GREE
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# Service Manual

Models: GRH085DA-K3NA1A(WIFI)
GRH085DA-K3NA2B(WIFI)
GRH120DA-K3NA1A(WIFI)
GRH120DA-K3NA2B(WIFI)
(Refrigerant R410A)

**GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI**

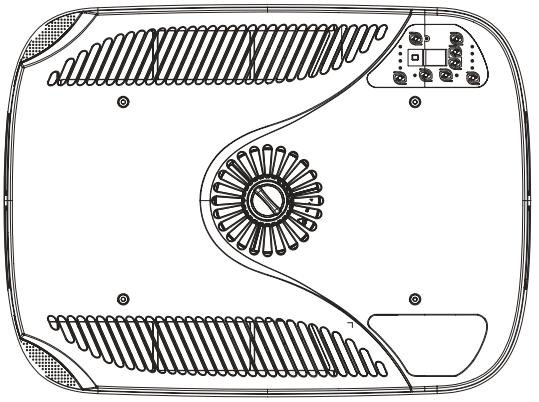
# Table of Contents

# Part Ⅰ : Technical Information

## 1. Summary

**Indoor Unit:**

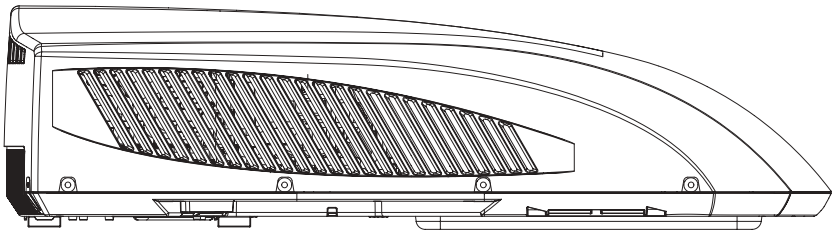
GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I



GRH085DA-K3NA2B/I
GRH120DA-K3NA2B/I

**Outdoor Unit:**

GRH085DA-K3NA1A/O
GRH085DA-K3NA2B/O
GRH120DA-K3NA1A/O
GRH120DA-K3NA2B/O



**Remote Controller:**

YAM1F1

**Model List:**

| No | Model | Product code | Indoor model | Indoor product code | Outdoor model | Outdoor product code | Remote Controller |
|---|---|---|---|---|---|---|---|
| 1 | GRH085DA-K3NA1A(WIFI) | CU050000901 | GRH085DA-K3NA1A/I | CU050N00901 | GRH085DA-K3NA1A/O | CU050W00901 | YAM1F1 |
| 2 | GRH085DA-K3NA2B(WIFI) | CU050001100 | GRH085DA-K3NA2B/I | CU050N01100 | GRH085DA-K3NA2B/O | CU050W01100 | |
| 3 | GRH120DA-K3NA1A(WIFI) | CU050001001 | GRH120DA-K3NA1A/I | CU050N01001 | GRH120DA-K3NA1A/O | CU050W01001 | |
| 4 | GRH120DA-K3NA2B(WIFI) | CU050001200 | GRH120DA-K3NA2B/I | CU050N01200 | GRH120DA-K3NA2B/O | CU050W01200 | |

# 2. Specifications

| Model | | | GRH085DA-K3NA1A(WIFI) | GRH120DA-K3NA1A(WIFI) |
|---|---|---|---|---|
| Product Code | | | CU050000901 | CU050001001 |
| Power Supply | Rated Voltage | V~ | 220-240 | 220-240 |
| | Rated Frequency | Hz | 50 | 50 |
| | Phases | | 1 | 1 |
| Cooling Capacity | | W | 2500 | 3500 |
| Heating Capacity | | W | 2200 | 3200 |
| Cooling Power Input | | W | 1070 | 1270 |
| Heating Power Input | | W | 980 | 1180 |
| Cooling Current Input | | A | 4.7 | 5.6 |
| Heating Current Input | | | 4.2 | 5.2 |
| Rated Input | | W | 1400 | 1400 |
| Rated Current | | A | 6.6 | 8 |
| EER | | W/W | 2.33 | 2.75 |
| COP | | W/W | 2.24 | 2.71 |
| Air Flow Volume(SS/H/M/L) | | $m^3/h$ | 340/280/220/190 | 380/320/260/230 |
| Dehumidifying Volume | | L/h | 1.0 | 1.5 |
| Application Area | | $m^2$ | 10-17 | 12-18 |
| Set Temperature Range | | °C | 16~30 | 16~30 |
| Cooling Operation Ambient Temperature Range | | °C | 18~43 | 18~43 |
| Heating Operation Ambient Temperature Range | | °C | 2~24 | 2~24 |
| Indoor Unit | Model | | GRH085DA-K3NA1A/I(WIFI) | GRH120DA-K3NA1A/I(WIFI) |
| | Product Code | | CU050N00901 | CU050N01001 |
| | Swing Motor Model | | MP24BA | MP24BA |
| | Swing Motor Power Output | W | 2 | 1.5 |
| | Fuse Current | A | 3.15 | 3.15 |
| | Dimension (WXHXD) | mm | 667X497X96 | 667X497X96 |
| | Dimension of Carton Box (LXWXH) | mm | 735X575X150 | 735X575X150 |
| | Dimension of Package (LXWXH) | mm | 738X578X165 | 738X578X165 |
| | Net Weight | kg | 5.5 | 5.5 |
| | Gross Weight | kg | 8 | 8 |
| Outdoor Unit | Model | | GRH085DA-K3NA1A/O(WIFI) | GRH120DA-K3NA1A/O(WIFI) |
| | Product Code | | CU050W00901 | CU050W01001 |
| | Compressor Trademark | | GREE | GREE |
| | Compressor Manufacturer | | ZHUHAI LANDA COMPRESSOR CO., LTD | ZHUHAI LANDA COMPRESSOR CO., LTD |
| | Compressor Model | | QYA-B106Y | QYA-B106Y |
| | Compressor Oil | | RB 68EP | RB 68EP |
| | Compressor Type | | Rotary | Rotary |
| | Compressor LRA. | A | 22.5 | 22.5 |
| | Compressor RLA | A | 4.2 | 4.2 |
| | Compressor Power Input | W | 930 | 930 |
| | Compressor Overload Protector | | Internal | Internal |
| | Fan Type | | Centrifugal | Centrifugal |
| | Fan Diameter | mm | Φ134X190 | Φ134X190 |
| | Fan Type | | Centrifugal | Centrifugal |
| | Fan Diameter | mm | Φ191 | Φ191 |
| | Fan Motor Speed | rpm | 2370/1800 | 2370/1800 |
| | Fan Motor Power Output | W | 37 | 37 |

| | | | | |
|---|---|---|---|---|
| Outdoor Unit | Fan Motor RLA | A | 0.16 | 0.16 |
| | Fan Motor Capacitor | μF | 1.5 | 1.5 |
| | Outdoor Unit Air Flow Volume | $m^3/h$ | 600/300 | 600/300 |
| | Evaporator Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube |
| | Evaporator Pipe Diameter | mm | Φ7 | Φ7 |
| | Evaporator Row-fin Gap | mm | 4-1.4 | 4-1.4 |
| | Evaporator Coil Length (LXDXW) | mm | 580.2X50.8X114.3 | 580.2X50.8X114.3 |
| | Condenser Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube |
| | Condenser Pipe Diameter | mm | Φ7 | Φ7 |
| | Condenser Rows-fin Gap | mm | 4-1.6 | 4-1.6 |
| | Condenser Coil Length (LXDXW) | mm | 502X50.8X228.6 | 502X50.8X228.6 |
| | Permissible Excessive Operating Pressure for the Discharge Side | MPa | 4.3 | 4.3 |
| | Permissible Excessive Operating Pressure for the Suction Side | MPa | 2.5 | 2.5 |
| | Maximum Allowable Pressure | MPa | 4.3 | 4.3 |
| | Throttling Method | | Capillary | Capillary |
| | Climate Type | | T1 | T1 |
| | Isolation | | I | I |
| | Moisture Protection | | IPX4 | IPX4 |
| | Refrigerant | | R410A | R410A |
| | Refrigerant Charge | kg | 0.67 | 0.67 |
| | Dimension (WXHXD) | mm | 1018X650X259 | 1018X650X259 |
| | Dimension of Carton Box (LXWXH) | mm | 1099X715X312 | 1099X715X312 |
| | Dimension of Package (LXWXH) | mm | 1102X718X327 | 1102X718X327 |
| | Net Weight | kg | 41 | 41 |
| | Gross Weight | kg | 46 | 46 |
| | Note: The connection pipe applies metric diameter. | | | |

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

| Model | | | GRH085DA-K3NA2B(WIFI) | GRH120DA-K3NA2B(WIFI) |
|---|---|---|---|---|
| Product Code | | | CU050001100 | CU050001200 |
| Power Supply | Rated Voltage | V~ | 220-240 | 220-240 |
| | Rated Frequency | Hz | 50 | 50 |
| | Phases | | 1 | 1 |
| Cooling Capacity | | W | 2500 | 3500 |
| Heating Capacity | | W | 2200 | 3200 |
| Cooling Power Input | | W | 1070 | 1270 |
| Heating Power Input | | W | 980 | 1180 |
| Cooling Current Input | | A | 4.7 | 4.7 |
| Heating Current Input | | | 4.2 | 4.2 |
| Rated Input | | W | 1400 | 1400 |
| Rated Current | | A | 6.6 | 6.6 |
| EER | | W/W | 2.34 | 2.76 |
| COP | | W/W | 2.24 | 2.71 |
| Air Flow Volume(SS/H/M/L) | | $m^3/h$ | 340/260/220/130 | 340/260/220/130 |
| Dehumidifying Volume | | L/h | 1.0 | 1.0 |
| Application Area | | $m^2$ | 10-17 | 10-17 |
| Set Temperature Range | | °C | 16~30 | 16~30 |
| Cooling Operation Ambient Temperature Range | | °C | 18~43 | 18~43 |
| Heating Operation Ambient Temperature Range | | °C | 2~24 | 2~24 |
| Indoor Unit | Model | | GRH085DA-K3NA2B/I | GRH120DA-K3NA2B/I |
| | Product Code | | CU050N01100 | CU050N01200 |
| | Swing Motor Model | | / | / |
| | Swing Motor Power Output | W | / | / |
| | Fuse Current | A | 3.15 | 3.15 |
| | Dimension (WXHXD) | mm | 610X485X49 | 610X485X49 |
| | Dimension of Carton Box (LXWXH) | mm | 668X547X109 | 668X547X109 |
| | Dimension of Package (LXWXH) | mm | 678X550X112 | 678X550X112 |
| | Net Weight | kg | 2.7 | 2.7 |
| | Gross Weight | kg | 4 | 4 |
| Outdoor Unit | Model | | GRH085DA-K3NA2B/O | GRH085DA-K3NA2B/O |
| | Product Code | | CU050W01100 | CU050W01100 |
| | Compressor Trademark | | GREE | GREE |
| | Compressor Manufacturer | | ZHUHAI LANDA COMPRESSOR CO., LTD | ZHUHAI LANDA COMPRESSOR CO., LTD |
| | Compressor Model | | QYA-B106Y | QYA-B106Y |
| | Compressor Oil | | RB 68EP | RB 68EP |
| | Compressor Type | | Rotary | Rotary |
| | Compressor LRA. | A | 22.5 | 22.50 |
| | Compressor RLA | A | 4.2 | 4.20 |
| | Compressor Power Input | W | 930 | 930 |
| | Compressor Overload Protector | | Internal | Internal |
| | Fan Type | | Centrifugal | Centrifugal |
| | Fan Diameter | mm | Φ134X190 | Φ134X190 |
| | Fan Type | | Centrifugal | Centrifugal |
| | Fan Diameter | mm | Φ191 | Φ191 |
| | Fan Motor Speed | rpm | 2200/1060 | 2200/1060 |
| | Fan Motor Power Output | W | 18 | 18 |

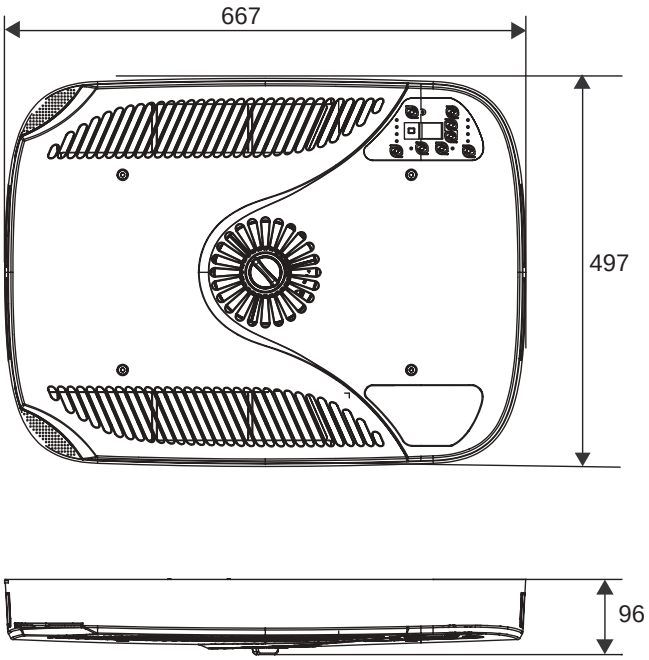
| | | | | |
|---|---|---|---|---|
| Outdoor Unit | Fan Motor RLA | A | 0.19 | 0.19 |
| | Fan Motor Capacitor | μF | 1.5 | 1.5 |
| | Outdoor Unit Air Flow Volume | $m^3/h$ | 600/300 | 600/300 |
| | Evaporator Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube |
| | Evaporator Pipe Diameter | mm | Φ7 | Φ7 |
| | Evaporator Row-fin Gap | mm | 4-1.4 | 4-1.4 |
| | Evaporator Coil Length (LXDXW) | mm | 580.2X50.8X114.3 | 580.2X50.8X114.3 |
| | Condenser Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube |
| | Condenser Pipe Diameter | mm | Φ7 | Φ7 |
| | Condenser Rows-fin Gap | mm | 4-1.6 | 4-1.6 |
| | Condenser Coil Length (LXDXW) | mm | 502X50.8X228.6 | 502X50.8X228.6 |
| | Permissible Excessive Operating Pressure for the Discharge Side | MPa | 4.3 | 4.3 |
| | Permissible Excessive Operating Pressure for the Suction Side | MPa | 2.5 | 2.5 |
| | Maximum Allowable Pressure | MPa | 4.3 | 4.3 |
| | Throttling Method | | Capillary | Capillary |
| | Climate Type | | T1 | T1 |
| | Isolation | | I | I |
| | Moisture Protection | | IPX4 | IPX4 |
| | Refrigerant | | R410A | R410A |
| | Refrigerant Charge | kg | 0.67 | 0.67 |
| | Dimension (WXHXD) | mm | 1018X650X259 | 1018X650X259 |
| | Dimension of Carton Box (LXWXH) | mm | 1099X715X312 | 1099X715X312 |
| | Dimension of Package (LXWXH) | mm | 1102X718X340 | 1102X718X340 |
| | Net Weight | kg | 42.5 | 42.5 |
| | Gross Weight | kg | 49 | 49 |
| | Note: The connection pipe applies metric diameter. | | | |

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

# 3. Outline Dimension Diagram

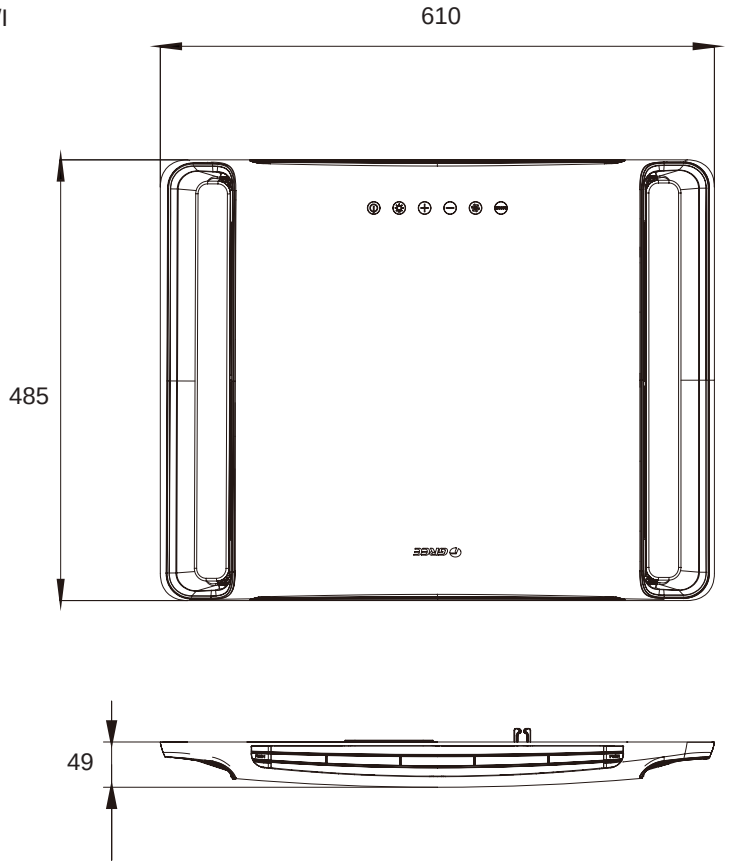
## 3.1 Indoor Unit

GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I



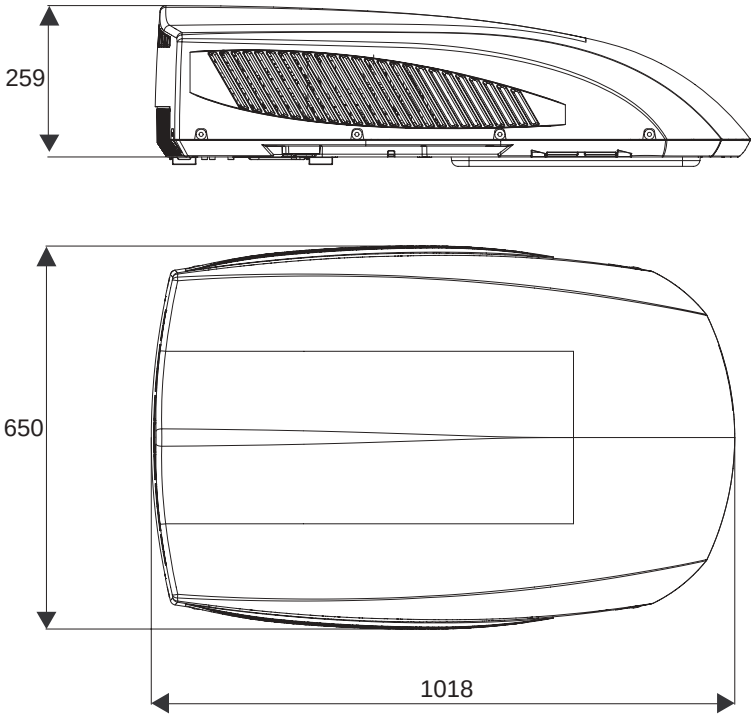

**Unit:mm**

GRH085DA-K3NA2B/I
GRH120DA-K3NA2B/I



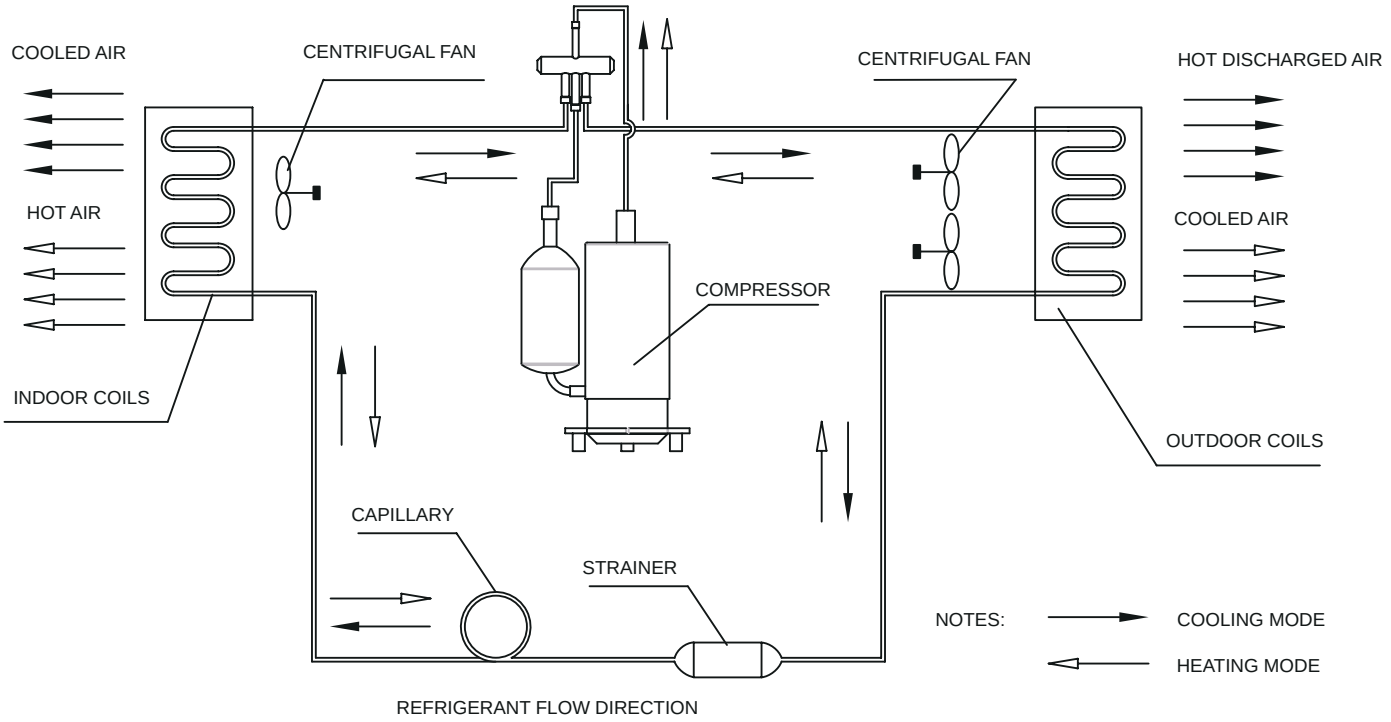

**Unit:mm**

## 3.2 Outdoor Unit




**Unit:mm**

# 4. Refrigerant System Diagram



# 5. Electrical Part

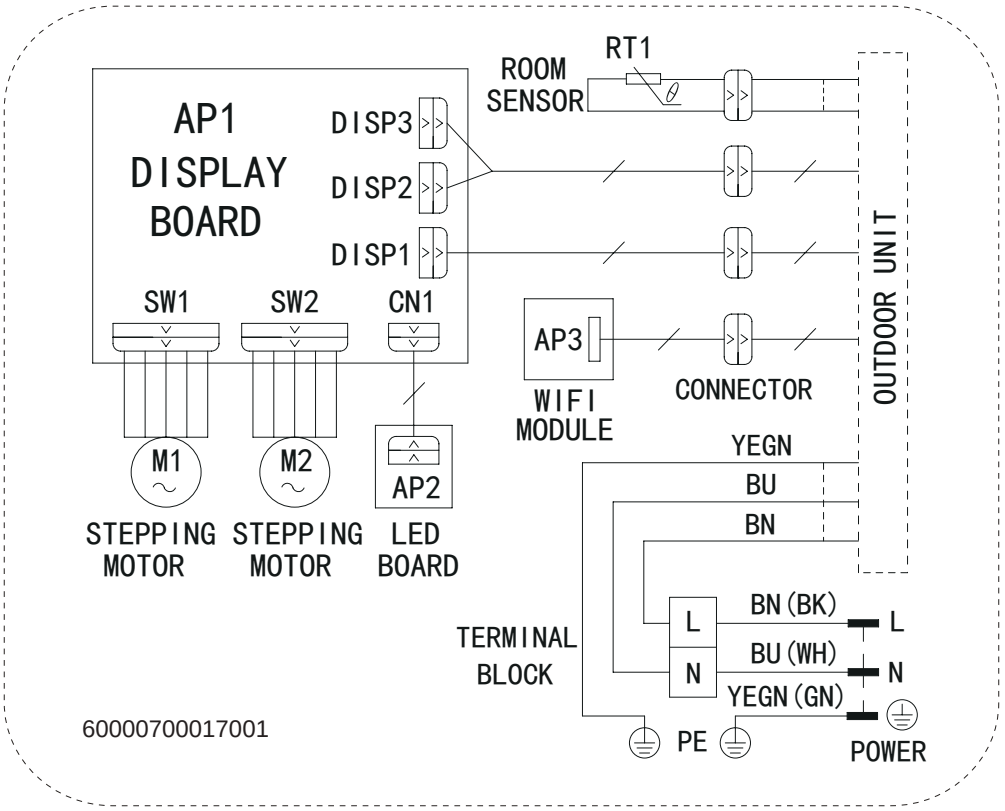
## 5.1 Wiring Diagram

### ● Instruction

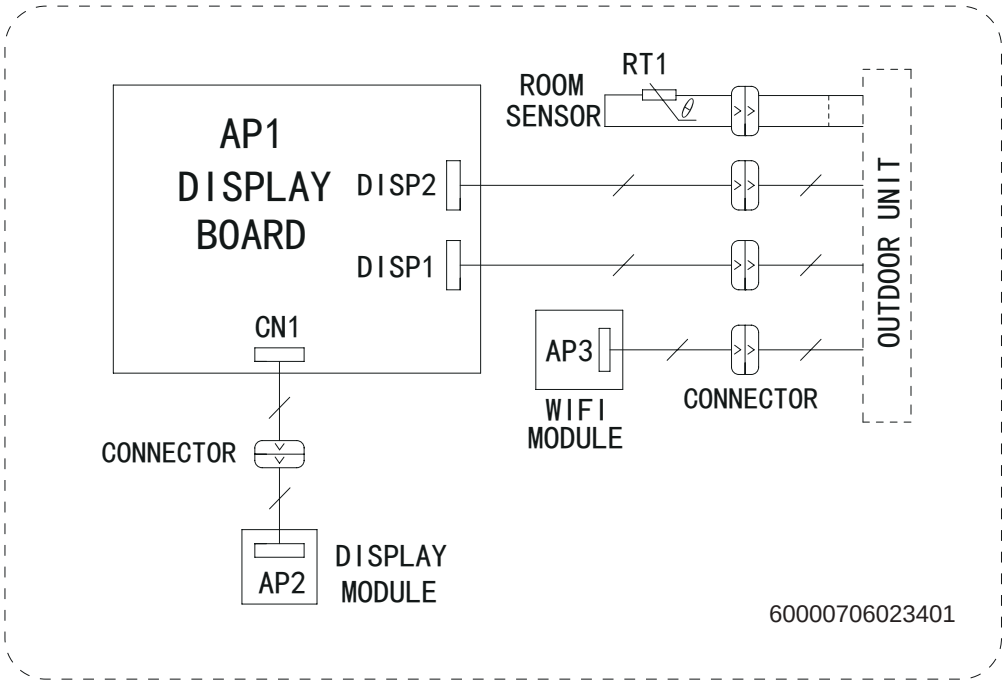
| Symbol | Symbol Color | Symbol | Symbol Color | Symbol | Name |
|---|---|---|---|---|---|
| WH | White | GN | Green | COMP | Compressor |
| YE | Yellow | BN | Brown | ⏚ | Grounding wire |
| RD | Red | BU | Blue | / | / |
| YEGN | Yellow/Green | BK | Black | / | / |
| VT | Violet | OG | Orange | / |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

