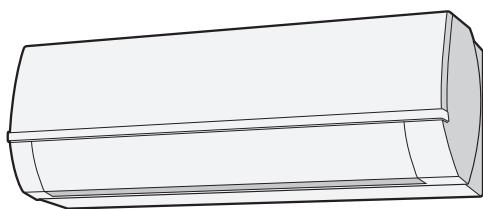


SHARP SERVICE MANUAL

S3011AYXPC8LRT



SPLIT TYPE ROOM AIR CONDITIONER

MODELS

INDOOR UNIT
AY-XPC18LR
AY-XP24LR

OUTDOOR UNIT
AE-X18LR
AE-X24LR

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Parts Guide

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

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The contents are subject to change without notice.

CHAPTER 1. PRODUCT SPECIFICATIONS

[1] SPECIFICATION

1. AY-XPC18LR – AE-X18LR

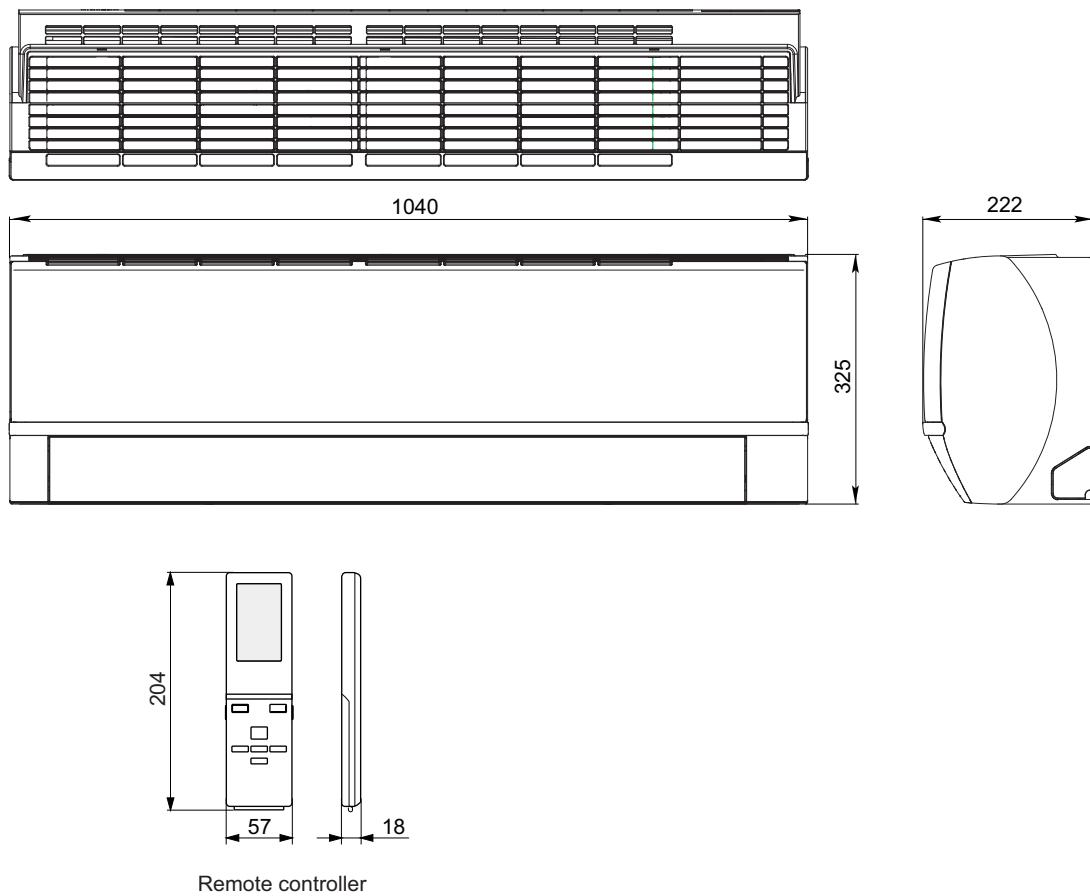
| ITEMS | | MODEL | INDOOR UNIT AY-XPC18LR | OUTDOOR UNIT AE-X18LR | | |
|-----------------------------------|---------------------|---|---------------------------|--------------------------|--|--|
| Cooling capacity (Min– Max.) | | kW | 5.00 (1.40 - 5.70) | | | |
| Heating capacity (Min–Max.) | | kW | 5.70 (1.10 - 8.00) | | | |
| Moisture removal (at cooling)☆ | | Liters/h | 1.6 | | | |
| Electrical data | | | | | | |
| Phase | | Single | | | | |
| Rated frequency | | Hz | 50 | | | |
| Rated voltage | | V | 220-240 | | | |
| Rated current ☆ (Min - Max.) | Cool | A | 6.6 (1.4 - 8.5) | | | |
| | Heat | A | 6.8 (1.3 - 10.7) | | | |
| Rated input ☆ (Min - Max.) | Cool | W | 1470 (260- 1890) | | | |
| | Heat | W | 1510 (240 - 2380) | | | |
| Power factor ☆ | Cool | % | 97 | | | |
| | Heat | % | 97 | | | |
| Compressor | Type | Hermetically sealed rotary type | | | | |
| | Model | C-6RVN103H0Q | | | | |
| | Oil charge | FREOALALF68SZ 600cc | | | | |
| Refrigerant system | Evaporator | Louver Fin and Grooved tube type | | | | |
| | Condenser | Corrugate Fin and Grooved tube type | | | | |
| | Control | Expansion valve | | | | |
| | Refrigerant (R410A) | 1100g | | | | |
| | De-Ice system | Micro computer controlled reversed systems | | | | |
| Noise level (cooling) | High | dB(A) | 43 | 49 | | |
| | Low | dB(A) | 39 | – | | |
| | Soft | dB(A) | 33 | – | | |
| Fan system | | | | | | |
| Drive | | Direct drive | | | | |
| Air flow quantity (cooling) | High | m ³ /min. | 14.4 | 44.3 | | |
| | Low | m ³ /min. | 12.1 | – | | |
| | Soft | m ³ /min. | 9.5 | – | | |
| Fan | | Centrifugal fan | | Propeller fan | | |
| Connections | | | | | | |
| Refrigerant coupling | | Flare type | | | | |
| Refrigerant tube size Gas, Liquid | | 1/2", 1/4" | | | | |
| Drain piping mm | | O.D φ16 | | | | |
| Others | | | | | | |
| Safety device | | Compressor: Thermal protector Fan motors: Thermal fuse Fuse, Micro computer control | | | | |
| Air filters | | Polypropylene net (Washable) | | | | |
| Net dimensions | Width | mm | 1040 | 850 | | |
| | Height | mm | 325 | 710 | | |
| | Depth | mm | 222 | 330 | | |
| Net weight | | kg | 12 | 49 | | |

NOTE: The conditions of star"☆" marked item are based on "EN14511".

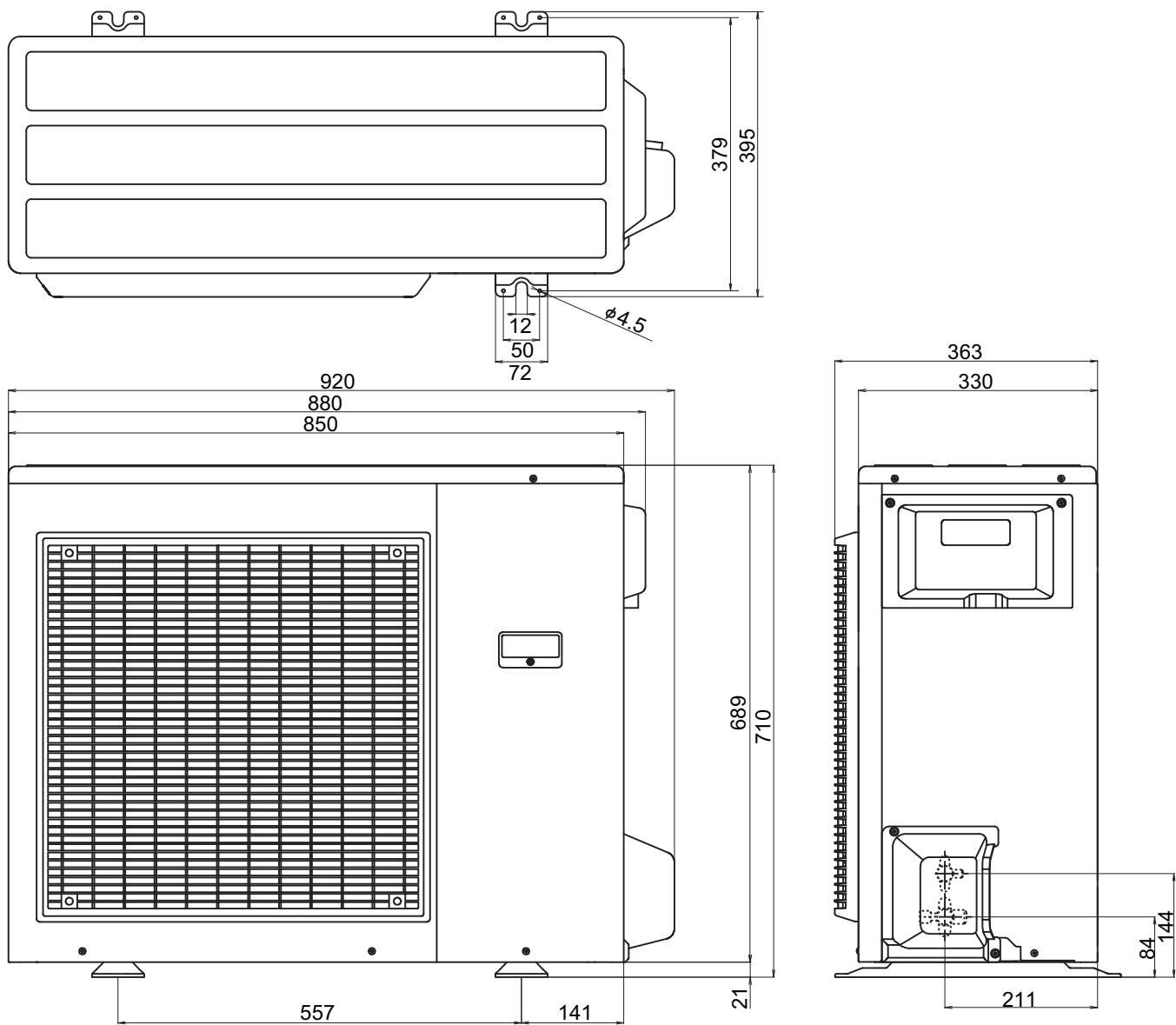
2. AY-XP24LR / AE-X24LR

| ITEMS | | MODEL | INDOOR UNIT AY-XP24LR | OUTDOOR UNIT AE-X24LR |
|------------------------------------|---------------------|----------------------|--|--------------------------|
| Rated cooling capacity (Min– Max.) | | kW | 7.00 (1.50- 8.00) | |
| Rated heating capacity (Min–Max.) | | kW | 7.50 (1.10 - 9.50) | |
| Moisture removal (at cooling)☆ | | Liters/h | 2.6 | |
| Electrical data | | | | |
| Phase | | | Single | |
| Rated frequency | | Hz | 50 | |
| Rated voltage | | V | 220-240 | |
| Rated current ☆ (Min - Max.) | Cool | A | 9.6 (1.2 - 13.3) | |
| | Heat | A | 8.9 (1.1 - 12.6) | |
| Rated input ☆ (Min - Max.) | Cool | W | 2160 (260- 2990) | |
| | Heat | W | 2015 (240 - 2830) | |
| Power factor ☆ | Cool | % | 98 | |
| | Heat | % | 98 | |
| Compressor | Type | | Hermetically sealed rotary type | |
| | Model | | C-6RVN103H0Q | |
| | Oil charge | | FREOALALF68SZ 600cc | |
| Refrigerant system | Evaporator | | Louver Fin and Grooved tube type | |
| | Condenser | | Corrugate Fin and Grooved tube type | |
| | Control | | Expansion valve | |
| | Refrigerant (R410A) | | 1680g | |
| | De-Ice system | | Micro computer controlled reversed systems | |
| Noise level (cooling) | High | dB(A) | 47 | 53 |
| | Low | dB(A) | 42 | – |
| | Soft | dB(A) | 35 | – |
| Fan system | | | | |
| Drive | | | Direct drive | |
| Air flow quantity (cooling) | High | m ³ /min. | 18.4 | 45.6 |
| | Low | m ³ /min. | 14.4 | – |
| | Soft | m ³ /min. | 10.7 | – |
| Fan | | | Centrifugal fan | Propeller fan |
| Connections | | | | |
| Refrigerant coupling | | | Flare type | |
| Refrigerant tube size Gas, Liquid | | | 5/8", 1/4" | |
| Drain piping mm | | | O.D φ16 | |
| Others | | | | |
| Safety device | | | Compressor: Thermal protector | |
| | | | Fan motors: Thermal fuse | |
| | | | Fuse, Micro computer control | |
| Air filters | | | Polypropylene net (Washable) | |
| Net dimensions | Width | mm | 1040 | 850 |
| | Height | mm | 325 | 710 |
| | Depth | mm | 222 | 330 |
| Net weight | | kg | 13 | 53 |

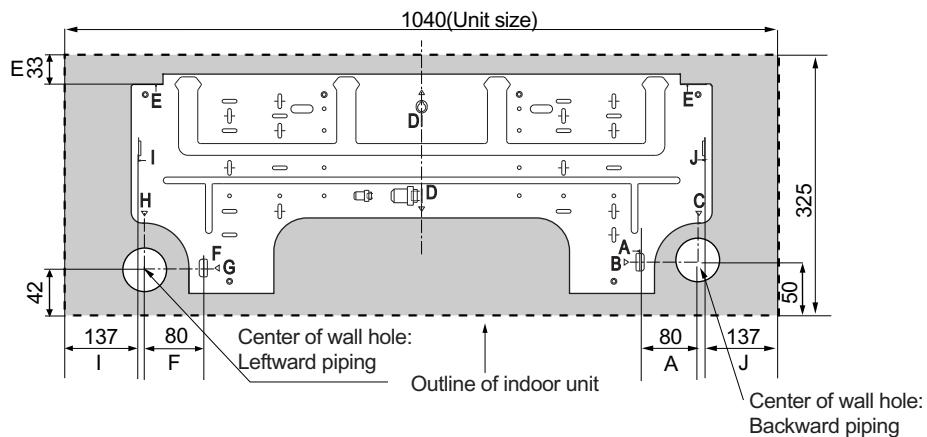
NOTE: The conditions of star"☆" marked item are based on "EN14511".

[2] EXTERNAL DIMENTIONS**1. Indoar unit**

2. Outdoor unit

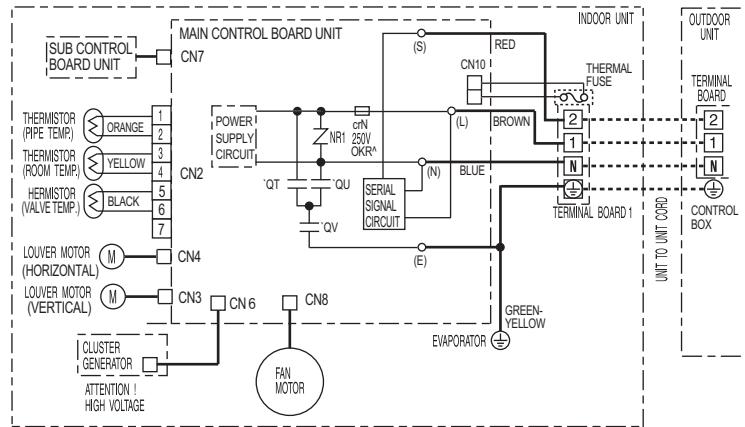


3. Installation dimension

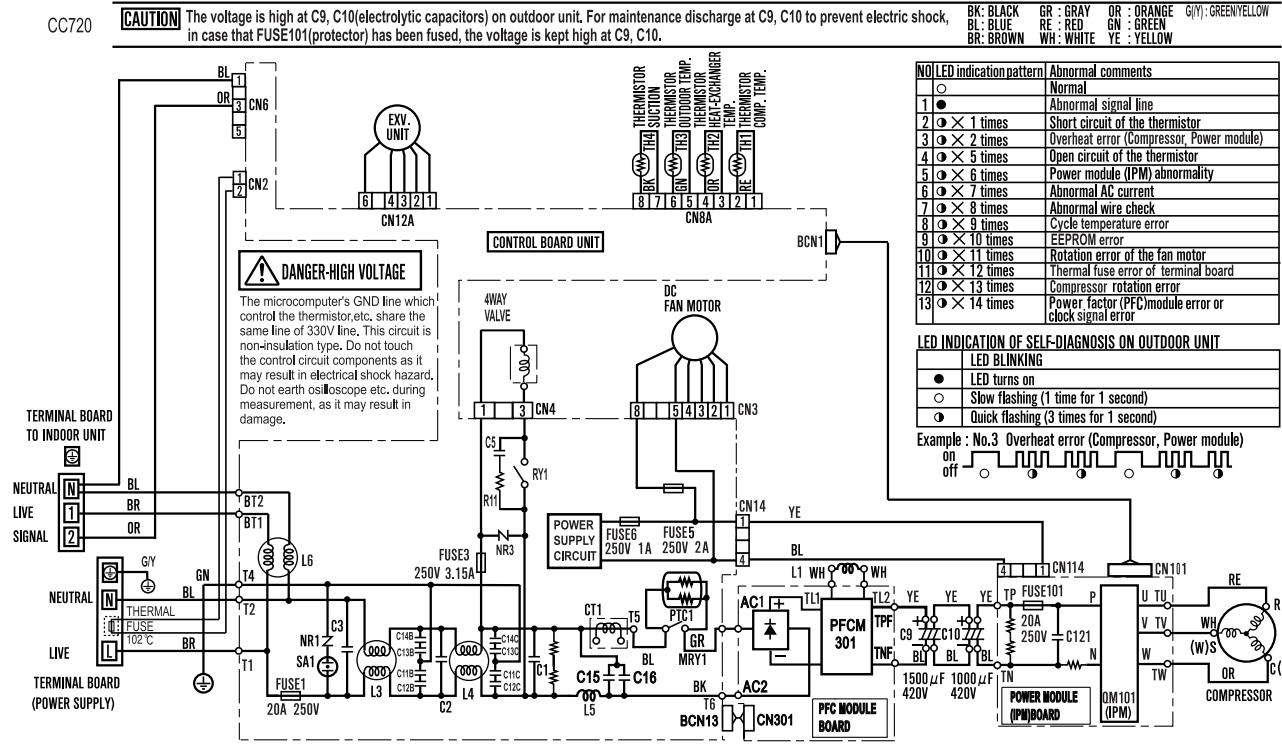


[3] WIRING DIAGRAMS

1. Indoor unit



2. Outdoor unit



[4] ELECTRICAL PARTS

1. Indoor unit

| Part Name | Items | Specifications |
|----------------------|----------|-------------------------------------|
| Terminal Board | Rating | 300V 25A |
| Printed Wiring Board | Material | Paper Base Phenolic Resin (UL94V-0) |
| Fan motor | Type | MLB438, DC Motor |
| Louver Motor | Rating | DC12V |
| | Type | MP24GA |

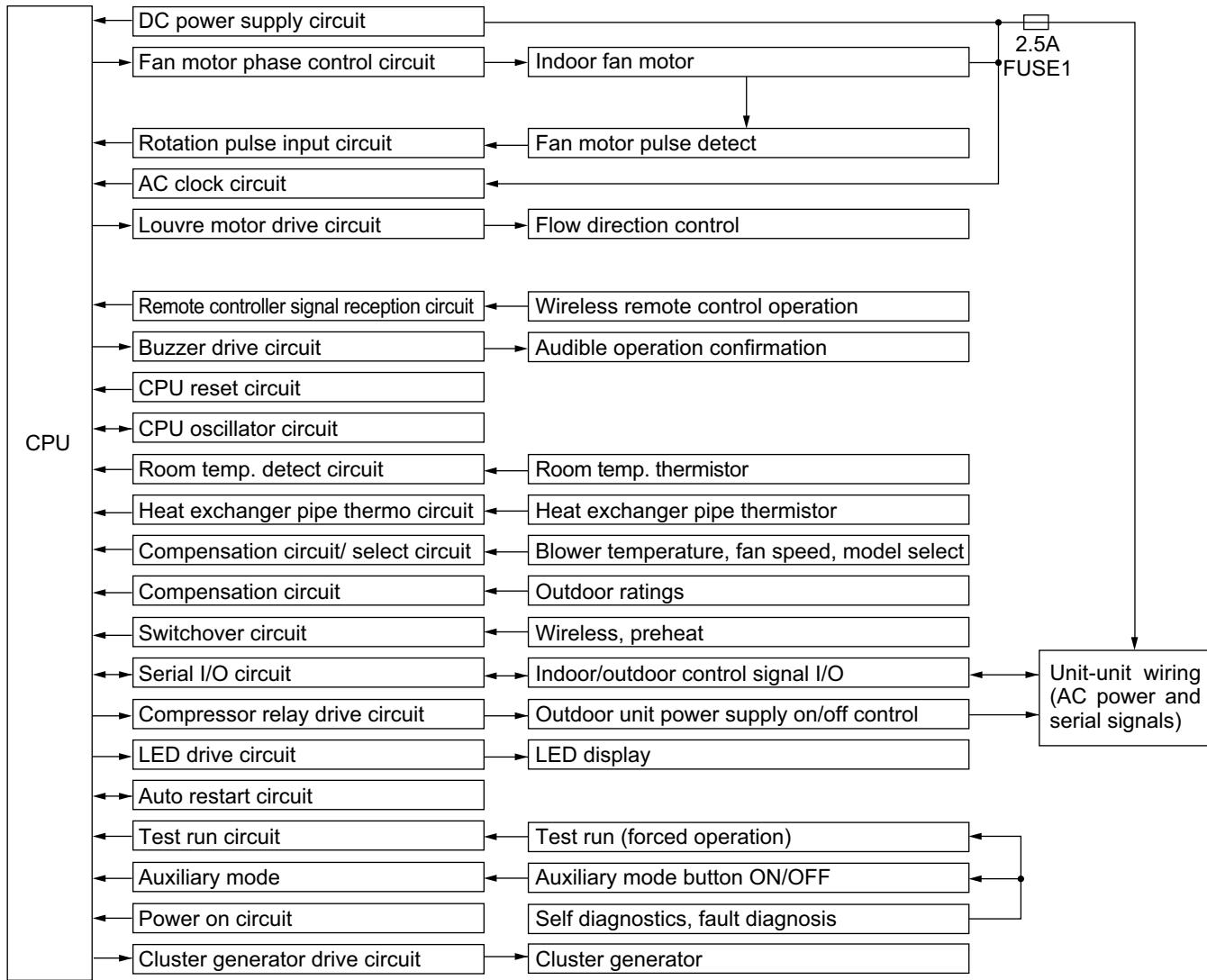
2. Outdoor unit

| Part Name | Items | Specifications |
|------------|--------|------------------|
| Fuse1 | Rating | 250V, 20A |
| Fuse101 | Rating | 250V, 20A |
| Fuse3 | Rating | 250V, 3.15A |
| Fuse5 | Rating | 250V, 2A |
| Fuse6 | Rating | 250V, 1A |
| Compressor | Rating | DC Brush-less |
| | Type | Motor 1000W |
| Fan motor | Type | MLB078, DC Motor |

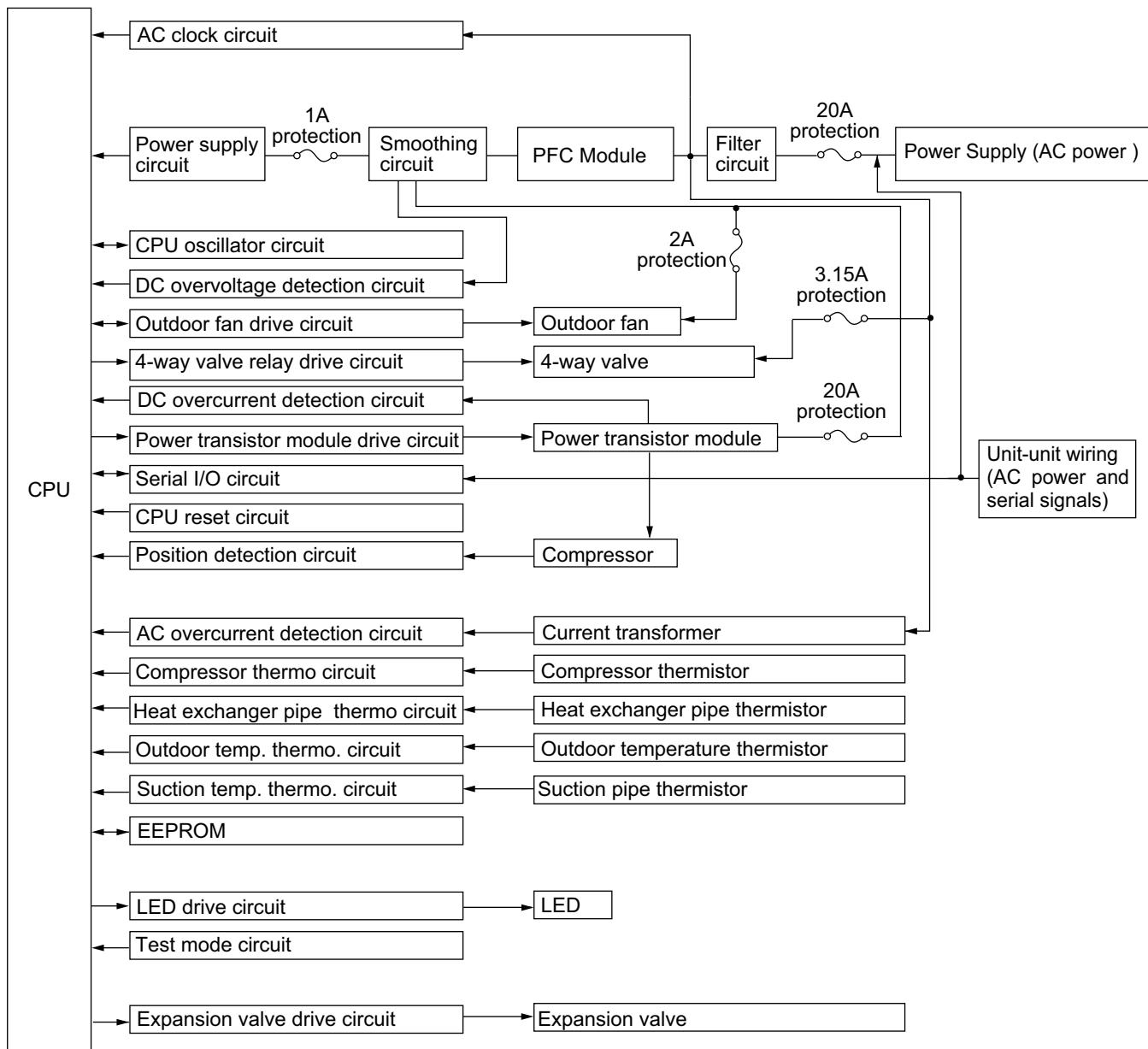
CHAPTER 2. EXPLANATION OF CIRCUIT AND OPERATION

