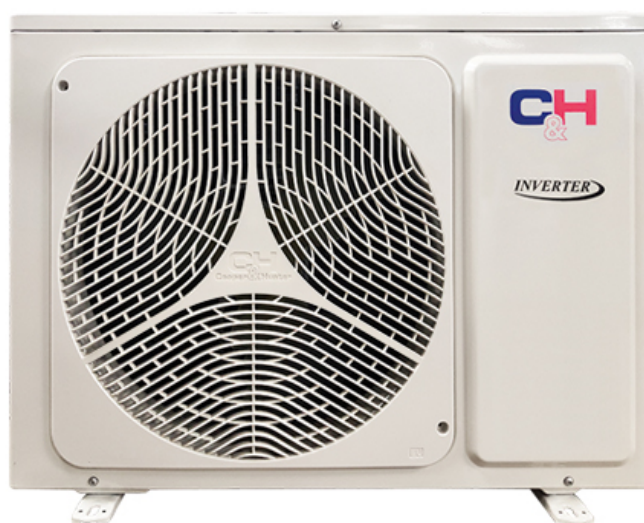


EN

Service Manual



Split Air Conditioner VITAL INVERTER Series



**MODELS: CH-S09FTXF-NG
CH-S12FTXF-NG**

For proper operation, please read and keep this manual carefully.
Designed by Cooper&Hunter International Corporation, Miami, FL, USA
www.cooperandhunter.com

Table of Contents

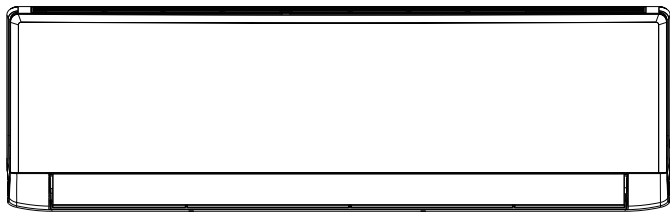
| | |
|---|--|
| Part I : Technical Information | |
| 1. Summary | |
| 2. Specifications | |
| 2.1 Specification Sheet | |
| 2.2 Operation Characteristic Curve | |
| 2.3 Capacity Variation Ratio According to Temperature | |
| 2.4 Cooling and Heating Data Sheet in Rated Frequency | |
| 2.5 Noise Curve | |
| 3. Outline Dimension Diagram | |
| 3.1 Indoor Unit | |
| 3.2 Outdoor Unit | |
| 4. Refrigerant System Diagram | |
| 5. Electrical Part | |
| 5.1 Wiring Diagram | |
| 5.2 PCB Printed Diagram | |
| 6. Function and Control | |
| 6.1 Remote Controller Introduction | |
| 6.2 Ewpe Smart App Operation Manual | |
| 6.3 Brief Description of Modes and Functions | |
| Part II : Installation and Maintenance | |
| 7. Notes for Installation and Maintenance | |
| 8. Installation | |
| 8.1 Installation Dimension Diagram | |
| 8.2 Installation Parts-Checking | |
| 8.3 Selection of Installation Location | |

| | |
|--|--|
| 8.4 Requirements for electric connection | |
| 8.5 Installation of Indoor Unit..... | |
| 8.6 Installation of Outdoor unit..... | |
| 8.7 Vacuum Pumping and Leak Detection..... | |
| 8.8 Check after Installation and Test operation..... | |
| 9. Maintenance | |
| 9.1 Error Code List..... | |
| 9.2 Procedure of Troubleshooting | |
| 9.3 Maintenance method for normal malfunction..... | |
| 10. Exploded View and Parts List | |
| 10.1 Indoor Unit..... | |
| 10.2 Outdoor Unit | |
| 11. Removal Procedure | |
| 11.1 Removal Procedure of Indoor Unit | |
| 11.2 Removal Procedure of Outdoor Unit..... | |
| Appendix: | |
| Appendix 1: Reference Sheet of Celsius and Fahrenheit..... | |
| Appendix 2: Configuration of Connection Pipe | |
| Appendix 3: Pipe Expanding Method..... | |
| Appendix 4: List of Resistance for Temperature Sensor..... | |

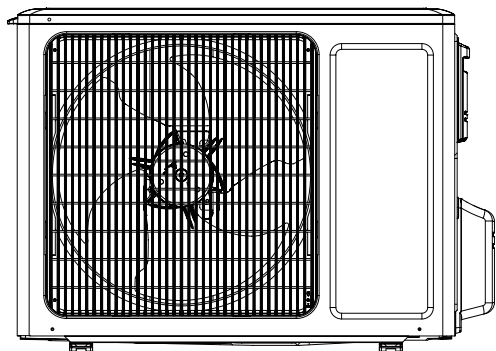
Part 1 : Technical Information

1. Summary

Indoor Unit:



Outdoor Unit:



Remote Controller:



2. Specifications

2.1 Specification Sheet

| | | | |
|------------------------------|--------------------------------------|-------------------|--------------------------|
| Model | | | 09 K |
| Product Code | | | CB514000300 |
| Power Supply | Rated Voltage | V~ | 220-240 |
| | Rated Frequency | Hz | 50 |
| | Phases | | 1 |
| Power Supply Mode | | | Outdoor |
| Cooling Capacity | | W | 2500 |
| Heating Capacity | | W | 2800 |
| Cooling Power Input | | W | 781 |
| Heating Power Input | | W | 777 |
| Cooling Power Current | | A | 3.99 |
| Heating Power Current | | A | 3.74 |
| Rated Input | | W | 1500 |
| Rated Current | | A | 6.3 |
| Rated Heating Current | | A | 6.9 |
| Air Flow Volume(SH/H/M/L/SL) | | m ³ /h | 550/500/430/300/- |
| Dehumidifying Volume | | L/h | 0.8 |
| EER | | W/W | 3.20 |
| COP | | W/W | 3.60 |
| SEER | | W/W | 6.1 |
| HSPF | | W/W | / |
| Application Area | | m ² | 12-18 |
| Indoor Unit | Fan Type | | Cross-flow |
| | Diameter Length(DXL) | mm | Φ93X580 |
| | Fan Motor Cooling Speed(SH/H/M/L/SL) | r/min | 1300/1200/1100/850/- |
| | Fan Motor Heating Speed(SH/H/M/L/SL) | r/min | 1250/1150/1050/900/- |
| | Output of Fan Motor | W | 20 |
| | Fan Motor RLA | A | 0.22 |
| | Fan Motor Capacitor | μF | 1 |
| | Input of Heater | W | / |
| | Evaporator Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | mm | Φ5 |
| | Row-fin Gap | mm | 2-1.4 |
| | Coil Length (LXDXW) | mm | 584X22.8X266.7 |
| | Swing Motor Model | | MP24AN |
| | Output of Swing Motor | W | 1.5 |
| | Fuse | A | 3.15 |
| | Sound Pressure Level (SH/H/M/L/SL) | dB (A) | 37/30/26/23/- |
| | Sound Power Level (SH/H/M/L/SL) | dB (A) | 49/42/38/35/- |
| | Dimension (WXHXD) | mm | 773X250X185 |
| | Dimension of Carton Box (LXWXH) | mm | 817X306X244 |
| | Dimension of Package (LXWXH) | mm | 822X322X255 |
| | Net Weight | kg | 8.5 |
| | Gross Weight | kg | 9.5 |

| | | | |
|-----------------|---|-------------------|---------------------------------|
| Outdoor Unit | Model of Outdoor Unit | | 09 K |
| | Product Code of Outdoor Unit | | CB478W00200 |
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO.,LTD |
| | Compressor Model | | QXF-B096zE190A |
| | Compressor Oil | | FW68DA |
| | Compressor Type | | Rotary |
| | L.R.A. | A | 20 |
| | Compressor RLA | A | 4.21 |
| | Compressor Power Input | W | 943 |
| | Overload Protector | | 1NT11L-6233 HPC115/95U1 KSD115℃ |
| | Throttling Method | | Capillary |
| | Operation Temp | ℃ | 16~30 |
| | Ambient Temp (Cooling) | ℃ | -15~43 |
| | Ambient Temp (Heating) | ℃ | -15~24 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | mm | Φ7 |
| | Rows-fin Gap | mm | 1-1.4 |
| | Coil Length (LXDXW) | mm | 710X19.05X508 |
| | 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 ³ /h | 1600 |
| | Fan Type | | Axial-flow |
| | Fan Diameter | mm | Φ400 |
| | 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) | 60/-/- |
| | Dimension (WXHXD) | mm | 782X540X320 |
| | Dimension of Carton Box (LXWXH) | mm | 820X355X580 |
| | Dimension of Package (LXWXH) | mm | 823X358X595 |
| | Net Weight | kg | 29 |
| | Gross Weight | kg | 31.5 |
| | Refrigerant | | R32 |
| | Refrigerant Charge | kg | 0.6 |
| Connection Pipe | Length | m | 5 |
| | Gas Additional Charge | g/m | 20 |
| | Outer Diameter Liquid Pipe | mm | Φ6 |
| | Outer Diameter Gas Pipe | mm | Φ9.52 |
| | Max Distance Height | m | 10 |
| | Max Distance Length | m | 15 |
| | Note: The connection pipe applies metric diameter. | | |

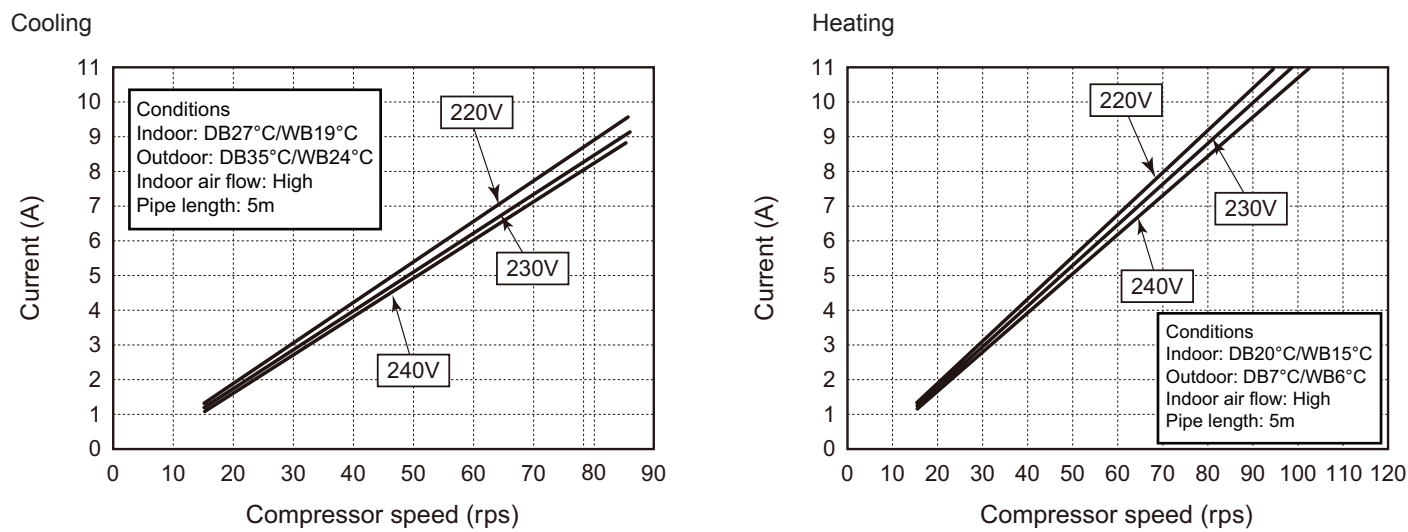
The above data is subject to change without notice; please refer to the nameplate of the unit.

| | | | |
|------------------------------|--------------------------------------|-------------------|--------------------------|
| Model | | | 12 K |
| Product Code | | | CB514000200 |
| Power Supply | Rated Voltage | V~ | 220-240 |
| | Rated Frequency | Hz | 50 |
| | Phases | | 1 |
| Power Supply Mode | | | Outdoor |
| Cooling Capacity | | W | 3200 |
| Heating Capacity | | W | 3400 |
| Cooling Power Input | | W | 997 |
| Heating Power Input | | W | 941 |
| Cooling Power Current | | A | 4.5 |
| Heating Power Current | | A | 4.4 |
| Rated Input | | W | 1500 |
| Rated Current | | A | 7.2 |
| Air Flow Volume(SH/H/M/L/SL) | | m ³ /h | 550/500/430/300/- |
| Dehumidifying Volume | | L/h | 1.4 |
| EER | | W/W | 3.21 |
| COP | | W/W | 3.61 |
| SEER | | W/W | 6.1 |
| HSPF | | W/W | / |
| Application Area | | m ² | 16-24 |
| Indoor Unit | Fan Type | | Cross-flow |
| | Diameter Length(DXL) | mm | Φ93X580 |
| | Fan Motor Cooling Speed(SH/H/M/L/SL) | r/min | 1350/1200/1100/850/- |
| | Fan Motor Heating Speed(SH/H/M/L/SL) | r/min | 1350/1200/1100/900/- |
| | Output of Fan Motor | W | 20 |
| | Fan Motor RLA | A | 0.22 |
| | Fan Motor Capacitor | μF | 1 |
| | Input of Heater | W | / |
| | Evaporator Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | mm | Φ5 |
| | Row-fin Gap | mm | 2-1.4 |
| | Coil Length (LXDXW) | mm | 584X22.8X266.7 |
| | Swing Motor Model | | MP24AN |
| | Output of Swing Motor | W | 1.5 |
| | Fuse | A | 3.15 |
| | Sound Pressure Level (SH/H/M/L/SL) | dB (A) | 37/32/28/24/- |
| | Sound Power Level (SH/H/M/L/SL) | dB (A) | 49/44/39/36/- |
| | Dimension (WXHXD) | mm | 773X250X185 |
| | Dimension of Carton Box (LXWXH) | mm | 817X306X244 |
| | Dimension of Package (LXWXH) | mm | 822X322X255 |
| | Net Weight | kg | 8.5 |
| | Gross Weight | kg | 9.5 |

| | | | |
|-----------------|---|--------|----------------------------------|
| Outdoor Unit | Model of Outdoor Unit | | 12 K |
| | Product Code of Outdoor Unit | | CB478W00100 |
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO., LTD |
| | Compressor Model | | QXF-B096zE190A |
| | Compressor Oil | | FW68DA |
| | Compressor Type | | Rotary |
| | L.R.A. | A | 20 |
| | Compressor RLA | A | 4.21 |
| | Compressor Power Input | W | 943 |
| | Overload Protector | | 1NT11L-6233 HPC115/95U1 KSD115℃ |
| | Throttling Method | | Capillary |
| | Operation Temp | ℃ | 16~30 |
| | Ambient Temp (Cooling) | ℃ | -15~43 |
| | Ambient Temp (Heating) | ℃ | -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 | m³/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 | 0.65 |
| Connection Pipe | Length | m | 5 |
| | Gas Additional Charge | g/m | 20 |
| | 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. | | |

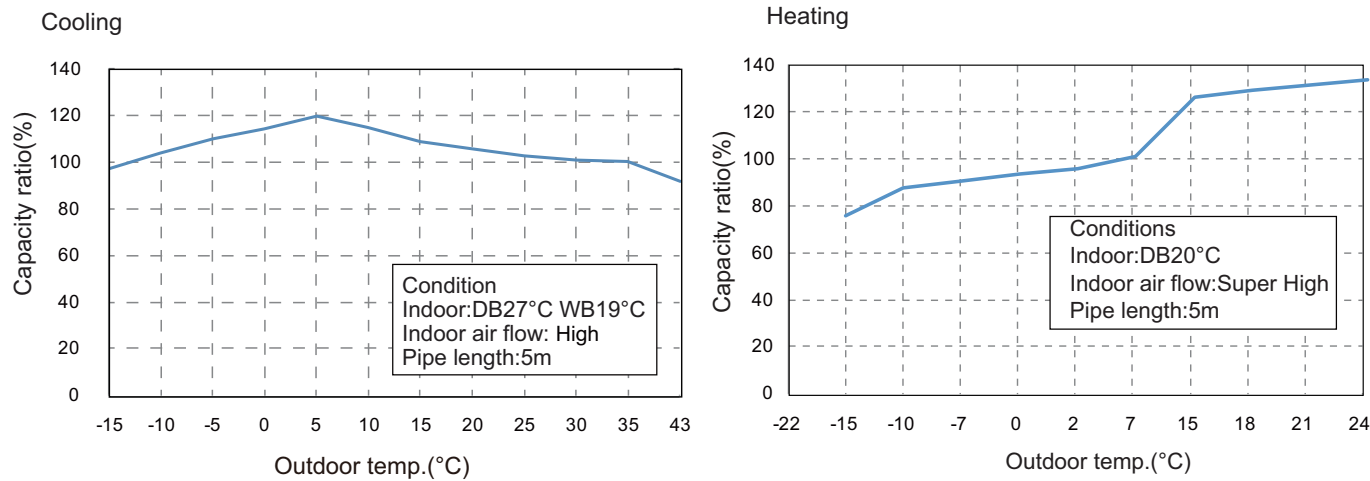
The above data is subject to change without notice; please refer to the nameplate of the unit.

2.2 Operation Characteristic Curve



2.3 Capacity Variation Ratio According to Temperature

Heating operation ambient temperature range is -15°C~24°C



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 revolution (rps) |
|-------------------------------------|---------|--------|---|---|----------|--------------------------|---------------------------|-----------------------------|
| Indoor | Outdoor | | P (MPa) | T1 (°C) | T2 (°C) | | | |
| 27/19 | 35/24 | 09/12K | 0.8 ~ 1.1 | 12 to 15 | 65 to 38 | TURBO | High | 49 |
| | | | | 11 to 14 | 64 to 37 | | | 60 |

Heating:

| 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 revolution (rps) |
|-------------------------------------|---------|--------|---|---|---------|--------------------------|---------------------------|-----------------------------|
| Indoor | Outdoor | | P (MPa) | T1 (°C) | T2 (°C) | | | |
| 20/- | 7/6 | 09/12K | 2.8 ~ 3.2 | 35 to 63 | 2 to 5 | TURBO | High | 59 |
| | | | | 35 to 65 | 2 to 5 | | | 67 |

Instruction:

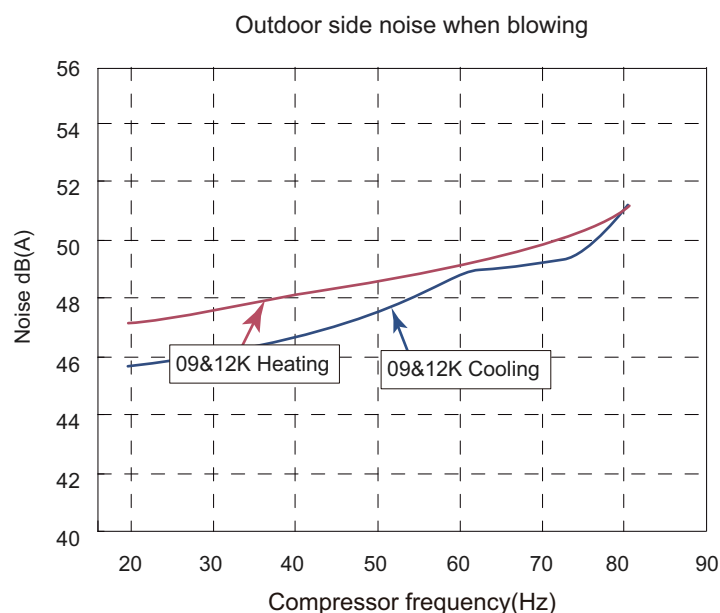
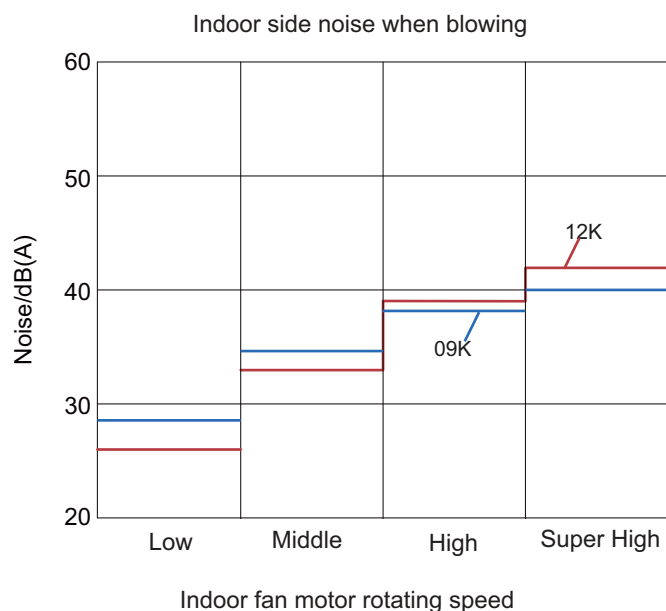
T1: Inlet and outlet pipe temperature of evaporator

T2: Inlet and outlet pipe temperature of condenser

P: Pressure at the side of big valve

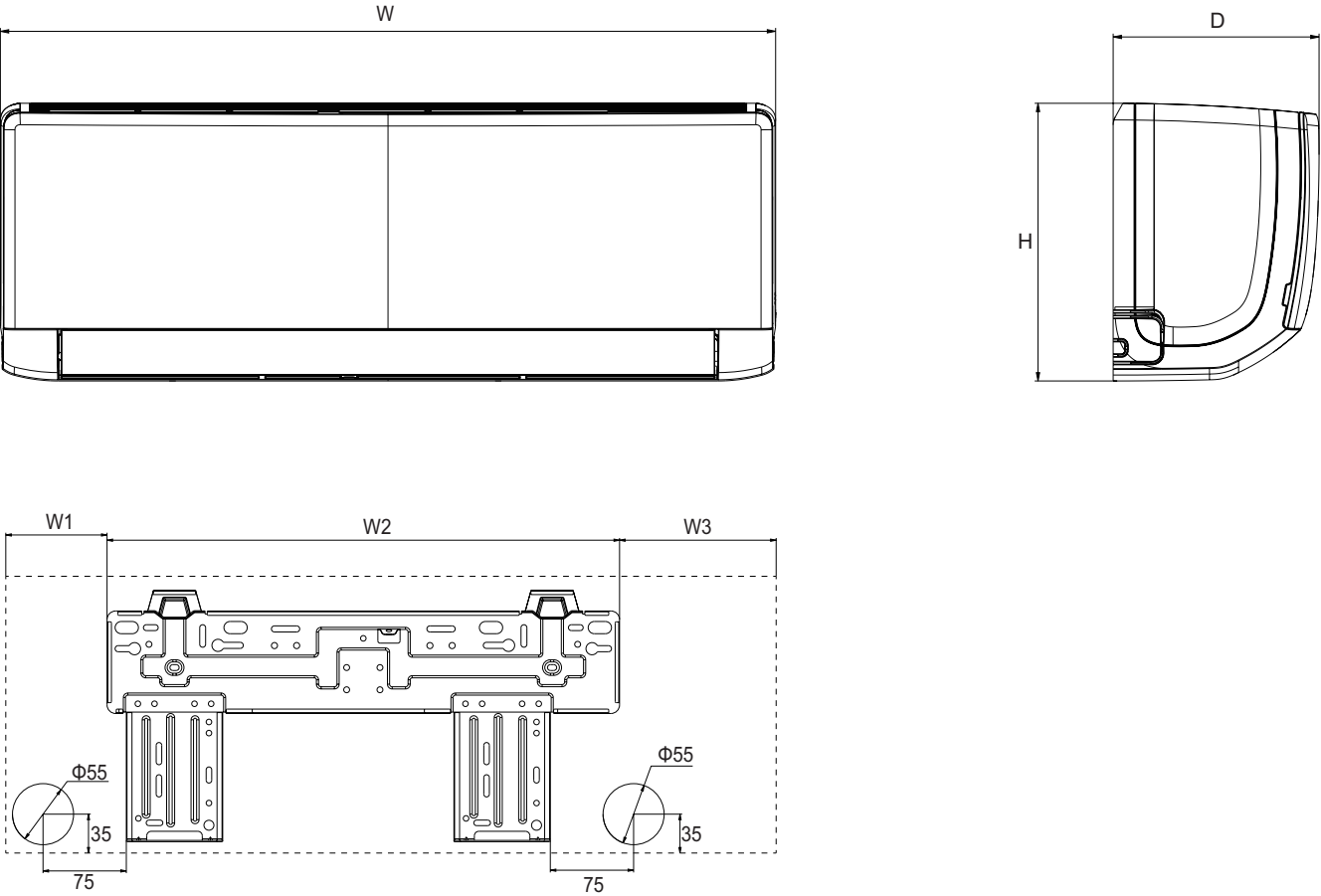
Connection pipe length: 5 m.