### ● Indoor Unit

GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I

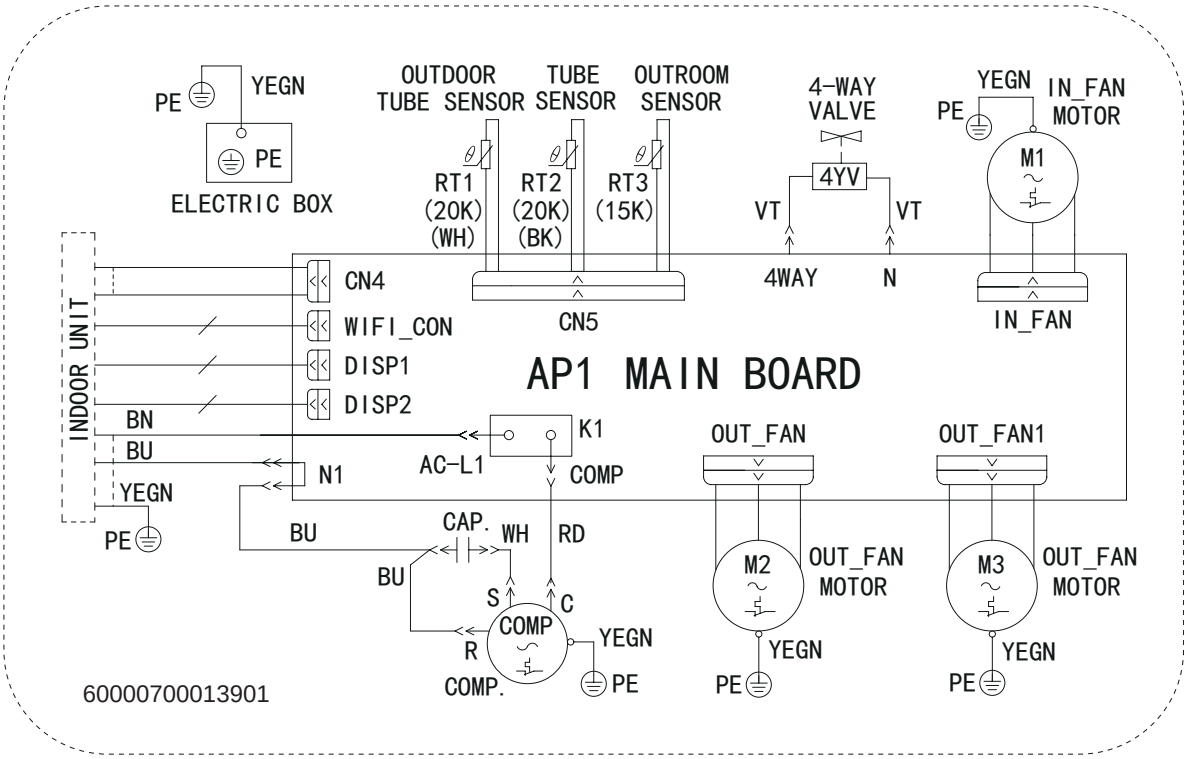


GRH085DA-K3NA2B/I
GRH120DA-K3NA2B/I

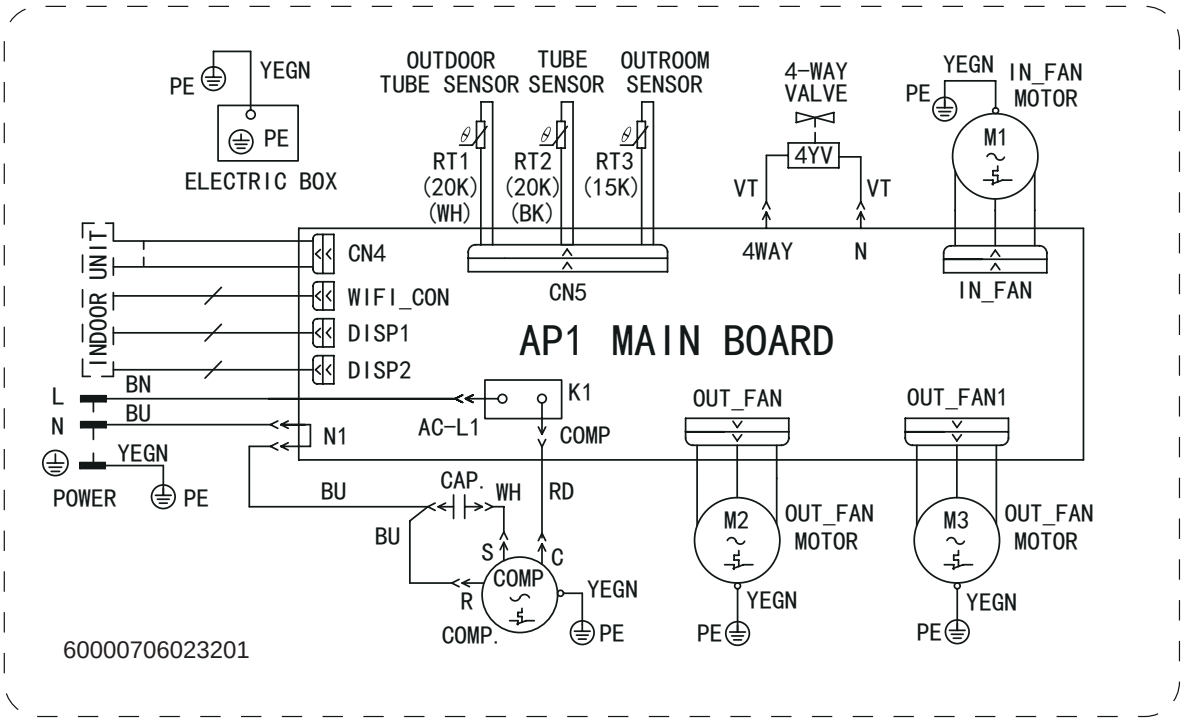


## ● Outdoor Unit

GRH085DA-K3NA1A/O
GRH120DA-K3NA1A/O




GRH085DA-K3NA2B/O
GRH120DA-K3NA2B/O

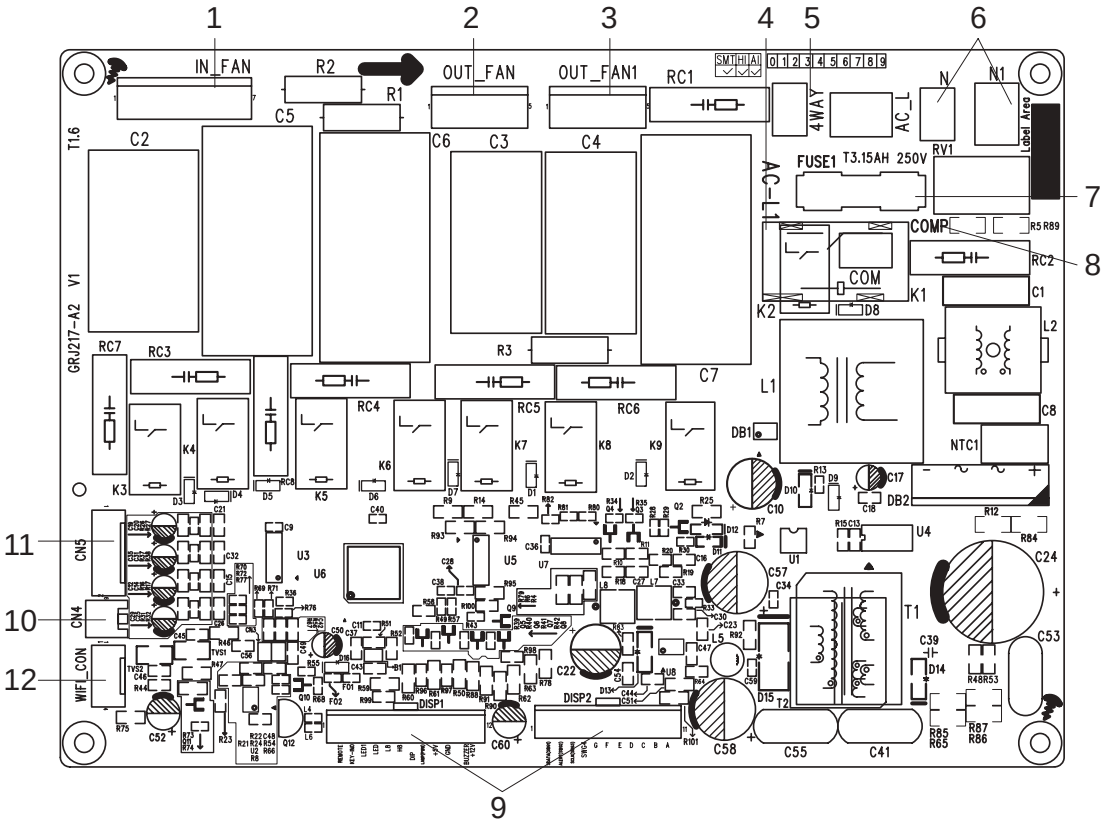



These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

## 5.2 PCB Printed Diagram

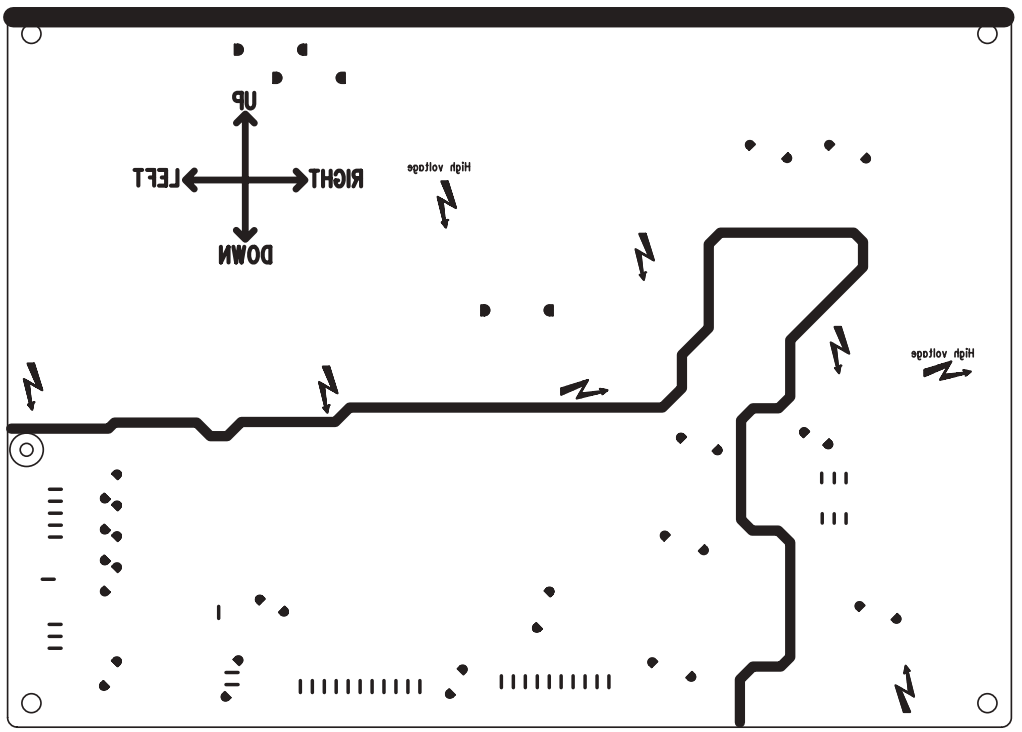
### 5.2.1 Silk screen on main board

**● Top view**




| No. | Name |
|---|---|
| 1 | Terminal of indoor fan |
| 2 | Terminal of outdoor fan |
| 3 | Terminal of outdoor fan |
| 4 | Live wire |
| 5 | 4-way valve terminal |
| 6 | Neutral wire |
| 7 | Fuse |
| 8 | Terminal of compressor |
| 9 | Terminal of display |
| 10 | Terminal for indoor ambient temperature sensor |
| 11 | Terminal for outdoor ambient /Inner tube/External tube temperature sensor |
| 12 | Terminal of wifi |

**● Bottom view**

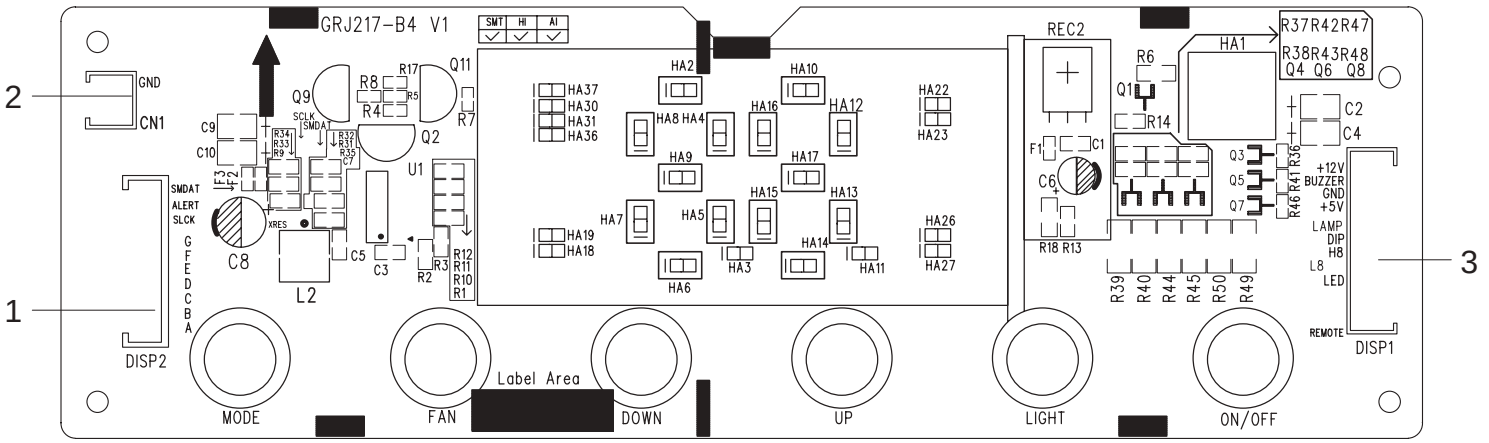


## 5.2.2 silk screen on display board

GRH085DA-K3NA2B/I

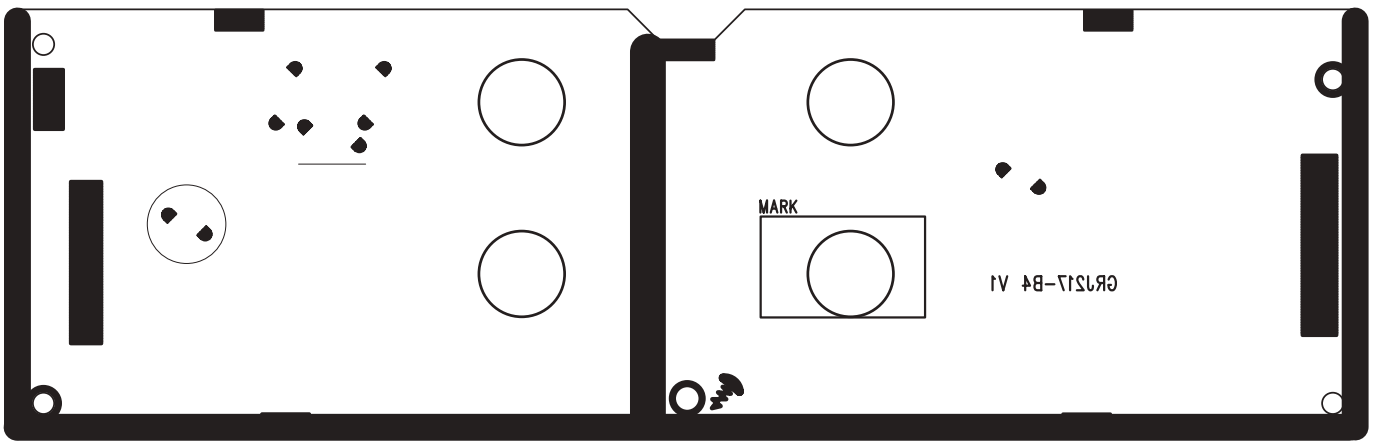
GRH120DA-K3NA2B/I

- **Top view**



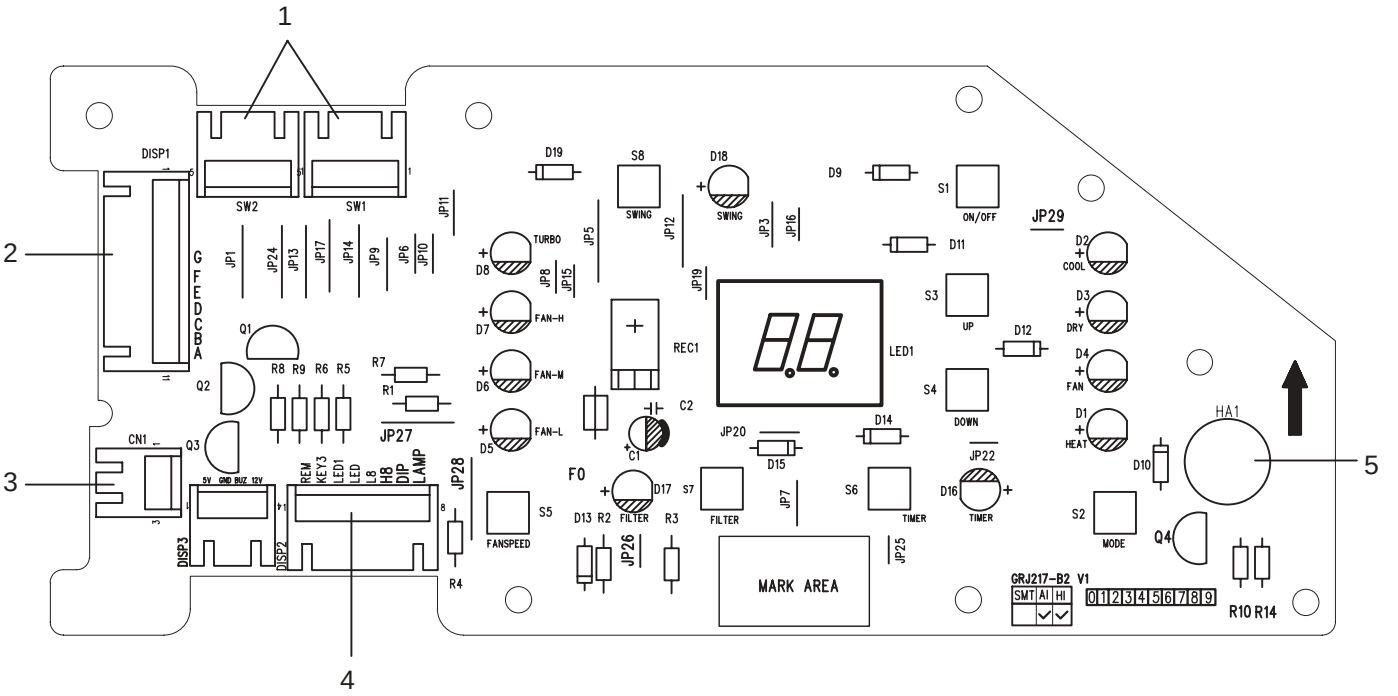

| No. | Name | No. | Name | No. | Name |
|---|---|---|---|---|---|
| 1 | Interface of main board | 2 | Interface of lamp plate | 3 | Interface of main board |

- **Bottom view**



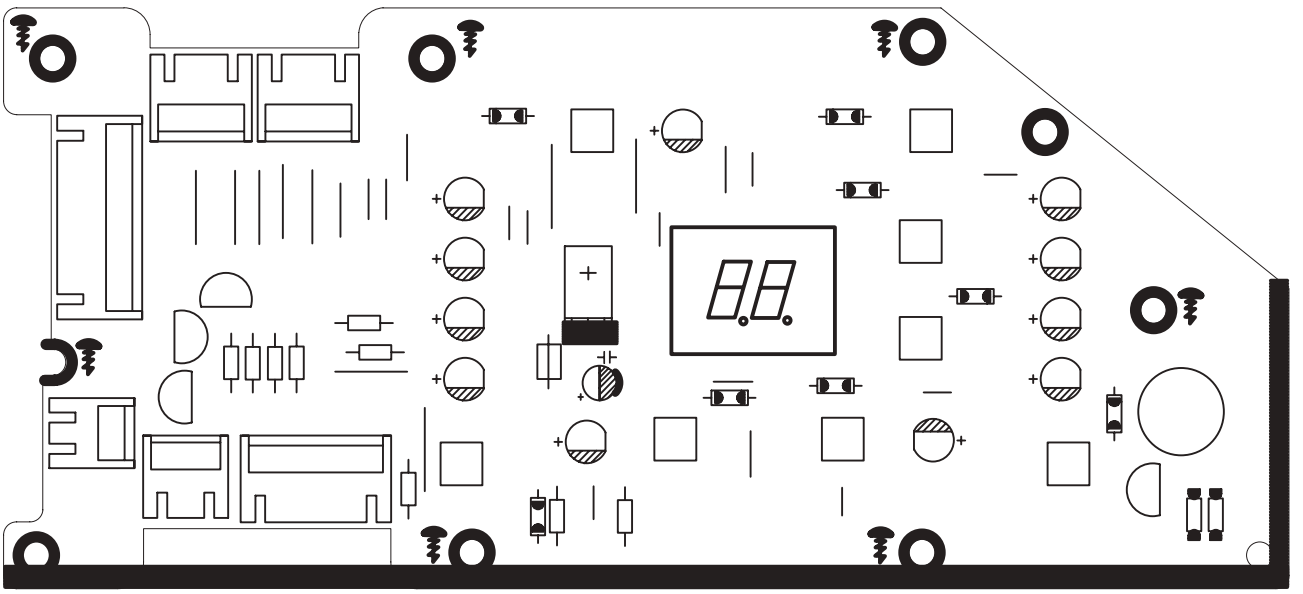
GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I

## ● Top view




| No. | Name | No. | Name | No. | Name |
|---|---|---|---|---|---|
| 1 | Swing motor | 2 | Wire connection between boards | 3 | Interface of lamp plate |
| 4 | Display interface | 5 | Buzzer | | |

## ● Bottom view

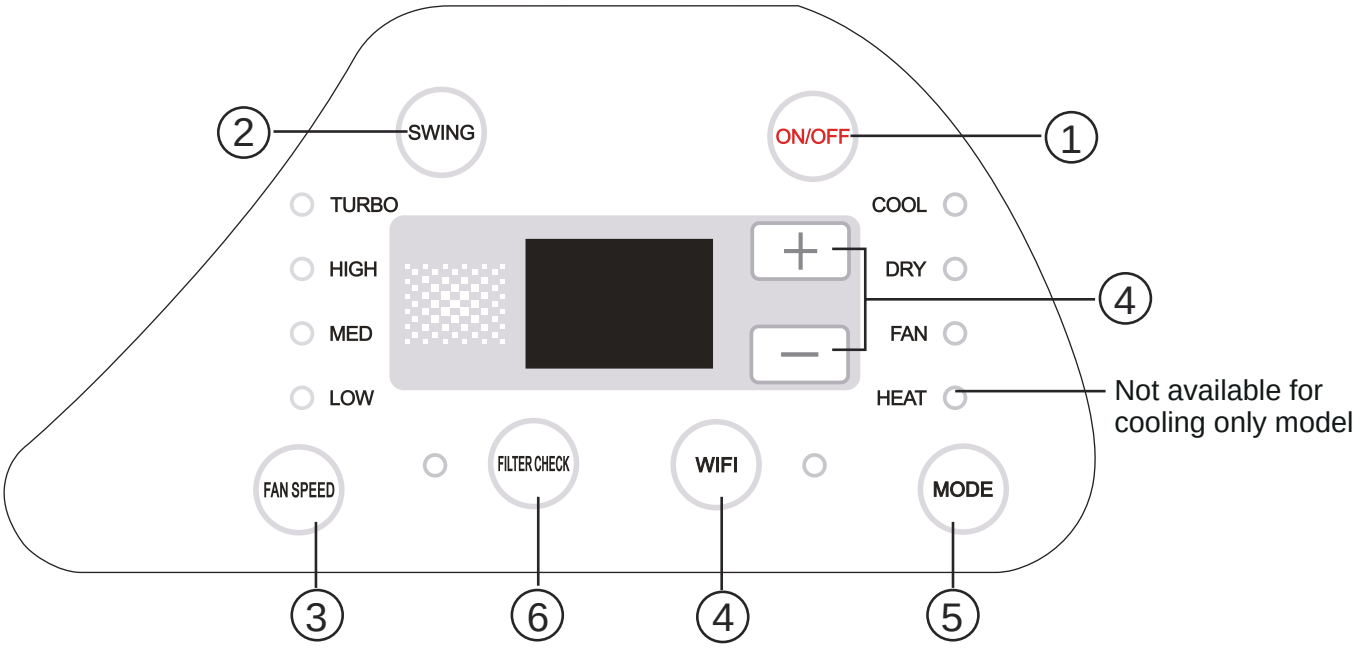


# 6. Function and Control

## 6.1 Introduction of Control Panel

GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I

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




1 ON/OFF button

Operation starts when pressing this button, and stops when pressing this button again.

