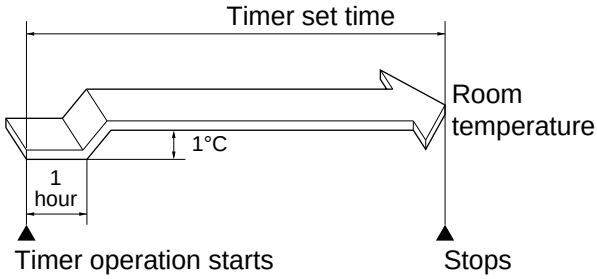
The OFF-timer is set by pressing the OFF-timer button. Operation is as follows:

	Set temperature
Cooling Heating	By fuzzy computing Set the shift up time Final (Cooling setting + 1°C / Heating setting - 3°C)
Dry	Same as above (Final setting + 1°C)

*During Heating



*During Cooling / Dry



1-7 Swing louvre

The louvre is moved by a stepping motor to perform swing and fixing in the set position.
If the "FLOW DIRECTION" button is prossed during swing, it will stop. If the "FLOW DIRECTION" button is prossed while it is stopped, it will swing.

1-8 Restart control

Once the compressor stops, this control prevents it from starting again for 3 minutes. It also prevents starting for 80 seconds immediately following plugging into the power outlet.

1-9 One-hour operation

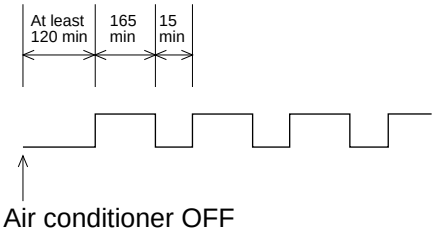
If this button is pressed when operation is stopped, operation will begin and then stop after 1 hour. If pressed when it is operating, will stop after one hour.

1-10 Full power operation

Immediately begins cooling or heating at maximum power and air flow. Full power stops after 1 hour.
(During heating) Operates at setting of 32°C.
(During cooling) Operates at setting of 18°C.

1-11 Preheat

When heating is stopped, supplies a small amount of power to the compressor to make heating start more quickly.
Operates when the indoor temperature sensor and external air sensor detect that the room temperature and outdoor heat exchange temperature are low (below 18°C and 10°C, respectively). Stops when the compressor chamber temperature rises above 30°C.
Preheat does not operate for 2 hours after heating is stopped. After that, it goes on for 165 minutes and then stops for 15 minutes, repeatedly.

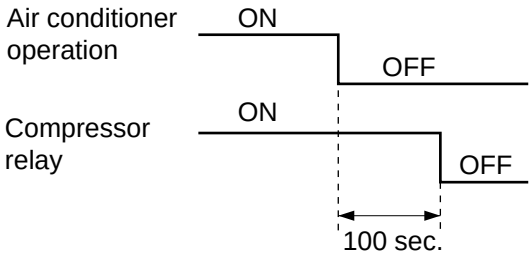


1-12 Power ON start

If a jumper wire is inserted into the place indicated power ON on the indoor control board, and the power plug is inserted. cooling or heating will be automatically determined by the room temperature sensor on the main unit, and operation will begin.

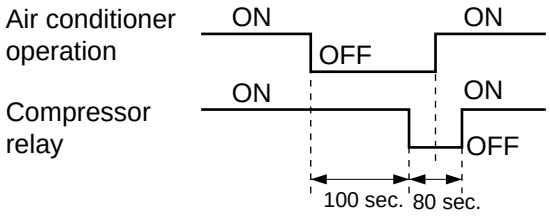
1-13 Compressor relay RY1

(1) It is ON during operation, and when operation is



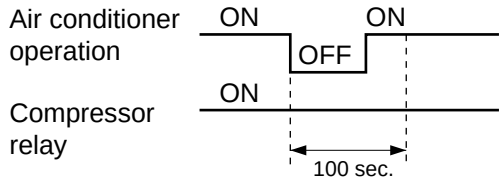
stopped, goes OFF after a delay of 100 seconds (not immediately).

(2) The minimum OFF time of the relay is 80



seconds. It will not go ON again before 80 seconds elapses.

(3) If air conditioner operation is turned on again during the 100 seconds delay before the compressor relay goes off, the compressor relay will stay on.



1-14 Power selector

Operation power "H " (High) or "L" (Low) can be selected by switching the POWER SELECTOR slide switch located above the AUX. button.

Model Name	Power Selector	Heating	Cooling
AY-X138E	H	11.2A	8.5A
	L	7.8A	6.7A
AH-X138E	H		8.5A
	L		6.7A
AY-X108E	H	9.0A	7.1A
	L	6.3A	5.5A
AH-X108E	H		7.1A
	L		5.5A

1-15 Auto Restart

When power failure occures, after power is recovered, the unit will automatically restart in the same setting which were active before the power failure.

Operating mode (Cool, Heat, Dry)
- Temperature adjustment (within 22˚C range) automatic operation
- Temperature setting
- Fan setting
- Air flow direction
- Power ON/OFF
- Automatic operation mode setting
- Swing louver

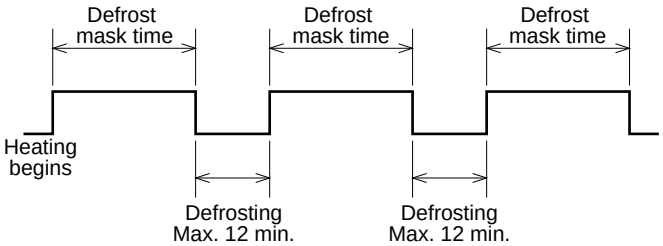
Setting not memorized
- Timer setting
- Full power setting

AU-X138E is not provided with the heating function.

2. OUTDOOR UNIT

2-1 Defrost operation

(1) Overview
Defrosting begins during heating if the conditions for compressor operation time and the defrosting zone are met.
When defrosting begins, the indoor and outdoor fans stop.
Defrosting stops when the temperature of the outdoor heat exchanger goes above approximately 10˚C or defrosting time exceeds 12 minutes.



(2) Defrosting conditions
The temperature of the outdoor heat exchanger and the temperature of the outdoor are detected by 2 sensors, and if it stays in the preset defrost zone for approximately 120 seconds, defrosting start is enabled.
If defrosting is enabled when the defrost mask time ends, defrosting is performed. If defrosting is not enabled, the machine waits until defrosting is enabled.
Defrost mask times is 20 minutes.
The defrosting zone is decided by outdoor temperature and outdoor heat exchanger temperature.

(3) During defrosting
When defrosting begins, the compressor stops. Approximately 1 minutes later, the compressor reactivates in the refrigeration cycle, and the outdoor heat exchanger is defrosted.
Each mode is as follows:
The outdoor fan is stopped
The operating frequency is 90Hz/76Hz [AY-X138E/ AY-X108E]
The indoor fan is stopped

(4) Defrost stop
When defrosting time exceeds 12 minutes
When the temperature of the outdoor heat exchanger rises above approximately 10˚C
Defrost stop is determined by either of the above conditions, and the compressor is stopped.
At the same time, the outdoor fan go ON. The compressor is reactivated in the heating cycle 1 minutes after it was stopped, and normal control resumes.

2-2 Frequency control

(1) AC current peak control
This control lowers the compressor frequency if the AC current exceeds the set values. If the current is below the set values, the compressor frequency will not be raised above that frequency, as the maximum frequency, for 1 minute.

Model	Set value
AE-X108E	During heating Approximately 8.00 A
AE-X138E	During heating Approximately 10.14 A
AE-X108E, AU-X108E	During cooling Approximately 6.15A
AE-X138E, AU-X138E	During cooling Approximately 7.50 A

(2) Control for prevention of indoor heat exchanger overheating
If the temperature of the indoor heat exchanger exceeds the overheating prevention line during heating due to the operating frequency or the nature of the operation, the frequency is lowered by approximately 5 to 10 Hz. After that, the frequency is lowered by approximately 5 to 10 Hz once every 60 seconds. When the temperature of the indoor heat exchanger goes below the overheating prevention line, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.
If the frequency is lowered to minimum frequency without the temperature of the indoor heat exchanger decreasing and this condition lasts for 1 minute, the compressor will be stopped.

Operating frequency	Overheating prevention line			
	Above 50 Hz	50 to 43 Hz	43 to 37 Hz	Below 37 Hz
During normal operation	54	53	52	51
During full power operation	58	57	56	54

(3) Control for prevention of outdoor heat exchanger overheating
If the temperature of the outdoor heat exchanger exceeds approximately 60°C during cooling, the operating frequency is lowered by approximately 5 to 20 Hz. After that, the frequency is lowered by approximately 5 to 10 Hz once every 120 seconds. When the temperature of the outdoor heat exchanger goes below approximately 57˚C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.
If the frequency is lowered to minimum frequency without the temperature of the outdoor heat exchanger decreasing and this condition lasts for 1 minute, the compressor will be stopped.

(4) Control for prevention of discharge overheating
If the discharge temperature exceeds approximately 105°C during compressor operation, the operating frequency is lowered by approximately 5 Hz. After that, the frequency is lowered by approximately 5 Hz once every 60 seconds. When the temperature of the outdoor heat exchanger goes below approximately 104˚C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.
If the frequency is lowered to minimum frequency without the discharge temperature decreasing and this condition lasts for 1 minute, the compressor will be stopped.

(5) Control for prevention of indoor heat exchanger freezing
If the temperature of the indoor heat exchanger goes below approximately 5°C during cooling, the operating frequency is lowered by approximately 5 Hz. After that, the frequency is lowered by approximately 5 Hz once every 60 seconds. When the temperature of the indoor heat exchanger rises above approximately 5°C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.
If the temperature of the indoor heat exchanger goes down to approximately 0°C and this condition continues for 4 minutes, the compressor is stopped. When the temperature rises above approximately 2˚C, normal operation is restored.

2-3 Overcurrent protection

(1) Compressor lock detection
If the set value (4.37 A: AE-X138E, AU-X138E / 3.83 A: AE-X108E, AU-X108E) of AC current is exceeded at 10 to 30 Hz when operation begins, operation is stopped. In this case, the compressor and outdoor fan does not stop, and 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

(2) DC overcurrent detection, AC overcurrent detection
To protect against overcurrent due to sudden changes in load, the compressor is stopped if the set value (29 A: AE-X138E, AU-X138E / 24 A: AE-X108E, AU-X108E) DC is exceeded in the DC section, or the set value (15 A: AE-X138E, AU-X138E / 11 A: AE-X108E, AU-X108E)AC is exceeded in the AC section. In this case, the outdoor fan does not stop, and 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

2-4 Compressor protector control

If the temperature of the compressor chamber exceeds 114°C, the compressor is stopped. In this case, the outdoor fan does not stop, and when the compressor chamber temperature decreases to 100°C three minutes after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

2-5 Power transistor module protector

If the temperature of the chips in the power transistor module exceeds 110 °C, the compressor is stopped. In this case, the outdoor fan does not stop, and when the temperature of the chips in the power transistor module decreases to 110 °C 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

2-6 Serial signals

(1) Serial signals consist of all 96-bit signals.
(2) If the outdoor unit does not receive a serial signal, it will stop approximately 30 seconds later. Note that this is true only of normal operation; in test mode, it does not stop and operation takes place based on the test mode commands.

FUNCTION AND OPERATION OF PROTECTIVE PROCEDURES

NO	Function	Operation				Self diagnostic display	
		Description	Detection time	Restart condition	Restart times	Indoor	Outdoor
1	Indoor fan lock Indoor fan rpm error	Stops operation if no revolution pulse signal is input from the indoor fan motor for one minute. Stops operation if the revolution pulse signal from the indoor fan indicates low rpm (approximately 300 rpm or less).	When indoor fan is revolving	Operation OFF	No limit	Yes	No
2	Indoor freezing guard	Lowers the operating frequency if the temperature of the indoor heat exchanger goes below 5°C during cooling. Stops the compressor if the temperature stays below 0°C for 4 minutes.	During cooling and dry	Automatically restarts when the exchange temperature rises above the freezing prevention temperature (above 2°C)	No limit	No	No
3	Indoor overheating control	Lowers the operating frequency if the temperature of the indoor heat exchanger rises above the overheating temperature during heating. Stops the compressor if the temperature stays above the overheating temperature for 1 minute at minimum frequency. Set values for overheating temperature During normal operation: 51°C to 54°C During full power operation: 54°C to 58°C	During heating	Automatically restarts when the exchange temperature goes below the overheating temperature.	No limit	No	No
4	DC overcurrent or overheat of the IPM	Stops the compressor if a current of approximately 29A/24A [AY-X138E/AY-X108E] or more flows in the power transistor module. Also stops the compressor if the temperature of the power transistor module is exceeds 110°C.	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes

NO	Function	Operation				Self diagnostic display	
		Description	Detection time	Restart condition	Restart times	Indoor	Outdoor
5	AC overcurrent	Lowers the operating frequency if the compressor AC current exceeds Peak control level [10.1/8.0A (heating), 7.5/6.15A (cooling)] [AY-X138E/AY-X108E] Stops the compressor if the current exceeds peak control level at 40 Hz or less. Stops the compressor if the compressor AC current exceeds 15A.	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
6	Compressor lock	Stops the compressor if the compressor AC current exceeds 3.37/2.83A [AY-X138E/AY-X108E] immediately after activating the compressor (at 17 to 30 Hz).	Immediately after compressor activation.	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
7	Compressor overheating control	Lowers the operating frequency if the temperature of the compressor chamber thermistor (TH1) rises above 105°C. Stops the compressor if the thermistor stays above 104°C for 4 minutes, or 1 minute at minimum frequency or less.	During compressor operation	Automatically restarts after safety time (170 seconds)	No limit	No	No
8	Compressor high temperature error	Stops the compressor if the compressor chamber thermistor is above 114°C. (Or when TH1 shorts)	During operation	Automatically restarts when thermistor (TH1) temperature falls below 100°C (approximately 30 minutes)	4 times	Yes	Yes
9	Outdoor overheating control	Lowers the operating frequency if the temperature of the outdoor heat exchanger rises above 57°C during cooling. Stops the compressor if the temperature stays above 57°C for 4 minutes, or 1 minute at minimum frequency or less.	During compressor operation	Automatically restarts after safety time ((170 seconds)	No limit	No	No
10	Outdoor thermistor short	Stops the compressor if an outdoor thermistor (excluding TH1) shorts. (Except for the AU-X138E, AU-X108E)	When compressor is activated	Automatically restarts after safety time ((170 seconds)	4 times	Yes	Yes
11	Outdoor thermistor short	Stops the compressor if the circuit of an outdoor thermistor breaks. (Except for the AU-X138E, AU-X108E)	When compressor is activated	Automatically restarts after safety time ((170 seconds)	4 times	Yes	Yes
12	AC abnormal current error	Stops the compressor if if the operating frequency is above 70 Hz and the compressor current is below 1.1 A/0.85 A. [AE-X138E/AE-X108E]	During compressor operation	Automatically restarts after safety time ((170 seconds)	4 times	Yes	Yes
13	Serial signal error	Turns the compressor relay off if the indoor unit does not receive a serial signal from the outdoor unit for 8 minutes.	During operation	Automatically restarts less than 8 minutes after operation stops.	No limit	Yes	——
		Stops the compressor if the outdoor unit does not receive a serial signal from the indoor unit for 30 seconds.	During operation	Restarts after reception of serial signal.	No limit	——	Yes
14	Four-way valve error	When the rise and fall in the detected temperature of the outdoor heat exchanger thermistor (TH2) do not agree with the operating cycle.	4 minutes after compressor activation	Automatically restarts after safety time (170sec.)	4 times	Yes	Yes

BREAK DOWN DIAGNOSIS PROCEDURE

Self-diagnostic procedure using display mode

If the timer lamp blinks during operation, the problem can be diagnosed using the following table.

