

# Airwell

*Just feel well*

## Service Manual

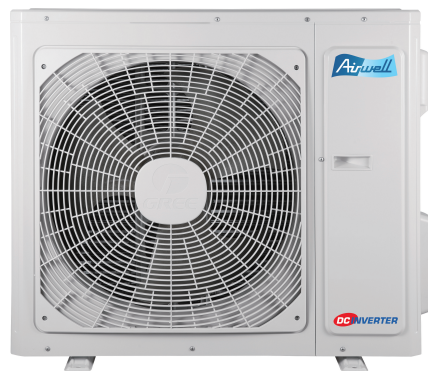
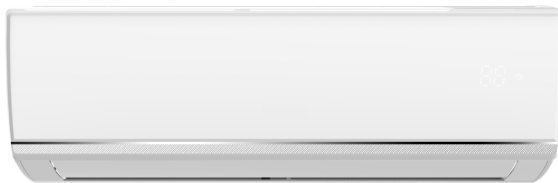
### HDL High Wall

AW-HDL012-N91/AW-YHDL012-H91

7SP023101/7SP02961

R32

*English Manual*



#### **IMPORTANT NOTE:**

Read this manual carefully before installing or operating your new air conditioning unit. Make sure to save this manual for future reference.

20.AW.HDL.12.R32.SM.EN.06.03

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## 2. Specifications

### 2.1 Specification Sheet

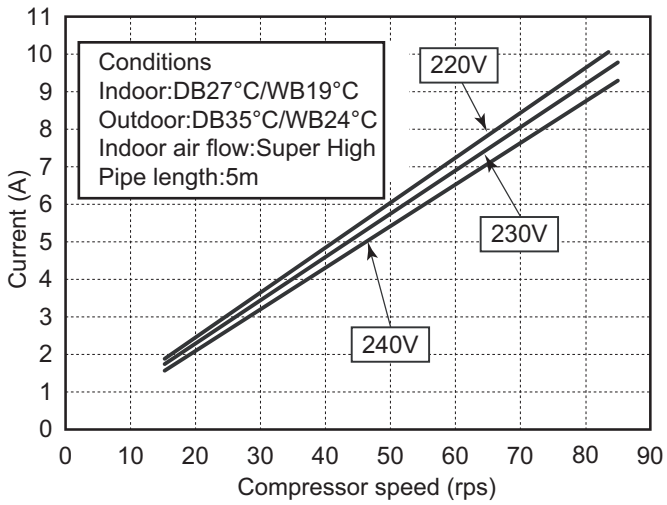
Model			AW-HDL012-N91	
Product Code			7SP023101	
Power Supply	Rated Voltage	V~	220-240	
	Rated Frequency	Hz	50	
	Phases		1	
Power Supply Mode			Outdoor	
Cooling Capacity		W	3200	
Heating Capacity		W	3500	
Cooling Power Input		W	997	
Heating Power Input		W	970	
Cooling Current Input		A	4.42	
Heating Current Input		A	4.30	
Rated Input		W	1500	
Rated Current		A	6.21	
Air Flow Volume(SH/H/M/L/SL)		m <sup>3</sup> /h	560/480/410/290/-	
Dehumidifying Volume		L/h	1.4	
EER		W/W	3.21	
COP		W/W	3.61	
SEER			6.10	
SCOP(Average/Warmer/Colder)			4.00	
HSPF			/	
Application Area		m <sup>2</sup>	15-22	
Indoor Unit	Indoor Unit Model		AW-HDL012-N91	
	Indoor Unit Product Code		7SP023101	
	Fan Type			
	Fan Diameter Length(DXL)		mm	Φ98X580
	Cooling Speed(SH/H/M/L/SL)		r/min	1350/1200/1050/750/-
	Heating Speed(SH/H/M/L/SL)		r/min	1350/1200/1050/850/-
	Fan Motor Power Output		W	20
	Fan Motor RLA		A	0.215
	Fan Motor Capacitor		μF	1
	Evaporator Form			Aluminum Fin-copper Tube
	Evaporator Pipe Diameter		mm	Φ5
			mm	2-1.4
	Evaporator Coil Length(LXDXW)		mm	584X22.8X266.7
	Swing Motor Model			MP24AA
	Swing Motor Power Output		W	1.5
	Fuse Current		A	3.15
	Sound Pressure Level(SH/H/M/L/SL)		dB (A)	42/37/34/22/-
	Sound Power Level(SH/H/M/L/SL)		dB (A)	55/47/43/38/-
	Dimension(WXHXD)		mm	790X275X200
	Dimension of Carton Box(LXWXH)		mm	863X268X352
Dimension of Package(LXWXH)		mm	866X271X367	
Net Weight		kg	9	
Gross Weight		kg	11	

Outdoor Unit	Model of Outdoor Unit		AW-YHDL012-H91	
	Product Code of Outdoor Unit		7SP062961	
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO., LTD	
	Compressor Model		QXF-B096zE190A	
	Compressor Oil		FW68DA	
	Compressor Type		Rotary	
	L.R.A.	A		20.0
	Compressor RLA	A		4.21
	Compressor Power Input	W		943
	Overload Protector			1NT11L-6233
	Throttling Method			Capillary
	Operation temp	°C		16~30
	Ambient temp (cooling)	°C		-15~43
	Ambient temp (heating)	°C		-15~24
	Condenser Form			Aluminum Fin-copper Tube
	Pipe Diameter	mm		Φ7.94
	Rows-fin-Gap	mm		1-1.4
	Coil Length (LXDXW)	mm		731X19.05X550
	Fan Motor Speed	rpm		900
	Output of Fan Motor	W		30
	Fan Motor RLA	A		0.36
	Fan Motor Capacitor	μF		/
	Air Flow Volume of Outdoor Unit	m <sup>3</sup> /h		2200
	Fan Type			Axial-flow
	Fan Diameter	mm		Φ438
	Defrosting Method			Automatic Defrosting
	Climate Type			T1
	Isolation			I
	Moisture Protection			IPX4
	Permissible Excessive Operating Pressure for the Discharge Side	MPa		4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa		2.5
	Sound Pressure Level (H/M/L)	dB (A)		52/-/-
	Sound Power Level (H/M/L)	dB (A)		62/-/-
Dimension (WXHXD)	mm		848X596X320	
Dimension of Carton Box (LXWXH)	mm		878X360X630	
Dimension of Package (LXWXH)	mm		881X363X645	
Net Weight	kg		31	
Gross Weight	kg		34	
Refrigerant			R32	
Refrigerant Charge	kg		0.59	
Connection Pipe	Length	m	5	
	Gas Additional Charge	g/m	16	
	Outer Diameter Liquid Pipe	mm	Φ6	
	Outer Diameter Gas Pipe	mm	Φ9.52	
	Max Distance Height	m	10	
	Max Distance Length	m	20	
Note: The connection pipe applies metric diameter.				

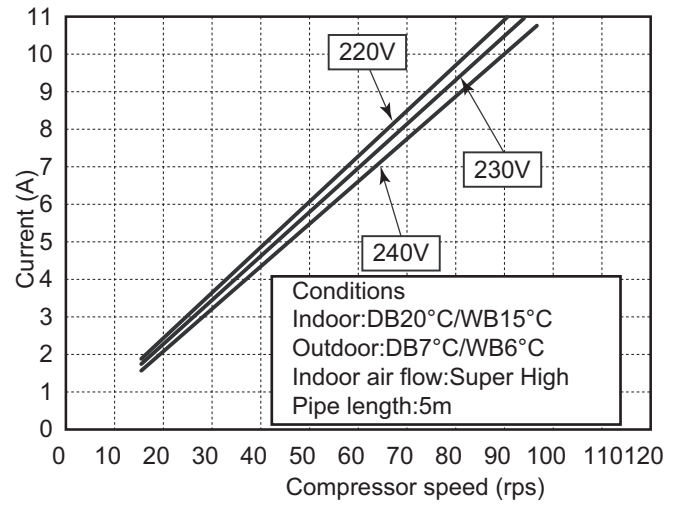
The above data is subject to change without notice; please refer to the nameplate of the unit.

## 2.2 Operation Characteristic Curve

Cooling

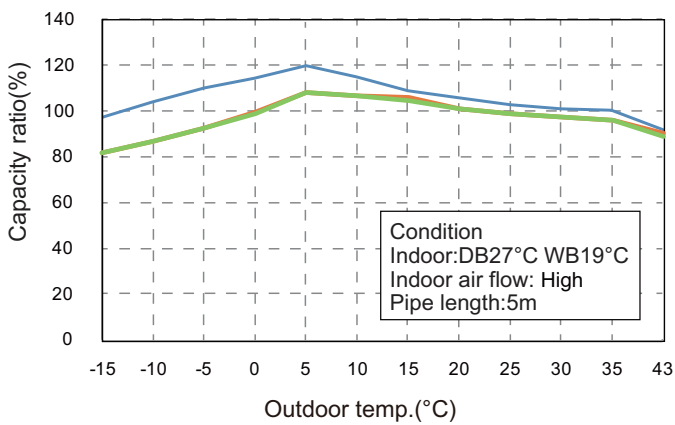


Heating

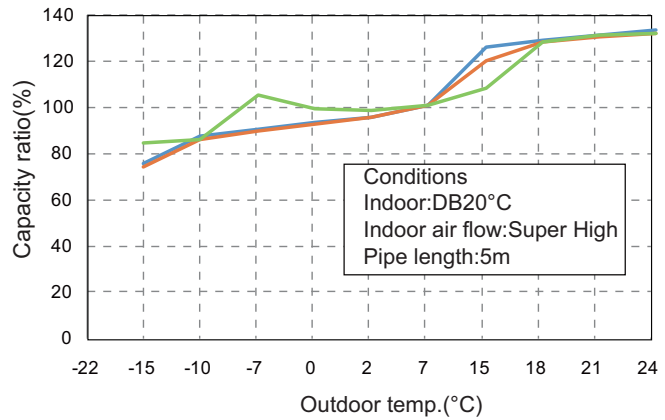


## 2.3 Capacity Variation Ratio According to Temperature

Cooling



Heating



## 2.4 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

Rated cooling condition(°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor			T1 (°C)	T2 (°C)			
27/19	35/24	12K	0.8 ~ 1.1	11 to 14	38 to 41	Super High	High	72

Heating:

Rated heating condition(°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor			T1 (°C)	T2 (°C)			
20/15	7/6	12K	2.8 ~ 3.2	38 to 41	2 to 5	Super High	High	77

**Instruction:**

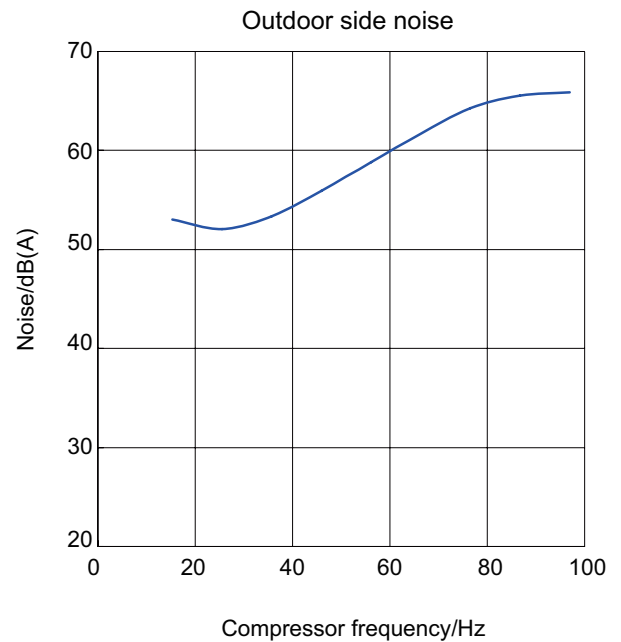
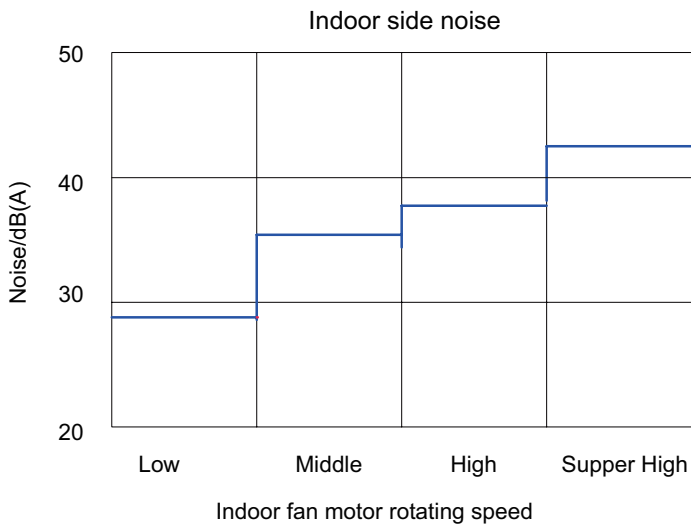
T1: Inlet and outlet pipe temperature of evaporator

T2: Inlet and outlet pipe temperature of condenser

P: Pressure at the side of big valve

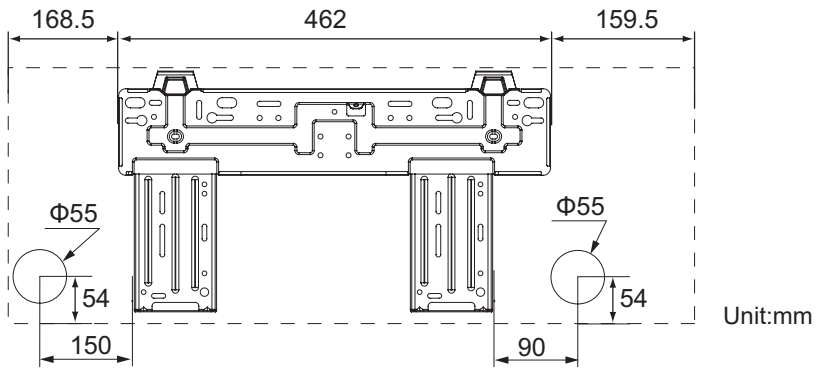
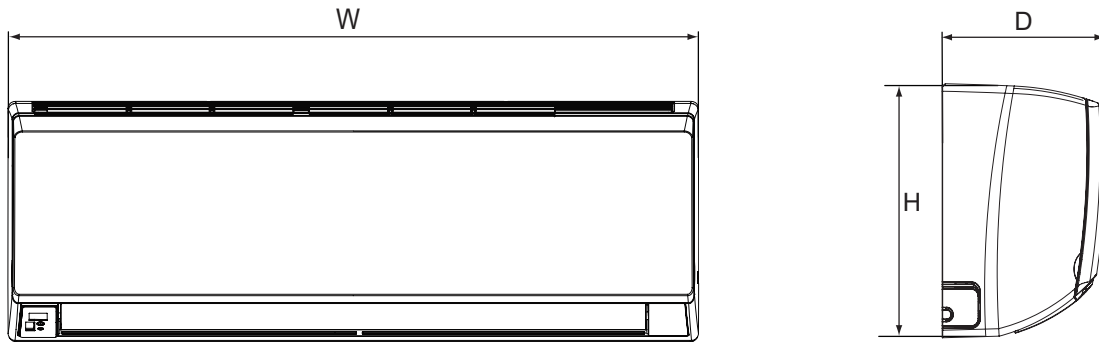
Connection pipe length: 5m.

## 2.5 Noise Curve



### 3. Outline Dimension Diagram

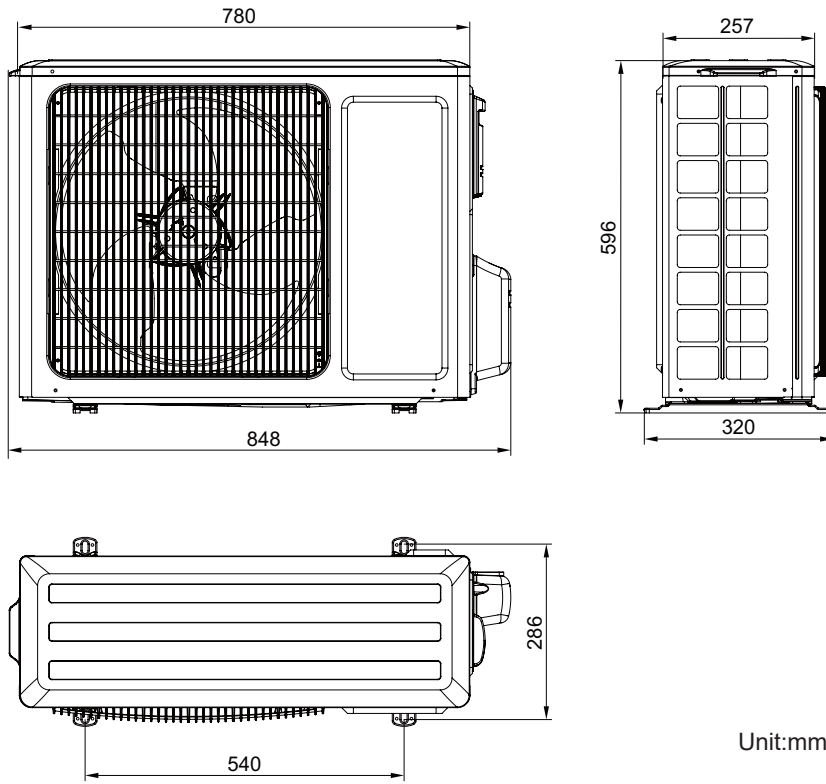
#### 3.1 Indoor Unit



Unit:mm

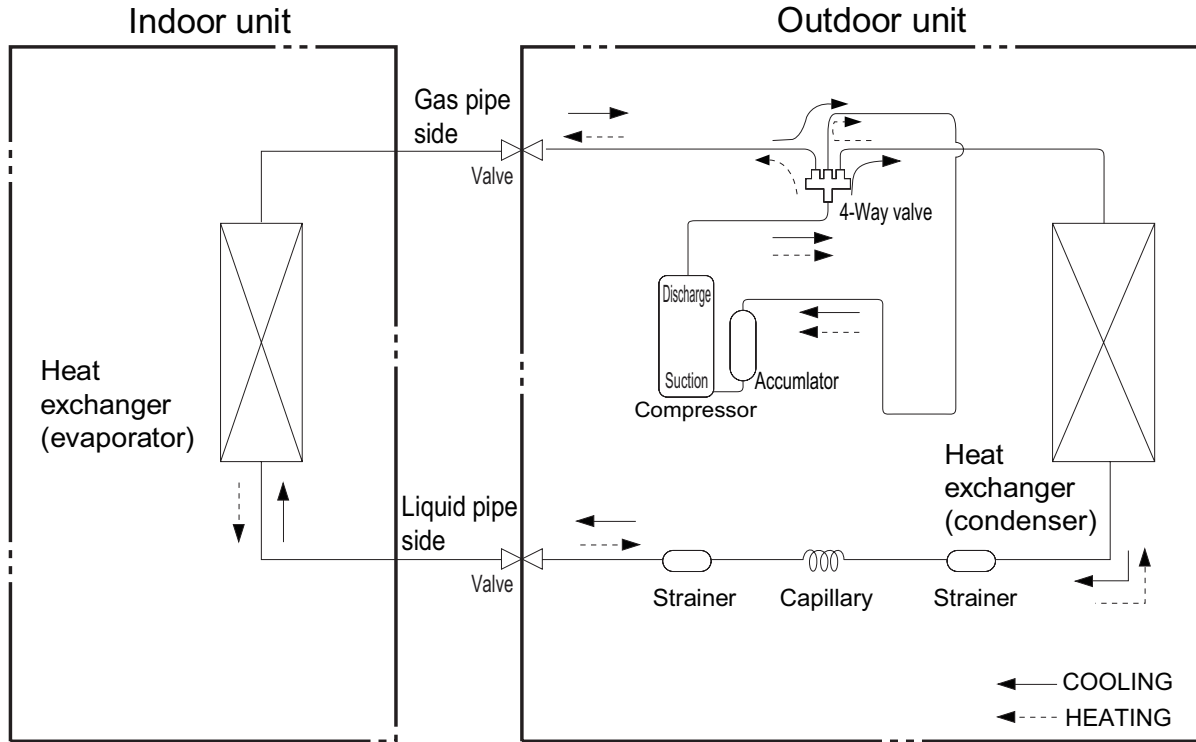
Models	W	H	D
12K	790	275	200

### 3.2 Outdoor Unit



# 4. Refrigerant System Diagram

## Cooling and heating model



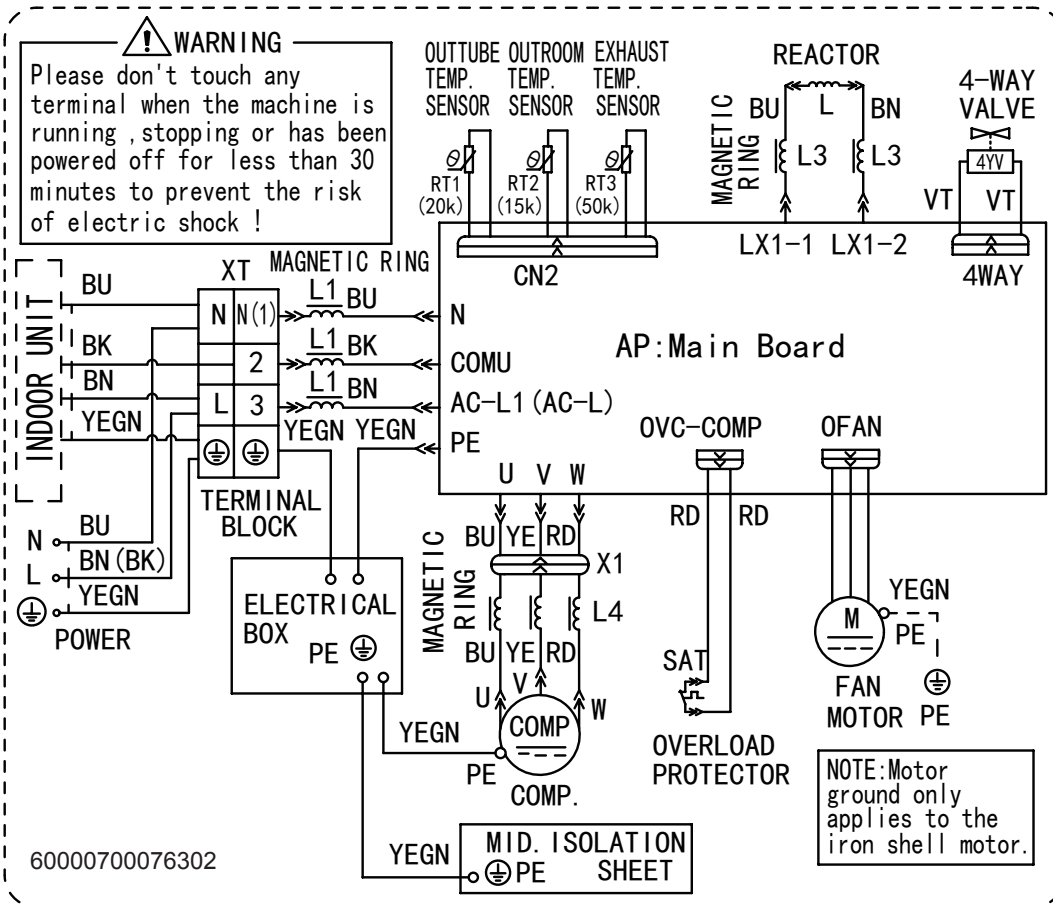
Liquid pipe: 1/4" (6mm)

Gas pipe: 3/8" (9.52mm)





● Outdoor Unit



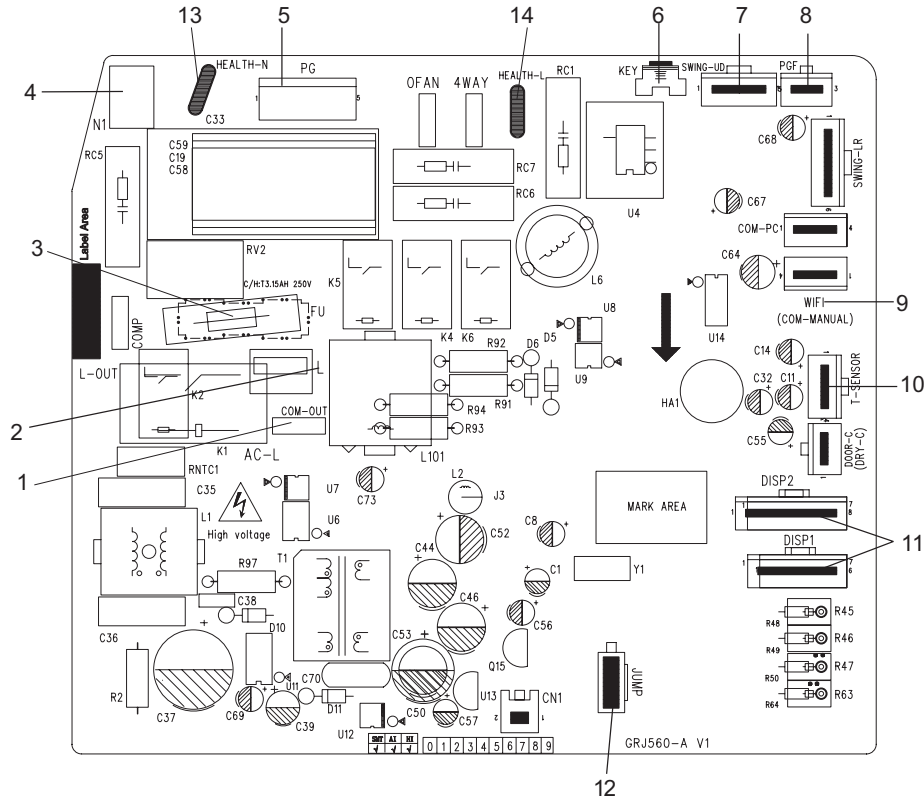
These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