2 SWING button

Activate the automatic air swing function.

3 FAN SPEED button

Select the fan speed LOW, MED, HIGH and TURBO in sequence.

4 (+/-) / WIFI 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℃ (61~86℉).
Press WIFI button to turn on WIFI function; press this button again to turn off WIFI function.

5 MODE button

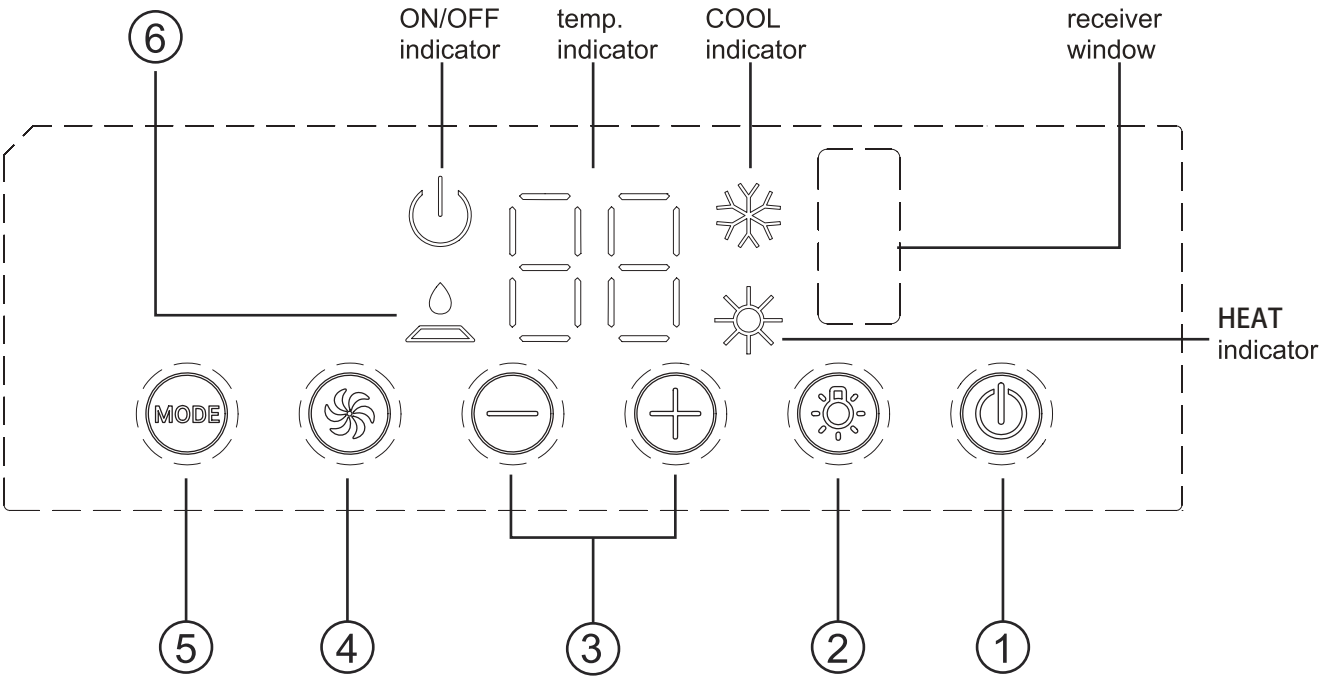
Select the operation mode, COOL, DRY, FAN, HEAT (for heat pump model) or COOL, DRY, FAN (for cooling only model).

6 FILTER CHECK button

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 re-install the air filter, power on and turn on the unit, the light will still be on, press FILTER CHECK button,the light will turn off.

GRH085DA-K3NA2B/I
GRH120DA-K3NA2B/I

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




### 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℃ (61~86℉).

### 4 FAN SPEED button

Select the fan speed LOW, MED, HIGH and TURBO in sequence.

### 5 MODE button

Select the operation mode, COOL,**FAN, HEAT.**

### 6 FILTER CHECK indicator

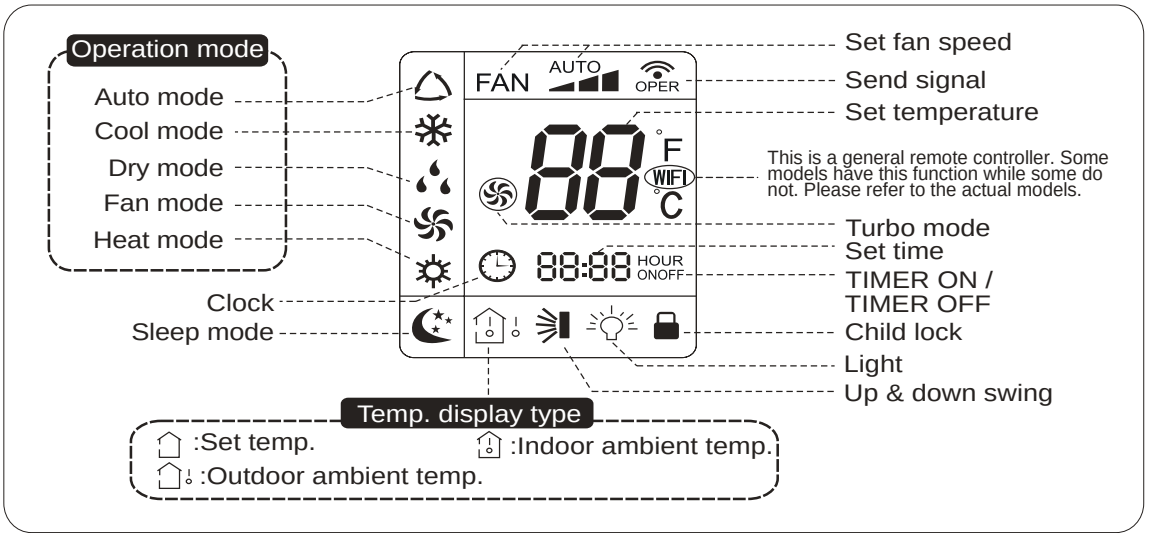
This feature is a reminder of cleaning the air filter(normal maintenance) for more efficient operation. The light will turn on automatically after the fan works more than 250 hours. If the light is on, turn off and power off the unit, take the air filter out and clean it, then re-install the air filter,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

## 6.2 Introduction of Remote Controller

Note: This remote controller is the universal remote controller. Some function is not available for this unit.


1. ON/OFF button
2. MODE button
3. - button
4. + button
5. FAN button
6. button
7. CLOCK button
8. LED button
9. TIMER ON button
10. TEMP button
11. TIMER OFF button
12. TURBO button
13. SLEEP button
14. LIGHT button

### Introduction for icons on display screen




### Introduction for buttons on remote controller

**Note:**

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

● After putting through 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.

● At ON status, after each pressing button on remote controller, the signal icon " ((•)) "on remote controller will flash once.Air conditioner will give out a sound,which indicates the signal has been sent to air conditioner.

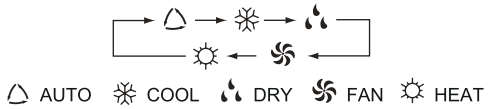
● Under off status, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corre-sponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

**1. ON/OFF button**

Press this button to select your required operation mode.

**2. MODE button**

Press this button, Auto, Cool, Dry, Fan, Heat mode can be selected circularly. Auto mode is default while power on. Under Auto mode, the temperature will not be displayed;Under Heat mode, the initial value is 28℃ (82 ℉ ); Under other modes, the initial value is 25℃ (77 ℉ ).




(Only for cooling and heating unit. As for cooling only unit, it won't have any action when it receives the signal of heating operation.)

**3. - button**

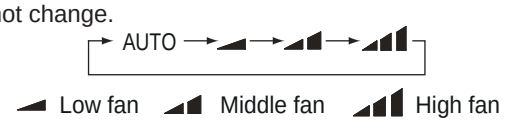
Presetting temperature can be decreased. Press this button, the temperature can be set up,continuously press this button and hold for two seconds, the relative contents can quickly change, until unhold this button and send the order that the℃ ( ℉ ) signal will be displayed all the time. The temperature adjustment is unavailable under the Auto mode, but the order can be sent by if pressing this button.

**4. + button**

For presetting temperature increasing. Press this button, can set up the temperature, when unit is on. Continuously press and hold this button for more than 2 seconds, the corresponding contents will be changed rapidly, until unpress the button then send the information, ℃ ( ℉ )is displlaying all along. In Auto mode, the temperature can not be set up, but operate this button can send the signal. Centigrade setting range: 16-30; Fahrenheit scale setting range 61-86.

**5. FAN button**

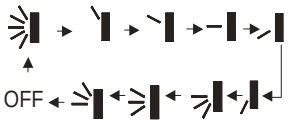
Press this button, Auto, Low, Middle, High speed can be circularly selected. After powered on, Auto fan is not available for this mode. When pressing AUTO button, the fan speed will not change.




Note: Under the Dry mode, the fan speed isn't adjustable, low fan speed is imperative,but when operating this button, the wireless adjustable, low fan speed is imperative.

**6. button**

Press this button turn on swing function; 4s later, press this button to turn off the swing and it will operate like that circularly. Other air conditioners, press this button, to set up swing angle, which circularly changes as below:




This is an universal use remote controller. If remote controller sends the following three kinds of status that the swing status of main unit will be:

**7. CLOCK button**

Press this button, the clock can be set up, signal blink and display. Within 5 seconds,the value can be adjusted by pressing + or - button, if continuously press this button for 2 seconds above, in every 0.5 seconds, the value on ten place of Minute will be increased 1. During blinking, repress the Clock button, signal will be constantly displayed and it denotes the setting succeeded. After powered on,12:00 is defaulted to display and signal will be displayed. If there is signal be displayed that denotes the current time value is Clock value, otherwise is Timer value.

**8. LED button**

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

**9. TIMER ON button**

Timer On setting: Signal "ON" will blink and display, signal will conceal, the numerical section will become the timer on setting status. During 5 seconds blink, by pressing + or - button to adjust the time value of numerical section, every press of that button, the value will be increased or decreased 1 minute. Hold pressing + or - button, 2 seconds later, it quickly change, the way of change is: During the initial 2.5 seconds, ten numbers change in the one place of minute, then the one place is constant, ten numbers change in the tens place of minute at 2.5 seconds speed and carry. During 5s blink, press the Timer button, the timer setting succeeds. The Timer On has been set up, repress the timer On button, the Timer On will be canceled. Before setting the Timer, please adjust the Clock to the current actual time.

**10. TEMP button**

Press this button, could select displaying the indoor setting temperature or indoor ambient temperature. When the indoor unit firstly power on it will display the setting temperature, if the temperature's displaying status is changed from other status to " ", displays the ambient temperature, 5s later or within 5s, it receives other remote control signal that will return to display the setting temperature. if the users haven't set up the temperature displaying status, that will display the setting temperature.(This function is applicable to partial of models)

After powered on, the setting temperature displaying is defaulted, (according to customers requirements to display, if there is no requirement that will default to display the presetting temperature and there is no icon displayed on wireless remote control).

Press this button, (When displaying ), will display presetting temperature; (when displaying ) will display indoor ambient temperature, current displaying status will not be changed. If current displays indoor ambient temperature, if received the other remote control signal, it will display presetting temperature, 5s later, will back to display the ambient temperature.(This function is applicable to partial ofmodels)

**11. TIMER OFF button**

Once press this key to enter into TIMER OFF setup, in which case the TIMER OFF icon will blink.

The method of setting is the same as for TIMER ON.

**12. TURBO button**

In Cool or Heat mode, press this button can turn on or turn off the Turbo function.

After turned on the Turbo function, its signal will be displayed. When switching the mode or changing fan speed, this function will be canceled automatically.

**13. SLEEP button**

Press this button, Sleep On and Sleep Off can be selected. After powered on, Sleep Off is defaulted. After the unit is turned off, the Sleep function is canceled. After Sleep function set up, the signal of Sleep will display.In this mode, the time of timer can be adjusted. Under Fan and Auto modes, this function is not available.

**14. LIGHT button**

Press this button to select LIGHT on or off in the displayer. When the LIGHT on is set,the icon will be displayed and the indicator light in the displayer will be on. When the LIGHT off is set, the icon will be displayed and the indicator light in the displayer will be off.

## Introduction for special function

**About AUTO RUN**

When AUTO RUN mode is selected, the setting temperature will not be displayed on the LCD, the unit will be in accordance with the room temp. automatically to select the suitable running method and to make ambient comfortable.

**About turbo function**

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

**About Blow over heat(This function is applicable to partial of models)**

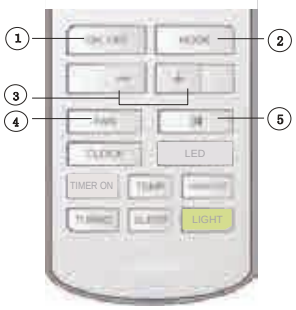
When the unit is running in Heat mode or Auto Heat mode, compressor and indoor fan is running, to turn the unit off, the compressor, outdoor fan will stop running. The upper and lower guide board rotate to horizontal position, then the indoor fan will run at low fan speed, 10s later, the unit will turn off.

**WIFI Function**

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

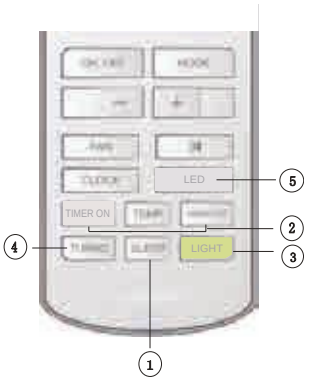
## General guide

1. After powered on, press ON/OFF button, the unit will start to run.
(Note: when it is powered on, the guide louver of main unit will close automatically.)
2. Press MODE button, select desired running mode.
3. Pressing + or - button,to set the desired temperature.
(It isunnecessary to set the temp. at AUTO mode.)
4. Pressing FAN button, set fan speed, can select LOW, MID and HIGH.
5. Pressing button, to select the swing.



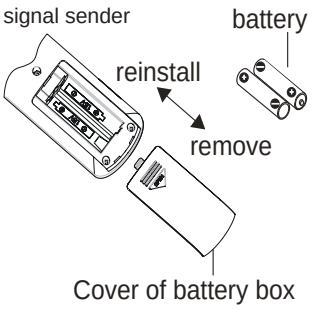
## Operation guide

1. Press SLEEP button, to set sleep.
2. Press TIMER ON and TIMER OFF button, can set the scheduled timer on or timer off.
3. Press LIGHT button, to control the on and off of the displaying part of the unit
(This function may be not available for some units).
4. Press TURBO button, can realize the ON and OFF of TURBO function.
5. Press LED button,can open or close the light on the panel.




## Replacement of batteries in remote controller

1. Press the back side of remote controller marked with " OPEN ", 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.




**Note:**

- 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.

# 6.3 Brief Description of Modes and Functions

**1. Target**
Recreational Vehicles

**2. Basic Functions**
**2.1 Cooling**
2.1.1 Operating conditions and procedures
a) Tinner amb ≥ Tpreset +1℃ (2 ℉ ), cooling mode: compressor cycles on, fan motors will operate in set speed.
b) Tinner amb ≤Tpreset -1℃ (2 ℉ ), compressor and outdoor fan motors cycle off, indoor fan motor will operate in set speed.
c) Tpreset -1℃ (2 ℉ ) < Tinner amb < Tpreset +1℃ (2 ℉ ), operates like before.
2.1.2 Temperature setting range is 16℃ ~30℃ (61 ℉ ~86 ℉ ).
**2.2 Fan Only**
2.2.1 In Fan Only, compressor and outdoor fan motors cycle off, indoor fan motor will operate in set speed.
2.2.2 Temperature setting range is 16℃ ~30℃ (61 ℉ ~86 ℉ ).
**2.3 Heating**
2.3.1 Heating conditions and process
a) When Tamb. ≤Tset+1℃ (2 ℉ ), the unit starts heating operation. In this case, the 4-way valve, compressor and outdoor fan motors run simultaneously; the indoor fan motor runs in cold air prevention condition.
b) When Tamb. ≥Tset+3℃ (6 ℉ ), the compressor and outdoor fan motors stop; the 4-way valve remains energized; the indoor fan motor blows resindooral heat;
c) When Tset +1℃ (2 ℉ ) < Tamb. < Tset+3℃ (6 ℉ ), the unit will maintain its previous running status.
2.3.2 Temperature setting range is 16℃ ~30℃ (61 ℉ ~86 ℉ ).
**2.4 Dehumidifying**
2.4.1 Operating conditions and procedures
a) Tinner amb > Tpreset +2℃ (4 ℉ ), operates in Cooling mode, fan motors will operate in low speed.
b) Tpreset -2℃ (4 ℉ )≤Tinner amb ≤ Tpreset+2℃ (4 ℉ ), dehumidifier is on, indoor fan motor will operate in low speed. Compressor and outdoor fan motors will firstly on for 6 minutes and off for 4 minutes and then cycle on and off.
c) Tinner amb < Tpreset -2℃ (4 ℉ ), compressor and outdoor fan motors stop, indoor fan motor will operate in low speed.
2.4.2 Temperature setting range is 16℃ ~30℃ (61 ℉ ~86 ℉ ).
**2.5 Auto**
2.5.1 Operating conditions and procedures
a) Tinner amb ≥26℃ (79 ℉ ), cooling mode: Tpreset =25℃ (77 ℉ )
b) Tinner amb <22℃ (72 ℉ ), if it is a Cooling and Warming controller, unit will operate in Warming mode, Tpreset = 20℃ (68 ℉ ); if it is a Cooling controller, unit will operate in Fan Only, Tpreset =68 ℉ (20℃ );
c) 22℃ (72 ℉ ) ≤Tinner amb < 26℃ (79 ℉ ), operates like before; if it is turned on for the first time, it will operate in Fan Only.

**3. Other Functions**
**3.1 Buzzer**
When a controller is powered on or a signal is received from a remote controller or a button is pressed, buzzer will beep once.
**3.2 Sleeping Mode**
a) In Cooling , dehumidifying, 1 h after Sleeping mode is set, Tpreset will be 1℃ (2 ℉ ) higher; 2 h later, Tpreset will be 2℃ (4 ℉ ) higher and rise no more; Also, the maximum of set temperature is 30℃ (86 ℉ ).
b) In Warming, 1 h after Sleeping Mode is set, Tpreset will be 1℃ (2 ℉ ) lower; 2 h later, Tpreset will be 2℃ (4 ℉ ) lower and fall no more; Also,the minimum of set temperature is 16℃ (61 ℉ ).
c) In Auto or Fan Only, Sleeping mode cannot be used;
**3.3 Delay Timer**
a) Delay On: when the air conditioner is off, it can be set automatically come on in 0.5h ~ 24h at its set mode.
b) Delay Off: when the air conditioner is on, it can be set automatically turn off in 0.5h ~ 24h.
If the time is set within 10 hours, the timing interval is 0.5h; If the time is set more than 10 hours, the timing interval is 1h.
**3.4 Swing**
a) In normal working, it will swing within a set angle;
b) When stopped, it will stay as it is.
**3.5 Memory Function**
The system will remember the settings when power is interrupted. The unit will automatically restart in the last setting used after the power is restored. If the air conditioner is off when power is interrupted, it takes 3 minutes for the compressor to restart after the power is restored.
**3.6 Lights and Dual-8 Nixie Tube**
a. When unit is on and under cooling mode, the Cooling indicator will turn on while tube shows the set temperature. Temperature can be set;

b. When unit is on and under Auto mode, the Fan Speed indicator will turn on while tube shows the set temperature. The temperature can't be adjusted;
c. Under Fan Only mode, the Fan indicator and the Fan Speed indicator will turn on;
d. Under Dehumidifying mode, the Dehumidifying indicator will turn on;
e. When fan speed is at low, medium, high or super high, lights will turn on respectively.
f. For unit without WIFI function, When Delay Timer is on, the Delay Timer light will turn on. For unit with WIFI function, the WIFI light replaces the Delay Timer light at the same position. When the WIFI is on, the WIFI light will turn on regardless of the unit's on or off.
g. Under Warming mode, the Heating indicator will turn on while tube shows the set temperature. Temperature can be set.
h. When unit is on and lights of all buttons on the remote controller go off, all set lights (except the LED light ) light and dual 8 nixie tubes will go off accordingly (except malfunction indicator and filter indicator). When the controller is receiving signals, the main board will remember the set parameter, which would be displayed after the remote light is turned on.

**3.7 Temperature Setting**

(1) Temperature can be set by pressing the button UP/DOWN. Dual-8 nixie tube will show the temperature while setting. To quickly set a temperature, press the button UP/DOWN continuously until it reaches the temperature you want. In this case, buzzer will ring continuously; (The function as below is not available for the touch GRH085DA-K3NA2B(WIFI)/GRH120DA-K3NA2B(WIFI))
(2) The tube display can show degree Fahrenheit or degree Celsius. The default temperature reading on the display is degree Celsius. To change the display to degree Celsius, press the button UP and DOWN together and hold for 3 seconds. Repeat the process to change back to degree Fahrenheit.

**3.8 Controls**

(1)ON/OFF: Turn air conditioner on and off. When air conditioner is off, press the button to turn it on. When air conditioner is on, press the button to turn it off;
(2)SWING: Use to turn the Swing on and off. When Swing is on, press the button to turn it off. When Swing is off, press the button to turn it on;
(3)FANSPEED: Use to set the fan speed to FANL, FANM,FANH or FANSH on the unit. In Dehumidifying mode, only FANL can be set.
(4)UP,DOWN: Use to set temperature and the delay time;
(5)MODE: Use to switch different modes.
GRH085DA-K3NA1A(WIFI)/GRH120DA-K3NA1A(WIFI) can be circulated to COOL,DRY,FAN,HEAT,COOL;
GRH085DA-K3NA2B(WIFI)/GRH120DA-K3NA2B(WIFI) can be circulated to COOL,FAN,HEAT,COOL.
(6)Sleeping mode can only be set by a remote controller.
(7)Auto mode can only be set by a remote controller and displayed on it.
(8)WIFI or TIMER: This button is decieded by chip interface. It is the WIFI button on unit with WIFI function;it is the TIMER button on unit without WIFI function. Use to turn the WIFI on and off, when it is WIFI button. As long as the unit is powered regardless of its on or off, press the button once to turn the WIFI on and off. Use to turn timer on and off, when it is TIMER button. If air conditioner is off, press the button to timer on. If air conditioner is on, press the button to timer off.
(9) FILTER CHECK: 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 re-install the air filter, power on and turn on the unit, the light will still be on, press FILTER CHECK button,the light will turn off.
(10) LED on the remote controller: As long as the unit is powered regardless of its on or off, press the button once to turn the LED light on or off. LED light can only be set by a remote controller. If the unit is powered the first time, LED light will turn on in the indoor panel.