2.5 Noise Curve



3. Outline Dimension Diagram

3.1 Indoor Unit

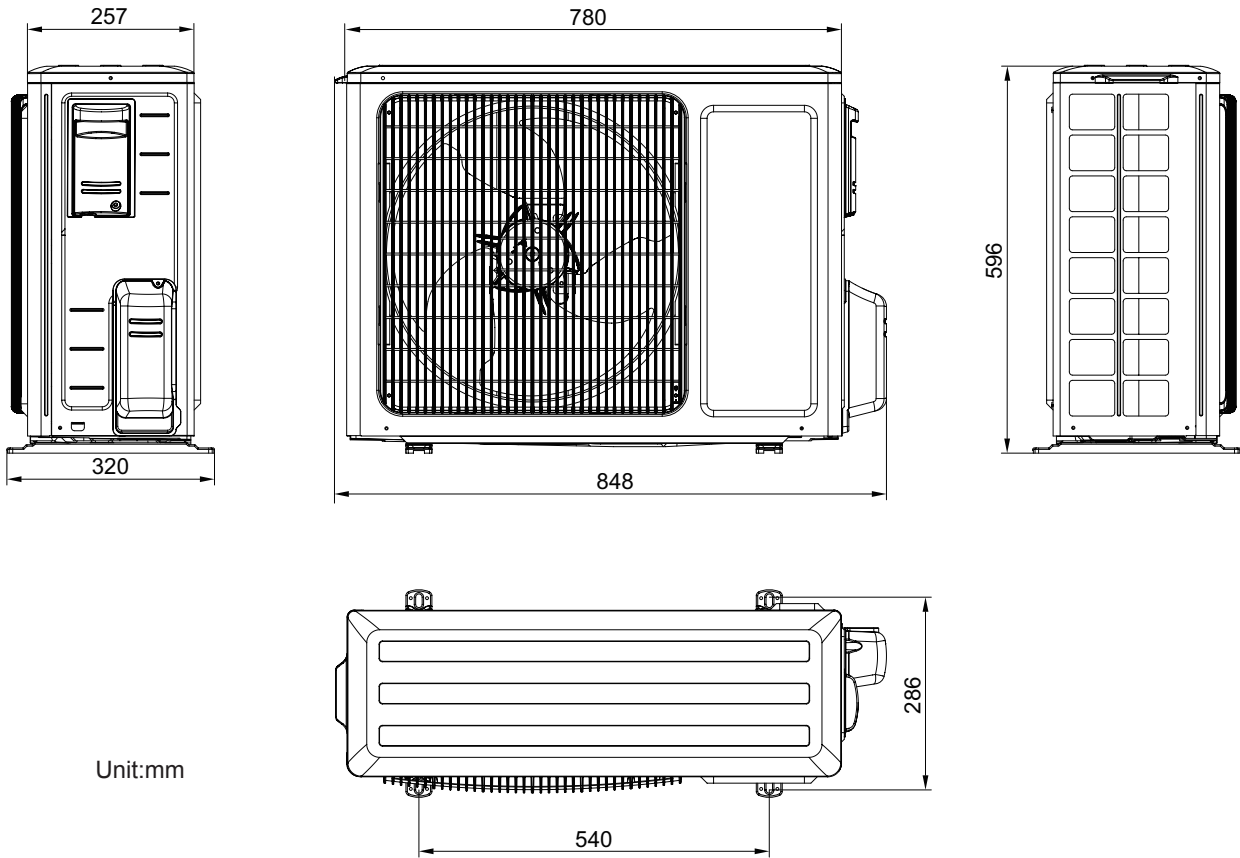


Unit:mm

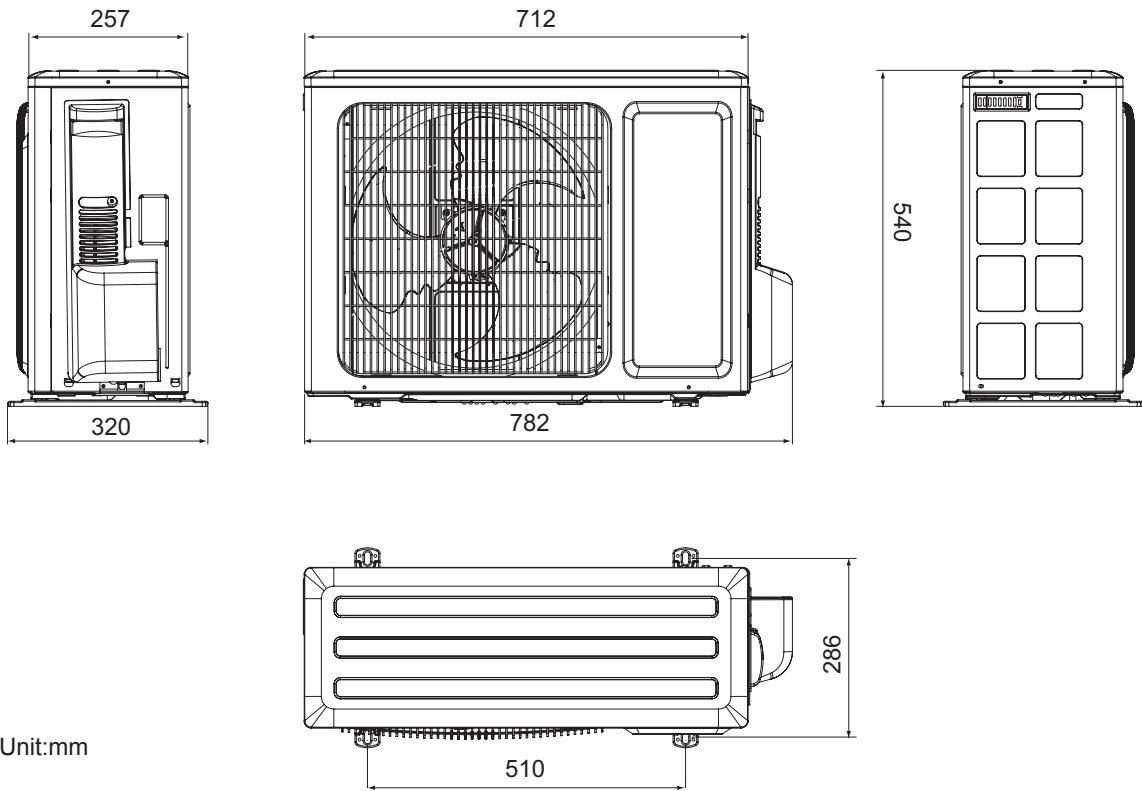
| Models | W | H | D | W1 | W2 | W3 |
|--------|-----|-----|-----|-----|-----|-----|
| 09/12K | 773 | 250 | 185 | 131 | 462 | 180 |

3.2 Outdoor Unit

12K

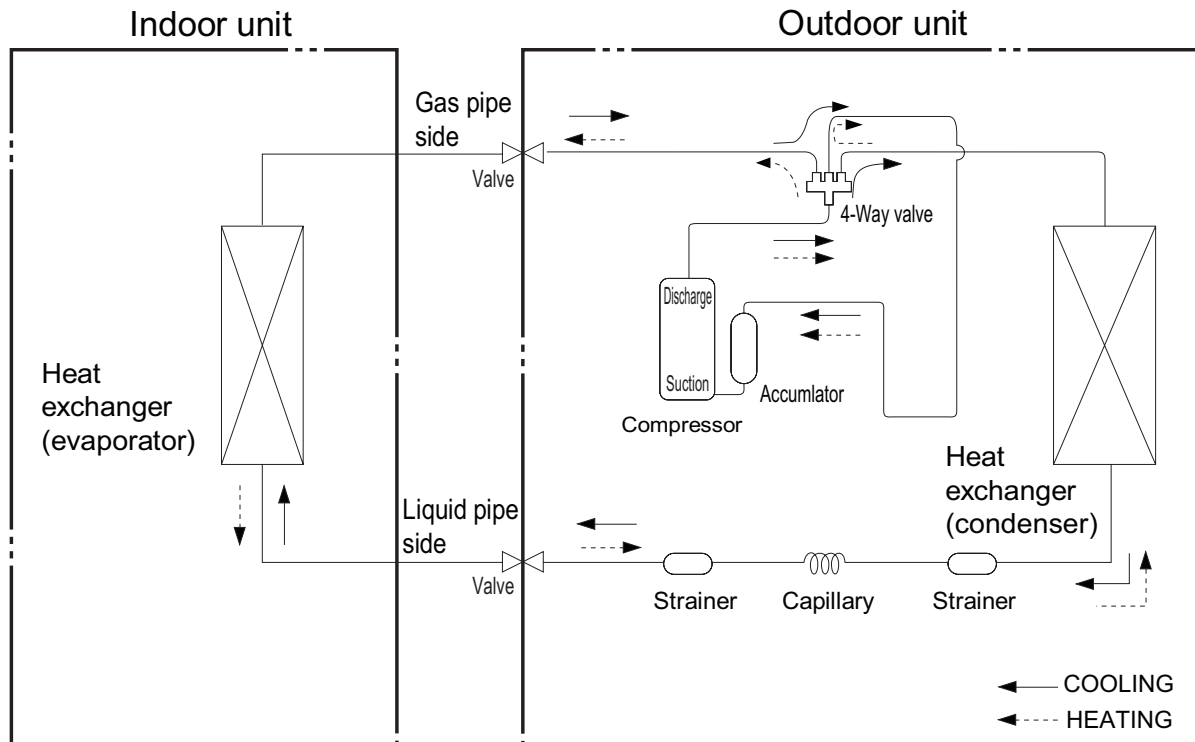


09K



4. Refrigerant System Diagram

Cooling and heating model



Connection pipe specification:

Liquid pipe: 1/4" (6mm)

Gas pipe: 3/8" (9.52mm)

5. Electrical Part

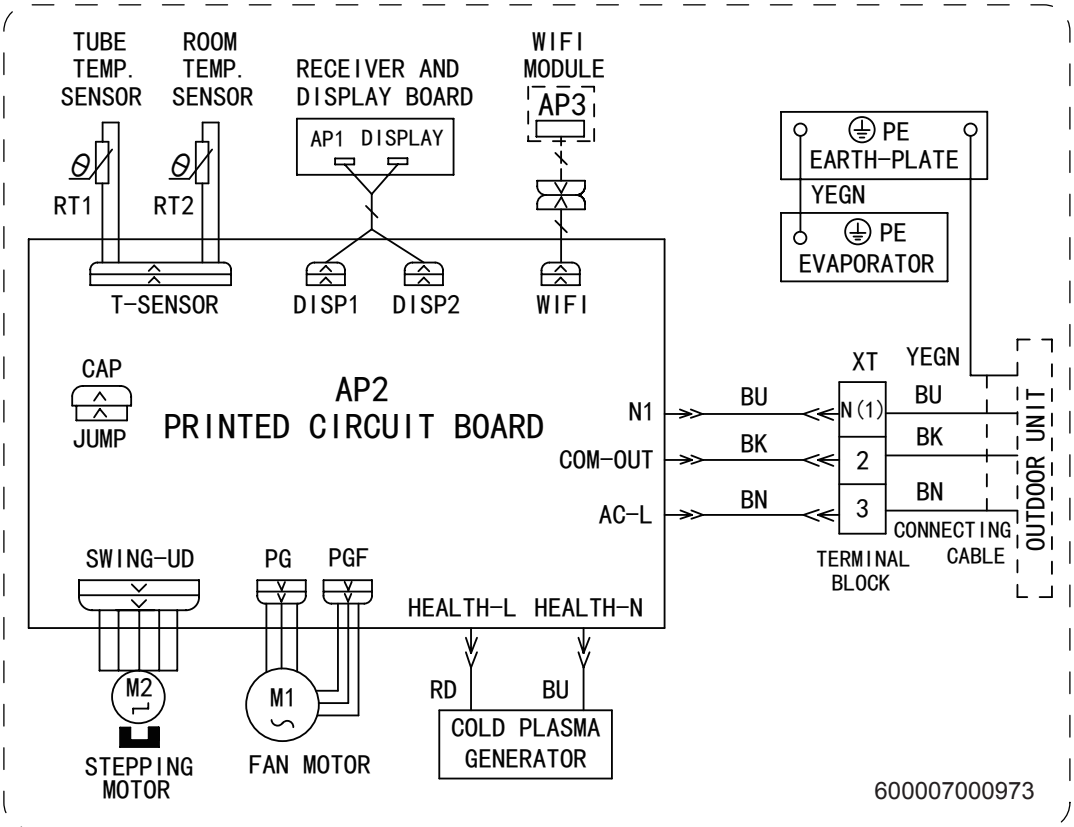
5.1 Wiring Diagram

●Instruction

| Symbol | Symbol Color | Symbol | Symbol Color | Symbol | Name |
|--------|--------------|--------|--------------|--|----------------|
| WH | White | GN | Green | CAP | Jumper cap |
| YE | Yellow | BN | Brown | COMP | Compressor |
| RD | Red | BU | Blue |  | Grounding wire |
| YEGN | Yellow/Green | BK | Black | / | / |
| VT | Violet | OG | Orange | / | / |

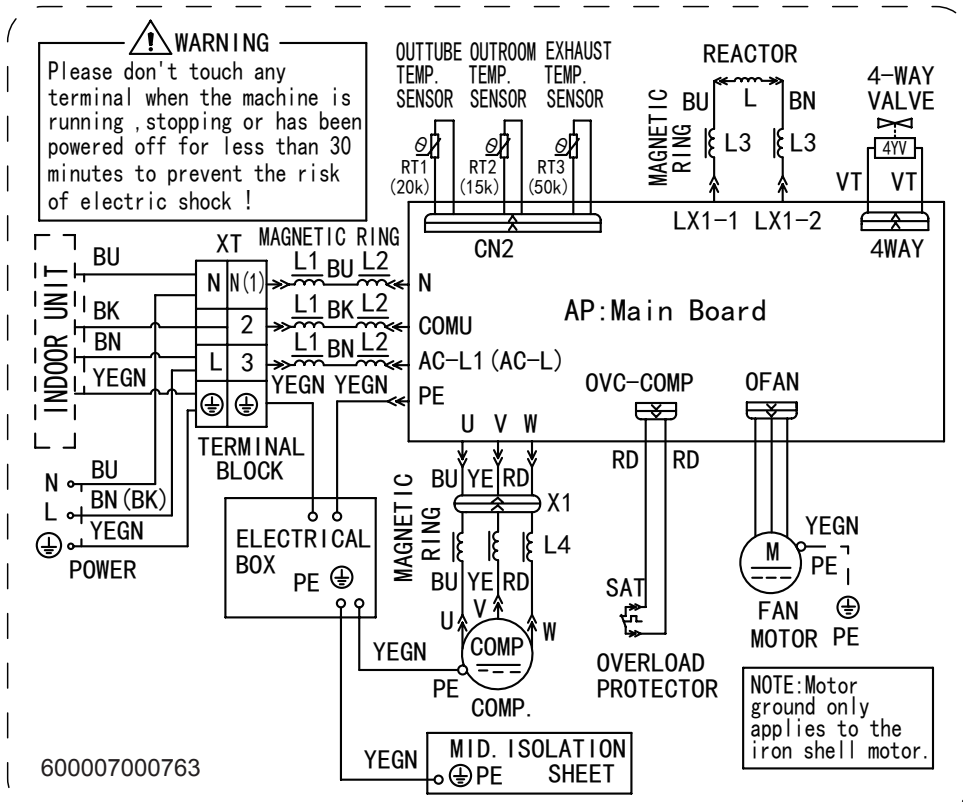
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

● Indoor Unit

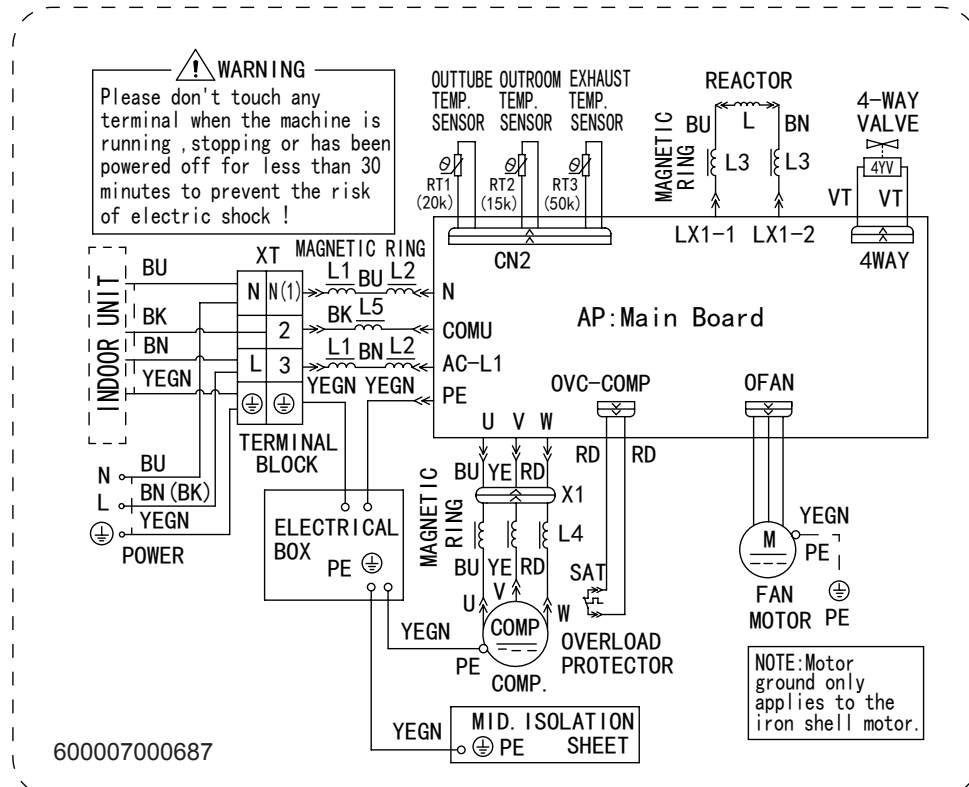


• Outdoor Unit

12K



09K

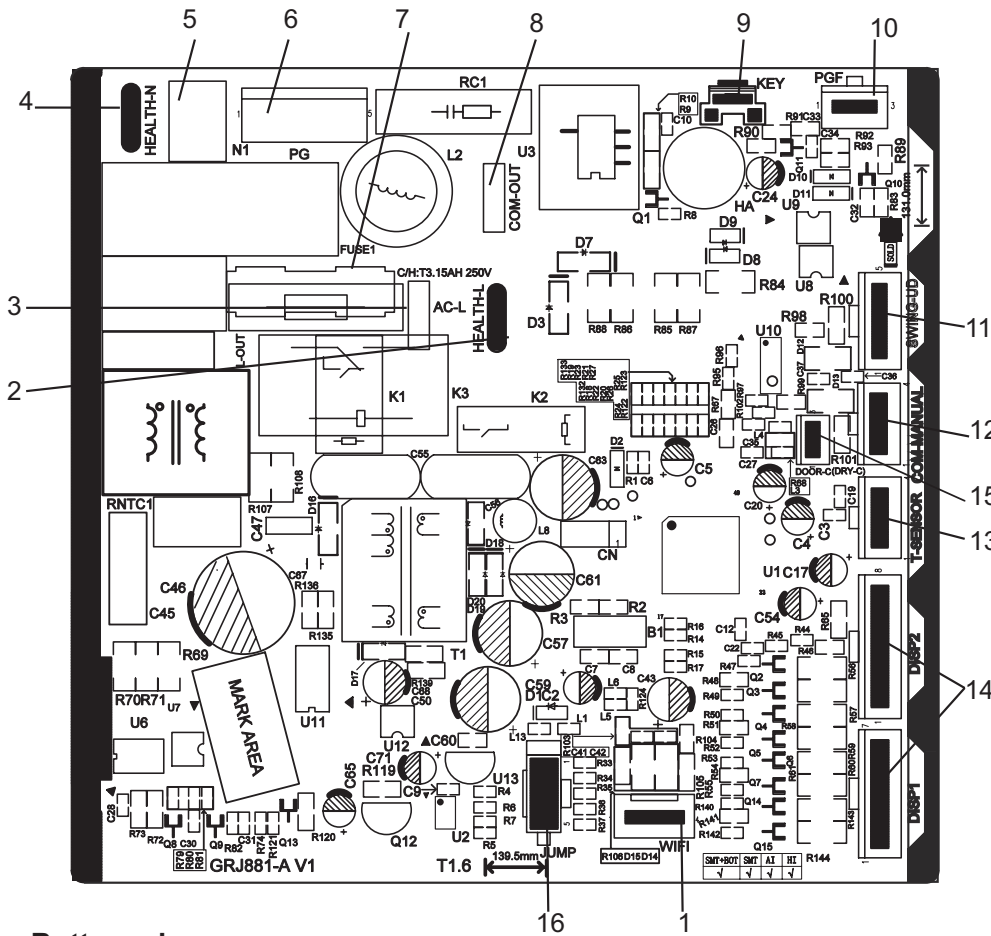


These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

5.2 PCB Printed Diagram

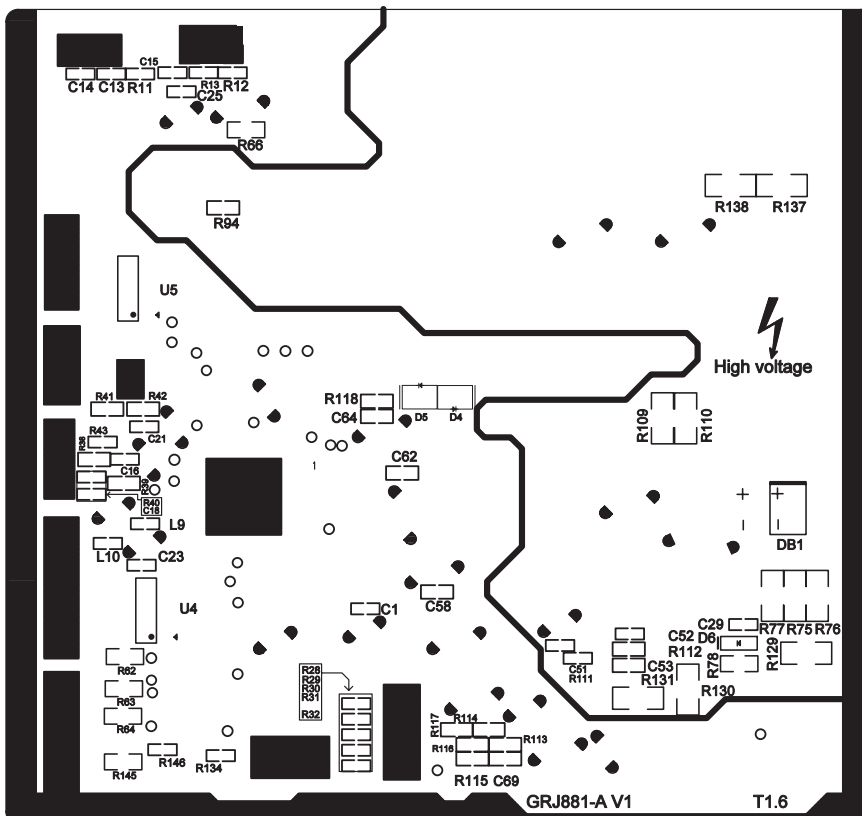
Indoor Unit

• Top view



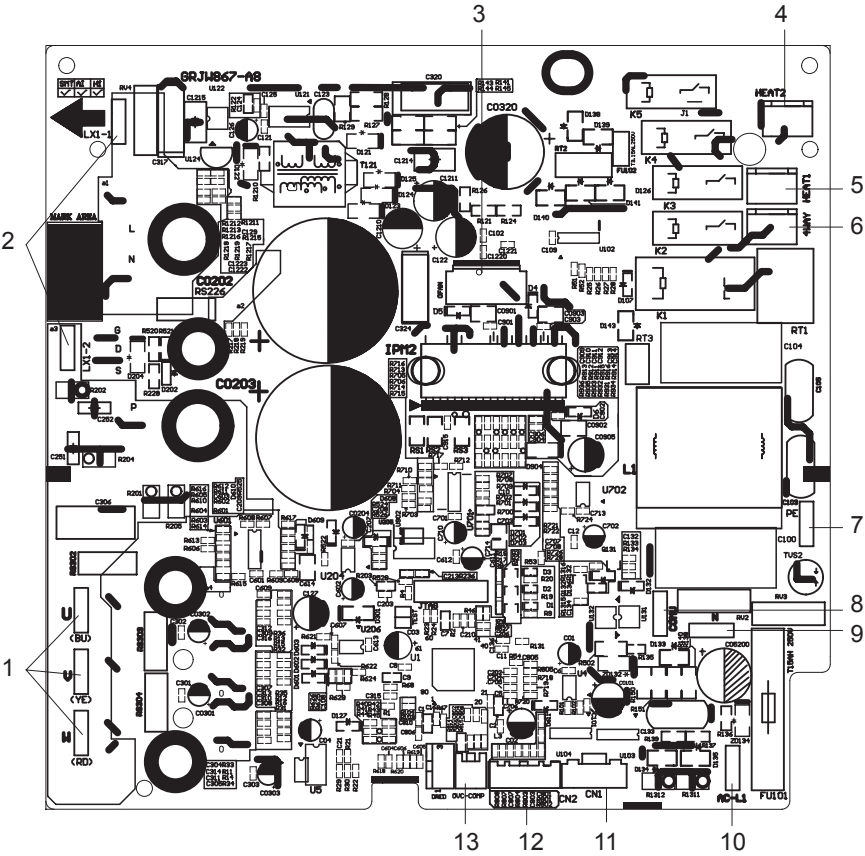
| No. | Name |
|-----|--|
| 1 | Wifi interface |
| 2 | Interface of health function live wire |
| 3 | Live wire interface |
| 4 | Interface of health function neutral wire(only for the model with this function) |
| 5 | Neutral wire interface |
| 6 | Fan motor interface of PG |
| 7 | Fuse |
| 8 | Communication interface |
| 9 | Auto button |
| 10 | Interface of PG feedback interface |
| 11 | Interface of up&down swing motor |
| 12 | Wired controller(only for the model with this function) |
| 13 | Interface of temperature sensor |
| 14 | Display interface |
| 15 | Gateway interface |
| 16 | Interface of jumper cap |

• Bottom view



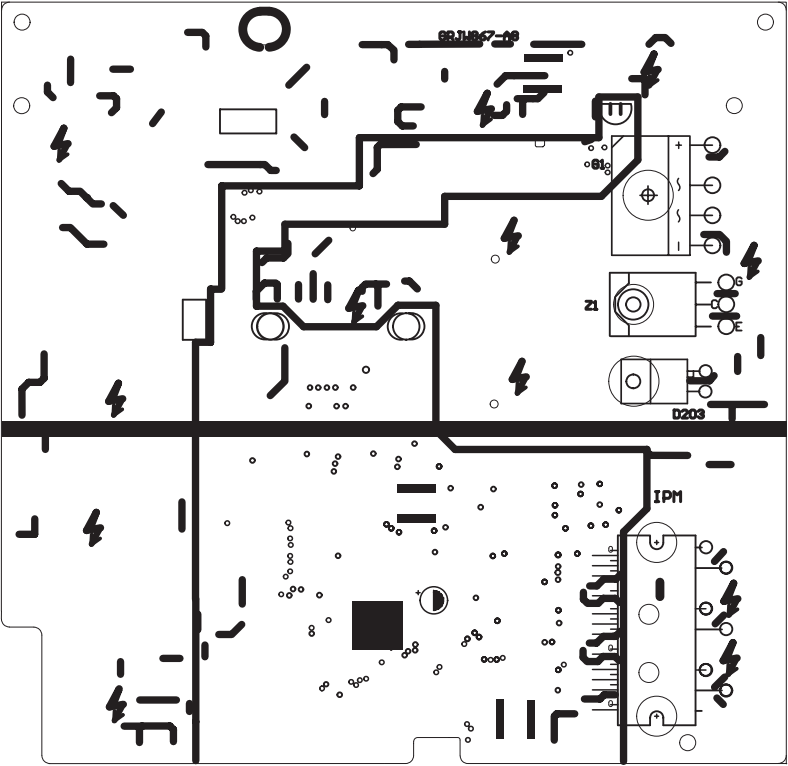
Outdoor Unit

• Top view



| No. | Name |
|-----|--|
| 1 | Compressor wiring terminal |
| 2 | Reactor wiring terminal |
| 3 | Outdoor fan wiring terminal |
| 4 | Terminal of chassis electric heater |
| 5 | Terminal of compressor electric heater |
| 6 | Terminal of 4-way valve |
| 7 | Grounding wire |
| 8 | Communication wire |
| 9 | Neutral wire |
| 10 | Live wire |
| 11 | Terminal of electronic expansion valve |
| 12 | Terminal of temperature sensor |
| 13 | Compressor overload terminal |

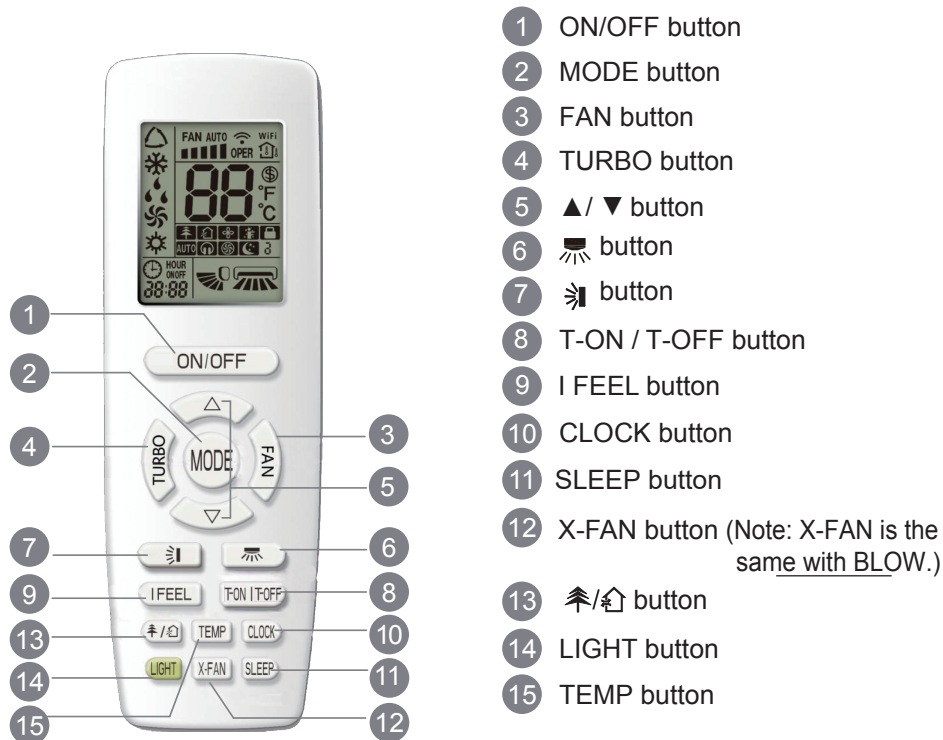
• Bottom view



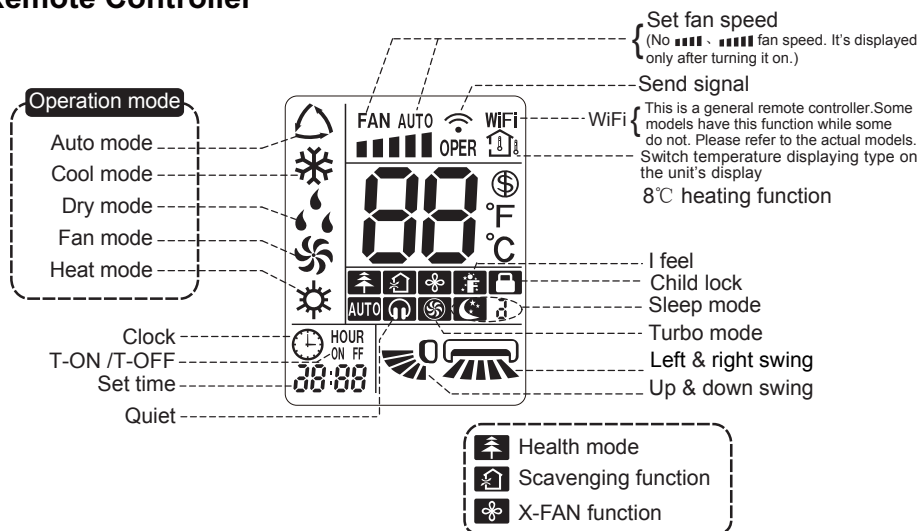
6. Function and Control

6.1 Remote Controller Introduction

Buttons on remote controller



Icon Display on Remote Controller



Operation introduction of remote controller

Note: “WiFi” This is a general remote controller. Some models have this function while some do not. Please refer to the actual models.

