



Service Manual

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

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

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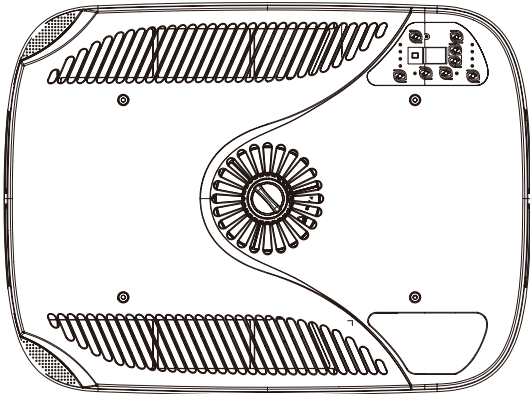
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Part I : Technical Information

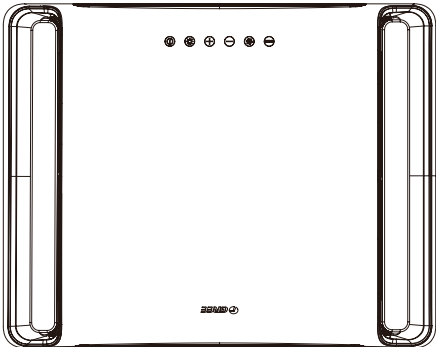
1. Summary

Indoor Unit:

GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I

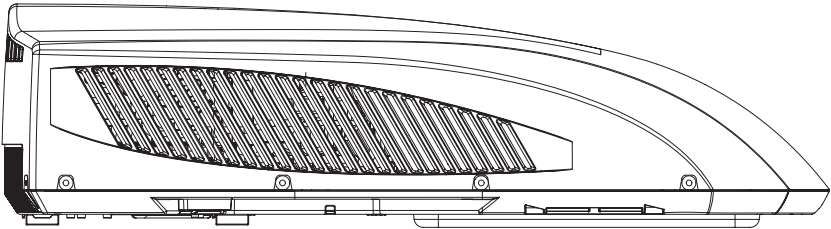


GRH085DA-K3NA2B/I
GRH120DA-K3NA2B/I



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 (WXHDXD)	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 (WXHDX)	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

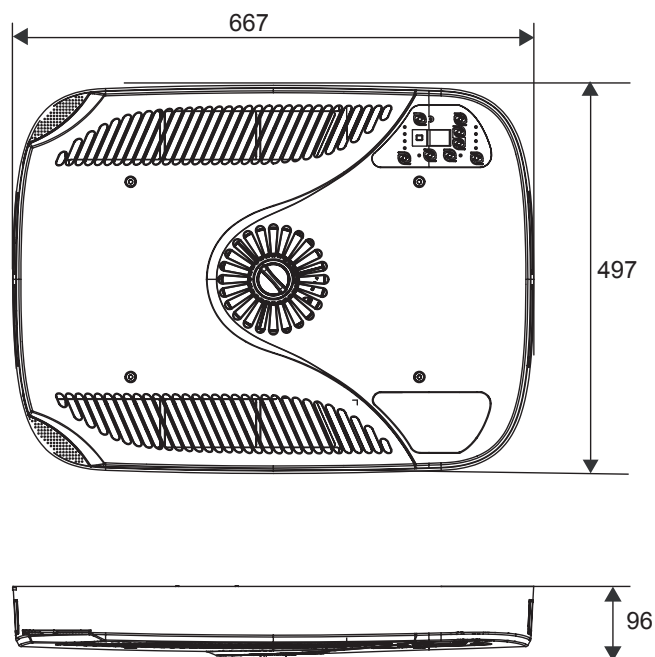
Outdoor Unit	Fan Motor RLA	A	0.19	0.19
	Fan Motor Capacitor	μF	1.5	1.5
	Outdoor Unit Air Flow Volume	m ³ /h	600/300	600/300
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	4-1.4	4-1.4
	Evaporator Coil Length (LXDXW)	mm	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 (WXHDX)	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