**3.9 Protection**

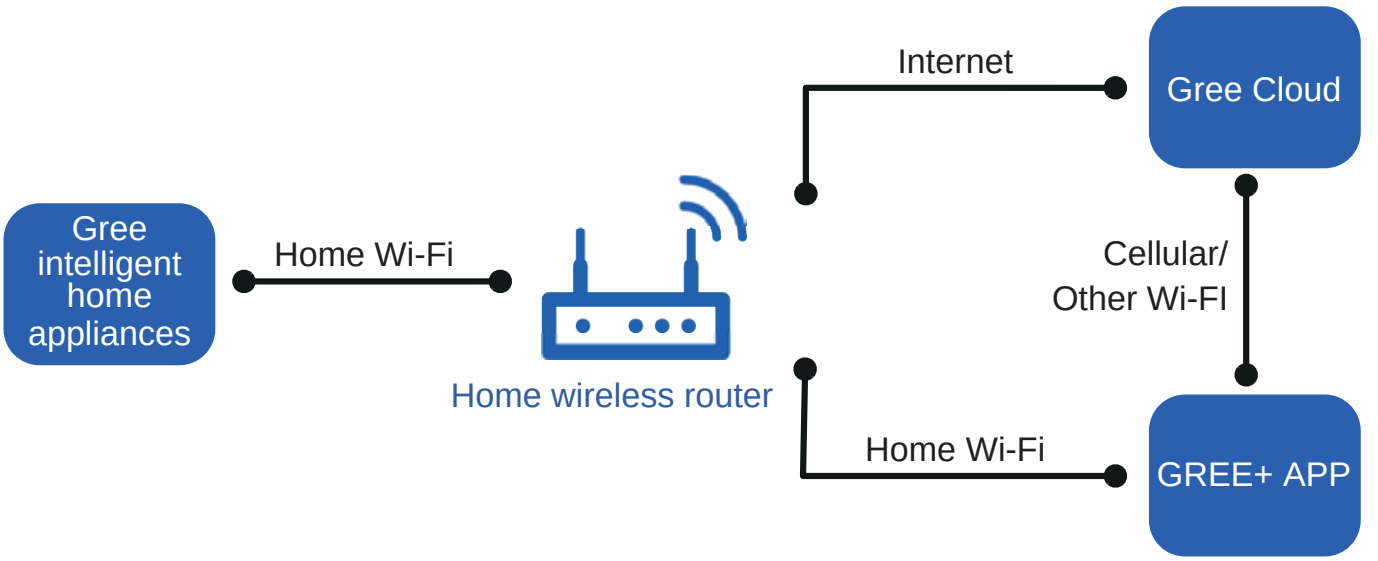
3.9.1 Temperature sensors' malfunctions detected
(1) Indoor ambient temperature sensor is open/short-circuited: dual-8 nixie tube shows F1; cooling indicator flashes once;
(2) Indoor tube temperature sensor is open/short-circuited: dual-8 nixie tube shows F2; cooling indicator flashes twice;
(3) Outdoor ambient temperature sensor is open/short-circuited: dual-8 nixie tube shows F3; cooling indicator flashes 3 times;
(4) Outdoor tube temperature sensor is open/short-circuited: dual-8 nixie tube shows F4; cooling indicator flashes 4 times;
(5)If different malfunctiuons occur at the same time, error codes will show in a circulated way
3.9.2 Alarm Function of Filter
If the total operating time of the fan reaches 250 hours, the filter indicator will turn on to remind user to do the cleaning.
3.9.3 Refrigrant loss protection' malfunctions detected
If the the unit enters refrigrant loss protection 6 times, the dual-8 nixie tube shows F0.
3.9.4 Compressor overload protection' malfunctions detected
If the the unit enters compressor overload protection 6 times, the dual-8 nixie tube shows H3.
3.9.5 Low voltage protection' malfunctions detected
If controller detects that system voltage lower than the limit value for 30s, the dual-8 nixie tube shows PL.
3.9.6 Overload protection' malfunctions detected (in cooling or dehumidifying mode)
If it is detected that the unit enters overload protection 6 times because the condenser tube temperature is superheating in cooling or

dehumidifying mode, the dual-8 nixie tube shows E8.
3.9.7 Defrosting' malfunctions detected
For ensusing heating effect, air conditioner will defrost automatically according to defrosting status on outdoor unit. Dual-8 nixie tube displays H1 during defrosting.

**4. Troubleshooting**
**4.1 Problem1:** air conditioner does not start and the buzzer does not ring
What to do: check the air conditioner plug or replace the controllers.
**4.2 problem2:** dual 8 nixie tube shows F1; cooling indicator flashes once
What to do: make sure the indoor ambient temperature sensor is securely connected to the controller.
**4.3 Problem3:** dual-8 nixie tube shows F2; cooling indicator flashes twice
What to do: the indoor tube temperature sensor is not securely connected with the controller. Install it again or replace it with a new one.
**4.4 problem4:** dual 8 nixie tube shows F3; cooling indicator flashes 3 times
What to do: make sure the outdoor ambient temperature sensor is securely connected to the controller. Install it again or replace it with a new one.
**4.5 Problem5:** dual-8 nixie tube shows F4; cooling indicator flashes 4 times
What to do: the outdoor tube temperature sensor is not securely connected with the controller. Install it again or replace it with a new one.
**4.6 Problem6:** dual-8 nixie tube shows F0.
What to do: check where the refrigerant leaks, repair the leakage and add the refrigerant according to experience.
**4.7 Problem7:** dual-8 nixie tube shows H3.
What to do: power off the unit , then power on and turn on the unit again few minutes later.
**4.8 Problem8:** dual-8 nixie tube shows PL; the unit stops except the LED light; cooling indicator flashes 2 seconds and stop 3 seconds circularly.
What to do: when cooling indicator stops flashing, press ON/OFF button once to turn the unit off and then turn on the unit again 2 minutes later.
**4.9 Problem9:** dual-8 nixie tube shows E8.
What to do: power off the unit , then power on and turn on the unit again few minutes later.
**4.10 Problem10:** dual-8 nixie tube shows JF.
What do to: confirm the connection between the WIFI detection board and the main board is correct and firm; install the WIFI inspection board again; replace the WIFI detection board with a new one with the same model;Replace the mainboard with the same model.

## 6.4 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

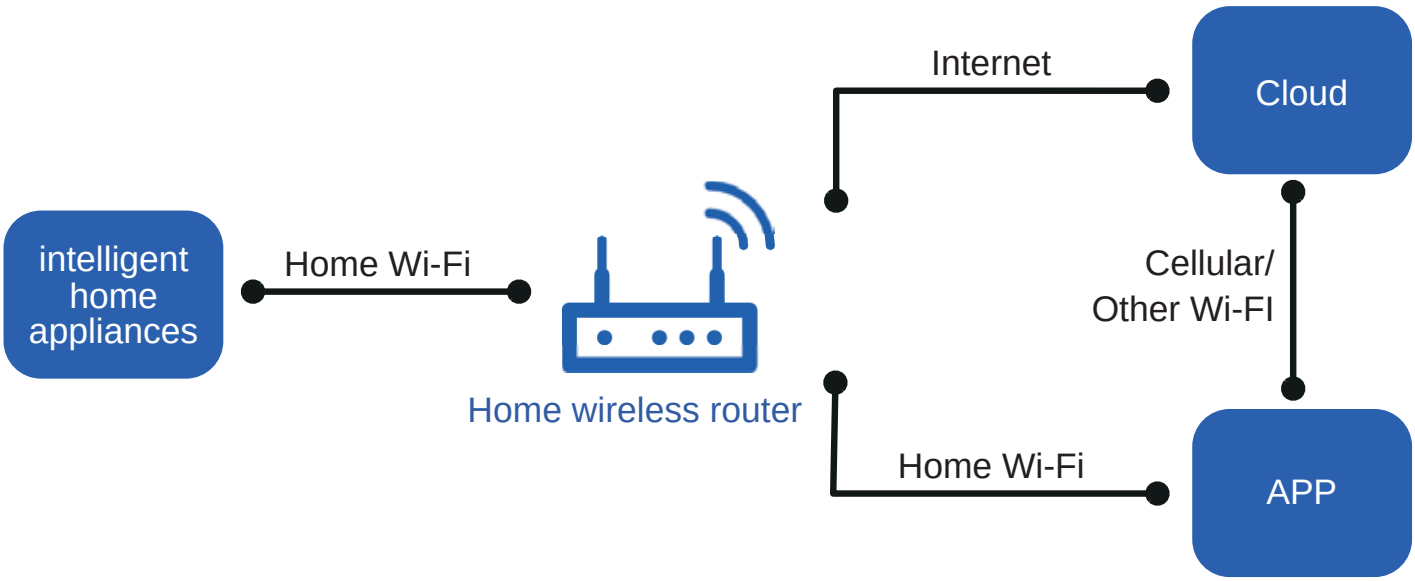
### Download and installation

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.

## 6.5 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.

# Part Ⅱ : Installation and Maintenance

## 7. Notes for Installation and Maintenance

### Safety Precautions: Important!

**Please read the safety precautions carefully before installation and maintenance.**
**The following contents are very important for installation and maintenance.**

**Please follow the instructions below.**

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

### Warnings

**Electrical Safety Precautions:**

**1. Cut off the power supply of air conditioner before checking and maintenance.**
**2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.**
**3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.**
**4. Make sure each wiring terminal is connected firmly during installation and maintenance.**
**5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.**
**6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.**
**7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.**
**8. The power cord and power connection wires can't be pressed by hard objects.**
**9. If power cord or connection wire is broken, it must be replaced by a qualified person.**
**10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.**
**11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.**
**12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.**
**13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.**
**14. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.**
**15. If the unit is to be installed in a humid place, the circuit breaker must be installed.**

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

**●When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**
**Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.**
**●When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.**
**Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.**
**●When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode.Then, fully close the valve at high pressure side (liquid valve).About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.**
**If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.**
**●During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.**
**If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.**
**●When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.**
**If compressor starts running when stop valve is open and**

**connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.**
**●Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.**
**If there leaked gas around the unit, it may cause explosion and other accidents.**
**●Do not use extension cords for electrical connections. If the electric wire**
**is not long enough, please contact a local service center authorized and ask for a proper electric wire.**
**Poor connections may lead to electric shock or fire.**
**●Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.**
**Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.**

## 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:

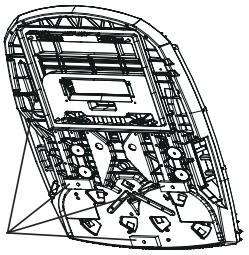
**1. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.**
**2. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.**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

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

# 8. Installation

## BEFORE INSTALLATION

Testrun 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.



●Before installation, please check whether the unit is assembled with three pieces of rubber pads and square sealing strip.

⚠ **WARNING**

●Moving parts may cause personal injury. Be careful when test the unit. Do not operate the unit with exterior cover removed.

**GRH085DA-K3NA1A/I GRH120DA-K3NA1A/I**

### STEP 1-SELECTING AN INSTALLATION LOCATION & INSTALLINGTHE ROOF TOPAIR CONDITIONER

Your 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 your air conditioner has been determined. A reinforced and framed roof hole opening must be cut (if there is no hole) or you may use existing vent holes.

**CASEA.**

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 356x356mm, the opening must be enlarged. If the opening exceeds 356x356mm, a mounting plate (frame) must be fabricated to reduce the opening size (See Figure 1).

**CASEB.**

If a roof vent opening is not used,a new opening(see figure 1)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 Figure 1.

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.

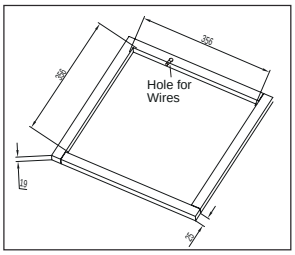



Figure 1

**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. Figure 2 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 Figure 3.

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 point end (nose) of the shroud must face toward the front of the vehicle.

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.

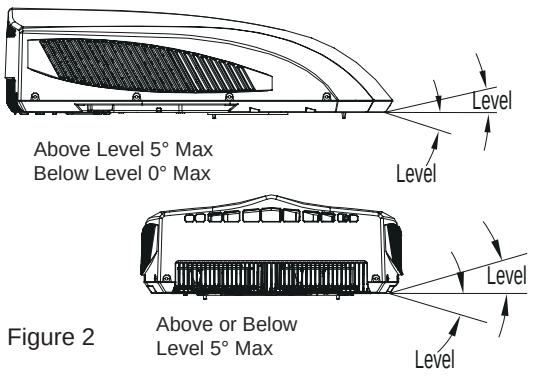
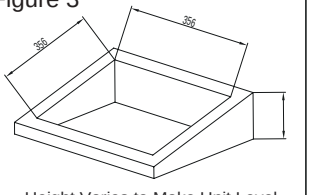
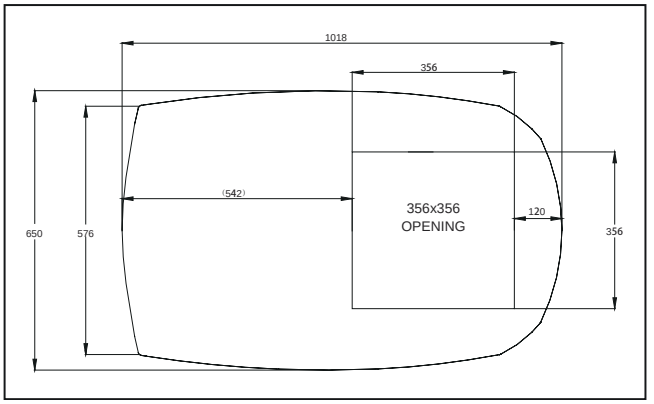



Figure 2

Figure 3



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




## STEP 2-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 Figure4-1).
2. Fix the outdoor unit at the roof of vehicle and then drill holes.
1) Place the outdoor unit at the roof of vehicle; lift the outdoor unit and then place the outdoor unit after drilling holes at the roof of vehicle.Do not drag the outdoor unit.Otherwise, the sealing strip may fall off(see Figure4-2).

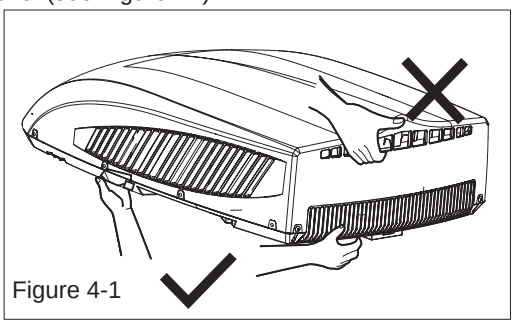


Figure 4-1

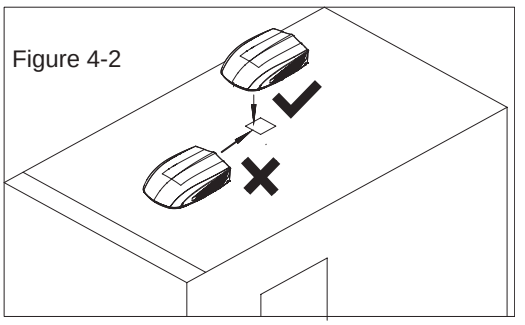


Figure 4-2

## STEP 3-ELECTRICAL WIRING

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 30~80mm.
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 (The remote control packed with the ceiling assembly).
2. Remove the ceiling grille from the ceiling assembly.
3. Before the ceiling assembly can be mounted to the roof top air conditioner,the fabric duct collar must be fastened to the basepan of the roof top air conditioner with 4 screws by upper duct plate (see Figure 5-2、Figure 6-1、Figure 5、Figure 5-1).
4. Before lifting the ceiling assembly, pullthe fabric duct collar so it hangs out of the way and does not get caught underthe ceiling assembly frame.

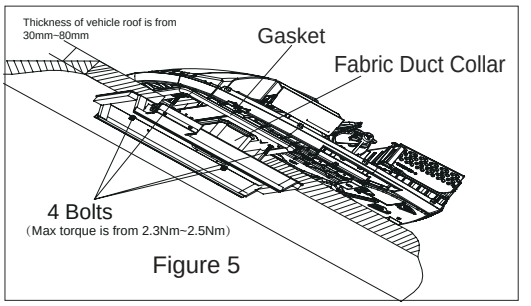



Figure 5

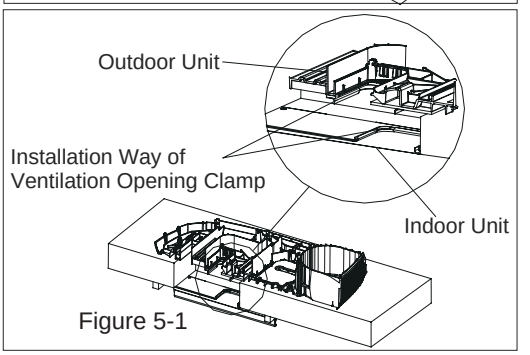



Figure 5-1

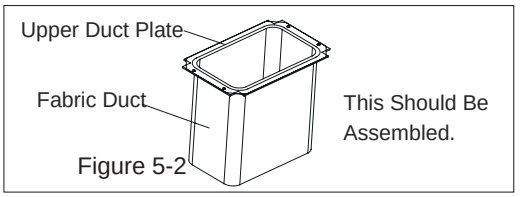



Figure 5-2

5) Secure the ceiling assembly frame to the roof top air conditioner with the mounting bolts(see Figure 5).You must start (thread) themounting 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.
6) Set the fabric air duct into the duct opening of installation plate sub-assy and cut off four corner of fabric air duct. Because the thickness of vehicle top is different, the distance between the opening and the installation plate sub-assy is shown in figure 6.
7) Fasten each side of the fabric duct withfitting the bottom duct plate to the ceiling assembly frame with 4 screws (see Figure 6). Trim any excess fabric that may extend beyond edge of bottom duct plate.

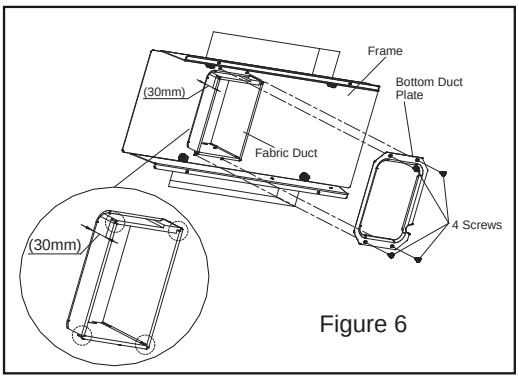


Figure 6

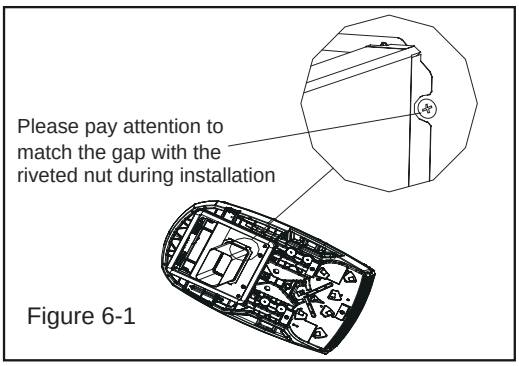


Figure 6-1

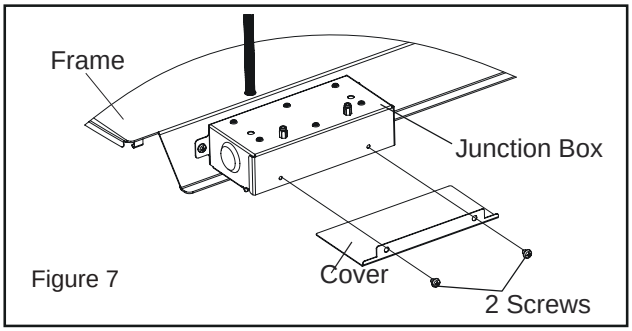


Figure 7

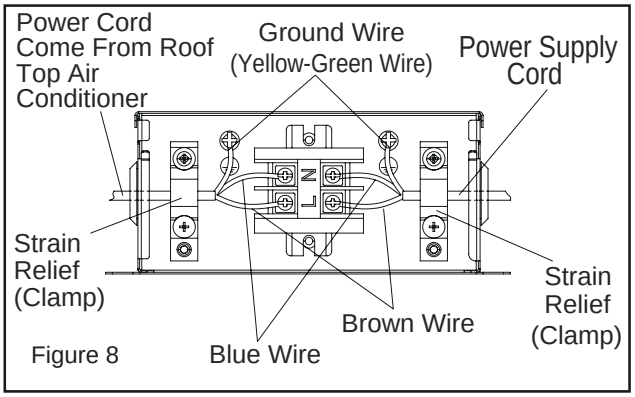


Figure 8

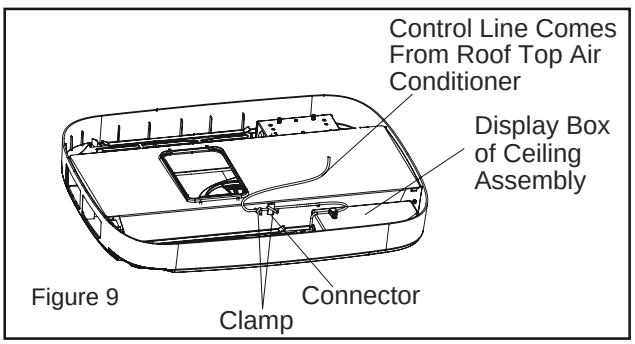


Figure 9

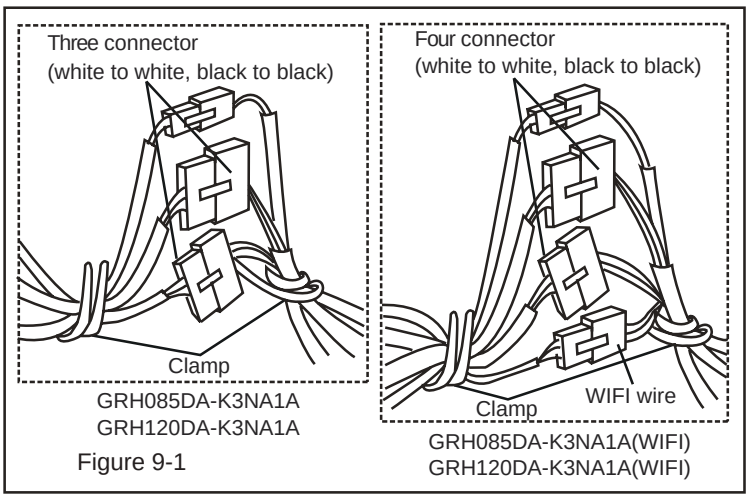


Figure 9-1

## STEP 4-ELECTRICAL WIRING

### ROUTING 220-240V AC 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. After the interiorceiling assembly frame is properly secured to the roof top air conditioner, the following electrical connections must be performed.

1. Route a copper,with ground, supply wiring with minimum 1.5mm, the wiring from its power source to the junction box.Do notattach them at this time.
2. Take the roof top air conditioner power cordto connect to the side of the junction box.
3. Remove the junction box cover (2 screws).Take the power cord and make it get into the box through the strain relief that is provided(see Figure 7).
4. Connect the power cord to the brown, blue and ground wires found in the junction box with a terminal board. CAUTION Connect brown wire to brown wire, blue wire to blue wire and the ground wire to earth. (see Figure 8).
5. Tighten the strain relief clamp to secure the supply power cord. DO NOT OVERTIGHTEN.Reinstall the junction box cover.
6. Connect the three connector (four connector) andsecure the clamp (see Figure 9 and Figure 9-1).The connector should be placed above themounted plate of indoor unit, and it should behigher than the clamp.

## STEP 5-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.Make sure the guide louver and the filters are properly positioned in the ceiling grille.

3.Secure the ceiling grille to the ceiling assembly frame with 4 screws.(see Figure 10).

4.Install screw caps into four screw holes.

5.Switch on the power supply and check the unit work or not.

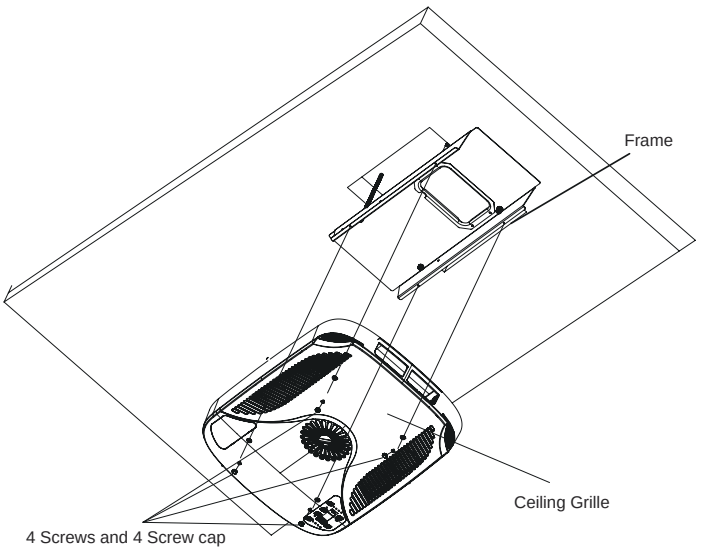



Figure 10

**GRH085DA-K3NA2B/I**

**GRH120DA-K3NA2B/I**

## STEP 1-SELECTING AN INSTALLATION LOCATION & INSTALLINGTHE ROOF TOPAIR CONDITIONER

Your 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 your air conditioner has been determined. A reinforced and framed roof hole opening must be cut (if there is no hole) or you may use existing vent holes.

**CASEA.**

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 356x356mm, the opening must be enlarged. If the opening exceeds 356x356mm, a mounting plate (frame) must be fabricated to reduce the opening size (See Figure 1).

**CASEB.**

If a roof vent opening is not used,a new opening(see figure 1)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 Figure 1.

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.

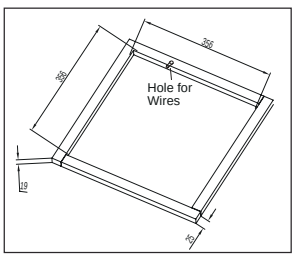



Figure 1

**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. Figure 2 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 Figure 3.

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 point end (nose) of the shroud must face toward the front of the vehicle.

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.

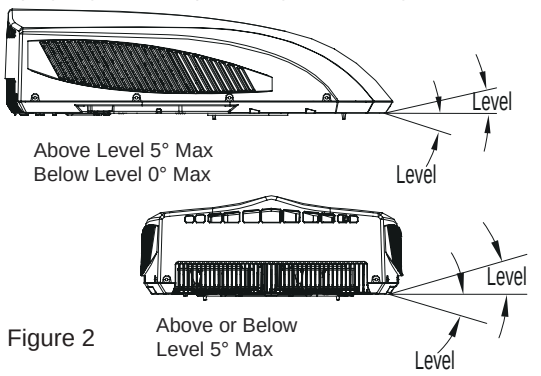
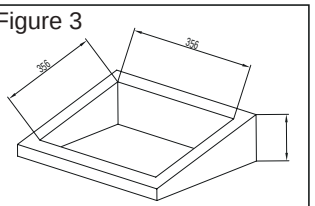
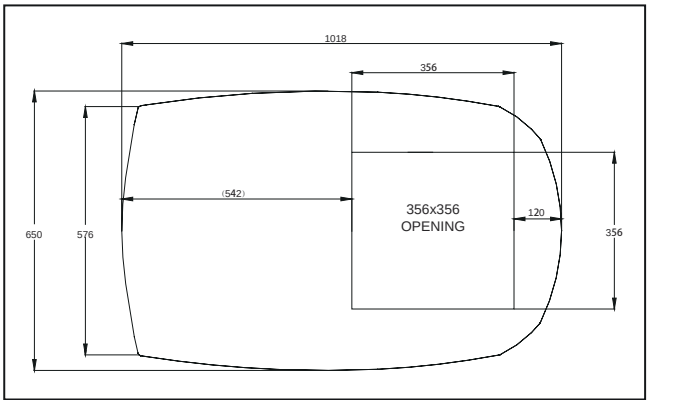



Figure 2

Figure 3




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



## STEP 2-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 Figure4-1).
2. Fix the outdoor unit at the roof of vehicle and then drill holes.
1) Place the outdoor unit at the roof of vehicle; lift the outdoor unit and then place the outdoor unit after drilling holes at the roof of vehicle.Do not drag the outdoor unit.Otherwise, the sealing strip may fall off(see Figure4-2).