## 5.2 PCB Printed Diagram

AW-HDL012-N91

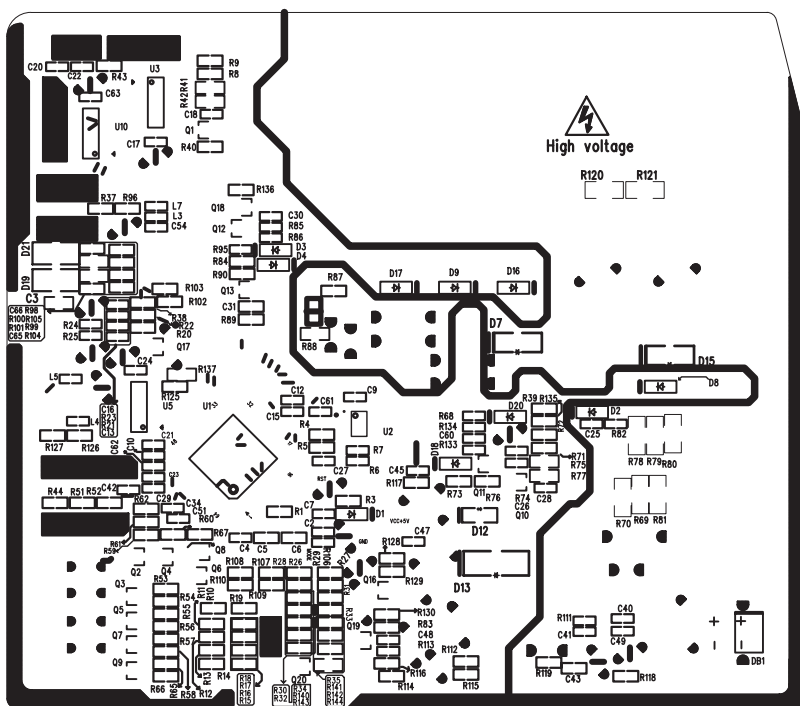
### Indoor Unit

#### • Top view



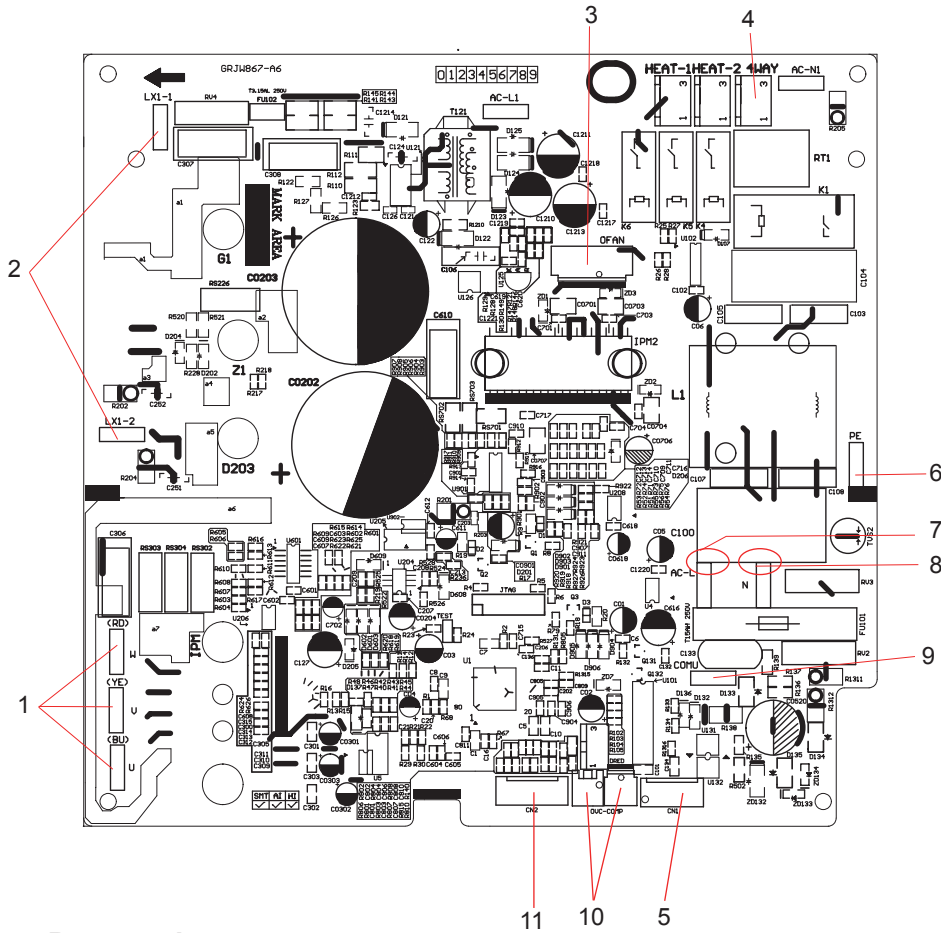
NO.	Name
1	Communication wire
2	Live wire
3	Fuse
4	Neutral wire
5	PG fan interface
6	Auto button
7	up&down swing interface
8	Interface of PG feedback
9	Needle stand for WiFi
10	Interface of temperature sensor
11	Interface of display board
12	Jumper
13	Neutral wire for health function (Applicable for some models)
14	Live wire for health (Applicable for some models)

#### • Bottom view



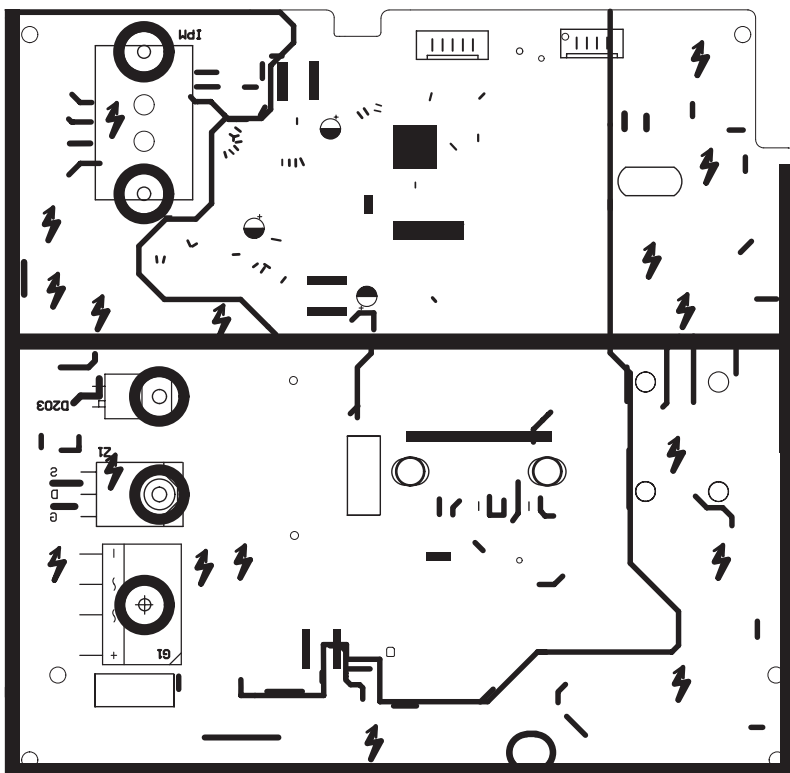
## Outdoor Unit

### • Top view



No.	Name
1	Interface of compressor wire
2	Interface of reactor
3	Fan terminal
4	Interface of 4-way valve
5	Terminal of electronic expansion valve
6	Grounding wire
7	Live wire
8	Neutral wire
9	Communication wire
10	Overload interface of compressor
11	Interface of temperature sensor

### • Bottom view



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## 6. Function and Control

### 6.1 Remote Controller Introduction of RC08A



#### CONTENT

PRECAUTIONS .

USING THE REMOTE  
CONTROL UNIT .

OPERATION

# PRECAUTIONS

**DISPLAY**  
Information are displayed when the remote control unit is powered up.

**Operation Mode**

△ Automatic	☀ Heating	* Cooling
🌀 Fan only	💧 Dehumidification (dry)	
▲ Displayed when data transmitted		

---

🕒 Clock (Set hours and minutes)  
 ⏻ ON Displayed when the "timer on" is set and activated  
 ⏪ OFF Displayed when the "timer off" is set and activated

---

🧼 Indicate that the Clean mode is activated  
 🌙 Displayed in Sleep Mode Operation  
 🌀 Display when ionizer is activated  
 🏠 Indicate that the air conditioner is operating in Economy mode

---

🌡️ Set temperature or show room temperature  
 🌡️ Displayed when the temperature is the room temperature  
 🌡️ I FEEL Indicate that the air conditioner is operating in I FEEL mode

---

🌀 Automatic horizontal air flow oscillation switched on (only selected model)  
 🌀 Automatic supply air flap oscillation switched on

---

**Description of Low battery detection**

- The low-battery indicator on the remote control will continue to blink when the batteries are low, it may reduce the transmission distance of the remote control and the display becomes blurred. Replace with new batteries immediately.
- The low-battery indicator will disappear after the batteries are replaced.

---

**Fan speed indication**

🌀 Low speed	🌀 Medium speed
🌀 High speed	🌀 Turbo Function
🌀 Automatic fan speed	

**ON/OFF OPERATION BUTTON**  
This button turns the air conditioner ON and OFF.

**MODE SELECTOR BUTTON**  
Press this button to modify the air conditioner mode.

🔄 (automatic) ★  
When this setting is selected, the air conditioner calculates the difference between the thermostat setting and the room temperature and automatically switches to the "cool", "dry" or "heat" mode.

☀ (heating)  
The air conditioner makes the room warmer.

💧 dehumidification (dry)  
The air conditioner reduces the humidity in the room.

\* (cooling)  
The air conditioner makes the room cooler.

🌀 (fan)  
The air conditioner circulate the air.

★ **COOL / DRY / HEAT**

**SLEEP**  
Press this button to turn the SLEEP mode ON or OFF. For the detail, see "SLEEP MODE" function description.

**TRANSMITTER**  
When you press the buttons of the remote control unit, the [▲] mark appears on the display to transmit the setting changes to the receiver in the air conditioner.

**SENSOR**  
Air temperature sensor inside the remote control unit detects the room temperature Where the remote control is located.

**TEMPERATURE SETTING BUTTONS**  
- (cooler) Press this button to decrease the set temperature.  
+ (warmer) Press this button to increase the set temperature.  
Press button "-" and "+" simultaneously to lock or unlock the keyboard.

**FAN SPEED SELECTOR BUTTON**  
Fan speed is automatically selected by the microcomputer. Silent speed  
Low speed. Medium speed  
High speed. Turbo Function.

**CLOCK BUTTON**  
Push this button to the present time. For detail see "HOW TO SET THE PRESENT TIME".

**TIMER SETTING**  
Press the button ON and OFF to start timer ON and OFF setting procedure. Details, please see "SETTING THE TIMER".

**CLEAN BUTTON**  
This button turns the clean function ON and OFF in cooling and dehumidifying mode.

**SWING BUTTON**  
Press this button to activate the supply air flap to various position or auto swing. Detail see "ADJUSTING THE AIR FLOW DIRECTION".

**ECO BUTTON**  
Press this button, the remote control will adjust the temperature setting automatically to save energy. The temperature display will show "SE"

**TEMP BUTTON**  
Press this button to indicate set temp, indoor temperature or outdoor temperature.

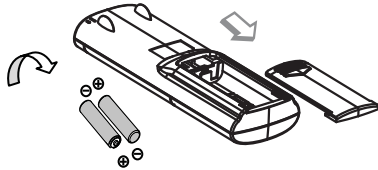
**LIGHT BUTTON**  
Press this button to turn the indoor unit display ON or OFF.

**I FEEL TEMPERATURE SENSING AND ROOM TEMPERATURE DISPLAY BUTTON**  
Push this button to activate the temperature sensing function to be around the remote control.

**ION (OPTIONAL)**  
Press this button to turn the ionizer on for cleaning the indoor air. This function is optional.

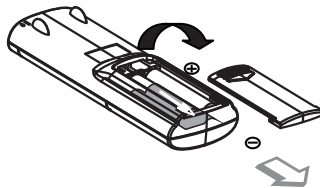
## HOW TO INSTALL BATTERIES

- Remove the lid in the rear part of the remote control unit.
- Insert two AAA alkaline batteries of 1,5 V-DC. Make sure to insert the batteries according to the polarity (+/-) marked in the battery compartment.
- Push the lid back on.



## HOW TO REMOVE BATTERIES

- Remove the lid in the rear part.
- Press the battery toward the negative end and lift it out by its positive end as shown.
- Remove the other battery in the same way.



### **General Note:**

Replace the batteries when the remote control unit display fails to light, when the air conditioner does not receive the remote control unit signals or when the low battery icon is displayed.

Remove the batteries if you do not use the remote control unit for more than one month.

The batteries last about six months, depending on how much you use the remote control unit.

The batteries of the remote control contain polluted substances. Exhausted batteries must be disposed according to local laws.

## TEMPERATURE SENSOR SELECTOR


- Under normal conditions the room temperature is detected and checked by the temperature sensor placed in the air conditioner.
- Press the remote control I FEEL button to activate the temperature sensor placed in the remote control. This function is designed to provide a personalised environment by transmitting the temperature control command from the location next to you. Therefore, in using this function, the remote control should always be aimed, without obstruction, at the air conditioner.

## OPERATION WITH THE REMOTE CONTROL UNIT

Check that the circuit breaker on the power panel is turned ON and the STANDBY lamp is light up.

When using the remote control unit, always point the unit transmitter head directly at the air conditioner receiver.

## HOW TO TURN ON THE AIR CONDITIONER



Press the ON/OFF  button to turn the air conditioner on. The indicator OPERATION will light up, indicating the unit is in operation.

## HOW TO SET THE PRESENT TIME

1. Press the CLOCK button. The time indication alone flashes.
2. Press the + or - buttons until the present time is displayed.
3. Press the CLOCK button to stop the indication flashing.

## COOLING

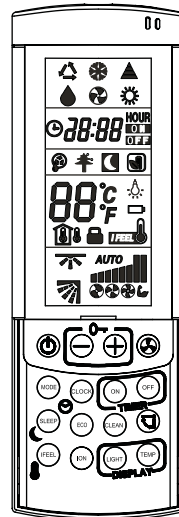
Verify that the unit is connected to the main power and the STANDBY lamp is lighted up.

1. Set the MODE selector to COOL .
2. Press the ON/OFF (  ) button and switch the air conditioner ON.
3. Press the - or +. buttons to set the desired temperature. The temperature range is between 16°C and 30°C (61-86 F).



23°C

THE DISPLAY SHOWS THE SELECTED TEMPERATURE..

4. Press the FAN SPEED button to select the fan speed.



## HEATING

1. Set the MODE selector to HEAT .
2. Press the ON/OFF (  ) button and switch the air conditioner ON.
3. Press the + or - buttons to set the desired temperature, the temperature range is between 16°C and 30°C (61-86F).
4. Press the FAN SPEED button to select the fan speed.

23°C

THE DISPLAY SHOWS THE SELECTED TEMPERATURE..

### NOTE

For several minutes after the start of heating operation, the indoor fan will not run until the indoor heat exchanger coil has warmed up sufficiently. This is because the COLD DRAFT PREVENTION SYSTEM is operating.



### • DEFROSTING OF HEAT EXCHANGE / OUTDOOR UNIT “STANDBY”

When the outdoor temperature is low, frost or ice may appear on the heat exchanger coil, reducing the heating performance. When this happens, a microcomputer defrosting system operates. At the same time, the fan in the indoor unit stops until defrosting is completed. Heating operation restarts after several minutes. (This interval will vary slightly depending on the room and outdoor temperature).

### • HEATING PERFORMANCE

A heat pump air conditioner heats a room by taking heat from outside air. The heating efficiency will reduce when the outdoor temperature is very low.

## AUTOMATIC OPERATION

1. Set the MODE selector to AUTO .
2. Press the ON/OFF (  ) button and switch the air conditioner ON.
3. Press the + or - buttons to set the desired temperature (The temperature range is between 16°C and 30°C (61-86F)).


23°C

THE DISPLAY SHOWS THE SELECTED TEMPERATURE.

When this setting is selected, the air conditioner calculates the difference between the thermostat setting and the room temperature and automatically switches to the COOL, DRY or HEAT mode as appropriate.

4. Switch the FAN SPEED selector button to the setting you want.

## DEHUMIDIFYING (DRY)

1. Set the MODE selector switch to "DRY" .
2. Press the ON/OFF (⏻) button and switch the air conditioner ON.
3. Press the + or - buttons to set the desired temperature (Adjustable temperature range is 16°C and 30°C (61-86F)).




THE DISPLAY SHOWS THE SELECTED TEMPERATURE.

### NOTE

- Use DRY operation when you want to reduce the humidity in the room.
- Once the room temperature reaches the set level, the unit repeats the cycle of turning on and off automatically
- During DRY operation, the fan speed is automatically set to low or stops to prevent overcooling .
- Dry operation is not possible if the indoor temperature is 15 °C or less.

## FAN ONLY

If you want to make air circulate without any temperature control, follow these steps:

1. Set the MODE selector switch to "FAN" .
2. Press the ON/OFF (⏻) button and switch the air conditioner ON.

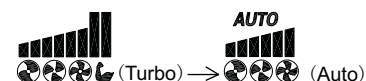
## ADJUSTING THE FAN SPEED

### • AUTOMATIC

Simply set the FAN SPEED selector to the **AUTO** position . A microcomputer automatically controls the fan speed when the AUTO mode is selected. When the air conditioner starts operating, the difference between the room temperature and the set temperature is detected by the microcomputer which then automatically switches the fan speed to the most suitable level.

### • MANUAL

If you want to manually adjust speed just set the FAN SPEED selector as desired. Each time the button is pressed, the fan speed is changed in sequence:




### • TURBO FUNCTION

In Cool or Heat Mode, if start the turbo function, the unit will run at super-high fan speed to cool or heat quickly to approach the set temperature.

## SLEEP MODE

The SLEEP mode enables you to save energy.

1. Set the MODE selector to cool, dry or heat.
2. Press the SLEEP button.
3. The  mark appears on the display. Press the SLEEP button again to release the SLEEP function.

### What does the SLEEP mode mean?

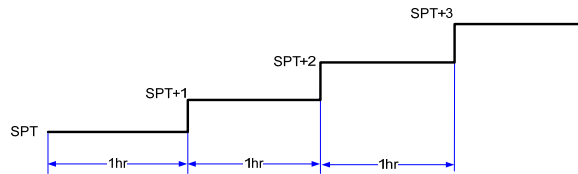
In this mode, the air conditioner will cool or heat the room to the set temperature. After about 1 hour, the air conditioner will automatically reset the set temperature as follows (also refer to graphs).



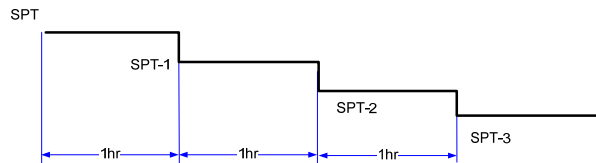
OPERATING MODE	SET TEMPERATURE CHANGE
Heating	Lowered by 1 ° C
Cooling and Dehumidifying	Raised by 1 ° C




In cooling mode or dehumidifying mode, 1 hour after the sleep curve is set, the setting temperature will rise by 1 degree C , 2 hours later, the setting temperature will rise by 2 degree C. After 3 hours, the setting temperature will not change any more.



In heating mode, 1 hour after the sleep curve is set, the setting temperature will decrease by 1 degree C 2 hours later, the setting temperature will decrease by 2 degree C. After 3 hours, the setting temperature will not change any more.



## I FEEL/ROOM TEMPERATURE FUNCTION OPERATION

Press button I FEEL to activate the I FEEL function. Thermometer sign will appear on the LCD operation display . Select suitable temperature setting. Make sure that the remote control unit is aimed at the air conditioner. Prevent the I FEEL sensor from being affected by heat sources such as lamps, heaters, direct sun, etc. or from being directly affected by the air conditioner air flow. These may cause the sensor to transmit the wrong temperature data, thereby disturbing the performance of the I FEEL function.

## LOCK FUNCTION

By pressing - and + buttons simultaneously to lock the last operation program. All the function buttons will be inoperative, including POWER button. By pressing both buttons again the remote control will be released from its locked position.

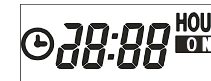
## SETTING THE TIMER

The timer can be selected by pressing TIMER ON button.

The daily timers can be set for ON and OFF separately for two different time periods. Timer setting will not change until new setting is input.

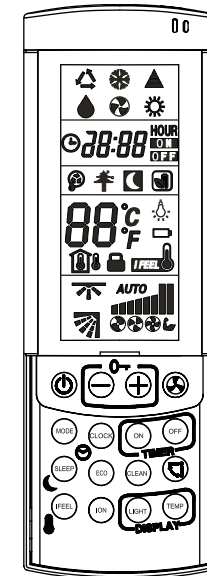
### A) HOW TO SET THE ON TIME

1. Press the TIMER ON button to select the desired timer.
2. Press the TIMER ON button till the ON sign blinks.
3. Press the + or - button until the desired value is displayed.
4. Press the TIMER ON button to activate the timer.



### B) HOW TO SET THE OFF TIME

1. Press the TIMER OFF button to select the desired timer.
2. Press the TIMER OFF buttons till the OFF sign blinks.
3. Press the + or - button until the desired value is displayed.
4. Press the TIMER OFF button to activate the timer.





## C) HOW TO SET A PROGRAM FOR DAILY ON/OFF OPERATION

1. Press the TIMER OFF button to select the desired timer.
2. Press the TIMER OFF button till the ON sign blinks.
3. Press the + or - button until the desired value is displayed.
4. Press the TIMER OFF button again, the OFF sign blinks.
5. Press the + or - button until the desired value is displayed.
6. Press the TIMER OFF button to activate the timer.



### ADJUSTING THE AIR FLOW DIRECTION

Press  button to activate the supply air flap to auto swing, if you push this button again, the flap stops immediately.

Press  and CLEAN button together to activate the horizontal louver. If you push them together again to stop it immediately. (Only for selected models)




Set vertical vanes to the front position during COOLING/DRY operation if humidity is high.

If the vertical vanes are set to the left-most or right-most position, condensation may form around the air outlet and drip off.



Do not move the flap with your hands when the air conditioner is running.



Use the  button on the remote control to adjust the position of the flap. If you move the flap by hand, the factual flap position and the flap position on the remote control may no longer match. If this should happen, shut off the unit, wait for the flap to close, and then turn on the unit again; the flap position will now be normal again.

#### NOTES

Some functions of remote controller will not be available when the unit does not support them! By resetting the remote control, shall totally remove the battery for 10 seconds. By pressing the "⊖" and "⊕" together to switch the temperature display between degrees Celsius and degrees Fahrenheit at power off status.



# Part II : Installation and Maintenance

## 7. Notes for Installation and Maintenance

### Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Please follow the instructions below.

- The installation or maintenance must accord with the instructions.
- Comply with all national electrical codes and local electrical codes.
- Pay attention to the warnings and cautions in this manual.
- All installation and maintenance shall be performed by distributor or qualified person.
- All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.
- Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.



### Warnings

#### Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.
2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.
3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.
4. Make sure each wiring terminal is connected firmly during installation and maintenance.
5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.
6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
8. The power cord and power connection wires can't be pressed by hard objects.
9. If power cord or connection wire is broken, it must be replaced by a qualified person.

10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.
11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.
12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.
13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.
14. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.
15. If the unit is to be installed in a humid place, the circuit breaker must be installed.

#### Installation Safety Precautions:

1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)
2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 20kg.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Wear safety belt if the height of working is above 2m.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

#### Refrigerant Safety Precautions:

1. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.
2. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.
3. Make sure no refrigerant gas is leaking out when installation is completed.
4. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.
5. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

Improper installation may lead to fire hazard, explosion, electric shock or injury.

# Safety Precautions for Installing and Relocating the Unit:

To ensure safety, please be mindful of the following precautions.



## Warnings

**1. When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**

Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.

**2. When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.**

Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.

**3. When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode. Then, fully close the valve at high pressure side (liquid valve). About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.**

If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.

**4. During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.**

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

**5. When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.**

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

**6. Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.**

If there leaked gas around the unit, it may cause explosion and other accidents.

**7. Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire.**

Poor connections may lead to electric shock or fire.

**8. Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.**

Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

## Safety Precautions for Refrigerant

● To realize the function of the air conditioner unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R32, which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.

● Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozoneosphere. The influence upon the greenhouse effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units therefore need a less filling.