[1] BLOCK DIAGRAMS

1. Indoor unit

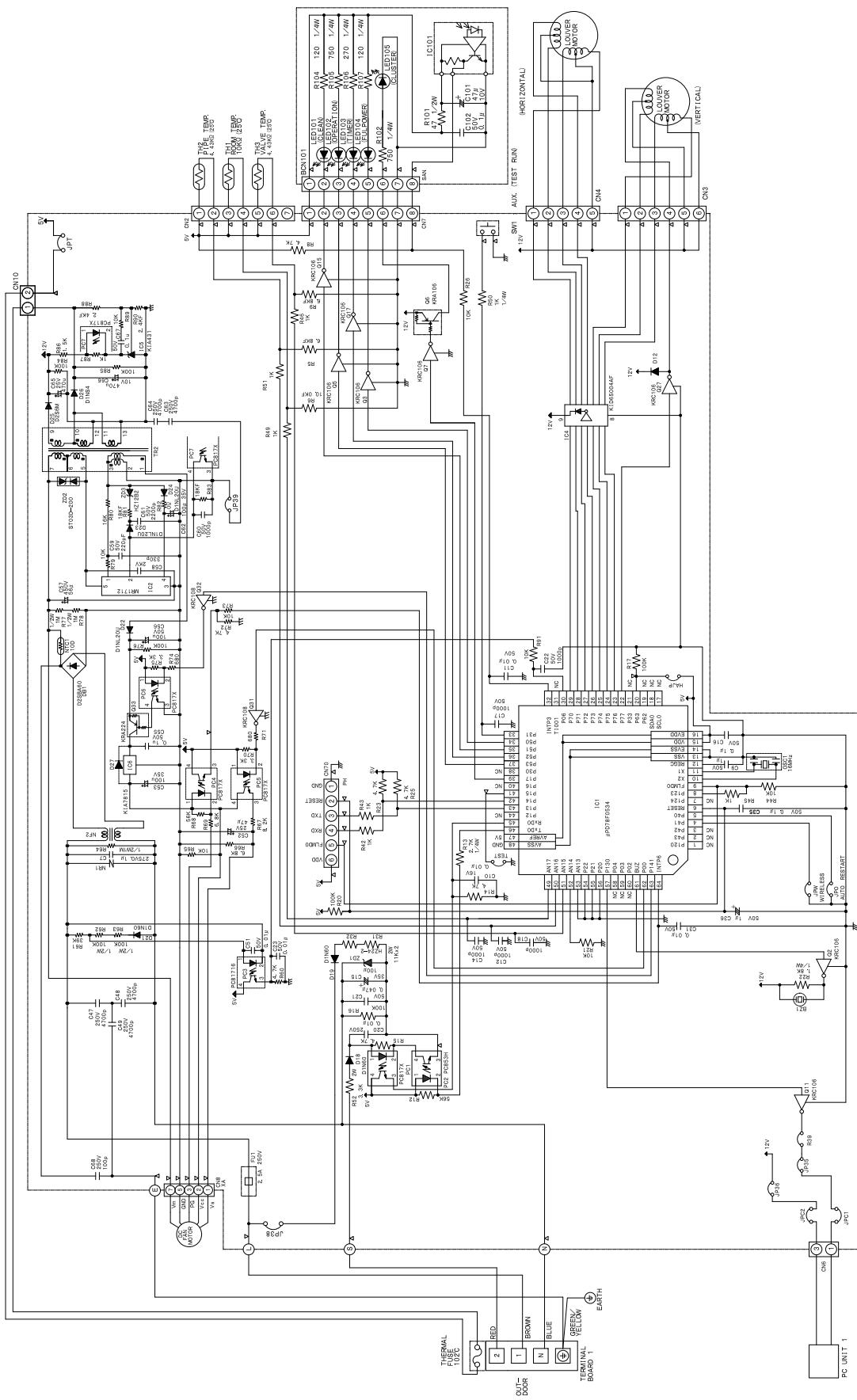


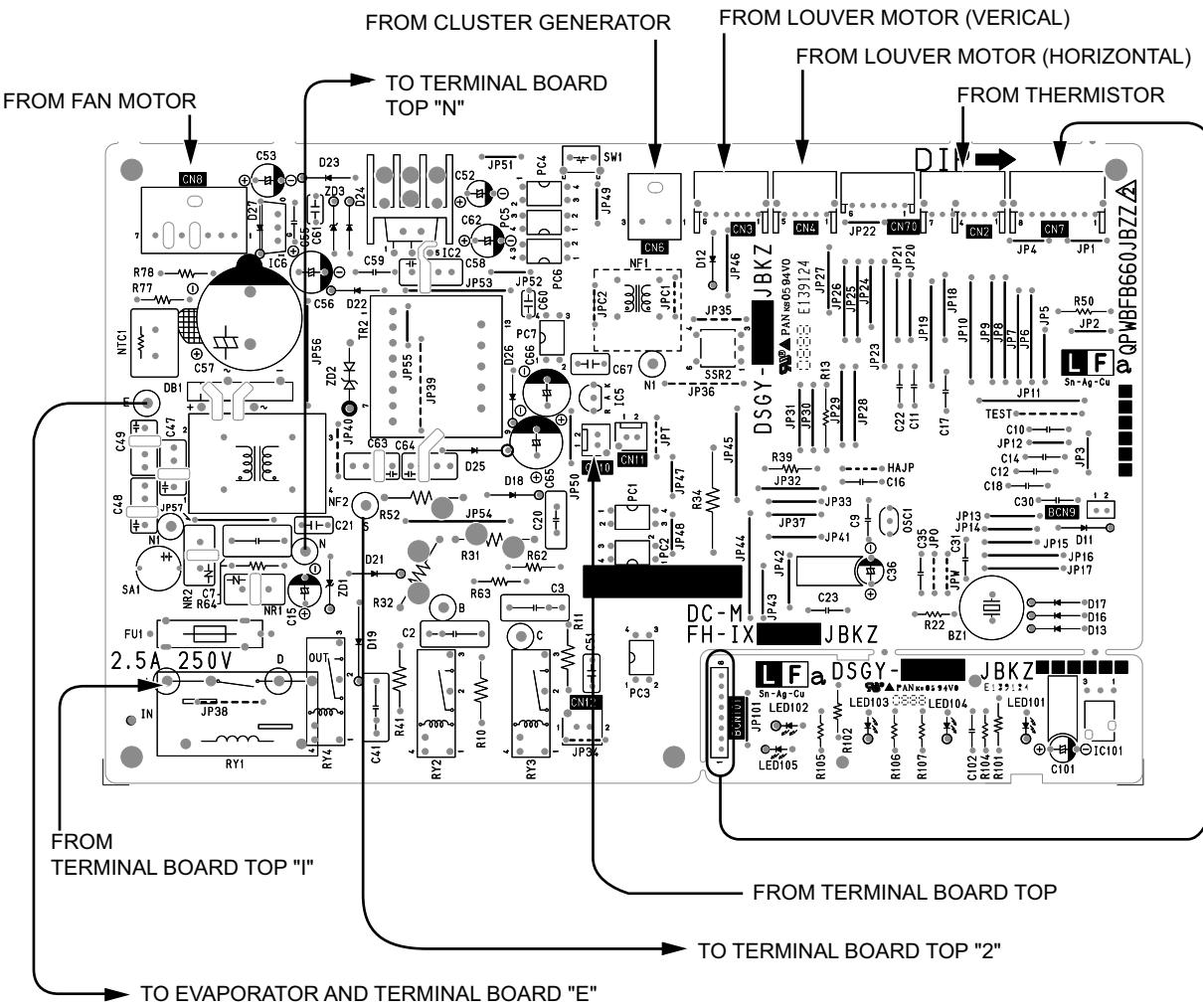
2. Outdoor unit



[2] MICROCOMPUTER CONTROL SYSTEM

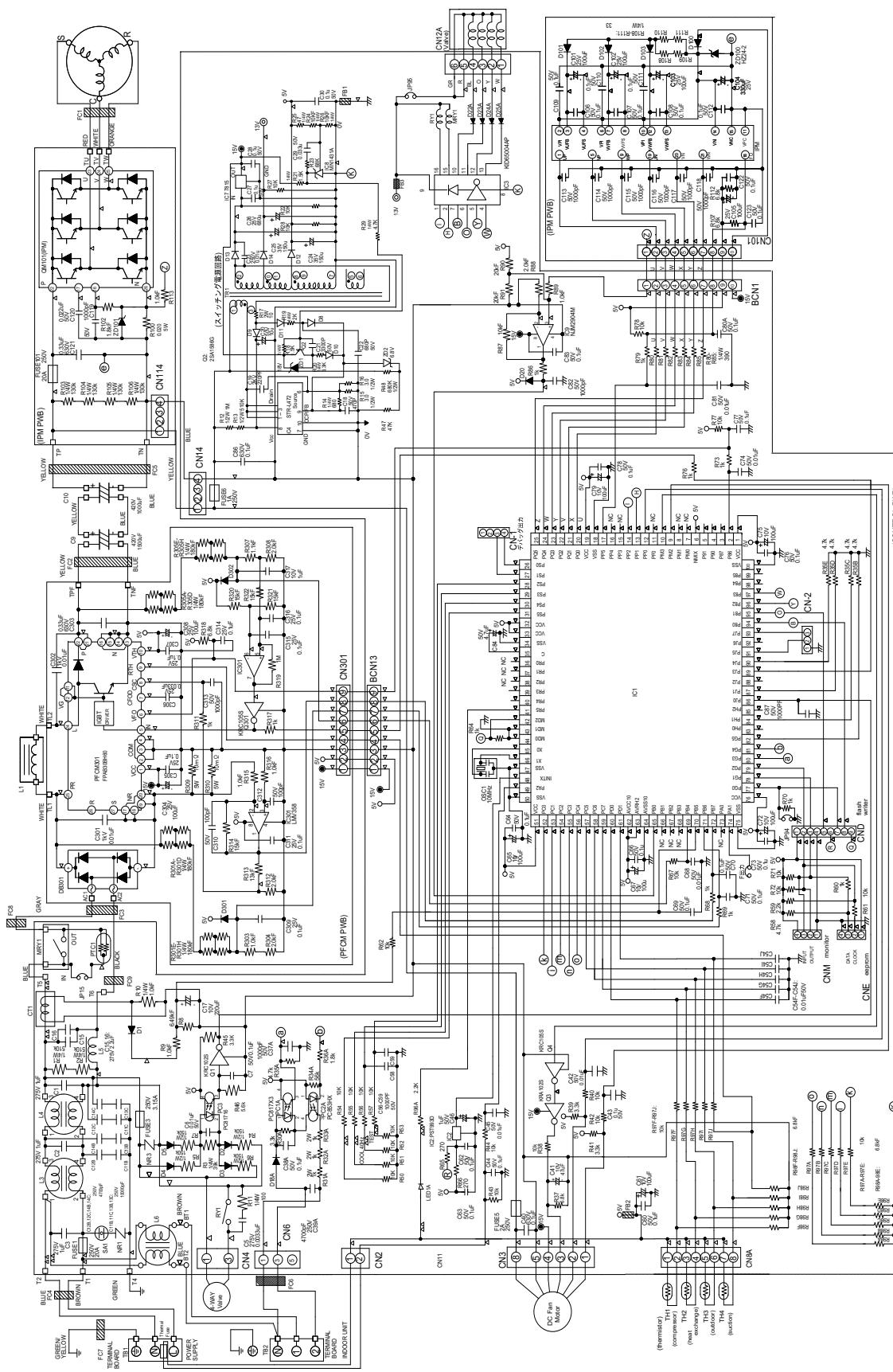
1. Indoor unit



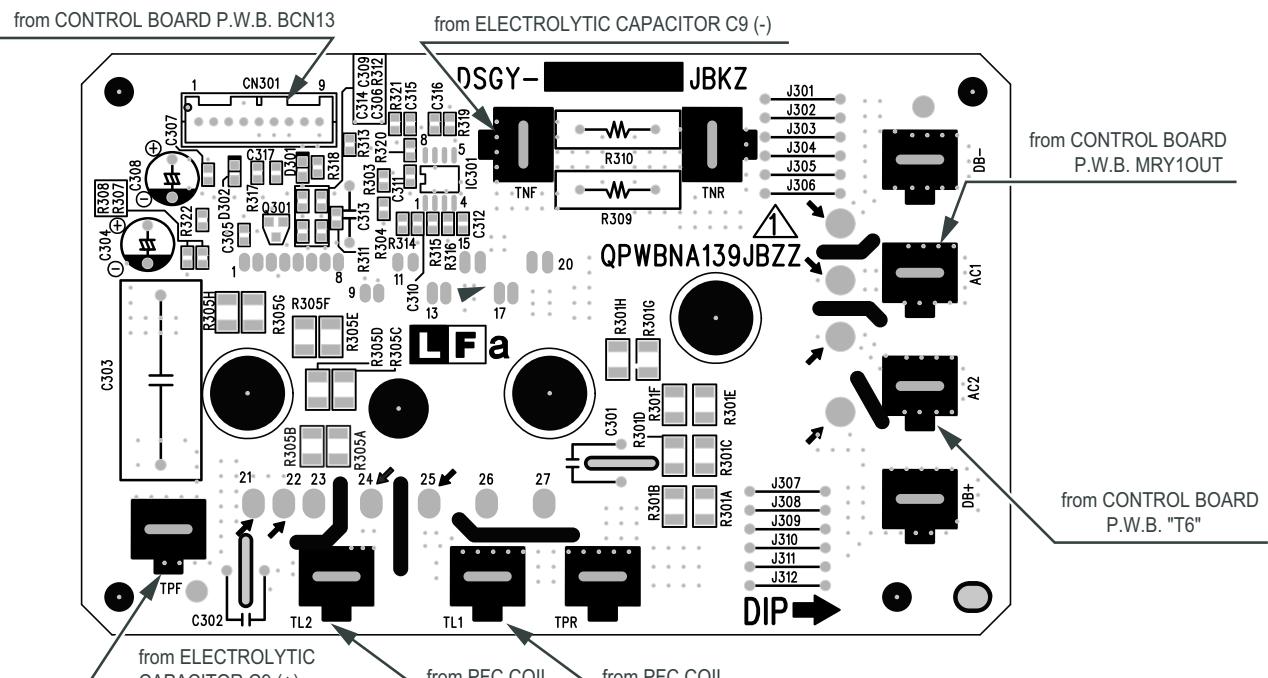


Printed wiring board

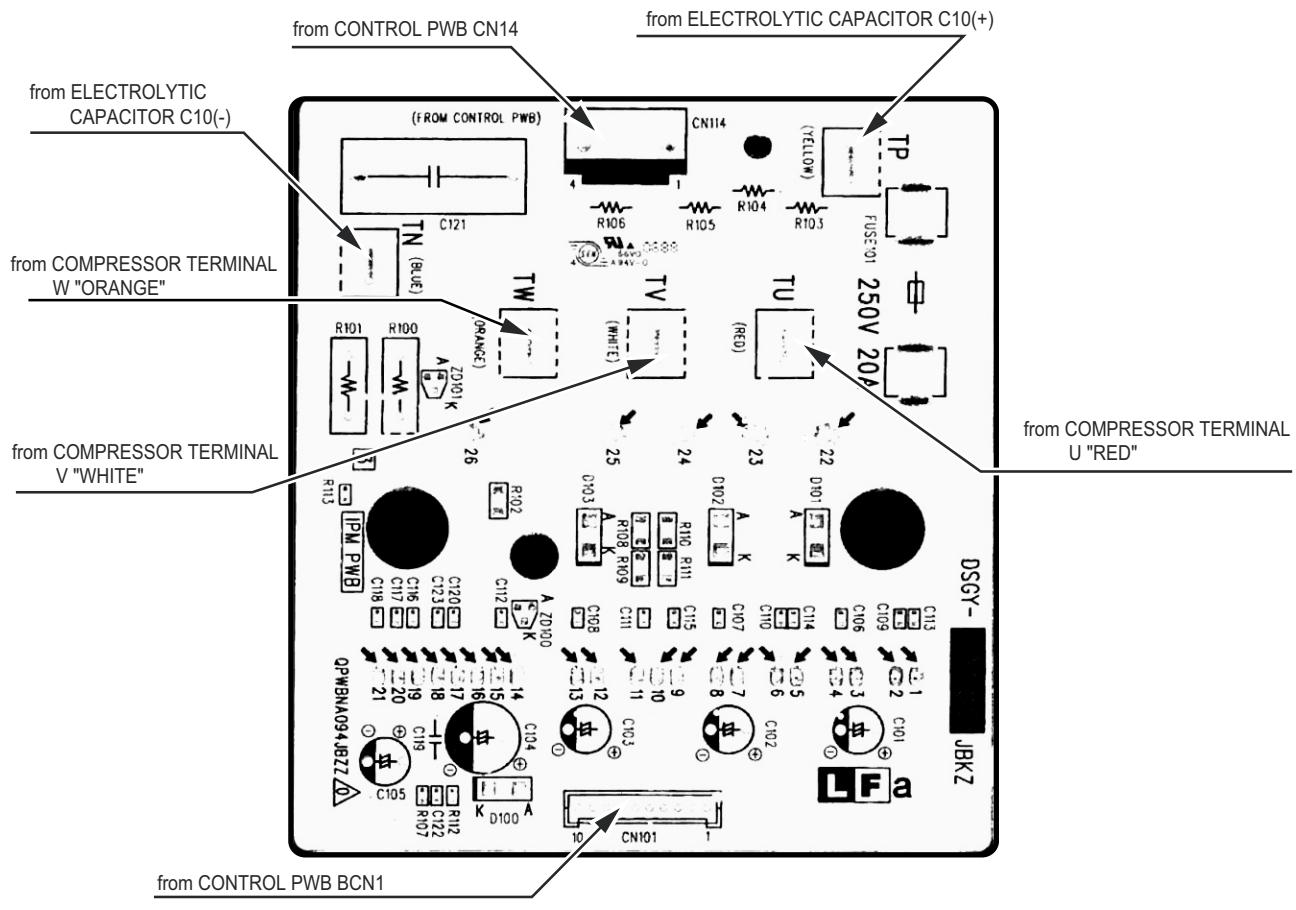
2. Outdoor unit



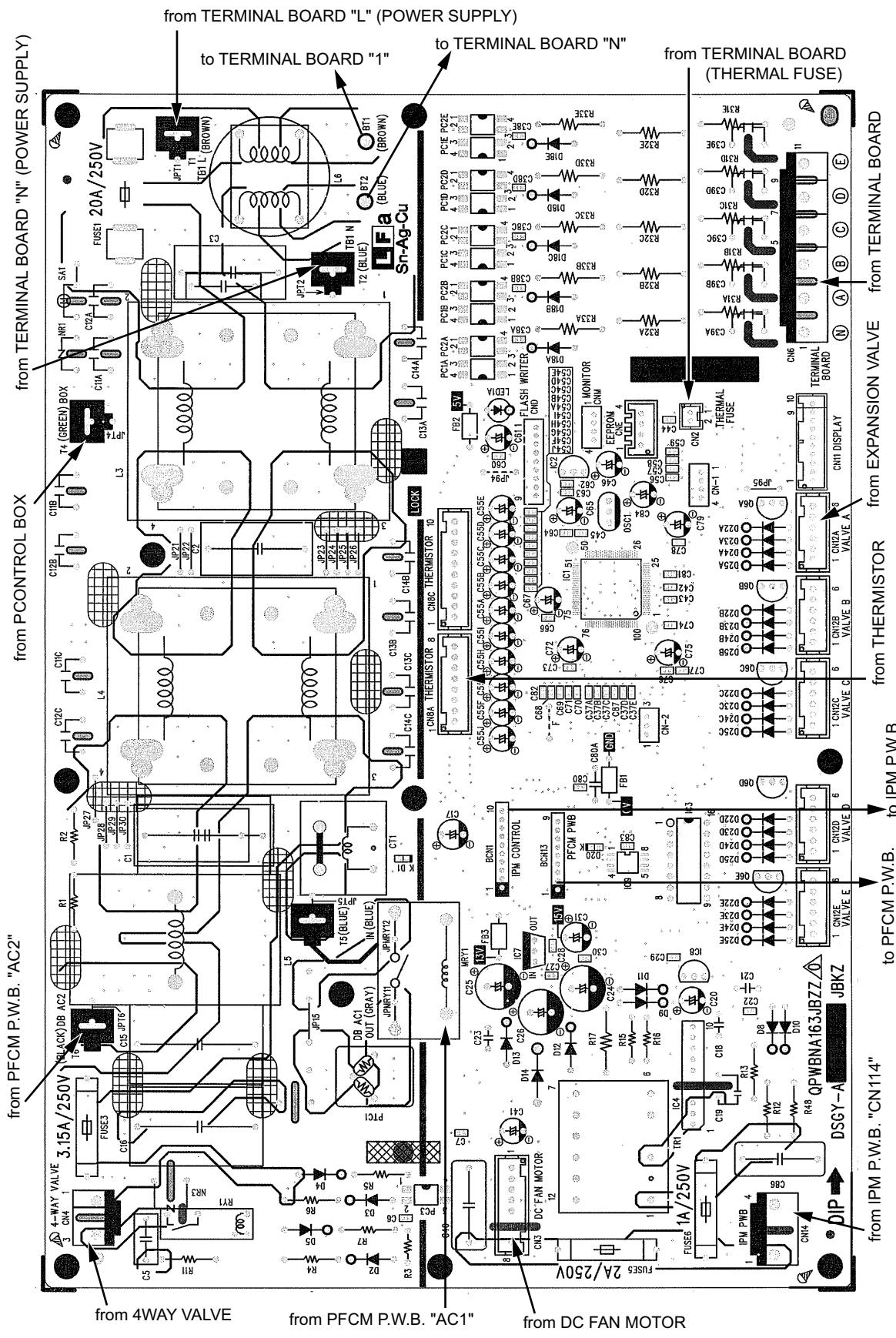
Electronic control circuit diagram



PFCM P.W.B.



IPM P.W.B.



CONTROL BOARD P.W.B.

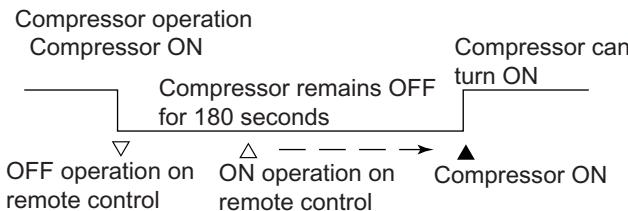
[3] FUNCTION

1. Restart control

Once the compressor stops operating, it will not restart for 180 seconds to protect the compressor.

Therefore, if the operating compressor is shut down from the remote control and then turned back on immediately after, the compressor will restart after a preset delay time.

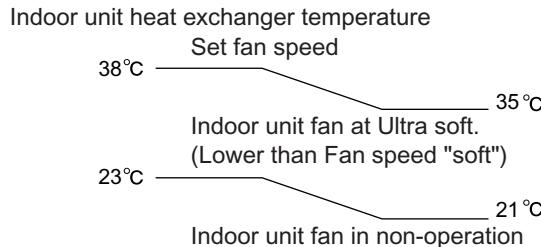
(The indoor unit will restart operation immediately after the ON switch is operated on the remote control.)



2. Cold air prevention control

When the air conditioner starts up in heating mode, the indoor unit fan will not operate until the temperature of the indoor unit heat exchanger reaches about 23°C in order to prevent cold air from blowing into the room.

Also, the indoor unit fan operates at low speed until the temperature of the indoor unit heat exchanger reaches about 38°C so that people in the room will not feel chilly air flow.



3. Indoor unit heat exchanger freeze prevention control

If the temperature of the indoor unit heat exchanger remains below 0°C for 4 consecutive minutes during cooling or dehumidifying operation, the compressor operation stops temporarily in order to prevent freezing.

When the temperature of the indoor unit heat exchanger rises to 2°C or higher after about 180 seconds, the compressor restarts and resumes normal operation.

4. Outdoor unit 2-way valve freeze prevention control

If the temperature of the outdoor unit 2-way valve remains below 0°C for 10 consecutive minutes during cooling or dehumidifying operation, the compressor operation stops temporarily in order to prevent freezing.

When the temperature of the 2-way valve rises to 10°C or higher after about 180 seconds, the compressor restarts and resumes normal operation.

5. Indoor unit overheat prevention control

During heating operation, if the temperature of the indoor unit heat exchanger exceeds the indoor unit heat exchanger overheat prevention temperature (about 45 to 54°C) which is determined by the operating frequency and operating status, the operating frequency is decreased by about 4 to 15 Hz. Then, this operation is repeated every 60 seconds until the temperature of the indoor unit heat exchanger drops below the overheat protection temperature.

Once the temperature of the indoor unit heat exchanger drops below the overheat protection temperature, the operating frequency is increased by about 4 to 10 Hz every 60 seconds until the normal operation condition resumes.

If the temperature of the indoor unit heat exchanger exceeds the overheat protection temperature for 60 seconds at minimum operating frequency, the compressor stops operating and then restarts after about 180 seconds, and the above mentioned control is repeated.