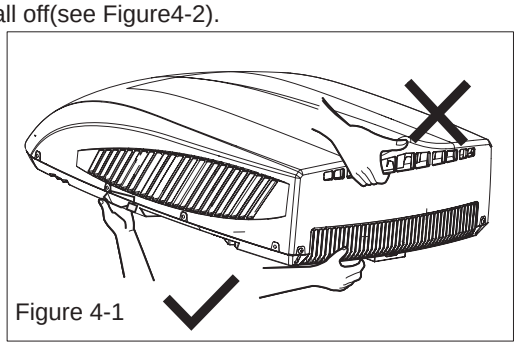


Figure 4-1

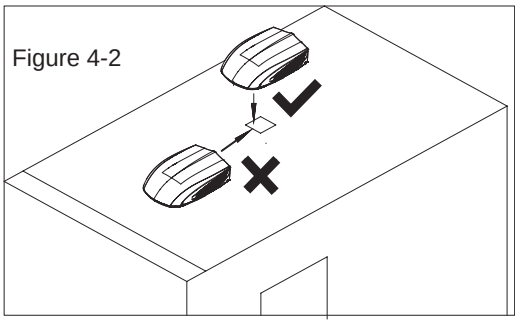


Figure 4-2

## STEP 3-ELECTRICAL WIRING

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 30~80mm.
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 (The remote control packed with the ceiling assembly).
2. Remove the ceiling grille from the ceiling assembly.
3. Before the ceiling assembly can be mounted to the roof top air conditioner,the fabric duct collar must be fastened to the basepan of the roof top air conditioner with 4 screws by upper duct plate (see Figure 5-2、Figure 6-1、Figure 5、Figure 5-1).
4. 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 plate assembly and 4 screw bolts to mount the outdoor unit (See fig. 5).

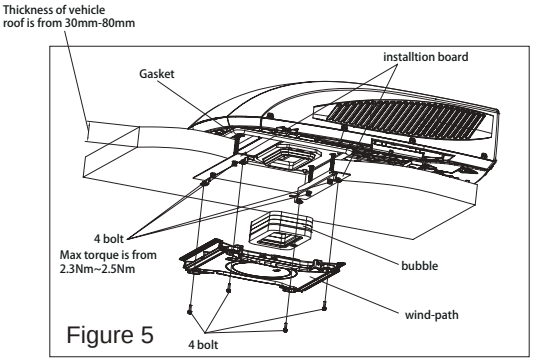



Figure 5

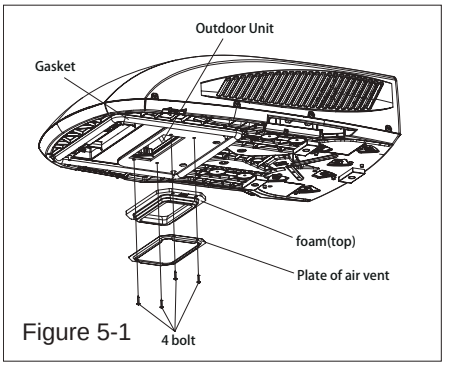



Figure 5-1

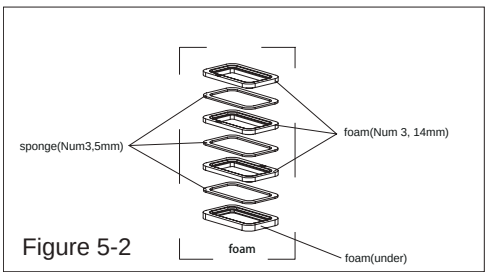



Figure 5-2

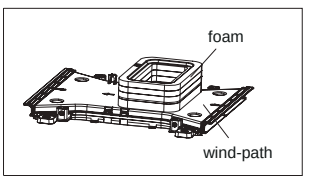



Figure 5-3

5. You must start (thread) themounting 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.
6. 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.5-2, 5-3).6) Set the fabric air duct into the duct opening of installation plate sub-assy and cut off four corner of fabric air duct. Because the thickness of vehicle top is different, the distance between the opening and the installation plate sub-assy is shown in figure 6.
7. Install the foam assembly on the air duct assembly. Use 4 screw bolts to fix the air duct assembly onto the mounting plate. After connecting the outdoor unit with indoor unit, check whether the foam assembly has come loose (See fig.5).

## STEP 4-ELECTRICAL WIRING

### ROUTING 220-240V AC WIRING

⚠ **WARNING**

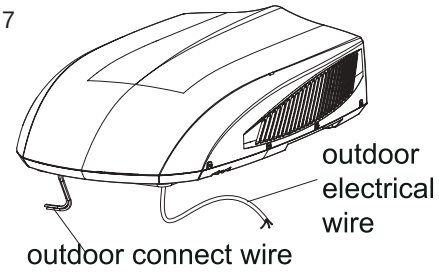
Make sure that all power supply to the unit is disconnected before performing any work on the unit to avoid the possibility of shock or injury and/or damage to the equipment. After the interiorceiling assembly frame is properly secured to the roof top air conditioner, the following electrical connections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

1. As shown in fig.7, 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.

2. As shown in fig.8, the indoor unit has one set of control signal wires, with 4 wiring terminals in total.

3.As shown in the picture, connect the wiring terminals of indoor and outdoor units one by one. Then use a piece of sponge to wrap the wiring terminals together, with each terminal separately encircled by the sponge. Avoid gaps between each wire.

Figure 7



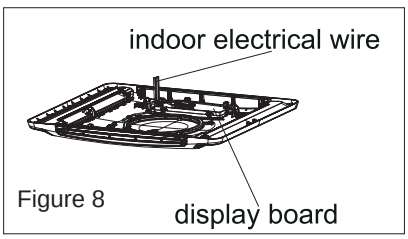




Figure 8

Figure 9

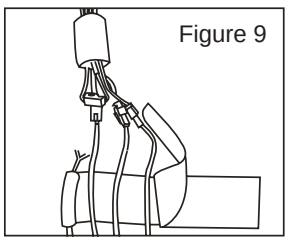


Figure 9-1

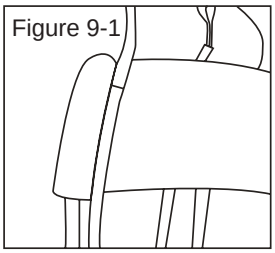


Figure 9-2

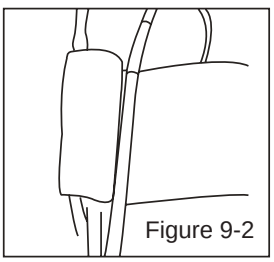


Figure 9-3

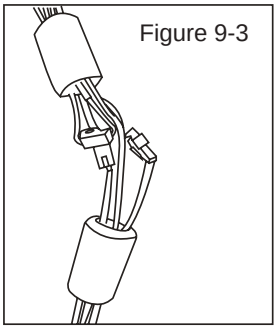
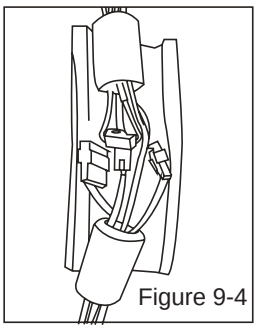


Figure 9-4



4.shown in the picture, use a piece of thermal insulating jacket to enclose the wiring terminals and sponge. Then glue the thermal insulating jacket and fasten it with cable ties.

Note: 1. Cable ties must be attached to the area with both sponge and thermal insulating jacket; 2. Before installing the front panel of indoor unit, put the thermal insulating jacket on top of the air duct.

Figure 9-5

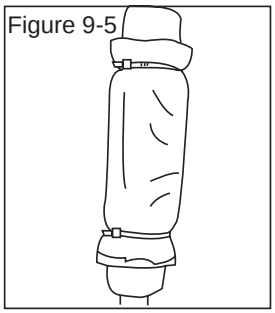
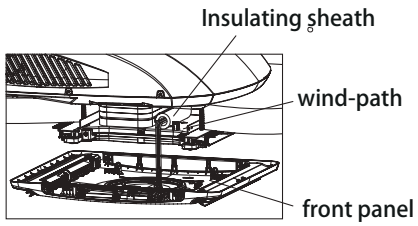


Figure 9-6




## STEP 5-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 Figure 10).

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.

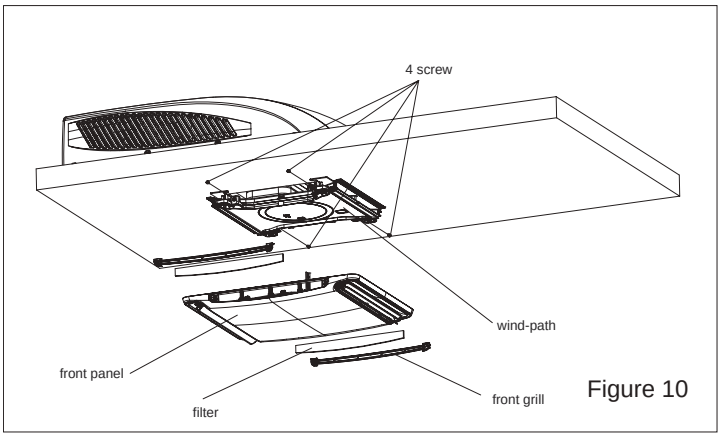



Figure 10

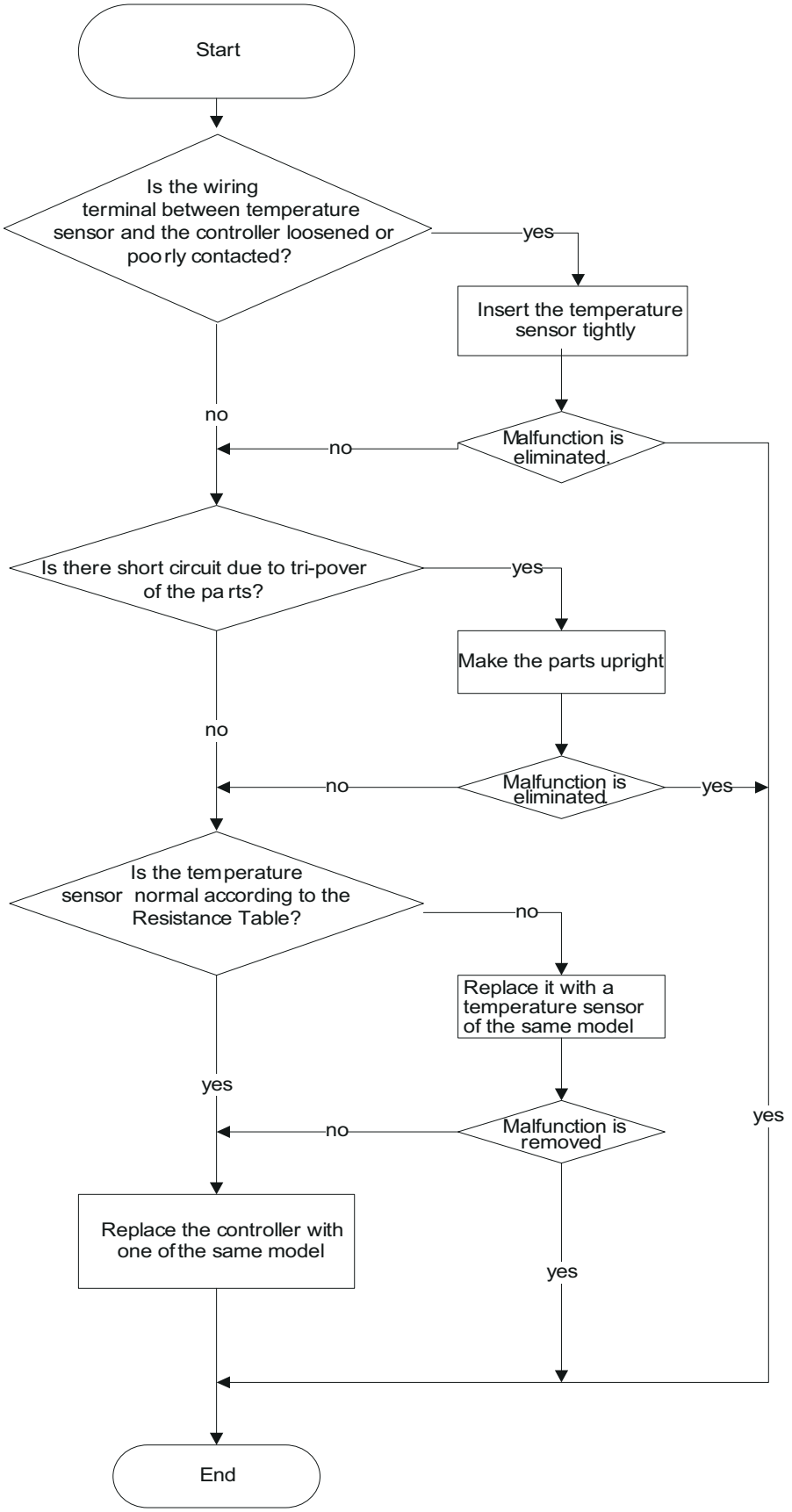
# 9. Maintenance

## 9.1 Error Code

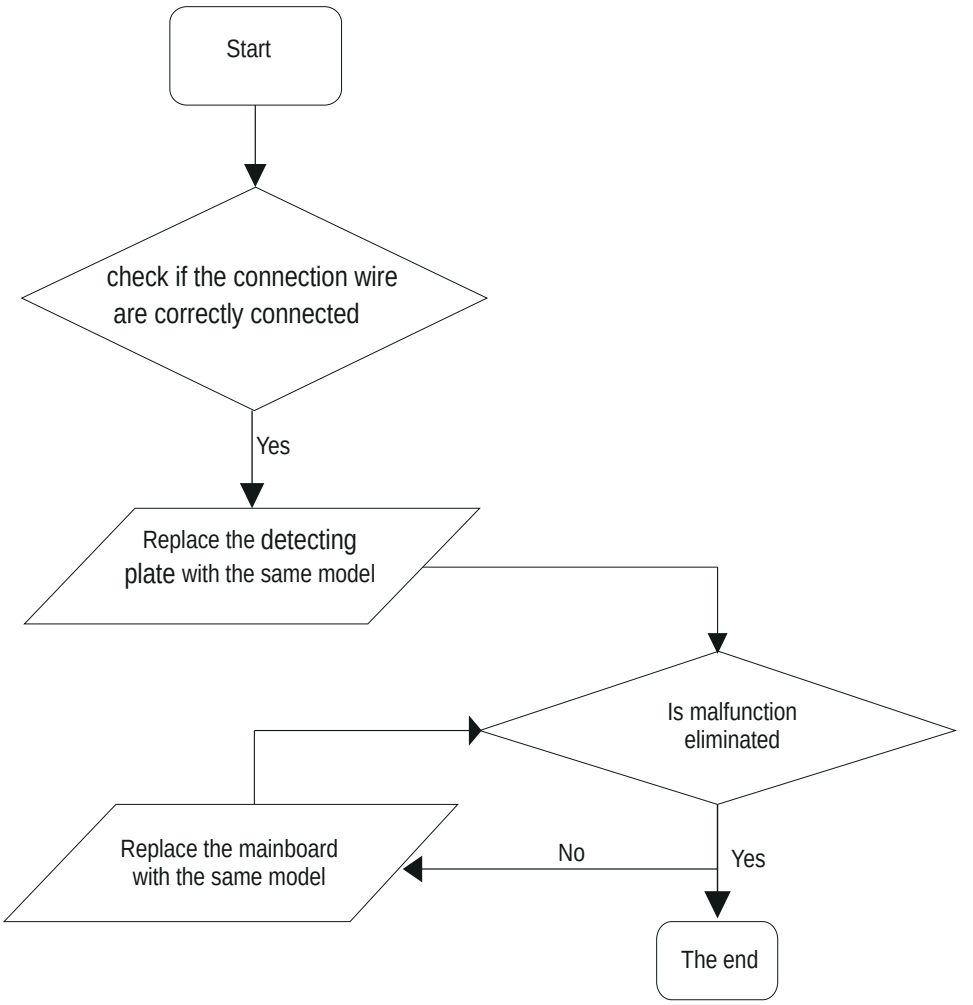
| No. | Malfunction Name | Display Method of Indoor Unit (Error Code) | A/C Status | Possible Causes |
|---|---|---|---|---|
| 1 | Indoor ambient temperature sensor is open/ shortcircuited | F1 | When temperature sensor is open/ shortcircuited, under cooling or heating mode, the unit will stop operation as it reaches the temperature point. Under fan mode, the unit operates according to original status. | 1. The wiring terminal between indoor ambient temperature sensor and controller is loosened or poorly contacted;<br>2. There's short circuit due to trip-over of the parts on controller;<br>3.Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor)<br>4. Main board is broken. |
| 2 | Indoor evaporator temperature sensor is open/short-circuited | F2 | | 1. The wiring terminal between indoor evaporator temperature sensor and controller is loosened or poorly contacted;<br>2. There's short circuit due to the trip-over of the parts on controller;<br>3.Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor)<br>4. Main board is broken. |
| 3 | Outdoor ambient temperature sensor is open/ shortcircuited | F3 | | 1.The wiring terminal between outdoor ambient temperature sensor and controller is loosened or poorly contacted;<br>2.There's short circuit due to trip-over of the parts on controller;<br>3.Outdoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor)<br>4.Main board is broken. |
| 4 | Outdoor condenser temperature sensor is open/short-circuited | F4 | | 1. The wiring terminal between outdoor condenser temperature sensor and controller is loosened or poorly contacted;<br>2. There's short circuit due to the trip-over of the parts on controller;<br>3.Outdoor condenser temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor)<br>4. Main board is broken. |
| 5 | Insufficient fluorine protection | F0 | Indoor fan runs according to set fan and other loads will stop. | 1.Heat exchangers are too dirty or the air inlet/outlet is blocked.<br>2.Compressor doesnt work normally. Strange noise or leakage occurs. Temperature of the shell is too high.<br>3.System is blocked inside(dirt block, ice block, oil block, Y-valve not fully open).<br>4.The refrigerant is leaking. |
| 6 | WIFI communication malfunction | JF | Loads operate normally, while the unit can't be normally controlled by APP. | 1.Main board of outdoor unit is damaged;<br>2.Detection board is damaged;<br>3.The connection between outdoor unit and detection board is not good; |
| 7 | The power supply voltage is lower than 184V | PL | When the power supply voltage is less than 184V, all loads stop operation except LED indicator. | 1.The power supply voltage is lower than 184V;<br>2.The main board of outdoor unit is damaged。 |
| 8 | Overload protection for compressor | H3 | Indoor fan runs according to set fan and other loads will stop | 1.Heat exchangers are too dirty or the air inlet/outlet is blocked.<br>2.Fan motor doesnt work at a normal fan speed; fan speed is too low or the fan doesnt run.<br>3.Compressor doesnt work normally. Strange noise or leakage occurs. Temperature of the shell is too high.<br>4.System is blocked inside(dirt block, ice block, oil block, Y-valve not fully open).<br>5.The refrigerant is leaking and cause overheating protection to compressor. |
| 9 | Overload malfunction | E8 | During cooling or drying operation, indoor fan operates and other loads will stop. | 1.The environment is formidable.<br>2.Heat exchangers are too dirty or the air inlet/outlet is blocked.<br>3.Fan motor is not working Abnormal fan speed; fan speed is too low or the fan doesnt run.<br>4.Compressor doesnt work normally. Strange noise or leakage occurs. Temperature of the shell is too high.<br>5.System is blocked inside(dirt block, ice block, oil block, Y-valve not fully open).<br>6.Temperature sensor of main board cant detect correctly. |

# 9.2 Procedure of Troubleshooting

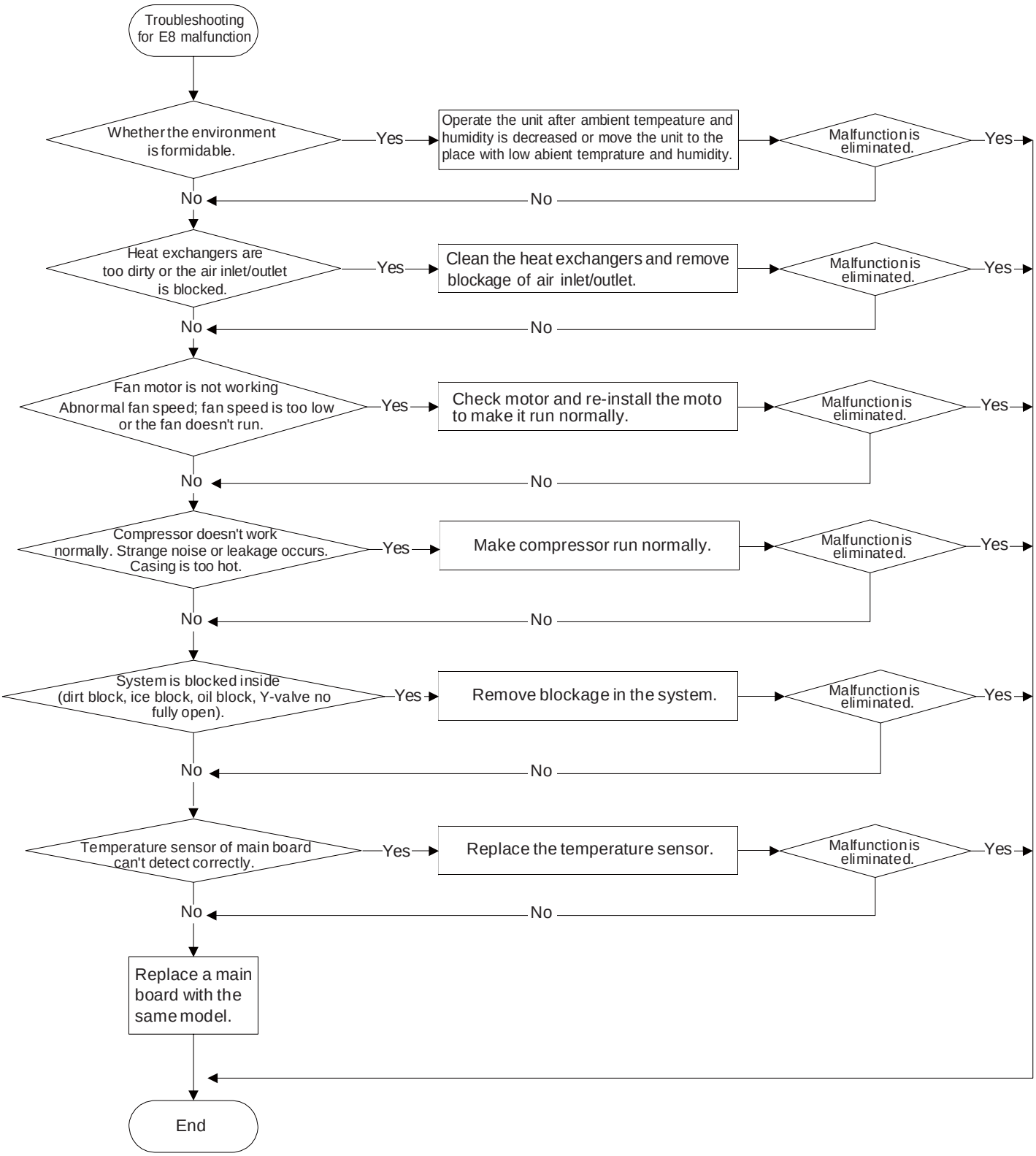
### 1. Malfunction of Temperature Sensor F1~ F4