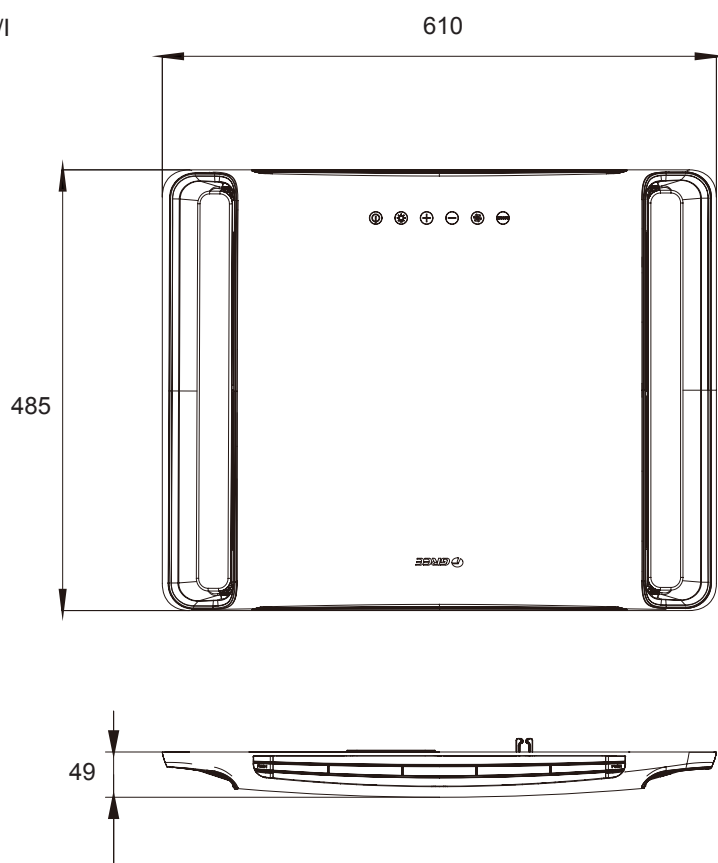
3.1 Indoor Unit

GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I



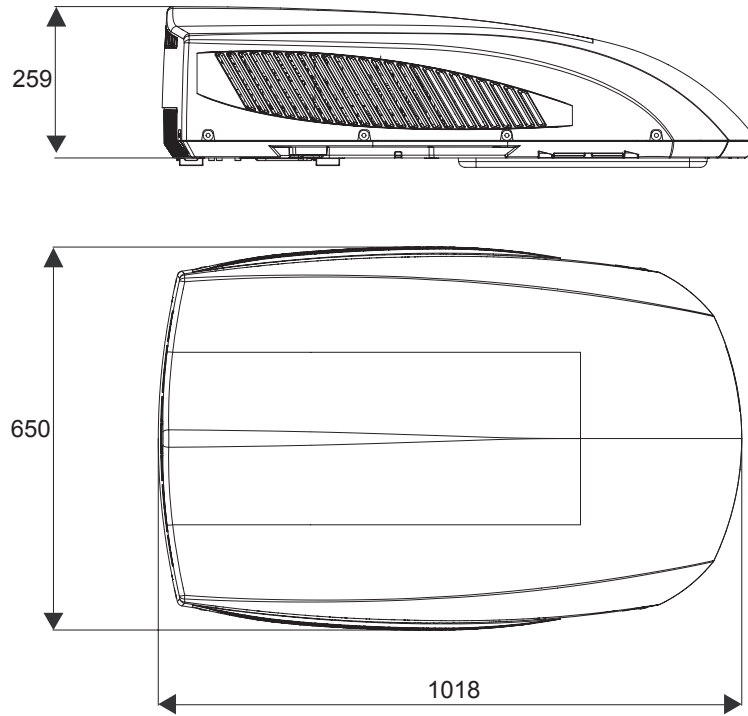
Unit:mm

GRH085DA-K3NA2B/I
GRH120DA-K3NA2B/I



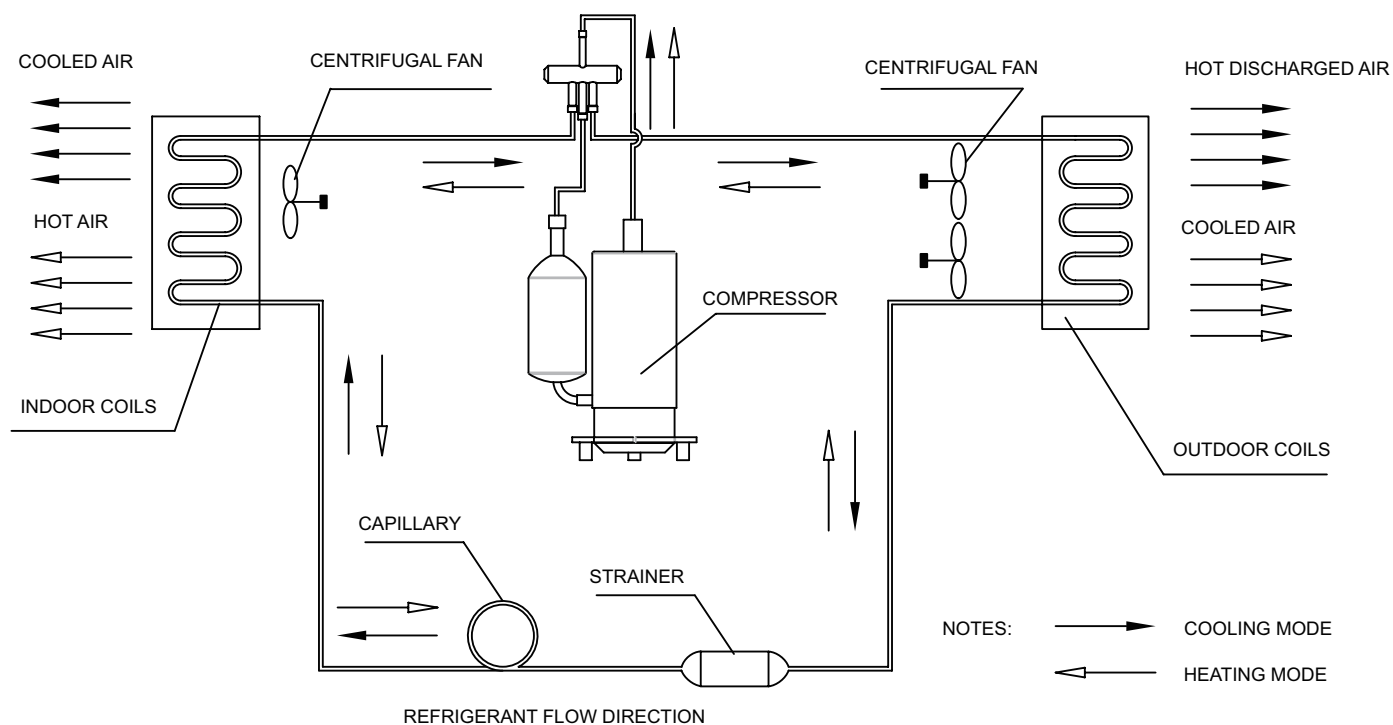
Unit:mm

3.2 Outdoor Unit



Unit:mm

4. Refrigerant System Diagram



5. Electrical Part

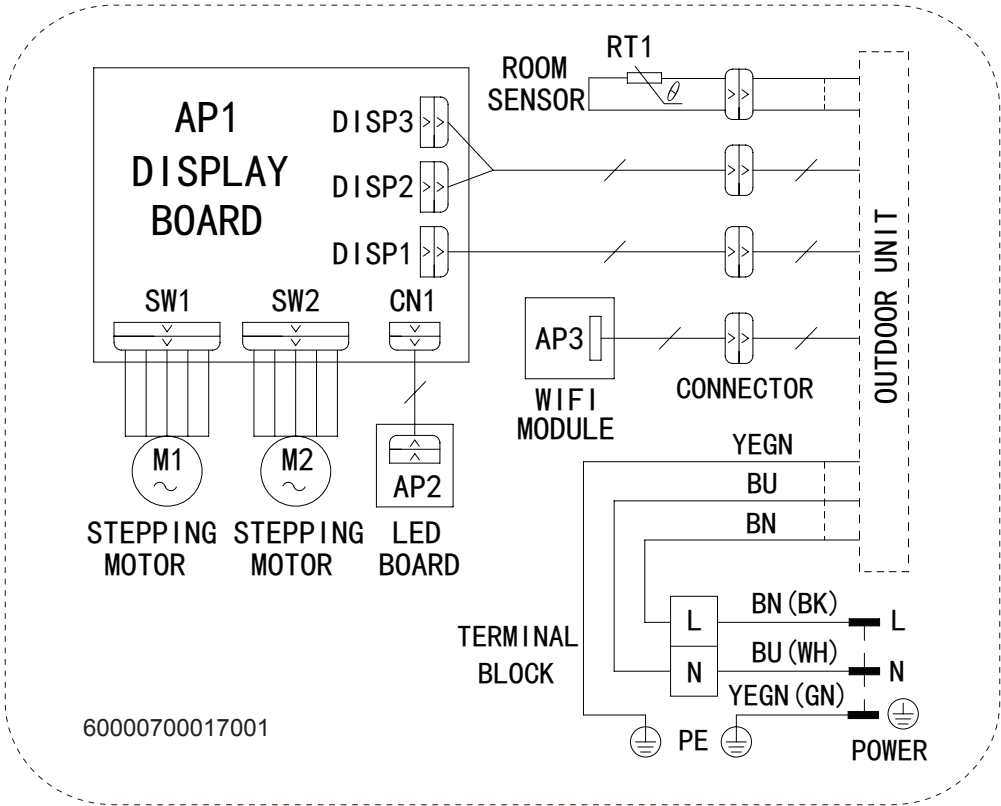
5.1 Wiring Diagram

● 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	/	/

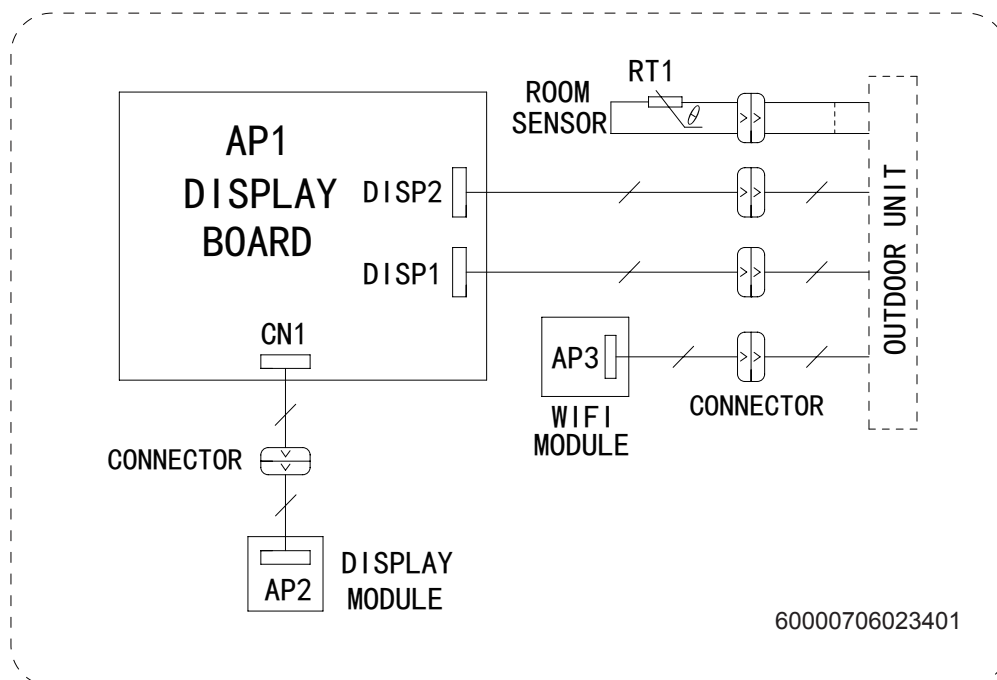
● Indoor Unit

GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I



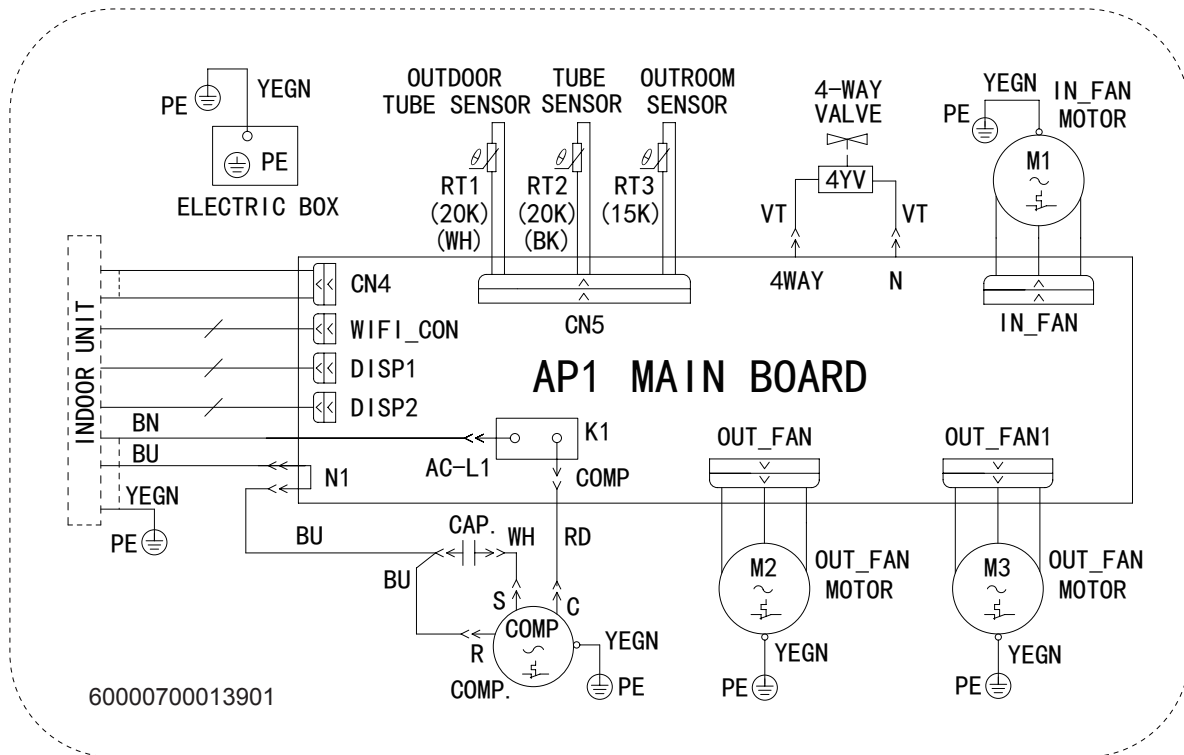
GRH085DA-K3NA2B/I

GRH120DA-K3NA2B/I

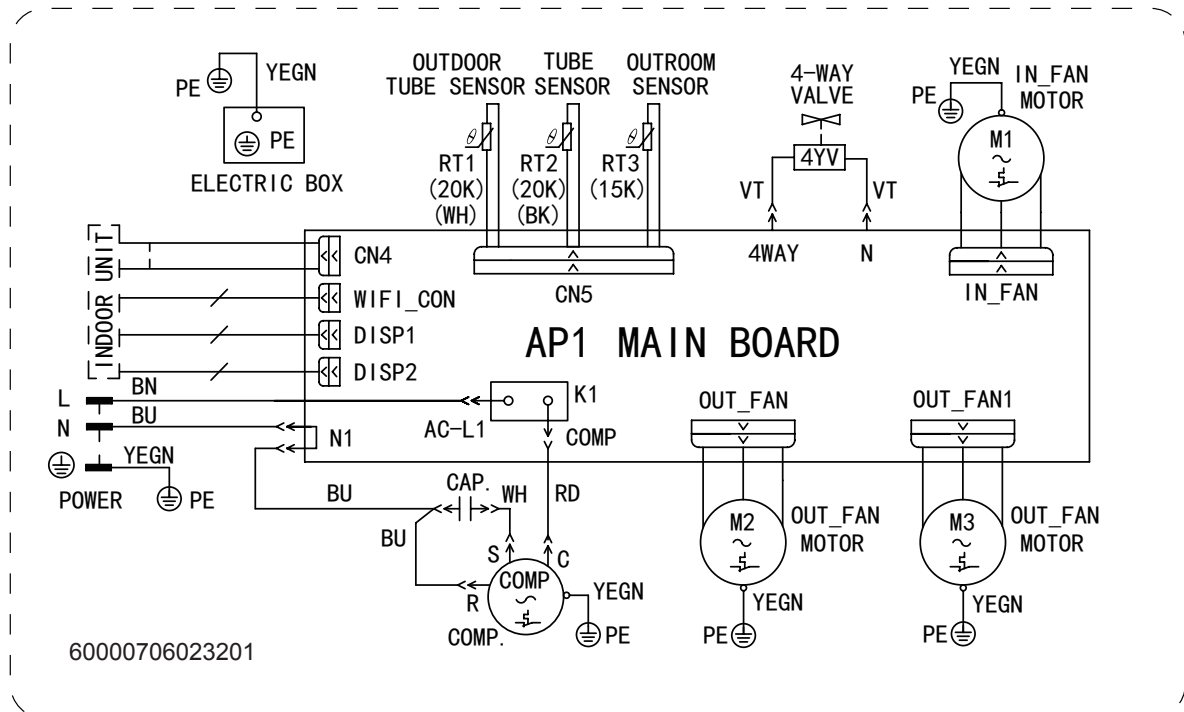


• Outdoor Unit

GRH085DA-K3NA1A/O
GRH120DA-K3NA1A/O



GRH085DA-K3NA2B/O
GRH120DA-K3NA2B/O

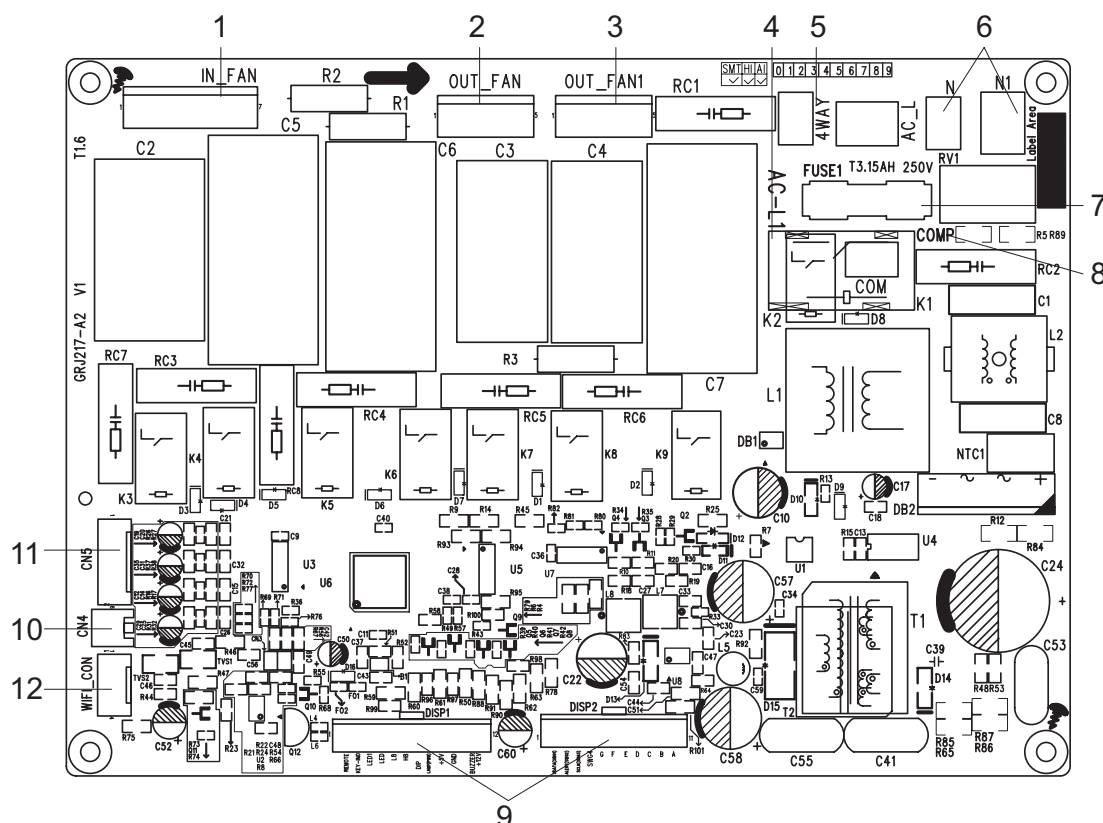


These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

5.2 PCB Printed Diagram

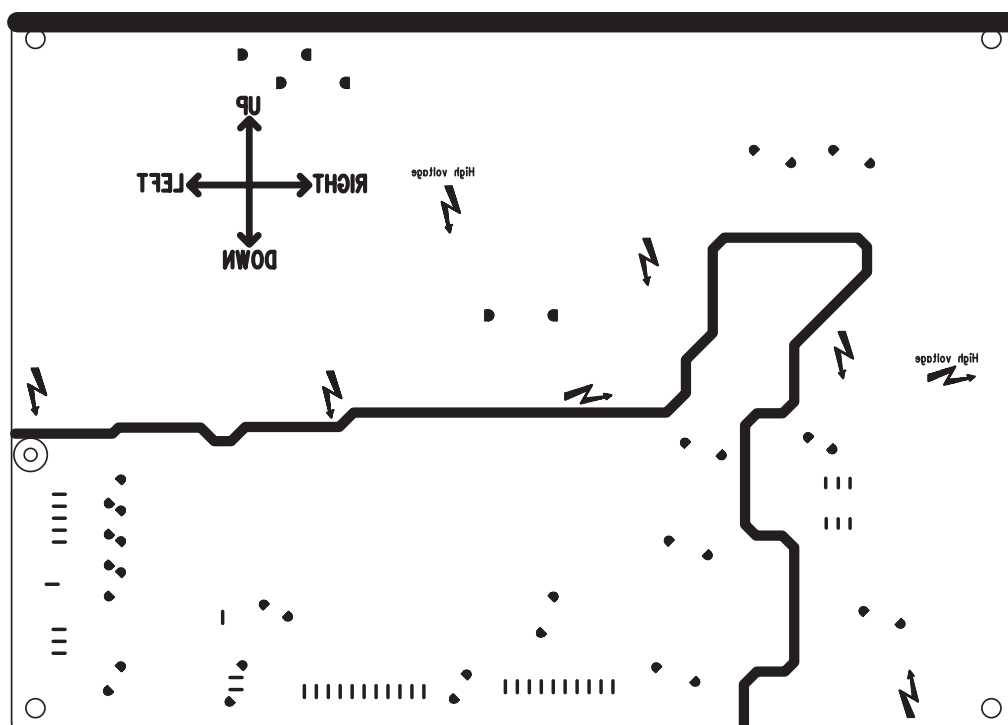
5.2.1 Silk screen on main board

- **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

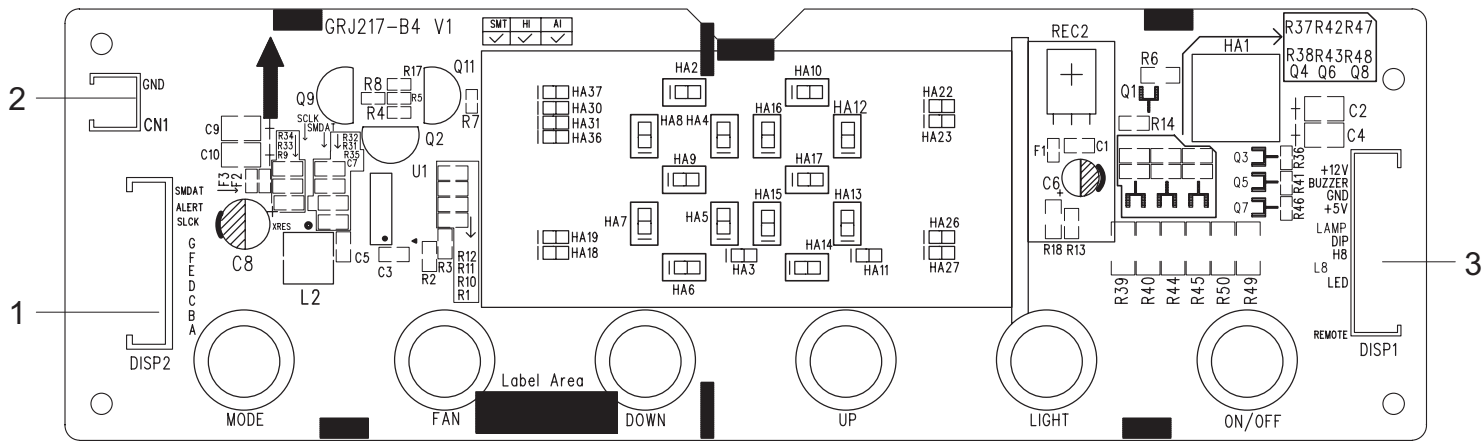
- **Bottom view**



5.2.2 silk screen on display board

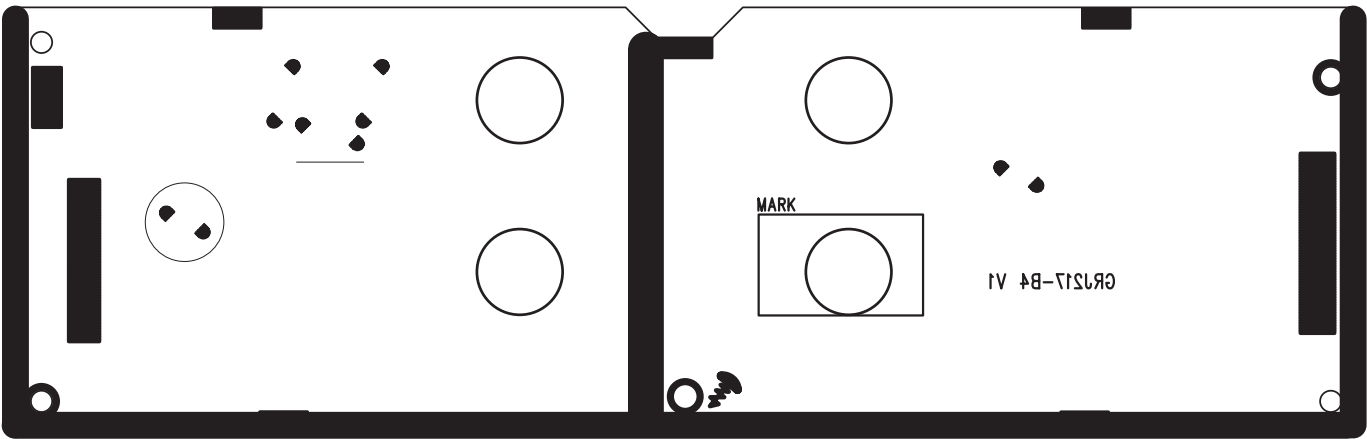
GRH085DA-K3NA2B/I
GRH120DA-K3NA2B/I

• Top view



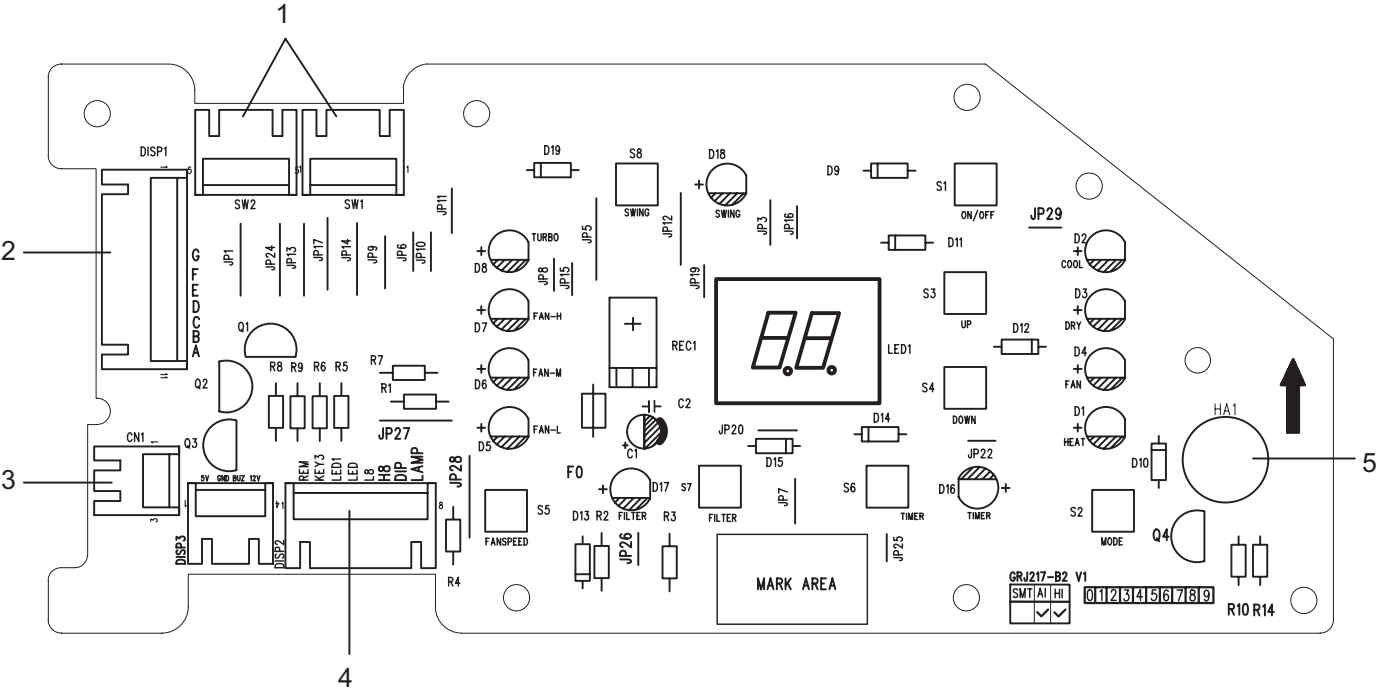
No.	Name	No.	Name	No.	Name
1	Interface of main board	2	Interface of lamp plate	3	Interface of main board

• Bottom view



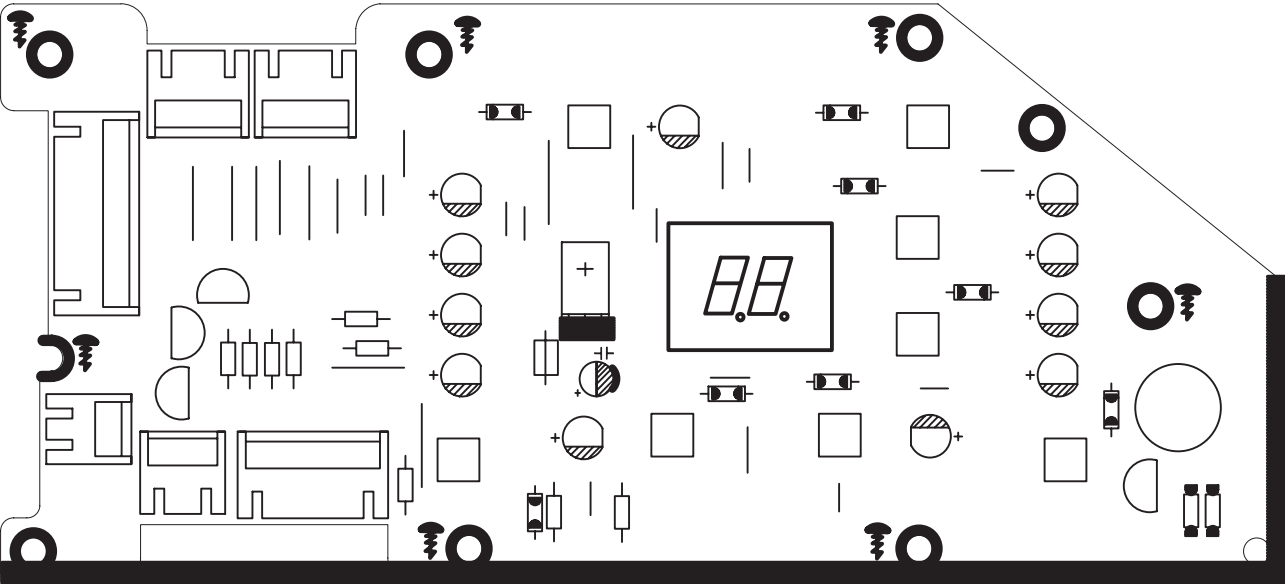
GRH085DA-K3NA1A/I
GRH120DA-K3NA1A/I

• 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



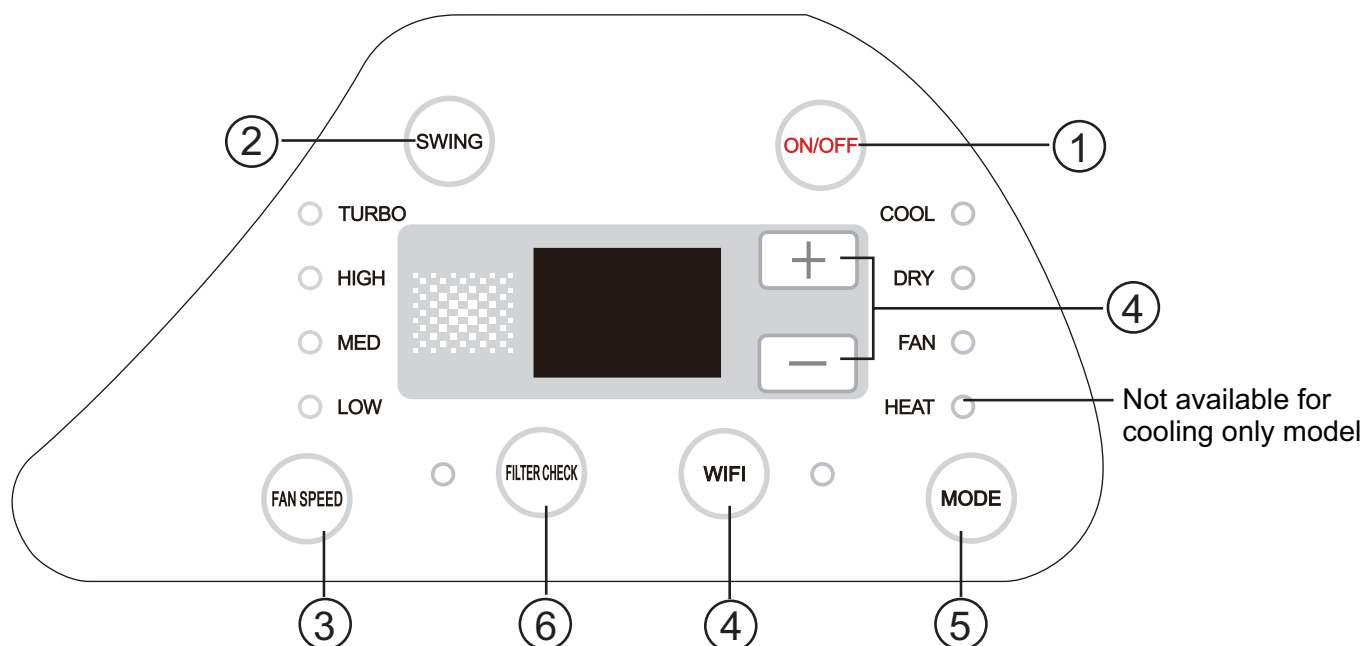
6. Function and Control

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°C (61~86°F).