### WARNING:

● Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacture. Should repair be necessary, contact your nearest authorized Service Centre. Any repairs carried out by unqualified personnel may be dangerous. The appliance shall be stored in a room without continuously operating ignition sources. (for example: open flames, an operating gas appliance or an operating electric heater.)

● Do not pierce or burn.

● Appliance shall be installed, operated and stored in a room with a floor area larger than "X"m<sup>2</sup> (see table a). (only applies to appliances that are not fixed appliances).

● Appliance filled with flammable gas R32. For repairs, strictly follow manufacturer's instructions only. Be aware that refrigerants not contain odour.

● Read specialist's n



# Safety Operation of Flammable Refrigerant

## Qualification requirement for installation and maintenance man

- All the work men who are engaging in the refrigeration system should bear the valid certification awarded by the authoritative organization and the qualification for dealing with the refrigeration system recognized by this industry. If it needs other technician to maintain and repair the appliance, they should be supervised by the person who bears the qualification for using the flammable refrigerant.
- It can only be repaired by the method suggested by the equipment's manufacturer.

## Installation notes

- The air conditioner is not allowed to use in a room that has running fire (such as fire source, working coal gas ware, operating heater).
- It is not allowed to drill hole or burn the connection pipe.
- The air conditioner must be installed in a room that is larger than the minimum room area.  
The minimum room area is shown on the nameplate or following table a.
- Leak test is a must after installation.

table a - Minimum room area(m<sup>2</sup>)

Minimum room area( m <sup>2</sup> )	Charge amount (kg)	≤1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5
	floor location		4	14.5	16.8	19.3	22	24.8	27.8	31	34.3	37.8	41.5	45.4	49.4
window mounted		4	5.2	6.1	7	7.9	8.9	10	11.2	12.4	13.6	15	16.3	17.8	19.3
wall mounted		4	4	4	4	4	4	4	4	4	4.2	4.6	5	5.5	6
ceiling mounted		4	4	4	4	4	4	4	4	4	4	4	4	4	4

## Maintenance notes

- Check whether the maintenance area or the room area meet the requirement of the nameplate.  
— It's only allowed to be operated in the rooms that meet the requirement of the nameplate.
- Check whether the maintenance area is well-ventilated.  
— The continuous ventilation status should be kept during the operation process.
- Check whether there is fire source or potential fire source in the maintenance area.  
— The naked flame is prohibited in the maintenance area; and the "no smoking" warning board should be hanged.
- Check whether the appliance mark is in good condition.  
— Replace the vague or damaged warning mark.

## Welding

- If you should cut or weld the refrigerant system pipes in the process of maintaining, please follow the steps as below:
  - a. Shut down the unit and cut power supply
  - b. Eliminate the refrigerant
  - c. Vacuuming
  - d. Clean it with N2 gas
  - e. Cutting or welding
  - f. Carry back to the service spot for welding
- Make sure that there isn't any naked flame near the outlet of the vacuum pump and it's well-ventilated.
- The refrigerant should be recycled into the specialized storage tank.

## Filling the refrigerant

- Use the refrigerant filling appliances specialized for R32. Make sure that different kinds of refrigerant won't contaminate with each other.
- The refrigerant tank should be kept upright at the time of filling refrigerant.
- Stick the label on the system after filling is finished (or haven't finished).
- Don't overfilling.
- After filling is finished, please do the leakage detection before test running; another time of leak detection should be done when it's removed.

## Safety instructions for transportation and storage

- Please use the flammable gas detector to check before unload and open the container.
- No fire source and smoking.
- According to the local rules and laws.



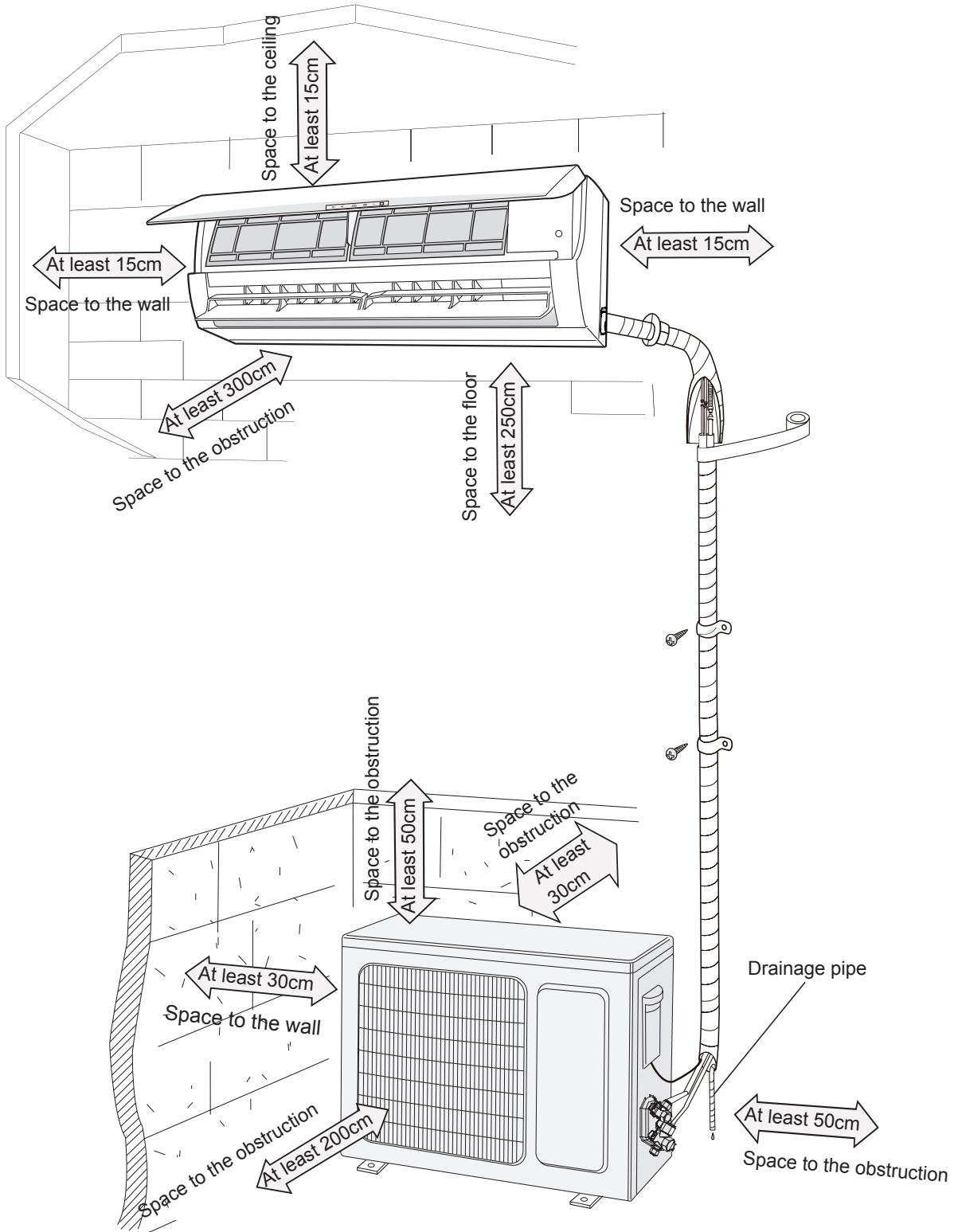
# Main Tools for Installation and Maintenance

<p>1. Level meter, measuring tape</p> 	<p>2. Screw driver</p> 	<p>3. Impact drill, drill head, electric drill</p> 
<p>4. Electroprobe</p> 	<p>5. Universal meter</p> 	<p>6. Torque wrench, open-end wrench, inner hexagon spanner</p> 
<p>7. Electronic leakage detector</p> 	<p>8. Vacuum pump</p> 	<p>9. Pressure meter</p> 
<p>10. Pipe pliers, pipe cutter</p> 	<p>11. Pipe expander, pipe bender</p> 	<p>12. Soldering appliance, refrigerant container</p> 

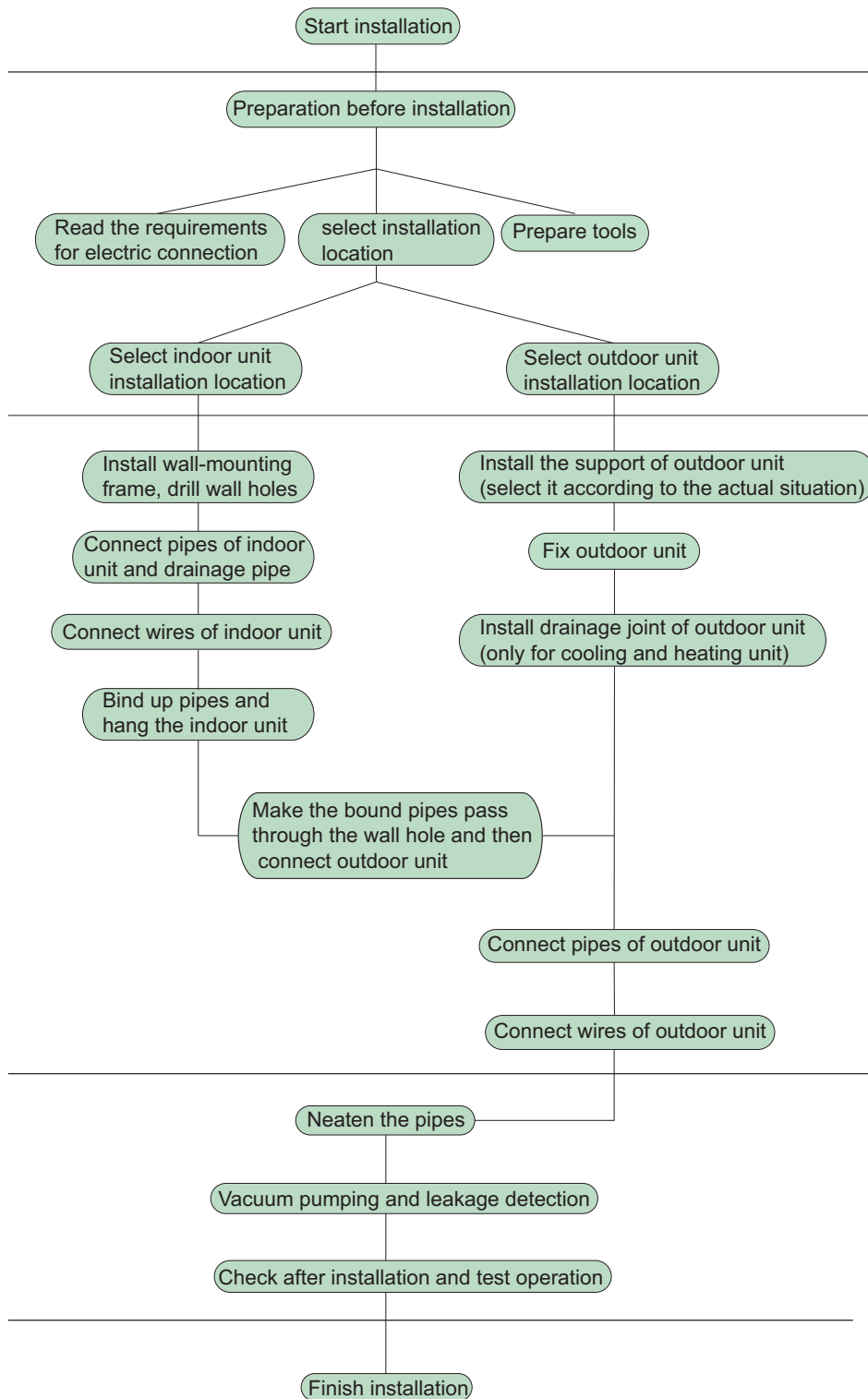


# 8. Installation

## 8.1 Installation Dimension Diagram



## Installation procedures



Note: this flow is only for reference; please find the more detailed installation steps in this section.



## 8.2 Installation Parts-checking

No.	Name	No.	Name
1	Indoor unit	8	Sealing gum
2	Outdoor unit	9	Wrapping tape
3	Connection pipe	10	Support of outdoor unit
4	Drainage pipe	11	Fixing screw
5	Wall-mounting frame	12	Drainage plug(cooling and heating unit)
6	Connecting cable(power cord)	13	Owner's manual, remote controller
7	Wall pipe		

### ⚠ Note:

1. Please contact the local agent for installation.
2. Don't use unqualified power cord.

## 8.3 Selection of Installation Location

### 1. Basic Requirement:

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

- (1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
- (2) The place with high-frequency devices (such as welding machine, medical equipment).
- (3) The place near coast area.
- (4) The place with oil or fumes in the air.
- (5) The place with sulfureted gas.
- (6) Other places with special circumstances.
- (7) The appliance shall not be installed in the laundry
- (8) It's not allowed to be installed on the unstable or motive base structure (such as truck) or in the corrosive environment (such as chemical factory).

### 2. Indoor Unit:

- (1) There should be no obstruction near air inlet and air outlet.
- (2) Select a location where the condensation water can be dispersed easily and won't affect other people.
- (3) Select a location which is convenient to connect the outdoor unit and near the power socket.
- (4) Select a location which is out of reach for children.
- (5) The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.
- (6) The appliance must be installed 2.5m above floor.
- (7) Don't install the indoor unit right above the electric appliance.
- (8) Please try your best to keep way from fluorescent lamp.

### 3. Outdoor Unit:

- (1) Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
- (2) The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
- (3) The location should be able to withstand the weight of outdoor unit.
- (4) Make sure that the installation follows the requirement of installation dimension diagram.
- (5) Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add fence for safety purpose.

## 8.4 Requirements for electric connection

### 1. Safety Precaution

- (1) Must follow the electric safety regulations when installing the unit.
- (2) According to the local safety regulations, use qualified power supply circuit and air switch.
- (3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
- (4) Properly connect the live wire, neutral wire and grounding wire of power socket.
- (5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.
- (6) Do not put through the power before finishing installation.
- (7) If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- (8) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
- (9) The appliance shall be installed in accordance with national wiring regulations.
- (10) Appliance shall be installed, operated and stored in a room with a floor area larger than "X"m (see table a).



Please notice that the unit is filled with flammable gas R32. Inappropriate treatment of the unit involves the risk of severe damages of people and material. Details to this refrigerant are found in chapter "refrigerant".

### 2. Grounding Requirement:

- (1) The air conditioner is first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- (2) The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
- (3) The grounding resistance should comply with national electric safety regulations.
- (4) The appliance must be positioned so that the plug is accessible.
- (5) An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- (6) Including an air switch with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

Air-conditioner	Air switch capacity
12K	10A

## 8.5 Installation of Indoor Unit

### 1. Choosing Installation location

Recommend the installation location to the client and then confirm it with the client.

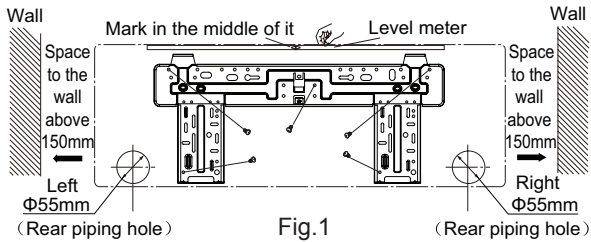
### 2. Install Wall-mounting Frame

- (1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
- (2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles in the holes.

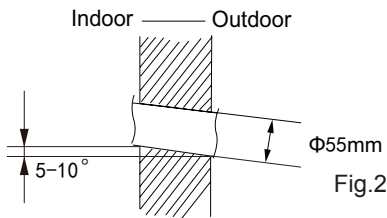
(3) Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

### 3. Install Wall-mounting Frame

(1) Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame. (As show in Fig.1)



(2) Open a piping hole with the diameter of  $\Phi 55\text{mm}$  on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of  $5\text{-}10^\circ$ . (As show in Fig.2)

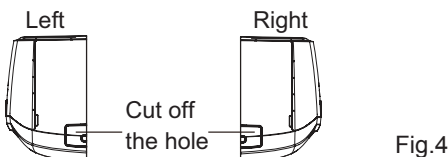
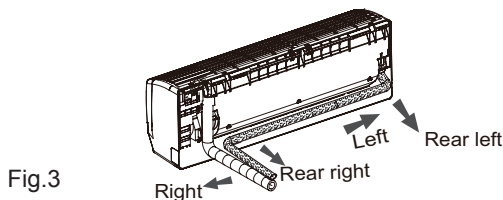


#### ⚠ Note:

- (1) Pay attention to dust prevention and take relevant safety measures when opening the hole.
- (2) The plastic expansion particles are not provided and should be bought locally.

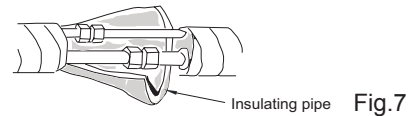
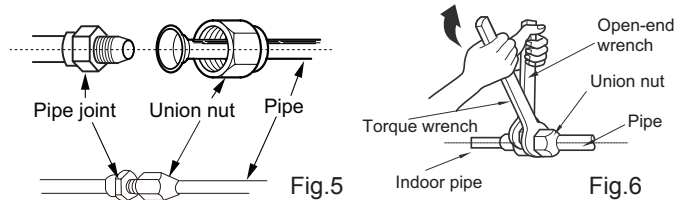
### 4. Outlet Pipe

- (1) The pipe can be led out in the direction of right, rear right, left or rear left. (As show in Fig.3)
- (2) When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case. (As show in Fig.4)



### 5. Connect the Pipe of Indoor Unit

- (1) Aim the pipe joint at the corresponding bellmouth. (As show in Fig.5)
- (2) Pretightening the union nut with hand.
- (3) Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench. (As show in Fig.6)
- (4) Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape. (As show in Fig.7)

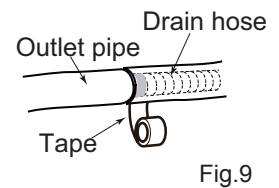
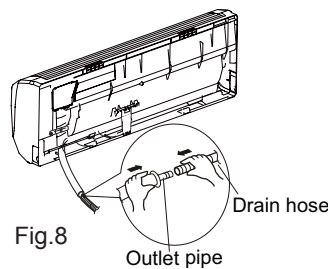


Refer to the following table for wrench moment of force:

Hex nut diameter(mm)	Tightening torque(N·m)
$\Phi 6$	15~20
$\Phi 9.52$	30~40
$\Phi 12$	45~55
$\Phi 16$	60~65
$\Phi 19$	70~75

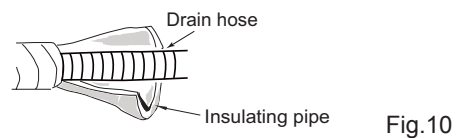
### 6. Install Drain Hose

- (1) Connect the drain hose to the outlet pipe of indoor unit. (As show in Fig.8)
- (2) Bind the joint with tape. (As show in Fig.9)



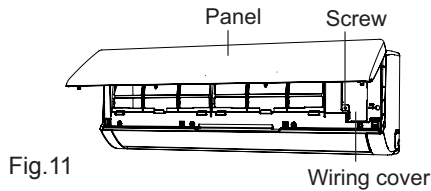
#### ⚠ Note:

- (1) Add insulating pipe in the indoor drain hose in order to prevent condensation.
- (2) The plastic expansion particles are not provided. (As show in Fig.10)

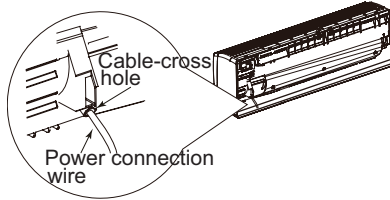


## 7. Connect Wire of Indoor Unit

(1) Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)



(2) Make the power connection wire go through the cable-cross hole at the back of indoor unit and then pull it out from the front side.(As show in Fig.12)



Note: This step only applicable for N.American models.

Fig.12

(3) Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; tighten the screw and then fix the power connection wire with wire clip.(As show in Fig.13)

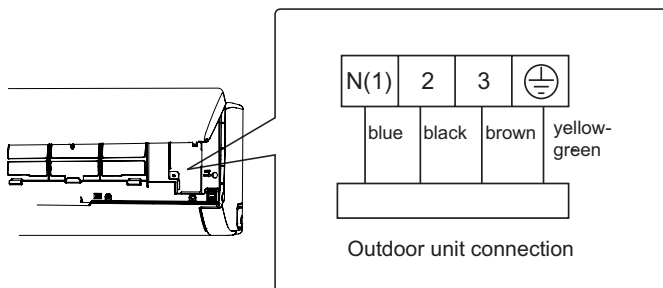


Fig.13

Note: The wiring connect is for reference only, please refer to the actual one.

(4) Put wiring cover back and then tighten the screw.  
(5) Close the panel.

### ⚠ Note:

- (1) All wires of indoor unit and outdoor unit should be connected by a professional.
- (2) If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
- (3) For the air conditioner with plug, the plug should be reachable after finishing installation.
- (4) For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

## 8. Bind up Pipe

(1) Bind up the connection pipe, power cord and drain hose with the band.(As show in Fig.14)

(2) Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)

(3) Bind them evenly.

(4) The liquid pipe and gas pipe should be bound separately at the end.

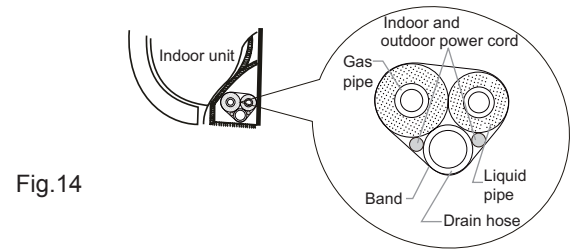


Fig.14

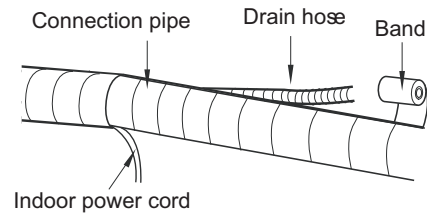


Fig.15

### ⚠ Note:

- (1) The power cord and control wire can't be crossed or winding.
- (2) The drain hose should be bound at the bottom.

## 9. Hang the Indoor Unit

(1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.

(2) Hang the indoor unit on the wall-mounting frame.

(3) Stuff the gap between pipes and wall hole with sealing gum.

(4) Fix the wall pipe.(As show in Fig.16)

(5) Check if the indoor unit is installed firmly and closed to the wall.(As show in Fig.17)

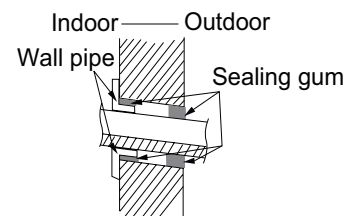


Fig.16

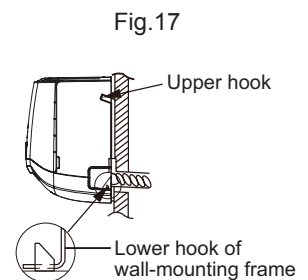


Fig.17

### ⚠ Note:

Do not bend the drain hose too excessively in order to prevent blocking.

## 8.6 Installation of Outdoor Unit

### 1. Fix the Support of Outdoor Unit(Select it According to the Actual Installation Situation)

- (1) Select installation location according to the house structure.
- (2) Fix the support of outdoor unit on the selected location with expansion screws.

#### ⚠ Note:

- (1) Take sufficient protective measures when installing the outdoor unit.
- (2) Make sure the support can withstand at least four times the unit weight.
- (3) The outdoor unit should be installed at least 3cm above the floor in order to install drain joint.(As show in Fig.18)
- (4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.

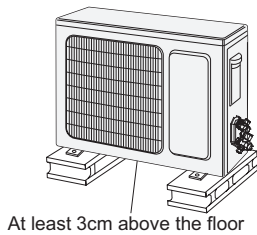


Fig.18

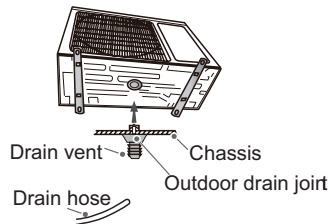


Fig.19

### 2. Install Drain Joint(Only for cooling and heating unit)

- (1) Connect the outdoor drain joint into the hole on the chassis.
- (2) Connect the drain hose into the drain vent.(As show in Fig.19)

### 3. Fix Outdoor Unit

- (1) Place the outdoor unit on the support.
- (2) Fix the foot holes of outdoor unit with bolts.(As show in Fig.20)

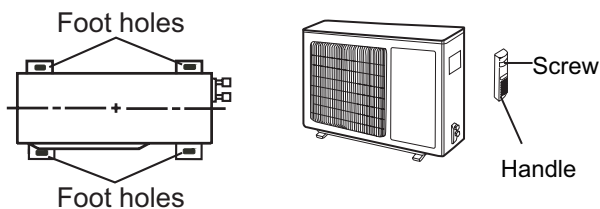


Fig.20

Fig.21

### 4. Connect Indoor and Outdoor Pipes

- (1) Remove the screw on the right handle of outdoor unit and then remove the handle.(As show in Fig.21)
- (2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.(As show in Fig.22)

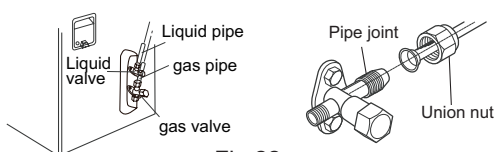


Fig.22

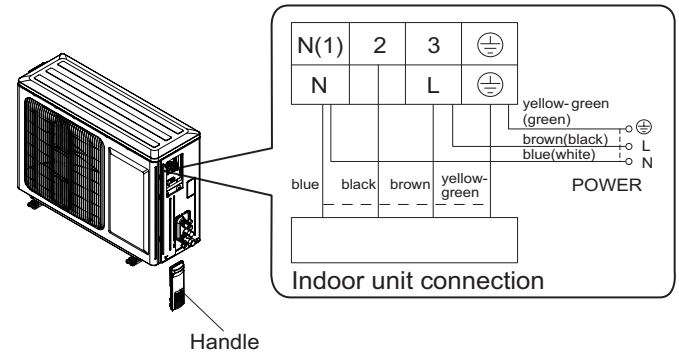
- (3) Pretightening the union nut with hand.
- (4) Tighten the union nut with torque wrench.