6. Outdoor unit overheat prevention control

During cooling operation, if the temperature of the outdoor unit heat exchanger exceeds the outdoor unit heat exchanger overheat prevention temperature (about 55°C), the operating frequency is decreased by about 4 to 15 Hz. Then, this operation is repeated every 60 seconds until the temperature of the outdoor unit heat exchanger drops to about 54°C or lower.

Once the temperature of the outdoor unit heat exchanger drops to about 54°C or lower, the operating frequency is increased by about 4 to 10 Hz every 60 seconds until the normal operation condition resumes.

If the temperature of the outdoor unit heat exchanger exceeds the outdoor unit heat exchanger overheat protection temperature for (120 sec.: outdoor temperature ≥ 40°C, 60 sec.: outdoor temperature < 40°C) at minimum operating frequency, the compressor stops operating and then restarts after about 180 seconds, and the above mentioned control is repeated.

7. Compressor overheat prevention control

If the temperature of the compressor exceeds the compressor overheat prevention temperature (110°C), the operation frequency is decreased by about 4 to 10 Hz. Then, this operation is repeated every 60 seconds until the temperature of the compressor drops below the overheat protection temperature (100°C).

Once the temperature of the compressor drops below the overheat protection temperature, the operating frequency is increased by about 4 to 10 Hz every 60 seconds until the normal operation condition resumes.

If the temperature of the compressor exceeds the overheat protection temperature (for 120 seconds in cooling operation or 60 seconds in heating operation) at minimum operating frequency, the compressor stops operating and then restarts after about 180 seconds, and the above mentioned control is repeated.

8. Startup control

When the air conditioner starts in the cooling or heating mode, if the room temperature is 2°C higher than the set temperature (in cooling operation) or 3.5°C lower (in heating operation), the air conditioner operates with the operating frequency at maximum. Then, when the set temperature is reached, the air conditioner operates at the operating frequency determined by fuzzy logic calculation, then enters the normal control mode after a while.

9. Peak control

If the current flowing in the air conditioner exceeds the peak control current (see the table below), the operation frequency is decreased until the current value drops below the peak control current regardless of the frequency control demand issued from the indoor unit based on the room temperature.

| | Peak control current | |
|------------|----------------------|-------------------|
| | Cooling operation | Heating operation |
| AY-XPC18LR | Approx. 9.5 A | Approx. 13.0 A |
| AY-XP24LR | Approx. 15.0 A | Approx. 15.0 A |

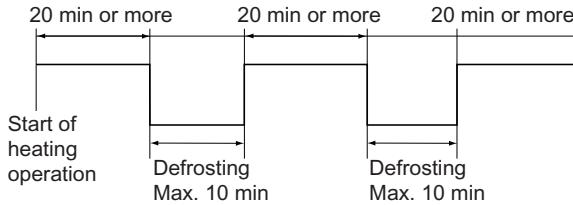
10. Outdoor unit fan delay control

The compressor stops immediately after cooling, dehumidifying or heating operation is shut down, but the outdoor unit fan continues operation for 50 seconds before it stops.

11. Defrosting

11.1. Reverse defrosting

The defrost operation starts when the compressor operating time exceeds 20 minutes during heating operation, as shown below, and the outside air temperature and the outdoor unit heat exchanger temperature meet certain conditions. When the defrost operation starts, the indoor unit fan stops. The defrost operation stops when the outdoor unit heat exchanger temperature rises to about 10°C or higher or the defrosting time exceeds 10 minutes.



12. ON timer

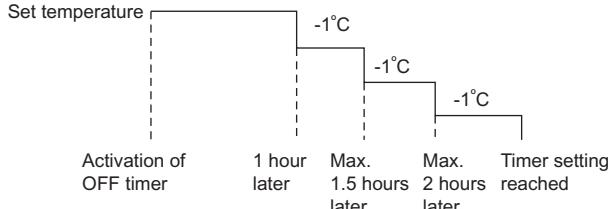
The ON timer can be activated by pressing the ON timer button. When the ON timer is activated, the operation start time is adjusted based on fuzzy logic calculations 1 hour before the set time so that the room temperature reaches the set temperature at the set time.

13. OFF timer

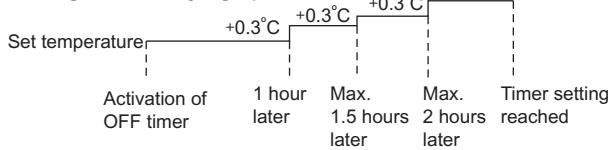
The OFF timer can be activated by pressing the OFF timer button. When the OFF timer is set, the operation stops after the set time.

When this timer is set, the compressor operating frequency lowers for quieter operation, and the room temperature is gradually varied after one hour (reduced 1°C three times (max. 3°C) in heating, or increased 0.3°C three times (max. 1°C) in cooling or dehumidifying operation) so that the room temperature remains suitable for comfortable sleeping.

Heating operation



Cooling/dehumidifying operation



14. Power ON start

If a jumper cable is inserted in the location marked with HAJP on the indoor unit control printed circuit board (control PCB), connecting the power cord to an AC outlet starts the air conditioner in either cooling or heating mode, which is determined automatically by the room temperature sensor.

When a circuit breaker is used to control the ON/OFF operation, please insert a jumper as described above.

15. Self-diagnostic malfunction code display

15.1. Indoor unit

- 1) When a malfunction is confirmed, all relays turn off and a flashing operation LED.timer LED.Plasamacluter LED is displayed to indicate the type of malfunction.

When the air conditioner is in non-operating condition, holding down AUX button for more than 5 seconds activates the malfunction code display function.

The operation continues only in the case of a serial open-circuit, and the main relay turns off after 30 seconds if the open-circuit condition remains.

In the case of a serial short-circuit, the air conditioner continues operating without a malfunction code display, and the main relay turns off after 30 seconds if the short-circuit condition remains.

The malfunction information is stored in memory, and can be recalled later and shown on display.

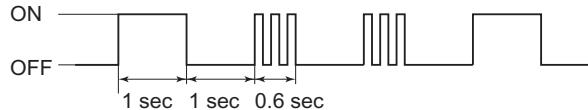
- 2) The self-diagnostic memory can be recalled and shown on the display by stopping the operation and holding down AUX button for more than 5 seconds.

(For details, refer to the troubleshooting section.)

15.2. Outdoor unit

If a malfunction occurs, LED1 on the outdoor unit flashes in 0.2-second intervals as shown below.

(Example) Compressor high temperature abnormality



16. AUXILIARY MODE

Use this mode when the remote control is not available.

To turn on, lift the open panel of the indoor unit and press the AUX button.

- The unit starts operating the AUTO mode.
- The fan speed and temperature setting are set to AUTO.

To turn off, press the AUX button again.

17. Airflow control

17.1. VERTICAL AIR FLOW DIRCTION

- 1) Press the SWING button (\searrow) on the remote control once.
 - The vertical air flow louvre will swing.
- 2) Press the SWING button (\searrow) again when the vertical air flow louvre is at the desired position.
 - The adjusted position will be memorized and will be automatically set to the same position when operated the next time.

17.2. HORIZONTAL AIR FLOW DIRCTION

- 1) Press the SWING button (\triangleleft) on the remote control once.
 - The horizontal air flow louvre will swing.
- 2) Press the SWING button (\triangleleft) again when the horizontal air flow louvre is at the desired position.
 - The adjusted position will be memorized and will be automatically set to the same position when operated the next time.

CAUTION: Never attempt to adjust the louvres manually.

- Manual adjustment of the louvres can cause the unit to malfunction.
- When the vertical air flow louvre is positioned at the lowest position in the COOL or DRY mode for an extended period of time, condensation may result.

CAUTION: Never attempt to adjust the louvres manually.

- Manual air flow on the louvres can cause the unit to malfunction.
- Position in the COOL or DRY mode for an extended period of time,
- When the air flow air flow louvre is positioned at the lowest condensation may result.

18. COANDA AIR FLOW

Press the COANDA AIR FLOW button during cooling or dry operation when you do not want to feel cold air.

Vertical air flow louvre is set obliquely upward to deliver cool air to the ceiling.

Press the button during heating operation. Vertical air flow louvre is set downward to deliver the warm air down to the floor and warm you.

During operation, press the COANDA AIR FLOW button.

- The remote control will display “ \square ”

TO CANCEL

Press the COANDA AIR FLOW button again.

- NOTE:**
- The COANDA AIR FLOW setting is cancelled When you press FULL POWER button while COANDA AIR FLOW is set.
 - If you want AIR FLOW operation in FULL POWER mode, press COANDA AIR FLOW button during FULL POWER operation.

19. Difference relating to set temperature

| Manual mode | | |
|--|--|--|
| Cooling | Heating | Dehumidifying |
| Can be changed between 18°C and 32°C using remote control. | Can be changed between 18°C and 32°C using remote control. | Automatic setting. Can be changed within $\pm 2^\circ\text{C}$. |

20. Dehumidifying operation control

If the room temperature is 26°C or higher when dehumidifying operation starts, the dehumidifying operation provides a low cooling effect in accordance with the room temperature setting automatically determined based on the outside air operation. (The setting value is the same as the set temperature for cooling operation in the auto mode.)

If the room temperature is lower than 26°C when dehumidifying operation starts, the dehumidifying operation minimizes the lowering of the room temperature.

21. FULL POWER Operation

In this operation, the air conditioner works at the maximum power to make the room cool or warm rapidly.

During operation, press the FULL POWER button.

- The remote control will display “ ∞ ”.
- The temperature display will go off.
- The green FULL POWER lamp on.
- The unit will light up.

TO CANCEL

Press the FULL POWER button again.

- The FULL POWER operation will also be cancelled when the operation mode is changed, or when the unit is turned off.

- The green FULL POWER lamp on the unit will turn off.

- NOTE:**
- The air conditioner will operate at “Extra HIGH” fan speed for 5 minutes, and then shift to “HIGH” fan speed.
 - You can not set the temperature or fan speed during the FULL POWER operation.
 - To turn off the FULL POWER lamp, press the DISPLAY button.

22. Self Clean operation

Heating or Fan operation and Plasmacluster operation are performed simultaneously.

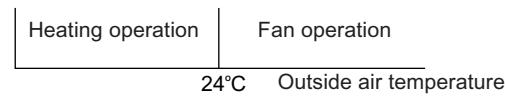
The judgment of whether Heating or Fan operation is used is based on the outside air temperature at 3 minutes after the start of internal cleaning. But the multi use of AYXPC18LR is only Fan operation.

The operation stops after 40 minutes.

- During this operation the vertical air flow louver moves and stays two positions.

It turns to the lower direction and stays for 30 minutes.

Next moves upward and stays for 10 minutes.



23. Plasmacluster Ion function

Plasmacluster Ions released into the room will reduce some airborne mold.

Press the PLASMACLUSTER button during operation,

- The Plasmacluster function is operated together with the air conditioner operation.

Press the PLASMACLUSTER button when the unit is not operating.

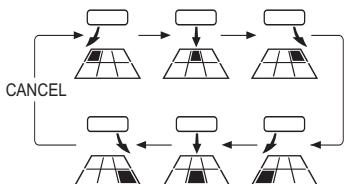
- The Plasmacluster function is operated in fan only mode. The mode symbol of remote control will go off and the fan speed cannot be set to AUTO.

NOTE: Use of the PLASMACLUSTE operation will be memorized, and it will be activated the next time you turn on the unit.

24. SPOT AIR operation

The louvers are adjusted so that air flow is delivered to the desired area.

Press the SPOT AIR button to select the desired air flow direction.



- NOTE:**
- If you want the SPOT AIR setting in the FULL POWER mode, press the SPOT AIR button during the FULL POWER operation.
 - The COANDA AIRFLOW setting and the SPOT AIR setting can not be used together.

25. Hot keep

If the room temperature is in the Hot keep (1) or Hot keep (2) zone during heating, the compressor is turned on and off to prevent overheating. The fan goes off 30 seconds after the compressor goes off.

(AY-XPC18LR: MULTI USE)

| ZONE | COMPRESSOR INTER-MITTENT TIME | | FAN |
|--|-------------------------------|-------------------------|---|
| Hot keep (1) (When room temperature reaches setting temperature) | Up to 3 times | 3 min. On 3 min. Off | Same as compressor |
| | After 4th | 3 min. On 6 min. Off | |
| Hot keep (2) (Room temperature becomes higher 1°C or more than setting temperature) | Up to 1st | 3 min. On 6 min. Off | The fan continues to repeat "3 min. on - 8 min. off". |
| | After 2nd | Off | |

(AY-XPC18LR: SINGLE USE OR AY-XP24LR)

| ZONE | COMPRESSOR INTER-MITTENT TIME | | FAN |
|--|-------------------------------|-------------------------|---|
| Hot keep (1) (When room temperature reaches setting temperature) | Up to 3 times | 3 min. On 3 min. Off | Same as compressor |
| | After 4th | 6 min. On 3 min. Off | |
| Hot keep (2) (Room temperature becomes higher 1°C or more than setting temperature) | Up to 1st | 6 min. On 8 min. Off | The fan continues to repeat "6 min. on - 8 min. off". |
| | After 2nd | Off | |

26. Winter cool

Cooling operation is available during the winter season by the built in winter cool function.

Lower limit of outdoor temperature range is -10°C.

When the outside air temperature is low, the outdoor unit fan operates at slower speed.

NOTE: Built-in protect device may work when outdoor temperature falls below 21°C, depending on conditions.

27. Auto restart

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

27.1. Operating mode (Cool, Heat, Dry)

- Temperature adjustment (within 2°C range) automatic operation
- Temperature setting
- Fan setting
- Air flow direction
- Power ON/OFF
- Automatic operation mode setting
- Swing louvre
- Plasmacluster mode

27.2. Setting not memorized

- Timer setting
- Full power operation setting
- Self clean operation

27.3. Disabling auto restart function

By removing (cutting) jumper O (JP O) on the printed circuit board (PCB), the auto restart function can be disabled.

28. Energy Saving Operation

28.1. Cool/Dry Operation

By pressing ENERGY SAVE button during Cool/Dry operation, the set temperature will vary with 1/f fluctuation. 1/f fluctuation resembles fluctuation existing in nature, and is said that it gives relaxation.(1/f Fuzzy Logic) By varying the set temperature in +1°C ~ -0.33°C range following 1/f fluctuation, the rise in set temperature will correspond to +0.5°C in calculation. Since this air conditioner model is inverter type, compressor output will also vary in the same manner. As a result this will help saving electricity cost.

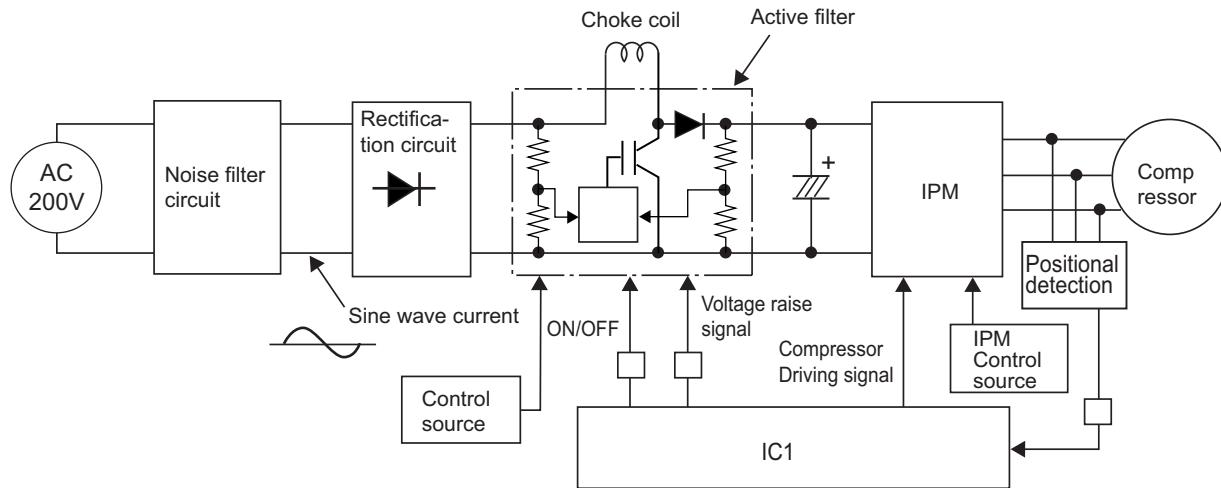
28.2. Heat Operation

By pressing ENERGY SAVE button during Heat operation, set temperature will vary in -2°C ~ +1°C range, and will correspond to lowering the set temperature -1°C in calculation.

NOTE: When used in combination with Full Power control, priority is given to the latter pushed button's control.

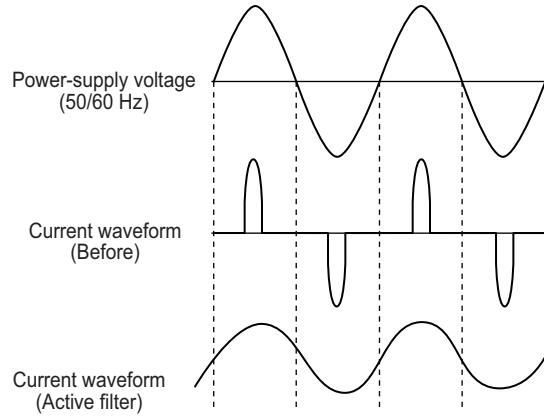
29. PFC MODULE CIRCUIT

These model's circuit uses PFCM (Power Factor Correction Module) and IPM as the figure below for the high efficiency operation of compressor.



29.1. PFC Module

In the case the direct current is obtained by the diode bridge and smooth capacitor from the commercial power source, the current wave shape will be the pulse shape at the peak of the voltage wave shape as shown in the figure below. For this reason, the harmonic current will be generated and at the same time the power factor will be deteriorated. While monitoring the AC input voltage in the control circuit, in order to be the same phase and wave shape as this voltage wave shape, IGBT is made ON/OFF by the carrier frequency of approximately 20 kHz. By adoption of this PFC Module, the current wave shape can be made to the sine wave synchronized to the commercial power source and the power factor can be made to almost 99%. As a result of this, reactor can be disused. PFC Module works for the improvement of power factor and as the countermeasures for the harmonic current.



29.2. PFC Module Voltage Raise Circuit

The IGBT in the figure below is the switching transistor of the PFC Module. By adding ON signal to the gate of IGBT from the control IC, IGBT turns ON and the collector current I_c flows. This current flows from the + side of the diode bridge DB to the Choke coil, the - side of the diode bridge DB through IGBT from the Choke coil L. At this time, energy is stored in the choke coil L. Next, when gate signal of IGBT turned OFF, IGBT will be turned OFF and the energy stored in L during the ON time of IGBT will be discharged through the diode D, electrolytic capacitor C, load, primary side and the + side of DB. Assuming the input voltage of PFC Module (voltage between + and - of DB) as E_i , the output voltage (voltage at the both ends of smooth capacitor) as V_o , switching cycle of IGBT as T and ON time of IGBT as t_{on} , the voltage between collector emitter of IGBT V_s will be as follows;

$$V_s = 0 \text{ (during ON of IGBT: } t_{on})$$

$$V_s = V_o \text{ (during OFF of IGBT: } T-t_{on})$$

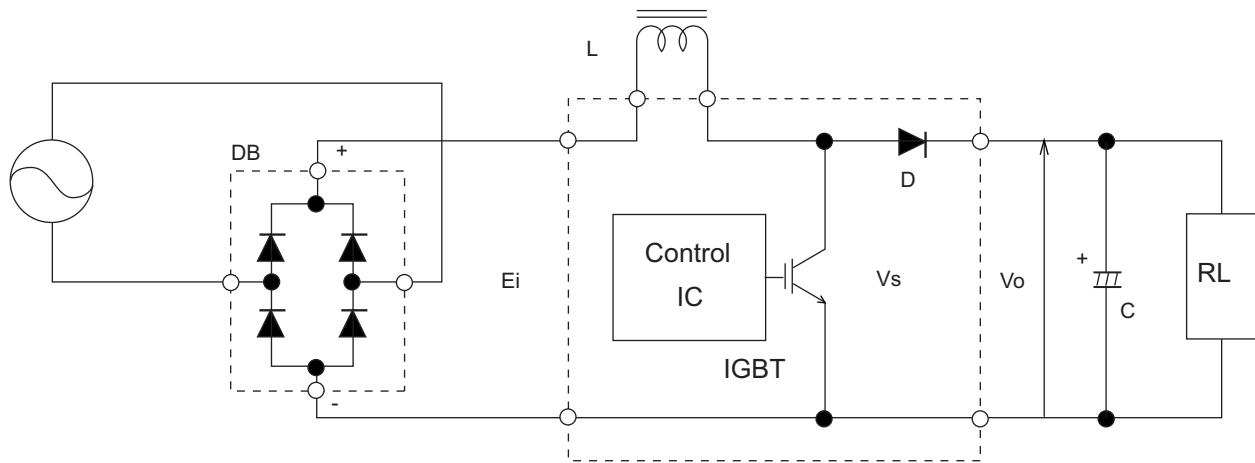
Here, assuming no loss in L and IGBT, average value of V_s turns equal to E_i ,

$$E_i = (T-t_{on})/T \times V_o$$

Therefore

$$V_o = T/(T-t_{on}) \times E_i$$

As t_{on} is a smaller value than T, output voltage V_o will be higher than input voltage E_i .



29.3. PFC Module Driving Electronics Circuit

The PFC Module circuit operates continuously while the compressor is driving.

The microcomputer detects output DC voltage of the PFC Module circuit with pin 69, and controls to keep the DC voltage to be the target value.

The microcomputer controls so that the input AC current wave form will become a sine wave detecting the input AC voltage of the PFC Module circuit with pin 71 and detecting AC current wave form with pin 72.

The microcomputer calculates to do above mentioned controls, and outputs the PFC signal (ON/OFF duty control of 20kHz) from pin 89. The PFC signal is input to IN of PFCM, and the PFC Module circuit operates.

29.4. Output voltage of PFC Module

The output DC voltage of the PFC Module circuit changes within the range from 310V to 370V in proportion to the voltage value of the power supply. When the power supply voltage is AC 230V, the output DC voltage is DC 330V.

CHAPTER 3. FUNCTION AND OPERATION OF PROTECTIVE PROCEDURES

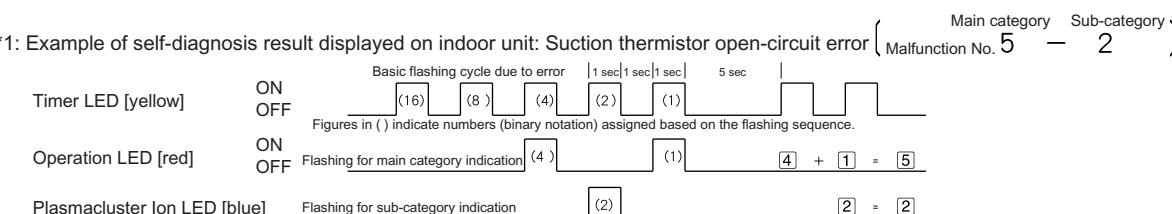
[1] TROUBLESHOOTING GUIDE

1. SELF-DIAGNOSIS FUNCTION AND DISPLAY MODE

- 1) To call out the content of the self-diagnosis memory, hold down the emergency operation button for more than five seconds when the indoor unit is not operating.
 - a) According to the content of the self-diagnosis memory, the Operation LED (main category) and the Plasmacluster Ion LEDs (sub-category) flash in sync with the Timer LED on the indoor unit.
 - b) In the event a complete shutdown occurs due to a malfunction, the Operation LED (red), Timer LED (yellow) and Plasmacluster Ion LED (blue) flash to indicate the general information of the generated malfunction.
 - c) If the power cord is unplugged from the AC outlet or the circuit breaker is turned off, the self-diagnosis memory loses the stored data.
- 2) Display of detailed self-diagnosis result with main category and sub-category indications

When malfunction information is called out, the main category and sub-category of the self-diagnosis result are indicated by the Operation, Timer, and Plasmacluster Ion LEDs on the indoor unit.

* 1:Example of self-diagnosis result displayed on indoor unit: Suction thermistor open-circuit error

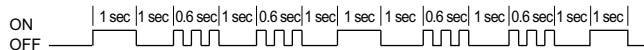


* 2:The self-diagnosis display function of the outdoor unit indicates the error information by flashing LED1 on the outdoor unit according to the content of self-diagnosis.

The self-diagnosis display function of the outdoor unit is active only for about 3 to 10 minutes after self-diagnosis is performed during operation, and the display returns to normal condition after this display period.

The content of self-diagnosis cannot be called out by the self-diagnosis display function of the outdoor unit.

Example of self-diagnosis display on outdoor unit : Compressor high-temperature abnormality



* 3:The content of diagnosis is transferred to the indoor unit via serial communication, but it does not trigger a complete shutdown operation.