Press WIFI button to turn on WIFI function; press this button again to turn off WIFI function.

5 MODE button

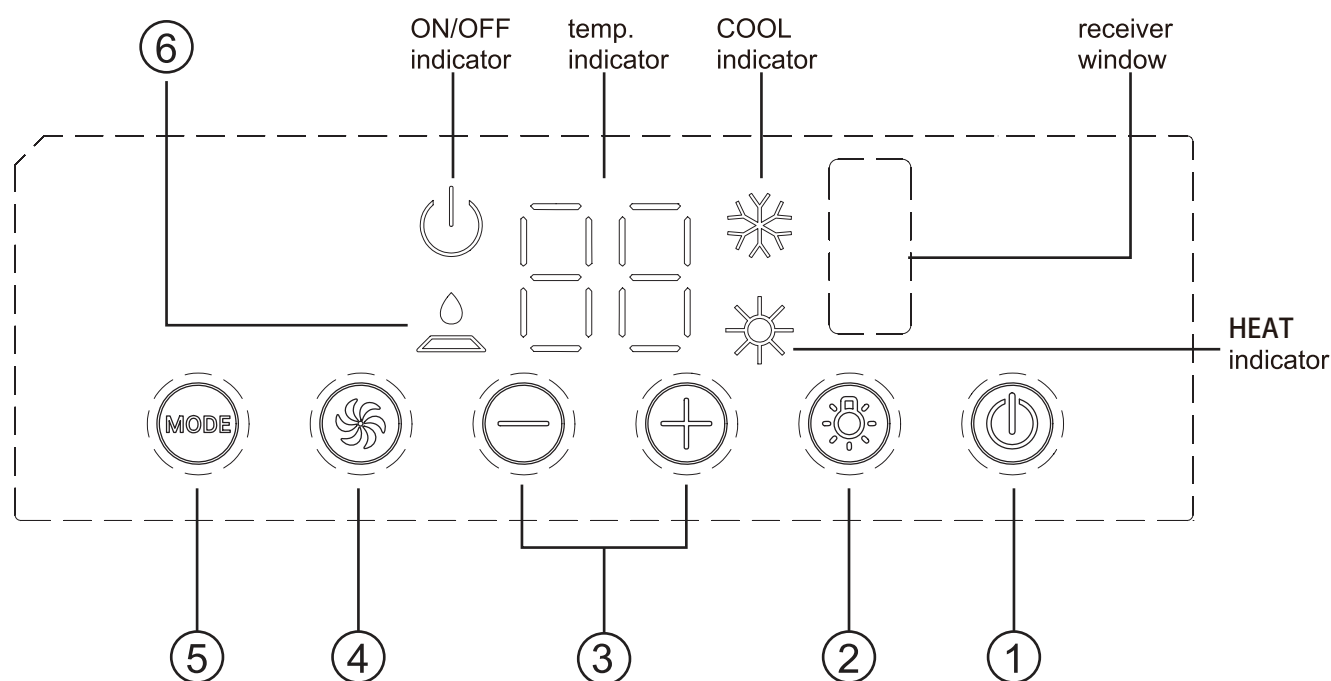
Select the operation mode, COOL, DRY, FAN, HEAT (for heat pump model) or COOL, DRY, FAN (for cooling only model).

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°C (61~86°F).

4 FAN SPEED button

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

5 MODE button

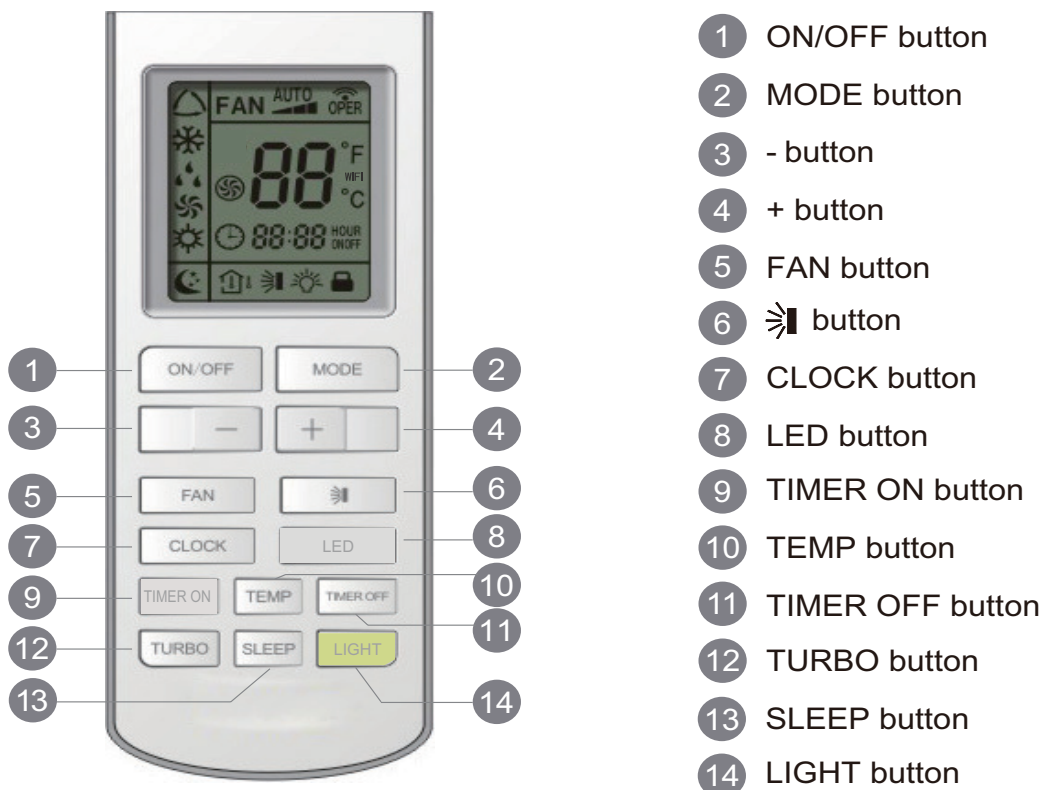
Select the operation mode, COOL, FAN, HEAT.

6 FILTER CHECK indicator

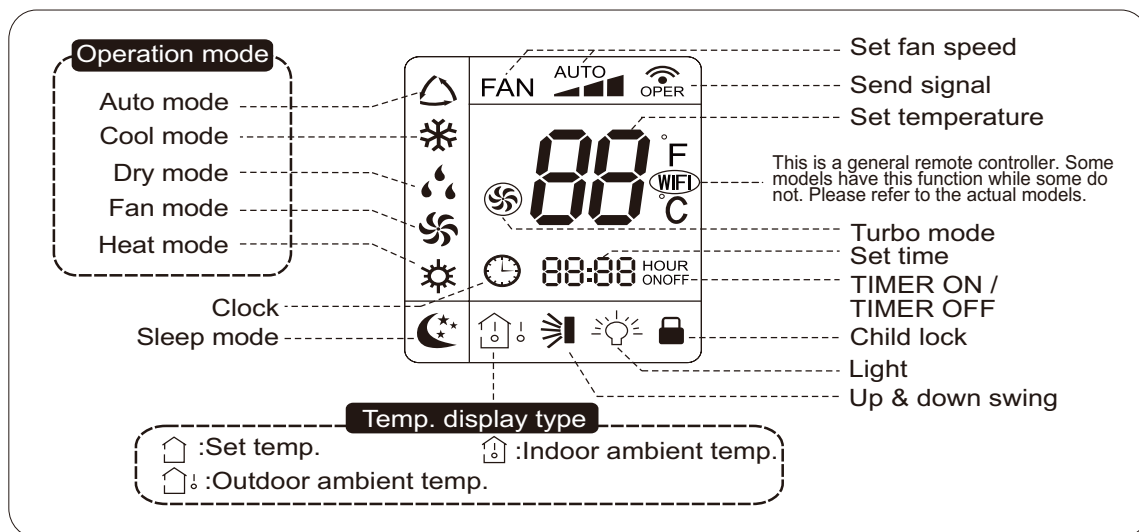
This feature is a reminder of cleaning the air filter(normal maintenance) for more efficient operation. The light will turn on automatically after the fan works more than 250 hours. If the light is on, turn off and power off the unit, take the air filter out and clean it, then re-install the air filter,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



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 colour 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 corresponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

1. ON/OFF button

Press this button to 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°C (82 °F); Under other modes, the initial value is 25°C (77 °F).



(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

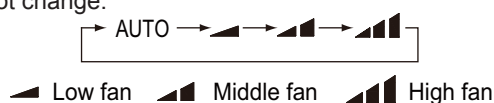
Presetting temperature can be decreased. Press this button, the temperature can be set up, continuously press this button and hold for two seconds, the relative contents can quickly change, until unhold this button and send the order that the °C (°F) signal will be displayed all the time. The temperature 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, °C (°F) is displaying 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

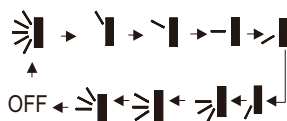
Press this button, Auto, Low, Middle, High speed can be circularly selected. After powered on, Auto fan is not available for this mode. When pressing AUTO button, the fan speed will not change.



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. Swing 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 of models)

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. approaches the preset temp. as soon as possible.

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

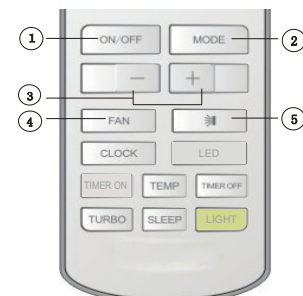
When the unit is running in Heat mode or Auto Heat mode, compressor and indoor fan is running, to turn the unit off, the compressor, outdoor fan will stop running. The upper and lower guide board rotate to horizontal position, then the indoor fan will run at low fan speed, 10s later, the unit will turn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

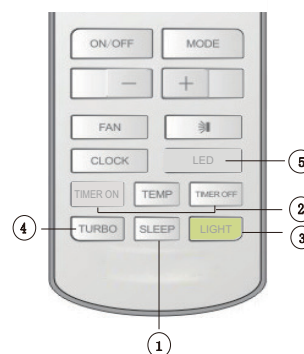
General guide

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 is unnecessary 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.

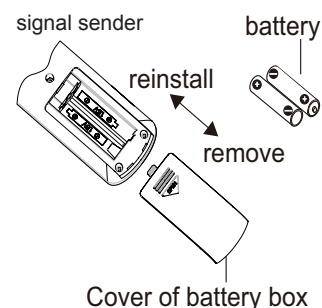


Replacement of batteries in remote controller

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 $\geq$ Tpreset +1°C (2 °F), cooling mode: compressor cycles on, fan motors will operate in set speed.
- b) Tinner amb $\leq$ Tpreset -1°C (2 °F), compressor and outdoor fan motors cycle off, indoor fan motor will operate in set speed.
- c) Tpreset -1°C (2 °F) < Tinner amb < Tpreset +1°C (2 °F), operates like before.

2.1.2 Temperature setting range is 16°C ~30°C (61 °F ~86 °F).

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°C ~30°C (61 °F ~86 °F).

2.3 Heating

2.3.1 Heating conditions and process

- a) When Tamb. $\leq$ Tset+1°C (2 °F), 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. $\geq$ Tset+3°C (6 °F), the compressor and outdoor fan motors stop; the 4-way valve remains energized; the indoor fan motor blows resindooral heat;
- c) When Tset +1°C (2 °F) < Tamb. < Tset+3°C (6 °F), the unit will maintain its previous running status.

2.3.2 Temperature setting range is 16°C ~30°C (61 °F ~86 °F).

2.4 Dehumidifying

2.4.1 Operating conditions and procedures

- a) Tinner amb > Tpreset +2°C (4 °F), operates in Cooling mode, fan motors will operate in low speed.
- b) Tpreset -2°C (4 °F) $\leq$ Tinner amb $\leq$ Tpreset+2°C (4 °F), 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°C (4 °F), compressor and outdoor fan motors stop, indoor fan motor will operate in low speed.

2.4.2 Temperature setting range is 16°C ~30°C (61 °F ~86 °F).

2.5 Auto

2.5.1 Operating conditions and procedures

- a) Tinner amb $\geq$ 26°C (79 °F), cooling mode: Tpreset =25°C (77 °F)
- b) Tinner amb <22°C (72 °F), if it is a Cooling and Warming controller, unit will operate in Warming mode, Tpreset = 20°C (68 °F); if it is a Cooling controller, unit will operate in Fan Only, Tpreset =68 °F (20°C);
- c) 22°C (72 °F) $\leq$ Tinner amb < 26°C (79 °F), 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°C (2 °F) higher; 2 h later, Tpreset will be 2°C (4 °F) higher and rise no more; Also, the maximum of set temperature is 30°C (86 °F).
- b) In Warming, 1 h after Sleeping Mode is set, Tpreset will be 1°C (2 °F) lower; 2 h later, Tpreset will be 2°C (4 °F) lower and fall no more; Also, the minimum of set temperature is 16°C (61 °F).
- 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 decided 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 malfunctions 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 Refrigerant loss protection' malfunctions detected

If the the unit enters refrigerant 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 ensuring 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.

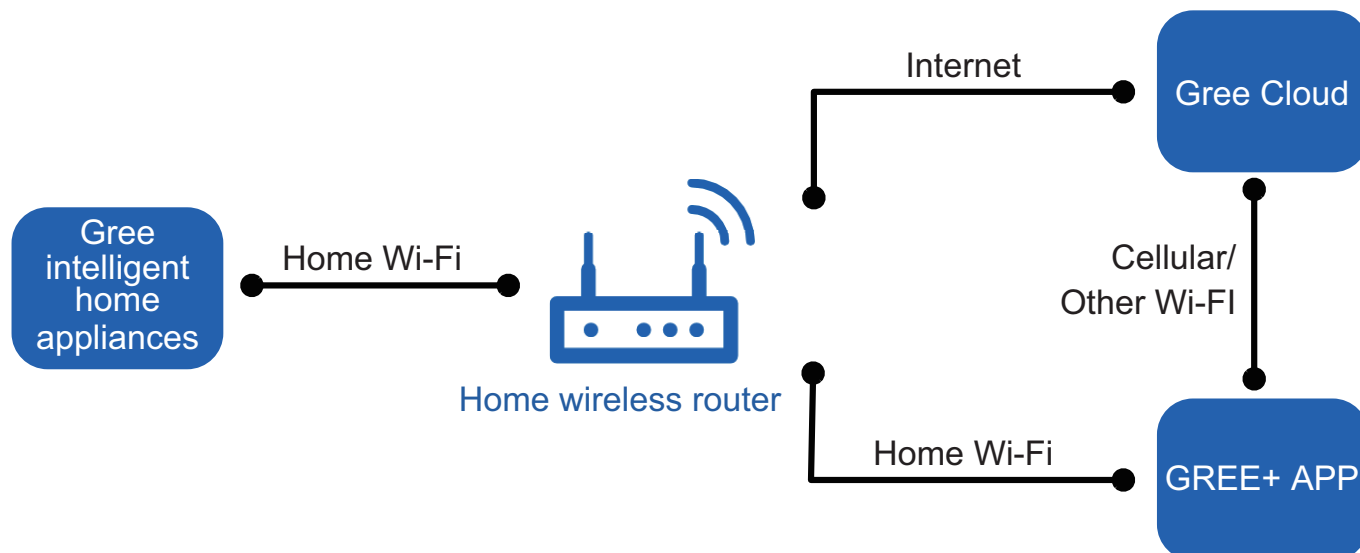
What to do: power off the unit , then power on and turn on the unit again few minutes later.

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

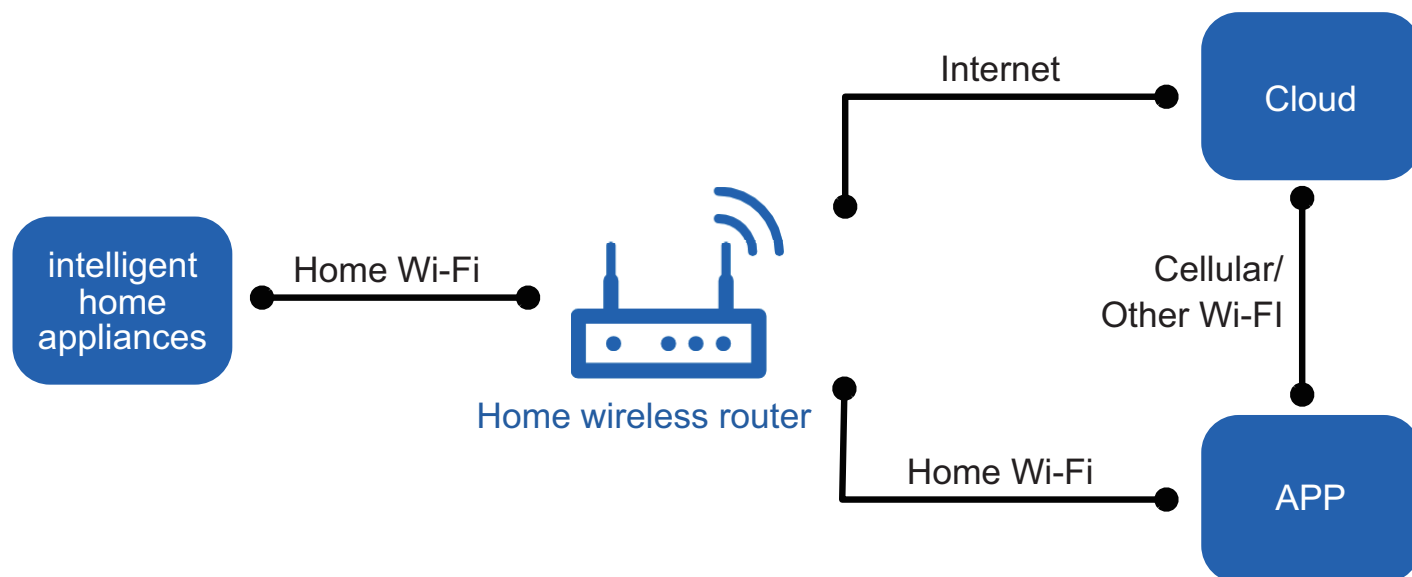
Download and installation



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.

