GREE
Change for life

# Service Manual

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

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# 1. Summary



**Indoor Unit:**

GRH09DB-K6DNA1A/I
GRH12DB-K6DNA1A/I

**Outdoor Unit:**

GRH09DB-K6DNA1A/O
GRH12DB-K6DNA1A/O

**Remote Controller:**

YAY1F2

**Model list**:

| No. | Model | Product code | Indoor model | Indoor product code | Outdoor model | Outdoor product code | Remote Controller |
|---|---|---|---|---|---|---|---|
| 1 | GRH09DB-K6DNA1A | CU050001700 | GRH09DB-K6DNA1A/I | CU050N01700 | GRH09DB-K6DNA1A/O | CU050W01700 | YAY1F2 |
| 2 | GRH12DB-K6DNA1A | CU050001600 | GRH12DB-K6DNA1A/I | CU050N01600 | GRH12DB-K6DNA1A/O | CU050W01600 | |

# 2. Specifications



| | | | |
|---|---|---|---|
| Model | | | GRH09DB-K6DNA1A |
| Product Code | | | CU050001700 |
| Power Supply | Rated Voltage | V~ | 220-240 |
| | Rated Frequency | Hz | 50 |
| | Phases | | 1 |
| Power Supply Mode | | | Outdoor |
| Cooling Capacity | | W | 2650 |
| Heating Capacity | | W | 2500 |
| Cooling Power Input | | W | 950 |
| Heating Power Input | | W | 780 |
| Cooling Current Input | | A | / |
| Heating Current Input | | A | / |
| Rated Input | | W | 1300 |
| Rated Cooling Current | | A | 6.2 |
| Rated Heating Current | | A | / |
| Air Flow Volume | | $m^3/h$ | 340/290/225 |
| Dehumidifying Volume | | L/h | 1 |
| EER | | W/W | / |
| COP | | W/W | / |
| SEER | | -- | / |
| HSPF | | -- | / |
| Application Area | | $m^2$ | 10-17 |
| Indoor Unit | Model | | GRH09DB-K6DNA1A/I |
| | Product Code | | CU050N01700 |
| | Fan Type | | Centrifugal |
| | Fan Diameter Length(DXL) | mm | Φ150x177.5 |
| | Cooling Speed | r/min | 1700/1400/1100 |
| | Heating Speed | r/min | 1700/1400/1100 |
| | Fan Motor Power Output | W | 38 |
| | Fan Motor RLA | A | / |
| | Fan Motor Capacitor | μF | / |
| | Evaporator Form | | Aluminum Fin-copper Tube |
| | Evaporator Pipe Diameter | mm | Φ7 |
| | Evaporator Row-fin Gap | mm | 2-1.3 |
| | Evaporator Coil Length (LXDXW) | mm | 666×25.4×152.4 |
| | Swing Motor Model | | / |
| | Swing Motor Power Output | W | / |
| | Fuse Current | A | 15 |
| | Sound Pressure Level | dB (A) | Cooling: 53/49/42<br>Heating: 53/49/42 |
| | Sound Power Level | dB (A) | / |
| | Dimension (WXHXD) | mm | 610×485×49 |
| | Dimension of Carton Box (LXWXH) | mm | 668×547×109 |
| | Dimension of Package (LXWXH) | mm | 678×550×112 |
| | Net Weight | kg | 2.7 |
| | Gross Weight | kg | 4 |

| | | | |
|---|---|---|---|
| Outdoor Unit | Outdoor Unit Model | | GRH09DB-K6DNA1A/O |
| | Outdoor Unit Product Code | | CU050W01700 |
| | Compressor Manufacturer | | ZHUHAI LANDA COMPRESSOR CO., LTD. |
| | Compressor Model | | QYF-A079zY |
| | Compressor Oil | | FW68DA |
| | Compressor Type | | Rotary |
| | Compressor LRA. | A | 19.5 |
| | Compressor RLA | A | 3.6 |
| | Compressor Power Input | W | 750 |
| | Compressor Overload Protector | | / |
| | Throttling Method | | Capillary |
| | Set Temperature Range | ºC | 16~30 |
| | Cooling Operation Ambient Temperature Range | ºC | 18~46 |
| | Heating Operation Ambient Temperature Range | ºC | -5~24 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Condenser Pipe Diameter | mm | Φ7 |
| | Condenser Rows-fin Gap | mm | 2-1.3 |
| | Condenser Coil Length (LXDXW) | mm | 552×25.4×228.6 |
| | Fan Motor Speed | rpm | 1600/1400/1100 |
| | Output of Fan Motor | W | 42 |
| | Fan Motor RLA | A | / |
| | Fan Motor Capacitor | μF | / |
| | Outdoor Unit Air Flow Volume | $m^3/h$ | 760 |
| | Fan Type | | Centrifugal |
| | Fan Diameter | mm | Φ150 |
| | 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) | 54 |
| | Sound Power Level (H/M/L) | dB (A) | / |
| | Dimension(WXHXD) | mm | 1077X720X283 |
| | Dimension of Carton Box (LXWXH) | mm | 1146X783X322 |
| | Dimension of Package(LXWXH) | mm | 1149X786X355 |
| | Net Weight | kg | 29.5 |
| | Gross Weight | kg | 37.5 |
| | Refrigerant | | R32 |
| | Refrigerant Charge | kg | 0.37 |

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

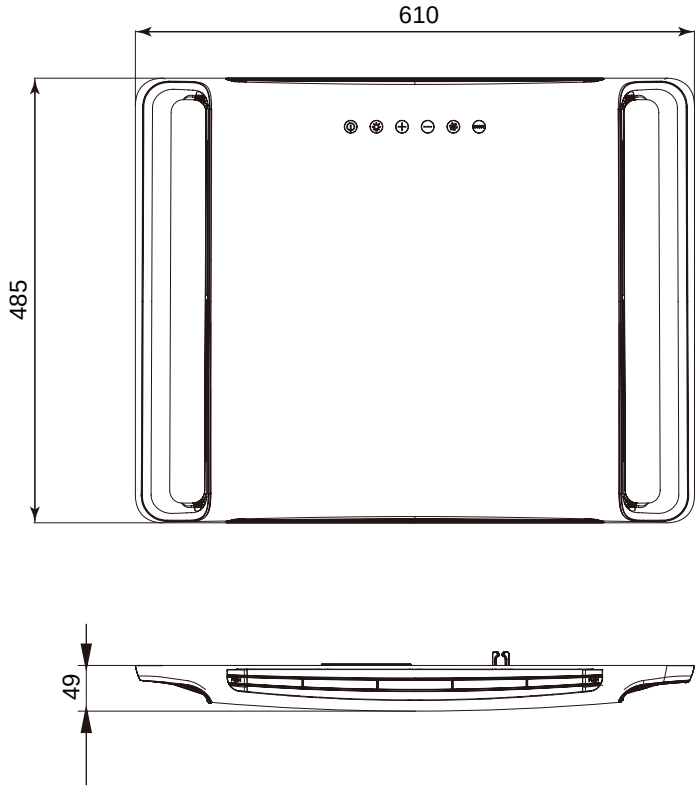
| Model | | | GRH12DB-K6DNA1A |
|---|---|---|---|
| Product Code | | | CU050001600 |
| Power Supply | Rated Voltage | V~ | 220-240 |
| | Rated Frequency | Hz | 50 |
| | Phases | | 1 |
| Power Supply Mode | | | Outdoor |
| Cooling Capacity | | W | 3600 |
| Heating Capacity | | W | 3400 |
| Cooling Power Input | | W | 1100 |
| Heating Power Input | | W | 950 |
| Cooling Current Input | | A | / |
| Heating Current Input | | A | / |
| Rated Input | | W | 1350 |
| Rated Cooling Current | | A | 6.2 |
| Rated Heating Current | | A | / |
| Air Flow Volume | | $m^3/h$ | 360/290/225 |
| Dehumidifying Volume | | L/h | 1 |
| EER | | W/W | / |
| COP | | W/W | / |
| SEER | | -- | / |
| HSPF | | -- | / |
| Application Area | | $m^2$ | 10-17 |
| Indoor Unit | Model | | GRH12DB-K6DNA1A/I |
| | Product Code | | CU050N01600 |
| | Fan Type | | Centrifugal |
| | Fan Diameter Length(DXL) | mm | Φ150x177.5 |
| | Cooling Speed | r/min | 1700/1400/1100 |
| | Heating Speed | r/min | 1700/1400/1100 |
| | Fan Motor Power Output | W | 38 |
| | Fan Motor RLA | A | / |
| | Fan Motor Capacitor | μF | / |
| | Evaporator Form | | Aluminum Fin-copper Tube |
| | Evaporator Pipe Diameter | mm | Φ7 |
| | Evaporator Row-fin Gap | mm | 2-1.3 |
| | Evaporator Coil Length (LXDXW) | mm | 666×25.4×152.4 |
| | Swing Motor Model | | / |
| | Swing Motor Power Output | W | / |
| | Fuse Current | A | 15 |
| | Sound Pressure Level | dB (A) | 54/49/43<br>54/49/43 |
| | Sound Power Level | dB (A) | / |
| | Dimension (WXHXD) | mm | 610×485×49 |
| | Dimension of Carton Box (LXWXH) | mm | 668×547×109 |
| | Dimension of Package (LXWXH) | mm | 678×550×112 |
| | Net Weight | kg | 2.7 |
| | Gross Weight | kg | 4 |

| | | | |
|---|---|---|---|
| Outdoor Unit | Outdoor Unit Model | | GRH12DB-K6DNA1A/O |
| | Outdoor Unit Product Code | | CU050W01600 |
| | Compressor Manufacturer | | ZHUHAI LANDA COMPRESSOR CO., LTD. |
| | Compressor Model | | QYF-A079zY |
| | Compressor Oil | | FW68DA |
| | Compressor Type | | Rotary |
| | Compressor LRA. | A | 19.5 |
| | Compressor RLA | A | 3.6 |
| | Compressor Power Input | W | 750 |
| | Compressor Overload Protector | | / |
| | Throttling Method | | Capillary |
| | Set Temperature Range | ºC | 16~30 |
| | Cooling Operation Ambient Temperature Range | ºC | 18~46 |
| | Heating Operation Ambient Temperature Range | ºC | -5~24 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Condenser Pipe Diameter | mm | Φ7 |
| | Condenser Rows-fin Gap | mm | 2-1.3 |
| | Condenser Coil Length (LXDXW) | mm | 552×25.4×228.6 |
| | Fan Motor Speed | rpm | 1600/1400/1100 |
| | Output of Fan Motor | W | 42 |
| | Fan Motor RLA | A | / |
| | Fan Motor Capacitor | μF | / |
| | Outdoor Unit Air Flow Volume | $m^3/h$ | 760 |
| | Fan Type | | Centrifugal |
| | Fan Diameter | mm | Φ150 |
| | 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) | 54 |
| | Sound Power Level (H/M/L) | dB (A) | / |
| | Dimension(WXHXD) | mm | 1077X720X283 |
| | Dimension of Carton Box (LXWXH) | mm | 1146X783X322 |
| | Dimension of Package(LXWXH) | mm | 1149X786X355 |
| | Net Weight | kg | 29.5 |
| | Gross Weight | kg | 37.5 |
| | Refrigerant | | R32 |
| | Refrigerant Charge | kg | 0.37 |

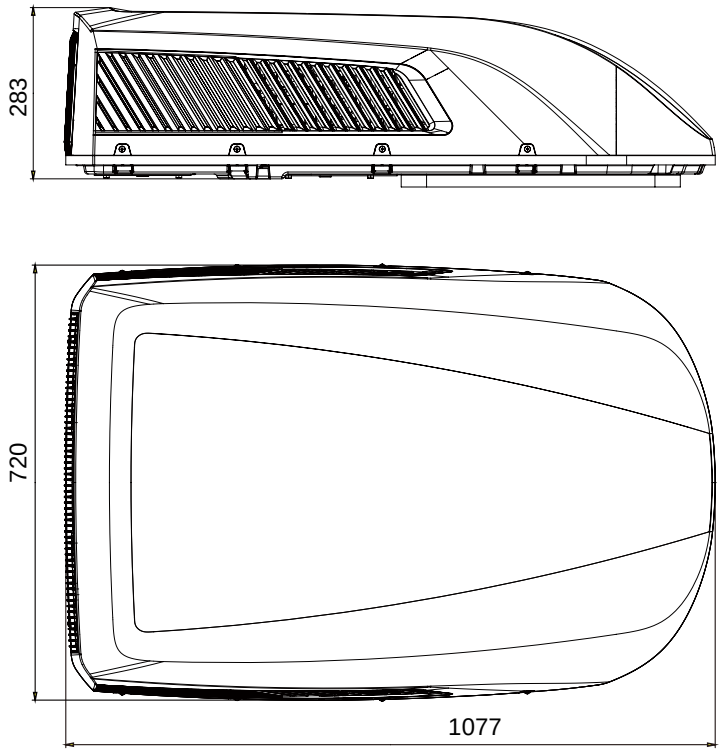
The above data is subject to change without notice. Please refer to the nameplate of the unit.

# 3. Outline Dimension Diagram

## 3.1 Indoor Unit



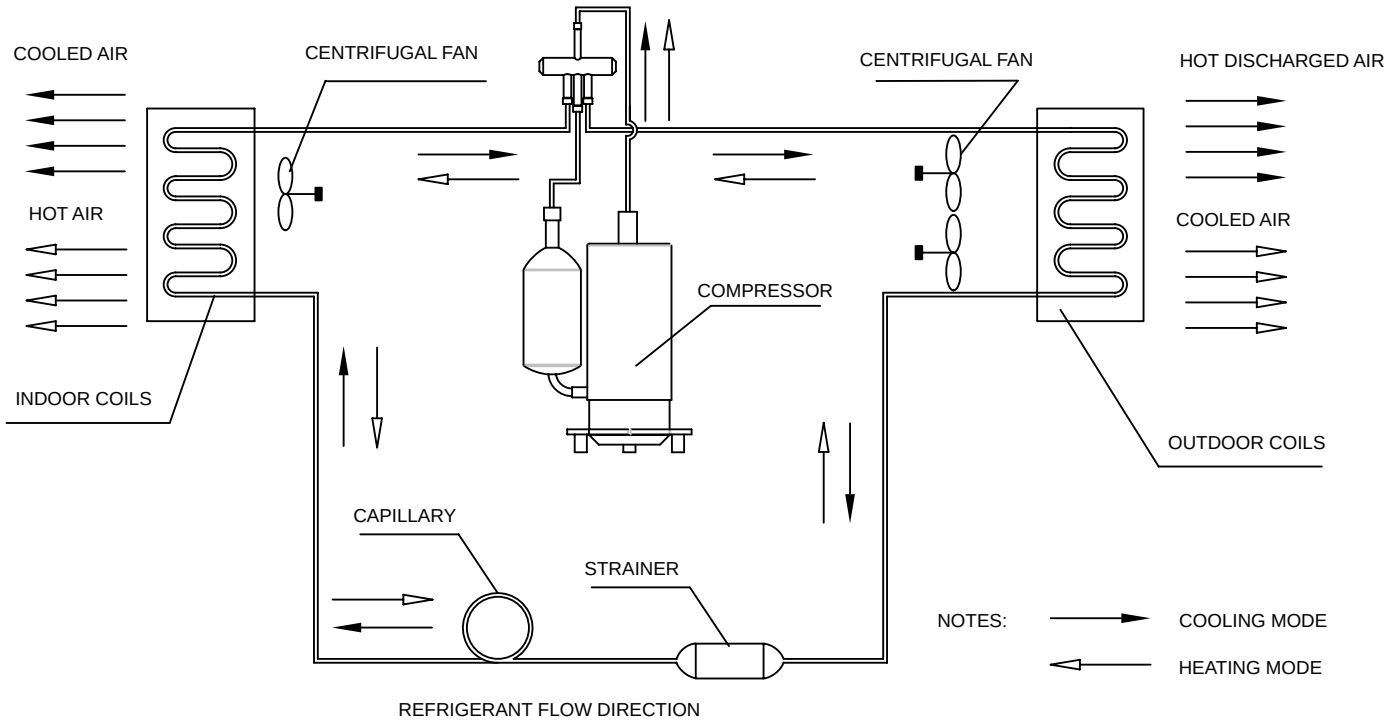

## 3.2 Outdoor Unit




Unit:mm

# 4. Refrigerant System Diagram





# 5. Electrical Part

## 5.1 Wiring Diagram

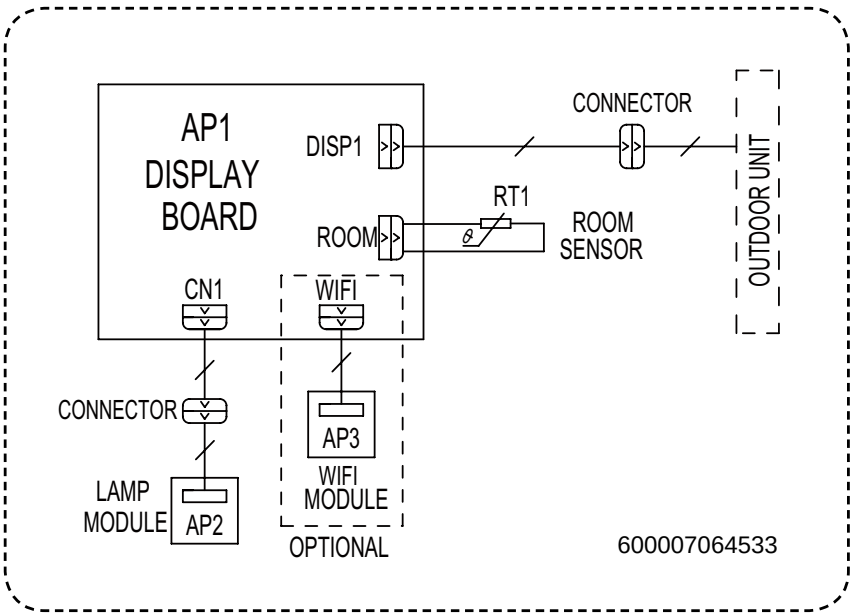
### ● Instruction

| Symbol | Symbol Color |
|---|---|
| WH | White |
| YE | Yellow |
| RD | Red |
| YEGN | Yellow/Green |
| VT | Violet |