[2] CHART

Malfunction diagnosis indications, descriptions, inspection methods and remedies

⊗ : Flashes in 2-sec intervals (normal)

● : On

× : Off

○ : Flashes 3 times in 0.2-sec intervals

| Status of indoor/outdoor units | Indication by LED on outdoor unit | Indication by operation lamp on indoor unit | | Content of diagnosis | | Inspection location/method | Remedy |
|--|-----------------------------------|---|--------------|--|---|--|---|
| | | Main category | Sub-category | Main category | Sub-category | | |
| Indoor/outdoor units in operation | ⊗ Normal flashing | 0 | 0 | Outdoor unit thermistor short-circuit | Heat exchanger | (1) Measure resistance of the outdoor unit thermistor. (2) Check the lead wire of the outdoor unit thermistor for torn sheath and short-circuit. (3) No abnormality found in above inspections (1) and (2). | (1) Replace the outdoor unit thermistor assembly. (2) Replace the outdoor unit thermistor assembly. (3) Replace the outdoor unit control PWB assembly. |
| Indoor/outdoor units in complete shutdown | ○ 1 time | 1 | 0 | Outdoor temperature thermistor short circuit error | Outdoor temperature thermistor short circuit error | | |
| | | 1 | 1 | Suction thermistor short circuit error | Suction thermistor short circuit error | | |
| Indoor/outdoor units in complete shutdown | ○ 2 time | 2 | 0 | Cycle temperature | Compressor high temperature error | (1) Check the outdoor unit air outlet for blockage. (2) Check if the power supply voltage is 216 V or higher at full power. (3) Check the pipe connections for refrigerant leaks. (4) Measure resistance of the outdoor compressor thermistor. (TH1: Approx. 53 kΩ at 25°C) (5) Check the expansion valve for proper operation. | (1) Ensure unobstructed air flow from the outdoor unit air outlet. (2) Connect power supply of proper voltage. (3) Charge the specified amount of refrigerant. (4) Replace the outdoor unit compressor thermistor assembly. (5) Replace the expansion valve coil, expansion valve or outdoor unit control PWB assembly. |
| Indoor unit in operation Outdoor unit in temporary stop | ○ 3 time | 1 | 1 | Temporary stop due to compressor discharge overheating *3 | (Temporary stop for cycle protection) | | |
| | | 2 | 2 | Temporary stop due to outdoor unit heat exchanger overheating *3 | (Temporary stop for cycle protection) | | |
| | | 3 | 3 | Temporary stop due to indoor unit heat exchanger overheating *3 | (Temporary stop for cycle protection) | | |
| | | 4 | 4 | Temporary stop due to IPM overheating *3 | (Temporary stop for parts protection) | | |
| | | 5 | 5 | IPM high temperature error | (1) Measure resistance of the heat sink thermistor. | (1) Replace the heat sink thermistor. | |
| | | 3 | 0 | Dry operation | Temporary stop due to dehumidifying operation *3 | (Temporary stop for cycle protection) | |

*3: The content of diagnosis is transferred to the indoor unit via serial communication, but it does not trigger a complete shutdown operation. Number of repetition °: No complete shutdown

⊗ : Flashes in 2-sec.intervals (normal) ● : On X : Off ○ : Flashes 3 times in 0.2-sec intervals

| Status of indoor/outdoor units | Indication by LED on outdoor unit | Indication by operation lamp on indoor unit | | Malfunction No. | Content of diagnosis | Inspection location/method | Remedy |
|---|-----------------------------------|---|--------------|-----------------|--|---|---|
| | | Main category | Sub category | | | | |
| Indoor/outdoor units in complete shutdown | ○ 5 time | Operation lamp Cluster lamp | ● | 5 0 | Outdoor unit thermistor open-short-circuit | Heat exchanger open-circuit error Outdoor temperature thermistor open circuit error Suction thermistor open-circuit error | (1) Check the connector of the outdoor unit thermistor for secure installation. (2) Measure resistance of the outdoor thermistor. (3) Check the lead wire of the outdoor unit thermistor. (4) No abnormality found in above inspections (1) through (3). |
| | | Operation lamp Cluster lamp | ●●● | 1 | | | (1) Replace the outdoor unit thermistor assembly. (2) Replace the outdoor unit thermistor assembly. (3) Replace the outdoor unit control PWB assembly. |
| | | Operation lamp Cluster lamp | ●● | 2 | | | |
| | | Operation lamp Cluster lamp | ●●●● | 4 | | | |
| | ○ 6 time | Operation lamp Cluster lamp | ●● | 6 0 | Outdoor unit DC overcurrent error | (1) IPM continuity check (2) Check the IPM and heat sink for secure installation. (3) Check the outdoor unit fan motor for proper rotation. (4) No abnormality found in above inspections (1) through (3). (5) No abnormality found in above inspections (1) through (4). | (1) Replace the outdoor unit control PWB assembly. (2) Correct the installation (tighten the screws). Apply silicon grease. (3) Replace the outdoor unit fan motor. (4) Replace the outdoor unit control PWB assembly. (5) Replace the compressor. |
| | ○ 7 time | Operation lamp Cluster lamp | ●●●● | 7 0 | Outdoor unit AC overcurrent error | (1) Check the outdoor unit air outlet for blockage. (2) Check the outdoor unit fan for proper rotation. | (1) Ensure unobstructed air flow from the outdoor unit air outlet. (2) Check the outdoor unit fan motor. |
| | | Operation lamp Cluster lamp | ●●●●● | 1 | AC overcurrent error in OFF status | (1) IPM continuity check (2) Check the outdoor unit fan for proper rotation. | (1) Replace the outdoor unit control PWB assembly. |
| | | Operation lamp Cluster lamp | ●●●●●● | 2 | AC maximum current error | (1) Check the outdoor unit air outlet for blockage. (2) Check the outdoor unit fan for proper rotation. | (1) Ensure unobstructed air flow from the outdoor unit air outlet. (2) Check the outdoor unit fan motor. |
| | | Operation lamp Cluster lamp | ●●●●●●● | 3 | AC current deficiency error | (1) Check if there is an open-circuit in the secondary winding of the current transformer of the outdoor unit control PWB. (2) Check if the refrigerant volume is abnormally low. (3) Check if the refrigerant flows properly. | (1) Replace the outdoor unit control PWB assembly. (2) Charge the specified amount of refrigerant. (3) Correct refrigerant clogs (2-way valve, 3-way valve, pipe, expansion valve) |
| | ○ 9 time | Operation lamp Cluster lamp | ●●●●●●●● | 9 0 | Outdoor unit cooling/heating switchover | (1) Check to make sure outdoor unit thermistor are installed in correct positions. (2) Measure resistance of thermistor TH1 and TH5. (3) Check the 4-way valve for proper operation. (4) No abnormality found in above inspections (1) through (3). | (1) Correct the installation. (2) Replace the thermistor assembly. (3) Replace the 4-way valve. (4) Replace the outdoor unit control PWB assembly. |
| | | Operation lamp Cluster lamp | ●●●●●●●●● | 3 | Torque control error | (1) Check if the refrigerant volume is abnormally low. (2) Check the 4-way valve for proper operation. (3) Check to see compressor type is correct | (1) Change the specified amount of refrigerant. (2) Replace the 4-way valve. (3) Replace the compressor with correct assembly. |
| | | Operation lamp Cluster lamp | ●●●●●●●●●● | 4 | Cycle temperature | 4 way valve error or Gas leak error | (1) Check to make sure outdoor unit thermistor TH2 (heat exchanger) and TH (2-way valve) are installed in correct portions. (2) Check if the refrigerant volume is abnormally low. (3) Check the 4-way valve for proper operation. |
| | | Operation lamp Cluster lamp | ●●●●●●●●●●● | | | | (1) Correct the installation. (2) Check the 4-way valve. (3) Change the specified amount of refrigerant. |

*3: The content of diagnosis is transferred to the indoor unit via serial communication, but it does not trigger a complete shutdown operation. Number of repetition : No complete shutdown

⊗ : Flashes in 2-sec intervals (normal) ● : On × : Off ○ : Flashes 3 times in 0.2-sec intervals

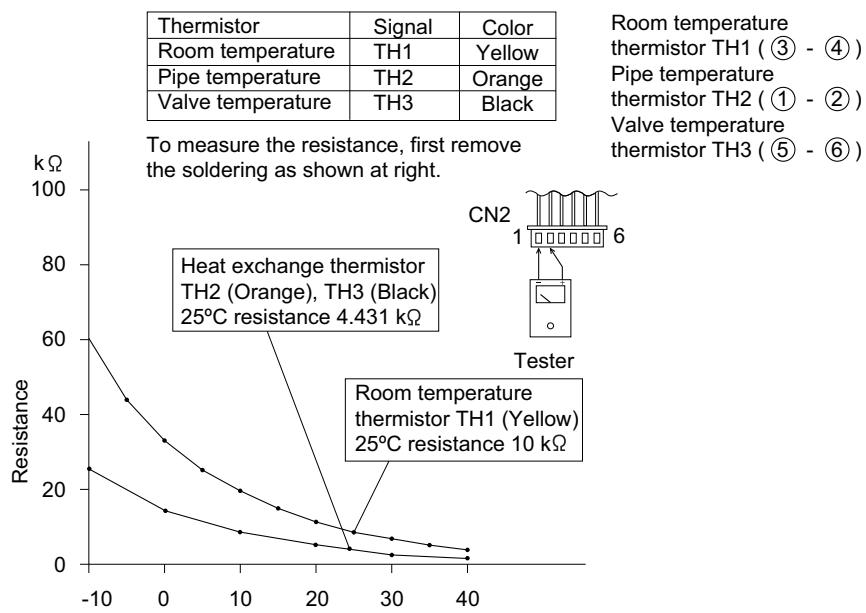
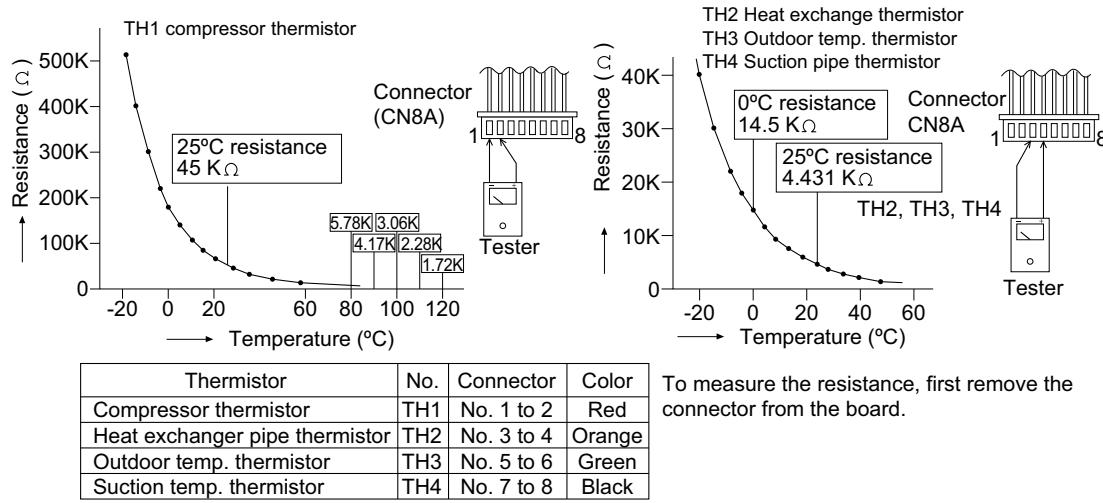
| Status of indoor/outdoor units | Indication by LED on outdoor unit | Indication by operation lamp on indoor unit | Malfunction No. | | | Content of diagnosis | Inspection location/method | Remedy |
|--|-----------------------------------|---|-----------------|--------------|---|---|---|--------|
| | | | Main category | Sub category | Main category | | | |
| Indoor/outdoor units in complete shutdown | ○ 10 time | Operation lamp Cluster lamp → Off for 5 seconds | 10 | 0 | EEPROM (outdoor) data error | (1) Replace the outdoor unit control PCB assembly. | | |
| | | Operation lamp Cluster lamp | | 1 | EEPROM (outdoor) data error | | | |
| | | Operation lamp Cluster lamp | | 2 | EEPROM (outdoor) data error | | | |
| | ○ 11 time | Operation lamp Cluster lamp | 11 | 0 | Outdoor unit DC fan rotation error. | (1) Check the connector CN3 of the outdoor unit DC fan motor for secure installation. (2) Check outdoor unit DC fan motor for proper rotation. (3) Check fuse FU3. (4) Outdoor unit control PCB. | (1) Correct the installation. (2) Replace the outdoor unit fan motor. (3) Replace the outdoor unit control PCB assembly. (4) Replace the outdoor unit control PCB assembly. | |
| | ○ 12 time | Operation lamp Cluster lamp | 12 | 0 | Thermal fuse in terminal board | (1) Check the thermal fuse in terminal board (for power supply) (2) Check connector CN5 of the outdoor unit. | (1) Replace terminal board for Power supply (2) Replace the outdoor unit control PCB assembly. | |
| | ○ 13 time | Operation lamp Cluster lamp | 13 | 0 | DC compressor | (1) Check the colors (red, white, orange) of the compressor cords for proper connection. (PWB side, compressor side) (2) Check if the IPM terminal resistance values are uniform. (3) Check if outdoor main relay (MYR1) turns on and voltage of both end of the capacitor (C10) has become DC330V. (4) No abnormality found in above inspections(1)and(3). (5) No abnormality found in above inspections(1)and(4). | (1) Correct the installation. (U:Red, V:White, W:Orange) (2) Replace the outdoor unit control PWB assembly. (3) Replace the outdoor unit control PWB assembly. (4) Replace the outdoor unit control PWB assembly. (5) Replace the compressor. | |
| | ○ 14 time | Operation lamp Cluster lamp | -1 | | Compressor startup error | (1) Check the circuit of detection of inverter current. | (1) Replace the outdoor unit control PCB assembly. | |
| | | Operation lamp Cluster lamp | -2 | | Compressor rotation error. (at 120° energizing) | (1) Check the connector of PFCM for secure installation. (2) Check the AC power supply voltage for fluctuation. | (1) Correct the installation. (2) Connect stable power supply. | |
| | | Operation lamp Cluster lamp | -3 | | Compressor rotation error. (at 180° energizing) | (3) No abnormality found in above inspection (1). | (3) Replace the outdoor unit PFCM PWB or control PCB assembly. | |
| | | Operation lamp Cluster lamp | 14 | 0 | Outdoor unit PFC Module | (1) Check the PFC Module over voltage error PFC Module filter low voltage error PFC Module PFCM error PFC Module clock error | (1) Connect stable power supply. (2) Replace the outdoor unit control PWB assembly. | |
| Indoor unit in operation Outdoor unit in temporary stop | ● | Operation lamp Cluster lamp | -2 | | | (1) Check the wires between units. (2) Check voltage between Nos. 1 and 2 on the indoor/outdoor unit terminal boards. | (1) Check the wiring. (2) Replace the outdoor unit fuse. | |
| | X | Operation lamp Cluster lamp | -4 | | | | (3) Check 15-V, 13-V and 5-V voltages on the PWB. Check resistance between IPM terminals. (4) Check pins No. 5 and 7 of connector CN3 of the outdoor unit fan motor for short-circuit. (5) Outdoor unit control PWB assembly. | |
| | | Operation lamp Cluster lamp | -5 | | | | | |
| | | Wires between units | 17 | 0 | Serial open circuit | (1) Check the wires between units. (2) Check the wires between units. | (1) Connect stable power supply. (2) Replace the outdoor unit control PWB assembly. | |
| | | | | | Outdoor unit does not turn on due to erroneous wiring | (3) Check resistance between IPM terminals. (4) Check pins No. 5 and 7 of connector CN3 of the outdoor unit fan motor. (5) Outdoor unit control PWB assembly. | (2) Replace the fuse or outdoor unit control PWB assembly. (3) Replace the outdoor unit control PWB assembly. (4) Replace the outdoor unit fan motor. (5) Replace the outdoor unit control PWB assembly. | |

*3: The content of diagnosis is transferred to the indoor unit via serial communication, but it does not trigger a complete shutdown operation. Number of repetition : No complete shutdown

⊗ : Flashes in 2-sec intervals (normal) ● : On × : Off ○ : Flashes 3 times in 0.2-sec intervals

| Status of indoor/outdoor units | Indication by LED on outdoor unit | Indication by operation lamp on indoor unit | | Malfunction No. | | Content of diagnosis | | Inspection location/method | Remedy |
|--|-----------------------------------|---|--------------|-----------------|--------------|----------------------|-------------------------|--|---|
| | | Main category | Sub-category | Main category | Sub-category | | | | |
| Indoor unit in operation Outdoor unit in temporary stop | ● | Operation lamp Cluster lamp | | 18 | 0 | Wires between units | Serial short circuit | (1) Check the wires between units. | (1) Correct the wiring. |
| Indoor/outdoor units in complete shutdown | X | Operation lamp Cluster lamp | | | 1 | | Erroneous serial wiring | (1) Check the wires between units. | (1) Correct the wiring. |
| Indoor/outdoor units in operation | ⊗ | Operation lamp Cluster lamp | | 19 | 0 | Indoor unit fan | Indoor unit fan error | (1) Check the indoor unit fan motor for proper rotating operation. (Check for fan lock) (2) Check the lead wire of the indoor unit fan motor for open-circuit. (3) Check CN8 of the indoor unit fan motor for secure installation. (4) No abnormality found in above inspections (1) through (3). | (1) Replace the indoor unit fan motor. (2) Replace the indoor unit fan. (3) Correct the installation of CN8 of the indoor unit fan motor. (4) Replace the indoor unit control PCB. |
| | | Operation lamp Cluster lamp | | 20 | 0 | Indoor control PWB | EEPROM data error | (1) Error in data read from the indoor unit EEPROM | (1) Replace the indoor unit control PCB. |

*3: The content of diagnosis is transferred to the indoor unit via serial communication, but it does not trigger a complete shutdown operation. Number of repetition : No complete shutdown

Figure 1 Temperature properties of indoor thermistors**Figure 2 Temperature properties of outdoor thermistors**

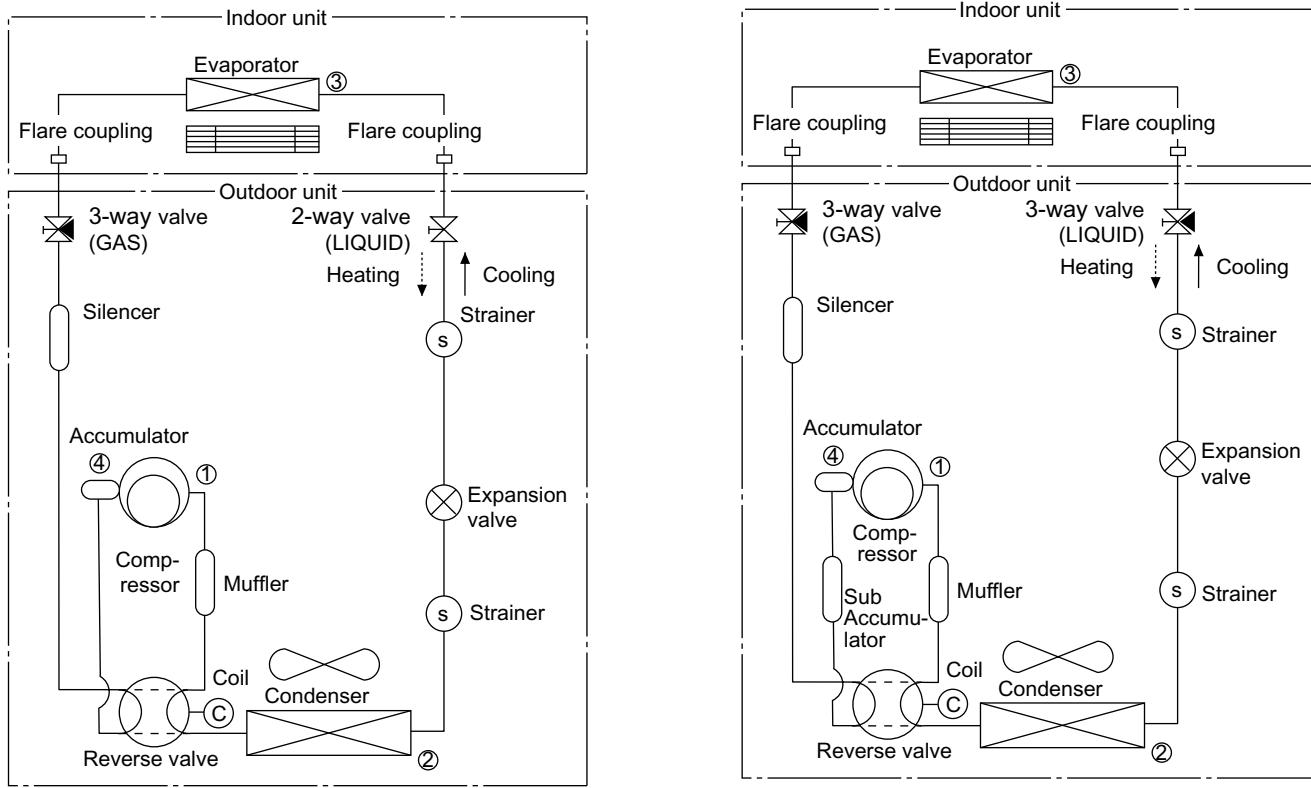
CHAPTER 4. REFRIGERATION CYCLE

[1] REFRIGERATION CYCLE

1. FLOW OF REFRIGERANT

AY-XPC18LR

AY-XP24LR



2. STANDARD CONDITION

| | Indoor side | | Outdoor side | |
|---------|----------------------|-------------------|--------------------------|-------------------|
| | Dry-bulb Temperature | Relative humidity | Dry-bulb Temperature(°C) | Relative humidity |
| Cooling | 27°C | 47% | 35°C | 40% |
| Heating | 20°C | - | 7°C | 87% |

3. TEMPERATURE AT EACH PART AND PRESSURE IN 3-WAY VALVE

| MODEL | AY-XPC18LR | | AY-XP24LR | |
|-----------------------------|---------------|---------|-----------|---------|
| | No. Condition | Cooling | Heating | Cooling |
| Temp. on ① (°C) | 74 | 82 | 79 | 83 |
| Temp. on ② (°C) | 41 | 4 | 39 | 5 |
| Temp. on ③ (°C) | 12 | 34 | 13 | 29 |
| Temp. on ④ (°C) | 12 | 6 | 10 | 3 |
| 3-way valve pressure (MPaG) | 0.88 | 2.83 | 0.83 | 3.02 |

* On test run mode

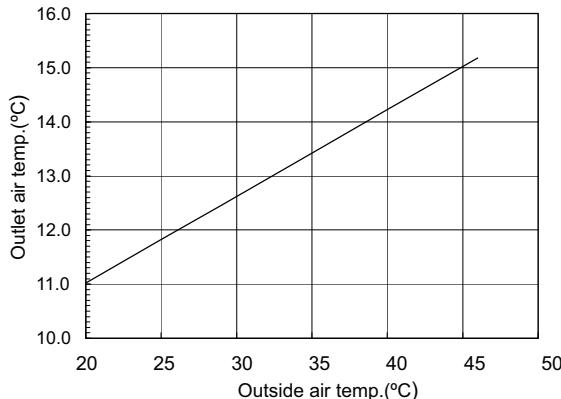
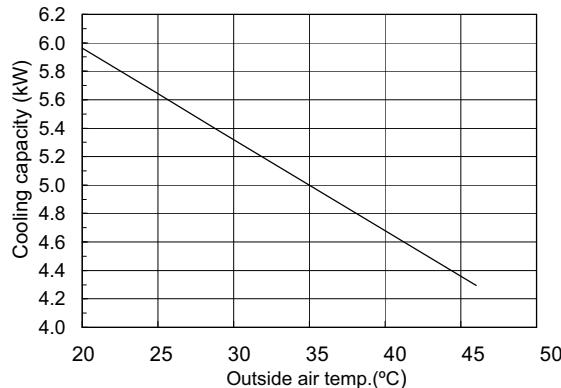
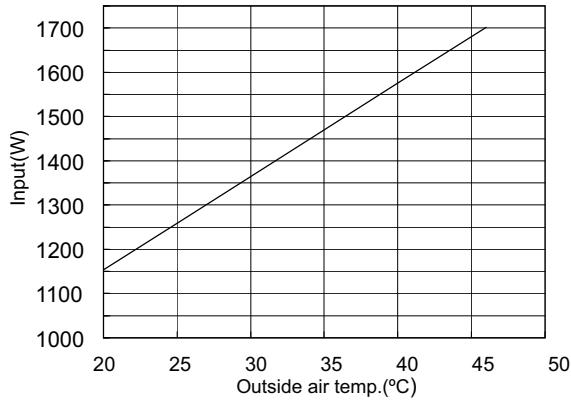
[2] PERFORMANCE CURVES

NOTE: 1) Indoor fan speed: Hi

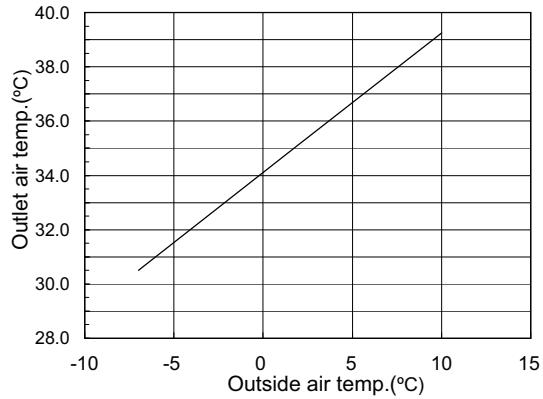
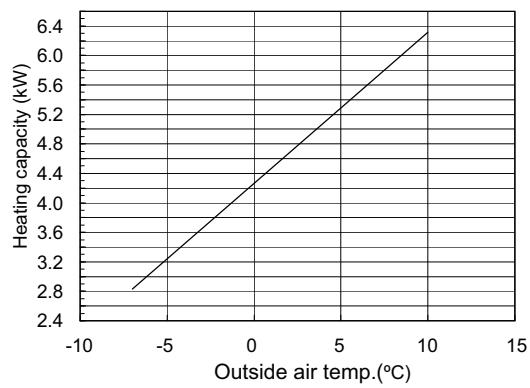
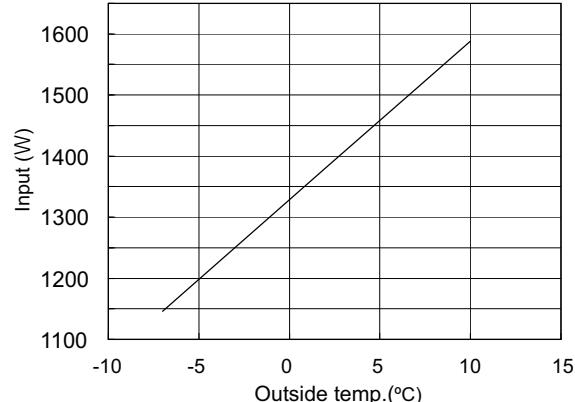
- 2) Vertical adjustment louver "45°", Horizontal adjustment louver "front"
- 3) Indoor air temp.: Cooling 27°C, Heating 20°C
- 4) Power source: 230V, 50Hz