- This is a general use remote controller, it could be used for the air conditioners with multifunction; For some function, which the model doesn't have, if press the corresponding button on the remote controller that the unit will keep the original running status.
- After putting through the power, the air conditioner will give out a sound. Operation indicator "U" is ON (red indicator, the colour is different for different models). After that, you can operate the air conditioner by using remote controller.
- Under on status, pressing the button on the remote controller, the signal icon "📶" on the display of remote controller will blink once and the air conditioner will give out a "de" sound, which means the signal has been sent to the air conditioner.
- Under off status, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

1. ON/OFF button

Press this button to turn on the unit. Press this button again to turn off the unit.




2. MODE button

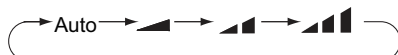
Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, FAN, and HEAT *, as the following:

* Note: Only for models with heating function.



3. FAN button

This button is used for setting Fan Speed in the sequence that goes from AUTO, , , to , then back to Auto.



Note:

- Under AUTO speed, air conditioner will select proper fan speed automatically according to ex-factory setting.
- It's Low fan speed under Dry mode.

4. TURBO button

Under COOL or HEAT mode, press this button to turn to quick COOL or quick HEAT mode. “” icon is displayed on remote controller. Press this button again to exit turbo function and “” icon will disappear.

If start this function, the unit will run at super-high fan speed to cool or heat quickly so that the ambient temp. approaches the preset temp. as soon as possible.

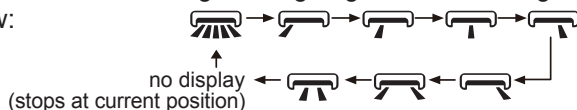
5. ▲ / ▼ button

Press ▲ / ▼ button to increase/decrease set temperature. In AUTO mode, set temperature is not adjustable.



When setting Timer On or Timer Off, press "▲" or "▼" button to adjust the time.

6. button

Press this button can select left & right swing angle. Fan blow angle can be selected circularly as below:

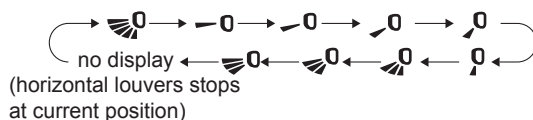












Note:

- Press this button continuously more than 2s, the main unit will swing back and forth from left to right, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.
- Under swing left and right mode, when the status is switched from off to , if press this button again 2s later,  status will switch to off status directly; if press this button again within 2s, the change of swing status will also depend on the circulation sequence stated above.

7. button

Press this button can select up & down swing angle. Fan blow angle can be selected circularly as below:



- When selecting "", air conditioner is blowing fan automatically. Horizontal louver will automatically swing up & down at maximum angle.
- When selecting ", , , , ", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.
- When selecting ", , ", air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold "" button above 2s to set your required swing angle. When reaching your required angle, release the button.

Note:

- "❄️❄️❄️" may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.
- Press this button continuously more than 2s, the main unit will swing back and forth from up to down, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.
- Under swing up and down mode, when the status is switched from off to ❄️❄️❄️, if press this button again 2s later, status will switch to off status directly; if press ❄️❄️❄️ this button again within 2s, the change of swing status will also depend on the circulation sequence stated above.

8. T-ON/T-OFF button

- T-ON button
"T-ON" button can set the time for timer on. After pressing this button, "🕒" icon disappears and the word "ON" on remote controller blinks. Press "▲" or "▼" button to adjust T-ON setting. After each pressing "▲" or "▼" button, T-ON setting will increase or decrease 1min. Hold "▲" or "▼" button, 2s later, the time will change quickly until reaching your required time.
Press "T-ON" to confirm it. The word "ON" will stop blinking. "🕒" icon resumes displaying. Cancel T-ON: Under the condition that T-ON is started up, press "T-ON" button to cancel it.
- T-OFF button
"T-OFF" button can set the time for timer off. After pressing this button, "🕒" icon disappears and the word "OFF" on remote controller blinks. Press "▲" or "▼" button to adjust T-OFF setting. After each pressing "▲" or "▼" button, T-OFF setting will increase or decrease 1min. Hold "▲" or "▼" button, 2s later, the time will change quickly until reaching your required time.
Press "T-OFF" word "OFF" will stop blinking. "🕒" icon resumes displaying. Cancel T-OFF. Under the condition that T-OFF is started up, press "T-OFF" button to cancel it.

Note:

- Under on and off status, you can set T-OFF or T-ON simultaneously.
- Before setting T-ON or T-OFF, please adjust the clock time.
- After starting up T-ON or T-OFF, set the constant circulating valid.
After that, air conditioner will be turned on or turned off according to setting time. ON/OFF button has no effect on setting. If you don't need this function, please use remote controller to cancel it.

9. I FEEL button

Press this button to start I FEEL function and "🌡️" will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to close I FEEL function and "🌡️" will disappear. When I FEEL function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

10. CLOCK button

Press this button to set clock time. "🕒" icon on remote controller will blink. Press "▲" or "▼" button within 5s to set clock time. Each pressing of "▲" or "▼" button, clock time will increase or decrease 1 minute. If hold "▲" or "▼" button, 2s later, time will change quickly. Release this button when reaching your required time. Press "CLOCK" button to confirm the time. "🕒" icon stops blinking.

Note:

- Clock time adopts 24-hour mode.
- The interval between two operations can't exceeds 5s. Otherwise, remote controller will quit setting status.
Operation for T-ON/T-OFF is the same.

11. SLEEP button

Under COOL, or HEAT mode, press this button to start up sleep function.
"🌙" icon is displayed on remote controller. Press this button again to cancel sleep function and "🌙" icon will disappear. After powered on, Sleep Off is defaulted. After the unit is turned off, the Sleep function is canceled. In this mode, set temperature will be adjusted with the change of time. Under Fan、DRY and Auto modes, this function is not available.

12. SLEEP button

Pressing this button in COOL or DRY mode, the icon "☼" is displayed and the indoor fan will continue operation for a few minutes in order to dry the indoor unit even though you have turned off the unit. After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode. This function indicates that moisture on evaporator of indoor unit will be blown after the unit is stopped to avoid mould.

- Having set X-FAN function on: After turning off the unit by pressing ON/OFF button indoor fan will continue running for about a few minutes. at low speed. In this period, press X-FAN button to stop indoor fan directly.
- Having set X-FAN function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.

13. 🏠/🌿 button

Press this button to achieve the on and off of health and scavenging functions in operation status. Press this button to the first time to start scavenging function: LCD displays "🌿". Press the button for the second time to start health and scavenging functions simultaneously; LCD displays "🏠" and "🌿". Press this button for the third time to quit health and scavenging functions simultaneously. Press the button for the fourth time to start health function; LCD display "🏠". Press this button again to repeat the operation above.

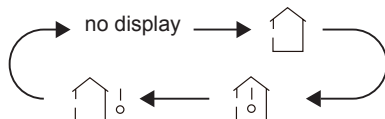
- This function is applicable to partial of models.

14. LIGHT button

Press this button to turn off display light on indoor unit. "💡" icon on remote controller disappears. Press this button again to turn on display light. "💡" icon is displayed.

15. TEMP button

By pressing this button, you can see indoor set temperature, indoor ambient temperature or outdoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:





- When selecting "🏠" or no display with remote controller, temperature indicator on indoor unit displays set temperature.
- When selecting "🏠🌡️" with remote controller, temperature indicator on indoor unit displays indoor ambient temperature.
- When selecting "🏠🌡️☀️" with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives "🏠🌡️☀️" signal, while it displays indoor set temperature.
- It's defaulted to display set temperature when turning on the unit. There is no display in the remote controller.
- Only for the models whose indoor unit has dual-8 display.
- When selecting displaying of indoor or outdoor ambient temperature, indoor temperature indicator displays corresponding temperature and automatically turn to display set temperature after three or five seconds.

Function introduction for combination buttons

Combination of "▲" and "▼" buttons: About lock

Press "▲" and "▼" buttons simultaneously 3s to lock or unlock the keypad. If the remote controller is locked,  is displayed. In this case, pressing any button,  blinks three times.

Combination of "MODE" and "▼" buttons: About switch between Fahrenheit and centigrade

At unit OFF, press "MODE" and "▼" buttons simultaneously to switch between °C and °F.

Combination of "TEMP" and "CLOCK" buttons: About Energy-saving Function

Under cooling mode, press "TEMP" and "CLOCK" buttons simultaneously to start up or turn off energy-saving function. When energy-saving function is started up, "SE" will be shown on remote controller, and air conditioner will adjust the set temperature automatically according to ex-factory setting to reach to the best energy-saving effect. Press "TEMP" and "CLOCK" buttons simultaneously again to exit energy-saving function.

Note:

- Under energy-saving function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under energy-saving function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and energy-saving function can't operate at the same time. If energy-saving function has been set under cooling mode, press sleep button will cancel energy-saving function. If sleep function has been set under cooling mode, start up the energy-saving function will cancel sleep function.

Combination of "TEMP" and "CLOCK" buttons: About 8 °C Heating Function

Under heating mode, press "TEMP" and "CLOCK" buttons simultaneously to start up or turn off 8°C heating function. When this function is started up, "⊕" and "8°C" will be shown on remote controller, and the air conditioner keep the heating status at 8°C. Press "TEMP" and "CLOCK" buttons simultaneously again to exit 8°C heating function.

Note:


- Under 8°C heating function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under 8°C heating function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and 8°C heating function can't operate at the same time. If 8°C heating function has been set under heating mode, press sleep button will cancel 8°C heating function. If sleep function has been set under heating mode, start up the 8°C heating function will cancel sleep function.
- Under °F temperature display, the remote controller will display 46 °F heating.

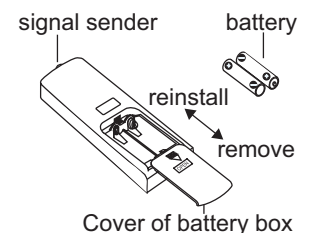
WIFI Function

Press "MODE" and "TURBO" button simultaneously to turn on or turn off WIFI function. When WIFI function is turned on, the "WiFi" icon will be displayed on remote controller; Long press "MODE" and "TURBO" buttons simultaneously for 10s, remote controller will send WIFI reset code and then the WIFI function will be turned on. WIFI function is defaulted ON after energization of the remote controller.

- This function is only available for some models.

Replacement of batteries in remote controller

1. Press the back side of remote controller marked with , as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.



Emergency operation

If remote controller is lost or damaged, please use auxiliary button to turn on or turn off the air conditioner.

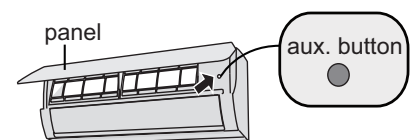
The operation in details are as below:

As shown in the fig. Open panel, press aux. button to turn on or turn off the air conditioner.

When the air conditioner is turned on, it will operate under auto mode.

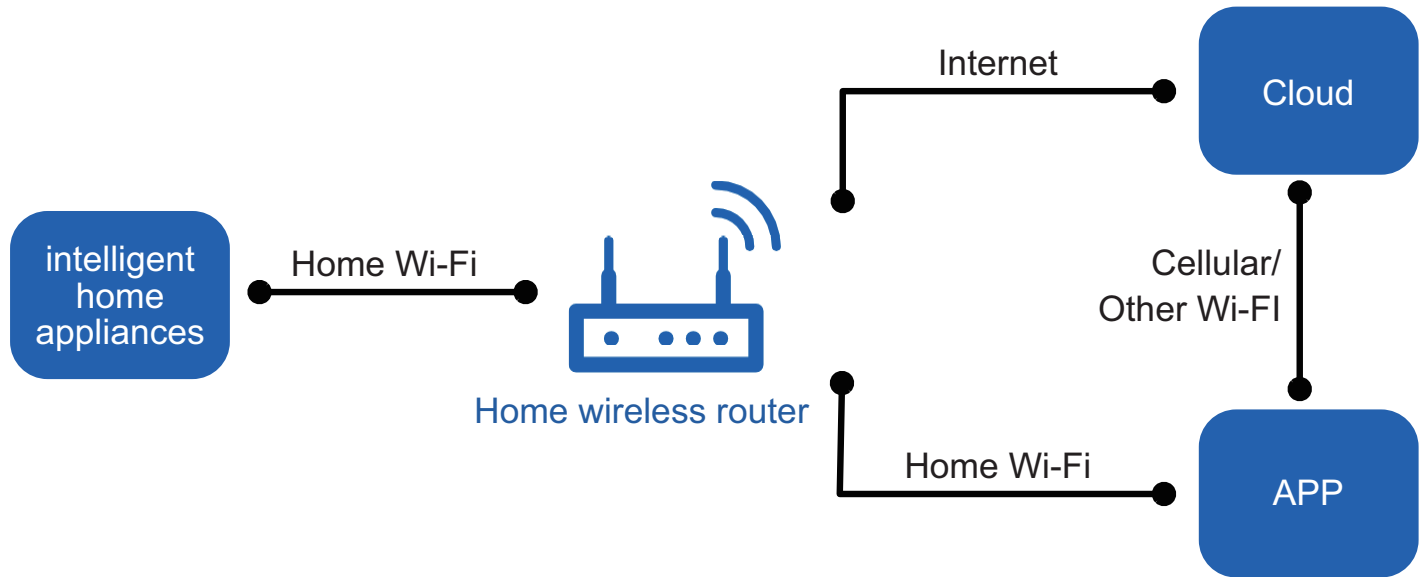
WARNING:

Use insulated object to press the auto button



6.2 Ewpe Smart App Operation Manual

Control Flow Chart



Operating Systems

Requirement for User's smart phone:



iOS system
Support iOS7.0 and
above version



Android system
Support Android 4.4 and
above version

Download and installation



App Download Linkage

Scan the QR code or search "Ewpe Smart" in the application market to download and install it. When "Ewpe Smart" App is installed, register the account and add the device to achieve long-distance control and LAN control of smart home appliances. For more information, please refer to "Help" in App.

6.3 Brief Description of Modes and Functions

● Indoor Unit

1. Basic function of system

(1) Cooling mode

- (1) Under this mode, fan and swing operates at setting status. Temperature setting range is 16~30°C.
- (2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.

(2) Drying mode

- (1) Under this mode, fan operates at low speed and swing operates at setting status. Temperature setting range is 16~30°C.
- (2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.
- (3) Protection status is same as that under cooling mode.
- (4) Sleep function is not available for drying mode.

(3) Heating mode

- (1) Under this mode, Temperature setting range is 16~30°C.
- (2) Working condition and process for heating mode:

When turn on the unit under heating mode, indoor unit enters into cold air prevention status. When the unit is stopped or at OFF status, and indoor unit has been started up just now, the unit enters into residual heat-blowing status.

(4) Working method for AUTO mode:

1. Working condition and process for AUTO mode:
 - a. Under AUTO mode, standard heating $T_{\text{preset}}=20^{\circ}\text{C}$ and standard cooling $T_{\text{preset}}=25^{\circ}\text{C}$. The unit will switch mode automatically according to ambient temperature.
2. Protection function
 - a. During cooling operation, protection function is same as that under cooling mode.
 - b. During heating operation, protection function is same as that under heating mode.
3. Display: Set temperature is the set value under each condition. Ambient temperature is ($T_{\text{amb.}}-T_{\text{compensation}}$) for heat pump unit and $T_{\text{amb.}}$ for cooling only unit.
4. If there's I feel function, $T_{\text{compensation}}$ is 0. Others are same as above.

(5) Fan mode

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation. Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 16~30°C.

2. Other control

(1) Buzzer

Upon energization or availably operating the unit or remote controller, the buzzer will give out a beep.

(2) Auto button

If press this auto button when turning off the unit, the complete unit will operate at auto mode. Indoor fan operates at auto fan speed and swing function is turned on. Press this auto button at ON status to turn off the unit.

(3) Auto fan

Heating mode: During auto heating mode or normal heating mode, auto fan speed will adjust the fan speed automatically according to ambient temperature and set temperature.

(4) Sleep

After setting sleep function for a period of time, system will adjust set temperature automatically.

(5) Timer function:

General timer and clock timer functions are compatible by equipping remote controller with different functions.

(6) Memory function

memorize compensation temperature, off-peak energization value.

Memory content: mode, up&down swing, light, set temperature, set fan speed, general timer (clock timer can't be memorized).

After power recovery, the unit will be turned on automatically according to memory content.

(7) Health function

During operation of indoor fan, set health function by remote controller. Turn off the unit will also turn off health function.

Turn on the unit, and the health is defaulted ON.

(8) I feel control mode

After controller received I feel control signal and ambient temperature sent by remote controller, controller will work according to the ambient temperature sent by remote controller.

(9) Entry condition for compulsory defrosting function

When turn on the unit under heating mode and set temperature is 16°C (or 16.5°C by remote controller), press “+, -, +, -, +, -” button successively within 5s and then indoor unit will enter into compulsory defrosting setting status:

- (1) If there's only indoor units controller, it enters into indoor normal defrosting mode.
- (2) If there's indoor units controller and outdoor units controller, indoor unit will send compulsory defrosting mode signal to outdoor unit and then outdoor unit will operate under normal defrosting mode. After indoor unit received the signal that outdoor unit has entered into defrosting status, indoor unit will cancel to send compulsory mode to outdoor unit. If outdoor unit hasn't received feedback signal from outdoor unit after 3min, indoor unit will also cancel to send compulsory defrosting signal.

(10) Refrigerant recovery function:

Enter into Freon recovery mode actively: Within 5min after energization, turn on the unit at 16°C under cooling mode, and press light button for 3 times within 3s to enter into Freon recovery mode. Fo is displayed and Freon recovery mode will be sent to outdoor unit.

(11) Ambient temperature display control mode

1. When user set the remote controller to display set temperature (corresponding remote control code: 01), current set temperature will be displayed.
2. Only when remote control signal is switched to indoor ambient temperature display status (corresponding remote control code: 10) from other display status (corresponding remote control code: 00, 01, 11), controller will display indoor ambient temperature for 3s and then turn back to display set temperature.

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation. Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 16~30°C.

(12) Off-peak energization function:

Adjust compressors minimum stop time. The original minimum stop time is 180s and then we change to:

The time interval between two start-ups of compressor can't be less than $180 + T_s$ ($0 \leq T \leq 15$). T is the variable of controller. That's to say the minimum stop time of compressor is 180s~195s. Read-in T into memory chip when refurbish the memory chip each time. After power recovery, compressor can only be started up after $180 + T$ s at least.

(13) SE control mode

The unit operates at SE status.

(14) X-fan mode

When X-fan function is turned on, after turn off the unit, indoor fan will still operate at low speed for 2min and then the complete unit will be turned off. When x-fan function is turned off, after turn off the unit, the complete unit will be turned off directly.

(15) 8°C heating function

Under heating mode, you can set 8°C heating function by remote controller. The system will operate at 8°C set temperature.

(16) Turbo function

Turbo function can be set under cooling and heating modes. Press Fan Speed button to cancel turbo setting. Turbo function is not available under auto, drying and fan modes.

● Outdoor Unit

1. Cooling mode:

Working condition and process of cooling mode:

- ① When Tindoor ambient temperature $\geq T_{\text{preset}}$, unit enters into cooling mode. Indoor fan, outdoor fan and compressor start operation. Indoor fan operates according to set fan speed.
 - ② When Tindoor ambient temperature $\leq T_{\text{preset}} - 2^{\circ}\text{C}$, compressor stops operation and outdoor fan will stop 30s later. Indoor fan operates according to set fan speed.
 - ③ When $T_{\text{preset}} - 2^{\circ}\text{C} < \text{Tindoor ambient temperature} < T_{\text{preset}}$, unit operates according to the previous status.
- Under cooling mode, 4-way valve is not energized. Temperature setting range is $16 \sim 30^{\circ}\text{C}$. If compressor stops because of malfunction in cooling mode, indoor fan and swing motor will work according to the original status.

2. Drying mode

(1) Working condition and process of drying mode

- ① When Tindoor ambient temperature $> T_{\text{preset}}$, unit will be in drying mode. Outdoor fan and compressor start operation while indoor fan will operate at low fan speed.
 - ② When $T_{\text{preset}} - 2^{\circ}\text{C} \leq \text{Tindoor ambient temperature} \leq T_{\text{preset}}$, unit operates according to the previous status.
 - ③ When Tindoor ambient temperature $< T_{\text{preset}} - 2^{\circ}\text{C}$, compressor stops operation and outdoor fan will stop 30s later.
- (2) Under drying mode, 4-way valve is not energized. Temperature setting range is $16 \sim 30^{\circ}\text{C}$.
- (3) Protection function: same as in cooling mode.

3. Fan mode

- (1) Under this mode, indoor fan can select different fan speed (except Turbo) or auto fan speed. Compressor, outdoor fan and 4-way valve all stop operation.
- (2) In fan mode, temperature setting range is $16 \sim 30^{\circ}\text{C}$.

4. Heating mode

Working condition and process of heating mode:

- ① When $T_{\text{preset}} - (\text{Tindoor ambient temperature} - T_{\text{compensation}}) \geq 1^{\circ}\text{C}$, unit enters into heating mode. Compressor, outdoor fan and 4-way valve start operation.
- ② When $-2^{\circ}\text{C} < T_{\text{preset}} - (\text{Tindoor ambient temperature} - T_{\text{compensation}}) < 1^{\circ}\text{C}$, unit operates according to the previous status.
- ③ When $T_{\text{preset}} - (\text{Tindoor ambient temperature} - T_{\text{compensation}}) \leq -2^{\circ}\text{C}$, compressor stops operation and outdoor fan will stop 30s later. Indoor fan will be in residual-heat blowing status.
- ④ When unit is turned off under heating mode or changed to other modes from heating mode, 4-way valve will be power-off 2min after compressor stops working (compressor is in operation status under heating mode).
- ⑤ When Tindoor ambient temperature $> 30^{\circ}\text{C}$, compressor stops operation immediately. Outdoor fan will stop 30s later.
- ⑥ Under the condition that compressor is turned on, when unit is changed to heating mode from cooling or drying mode, 4-way valve will be energized in 2~3mins delay.

Note: Tcompensation is determined by IDU and ODU. If IDU controls the compensation temperature, then Tcompensation is determined according to the value sent by IDU to ODU; If IDU does not control the compensation temperature, then Tcompensation will default to 3°C by the ODU.

5. Freon recovery mode

After the Freon recovery signal from IDU is received, cooling at rated frequency will be forcibly turned on to recover Freon.

Indoor unit will display Fo. If any signal from remote controller is received, unit will exit from Freon recovery mode and indoor unit stops displaying Fo.

6. Compulsory defrosting

If unit is turned on under heating mode and set temperature is 16°C (by remote controller), press “+, -, +, -, +, -” within 5s, unit will enter into compulsory defrosting mode and send the signal to ODU. When the compulsory defrosting signal from ODU is received, IDU will exit from the compulsory defrosting mode and stop sending the signal to ODU.

After ODU receives the compulsory defrosting code, it will start compulsory defrosting. Defrosting frequency and opening angle will be the same as in normal defrosting mode. When compulsory defrosting is finished, the complete unit resumes original status.

7. Auto mode

Auto mode is determined by controller of IDU. See IDU logic for details.

8. 8°C heating

Set temperature is 8°C. Display board of IDU displays 8°C. Under this mode, “Cold air prevention” function is shielded.

If compressor is operating under this mode, fan speed will adjust according to auto fan speed; if compressor stops operation under this mode, indoor fan will be in residual-heat blowing status.

When power on, communication light will be blinking in a normal way (after receiving a group of correct signals, blinking stops for 0.2s~0.3s). If there's no communication, communication light will be always on. If other ODU has malfunction, communication light will be on for 1s and off for 1s in a circular way.

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.

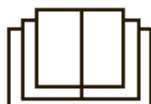
Should repair be necessary, contact your nearest authorized Service Centre. Any repairs carried out by unqualified personnel may be dangerous. The appliance shall be stored in a room without continuously operating ignition sources. (for example: open flames, an operating gas appliance or an operating electric heater.)

●Do not pierce or burn.

●Appliance shall be installed, operated and stored in a room with a floor area larger than Xm^2 . (Please refer to table "a" in section of "Safety Operation of Inflammable Refrigerant" for Space X.)

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

●Read specialists manual.



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 equipments 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(m²)

| Minimum room area(m ²) | 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 | 16.8 | 22 | 24.8 | 27.8 | 31 | 34.3 | 37.8 | 41.5 | 45.4 | 49.4 | 53.6 |
| | wall 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 |
| | window 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.
— Its 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 isnt any naked flame near the outlet of the vacuum pump and its 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 wont 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 havent finished).
- Dont overfilling.
- After filling is finished, please do the leakage detection before test running; another time of leak detection should be done when its 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.

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; dont 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. Ware 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:

When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.

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.

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

- 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.

- 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.

- 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.

- 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.

- 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.

- 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.

- 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.

- 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.