Refer to the following table for wrench moment of force:

Hex nut diameter(mm)	Tightening torque(N·m)
Φ6	15~20
Φ9.52	30~40
Φ12	45~55
Φ16	60~65
Φ19	70~75

### 5. Connect Outdoor Electric Wire

- (1) Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; fix the power connection wire with screws.(As show in Fig.23)



Note: the wiring connect is for reference only, please refer to the actual one.

Fig.23

- (2) Fix the power connection wire with wire clip.

#### ⚠ Note:

- (1) After tightening the screw, pull the power cord slightly to check if it is firm.
- (2) Never cut the power connection wire to prolong or shorten the distance.

### 6. Neaten the Pipes

- (1) The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.
- (2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.(As show in Fig.24)

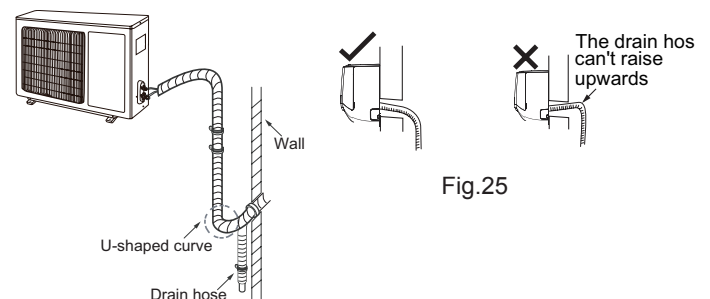


Fig.24

#### ⚠ Note:

- (1) The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
- (2) Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.(As show in Fig.26)

(3) The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)

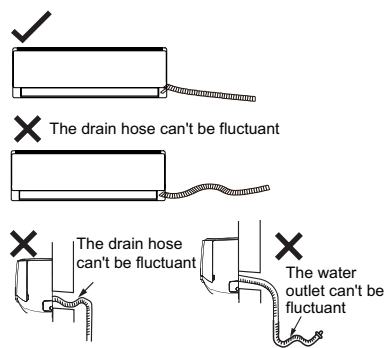


Fig.26

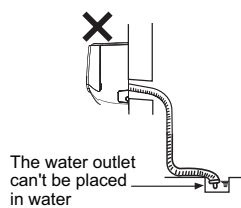


Fig.27

## 8.7 Vacuum Pumping and Leak Detection

### 1. Use Vacuum Pump

- (1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
- (2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
- (3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
- (4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
- (5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
- (6) Tighten the screw caps of valves and refrigerant charging vent.(As show in Fig.28)

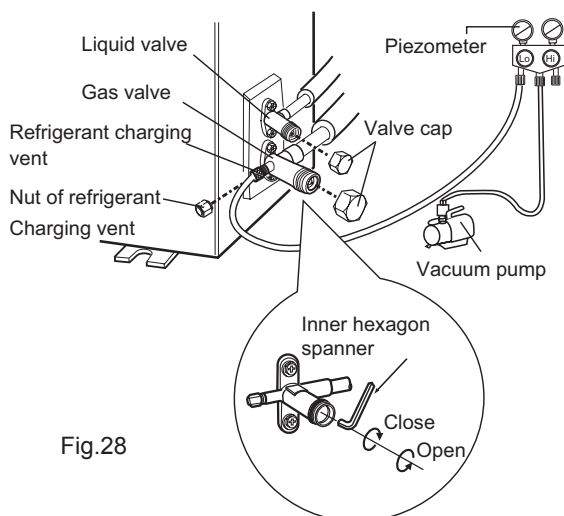


Fig.28

### 2. Leakage Detection

- (1) With leakage detector:  
Check if there is leakage with leakage detector.
- (2) With soap water:  
If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leakage.

## 8.8 Check after Installation and Test Operation

### 1. Check after Installation

Check according to the following requirement after finishing installation.

No.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating) capacity.
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
12	Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling (heating) capacity or waster eletricity.

### 2. Test Operation

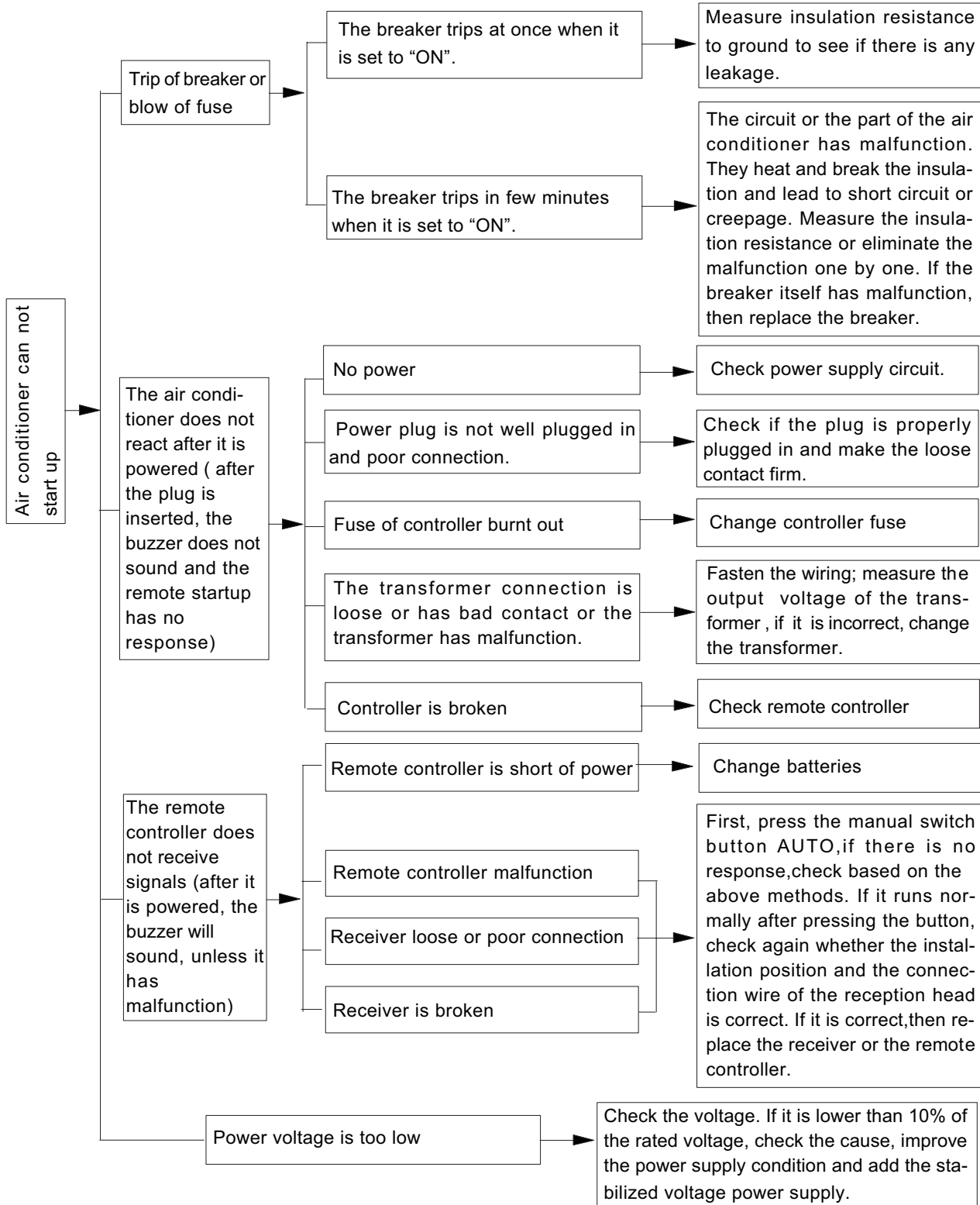
- (1) Preparation of test operation
  - The client approves the air conditioner installation.
  - Specify the important notes for air conditioner to the client.
- (2) Method of test operation
  - Put through the power, press ON/OFF button on the remote controller to start operation.
  - Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
  - If the ambient temperature is lower than 16°C , the air conditioner can't start cooling.

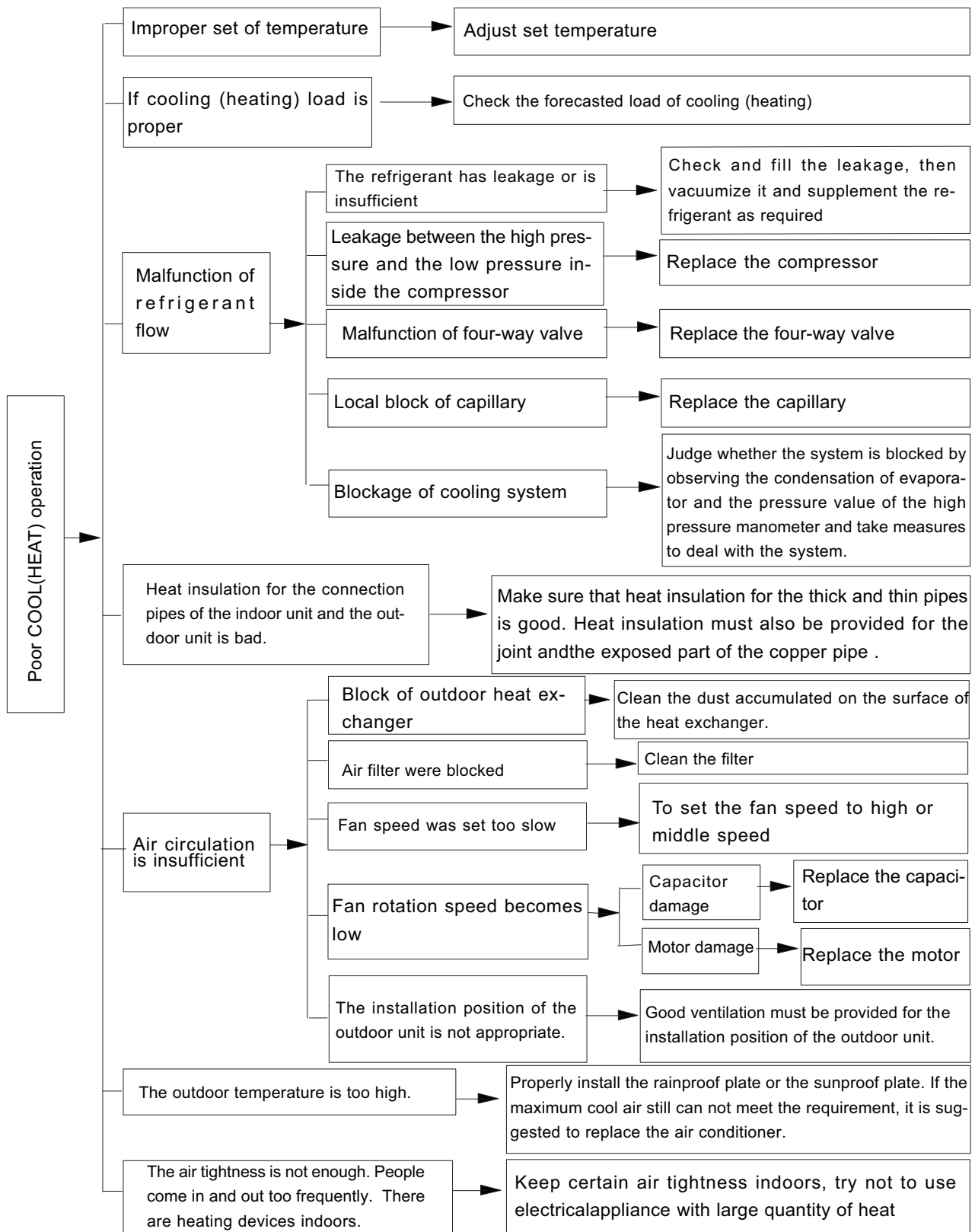


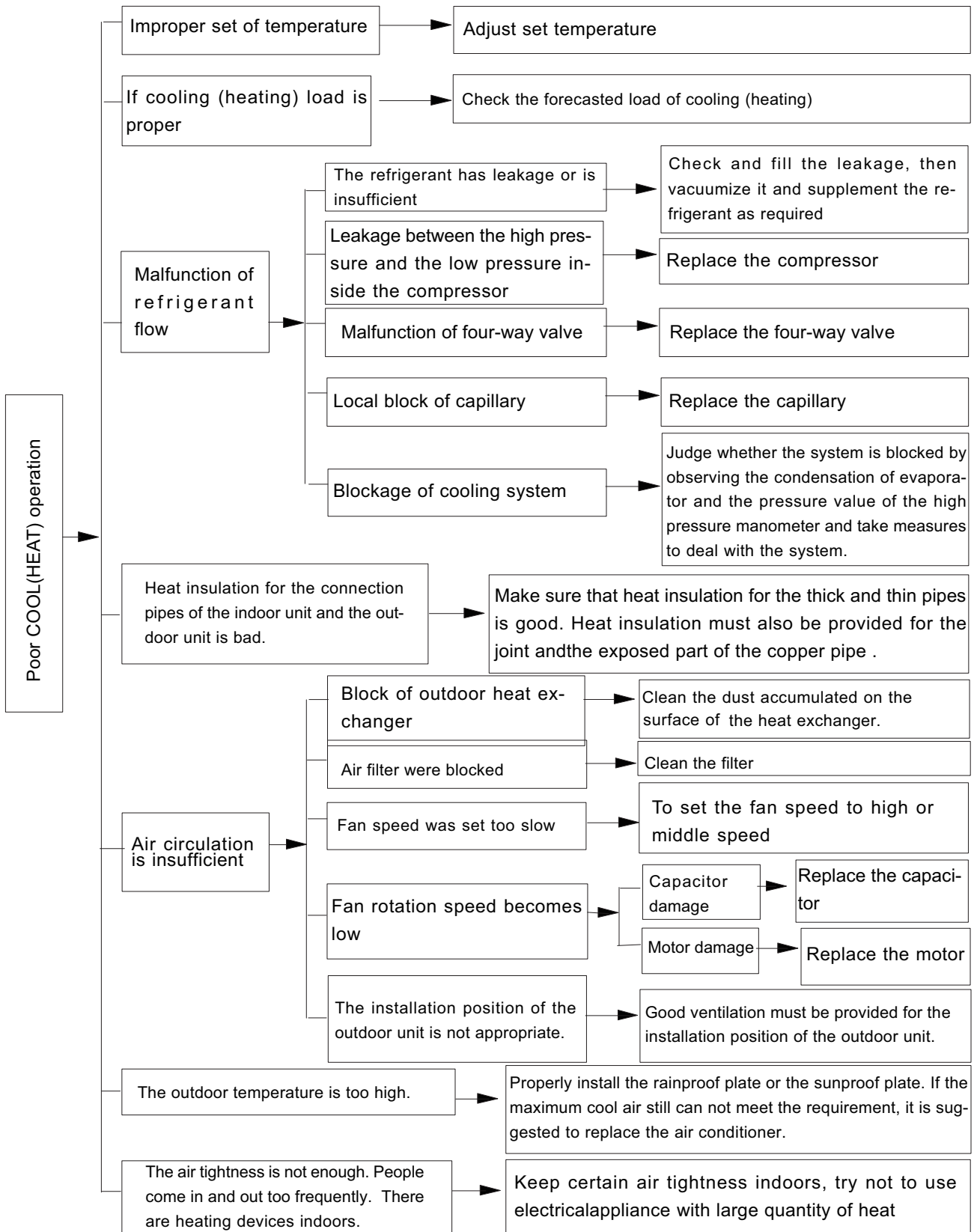
# 9. Maintenance

## 9.1 Malfunction Analysis

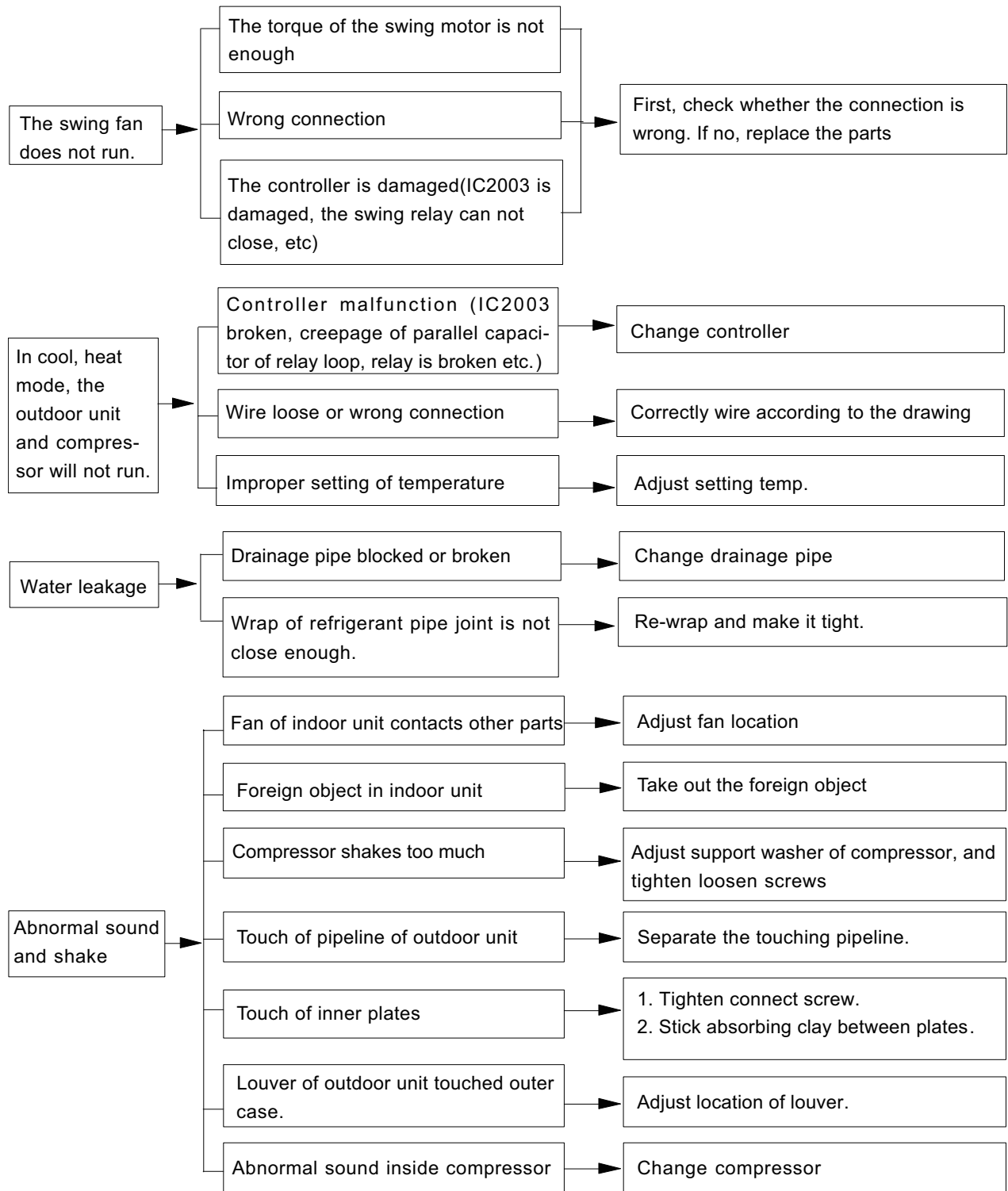
Note: When replacing the controller, be sure to insert the wire jumper into the new controller, otherwise the unit will display C5











## 9.2 Flashing LED of Indoor Unit/Outdoor and Primary Judgement

NO.	Malfunction Name	Display Method of Indoor Unit				A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)				
			Operation Indicator	Cool Indicator	Heating Indicator		
1	High pressure protection of system	E1	OFF 3s and blink once			During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, the complete unit stops.	Possible reasons: 1. Refrigerant was superabundant; 2. Poor heat exchange (including filth blockage of heat exchanger and bad radiating environment ); Ambient temperature is too high.
2	Antifreezing protection	E2	OFF 3S and blink twice			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates.	1. Poor air-return in indoor unit; 2. Fan speed is abnormal; 3. Evaporator is dirty.
3	System block or refrigerant leakage	E3	OFF 3S and blink 3 times			The Dual-8 Code Display will show E3 until the low pressure switch stop operation.	1.Low-pressure protection 2.Low-pressure protection of system 3.Low-pressure protection of compressor
4	High discharge temperature protection of compressor	E4	OFF 3S and blink 4 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Please refer to the malfunction analysis (discharge protection, overload).
5	Overcurrent protection	E5	OFF 3S and blink 5 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. Supply voltage is unstable; 2. Supply voltage is too low and load is too high; 3. Evaporator is dirty.
6	Communication Malfunction	E6	OFF 3S and blink 6 times			During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	Refer to the corresponding malfunction analysis.
7	High temperature resistant protection	E8	OFF 3S and blink 8 times			During cooling operation: compressor will stop while indoor fan will operate. During heating operation, the complete unit stops.	Refer to the malfunction analysis (overload, high temperature resistant).
8	EEPROM malfunction	EE			OFF 3S and blink 15 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
9	Limit/ decrease frequency due to high temperature of module	EU		OFF 3S and blink 6 times	OFF 3S and blink 6 times	All loads operate normally, while operation frequency for compressor is decreased	Discharging after the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
10	Malfunction protection of jumper cap	C5	OFF 3S and blink 15 times			Wireless remote receiver and button are effective, but can not dispose the related command	1. No jumper cap insert on mainboard. 2. Incorrect insert of jumper cap. 3. Jumper cap damaged. 4. Abnormal detecting circuit of mainboard.