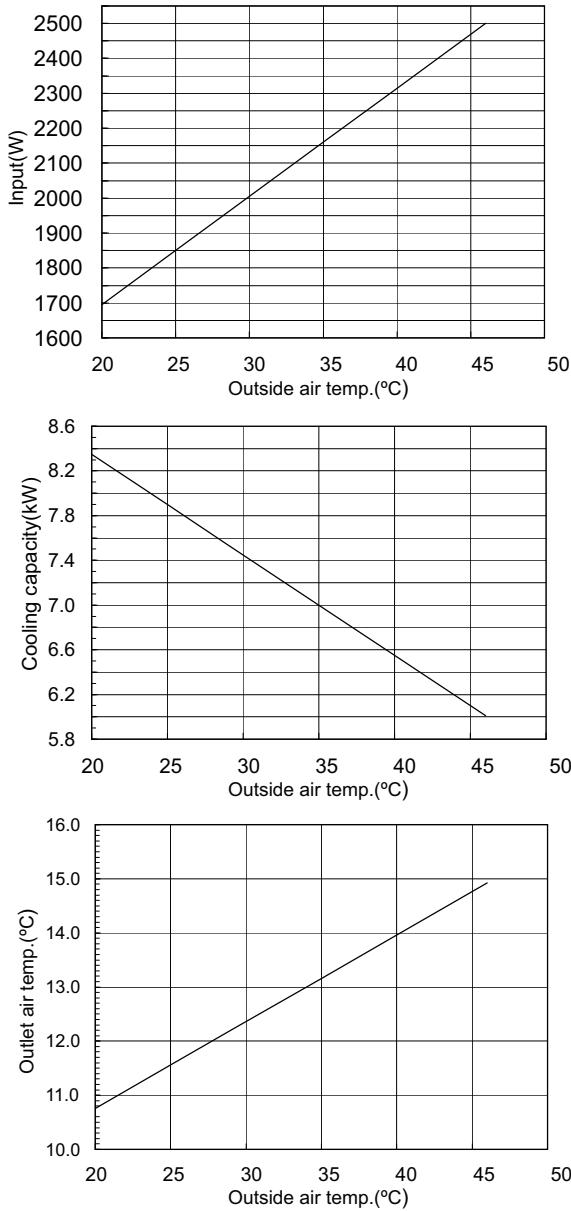
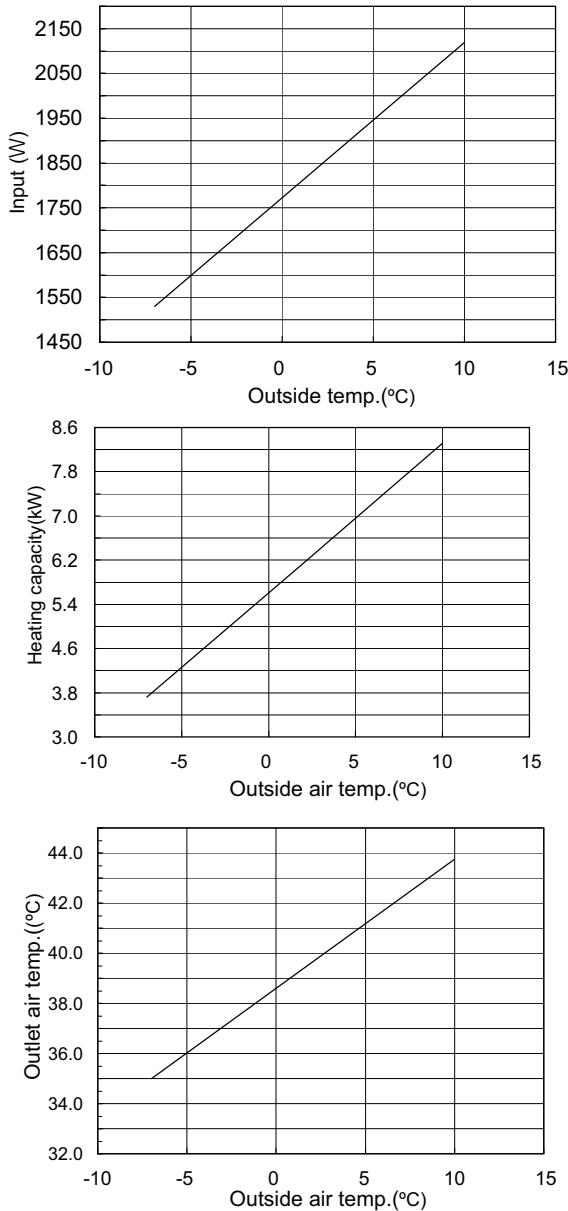
1. AY-XPC18LR

1.1. Cooling



1.2. Heating



2. AY-XP24LR**2.1. Cooling****2.2. Heating****[3] REFRIGERANT PIPE INSTALLATION WORKS**

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

| MODEL | PIPE SIZE | | STANDARD PERMISSIBLE LENGTH | PERMISSIBLE LEVEL DIFERENCE | CHARGE LESS LENGTH | ADDITIONAL CHARGE |
|------------|-----------|--------|-----------------------------|-----------------------------|--------------------|-------------------|
| | GAS | LIQUID | | | | |
| AY-XPC18LR | 1/2" | 1/4" | 20m | 10m | 10m | 20g |
| AY-XP24LR | 5/8" | 1/4" | 30m | 10m | 10m | 20g |

CHAPTER 5. DISASSEMBLING PROCEDURE

If, in carrying out repairs and modifications, the work requires the use of arc- and flame-producing apparatus, such as welding, brazing and soldering equipment, this work shall only be started after the rooms have been thoroughly ventilated. While the work is being carried out, the mechanical ventilation, if any, shall be kept in constant operation and all windows and doors kept open. In the case of repairs to parts of the refrigerant circuit, it may be necessary that not only the workman but also a second person shall be present for observation and assistance.

Necessary protective equipment shall be available and, in the case of open flames or arcs, fire extinguishing apparatus shall be ready to hand.

Welding and brazing shall be carried out by qualified workmen.

Be sure to disconnect the power cord from the AC power outlet before starting the disassembly procedure. When reassembling the unit after repairing, be sure to install screws to their original positions.

The screws used are not the same in specifications such as corrosion-resistant treatment, tip shape and length.

After the air conditioner is repaired or parts are replaced, measure insulation resistance of the equipment using an insulation resistance meter. If the measured resistance is lower than $1\text{ M}\Omega$, inspect parts and repair or replace defective parts.

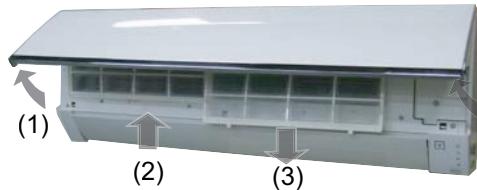
[1] INDOOR UNIT

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

1. Disassembling procedure of the indoor unit

1) Remove two air filters.

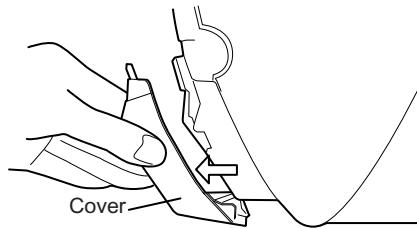
- (1) Open the open panel
- (2) Push the air filters up slightly to unlock them.
- (3) Pull the air filters down to remove them.



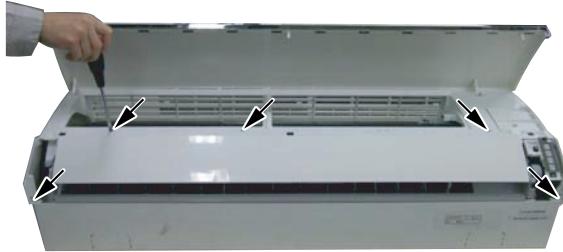
2) Remove the 2 screws fixing the cover L and cover R.



Pull the covers toward you to release the lock.



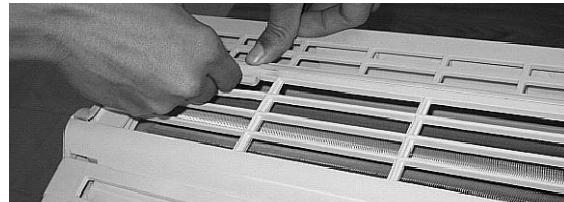
3) Remove 5 screws fixing the front panel.



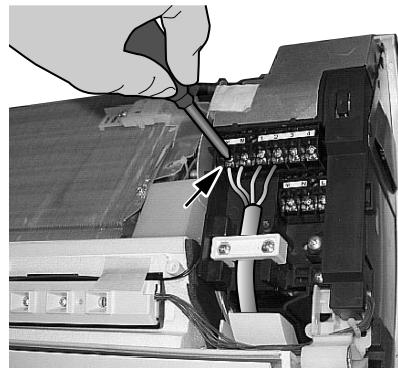
4) Remove the screw fixing the Cord holder.

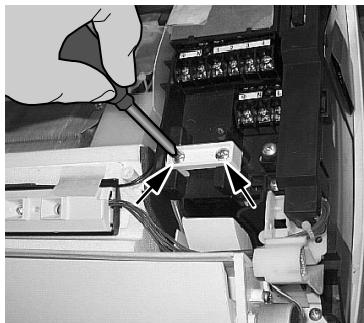


5) Close the open panel. Push the hook of the cabinet, and lift the front panel up.



6) Remove the unit-to-unit wiring from the Terminal board.

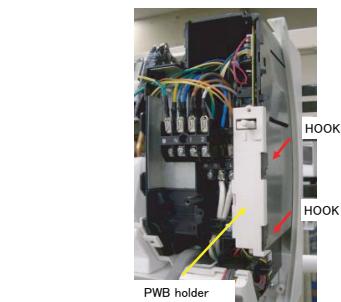
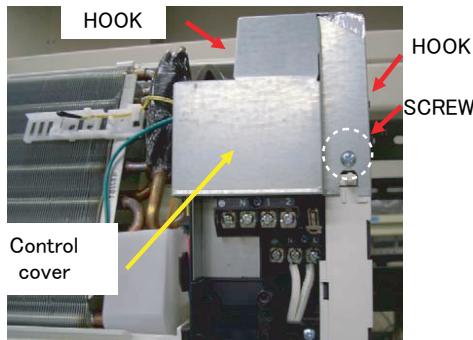




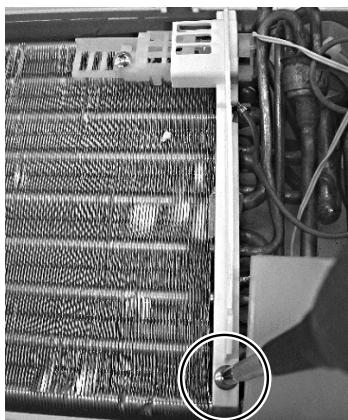
7) Remove a screw fixing the control cover.

Unfix 2 hooks and remove the control cover.

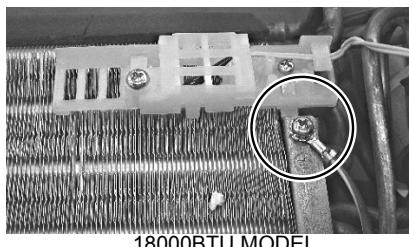
Unfix 2 hooks and remove the PWB holder.



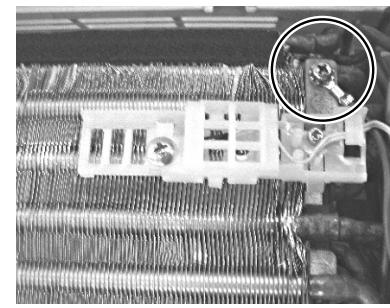
8) Remove a screw fixing the cover and unhook the cover in the direction of an arrow. (18000BTU model only)



Remove a screw fixing the ground wire.

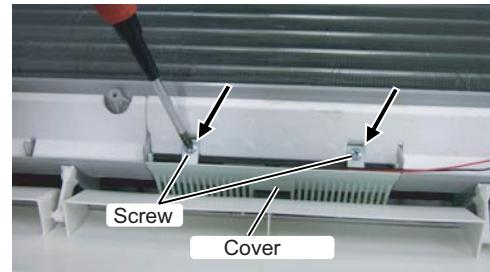


18000BTU MODEL



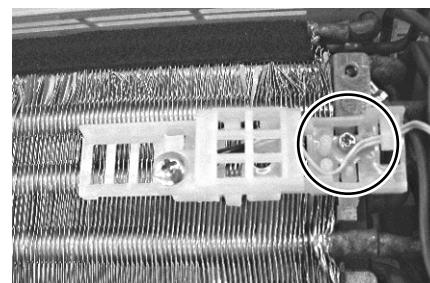
24000BTU MODEL

9) Remove 2 screws fixing the cover.

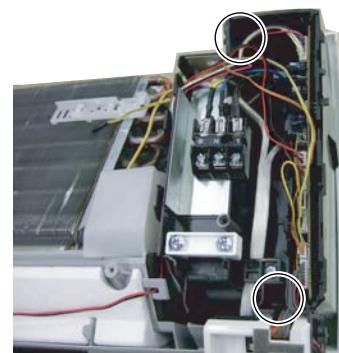


10) Remove a screw fixing the thermistor holder.

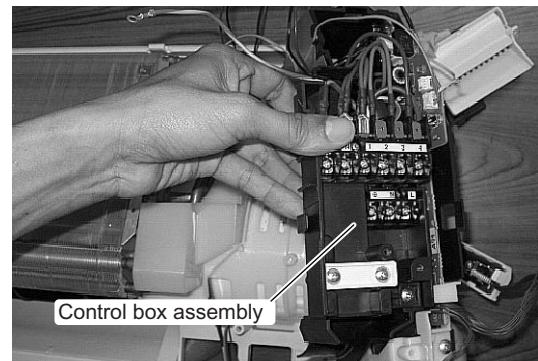
Remove the thermistor holder.



11) Disconnect the connector and remove 2 screws fixing the control box assembly.



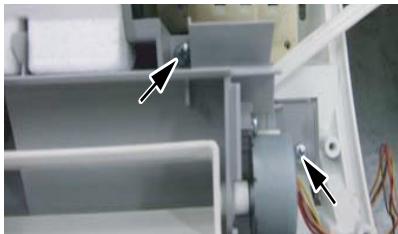
12) Remove the control box assembly.



13)Remove 4 screws fixing the drain pan and pull drain pan toward you.



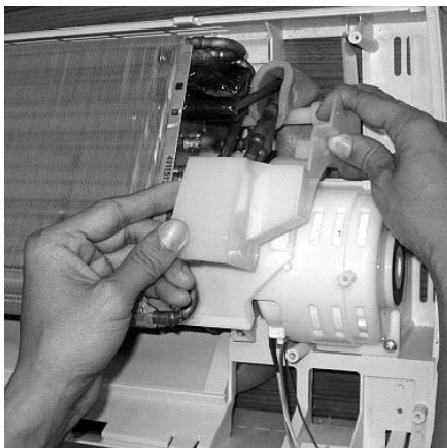
Left side



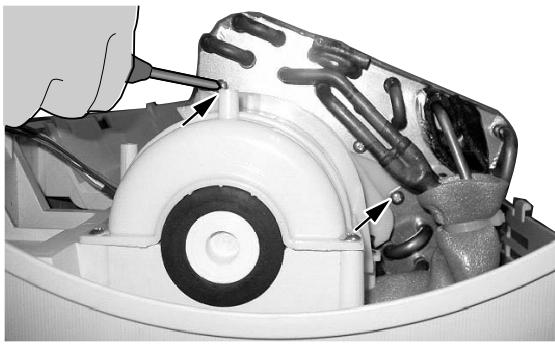
Right side



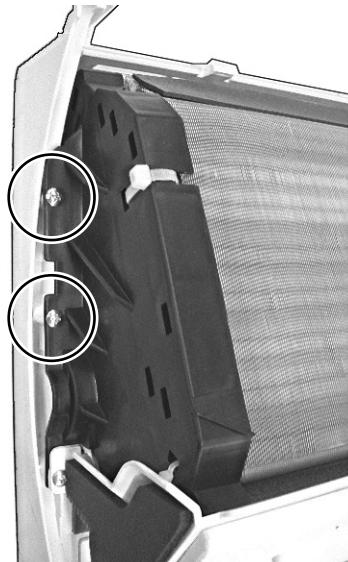
14)Remove the drain cover from the evaporator.



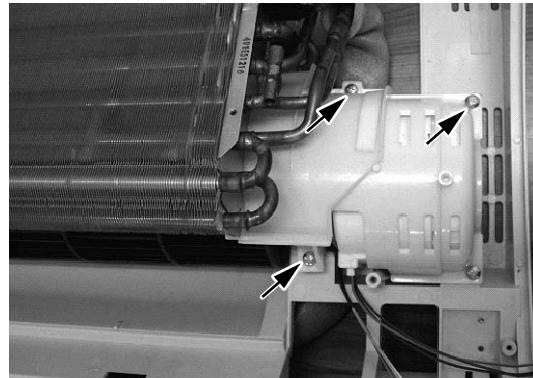
15)Remove 2 screws fixing the evaporator.



16)Remove the 2 screws fixing the side coder L.



17)Remove 3 screws fixing the side cover R and remove the and remove the evaporator from the cabinet.

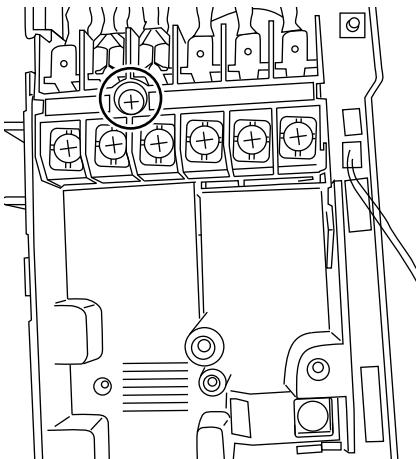


18)Loose a screw fixing cross flow fan.

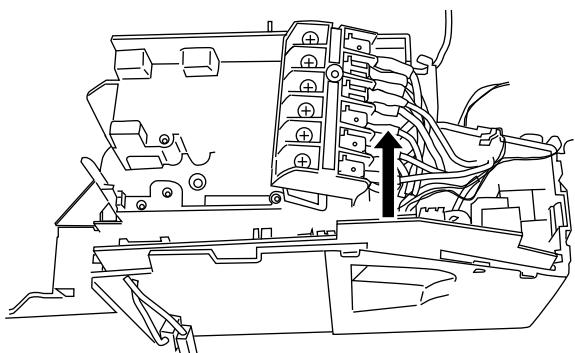


2. ELECTRIC CONTROL BOX

1) Remove a screw fixing the terminal board.

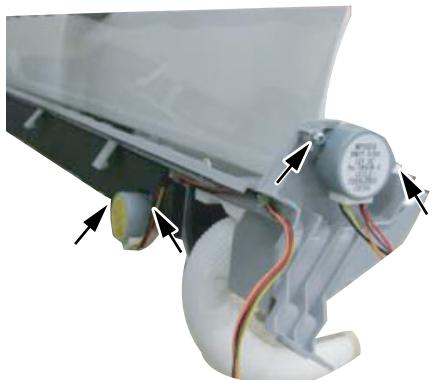


2) Pull the control board unit.

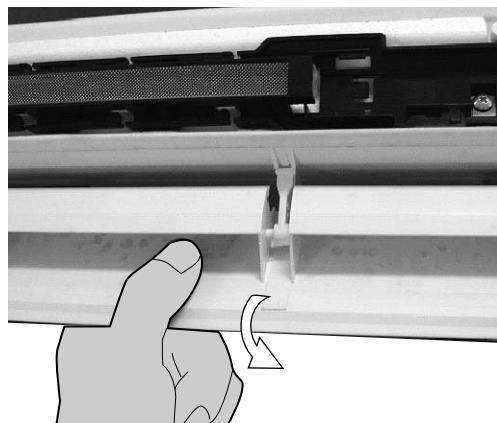


3. The louver and related

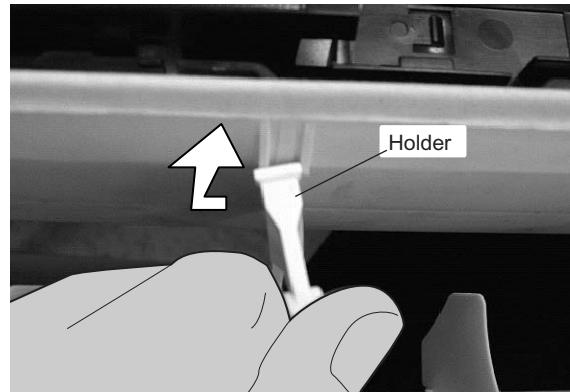
1) Remove the two screw fixing the louver motor.



2) Open the horizontal louver to remove it from the holders.



3) Remove the holders.

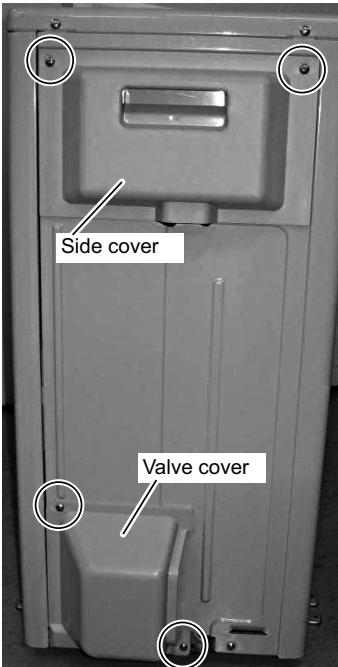


4) Tilt the hooks of vertical louvers inside, and pull them up.

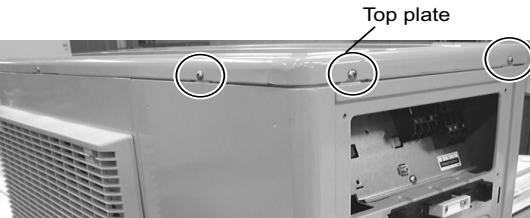
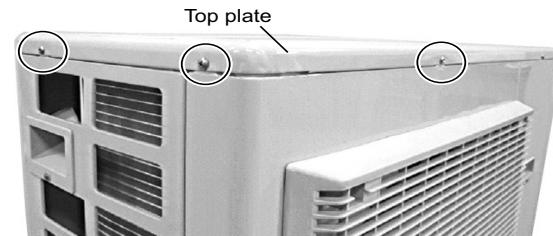


[2] OUTDOOR UNIT

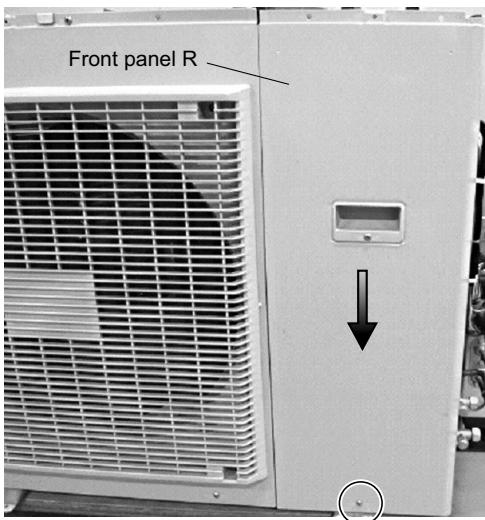
1. Remove the 4 screws fixing the side cover and valve cover then remove them..



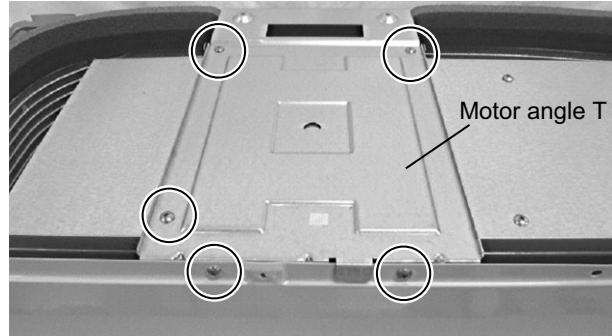
2. Remove the 6 screws fixing the top plate, then remove it.



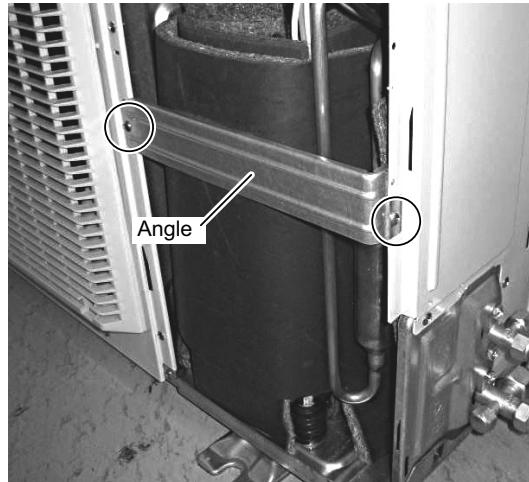
3. Remove the 1 screw fixing the front panel R and slide the front panel R down, then remove it.



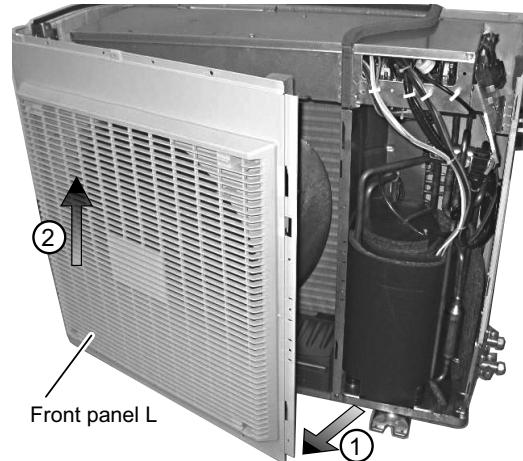
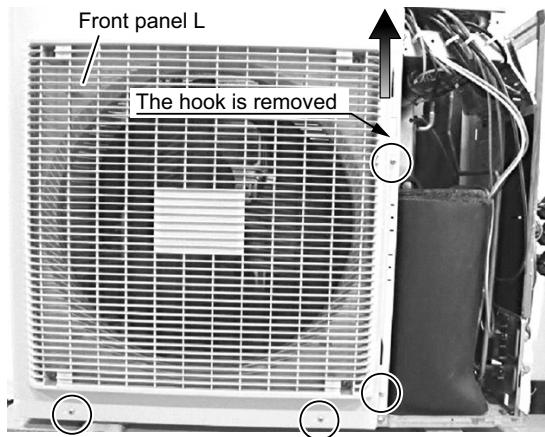
4. Remove the 5 screws fixing the motor angle T, then remove it.



