GREE
Change for Life

Service Manual

MODEL: GWH18(09X2)MA-K1NNA1A
GWH18(09X2)MA-K1NNA2A
GWH18(09X2)MA-K1NNA3A
GWH18(09X2)MA-K1NNA4A
GWH24(12X2)MB-K1NNA2A
GWH24(12X2)MB-K1NNA3A
GWH24(12X2)MB-K1NNA4A
GWH24(12X2)MB-K1NNE2A
GWH21(09+12)MB-K1NNA2A
GWH21(09+12)MB-K1NNA3A
GWH21(09+12)MB-K1NNA4A
GWH21(09+12)MB-K1NNE2A
(Refrigerant R22)

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

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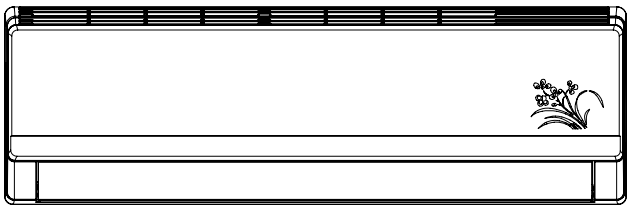
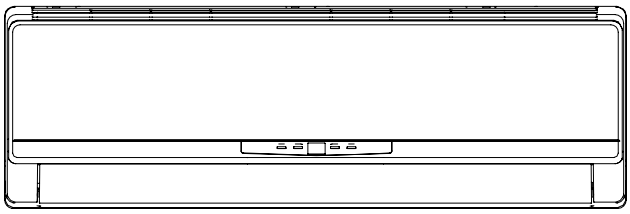
Summary and Features

Indoor Unit:

GWH(09)MA-K1NNA1A/I



GWH(09)MA-K1NNA2A/I
GWH(12)MB-K1NNA2A/I



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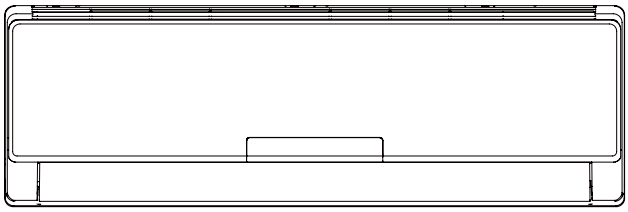
GWH(12)MB-K1NNA3A/I



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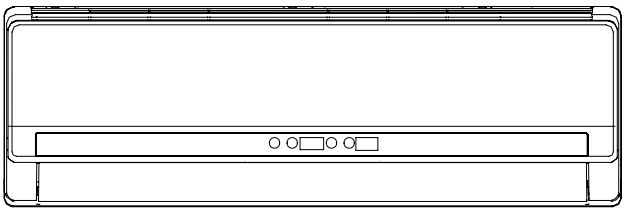
GWH(12)MB-K1NNA4A/I



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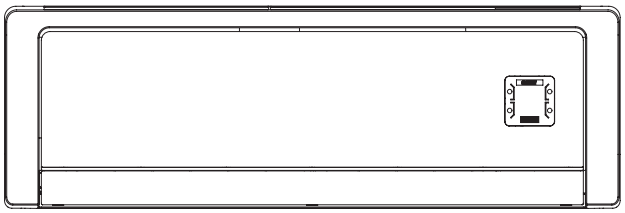
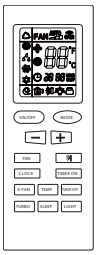
GWH(12)MB-K1NNE2A/I



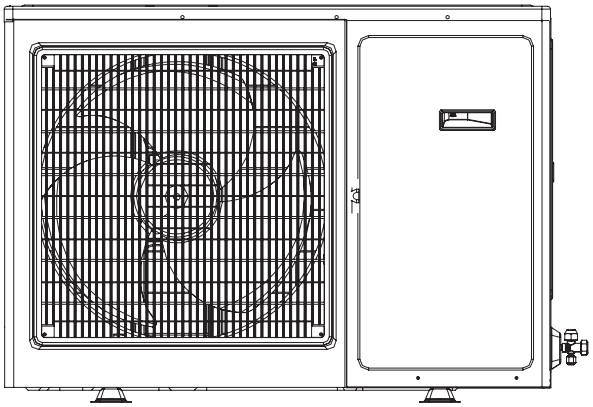
Remote Controller:

YB1FA



Outdoor Unit:

GWH18(09X2)MA-K1NNA3A/O
GWH24(12X2)MB-K1NNA3A/O
GWH21(09+12)MB-K1NNA3A/O



1. Safety Precautions

Installing, starting up, and servicing air conditioner can be hazardous due to system pressure, electrical components, and equipment location, etc.

Only trained, qualified installers and service personnel are allowed to install, start-up, and service this equipment. Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When handling the equipment, observe precautions in the manual and on tags, stickers, and labels attached to the equipment. Follow all safety codes. Wear safety glasses andwork gloves. Keep quenching cloth and fire extinguisher nearby when brazing.

Read the instructions thoroughly and follow all warnings or cautions in literature and attached to the unit. Consult local building codes and current editions of national as well as local electrical codes.

Recognize the following safety information:

⚠ Warning	Incorrect handling could result in personal injury or death.
⚠ Caution	Incorrect handling may result in minor injury,or damage to product or property.

⚠ Warning

All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

- Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.
- Never supply power to the unit unless all wiring and tubing are completed, reconnected and checked.
- This system adopts highly dangerous electrical voltage. Incorrect connection or inadequate grounding can cause personal injury or death. Stick to the wiring diagram and all the instructions when wiring.
- Have the unit adequately grounded in accordance with local electrical codes.
- Have all wiring connected tightly. Loose connection may lead to overheating and a possible fire hazard.

All installation or repair work shall be performed by your dealer or a specialized subcontractor as there is the risk of fire, electric shock, explosion or injury.

- Make sure the outdoor unit is installed on a stable, level surface with no accumulation of snow, leaves, or trash beside.
- Make sure the ceiling/wall is strong enough to bear the weight of the unit.
- Make sure the noise of the outdoor unit does not disturb neighbors.
- Follow all the installation instructions to minimize the risk of damage from earthquakes, typhoons or strong winds.
- Avoid contact between refrigerant and fire as it generates poisonous gas.
- 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 and other hazards.
- Make sure no refrigerant gas is leaking out when installation is completed.
- Should there be refrigerant leakage, the density of refrigerant in the air shall in no way exceed its limited value, or it may lead to explosion.
- Keep your fingers and clothing away from any moving parts.
- Clear the site after installation. Make sure no foreign objects are left in the unit.
- Always ensure effective grounding for the unit.

⚠ Caution

- Never install the unit in a place where a combustible gas might leak, or it may lead to fire or explosion.
- Make a proper provision against noise when the unit is installed at a telecommunication center or hospital.
- Provide an electric leak breaker when it is installed in a watery place.
- Never wash the unit with water.
- Handle unit transportation with care. The unit should not be carried by only one person if it is more than 20kg.
- Never touch the heat exchanger fins with bare hands.
- Never touch the compressor or refrigerant piping without wearing glove.
- Do not have the unit operate without air filter.
- Should any emergency occur, stop the unit and disconnect the power immediately.
- Properly insulate any tubing running inside the room to prevent the water from damaging the wall.

2. Specifications

2.1 Unit Specifications

Model			GWH18(09X2)MA-K1NNA3A GWH18(09X2)MA-K1NNA1A GWH18(09X2)MA-K1NNA2A GWH18(09X2)MA-K1NNA4A	GWH24(12X2)MB-K1NNA3A GWH24(12X2)MB-K1NNA4A GWH24(12X2)MB-K1NNE2A GWH24(12X2)MB-K1NNA2A
Product Code			CA15500120 CA15500900 CA15500920 CA15500940	CA15500180 CA15501000 CA401000800 CA15500980
Power Supply	Rated Voltage	V ～	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity		Btu/h	9000X2	12000X2
Heating Capacity		Btu/h	9800X2	12800X2
Cooling Power Input		W	1850	2650
Heating Power Input		W	1800	2400
Cooling Current Input		A	7.55	10.82
Heating Current Input		A	7.35	9.8
Rated Input		W	2400	3400
Rated Current		A	10.9	14.1
Air Flow Volume		m^3/h	500	630
Dehumidifying Volume		L/h	0.8	1.2
EER		(Btu/h)/W	9.72	9.06
COP		(Btu/h)/W	10.89	10.67
SEER			/	/
HSPF			/	/
Application Area		m^2	12-18	15-22
Indoor Unit	Indoor Unit Model		GWH(09)MA-K1NNA3A/I GWH(09)MA-K1NNA1A/I GWH(09)MA-K1NNA2A/I GWH(09)MA-K1NNA4A/I	GWH(12)MB-K1NNA3A/I GWH(12)MB-K1NNA4A/I GWH(12)MB-K1NNE2A/I GWH(12)MB-K1NNA2A/I
	Indoor Unit Product Code		CA155N0120 CA155N0900 CA155N0920 CA155N0940	CA155N0180 CA155N1000 CA401N00800 CA155N0980
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ85X596	Φ92X645
	Cooling Speed (SH/H/M/L)	r/min	1260/1050/920/730	1260/1070/900/730
	Heating Speed (SH/H/M/L)	r/min	1320/1200/1100/950	1280/1120/1030/920
	Fan Motor Power Output	W	10	20
	Fan Motor RLA	A	0.13	0.27
	Fan Motor Capacitor	μF	1	1
	Heater Power Input	W	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.5	2-1.4
	Evaporator Coil Length (LXDXW)	mm	581X25.4X264	645X25.4X267
	Swing Motor Model		MP24AA	MP24AA
	Swing Motor Power Output	W	1.5	1.5
	Fuse Current	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L)	dB (A)	40/37/30/26	41/38/34/29
	Sound Power Level (SH/H/M/L)	dB (A)	50/47/40/36	51/48/44/39
	Dimension (WXHXD)	mm	790X265X170	845X275X180
	Dimension of Carton Box (LXWXH)	mm	870X248X355	915X355X255
	Dimension of Package(LXWXH)	mm	873X251X370	918X358X270
	Net Weight	kg	9	10
	Gross Weight	kg	12	13

Outdoor Unit	Outdoor Unit Model		GWH18(09X2)MA-K1NNA3A/O	GWH24(12X2)MB-K1NNA3A/O
	Outdoor Unit Product Code		CA155W0120	CA155W0180
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.	ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QX-B172C030g	QX-23E030gA
	Compressor Oil		ATMOS-NM56EP	ATMOS NM56EP or ATMOS 56G
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	24	32
	Compressor RLA	A	4.65±5%	1270±5%
	Compressor Power Input	W	950±3%	6.3±5%
	Compressor Overload Protector		Internal	Internal
	Throttling Method		Capillary	Capillary
	Set Temperature Range	°C	16~30	16~30
	Cooling Operation Ambient Temperature Range	°C	18~48	18~48
	Heating Operation Ambient Temperature Range	°C	-7~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7	Φ7.94
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Coil Length (LXDXW)	mm	812X25.4X648	764X38.1X660
	Fan Motor Speed	rpm	815±15	850±20
	Fan Motor Power Output	W	60	70
	Fan Motor RLA	A	0.13	/
	Fan Motor Capacitor	μF	3	3.5
	Outdoor Unit Air Flow Volume	m^3/h	3000	3000
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ472	Φ472
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	2.5	2.5
	Permissible Excessive Operating Pressure for the Suction Side	MPa	0.6	0.6
	Sound Pressure Level (H/M/L)	dB (A)	56	58
	Sound Power Level (H/M/L)	dB (A)	66	68
	Dimension (WXHXD)	mm	1018X700X412	1018X700X412
	Dimension of Carton Box (LXWXH)	mm	1100X450X755	1100X450X755
	Dimension of Package(LXWXH)	mm	1103X453X790	1103X453X790
	Net Weight	kg	60	65
	Gross Weight	kg	65	70
	Refrigerant		R22	R22
	Refrigerant Charge	kg	0.9X2	0.9X2
Connection Pipe	Connection Pipe Length	m	4	4
	Connection Pipe Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ12
	Max Distance Height	m	10	10
	Max Distance Length	m	25	25