Control Flow Chart



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. Wear safety belt if the height of working is above 2m.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

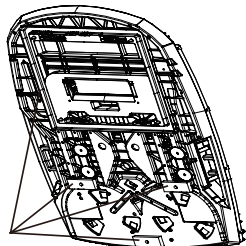
1. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.
2. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.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

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

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.

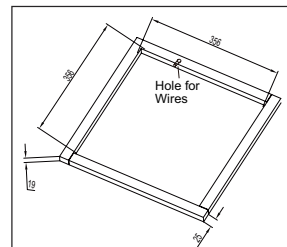


Figure 1

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 5° for preventing water leakage.

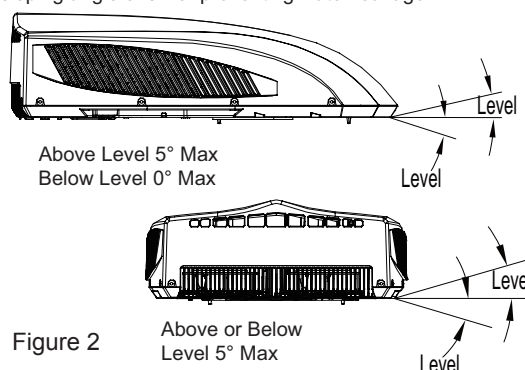


Figure 2

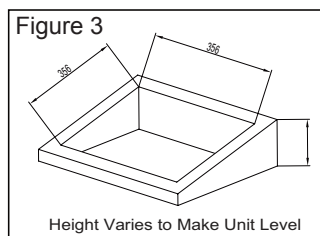
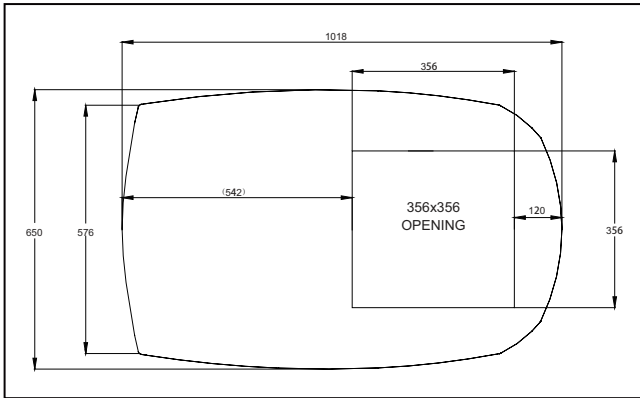


Figure 3

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 Figure 4-1).
 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 Figure 4-2).

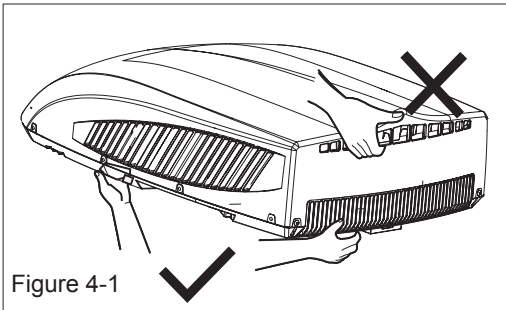


Figure 4-1

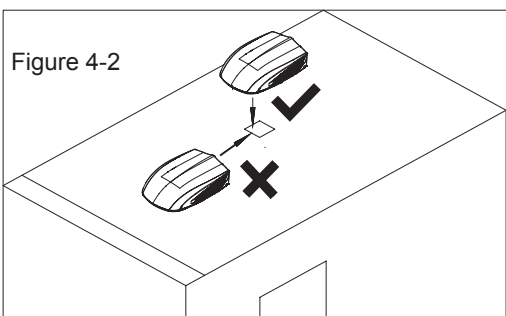


Figure 4-2

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, pull the fabric duct collar so it hangs out of the way and does not get caught under the ceiling assembly frame.

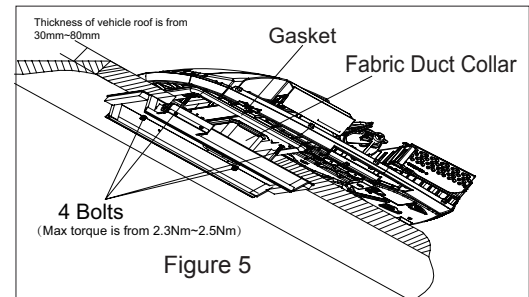


Figure 5

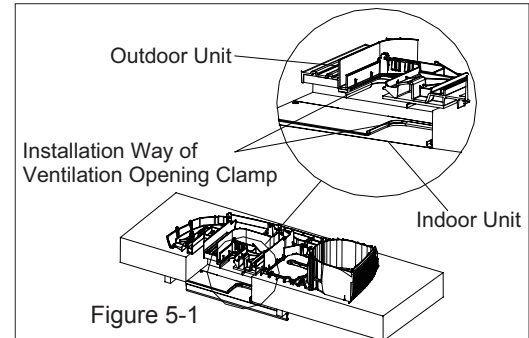


Figure 5-1

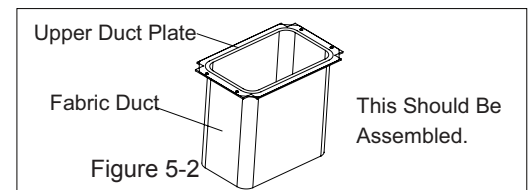


Figure 5-2

- 5) Secure the ceiling assembly frame to the roof top air conditioner with the mounting bolts (see Figure 5). You must start (thread) the mounting bolts by hand to avoid cross-threading.

DO NOT START THE MOUNTING BOLTS WITH AN AIR GUN. The mounting bolts should be tightened, process is completed when the basepan gasket has been evenly compressed.

- 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 with fitting 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.

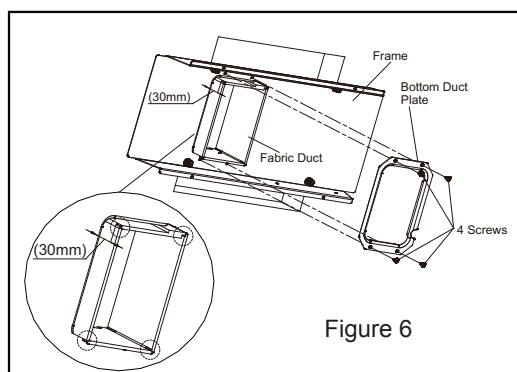


Figure 6

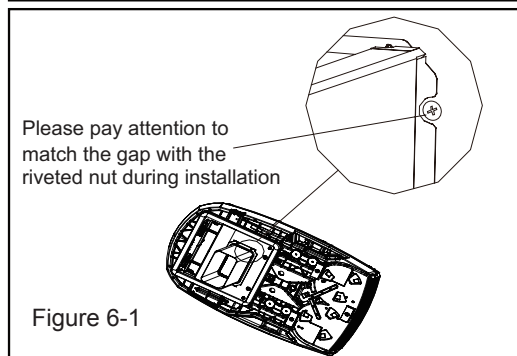


Figure 6-1

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 interior ceiling 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 not attach them at this time.
2. Take the roof top air conditioner power cord to 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) and secure the clamp (see Figure 9 and Figure 9-1). The connector should be placed above the mounted plate of indoor unit, and it should be higher than the clamp.

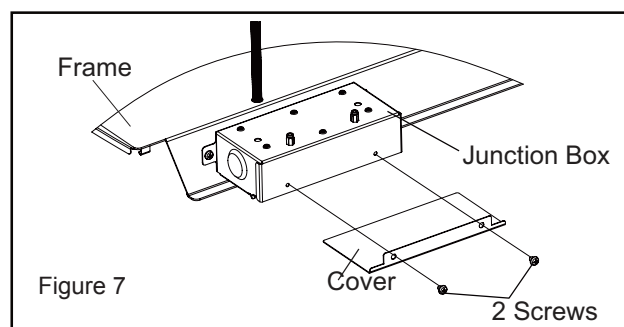


Figure 7

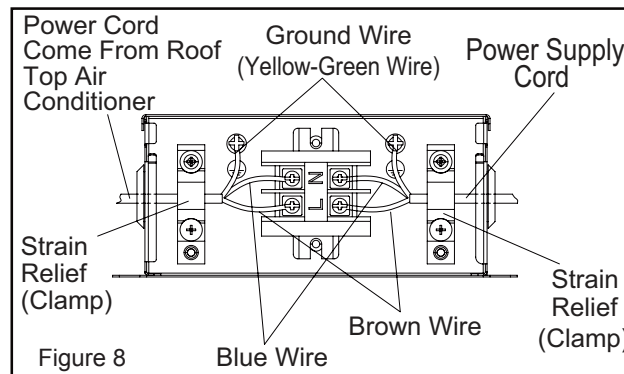


Figure 8

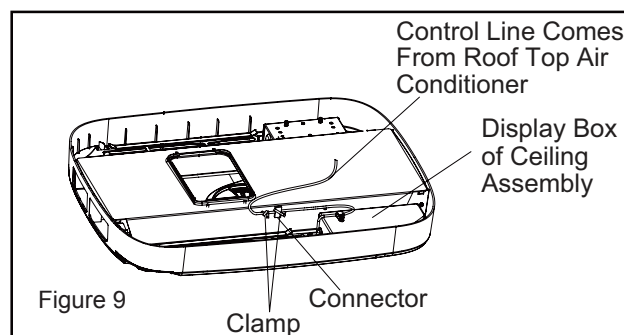


Figure 9

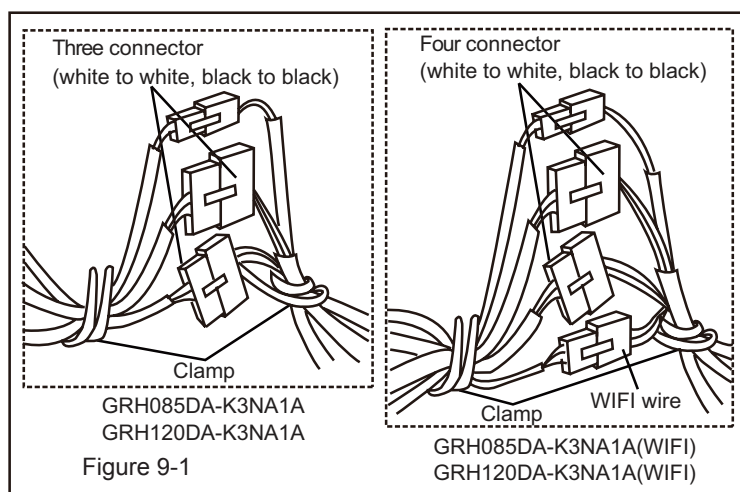


Figure 9-1

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.

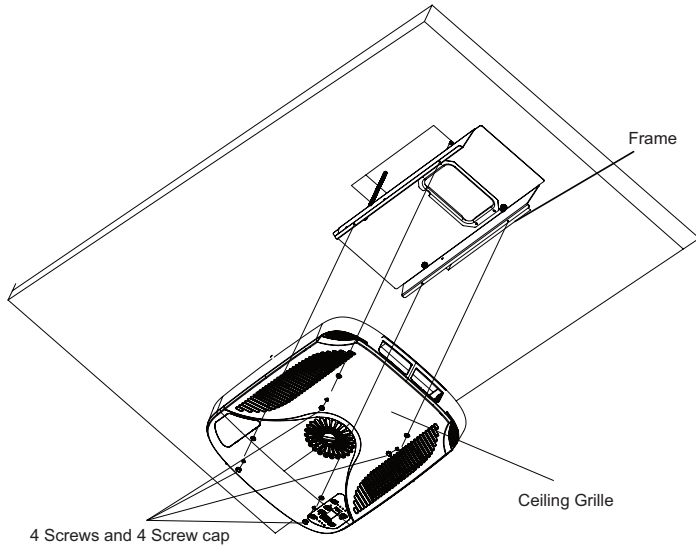


Figure 10

GRH085DA-K3NA2B/I

GRH120DA-K3NA2B/I

STEP 1-SELECTING AN INSTALLATION LOCATION & INSTALLING THE ROOF TOP AIR 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 vehicle 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 following 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.

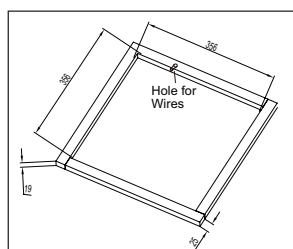


Figure 1

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 your 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 5° for preventing water leakage.

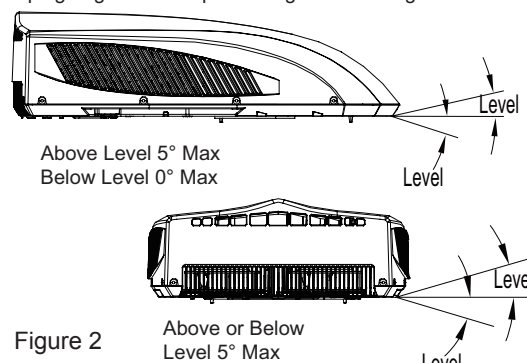
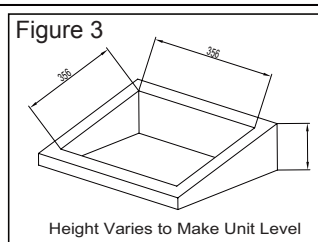
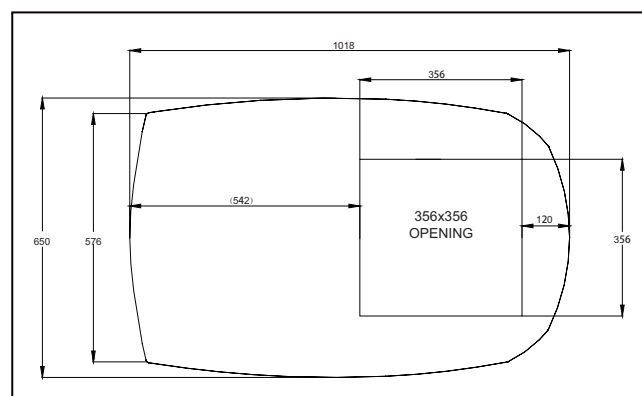


Figure 2

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).

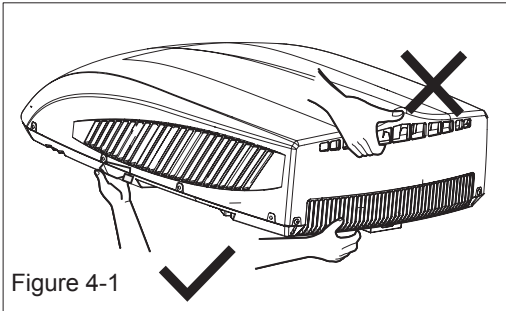


Figure 4-1

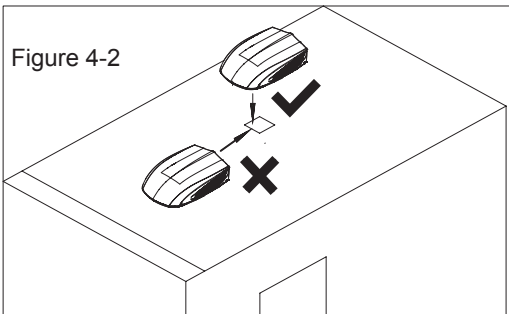


Figure 4-2

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).

Thickness of vehicle roof is from 30mm-80mm

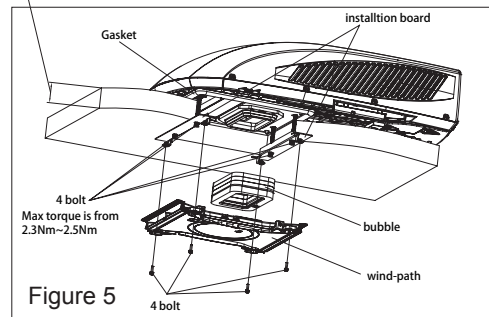


Figure 5

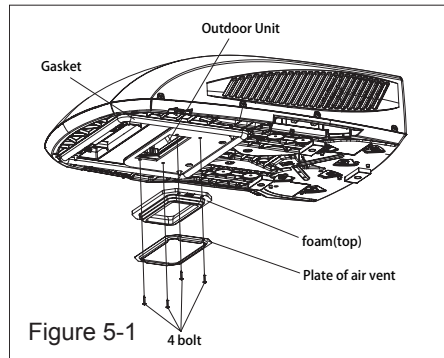


Figure 5-1

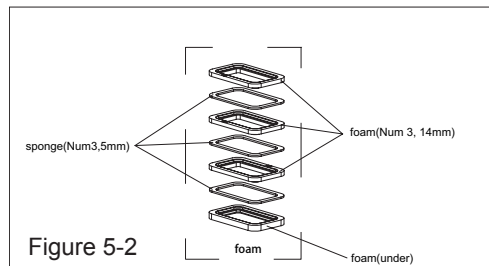


Figure 5-2

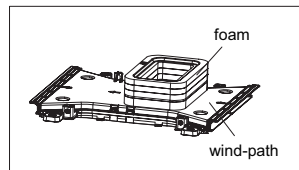


Figure 5-3

5. You must start (thread) the mounting bolts by hand to avoid cross-threading. DO NOT START THE MOUNTING BOLTS WITH AN AIR GUN. The mounting bolts should be tightened, process is completed when the basepan gasket has been evenly compressed.
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

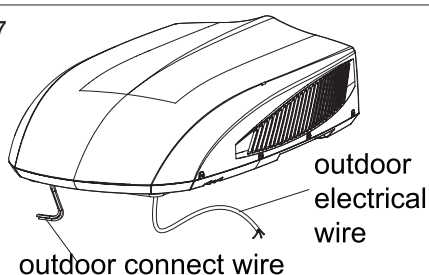
ROUTING 220-240V AC WIRING

⚠ 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 interior ceiling assembly frame is properly secured to the roof top air conditioner, the following electrical connections must be performed.

1. As shown in fig.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



indoor electrical wire



Figure 8

display board

Figure 9

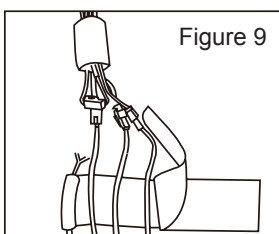


Figure 9-1

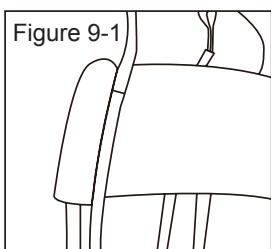


Figure 9-2

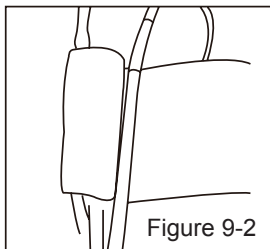


Figure 9-3

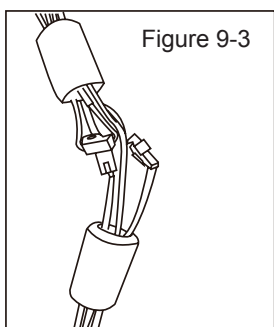
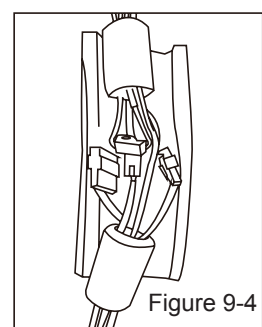


Figure 9-4



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

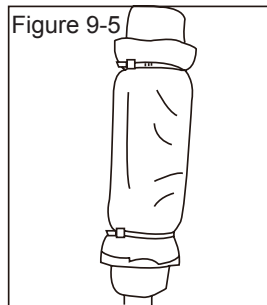
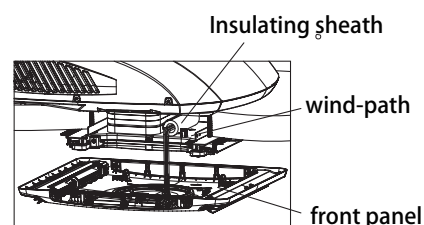


Figure 9-6



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.