NO.	Malfunction Name	Display Method of Indoor Unit			A/C status	Possible Causes	
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)				
			Operation Indicator	Cool Indicator			Heating Indicator
11	Gathering refrigerant	Fo	OFF 3S and blink 1 times	OFF 3S and blink 1 times		When the outdoor unit receive signal of Gathering refrigerant ,the system will be forced to run under cooling mode for gathering refrigerant	Nominal cooling mode
12	Indoor ambient temperature sensor is open/short circuited	F1		OFF 3S and blink once		During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation.	<ol style="list-style-type: none"> <li>Loosening or bad contact of indoor ambient temp. sensor and mainboard terminal.</li> <li>Components in mainboard fell down leads short circuit.</li> <li>Indoor ambient temp. sensor damaged.(check with sensor resistance value chart)</li> <li>Mainboard damaged.</li> </ol>
13	Indoor evaporator temperature sensor is open/short circuited	F2		OFF 3S and blink twice		AC stops operation once reaches the setting temperature. Cooling, drying: internal fan motor stops operation while other loads stop operation; heating: AC stop operation	<ol style="list-style-type: none"> <li>Loosening or bad contact of Indoor evaporator temp. sensor and mainboard terminal.</li> <li>Components on the mainboard fall down leads short circuit.</li> <li>Indoor evaporator temp. sensor damaged.(check temp. sensor value chart for testing)</li> <li>Mainboard damaged.</li> </ol>
14	Outdoor ambient temperature sensor is open/short circuited	F3		OFF 3S and blink 3 times		During cooling and drying operating, compressor stops while indoor fan operates; During heating operation, the complete unit will stop operation	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
15	Outdoor condenser temperature sensor is open/short circuited	F4		OFF 3S and blink 4 times		During cooling and drying operation, compressor stops while indoor fan will operate; During heating operation, the complete unit will stop operation.	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
16	Outdoor discharge temperature sensor is open/short circuited	F5		OFF 3S and blink 5 times		During cooling and drying operation, compressor will sop after operating for about 3 mins, while indoor fan will operate; During heating operation, the complete unit will stop after operating for about 3 mins.	<ol style="list-style-type: none"> <li>Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)</li> <li>The head of temperature sensor hasnt been inserted into the copper tube</li> </ol>
17	Limit/ decrease frequency due to overload	F6		OFF 3S and blink for 6 times		All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
18	Decrease frequency due to overcurrent	F8		OFF 3S and blink 8 times		All loads operate normally, while operation frequency for compressor is decreased	The input supply voltage is too low; System pressure is too high and overload

NO.	Malfunction Name	Display Method of Indoor Unit			A/C status	Possible Causes	
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)				
			Operation Indicator	Cool Indicator			Heating Indicator
19	Decrease frequency due to high air discharge	F9		OFF 3S and blink 9 times		All loads operate normally, while operation frequency for compressor is decreased	Overload or temperature is too high; Refrigerant is insufficient; Malfunction of electric expansion valve (EKV)
20	Limit/ decrease frequency due to antifreezing	FH		OFF 3S and blink 2 times	OFF 3S and blink 2 times	All loads operate normally, while operation frequency for compressor is decreased	Poor air-return in indoor unit or fan speed is too low
21	Voltage for DC bus-bar is too high	PH		OFF 3S and blink 11 times		During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 265VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
22	Voltage of DC bus-bar is too low	PL			OFF 3S and blink 21 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 150VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
23	Compressor Min frequency in test state	P0		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)		Showing during min. cooling or min. heating test
24	Compressor rated frequency in test state	P1		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)		Showing during nominal cooling or nominal heating test
25	Compressor maximum frequency in test state	P2		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)		Showing during max. cooling or max. heating test



NO.	Malfunction Name	Display Method of Indoor Unit				A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)				
			Operation Indicator	Cool Indicator	Heating Indicator		
26	Compressor intermediate frequency in test state	P3		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)		Showing during middle cooling or middle heating test
27	Overcurrent protection of phase current for compressor	P5		OFF 3S and blink 15 times		During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
28	Charging malfunction of capacitor	PU			OFF 3S and blink 17 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Refer to the part three—charging malfunction analysis of capacitor
29	Malfunction of module temperature sensor circuit	P7			OFF 3S and blink 18 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
30	Module high temperature protection	P8			OFF 3S and blink 19 times	During cooling operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	After the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
31	Decrease frequency due to high temperature resistant during heating operation	H0			OFF 3S and blink 10 times	All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
32	Static dedusting protection	H2			OFF 3S and blink twice		
33	Overload protection for compressor	H3			OFF 3S and blink 3 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2.Refer to the malfunction analysis (discharge protection, overload)



NO.	Malfunction Name	Display Method of Indoor Unit				A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)				
			Operation Indicator	Cool Indicator	Heating Indicator		
34	System is abnormal	H4			OFF 3S and blink 4 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (overload, high temperature resistant)
35	IPM protection	H5			OFF 3S and blink 5 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
36	Malfunction of detecting plate(WIFI )	JF				Loads operate normally, while the unit can't be normally controlled by APP.	1. Main board of indoor unit is damaged; 2. Detection board is damaged; 3. The connection between indoor unit and detection board is not good;
37	Internal motor (fan motor) do not operate	H6	OFF 3S and blink 11 times			Internal fan motor, external fan motor, compressor and electric heater stop operation,guide louver stops at present location.	1. Bad contact of DC motor feedback terminal. 2. Bad contact of DC motor control end. 3. Fan motor is stalling. 4. Motor malfunction. 5. Malfunction of mainboard rev detecting circuit.
38	Desynchronizing of compressor	H7			OFF 3S and blink 7 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
39	Outdoor DC fan motor malfunction	L3	OFF 3S and blink 23 times			Outdoor DC fan motor malfunction lead to compressor stop operation,	DC fan motor malfunction or system blocked or the connector loosed
40	power protection	L9	OFF 3S and blink 20 times			compressor stop operation and Outdoor fan motor will stop 30s latter , 3 minutes latter fan motor and compressor will restart	To protect the electrical components when detect high power
41	Indoor unit and outdoor unit doesn't match	LP	OFF 3S and blink 19 times			compressor and Outdoor fan motor can't work	Indoor unit and outdoor unit doesn't match
42	Failure start-up	LC			OFF 3S and blink 11 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis

NO.	Malfunction Name	Display Method of Indoor Unit			A/C status	Possible Causes	
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)				
			Operation Indicator	Cool Indicator			Heating Indicator
43	Malfunction of phase current detection circuit for compressor	U1			OFF 3S and blink 13 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
44	Malfunction of voltage dropping for DC bus-bar	U3			OFF 3S and blink 20 times	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Supply voltage is unstable
45	Malfunction of complete units current detection	U5			OFF 3S and blink 13 times	During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation.	Theres circuit malfunction on outdoor units control panel AP1, please replace the outdoor units control panel AP1.
46	The four-way valve is abnormal	U7			OFF 3S and blink 20 times	If this malfunction occurs during heating operation, the complete unit will stop operation.	1. Supply voltage is lower than AC175V; 2. Wiring terminal 4V is loosened or broken; 3. 4V is damaged, please replace 4V.
47	Zero-crossing malfunction of outdoor unit	U9	OFF 3S and blink 18 times			During cooling operation, compressor will stop while indoor fan will operate; during heating, the complete unit will stop operation.	Replace outdoor control panel AP1 or Reactor
48	Anti-freezing protection for evaporator	E2				Not the error code. It's the status code for the operation.	
49	Cold air prevention protection	E9				Not the error code. It's the status code for the operation.	
50	Refrigerant recovery mode	Fo				Refrigerant recovery. The Serviceman operates it for maintenance	
51	PFC protection	HC				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation	Replace outdoor control panel AP1 or Reactor



NO.	Malfunction Name	Display Method of Indoor Unit				A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)				
			Operation Indicator	Cool Indicator	Heating Indicator		
52	Undefined outdoor unit error	oE				Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stop operation	1. Outdoor ambient temperature exceeds the operation range of unit (eg: less than -20°C or more than 60°C for cooling; more than 30°C for heating); 2. Failure startup of compressor? 3. Are wires of compressor not connected tightly? 4. Is compressor damaged? 5. Is main board damaged?
53	Defrosting				OFF 3S and blink once (during blinking, ON 10s and OFF 0.5s)	Defrosting will occur in heating mode. Compressor will operate while indoor fan will stop operation.	Its the normal state
54	Zero-crossing inspection circuit malfunction of the IDU fan motor	U8	Flash 17 times every 3s			1. Discharging speed of capacitor is slow, which lead to wrong judgement of controller. Zero-crossing detection circuit of main board is abnormal	Refer to maintenance flowchart



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## **Analysis or processing of some of the malfunction display:**

### **1. Compressor discharge protection**

Possible causes: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser; the system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.

Processing method: refer to the malfunction analysis in the above section.

### **2. Low voltage overcurrent protection**

Possible cause: Sudden drop of supply voltage.

### **3. Communication malfunction**

Processing method: Check if communication signal cable is connected reliably.

### **4. Sensor open or short circuit**

Processing method: Check whether sensor is normal, connected with the corresponding position on the controller and if damage of lead wire is found.

### **5. Compressor over load protection**

Possible causes: insufficient or too much refrigerant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compressor is fine when it is not overheated, if not replace the protector.

### **6. System malfunction**

i.e. overload protection. When tube temperature (Check the temperature of outdoor heat exchanger when cooling and check the temperature of indoor heat exchanger when heating) is too high, protection will be activated.

Possible causes: Outdoor temperature is too high when cooling; insufficient outdoor air circulation; refrigerant flow malfunction.

please refer to the malfunction analysis in the previous section for handling method.

### **7. IPM module protection**

Processing method: Once the module malfunction happens, if it persists for a long time and can not be self-canceled, cut off the power and turn off the unit, and then re-energize the unit again after about 10 min. After repeating the procedure for several times, if the malfunction still exists, replace the module.

## 9.3 How to Check Simply the Main Part

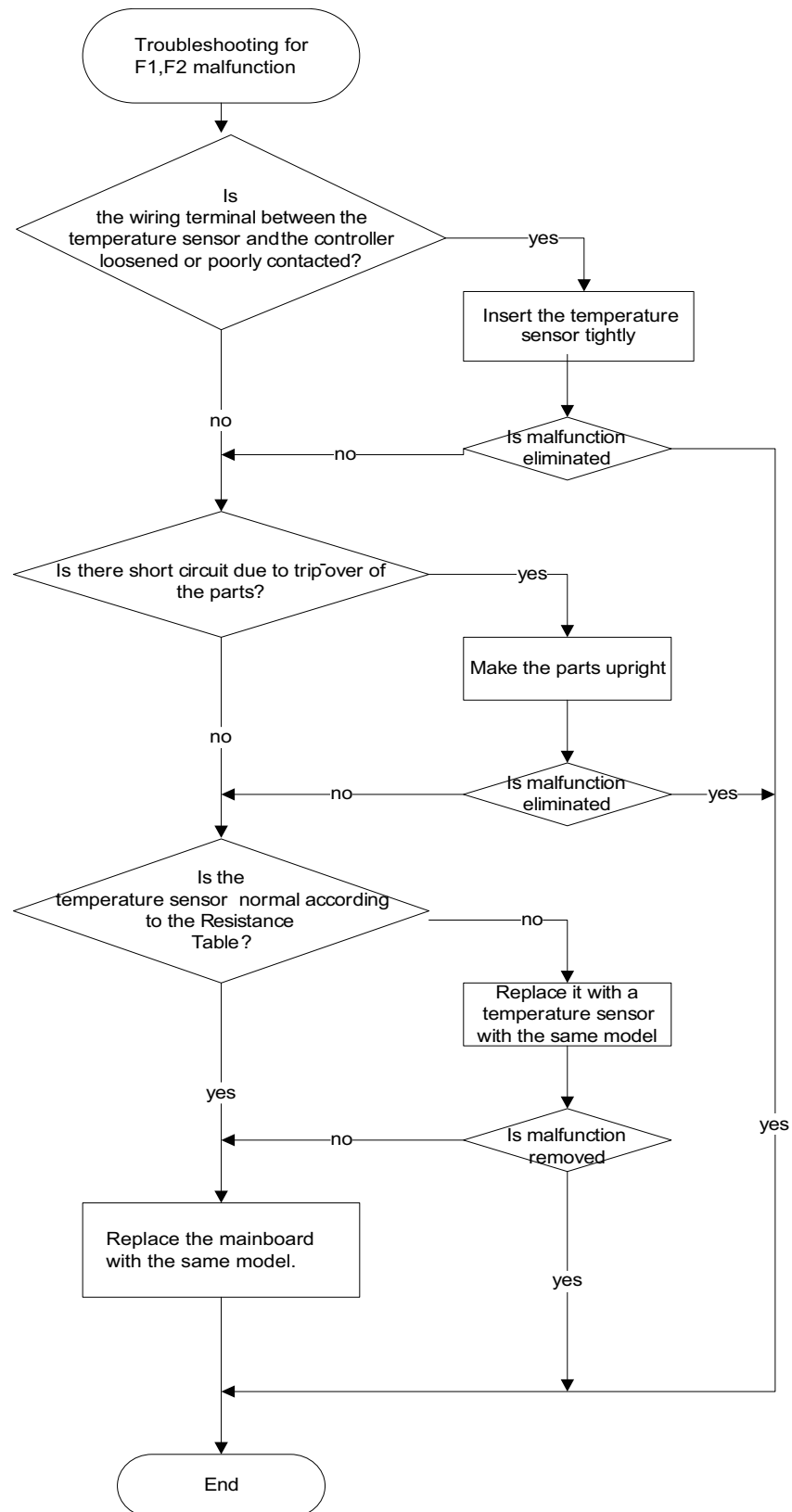
### Indoor Unit

#### (1) Malfunction of Temperature Sensor F1, F2

Main detection points:

- Is the wiring terminal between the temperature sensor and the controller loosened or poorly contacted?
- Is there short circuit due to trip-over of the parts?
- Is the temperature sensor broken?
- Is mainboard broken?

Malfunction diagnosis process:

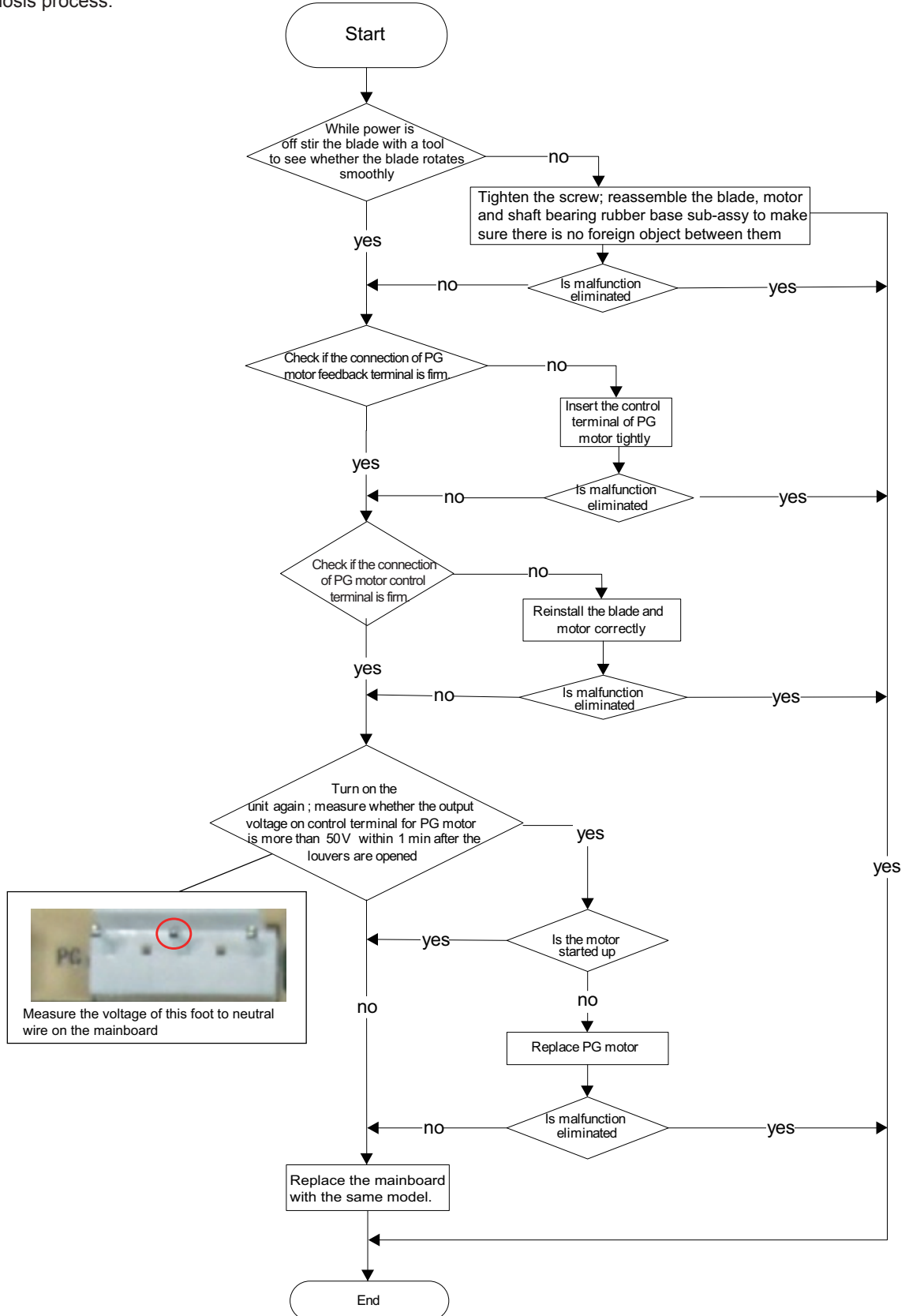


## (2) Malfunction of Blocked Protection of IDU Fan Motor H6

Main detection points:

- Is the control terminal of PG motor connected tightly?
- Is the feedback interface of PG motor connected tightly?
- The fan motor can't operate ?
- The motor is broken?
- Detection circuit of the mainboard is defined abnormal?

Malfunction diagnosis process:

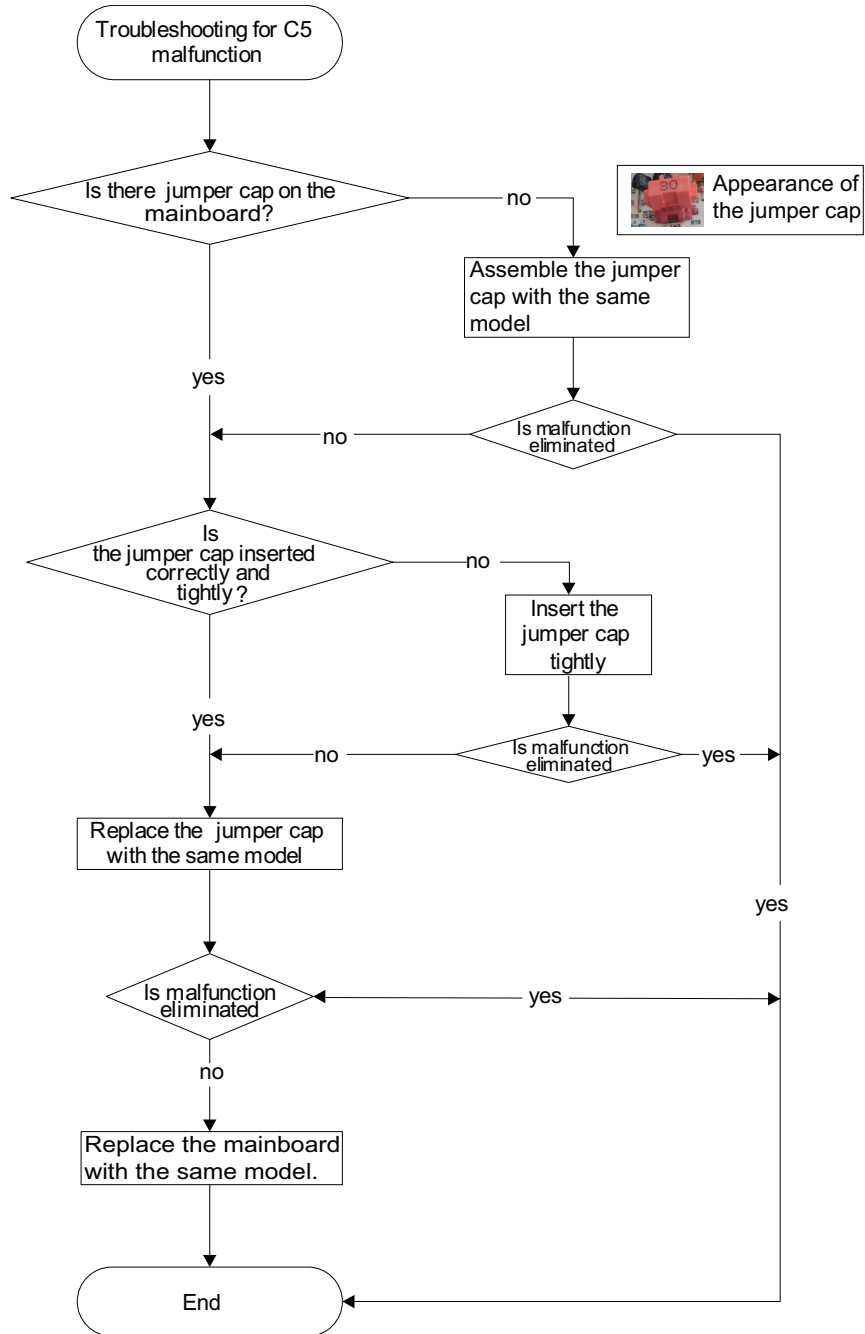


### (3) Malfunction of Protection of Jumper Cap C5

Main detection points:

- Is there jumper cap on the mainboard?
- Is the jumper cap inserted correctly and tightly?
- The jumper is broken?
- Detection circuit of the mainboard is defined abnormal?

Malfunction diagnosis process:

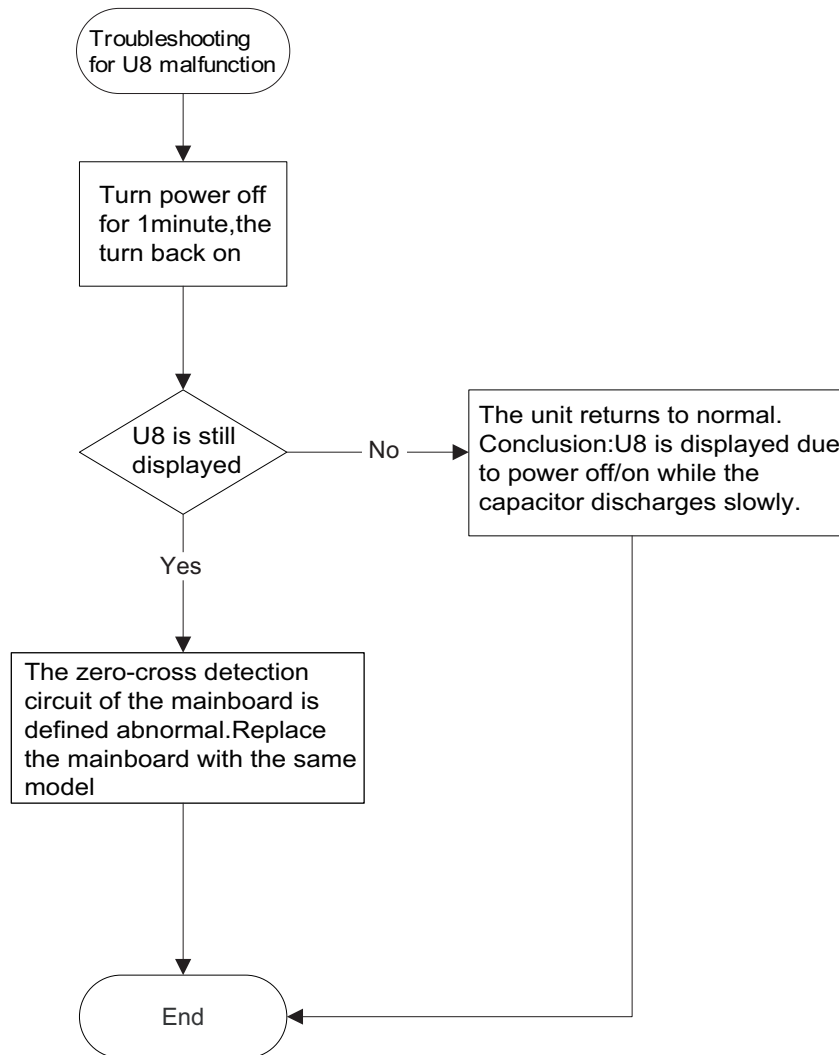


#### (4) Malfunction of Zero-crossing Inspection Circuit Malfunction of the IDU Fan Motor U8

Main detection points:

- Instant energization after de-energization while the capacitor discharges slowly?
- The zero-cross detection circuit of the mainboard is defined abnormal?

Malfunction diagnosis process:





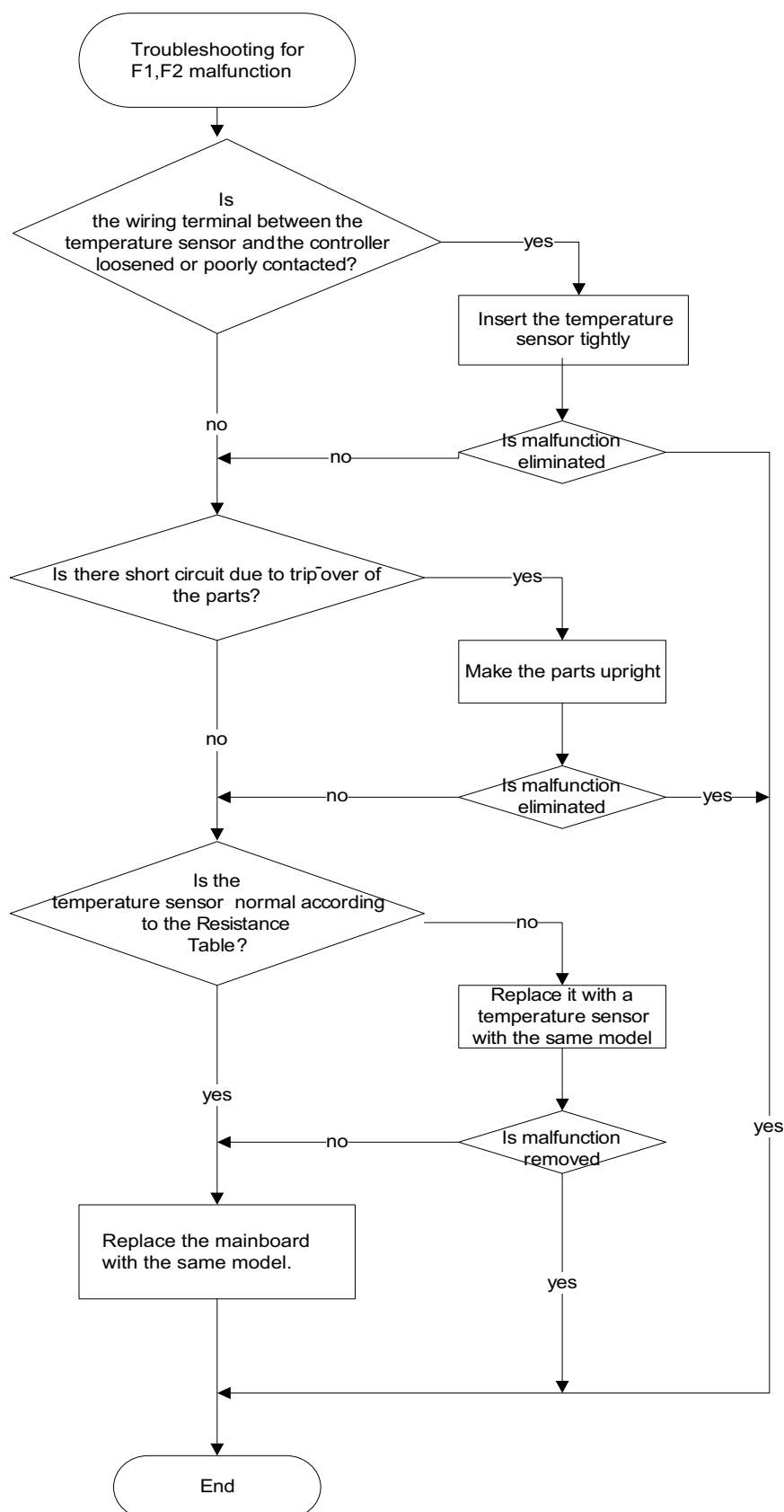
## Outdoor Unit

### (1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel)

Main Check Points:

- Use AC voltmeter to check if the voltage between terminal L and N on the wiring board is within 210VAC~240VAC.
- Is the reactor (L) correctly connected? Is the connection loose or fallen? Is the reactor (L) damaged?