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

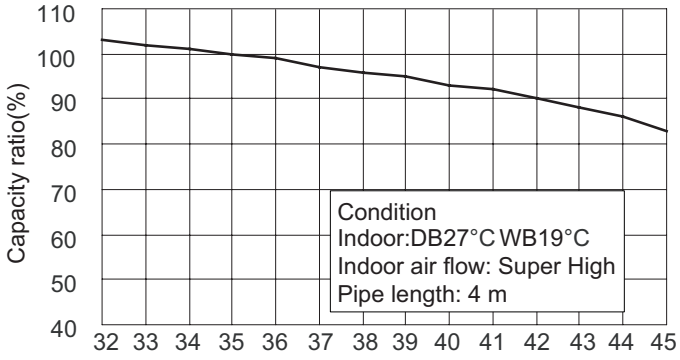
Model			GWH21(09+12)MB-K1NNA3A GWH21(09+12)MB-K1NNA4A GWH21(09+12)MB-K1NNE2A GWH21(09+12)MB-K1NNA2A	
Product Code			CA15500150 CA15503230 CA401001900 CA15501070	
Power Supply	Rated Voltage	V ~	220-240	
	Rated Frequency	Hz	50 50	
	Phases		1 1	
Power Supply Mode			Outdoor Indoor	
Cooling Capacity		Btu/h	9000+12000	
Heating Capacity		Btu/h	9800+12800	
Cooling Power Input		W	2320	
Heating Power Input		W	2100	
Cooling Current Input		A	9.47	
Heating Current Input		A	8.575	
Rated Input		W	3100	
Rated Current		A	12.66	
Air Flow Volume		m^3/h	500+630	
Dehumidifying Volume		L/h	0.8+1.2	
EER		(Btu/h)/W	9.05	
COP		(Btu/h)/W	10.76	
SEER			/	
HSPF			/	
Application Area		m^2	12-18	15-22
Indoor Unit	Indoor Unit Model		GWH(09)MA-K1NNA3A/I GWH(09)MA-K1NNA4A/I GWH(09)MA-K1NNE2A/I GWH(09)MA-K1NNA2A/I	GWH(12)MB-K1NNA3A/I GWH(12)MB-K1NNA4A/I GWH(12)MB-K1NNE2A/I GWH(12)MB-K1NNA2A/I
	Indoor Unit Product Code		CA155N0120 CA155N0940 CA401N01400 CA155N0920	CA155N0180 CA155N1000 CA401N00800 CA155N0980
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ85X596	Φ92X645
	Cooling Speed (SH/H/M/L)	r/min	1260/1050/920/730	1260/1070/900/730
	Heating Speed (SH/H/M/L)	r/min	1320/1200/1100/950	1280/1120/1030/920
	Fan Motor Power Output	W	10	20
	Fan Motor RLA	A	0.13	0.27
	Fan Motor Capacitor	μF	1	1
	Heater Power Input	W	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.5	2-1.4
	Evaporator Coil Length (LXDXW)	mm	581X25.4X264	645X25.4X267
	Swing Motor Model		MP24AA	MP24AA
	Swing Motor Power Output	W	1.5	1.5
	Fuse Current	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L)	dB (A)	40/37/30/26	41/38/34/29
	Sound Power Level (SH/H/M/L)	dB (A)	50/47/40/36	51/48/44/39
	Dimension (WXHXD)	mm	790X265X170	845X275X180
	Dimension of Carton Box (LXWXH)	mm	870X248X355	915X355X255
	Dimension of Package(LXWXH)	mm	873X251X370	918X358X270
	Net Weight	kg	9	10
	Gross Weight	kg	12	13

Outdoor Unit	Outdoor Unit Model		GWH21(09+12)MB-K1NNA3A/O	
	Outdoor Unit Product Code		CA155W0150	
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.	
	Compressor Model		QX-B172C030g	QX-23E030gA
	Compressor Oil		ATMOS-NM56EP	ATMOS NM56EP or ATMOS 56G
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	24	32
	Compressor RLA	A	4.65±5%	1270±5%
	Compressor Power Input	W	950±3%	6.3±5%
	Compressor Overload Protector		Internal	
	Throttling Method		Capillary	
	Set Temperature Range	°C	16~30	
	Cooling Operation Ambient Temperature Range	°C	18~48	
	Heating Operation Ambient Temperature Range	°C	-7~24	
	Condenser Form		Aluminum Fin-copper Tube	
	Condenser Pipe Diameter	mm	Φ7.94	
	Condenser Rows-fin Gap	mm	2-1.4	
	Condenser Coil Length (LXDXW)	mm	764X38.1X660	
	Fan Motor Speed	rpm	850±20	
	Fan Motor Power Output	W	70	
	Fan Motor RLA	A	/	
	Fan Motor Capacitor	μF	3.5	
	Outdoor Unit Air Flow Volume	m^3/h	3000	
	Fan Type		Axial-flow	
	Fan Diameter	mm	Φ472	
	Defrosting Method		Automatic Defrosting	
	Climate Type		T1	
	Isolation		I	
	Moisture Protection		IP24	
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	2.5	
	Permissible Excessive Operating Pressure for the Suction Side	MPa	0.6	
	Sound Pressure Level (H/M/L)	dB (A)	58	
	Sound Power Level (H/M/L)	dB (A)	68	
	Dimension (WXHXD)	mm	1018X700X412	
	Dimension of Carton Box (LXWXH)	mm	1100X450X755	
	Dimension of Package(LXWXH)	mm	1103X453X790	
	Net Weight	kg	65	
	Gross Weight	kg	70	
	Refrigerant		R22	
	Refrigerant Charge	kg	1.8	
Connection Pipe	Connection Pipe Length	m	4	
	Connection Pipe Gas Additional Charge	g/m	20	
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ12
	Max Distance Height	m	10	
	Max Distance Length	m	25	

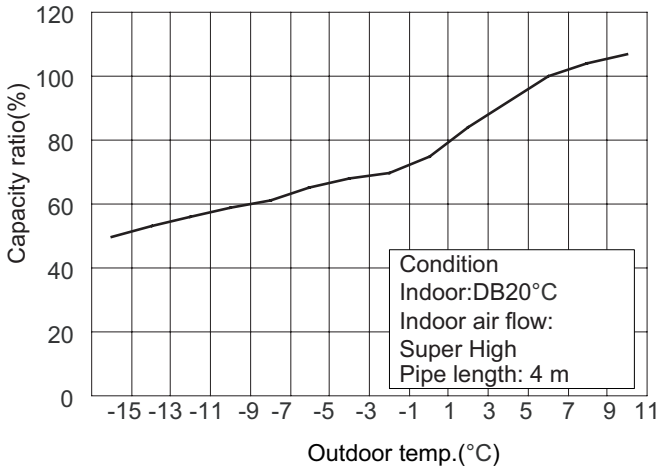
The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Capacity Variation Ratio According to Temperature

Cooling



Heatling



2.3 Operation Data

Cooling

Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp.		Indoor fan mode	Outdoor fan mode
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
27/19	35/24	09K Unit	0.48~0.56	in:8~11 out:11~14	in:75~85 out:36~43	Super High	High
		12K Unit				Super High	High

Heatling

Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp.		Indoor fan mode	Outdoor fan mode
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
20/-	7/6	09K Unit	1.5~1.7	in:75~85 out:37~43	in:1~3 out:2~5	Super High	High
		12K Unit				Super High	High

T1: Inlet and outlet pipe temperature of evaporator; T2: Inlet and outlet pipe temperature of condenser;

P: Pressure of air pipe connecting indoor and outdoor units.

NOTES :

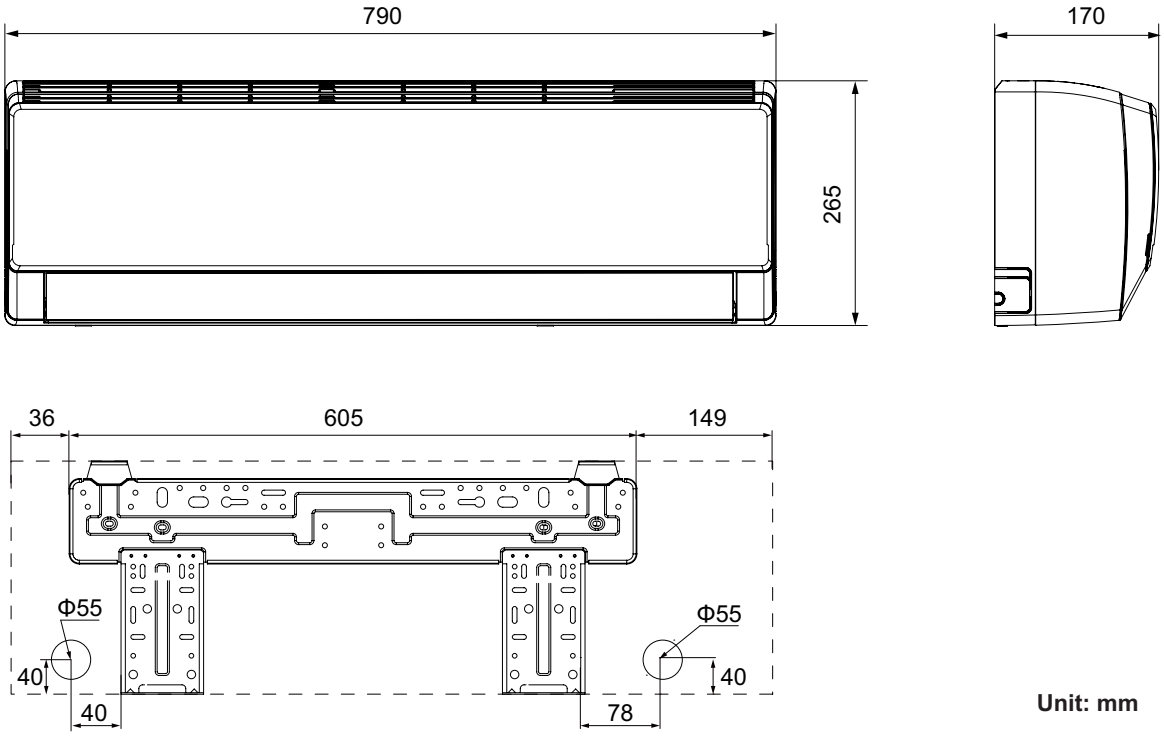
(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor themometer)