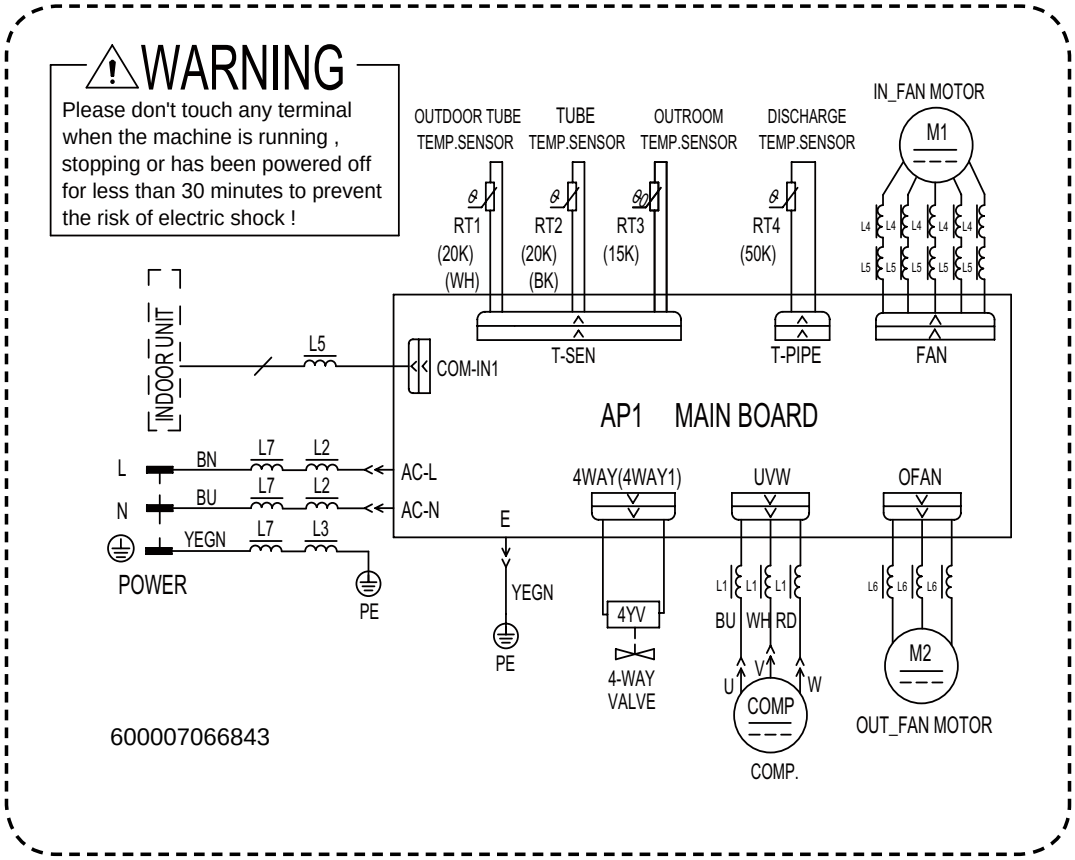
| Symbol | Symbol Color |
|---|---|
| GN | Green |
| BN | Brown |
| BU | Blue |
| BK | Black |
| OG | Orange |

| Symbol | Name |
|---|---|
| COMP | Compressor |
| ⏚ | Grounding wire |
| / | / |
| / | / |
| / | / |

### ● Indoor Unit



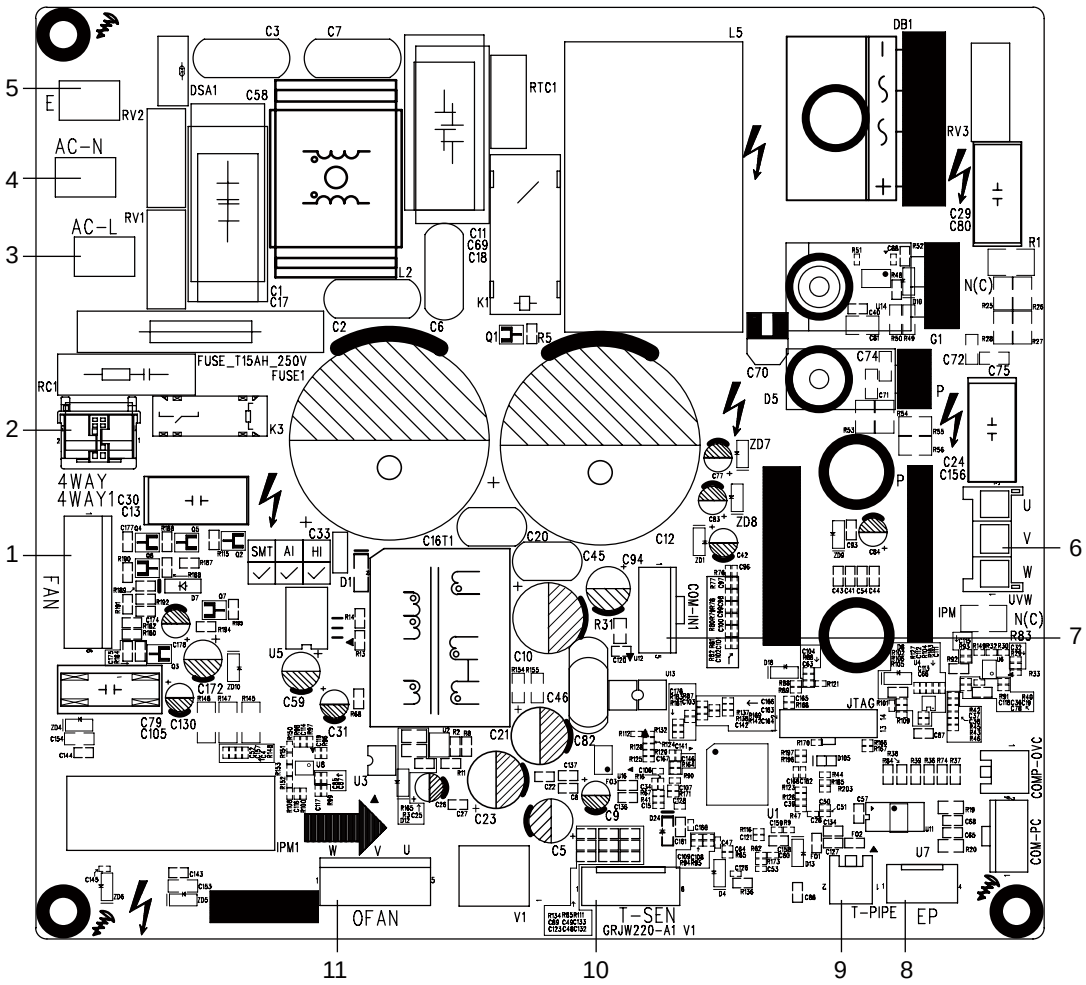
● **Outdoor Unit**




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

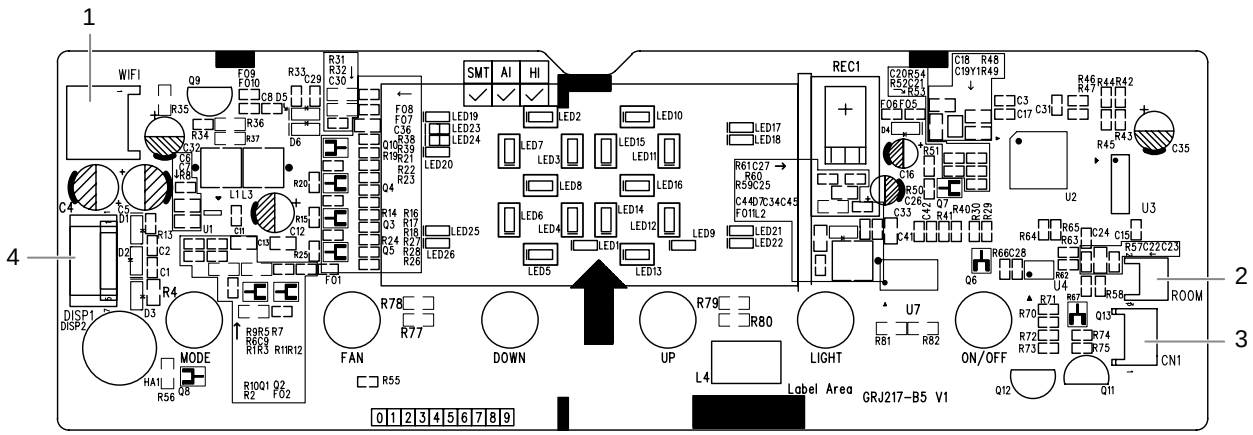
## 5.2 PCB Printed Diagram

### Silk screen on main board



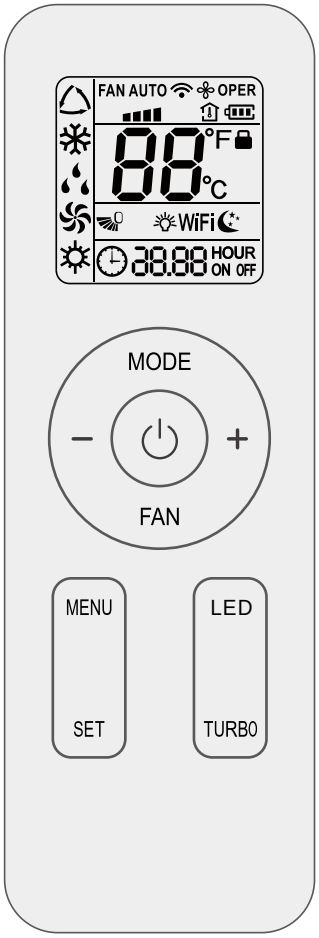

| No. | Name | No. | Name |
|---|---|---|---|
| 1 | Indoor motor teminal | 7 | Display terminal |
| 2 | 4-way valve terminal | 8 | E plate terminal |
| 3 | Live wire terminal | 9 | Discharge pipe temperature sensor terminal |
| 4 | Neutral wire terminal | 10 | Outdoor ambient temperature sensor / Indoor pipe temperature sensor / Outdoor pipe temperature sensor terminal |
| 5 | Earthing terminal | 11 | Outdoor motor terminal |
| 6 | Compressor terminal | | |

## Silk screen on display board




| No. | Name | No. | Name |
|---|---|---|---|
| 1 | Interface of WiFi | 3 | Interface of lamp plate |
| 2 | Interface of temperature sensor | 4 | Interface of main board |

## 6.1 Remote Controller Introduction




### Introduction for icons on display screen

| | |
|---|---|
| FAN AUTO | Set fan speed |
| | Send signal |
| Operation mode | Auto mode |
| | Cool mode |
| | Dry mode |
| | Fan mode |
| | Heat mode |
| | Sleep mode |
| | Light |
| | X-FAN function |
| | Indoor ambient temp. |
| | Clock |
| | Set temperature |
| WIFI | WiFi function |
| | Set time |
| ONOFF | TIMER ON / TIMER OFF |
| | Up & down swing |
| | Child lock |

### Introduction for buttons on remote controller

**Note:**

● This is a general use remote controller. It could be used for the air conditioner with multifunction. For the functions which the model doesn't have, if press the corresponding button on the remote controller, the unit will keep the original running status.

● After putting through power, air conditioner will give out a sound and operation indicator " ⏻ " is ON (red indicator,the colout is different for different models). You can operate the air conditioner through the 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 condition-er will give out a sound, which means the signal has been sent to the air conditioner.

**⏻ button**

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

**MODE button**

Press this button to select your required operation mode.

AUTO → COOL → DRY → FAN → HEAT

●When selecting auto mode, air conditioner will operate automatically according to ambient tem-perature. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed.

●When selecting cool mode, air conditioner will operate under cool mode. Press "+" or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed.

●When selecting dry mode, the air conditioner operates at low speed under dry mode. Under dry mode, fan speed can't be adjusted.

●When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. Press "FAN" button to adjust fan speed.

●When selecting heat mode, the air conditioner operates under heat mode. Press "+" or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed.

*NOTE:

For preventing cold air, after starting up heat mode, indoor unit will delay 1~5 minutes to blow air (Actual delay time depends on indoor ambient temperature). Set temperature range from remote controller: 16~30°C(61-86°F).

This mode indicator is not available for some models. Cooling only unit won't receive heat mode signal. If setting heat mode with remote controller, press " ⏻ " button can't start up the unit.

**FAN button**

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

*NOTE:

Fan Speed "▪▪▪▪ " is not available for some models, Fan Speed "▪▪▪▪ " is the same with Fan Speed " ▪▪▪ " for some models.

Under AUTO speed, air conditioner will select proper fan speed automatically according to factory default setting.

AUTO speed is only available for some models.

It's low fan speed under dry mode.

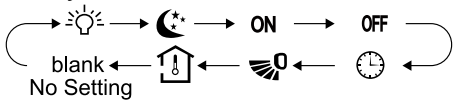
X-FAN function: Holding fan speed button for 2s in cool or dry mode, the icon " ✣ " is displayed and the indoor fan will continue operation

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 blowed after the unit i s stopped to avoid mould.
Having set X-FAN function on: After turning off the unit by pressing " ⏻ " button, indoor fan will continue running for a few minutes at low speed. In this period, hold fan speed button for 2s to stop indoor fan directly.
Having set X-FAN function off: After turning off the unit by pressing " ⏻ " button, the complete unit will be off directly.
X-FAN function is only available for some models.

**—/+ button**

Press "+" or "-" button once increase or decrease set temperature 1°C(°F). Holding "+" or "-" button, 2s later, set temperature on remote controller will
change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly. (Temperature can' t be adjusted under auto mode)
When setting TIMER ON, TIMER OFF or CLOCK, press "+" or "-" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF functions).

MENU /SET **button**
Press " MENU /SET " button to functions setting.
Press " MENU " button to select the function setting symbol(the corresponding function symbol flashes). then press " SET " button to turn on or turn off this function. The submenu can be selected circularly as follows:




:Light function :Sleep function
ON : Timer on function OFF :Timer off function
Clock function
:up and down swing function
:Ambient temperature display function

*NOTE:Some menu's function may be unavailable under different models.

LED **button**
Press this button can turn on or turn off the LED light on the panel.

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. If start this function, the unit will run at super-high fan speed to cool or heat quickly so that the ambient tem-perature approaches the preset temperature as soon as possible.
*NOTE:
Fan Speed " ▮▮▮▮ " is not available for some models, Fan Speed " ▮▮▮▮ " is the same with Fan Speed " ▮▮▮ " for some models.

## Function introduction for combination buttons

— and +:Child lock function

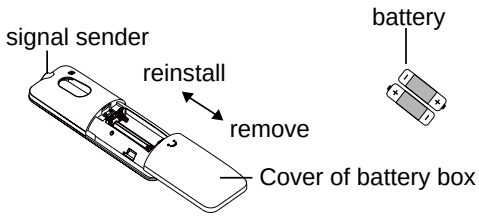
Press "+" and "-" simultaneously to turn on or turn off child lock function. When child lock func-tion is on, " 🔒 " icon is displayed on remote control-ler. If you operate the remote controller, the " " icon will blink three times without sending signal to the unit.

— and MODE :Temperature display switchover function

Under OFF status, press "-" and "MODE" buttons simultaneously to switch temperature display between °C and °F.

MODE and TURBO :WiFi function
Press "MODE" and "TURBO" button simultane-ously 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.
*NOTE:This function is only available for some models.

## Introduction for buttons on remote controller

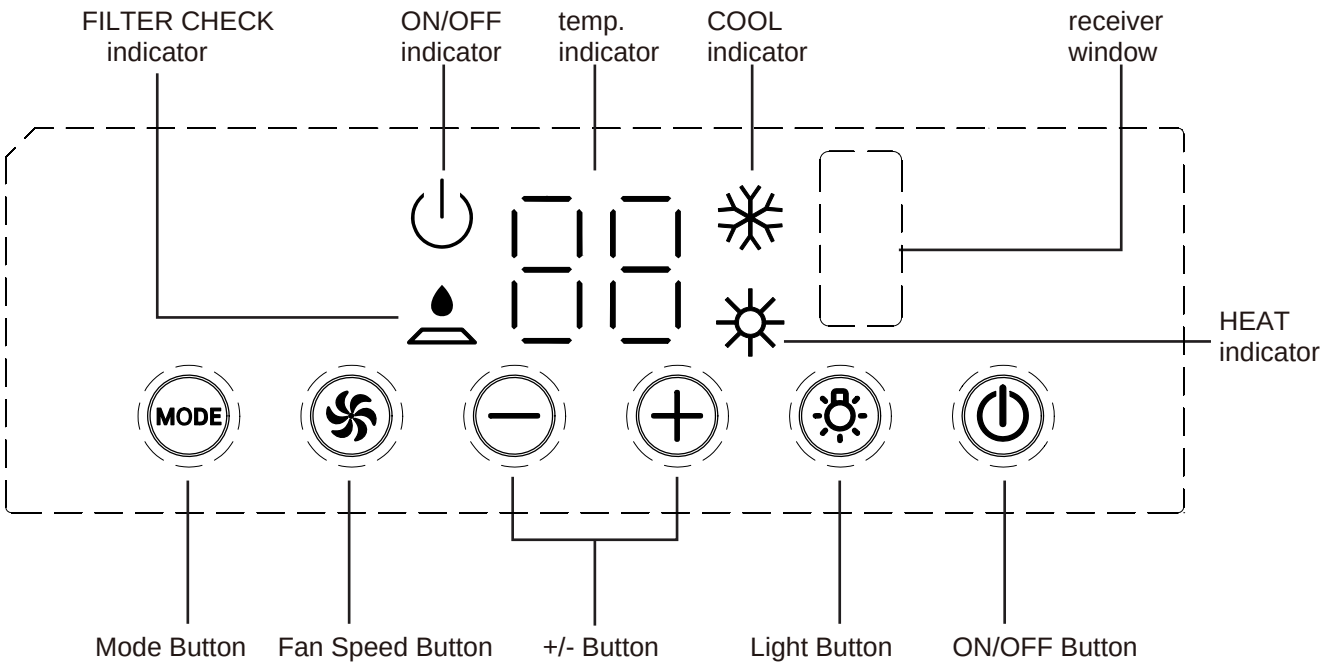



1.Press the back side of remote controller marked with " ◡̈ ", as shown in the fig, and then push out the cover of battery box along the arrow direction.
2.Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3.Reinstall the cover of battery box.

***NOTICE***
●During operation, point the remote control signal sender at the receiving window on indoor unit.
●The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
●Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
●Replace new batteries of the same model when replacement is required.
●When you don't use remote controller for a long time, please take out the batteries.
●If the display on remote controller is fuzzy or there's no display, please replace batteries.

## 6.2 Control Panel Introduction

**Note: If the remote controller is missing, operate on the control panel.**




### Basic Functions of the Buttons

**1.ON/OFF button**
Operation starts when pressing this button, and stops when pressing this button again.

**2.LIGHT button**
Press this button to turn on or turn off display light on indoor unit.

**3.(+/-) button**
Press the + button to increase the set(operating) temperature of the unit,and press the - button to decrease the set(operating) temperature of the unit. the temperature setting range is from 16~30°C (61~86°F).