5. Remove the 2 screws fixing the angle, then remove it.

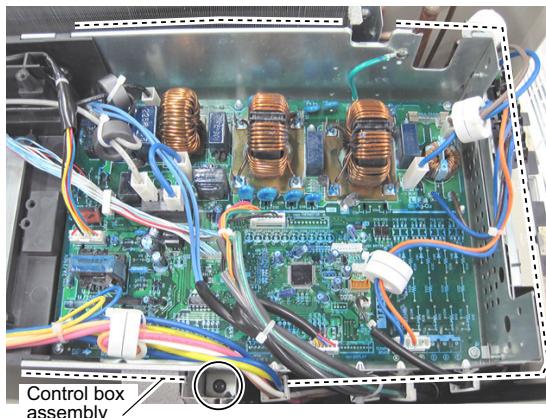
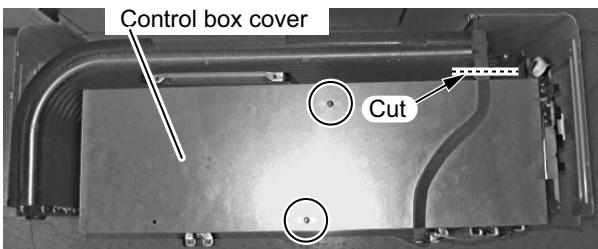


6. Remove the 4 screws fixing the front panel L, then remove it.

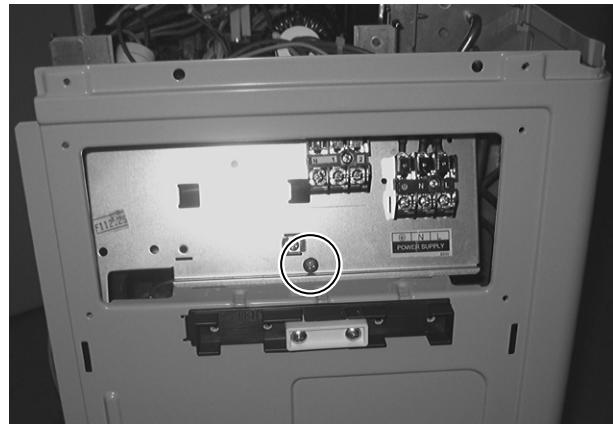
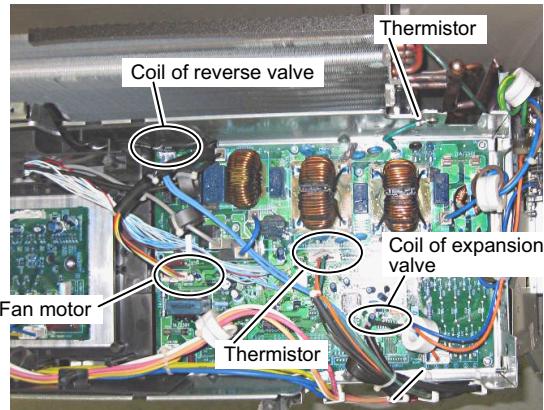


AYXPC18LR

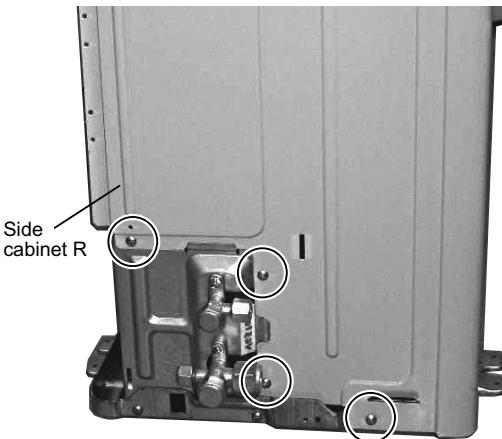
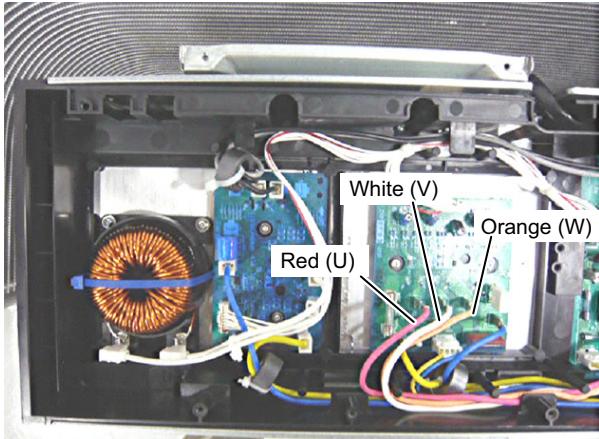
7. Cut the insulators.
8. Remove the 2 screws fixing the control box cover, then remove it.
CAUTION: Discharge electricy capacitor before touching this capacitor or other components or wirings.



9. Disconnect the 4 connectors and the 3 terminals.

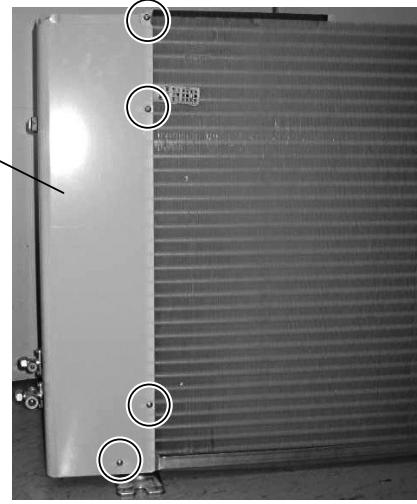
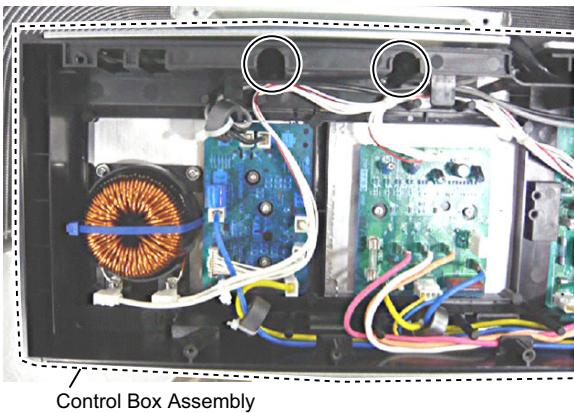


11. Remove the 11 screws fixing the side cover R and slide the side cabinet R.

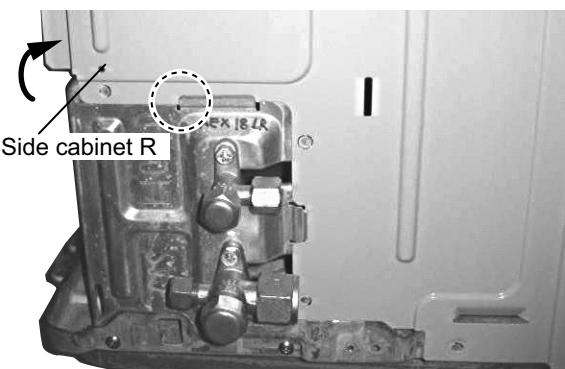


NOTE: Caution to the position of connectors when reinstalling.

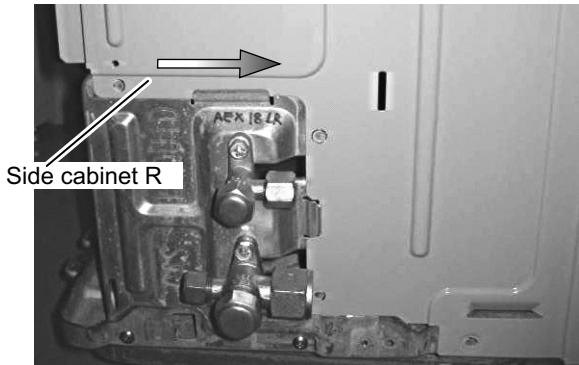
10. Remove the 5 screws fixing the controlbox assembly, then remove it.



1) Tilt the side cabinet R, then remove the left side hook.



2) Keep the above condition and remove the side cabinet R by sliding to sideways.



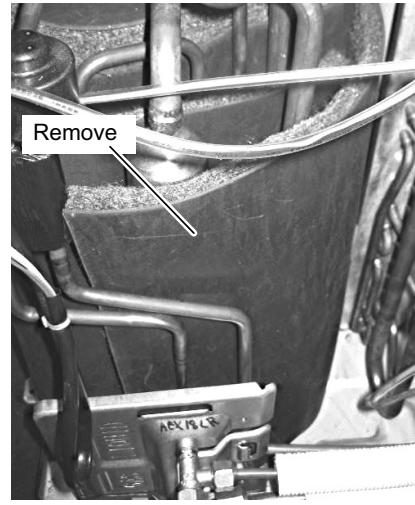
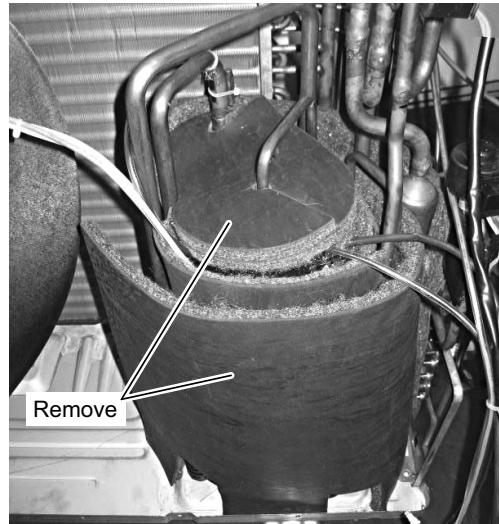
12. Remove the screws fixing the side cabinet L, then remove it.



13. Remove the 2 screws fixing the bulkhead, then remove it.

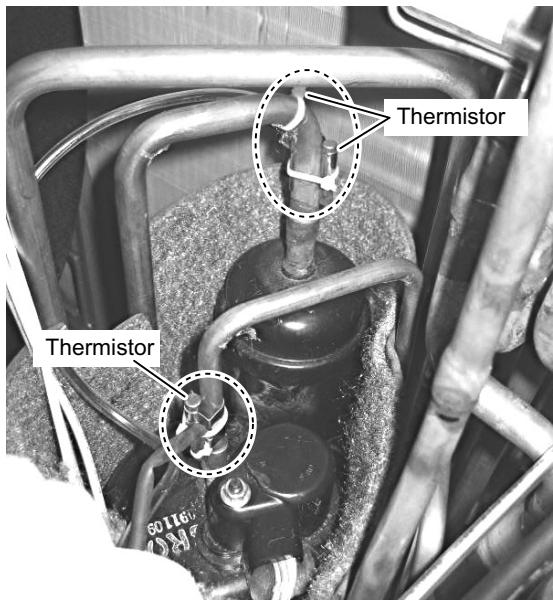


14. Remove the compressor covers(3pcs).



AYXPC18LR

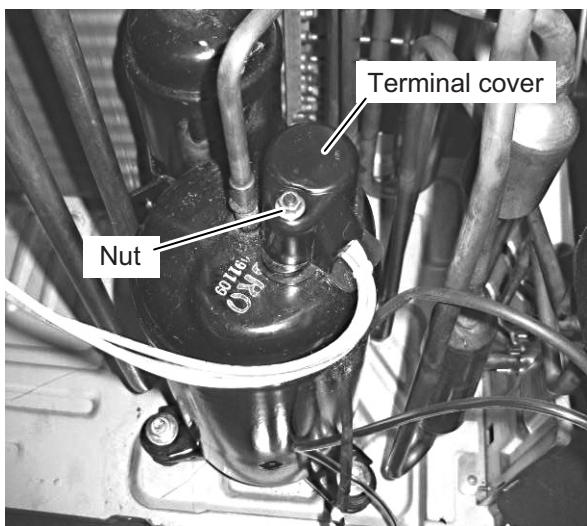
15.Cut the fixing bands and remove thermistors.



16.Remove the compressor cover.

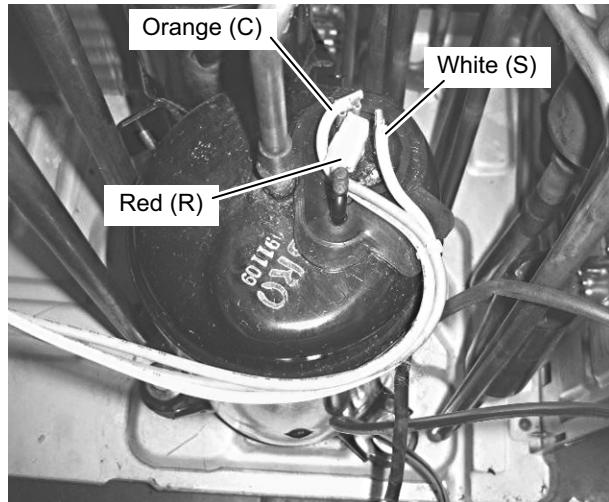


17.Remove the nut and terminal cover..

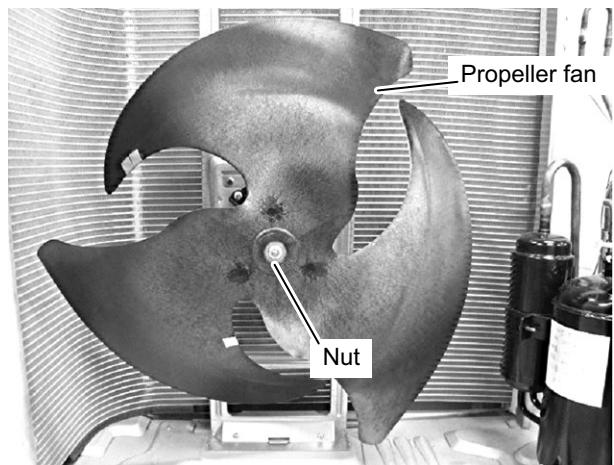


18.Disconnect 3 terminals.

NOTE: Caution to the position of connectors when reinstalling.



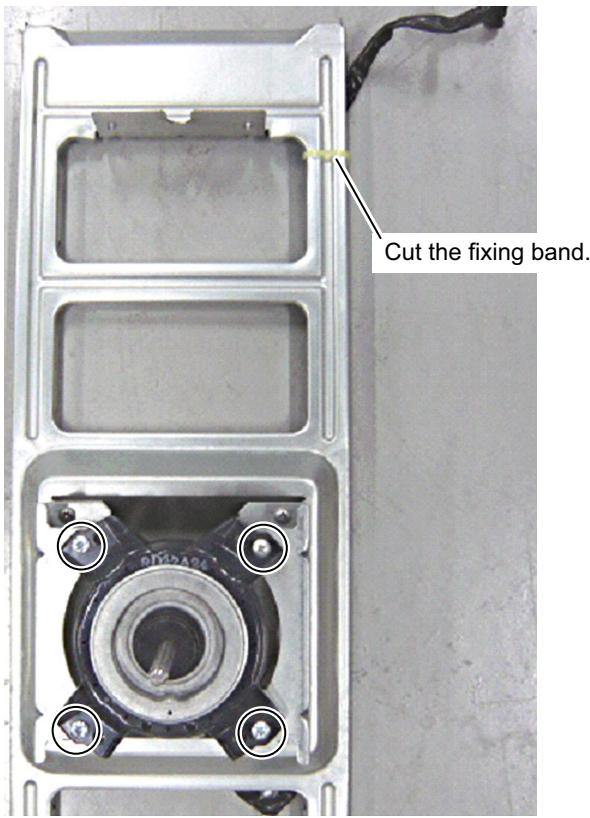
19. Remove the 1 nut fixing the propeller fan, then remove it.



20.Remove the 2 screws fixing the motor angle, then remove it.

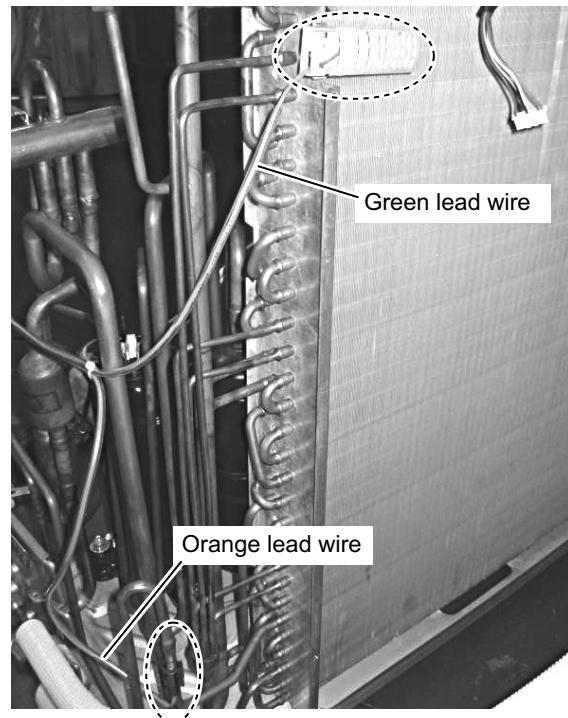
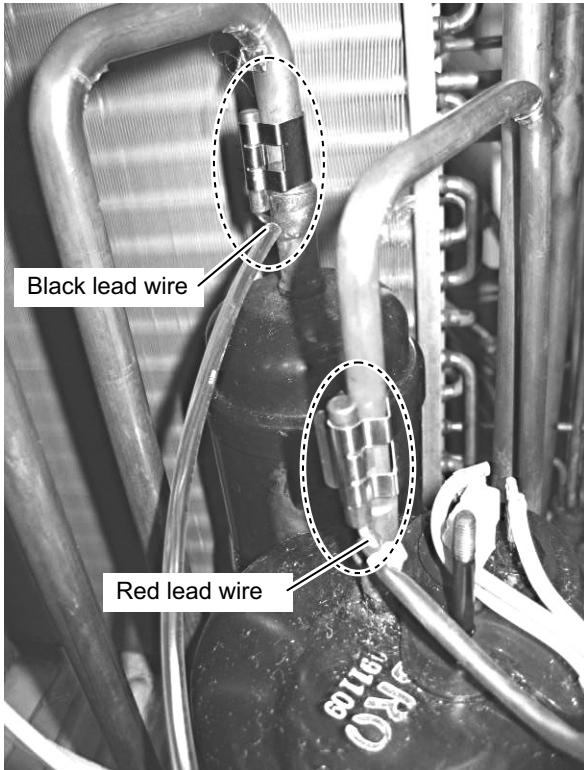


21. Remove the 4 screws fixing the fan motor, then remove it.



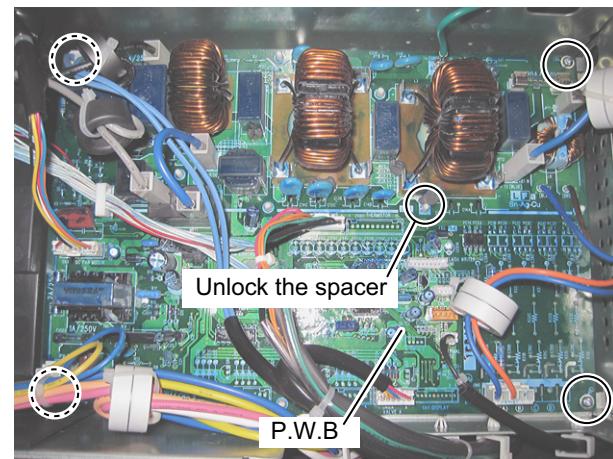
22. Position of the thermistors.

NOTE: Caution to the position when reinstalling.



23. How to disassemble the control box assembly.

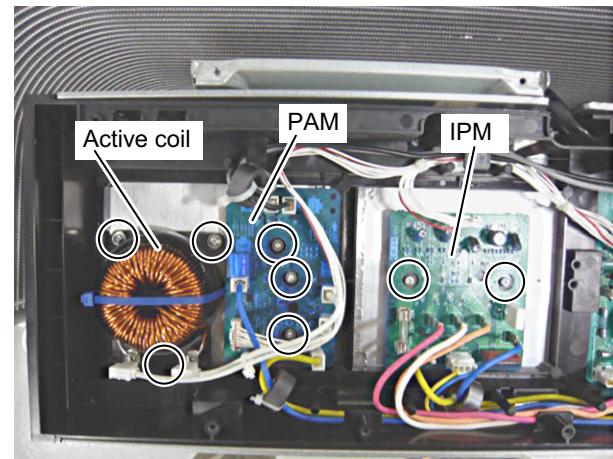
1) Remove the 4 screws fixing the PWB, then remove it.



2) Remove the 2 screws fixing the IPM, then remove it.

3) Remove the 3 screws fixing the PAM.

4) Remove the 3 screws fixing the Active coil.



SHARP PARTS LIST

SPLIT TYPE AIR CONDITIONER

| | INDOOR UNIT | OUTDOOR UNIT |
|--------|-------------|--------------|
| MODELS | AY-XPC18LR | AE-X18LR |
| | AY-XP24LR | AE-X24LR |

CONTENTS

- | | |
|--------------------------|---------------------------|
| [1] INDOOR UNIT PARTS | [6] CYCLE PARTS |
| [2] ACCESSORY PARTS | [7] CONTROL BOX PARTS |
| [3] INDOOR PACKING PARTS | [8] OTHER OUTDOOR PARTS |
| [4] OTHER PARTS | [9] OUTDOOR PACKING PARTS |
| [5] OUTDOOR UNIT PARTS | ■ INDEX |

HOW TO ORDER REPLACEMENT PARTS

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

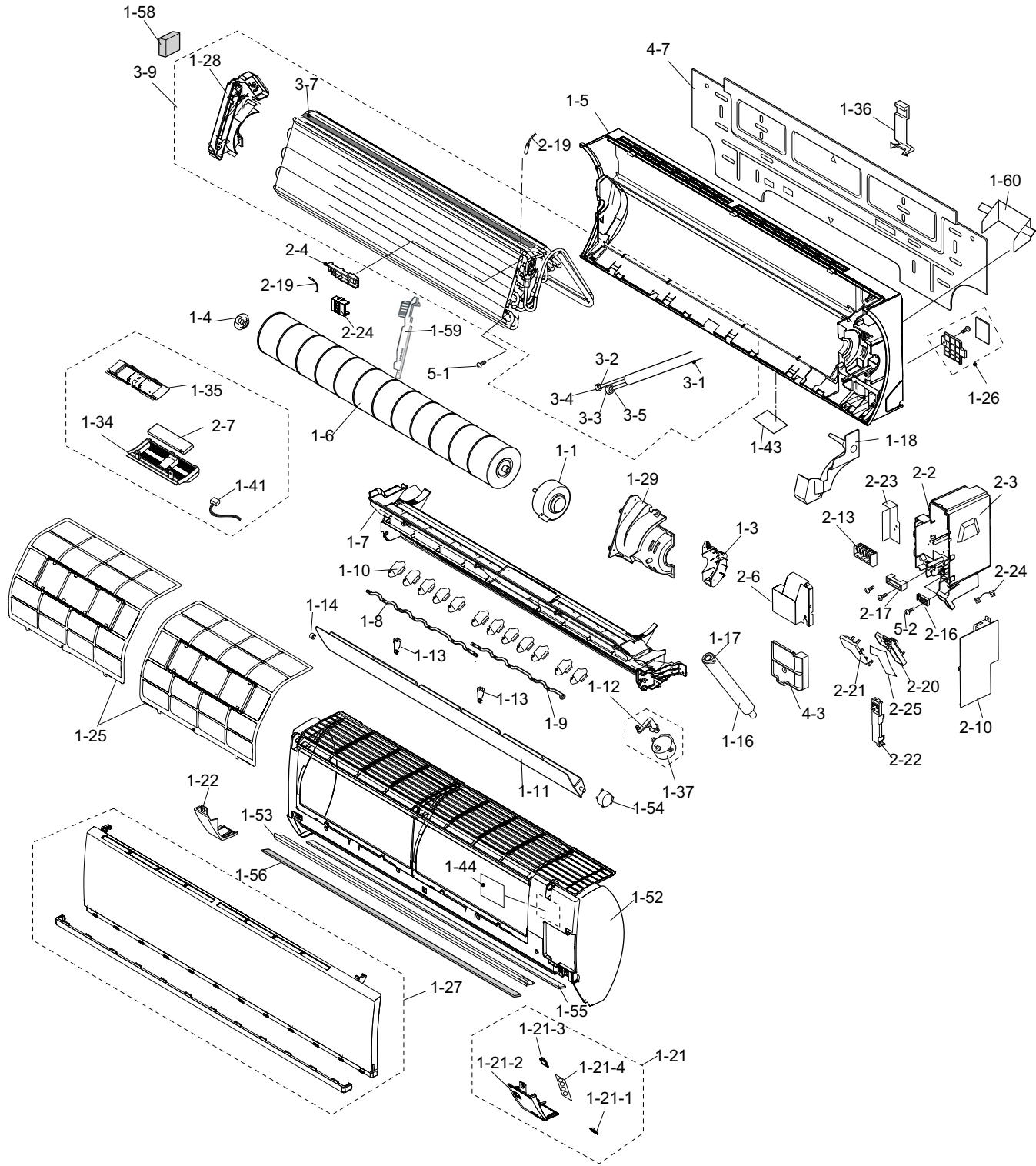
1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

Parts marked with "▲" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

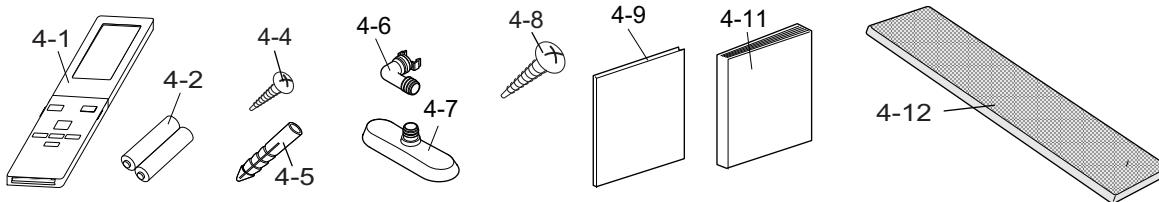
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