(2) Connecting piping condition : 4m

3. Construction Views

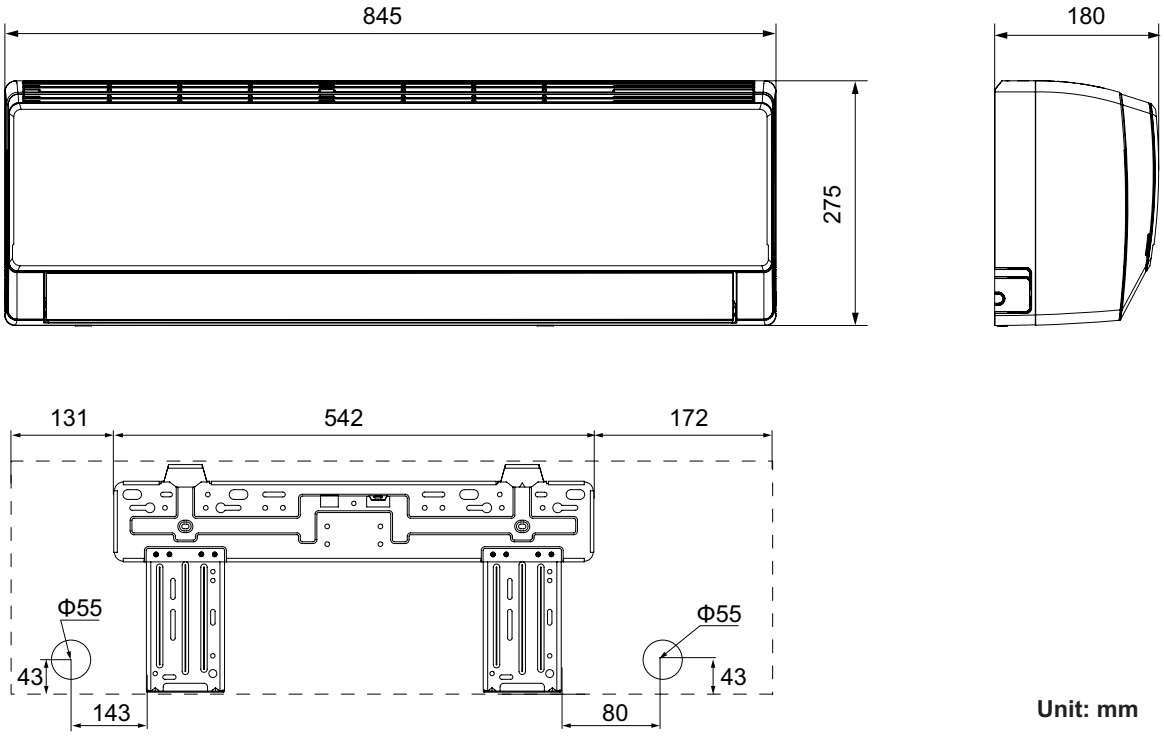
3.1 Indoor Unit

(1)09K Unit



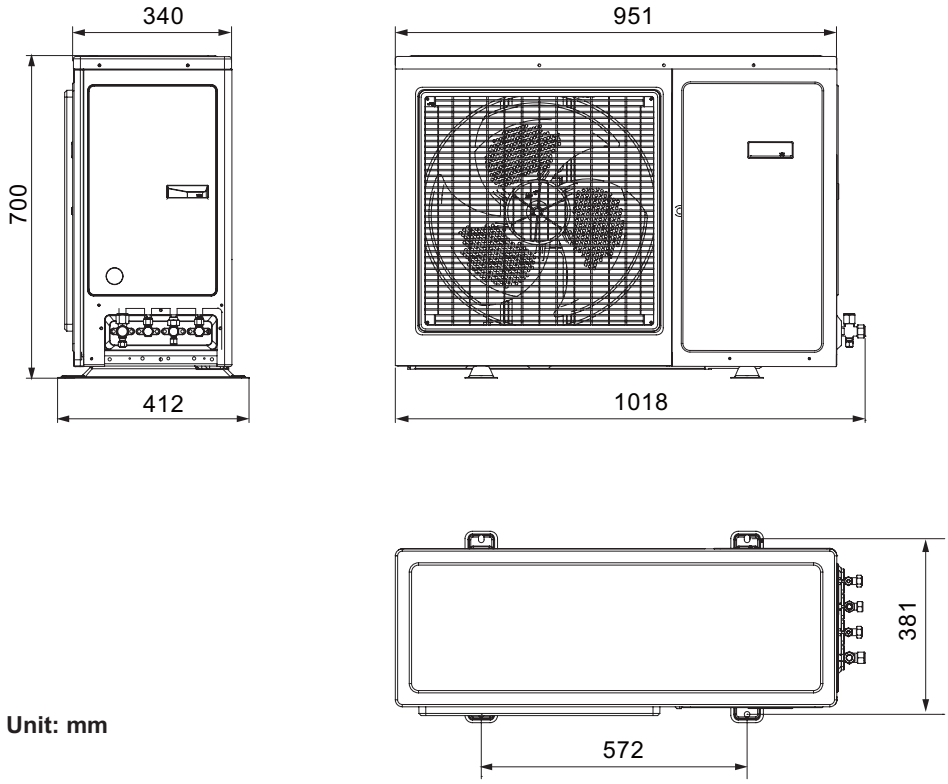
Unit: mm

(2)12K Unit



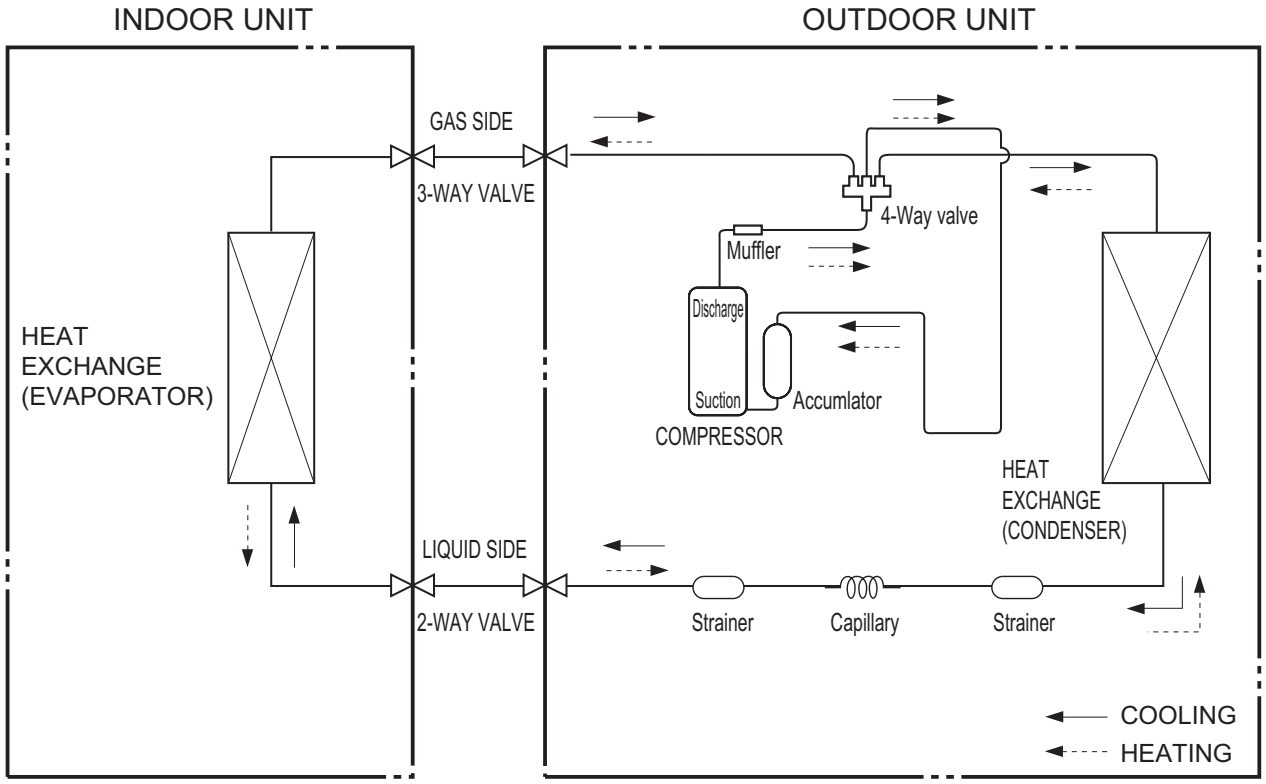
Unit: mm

3.2 Outdoor Unit



Unit: mm

4. Refrigerant System Diagram



Refrigerant pipe diameter

Liquid :1/4" (6 mm) Gas : 3/8" (9.52mm)(For 09K Unit)

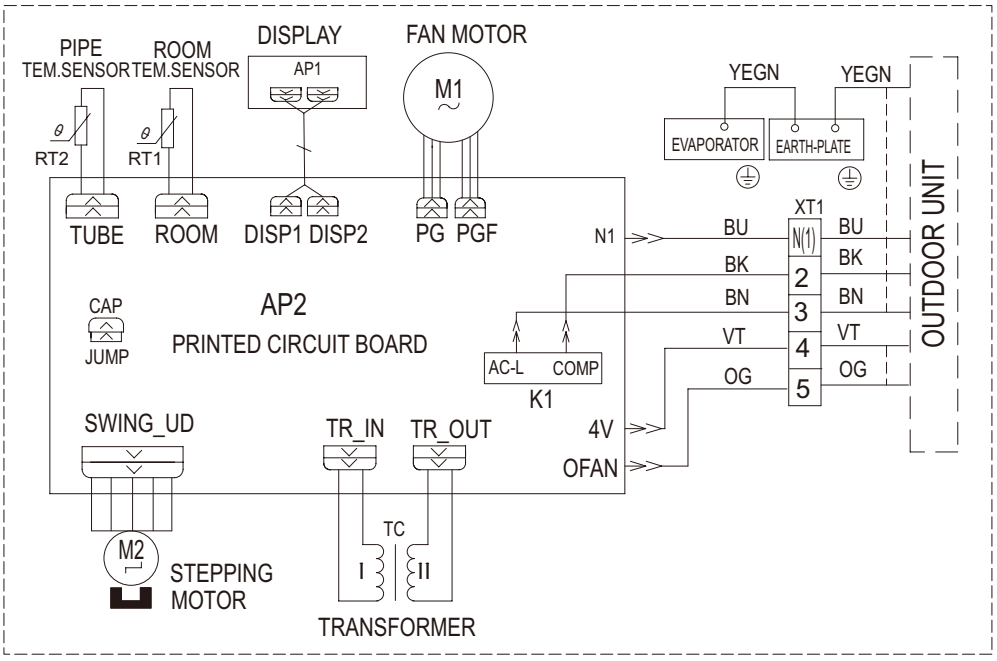
Liquid :1/4" (6 mm) Gas : 1/2" (12mm)(For 12K Unit)