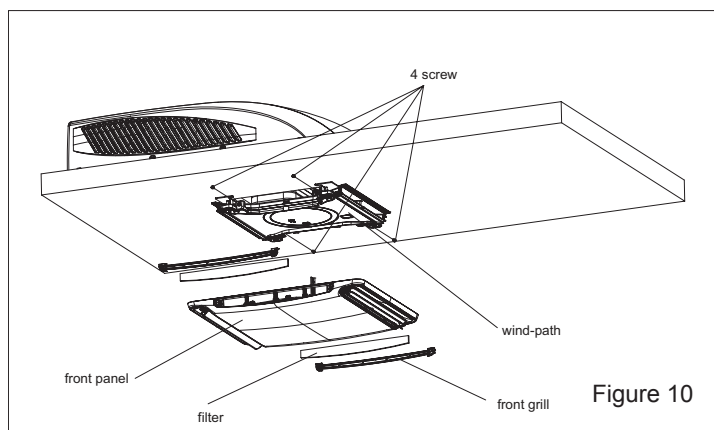


Figure 10

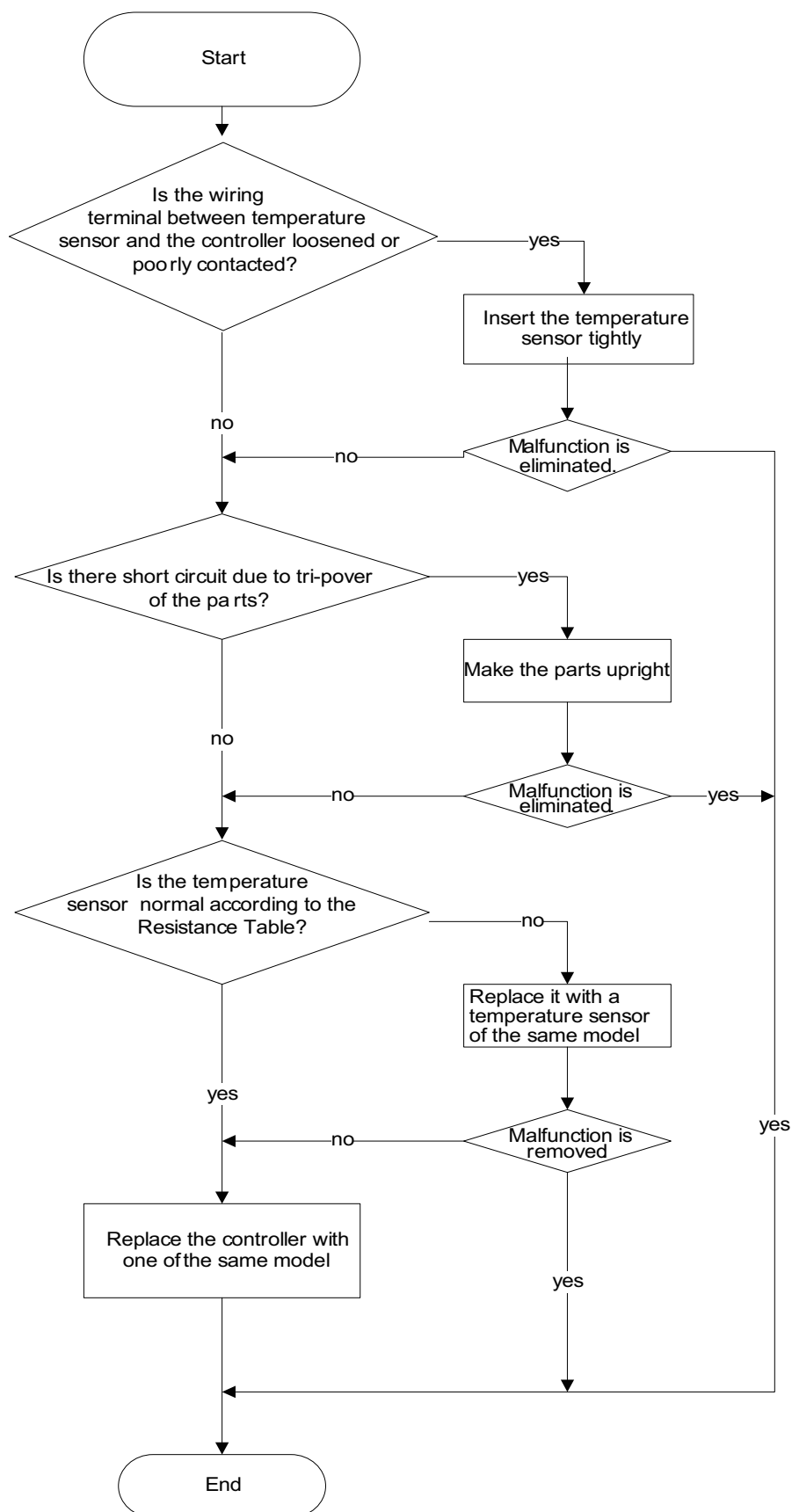
9. Maintenance

9.1 Error Code

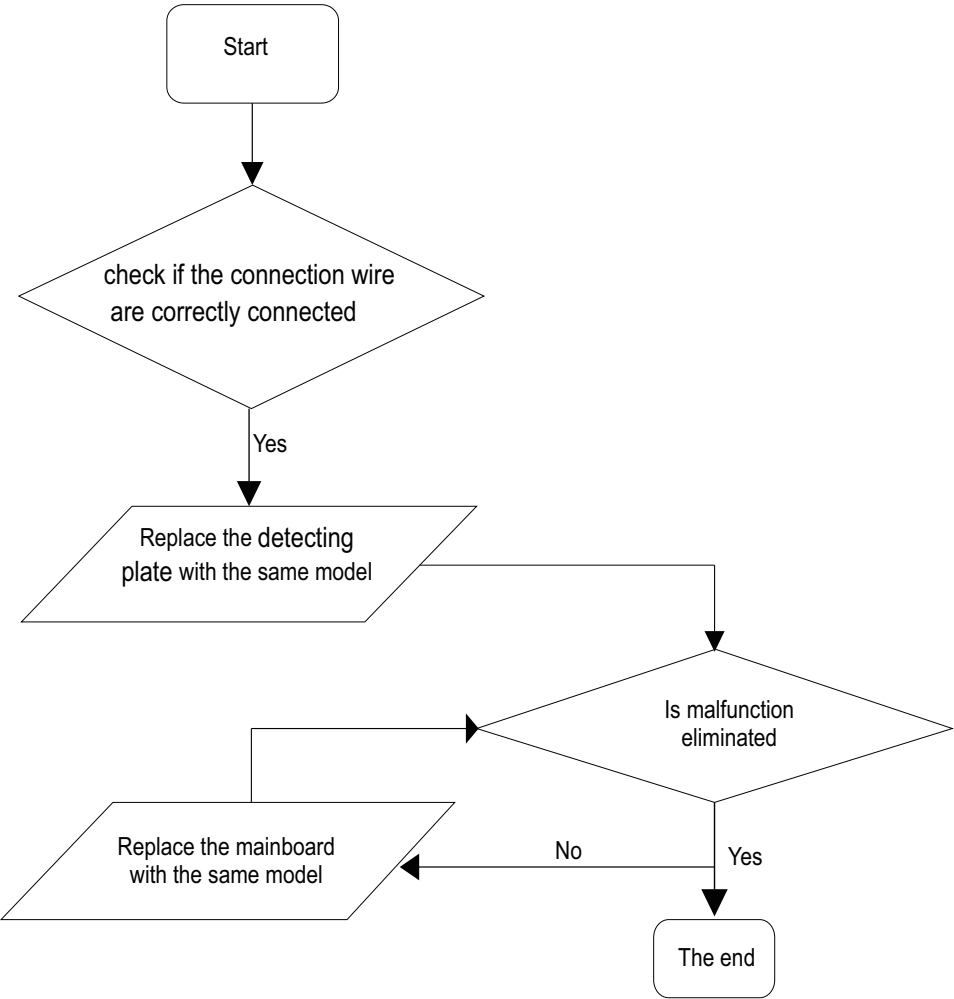
No.	Malfunction Name	Display Method of Indoor Unit (Error Code)	A/C Status	Possible Causes
1	Indoor ambient temperature sensor is open/shortcircuited	F1	When temperature sensor is open/shortcircuited, under cooling or heating mode, the unit will stop operation as it reaches the temperature point. Under 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; 2. There's short circuit due to trip-over of the parts on controller; 3. Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 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; 2. There's short circuit due to the trip-over of the parts on controller; 3. Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 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; 2. There's short circuit due to trip-over of the parts on controller; 3. Outdoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 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; 2. There's short circuit due to the trip-over of the parts on controller; 3. Outdoor condenser temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 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. 2. Compressor doesn't work normally. Strange noise or leakage occurs. Temperature of the shell is too high. 3. System is blocked inside (dirt block, ice block, oil block, Y-valve not fully open). 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; 2. Detection board is damaged; 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; 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. 2. Fan motor doesn't work at a normal fan speed; fan speed is too low or the fan doesn't run. 3. Compressor doesn't work normally. Strange noise or leakage occurs. Temperature of the shell is too high. 4. System is blocked inside (dirt block, ice block, oil block, Y-valve not fully open). 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. 2. Heat exchangers are too dirty or the air inlet/outlet is blocked. 3. Fan motor is not working Abnormal fan speed; fan speed is too low or the fan doesn't run. 4. Compressor doesn't work normally. Strange noise or leakage occurs. Temperature of the shell is too high. 5. System is blocked inside (dirt block, ice block, oil block, Y-valve not fully open). 6. Temperature sensor of main board can't detect correctly.

9.2 Procedure of Troubleshooting

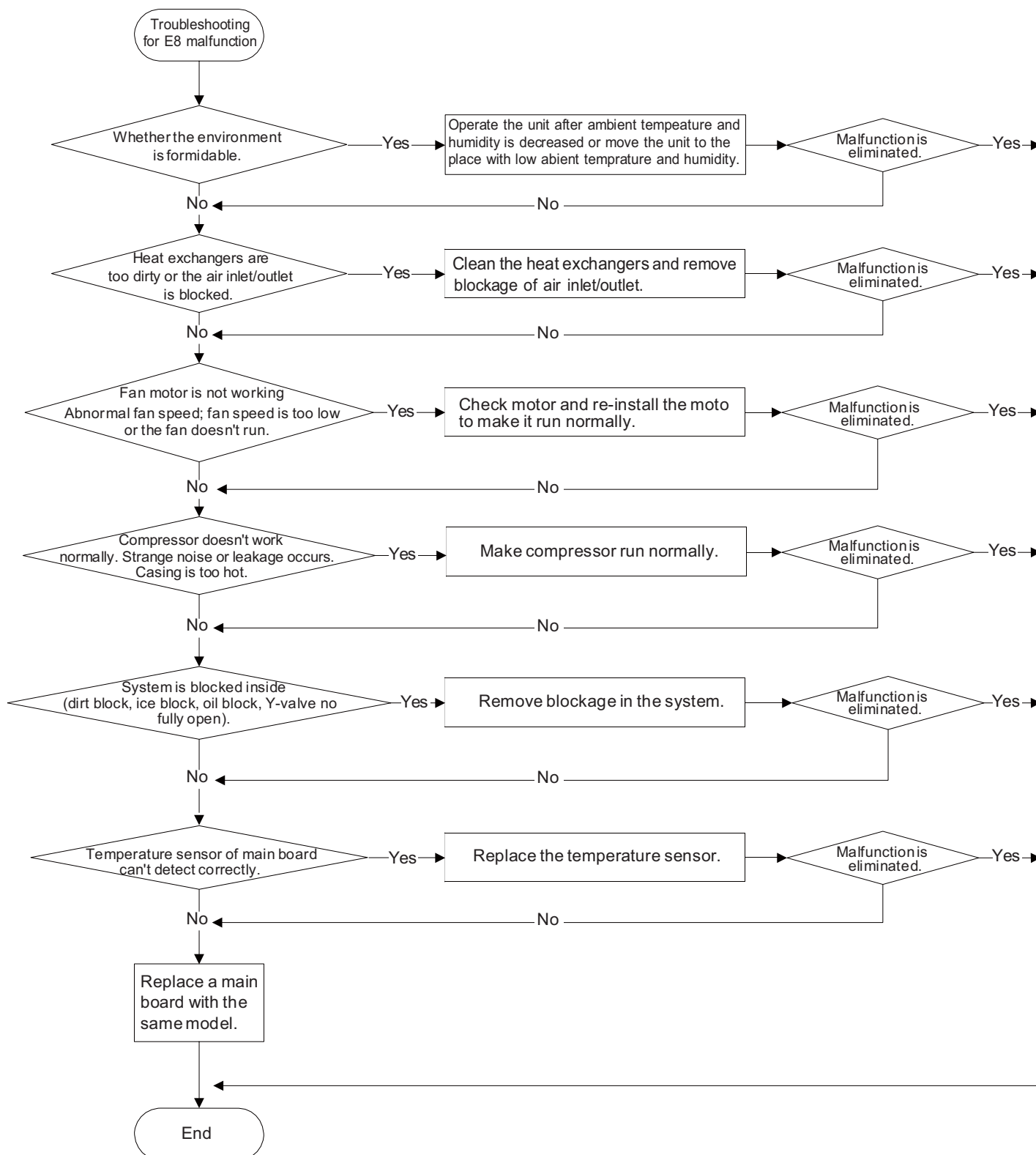
1. Malfunction of Temperature Sensor F1~ F4



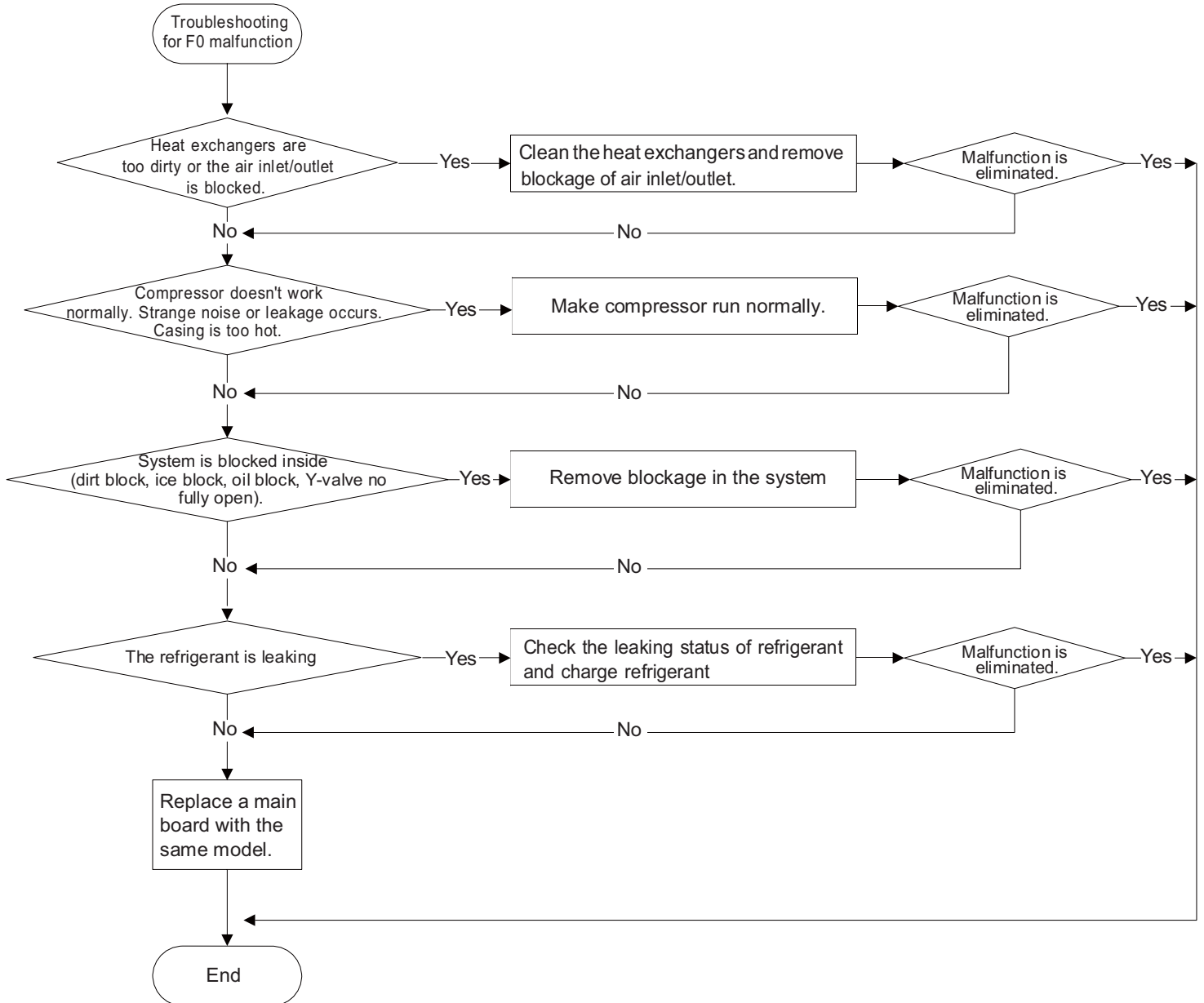
2. Malfunction of detecting plate(WIFI) JF