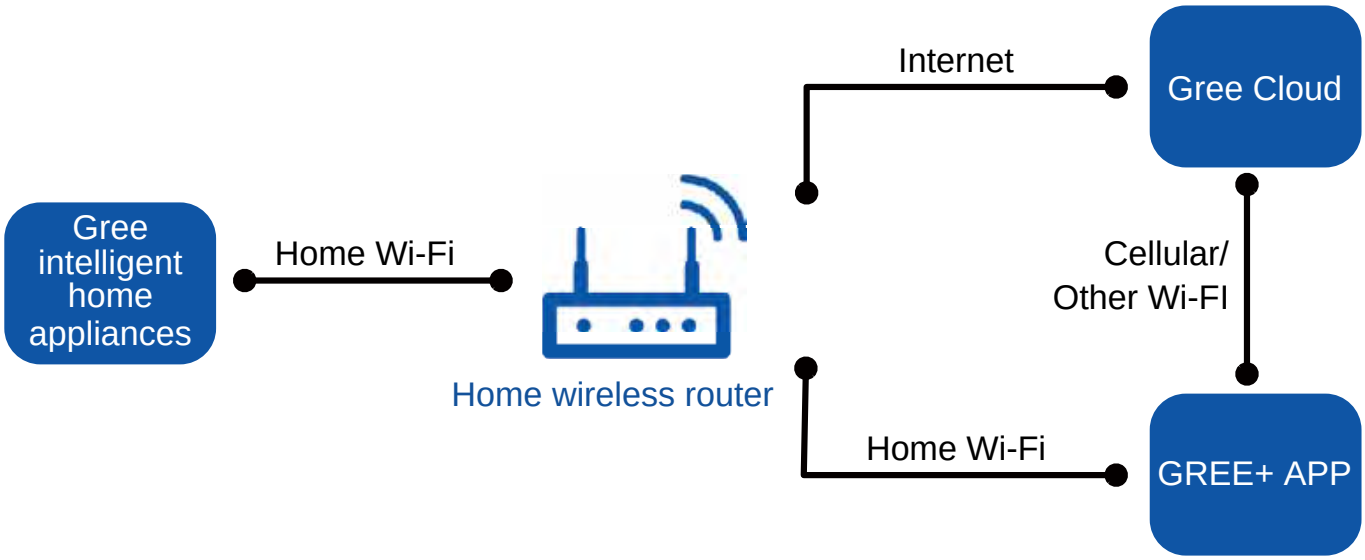
**4.FAN SPEED button**
Select the fan speed LOW, MED, HIGH and TURBO (This function is applicable to partial of models) in sequence.

**5.MODE button**
Select the operation mode, COOL,FAN, HEAT.

**6.FILTER CHECK indicator**
This feature is a reminder of cleaning the air filter(normal maintenance) for more efficient operation. The light will turn on automatically after the fan works more than 250 hours.
If the light is on, turn off and power off the unit, take the air filter out and clean it, then reinstall the air filter, power on and turn on the unit, the light will still be on, press + button for 5s,the light will turn off.

## 6.3 GREE+ 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

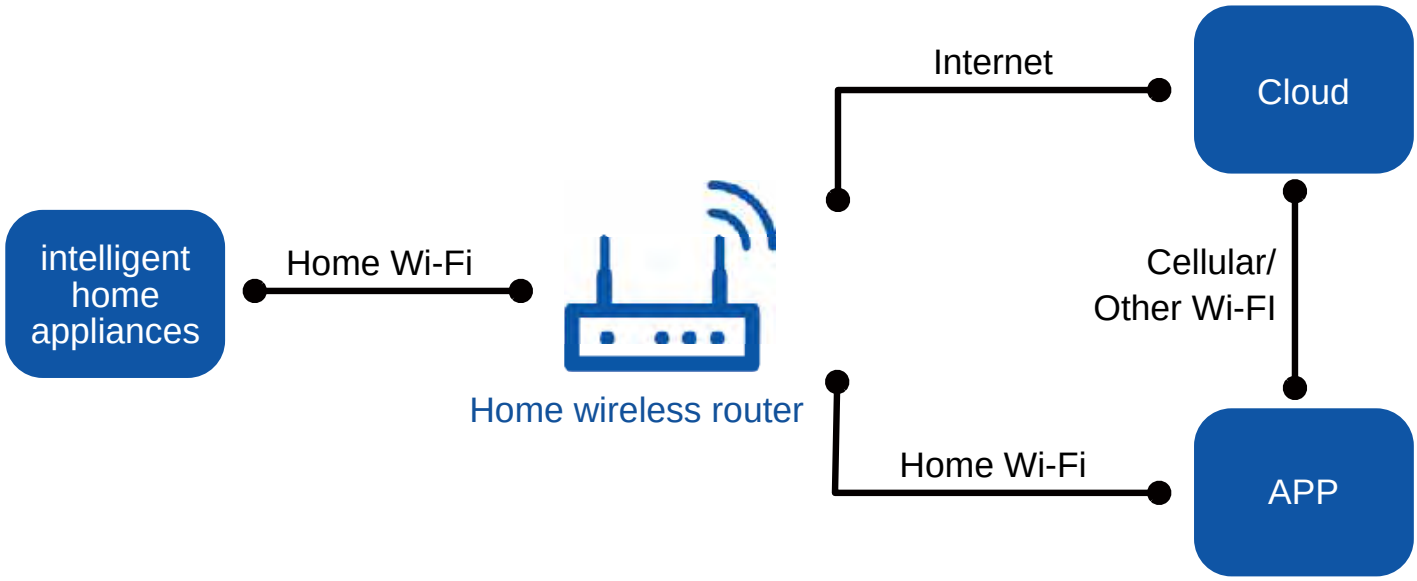
### Download and installation

GREE+ App Download Linkage

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

## 6.4 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.

# 6.5 Brief Description of Models and Functions

## 1 Applicable range

**It's applicable for recreational vehicle air conditioner.**

## 2 Basic functions

### 2.1 Cooling mode

**1. Working condition and process of cooling operation**

**a) When Tinner amb.≥Tset+1°C(2°F), the unit operates under the cooling mode.**

**Meanwhile, the compressor is turned on and the fan operates at the set fan speed.**

**b) When Tinner amb.≤Tpreset-1°C(2°F), the compressor stops operation and the indoor fan operate at the set fan speed.**

**c) When Tset-1°C( 2°F)<Tinner amb.<Tpreset+1°C(2°F), the unit keeps previous operation status.**

**2. Under this mode, the temperature setting range is 16°C~30°C(61°F~86°F).**

### 2.2 Fan mode

**1 Under the fan mode, the compressor and the outdoor fan stop operation. The fan operates at the set fan speed;**

**2 Under this mode, the temperature setting range is 16°C~30°C(61°F~86°F).**

### 2.3 Heating mode

**1. Working condition and process of heating operation**

**a) When Tinner amb.≤Tset+3°C(6°F), the unit operate under heating mode. The 4-way valve, the compressor and the outdoor fan operates and then indoor fan operates at the condition of cold air prevention.**

**b) When Tinner amb.≥Tpreset+5°C(9°F), the compressor and the outdoor fan stops operation and then 4-way valve keeps energization. Indoor fan blows residual heat.**

**c) When Tset+3°C(6°F)<Tinner amb.<Tset+3°C(9°F), the unit keeps previous operation status.**

**d) When Toutdoor amb.<-5°C(23°F), the complete unit is not allowed to enter into heating mode.**

**2. Under this mode, the temperature setting range is 16°C~30°C(61°F~86°F).**

### 2.4 Dry mode

**1. Working condition and process of dry operation: same as cooling mode**

**2. Under this mode, the temperature setting range is 16°C~30°C(61°F~86°F).**

### 2.5 Auto mode

**a) When Tinner amb.≥26°C(79°F), the unit operates under cooling mode. Tset=25°C(77°F);**

**b) When Tinner amb.≤22°C(72°F), if it's the heat pump controller, the unit operates under heating mode and Tset=20°C(68°F); if it's the cooling only controller, the unit operates under fan mode and Tset=20°C(68°F);**

**c) When 22°C(72°F)<Tinner amb.<26°C(79°F), the unit keeps original operation status. If the unit is energized for the first time, the unit operates under the fan mode.**

## 3 Other function

### 3.1 Buzzer

**When the controller is energized or receiving the signal of remote controller or buttons, the buzzer gives out a sound.**

### 3.2 Sleep

**1. Cooling/dry mode:**

**a) When the initial temperature setting is 16°C~23°C(61°F~74°F), after turning on the sleep function, the temperature will increase 1°C(2°F) every one hour. The temperature will keep the same after it has been increased by 3°C(6°F). When the unit has operated for 7h, the temperature will decrease 1°C(2°F) and then the unit will operate at this temperature all the time.**

**b) When the initial temperature setting is 24°C~27°C(75°F~81°F), after turning on the sleep function, the temperature will increase 1°C(2°F) every one hour. The temperature will keep the same after it has been increased by 2°C(4°F). When the unit has operated for 7h, the temperature will decrease 1°C(2°F) and then the unit will operate at this temperature all the time.**

**c) When the initial temperature setting is 28°C~29°C(82°F~84°F), after turning on the sleep function, the temperature will increase 1°C(2°F) every one hour. The temperature will keep the same after it has been increased by 1°C(2°F). When the unit has operated for 7h, the temperature will decrease 1°C(2°F) and then the unit will operate at this temperature all the time.**

**d) When the initial temperature setting is 30°C(85°F~86°F), the unit operate at this temperature. When the unit has operated for 7h, the temperature will decrease 1°C(2°F) and then the unit will operate at this temperature all the time.**

**2. Heating mode:**

**a) When the initial temperature setting is 16°C (61°F~62°F), the unit operate at this temperature all the way.**

**b) When the initial temperature setting is 17°C~20°C(63°F~68°F), after turning on the sleeping function, the temperature will decrease 1°C(2°F) every one hour. When the temperature has decreased for 1°C(2°F), the unit will operate at this temperature all the time.**

**c) When the initial temperature setting is 21°C~27°C(69°F~81°C), after turning on the sleeping function, the temperature will decrease 1°C(2°F) every one hour. When the temperature has decreased for 2°C(4°F), the unit will operate at this temperature all the time.**

**d) When the initial temperature setting is 18°C~30°C(82°F~86°F), after turning on the sleeping function, the temperature will decrease 1°C(2°F) every one hour. When the temperature has decreased for 3°C(6°F), the unit will operate at this temperature all the time.**

### 3.3 Timer function

**The unit can be set to be turned on or turned off at a certain time. The precision is minute. Eg: Turn on the unit at 8:00am; turn off the unit at 17:30pm.**

**a) Timer ON: If set timer ON when the system is operating, the system continues to operate; if set timer ON when the system is under off status, when the time for timer ON is reached, the system will operate at the preset mode.**

**b) Timer OFF: If set timer OFF when the system is under off status, the system keeps standby status; if set timer OFF when the system is under on status, when the time for timer OFF is reached, the system stops operation.**

**When the time for timer ON and timer OFF is the same, timer OFF will be executed.**

### 3.4 Memory function

**The system can memory the set operating status before the power failure. When power recovers, the unit automatically operates at the set operation status before the power failure. When the unit is under on status before the power failure,**

the compressor will be delayed for 3min for protection after power recovery.

### 3.5 WIFI function

WIFi can be turned on or turned off through the remote controller. When the unit is energized, no matter whether the unit is turned on, WIFI can be turned on or turned off. Only when WIFI is turned on, WIFI can start operate normally. WIFI is defaulted on at the initial status.

### 3.6 Indicator, dual-8 nixie tube

a.When the unit operating under cooling mode, cooling indicator is on. The dual-8 nixie tube displays the set temperature and the temperature can be adjusted.
b.When the unit is operating under the auto mode, the fan speed indicator is on. The dua-8 nixie tube displays the set temperature and the temperature can't be adjusted.
c.When the unit is operating under the heating mode, the heating indicator is on. The dua-8 nixie tube displays the set temperature and the temperature can be adjusted.
d.Set temperature is displayed under dry mode and fan mode. Cooling mode indicator is off under dry mode.
e.Under on status, turn on the light by the buttons on the remote controller to turn off all indicators and the nixie tube (except error display and filter indicator). The remote controller receives the signals of remote controller or buttons normally. When there is remote control signal input, the main board memorize the parameters adjusted by the remote controller. When the remote controller light is on, the latest parameters are displayed (including indicator and the nixue tube);
f.When it receives the signal of displaying the set temperature, the nixie tube displays the set temperature. When it receives the signal of displaying the ambient temperature, the nixie tube displays indoor ambient temperature for 5s and then turn back to display the set temperature. Ambient temperature display range is 0°C~60°C(32°F~99°F). If the ambient temperature value is less than 0°C(32°F), 0°C(32°F) is displayed; if the ambient temperature value is higher than 60°C(99°F), 60°C(99°F) is displayed.

### 3.7 Temperature setting

(1) The required temperature can be set by"+/-" button. The set temperature will be displayed at the dual-8 nixie tube.
(2)°C and °F can be switched for temperature display on the dula-8 nixie tube. Press "+"and"-"button simultaneously for 3s to switch between °C and °F. (The defaulted temperature unit is °C).

### 3.8 Button function setting

(1) ON/OFF button is used for turning on or turning off the unit. Under off status, press ON/OFF button to turn on the unit; under on status, press ON/OFF button to turn off the unit;
(2) Fan button is used for adjusting the fan speed. The fan speed can be set at low fan speed, medium fan speed and high fan speed;
(3) +/- button is used for increasing or decreasing the temperature.
(4) The mode button is used for switching modes.As for heat pump unit, it operates among cooling mode, fan mode and heating mode circularly; as for cooling only unit, it won't receive the heating signal and it operates between cooling mode and fan mode circularly.
(5) The sleep function can only be controlled by the sleep button on the remote controller. There is no sleep button on the control panel and the sleep function can't be controlled by the control panel.
(6) Auto mode can only be set by the remote controller.
(7) Filter cleaning indicator: This function is used for reminding filter cleaning (normal maintenance) for high-efficiency operation. When the fan has operates for over 250h, the light will be on automatically. If the indicator is on, please turn off the unit and cut off the power. Take out the filter and clean it. After that, reinstall the filter and then put through the power and turn on the unit. If the light is still on, check the button and then turn off the indicator.
(8)LED on the remote controller: Whether the unit is turned on under energization status, press the button once to turn on or turn off the LED. LED can be set by the remote controller and the control panel. As for the first time power supply, LED on indoor panel will be on.

### 3.9 Protection function

3.9.1 Temperature sensor error detection
(1) Indoor ambient temperature sensor is open/short-circuited: F1 is displayed on the dua-8 nixie tube;
(2) Indoor tube temperature sensor is open/short-circuited: F2 is displayed on the dua-8 nixie tube;
(3) Outdoor ambient temperature sensor is open/short-circuited: F3 is displayed on the dua-8 nixie tube;
(4) Outdoor tube temperature sensor is open/short-circuited: F4 is displayed on the dua-8 nixie tube;
(5) Discharge temperature sensor is open/short-circuited: F5 is displayed on the dua-8 nixie tube;
(6) When there is multiple malfunction, error codes will be displayed by turns.
3.9.2 Filter alarming function
When the fan has operated for 250h in total, the filter cleaning indicator will be on, which is used for reminding users to clean the filter;
3.9.3 Overload protection function
(1) Overload protection function under cooling or dry mode: If Touter tube≥Tstop due to overload under cooling mode, the unit stops operation due to overload protection under cooling mode; if Touter tube≥Tfrequency limiting due to overload under cooling mode and the compressor has stopped for 3mins, the complete is allowed to resume operation;
(2) Under cooling or drying mode, if Touter tube≥Tfrequency limiting due to overload under cooling mode, the operation frequency of compressor may decrease or stop increasing.
(3) Overload protection function under heating mode: If Touter tube≥Tstop due to overload under heating mode, the unit stops operation due to overload protection under heating mode; if Touter tube≥Tfrequency limiting due to overload under heating mode and the compressor has stopped for 3 mins, the complete is allowed to resume operation;
(4) Under heating mode, if Touter tube≥Tfrequency limiting due to overload under heating mode, the operation frequency of compressor may decrease or stop increasing.
(5) If the unit stops operation for consecutive 6 times due to overload protection, the unit can't resume operation automatically. The error code will displayed continuously. E8 is displayed on the dual-8 nixie tube. It needs to press ON/OFF button to resume operation. During operation process, if the operation time of compressor exceeds the clear time for overload protection times, the shutdown times due to overload protection will be cleared or counted again.Turning off the unit, fan mode or switching to the heating mode can immediately clear the error and error times (if the unit has stopped operation for 6 times, switching mode can't eliminate the error).

**3.9.4 Discharge temperature protection function of compressor**

**(1) If Tdischarge≥Tstop due to discharge protection, the unit stops operation due to discharge protection; if Tdischarge≥Tdischarge frequency limiting, and the compressor has stopped for 3min, the complete is allowed to resume operation;**

**(2)if Tdischarge≥Tdischarge frequency limiting,the operation frequency of compressor may decrease or stop increasing.**

**(3) If the unit stops operation for consecutive 6 times due to compressor discharge protection, the unit can't resume operation automatically. It needs to press the ON/OFF button to resume operation. During operation process, if the operation time of compressor exceeds the clear time for discharge protection times, the shutdown times due to discharge protection will be cleared or counted again.Turning off the unit or switching to the fan mode can immediately clear the error and error times(if the unit has stopped operation for 6 times, switching mode can't eliminate the error).**

**3.9.5 IPM module protection function**

**When the compressor is turned on, If IPM module is overcurrent or the control voltage is too low due to some abnormality, IPM will immediately check the module protection signal. Once the module protection signal is detected, the unit stops operation immediately because of IPM module protection. If module protection is resumed and the compressor has stopped for 3 mins, the complete unit is allowed to resume operation.**

**If the unit stops operation for consecutive 6 times due to module protection protection, the unit can't resume operation automatically. It needs to press the ON/OFF button to resume operation. During operation process, if the operation time of compressor exceeds the clear time for module protection times, or the compressor is from operation to shutdown (except showdown due to module protection), the shutdown times due to module protection will be cleared or counted again.**

**3.9.6 Module overheating protection function**

**(1) When Tmodule≥Tmodule frequency limiting, the operation frequency of compressor may decrease or stop increasing.**

**(2) If Tmodule≥Tmodule stop, the system will stop operation due to protection. If Tmodule<Tmodule frequency limiting, and the compressor has stopped operation for 3min, the complete unit is allowed to resume operation.**

**(3) If the unit stops operation for consecutive 6 times due to compressor module overheating protection, the unit can't resume operation automatically. It needs to press the ON/OFF button to resume operation. During operation process, if the operation time of compressor exceeds the clear time for module protection times, the shutdown times due to module protection will be cleared or counted again.Turning off the unit or switching to the fan mode can immediately clear the error and error times (if the unit has stopped operation for 6 times, switching mode can't eliminate the error).**

**3.9.7 Defrosting detection**

**For ensuring the heating effect, the unit will defrost automatically according to the frosting status on the outdoor unit, During defrosting period, heating indicator flashes (on for 10s and off 0.5s circularly)**

## 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 cant 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 cant 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:

**1. 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.**

**2.Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.**

**3. 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.**

**4. Make sure no refrigerant gas is leaking out when installation is completed.**

**5. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.**

**6. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.**

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

## Safety Precautions for Refrigerant

**●To realize the function of the 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 ozonosphere. 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:**

**●Appliance filled with flammable gas R32.**

**●Appliance shall be installed, operated and stored in a room with a floor area larger than 4 $m^2$.**

**●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.)**

**●The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.**

**●The appliance shall be stored so as to prevent mechanical damage from occurring.**

**●Ducts connected to an appliance shall not contain an ignition source.**

**●Keep any required ventilation openings clear of obstruction.**

**●Do not pierce or burn.**

**●Be aware that refrigerants may not contain an odour.**

**●Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.**

**●Servicing shall be performed only as recommended by the manufacturer.**

**●Should repair be necessary, contact your nearest authorized Service Centre.**

**●Any repairs carried out by unqualified personnel may be dangerous.**

**●Compliance with national gas regulations shall be observed. Read specialist's manual.**

**requirement for maintenance man(repairs should be done only be specialists).**

a. Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.

b.Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

**Safety preparation work**

**The maximum refrigerant charge amount is shown on the following table a.**

**(Note: Please refer to the nameplate for the charging quantity of R32).**

**table a - Maximum charge (kg)**

| **Room area ($m^2$)** | / | 4 | 6 | 8 | 10 |
|---|---|---|---|---|---|
| **Maximum charge (kg)** | <1.842 | 2.02 | 3.03 | 3.55 | 3.97 |

**Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.**

### ● Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

**● General work area**

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material

**● Checking for presence of refrigerant**

**The area** shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres.

Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

**● Presence of fire extinguisher**

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or $CO_2$ fire extinguisher adjacent to the charging area.