[1] INDOOR UNIT PARTS



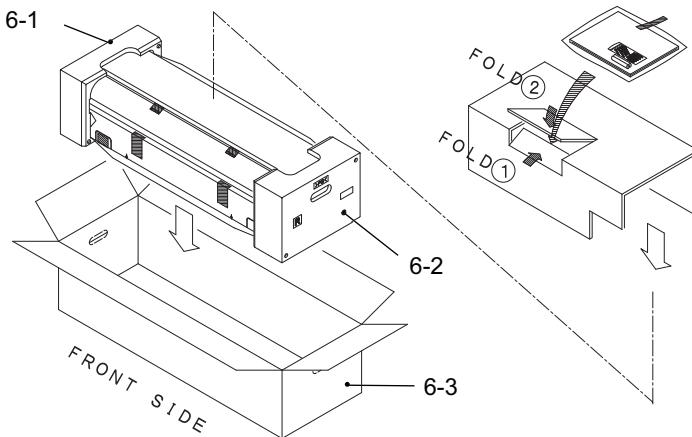
| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|------------------------------|---------------|------------|----------|-----------|-----------------------------|
| [1] INDOOR UNIT PARTS | | | | | |
| 1-1 | CMOT-A524JBKZ | BS | | | Fan Motor Sub Assembly |
| 1-3 | PCOV-B593JBFZ | AP | | | Motor Cover |
| 1-4 | CHLD-A067JBK0 | AL | | | Bearing Assembly |
| 1-5 | DCHS-A761JBKZ | BM | | | Cabinet Sub Assembly |
| 1-6 | NFANCA091JBEZ | BD | | | Cross Flow Fan |
| 1-7 | DSRA-A339JBKZ | BF | | | Drain Pan Sub Assembly |
| 1-8 | MJNTPA158JBFA | AL | | | Louver Link L |
| 1-9 | MJNTPA159JBFA | AL | | | Louver Link R |
| 1-10 | MLOV-A532JBFA | AL | | | Vertical Louver |
| 1-11 | MLOV-A533JBFA | BB | | | Horizontal Louver |
| 1-12 | MJNTPA160JBFA | AL | | | Motor Joint |
| 1-13 | NBRG-A057JBFA | AL | | | Holder |
| 1-14 | NBRG-A026JBFA | AB | | | Louver Bushing |
| 1-16 | PHOS-A058JBEZ | AX | | | Drain Hose |
| 1-17 | LPLT-A058JPBZ | AC | | | Hose Holder |
| 1-18 | DCOV-A207JBKZ | AF | | | Drain Cover Assembly |
| 1-21 | CCOV-A327JBKZ | AU | | | Cover R Assembly |
| 1-21-1 | PCOV-B581JBFA | AL | | | Receiving Filter |
| 1-21-2 | PCOV-B747JBRA | AK | | | Cover R |
| 1-21-3 | PCOV-B583JBRA | AS | | | Cluster Display |
| 1-21-4 | PSHE-A278JBEZ | AH | | | Sheet |
| 1-22 | DCOV-A357JBKZ | AK | | | Cover Assembly |
| 1-25 | PFILMA250JBEB | AN | | | Air Filter |
| 1-26 | DHLD-A010JBKZ | AK | | | Tube Holder Assembly |
| 1-27 | DPNL-A062JBKZ | BD | | | Open Panel Assembly |
| 1-28 | PPLT-A756JBFZ | AL | | | Side Cover L |
| 1-29 | PPLT-A666JBFZ | AV | | | Side Cover R |
| 1-34 | DCOV-A349JBKZ | AL | | | Cover Assembly |
| 1-35 | DHLD-A049JBKZ | AL | | | Holder Assembly |
| 1-36 | LHLD-A277JBFO | AD | | | Tube Holder |
| 1-37 | RMOT-A192JBZZ | AZ | | | Louver Motor |
| 1-41 | QW-VZG168JBZZ | AP | | | Lead Wire |
| 1-43 | TSPC-G721JBRA | AK | | | Name Label [18] |
| 1-43 | TSPC-G768JBRA | AK | | | Name Label [24] |
| 1-44 | TLABCC718JBRZ | AK | | | Wiring Diagram |
| 1-52 | DWAK-B002JBKZ | BB | | | FRONT PANEL Assembly |
| 1-53 | PSEL-E004JBEZ | AL | | | SEAL |
| 1-54 | RMOT-A193JBZZ | AZ | | | Louver Motor |
| 1-55 | PSEL-E003JBEZ | AK | | | Seal |
| 1-56 | PSEL-E199JBEZ | AH | | | Insulator |
| 1-58 | PSEL-E087JBEZ | AH | | | Insulator (Attach to 1-28) |
| 1-59 | PCOV-B754JBFA | AK | | | Cover [18] |
| 1-60 | PCOV-B772JBEZ | AK | | | Cover |
| 2-2 | PBOX-A537JBFA | AX | | | Control Box |
| 2-3 | CCOV-A283JBKZ | BB | | | Control Cover Assembly |
| 2-4 | LHLD-B070JBKZ | AK | | | Thermistor Holder |
| 2-6 | PCOV-B584JBWZ | AP | | | Control Cover |
| 2-7 | CKITTA133AKKZ | BM | | | Plasmacluster Unit |
| 2-10 | DSGY-E156JBKZ | BT | | | Control Board Unit Main[18] |
| 2-10 | DSGY-E161JBKZ | BT | | | Control Board Unit Main[24] |
| 2-13 | QTANZA039JBZZ | AQ | | | Terminal Board (4P) |
| 2-16 | LHLD-B033JBFA | AK | | | Cord Holder |
| 2-17 | LHLD-A539JBFA | AE | | | Cord Holder |
| 2-19 | RH-HXA148JBZZ | AX | | | Thermistor |
| 2-20 | PCOV-B585JBFA | AL | | | LED Holder A |
| 2-21 | LHLD-B030JBFA | AL | | | LED Holder B |
| 2-22 | LHLD-B031JBFA | AP | | | PWB Holder |
| 2-23 | PCOV-B588JBWZ | AP | | | Terminal Cover |
| 2-24 | PCOV-A300JBFO | AB | | | Thermo Holder Cover |
| 2-25 | DSGY-E160JBKZ | BT | | | Control Board Unit Sub |
| 3-1 | CP1PCB413JBKZ | BN | | | Tube Assembly[18] |
| 3-1 | CP1PCB428JBKZ | BK | | | Tube Assembly[24] |
| 3-2 | PSEN-A044JBEZ | AG | | | Flare Nut Assembly |
| 3-3 | PSEN-A053JBKZ | AN | | | Flare Nut Assembly |
| 3-4 | PVLV-A381JBEZ | AN | | | Flare Union (1/4 inch) |
| 3-5 | PVLV-A376JBEZ | AS | | | Flare Union (1/2 inch) [18] |
| 3-5 | PVLV-A379JBEZ | AT | | | Flare Union (5/8 inch) [24] |
| 3-7 | PSEL-E180JBEZ | AG | | | Evaporator seal |
| 3-9 | CCYC-C523JBKZ | BU | | | Evaporator Assembly [18] |
| 3-9 | CCYC-C533JBKZ | BU | | | Evaporator Assembly [24] |
| 4-3 | DHLD-A037JBKZ | AV | | | Cord Holder Assembly |
| 4-7 | PPLTNA120JBWZ | AZ | | | Mounting Angle |
| 5-1 | LX-BZA075JBE0 | AA | | | Special Screw |
| 5-2 | XTPS740P25000 | AC | | | TAPPING SCREW |

[2] ACCESSORY PARTS



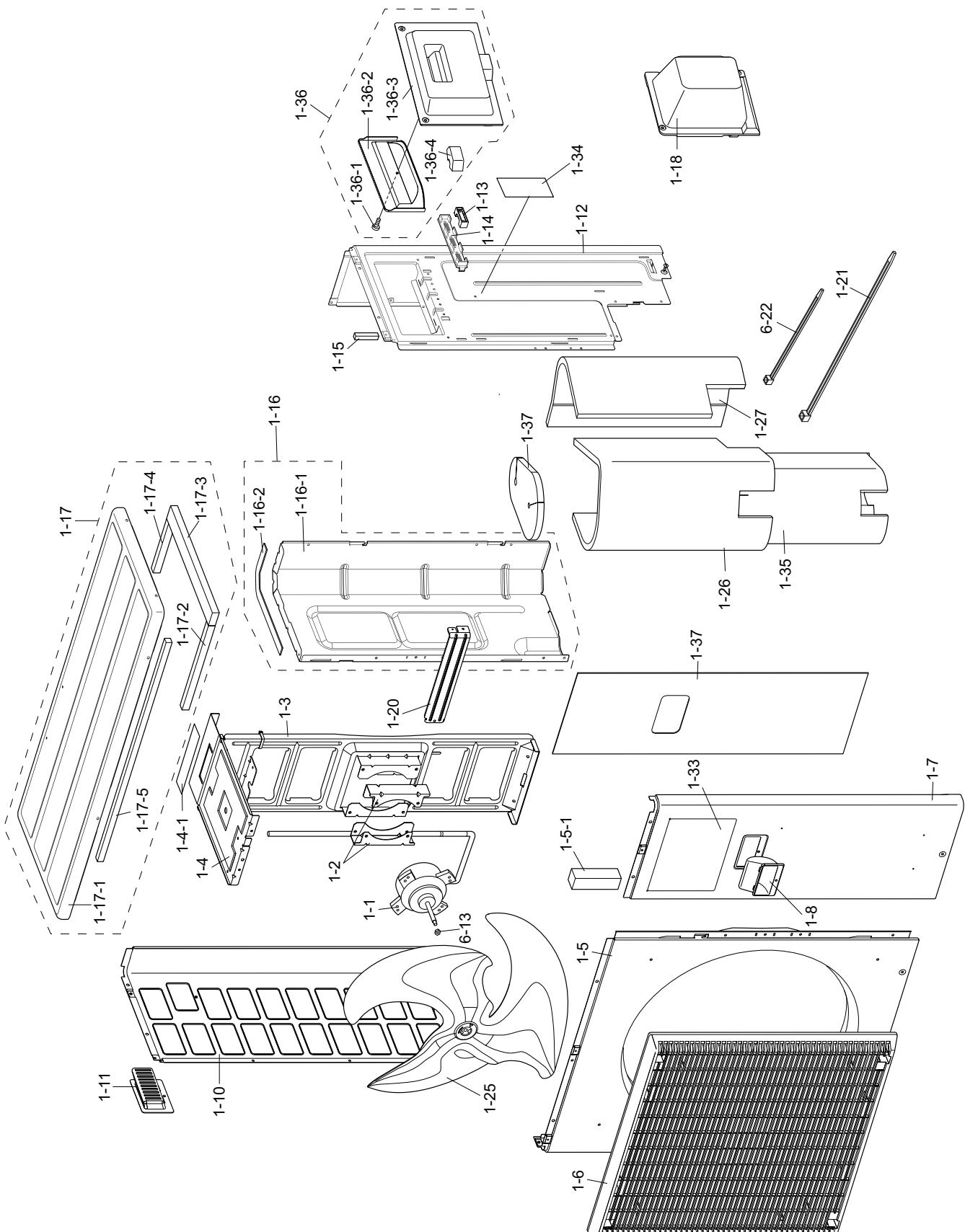
| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|----------------------------|---------------|------------|----------|-----------|--|
| [2] ACCESSORY PARTS | | | | | |
| 4-1 | CRMC-A797JBEZ | BL | | | Remote Control |
| 4-2 | UBATUA027JBE0 | AE | | | Battery Pack |
| 4-4 | LX-BZA357JBEZ | AE | | | Special screw |
| 4-5 | LX-NZA207JBEZ | AE | | | Special Nut |
| 4-6 | LPFT-A134JBFZ | AF | | | Drain Joint (for 1800 Btu type, accessory kit parts of OUTDOOR UNIT) |
| 4-7 | LPFT-A135JBFZ | AH | | | Drain Tray (for 1800 Btu type, accessory kit parts of OUTDOOR UNIT) |
| 4-8 | XTTS745P30000 | AC | | | Tapping Screw |
| 4-9 | TINS-B246JBRZ | AK | | | Installation Manual [18] |
| 4-9 | TINS-B270JBRZ | AP | | | Installation Manual [24] |
| 4-11 | TINSEA639JBRZ | AN | | | Operation Manual |
| 4-12 | CFIL-A087JBKZ | BB | | | Purify Filter Assembly |

[3] INDOOR PACKING PARTS



| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---------------------------------|---------------|------------|----------|-----------|---------------------|
| [3] INDOOR PACKING PARTS | | | | | |
| 6-1 | SPADBA480JBEZ | AP | | | Packing Pad |
| 6-2 | SPADBA481JBEZ | AP | | | Packing Pad |
| 6-3 | SPAKCC839JBEZ | BB | | | Packing Case [18] |
| 6-3 | SPAKCC857JBEZ | BB | | | Packing Case [24] |
| [4] OTHER PARTS | | | | | |
| 2-1 | QFS-iA001JBZZ | AH | | | Fuse 2.5A 250V(Fu1) |
| 2-19 | QSW-PA024JBZZ | AH | | | Switch (SW1) |
| 2-30 | RH-VXA002JBZZ | AF | | | Varistor (NR1) |
| 2-31 | RTRNWA051JBZZ | BB | | | Transformer (TR2) |

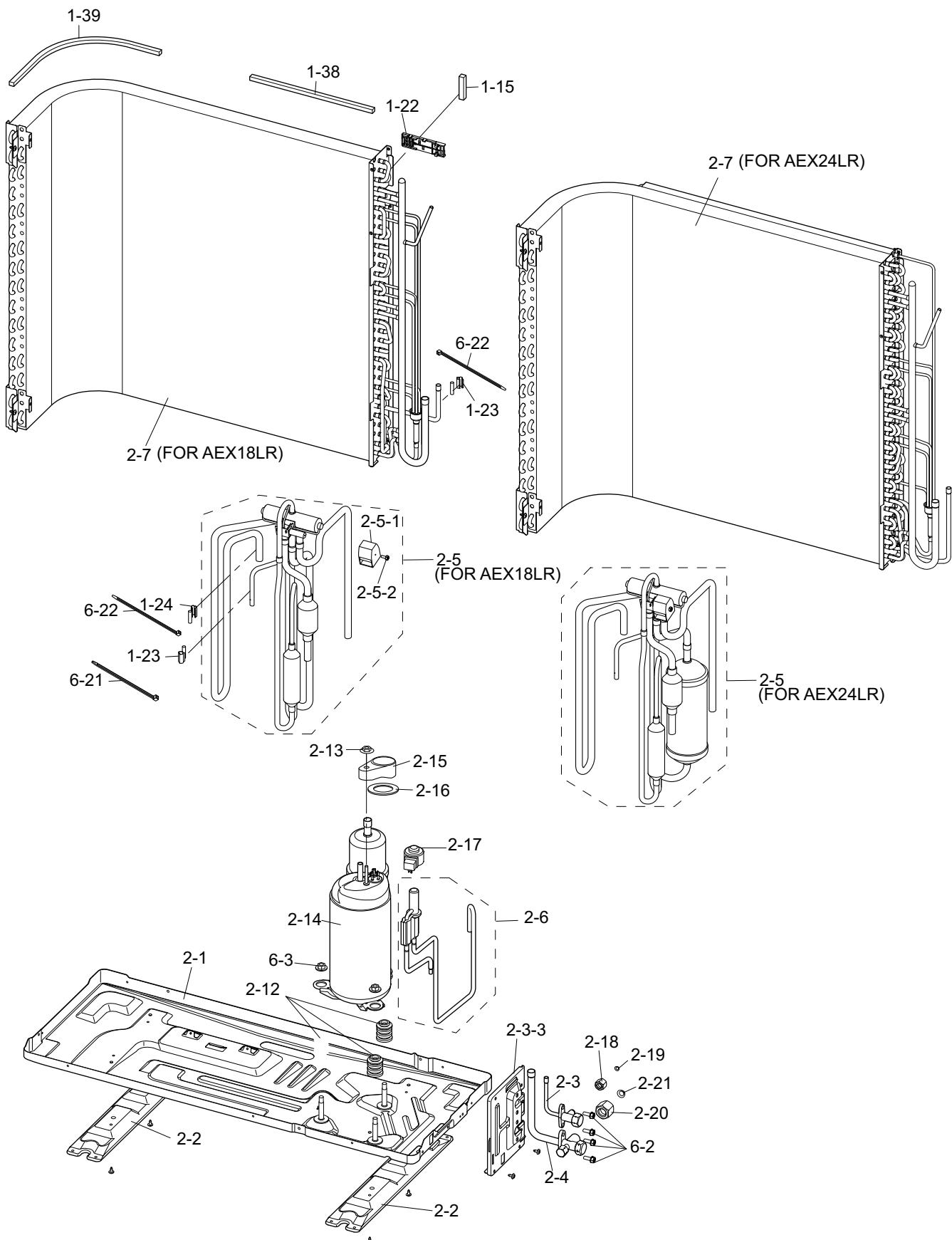
[5] OUTDOOR UNIT PARTS



| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|-------------------------------|----------------|------------|----------|-----------|---------------------|
| [5] OUTDOOR UNIT PARTS | | | | | |
| 1-1 | CMOTLB426JBEZ | CA | | | Fan Motor |
| 1-2 | L ANGKA253JPBZ | AM | | | Fan Motor Angle Sub |

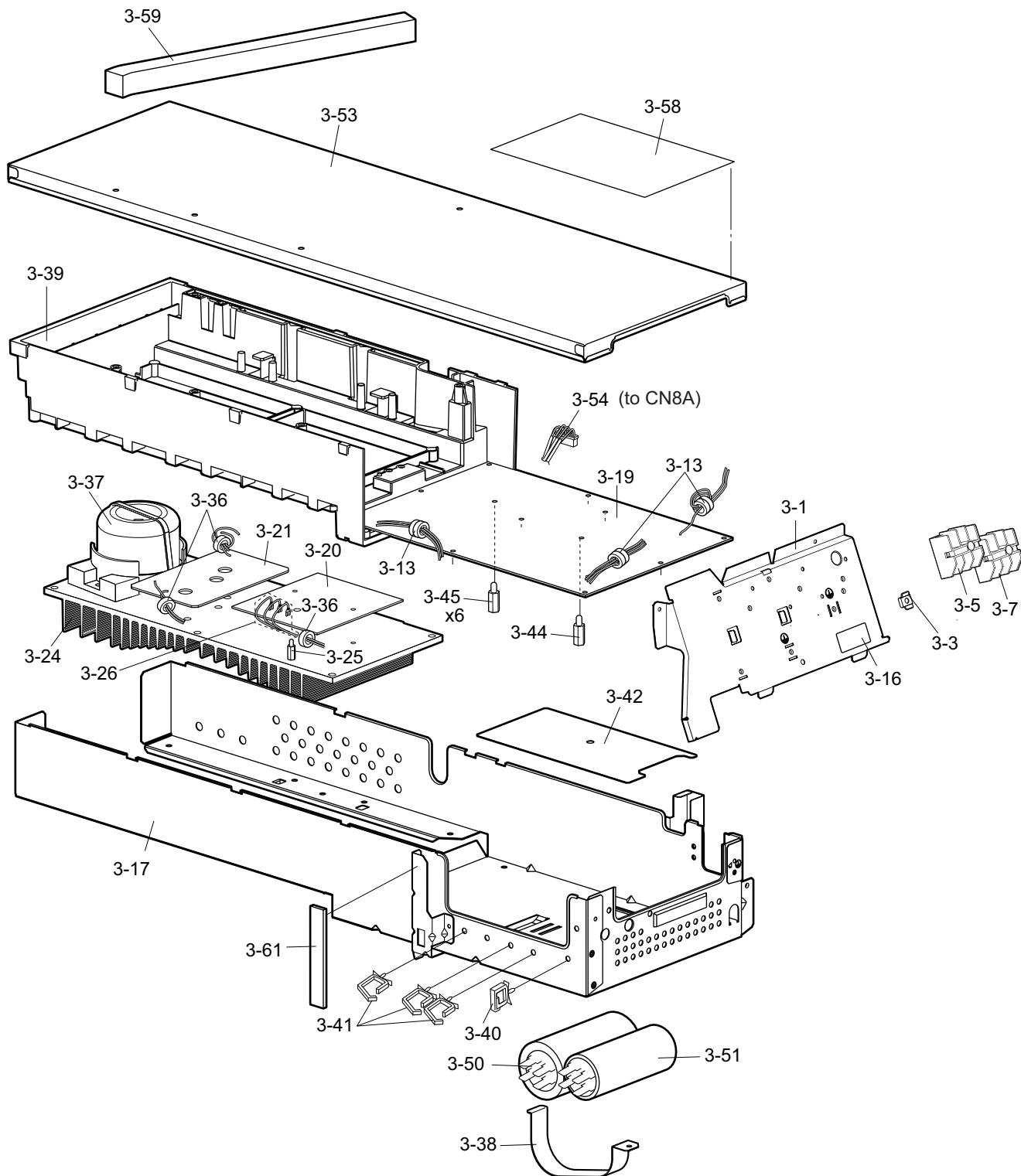
| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|-------------------------------|---------------|------------|----------|-----------|---------------------|
| [5] OUTDOOR UNIT PARTS | | | | | |
| 1-3 | LANGKA267JBPZ | AY | | | Motor Angle |
| 1-4 | LANGKA268JBPZ | AP | | | Motor Angle T |
| 1-4-1 | PSEL-E186JBEZ | AE | | | Angle Top Seal |
| 1-5 | GCAB-A409JBTA | BE | | | Front Panel L |
| 1-5-1 | PSEL-E132JBEZ | AK | | | Front Panel L Seal |
| 1-6 | GGADFA042JBFA | BH | | | Fan Guard |
| 1-7 | GCAB-A408JBTA | AX | | | Front Panel R |
| 1-8 | JHNDPA016JBFA | AE | | | Handle |
| 1-10 | GPLTMA072JBTA | AZ | | | Side Cabinet L |
| 1-11 | JHNDPA028JBFA | AK | | | Handle |
| 1-12 | GPLTMA075JBTA | BC | | | Side Cabinet R |
| 1-13 | LHLD-A539JBFA | AE | | | Cord Holder |
| 1-14 | LHLD-B095JBFA | AK | | | Cord Clamp Holder |
| 1-15 | PSEL-E120JBEZ | AK | | | Side Cabinet R Seal |
| 1-16 | CSKR-A512JBKZ | BA | | | Bulkhead Assembly |
| 1-16-1 | PSKR-A372JBPZ | AU | | | Bulkhead |
| 1-16-2 | PSEL-E135JBEZ | AK | | | Bulkhead Seal |
| 1-17 | DCAB-A167JBKZ | BF | | | Top Plate Assembly |
| 1-17-1 | GCAB-A410JBTA | BD | | | Top Plate |
| 1-17-2 | PSEL-E129JBEZ | AK | | | Top Plate Seal A |
| 1-17-3 | PSEL-E130JBEZ | AN | | | Top Plate Seal B |
| 1-17-4 | PSEL-E131JBEZ | AK | | | Top Plate Seal C |
| 1-17-5 | PSEL-E153JBEZ | AK | | | Top Plate Seal D |
| 1-18 | PCOV-B739JBFA | AN | | | Valve Cover |
| 1-20 | LANG-A737JBPZ | AL | | | Angle |
| 1-21 | LBND-A046JBE0 | AE | | | Wire Fixing Band |
| 1-25 | NFANPA142JBFA | BE | | | Propeller Fan |
| 1-26 | PSPF-B173JBEZ | AZ | | | Compressor Cover A |
| 1-27 | PSPF-B174JBEZ | AX | | | Compressor Cover B |
| 1-33 | TLABMA565JBRA | AQ | | | Inverter Label |
| 1-34 | TSPC-G722JBRZ | AK | | | Name Label [18] |
| 1-34 | TSPC-G769JBRZ | AK | | | Name Label [24] |
| 1-35 | PSPF-B161JBEZ | AY | | | Compressor Cover A |
| 1-36 | DCOV-A347JBKZ | AW | | | Side Cover Assembly |
| 1-36-1 | LX-BZA461JBEZ | AH | | | Special Screw |
| 1-36-2 | PCOV-B726JBWZ | AM | | | Terminal Cover |
| 1-36-3 | PCOV-B740JBFA | AN | | | Side Cover 2 |
| 1-36-4 | PSEL-C051JBEZ | AE | | | Side Cover Seal |
| 1-37 | PSPF-B162JBEZ | AS | | | Compressor Cover C |
| 6-13 | LX-NZA378JBEZ | AK | | | Special Nut |
| 6-22 | LBND-A042JBE0 | AC | | | Wire Fixing Band |