● : Blinks at 2-second intervals ✕ : OFF ◯ : ON ◎ : Blinks 3 times at 0.2-second intervals

Condition of indoor and outdoor unit	Display by indoor unit operation lamp Displayed in a pattern which comes on at the same time as the timer lamp →◯ ✕ ◯ ✕ ◯ ✕ ◯ ✕ ◯→ 4 seconds off	Display by outdoor unit lamp LED 1	Diagnosis	What to check, procedure	Solution
Normal	✕ ✕ ✕ ✕ ✕	●	Normal	———	———
Indoor and outdoor unit completely stopped	✕ ✕ ◯ ✕ ✕	◎ Once	Compressor lock error	Does compressor active ? Does it go off immediately after active ?	1. Apply an external shock to the compressor. 2. Replace the compressor.
	✕ ✕ ✕ ◯ ✕	◎ Twice	Overheat of the compressor error (protector operating) or outdoor compressor thermistor TH1 short	1. Is the discharge outlet of the outdoor unit clogged ? 2. Is the power supply voltage at least 198 V at full power operation ? 3. Check for refrigerant leaks at the tubing connections. 4. Measure the resistance of compressor thermistor TH1 on the outdoor unit (see Figure 2). 5. Measure the resistance of heat exchanger pipe thermistor TH2 on the indoor unit (see Figure 1).	1. Clear the discharge outlet. 2. Assure power supply voltage. 3. Refill to rated amount. 4. Replace the outdoor ther-mistor assembly. 5. Replace the indoor control board assembly or only TH2.
	✕ ✕ ◯ ◯ ✕	◎ 3 times	DC overcurrent error	1. Check the circuit in the power transistor module. 2. Is the outdoor fan revolving ?	1. Replace power transistor module
	✕ ✕ ✕ ✕ ◯	◎ 4 times	Short circuit of the thermistor error	1. Measure the resistance of thermistor TH2 on the outdoor unit (see Figure 2).	1. Replace the outdoor thermistor assembly.
	✕ ✕ ◯ ✕ ◯	◎ 5 times	Open circuit of the thermistor error	1. Are the connectors of the outdoor unit thermistors well attached ? 2. Measure the resistance of thermistors TH1 and TH2 on the outdoor unit (see Figure 2).	1. Reattach. 2. Replace the outdoor thermistor assembly.
	✕ ✕ ✕ ◯ ◯	◎ 6 times	AC abnormal current error	1. Can voltage be detected at the current transformer on the outdoor unit control board?	1. Replace the outdoor control board assembly (Current transformer wire break.)
	✕ ✕ ◯ ◯ ◯	◎ 7 times	AC overcurrent error	1. Is the discharge outlet of the outdoor unit clogged ?	1. Clear the discharge outlet.
	✕ ◯ ✕ ✕ ◯	◎ 8 times	4-way valve abnormal (AE-X138E and AE-X108E only)	1. Measure the resistance of indoor heat exchanger thermistor TH2. 2. Is the switching transistor of 4 way valve functioning normally ? 3. Is the 4 way valve functioning normally ?	1. Replace indoor heat exchanger thermistor. 2. Replace outdoor units control board. 3. Replace the 4 way valve.
Indoor unit operating Outdoor unit completely stopped	◯ ✕ ✕ ◯ ◯	✕	Indoor fan out of order	1. Is the fan motor locked ? 2. Is the wiring connector firmly fitted ? 3. Is the speed signal applied to the motor ?	1. Replace fan motor 2. Reattach. 3. Replace the indoor control board assembly.
	◯ ✕ ✕ ◯ ✕	◯	Serial short	1. Check the wiring between units.	1. Rewire.
	◯ ✕ ✕ ✕ ◯	◯	Serial open	1. Check the wiring between units.	1. Rewire.
		✕	Outdoor power supply does't turn on. Wiring mistake.	1. Check the wiring between units. 2. Check the fuse in the outdoor unit. 3. Indoor control board. 4. Outdoor control board.	1. Rewire. 2. Replace the fuse, replace the outdoor board assembly. 3. Replace the board. 4. Replace the board.

Note: 1. Normal : Only the timer lamp blinks. Error : Displayed by blinking of run lamp (above table).
2. If the power plug is removed from the outlet or the breaker is switched to "OFF", the self-diagnostic memory will be erased.
3. Example of outdoor unit LED 1 blinking :

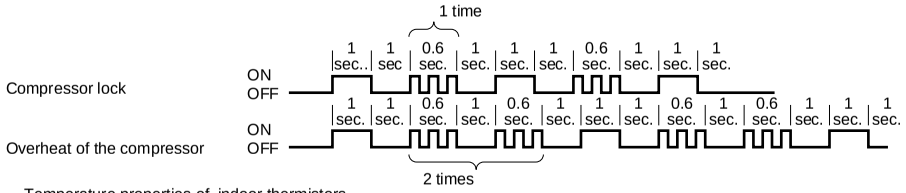
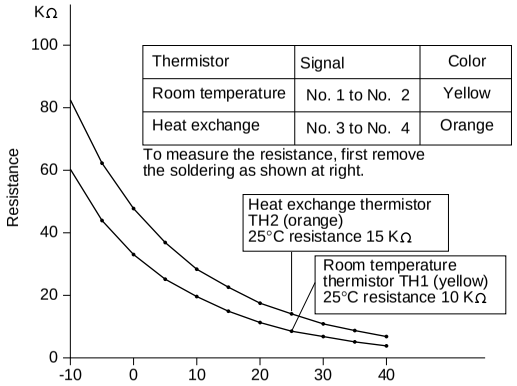
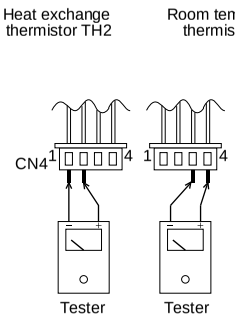


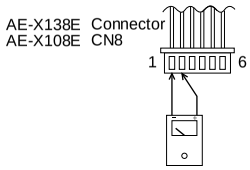
Figure 1 Temperature properties of indoor thermistors

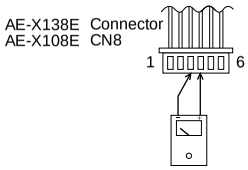


Thermistor	Signal	Color
Room temperature	No. 1 to No. 2	Yellow
Heat exchange	No. 3 to No. 4	Orange

To measure the resistance, first remove the soldering as shown at right.

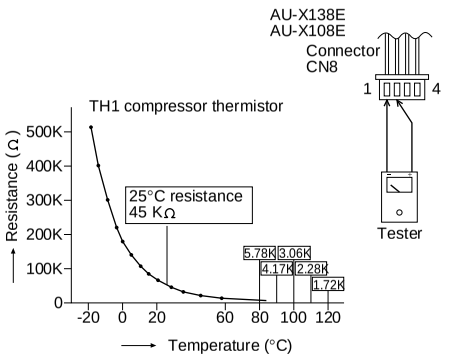


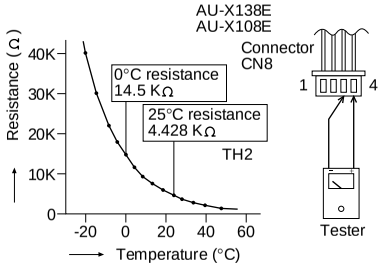




TH2, TH3 heat exchange thermistor

Figure 2 Temperature properties of outdoor thermistors



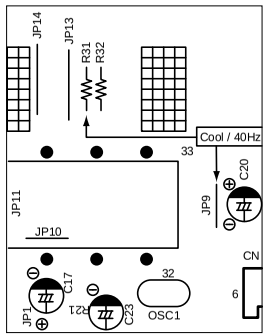


Thermistor	No.	Connector	Color
Compressor thermistor	TH1	No. 1 to 2	White
Heat exchanger pipe thermistor	TH2	No. 3 to 4	Orange
Outdoor temp. thermistor	TH3	No. 5 to 6	Green

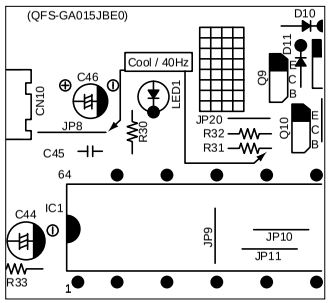
To measure the resistance, first remove the connector from the board.

Cautions when attaching or removing the board

When operating only the outdoor unit (cooling 40 Hz fixed mode) To make only the outdoor unit run in cooling mode, short the places marked with arrows below with an adaptor, and apply a voltage of 220 ~ 240 V AC to 1 and N on the terminal board.
(Avoid operating the outdoor unit alone for long periods of time.)



AE-X138E, AU-X138E



AE-X108E, AU-X108E

Adaptor

(R31)

(GND)

Microcomputer terminal	Input signal
TEST 1)Pin No. 42	1
TEST 2)Pin No. 43	0

0····· Low input
1····· High input

To Outdoor control board

REFRIGERANT CYCLE

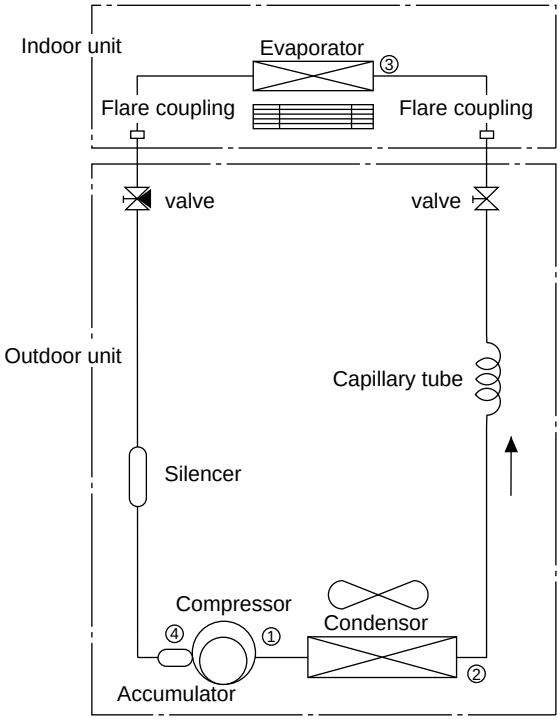


Figure R-1. Refrigeration Cycle for AH-X108E/AH-X138E

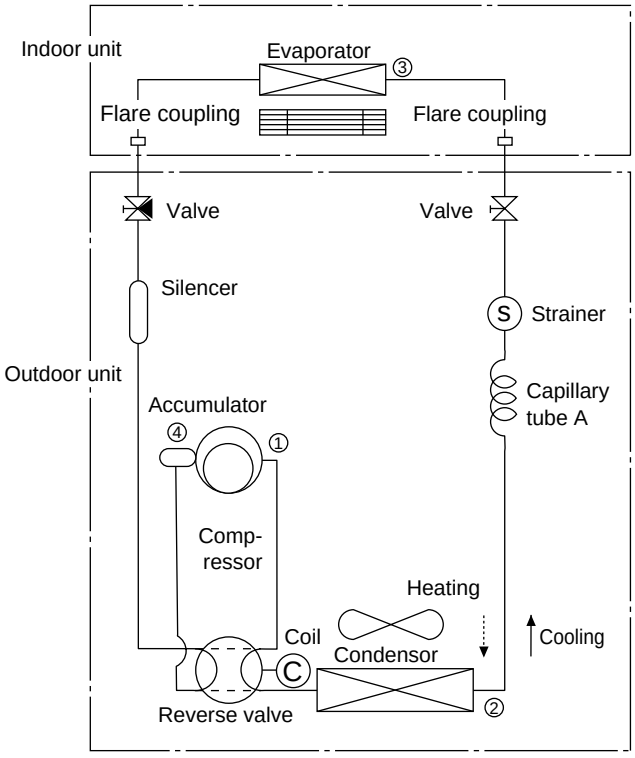


Figure R-2. Refrigeration Cycle for AY-X108E

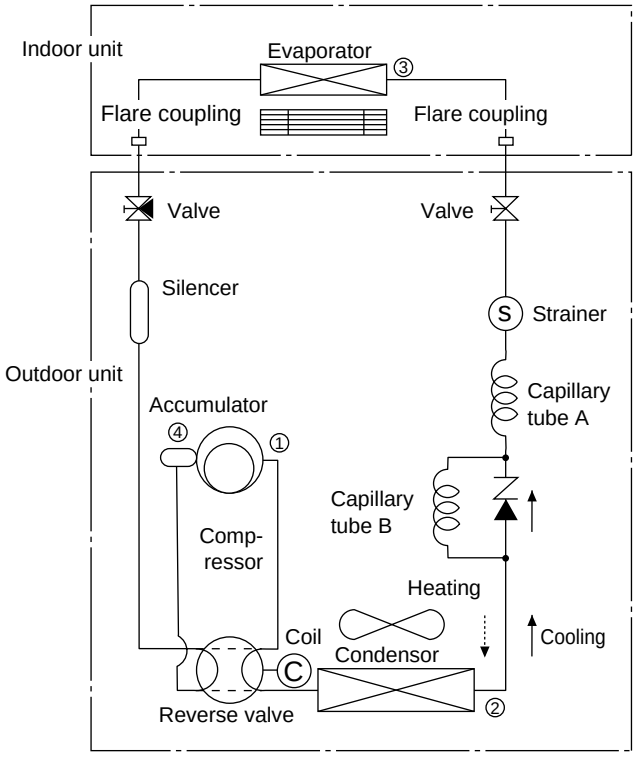


Figure R-3. Refrigeration Cycle for AY-X138E

Standard conditions:

AH-X108E, AH-X138E

	Indoor side		Outdoor side	
	Dry-bulb Temp. (˚C)	Relative Humidity (%)	Dry-bulb Temp. (˚C)	Relative Humidity (%)
Cooling	27	47	35	40

Temperature at each part and pressure in 3-way valve

AH-X108E

Operation mode	Cool (Max.)	Cool
Hz / No.	75	50 settle
①	97˚C	72˚C
②	43˚C	43˚C
③	14˚C	15˚C
④	16˚C	11˚C
3-way valve pressure (kg/cm^2 G)	5.2	6.1

AH-X138E

Operation mode	Cool (Max.)	Cool
Hz / No.	94	50 settle
①	97˚C	73˚C
②	43˚C	42˚C
③	14˚C	16˚C
④	13˚C	17˚C
3-way valve pressure (kg/cm^2 G)	4.9	6.6

Dimension of Capillary tube

AH-X108E

	O.D	I.D.	L
Capillary tube	ø2.7	ø1.5	800

AH-X138E

	O.D	I.D.	L
Capillary tube	ø2.7	ø1.6	500

Standard conditions:

AY-X108E, AY-X138E

	Indoor side		Outdoor side	
	Dry-bulb Temp. (˚C)	Relative Humidity (%)	Dry-bulb Temp. (˚C)	Relative Humidity (%)
Cooling	27	47	35	40
Heating	20	——	7	87

Temperature at each part and pressure in 3-way valve

AY-X108E

Operation mode	Cool (Max.)	Heat (Max.)	Cool	Heat
Hz / No.	75	more than 95	50 settle	50 settle
①	98˚C	96˚C	72˚C	59˚C
②	43˚C	0˚C	43˚C	2˚C
③	14˚C	35˚C	15˚C	32˚C
④	16˚C	2˚C	11˚C	2˚C
3-way valve pressure (kg/cm^2 G)	5.0	18.4	6.0	13.1

AY-X138E

Operation mode	Cool (Max.)	Heat (Max.)	Cool	Heat
Hz / No.	94	more than 100	50 settle	50 settle
①	98˚C	104˚C	73˚C	58˚C
②	43˚C	2˚C	42˚C	3˚C
③	14˚C	35˚C	16˚C	31˚C
④	13˚C	7˚C	17˚C	3˚C
3-way valve pressure (kg/cm^2 G)	4.6	17.6	6.5	12.3

Dimension of Capillary tube

AY-X108E

	O.D	I.D.	L
Capillary tube	ø2.7	ø1.5	800

AY-X138E

	O.D	I.D.	L
Capillary tube A	ø2.7	ø1.6	500
Capillary tube B	ø2.7	ø1.7	300

PERFORMANCE CURVES

NOTE: 1) Indoor fan speed: Hi
2) Vertical adjustment louver "45˚", Horizontal adjustment louver "front"
3) Indoor air temp. : Cooling 27˚C

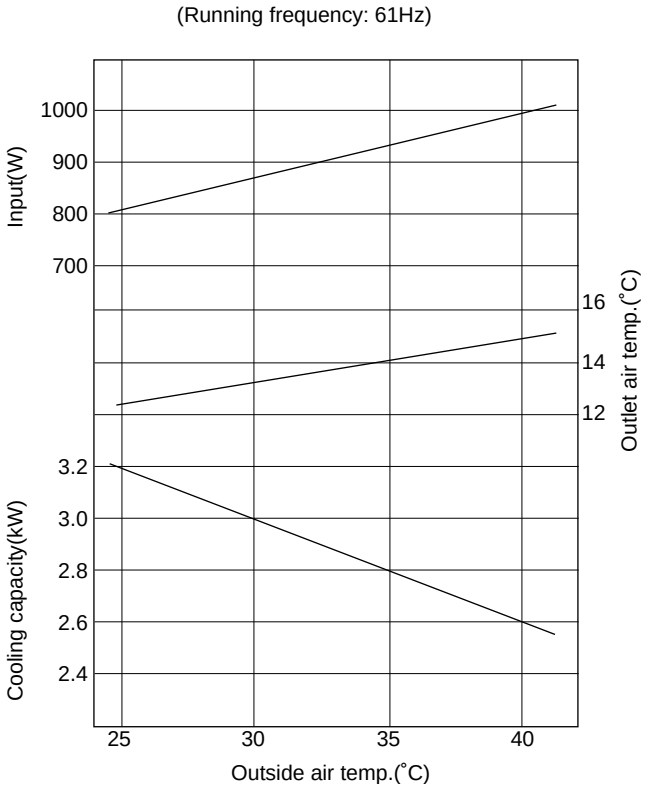


Figure P-1. At Cooling for AH-X108E

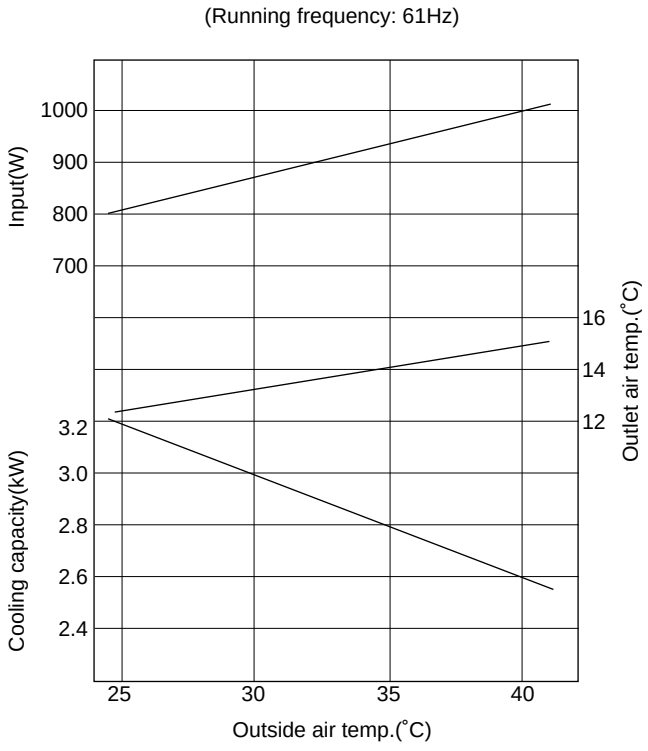


Figure P-2 At Cooling for AY-X108E

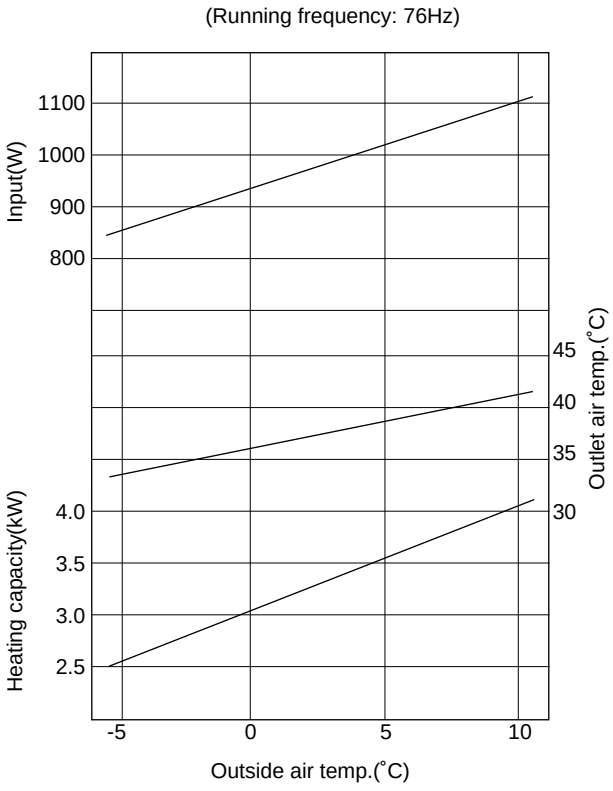


Figure P-3 At Heating for AY-X108E

NOTE: 1) Indoor fan speed: Hi
2) Vertical adjustment louver "45˚", Horizontal adjustment louver "front"
3) Indoor air temp. : Cooling 27˚C

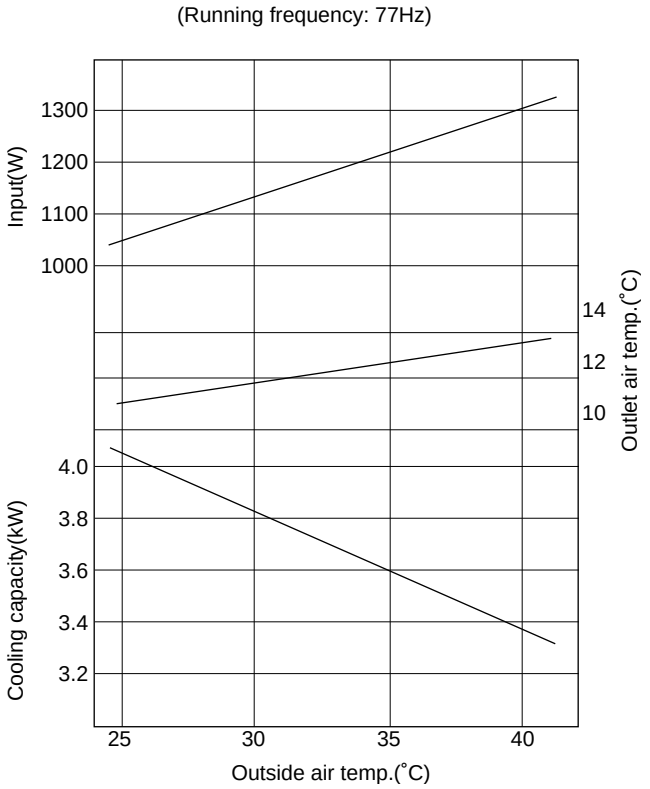


Figure P-4. At Cooling for AH-X138E

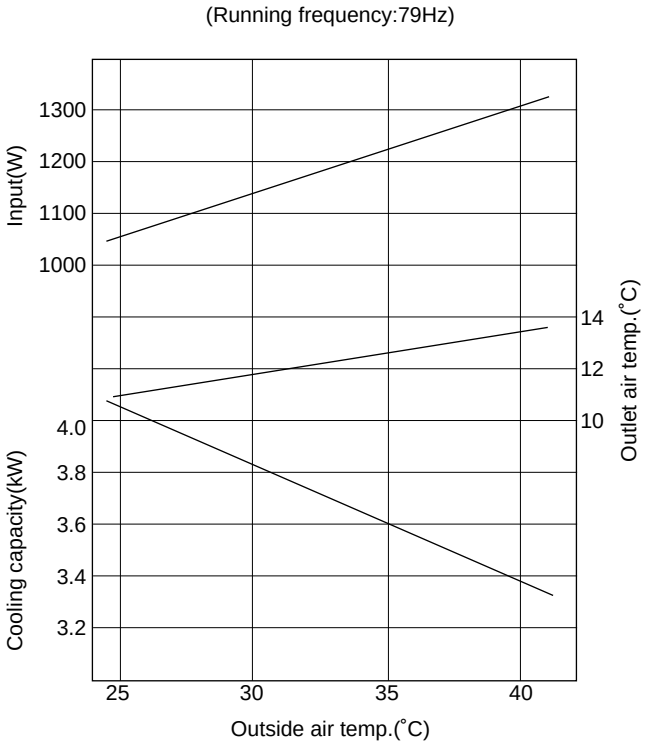


Figure P-5 At Cooling for AY-X138E

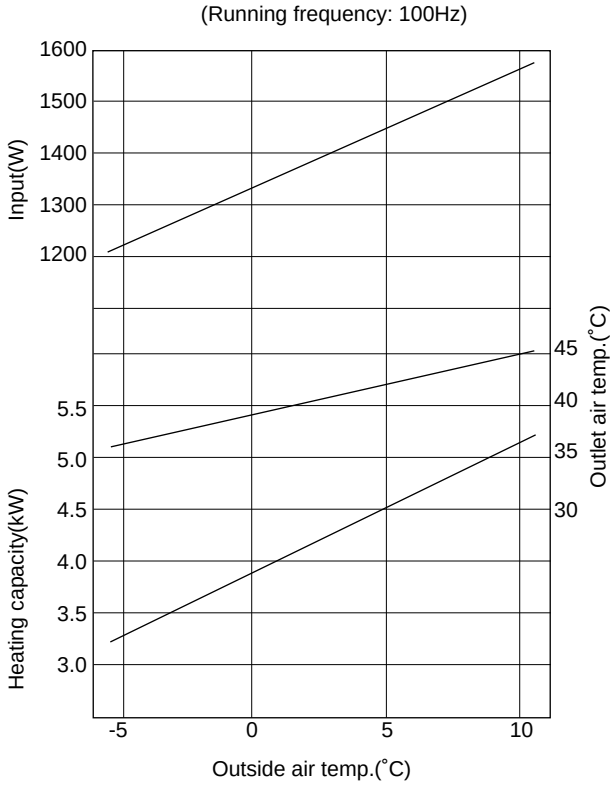


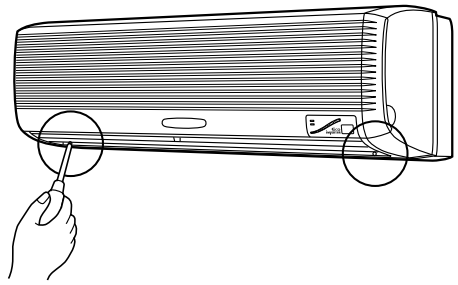
Figure P-6 At Heating for AY-X138E

DISASSEMBLING PROCEDURE

FOR INDOOR UNIT MODEL AH-X108E, AY-X108E, AH-X138E AND AY-X138E

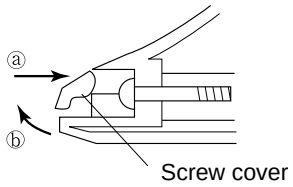
CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY SERVICING

1. Using the narrow slotted screwdriver or similar, remove the screw cover from the front panel.

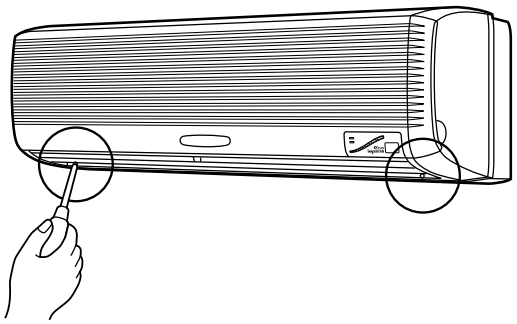


How to remove the screw cover

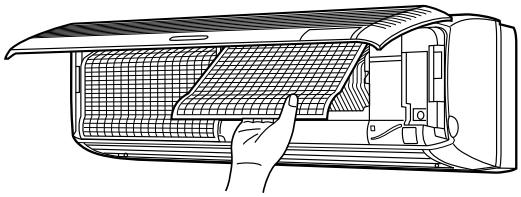
a. Press the top of the screw cover with the flat-tipped screwdriver (or nail, etc).
b. Insert the flat-tipped screwdriver (or nail, etc) into the lower clearance, and pull and lift it toward you for removal.