**● No ignition sources**

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. " NO Smoking " signs shall be displayed.

**● Ventilated area**

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

**● Checks to the refrigeration equipment**

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

---The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;

---The ventilation machinery and outlets are operating adequately and are not obstructed;

---If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;

---Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;

---Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

**● Checks to electrical devices**

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

**Initial safety checks shall include:**

1.That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;

2.That no live electrical components and wiring are exposed while charging, recovering or purging the system;

3.That there is continuity of earth bonding.

**● Repairs to sealed components**

1. During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

2. Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected.This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that the apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.

Replacement parts shall be in accordance with the manufacturer's specifications.

NOTE : The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

**● Repair to intrinsically safe components**

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

**● Cabling**

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse

environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

**● Detection of flammable refrigerants**

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE Examples of leak detection fluids are

--bubble method,

--fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/ extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Remov-al of refrigerant shall be according to Clause Remov-al and evacuation.

**● Removal and evacuation**

When breaking into the refrigerant circuit to make repairs – or for any other purpose –conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration.

The following procedure shall be adhered to:

1.remove refrigerant;

2.purge the circuit with inert gas (optional for A2L);

3.evacuate (optional for A2L);

4.purge with inert gas (optional for A2L);

5.open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants other than A2L refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process may need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refriger-ants, other than A2L refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

**● Charging procedures**

In addition to conventional charging procedures, the following requirements shall be followed.

1.Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.

2.Cylinders shall be kept upright.

3.Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.

4.Label the system when charging is complete (if not already).

5.Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas.

The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

**● Decommissioning**

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

a. Become familiar with the equipment and its operation.

b. Isolate system electrically.

c. Before attempting the procedure, ensure that:

- ●mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- ●all personal protective equipment is available and being used correctly;
- ●the recovery process is supervised at all times by a competent person;
- ●recovery equipment and cylinders conform to the appropriate standards.

d. Pump down refrigerant system, if possible.
e. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f. Make sure that cylinder is situated on the scales before recovery takes place.
g.Start the recovery machine and operate in accordance with manufacturer's instructions.
h. Do not overfill cylinders. (No more than 80 % volume liquid charge).
i. Do not exceed the maximum working pressure of the cylinder, even temporarily.
j. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k. Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

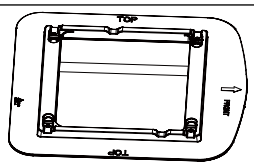
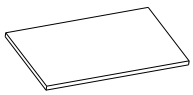
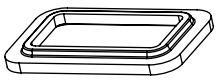
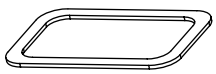
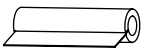
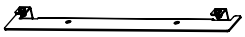
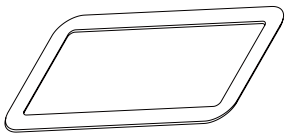
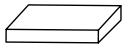
**●Labelling**

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

**●Recovery**

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shutoff valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

## 8.1 Accessory list

| | |
|---|---|
|  owner's manual |  Mounting plate |
|  Double-sided gummed paper |  Remote controller holder |
|  Foam (accessory) |  Sponge (foam accessory) |
|  Insulating sheath |  Bundle |
|  remote controller |  battery (AAA 1.5V) |
|  Sunk screw (remote controller holder) |  Foam (up) |
|  Mounting plate sub-assy |  Bolt sub-assy M8X135 |
|  Bolt sub-assy M6X25 |  Tapping screw |
|  Sponge (sealing strip) |  Sponge |

## 8.2 Before installation

Test run the unit with proper power supply. Refer to the operation instruction section in the Owner's Manual Operation & Installation. Make sure all the controls operate correctly then disconnect the power supply of the unit.

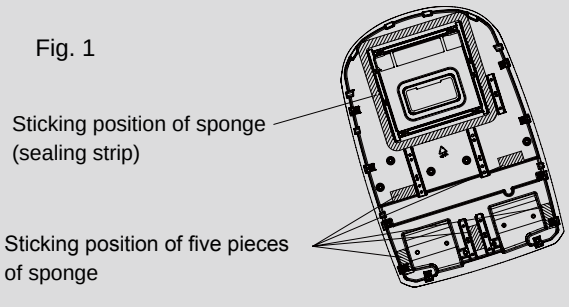
⚠ **WARNING**

1. Moving parts may cause personal injury. Be careful when test the unit. Do not operate the unit with exterior cover removed.
2. Outdoor unit can't be installed at the low recess of the roof of vehicle. It must be mounted at the flat surface on the roof of vehicle to make sure the rain, car-washing water, condensate water,etc. can be drained smoothly. No water is allowed to be accumulated around the outdoor unit; otherwise, it will cause malfunction or safety hazards as the water will pour into the air conditioner.
3.Please use the equipped mounting Plate for installation; otherwise, it may cause malfunction or damage.

## 8.3 Stick Sponge (Sealing Strip) And Sponge

1.Before sticking, clean up the sundries at the sticking position (as shown in Fig.1) of the chassis of the outdoor unit to ensure that the sticking position is clean;
2.Take out one piece of sponge (sealing strip) and five pieces of sponge from the accessories, and tear off the paper on the glue surface and align at the edge of the position as shown in Figure 1 to stick the sponge.
If the sponge (sealing strip) is damaged or not stuck on the proper position, you must replace it with a new one and stick it properly;
3.Check whether the sponge (sealing strip) and the sponge are tightly adhered, and ensure that they will not fall off.

Fig. 1




## 8.4 Selecting an installation location

The air conditioner has been designed for use in recreational vehicles.
Check the roof of the vehicle to determine if it can support both the roof top unit and the ceiling assembly without additional support. Make sure the interior ceiling mounting area will not interfere with existing structures.
Once the location for the air conditioner has been determined. A reinforced and framed roof hole opening must be cut (if there is no hole,please refer to CASE B) or you may use existing vent holes (See CASE A).

**CASE A.**

If a roof vent is already present in the desired mounting location for the air conditioner, the following steps must be performed:
1.Remove all screws which secure the roof vent to the vehicle. Remove the vent and any additional trim. Carefully remove all chalking from around the opening so the surface is clear.
2.It may be necessary to seal some of the old roof vent mounting screw holes which may fall outside of the air conditioner basepan

gasket.
3.Examine the roof opening size, if the opening is small than 400x400mm, the opening must be enlarged.

**CASE B.**

If a roof vent opening is not used,a new opening(see Fig.2)will be cut into the vehicl roof.A matching opening will also have to be cut into the interior vehicle ceiling,be careful when cutting the ceiling opening because if the ceiling opening is carpeted,snagging could occur. After the opening in the roof and interior ceiling are the correct size,a framed support structure must be placed between the exterior roof top and interior ceiling.The reinforced framed structure must follow the follwing guidelines:
1.It must be capable of supporting both the weight of the roof top air conditioner and the interior ceiling assembly.
2.It must be capable of holding the roof outer surface and interior ceiling apart and supporting them, so that when the roof top air conditioner and ceiling assembly are bolted together,no collapsing occurs. A typical support frame is shown in Fig. 2.
3.There must be an opening through the frame for the power supply wiring. Route the supply wiring through the frame at the same time the support frame is being installed.

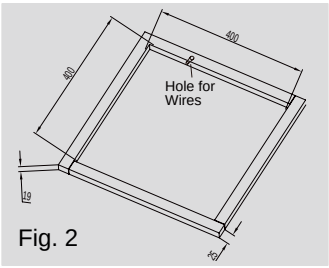


Fig. 2

## Installation method for mounting plat

If the roof already has a 400x400mm opening.
Select the installation position for the recreational vehicle air conditioner
This mounting plat of switchover opening is applicable for Gree recreational vehicle air conditioner.
The opening size of installation port on the top of the vehicle must be 400×400mm.

**Operation method:**

1.Eliminate the sundries around the installation port on the top of the vehicle and keep the installation surface flat;
2.Check whether there are holes or grooves on surface of installation position. If yes, conduct the sealing treatment to prevent water leakage;
3.Fill the groove on the surface where the mount-ing plate is contacting the top part of the vehicle with the unhardened sealant (the maximum thickness is 1cm); When the mounting plat is installed on the top of vehicle, fill the sealant in the gap between the mounting plat and the vehicle roof. The mounting plat should be tightly sealed with the roof of the vehicle to prevent water leakage.
4.Install it into the opening on the top of the vehicle according to the indicate direction by the arrow (the direction of arrow should be the same with the head of the vehicle).

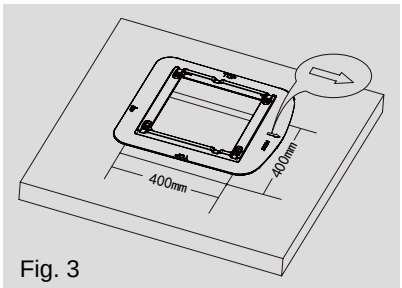


Fig. 3

⚠ **CAUTION**

1. The roof top air conditioner must be mounted on a level plane from front to rear and side to side when the vehicle is parked on a level plane. Fig. 4 shows maximum allowable degrees that the unit can be mounted above or below level.
2.If the roof of the vehicle is sloped (not level) such that the roof top air conditioner cannot be mounted within the maximum allowable degree specifications, an exterior leveling shim will need to be added to make the unit level. A typical leveling shim is shown in Fig. 5.
3.Once the roof top air conditioner has been leveled, some additional shimming may be required above the interior ceiling assembly. The roof top air conditioner and the interior ceiling assembly must be square with each other before they are secured together.
4.After the mounting hole area is properly prepared, remove the carton and shipping pads from around the roof top air conditioner. Carefully lift the unit on top of the vehicle. Do not use the outer plastic shroud for lifting. Place the roof top air conditioner over the prepared mounting hole.
5.The front section of outdoor unit of air conditioner must be in the same direction as the vehicle,which is useful for reducing wind resistance.

Note: Try you best to put the unit on the horizontal surface for operation. The unit can only operate for a short time at the maximum sloping angle of 5º for preventing water leakage.

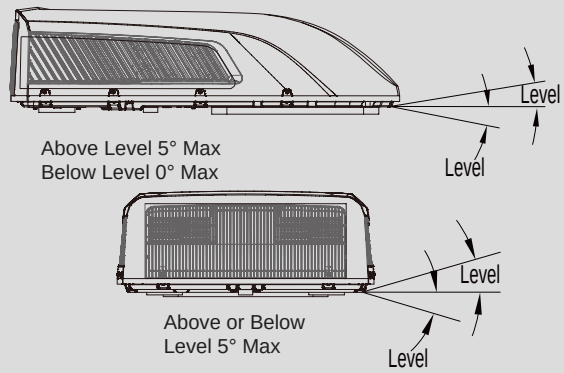
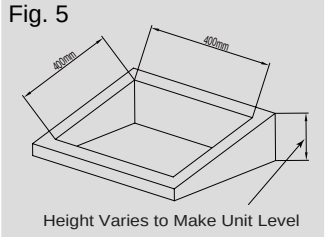


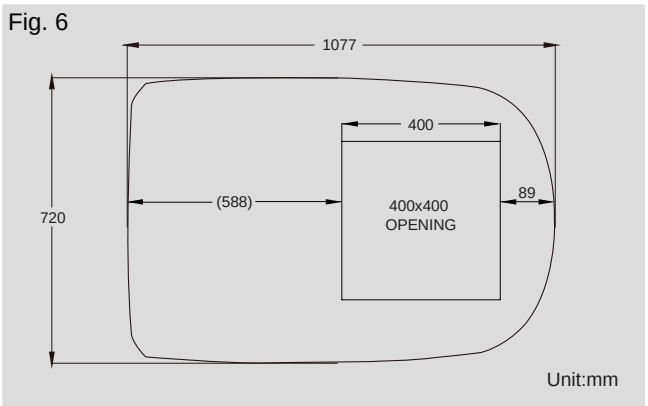
Fig.4

Fig. 5




**NOTE:AIR CONDITIONER DIMENSIONS (ROOF OF UNIT)**

Fig. 6



## 8.5 Mounting Outdoor Unit

1.Open the package and take out the outdoor unit.
1) When taking out the outdoor unit after unpacking, do not lift the air outlet grille at the back of outer case(see Fig.7).
2.Put the outdoor unit at the mounting plat of switchover opening.
1) Lift the outdoor unit. During the movement, it is strictly forbidden to hoist the plastic outer caser of outer unit of the air conditioner.
2) Put it on the mounting plat of the prepared switchover opening to make the sealing strip of outdoor unit match with the groove on the surface of the mounting plat. Do not drag the outdoor unit. Otherwise, the seal may fall off.

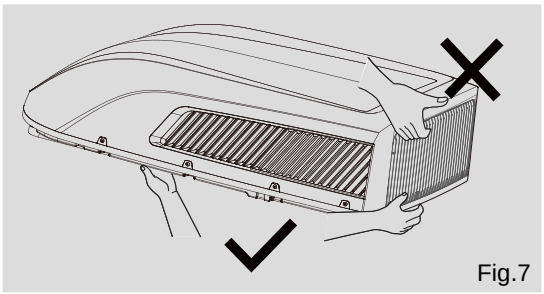


Fig.7

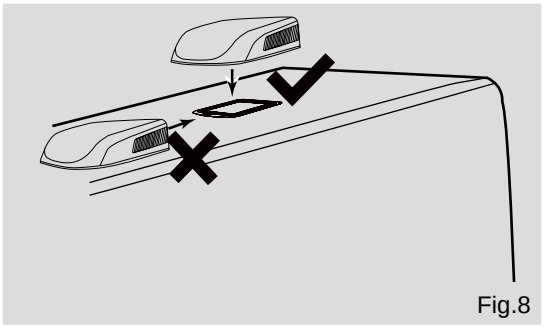


Fig.8

## 8.6 Installing The Ceiling Assembly

Make sure that you have properly matched the roof top air conditioner and interior ceiling assembly.
**Caution before tightening bolts:**
1.The applicable thickness of vehicle roof ranges from 30mm~80mm.
2.Before tightening bolts, screw in the four bolts manually and prohibit screwing forcibly.
3.When screwing bolts, you can use automatic tool. Do not tighten one bolt completely and then tighten other bolts, in order to prevent sticking of screw thread.
4.The max torque for tightening ranges from 2.3Nm~2.5Nm.

The following step by step instructions must be performed in the following sequence to ensure proper installation.
1.Carefully take the ceiling assembly out of the carton.
2.Remove the ceiling grille from the ceiling assembly.
3.Then carry the outdoor unit to the vehicle's top and align with the openings on the vehicle's top. Use 2 sets of mounting plat assembly and 4 screw bolts to mount the outdoor unit (See Fig. 9).
4.You must start (thread) the mounting bolts by hand to avoid cross-threading. DO NOT START THE MOUNTING BOLTS WITH AN AIR GUN. The mounting bolts should be tightened, process is completed when the basepan gasket has been evenly compressed.
5.Before installing the air duct assembly of the indoor unit of recreational vehicle air conditioner, assemble the foam assembly according to the thickness of the vehicle's top. After simulated installation, use an appropriate amount of sponge and foam assembly. Stick the sponge and foam assembly with double faced adhesive tape (prepared by user) (See Fig.10, Fig.11).
6.Install the foam assembly on the air duct assembly. Use 4 screw bolts to fix the air duct assembly onto the mounting plat.
After connecting the outdoor unit with indoor unit, check whether the foam assembly has come loose (See Fig. 9).

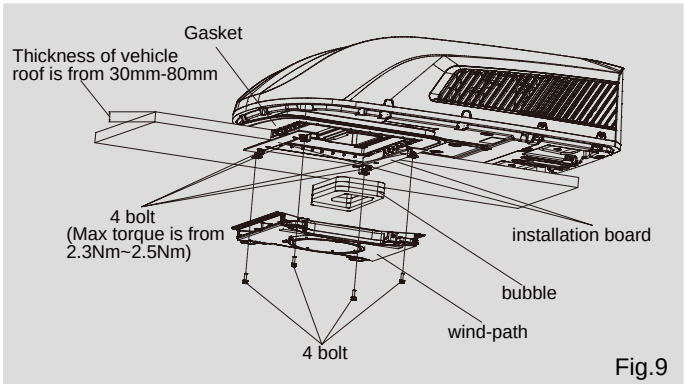


Fig.9

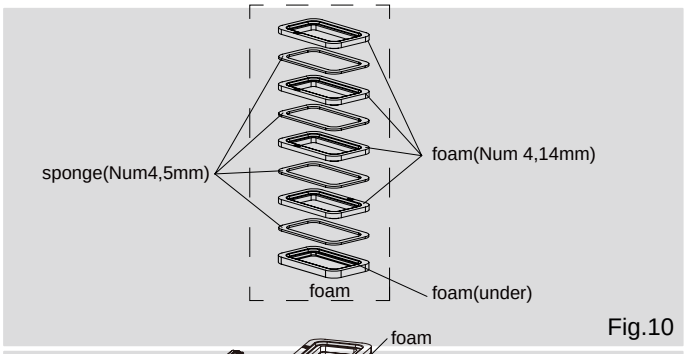


Fig.10

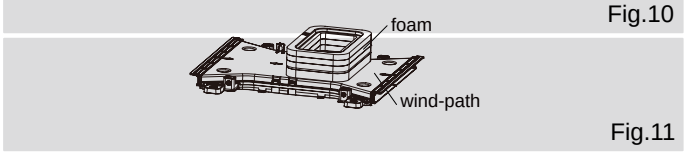


Fig.11

## 8.7 Electrical Wiring

⚠ **WARNING**

Make sure that all power supply to the unit is disconnected before performing any work on the unit to avoid the possibility of shock or injury and/or damage to the equipment. When the interior ceiling assembly frame is properly secured to the roof top air conditioner, the following electrical connections must be performed.