5. Schematic Diagram

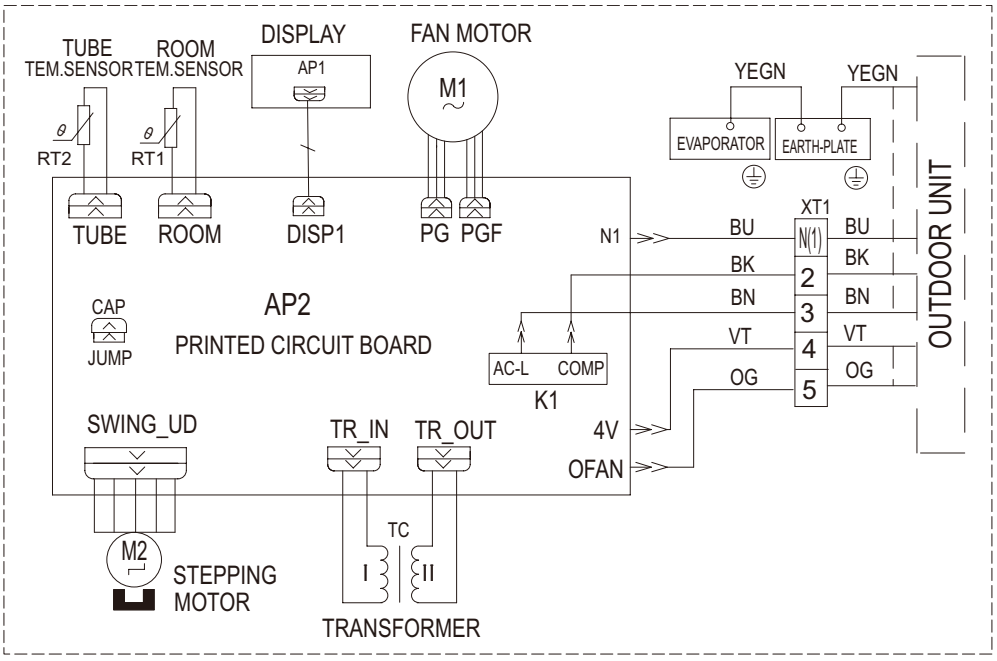
5.1 Electrical Wiring

- **Indoor Unit**

(1)Applicable for all models except GWH(09)MA-K1NNA1A/I

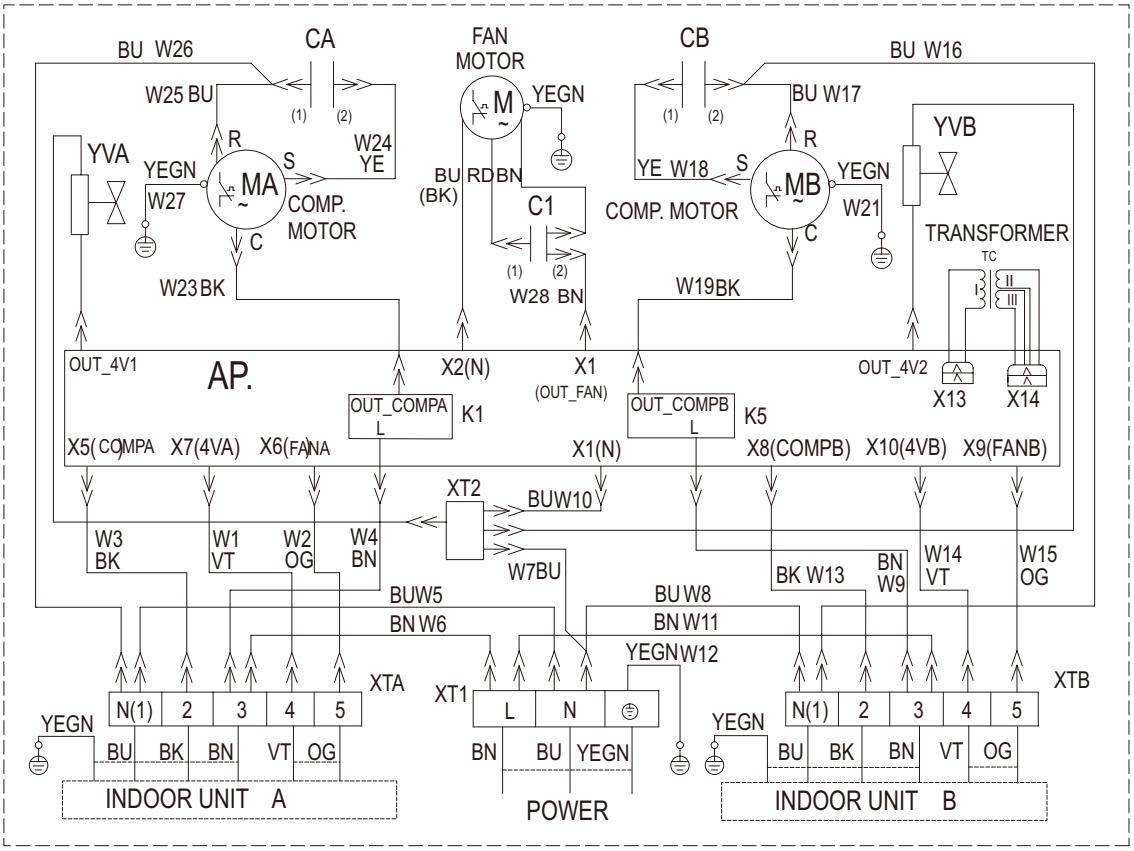


(2)GWH(09)MA-K1NNA1A/I



Symbol	Color symbol
OG	ORANGE
WH	WHITE
YE	YELLOW
RD	RED
YEGN	YELLOW GREEN
BN	BROWN
BU	BLUE
BK	BLACK
VT	VIOLET
Symbol	Parts name
COMP	COMPRESSOR
CT1,2	OVERLOAD
4V	4-WAY VALVE
XT	TERMINAL BLOCK
⏚	PROTECTIVE EARTH

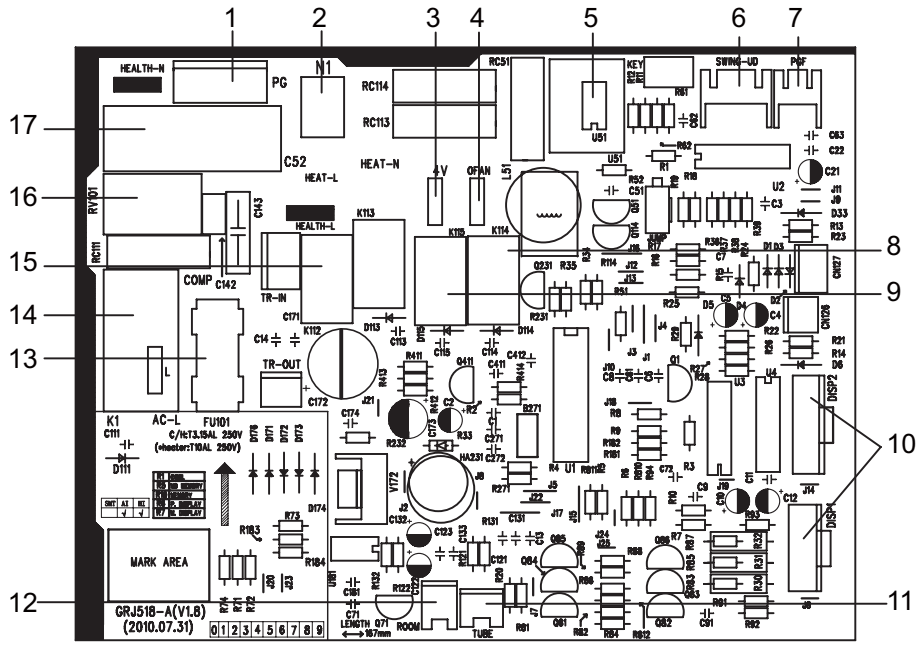
- **Outdoor Unit**



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

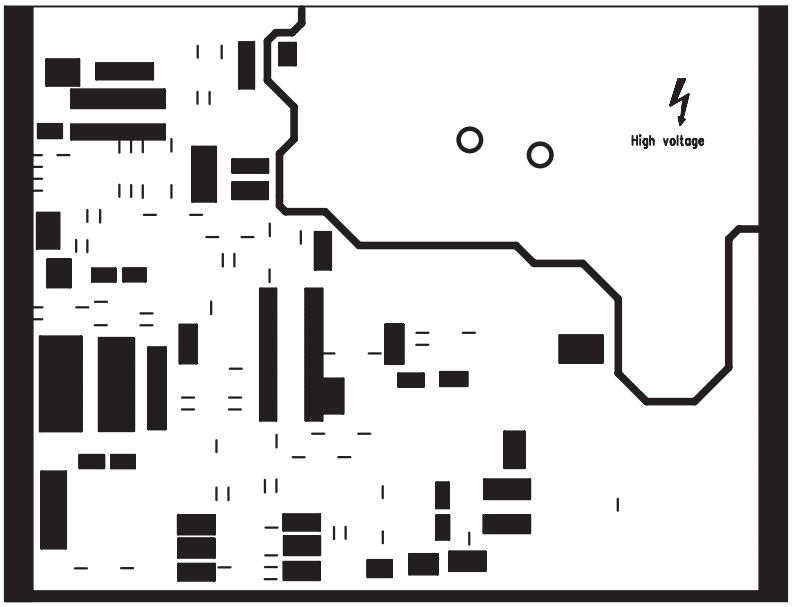
5.2 Printed Circuit Board

- **Top View**



1	Interface of PG motor
2	Neutral wire insert
3	4-way valve insert
4	Outdoor fan insert
5	Solid relay
6	Interface of up&down swing
7	Interface of PG motor feedback
8	Relay of controlling outdoor unit
9	Relay of controlling 4-way valve
10	Connected to display board DSP1, DSP2
11	Terminal of indoor tube temperature sensor
12	Terminal of indoor ambient temperature sensor
13	Fuse
14	Compressor relay and live wire terminal
15	Relay of controlling cold plasma
16	Piezoresistance
17	Fan capacitor

- **Bottom View**



6. Function and Control

6.1 Remote Control Operations

1 ON/OFF

Press it to start or stop operation.

2 MODE

Press it to select operation mode (AUTO/COOL/DRY/FAN/HEAT).

3 +

Press it to increase temperature setting.

4 -

Press it to decrease temperature setting.

5 FAN

Press it to set fan speed.

6

Press it to set swing angle.

7 TIMER ON

Press it to set auto-on timer.

8 TIMER OFF

Press it to set auto-off timer.

9 CLOCK

Press it to set clock.

10 X-FAN

(X-FAN is the alternative expression of BLOW for the purpose of understanding.)

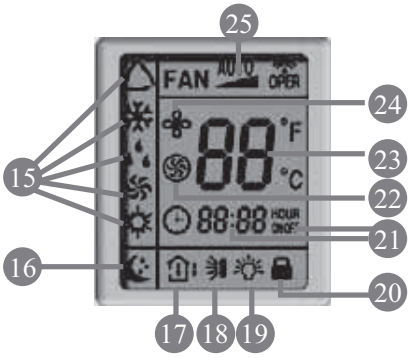
11 TEMP

12 TURBO

13 SLEEP

14 LIGHT

Press it to turn on/off the light.



15 MODE icon:

If MODE button is pressed, current operation mode icon (AUTO), (COOL), (DRY), (FAN) or (HEAT is only for heat pump models) will show.

16 SLEEP icon :

is displayed by pressing the SLEEP button. Press this button again to clear the display.

17 TEMP icon:

Pressing TEMP button, (set temperature), (indoor ambient temperature), (outdoor ambient temperature) and blank is displayed circularly.

18 Up & down swing icon:

is displayed when pressing the up & down swing button. Press this button again to clear the display.

19 LIGHT icon:

is displayed by pressing the LIGHT button.Press LIGHT button again to clear the display.

20 LOCK icon:

is displayed by pressing "+" and "-" buttons simultaneously.Press them again to clear the display.

21 SET TIME display:

After pressing TIMER button, ON or OFF will blink.This area will show the set time.

22 TURBO icon:

is displayed when pressing theTURBO button.Press this button again to clear the display.

23 DIGITAL display:

This area will show the set temperature. In SAVE mode,"SE" will be displayed. During defrosting operation, "H1" will be displayed.

24 X-FAN icon:

is displayed when pressing the X-FAN button. Press this button again to clear the display.

25 FAN SPEED display:

Press FAN button to select the desired fan speed setting(AUTO Low-Med-High).Your selection will be displayed in the LCD windows, except the AUTO fan speed.

1 ON/OFF:

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

2 MODE:

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

AUTO ▶ COOL ▶ DRY ▶ FAN ▶ HEAT*

*Note: Only for models with heating function.

After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operation mode in accordance with the room temperature to make indoor room comfortable.

3 + :

Press this button to increase set temperature. Hold it down for above 2 seconds to rapidly increase set temperature. In AUTO mode, set temperature is not adjustable.

4 -:

Press this button to decrease set temperature. Hold it down for above . 2 seconds to rapidly decrease set temperature. In AUTO mode, set temperature is not adjustable.

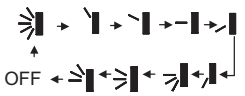
5 FAN :

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

Low speed Medium speed High speed

6

Press this button to set up & down swing angle, which circularly changes as below:



This remote controller is universal. If any command , or is sent out, the unit will carry out the command as indicates the guide louver swings as:

7 TIMER ON:

Press this button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again. After pressing this button, ⏲ disappears and "ON" blinks . 0 0:00 is displayed for ON time setting. Within 5 seconds, press + or - button to adjust the time value. Every press of either button changes the time setting by 1 minute. Holding down either button rapidly changes the time setting by 1 minute and then 10 minutes. Within 5 seconds after setting, press TIMER ON button to confirm.

8 TIMER OFF:

Press this button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again.TIMER OFF setting is the same as TIMER ON.

9 CLOCK :

Pressing CLOCK button, ⏲ blinks. Within 5 seconds, pressing + or - button adjusts the present time. Holding down either button above 2 seconds increases or decreases the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting, and then ⏲ will be constantly displayed.