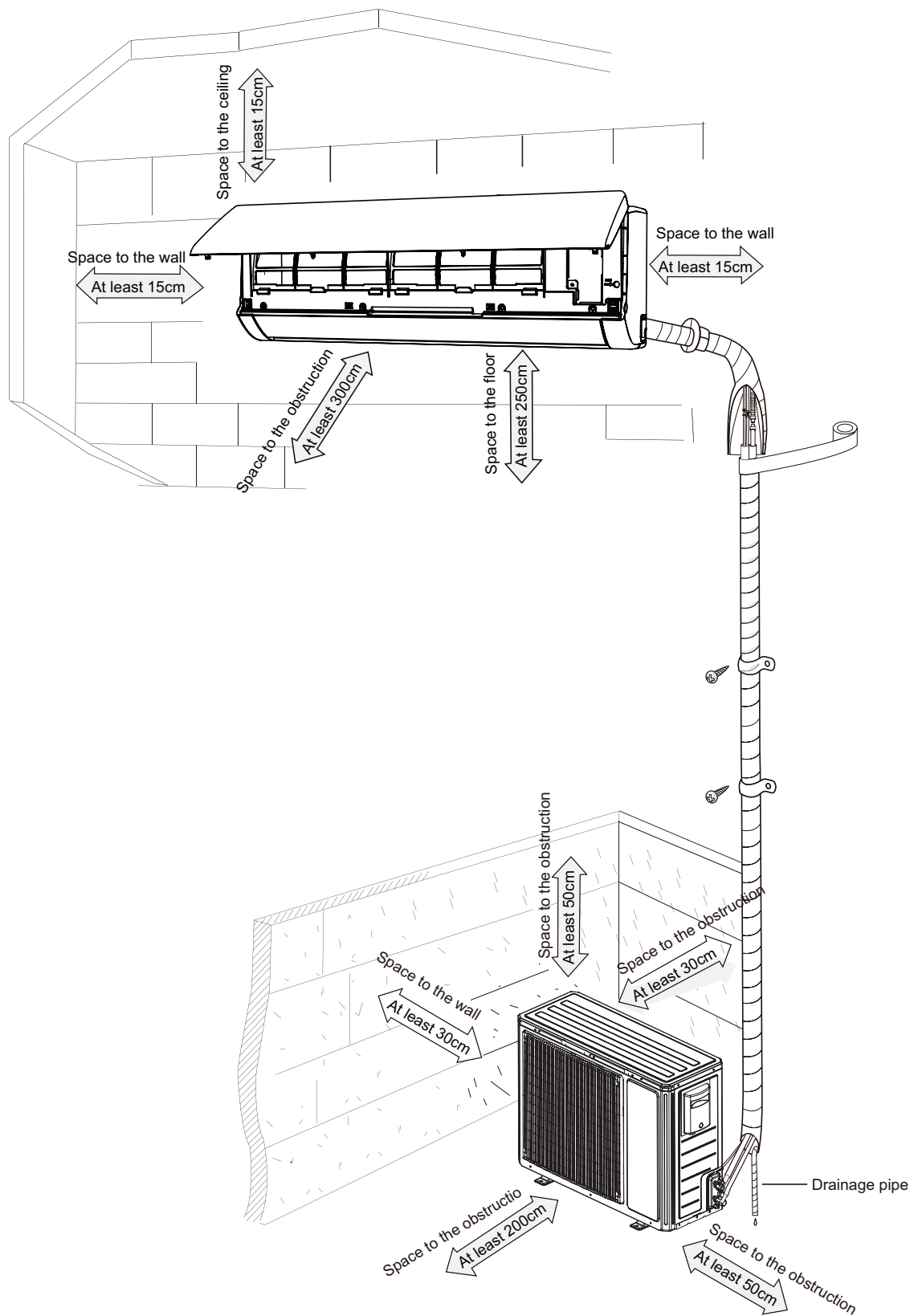
Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

Main Tools for Installation and Maintenance

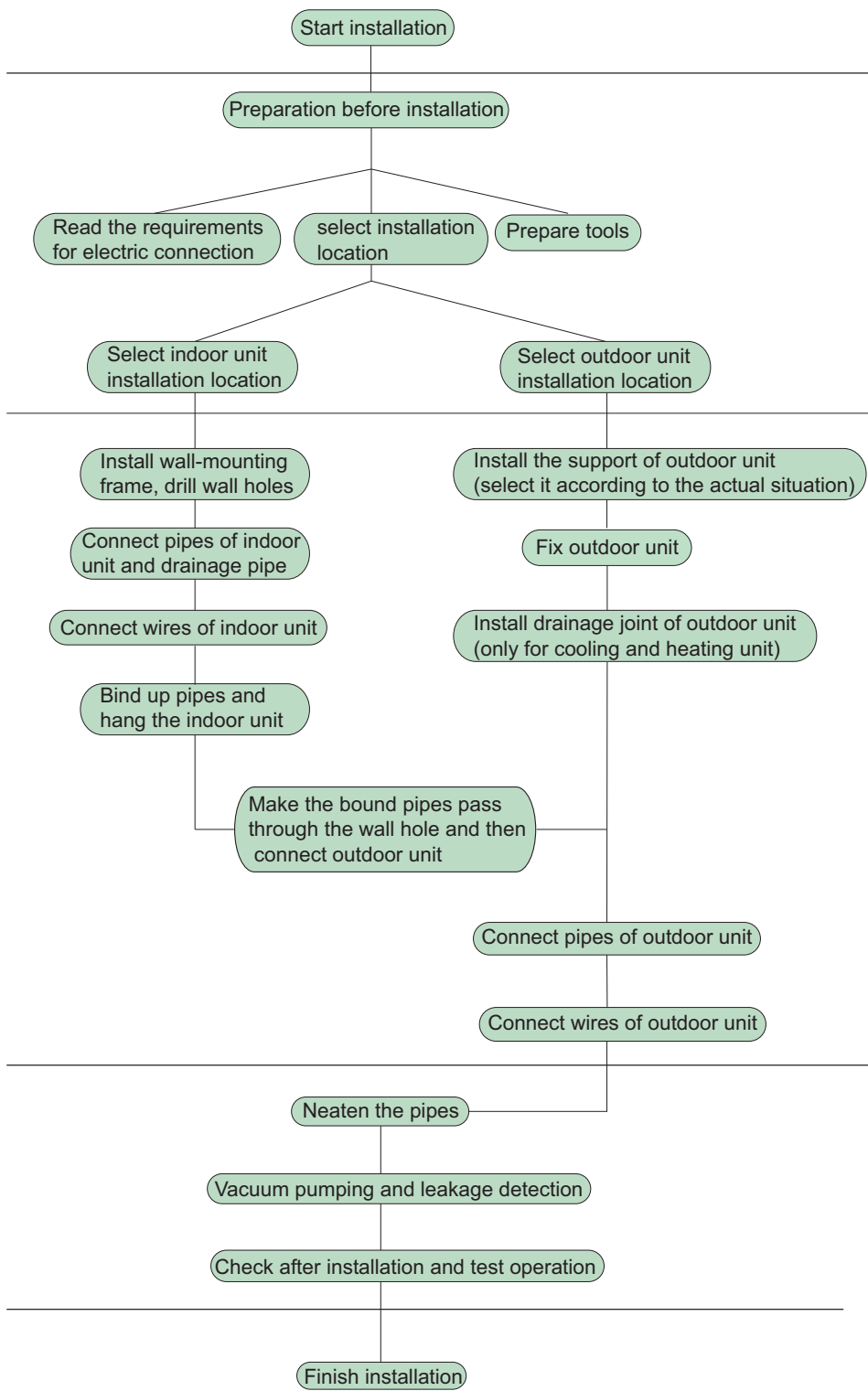
| | | |
|---|--|---|
| <div>1. Level meter, measuring tape</div> <div></div> | <div>2. Screw driver</div> <div></div> | <div>3. Impact drill, drill head, electric drill</div> <div></div> |
| <div>4. Electroprobe</div> <div></div> | <div>5. Universal meter</div> <div></div> | <div>6. Torque wrench, open-end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

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 | Owners manual, remote controller |
| 7 | Wall pipe | | |

Note:

- 1.Please contact the local agent for installation.
- 2.Dont 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 sulfured 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 wont 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 wont increase noise and vibration.
- (6) The appliance must be installed 2.5m above floor.
- (7) Dont 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 wont 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 Xm^2 .(Please refer to table "a" in section of " Safety Operation of Inflammable Refrigerant" for Space X.)



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.

| Air-conditioner | Air switch capacity |
|-----------------|---------------------|
| 09K | 10A |
| 12K | 13A |

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

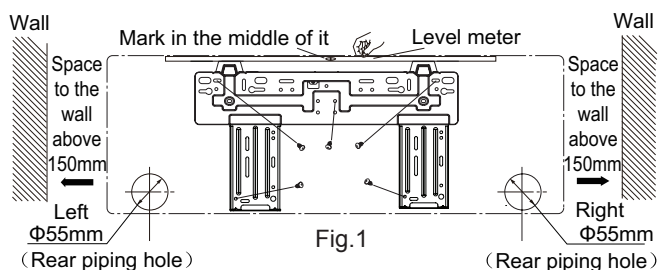
- (1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
- (2) Drill the screw fixing holes on the wall with impact drill (the

specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles in the holes.

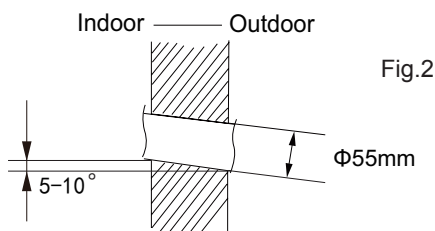
(3) Fix the wall-mounting frame on the wall with tapping screws and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

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 $5-10^\circ$.(As show in Fig.2)



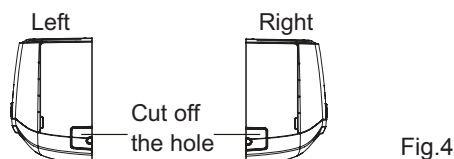
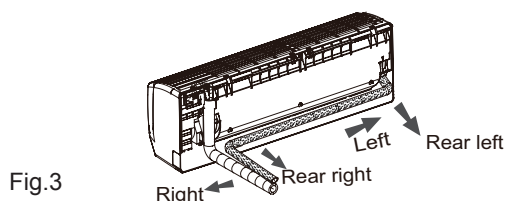
Note:

Pay attention to dust prevention and take relevant safety measures when opening the hole.

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)



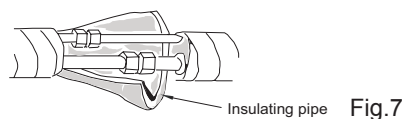
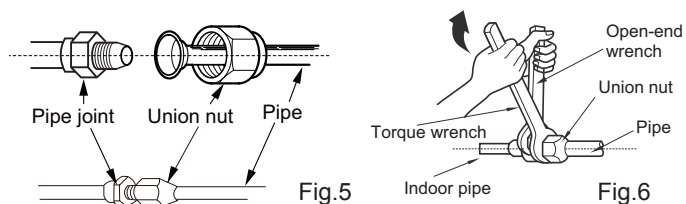
5. Connect the Pipe of Indoor Unit

(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)



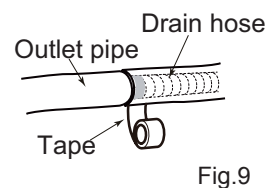
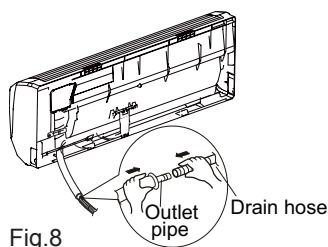
Refer to the following table for wrench moment of force:

| 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)

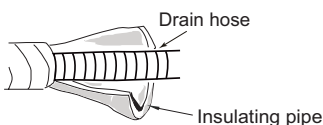
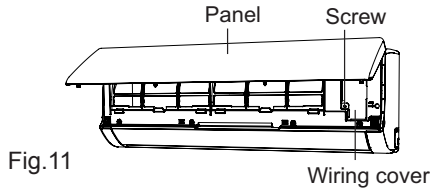


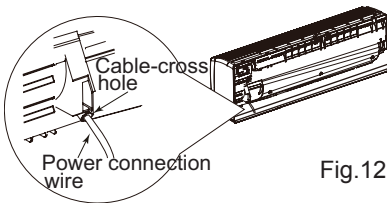
Fig.10

7. Connect Wire of Indoor Unit

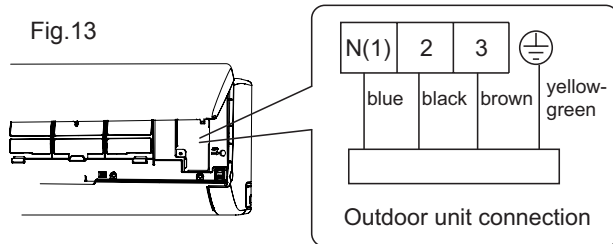
(1) Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)



(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)



(3) Remove the wire clip; connect the power connection wiresignal control wire (only for cooling and heating unit) 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)



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.

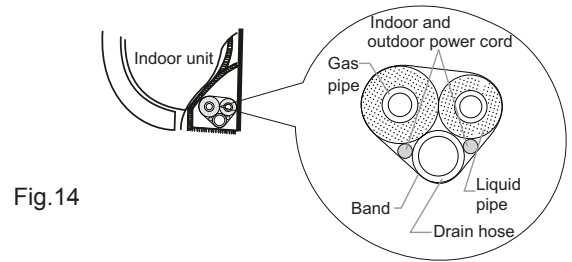


Fig.14

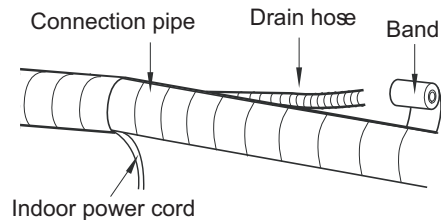


Fig.15

⚠ 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)

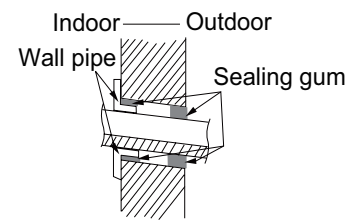


Fig.16

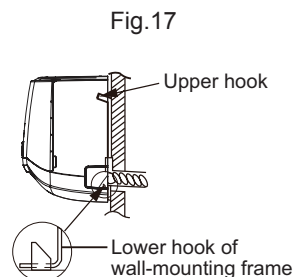


Fig.17

⚠ 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.

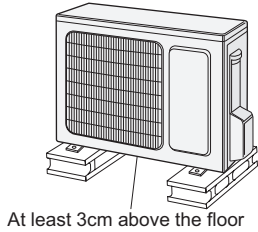


Fig.18

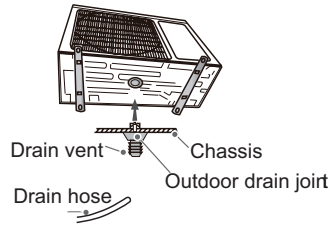


Fig.19

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)

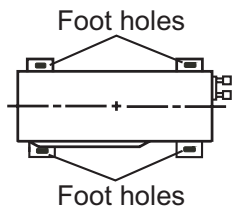


Fig.20

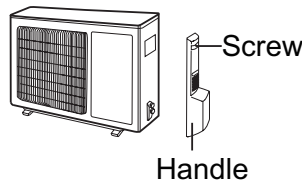


Fig.21

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)

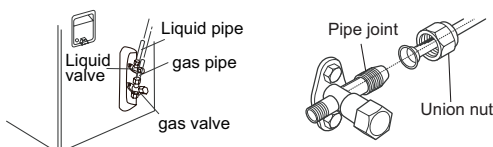


Fig.22

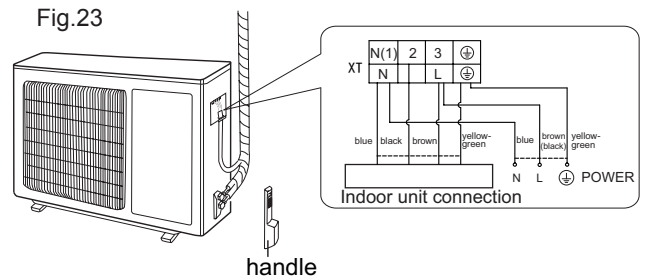
- (3) Pretightening the union nut with hand.
- (4) Tighten the union nut with torque wrench .

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 and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color; fix them with screws.(As show in Fig.23)



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

- (2) Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).

⚠ 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)

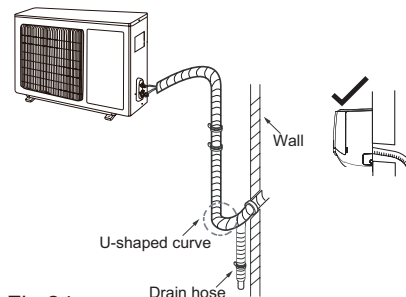


Fig.24

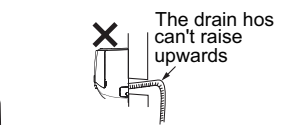


Fig.25

⚠ Note:

- (1) The through-wall height of drain hose shouldnt 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)

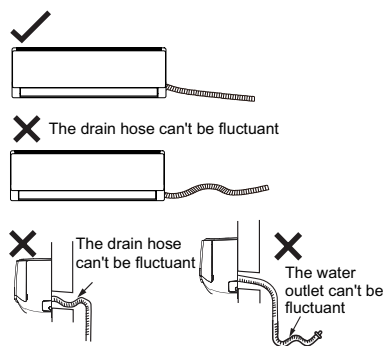


Fig.26

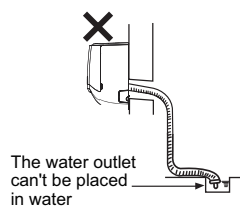


Fig.27

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)

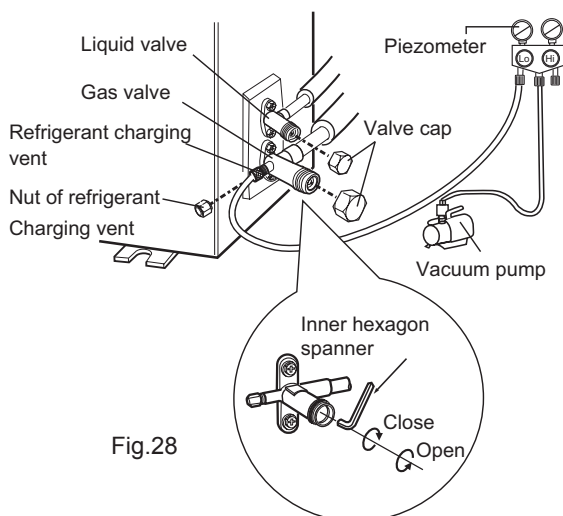


Fig.28

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 Error Code List

| 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 | | | | 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 | | | | 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 | | | | 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 | | | | 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 | | | | 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 | Communi- cation Malfunction | E6 | | | | 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 | | | | 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 | | | | 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 | | | | 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 | | | | 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 | F0 | | | | 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 | | | | During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation. | 1. Loosening or bad contact of indoor ambient temp. sensor and mainboard terminal. 2. Components in mainboard fell down leads short circuit. 3. Indoor ambient temp. sensor damaged.(check with sensor resistance value chart) 4. Mainboard damaged. |
| 13 | Indoor evaporator temperature sensor is open/short circuited | F2 | | | | AC stops operation once reaches the setting temperature. Cooling, drying: internal fan motor stops operation while other loads stop operation; heating: AC stop operation | 1. Loosening or bad contact of Indoor evaporator temp. sensor and mainboard terminal. 2. Components on the mainboard fall down leads short circuit. 3. Indoor evaporator temp. sensor damaged.(check temp. sensor value chart for testing) 4. Mainboard damaged. |
| 14 | Outdoor ambient temperature sensor is open/short circuited | F3 | | | | During cooling and drying operating, compressor stops while indoor fan operates; During heating operation, the complete unit will stop operation | Outdoor temperature sensor hasn't 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 | | | | During cooling and drying operation, compressor stops while indoor fan will operate; During heating operation, the complete unit will stop operation. | Outdoor temperature sensor hasn't 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 | | | | 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. | 1.Outdoor temperature sensor hasn't been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor) 2.The head of temperature sensor hasn't been inserted into the copper tube |
| 17 | Limit/ decrease frequency due to overload | F6 | | | | 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 | | | | 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 | | | | 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 | | | | 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 | | | | 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, there's malfunction for the circuit, please replace the control panel (AP1) |
| 22 | Voltage of DC bus-bar is too low | PL | | | | 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, there's malfunction for the circuit, please replace the control panel (AP1) |
| 23 | Compressor Min frequency in test state | P0 | | | | | Showing during min. cooling or min. heating test |
| 24 | Compressor rated frequency in test state | P1 | | | | | Showing during nominal cooling or nominal heating test |
| 25 | Compressor maximum frequency in test state | P2 | | | | | 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 | | | | | Showing during middle cooling or middle heating test |
| 27 | Overcurrent protection of phase current for compressor | P5 | | | | 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 | | | | 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 | | | | 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 | | | | 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 | Overload protection for compressor | H3 | | | | 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) |
| 32 | IPM protection | H5 | | | | 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. |
| 33 | Malfunction of zero-cross detection circuit | U8 | | | | The complete unit stops | 1.Power supply is abnormal; 2.Detection circuit of indoor control mainboard is abnormal. |

| 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 | Internal motor (fan motor) do not operate | H6 | | | | 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. |
| 35 | Desynchronizing of compressor | H7 | | | | 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 | Outdoor DC fan motor malfunction | L3 | | | | Outdoor DC fan motor malfunction lead to compressor stop operation, | DC fan motor malfunction or system blocked or the connector loosed |
| 37 | power protection | L9 | | | | compressor stop operation and Outdoor fan motor will stop 30s latter , 3 minutes latter fan motor and compressor will restart | To protect the electronical components when detect high power |
| 38 | Indoor unit and outdoor unit doesnt match | LP | | | | compressor and Outdoor fan motor can't work | Indoor unit and outdoor unit doesnt match |
| 39 | Failure start-up | LC | | | | 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 |
| 40 | Defrosting | Heating indicator off for 0.5s and then blinks for 10s | | | | Not the error code. It's the status code for the operation | |
| 41 | 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 | | |
| 42 | Malfunction of phase current detection circuit for compressor | U1 | | | | 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 |
| 43 | Malfunction of voltage dropping for DC bus-bar | U3 | | | | 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 |
| 44 | Malfunction of complete units current detection | U5 | | | | During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation. | There's circuit malfunction on outdoor units control panel AP1, please replace the outdoor units control panel AP1. |
| 45 | The four-way valve is abnormal | U7 | | | | 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. |
| 46 | 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; |
| 47 | Anti-freezing protection for evaporator | E2 | | | | Not the error code. It's the status code for the operation. | |
| 48 | Cold air prevention protection | E9 | | | | Not the error code. It's the status code for the operation. | |
| 49 | Refrigerant recovery mode | Fo | | | | Refrigerant recovery. The Serviceman operates it for maintenance. | |
| 50 | 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 -20oC or more than 60oC for cooling; more than 30oC for heating); 2. Failure startup of compressor? 3. Are wires of compressor not connected tightly? 4. Is compressor damaged? 5. Is main board damaged? |

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. 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.

4. 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.

5. 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.

6. 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.

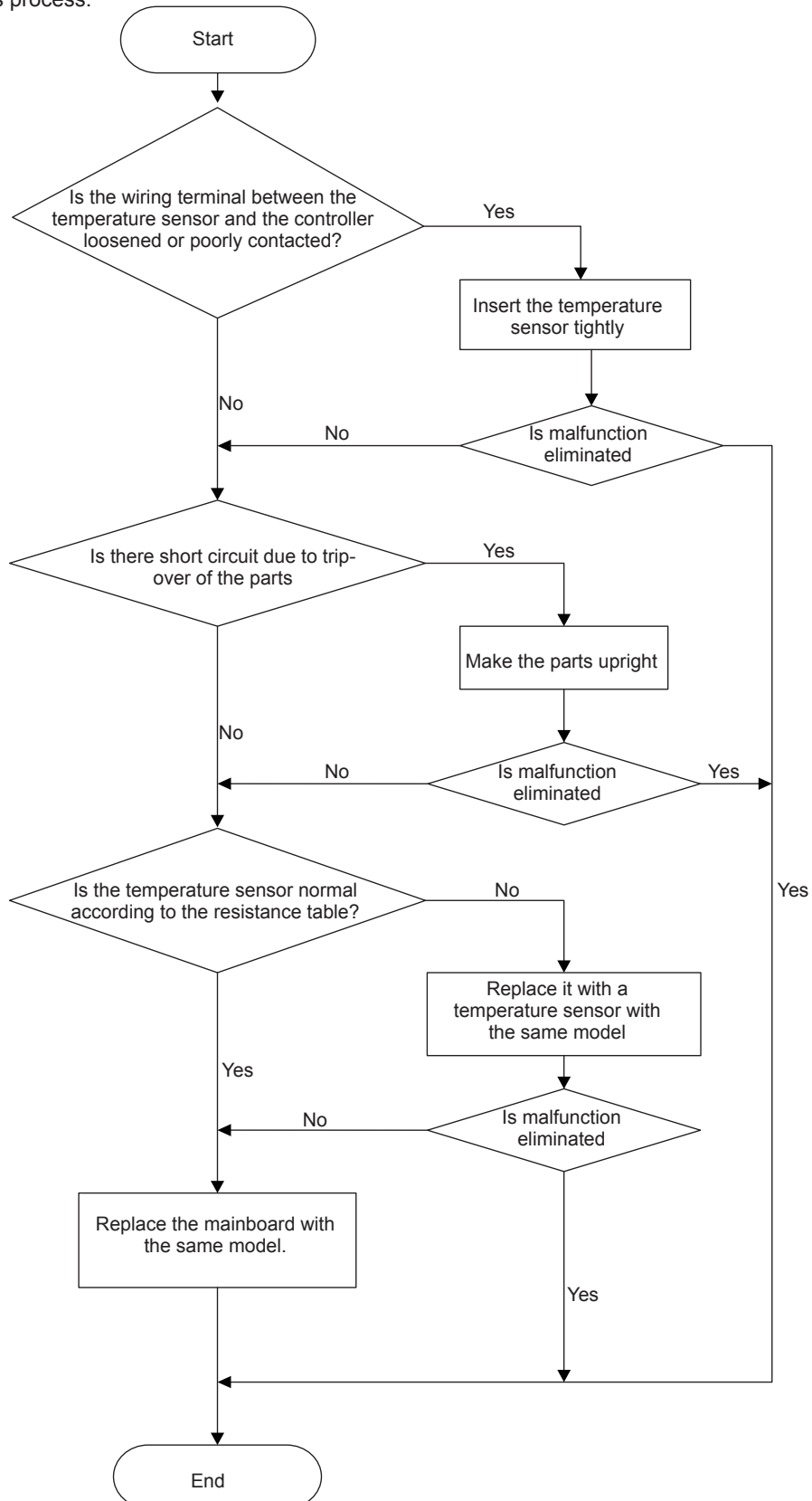
9.2 Procedure of Troubleshooting

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:

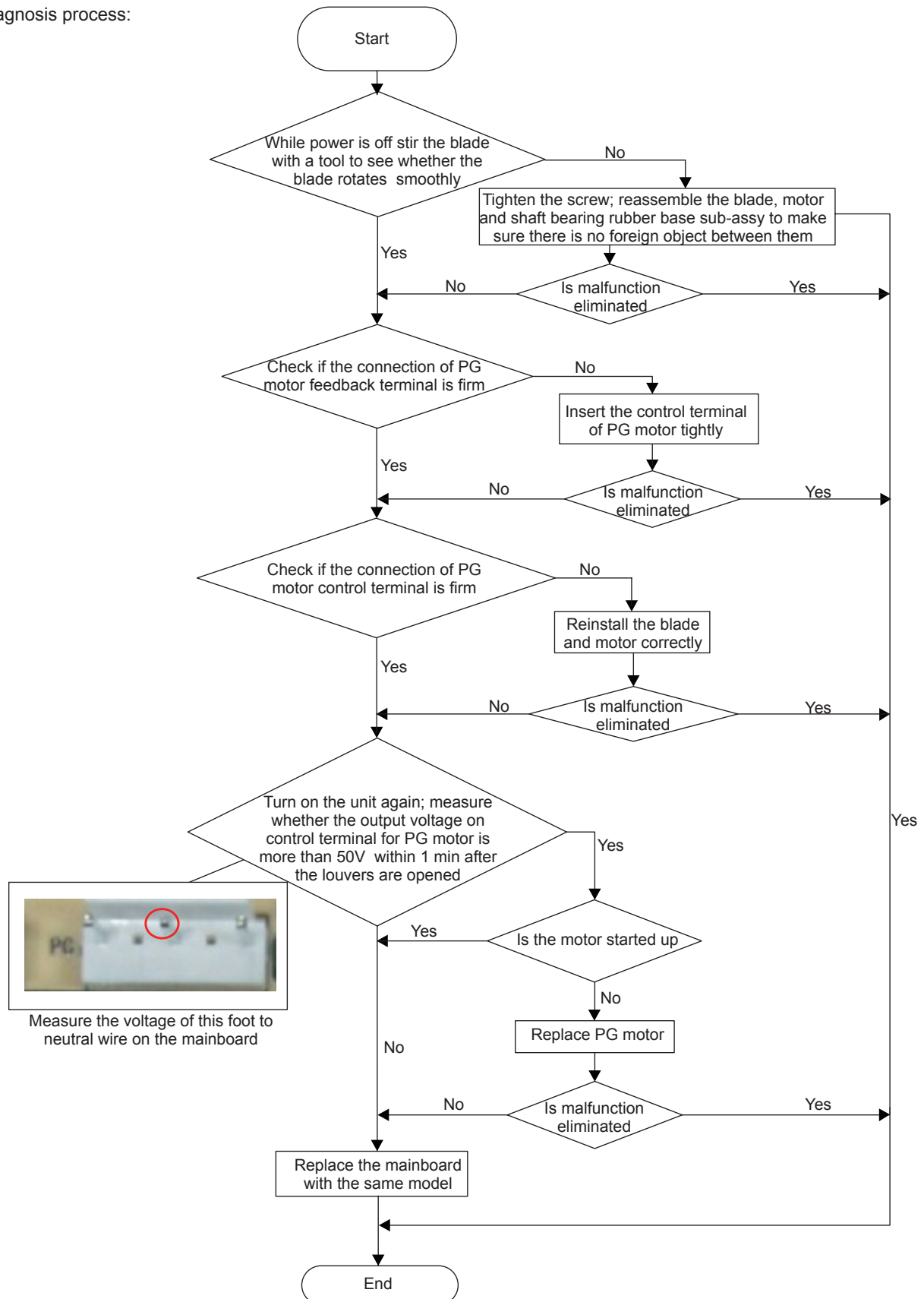


2. Malfunction of Blocked Protection of IDU Fan Motor H6

Main detection points:

- Smoothly Is the control terminal of PG motor connected tightly?
- Smoothly 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:

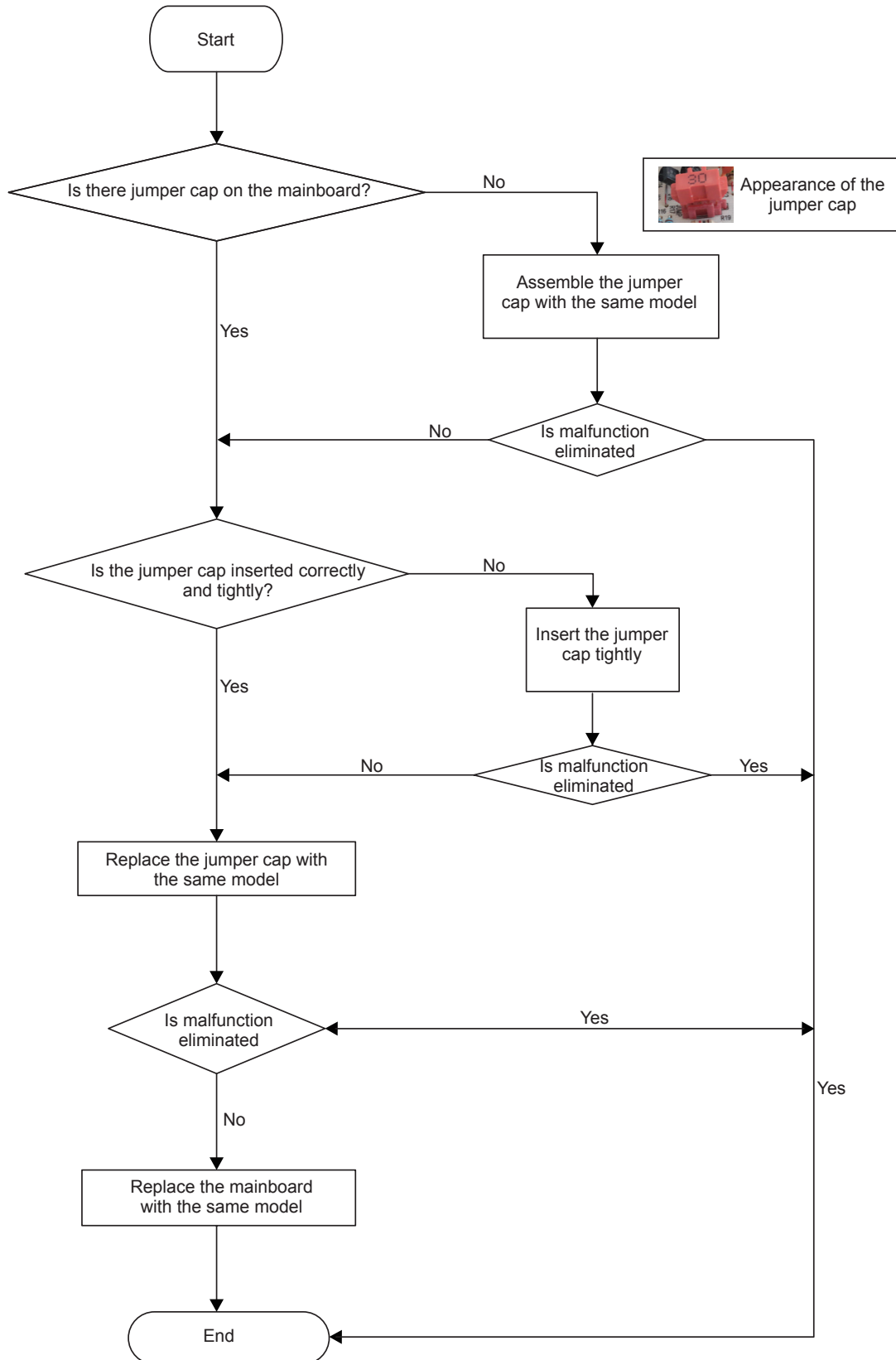


3. Malfunction of Protection of Jumper Cap C5

Main detection points:

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

Malfunction diagnosis process:

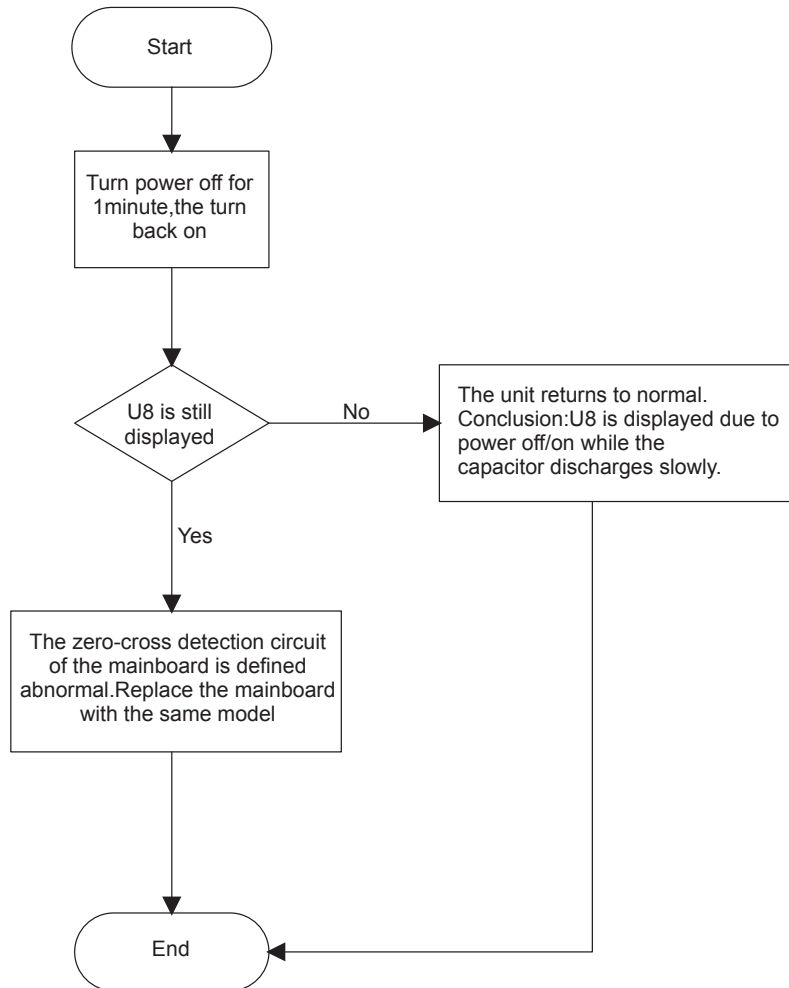


4. Malfunction of Zero-crossing Inspection Circuit Malfunction of the IDU Fan Motor U8

Main detection points:

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

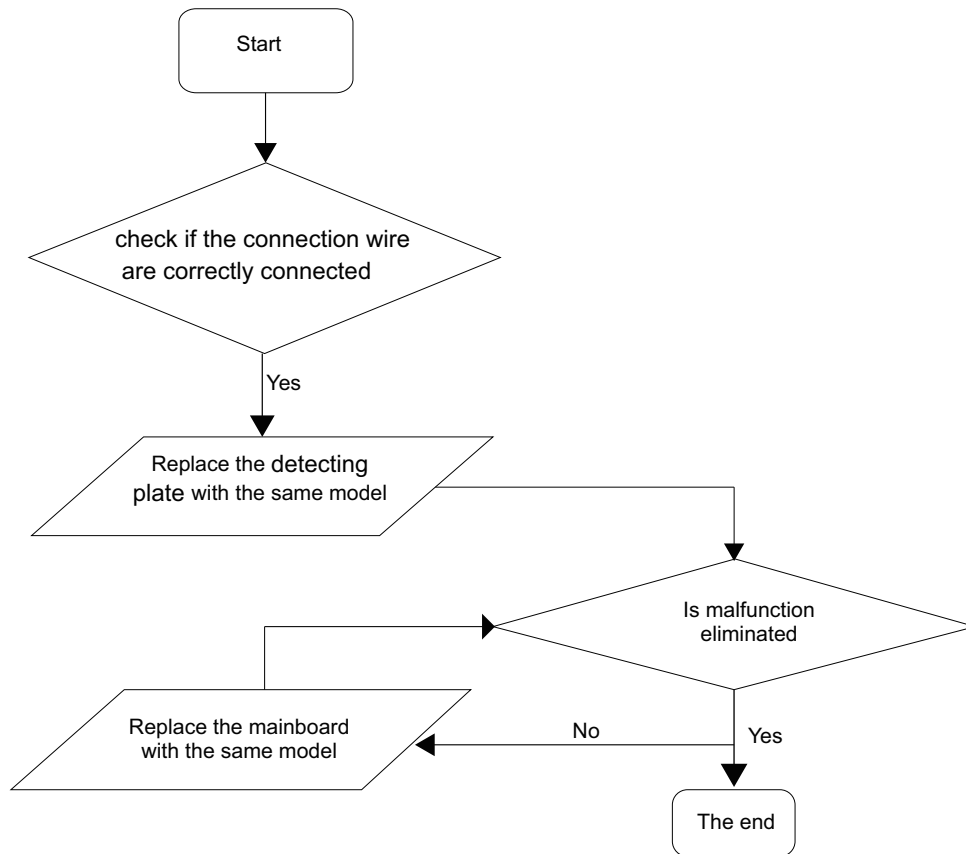
Malfunction diagnosis process:



5. High Temperature and Overload Protection (AP1 below means control board of outdoor unit) E8



6. Malfunction of detecting plate(WIFI) JF



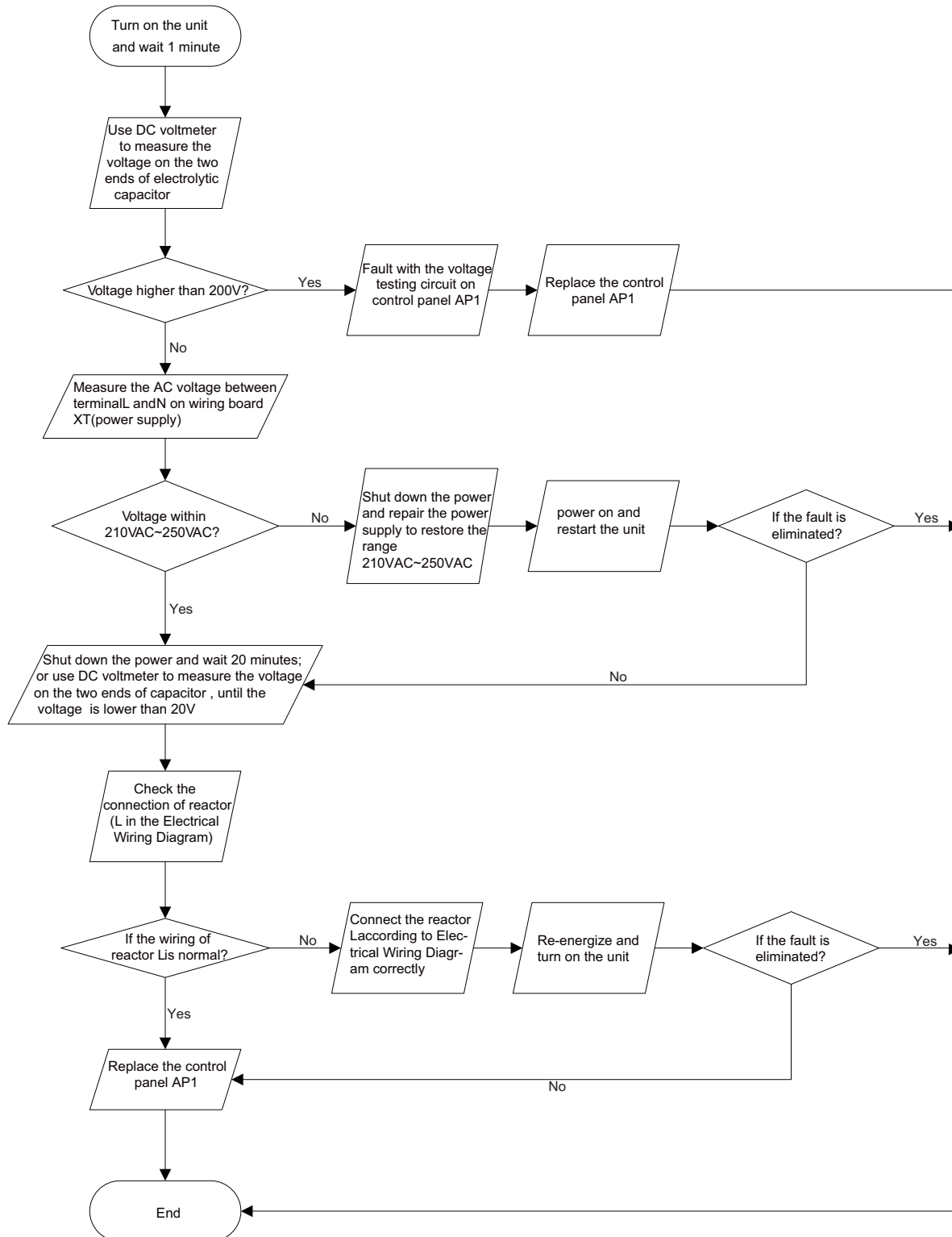
Outdoor unit:

(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:

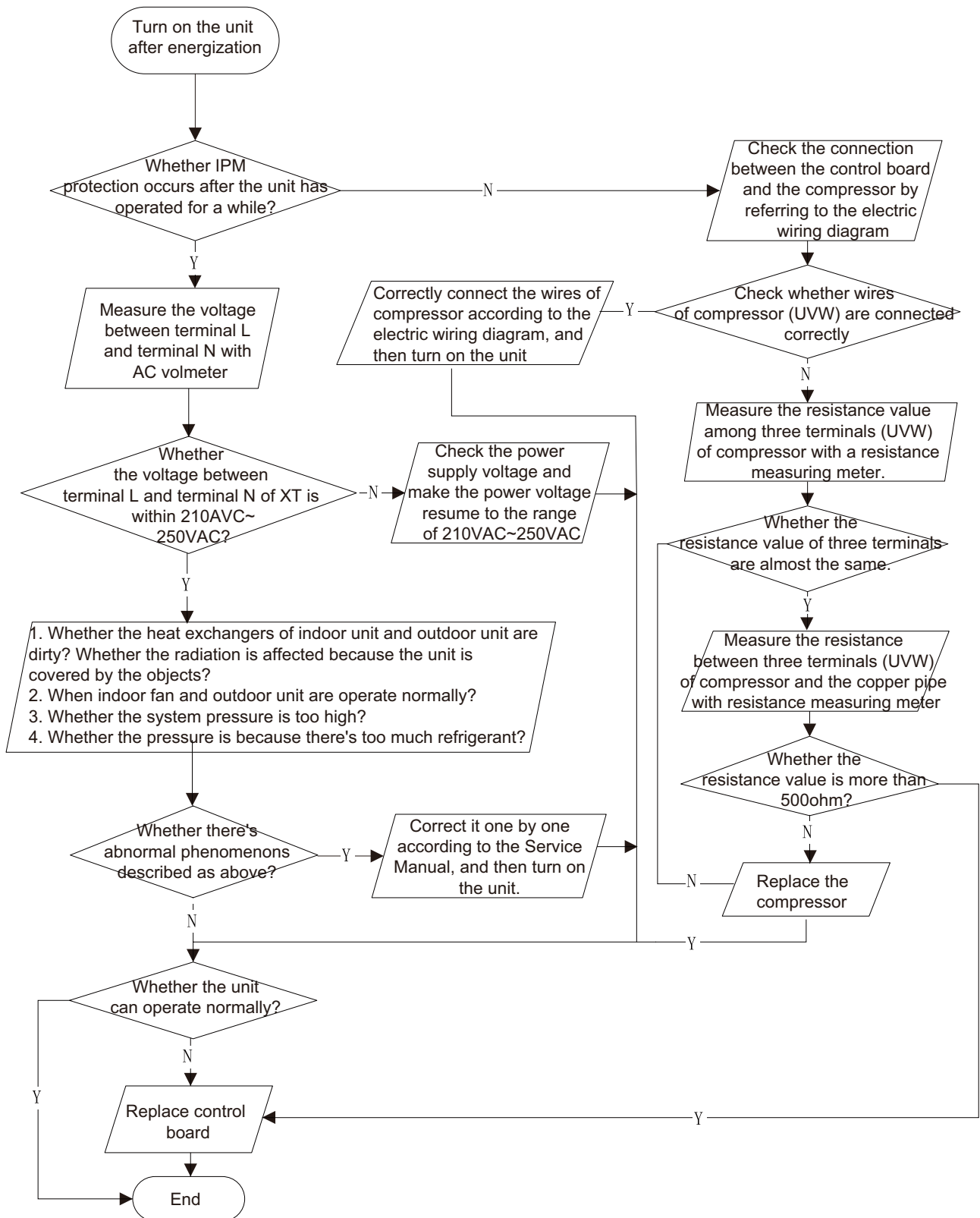


(2) IPM protection, phase current overcurrent (the control board as below indicates the control board of outdoor unit) H5/P5

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:

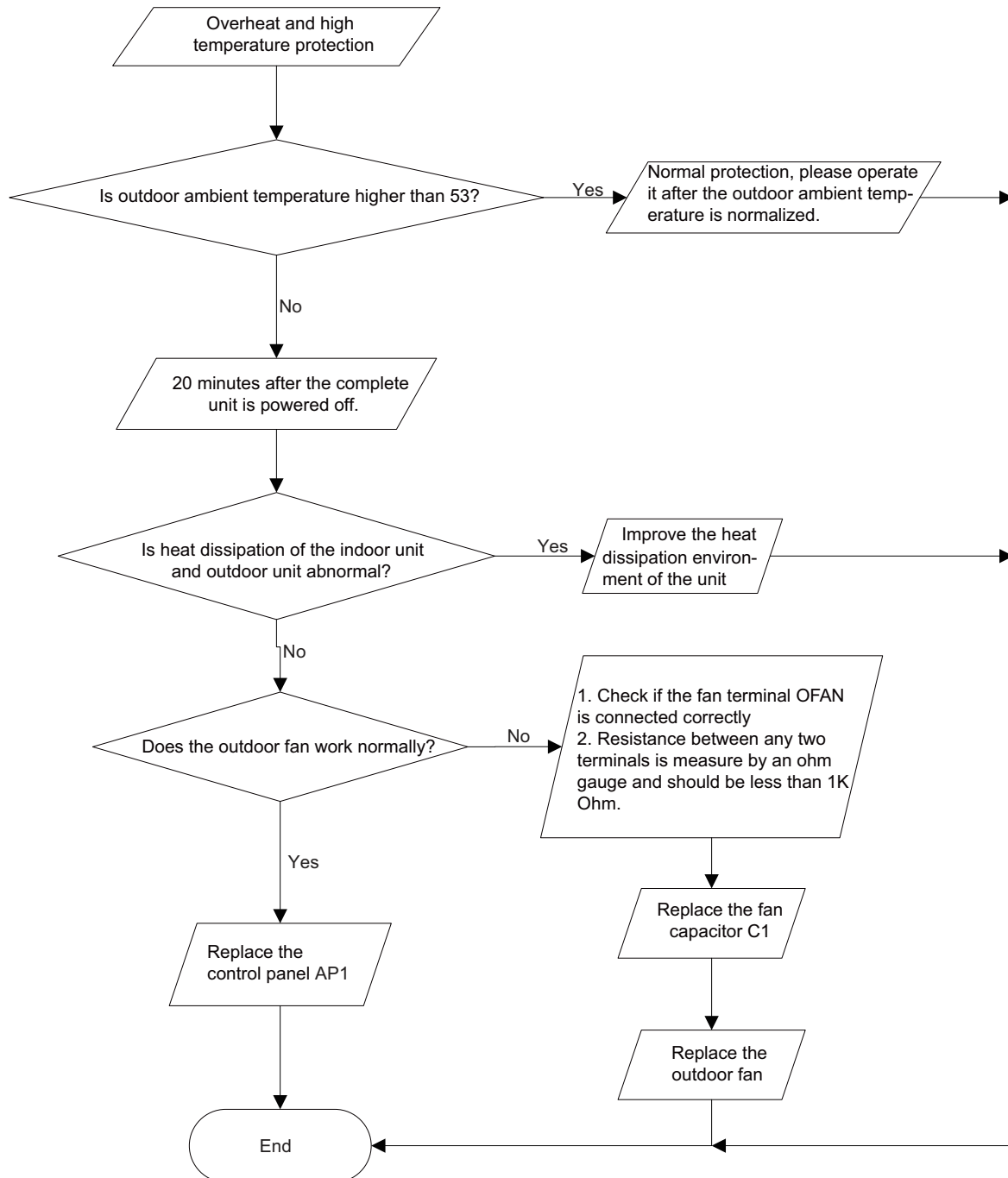


(3) High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

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:

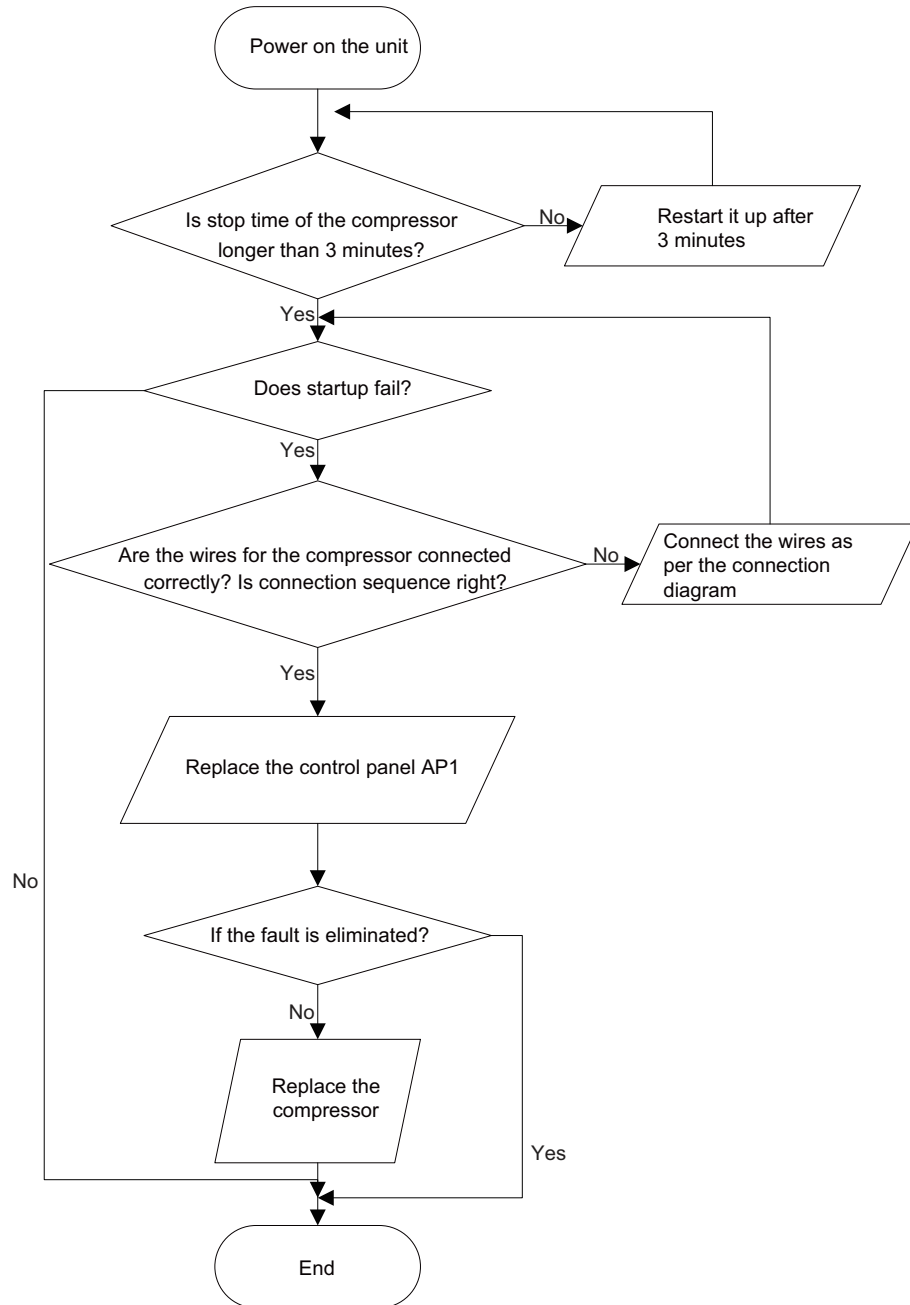


(4) Start-up failure (following AP1 for outdoor unit control board)

Mainly detect:

- Whether the compressor wiring is connected correct?
- Is compressor broken?
- Is time for compressor stopping enough?

Fault diagnosis process:

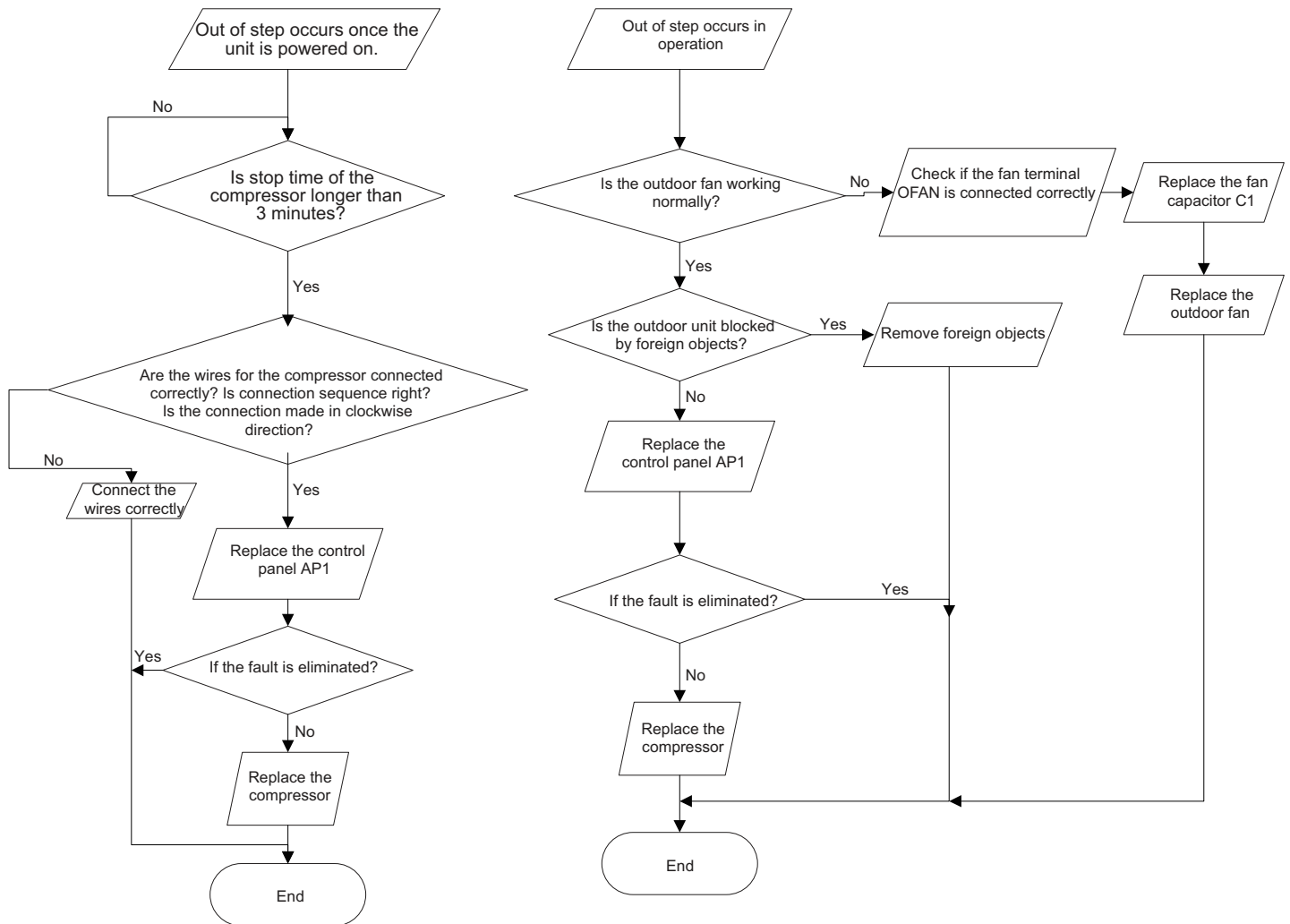


(5) Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

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

Fault diagnosis process:

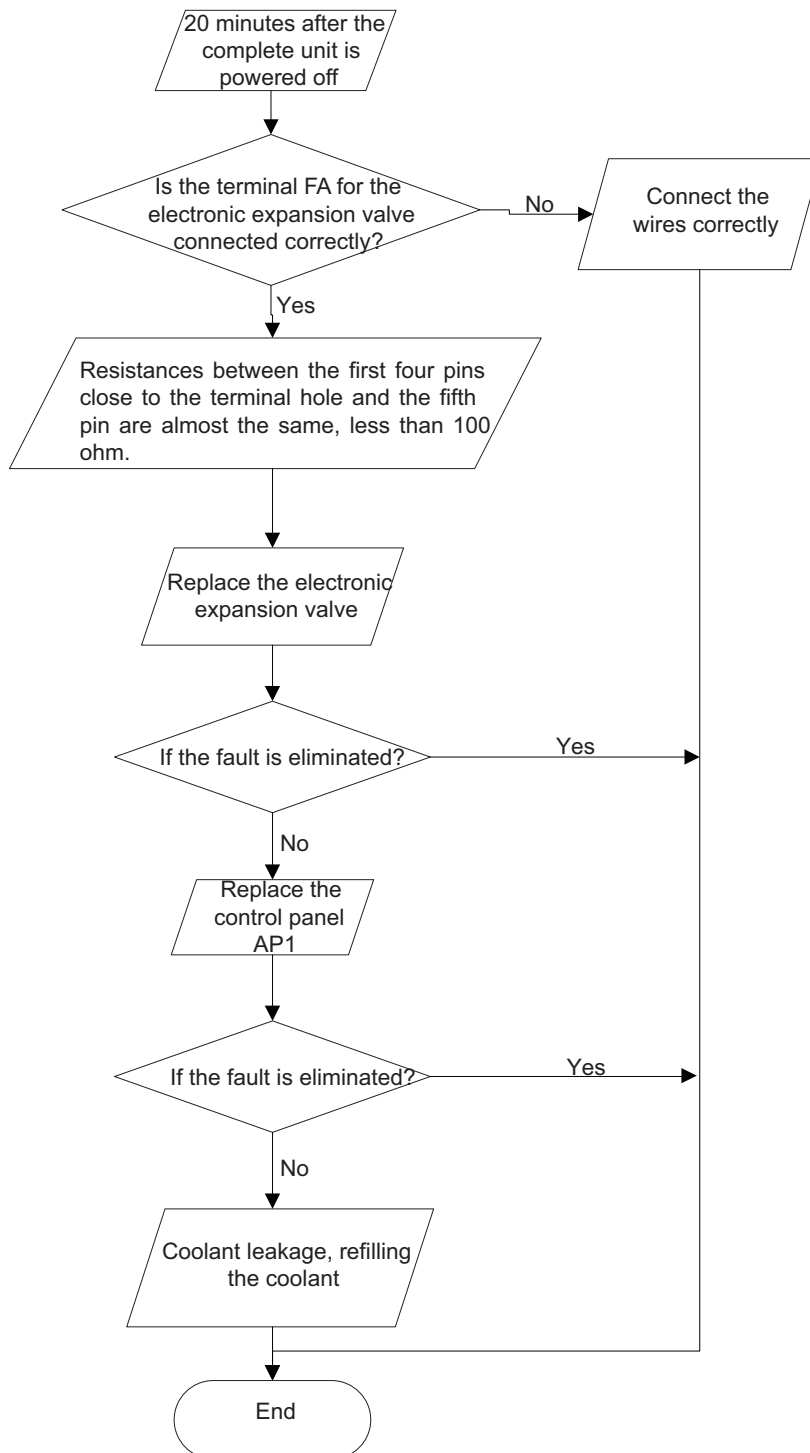


(6) Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit control board)

Mainly detect:

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

Fault diagnosis process:

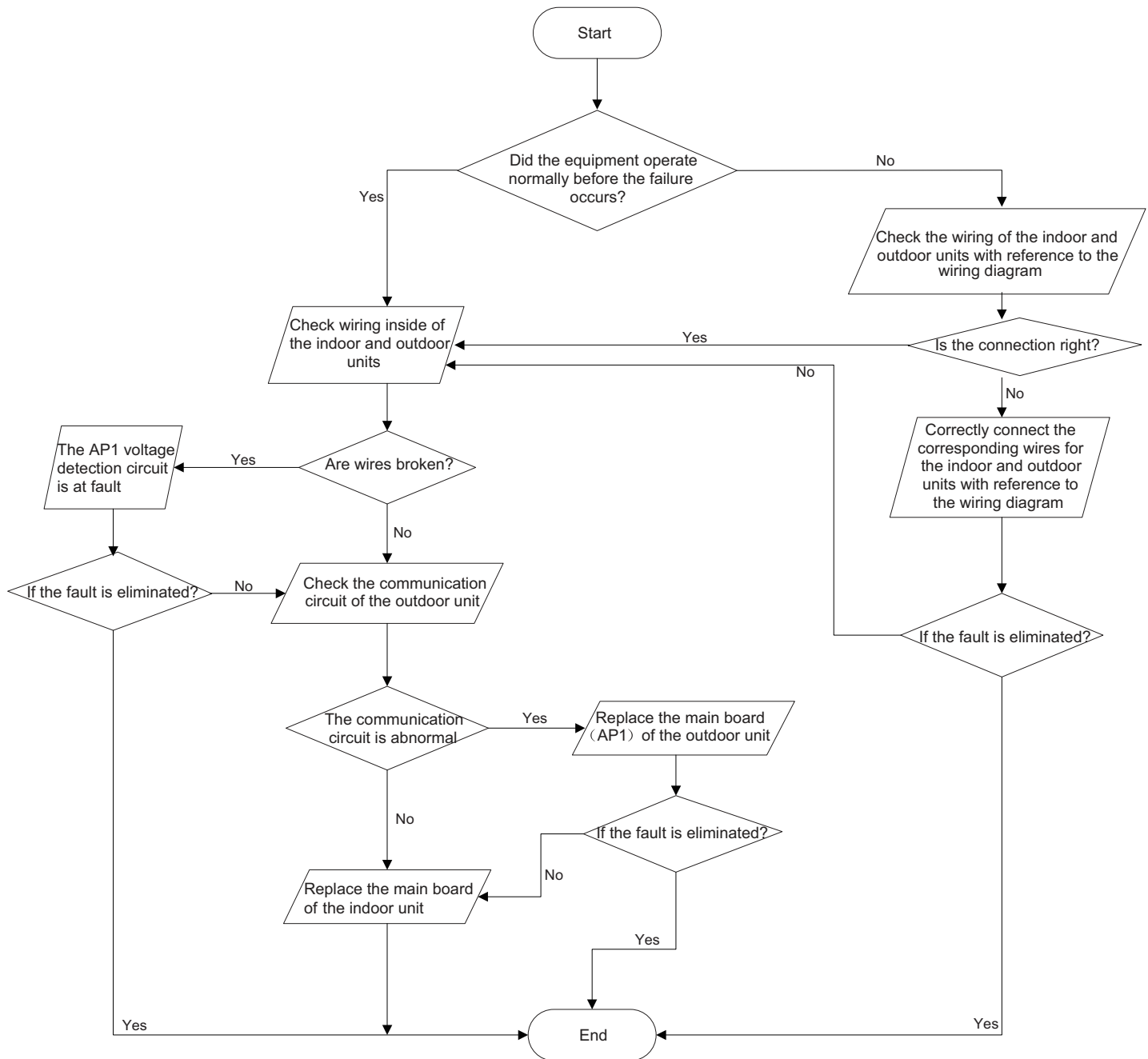


(7) Communication malfunction: (following AP1 for outdoor unit control board)

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:

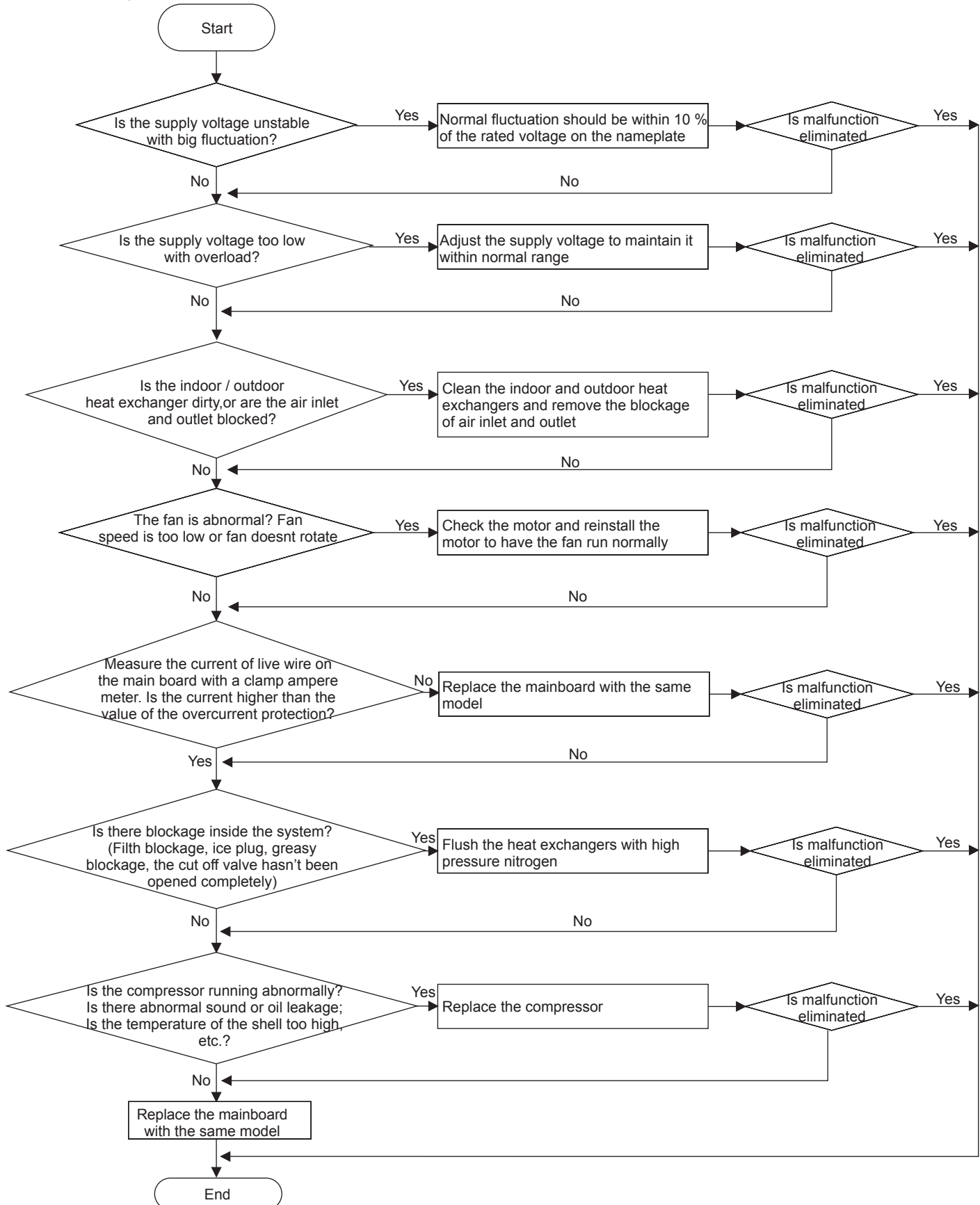


(8) Malfunction of Overcurrent Protection

Main detection points:

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

Malfunction diagnosis process:



9.3 Maintenance method for normal malfunction

1. Air Conditioner Can't be Started Up

| Possible Causes | Discriminating Method (Air conditioner Status) | Troubleshooting |
|---|---|---|
| No power supply, or poor connection for power plug | After energization, operation indicator isn't bright and the buzzer can't give out sound | Confirm whether it's due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well. |
| Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals | Under normal power supply circumstances, operation indicator isn't bright after energization | Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly |
| Electric leakage for air conditioner | After energization, room circuit breaker trips off at once | Make sure the air conditioner is grounded reliably Make sure wires of air conditioner are connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord. |
| Model selection for air switch is improper | After energization, air switch trips off | Select proper air switch |
| Malfunction of remote controller | After energization, operation indicator is bright, while no display on remote controller or buttons have no action. | Replace batteries for remote controller Repair or replace remote controller |

2. Poor Cooling (Heating) for Air Conditioner

| Possible Causes | Discriminating Method (Air conditioner Status) | Troubleshooting |
|--|---|---|
| Set temperature is improper | Observe the set temperature on remote controller | Adjust the set temperature |
| Rotation speed of the IDU fan motor is set too low | Small wind blow | Set the fan speed at high or medium |
| Filter of indoor unit is blocked | Check the filter to see if it's blocked | Clean the filter |
| Installation position for indoor unit and outdoor unit is improper | Check whether the installation position is proper according to installation requirement for air conditioner | Adjust the installation position, and install the rainproof and sunproof for outdoor unit |
| Refrigerant is leaking | Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range | Find out the leakage causes and deal with it. Add refrigerant. |
| Malfunction of 4-way valve | Blow cold wind during heating | Replace the 4-way valve |
| Malfunction of capillary | Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked | Replace the capillary |
| Flow volume of valve is insufficient | The pressure of valves is much lower than that stated in the specification | Open the valve completely |
| Malfunction of horizontal louver | Horizontal louver can't swing | Refer to point 3 of maintenance method for details |
| Malfunction of the IDU fan motor | The IDU fan motor can't operate | Refer to troubleshooting for H6 for maintenance method in details |
| Malfunction of the ODU fan motor | The ODU fan motor can't operate | Refer to point 4 of maintenance method for details |
| Malfunction of compressor | Compressor can't operate | Refer to point 5 of maintenance method for details |

3. Horizontal Louver Can't Swing

| Possible Causes | Discriminating Method (Air conditioner Status) | Troubleshooting |
|---|--|--|
| Wrong wire connection, or poor connection | Check the wiring status according to circuit diagram | Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly |
| Stepping motor is damaged | Stepping motor can't operate | Repair or replace stepping motor |
| Main board is damaged | Others are all normal, while horizontal louver can't operate | Replace the main board with the same model |

4. ODU Fan Motor Can't Operate

| Possible causes | Discriminating method (air conditioner status) | Troubleshooting |
|---|---|--|
| Wrong wire connection, or poor connection | Check the wiring status according to circuit diagram | Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly |
| Capacity of the ODU fan motor is damaged | Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor. | Replace the capacity of fan |
| Power voltage is a little low or high | Use universal meter to measure the power supply voltage. The voltage is a little high or low | Suggest to equip with voltage regulator |
| Motor of outdoor unit is damaged | When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat. | Change compressor oil and refrigerant. If no better, replace the compressor with a new one |

5. Compressor Can't Operate

| Possible causes | Discriminating method (air conditioner status) | Troubleshooting |
|---|---|--|
| Wrong wire connection, or poor connection | Check the wiring status according to circuit diagram | Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly |
| Capacity of compressor is damaged | Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor. | Replace the compressor capacitor |
| Power voltage is a little low or high | Use universal meter to measure the power supply voltage. The voltage is a little high or low | Suggest to equip with voltage regulator |
| Coil of compressor is burnt out | Use universal meter to measure the resistance between compressor terminals and its 0 | Repair or replace compressor |
| Cylinder of compressor is blocked | Compressor can't operate | Repair or replace compressor |

6. Air Conditioner is Leaking

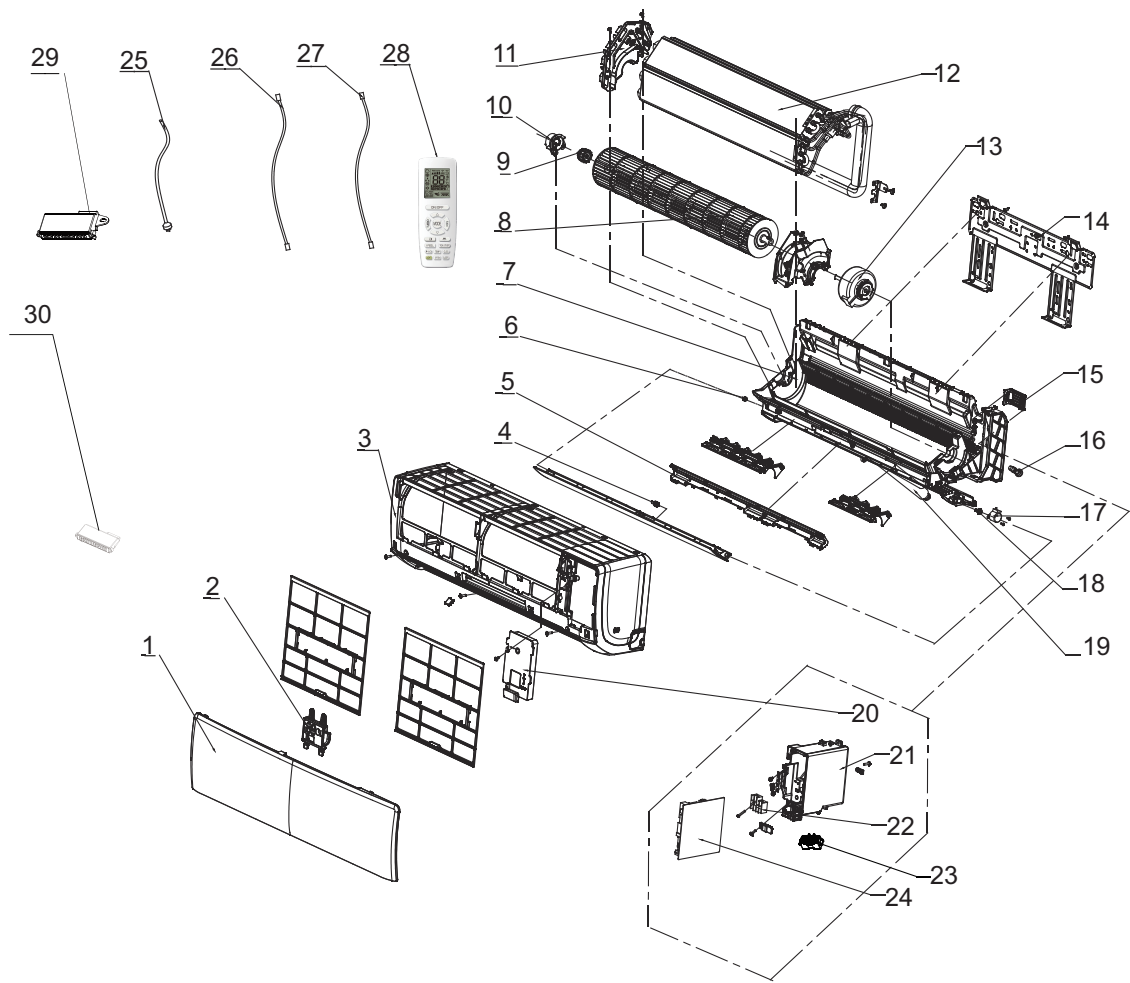
| Possible causes | Discriminating method (air conditioner status) | Troubleshooting |
|-----------------------|---|---|
| Drain pipe is blocked | Water leaking from indoor unit | Eliminate the foreign objects inside the drain pipe |
| Drain pipe is broken | Water leaking from drain pipe | Replace drain pipe |
| Wrapping is not tight | Water leaking from the pipe connection place of indoor unit | Wrap it again and bundle it tightly |

7. Abnormal Sound and Vibration

| Possible causes | Discriminating method (air conditioner status) | Troubleshooting |
|---|--|---|
| When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound | There's the sound of "PAPA" | Normal phenomenon. Abnormal sound will disappear after a few minutes. |
| When turn on or turn off the unit, there's abnormal sound due to flow of refrigerant inside air conditioner | Water-running sound can be heard | Normal phenomenon. Abnormal sound will disappear after a few minutes. |
| Foreign objects inside the indoor unit or there're parts touching together inside the indoor unit | There's abnormal sound fro indoor unit | Remove foreign objects. Adjust all parts position of indoor unit, tighten screws and stick damping plaster between connected parts |
| Foreign objects inside the outdoor unit or there're parts touching together inside the outdoor unit | There's abnormal sound fro outdoor unit | Remove foreign objects. Adjust all parts position of outdoor unit, tighten screws and stick damping plaster between connected parts |
| Short circuit inside the magnetic coil | During heating, the way valve has abnormal electromagnetic sound | Replace magnetic coil |
| Abnormal shake of compressor | Outdoor unit gives out abnormal sound | Adjust the support foot mat of compressor, tighten the bolts |
| Abnormal sound inside the compressor | Abnormal sound inside the compressor | If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances. |

10. Exploded View and Parts List

10.1 Indoor Unit



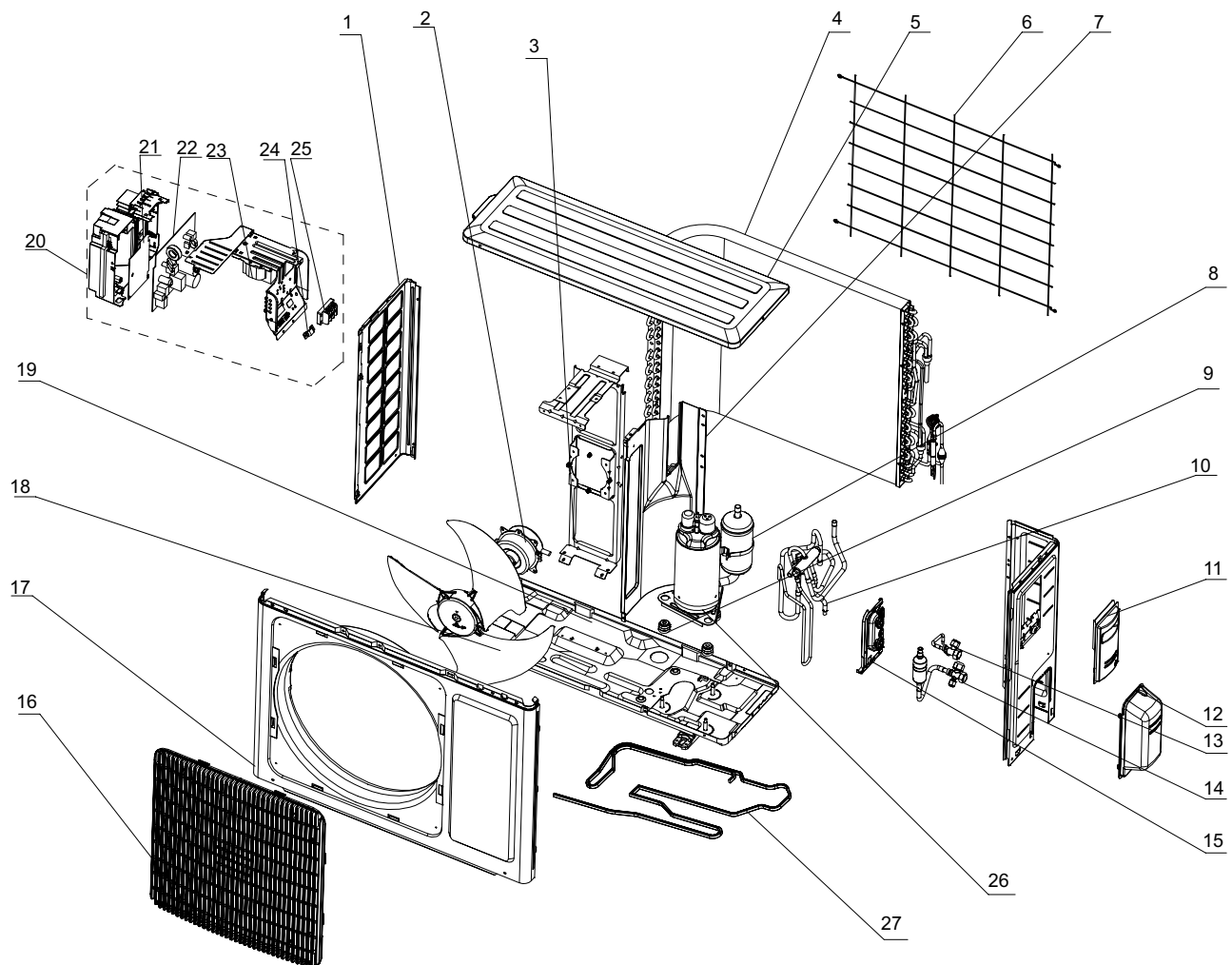
The component picture is only for reference; please refer to the actual product.

| NO. | Description | Part Code | | Qty |
|-----|------------------------------|----------------|----------------|-----|
| | | 09 K | 12 K | |
| | Product Code | CB514N00300 | CB514N00200 | |
| 1 | Front Panel | 200003060168T | 200003060168T | 1 |
| 2 | Display Board | 300001000037 | 300001000037 | 1 |
| 3 | Front Case | 20000200000702 | 20000200000702 | 1 |
| 4 | Axile Bush | 10542036 | 10542036 | 1 |
| 5 | Helicoid Tongue | 200006000002 | 200006000002 | 1 |
| 6 | Left Axile Bush | 10512037 | 10512037 | 1 |
| 7 | Rear Case assy | 000001000004 | 000001000004 | 1 |
| 8 | Cross Flow Fan | 10352066 | 10352066 | 1 |
| 9 | O-Gasket sub-assy of Bearing | 76512051 | 76512051 | 1 |
| 10 | Ring of Bearing | 26152022 | 26152022 | 1 |
| 11 | Evaporator Support | 200025000003 | 200025000003 | 1 |
| 12 | Evaporator Assy | 011001060150 | 011001060150 | 1 |
| 13 | Fan Motor | 150120874 | 150120874 | 1 |
| 14 | Wall Mounting Frame Sub-assy | 017211000005 | 017211000005 | 1 |
| 15 | Connecting pipe clamp | 200017000001 | 200017000001 | 1 |
| 16 | Rubber Plug (Water Tray) | 76712012 | 76712012 | 1 |
| 17 | Stepping Motor | 1521210811 | 1521210811 | 1 |
| 18 | Crank | 73012005 | 73012005 | 1 |
| 19 | Drainage Hose | 0523001408 | 0523001408 | 1 |
| 20 | Electric Box Cover2 | 200082000005 | 200082000005 | 1 |
| 21 | Electric Box Assy | 100002061316 | 100002065056 | 1 |
| 22 | Terminal Board | 420111041 | 420111041 | 1 |
| 23 | Jumper | 4202021906 | 4202021908 | 1 |
| 24 | Main Board | 300002000346 | 300002000346 | 1 |
| 25 | Power Cord | / | / | / |
| 26 | Connecting Cable | / | / | / |
| 27 | Connecting Cable | 4002052317 | 4002052317 | 0 |
| 28 | Remote Controller | 305001000117 | 305001000117 | 1 |
| 29 | Cold Plasma Generator | 1114001602 | 1114001602 | 1 |
| 30 | Detecting plate(WIFI) | 30110144 | 30110144 | 1 |

Above data is subject to change without notice.