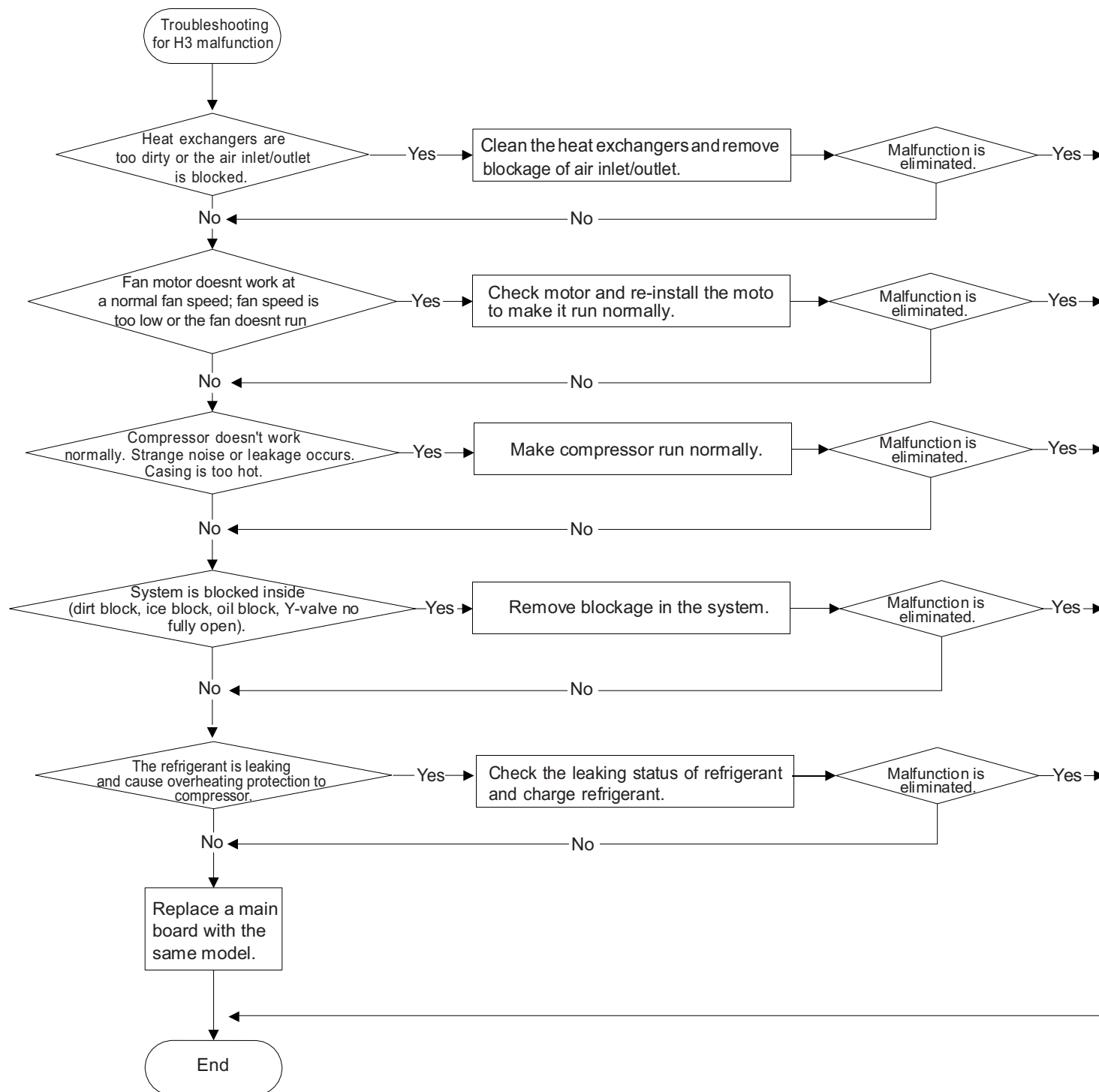
3. Overload malfunction E8



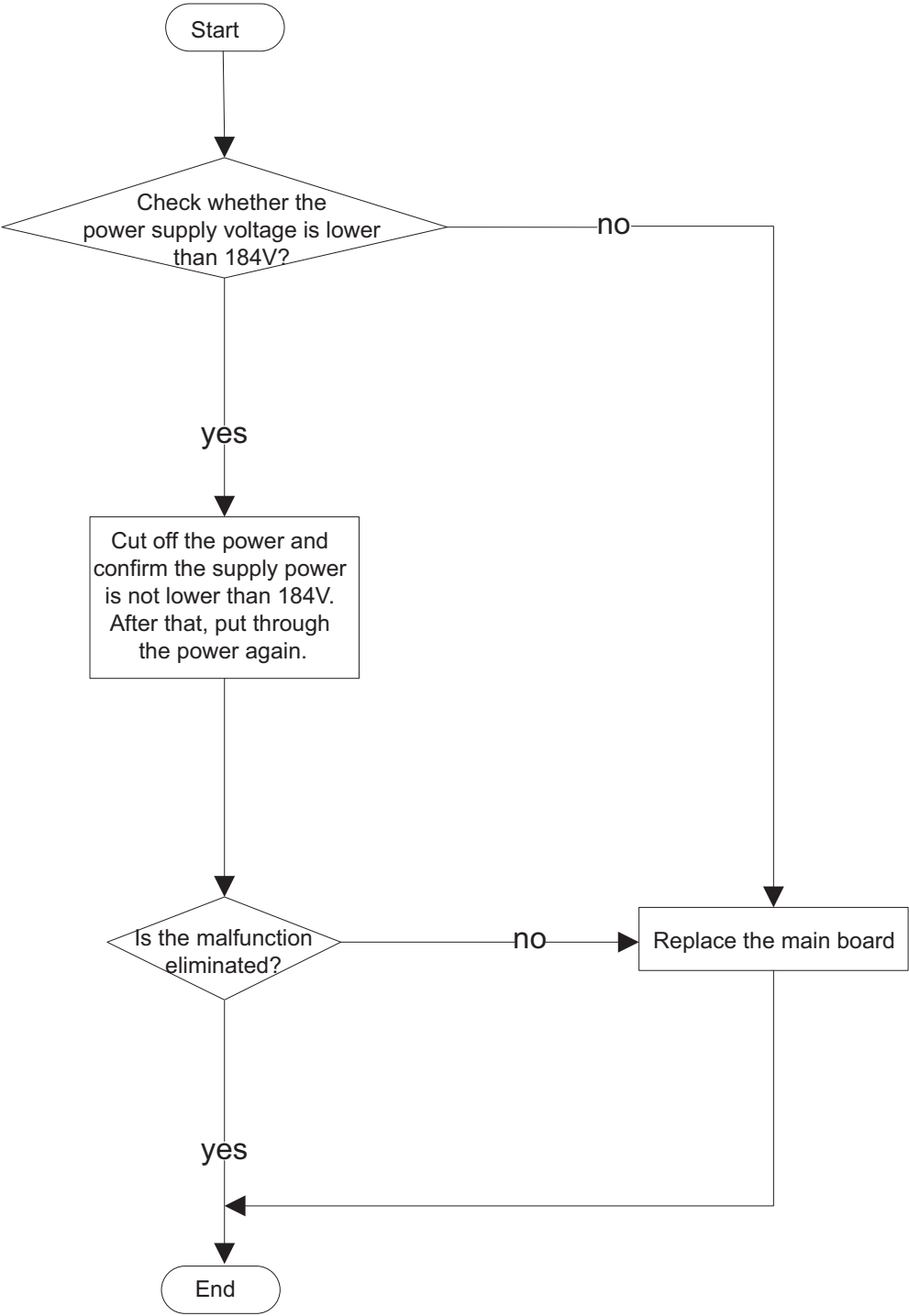
4. Malfunction of Insufficient fluorine protection F0



5. Overload malfunction H3



6. Overload malfunction PL

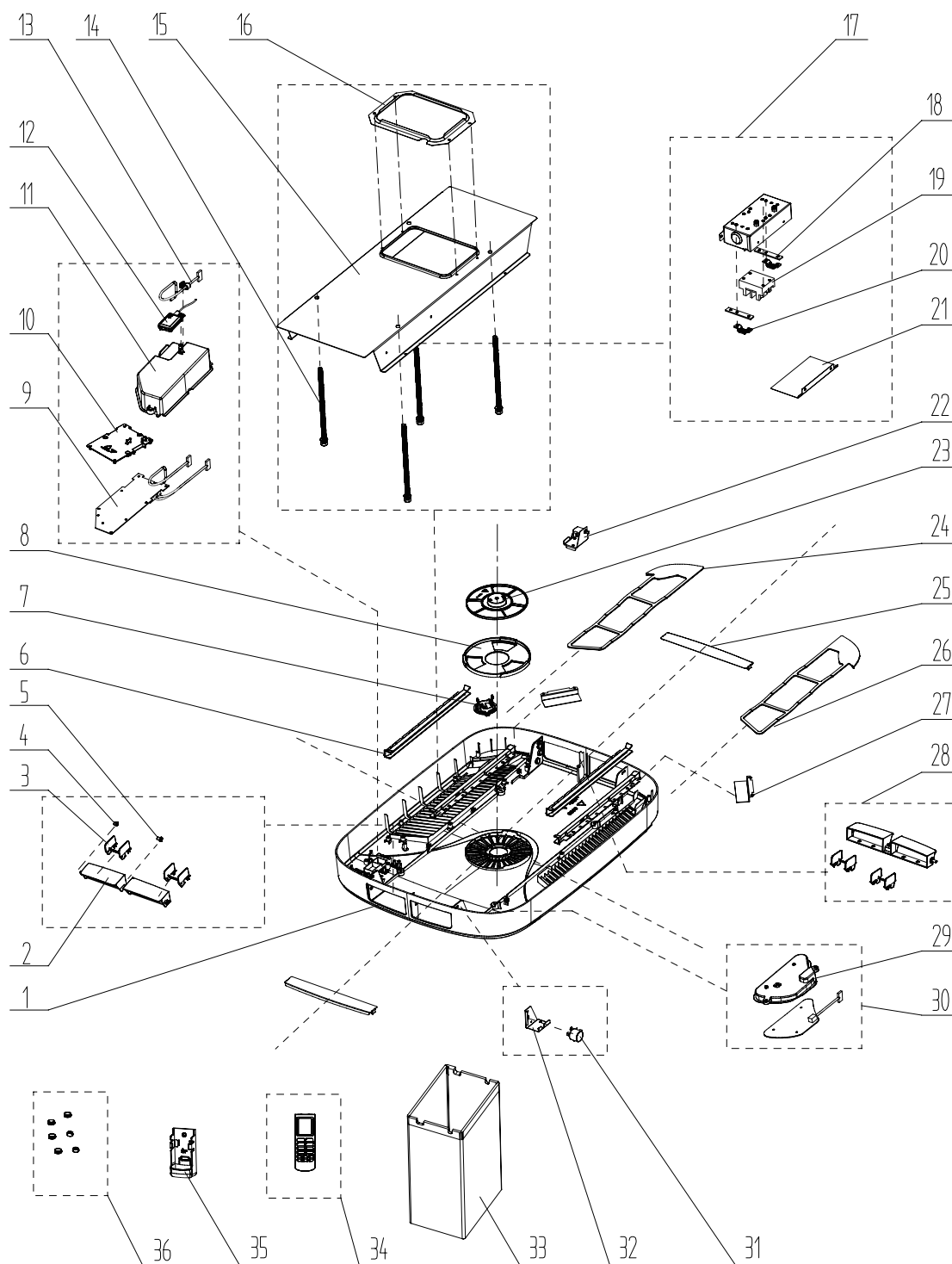


10. Exploded View and Parts List

10.1 Indoor Unit

GRH085DA-K3NA1A/I

GRH120DA-K3NA1A/I

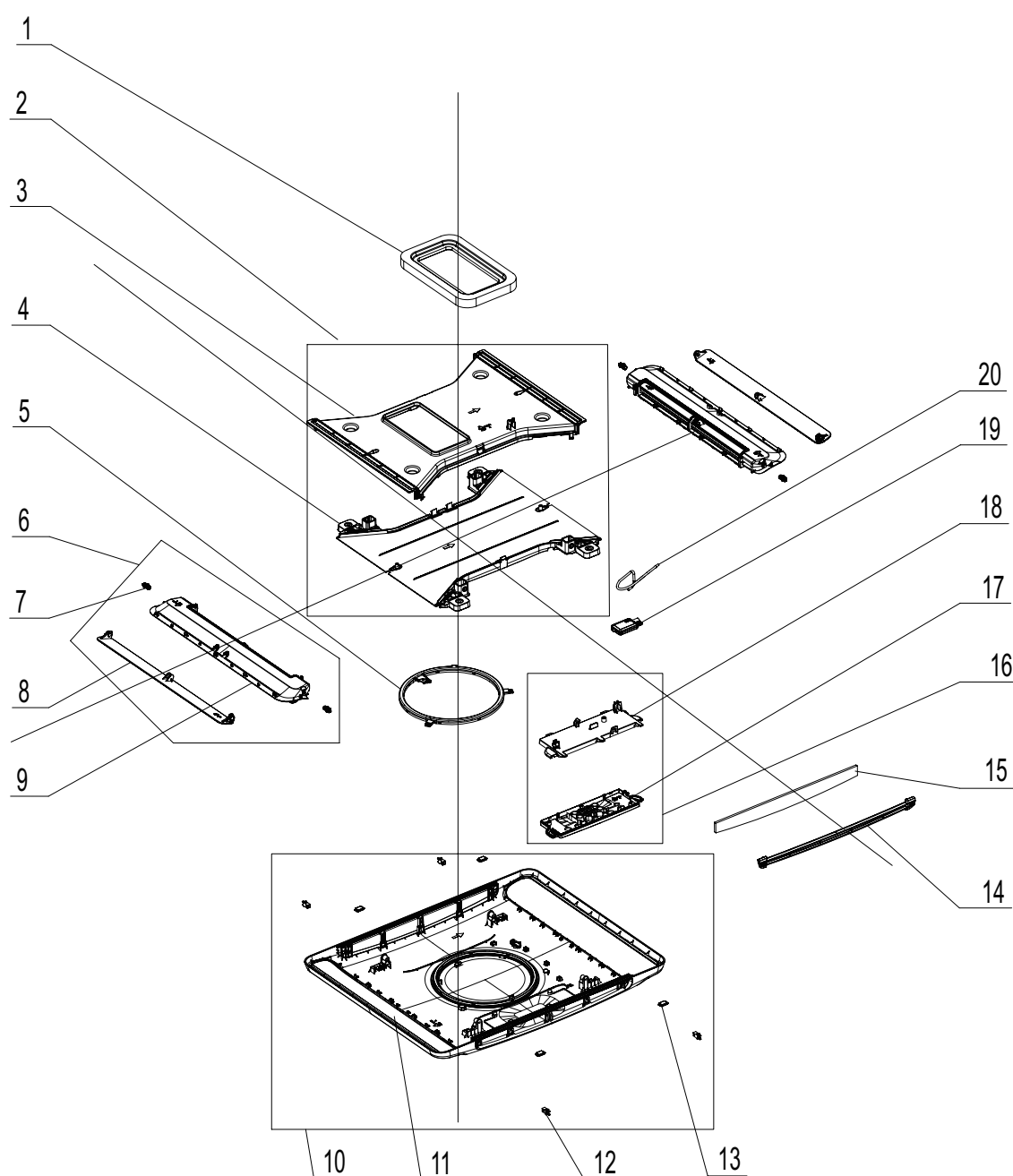


The component picture is only for reference; please refer to the actual product.

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

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GRH085DA-K3NA2B/I GRH120DA-K3NA2B/I



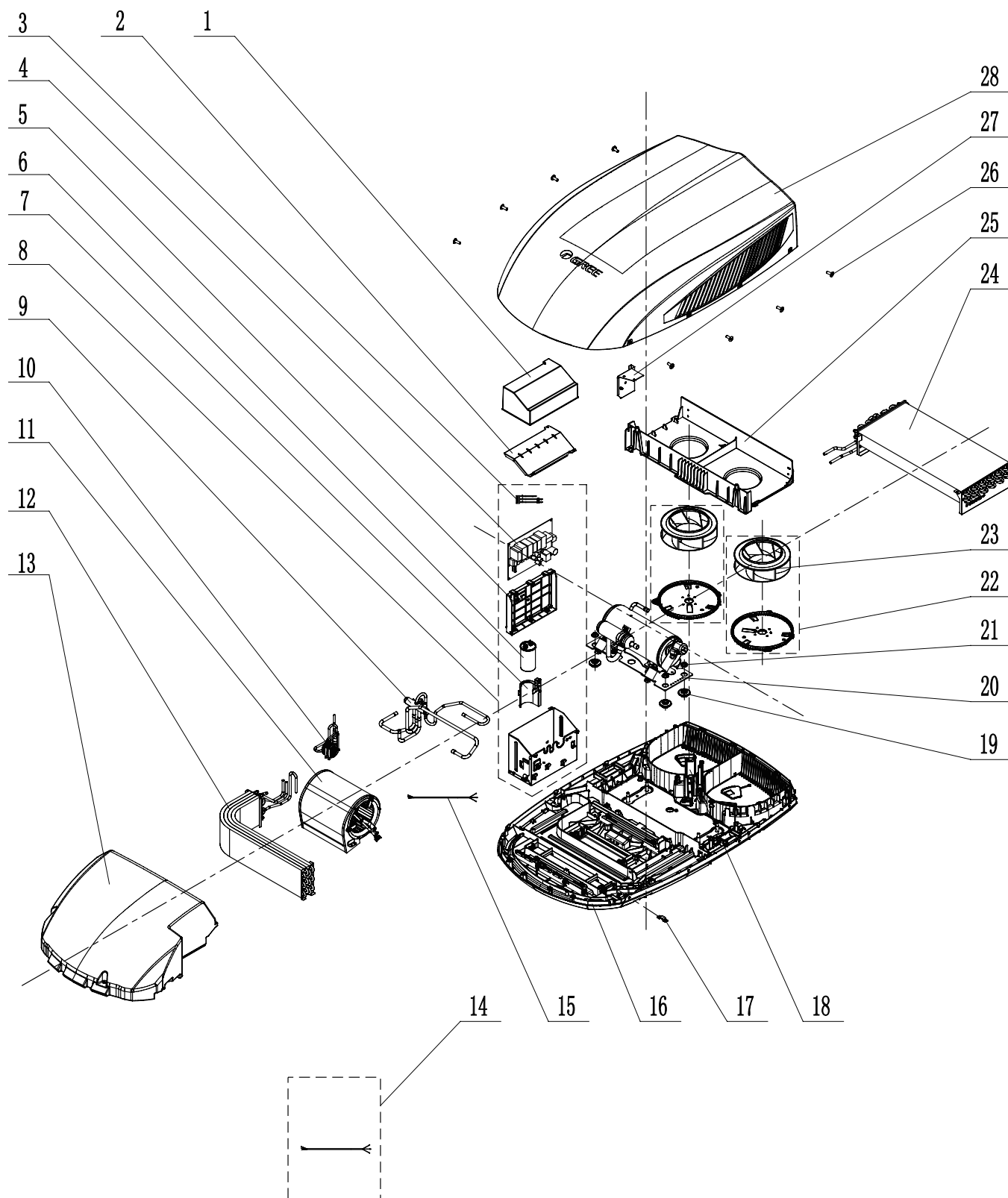
The component picture is only for reference; please refer to the actual product.