Fault diagnosis process:

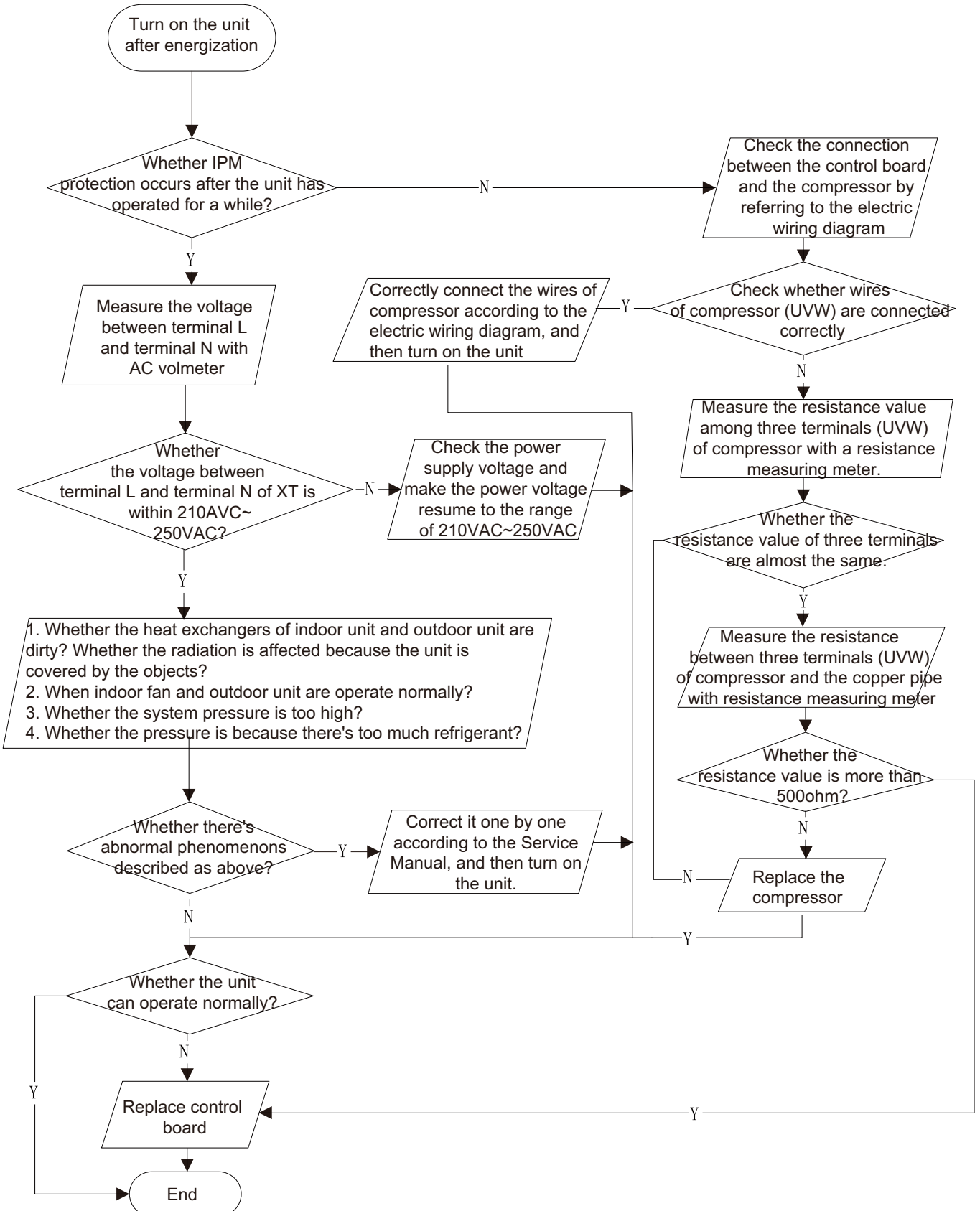


(2) IPM protection, phase current overcurrent (the control board as below indicates the control board of outdoor unit) H5/P5

Mainly detect:

- (1) Compressor COMP terminal
- (2) voltage of power supply
- (3) compressor
- (4) Refrigerant-charging volume
- (5) air outlet and air inlet of outdoor/indoor unit

Troubleshooting:



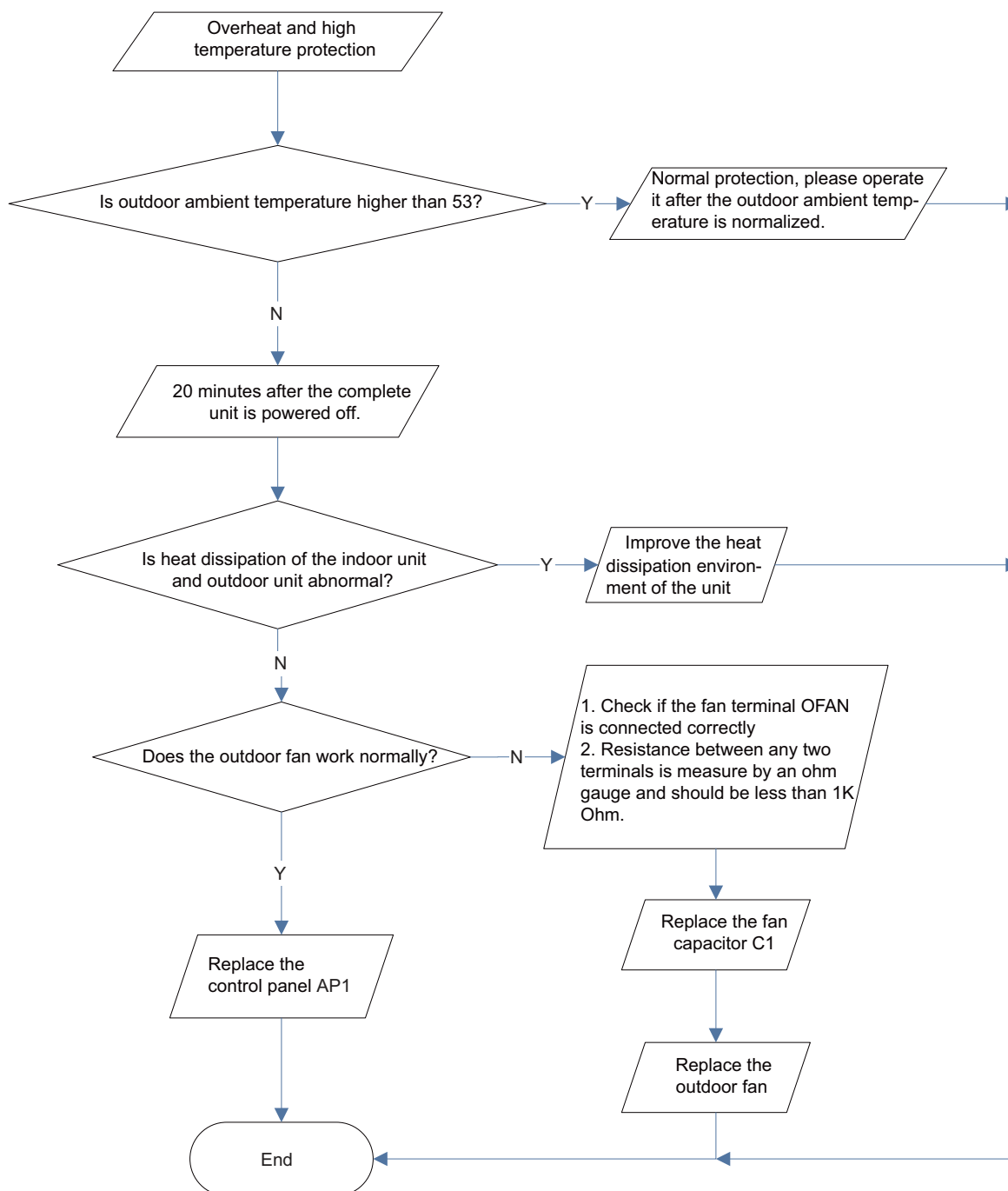


### (3) High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Is outdoor ambient temperature in normal range?
- Are the outdoor and indoor fans operating normally?
- Is the heat dissipation environment inside and outside the unit good?

Fault diagnosis process:



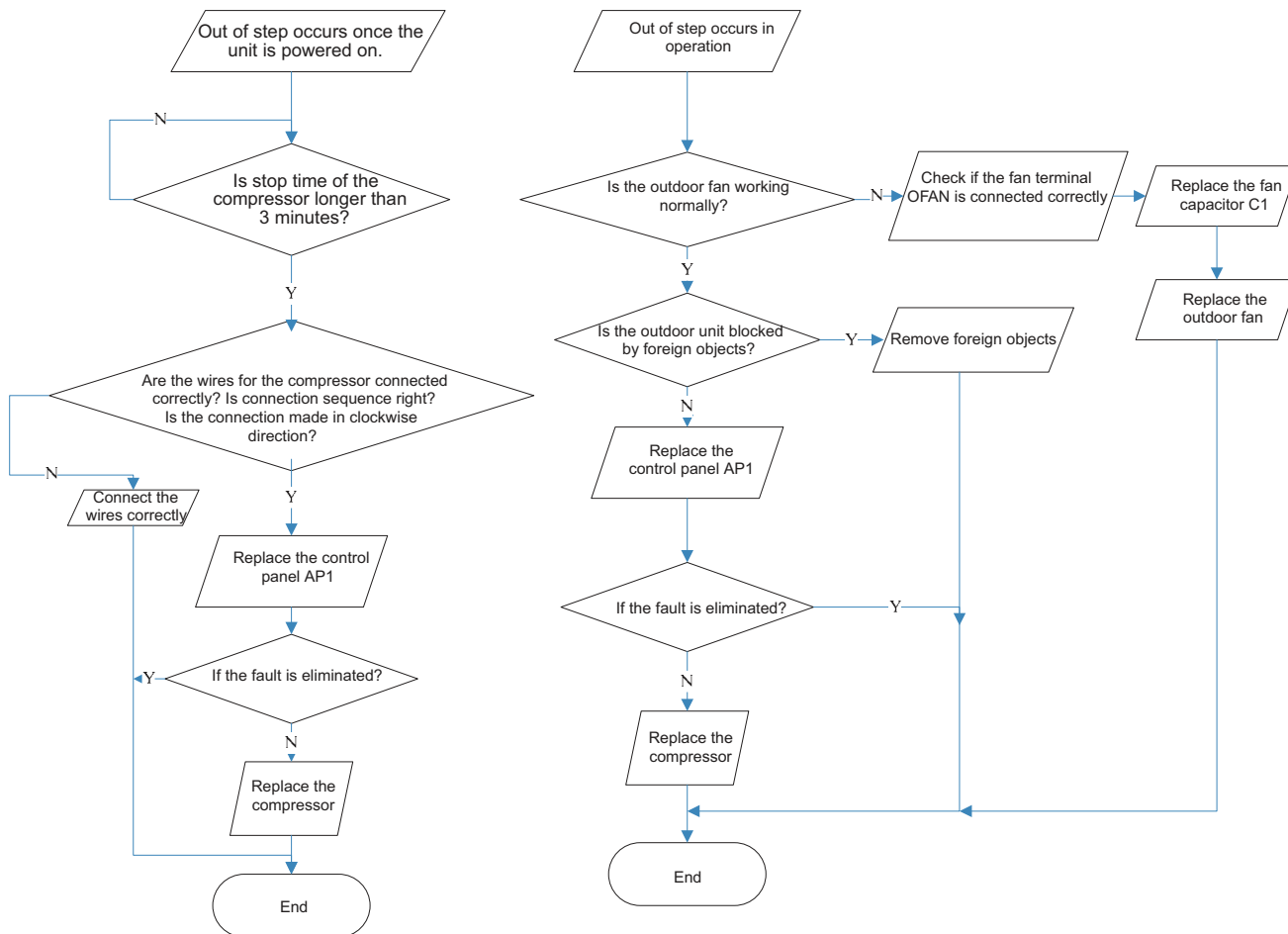


**(5) Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)**

Mainly detect:

- Is the system pressure too high?
- Is the input voltage too low?

Fault diagnosis process:

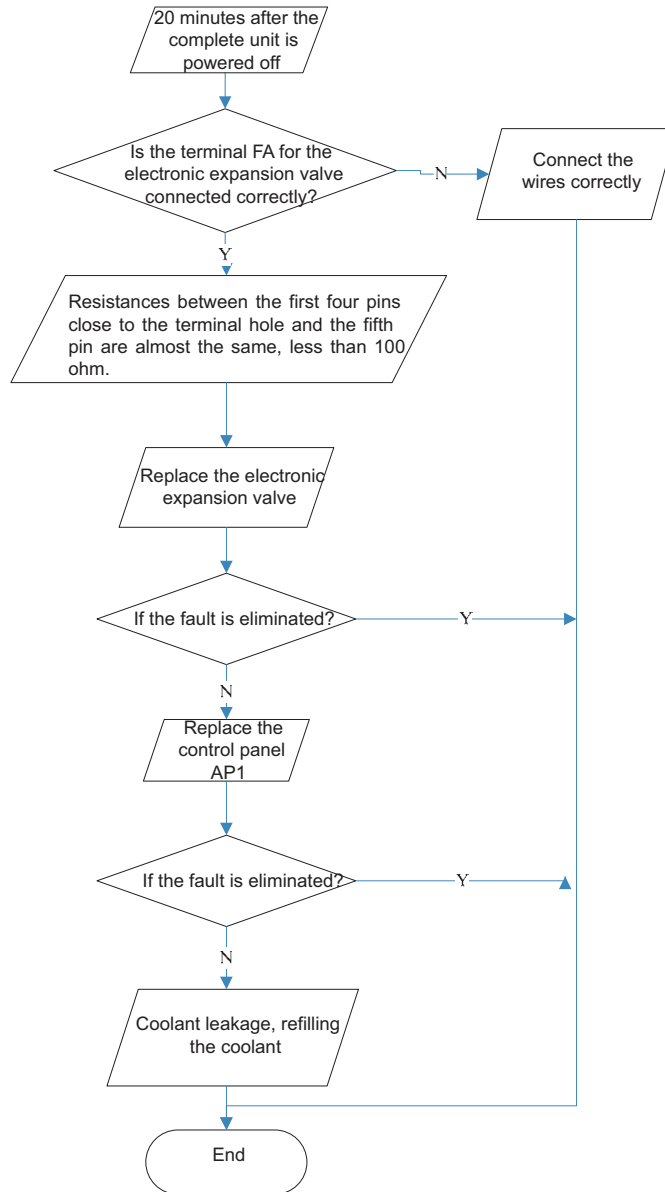


**(6) Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit control board)**

Mainly detect:

- Is the PMV connected well or not? Is PMV damaged?
- Is refrigerant leaked?

Fault diagnosis process:

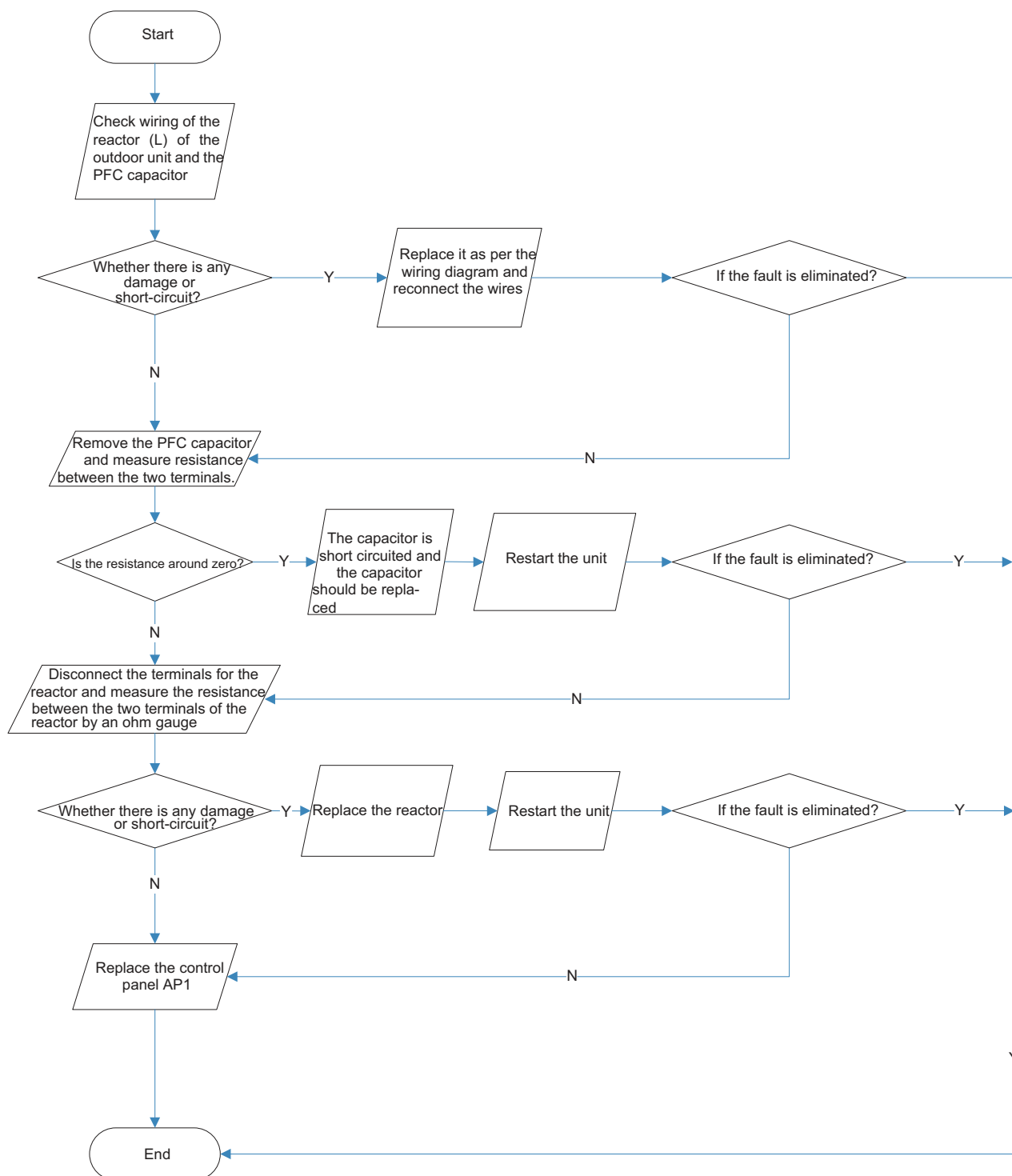


**(7) Power factor correct or (PFC) fault (a fault of outdoor unit) (AP1 hereinafter refers to the control board of the outdoor unit)**

Mainly detect:

- Check if the reactor (L) of the outdoor unit and the PFC capacitor are broken

Fault diagnosis process:

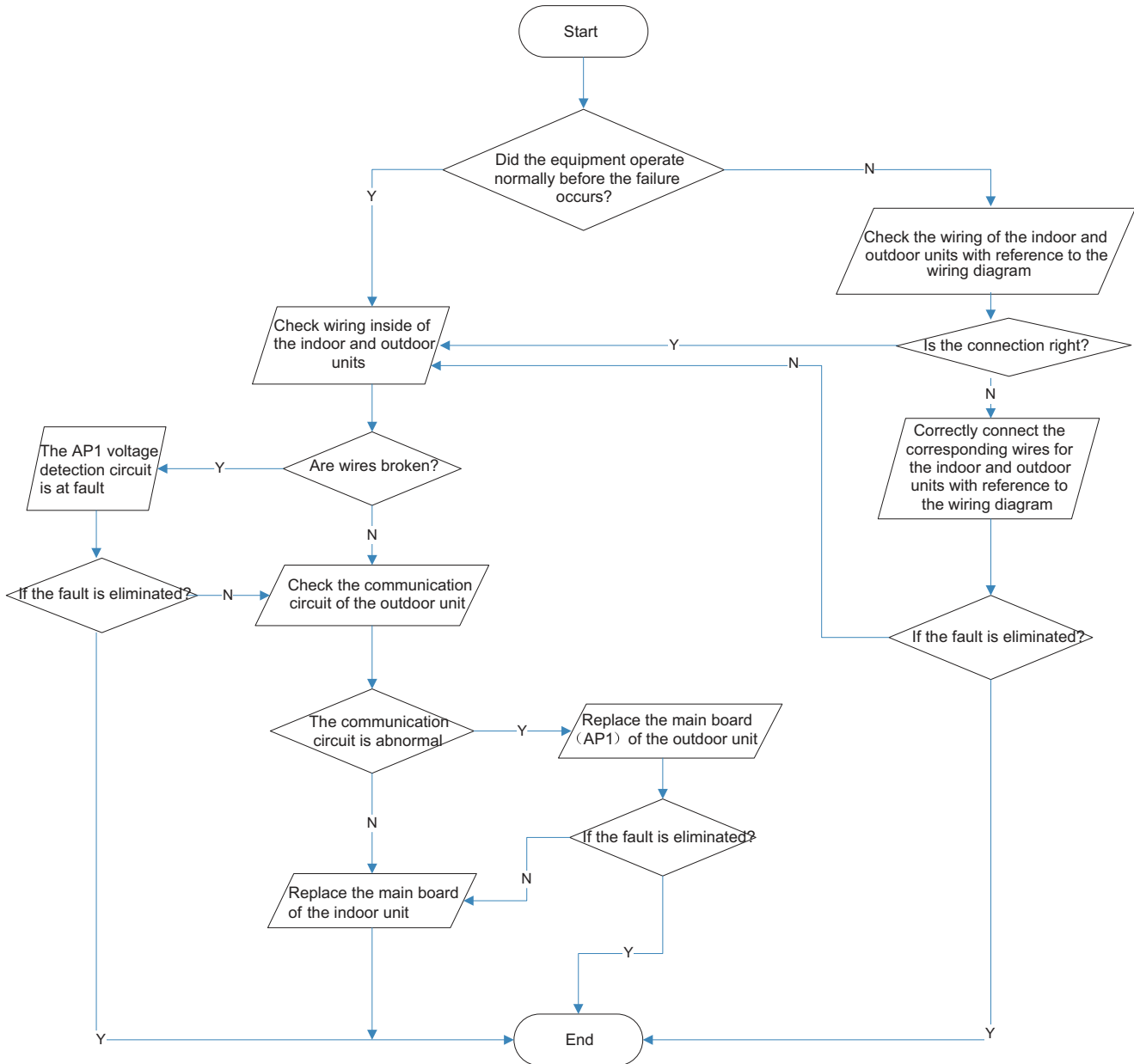


**(8) Communication malfunction: (following AP1 for outdoor unit control board)**

Mainly detect:

- Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?
- Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, if is there any damage?