10.2 Outdoor Unit

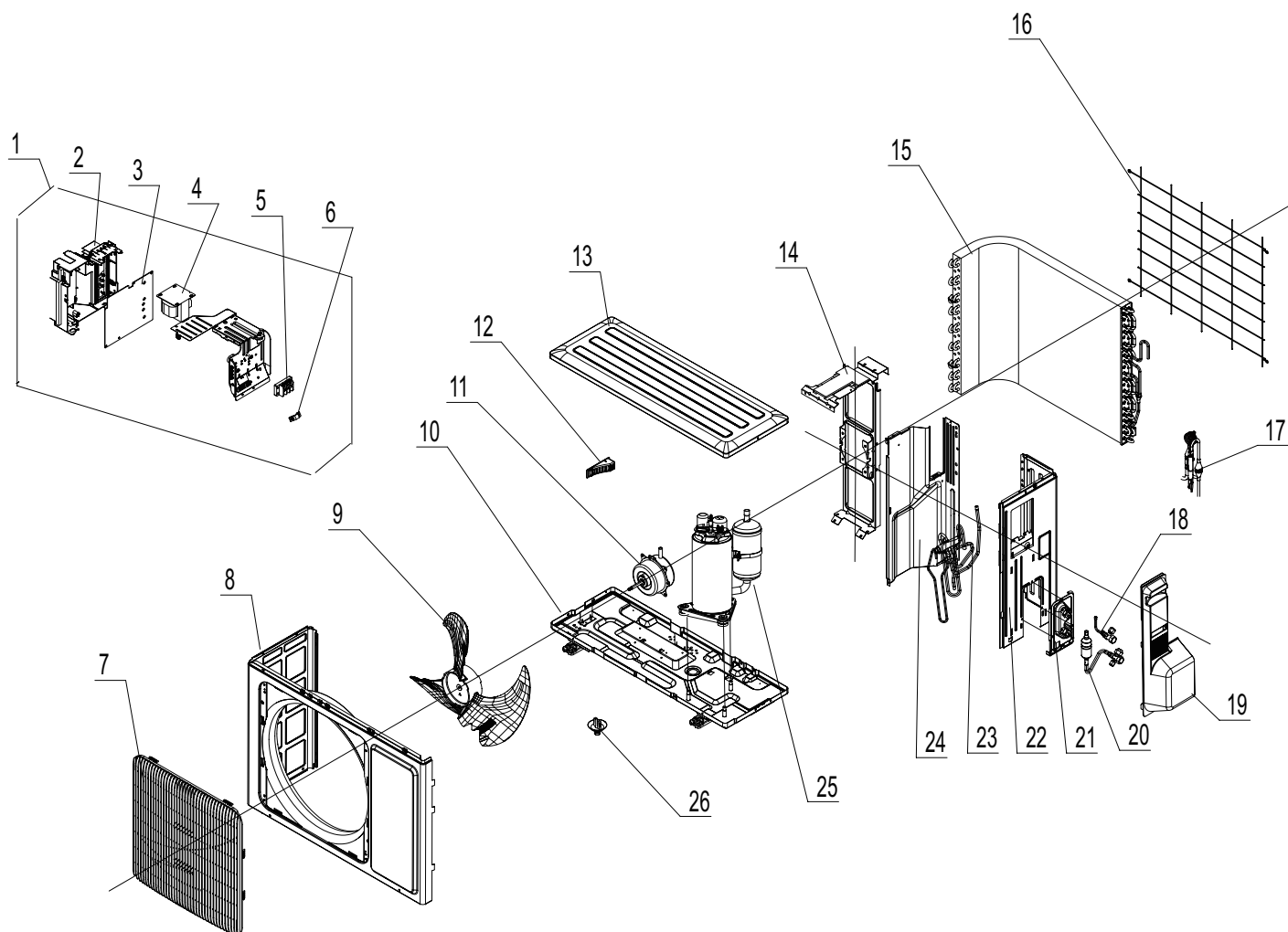
12K



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

| NO. | Description | Part Code | Qty |
|-----|-----------------------------|--------------|-----|
| | | 12 K | |
| | | Product Code | |
| | | CB478W00100 | |
| 1 | Left Side Plate | 01303200P | 1 |
| 2 | Fan Motor | 1501308507 | 1 |
| 3 | Motor Support | 01703136 | 1 |
| 4 | Condenser Assy | 011002000515 | 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 | Valve Cover | 22243006 | 1 |
| 13 | Cut off Valve | 071302391 | 1 |
| 14 | Cut off Valve | 07130239 | 1 |
| 15 | Valve Support | 0171314201P | 1 |
| 16 | Front Grill | 22413044 | 1 |
| 17 | Cabinet | 01433033P | 1 |
| 18 | Axial Flow Fan | 10333011 | 1 |
| 19 | Chassis Sub-assy | 017000000091 | 1 |
| 20 | Electric Box Assy | 100002001762 | 1 |
| 21 | Electric Box | 20113032 | 1 |
| 22 | Main Board | 300027000387 | 1 |
| 23 | Reactor | 43130184 | 1 |
| 24 | Wire Clamp | 71010103 | 2 |
| 25 | Terminal Board | 42010313 | 1 |
| 26 | Electrical Heater | / | / |
| 27 | Electrical Heater (Chassis) | / | / |

Above data is subject to change without notice.




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

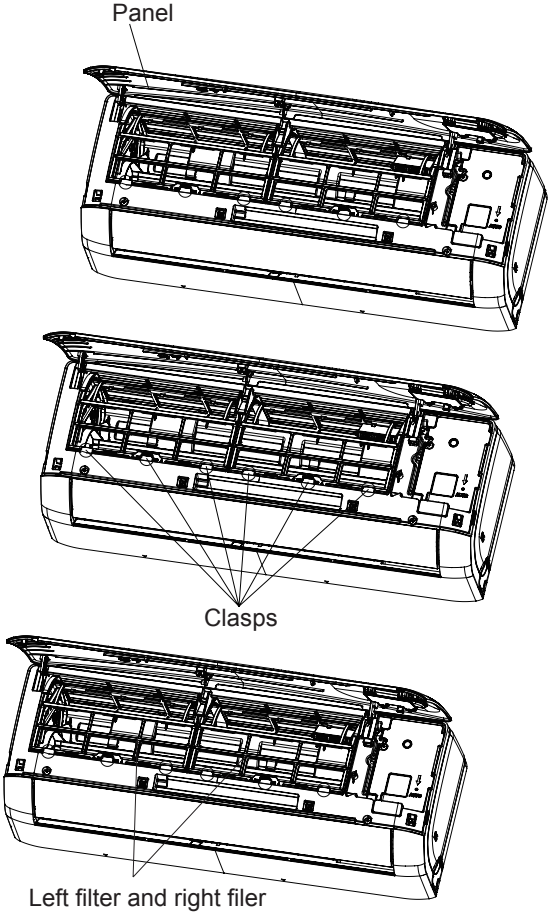
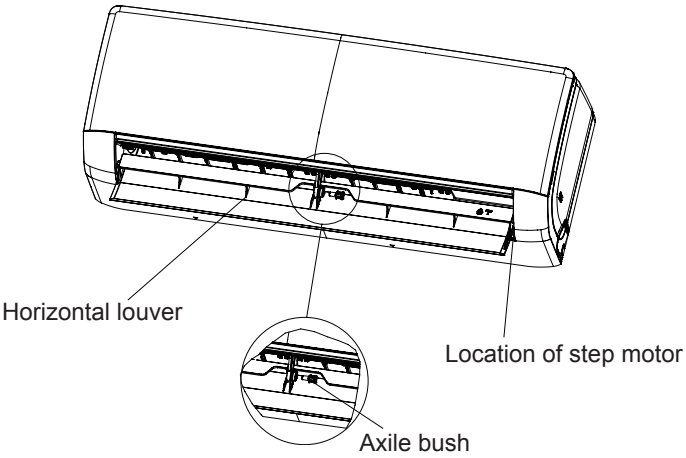
| No. | Description | Part Code | Qty |
|-----|---------------------------|---------------|-----|
| | | 09 K | |
| | | Product Code | |
| | | CB478W00200 | |
| 1 | Electric Box Assy | 100002002426 | 1 |
| 2 | Electric Box | 20113034 | 1 |
| 3 | Main Board | 300027000426 | 1 |
| 4 | Reactor | 43130184 | 1 |
| 5 | Terminal Board | 42010313 | 1 |
| 6 | Wire Clamp | 71010103 | 1 |
| 7 | Front Grill | 22413043 | 1 |
| 8 | Front Panel | 01533034P | 1 |
| 9 | Axial Flow Fan | 10333004 | 1 |
| 10 | Chassis Sub-assy | 017000000134P | 1 |
| 11 | Fan Motor | 1501308507 | 1 |
| 12 | Small Handle | 26233100 | 1 |
| 13 | Top Cover Sub-Assy | 01253073 | 1 |
| 14 | Motor Support | 01703104 | 1 |
| 15 | Condenser Assy | 011002000557 | 1 |
| 16 | Rear Grill | 01473009 | 1 |
| 17 | Capillary Sub-assy | 030006000489 | 1 |
| 18 | Cut off Valve Assy | 030164000033 | 1 |
| 19 | Big Handle | 262334332 | 1 |
| 20 | Cut off Valve Assy | 07133474 | 1 |
| 21 | Valve Support | 0171314201P | 1 |
| 22 | Right Side Plate Sub-Assy | 0130317801 | 1 |
| 23 | 4-Way Valve Assy | 030152000171 | 1 |
| 24 | Clapboard Sub-Assy | 0123338502 | 1 |
| 25 | Compressor and Fittings | 009001000175 | 1 |
| 26 | Drainage Connector | 06123401 | 1 |

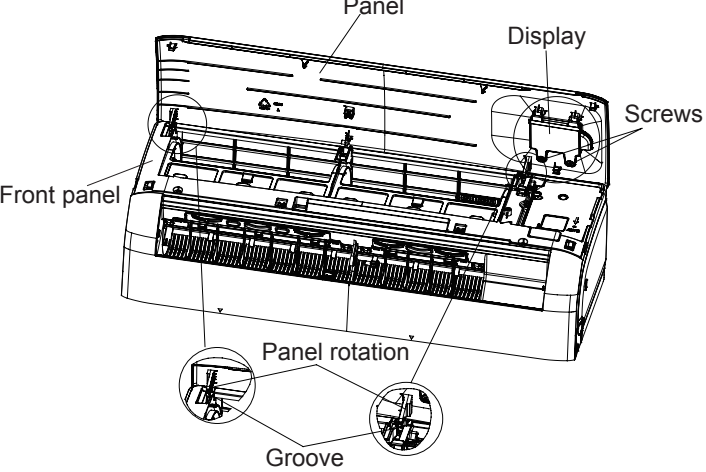
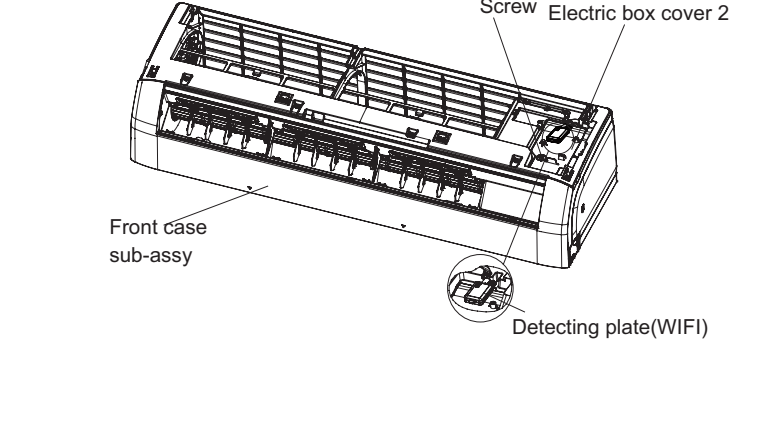
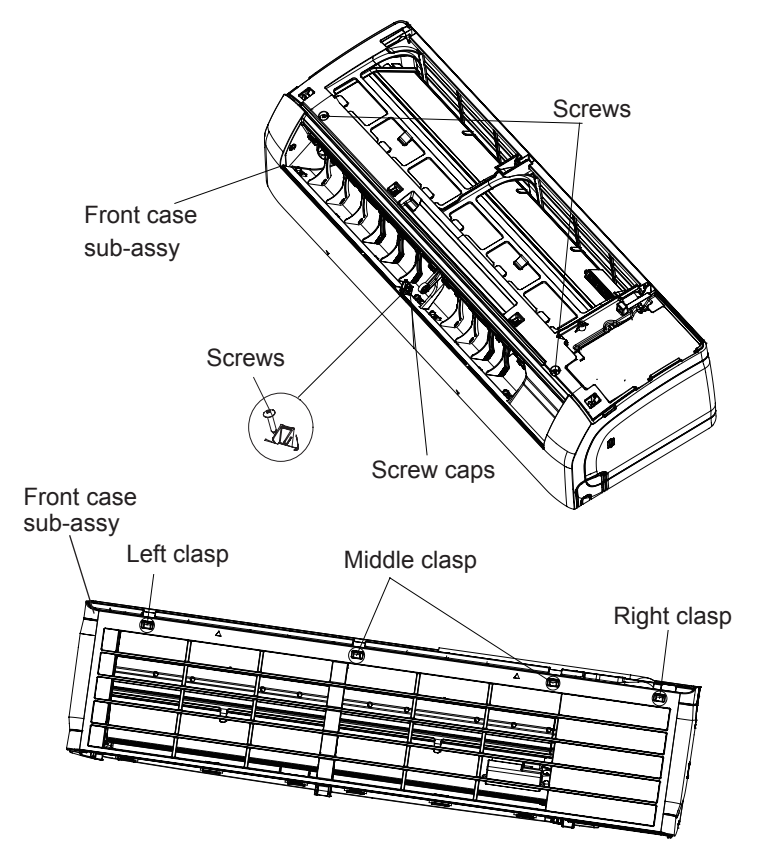
Above data is subject to change without notice.

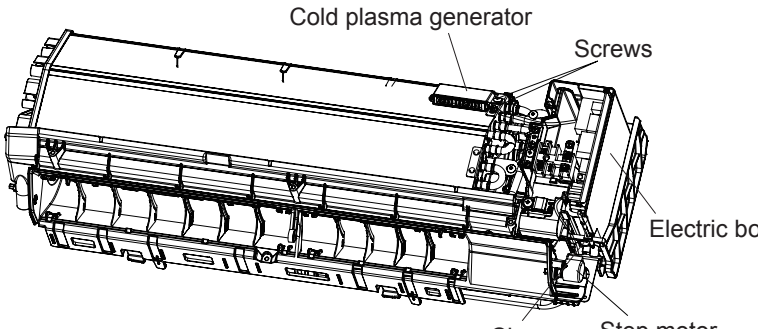
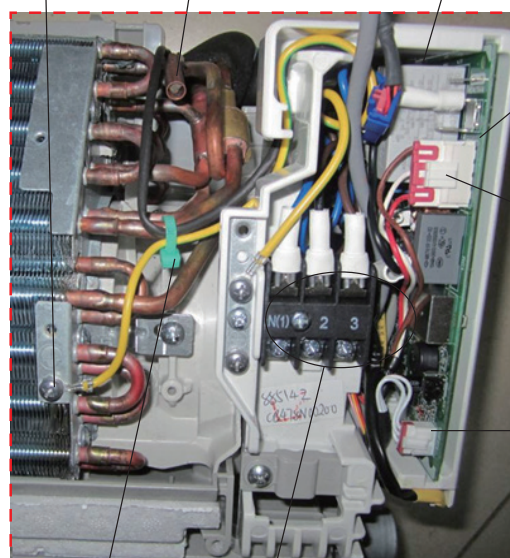
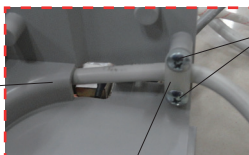
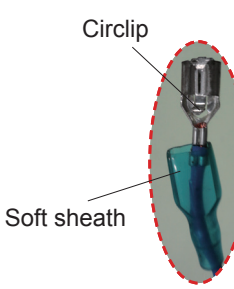
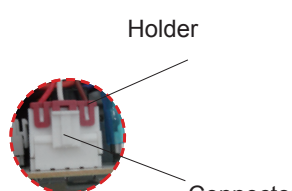
11. Removal Procedure

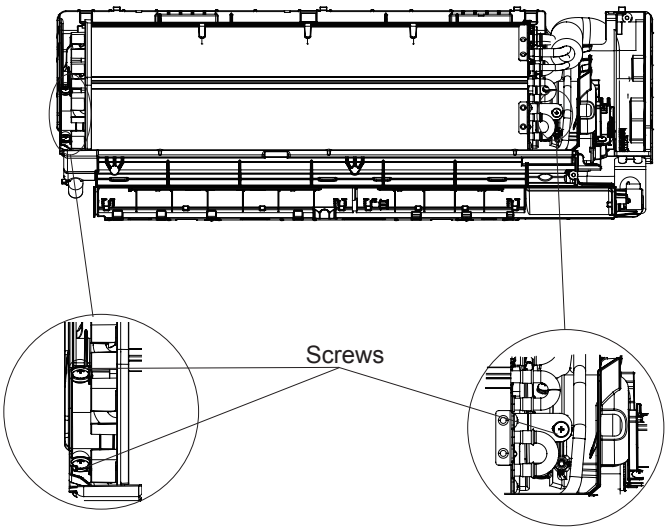
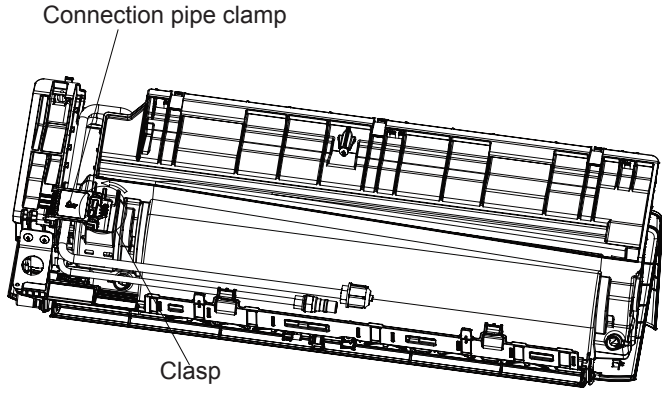
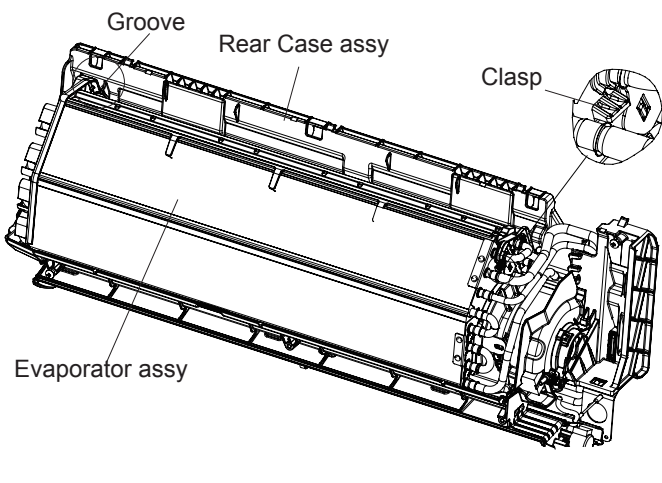
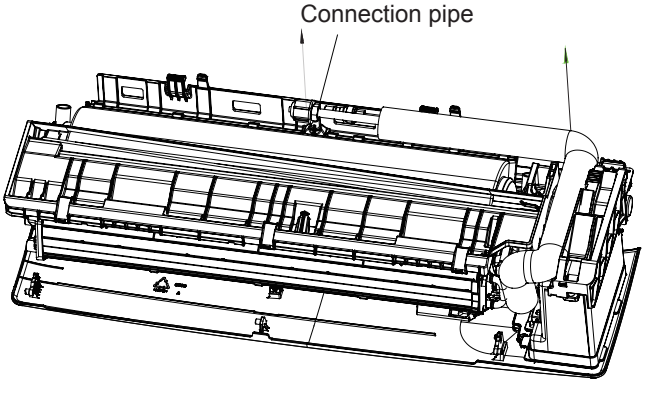
11.1 Removal Procedure of Indoor Unit

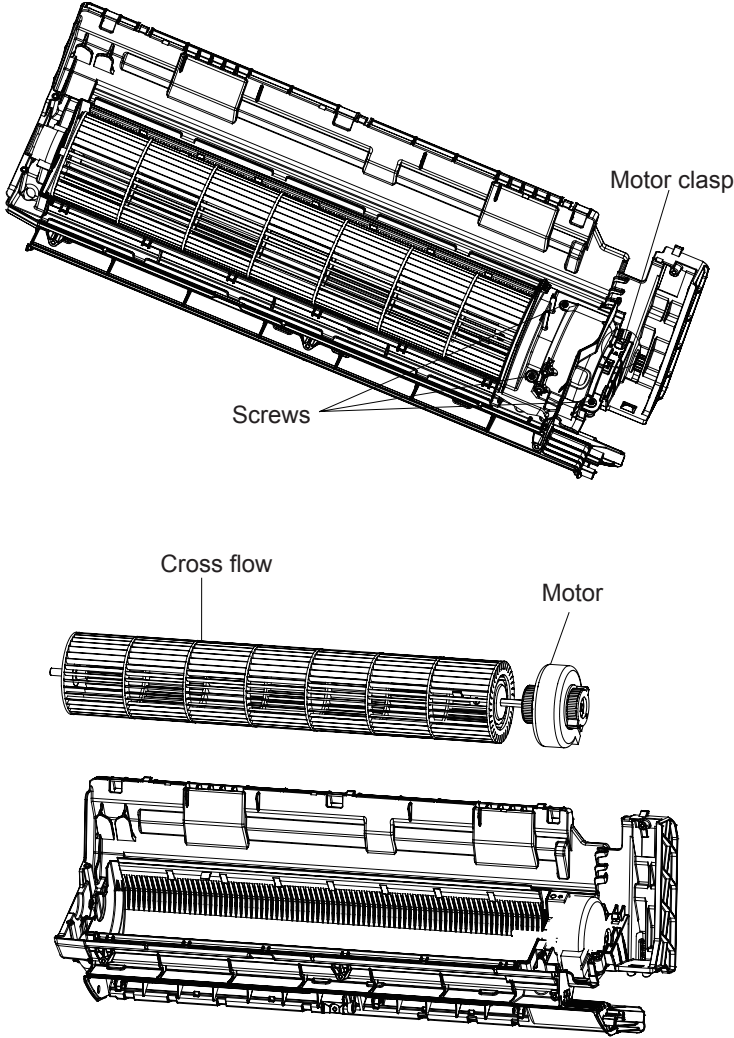
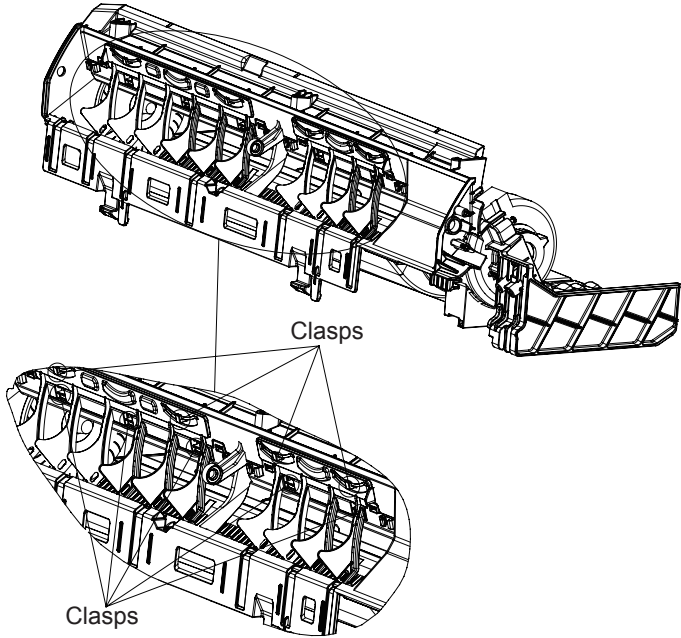
 **Caution: discharge the refrigerant completely before removal.**

| Step | Procedure | |
|-----------------------------|---|--|
| 1. Remove filter | |  |
| a | Open the panel. | |
| b | Loosen the clasp shown in the fig and then pull the left filter and right filter outwards to remove them. | |
| 2. Remove horizontal louver | |  |
| | 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. | |

| Step | Procedure |
|---|--|
| <p>3. Remove panel</p> <p>Open the front panel; separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.</p> <p>Note: The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel.</p> |  |
| <p>4. Remove electric box cover 2 and detecting plate(WiFi)</p> <p>Remove the screws on the electric box cover 2 to remove the electric box cover 2 and detecting plate(WiFi)</p> <p>Note: The position of detection board(WIFI) may be different for different models.</p> |  |
| <p>5. Remove front case sub-assy</p> <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 clasps at left, middle and right sides of front case. Lift the front case sub-assy upwards to remove it.</p> |  |

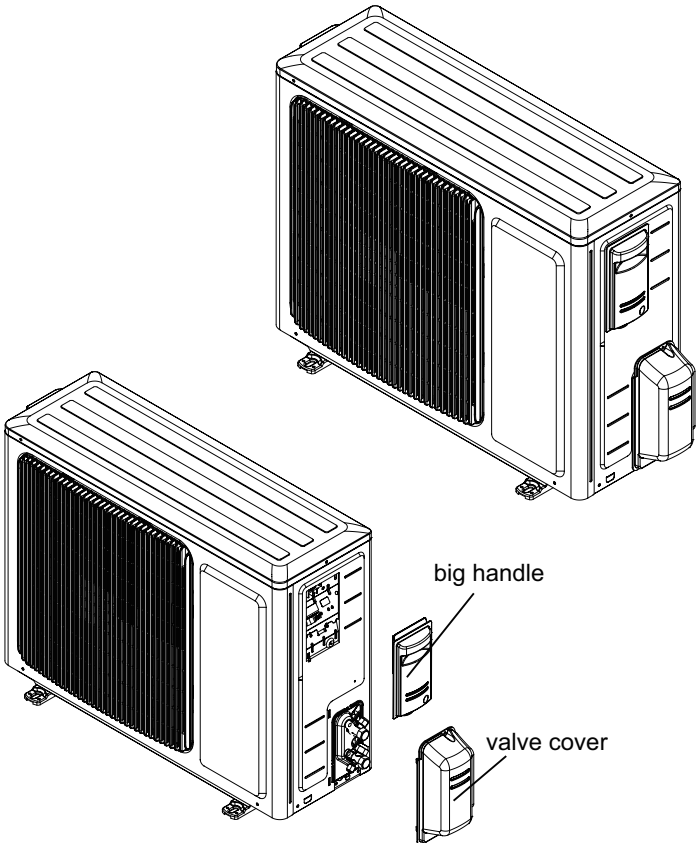
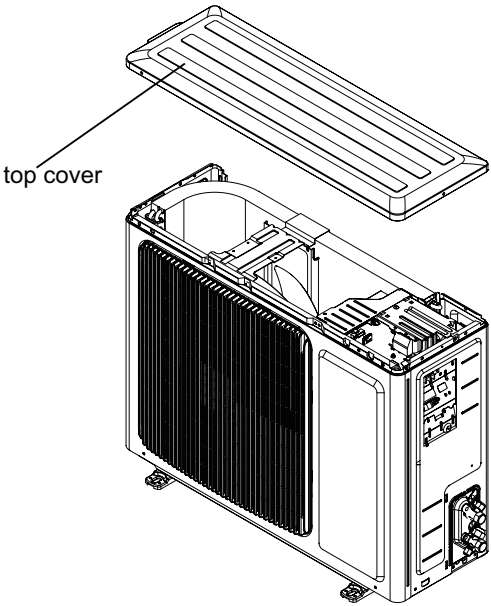
| Step | Procedure |
|--|---|
| 6. Remove electric box assy | |
| <p>a</p> <p>Loosen the connection clasps between Cold plasma generator and electric box, and then remove the cold plasma generator.</p> <p>b</p> <ol style="list-style-type: none"> ① Cut off the wire binder and pull out the indoor tube temperature sensor. ② Screw off one grounding screw. ③ Remove the wiring terminals of motor andstepping motor. ④ Remove the electric box assy. ⑤ Screw off the screws that are locking each. <p>c</p> <p>Rotate the electric box assy. Twist off the screws that are locking the wire clip and loosen the power cord. Remove the wiring terminal of power cord. Lift up the main board and take it off.</p> <p>Instruction: Some wiring terminal of this product is with lock catch and other devices. The pulling method is as below:</p> <ol style="list-style-type: none"> 1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals. 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. |      |