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

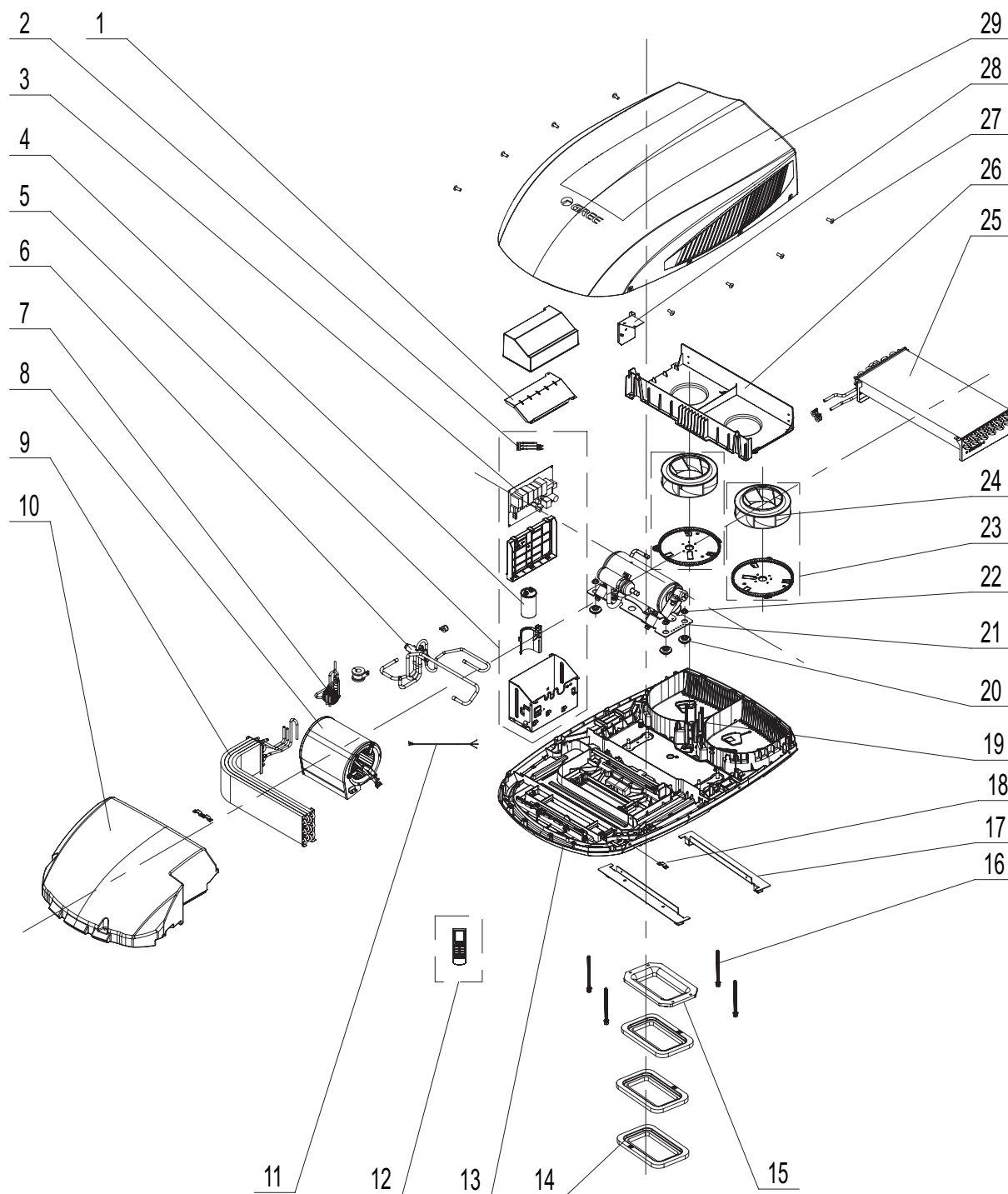


The component picture is only for reference; please refer to the actual product.

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

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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	01202000023	01202000023	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

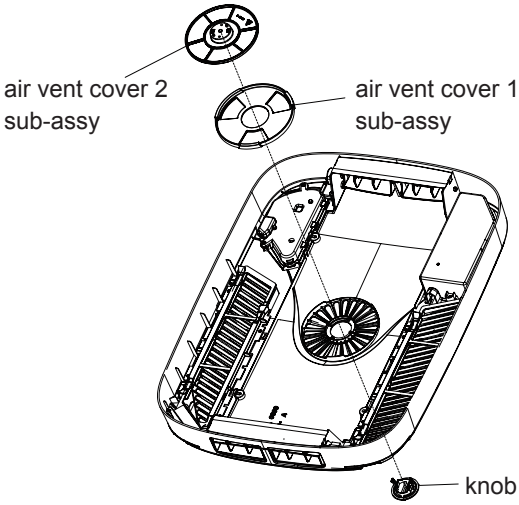
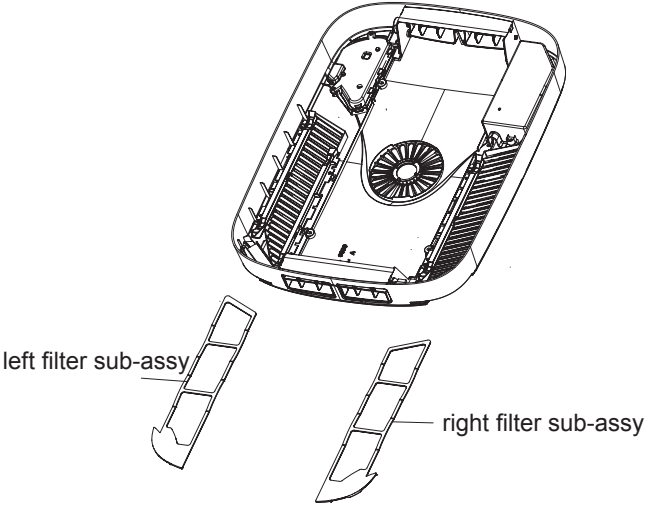
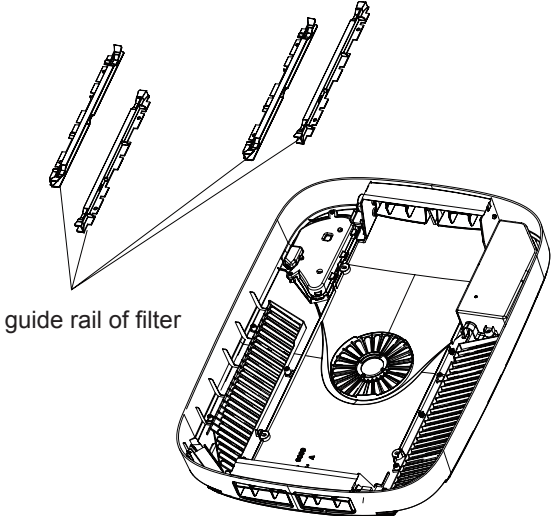


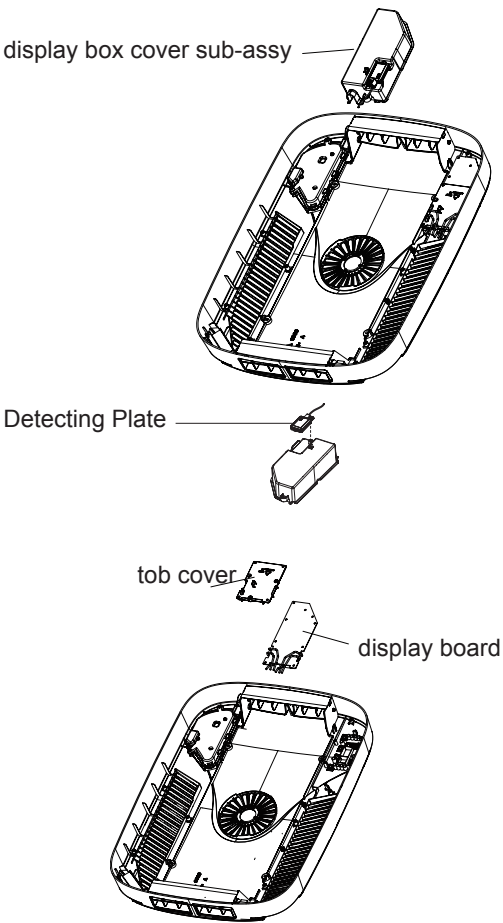
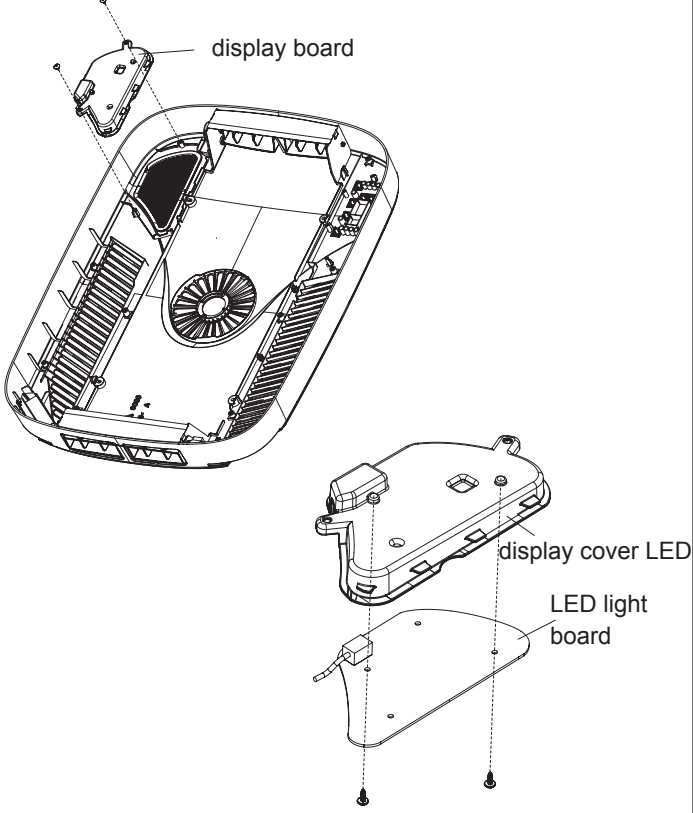
Caution: discharge the refrigerant completely before removal.

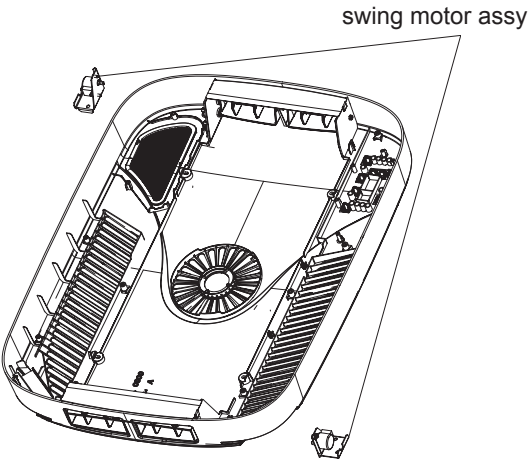
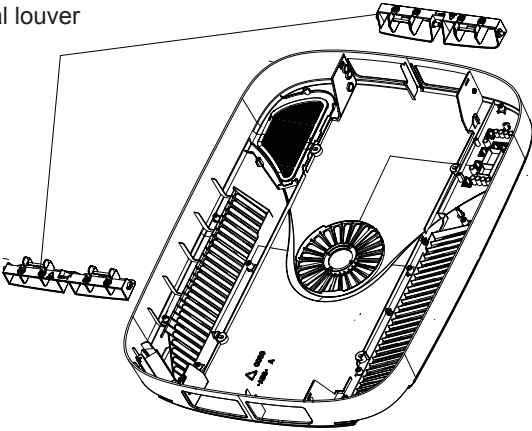
11.1 Removal Procedure of Indoor Unit

GRH085DA-K3NA1A/I GRH120DA-K3NA1A/I

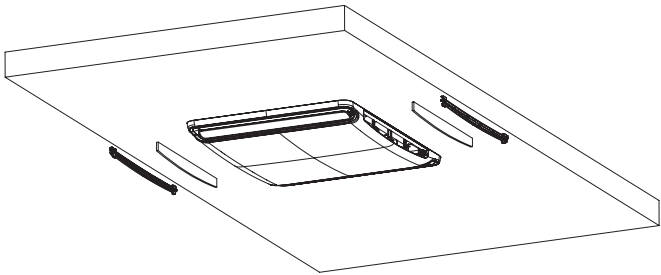
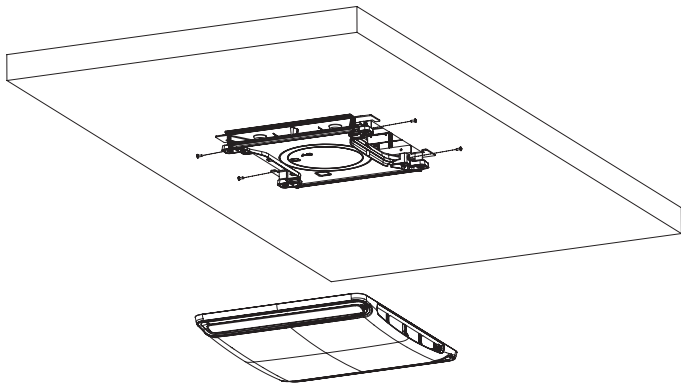
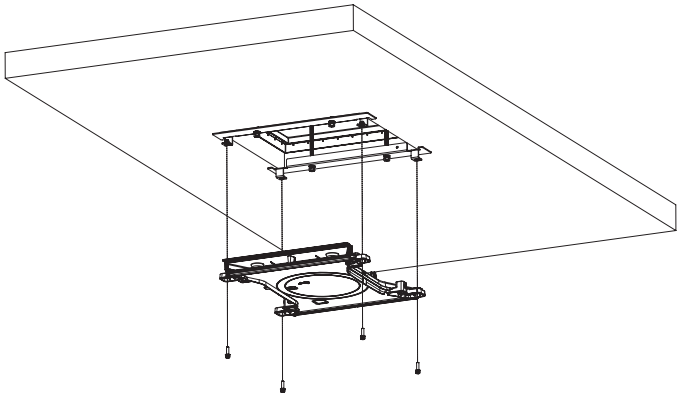
Step	Procedure
1.Remove panel Remove 4 screws on panel, disassemble the butted terminal, separate panel and installation plate, and then remove the panel.	
2. Remove installation plate Remove screws fixing the pressing plate, and then remove the press plate. Remove 4 bolts fixing the installation plate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

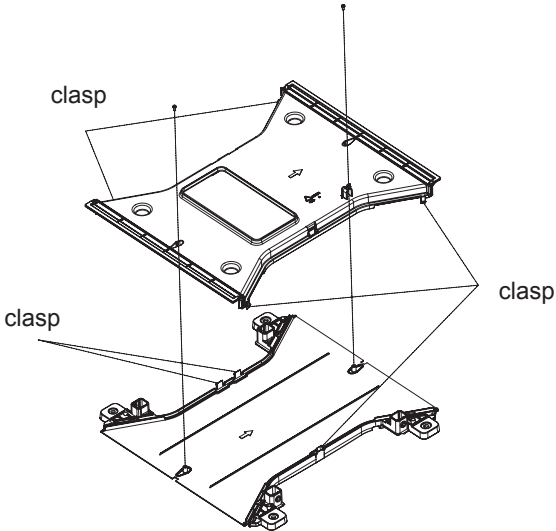
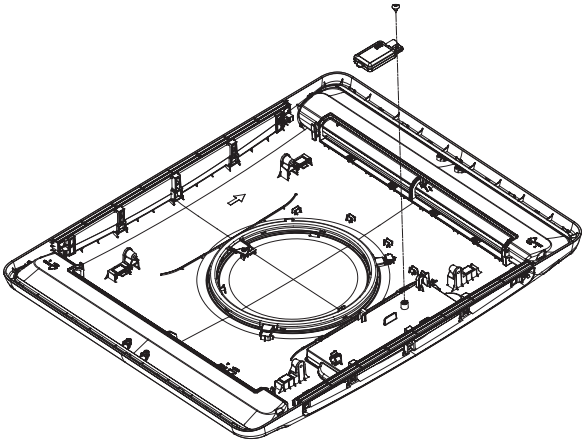
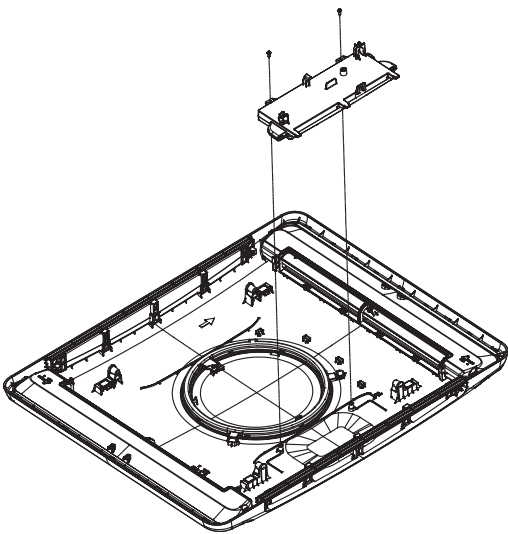
Step	Procedure	
3. Remove knob, air vent cover 1 and air vent cover 2 sub-assy	Loosen the clasps on knob, and then remove knob, air vent cover 1 and air vent cover 2.	 air vent cover 2 sub-assy air vent cover 1 sub-assy knob
4. Remove left and right filters sub-assy	Remove left and right filters sub-assy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

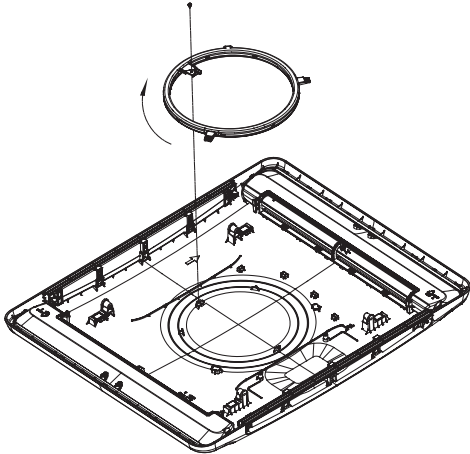
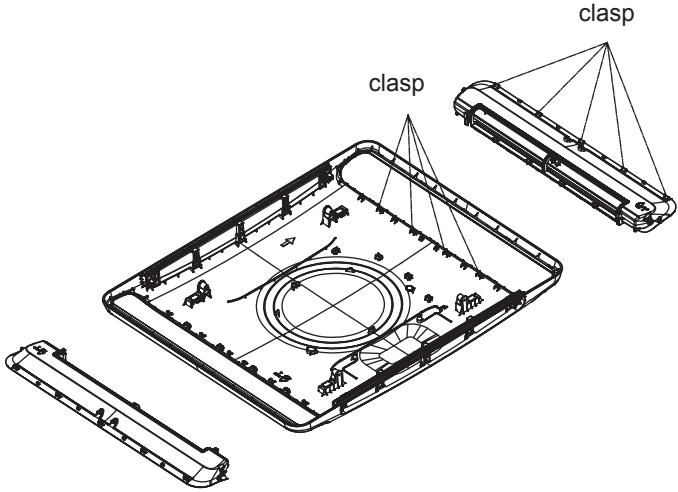
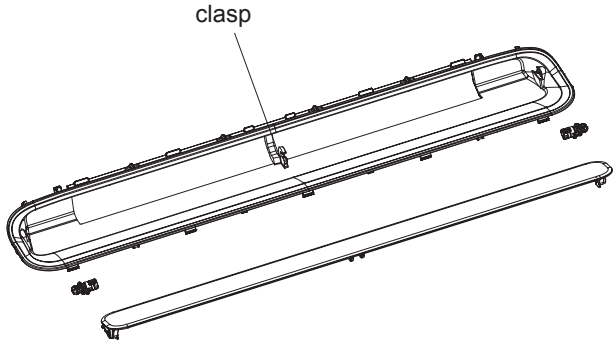
Step	Procedure
6. Remove display board sub-assy Remove screws fixing the display box sub-assy, and then remove the display box sub-assy cover. Remove screws fixing the detecting plate, and then remove the detecting plate. Remove 6 screws fixing the display board, pull out the motor terminal and then remove the display board.	 The diagram illustrates the removal of the display box sub-assembly cover, detecting plate, and display board. It shows three exploded views: 1) The display box cover sub-assy being removed from the top of the device. 2) The detecting plate being removed from the front of the device. 3) The display board being removed from the bottom of the device, with the top cover also shown being removed.
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.	 The diagram illustrates the removal of the display board and the LED light board from the display board. It shows two exploded views: 1) The display board being removed from the front of the device. 2) The LED light board being removed from the display board, with the display cover LED also shown being removed.