10 X-FAN:

Pressing X -FAN button in COOL or DRY mode,the icon ✿ is displayed and the indoor fan will continue operation for 10 minutes in order to dry the indoor unit even though you have turned off the unit.

After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode.

11 TEMP:

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.

12 TURBO:

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed.

13 SLEEP:

Press this button to go into the SLEEP operation mode. Press it again to cancel this function. This function is available in COOL, HEAT (Only for models with heating function) or DRY mode to maintain the most comfortable temperature for you.

14 LIGHT:

Press LIGHT button to turn on the display's light and press this button again to turn off the display's light. If the light is turned on , 💡 is displayed. If the light is tunrned off, 💡 disappears.

15 Combination of "+" and "-" buttons: About lock

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

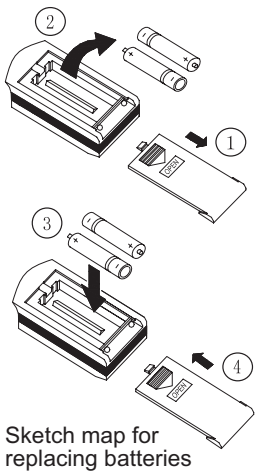
16 Combination of "MODE" and "-" buttons:About switch between Fahrenheit and Centigrade At unit OFF, press "MODE" and "- " buttons simultaneously to switch between ℃ and ℉.

Replacement of Batteries

1.Remove the battery cover plate from the rear of the remote controller.
(As shown in the figure)
2.Take out the old batteries.
3.Insert two new AAA1.5V dry batteries, and pay attention to the polarity.
4. Reinstall the battery cover plate.

★Notes:

●When replacing the batteries, do not use old or different types of batteries. Otherwise, it may cause malfunction.
●If the remote controller will not be used for a long time, please remove batteries to prevent batteries from leaking.
●The operation should be performed in its receiving range.
●It should be kept 1m away from the TV set or stereo sound sets.
●If the remote controller does not operate normally, please take the batteries out and reinsert them after 30 seconds. If it still can't operate properly, replace the batteries.



Sketch map for replacing batteries

6.2 Description of Each Control Operation

1.Temperature Parameters

◆ Indoor preset temperature (Tpreset)

◆ Indoor ambient temperature (Tamb.)

2.Basic Functions (The temperature in this manual is expressed by Centigrade. If Fahrenheit is used, the switchover between them is Tf=TcX1.8+32.)

Once the compressor is energized, there should be a minimum interval of 3 minutes between two start-ups. But if the unit is de-energized and then energized, the compressor can restart within 3 minutes.

2.1 Cooling Mode

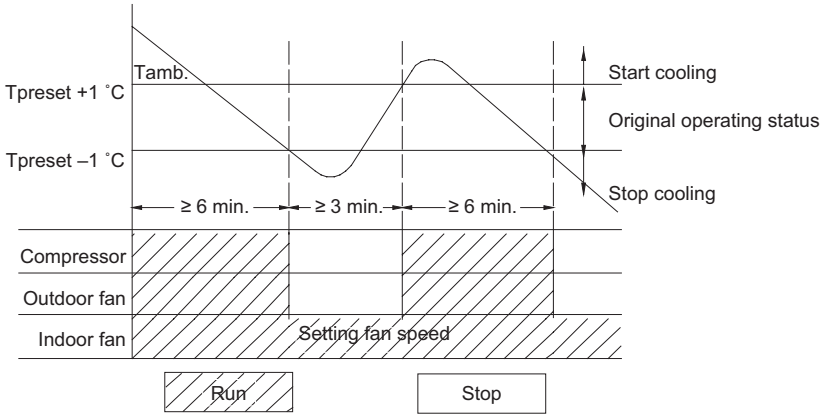
2.1.1 Cooling Conditions and Process

When Tamb. ≥Tpreset+1°C, the unit starts cooling operation. In this case, the compressor and the outdoor fan operate and the indoor fan operates at set speed.

When Tamb. ≤Tpreset-1°C, the compressor and the outdoor fan stop while the indoor fan runs at set speed.

When Tpreset-1°C<Tamb. <Tpreset+1°C, the unit will maintain its previous running status.

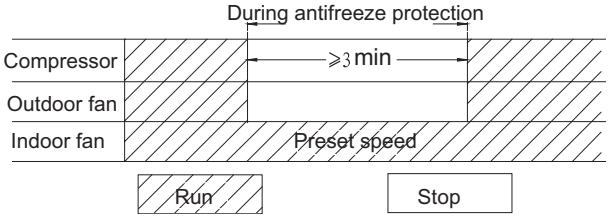
In cooling mode, the four-way valve is de-energized; temperature setting range is 16 ～ 30°C; the indoor unit displays operation icon, cooling icon and set temperature.



2.1.2 Protection Functions

◆ Freeze protection

If the system is under freeze protection, the compressor and the outdoor fan stop operation, and the indoor fan operates at set speed. If freeze protection is eliminated and the compressor has been out of operation for 3 minutes, the unit will resume its previous running status.



2.2 Dry Mode

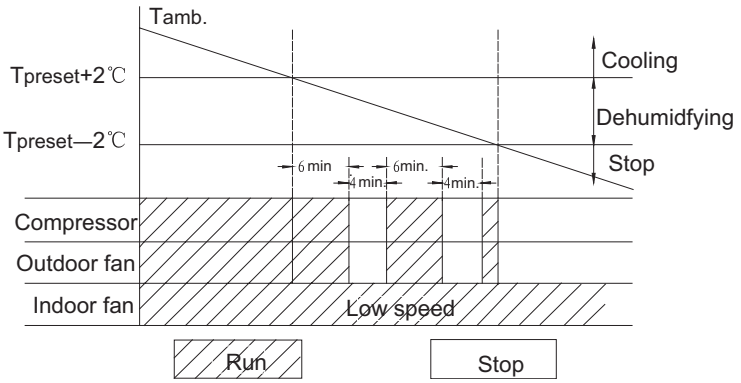
2.2.1 Dry Conditions and Process

When Tamb. >Tpreset+2°C, the unit starts drying and cooling operation. In this case, the compressor and the outdoor fan operate; the indoor fan operates at low speed.

When Tpreset-2°C≤Tamb. ≤Tpreset+2°C, the unit will start drying operation. In this case, the indoor fan operates at low speed; the compressor and the outdoor fan operate for 6 minutes and stop for 4 minutes in cycle.

When Tamb.<Tpreset-2°C, the compressor and the outdoor fan stop operation; the indoor fan operates at low speed.

In drying mode, the four-way valve is de-energized; temperature setting range is 16 ～ 30°C; the indoor unit displays operation icon, dry icon and set temperature.



2.2.2 Protection

◆ Freeze protection

During drying and cooling operation, if the system is under freeze protection, the compressor and outdoor fan stop operation while indoor fan operates at low speed. If freeze protection is eliminated and the compressor has been out of operation for 3 minutes, the complete unit will resume its previous running status.

During the cycle of on for 6 min and off for 4 min, if freeze protection is detected, the compressor and the outdoor fan will stop operation; the indoor fan will operate at low speed. When freeze protection is eliminated and the compressor has been out of operation for 4 minutes, the complete unit will resume its previous running status.

2.2.3 Other protection

Other protections are the same as those in cooling mode

2.3 Heating mode

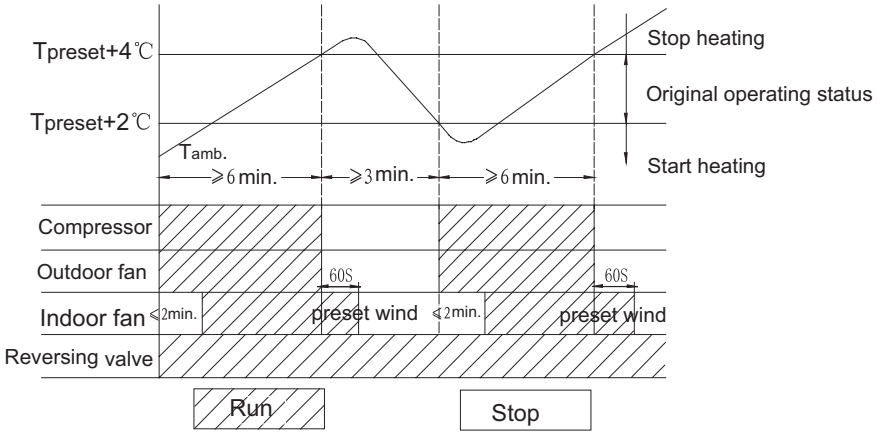
2.3.1 Heating conditions and process

When Tamb. ≤Tpreset+2°C, the unit starts heating operation. In this case, the 4-way valve, compressor and outdoor fan operate simultaneously; the indoor fan operates with a maximum delay of 2 minutes.

When Tamb≥Tpreset+4°C, the compressor and outdoor fan stop operation. The 4-way valve remains energized; the indoor fan blows residual heat.

When Tpreset +2°C < T amb. < Tpreset +4°C, the unit will maintain its previous running status.

Under this mode, the 4-way valve is energized; temperature setting range is 16 ～ 30°C; the indoor unit displays operation icon, heating icon and set temperature.



2.3.2 Defrosting Conditions and Process

With intelligent defrosting function, the unit defrosts automatically according to the actual condition. The indoor unit displays “H1”.

2.3.3 Protection Functions

◆ Overheating Prevention Protection

If the evaporator tube temperature overheats, the outdoor fan stops operation. When the tube temperature returns to normal, the outdoor fan resumes operation.

◆ Noise Silencing Protection

If the unit is turned off by pressing ON/OFF button or during mode switchover, the 4-way valve stops with a delay of 2 minutes.

2.4 Fan Mode

In fan mode, indoor fan operates at set speed while the compressor, outdoor fan stop operation.

In this mode, temperature setting range is 16 ～ 30°C. The indoor unit displays operation icon and set temperature.

2.5 Auto Mode

In AUTO mode, the unit will automatically select its operation mode (cooling,fan) with the change of ambient temperature. The indoor unit displays the operation icon, operation mode icon and set temperature. There is a 30-second delay protection for mode switchover. Protection functions are the same as those in any other mode.

3 Other Control

3.1 Timer Function

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

3.1.1 General Timer

Timer ON can be set at unit OFF. If selected ON time is reached, the unit will start to operate according to previous setting status. Time setting range is 0.5-24hr in 30-minute increments.

Timer OFF can be set at unit ON. If selected OFF time is reached, the unit will stop operation. Time setting range is 0.5-24hr in 30-minute increments.

3.1.2 Clock Timer

Timer ON

If timer ON is set during operation of the unit, the unit will continue to operate. If timer ON is set at unit OFF, upon ON time reaches the unit will start to operate according to previous setting status.

Timer OFF

If timer OFF is set at unit OFF, the system will keep standby status. If timer OFF is set at unit ON, upon OFF time reaches the unit will stop operation.

Timer Change

Although timer has been set, the unit still can be turned on/off by pressing ON/OFF button of the remote controller. You can also set the timer once again, and then the unit will operate according to the last setting.

If timer ON and timer OFF are set at the same time during operation of the unit, the unit will keep operating at current status till OFF time reaches.

If timer ON and timer OFF are set at the same time at unit OFF, the unit will keep off status till ON time reaches.

Each day in future, the system will operate according to preset mode till OFF time reaches and stop operation till ON time reaches. If ON time and OFF time are the same, OFF command will prevail.

3.2 Auto Button

If this button is pressed, the unit will operate in AUTO mode and indoor fan will operate at auto speed; meanwhile, the swing motor operates. Press this button again to turn off the unit.

3.3 Buzzer

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

3.4 Sleep Function

In SLEEP mode, the unit will automatically select appropriate sleep curve to operate according to different temperature setting.

3.5 Turbo Function

This function can be set in cooling mode to quickly cool or heat the room.