2. Remove two screws from the front panel.

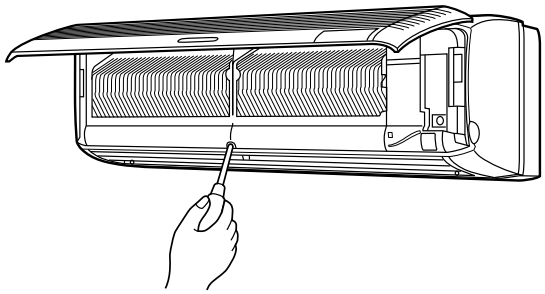


3. Open the open panel, and remove the two air filters.



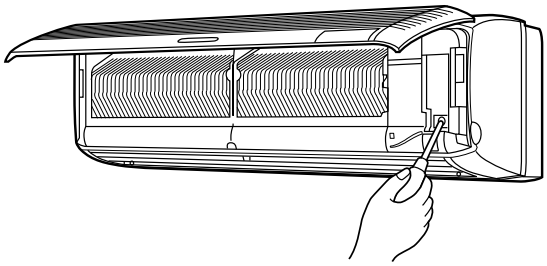
4. Remove one inner screw.

Note: During reassembly, don't tighten the screw strongly, or it will become idle.

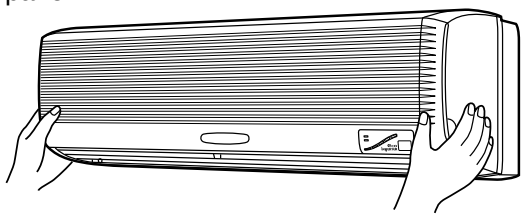


5. Remove the fastening screw which retains the cable, and remove the cord.

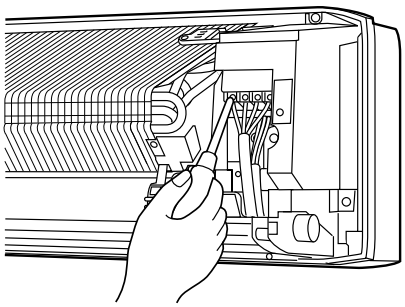
Note: During reassembly, install the holder after installing the front panel. This will make it easier to assemble the front panel.



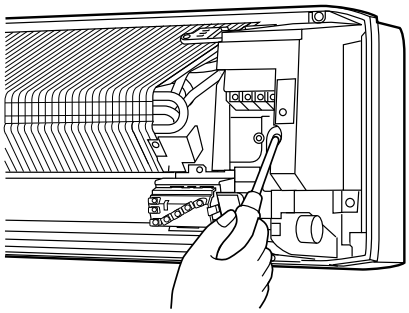
6. After closing the open panel, open the horizontal adjustment louver and pull out the bottom of the front panel toward you.
Lifting the front panel, strongly pull the top toward you. Making the front panel parallel to the main body, strongly pull it toward you for removal.
To install the front panel, place the bottom of the front panel under the open horizontal adjustment louver, and press in the front panel, parallel to the cabinet. When pressing it in, take care to prevent the top of the blow-out port of the drain pan from being caught by the front panel.



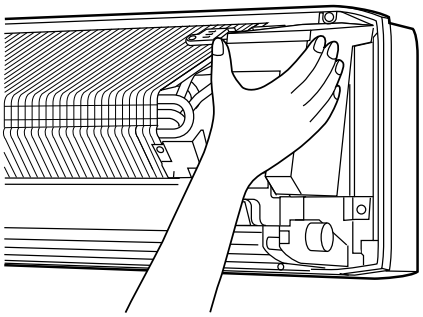
7. Remove the unit-to-unit wiring from the terminal board. (Loosen the screw with the screwdriver, and pull out the wiring.)



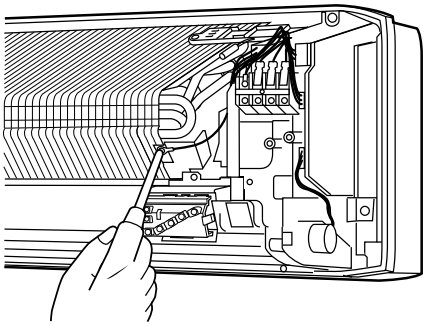
8. Remove one fastening screw from the control box cover.



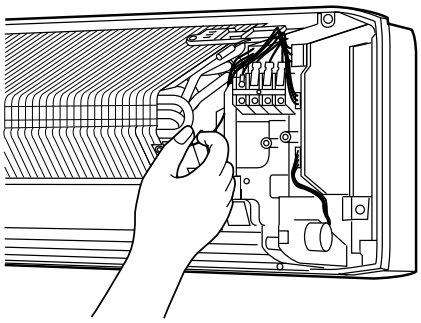
9. Remove the control box cover.
   Holding its bottom, pull and disengage the upper hook toward the bottom.



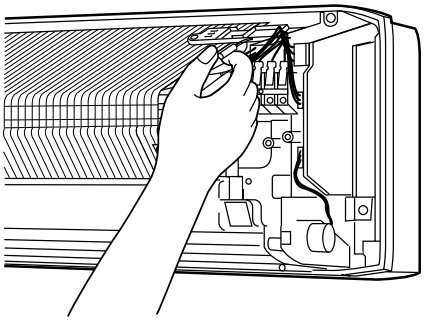
10. Remove the ground wire. (One screw)
    Note: During reassembly, take care for the direction of the lead wire.



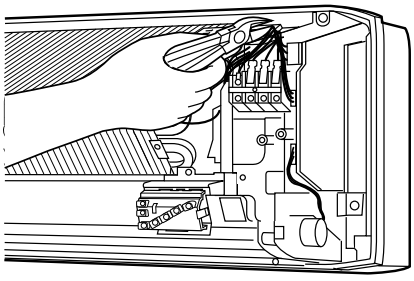
11. Remove the protect cover for the dew.
    Note: During reassembly, verify that the dew on the pipe is recovered to the drain pan.



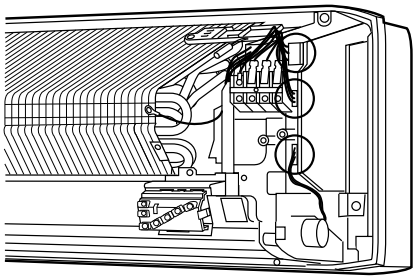
12. Remove the thermostat of the evaporator.
    (Pull it out after peeling off the thermoseal.)



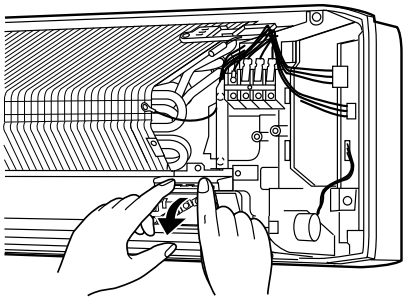
13. Cut the tie band of the lead wire.



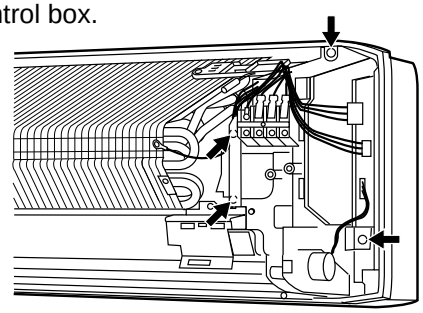
14. Remove two connectors of the fan motor and one of louver motor.



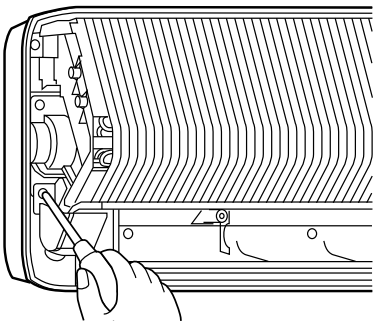
15. Remove the indicator assembly.
    (Push the upper two hook of the LED holder , and the indicator will be ready for removal.)



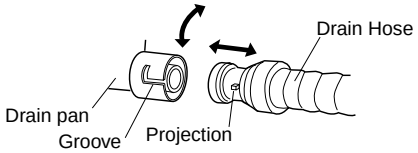
16. Remove four fastening screws of the control box, and remove the control box.



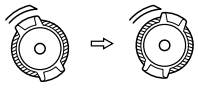
17. Remove the fastening screws of the drain pan. (One screw on the left side.)



18. Turn the cap area of the drain hose counterclockwise, and remove it from the drain pan.

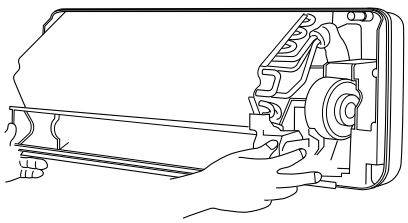


During installation, turn the drain hose to the state of the “engagement position”.
After reinstallation, verify that it is securely fastened.

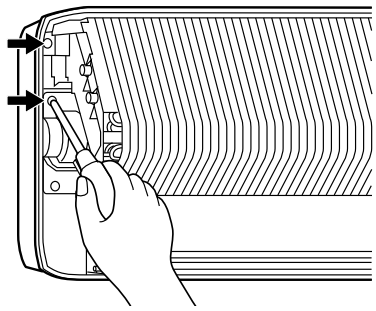


To disconned To reconnect

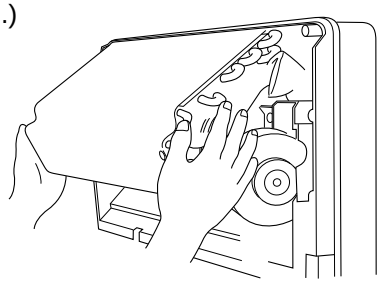
19. Pull down the drain pan toward you for removal.

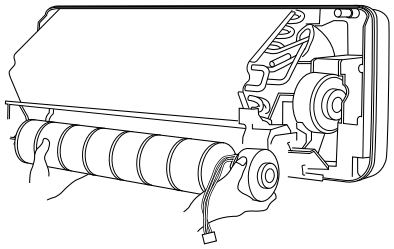


20. Remove two fastening screws of the side cover L.

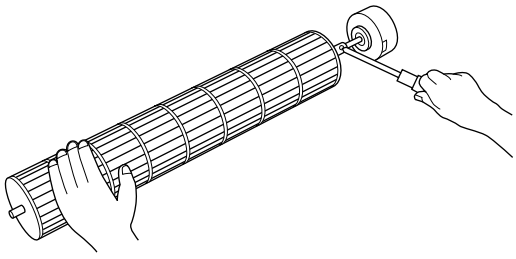


21. Move the evaporator to the up, and release it from one projection of cabinet. Free the evaporator, and pull down the cross-flow fan and motor toward you. Remove them together. (If it is tried to remove the fan alone, it will damage the inner surface of the metal to prevent removing the fan.)





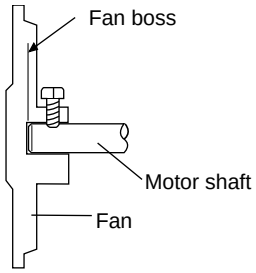
22. Loosen the fan fastening screw, and remove the fan.



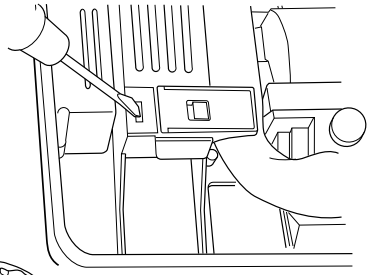
<Cautionary points for assembling the fan>

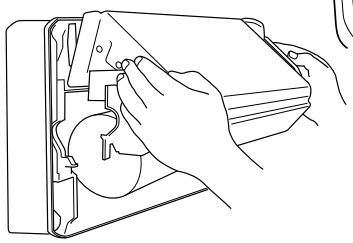
a. When inserting the shaft of the cross-flow fan into the metal, take care to prevent injuring the inner surface of the metal.

b. Before fastening the motor shaft and fan, insert the shaft into contact with the fan boss.



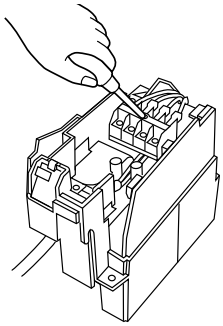
23. To remove the evaporator, remove the tube holder on the rear side of the cabinet, pull the side cover L of left side with the side cover R of right side toward yourself and lift it up, and remove it from cabinet, pulling it toward you.



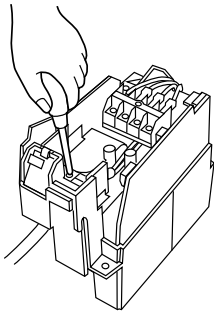


How to remove the electric control box.

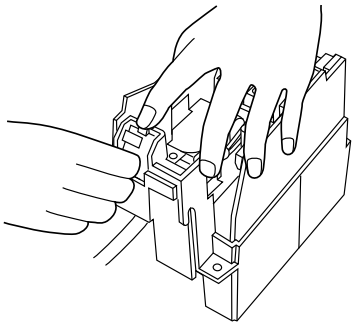
1. Remove the fastening screw of the 4 poles terminal board.



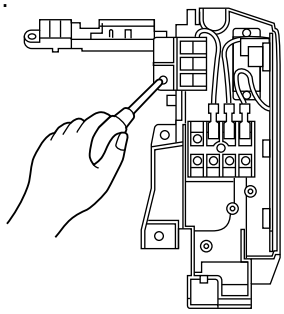
2. Remove the cord holder fastening screw of the power supply cord.