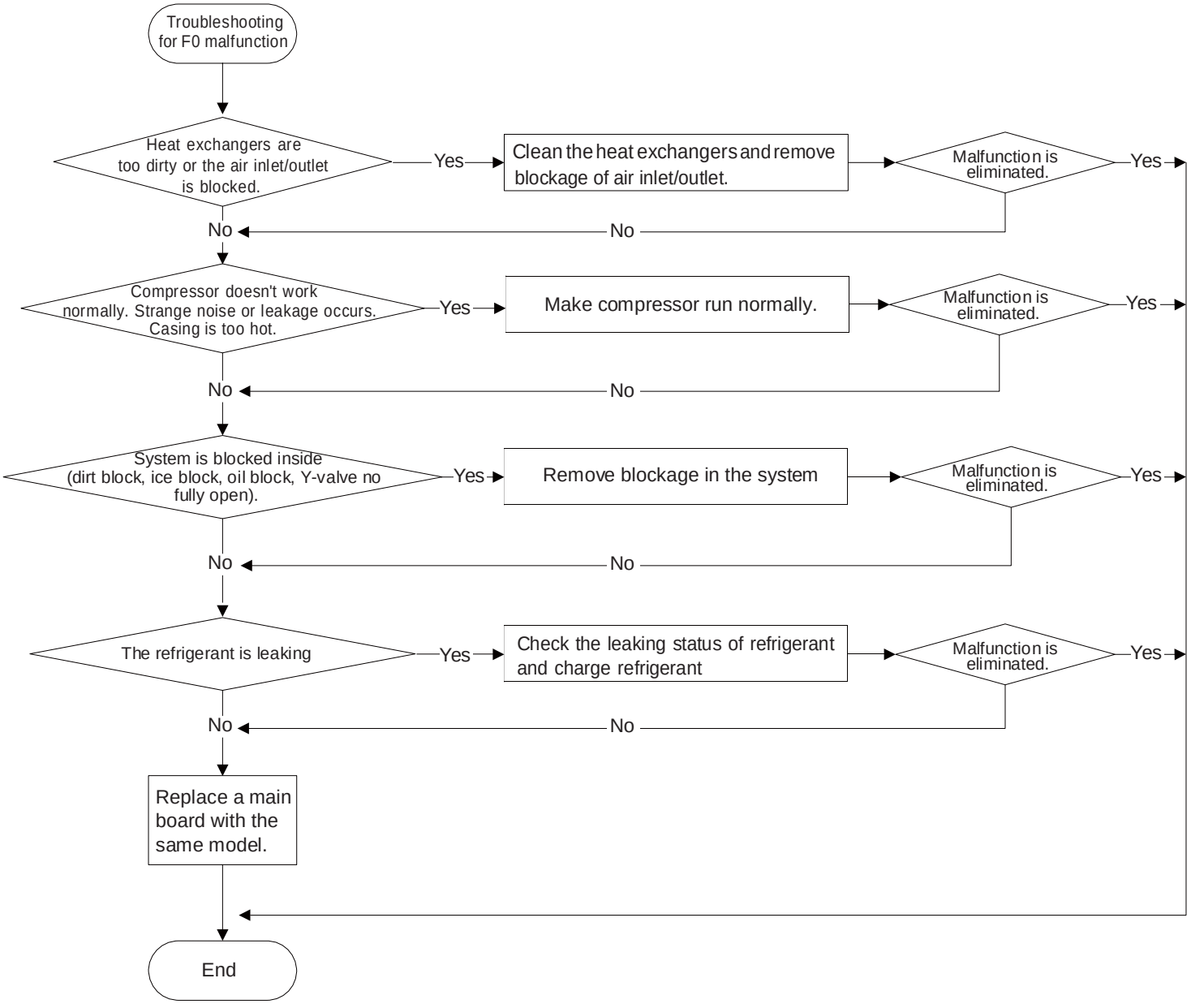
**2. Malfunction of detecting plate(WIFI) JF**



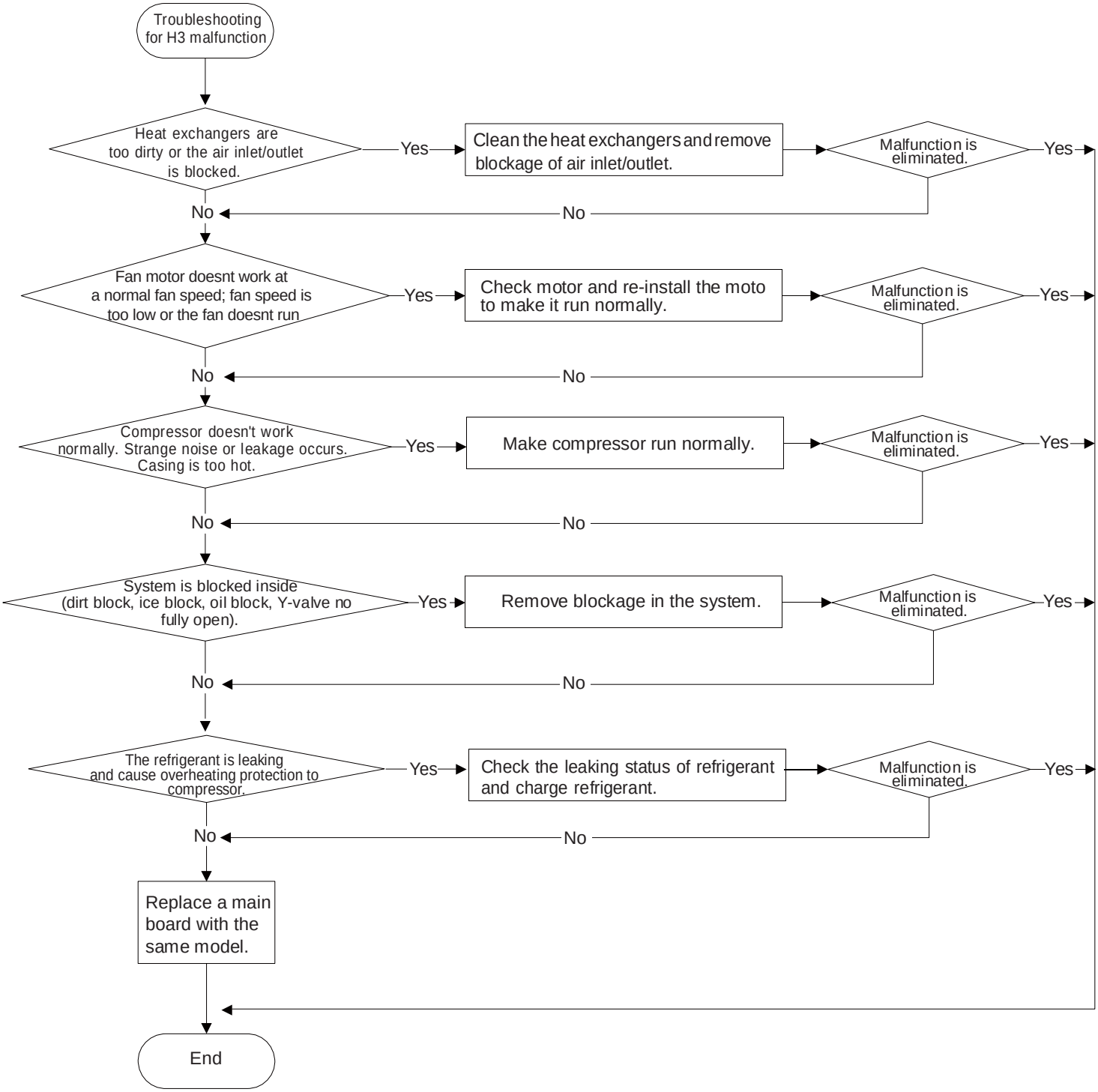
### 3. Overload malfunction E8



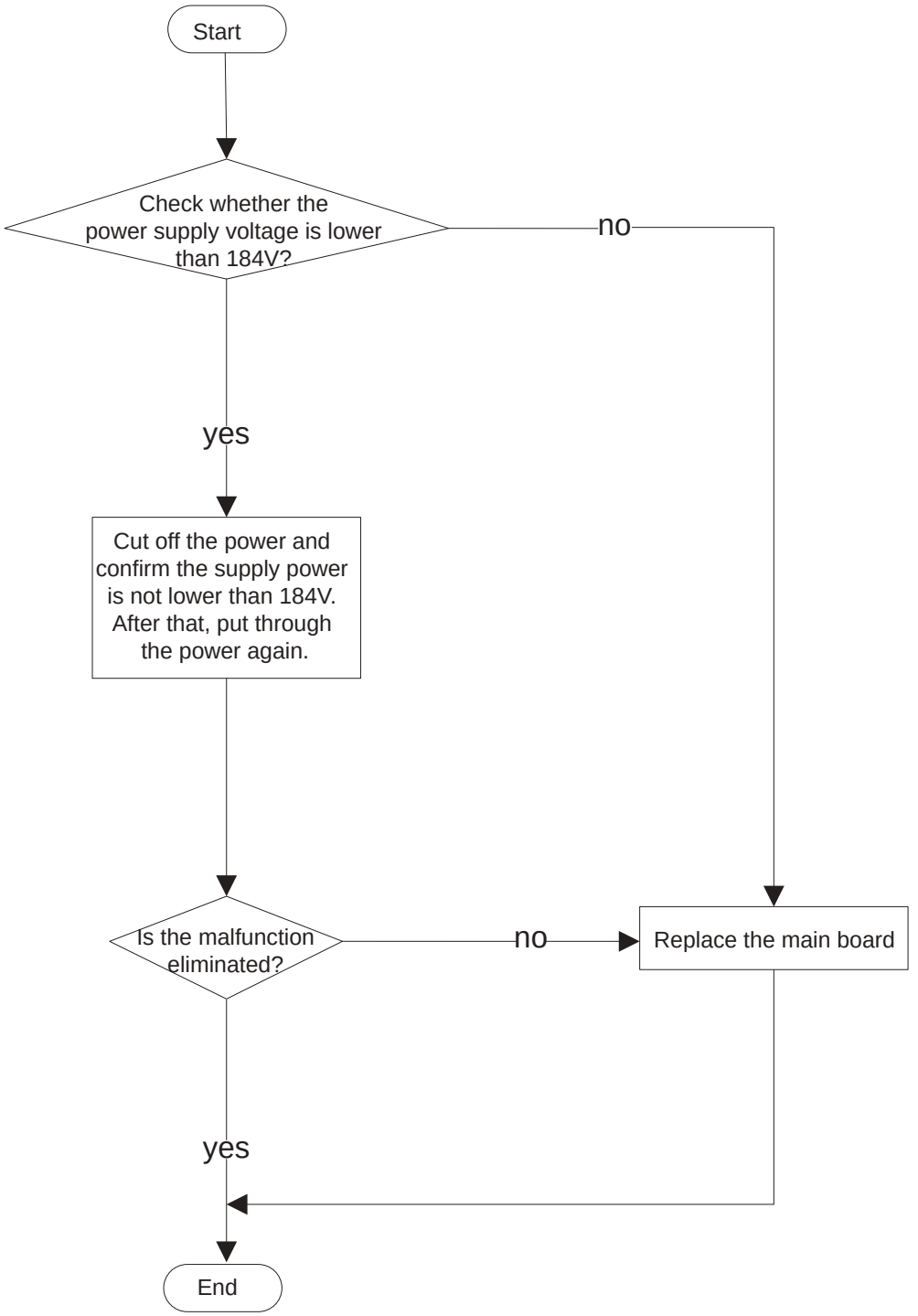
**4. Malfunction of Insufficient fluorine protection F0**



**5. Overload malfunction H3**



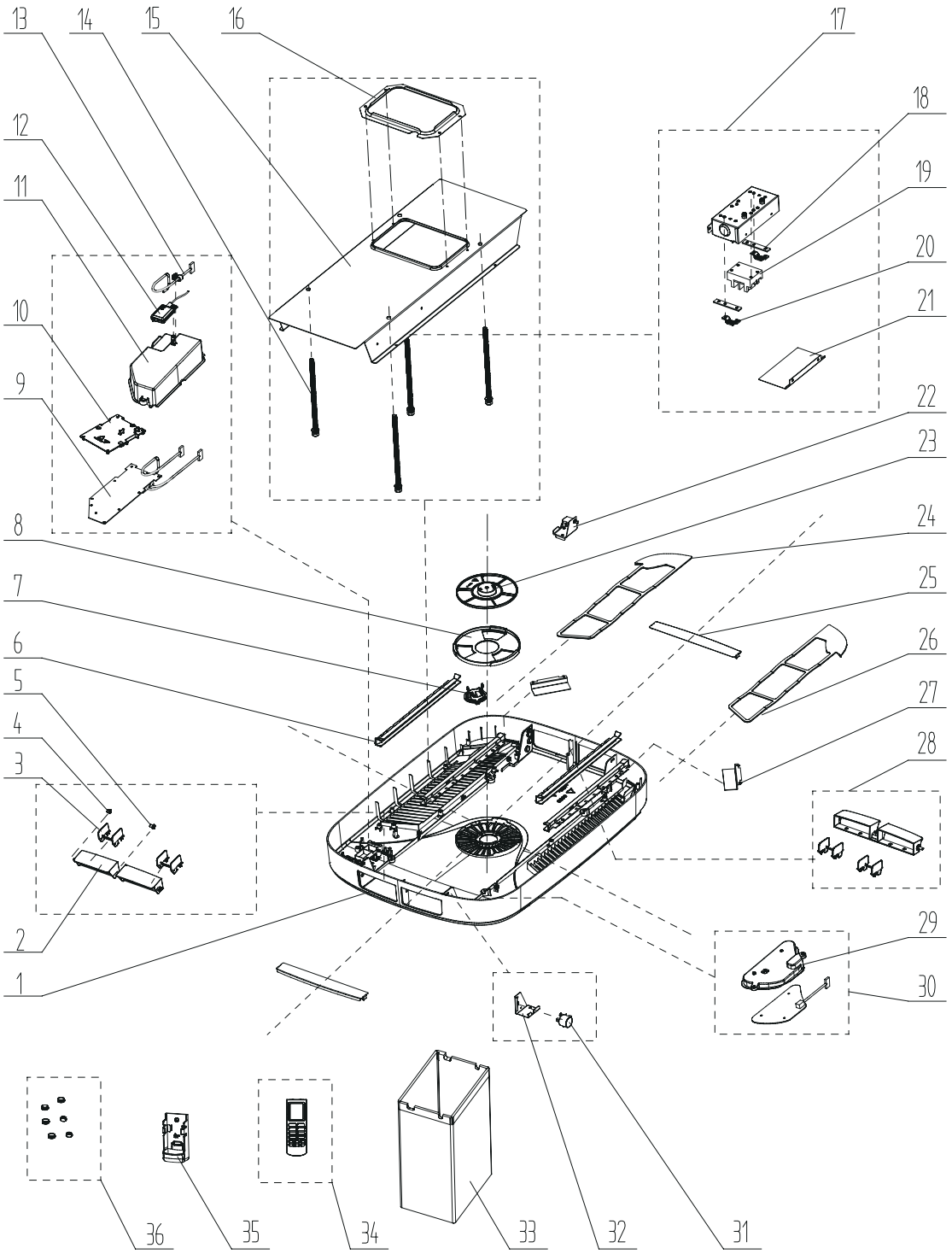
**6. Overload malfunction PL**



# 10. Exploded View and Parts List

## 10.1 Indoor Unit

GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I

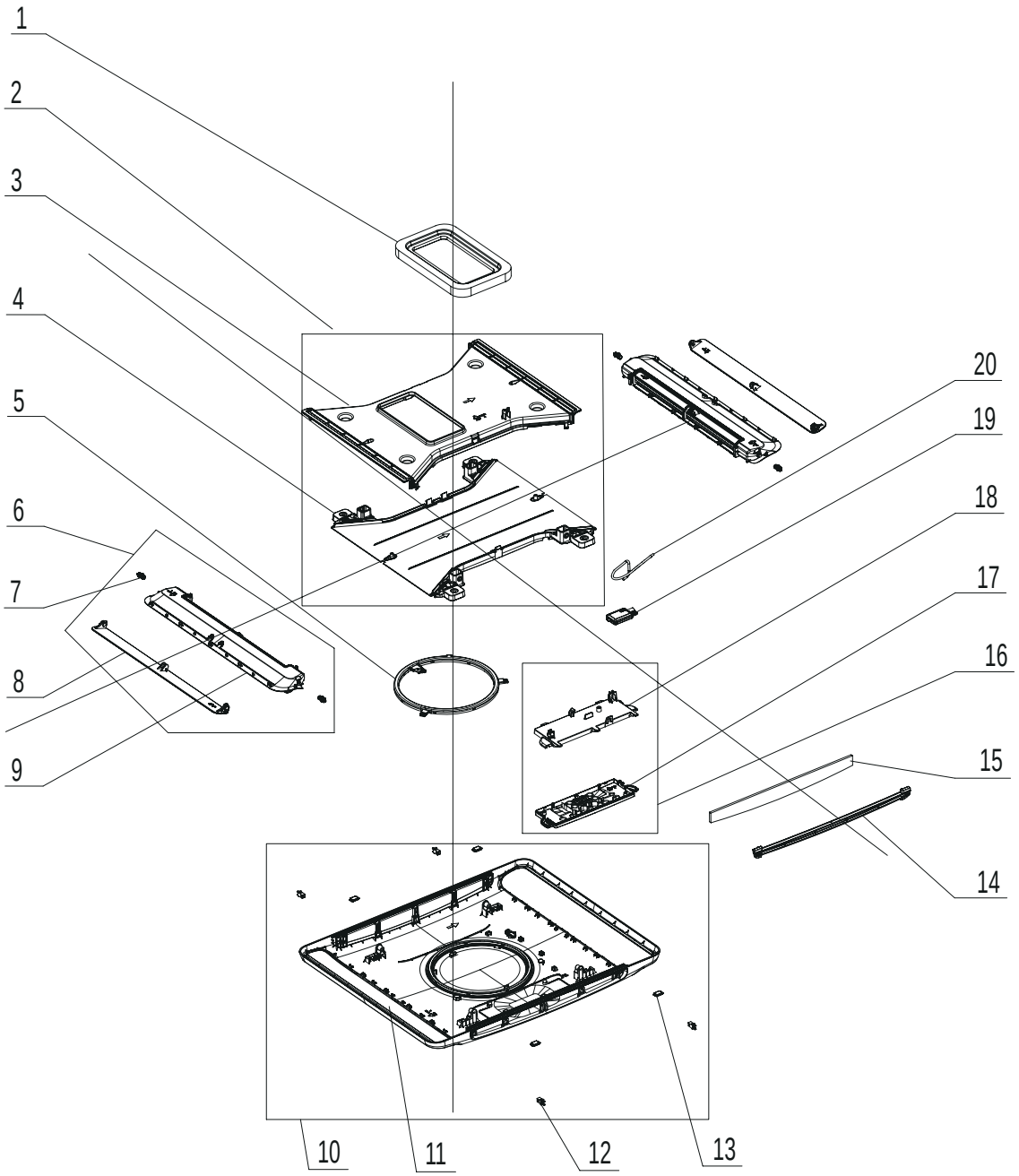



The component picture is only for reference; please refer to the actual product.

| NO. | Description | Part Code | | Qty |
|---|---|---|---|---|
| | | GRH085DA-K3NA1A/I(WIFI) | GRH120DA-K3NA1A/I(WIFI) | |
| | Product Code | CU050N00901 | CU050N01001 | |
| 1 | Front Panel Assy | 000003000047 | 000003000047 | 1 |
| 2 | Guide Blade | 10512269 | 10512269 | 1 |
| 3 | Air Louver | 10512270 | 10512270 | 2 |
| 4 | Axile Bush | 10542704 | 10542704 | 2 |
| 5 | Axile Bush | 10542037 | 10542037 | 1 |
| 6 | Filter Guide | 24242020 | 24242020 | 4 |
| 7 | Swivel Switch | 45052001 | 45052001 | 1 |
| 8 | Air Intake Cover Sub-assy 1 | 22242206 | 22242206 | 1 |
| 9 | Display Board | 30562094 | 30562094 | 1 |
| 10 | Cover Plate | 200050000003 | 200050000003 | 1 |
| 11 | Display box Sub-Assy | 20302633 | 20302633 | 1 |
| 12 | Detecting Plate | 30110154 | 30110154 | 1 |
| 13 | Temperature Sensor | 390001997 | 390001997 | 1 |
| 14 | Bolt | 7021201701 | 7021201701 | 4 |
| 15 | Mounting Plate Assy | 01332030 | 01332030 | 1 |
| 16 | Press plate of air vent | 01383008 | 01383008 | 1 |
| 17 | Electric Box Assy | 20402472 | 20402472 | 1 |
| 18 | Insulation Gasket | 70410503 | 70410503 | 2 |
| 19 | Terminal Board | 42018094 | 42018094 | 1 |
| 20 | Wire Clamp | 71010103 | 71010103 | 2 |
| 21 | Electric Box Cover | 1252034 | 1252034 | 1 |
| 22 | Louver Motor Assy | 15002018 | 15002018 | 2 |
| 23 | Air Intake Cover Sub-assy 2 | 22242207 | 22242207 | 1 |
| 24 | Filter Sub-assy(Right) | 11122149 | 11122149 | 1 |
| 25 | Baffle Plate Sub-assy | 01362019 | 01362019 | 2 |
| 26 | Filter Sub-assy(Left) | 11122148 | 11122148 | 1 |
| 27 | Baffle Plate 2 | 01362020 | 01362020 | 2 |
| 28 | Guide Louver | 10512489 | 10512489 | 2 |
| 29 | Display cover plate (LED) | 200128000006 | 200128000006 | 1 |
| 30 | Display Board | 30562095 | 30562095 | 1 |
| 31 | SteppingMotor | 1521210702 | 1521210702 | 1 |
| 32 | Motor Mounting Rack | 01332027 | 01332027 | 1 |
| 33 | Sponge (Air Flue) | 12123237 | 12123237 | 1 |
| 34 | Remote Controller | 305001000034 | 305001000034 | 1 |
| 35 | Remote Controll Holder | 20120041 | 20120041 | 1 |
| 36 | Screw Cover | 760042000002 | 760042000002 | 6 |

Above data is subject to change without notice.

GRH085DA-K3NA2B/I GRH120DA-K3NA2B/I



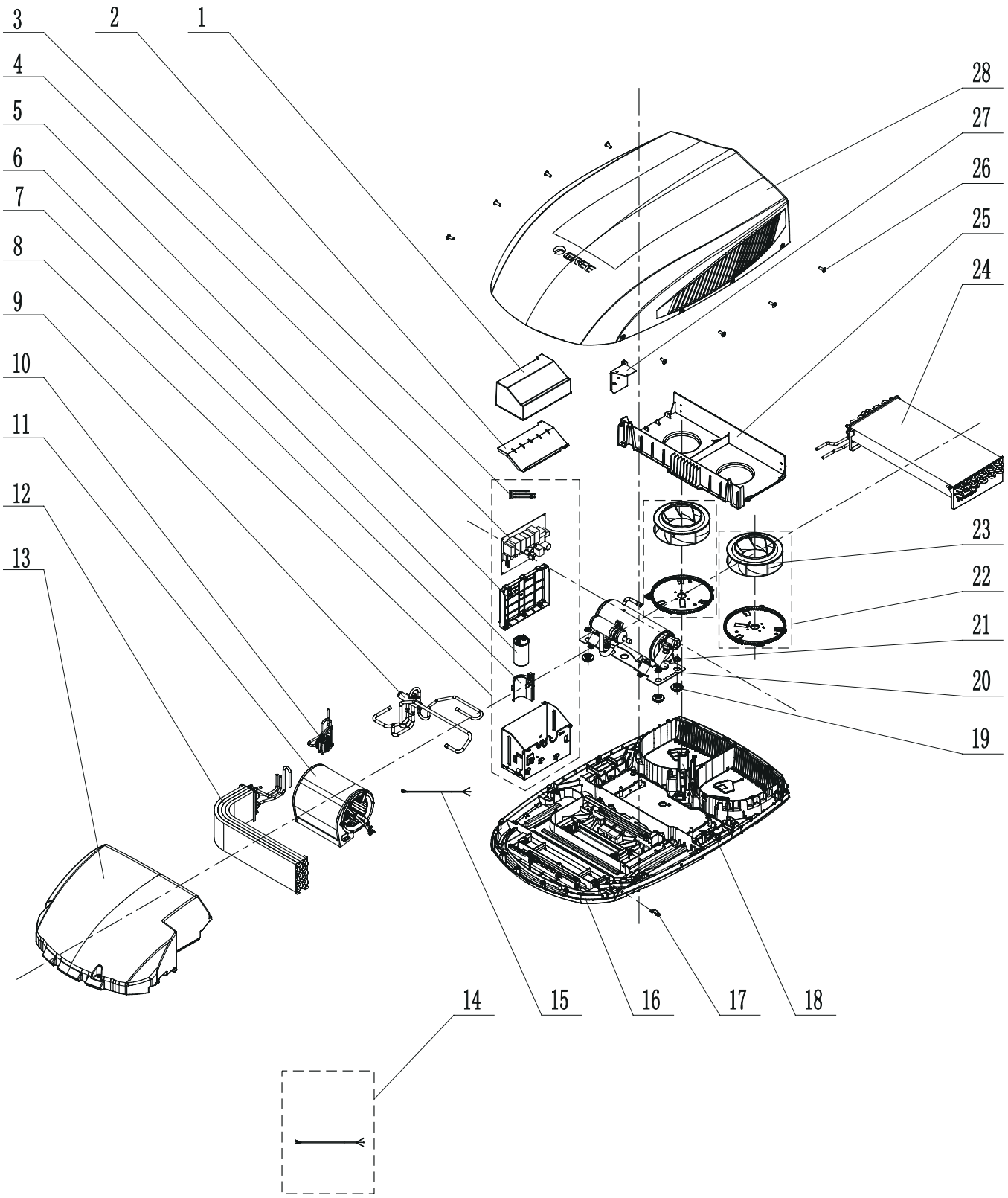

The component picture is only for reference; please refer to the actual product.

| NO. | Description | Part Code | | Qty |
|---|---|---|---|---|
| | | GRH085DA-K3NA2B/I | GRH120DA-K3NA2B/I | |
| | Product Code | CU050N01100 | CU050N01200 | |
| 1 | Foam | 120000060016 | 120000060016 | 1 |
| 2 | Air Duct Sub-assy | 017107060006 | 017107060006 | 1 |
| 3 | Air Outlet Mid-panel | 200120060001 | 200120060001 | 1 |
| 4 | Base Plate | 200008060001 | 200008060001 | 1 |
| 5 | Display Module | 340148060004 | 340148060004 | 1 |
| 6 | Air Outlet Frame Sub-assy | 000117060003 | 00011706000301 | 2 |
| 7 | Shaft of Guide Louver | 1054601501 | 10546015 | 4 |
| 8 | Guide Louver | 200004060013P | 20000406001301 | 2 |
| 9 | Air Outlet Frame | 200095060002P | 20009506000201 | 2 |
| 10 | Front Panel Sub-Assy | 209004060013 | 209004060013 | 1 |
| 11 | Front Panel | 200003060015T | 200003060015T | 1 |
| 12 | Latch | 70811002 | 70811002 | 4 |
| 13 | Magnet Sub-assy | 70844010 | 70844010 | 4 |
| 14 | Front Grill | 200226060009 | 200226060009 | 2 |
| 15 | Healthy Filter | 111008060002 | 111008060002 | 2 |
| 16 | Display Board | 300001060004 | 300001060004 | 1 |
| 17 | Display Box | 200028060003 | 200028060003 | 1 |
| 18 | Display Box Cover | 200097060003 | 200097060003 | 1 |
| 19 | Detecting Plate | 30110144 | 30110144 | 1 |
| 20 | Temperature Sensor | 390001997 | 390001997 | 1 |

Above data is subject to change without notice.