3.6 X-FAN Function

This function can be set in COOL or DRY mode.

3.7 Automatic Control of Fan Speed

In this mode, the indoor fan will automatically select high, medium or low speed with the change of ambient temperature.

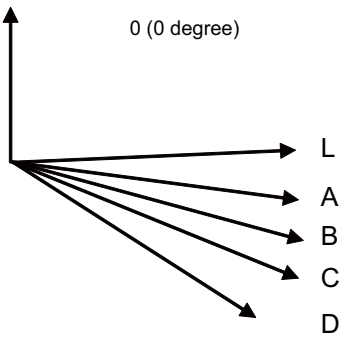
3.8 Up & Down Swing

After energization, up & down swing motor will firstly have the horizontal louver rotate anticlockwise to position 0 to close air outlet.

If swing function has not been set after startup of the unit, horizontal louver will turn clockwise to level position L in other modes.

If swing function is set when starting up the unit, the horizontal louver will swing between L and D.

There are 7 swing status of horizontal louver: Positions L, A, B, C and D, swing between L and D and stop at any position between L and D (angles between L and D are equiangular).



Upon turning off the unit, the horizontal louver will close at position 0. Swing function is available only when swing function is set and indoor fan is operating.

Note: If the position is set between L and B, A and C or B and D by remote controller, the horizontal louver will swing between L and D.

3.9 Display

3.9.1 Operation and Mode Icons

Upon energization, the unit will display all icons. Under standby state, running indicating mark is displayed in red. If the unit is started by remote controller, running indicating mark gives off light; meanwhile, the mark of current running mode will be displayed (mode LED: cooling, and dry mode). If the light button is turned off, no mark will be displayed.

3.9.2 Display of Nixie Tube on Indoor Unit

When energized & started for the first time, the indoor unit defaults to displaying current set temperature (16 ～ 30°C). When set temperature display is set by remote controller, it will display set temperature; when room temperature display is set, it will display room temperature. After that, when operating the remote controller for other settings, the temperature display method will keep original.

When operating the remote controller during room temperature display, the set temperature will be displayed for 5 seconds firstly and then room temperature display returns.

“F1” will be displayed upon malfunction of room temperature sensor, “F2” upon malfunction of indoor unit tube temperature sensor and “C5” upon malfunction of jumper cap.

For some models, if set temperature display is set by the remote controller, current set temperature will be displayed. After that, when switching to room temperature display from set temperature or outdoor temperature by the remote controller, room temperature will be displayed for 5 seconds firstly and then set temperature display returns.

3.10 Locked Protection to PG Motor

If the indoor fan motor keeps low rotation speed for a continuous period of time after startup, the unit will stop operation and display “H6”.

3.11 Memory Function

Memorized items: mode, up & down swing, light, set temperature and set fan speed.

When power is recovered after power failure, the unit will automatically start operation according to memorized status. After power recovery, the unit without timer setting before power failure will operate according to the last setting; the unit with general timer setting which has not been fulfilled before power failure will memorize the timer setting and re-calculate the time after.

4 Special Functions(Optional)

4.1 HEALTH Function

During operation of the indoor unit fan, press HEALTH button on the remote controller to start health function (If there is not HEALTH button on the remote controller, the unit defaults health function ON).

4.2 I FEEL Function

When I FEEL command is received, the controller will operate according to the ambient temperature sent by the remote controller (For defrosting and cold blow prevention, the unit operates according to the ambient temperature sensed by the air conditioner). The remote controller will regularly send ambient temperature data to the controller. When the data has not been received for a long time, the unit will operate according to the temperature sensed by the air conditioner. If I FEEL function is not selected, the ambient temperature will be that sensed by the air conditioner. I FEEL function is not to be memorized.

7. Installation Manual

7.1 Notices for Installation

Caution

1.The unit should be installed only by authorized service center according to local or government regulations and in compliance with this manual.

2.Before installing, please contact with local authorized maintenance center. If the unit is not installed by the authorized service center, the malfunction may not be solved due to incovenient contact between the user and the service personnel.

3.When removing the unit to the other place, please firstly contact with the local authorized service center.

4.Warning: Before obtaining access to terminals, all supply circuits must be disconnected.

5.For appliances with type Y attachment, the instructions shall contain the substance of the following. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

6.The appliance must be positioned so that the plug is accessible.

7.The temperature of refrigerant line will be high; please keep the interconnection cable away from the copper tube.

8.The instructions shall state the substance of the following:

This appliance is not intended for use by persons(including children)with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

7.1.1 Installation Site Instructions

Proper installation site is vital for correct and efficient operation of the unit. Avoid the following sites where:

●strong heat sources, vapours, flammable gas or volatile liquids are emitted.

●high-frequency electro-magnetic waves are generated by radio equipment, welders and medical equipment.

●salt-laden air prevails (such as close to coastal areas).

●the air is contaminated with industrial vapours and oils.

●the air contains sulphures gas such as in hot spring zones.

●corrosion or poor air quality exists.

7.1.2 Installation Site of Indoor Unit

1.The air inlet and outlet should be away from the obstructions. Ensure the air can be blown through the whole room.

2.Select a site where the condensate can be easily drained out, and where it is easily connected to outdoor unit.

3.Select a place where it is out of reach of children.

4.Select a place where the wall is strong enough to withstand the full weight and vibration of the unit.

5.Be sure to leave enough space to allow access for routine maintenance. The installation site should be 250cm or more above the floor.

6.Select a place about 1m or more away from TV set or any other electric appliance.

7.Select a place where the filter can be easily taken out.

8.Make sure that the indoor unit is installed in accordance with installation dimension instructions.

9.Do not use the unit in the laundry or by swimming pool etc.

7.1.3 Installation Site of Outdoor Unit

1.Select a site where noise and outflow air emitted by the unit will not annoy neighbors.

2.Select a site where there is sufficient ventilation.

3.Select a site where there is no obstruction blocking the inlet and outlet.

4.The site should be able to withstand the full weight and vibration.

5.Select a dry place, but do not expose the unit to direct sunlight or strong wind.

6.Make sure that the outdoor unit is installed in accordance with the installation instructions,and is convenient for maintenance and repair.

7.The height difference between indoor and outdoor units is within 10 m, and the length of the connecting tubing does not exceed 25 m.

8.Select a place where it is out of reach of children.

9.Select a place where the unit does not have negative impact on pedestrians or on the city.

7.1.4 Safety Precautions for Electric Appliances

1.A dedicated power supply circuit should be used in accordance with local electrical safety regulations.

2.Don't drag the power cord with excessive force.

3.The unit should be reliably earthed and connected to an exclusive earth device by the professionals.

4.The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overload.

5.The minimum distance between the unit and combustive surface is 1.5m.

6.The appliance shall be installed in accordance with national wiring regulations.

7.An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Note:

●Make sure the live wire, neutral wire and earth wire in the family power socket are properly connected. There should be reliable circuit in the diagram.

●Inadequate or incorrect electrical connections may cause electric shock or fire.

7.1.5 Earthing Requirements

1.Air conditioner is type I electric appliance. Please ensure that the unit is reliably earthed.

2.The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.

3.The earth resistance should accord to the national criterion.

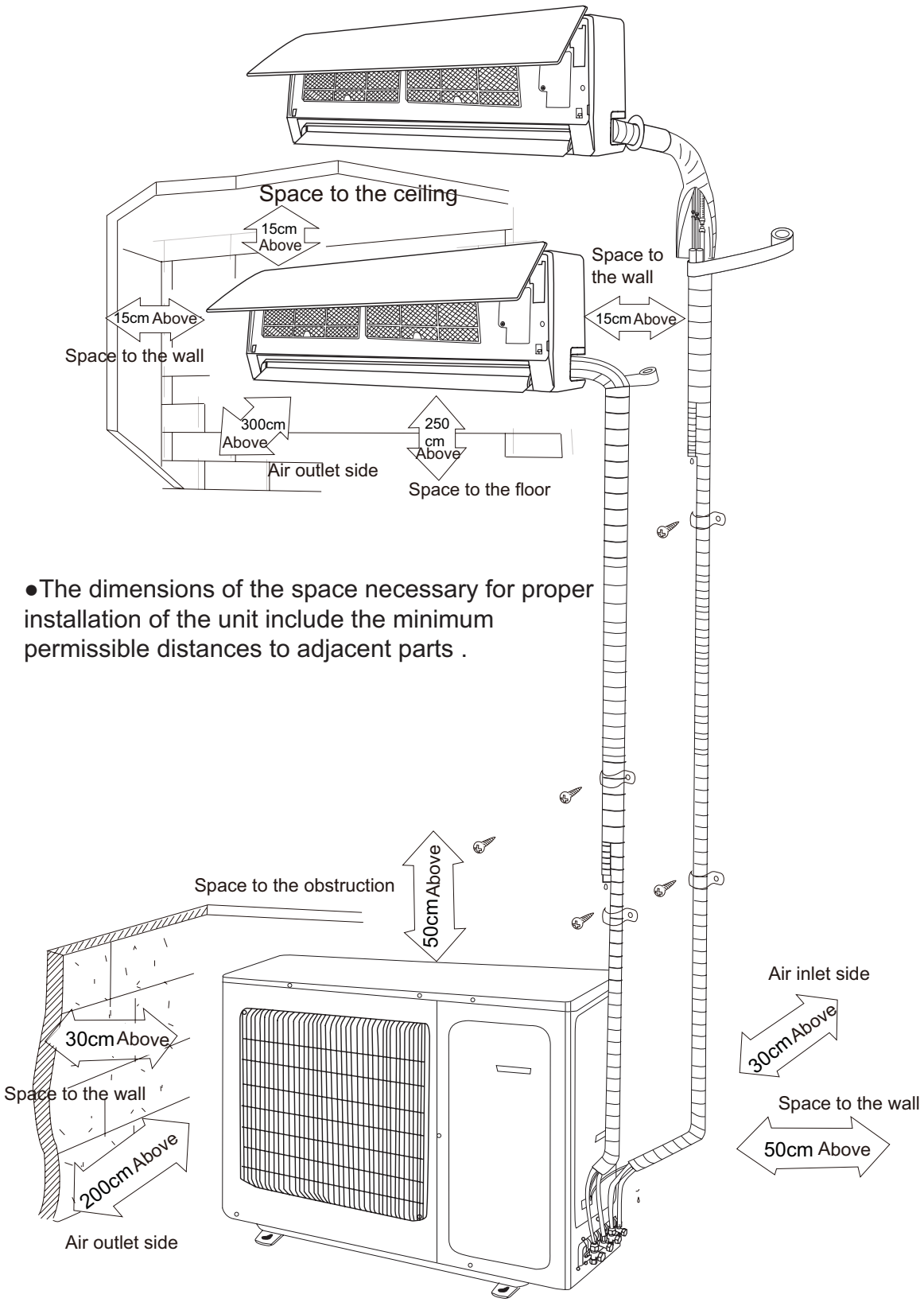
4.The power must have reliable earthing terminal. Please do not connect the earthing wire with the following:

① Water pipe ② Gas pipe ③ Contamination pipe

④ Other place that professional personnel consider is unreliable

5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

7.2 Installation Dimension Diagram



●The dimensions of the space necessary for proper installation of the unit include the minimum permissible distances to adjacent parts .

Schematic diagram being reference only (outdoor unit is with variation) , please refer to real product for authentic information.

7.3 Install Indoor Unit

7.3.1 Installation of Mounting Plate

1. Mounting plate should be installed horizontally. As the water trays outlet for the indoor unit is two-way type, during installation, the indoor unit should slightly slant to water trays outlet for smooth drainage of condensate.
2.Fix the mounting plate on the wall with screws.
3.Be sure that the mounting plate has been fixed firmly enough to withstand about 60 kg. Meanwhile, the weight should be evenly shared by each screw.