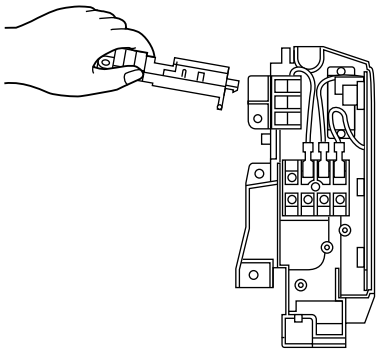
3. Remove the receiver unit.(Press and spread the upper hook, and the receiver unit will be ready for removal.)



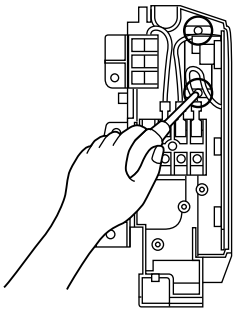
4. Remove the terminal board fastening screw of the terminal board holder.



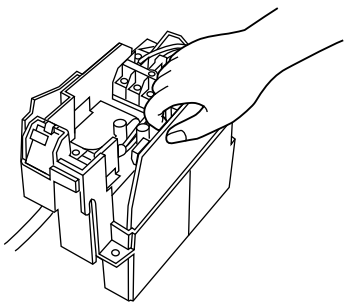
5. Remove the thermostat holder from the control box.



6. Remove the fastening screw of the board.



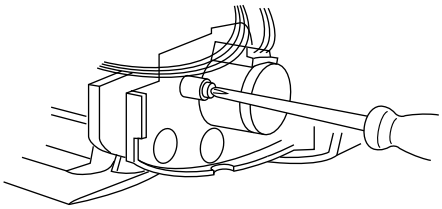
7. Pull out the board.



Drain pan and related

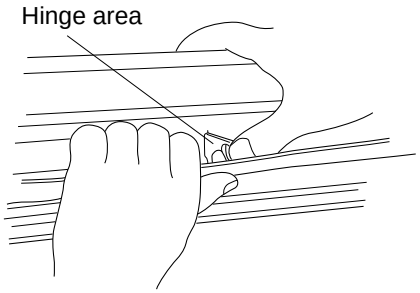
How to remove the louver motor.

Remove two screws which fasten the louver motor.



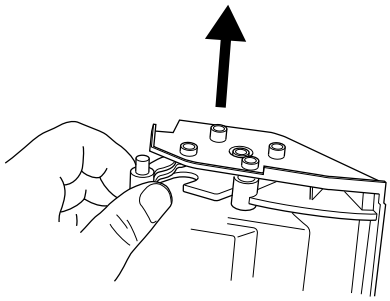
How to remove the horizontal adjustment louver

Slightly fall down the hinge area, deflect the louver, and remove it at one place. Remove the shaft from each of the left and right sides.



How to remove the side clamp assembly

Left the edge of the drain pan to the arrow-marked direction and ditach the side clamp assembly.

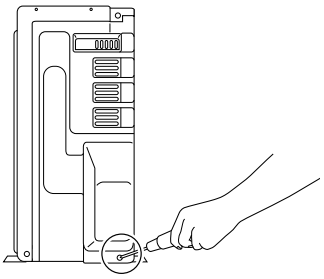


SERVICING PROCEDURE

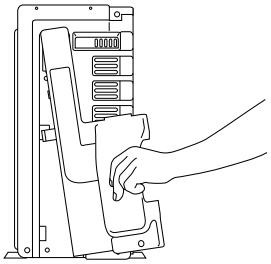
FOR OUTDOOR UNIT MODEL AU-X108E, AU-X138E, AE-X108E AND AE-X138E

CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY SERVICING

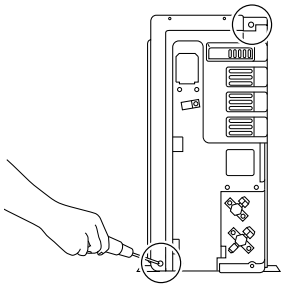
1. Remove one screw which is fixing the control box cover.



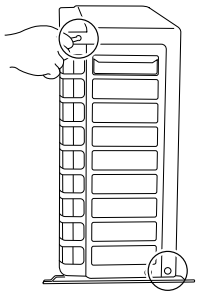
2. Remove the control box cover.



3. Remove two screws which are fixing right side of the front panel. And disconnect the wiring from the terminal board.

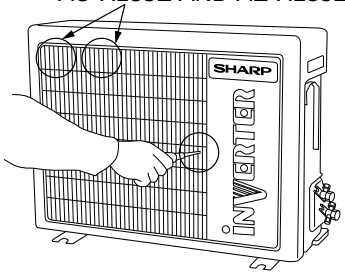


4. Remove two screws which are fixing left side of the front panel.

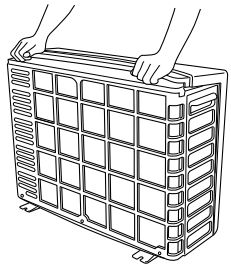


5. Remove the screws which is fixing front part of the front panel.
(BLACK COLOR)

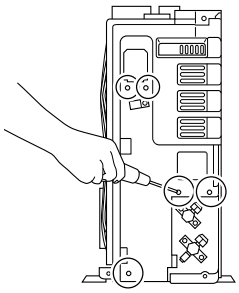
AU-X138E AND AE-X138E ONLY



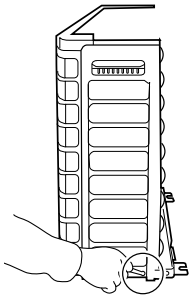
6. Take off the three hooks of back side of the front panel. And pull it toward you.



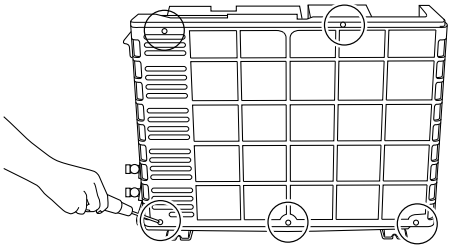
7. Remove five screws which are fixing right side of the rear cabinet.



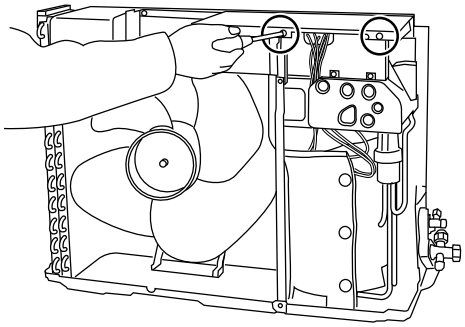
8. Remove one screw which is fixing left side of the rear cabinet.



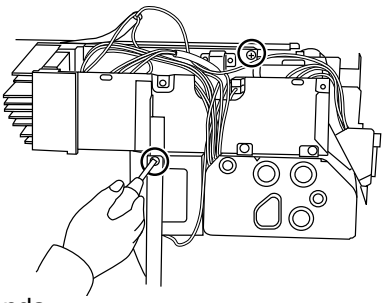
9. Remove five screws which are fixing back side of the rear cabinet. And take out the rear cabinet.



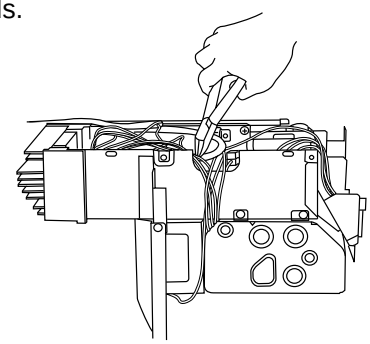
10. Remove two screws which are fixing the control box cover.



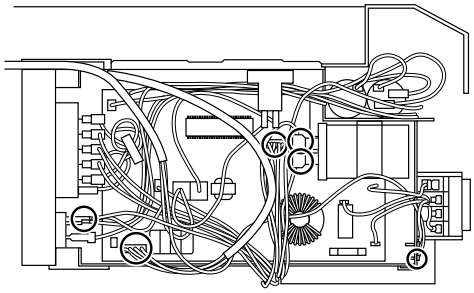
11. Remove two screws which are fixing the control box.



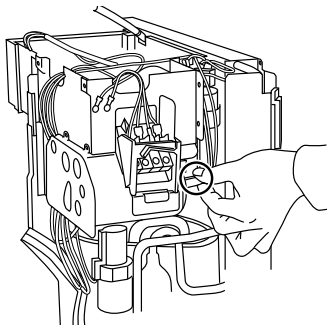
12. Cut some bands.



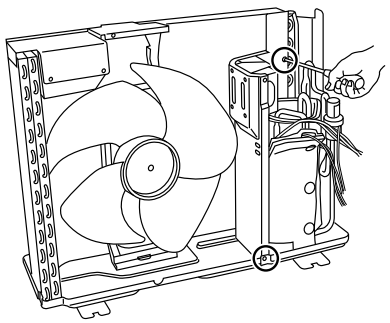
13. Disconnect following connectors and earth wire.
    - Reactor(under the control box) three terminals(red, white and blue)
      Gray is in the next step
    - Reactor(left side of the unit) two terminals(orange and gray) one earth wire
    - Fan motor
    - Thermistor
    - Reverse valve(AE-X108E and AE-X138E only)



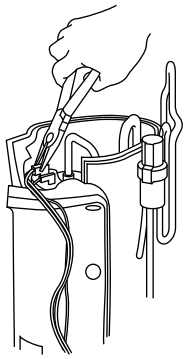
14. Disconnect one terminal.(AU-X138E and AE-X138E only)



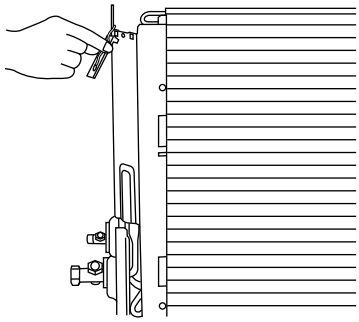
15. Remove two screws which are fixing the bulkhead.



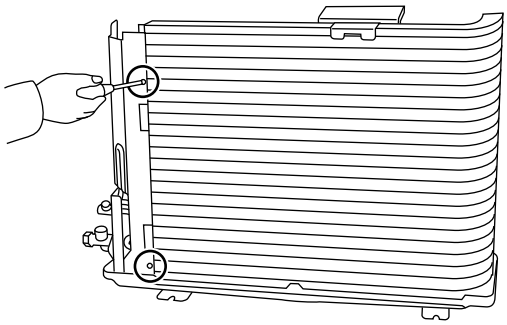
16. Disconnect the compressor wires.(three wires) and take it the thermistor out.



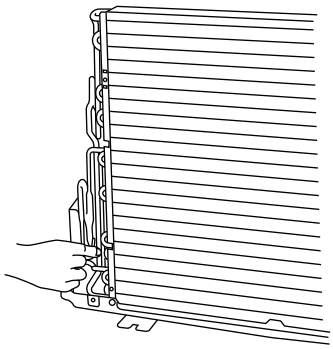
17. Take the thermistor out from the rear plate.



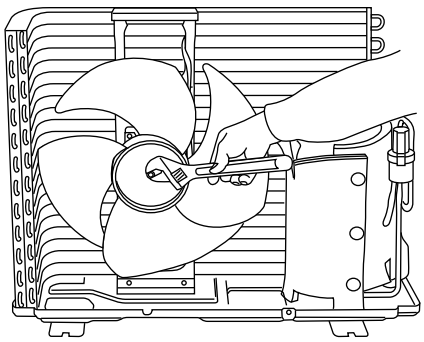
18. Remove two screws which are fixing the rear plate.



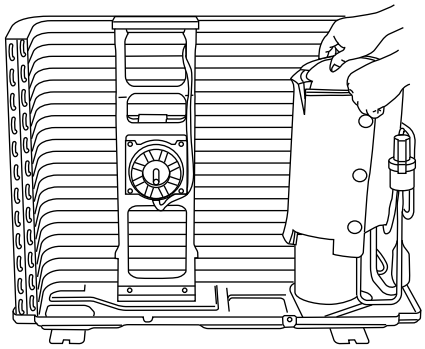
19. Take the thermistor(orange) out.



20. Take the propeller fan out.

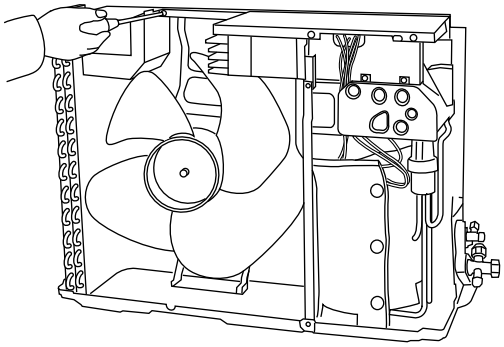


21. Take the compressor cover out.

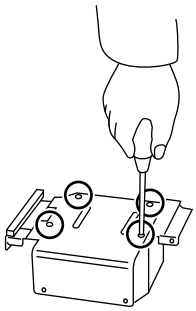


[Reactor box] AU-X138E AND AE-X138E ONLY

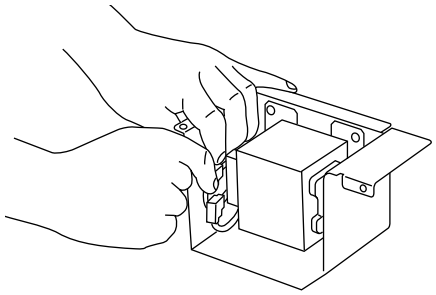
22. Remove one screw which is fixing the reactor box.



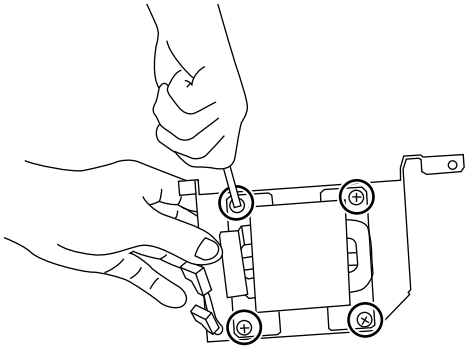
23. Remove four screws which are fixing the reactor box cover. And take it out.