1. As shown in Fig.12, the outdoor unit has two sets of outgoing wires, which are power cord (high current) and the control signal wires respectively. The former one should be directly connected to the power supply terminal while the latter one should be connected to the control signal wire of the indoor unit.

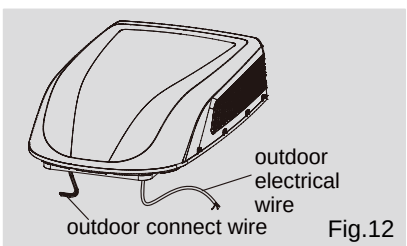


Fig.12

2. As shown in Fig.13, the indoor unit has one set of control signal wires, with 1 wiring terminals in total.
3. Connect the docking terminals of indoor unit and outdoor unit, see Fig.14.

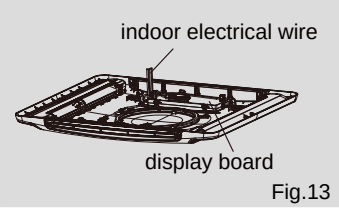


Fig.13

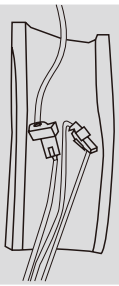


Fig.14

4. Use protective sleeve to wrap the wiring terminal, stick the protective sleeve and then use cable tie to bundle them tightly.
Note:
1. The fixing position of cable must be at both ends of wiring terminal.
2. Before installing the front panel of indoor unit, put the thermal insulating jacket on top of the air duct.


Fig.15

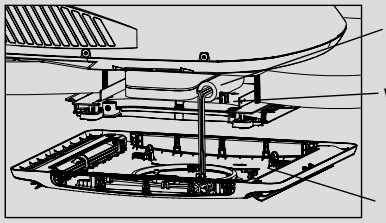
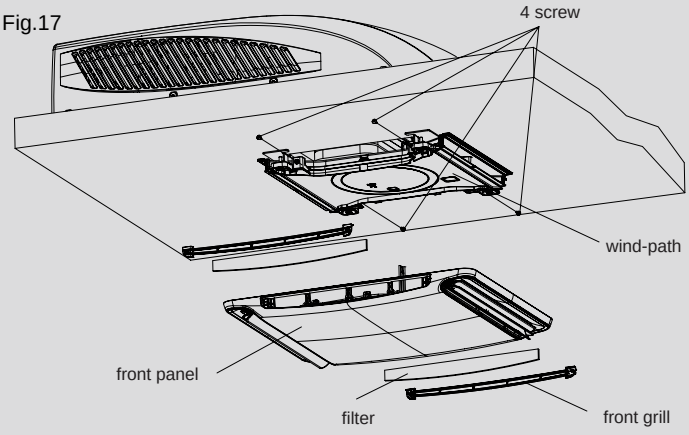


Fig.16

## 8.8 Completing The Installation

To complete the installation and system checkout requirements, the following steps must be performed.
1. Check the thermostat position. Make sure the thermostat is routed through the holding guide and is not touching any metal surface.
2. Secure the ceiling grille to the ceiling assembly wind-path with 4 screws. (see Fig.17).
3. Install the healthy filter and air intake grill. Press “PUSH” and lock with clasps.
4. Switch on the power supply and check the unit work or not.
5. Once the indoor unit is assembled, if the gap between the panel and the top of vehicle is not even, please ask the manufacturer to adjust it according to the assembly status.

Fig.17



## 9.1 Error Code List

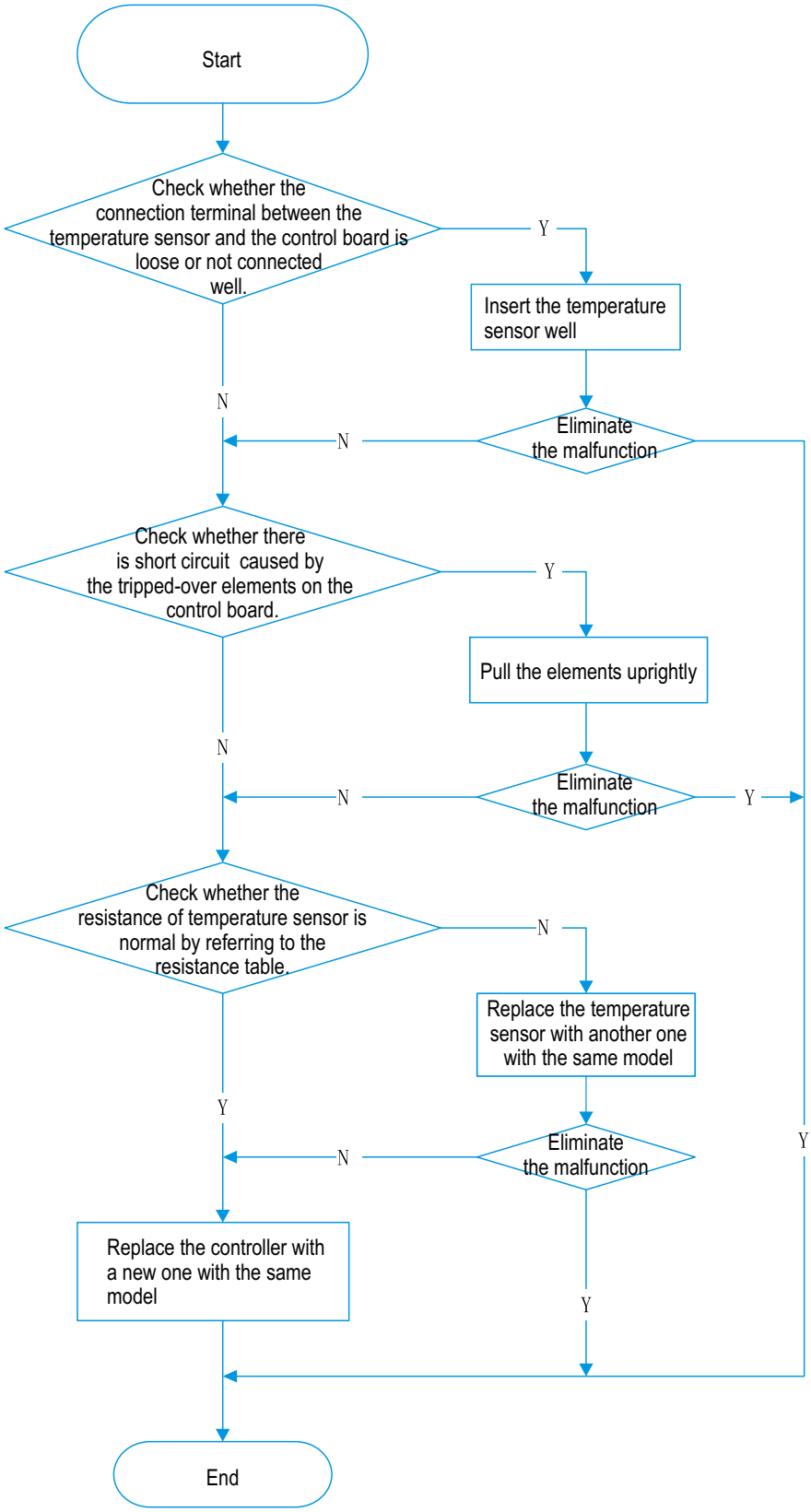
| No. | Malfunction name | Display method of indoor unit | A/C status | Possible causes |
|---|---|---|---|---|
| 1 | Condenser freeze protection | E2 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Air return of indoor unit is poor?<br>2. Rotation speed of indoor unit is abnormal?<br>3. Evaporator is blocked with dirt or filter is dirty?<br>4. Indoor pipe temperature sensor is abnormal?<br>5. Capillary is blocked or electronic expansion valve is abnormal?<br>6. System refrigerant leaks?<br>7. Ambient temperature of cooling operation is too low? |
| 2 | High discharge temperature protection of compressor | E4 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Discharge temperature sensor is damaged?<br>2. Refrigerant leaks?<br>3. Capillary is blocked or electronic expansion valve is abnormal?<br>4. Heat exchanger is blocked with dirt, filter is blocked with dirt and unit ventilation is poor?<br>5. Outdoor fan is faulty?<br>6. Outdoor ambient temperature is too high? |
| 3 | Overcurrent protection | E5 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Power supply voltage is unstable with big fluctuation?<br>2. Power supply voltage is too low and load is too big?<br>3. System load is too big, heat exchanger is blocked with dirt, filter is blocked with dirt, unit ventilation is poor and ambient temperature is too high? |
| 4 | IDU and ODU communication malfunction | E6 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. IDU and ODU connection wire and connection wires inside the indoor unit and outdoor unit are connected normal or whether they are damaged?<br>2. IDU mainboard or ODU mainboard is broken and ODU power indicator is not on? |
| 5 | High temperature protection | E8 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Indoor or outdoor ambient temperature is too high?<br>2. Indoor or outdoor fan operates abnormally?<br>3. Filter or condenser is blocked with dirt?<br>4. Indoor or outdoor pipe temperature sensor is normal? |
| 6 | EEPROM malfunction | EE | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Power supply shakes when energize the unit for the first time, and re-energize the unit after 5min of de-energization?<br>2. ODU reads EEPROM data wrongly and replace outdoor control board? |
| 7 | Malfunction of indoor ambient temperature sensor | F1 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Terminal of indoor ambient temperature sensor is loose?<br>2. Indoor ambient temperature sensor is damaged?<br>3. IDU mainboard is damaged? |
| 8 | Malfunction of indoor evaporator temperature sensor | F2 | | 1. Terminal of indoor evaporator temperature sensor is loose?<br>2. Indoor evaporator temperature sensor is damaged?<br>3. IDU mainboard is damaged? |
| 9 | Malfunction of outdoor ambient temperature sensor | F3 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Outdoor ambient temperature sensor is loose?<br>2. Outdoor ambient temperature sensor is damaged?<br>3. ODU mainboard is damaged? |
| 10 | Malfunction of outdoor evaporator temperature sensor | F4 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Outdoor pipe temperature sensor is loose?<br>2. Outdoor pipe temperature sensor is damaged?<br>3. ODU mainboard is damaged? |
| 11 | Malfunction of outdoor discharge temperature sensor | F5 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Outdoor discharge temperature sensor is not inserted into the copper pipe?<br>2. Resistance of outdoor discharge temperature sensor is normal?<br>3. Indoor or outdoor pipe temperature sensor is not inserted well?<br>4. 4-way valve coil is not energized? |

| No. | Malfunction name | Display method of indoor unit | A/C status | Possible causes |
|---|---|---|---|---|
| 13 | Refrigerant lacking protection, refrigerant circulation cut-off protection | F0 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Refrigerant leaks?<br>2. Big valve and small valve of outdoor unit are completely open?<br>3. Capillary is blocked or electronic expansion valve is stuck?<br>4. Indoor evaporator temperature sensor is fallen off?<br>5. Outdoor condenser temperature sensor is fallen off?<br>6. System cooling is in high-humidity environment, which leads to small heat exchange temperature difference? |
| 14 | Compressor overload protection (Only for models with overload) | H3 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1.Refrigerant leaks?<br>2.. Capillary is blocked or electronic expansion valve is abnormal?<br>3. Indoor evaporator temperature sensor is fallen off?<br>4. Outdoor condenser temperature sensor is fallen off?<br>5. System cooling is in high-humidity environment, which leads to small heat exchange temperature difference? |
| 15 | IPM protection (Including overheat demagnetization) | H5 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Control board and compressor are reliably connected?<br>2. Compressor coil resistance is normal? Insulation of compressor coil to copper pipe is good?<br>3. Outdoor fan is abnormal?<br>4. Big or small valve is not open, system is stuck, condenser is blocked with dirt or ventilation is poor?<br>6. Mainboard power module is damaged and power module is tightened?<br>7. Indoor or outdoor ambient temperature is too high?<br>8. Compressor is stuck? |
| 16 | Motor blockage protection | H6 | Cooling: compressor, outdoor fan and indoor fan stop<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Motor terminal is loose?<br>2. Motor is damaged?<br>3. Connection wire of motor is damaged?<br>4. Mainboard component is damaged?<br>5. Fan blade is stuck? |
| 17 | Compressor desyn-chronization | H7 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Control board and compressor are reliably connected? Is it loose? Connection sequence is correct?<br>2. Compressor coil resistance is normal? Insulation of compressor coil to copper pipe is good?<br>3. Outdoor fan is abnormal?<br>4. Big or small valve is not open, system is stuck, condenser is blocked with dirt or ventilation is poor?<br>5. Unit voltage input is in normal range (voltage between L and N)?<br>6. Mainboard power module is damaged?<br>7. Indoor or outdoor ambient temperature is too high?<br>8. Compressor is stuck? |
| 18 | PFC protection | HC | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | PFC current bias voltage is wrong and replace outdoor control board?<br>1. Check if ODU mainboard is damaged?<br>2. If the grid voltage is instable and there is distortion? |
| 19 | Communication malfunction between IDU and detection board | JF | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Poor connection between the indoor unit and the inspection board.<br>2.The main board of indoor unit is damaged; |
| 20 | Outdoor fan malfunction | L3 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Blade of outdoor fan is stuck by a foreign object or touches the panel?<br>2. Outdoor fan terminal connection is reliable?<br>3. Mainboard is damaged?<br>4. Ambient wind power is too big? |

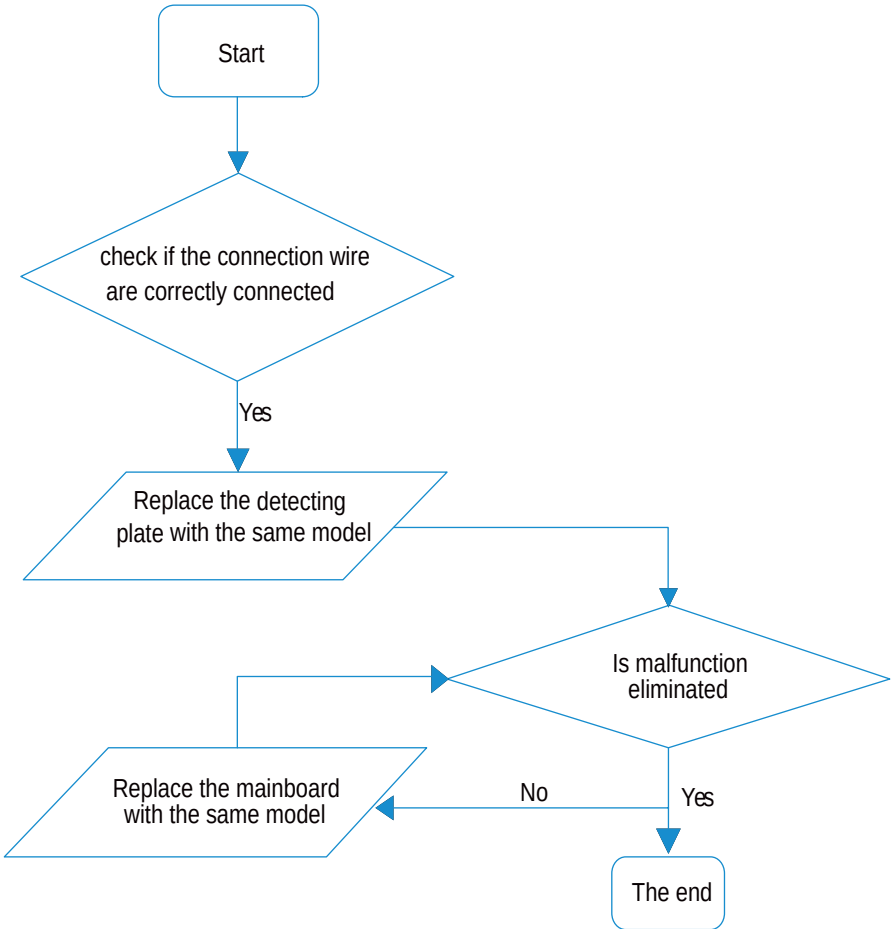
| No. | Malfunction name | Display method of indoor unit | A/C status | Possible causes |
|---|---|---|---|---|
| 21 | Startup failure | Lc | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Control board and compressor are reliably connected? Is it loose? Connection sequence is correct?<br>2. Compressor coil resistance is normal? Insulation of compressor coil to copper pipe is good?<br>3. Outdoor fan is abnormal?<br>4. Big or small valve is not open, system is stuck, condenser is blocked with dirt or ventilation is poor?<br>5. Unit voltage input is in normal range (voltage between L and N)?<br>6. Mainboard power module is damaged?<br>7. Indoor or outdoor ambient temperature is too high?<br>8. Compressor is stuck? |
| 22 | Compressor phase current overcurrent protection | P5 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Control board and compressor are reliably connected? Is it loose? Connection sequence is correct?<br>2. Compressor coil resistance is normal? Insulation of compressor coil to copper pipe is good?<br>3. Outdoor fan is abnormal?<br>4. Big or small valve is not open, system is stuck, condenser is blocked with dirt or ventilation is poor?<br>5. Unit voltage input is in normal range (voltage between L and N)?<br>6. Mainboard power module is damaged?<br>7. Indoor or outdoor ambient temperature is too high?<br>8. Compressor is stuck? |
| 23 | Module temperature sensor circuit malfunction | P7 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | Malfunction of module temperature sensor, replace the mainboard. |
| 24 | High module temperature protection | P8 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Check if the ventilation of radiator is normal. If it is abnormal, please improve it.<br>2. After cutting off the power of the whole unit for 20min, check if the thermal grease of IPM module on the ODU control board is dry and if the radiator is tightened?<br>3. If there is no problem after checking the above two points, please replace the ODU control board. |
| 25 | DC bus voltage is too low | PL | Cooling: compressor, outdoor fan and indoor fan stop<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Measure the power supply voltage to see if it is too low or it is dragged down as the power supply capacity is insufficient?<br>2. For the model with reactor, check if the reactor connection is good?<br>3. Mainboard is damaged? |
| 26 | DC bus voltage is too high | PH | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | 1. Measure the power supply voltage to see if it is too high or there is fluctuation?<br>2. Mainboard is damaged? |
| 27 | Malfunction of compressor phase current detection circuit | U1 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | Mainboard is damaged, replace the outdoor control board. |
| 28 | DC bus voltage drop malfunction | U3 | Cooling: compressor and outdoor fan stop, while indoor fan operates<br>Heating: compressor, outdoor fan and indoor fan stop | Power supply voltage is unstable with big fluctuation |