## 10.2 Outdoor Unit

GRH085DA-K3NA1A/O GRH120DA-K3NA1A/O

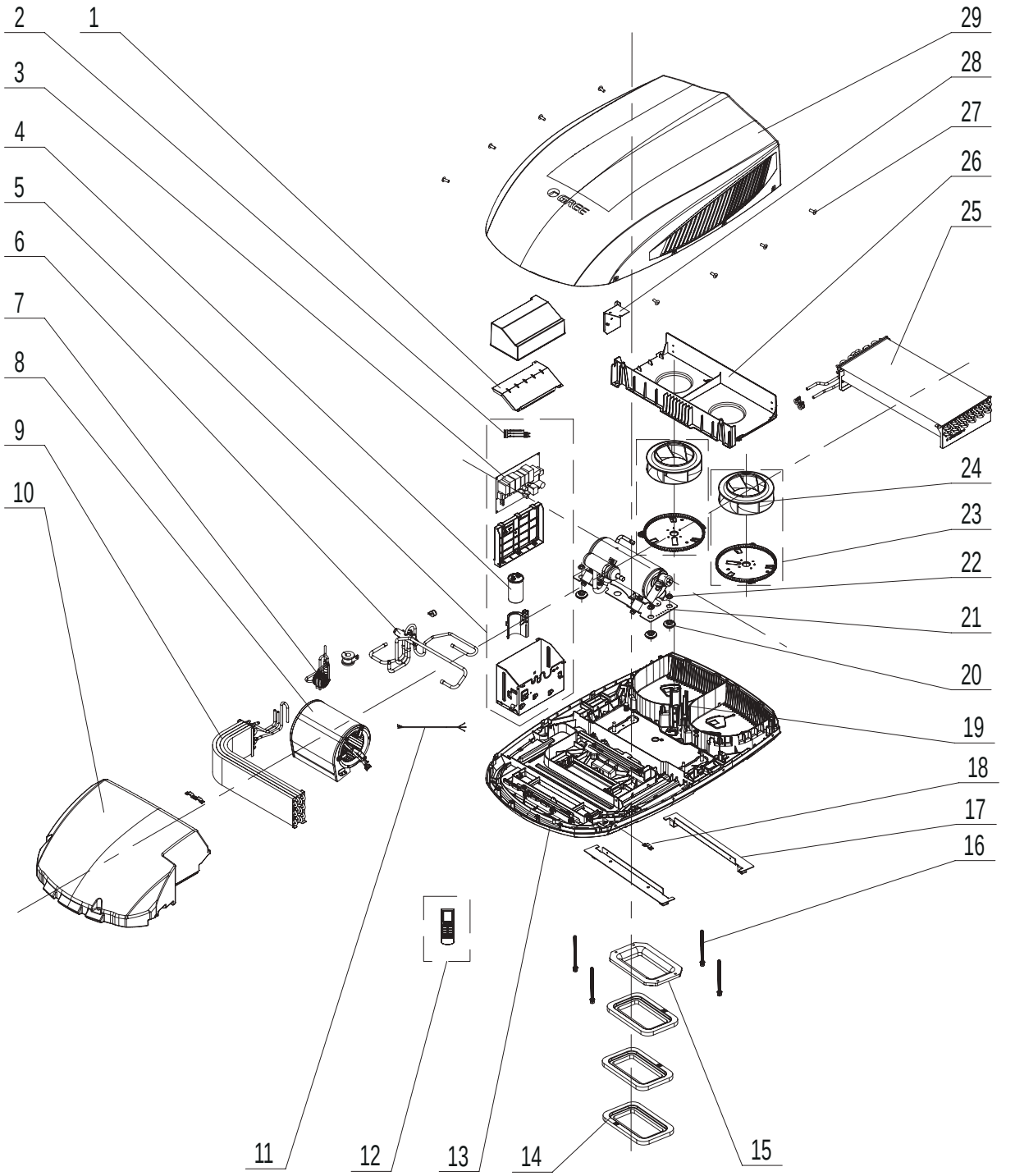



The component picture is only for reference; please refer to the actual product.

| NO. | Description | Part Code | | Qty |
|---|---|---|---|---|
| | | GRH085DA-K3NA1A/O(WIFI) | GRH120DA-K3NA1A/O(WIFI) | |
| | Product Code | CU050W00901 | CU050W01001 | |
| 1 | Plastic box (electric box) | 500026000001 | 500026000001 | 1 |
| 2 | Electric Box Cover | 012020000023 | 012020000023 | 1 |
| 3 | Temperature Sensor | 3900040301 | 3900040301 | 1 |
| 4 | Main Board | 30132227 | 30132227 | 1 |
| 5 | Supporter | 200114000006 | 200114000006 | 1 |
| 6 | Capacitor Box | 20116069 | 20116069 | 1 |
| 7 | Capacitor CBB65 | 3300008102 | 3300008102 | 1 |
| 8 | Electric Box Assy | 100002000167 | 100002000167 | 1 |
| 9 | 4-Way Valve Assy | 030152000101 | 030152000101 | 1 |
| 10 | Capillary Sub-Assy | 030006000142 | 030006000142 | 1 |
| 11 | Centrifugal Blower sub-assy | 150108000005 | 150108000005 | 1 |
| 12 | Evaporator Assy | 011001000075 | 011001000075 | 1 |
| 13 | Foam Sub-Assy | 120011000003 | 120011000003 | 1 |
| 14 | Power Cord | 4002028908 | 4002028908 | 1 |
| 15 | Connecting Cable | 4002050422 | 4002050422 | 1 |
| 16 | Chassis Assy | 209058000010 | 209058000010 | 1 |
| 17 | Wire Clamp | 71010103 | 71010103 | 1 |
| 18 | Rubber Block | 760005000003 | 760005000003 | 2 |
| 19 | Compressor Gasket | 009012000005 | 009012000005 | 4 |
| 20 | Compressor and Fittings | 00106113 | 00106113 | 1 |
| 21 | Nut with Washer | 70310014 | 70310014 | 4 |
| 22 | Centrifugal fan assy | 000052000021 | 000052000021 | 2 |
| 23 | Centrifugal Blower sub-assy | 150109000002 | 150109000002 | 1 |
| 24 | Condenser Assy | 011002000132 | 011002000132 | 1 |
| 25 | Rear Clapboard | 200030000001 | 200030000001 | 1 |
| 26 | Fastener | 200108000003 | 200108000003 | 8 |
| 27 | Breakwater Sub-Assy | 017061000002 | 017061000002 | 1 |
| 28 | Cabinet | 200173000001S | 200173000001S | 1 |

Above data is subject to change without notice.

GRH085DA-K3NA2B/O  GRH120DA-K3NA2B/O




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

| NO. | Description | Part Code | | Qty |
|---|---|---|---|---|
| | | GRH085DA-K3NA2B/O | GRH120DA-K3NA2B/O | |
| | Product Code | CU050W01100 | CU050W01200 | |
| 1 | Electric Box Cover | 012020000023 | 012020000023 | 1 |
| 2 | Temperature Sensor | 3900040301 | 3900040301 | 1 |
| 3 | Main Board | 300027000640 | 300027000640 | 1 |
| 4 | Capacitor CBB65 | 3300008102 | 3300008102 | 1 |
| 5 | Electric Box Assy | 100002060723 | 100002060723 | 1 |
| 6 | 4-Way Valve Assy | 030152000101 | 030152000101 | 1 |
| 7 | Capillary Sub-Assy | 030006000142 | 030006000142 | 1 |
| 8 | Centrifugal Blower sub-assy | 150108000005 | 150108000005 | 1 |
| 9 | Evaporator Assy | 011001000075 | 011001000075 | 1 |
| 10 | Foam Sub-Assy | 120011000003 | 120011000003 | 1 |
| 11 | Connecting Cable | 4002050423 | 4002050423 | 1 |
| 12 | Remote Controller | 305001000034 | 305001000034 | 1 |
| 13 | Chassis Assy | 209058000010 | 209058000010 | 1 |
| 14 | Foam | 120000060015 | 120000060015 | 3 |
| 15 | Foam | 120000060014 | 120000060014 | 1 |
| 16 | Bolt | 7021201701 | 7021201701 | 4 |
| 17 | Mounting Plate Sub-Assy | 017018060022P | 017018060022P | 2 |
| 18 | Wire Clamp | 71010103 | 71010103 | 1 |
| 19 | Rubber Block | 760005000003 | 760005000003 | 2 |
| 20 | Compressor Gasket | 009012000005 | 009012000005 | 4 |
| 21 | Compressor and Fittings | 00106113 | 00106113 | 1 |
| 22 | Nut with Washer | 70310014 | 70310014 | 4 |
| 23 | Centrifugal fan assy | 000052000021 | 000052000021 | 2 |
| 24 | Centrifugal Blower sub-assy | 150109000002 | 150109000002 | 1 |
| 25 | Condenser Assy | 011002000132 | 011002000132 | 1 |
| 26 | Rear Clapboard | 200030000001 | 200030000001 | 1 |
| 27 | Fastener | 200108000003 | 200108000003 | 8 |
| 28 | Breakwater Sub-Assy | 017061000002 | 017061000002 | 1 |
| 29 | Cabinet | 200173000001S | 200173000001S | 1 |

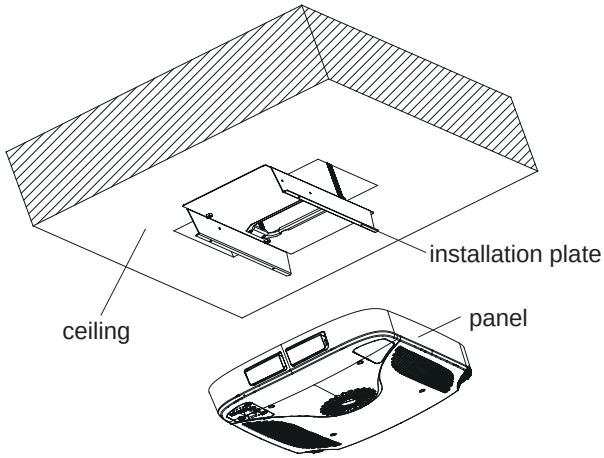
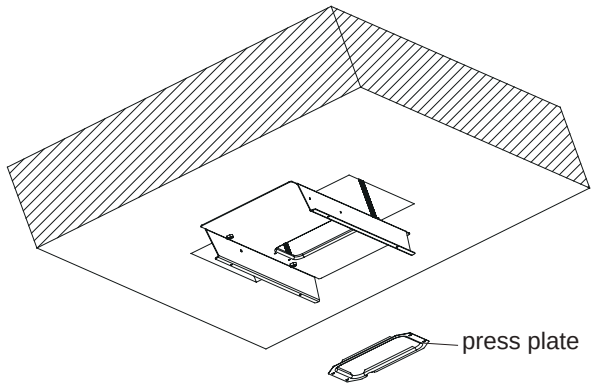
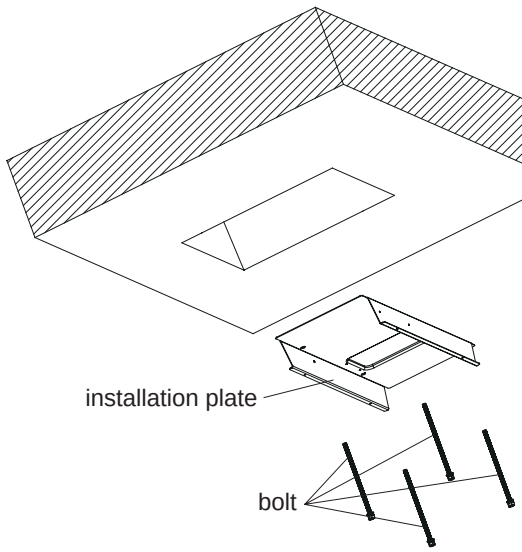
Above data is subject to change without notice.

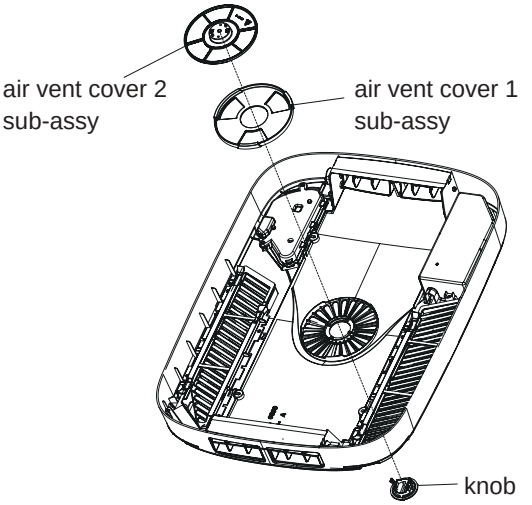
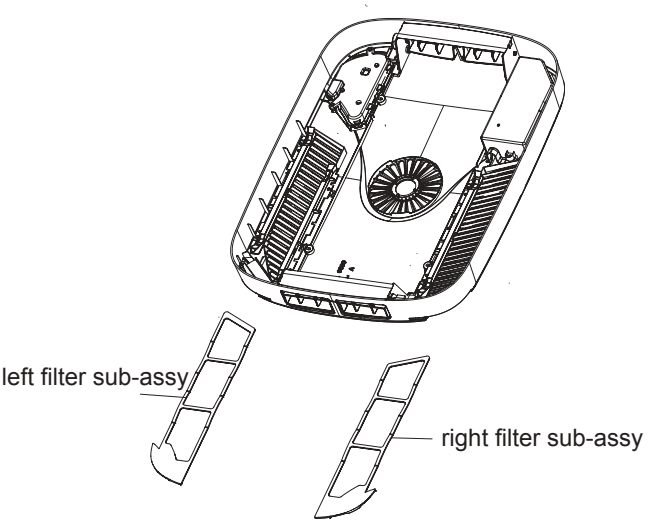
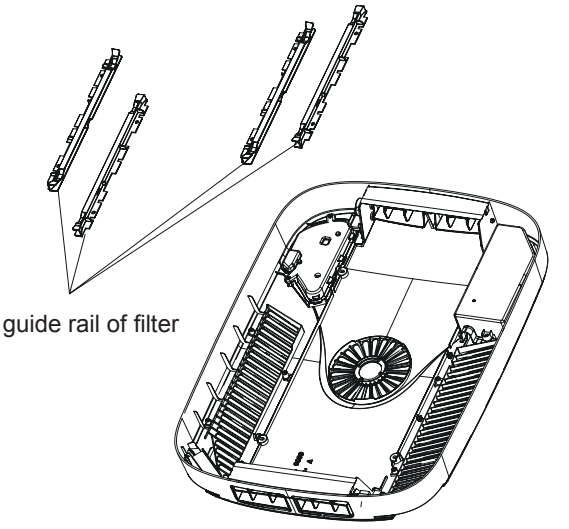
# 11. Removal Procedure

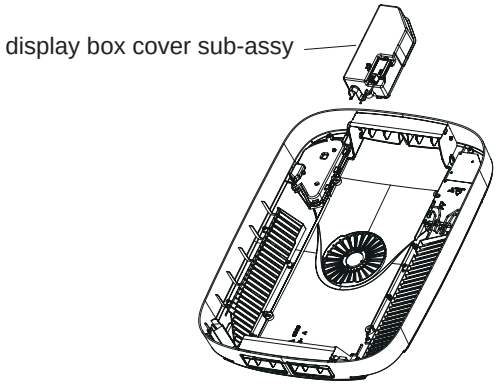
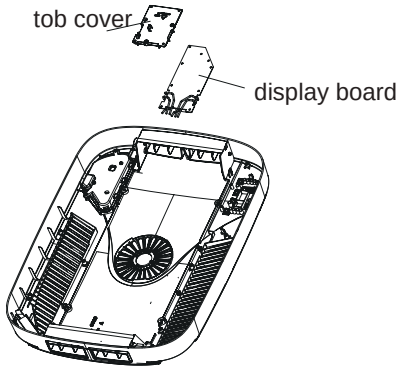
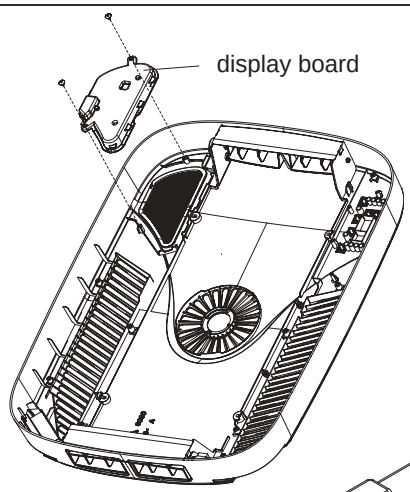
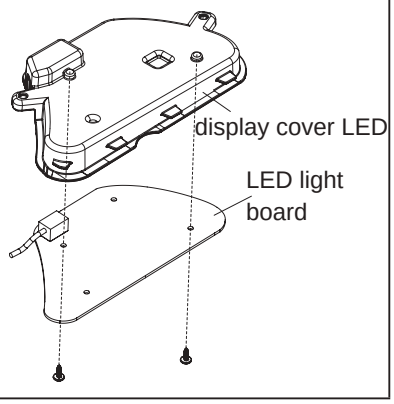
**Caution: discharge the refrigerant completely before removal.**

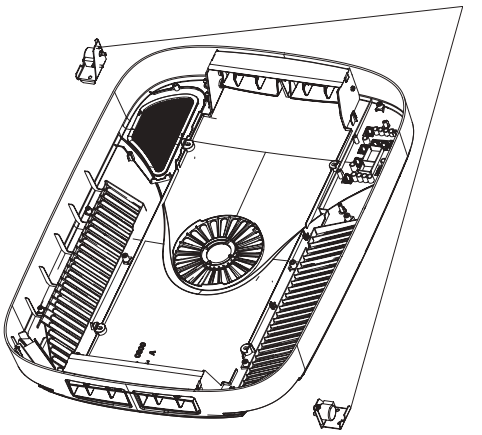
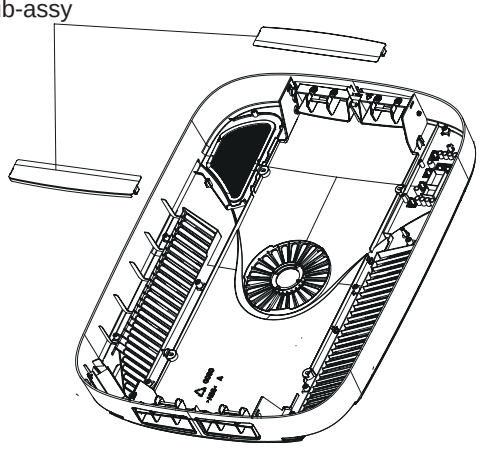
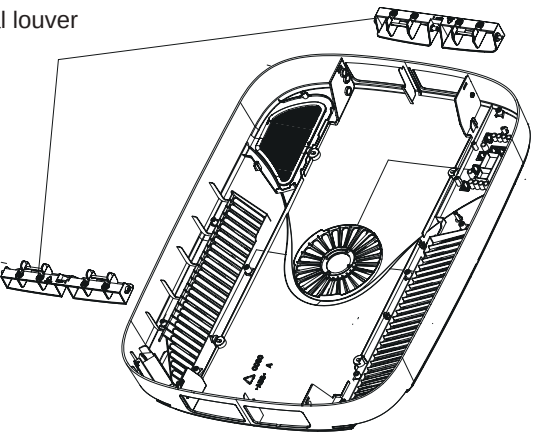
## 11.1 Removal Procedure of Indoor Unit

GRH085DA-K3NA1A/I GRH120DA-K3NA1A/I

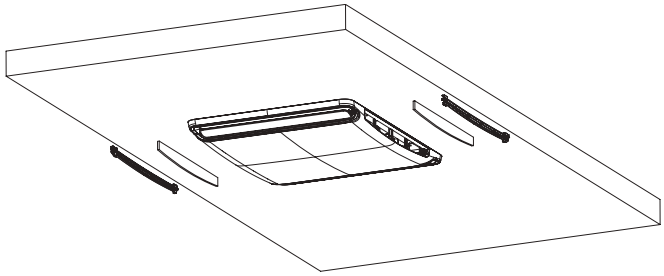
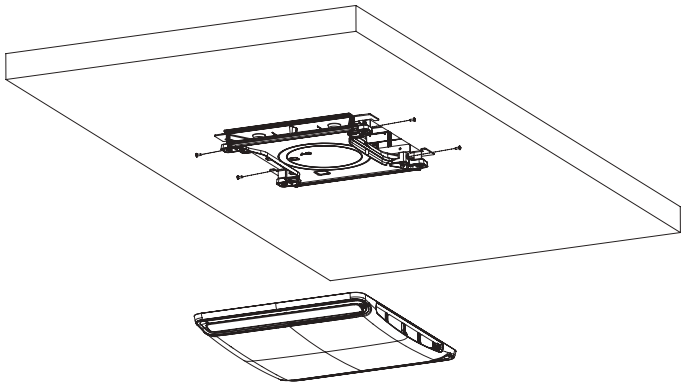
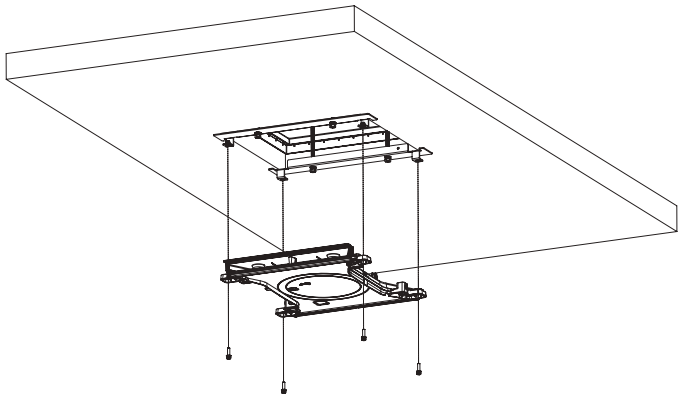
| Step | Procedure | |
|---|---|---|
| 1.Remove panel | | |
| | Remove 4 screws on panel, disassemble the butted terminal, separate panel and installation plate, and then remove the panel. |  |
| 2. Remove installation plate | | |
| | Remove screws fixing the pressing plate, and then remove the press plate. |  |
| | Remove 4 bolts fixing the installation plate with wrench, and then remove the installation plate. |  |

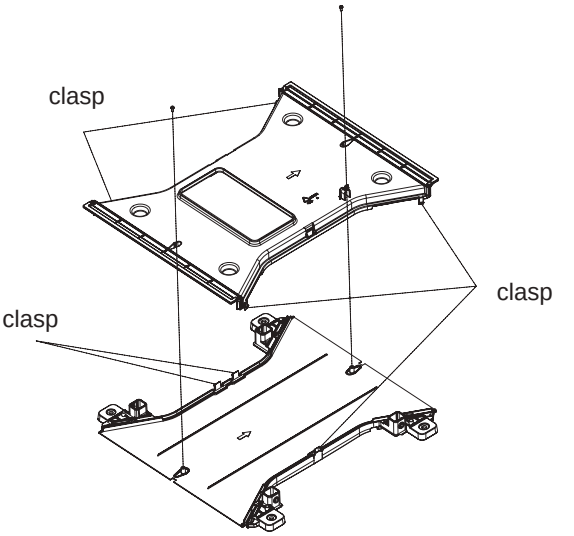
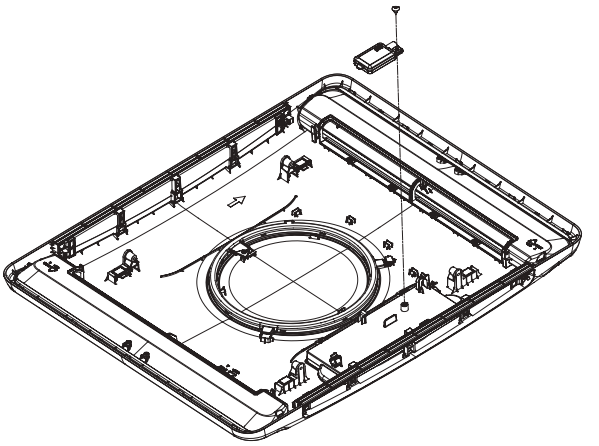
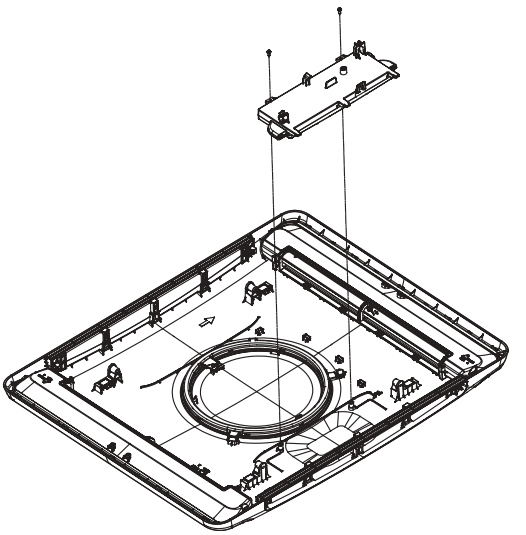
| Step | Procedure |
|---|---|
| 3. Remove knob, air vent cover 1 and air vent cover 2 sub-assy | |
| Loosen the clasps on knob, and then remove knob, air vent cover 1 and air vent cover 2. |  |
| 4. Remove left and right filters sub-assy | |
| Remove left and right filters sub-assy directly. |  |
| 5. Remove guide rail of filter | |
| Remove screws fixing the guide rail of filter, and then remove the guide rail of filter. |  |