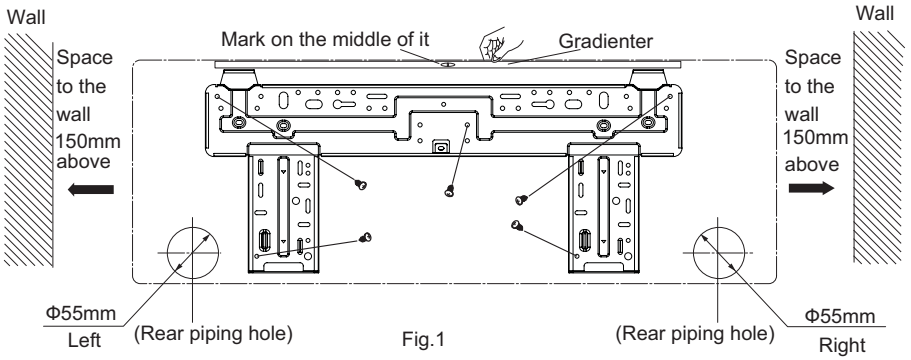
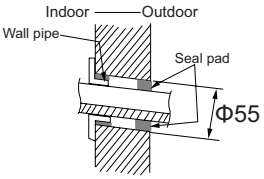


Fig.1

7.3.2 Drill Piping Hole

1.Slant the piping hole (Φ55) on the wall slightly downward to the outdoor side.
2.Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.



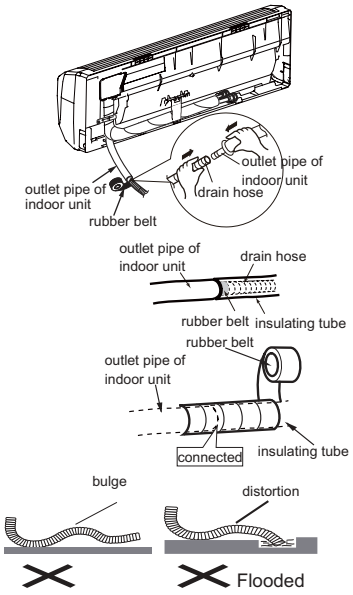
7.3.3 Installation of Drain Hose

1.Connect the drain hose to the outlet pipe of the indoor unit. Bind the joint with rubber belt.

2.Put the drain hose into insulating tube.

3.Wrap the insulating tube with wide rubber belt to prevent the shift of insulating tube. Slant the drain hose downward slightly for smooth drainage of condensate.

Note: The insulating tube should be connected reliably with the sleeve outside the outlet pipe. The drain hose should be slanted downward slightly, without distortion, bulge or fluctuation. Do not put the outlet in the water.



7.3.4 Connecting Indoor and Outdoor Electric Wires

1.Open the front panel.
2.Remove the wiring cover,connect and fix power connection cord and signal control wire (only for heat pump type) to the terminal board.As shown in Fig.2.
3.Make the power connection cord and signal control wire (only for heat pump type) pass through the hole at the back of indoor unit.
4.Reinstall the cord anchorage and wiring cover.
5.Reinstall the front panel.

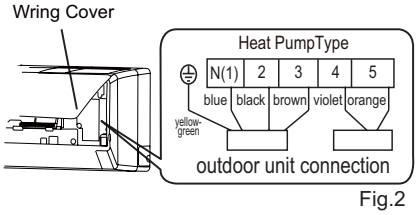


Fig.2

NOTE:

All wires between indoor and outdoor units must be connected by the qualified electric contractor.

- Electric wires must be connected correctly. Improper connection may cause malfunction.
- Tighten the terminal screws securely.
- After tightening the screws, pull the wire slightly to confirm whether its firm or not.
- Make sure that the electric connections are earthed properly to prevent electric shock.
- Make sure that all wiring connections are secure and the cover plates are reinstalled properly. Poor installation may cause fire or electric shock.

7.3.5 Installation of Indoor Unit

●The piping can be output from right, right rear, left or left rear.

1.When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis when necessary(As shown in Fig.3)

(1) Cut off tailing 1 when routing the wiring only;

(2) Cut off tailing 1 and tailing 2 when routing both the wiring and piping.

2.Take out the piping from body case; wrap the piping, power cords, drain hose with the tape and then make them pass through the piping hole. (As shown in Fig.4)

3.Hang the mounting slots of the indoor unit on the upper hooks of the mounting plate and check if it is firm enough. (As shown in Fig.5)

4.The installation site should be 250cm or more above the floor.

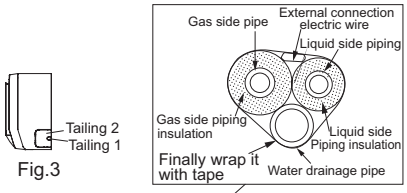


Fig.3

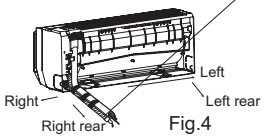


Fig.4

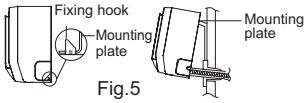


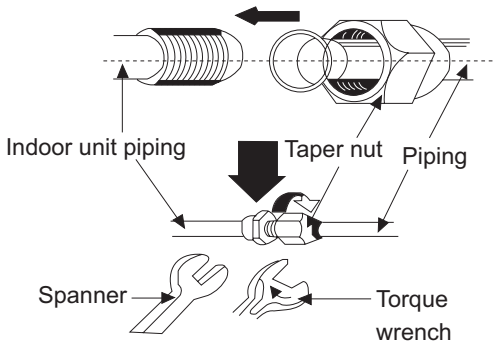
Fig.5

7.3.6 Installation of Connection Pipe

1.Align the center of the pipe flare with the related valve.

2.Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench by referring to the following:

Hex nut diameter	Tightening torque (N·m)
Φ6	15 ~ 20
Φ9.52	31 ~ 35
Φ12	50 ~ 55
Φ16	60 ~ 65
Φ19	70 ~ 75

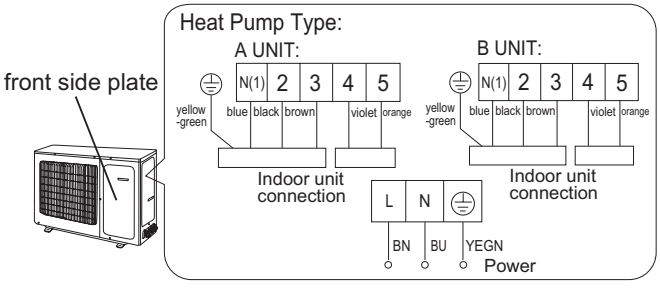


NOTE: Connect the connection pipe to indoor unit at first and then to outdoor unit. Handle piping bending with care. Do not damage the connection pipe. Ensure that the joint nut is tightened firmly, otherwise, it may cause leakage.

7.4 Install Outdoor Unit

7.4.1 Electric Wiring

1. Remove the front side plate on the outdoor unit.
2. Take off wire cord anchorage. Connect and fix power connection cord and signal control wire (only for heat pump type)to the terminal board.Wiring should fit that of indoor unit.
3. Fix the power connection cord and signal control wire (only for heat pump type) with wire clamps and then connect the corresponding connector.
4. Confirm if the wire has been fixed properly.
5. Reinstall the front side plate.



NOTE:

- Incorrect wiring may cause malfunction of spare part.
- After the wire has been fixed, ensure there is free space between the connection and fixing places on the lead wire.

Schematic diagram being reference only, please refer to real product for authentic information.

7.4.2 Air Purging and Leakage Test

1.Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be tightly shut).
Connect joint of charging hose to vacuum pump.
3. Fully open the handle of Lo manifold valve.
4. Open the vacuum pump for vacuumization. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside (If noise of vacuum pump has been changed, the reading of multimeter is 0). Then tighten the nut.
5.Keep vacuuming for more than 15mins and make sure the reading of multi-meter is -1.0X10^5 pa(-76cmHg).
6. Fully open high/low pressure valves.
7. Remove charging hose from charging end of low pressure valve.
8. Tighten lid of low pressure valve. (As shown in Fig.6)

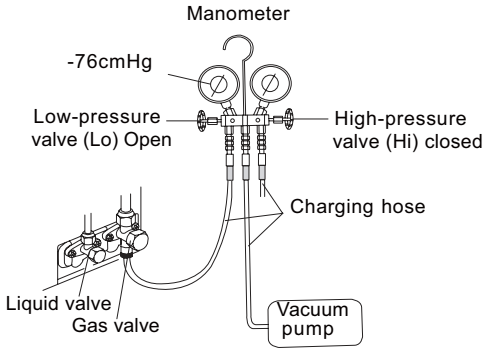
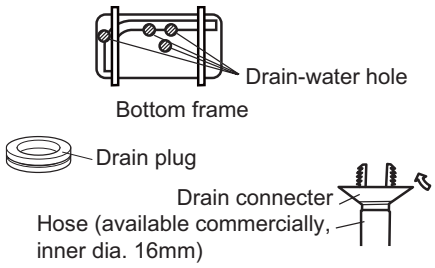


Fig.10

7.4.3 Outdoor Condensate Drainage (only for heat pump unit)

During heating operation, the condensate and defrosting water should be drained out reliably through the drain hose. Install the outdoor drain connector in a Φ25 hole on the base plate and attach the drain hose to the connector so that the waste water formed in the outdoor unit can be drained out .The hole diameter 25 must be plugged. Whether to plug other holes will be determined by the dealers according to actual conditions.



7.5 Check after Installation and Operation Test

7.5.1 Check after Installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating) capacity
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage satisfactory?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunctionor damage the product.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunctionor damage the part.
Are the inlet and outlet openings blocked?	It may cause insufficient cooling(heating) capacity.
Is the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

7.5.2 Operation Test

1.Before Operation Test
(1)Do not switch on power before installation is finished completely.
(2)Electric wiring must be connected correctly and securely.
(3)Cut-off valves of the connection pipes should be opened.
(4)All the impurities such as scraps and thrums must be cleared from the unit.
2.Operation Test Method
(1)Switch on power and press "ON/OFF" button on the remote controller to start operation.
(2)Press MODE button to select the COOL, HEAT (Not available for cooling only unit), FAN to check whether the operation is normal or not.

7.6 Installation and Maintenance of Healthy Filter

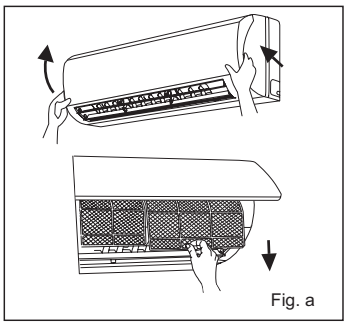


Fig. a

7.6.1 Installation of Healthy Filter

1.Lift up the front panel from its two ends, as shown by the arrow direction, and then remove the air filter. (As shown in fig. a)

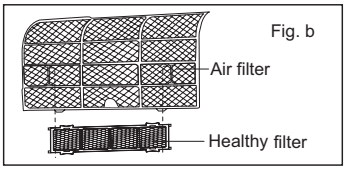


Fig. b

2.Attach the healthy filter onto the air filter. (As shown in fig. b)

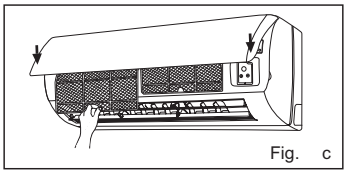


Fig. c

3.Install the air filter properly along the arrow direction in Fig.c, and then close the panel .

7.6.2 Cleaning and Maintenance

Remove the healthy filter and reinstall it after cleaning according to the installation instruction. Dont use brush or hard things to clean the filter. After cleaning, be sure to dry it in the shade.