## 9.2 Procedure of Troubleshooting

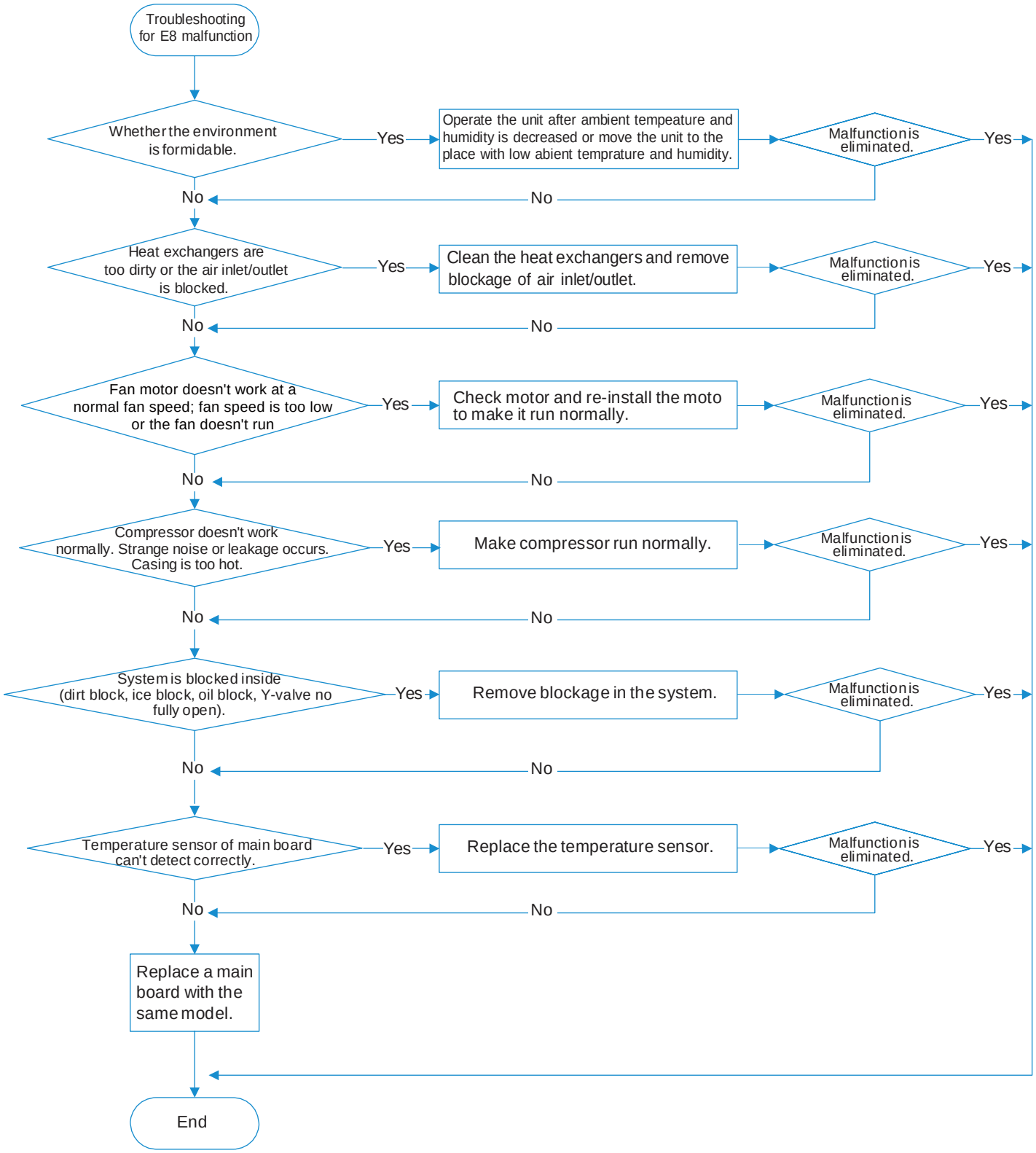
### 1. Malfunction of Temperature Sensor F1~F5



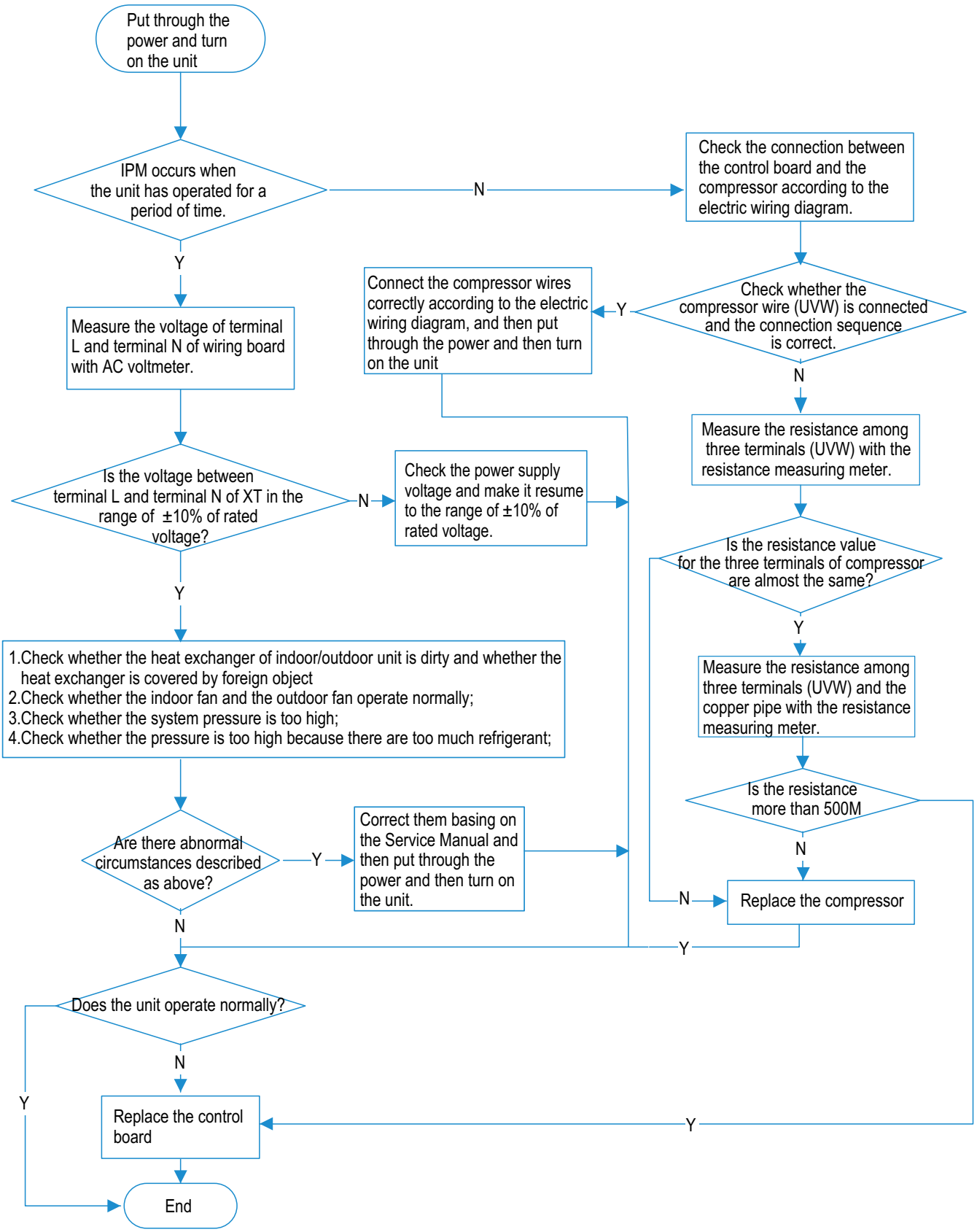
**2. Malfunction of detecting plate(WIFI) JF**



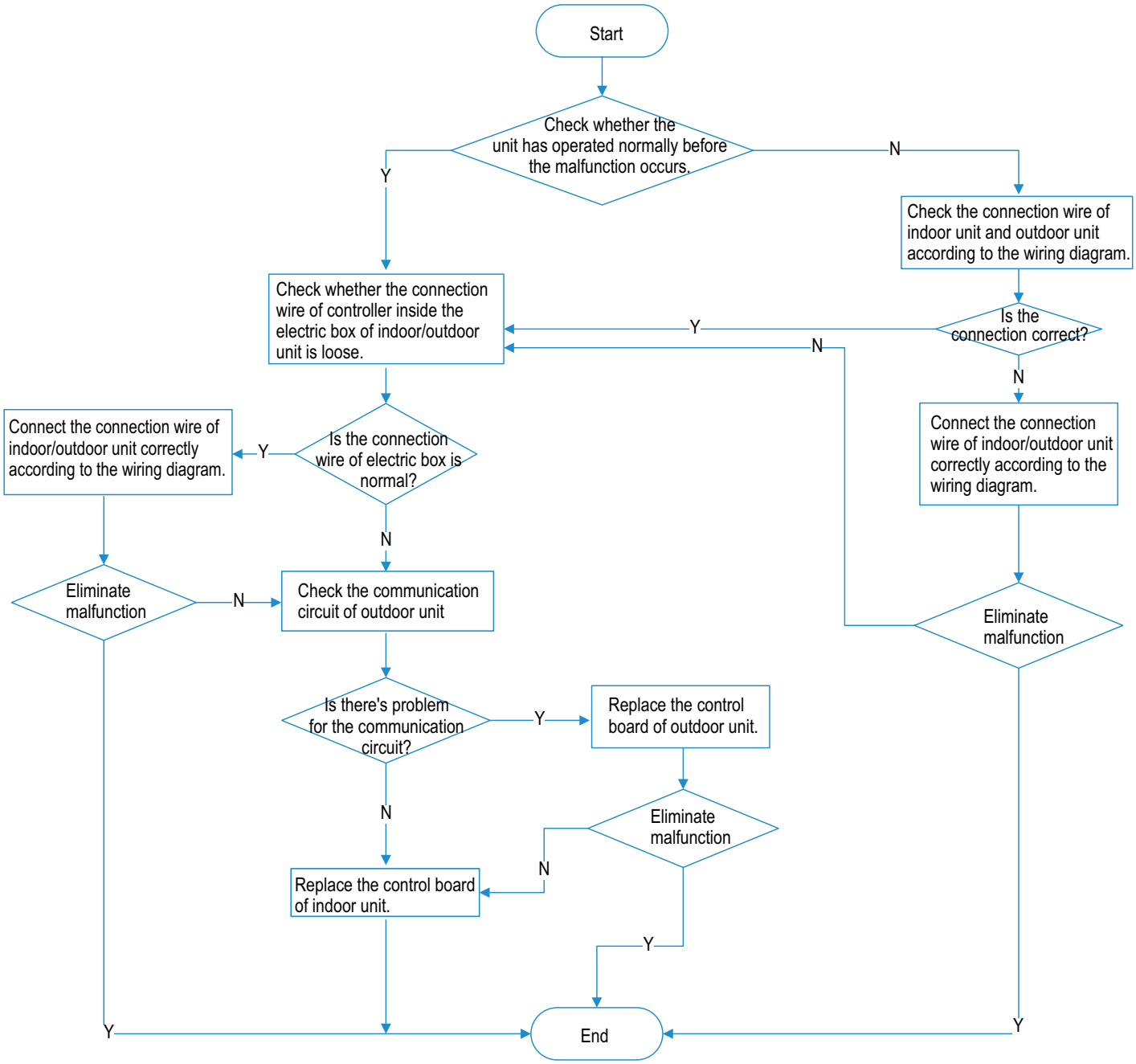
### 3. Overload malfunction E8



## 4. IPM protection H5, over-phase current of compressor P5



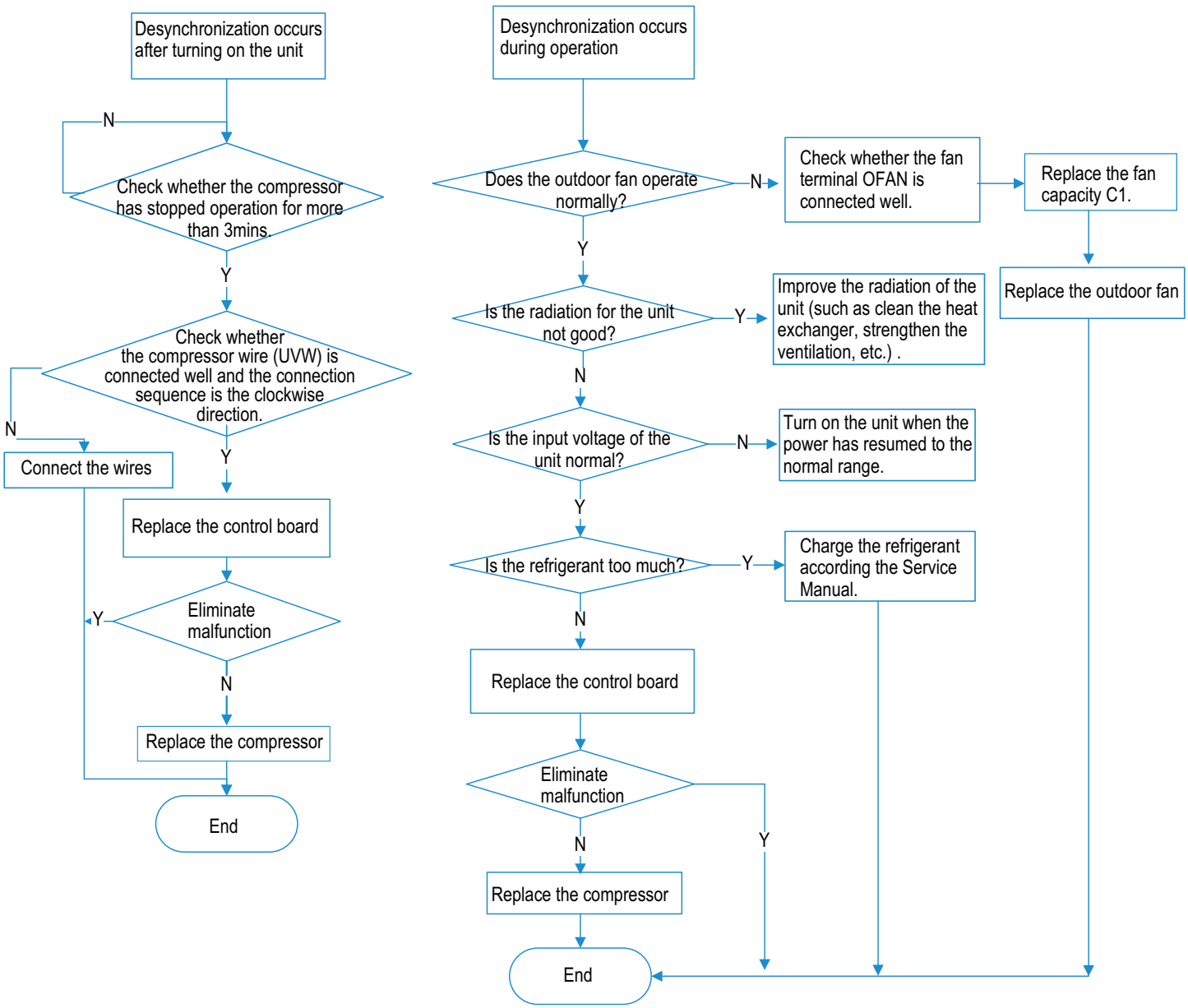
## 5. Communication malfunction E6




**Note: method for checking the communication circuit of inverter split type and floor standing unit: cut off the communication wires of indoor/outdoor unit, and then measure the voltage between COM and N of the control board of outdoor unit (DC notch, about 56V)**

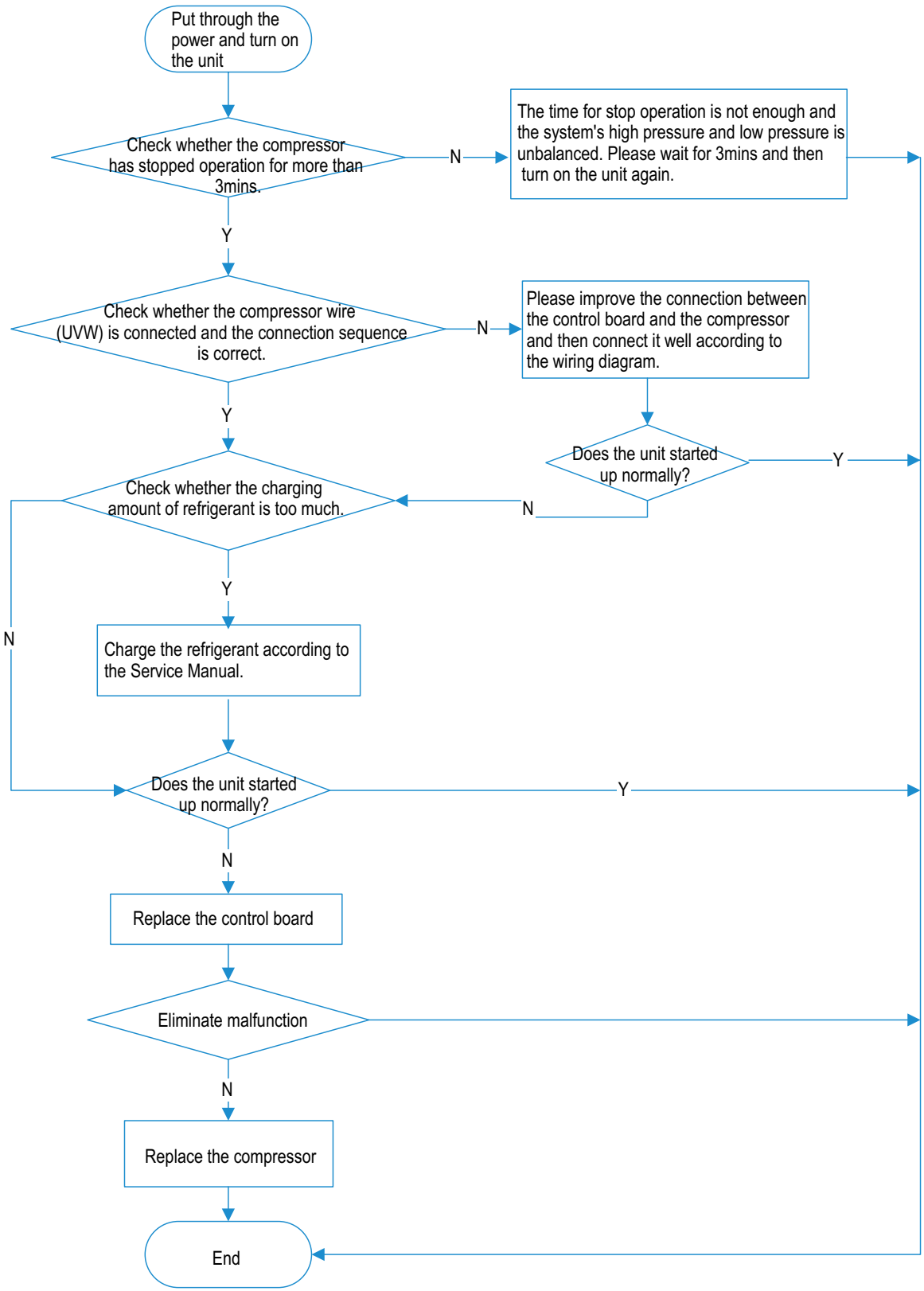
## 6. Desynchronization diagnosis for compressor H7

NOTE:The control board as below means the control board of outdoor unit.