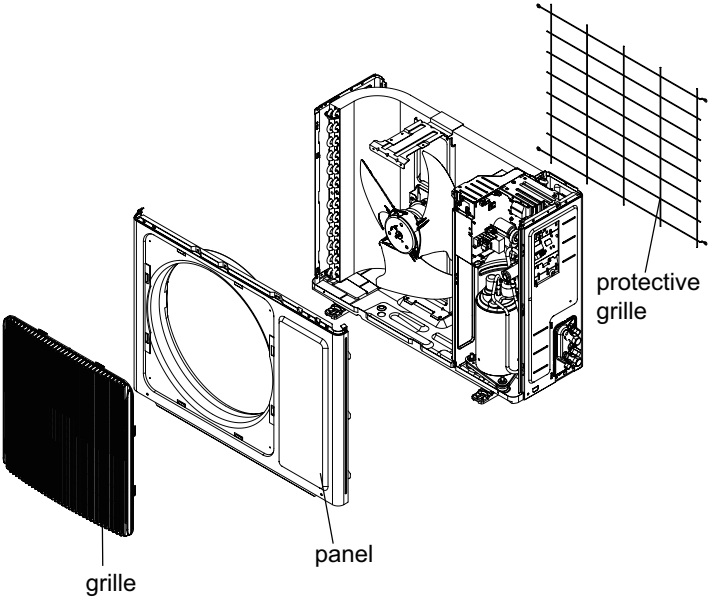
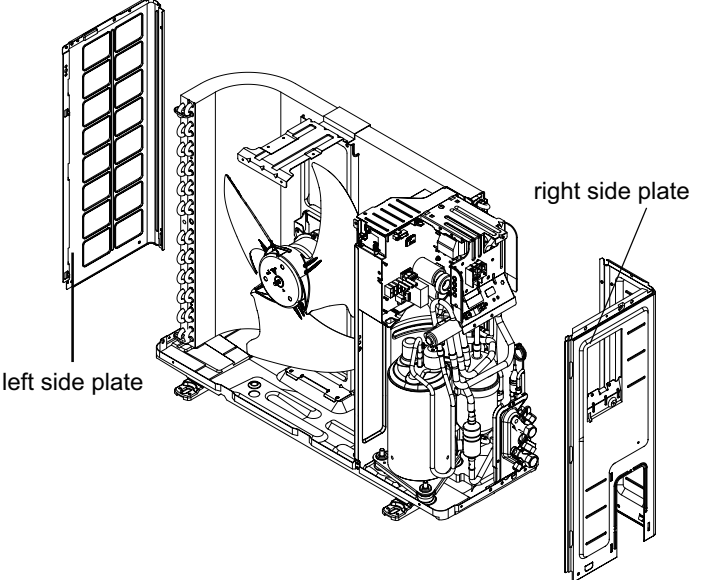
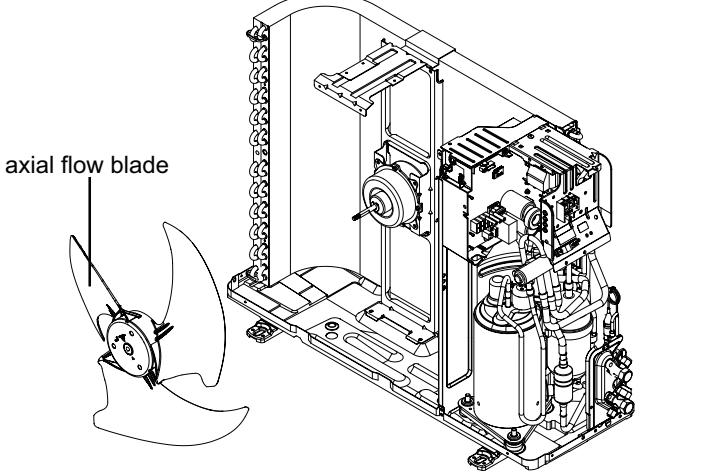
| Step | Procedure |
|---------------------------|---|
| 7. Remove evaporator assy | |
| a | <div data-bbox="212 301 654 334">Remove 3 screws fixing evaporator assy.</div> <div data-bbox="776 235 1455 760">  </div> |
| b | <div data-bbox="212 810 615 901">At the back of the unit, Loosen the clasp,connection pipe clamp and then remove the connection pipe clamp.</div> <div data-bbox="792 760 1455 1153">  </div> |
| c | <div data-bbox="212 1188 680 1312">First remove the left side of evaporator from the groove of bottom shell and then remove the right side from the clasp on the bottom shell.</div> <div data-bbox="792 1153 1455 1633">  </div> |
| d | <div data-bbox="212 1688 667 1779">Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.</div> <div data-bbox="792 1633 1455 2048">  </div> |

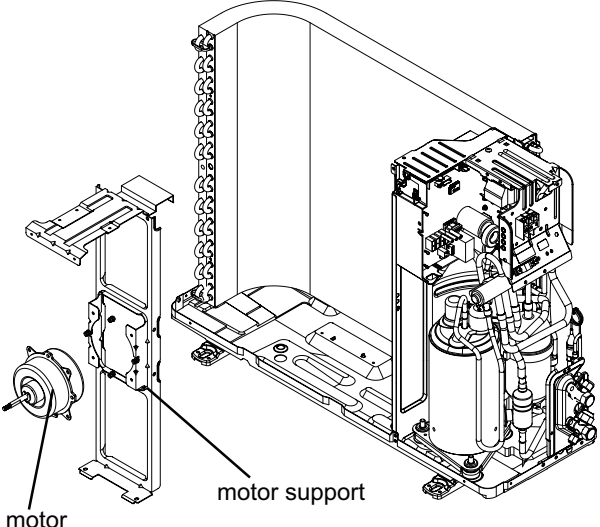
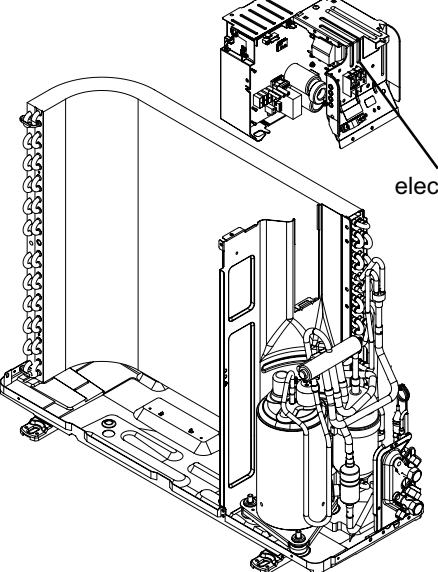
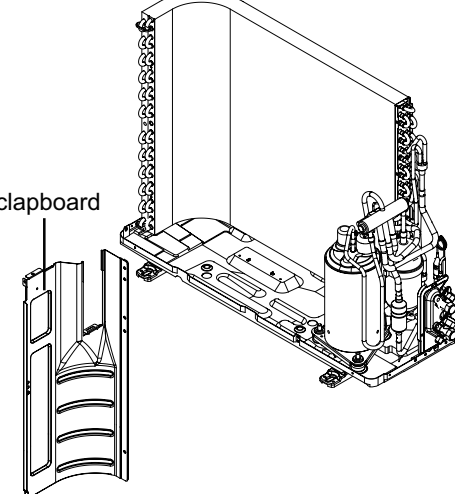
| Step | Procedure |
|---|---|
| 8. Remove motor and cross flow blade | |
| a | Remove 3 screws fixing motor clamp and then remove the motor clamp. |
| b | Remove the at the connection place of cross flow blade and motor; lift the motor and cross flow blade upwards to remove them. |
|  <p>The diagram illustrates the removal of the motor and cross flow blade in three stages. The top stage shows a perspective view of the unit with a motor clamp at the rear, held in place by three screws. Labels 'Motor clamp' and 'Screws' point to these components. The middle stage shows the 'Cross flow' blade and the 'Motor' separated from the unit. The bottom stage shows the unit from a front-three-quarter view with the motor and cross flow blade removed, leaving a gap in the rear section.</p> | |
| 9. Remove vertical louver | |
| | Loosen the connection clasps between vertical louver and bottom case to remove vertical louver. |
|  <p>The diagram illustrates the removal of the vertical louver in two stages. The top stage shows a perspective view of the unit with the vertical louver being lifted away from the bottom case. The bottom stage shows the unit from a front-three-quarter view with the vertical louver removed, revealing the 'Clasps' that connect it to the bottom case. Two labels 'Clasps' point to these connection points.</p> | |

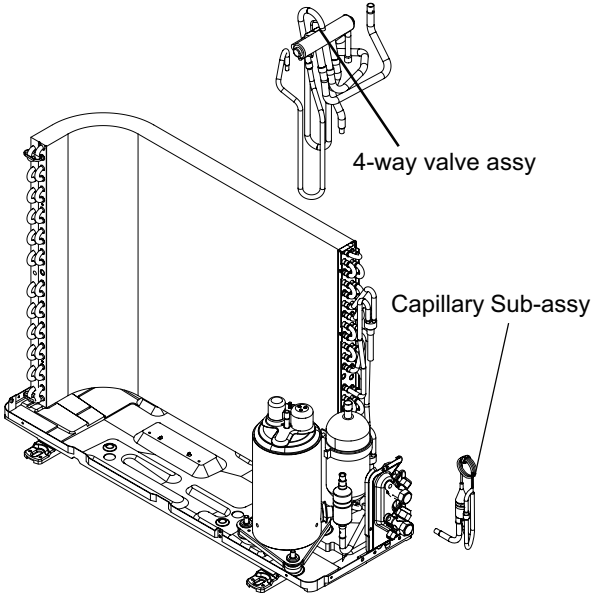
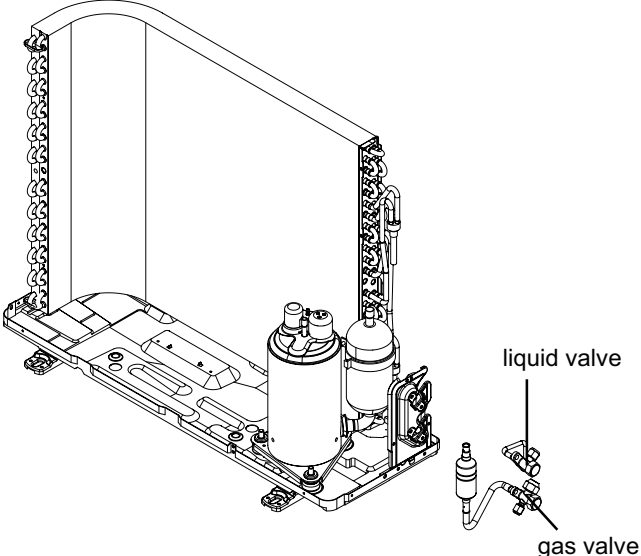
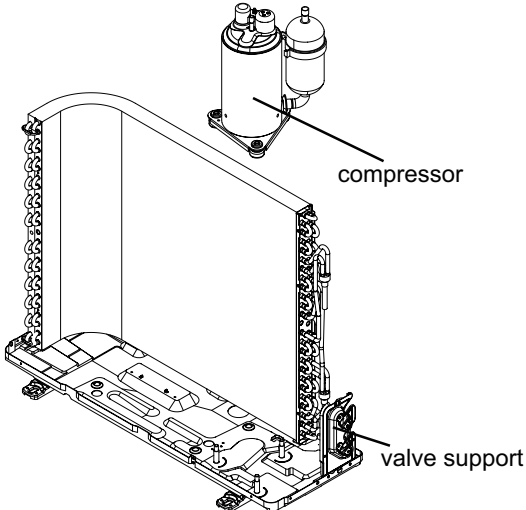
11.2 Removal Procedure of Outdoor Unit

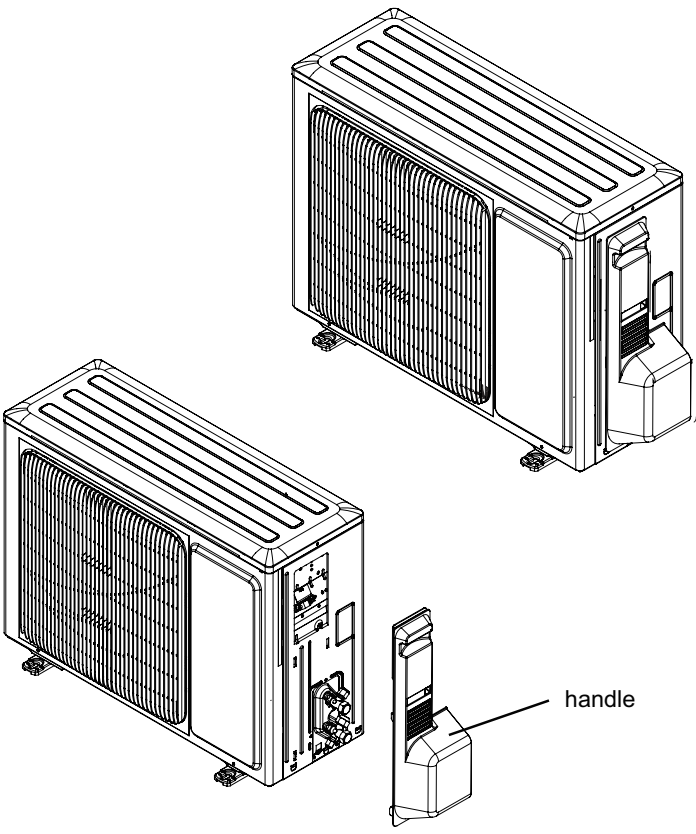
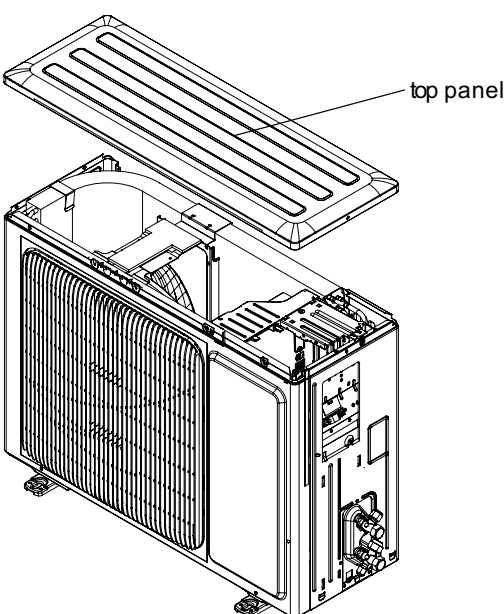
12K

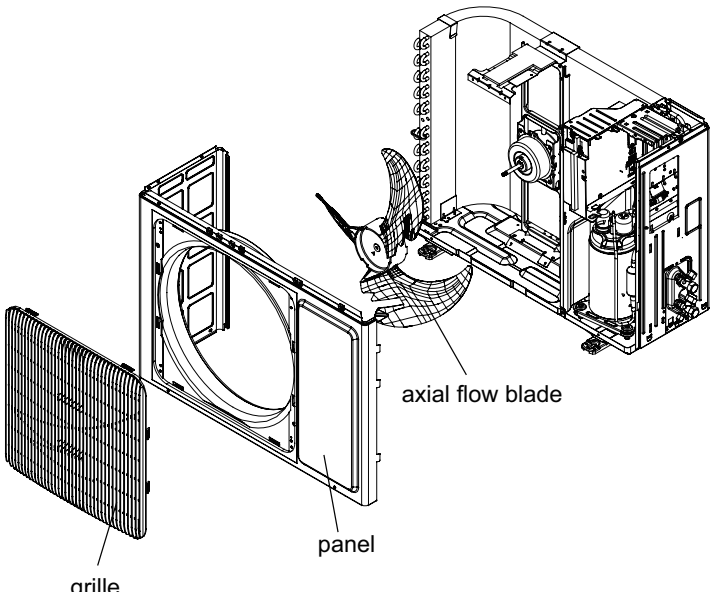
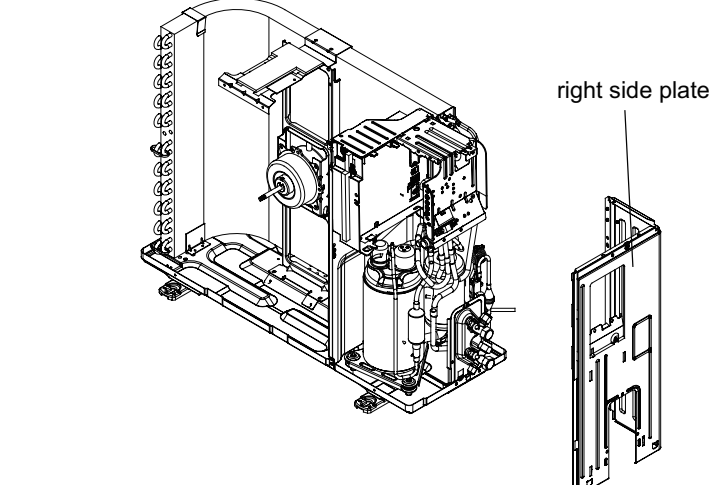
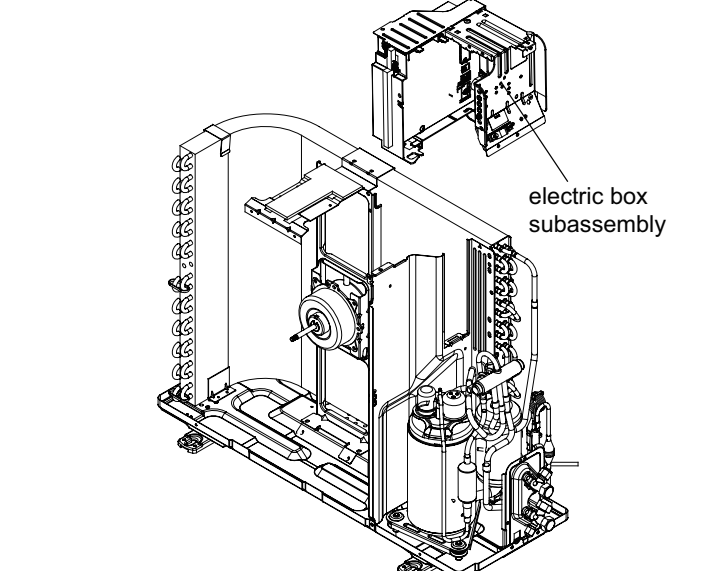
| Steps | Procedure |
|--------------------------------|---|
| <div>1.Remove big handle</div> | <div><div><div>Before disassamble.</div><div>Remove the screws fixing big handle、 valve cover and then remove them.</div></div><div></div></div> |
| <div>2. Remove top cover</div> | <div><div><div>Remove the screws fixing top panel and then remove the top panel.</div><div></div></div></div> |

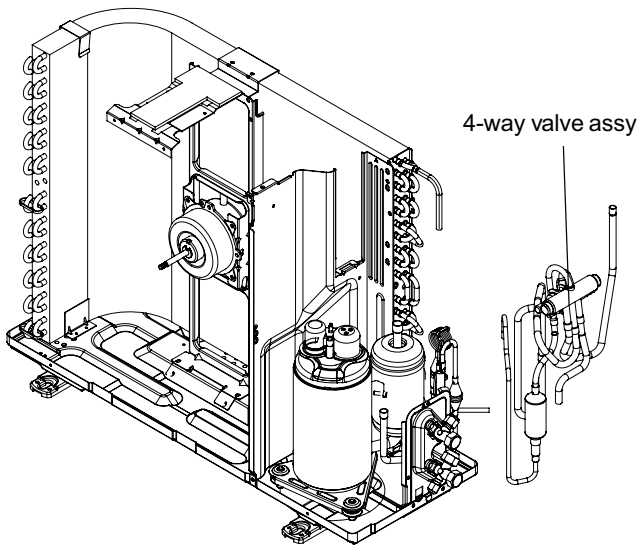
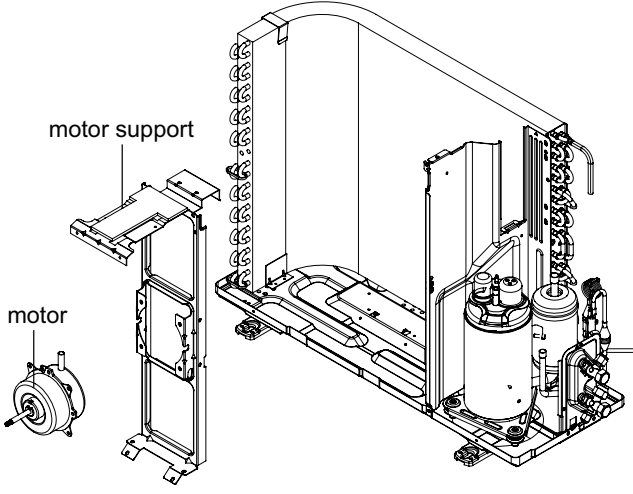
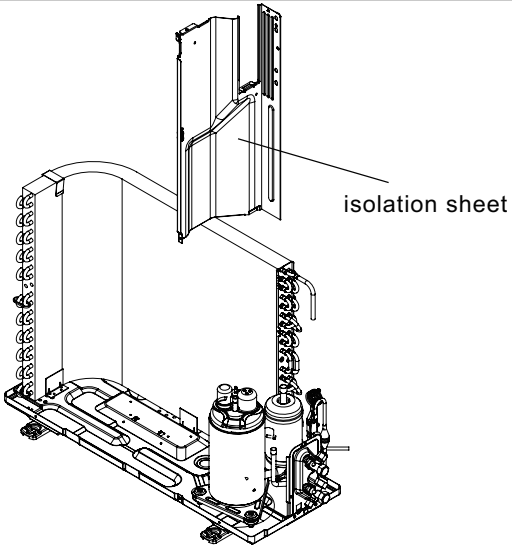
| Step | Procedure |
|---|--|
| <p>3.Remove grille 、 protective grille and front panel</p> <p>Remove connection screws between the front grille and the front panel. Then remove the front grille. Remove connection screws connecting the front panel with the chassis and the motor support, and then remove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

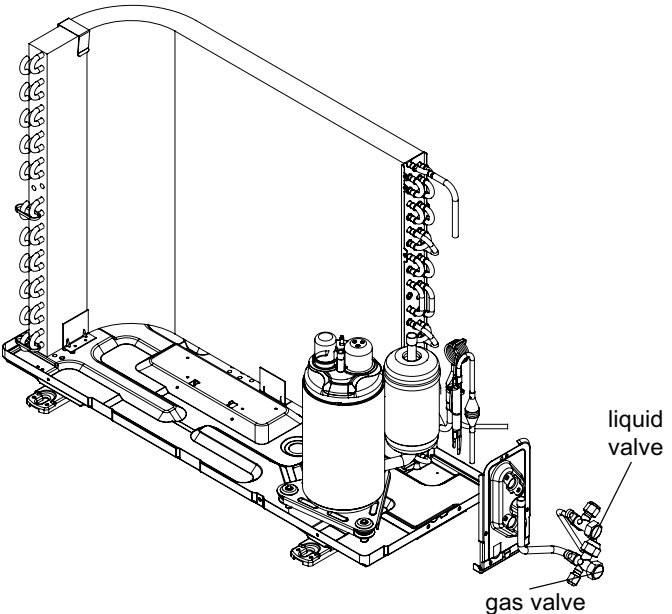
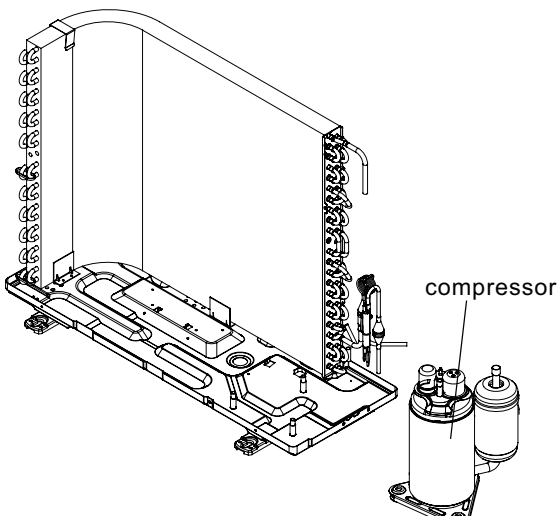
| Step | Procedure |
|---|--|
| <p>6.Remove motor and motor support</p> <p>Remove the screws fixing motor and then remove the motor. Remove the screws fixing motor support and then remove the motor support.</p> |  <p>motor</p> <p>motor support</p> |
| <p>7.Remove electric box assy</p> <p>Remove the screws 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>electric box assy</p> |
| <p>8.Remove clapboard</p> <p>Remove the screws fixing clapboard and then remove the clapboard.</p> |  <p>clapboard</p> |

| Step | Procedure |
|--|--|
| 9.Remove 4-way valve assy and capillary sub-assy | <div data-bbox="224 301 792 384"> <p>Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy, compressor and condenser; remove the 4-way valve.</p> </div> <div data-bbox="224 417 792 530"> <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> </div> <div data-bbox="224 620 792 764"> <p>Unsolder weld point of capillary Sub-assy, valve and outlet pipe of condensor. Then remove the capillary Sub-assy. Do not block the capillary when unsoldering it. (Note: before unsoldering, discharge refrigerants completely)</p> </div> <div data-bbox="951 214 1546 803">  <p>4-way valve assy</p> <p>Capillary Sub-assy</p> </div> |
| 10.Remove liquid valve and gas valve | <div data-bbox="224 995 792 1140"> <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> </div> <div data-bbox="224 1140 792 1223"> <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> </div> <div data-bbox="224 1223 792 1336"> <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> </div> <div data-bbox="834 869 1477 1421">  <p>liquid valve</p> <p>gas valve</p> </div> |
| 11.Remove compressor | <div data-bbox="224 1646 792 1760"> <p>Remove the 3 footing screws of the compressor and remove the compressor. Remove the screws fixing valve support and then remove the valve support.</p> </div> <div data-bbox="967 1454 1494 1961">  <p>compressor</p> <p>valve support</p> </div> |

| Steps | Procedure | |
|---------------------|---|--|
| 1.Remove big handle | |  |
| a | Before disassembly. | |
| b | Remove the connection screw fixing the big handle and then remove the handle. | |
| 2. Remove top cover | |  |
| | Remove connection screws connecting the top cover plate with the front panel and the right side plate, and then remove the top panel. | |

| Steps | Procedure |
|--|--|
| 3.Remove grille 、 axial flow blade 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 nut fixing the blade and then remove the axial flow blade.</p> |
| 4.Remove right side plate |  <p>Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.</p> |
| 5.Remove electric box subassembly |  <p>Remove screws fixing electric box cover, and then remove the electric box cover. Cut off the tieline, pull out all wiring terminals and remove all connection wires, and then separate connection wires and electric box. Remove screws connecting electric box and middle isolation sheet, motor support, and then remove the electric box.</p> |

| Steps | Procedure |
|---|---|
| <p>6.Remove 4-way valve assy</p> <p>Unscrew the fastening nut of the 4-way valve assy coil and remove the coil. Wrap the 4 way Valve Assy with wet cotton and unsolder the 4 weld spots connecting the 4-way valve assy to take it out.(Note: Refrigerant should be discharged firstly.) Welding process should be as quickly as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.</p> |  <p>4-way valve assy</p> |
| <p>7.Remove motor and motor support</p> <p>Remove the 4 tapping screws fixing the motor. Pull out the lead-out wire and remove the motor. Remove the 2 tapping screws fixing the motor support. Lift motor support to re-move it.</p> |  <p>motor support</p> <p>motor</p> |
| <p>8.Remove isolation sheet</p> <p>Remove the screws fixing the isolation sheet and then remove the isolation sheet.</p> |  <p>isolation sheet</p> |

| Steps | Procedure | |
|----------------------|--|---|
| 9.Remove valves | | |
| | <p>Remove the 2 screws fixing the gas valve and unsolder the welding point between the gas valve and the air-return pipe to remove the gas valve.</p> <p>Remove the 2 screws fixing the liquid valve and unsolder the welding joint connecting the liquid valve to the Y-type pipe to remove the liquid valve.</p> |  <p>liquid valve</p> <p>gas valve</p> |
| 10.Remove compressor | | |
| | <p>Remove the foot nuts on the compressor and then remove the compressor.</p> |  <p>compressor</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

- Standard length of connection pipe (More details please refer to the specifications.)
- Min. length of connection pipe is 3m.
- Max. length of connection pipe and max. high difference. (More details please refer to the specifications.)
- The additional refrigerant oil and refrigerant charging required 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):
 - 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 the following sheet.
 - Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

| Additional refrigerant charging amount for R32 | | | | |
|--|----------------|---|-----------------------|----------------------------|
| Diameter of connection pipe | | Indoor unit throttl | Outdoor unit throttle | |
| Liquid pipe | Gas pipe | Cooling only,cooling and heating(g / m) | Cooling only(g / m) | Cooling and heating(g / m) |
| Φ6 | Φ9.5 or Φ12 | 16 | 12 | 16 |
| Φ6 or Φ9.5 | Φ16 or Φ19 | 40 | 12 | 40 |
| Φ12 | Φ19 or Φ22.2 | 80 | 24 | 96 |
| Φ16 | Φ25.4 or Φ31.8 | 136 | 48 | 96 |
| Φ19 | / | 200 | 200 | 200 |
| Φ22.2 | / | 280 | 280 | 280 |

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

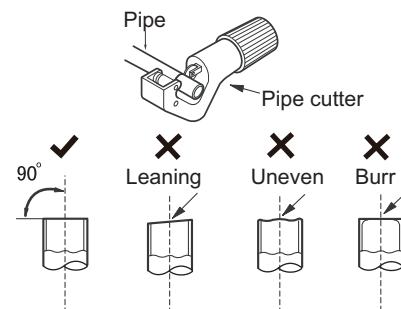
Appendix 3: Pipe Expanding Method

⚠ Note:

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

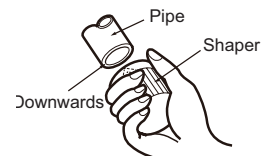
A: Cut the pipe

- 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

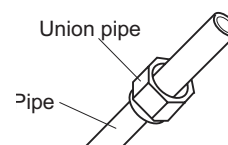
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



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.



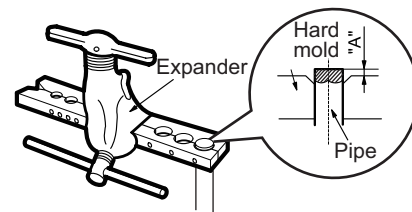
E: Expand the port

- Expand the port with expander.

⚠ Note:

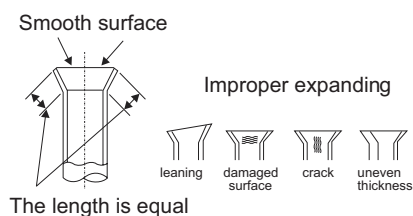
- "A" is different according to the diameter, please refer to the sheet below:

| 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 (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 |