[6] CYCLE PARTS



| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|------------------------|-----------------|------------|----------|-----------|------------------------|
| [6] CYCLE PARTS | | | | | |
| 1-23 | MSPR-A026JBE0 | AB | | | Thermistor Spring |
| 1-24 | MSPR-A036JBE0 | AB | | | Thermistor Spring |
| 1-15 | PSEL-E120JBEZ | AK | | | Side Cabinet R Seal |
| 1-22 | LHLD-B097JBFA | AK | | | Thermistor Holder |
| 1-38 | PSEL-E184JBEZ | AE | | | Condenser Seal A |
| 1-39 | PSEL-E185JBEZ | AE | | | Condenser Seal B |
| 2-1 | CCHS-B151JB1Z | BB | | | Base Pan Sub Assembly |
| 2-2 | GLEGMA059JBPZ | AK | | | Base Stand |
| 2-3 | DVLV-B073JBKZ | AY | | | 2Way Valve Unit |
| 2-4 | DVLV-B074JBKZ | BC | | | 3Way Valve Unit [18] |
| 2-4 | DVLV-B087JBKZ | BF | | | 3Way Valve Unit [24] |
| 2-3-3 | PDA i-A254JBPZ | AN | | | Flare Coupling Base |
| 2-5 | DVLV-B075JBKZ | BU | | | Reverse Valve Assembly |
| 2-5-1 | RC i L-A132JBZZ | AX | | | Coil |
| 2-5-2 | LX-BZA434JBEZ | AR | | | Special Screw |
| 2-6 | DVLV-B086JBKZ | BM | | | Expan.Valve Assembly |
| 2-7 | DCON-A580JBPZ | BQ | | | Condenser [18] |
| 2-7 | DCON-A587JBZ | BM | | | Condenser [24] |
| 2-12 | GLEG-A157JBEZ | AK | | | Comp. Cushion Rubber |
| 2-13 | LX-NZA395JBEZ | AK | | | Nut 5 |
| 2-14 | PCMPRA652JBEZ | DD | | | Compressor |
| 2-15 | PCOV-B633JBEZ | AE | | | Terminal Cover |
| 2-16 | PSEL-E047JBEZ | AE | | | Terminal Gasket |
| 2-17 | RMOTSA037JBZZ | BC | | | Coil |
| 2-18 | LX-NZA250JBEZ | AE | | | Flare Nut |
| 2-19 | PCAP-A075JBZ | AC | | | Nut Bonnet |
| 2-20 | LX-NZA280JBEZ | AG | | | Flare Nut [18] |
| 2-20 | LX-NZA299JBEZ | AR | | | Flare Nut [24] |
| 2-21 | PCAP-A089JBEZ | AX | | | Nut Bonnet [18] |
| 2-21 | PCAP-A090JBEZ | AE | | | Nut Bonnet [24] |
| 6-2 | LX-BZA455JBEZ | AH | | | Special Screw |
| 6-3 | LX-NZA313JBEZ | AE | | | Special Nut |
| 6-21 | LBND-A097JBEZ | AE | | | Wire Fixing Band |
| 6-22 | LBND-A042JBE0 | AC | | | Wire Fixing Band |

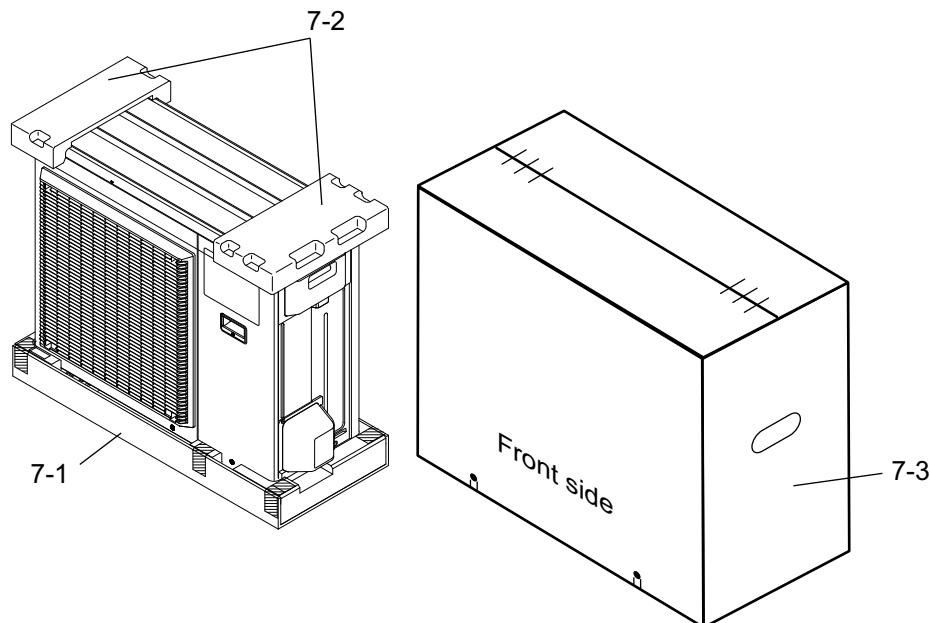
[7] CONTROL BOX PARTS



| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|------------------------------|---------------|---------------|-------------|--------------|-------------------------|
| [7] CONTROL BOX PARTS | | | | | |
| 3-1 | LANG-A733JBWZ | AK | | | Terminal Angle |
| 3-3 | LHLD-B067JBEZ | AN | | | Washer |
| 3-5 | QTANZA072JBZZ | AR | | | Terminal Board |
| 3-7 | QTANZA071JBZZ | AV | | | Terminal Board |
| 3-13 | RNF--A001VBE0 | AF | | | Ferrite Core |
| 3-16 | TLAB-E833JBRZ | AK | | | Label |
| 3-17 | DBOX-A087JBWZ | AZ | | | Control Box Assembly |
| 3-19 | DSGY-E129JBKZ | BT | | | Control Board Unit [18] |
| 3-19 | DSGY-E163JBKZ | BZ | | | Control Board Unit [24] |
| 3-20 | DSGY-E127JBKZ | BW | | | Power Transistor |

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|--------------------------------|---------------|------------|----------|-----------|----------------------------------|
| [7] CONTROL BOX PARTS | | | | | |
| 3-21 | DSGY-E030JBKZ | BR | | | PFC Control Board Uni |
| 3-24 | PRDAFA239JBEZ | BQ | | | Haet Sink |
| 3-25 | PSPA-A150JBZZ | AF | | | PWB Spacer |
| 3-26 | QW-iZA141JBZZ | AW | | | Comp. Cord (QM101(U,V,W) - COMP) |
| 3-36 | RFiL-A064JBE0 | AF | | | Ferrite Core |
| 3-37 | RTRN-A300JBZZ | BK | | | Active Coil |
| 3-38 | LBNDKA151JBWZ | AM | | | Capacitor Clamp |
| 3-39 | LHLD-B096JBFA | AY | | | Heat Sink Holder |
| 3-40 | LHLDWA039JBEZ | AC | | | Wire HOLder |
| 3-41 | LHLDWA040JBEZ | AC | | | Wire H0Lder |
| 3-42 | PSHE-A313JBEZ | AK | | | Protect Sheet |
| 3-44 | PSPA-A082JBE0 | AB | | | Spacer |
| 3-45 | PSPA-A173JBEZ | AE | | | Pwb Spacer |
| 3-50 | RC-AZA046JBE0 | BE | | | Electrolytic Cap. |
| 3-51 | RC-EZA250JBZZ | BG | | | Electrolytic Capa. |
| 3-53 | PCOV-B724JBWZ | AT | | | Control Box Cover |
| 3-54 | RH-HXA140JBZZ | BC | | | Thermistor Assembly |
| 3-58 | TLABCC720JBRZ | AK | | | Wiring Diagram |
| 3-59 | PSEL-E183JBEZ | AH | | | Cont. Box Cover Seal |
| 3-61 | PSEL-E136JBEZ | AK | | | Cont. Box Angle Seal |
| [8] OTHER OUTDOOR PARTS | | | | | |
| 3-10 | QW-VZG402JBZZ | AK | | | Lead Wire (TBN -T2) |
| 3-11 | QW-VZG403JBZZ | AK | | | Lead Wire (TBL -T1) |
| 3-12 | QW-VZG446JBZZ | AK | | | Lead Wire (TB -CN6) |
| 3-14 | QW-VZG438JBZZ | AK | | | Lead Wire (TBE -BOX) |
| 3-27 | QW-VZG499JBZZ | AN | | | Lead Wire (MRY1 OUT - DB1 AC1) |
| 3-28 | QW-VZG500JBZZ | AN | | | Lead Wire (T6 - DB1 AC2) |
| 3-29 | QW-VZG396JBZZ | AL | | | Lead Wire (PFCM (TNF) - C(-)) |
| 3-30 | QW-VZG397JBZZ | AK | | | Lead Wire (C10(+)) - IPM(TP)) |
| 3-31 | QW-VZG398JBZZ | AK | | | Lead Wire (C10(-)) - IPM(TN)) |
| 3-32 | QW-VZG399JBZZ | AL | | | Lead Wire (PFCM (TPF) - C(+)) |
| 3-33 | QW-VZG406JBZZ | AK | | | Lead Wire (CN14 - CN14) |
| 3-34 | QW-VZG407JBZZ | AK | | | Lead Wire (PFCM (TL1) - Coil) |
| 3-35 | QW-VZG408JBZZ | AK | | | Lead Wire (PFCM (TL2) - Coil) |
| 3-46 | QW-VZE603JBZZ | AP | | | Lead Wire (C9(+)) - C10(+)) |
| 3-47 | QW-VZE624JBZZ | AP | | | Lead Wire (T5 - MRY1) |
| 3-48 | QW-VZG213JBZZ | AK | | | Lead Wire (C9(-)) - C10(-)) |
| 3-49 | QW-VZG405JBZZ | AK | | | Lead Wire (T4 - BOX) |
| 6-5 | XCPS740P25000 | AD | | | Tapping Screw |
| 6-6 | XBPS730P14JS0 | AA | | | Tapping Screw |
| 6-9 | XBPS740P20J00 | AF | | | Machine Screw |
| 6-10 | LX-BZA075JBE0 | AA | | | Special Screw |
| 6-11 | XJTS740P10000 | AC | | | Tap Tight Screw |
| 6-12 | XTPS730P12XS0 | AF | | | Tapping Screw |
| 6-14 | XBPS740P08K00 | AK | | | Machine Screw |
| 6-15 | PSEL-E136JBEZ | AK | | | Cont. Box Ang Seal |
| 6-16 | PSEL-E137JBEZ | AM | | | Cont. Box Cover Seal |

[9] OUTDOOR PACKING PARTS



| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|----------------------------------|---------------|---------------|-------------|--------------|----------------------|
| [9] OUTDOOR PACKING PARTS | | | | | |
| 7-1 | CPADBA164JBKZ | AZ | | | Bottom Pad Assembly |
| 7-2 | CPADBA165JBKZ | AN | | | Packing Pad Assembly |
| 7-3 | SPAKCC840JBEZ | BB | | | Packing Case [18] |
| 7-3 | SPAKCC861JBEZ | BB | | | Packing Case [24] |

■INDEX

| PARTS CODE | No. | PRICE RANK | NEW MARK | PART RANK |
|---------------|----------|------------|----------|-----------|
| 【 C 】 | | | | |
| CCHS-B151JB1Z | 6-2-1 | BB | | |
| CCOV-A283JBKZ | 1-2-3 | BB | | |
| CCOV-A327JBKZ | 1-1-21 | AU | | |
| CCYC-C523JBKZ | 1-3-9 | BU | | |
| CCYC-C533JBKZ | 1-3-9 | BU | | |
| CFiL-A087JBKZ | 2-4-12 | BB | | |
| CHLD-A067JBK0 | 1-1-4 | AL | | |
| CKTTA133AKKZ | 1-2-7 | BM | | |
| CMOT-A524JBKZ | 1-1-1 | BS | | |
| CMOTLB426JBEZ | 5-1-1 | CA | | |
| CPADBA164JBKZ | 9-7-1 | AZ | | |
| CPADBA165JBKZ | 9-7-2 | AN | | |
| CPiPCB413JBKZ | 1-3-1 | BN | | |
| CPiPCB428JBKZ | 1-3-1 | BK | | |
| CRMC-A797JBEZ | 2-4-1 | BL | | |
| CSKR-A512JBKZ | 5-1-16 | BA | | |
| 【 D 】 | | | | |
| DBOX-A087JBWZ | 7-3-17 | AZ | | |
| DCAB-A167JBKZ | 5-1-17 | BF | | |
| DCHS-A761JBKZ | 1-1-5 | BM | | |
| DCON-A580JBPZ | 6-2-7 | BQ | | |
| DCON-A587JBPZ | 6-2-7 | BM | | |
| DCOV-A207JBKZ | 1-1-18 | AF | | |
| DCOV-A347JBKZ | 5-1-36 | AW | | |
| DCOV-A349JBKZ | 1-1-34 | AL | | |
| DCOV-A357JBKZ | 1-1-22 | AK | | |
| DHLD-A010JBKZ | 1-1-26 | AK | | |
| DHLD-A037JBKZ | 1-4-3 | AV | | |
| DHLD-A049JBKZ | 1-1-35 | AL | | |
| DPNL-A062JBKZ | 1-1-27 | BD | | |
| DSGY-E030JBKZ | 7-3-21 | BR | | |
| DSGY-E127JBKZ | 7-3-20 | BW | | |
| DSGY-E129JBKZ | 7-3-19 | BT | | |
| DSGY-E156JBKZ | 1-2-10 | BT | | |
| DSGY-E160JBKZ | 1-2-25 | BT | | |
| DSGY-E161JBKZ | 1-2-10 | BT | | |
| DSGY-E163JBKZ | 7-3-19 | BZ | | |
| DSRA-A339JBKZ | 1-1-7 | BF | | |
| DVLV-B073JBKZ | 6-2-3 | AY | | |
| DVLV-B074JBKZ | 6-2-4 | BC | | |
| DVLV-B075JBKZ | 6-2-5 | BU | | |
| DVLV-B086JBKZ | 6-2-6 | BM | | |
| DVLV-B087JBKZ | 6-2-4 | BF | | |
| DWAK-B002JBKZ | 1-1-52 | BB | | |
| 【 G 】 | | | | |
| GCAB-A408JBTA | 5-1-7 | AX | | |
| GCAB-A409JBTA | 5-1-5 | BE | | |
| GCAB-A410JBTA | 5-1-17-1 | BD | | |
| GGADFA042JBFA | 5-1-6 | BH | | |
| GLEG-A157JBEZ | 6-2-12 | AK | | |
| GLEGMA059JBPZ | 6-2-2 | AK | | |
| GPLTMA072JBTA | 5-1-10 | AZ | | |
| GPLTMA075JBTA | 5-1-12 | BC | | |
| 【 J 】 | | | | |
| JHNDPA016JBFA | 5-1-8 | AE | | |
| JHNDPA028JBFA | 5-1-11 | AK | | |
| 【 L 】 | | | | |
| LANG-A733JBWZ | 7-3-1 | AK | | |
| LANG-A737JBPZ | 5-1-20 | AL | | |
| LANGKA253JBPZ | 5-1-2 | AM | | |
| LANGKA267JBPZ | 5-1-3 | AY | | |
| LANGKA268JBPZ | 5-1-4 | AP | | |
| LBND-A042JBE0 | 5-6-22 | AC | | |
| " | 6-6-22 | AC | | |
| LBND-A046JBE0 | 5-1-21 | AE | | |
| LBND-A097JBEZ | 6-6-21 | AE | | |
| LBNDKA151JBWZ | 7-3-38 | AM | | |
| LHLD-A277JBFO | 1-1-36 | AD | | |
| LHLD-A539JBFA | 1-2-17 | AE | | |
| " | 5-1-13 | AE | | |
| LHLD-B030JBFA | 1-2-21 | AL | | |
| LHLD-B031JBFA | 1-2-22 | AP | | |
| LHLD-B033JBFA | 1-2-16 | AK | | |
| LHLD-B067JBEZ | 7-3-3 | AN | | |
| LHLD-B070JBFZ | 1-2-4 | AK | | |
| LHLD-B095JBFA | 5-1-14 | AK | | |
| LHLD-B096JBFA | 7-3-39 | AY | | |
| LHLD-B097JBFA | 6-1-22 | AK | | |

| PARTS CODE | No. | PRICE RANK | NEW MARK | PART RANK |
|---------------|----------|------------|----------|-----------|
| LHLDWA039JBEZ | 7-3-40 | AC | | |
| LHLDWA040JBEZ | 7-3-41 | AC | | |
| LPFT-A134JBFZ | 2-4-6 | AF | | |
| LPFT-A135JBFZ | 2-4-7 | AH | | |
| PLT-A058JBPZ | 1-1-17 | AC | | |
| LX-BZA075JBE0 | 1-5-1 | AA | | |
| " | 8-6-10 | AA | | |
| LX-BZA357JBEZ | 2-4-4 | AE | | |
| LX-BZA434JBEZ | 6-2-5-2 | AR | | |
| LX-BZA455JBEZ | 6-6-2 | AH | | |
| LX-BZA461JBEZ | 5-1-36-1 | AH | | |
| LX-NZA207JBEZ | 2-4-5 | AE | | |
| LX-NZA250JBEZ | 6-2-18 | AE | | |
| LX-NZA280JBEZ | 6-2-20 | AG | | |
| LX-NZA299JBEZ | 6-2-20 | AR | | |
| LX-NZA313JBEZ | 6-6-3 | AE | | |
| LX-NZA378JBEZ | 5-6-13 | AK | | |
| LX-NZA395JBEZ | 6-2-13 | AK | | |
| 【 M 】 | | | | |
| MJNTPA158JBFA | 1-1-8 | AL | | |
| MJNTPA159JBFA | 1-1-9 | AL | | |
| MJNTPA160JBFA | 1-1-12 | AL | | |
| MLOV-A532JBFA | 1-1-10 | AL | | |
| MLOV-A533JBFA | 1-1-11 | BB | | |
| MSPR-A026JBE0 | 6-1-23 | AB | | |
| MSPR-A036JBE0 | 6-1-24 | AB | | |
| 【 N 】 | | | | |
| NBRG-A026JBFA | 1-1-14 | AB | | |
| NBRG-A057JBFA | 1-1-13 | AL | | |
| NFANCA091JBEZ | 1-1-6 | BD | | |
| NFANPA142JBFA | 5-1-25 | BE | | |
| 【 P 】 | | | | |
| PBOX-A537JBFA | 1-2-2 | AX | | |
| PCAP-A075JBFZ | 6-2-19 | AC | | |
| PCAP-A089JBEZ | 6-2-21 | AX | | |
| PCAP-A090JBEZ | 6-2-21 | AE | | |
| PCMRA652JBEZ | 6-2-14 | DD | | |
| PCOV-A300JBFO | 1-2-24 | AB | | |
| PCOV-B581JBFA | 1-1-21-1 | AL | | |
| PCOV-B583JBRA | 1-1-21-3 | AS | | |
| PCOV-B584JBWZ | 1-2-6 | AP | | |
| PCOV-B585JBFA | 1-2-20 | AL | | |
| PCOV-B588JBWZ | 1-2-23 | AP | | |
| PCOV-B593JBFZ | 1-1-3 | AP | | |
| PCOV-B633JBEZ | 6-2-15 | AE | | |
| PCOV-B724JBWZ | 7-3-53 | AT | | |
| PCOV-B726JBWZ | 5-1-36-2 | AM | | |
| PCOV-B739JBFA | 5-1-18 | AN | | |
| PCOV-B740JBFA | 5-1-36-3 | AN | | |
| PCOV-B747JBRA | 1-1-21-2 | AK | | |
| PCOV-B754JBFA | 1-1-59 | AK | | |
| PCOV-B772JBEZ | 1-1-60 | AK | | |
| PDAI-A254JBPZ | 6-2-3-3 | AN | | |
| PFILMA250JBEB | 1-1-25 | AN | | |
| PHOS-A058JBEZ | 1-1-16 | AX | | |
| PPLT-A666JBFZ | 1-1-29 | AV | | |
| PPLT-A756JBFZ | 1-1-28 | AL | | |
| PPLTNA120JBWZ | 1-4-7 | AZ | | |
| PRDAFA239JBEZ | 7-3-24 | BQ | | |
| PSEL-C051JBEZ | 5-1-36-4 | AE | | |
| PSEL-E003JBEZ | 1-1-55 | AK | | |
| PSEL-E004JBEZ | 1-1-53 | AL | | |
| PSEL-E047JBEZ | 6-2-16 | AE | | |
| PSEL-E087JBEZ | 1-1-58 | AH | | |
| PSEL-E120JBEZ | 5-1-15 | AK | | |
| " | 6-1-15 | AK | | |
| PSEL-E129JBEZ | 5-1-17-2 | AK | | |
| PSEL-E130JBEZ | 5-1-17-3 | AN | | |
| PSEL-E131JBEZ | 5-1-17-4 | AK | | |
| PSEL-E132JBEZ | 5-1-5-1 | AK | | |
| PSEL-E135JBEZ | 5-1-16-2 | AK | | |
| PSEL-E136JBEZ | 7-3-61 | AK | | |
| " | 8-6-15 | AK | | |
| PSEL-E137JBEZ | 8-6-16 | AM | | |
| PSEL-E153JBEZ | 5-1-17-5 | AK | | |
| PSEL-E180JBEZ | 1-3-7 | AG | | |
| PSEL-E183JBEZ | 7-3-59 | AH | | |
| PSEL-E184JBEZ | 6-1-38 | AE | | |
| PSEL-E185JBEZ | 6-1-39 | AE | | |

| PARTS CODE | No. | PRICE RANK | NEW MARK | PART RANK |
|---------------|----------|------------|----------|-----------|
| PSEL-E186JBEZ | 5-1-4-1 | AE | | |
| PSEL-E199JBEZ | 1-1-5-6 | AH | | |
| PSEN-A044JBKZ | 1-3-2 | AG | | |
| PSEN-A053JBKZ | 1-3-3 | AN | | |
| PSHE-A278JBEZ | 1-1-21-4 | AH | | |
| PSHE-A313JBEZ | 7-3-4-2 | AK | | |
| PSKR-A372JPBZ | 5-1-16-1 | AU | | |
| PSPA-A082JBE0 | 7-3-4-4 | AB | | |
| PSPA-A150JBZZ | 7-3-2-5 | AF | | |
| PSPA-A173JBEZ | 7-3-4-5 | AE | | |
| PSPF-B161JBEZ | 5-1-3-5 | AY | | |
| PSPF-B162JBEZ | 5-1-3-7 | AS | | |
| PSPF-B173JBEZ | 5-1-2-6 | AZ | | |
| PSPF-B174JBEZ | 5-1-2-7 | AX | | |
| PVLV-A376JBEZ | 1-3-5 | AS | | |
| PVLV-A379JBEZ | 1-3-5 | AT | | |
| PVLV-A381JBEZ | 1-3-4 | AN | | |
| 【 Q 】 | | | | |
| QFS-iA001JBZZ | 4-2-1 | AH | | |
| QSW-PA024JBZZ | 4-2-19 | AH | | |
| QTANZA039JBZZ | 1-2-13 | AQ | | |
| QTANZA071JBZZ | 7-3-7 | AV | | |
| QTANZA072JBZZ | 7-3-5 | AR | | |
| QW-iZA141JBZZ | 7-3-26 | AW | | |
| QW-VZE603JBZZ | 8-3-4-6 | AP | | |
| QW-VZE624JBZZ | 8-3-4-7 | AP | | |
| QW-VZG168JBZZ | 1-1-4-1 | AP | | |
| QW-VZG213JBZZ | 8-3-4-8 | AK | | |
| QW-VZG396JBZZ | 8-3-2-9 | AL | | |
| QW-VZG397JBZZ | 8-3-3-0 | AK | | |
| QW-VZG398JBZZ | 8-3-3-1 | AK | | |
| QW-VZG399JBZZ | 8-3-3-2 | AL | | |
| QW-VZG402JBZZ | 8-3-10 | AK | | |
| QW-VZG403JBZZ | 8-3-11 | AK | | |
| QW-VZG405JBZZ | 8-3-4-9 | AK | | |
| QW-VZG406JBZZ | 8-3-3-3 | AK | | |
| QW-VZG407JBZZ | 8-3-3-4 | AK | | |
| QW-VZG408JBZZ | 8-3-3-5 | AK | | |
| QW-VZG438JBZZ | 8-3-1-4 | AK | | |
| QW-VZG446JBZZ | 8-3-1-2 | AK | | |
| QW-VZG499JBZZ | 8-3-2-7 | AN | | |
| QW-VZG500JBZZ | 8-3-2-8 | AN | | |
| 【 R 】 | | | | |
| RC-AZA046JBE0 | 7-3-5-0 | BE | | |
| RC-EZA250JBZZ | 7-3-5-1 | BG | | |
| RCIL-A132JBZZ | 6-2-5-1 | AX | | |
| RFIL-A064JBE0 | 7-3-3-6 | AF | | |
| RH-HXA140JBZZ | 7-3-5-4 | BC | | |
| RH-HXA148JBZZ | 1-2-1-9 | AX | | |
| RH-VXA002JBZZ | 4-2-3-0 | AF | | |
| RMOT-A192JBZZ | 1-1-3-7 | AZ | | |
| RMOT-A193JBZZ | 1-1-5-4 | AZ | | |
| RMOTSA037JBZZ | 6-2-17 | BC | | |
| RNF--A001VBE0 | 7-3-1-3 | AF | | |
| RTRN-A300JBZZ | 7-3-3-7 | BK | | |
| RTRNWA051JBZZ | 4-2-3-1 | BB | | |
| 【 S 】 | | | | |
| SPADBA480JBEZ | 3-6-1 | AP | | |
| SPADBA481JBEZ | 3-6-2 | AP | | |
| SPAKCC839JBEZ | 3-6-3 | BB | | |
| SPAKCC840JBEZ | 9-7-3 | BB | | |
| SPAKCC857JBEZ | 3-6-3 | BB | | |
| SPAKCC861JBEZ | 9-7-3 | BB | | |
| 【 T 】 | | | | |
| TINS-B246JBRZ | 2-4-9 | AK | | |
| TINS-B270JBRZ | 2-4-9 | AP | | |
| TINSEA639JBRZ | 2-4-11 | AN | | |
| TLABCC718JBRZ | 1-1-4-4 | AK | | |
| TLABCC720JBRZ | 7-3-5-8 | AK | | |
| TLAB-E833JBRZ | 7-3-1-6 | AK | | |
| TLABMA565JBRA | 5-1-3-3 | AQ | | |
| TSPC-G721JBRA | 1-1-4-3 | AK | | |
| TSPC-G722JBRZ | 5-1-3-4 | AK | | |
| TSPC-G768JBRA | 1-1-4-3 | AK | | |
| TSPC-G769JBRZ | 5-1-3-4 | AK | | |
| 【 U 】 | | | | |
| UBATUA027JBE0 | 2-4-2 | AE | | |
| 【 X 】 | | | | |
| XBPS730P14JS0 | 8-6-6 | AA | | |
| XBPS740P08K00 | 8-6-14 | AK | | |
| XBPS740P20J00 | 8-6-9 | AF | | |
| XCPS740P25000 | 8-6-5 | AD | | |

| PARTS CODE | No. | PRICE RANK | NEW MARK | PART RANK |
|---------------|--------|------------|----------|-----------|
| XJTS740P10000 | 8-6-11 | AC | | |
| XTPS730P12XS0 | 8-6-12 | AF | | |
| XTPS740P25000 | 1-5-2 | AC | | |
| XTTS745P30000 | 2-4-8 | AC | | |