24. Disconnect two terminals and one earth wires.

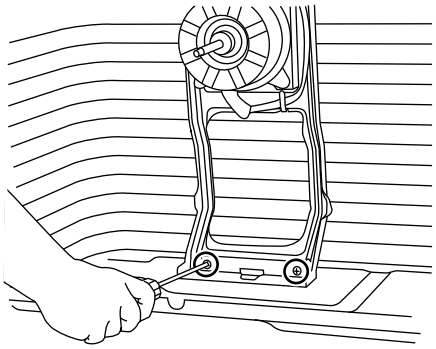


25. Remove four screws which are fixing the reactor.



[Fan motor angle]

26. Remove two screws which are fixing the fan motor angle. And take it out.



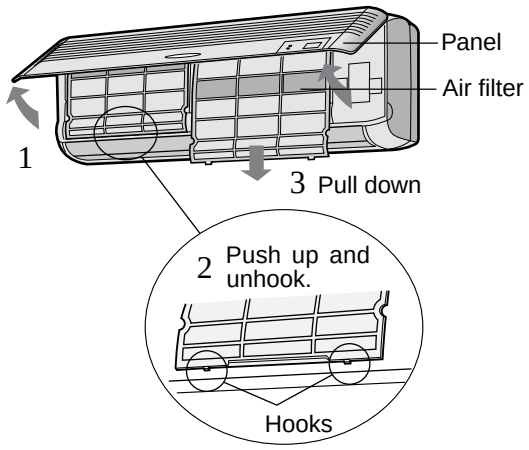
OPTION

HOW TO REPLACE THE AIR PURIFYING FILTER (AZ-F1207; Electrostatic Type (2-sheet package))

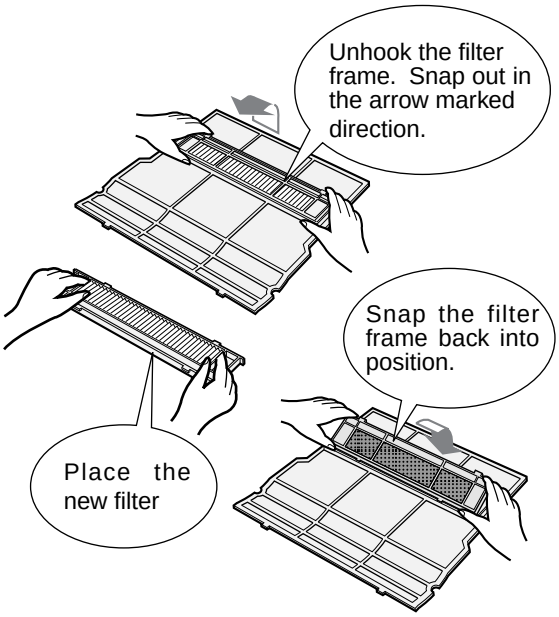
Precautions

» The filters are sealed in a plastic bag to keep thier dust collection effect. Do not open the bag until using the filters. (Otherwise the filters' life may get shorter.)
» Do not expose the filters to direct sunlight.
(Otherwise they may deteriorate.)

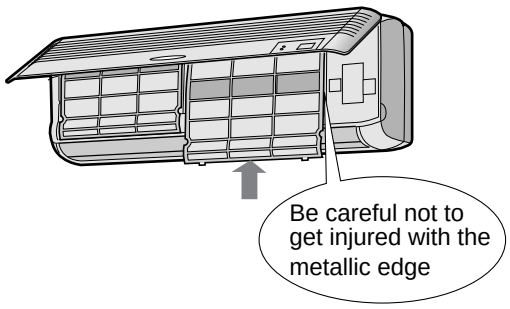
1 Open the panel and take out the air filters.



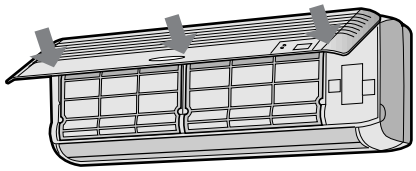
2 Replace the old air purifying filters with new ones.



3 Slide the air filters into position.



4 Close the panel.



» Push the arrow marked position firmly to lock it in place.

REPLACEMENT INTERVALS GUIDELINE

Replace the air purifying filters at the intervals of 3-6 months.

» The dirty filters are not washable for reuse.
The filters are available at your nearest dealer.

REPLACEMENT PARTS LIST
[AH-X108E/AH-X138E/AY-X108E/AY-X138E]

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
		CABINET AND UNIT PARTS		
1- 1	CMOT-A263JBK0	Fan motor sub ass'y	1	BK
1- 2	PGUMMA071JBE0	Motor cushion	1	AN
1- 3	CHLD-A050JBK0	Bearing ass'y	1	AG
1- 4	DCHS-A332JBK0	Cabinet ass'y	1	AY
1- 5	NFANCA066JBE0	Cross flow fan	1	AW
1- 6	CSRA-A433JBK0	Drain pan ass'y	1	BG
1- 7	GGAD-A032JBTA	Fan guard	1	AT
1- 8	MJNTPA062JBFA	Louver link	2	AD
1- 9	MLOV-A199JBFA	Vertical adjustment louver A	8	AK
1-10	MLOV-A201JBFA	Vertical adjustment louver R	1	AK
1-11	MLOV-A211JBFA	Vertical adjustment louver L	1	AC
1-12	MLOV-A215JBFA	Vertical adjustment louver B	2	AC
1-13	MLOV-A204JBFA	Horizontal adjust. louver A	1	AK
1-14	MLOV-A205JBFA	Horizontal adjust. louver B	1	AK
1-15	LHLD-A197JBFP	Louver holder	2	AC
1-16	MARMPA037JBF0	Side clamp A	1	AC
1-17	MARMPA038JBF0	Side clamp B	1	AC
1-18	MARMPA039JBF0	Side clamp C	1	AC
1-19	MARMPA040JBF0	Side clamp D	2	AD
1-20	NBRG-A026JBFA	Louver bushing	4	AB
1-21	LHLD-A410JBFA	Display holder	1	AE
1-22	CHOS-A004JBK0	Drain hose ass'y	1	AM
1-23	PPACGA010JBE0	O ring	1	AB
1-24	DCOV-A159JBFA	Drain pan cover	1	AL
1-25	RMOT-A061JBE0	Louver motor	1	AS
1-26	PGUMMA110JBE0	Drain cap	1	AD
1-27	CWAK-B804JBK0	Front panel ass'y	1	BB
1-28	CPNL-A272JBK0	Open panel ass'y	1	AT
1-29	HBDG-A059JBEA	Badge	1	AF
1-30	CDEC-A060JBE0	Display cover ass'y	1	AK
1-31	FCOV-A031JBFA	Recieving filter	1	AE
1-32	PFILMA107JBEA	Air filter	2	AM
1-33	LHLD-A302JBFA	Tube holder	1	AD
1-34	LHLD-A303JBFA	Tube holder	1	AD
1-35	PGUMMA082JBE0	Motor cushion	1	AD
1-36	GWAK-A245JBFA	Front panel	1	AV
1-37	PCOV-A323JBF0	Drain cover	1	AE
1-38	TLABCB070JBR0	Wiring diagram	1	AE
1-39	TSPC-C715JBR0	Name badge [AH-X108E]	1	AE
1-39	TSPC-C713JBR0	Name badge [AY-X108E]	1	AE
1-39	TSPC-C711JBR0	Name badge [AH-X138E]	1	AG
1-39	TSPC-C702JBR0	Name badge [AY-X138E]	1	AE
1-40	TLABKC209JBR0	Number card [AH-X108E]	1	AC
1-40	TLABKC206JBR0	Number card [AY-X108E]	1	AC
1-40	TLABKC208JBR0	Number card [AH-X138E]	1	AC
1-40	TLABKC207JBR0	Number card [AY-X138E]	1	AC
1-41	QW-VZC597JBE0	Louver motor wire	1	AN
1-42	QW-VZC406JBE0	Fan motor wire	1	AK
1-43	PFPFPB269JBE0	Panel insulator	1	AB
1-44	PSPA-A102JBE0	Rubber spacer	1	AD
		CONTROL BOX		
2- 1	LHLD-A281JBFA	Cord holder	1	AC
2- 2	PBOX-A229JBF0	Control box	1	AN
2- 3	LHLD-A353JBFA	Terminal board holder	1	AD
2- 4	LHLD-A354JBFA	Cord holder	1	AD
2- 5	LHLD-A282JBF0	Thermistor holder	1	AG
2- 6	CPNL-A276JBK0	Cont. box cover ass'y	1	AN
2- 7	HPNLCA728JBEA	Control panel	1	AD
2- 8	PCOV-A483JBFA	LED holder	1	AE
2- 9	DSGY-A940JBK0	Electric control board [AH-X108E]	1	BG
2- 9	DSGY-A934JBK0	Electric control board [AY-X108E]	1	BG
2- 9	DSGY-A933JBK0	Electric control board [AH-X138E]	1	BG
2- 9	DSGY-A916JBK0	Electric control board [AY-X138E]	1	BP
2-10	PCOV-A386JBF0	Thermo holder cover	1	AD
2-11	QACC-A219JBE0	Power supply cord	1	AQ
2-12	QTAN-A152JBE0	Terminal board	1	AN
2-13	QTAN-A186JBE0	4Poles terminal board	1	AP
2-14	LPLTMA143JBP0	Control box angle	1	AE
2-15	PSEL-B542JBE0	Aluminum tape	1	AD
2-16	PSHE-A169JBE0	Protect sheet	1	AC
2-17	RTHM-A300JBE0	Thermistor	1	AN

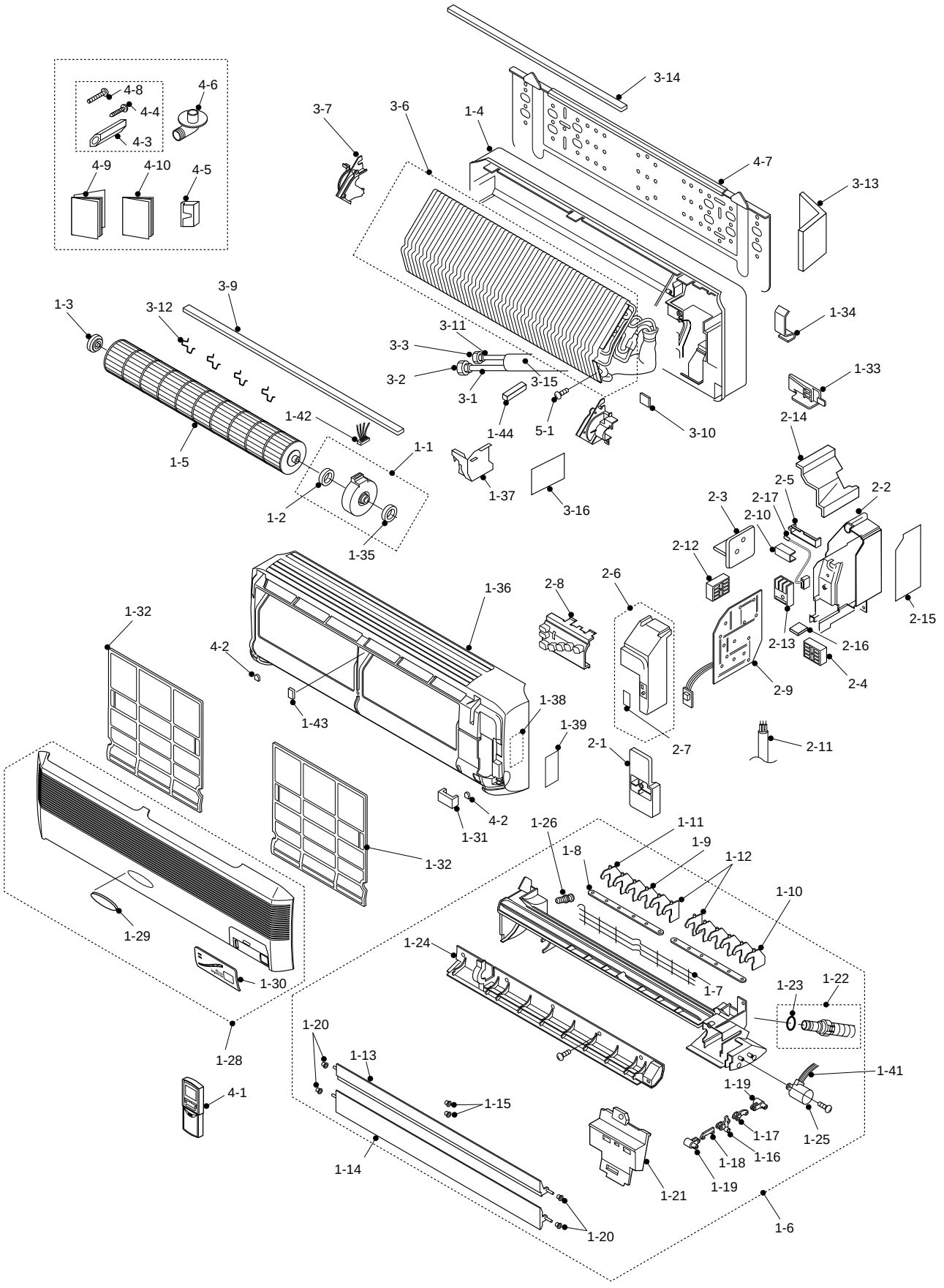
REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
		CYCLE PARTS		
3- 1	CPIPCA443JBK0	Pipe ass'y [AH-X108E/AY-X108E]	1	AZ
3- 1	CPIPCA571JBK0	Pipe ass'y [AH-X138E/AY-X138E]	1	BB
3- 2	PSEN-A004JBK0	Flare nut ass'y	1	AE
3- 3	PSEN-A005JBK0	Flare nut ass'y [AH-X108E/AY-X108E]	1	AG
3- 3	PSEN-A020JBK0	Flare nut ass'y [AH-X138E/AY-X138E]	1	AL
3- 4	PVLV-A082JBE0	Flare union	1	AH
3- 5	PVLV-0406JBE0	Flare union [AH-X138E/AY-X138E]	1	AK
3- 5	PVLV-A083JBE0	Flare union [AH-X108E/AY-X108E]	1	AH
3- 6	DEVA-A073JBK0	Evaporator ass'y	1	BT
3- 7	PPLT-A053JBFA	Side cover L	1	AG
3- 8	PPLT-A054JBFA	Side cover R	1	AF
3- 9	PSEL-B166JBE0	Eva insulator	1	AE
3-10	PFPFPB329JBE0	Thermo insulator	1	AB
3-11	PCAP-A007JBF0	Nut bonnet [AH-X108E/AY-X108E]	1	AB
3-11	PCAP-A056JBF0	Nut bonnet [AH-X138E/AY-X138E]	1	AC
3-12	MSPR-A131JBE0	Spring	4	AD
3-13	PGID-A072JBE0	Drain guide	1	AE
3-14	PSEL-B121JBE0	Eva insulator	1	AF
3-15	PFPFPB285JBE0	Tube insulator [AH-X108E/AY-X108E]	1	AK
3-15	PFPFPB286JBE0	Tube insulator [AH-X138E/AY-X138E]	1	AH
3-16	PFPFPB414JBE0	Drain sheet	1	AC
		ACCESSORY PARTS		
4- 1	CRMC-A447JBE0	Remote controller [AH-X108E/AH-X138E]	1	BB
4- 1	CRMC-A442JBE0	Remote controller [AY-X108E/AY-X138E]	1	BB
4- 2	FCOV-A032JBFA	Screw cover	2	AL
4- 3	LX-NZ0247JBE0	Special nut	7	AB
4- 4	LX-BZA106JBE0	Special screw	1	AE
4- 5	GLEGGA008JBE0	Anti-vibration rubber	4	AE
4- 6	LPFT-A029JBF0	Drain hose adapter [AY-X108E/AY-X138E Only]	1	AD
4- 7	PPLTNA041JBP0	Mounting plate	1	AP
4- 8	XTTSD45P30000	Long screw	6	AA
4- 9	TINS-A518JBR0	Installation manual	1	AG
4-10	TINSEA199JBR0	Operation manual	1	AH
		SCREWS		
5- 1	LX-BZA075JBE0	Special screw	1	AA