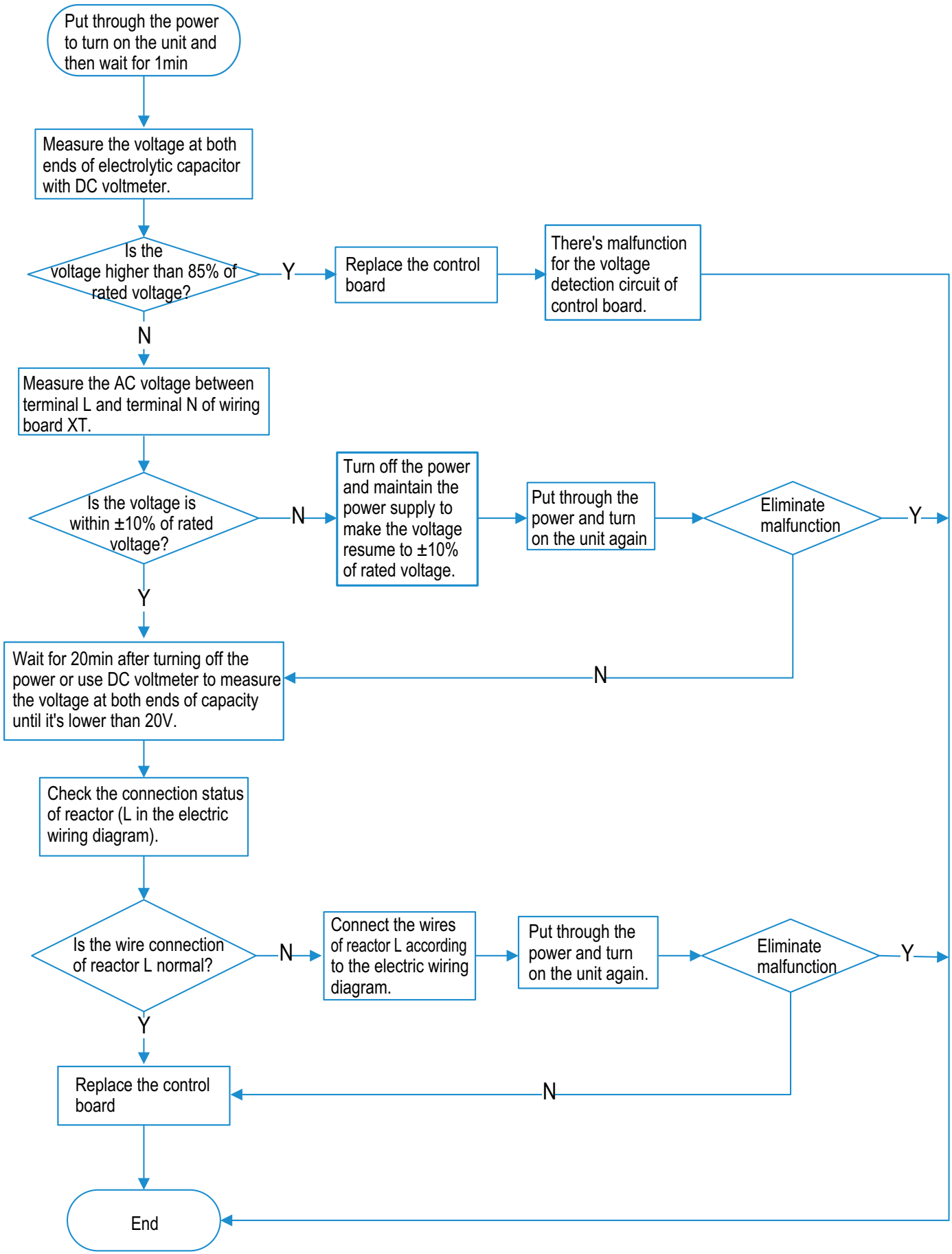
7. Malfunction diagnosis for failure startup Lc

NOTE:The control board as below means the control board of outdoor unit.

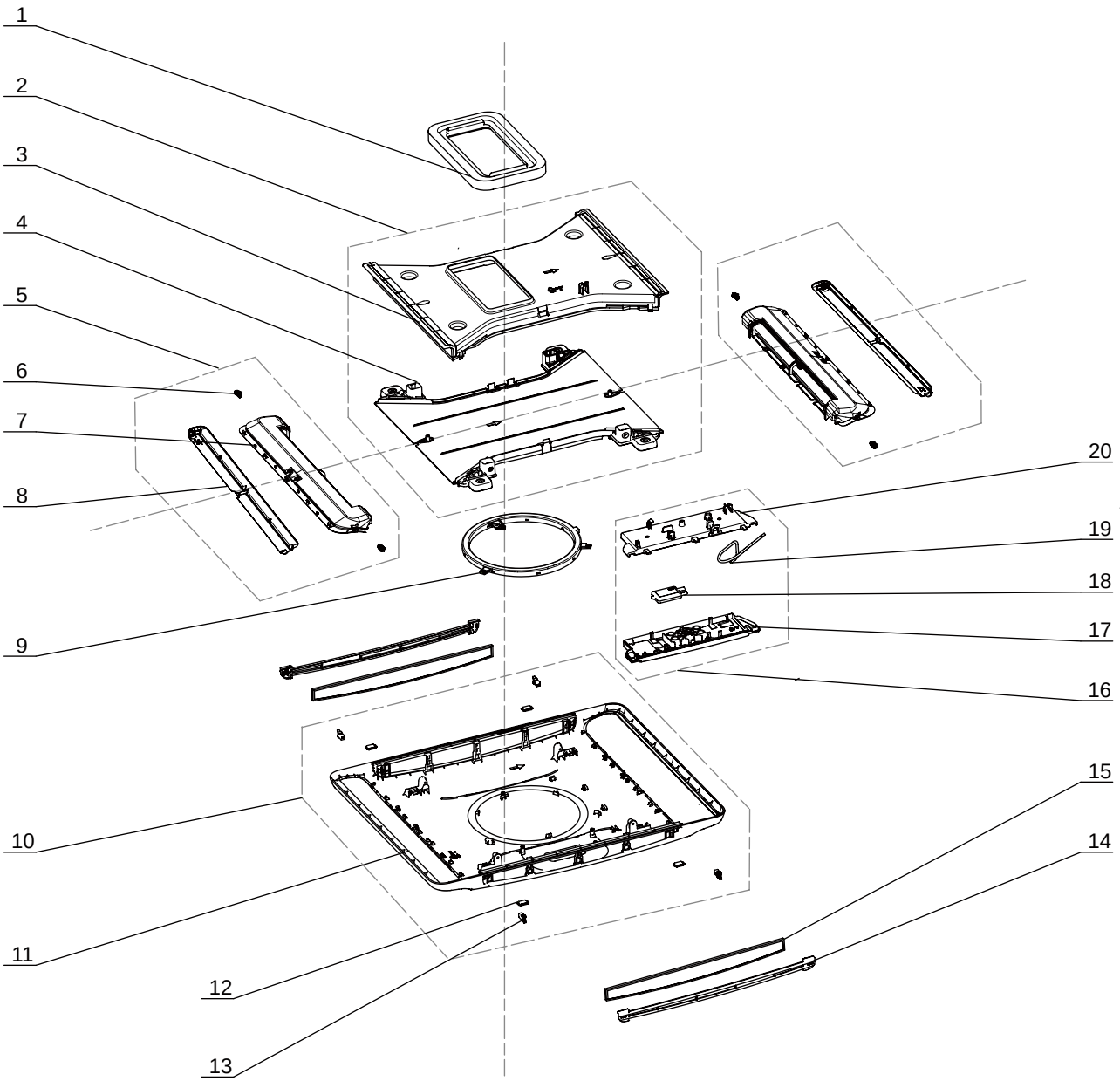


## 8. Charging malfunction of capacitor PU

NOTE:The control board as below means the control board of outdoor unit.



## 10.1 Indoor Unit



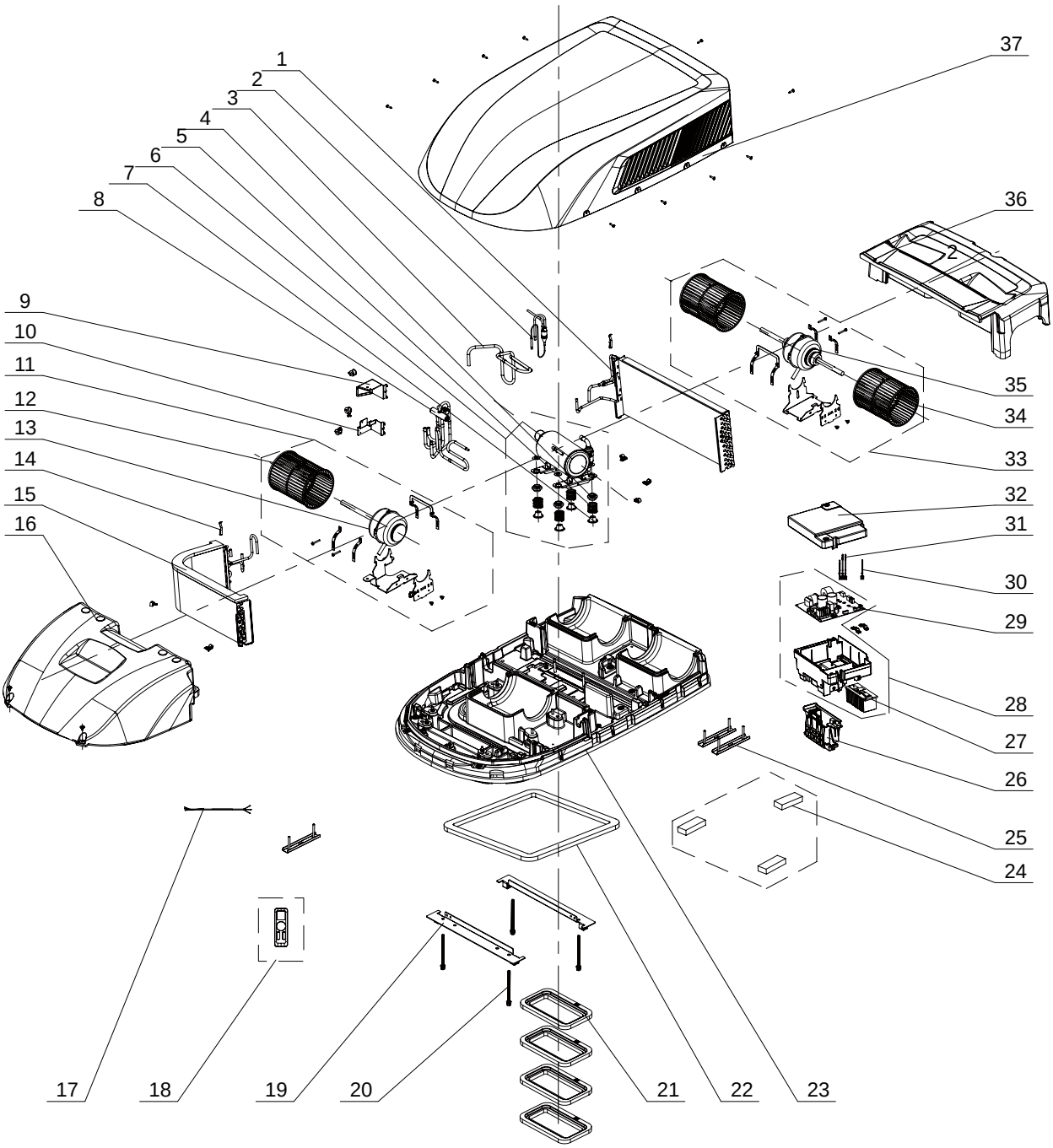

The component picture is only for reference; please refer to the actual product.

| NO. | Description |
|---|---|
| 1 | Foam |
| 2 | Air Duct Sub-assy |
| 3 | Air Outlet Mid-panel |
| 4 | Base Plate |
| 5 | Air Outlet Frame Sub-assy |
| 6 | Shaft of Guide Louver |
| 7 | Air Outlet Frame |
| 8 | Guide Louver |
| 9 | Display Module |
| 10 | Front Panel Sub-Assy |

| NO. | Description |
|---|---|
| 11 | Front Panel |
| 12 | Magnet Sub-assy |
| 13 | Latch |
| 14 | Front Grill |
| 15 | Healthy Filter |
| 16 | Display Board |
| 17 | Display Box |
| 18 | Detecting Plate |
| 19 | Temperature Sensor |
| 20 | Display Box Cover |

Some models may not contain some parts, please refer to the actual product.

## 10.2 Outdoor Unit




The component is only for rererence;please refer to the actual product

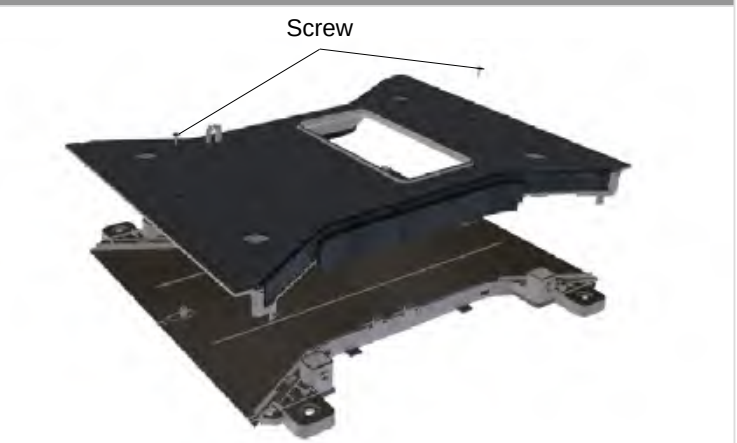
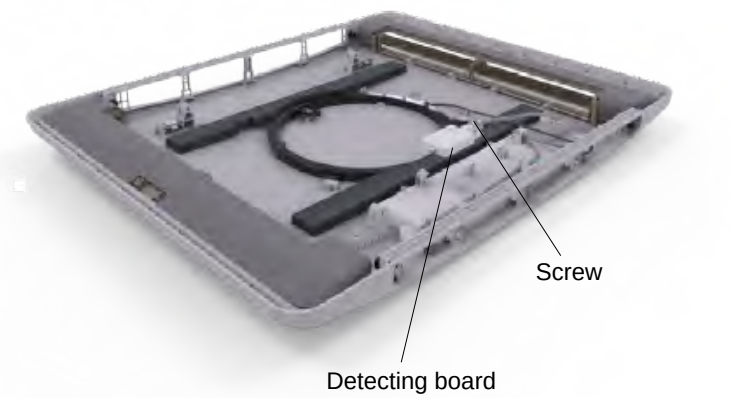
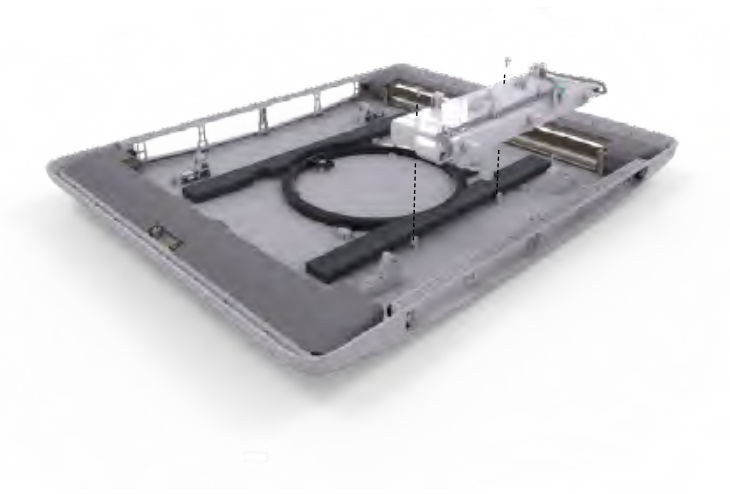
| NO. | Description |
|---|---|
| 1 | Condenser Assy |
| 2 | Capillary Sub-assy |
| 3 | Inhalation Tube Sub-assy |
| 4 | Compressor Gasket |
| 5 | Spring |
| 6 | Compressor and Fittings |
| 7 | Compressor Gasket |
| 8 | 4-Way Valve Assy |
| 9 | Water baffle (4-way valve) |
| 10 | Water baffle (fixing pipe) |
| 11 | Centrifugal fan assy (inside) |
| 12 | Centrifugal fan blade |
| 13 | Brushless DC Motor |
| 14 | Sensor Insert |
| 15 | Evaporator Assy |
| 16 | Foam (inner side) |
| 17 | Connecting Cable |
| 18 | Remote Controller |
| 19 | Mounting Plate Sub-Assy |

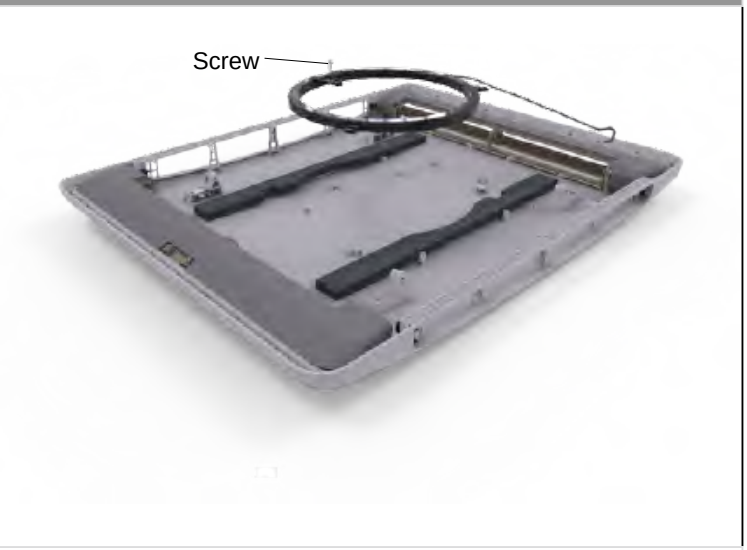
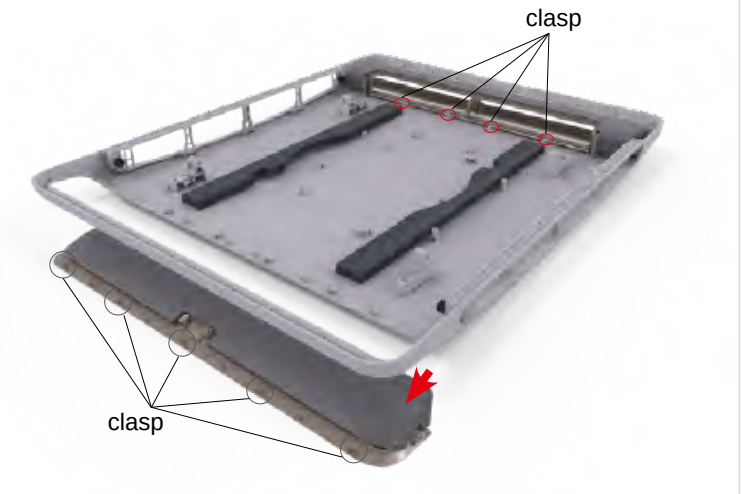
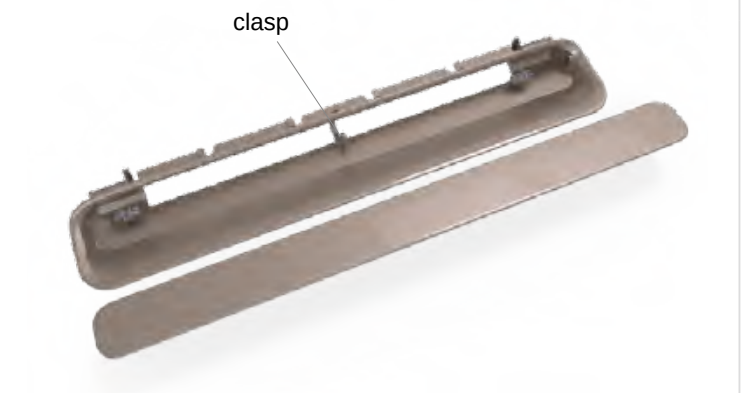
| NO. | Description |
|---|---|
| 20 | Bolt |
| 21 | Foam |
| 22 | Sponge (sealing strip) |
| 23 | Chassis Assy |
| 24 | Sponge |
| 25 | Motor base Assy |
| 26 | Support (Electric box assy) |
| 27 | Radiator |
| 28 | Electric Box Assy |
| 29 | Main Board |
| 30 | Temperature Sensor |
| 31 | Temperature Sensor |
| 32 | Electric Box Cover |
| 33 | Centrifugal fan assy (outside) |
| 34 | Centrifugal fan blade |
| 35 | Brushless DC Motor |
| 36 | Foam (outside) |
| 37 | Cabinet |

Some models may not contain some parts, please refer to the actual product.