Fault diagnosis process:



### (9) Malfunction of Overcurrent Protection E5

Main detection points:

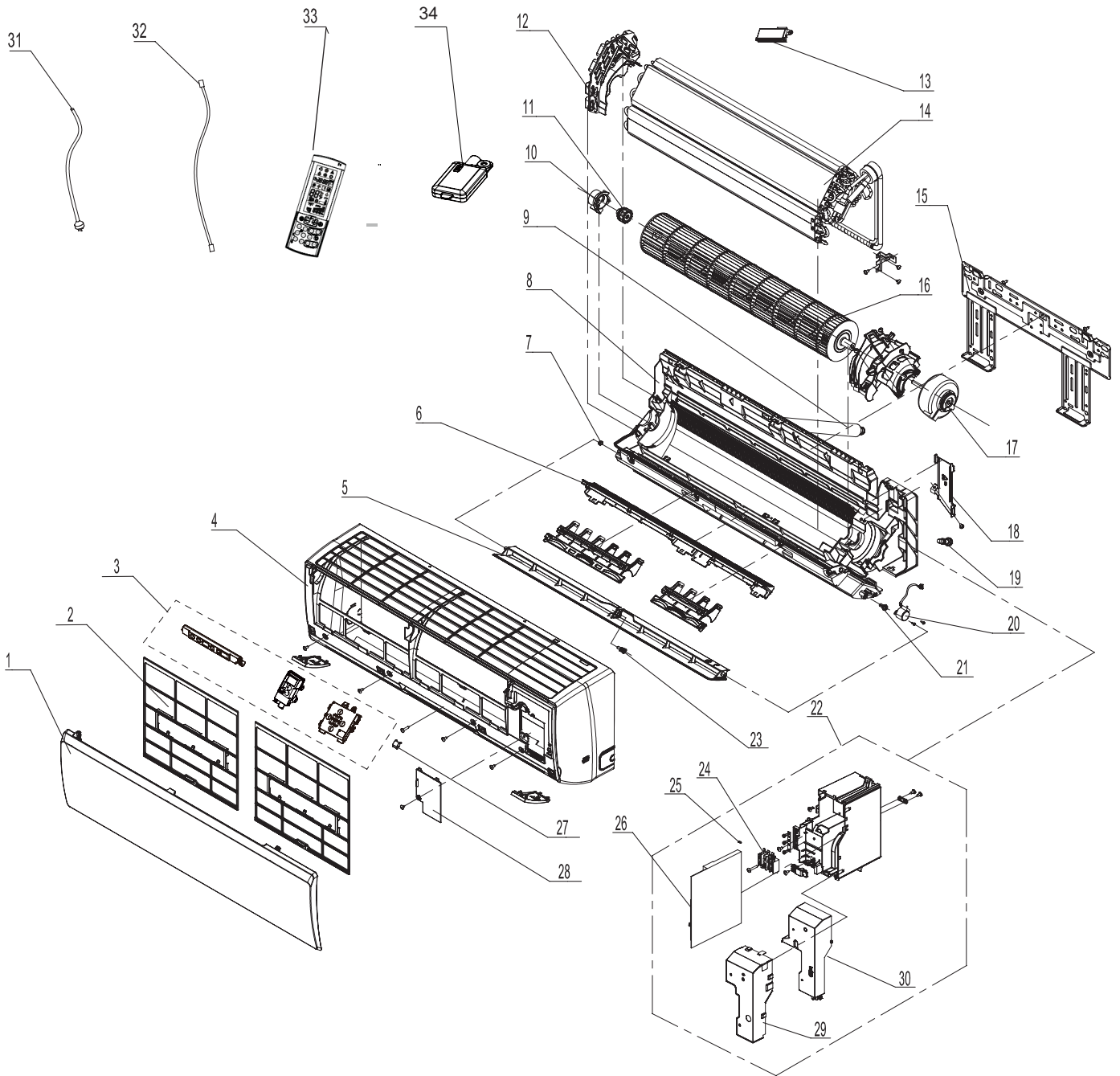
- Is the supply voltage unstable with big fluctuation?
- Is the supply voltage too low with overload?
- Hardware trouble?

Malfunction diagnosis process:



# 10. Exploded View and Parts List

## 10.1 Indoor Unit



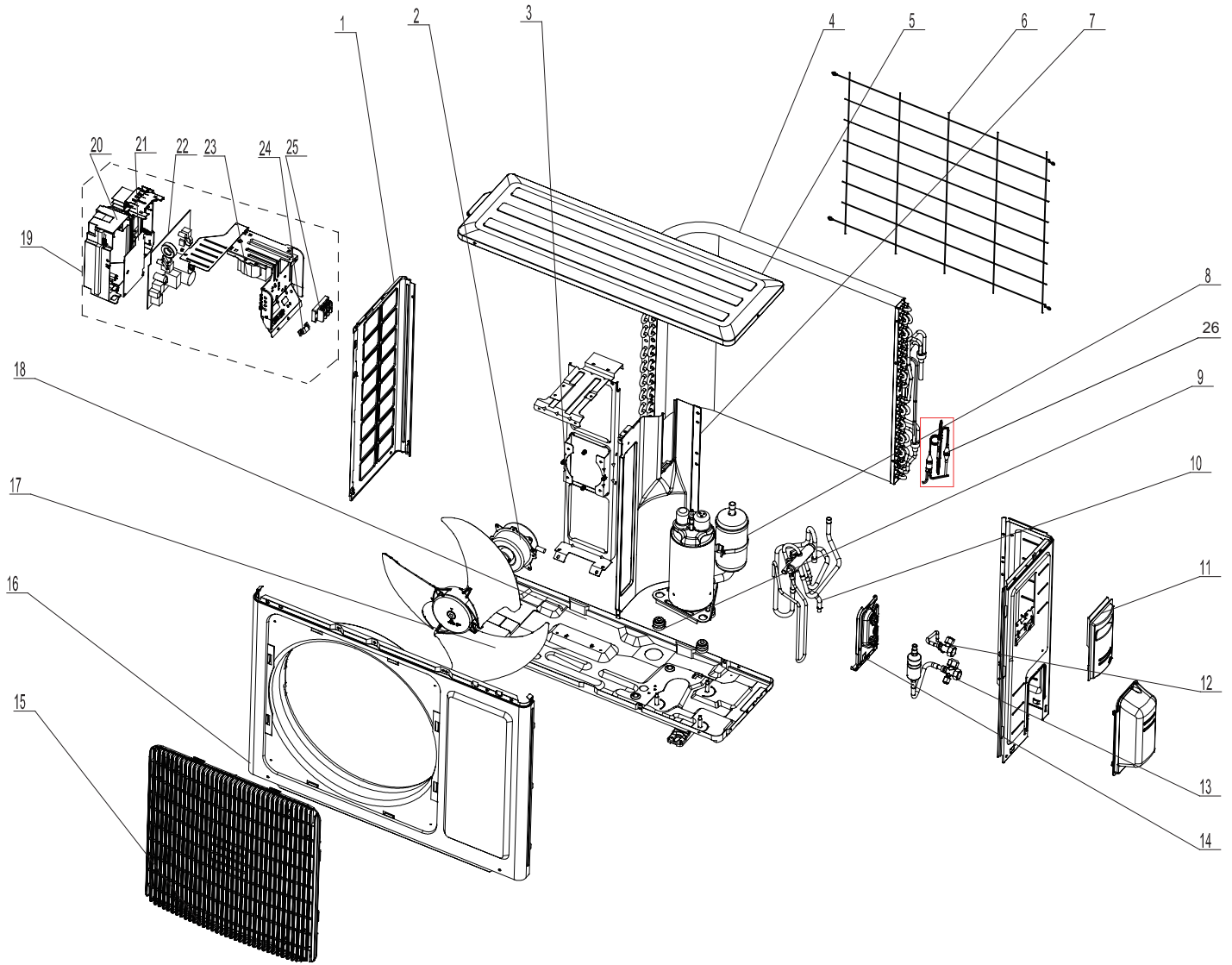
The component picture is only for reference; please refer to the actual product.



No.	Description	Part Code			Qty
		GWH12QB-K6DNA11/I			
	Product Code	CB419N15000			
1	Front Panel	20022479S			1
2	Filter Sub-Assy	11122219			2
3	Display Board	30565263			1
4	Front Case Assy	00000200128			1
5	Guide Louver	10512722			1
6	Helicoid Tongue	26112508			1
7	Left Axile Bush	10512037			1
8	Rear Case assy	20162010			1
9	Drainage Hose	0523001408			1
10	Ring of Bearing	26152022			1
11	O-Gasket sub-assy of Bearing	7651205102			1
12	Evaporator Supper 2	24212180			1
13	Cold Plasma Generator	1114001603			1
14	Evaporator Assy	0110010009507			1
15	Wall Mounting Frame	01252043			1
16	Cross Flow Fan	10352059			1
17	Fan Motor	150120874			1
18	Connecting pipe clamp	2611216401			1
19	Rubber Plug (Water Tray)	76712012			1
20	Stepping Motor	1521212901			1
21	Crank	73012005			1
22	Electric Box Assy	100002003953			1
23	Axile Bush	10542036			1
24	Terminal Board	42011233			1
25	Jumper	4202021903			1
26	Main Board	30145096			1
27	Screw Cover	24252030			1
28	Electric Box Cover Sub-Assy	0140206501			1
29	Shield Cover of Electric Box Cover	01592150			1
30	Electric Box Cover	20112207			1
31	Connecting Cable	/			/
32	Connecting Cable	4002052317			0
33	Remote Controller	RC08A			1
34	Detecting Plate	30110154			1

Above data is subject to change without notice.

## 10.2 Outdoor Unit



The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code	Qty
		AW-YHDL012-H91	
		Product Code	
		7SP062961	
1	Left Side Plate	01303200P	1
2	Fan Motor	1501308507	1
3	Motor Support	01703136	1
4	Condenser Assy	011002000588	1
5	Top Cover Sub-Assy	01253081	1
6	Rear Grill	01475014	1
7	Clapboard Sub-Assy	01233180	1
8	Compressor and Fittings	00103925G	1
9	Compressor Gasket	76710287	3
10	4-Way Valve Assy	030152000016	1
11	Big Handle	2623343106	1
12	Cut off Valve 1/4	07130239	1
13	Cut off Valve 3/8	071302391	1
14	Valve Support	0171314201P	1
15	Front Grill	22413044	1
16	Cabinet	01433033P	1
17	Axial Flow Fan	10333011	1
18	Chassis Sub-assy	017000000091P	1
19	Electric Box Assy	100002002902	1
20	Electric Box	20113034	1
21	Filter Board	01363004A	1
22	Main Board	300027000482	1
23	Reactor	43130184	1
24	Wire Clamp	71010103	1
25	Terminal Board	42010313	1
26	Capillary Sub-assy	030006000515	1

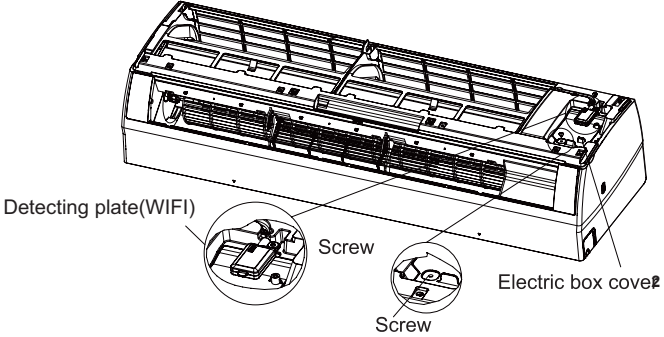
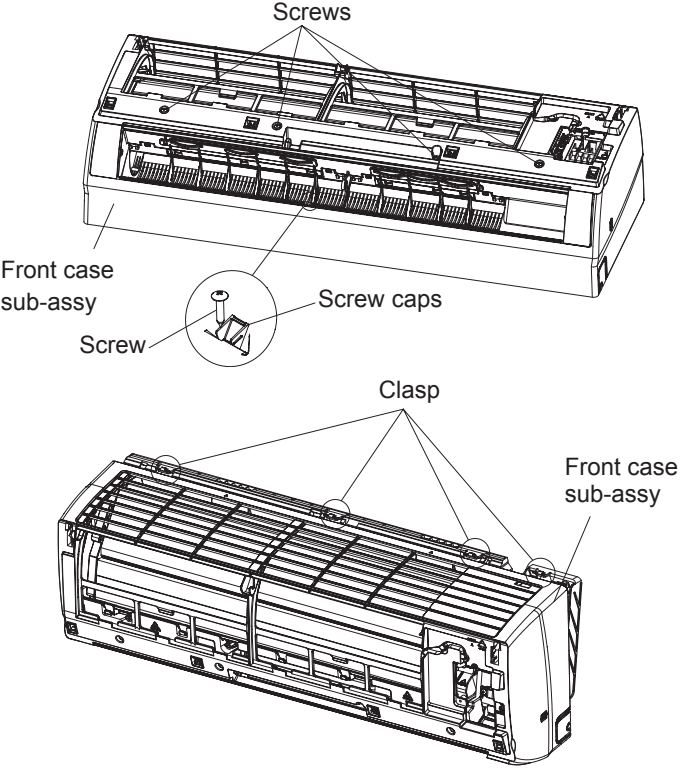
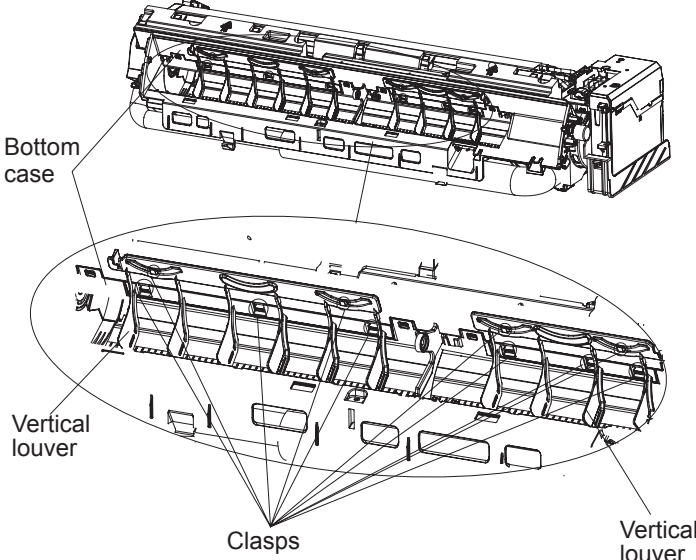
Above data is subject to change without notice.

# 11. Removal Procedure

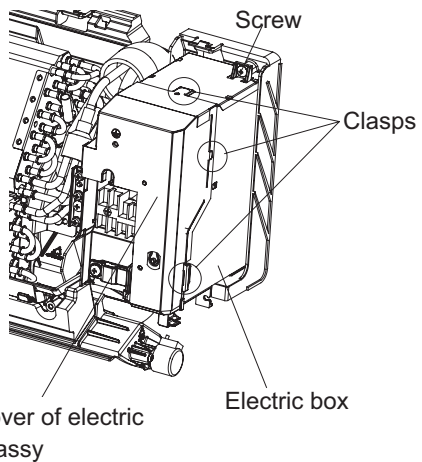
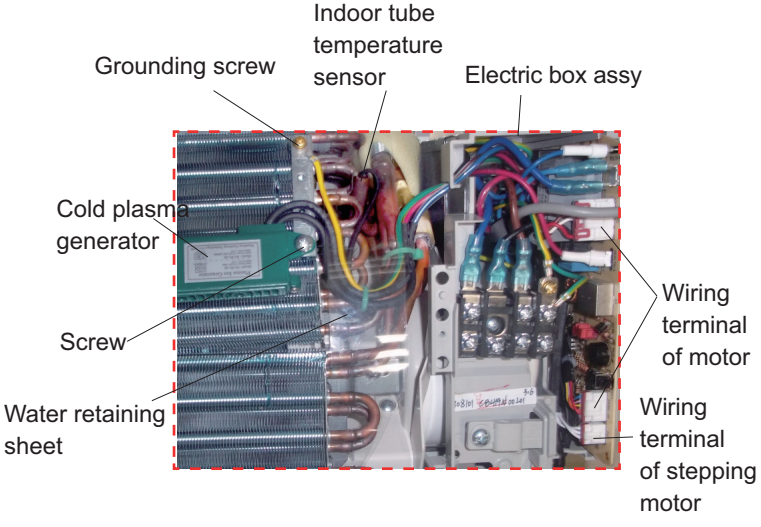
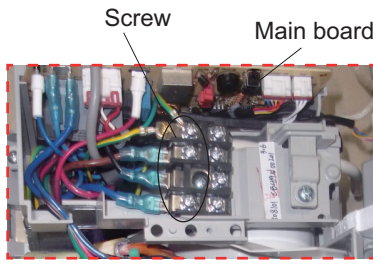
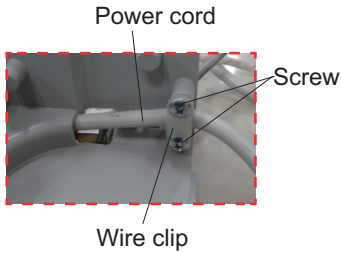
**⚠ Caution: discharge the refrigerant completely before removal.**


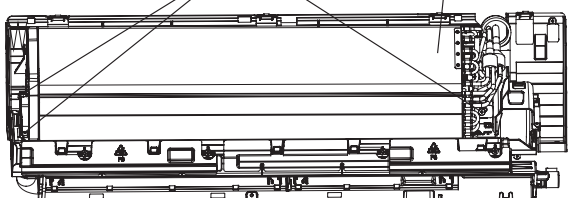
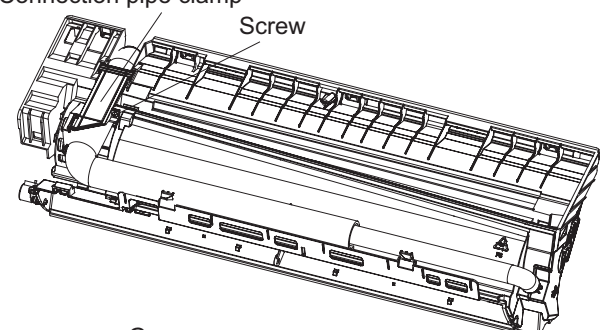
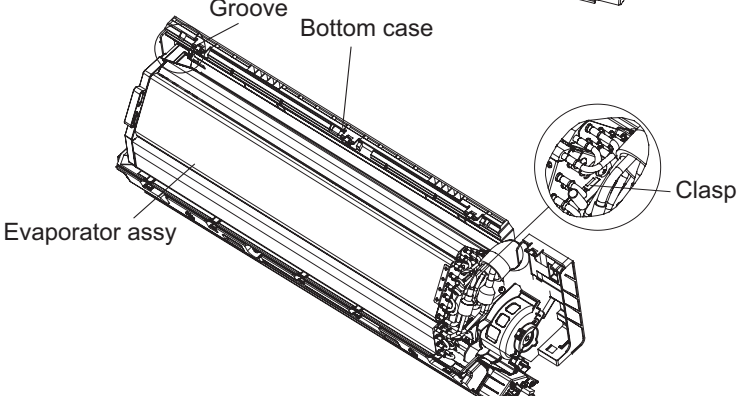
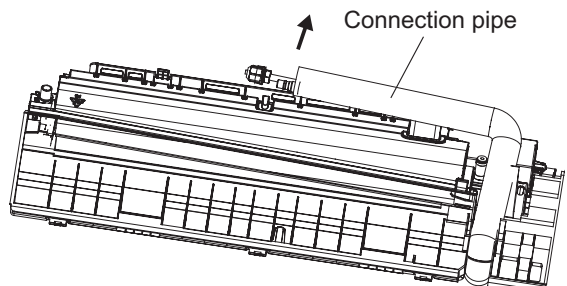
## 11.1 Removal Procedure of Indoor Unit

Step	Procedure	Diagram
1. Remove filter assembly	<p>Open the front panel. Push the left filter and right filter until they are separate from the groove on the front panel. Remove the left filter and right filter respectively.</p>	
2. Remove horizontal louver	<p>Push out the axle bush on horizontal louver. Bend the horizontal louver with hand and then separate the horizontal louver from the crankshaft of step motor to remove it.</p>	
3. Remove panel and display	<p>a Screw off the 2 screws that are locking the display board.</p> <p>b Separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.</p>	

Step	Procedure	Image
4. Remove detecting plate(wifi) and electric box cover2	<p>Remove the screws fixing detecting plate and remove detecting plate(wifi).</p> <p>Remove the screws fixing electric box cover2 and remove electric box2.</p>	
5. Remove front case sub-assy	<p>a Remove the screws fixing front case.</p> <p>Note:  1.Open the screw caps before removing the screws around the air outlet.  2.The quantity of screws fixing the front case sub-assy is different for different models.</p> <p>b Loosen the connection clasps between front case sub-assy and bottom case. Lift up the front case sub-assy and take it out.</p>	
6. Remove vertical louver	<p>Loosen the connection clasps between vertical louver and bottom case to remove vertical louver.</p>	

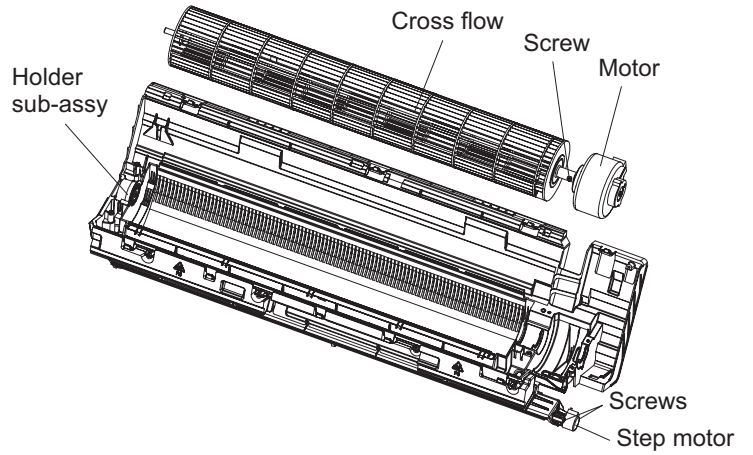
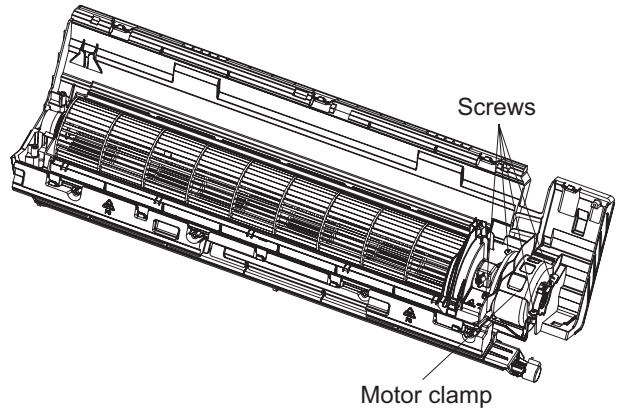


Step	Procedure
7. Remove electric box assy	
a	<p>Loosen the connection clasps between shield cover of electric box sub-assy and electric box, and then remove the shield cover of electric box sub-assy. Remove the screw fixing electric box assy .</p> 
b	<p>① Take off the water retaining sheet. Remove the cold plasma generator by screwing off the locking screw on the generator. ② Take off the indoor tube temperature sensor. ③ Screw off 1 grounding screw. ④ Remove the wiring terminals of motor and stepping motor. ⑤ Remove the electric box assy.</p> 
c	<p>Twist off the screws that are locking each lead wire and rotate the electric box assy. Twist off the screws that are locking the wire clip. Loosen the power cord and remove its wiring terminal. Lift up the main board and take it off.</p>  

Step	Procedure	
	<p>Instruction: Some wiring terminal of this product is with lock catch and other devices. The pulling method is as below:</p> <p>1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals.</p> <p>2.Pull out the holder for some terminals at first (holder is not available for some wiring terminal), hold the connector and then pull the terminal.</p>	 <p>Labels: circlip, soft sheath, holder, connector</p>
8. Remove evaporator assy		
a	Remove 3 screws fixing evaporator assy.	 <p>Labels: Screws, Evaporator assy</p>
b	At the back of the unit, remove the screw fixing connection pipe clamp and then remove the connection pipe clamp.	 <p>Labels: Connection pipe clamp, Screw</p>
c	First remove the left side of the evaporator from the groove of bottom case and then remove the right side from the clasp on the bottom case.	 <p>Labels: Groove, Bottom case, Evaporator assy, Clasp</p>
d	Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.	 <p>Labels: Connection pipe</p>



Step	Procedure
9. Remove motor and cross flow blade	
a	<p>Remove the screws fixing motor clamp and then remove the motor clamp.</p>
b	<p>Remove the screws at the connection place of cross flow blade and motor; lift the motor and cross flow blade upwards to remove them. Remove the bearing holder sub-assy. Remove the screw fixing step motor and then remove the step motor.</p>

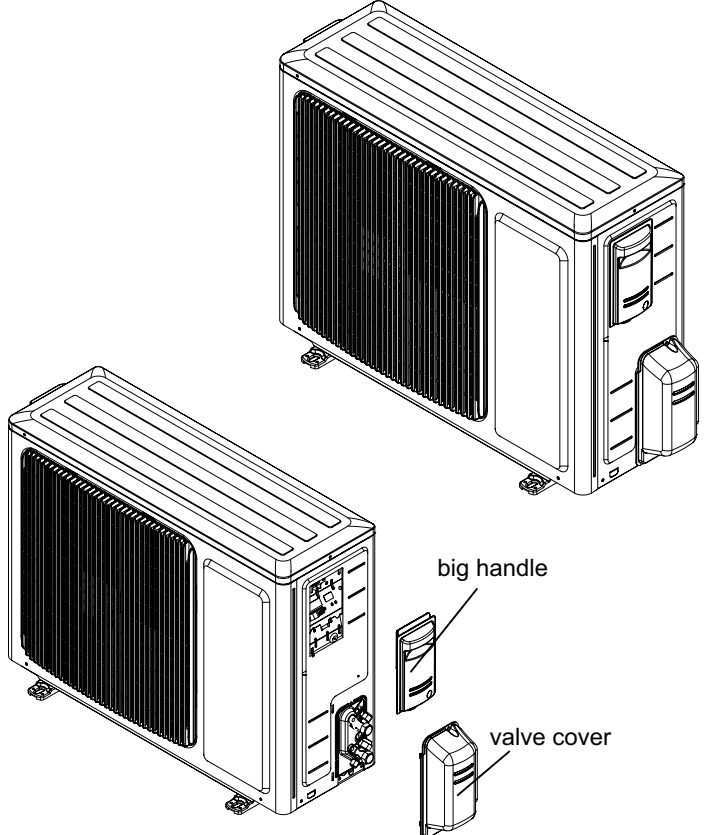
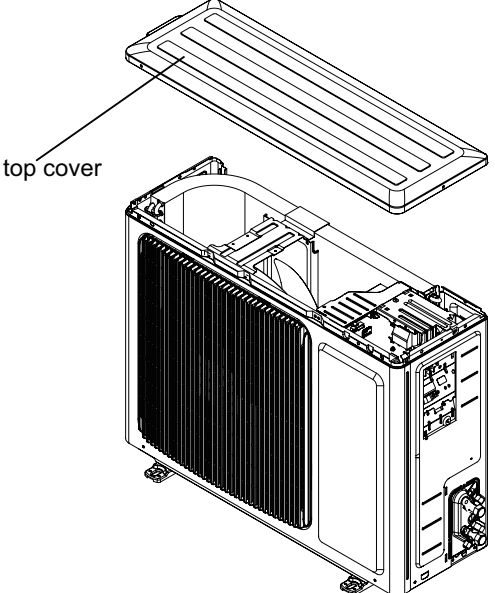