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 AH-X108E, AH-X138E, AY-X108E AND AY-X138E



REPLACEMENT PARTS LIST [AU-X108E/AE-X108E]

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
		CABINET AND UNIT PARTS		
1- 1	CMOTLA719JBE0	Fan motor [AE-X108E]	1	BG
1- 1	CMOTLA720JBE0	Fan motor [AU-X108E]	1	BG
1- 2	LANGKA059JBP0	Fan motor angle	1	AV
1- 3	PSEL-A904JBE0	Motor angle cushion	1	AB
1- 4	PSEL-A936JBE0	Motor insulator	1	AC
1- 5	PSEL-A978JBE0	Gcon insulator	1	AC
1- 6	PSEL-A979JBE0	Gcon insulator	1	AC
1- 7	CCAB-A187JBK0	Front panel ass'y [AE-X108E]	1	BL
1- 7	CCAB-A189JBK0	Front panel ass'y [AU-X108E]	1	BL
1- 8	GCAB-A148JBFA	Front panel	1	AY
1- 9	GGADFA033JBTA	Wire fan guard	1	AZ
1-10	PGID-A068JBFA	Orifice	1	AQ
1-11	PSEL-B171JBE0	Bulkhead seal	1	AC
1-12	PSEL-B631JBE0	Bulkhead seal	1	AC
1-13	PSEL-B632JBE0	Orifice insulator	1	AC
1-14	PSEL-B633JBE0	Orifice insulator	1	AC
1-15	TLABBA132JBRA	Sharp badge	1	AE
1-16	TLABCB083JBR0	Wiring diagram [AE-X108E]	1	AD
1-16	TLABCB086JBR0	Wiring diagram [AU-X108E]	1	AD
1-17	GCAB-A149JBFA	Rear cabinet	1	AY
1-18	LHLD-0261JBM0	Cord holder	1	AB
1-19	PSEL-B608JBE0	Air seal	1	AD
1-20	PSEL-B609JBE0	Air seal	1	AD
1-21	CCHS-A643JBTA	Base pan ass'y	1	BE
1-22	PSKR-A176JBY0	Bulkhead	1	AT
1-23	PSEL-B540JBE0	Bulkhead seal	1	AG
1-24	RTRN-A235JBE0	Reactor	1	BF
1-25	MSPR-A027JBE0	Thermistor spring	1	AB
1-26	NFANPA056JBE0	Propeller fan	1	AY
1-28	PFTA-A066JBFA	Cont. box cover	1	AL
1-29	PPLT-A128JBP0	Protect plate	1	AE
1-30	PSEL-B589JBE0	Cover seal	1	AB
1-31	PSEL-B602JBE0	Cover seal	1	AC
1-33	LHLD-A114JBF0	Thermister holder [AE-X108E]	1	AB
1-34	PPLT-A131JBP0	Rear Plate	1	AK
1-35	PSEL-B606JBE0	Rear plate seal	1	AB
1-36	PSEL-B607JBE0	Rear plate seal	1	AB
1-37	PSEL-B630JBE0	Air seal [AU-X108E]	1	AB
1-38	MSPR-A046JBE0	Protector spring	1	AC
1-39	RTHM-A022JBE0	Thermistor	1	AN
1-40	RTHM-A311JBE0	Thermister ass'y [AE-X108E]	1	AS
1-40	RTHM-A314JBE0	Thermister ass'y [AU-X108E]	1	AQ
1-42	TLABKC227JBR0	Number card [AE-X108E]	1	AC
1-42	TLABKC228JBR0	Number card [AU-X108E]	1	AC
1-43	TSPC-C742JBR0	Name badge [AE-X108E]	1	AE
1-43	TSPC-C747JBR0	Name badge [AU-X108E]	1	AE
		CONTROL BOX PARTS		
2- 1	CBOX-A021JBW0	Box ass'y	1	AX
2- 2	DSGY-A931JBK0	Printed wiring board [AE-X108E]	1	BN
2- 2	DSGY-A937JBK0	Printed wiring board [AU-X108E]	1	BM
2- 3	LBNDKA084JBW0	Capacitor clamp	1	AE
2- 4	PCOV-A487JBF0	Terminal cover	1	AD
2- 5	PDAI-A067JBW0	Terminal holder	1	AF
2- 6	PDAI-A071JBF0	Heat sink holder	1	AH
2- 7	PDAI-A074JBW0	Capacitor base	1	AH
2- 8	PPLT-A136JBE0	Plate	1	AQ
2- 9	PRDAFA114JBE0	Heat sink	1	AR
2-10	PSEL-B628JBE0	Control box seal	1	AD
2-11	PSEL-B629JBE0	Control box seal	1	AB
2-12	QTAN-A186JBE0	Terminal board	1	AP
2-13	QW-VZD260JBE0	Lead wire	1	AR
2-14	QW-VZD302JBE0	Lead wire	1	AK
2-15	QW-VZD308JBE0	Lead wire	1	AP
2-16	RC-AZA077JBE0	Electrolytic cap.	2	AY
2-17	RFIL-A060JBE0	Ferrite core	1	AF
2-18	RH-DZA117JBE0	Diode bridge	2	AM
2-19	RH-TZA129JBE0	IPM	1	BL
2-20	RTRN-A240JBE0	Reactor	1	AZ
2-22	CCOV-A056JBW0	Cont. box cover ass'y	1	AP
2-23	PSEL-B603JBE0	Cover seal	1	AC
2-24	PSEL-B604JBE0	Cover seal	1	AC
2-25	PSEL-B605JBE0	Cover seal	1	AC
2-26	PSEL-B627JBE0	Cover seal	1	AC

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
2-27	PSPA-A012JBE0	Spacer	4	AA
2-28	PSPA-A042JBE0	Spacer	6	AB

CYCLE PARTS

3- 1	CVLV-A473JBK0	Capillary tube ass'y [AE-X108E]	1	AY
3- 1	CVLV-A464JBK0	Capillary tube ass'y [AU-X108E]	1	AX
3- 2	CVLV-A472JBK0	Reverse valve ass'y [AE-X108E]	1	BK
3- 3	CPIPCA573JBK0	Suction tube ass'y [AU-X108E]	1	BA
3- 4	PPIPCD856JBE0	Discharge tube [AU-X108E]	1	AP
3- 5	CMOTLA690JBE0	Motor ass'y [AE-X108E]	1	AX
3- 6	DVLV-A360JBK0	Reverse valve [AE-X108E]	1	BY
3- 7	MSPRPA017JBE0	Spring [AE-X108E]	2	AD
3- 8	DCON-A071JBP0	Condenser ass'y	1	CB
3- 9	DVLV-A355JBK0	2-way valve unit	1	AU
3-10	DVLV-A358JBK0	3-way valve unit	1	AX
3-11	LBSHCA005JBE0	Terminal bushing	1	AA
3-12	PCMPRA267JBE0	Compressor	1	CK
3-13	PCOV-0562JBE0	Terminal cover	1	AD
3-14	GLEG-A057JBE0	Compressor cushion	3	AD
3-15	PSPF-A661JBE0	Compressor cover	1	AN
3-16	PSPF-A662JBE0	Compressor cover	1	AX
3-17	PSPF-A663JBE0	Compressor cover	1	AH
3-18	PSEN-A004JBK0	Flare nut ass'y	1	AE
3-19	PSEN-A005JBK0	Flare nut ass'y	1	AG

SCREWS AND NUTS

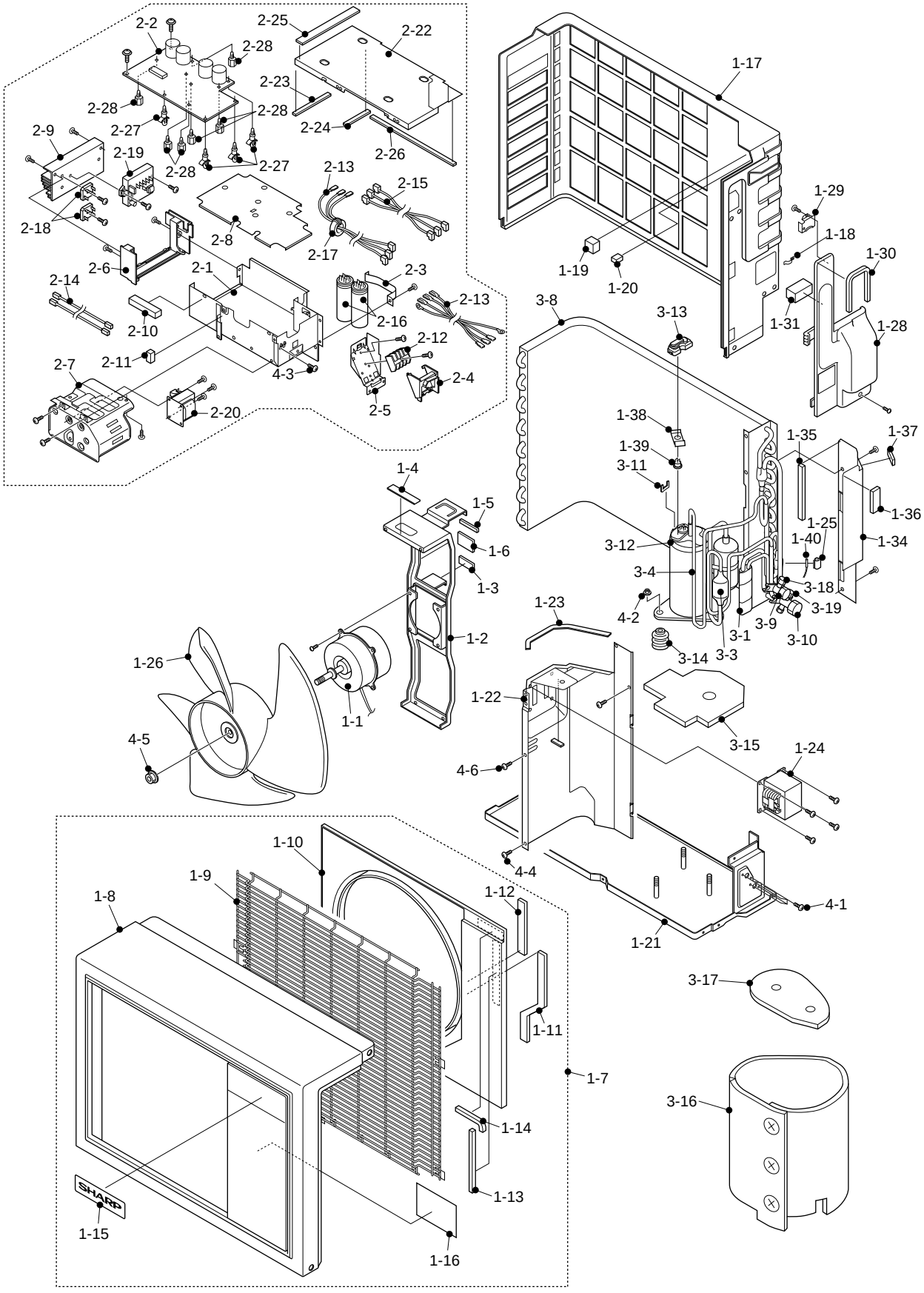
4- 1	LX-BZA072JBE0	Special screw	4	AB
4- 2	LX-NZA026JBE0	Special nut	3	AC
4- 3	LX-BZA075JBE0	Special screw	1	AA
4- 4	LX-BZA175JBE0	Special screw	1	AC
4- 5	LX-NZA135JBE0	Special nut	1	AC
4- 6	XTSSF40P12000	Tapping screw	1	AA

HOW TO ORDER REPLACEMENT PARTS

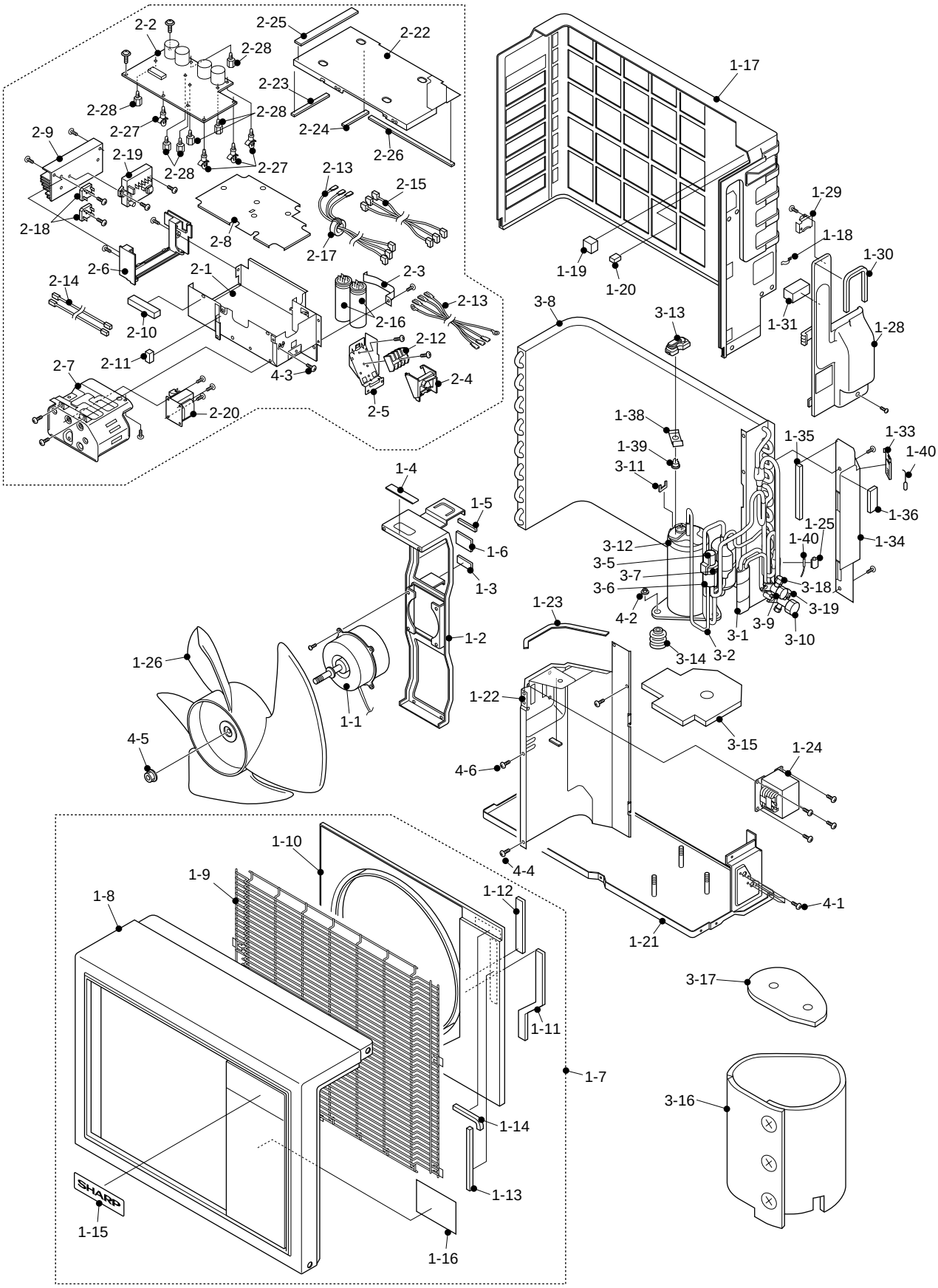
To have your order filled prompty and correctly, please furnish the following information.