## 11.1 Removal Procedure of Indoor Unit

| Step | Procedure |
|---|---|
| **1.Remove air-in grille and the filter** |  |
| Press both ends of air-outlet grille to unlock the door switch and then remove the air-in grille and the filter. | |
| **2. Remove front panel sub-assy** |  |
| Loose 4 screws at both ends and then remove the panel sub-assy downwards. | |
| **3. Remove air duct sub-assy** |  Bolts |
| Loose 4 bolts as shown in the figure and then remove the air duct sub-assy downwards. | |

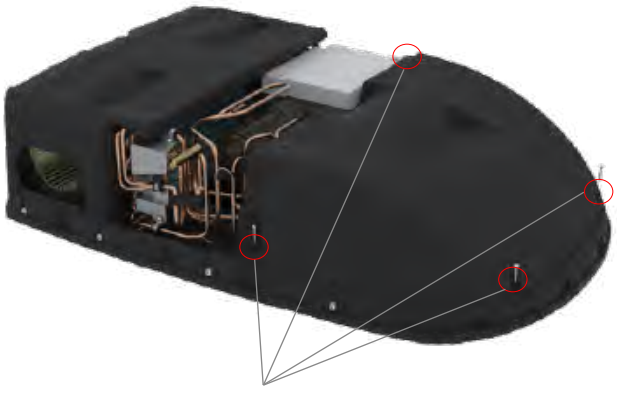
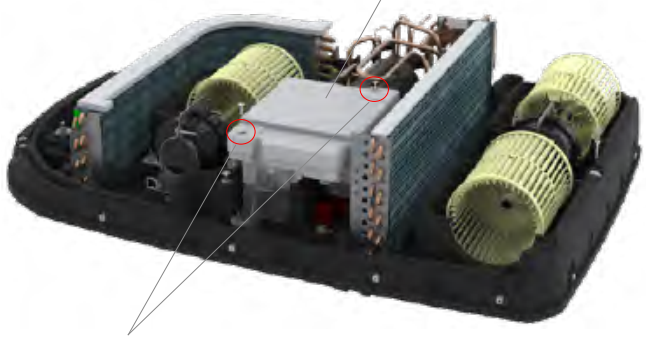
| Step | Procedure |
|---|---|
| **4. Remove base plate and the middle air-outlet panel** |  |
| Loose 2 screws at both ends; loose 7 clasps at both sides and then separate the base plate and the middle air-outlet panel. | |
| **5. Remove detecting board** |  |
| Loose 1 screw on the top; remove the detecting board. | |
| **6. Remove display board** |  |
| Loose 2 screws as shown in the figure and the remove the display board. | |

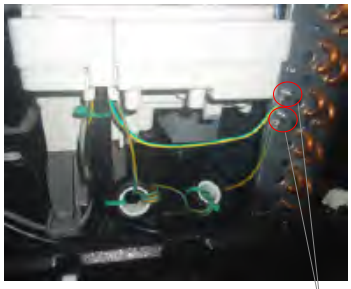
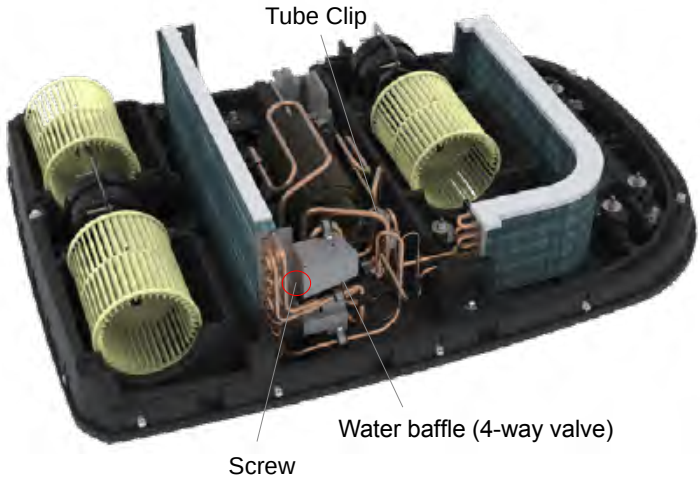
| Step | Procedure |
|---|---|
| **7.Remove display module** |  |
| Loose 1 screw as shown in the figure, and rotate the display module in clockwise direction to remove it. | |
| **8. Remove air-outlet frame sub-assy** |  |
| Press inwards to press out the 5 clasps on the outside of the air-outlet frame sub-assy, so that the clasps out of the panel and pull down, so that the inside 4 limit clasps out can remove the air-outlet frame sub-assy. Remove another air-outlet frame sub-assy in the same way. | |
| **9. Remove guide louver and shaft of guide louver** |  |
| Loose the middle clasp, remove the horizontal louver outwards and then remove the shaft of horizontal louver at both ends. | |

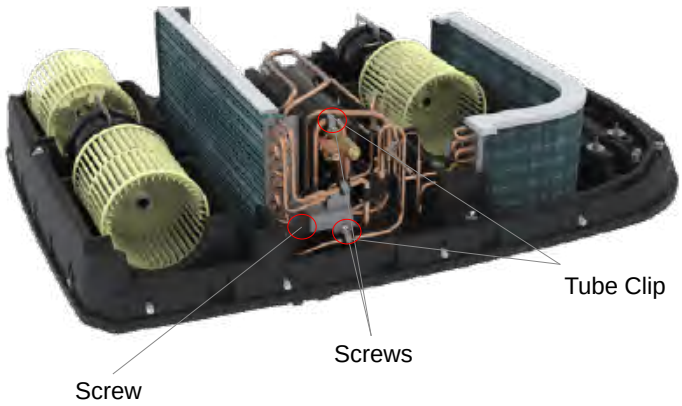
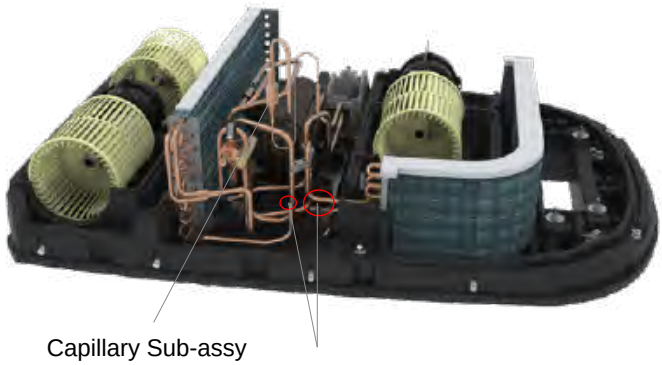
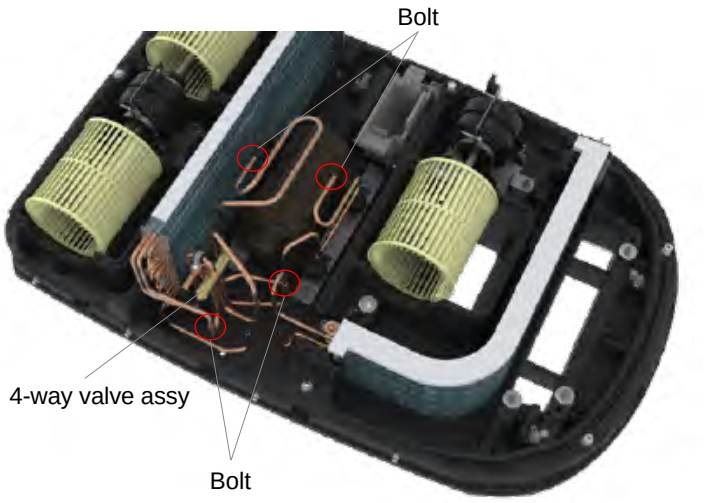
## 11.2 Removal Procedure of Outdoor Unit

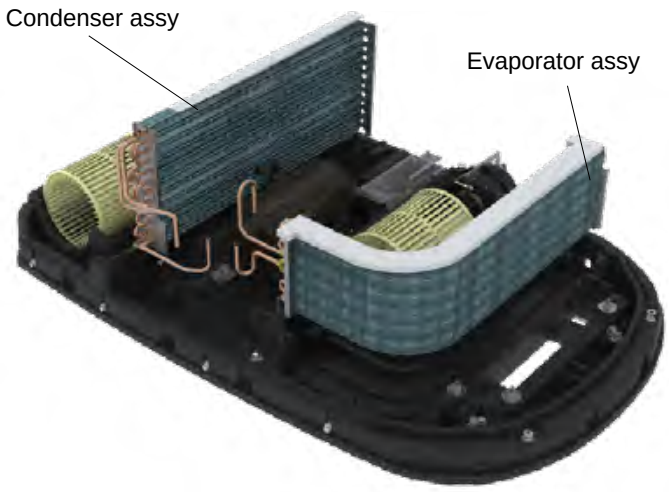
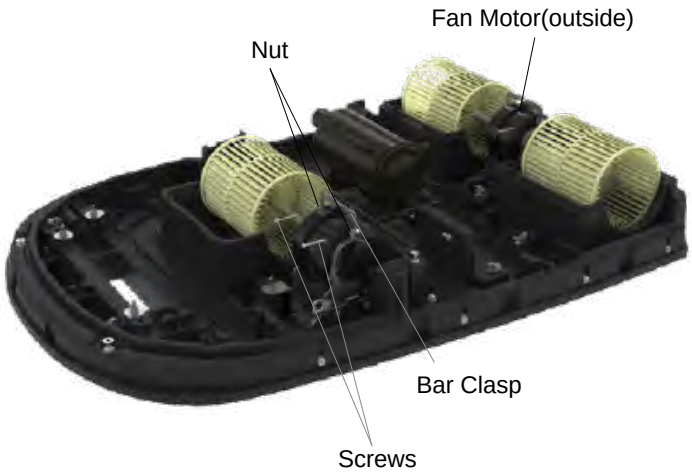
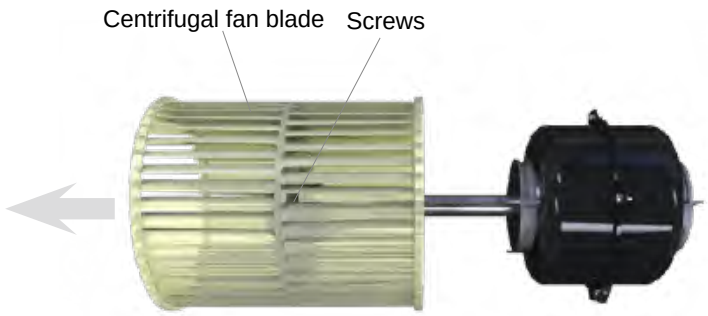
**Caution: discharge the refrigerant completely before removal.**

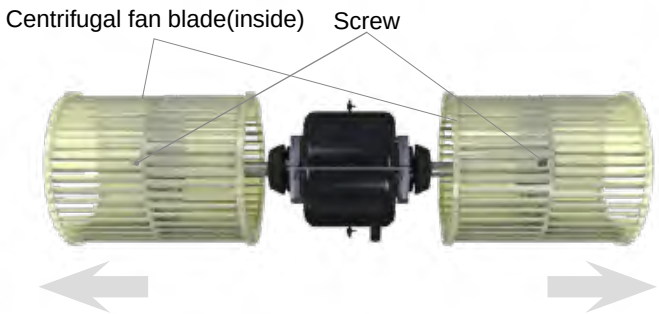
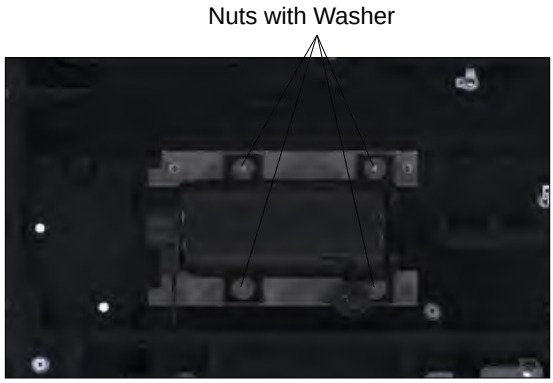
| Step | Procedure |
|---|---|
| **1. Outdoor unit diagram** |  |
| **2. Remove outer case**<br><br>Remove screws fixing outer case. Lift up to remove the outer case. |  <br>Screws<br><br>  <br>Screws |

| Step | Procedure |
|---|---|
| **3. Remove foam(inner side)** | |
| Remove screws fixing the foam(inner side) and then remove the foam(inner side). |  <br>Screws |
| **4. Remove foam(outside)** | |
| Remove screws fixing the foam(outside) and then remove the foam(outside). |  <br>Screws |
| **5. Remove Electric Box Cover** | |
| Remove screws fixing the electric box cover and then remove the electric box cover. |  <br>Electric box cover<br>Screws |

| Step | Procedure |
|---|---|
| **6. Remove electric box assy** |   |
| Lift the mainboard, disconnect each wiring terminal on the mainboard; Remove screws fixing the electric box assy, remove the ground screw on the condenser and then lift the electric box assy to remove it. | |
| Remove the screws fixing the support of electric box assy, and then remove the support of electric box assy. |  |
| **7. Remove water baffle** | |
| Remove screw fixing the water baffle (4-way valve); remove screw fixing the tube clip, then remove the water baffle (4-way valve). |  |

| Step | Procedure | |
|---|---|---|
| | Remove screw fixing the water baffle (fixing pipe); remove screws fixing the tube clip, then remove the water baffle(fixing pipe). |  |
| **8. Remove Capillary Sub-assy** | | |
| | Cut the cable tie and remove the fixed block of tube.<br>Unsolder the welding joint between the capillary sub-assy and then remove the capillary sub-assy.<br>Note:<br>1.Before unsoldering the welding joint, please make sure the refrigerant is discharged completely.<br>2.Before unsoldering the welding joint of capillary, wrap the capillary with a wet cloth completely to avoid damage to the capillary caused by high temperature. Seal the discharge pipe port and suction pipe port of compressor with rubber plug or rubber paper to avoid impurities getting into the pipe. |  |
| **9. Remove 4-way valve assy** | | |
| | Unsolder the welding joint connecting the 4-way valve assy and then unsolder the 4-way valve assy.<br>Note:<br>1.Before unsoldering the welding joint, please make sure the refrigerant is discharged completely.<br>2.Before unsoldering the welding joint connecting the 4-way valve, wrap the 4-way valve assy with a wet cloth completely to avoid damage to the valve caused by high temperature. |  |

| Step | Procedure |
|---|---|
| **10. Remove condenser assy, evaporator assy** |  |
| Lift up, remove the condenserassy and evaporator assy. | |
| **11. Remove Fan Motor And Centrifugal Fan Blade** |  |
| Remove Screws fixing the bar clasp, remove the fan motor and centrifugal fan blade. | |
| **12. Remove Centrifugal Fan Blade** |  |
| Remove screws fixing the centrifugal fan blade; Pull out in the direction of the arrow, remove the centrifugal fan blade. | |

| Step | Procedure | |
|---|---|---|
| | |  |
| **13. Remove Compressor** | | |
| | Remove nuts with washer fixing the compressor; remove the compressor. |  |

## Appendix 1: Reference Sheet of Celsius and Fahrenheit

**Conversion formula for Fahrenheit degree and Celsius degree: Tf=Tcx1.8+32**

**Set temperature**

| Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | Celsius（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | Celsius（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | Celsius（℃） |
|---|---|---|---|---|---|---|---|---|
| 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（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | Celsius（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | Celsius（℃） |
|---|---|---|---|---|---|---|---|---|
| 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: List of Resistance for Temperature Sensor

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

| Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) |
|---|---|---|---|---|---|---|---|
| -19 | 138.10 | 0 | 49.02 | 20 | 18.75 | 40 | 7.97 |
| -18 | 128.60 | 2 | 44.31 | 22 | 17.14 | 42 | 7.35 |
| -16 | 115.00 | 4 | 40.09 | 24 | 15.68 | 44 | 6.79 |
| -14 | 102.90 | 6 | 36.32 | 26 | 14.36 | 46 | 6.28 |
| -12 | 92.22 | 8 | 32.94 | 28 | 13.16 | 48 | 5.81 |
| -10 | 82.75 | 10 | 29.90 | 30 | 12.07 | 50 | 5.38 |
| -8 | 74.35 | 12 | 27.18 | 32 | 11.09 | 52 | 4.99 |
| -6 | 66.88 | 14 | 24.73 | 34 | 10.20 | 54 | 4.63 |
| -4 | 60.23 | 16 | 22.53 | 36 | 9.38 | 56 | 4.29 |
| -2 | 54.31 | 18 | 20.54 | 38 | 8.64 | 58 | 3.99 |

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

| Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) |
|---|---|---|---|---|---|---|---|
| -19 | 181.40 | 20 | 25.01 | 60 | 4.95 | 100 | 1.35 |
| -15 | 145.00 | 25 | 20.00 | 65 | 4.14 | 105 | 1.16 |
| -10 | 110.30 | 30 | 16.10 | 70 | 3.48 | 110 | 1.01 |
| -5 | 84.61 | 35 | 13.04 | 75 | 2.94 | 115 | 0.88 |
| 0 | 65.37 | 40 | 10.62 | 80 | 2.50 | 120 | 0.77 |
| 5 | 50.87 | 45 | 8.71 | 85 | 2.13 | 125 | 0.67 |
| 10 | 39.87 | 50 | 7.17 | 90 | 1.82 | 130 | 0.59 |
| 15 | 31.47 | 55 | 5.94 | 95 | 1.56 | 135 | 0.52 |



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