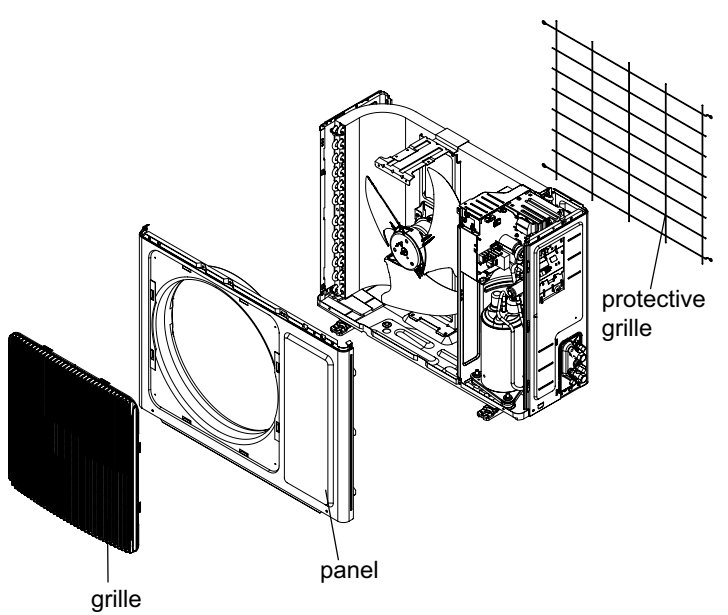
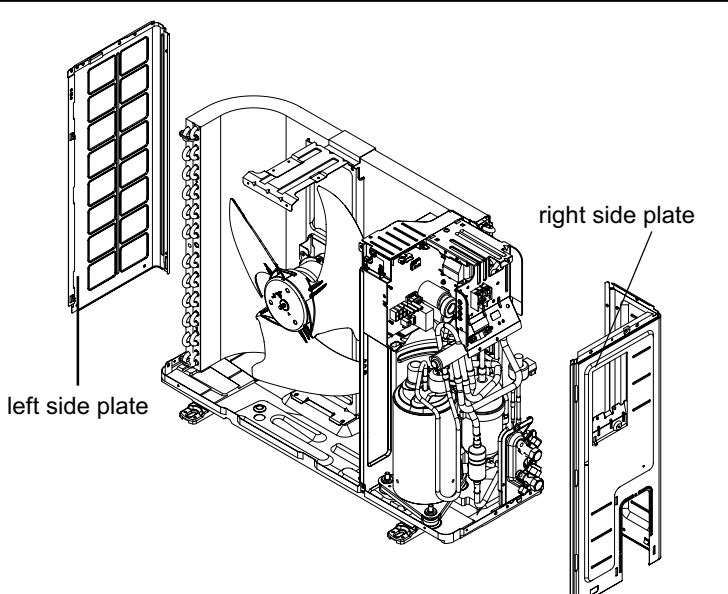
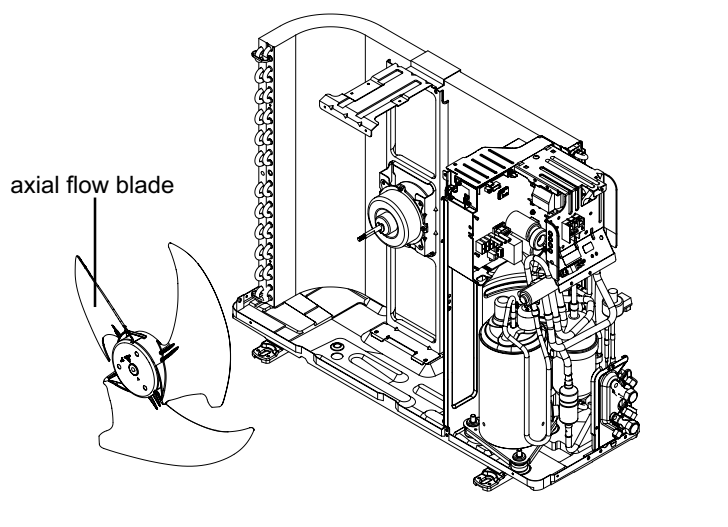
## 11.2 Removal Procedure of Outdoor Unit

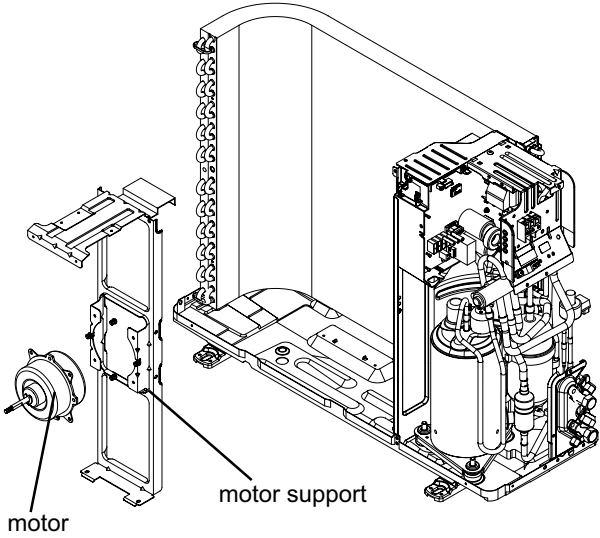
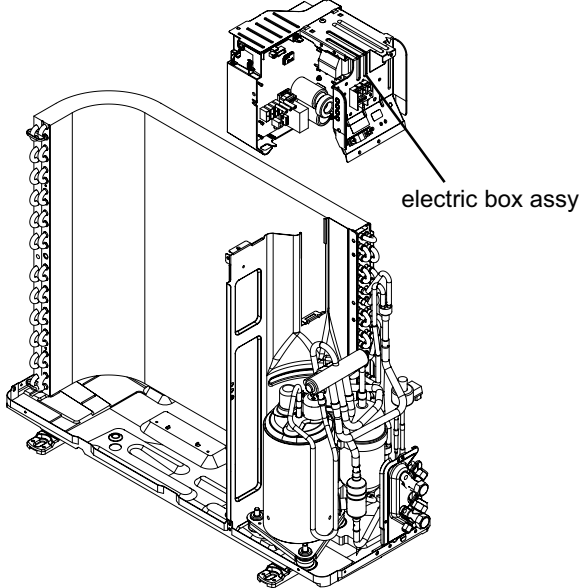
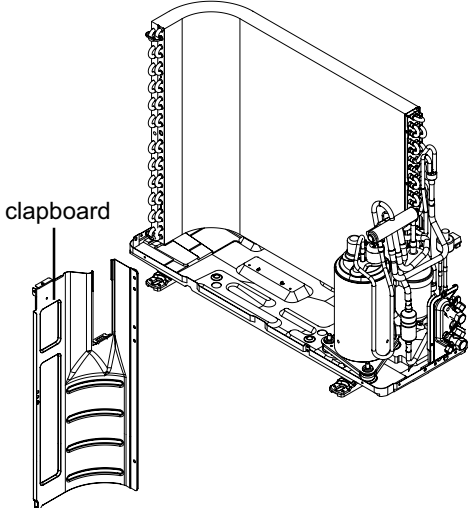


**Warning:** Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.

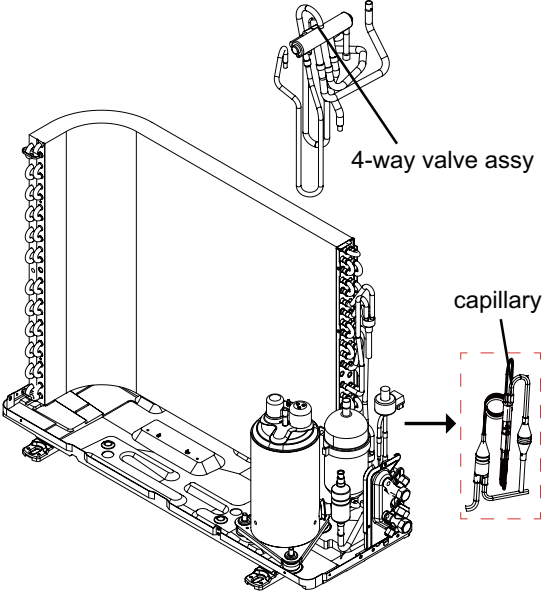
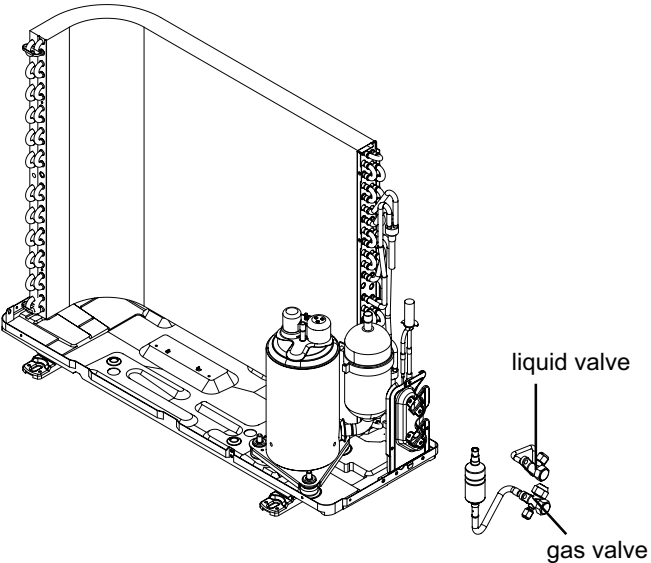
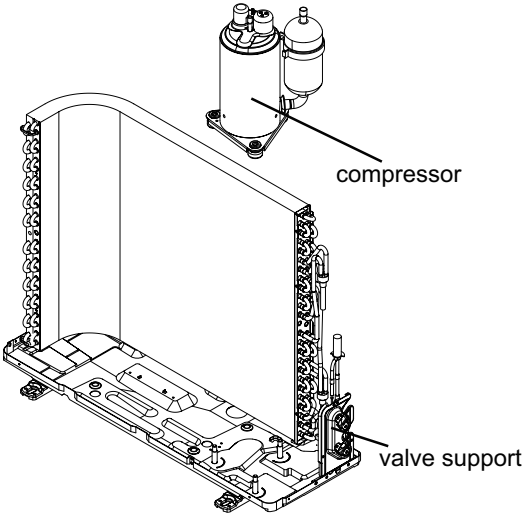
Step	Procedure
<p data-bbox="121 535 389 567"><b>1.Remove big handle</b></p>	<p data-bbox="219 687 430 720">Before disassamble.</p> <p data-bbox="219 1070 690 1124">Remove the screws fixing big handle、 valve cover and then remove them.</p> 
<p data-bbox="121 1397 381 1430"><b>2. Remove top cover</b></p>	<p data-bbox="219 1627 649 1681">Remove the screws fixing top panel and then remove the top panel.</p> 



Step	Procedure
3.Remove grille 、 protective grille and front panel	<p>Remove connection screws between the front grille and the front panel. Then remove the front grille. Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel. Remove the screws fixing protective grille and then remove the protective grille.</p> 
4.Remove right side plate、 left side plate	<p>Remove the screws fixing right side plate、 left side plate and then remove them.</p> 
5.Remove axial flow blade	<p>Remove the nut fixing the blade and then remove the axial flow blade.</p> 

Step	Procedure
<p data-bbox="89 220 472 248">6.Remove motor and motor support</p>	<p data-bbox="212 417 748 530">Remove the screws fixing motor and then remove the motor. Remove the screws fixing motor support and then remove the motor support.</p> 
<p data-bbox="89 860 386 888">7.Remove electric box assy</p>	<p data-bbox="212 1028 756 1199">Remove the screws fixing electric box assy; cut off the tieline; pull out each wiring terminal; lift the electric box assy upwards to remove it. Note: When pulling out the wiring terminal, pay attention to loose the clasp and don't pull it so hard.</p> 
<p data-bbox="89 1469 315 1498">8.Remove clapboard</p>	<p data-bbox="212 1683 704 1742">Remove the screws fixing clapboard and then remove the clapboard.</p> 



Step	Procedure
<p>9.Remove 4-way valve assy</p>	<p>Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy, compressor and condenser; remove the 4-way valve.</p> <p>Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.</p> 
<p>10.Remove liquid valve and gas valve</p>	<p>Unsolder the welding joint connecting the valve with capillary and condenser; unsolder the welding joint connecting the gas valve and air-return pipe; remove the 2 screws fixing the gas valve to remove the gas valve.</p> <p>Unsolder the welding joint connecting the liquid valve and Y-shaped pipe; remove the 2 screws fixing the liquid valve to remove the liquid valve.</p> <p>Note: Before unsoldering the welding joint, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.</p> 
<p>11.Remove compressor</p>	<p>Remove the 3 footing screws of the compressor and remove the compressor.</p> <p>Remove the screws fixing valve support and then remove the valve support.</p> 

# Appendix:

## Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree:  $T_f = T_c \times 1.8 + 32$

### Set temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
61	60.8	16	69/70	69.8	21	78/79	78.8	26
62/63	62.6	17	71/72	71.6	22	80/81	80.6	27
64/65	64.4	18	73/74	73.4	23	82/83	82.4	28
66/67	66.2	19	75/76	75.2	24	84/85	84.2	29
68	68	20	77	77	25	86	86	30

### Ambient temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
32/33	32	0	55/56	55.4	13	79/80	78.8	26
34/35	33.8	1	57/58	57.2	14	81	80.6	27
36	35.6	2	59/60	59	15	82/83	82.4	28
37/38	37.4	3	61/62	60.8	16	84/85	84.2	29
39/40	39.2	4	63	62.6	17	86/87	86	30
41/42	41	5	64/65	64.4	18	88/89	87.8	31
43/44	42.8	6	66/67	66.2	19	90	89.6	32
45	44.6	7	68/69	68	20	91/92	91.4	33
46/47	46.4	8	70/71	69.8	21	93/94	93.2	34
48/49	48.2	9	72	71.6	22	95/96	95	35
50/51	50	10	73/74	73.4	23	97/98	96.8	36
52/53	51.8	11	75/76	75.2	24	99	98.6	37
54	53.6	12	77/78	77	25			

## Appendix 2: Configuration of Connection Pipe

### 1. Standard length of connection pipe

- 5m, 7.5m, 8m.

### 2. Min length of connection pipe

For the unit with standard connection pipe of 5m, there is no limitation for the min length of connection pipe. For the unit with standard connection pipe of 7.5m and 8m, the min length of connection pipe is 3m.

### 3. Max. length of connection pipe and max. high difference. (More details please refer to the specifications.)

### 4. The calculation method of additional refrigerant oil and refrigerant charging amount after prolonging connection pipe

After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.

The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

(1) Additional refrigerant charging amount = prolonged length of liquid pipe × additional refrigerant charging amount per meter

(2) Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See Sheet 2.

Additional refrigerant charging amount for R32				
Diameter of connection pipe		Indoor unit throttle		Outdoor unit throttle
Liquid pipe(mm)	Gas pipe(mm)	Cooling only, cooling and heating (g / m)		Cooling only(g/m)
Φ6	Φ9.5 or Φ12	16		12
Φ6 or Φ9.5	Φ16 or Φ19	40		12
Φ12	Φ19 or Φ22.2	80		48
Φ16	Φ25.4 or Φ31.8	136		24
Φ19	/	200		200
Φ22.2	/	280		280
				280

Note: The additional refrigerant charging amount in Sheet 2 is recommended value, not compulsory.

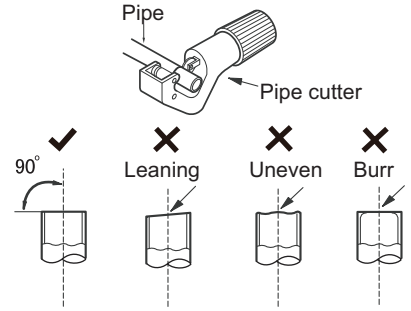
## Appendix 3: Pipe Expanding Method

### ⚠ Note:

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

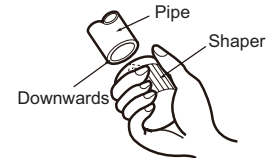
#### A: Cut the pipe

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



#### B: Remove the burrs

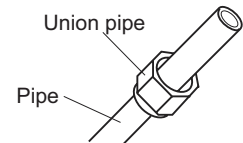
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



#### C: Put on suitable insulating pipe

#### D: Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



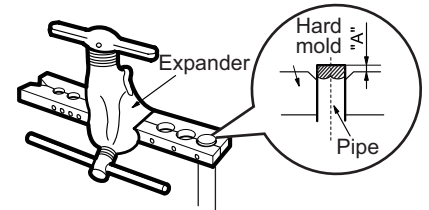
#### E: Expand the port

- Expand the port with expander.

### ⚠ Note:

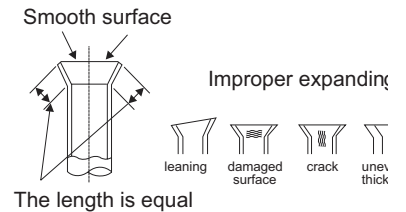
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9.52 (3/8")	1.6	1.0
Φ12 - 12.70 (1/2")	1.8	1.0
Φ16 - 15.88 (5/8")	2.4	2.2



#### F: Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



## Appendix 4: List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units (15K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	138.1	20	18.75	59	3.848	98	1.071
-18	128.6	21	17.93	60	3.711	99	1.039
-17	121.6	22	17.14	61	3.579	100	1.009
-16	115	23	16.39	62	3.454	101	0.98
-15	108.7	24	15.68	63	3.333	102	0.952
-14	102.9	25	15	64	3.217	103	0.925
-13	97.4	26	14.36	65	3.105	104	0.898
-12	92.22	27	13.74	66	2.998	105	0.873
-11	87.35	28	13.16	67	2.896	106	0.848
-10	82.75	29	12.6	68	2.797	107	0.825
-9	78.43	30	12.07	69	2.702	108	0.802
-8	74.35	31	11.57	70	2.611	109	0.779
-7	70.5	32	11.09	71	2.523	110	0.758
-6	66.88	33	10.63	72	2.439	111	0.737
-5	63.46	34	10.2	73	2.358	112	0.717
-4	60.23	35	9.779	74	2.28	113	0.697
-3	57.18	36	9.382	75	2.206	114	0.678
-2	54.31	37	9.003	76	2.133	115	0.66
-1	51.59	38	8.642	77	2.064	116	0.642
0	49.02	39	8.297	78	1.997	117	0.625
1	46.6	40	7.967	79	1.933	118	0.608
2	44.31	41	7.653	80	1.871	119	0.592
3	42.14	42	7.352	81	1.811	120	0.577
4	40.09	43	7.065	82	1.754	121	0.561
5	38.15	44	6.791	83	1.699	122	0.547
6	36.32	45	6.529	84	1.645	123	0.532
7	34.58	46	6.278	85	1.594	124	0.519
8	32.94	47	6.038	86	1.544	125	0.505
9	31.38	48	5.809	87	1.497	126	0.492
10	29.9	49	5.589	88	1.451	127	0.48
11	28.51	50	5.379	89	1.408	128	0.467
12	27.18	51	5.197	90	1.363	129	0.456
13	25.92	52	4.986	91	1.322	130	0.444
14	24.73	53	4.802	92	1.282	131	0.433
15	23.6	54	4.625	93	1.244	132	0.422
16	22.53	55	4.456	94	1.207	133	0.412
17	21.51	56	4.294	95	1.171	134	0.401
18	20.54	57	4.139	96	1.136	135	0.391
19	19.63	58	3.99	97	1.103	136	0.382



**Resistance Table of Tube Temperature Sensors for Outdoor and Indoor (20K)**

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	181.4	20	25.01	59	5.13	98	1.427
-18	171.4	21	23.9	60	4.948	99	1.386
-17	162.1	22	22.85	61	4.773	100	1.346
-16	153.3	23	21.85	62	4.605	101	1.307
-15	145	24	20.9	63	4.443	102	1.269
-14	137.2	25	20	64	4.289	103	1.233
-13	129.9	26	19.14	65	4.14	104	1.198
-12	123	27	18.13	66	3.998	105	1.164
-11	116.5	28	17.55	67	3.861	106	1.131
-10	110.3	29	16.8	68	3.729	107	1.099
-9	104.6	30	16.1	69	3.603	108	1.069
-8	99.13	31	15.43	70	3.481	109	1.039
-7	94	32	14.79	71	3.364	110	1.01
-6	89.17	33	14.18	72	3.252	111	0.983
-5	84.61	34	13.59	73	3.144	112	0.956
-4	80.31	35	13.04	74	3.04	113	0.93
-3	76.24	36	12.51	75	2.94	114	0.904
-2	72.41	37	12	76	2.844	115	0.88
-1	68.79	38	11.52	77	2.752	116	0.856
0	65.37	39	11.06	78	2.663	117	0.833
1	62.13	40	10.62	79	2.577	118	0.811
2	59.08	41	10.2	80	2.495	119	0.77
3	56.19	42	9.803	81	2.415	120	0.769
4	53.46	43	9.42	82	2.339	121	0.746
5	50.87	44	9.054	83	2.265	122	0.729
6	48.42	45	8.705	84	2.194	123	0.71
7	46.11	46	8.37	85	2.125	124	0.692
8	43.92	47	8.051	86	2.059	125	0.674
9	41.84	48	7.745	87	1.996	126	0.658
10	39.87	49	7.453	88	1.934	127	0.64
11	38.01	50	7.173	89	1.875	128	0.623
12	36.24	51	6.905	90	1.818	129	0.607
13	34.57	52	6.648	91	1.736	130	0.592
14	32.98	53	6.403	92	1.71	131	0.577
15	31.47	54	6.167	93	1.658	132	0.563
16	30.04	55	5.942	94	1.609	133	0.549
17	28.68	56	5.726	95	1.561	134	0.535
18	27.39	57	5.519	96	1.515	135	0.521
19	26.17	58	5.32	97	1.47	136	0.509



Resistance Table of Discharge Temperature Sensor for Outdoor (50K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-29	853.5	10	98	49	18.34	88	4.75
-28	799.8	11	93.42	50	17.65	89	4.61
-27	750	12	89.07	51	16.99	90	4.47
-26	703.8	13	84.95	52	16.36	91	4.33
-25	660.8	14	81.05	53	15.75	92	4.20
-24	620.8	15	77.35	54	15.17	93	4.08
-23	580.6	16	73.83	55	14.62	94	3.96
-22	548.9	17	70.5	56	14.09	95	3.84
-21	516.6	18	67.34	57	13.58	96	3.73
-20	486.5	19	64.33	58	13.09	97	3.62
-19	458.3	20	61.48	59	12.62	98	3.51
-18	432	21	58.77	60	12.17	99	3.41
-17	407.4	22	56.19	61	11.74	100	3.32
-16	384.5	23	53.74	62	11.32	101	3.22
-15	362.9	24	51.41	63	10.93	102	3.13
-14	342.8	25	49.19	64	10.54	103	3.04
-13	323.9	26	47.08	65	10.18	104	2.96
-12	306.2	27	45.07	66	9.83	105	2.87
-11	289.6	28	43.16	67	9.49	106	2.79
-10	274	29	41.34	68	9.17	107	2.72
-9	259.3	30	39.61	69	8.85	108	2.64
-8	245.6	31	37.96	70	8.56	109	2.57
-7	232.6	32	36.38	71	8.27	110	2.50
-6	220.5	33	34.88	72	7.99	111	2.43
-5	209	34	33.45	73	7.73	112	2.37
-4	198.3	35	32.09	74	7.47	113	2.30
-3	199.1	36	30.79	75	7.22	114	2.24
-2	178.5	37	29.54	76	7.00	115	2.18
-1	169.5	38	28.36	77	6.76	116	2.12
0	161	39	27.23	78	6.54	117	2.07
1	153	40	26.15	79	6.33	118	2.02
2	145.4	41	25.11	80	6.13	119	1.96
3	138.3	42	24.13	81	5.93	120	1.91
4	131.5	43	23.19	82	5.75	121	1.86
5	125.1	44	22.29	83	5.57	122	1.82
6	119.1	45	21.43	84	5.39	123	1.77
7	113.4	46	20.6	85	5.22	124	1.73
8	108	47	19.81	86	5.06	125	1.68
9	102.8	48	19.06	87	4.90	126	1.64

# Airwell

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**AIRWELL RESIDENTIAL SAS**

10,Rue du Fort de Saint Cyr,  
78180 Montigny le Bretonneux- France  
[www.airwell.com](http://www.airwell.com)