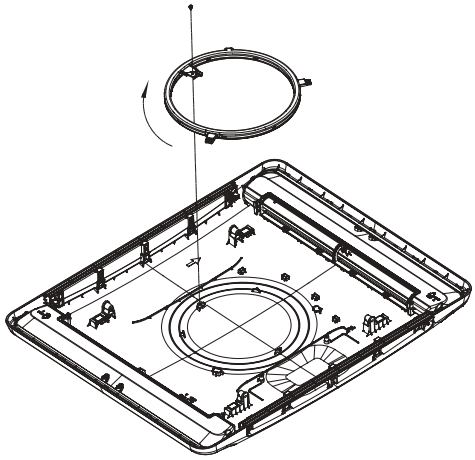
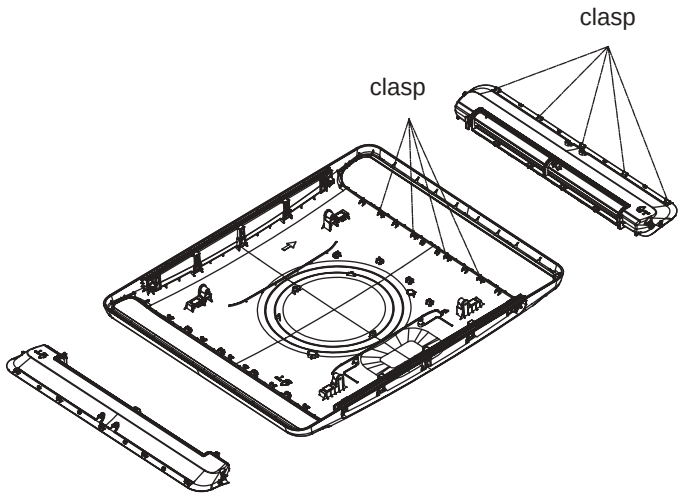
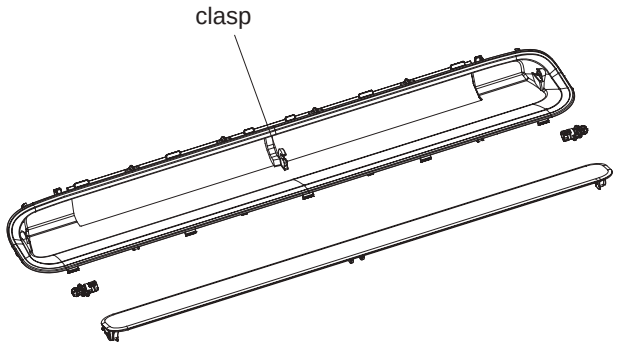
| Step | Procedure |
|---|---|
| 6. Remove display board sub-assy | |
| Remove screws fixing the display box sub-assy, and then remove the display box sub-assy cover. |  |
| Remove screws fixing the detecting plate, and then remove the detecting plate. |  |
| Remove 6 screws fixing the display board, pull out the motor terminal and then remove the display board. |  |
| 7.Remove display board | |
| Remove screws fixing the display board and then remove the display board. |  |
| Remove the LED light board from the display board. |  |

| Step | Procedure |
|---|---|
| 8. Remove swing motor assy<br>Remove screws fixing the swing motor assy, and then remove the swing motor assy. | swing motor assy<br>  |
| 9. Remove damper sub-assy<br>Remove the damper sub-assy directly. | damper sub-assy<br>  |
| 10. Remove horizontal louver sub-assy<br>Remove horizontal louver sub-assy directly. | horizontal louver sub-assy<br>  |

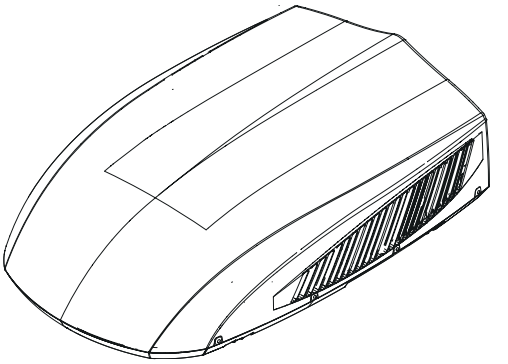
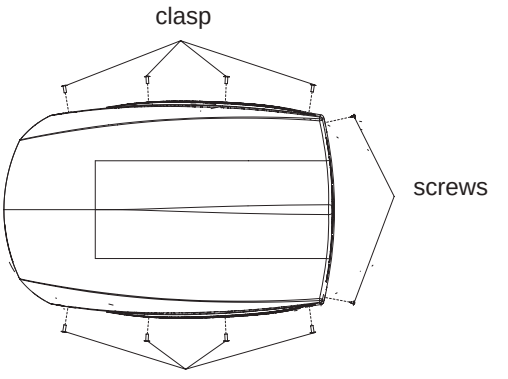
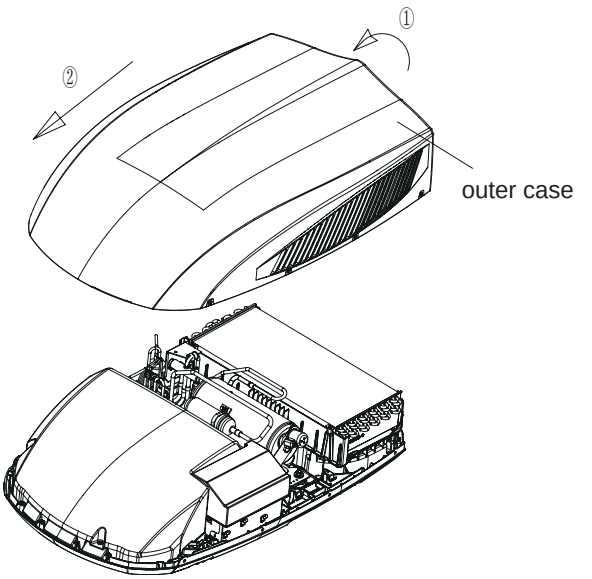
GRH085DA-K3NA2B/I GRH120DA-K3NA2B/I

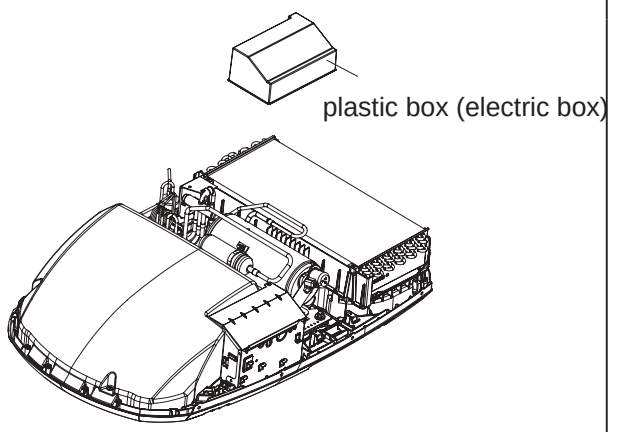
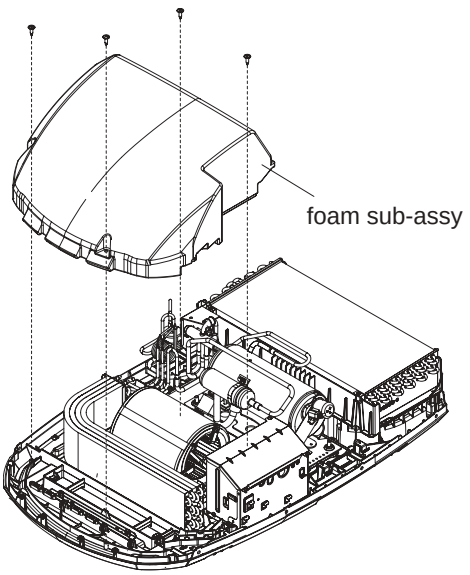
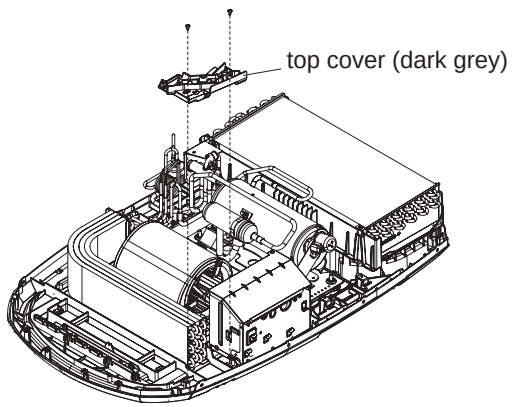
| Step | Procedure |
|---|---|
| 1.Remove air-in grille and the filter | |
| Press both ends of air-outlet grille to unlock the door switch and then remove the air-in grille and the filter. |  |
| 2. Remove front panel sub-assy | |
| Loose 4 screws at both ends and then remove the panel sub-assy downwards.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

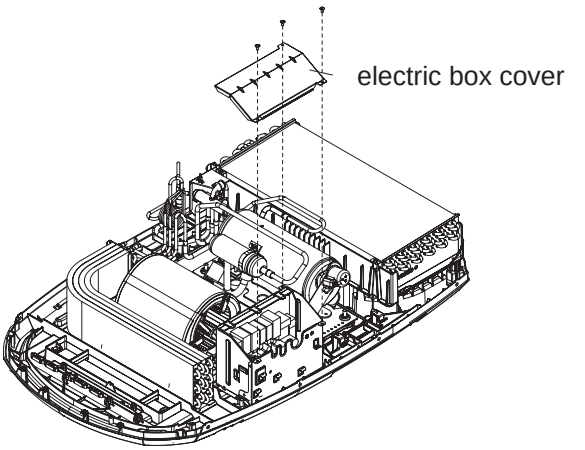
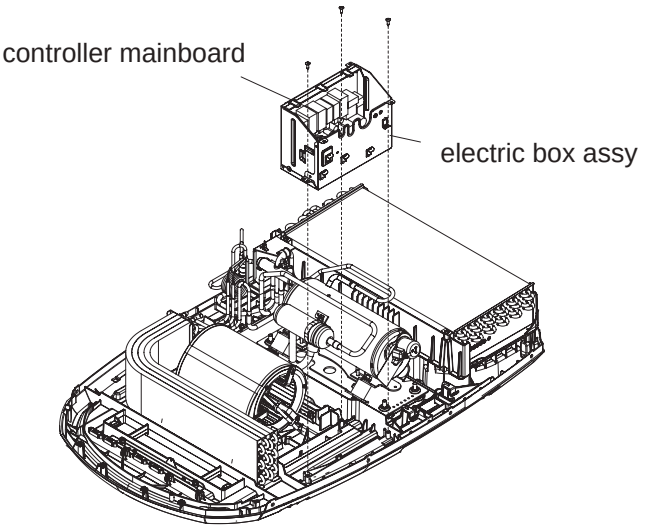
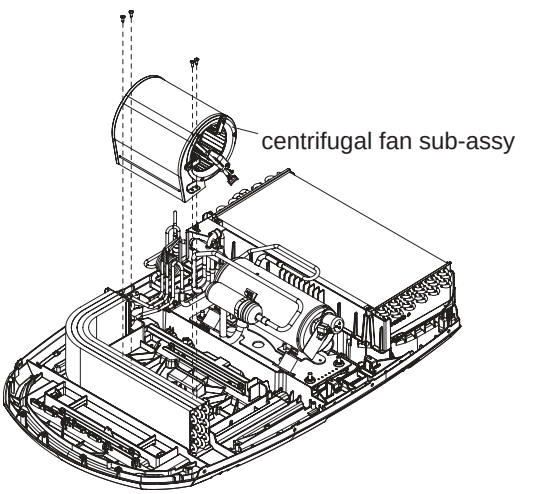
| Step | Procedure |
|---|---|
| 4. Remove base plate and the middle air-outlet panel |  |
| Loose 2 screws at both ends; loose 7 clasps at both sides and then separate the base plate and the middle air-outlet panel. | |
| 5. Remove detecting board |  |
| Loose 1 screw on the top; remove the detecting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

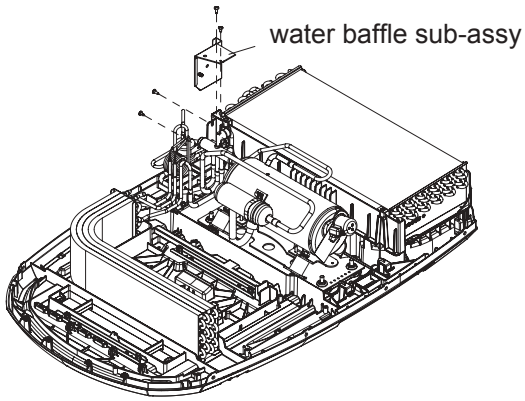
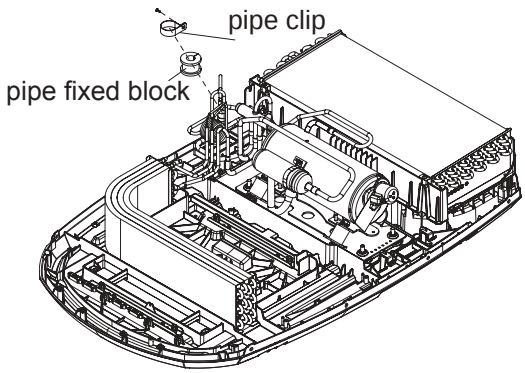
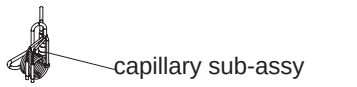
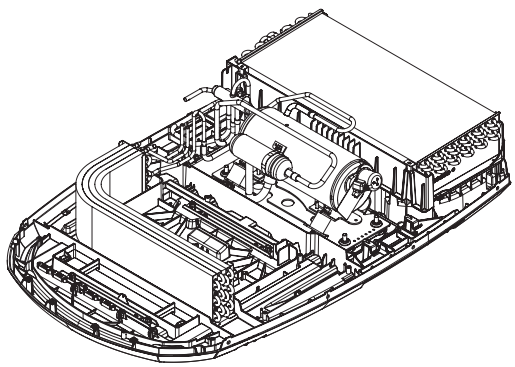
| Step | Procedure |
|---|---|
| 7.Remove display module<br><br>Loose 1 screw as shown in the figure, and rotate the display module in clockwise direction to remove it. |  |
| 8. Remove air-outlet frame sub-assy<br><br>Loose 9 clasps as shown in the figure and then remove the air-outlet frame sub-assy outwards. |  |
| 9. Remove guide louver and shaft of guide louver<br><br>Loose the middle clasp, remove the horizontal louver outwards and then remove the shaft of horizontal louver at both ends. |  |

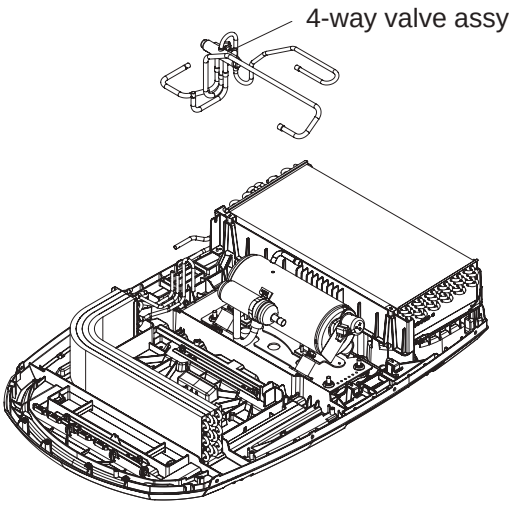
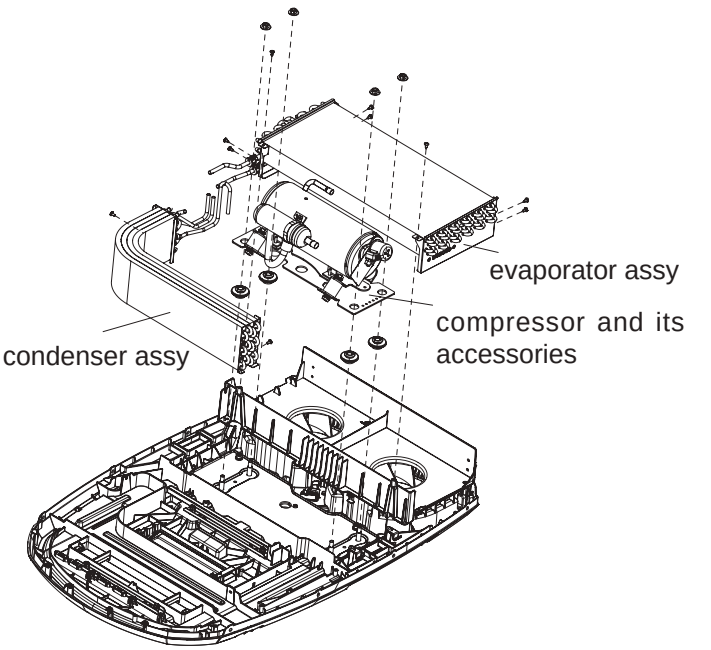
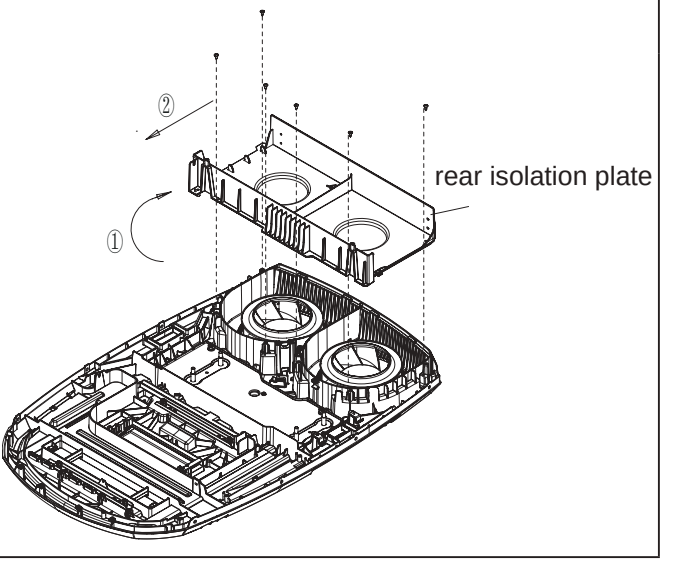
## 11.2 Removal Procedure of Outdoor Unit

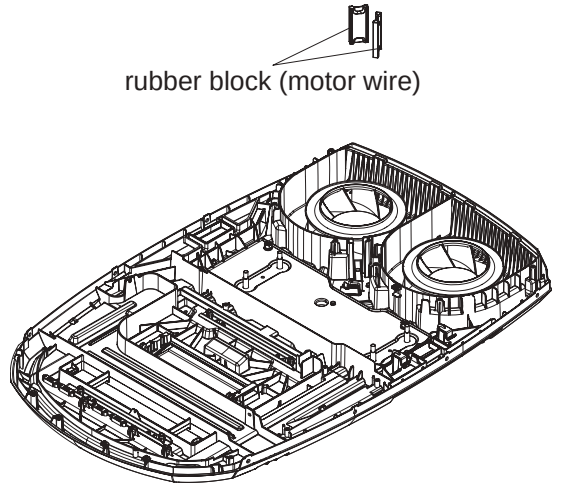
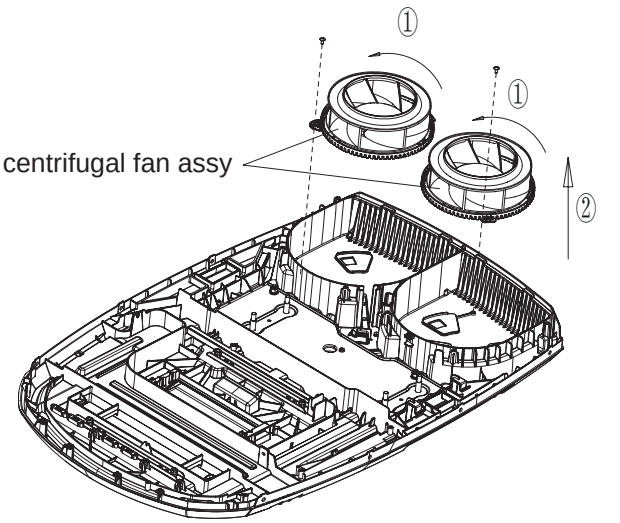
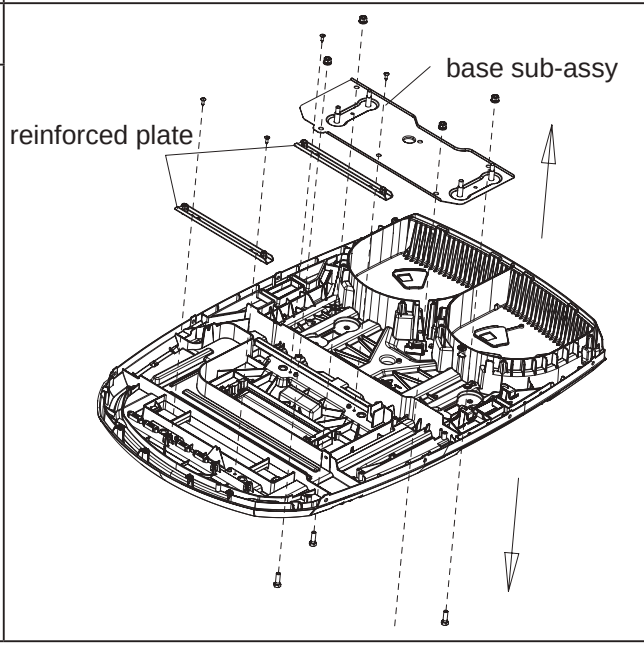
| Step | Procedure |
|---|---|
| 1. Outdoor unit diagram |  |
| 2.Remove outer case<br><br>Press the tool which is suitable for the size of clasp center hole into about 3mm from the center point fixing outer case clasp; pluck out the clasp forcibly; remove screws fixing outer case.<br>(Note: when pressing the tool into the center of the clasp fixing outer case, the clasp may be locked if the tool is pressed too deeply)<br><br>Hold the handle at the rear part of outer case; push the outer case frontward after lifting the outer case; then remove the outer case. |  <br>  |

| Step | Procedure |
|---|---|
| 3.Remove plastic box (electric box) |  |
| Lift the plastic box upwards to remove it. | |
| 4.Remove foam sub-assy |  |
| Remove screws fixing the foam sub-assy and then remove the foam sub-assy. | |
| 5.Remove top cover (dark grey) |  |
| Remove screws fixing the top cover and then remove the top cover.<br>(Note: Before removing the top cover, please remove screws of wire clip fixing the power cord and connection wire between boards; remove the wire clip; cut off each wire binder and then remove the conductive wire from the wire groove) | |

| Step | Procedure |
|---|---|
| 6.Remove electric box cover |  |
| Remove screws fixing electric box cover and then remove the electric box cover; cut off the wire binder. | |
| 7.Remove electric box assy, controller mainboard |  |
| Remove screws fixing the electric box assy and then lift the electric box assy to remove it. Disconnect each wiring terminal on the mainboard; remove screws fixing the mainboard which is located at the left side of electric box assy; lift the controller mainboard to remove it. | |
| 8.Remove centrifugal fan sub-assy |  |
| Remove screws fixing the centrifugal fan sub-assy and then remove the centrifugal fan sub-assy. | |

| Step | Procedure |
|---|---|
| 9.Remove water baffle sub-assy | |
| Remove screws fixing the water baffle sub-assy; cut off the connected wire binder and then remove the water baffle sub-assy. |  |
| 10.Remove capillary sub-assy | |
| Remove screws fixing the pipe clip and pipe fixed block; remove the pipe clip and pipe fixed block connected with the capillary. |  |
| Unsolder the welding joint between the capillary sub-assy with condenser assy and evaporator 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. |  <br>  |

| Step | Procedure |
|---|---|
| 11.Remove 4-way valve assy<br><br>Unsolder the welding joint connecting the 4-way valve assy and then unsolder the 4-way valve assy.<br>Note:<br>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. |  |
| 12.Remove condenser assy, evaporator assy and compressor and its accessories<br><br>Remove screws fixing the condenser assy and evaporator assy; remove screws with washers fixing the compressor; remove the condenser assy, evaporator assy and compressor and its accessories. |  |
| 13.Remove rear isolation plate<br><br>Remove screws fixing the rear isolation plate; hold one side in the isolation plate and lift it (as shown in ① ); push the isolation plate frontward (as shown in ② ) to remove it. |  |

| Step | Procedure |
|---|---|
| 14.Remove rubber block (motor wire)<br>Remove the rubber block (motor wire) directly. |  |
| 15.Remove centrifugal fan assy<br>Remove screws fixing the centrifugal fan assy; rotate the motor base anti-clockwise to remove the centrifugal fan assy. |  |
| 16.Remove reinforced plate and base sub-assy<br>Remove screws and bolts fixing the reinforced plate and base sub-assy; then remove the reinforced plate and base sub-assy. |  |

# Appendix:

## 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 (℉) | Fahrenheit (℉) | Celsius (℃) | | Fahrenheit display temperature (℉) | Fahrenheit (℉) | Celsius (℃) | | Fahrenheit display temperature (℉) | Fahrenheit (℉) | 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 (℉) | Fahrenheit (℉) | Celsius (℃) | | Fahrenheit display temperature (℉) | Fahrenheit (℉) | Celsius (℃) | | Fahrenheit display temperature (℉) | Fahrenheit (℉) | 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 Ambient Temperature Sensor

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

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

**Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(20K)**

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