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

OUTDOOR UNIT AU-X108E



OUTDOOR UNIT AE-X108E



REPLACEMENT PARTS LIST [AU-X138E/AE-X138E]

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
		CABINET AND UNIT PARTS		
1- 1	CMOTLA723JBE0	Fan motor [AU-X138E]	1	BG
1- 1	CMOTLA697JBE0	Fan motor [AE-X138E]	1	BK
1- 2	LANGKA098JBP0	Fan motor angle	1	AP
1- 3	PFPFPB087JBE0	Motor angle cushion	1	AC
1- 4	PGUMSA291JBE0	Damper Rubber	1	AD
1- 5	PSEL-A936JBE0	Motor insulator	1	AC
1- 6	PSEL-B217JBE0	Motor angle cushion	1	AD
1- 7	PBOX-A293JBP0	Reactor box top	1	AL
1- 8	PBOX-A298JBY0	Reactor box	1	AQ
1- 9	PCOV-A482JBP0	Reactor box cover	1	AF
1-10	PSEL-B541JBE0	Reactor box seal	1	AG
1-11	PSEL-B636JBE0	Reactor box seal	1	AC
1-12	QW-VZD249JBE0	Lead wire	1	AH
1-13	RTRN-A236JBE0	Reactor	1	BB
1-14	CCAB-A186JBK0	Front panel ass'y [AU-X138E]	1	BL
1-14	CCAB-A183JBK0	Front panel ass'y [AE-X138E]	1	BL
1-15	GCAB-A148JBFA	Front panel	1	AY
1-16	GGADFA033JBTA	Wire fan guard	1	AZ
1-17	PGID-A085JBFA	Orifice	1	AP
1-18	PSEL-B171JBE0	Bulkhead seal	1	AC
1-19	PSEL-B631JBE0	Bulkhead seal	1	AC
1-20	PSEL-B632JBE0	Orifice insulator	1	AC
1-21	PSEL-B633JBE0	Orifice insulator	1	AC
1-22	TLABBA132JBRA	Sharp badge	1	AE
1-23	TLABCB081JBR0	Wiring diagram [AU-X138E]	1	AD
1-23	TLABCB068JBR0	Wiring diagram [AE-X138E]	1	AD
1-24	GCAB-A149JBFA	Rear Cabinet	1	AY
1-25	LHLD-0261JBM0	Cord holder	1	AB
1-26	PSEL-B608JBE0	Air seal	1	AD
1-27	PSEL-B609JBE0	Air seal	1	AD
1-28	CCHS-A642JBTA	Base Pan ass'y	1	BE
1-29	PSKR-A173JBY0	Bulkhead	1	AT
1-30	PSEL-B540JBE0	Bulkhead seal	1	AG
1-31	RTRN-A257JBE0	Reactor	1	BS
1-32	MSPR-A026JBE0	Spring	1	AB
1-33	NFANPA056JBE0	Propeller fan	1	AY
1-35	PFTA-A066JBFA	Cont. box cover	1	AL
1-36	PPLT-A128JBW0	Protect plate	1	AE
1-37	PSEL-B589JBE0	Cover seal	1	AB
1-38	PSEL-B602JBE0	Cover seal	1	AC
1-40	LHLD-A114JBF0	Thermister holder [AE-X138E]	1	AB
1-41	PPLT-A131JBP0	Rear plate	1	AK
1-42	PSEL-B606JBE0	Rear plate Seal	1	AB
1-43	PSEL-B607JBE0	Rear plate Seal	1	AB
1-44	PSEL-B630JBE0	Air seal [AU-X138E]	1	AB
1-45	MSPR-A046JBE0	Protector spring	1	AC
1-46	RTHM-A022JBE0	Thermistor	1	AN
1-47	RTHM-A314JBE0	Thermister ass'y [AU-X138E]	1	AQ
1-47	RTHM-A311JBE0	Thermister ass'y [AE-X138E]	1	AS
1-48	TLABKC226JBR0	Number card [AU-X138E]	1	AC
1-48	TLABKC225JBR0	Number card [AE-X138E]	1	AC
1-49	TSPC-C740JBR0	Name badge [AU-X138E]	1	AE
1-49	TSPC-C701JBR0	Name badge [AE-X138E]	1	AE
		CONTROL BOX PARTS		
2- 1	CBOX-A017JBW0	Box ass'y	1	AX
2- 2	DSGY-A926JBK0	Printed wiring board [AU-X138E]	1	BN
2- 2	DSGY-A912JBK0	Printed wiring board [AE-X138E]	1	BF
2- 3	LBNDKA082JBW0	Capacitor clamp	1	AD
2- 4	LBNDKA083JBW0	Capacitor clamp	1	AE
2- 5	LBNDKA084JBW0	Capacitor clamp	1	AE
2- 6	PCOV-A487JBF0	Terminal cover	1	AD
2- 7	PDAI-A067JBW0	Terminal holder	1	AF
2- 8	PDAI-A071JBF0	Heat Sink holder	1	AH
2- 9	PDAI-A074JBW0	Capacitor base	1	AH
2-10	PPLT-A135JBE0	Plate	1	AQ
2-11	PRDAFA110JBE0	Heat sink	1	AN
2-12	PSEL-B628JBE0	Control box seal	1	AD
2-13	PSEL-B629JBE0	Control box seal	1	AB
2-16	PSPA-A119JBE0	Cord holder	1	AB
2-17	QTAN-A186JBE0	Terminal board	1	AP
2-18	QW-VZD255JBE0	Lead wire	1	AQ
2-19	QW-VZD256JBE0	Lead Wire	1	AW
2-20	RC-AZA071JBE0	Electrolytic cap.	2	BD

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
2-21	RC-AZA076JBE0	Electrolytic cap.	1	BB
2-22	RC-AZA073JBE0	Electrolytic cap.	2	BA
2-23	RC-HZA342JBE0	Running capacitor	1	AX
2-24	RFIL-A060JBE0	Ferrite core	1	AF
2-25	RH-DZA110JBE0	Diode bridge	2	AN
2-26	RH-HZ0011JBE0	PTC thermistor	1	AR
2-27	RH-TZA128JBE0	IPM	1	BS
2-29	CCOV-A056JBW0	Cont.Box Cover ass'y	1	AP
2-30	PSEL-B603JBE0	Cover seal	1	AP
2-31	PSEL-B604JBE0	Cover seal	1	AC
2-32	PSEL-B605JBE0	Cover seal	1	AC
2-33	PSEL-B627JBE0	Cover seal	1	AC
2-34	PSPA-A012JBF0	Spacer	4	AA
2-35	PSPA-A042JBE0	Spacer	6	AB

CYCLE PARTS

3- 1	CVLV-A462JBK0	Capillary tube ass'y [AU-X138E]	1	AY
3- 1	CVLV-A471JBK0	Capillary tube ass'y [AE-X138E]	1	BA
3- 2	CVLV-A467JBK0	Reverse valve ass'y [AE-X138E]	1	BK
3- 3	CPIPCA573JBK0	Suction tube ass'y [AU-X138E]	1	BA
3- 4	PPIPCD852JBE0	Discharge tube [AU-X138E]	1	AP
3- 5	CMOTLA690JBE0	Motor ass'y [AE-X138E]	1	AX
3- 6	DVLV-A359JBK0	Reverse valve [AE-X138E]	1	BK
3- 7	MSPRPA017JBE0	Spring [AE-X138E]	1	AD
3- 8	DCON-A070JBP0	Condenser ass'y	1	CB
3- 9	DVLV-A355JBK0	2-way valve unit	1	AL
3-10	DVLV-A356JBK0	3-way valve unit	1	BA
3-11	LBSHCA005JBE0	Terminal bushing	1	AA
3-12	PCMPRA267JBE0	Compressor	1	CK
3-13	PCOV-0562JBE0	Terminal cover	1	AD
3-14	GLEG-A057JBE0	Compressor cushion	3	AD
3-15	PSPF-A661JBE0	Compressor cover	1	AN
3-16	PSPF-A662JBE0	Compressor cover	1	AX
3-17	PSPF-A663JBE0	Compressor cover	1	AH
3-18	PSEN-A004JBK0	Flare nut ass'y	1	AE
3-19	PSEN-A020JBK0	Flare nut ass'y	1	AL

SCREWS AND NUTS

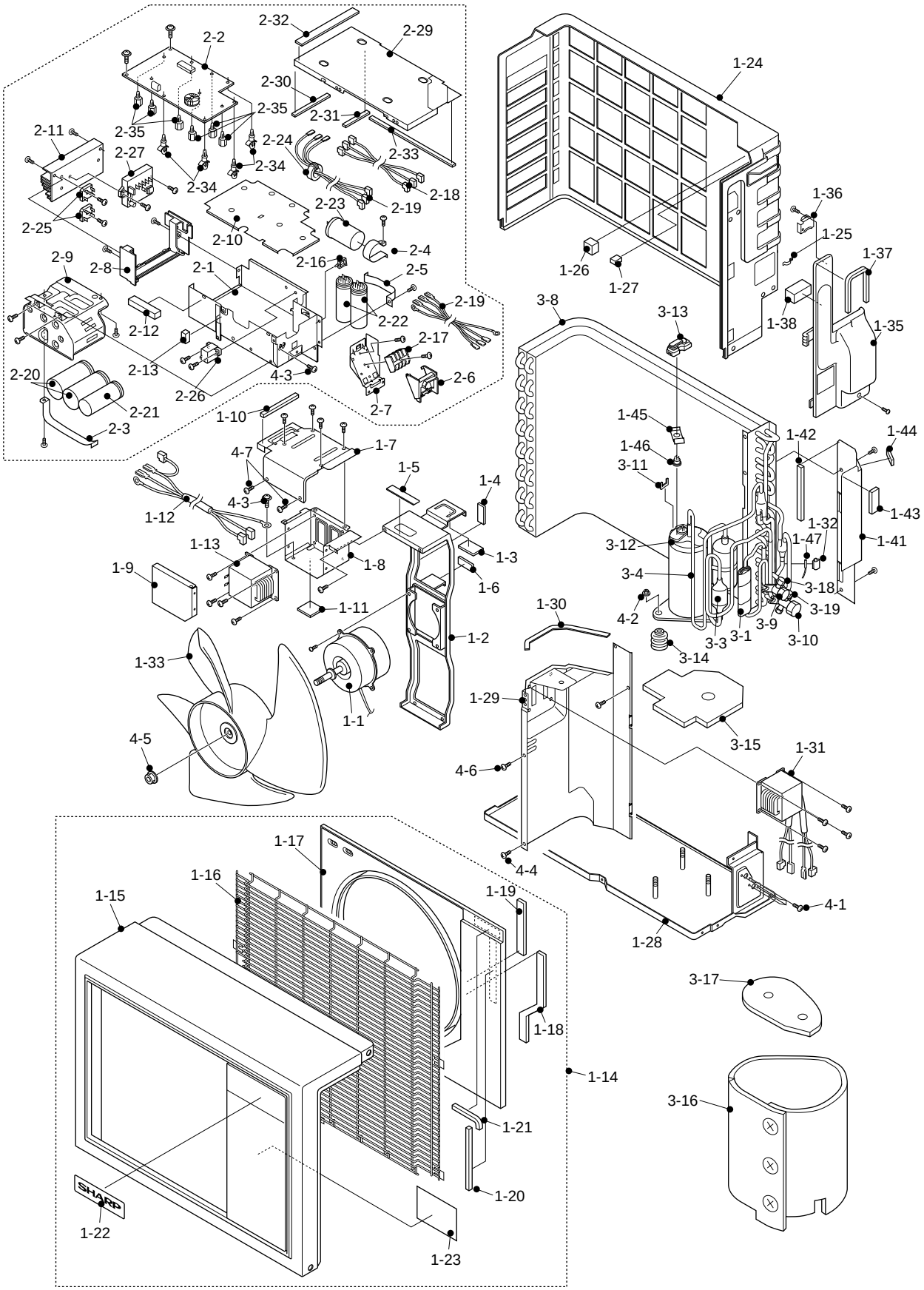
4- 1	LX-BZA072JBE0	Special screw	4	AB
4- 2	LX-NZA026JBE0	Special nut	3	AC
4- 3	LX-BZA075JBE0	Special screw	2	AA
4- 4	LX-BZA175JBE0	Special screw	1	AC
4- 5	LX-NZA135JBE0	Special nut	1	AC
4- 6	XTSSF40P12000	Tapping screw	1	AA
4- 7	XTSSF40P20000	Tapping screw	2	AA

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

OUTDOOR UNIT AU-X138E



OUTDOOR UNIT AE-X138E