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

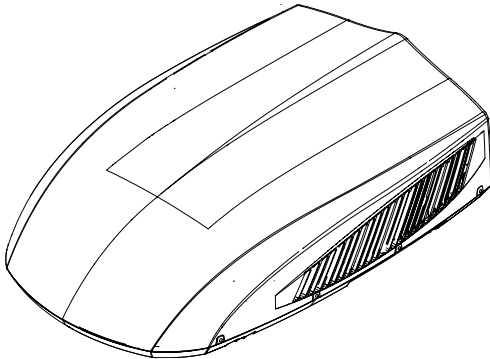
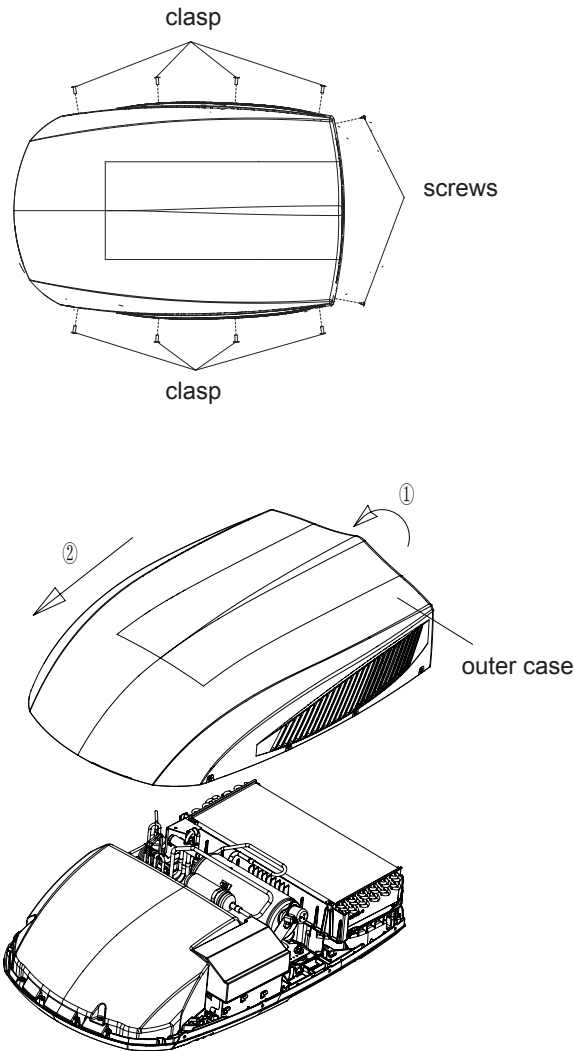
GRH085DA-K3NA2B/I GRH120DA-K3NA2B/I

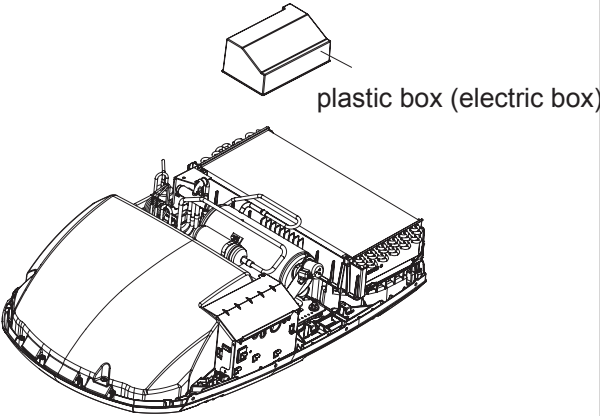
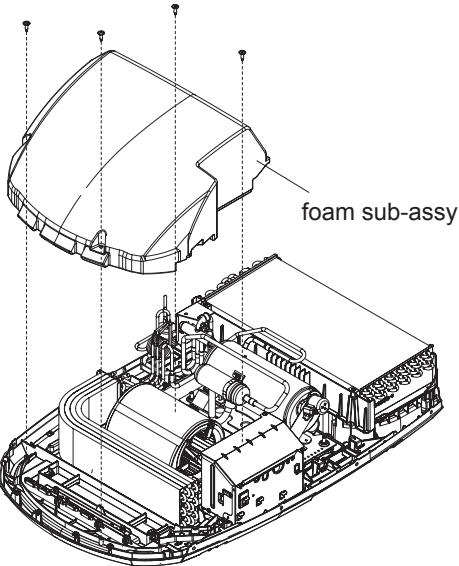
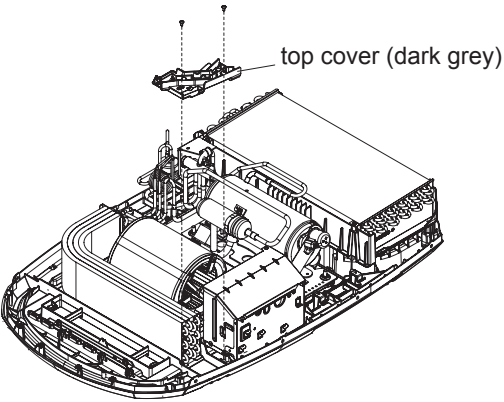
Step	Procedure	
1.Remove air-in grille and the filter Press both ends of air-outlet grille to unlock the door switch and then remove the air-in grille and the filter.		
2. Remove front panel sub-assy Loose 4 screws at both ends and then remove the panel sub-assy downwards.		
3. Remove air duct sub-assy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

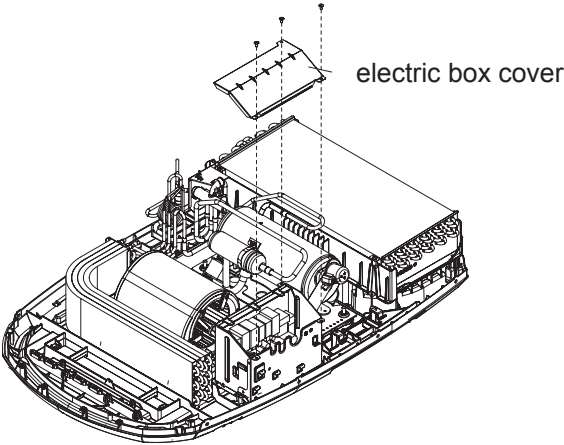
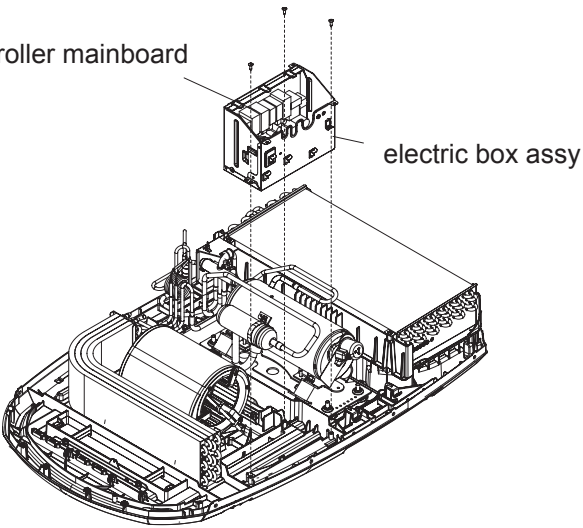
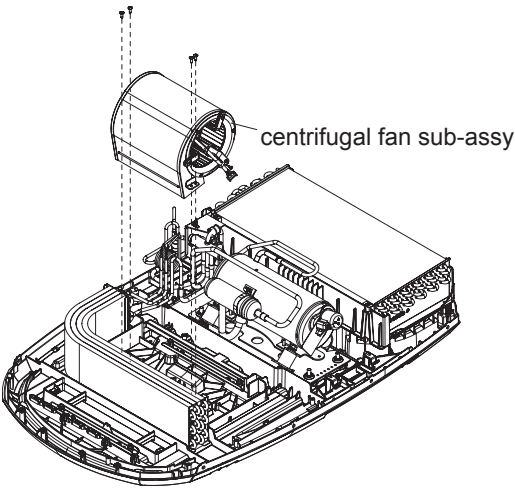
Step	Procedure	
4. Remove base plate and the middle air-outlet panel		
	Loose 2 screws at both ends; loose 7 clasps at both sides and then separate the base plate and the middle air-outlet panel.	
5. Remove detecting board		
	Loose 1 screw on the top; remove the detecting board.	
6. Remove display board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

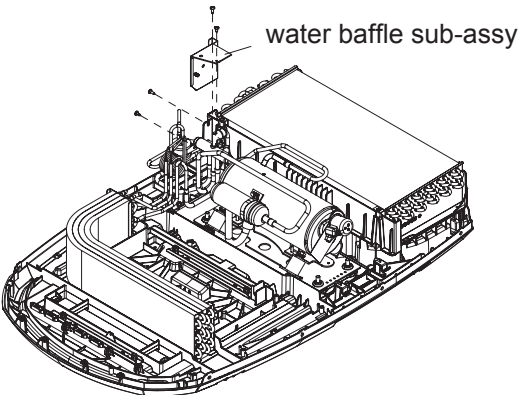
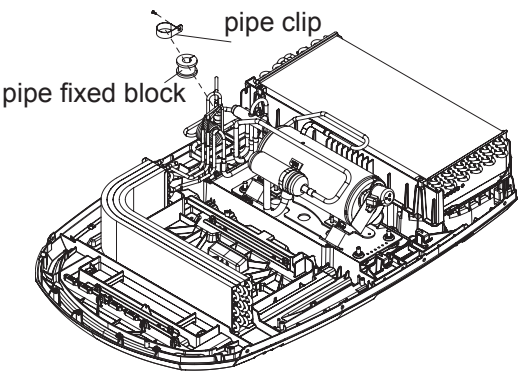
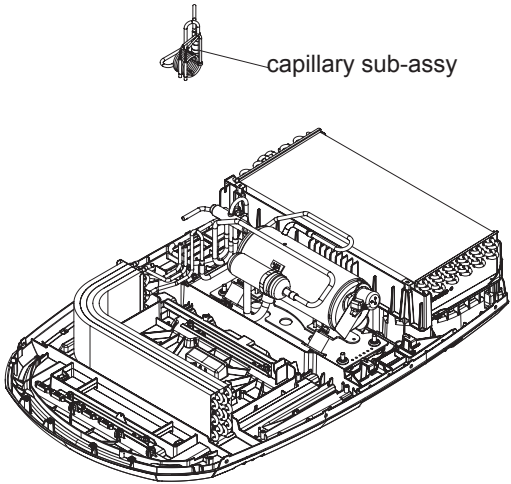
Step	Procedure
7.Remove display module	
8. Remove air-outlet frame sub-assy	
9. Remove guide louver and shaft of guide louver	

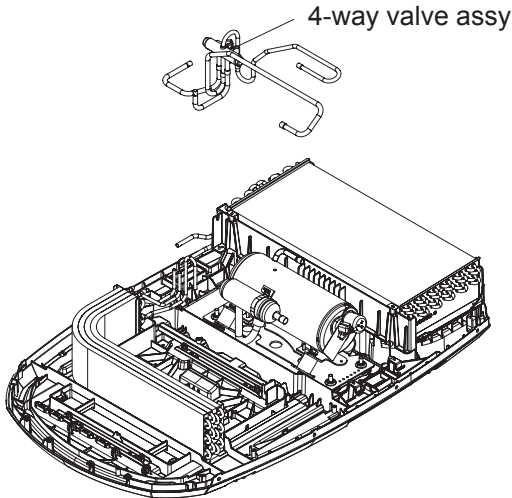
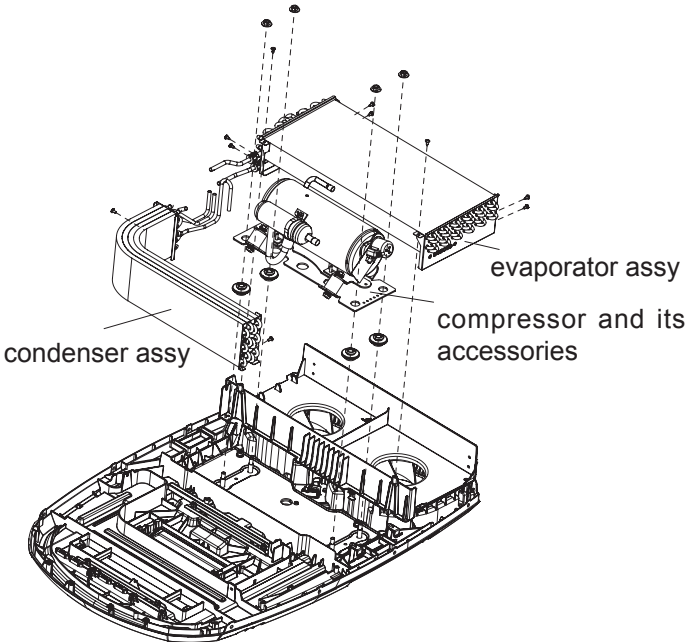
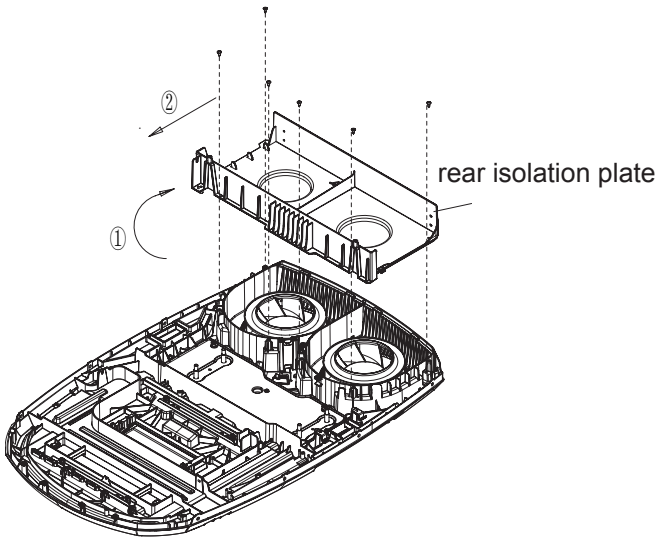
11.2 Removal Procedure of Outdoor Unit

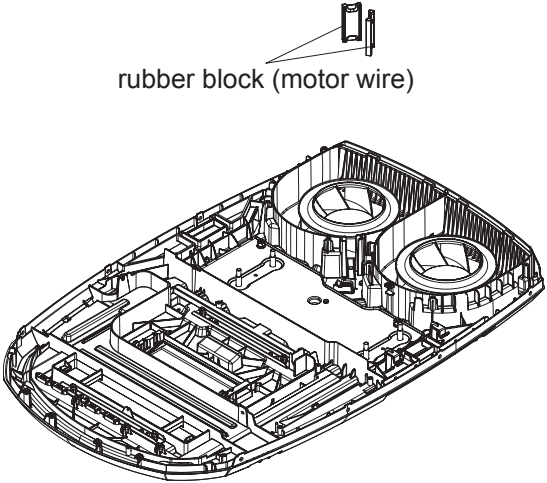
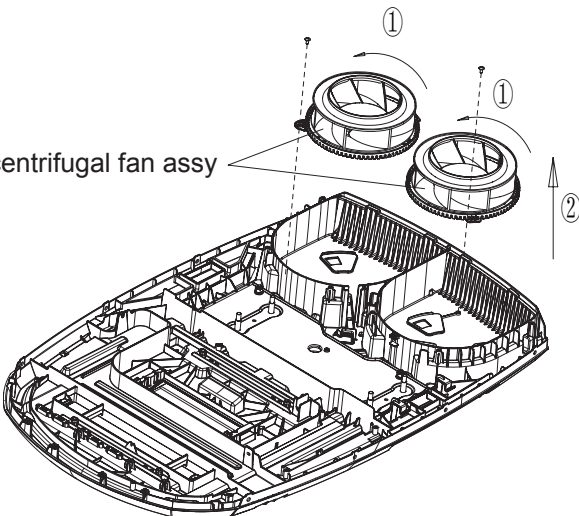
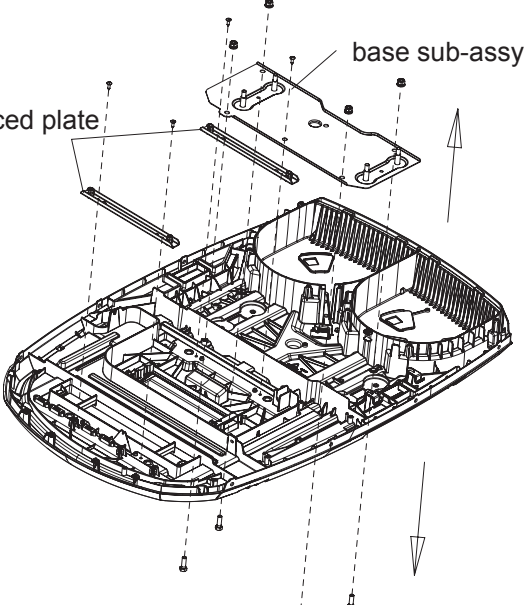
Step	Procedure
1. Outdoor unit diagram	
2.Remove outer case	Press the tool which is suitable for the size of clasp center hole into about 3mm from the center point fixing outer case clasp; pluck out the clasp forcibly; remove screws fixing outer case. (Note: when pressing the tool into the center of the clasp fixing outer case, the clasp may be locked if the tool is pressed too deeply) 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. 

Step	Procedure
3.Remove plastic box (electric box)	Lift the plastic box upwards to remove it.  plastic box (electric box)
4.Remove foam sub-assy	Remove screws fixing the foam sub-assy and then remove the foam sub-assy.  foam sub-assy
5.Remove top cover (dark grey)	Remove screws fixing the top cover and then remove the top cover. (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)  top cover (dark grey)

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		
8.Remove centrifugal fan sub-assy	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.	
	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. Note: 1.Before unsoldering the welding joint, please make sure the refrigerant is discharged completely. 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.  

Step	Procedure	
11.Remove 4-way valve assy	Unsolder the welding joint connecting the 4-way valve assy and then unsolder the 4-way valve assy. Note: 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	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.	 4-way valve assy
13.Remove rear isolation plate	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.	 condenser assy evaporator assy compressor and its accessories
	 rear isolation plate	

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

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

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

Set temperature

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

Ambient temperature

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

Appendix 2: 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



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For product improvement, specifications and appearance in this manual are subject to change without prior notice.