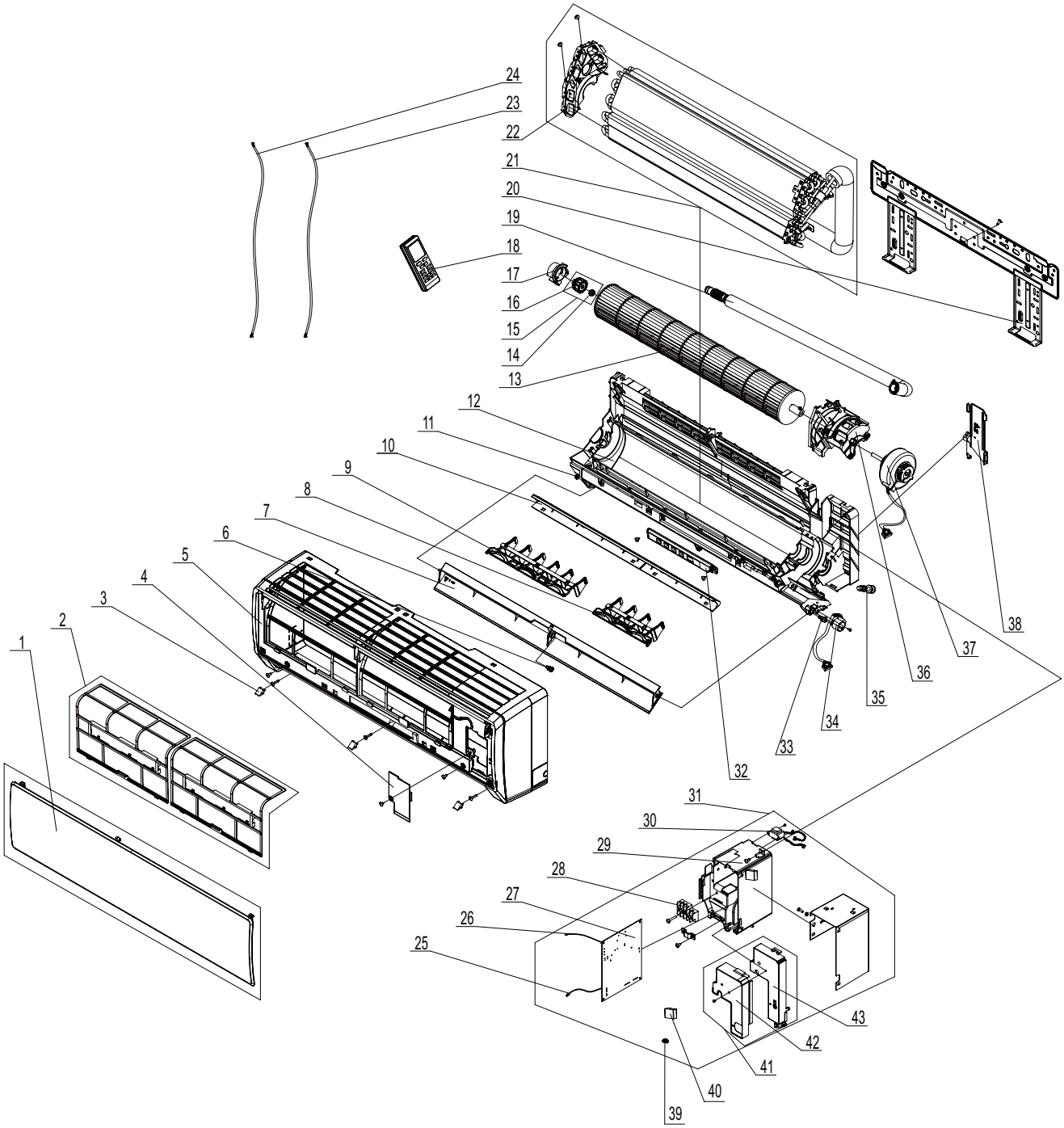
7.6.3 Service Life

The general serive life for the healthy filter is about one year under normal condition. As for silver ion filter, it is invalid when its surface becomes black (green).
●This supplementary instruction is provided for reference to the unit with healthy filter. If the graphics provided herein is different from the actual product, please refer to the atual product. The quantity of healthy filters is based on the actual delivery.

8. Exploded Views and Parts List

8.1 Indoor Unit

(1)GWH(09)MA-K1NNA2A/I、GWH(09)MA-K1NNA3A/I、GWH(09)MA-K1NNA4A/I



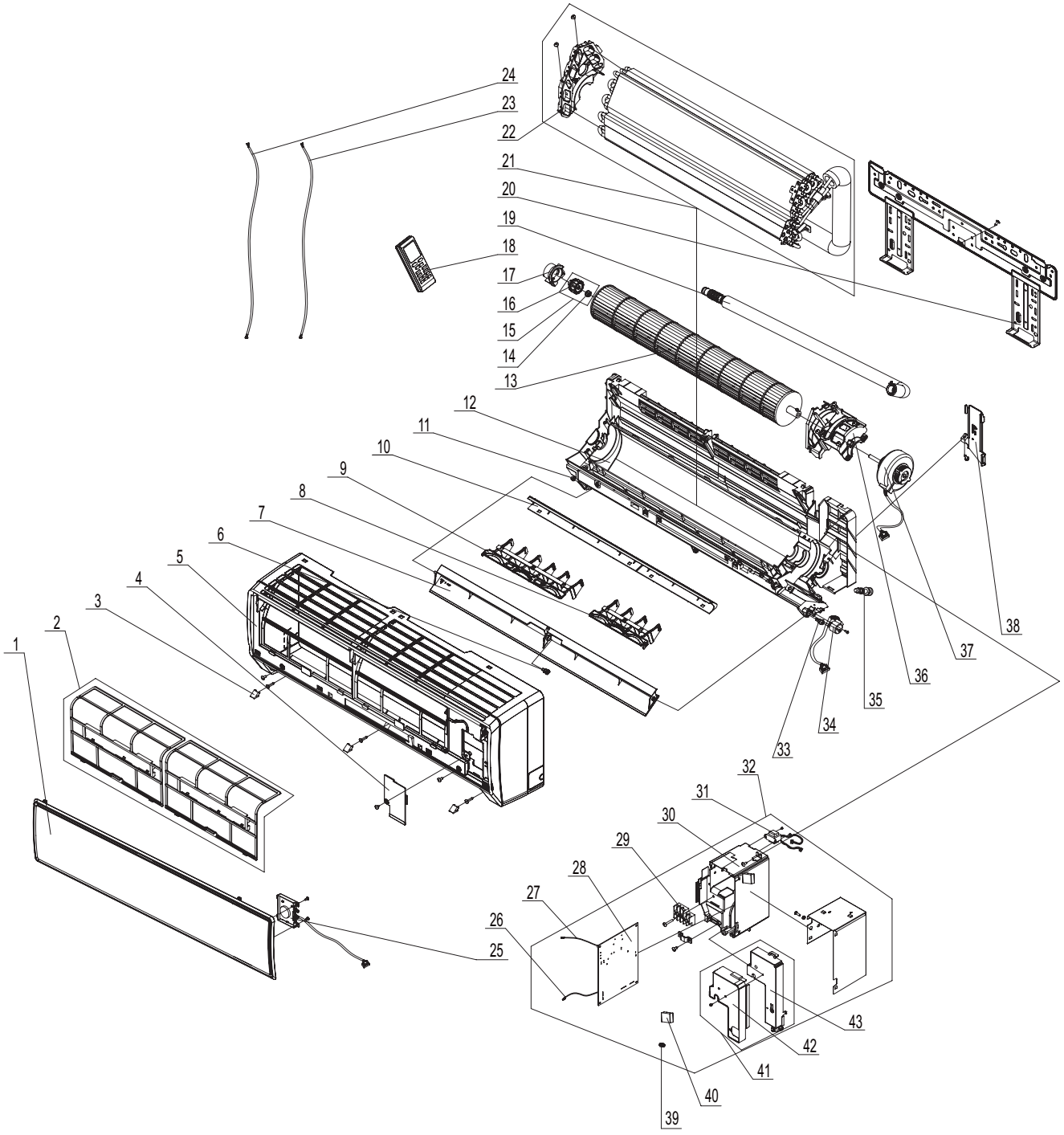
No.	Description	Part Code	Qty
		GWH(09)MA-K1NNA2A/I	
	Product Code	CA155N0920	
1	Front Panel C1	20012896S	1
2	Filter Sub-Assy	11122081	2
3	Screw Cover	24252016	3
4	Electric Box Cover2	20122075	1
5	Front Case	20012120	1
6	Axile Bush	10542036	1
7	Guide Louver	10512111	1
8	Air Louver 1	10512113	1
9	Air Louver 2	10512114	1
10	Helicoid tongue	26112162	1
11	Axile Bush	10542704	1
12	Rear Case assy	2220210101	1
13	Cross Flow Fan	10352018	1
14	Fan Bearing	76512210	1
15	O-Gasket sub-assy of Bearing	76512051	1
16	O-Gasket of Cross Fan Bearing	76512203	1
17	Ring of Bearing	26152022	1
18	Remote Controller	30510041	1
19	Drainage hose	0523001406	1
20	Wall Mounting Frame	01252015	1
21	Evaporator Assy	0100255204	1
22	Evaporator Support	24212090	1
23	Connecting Cable	400205235	1
24	Connecting Cable	40020536	1
25	Temperature Sensor	390000597	1
26	Ambient Temperature Sensor	390000453	1
27	Main Board	30135248	1
28	Terminal Board	4201026201	1
29	Electric Box	2011208201	1
30	Transformer	43110236	1
31	Electric Box Assy	2020207205	1
32	Display Board	30565056	1
33	Crank	10582070	1
34	Step Motor	1521212901	1
35	Rubber Plug (Water Tray)	76712012	1
36	Motor Press Plate	26112160	1
37	Fan Motor	15012115	1
38	Pipe Clamp	26112164	1
39	Jumper	4202300128	1
40	Capacitor CBB61	33010002	1
41	Shield cover of Electric Box sub-assy	01592073	1
42	Shield cover of Electric Box	01412036	1
43	Electric Box Cover1	22242135	1

The data above are subject to change without notice.

No.	Description	Part Code		Qty
		GWH(09)MA-K1NNA3A/I	GWH(09)MA-K1NNA4A/I	
	Product Code	CA155N0120	CA155N0940	
1	Front Panel C1	20012121S	20012151S	1
2	Filter Sub-Assy	11122081	11122081	2
3	Screw Cover	24252016	24252016	3
4	Electric Box Cover2	20122075	20122075	1
5	Front Case	20012120	20012120	1
6	Axile Bush	10542036	10542036	1
7	Guide Louver	10512111	10512111	1
8	Air Louver 1	10512113	10512113	1
9	Air Louver 2	10512114	10512114	1
10	Helicoid tongue	26112162	26112162	1
11	Axile Bush	10542704	10542704	1
12	Rear Case assy	2220210101	2220210101	1
13	Cross Flow Fan	10352018	10352018	1
14	Fan Bearing	76512210	76512210	1
15	O-Gasket sub-assy of Bearing	76512051	76512051	1
16	O-Gasket of Cross Fan Bearing	76512203	76512203	1
17	Ring of Bearing	26152022	26152022	1
18	Remote Controller	30510041	30510041	1
19	Drainage hose	0523001406	0523001406	1
20	Wall Mounting Frame	01252015	01252015	1
21	Evaporator Assy	0100255204	0100255204	1
22	Evaporator Support	24212090	24212090	1
23	Connecting Cable	400205235	400205235	1
24	Connecting Cable	40020536	40020536	1
25	Temperature Sensor	390000597	390000597	1
26	Ambient Temperature Sensor	390000453	390000453	1
27	Main Board	30135248	30135248	1
28	Terminal Board	4201026201	4201026201	1
29	Electric Box	2011208201	2011208201	1
30	Transformer	43110236	43110236	1
31	Electric Box Assy	20202072	2020204601	1
32	Display Board	30565007	30565012	1
33	Crank	10582070	10582070	1
34	Step Motor	1521212901	1521212901	1
35	Rubber Plug (Water Tray)	76712012	76712012	1
36	Motor Press Plate	26112160	26112160	1
37	Fan Motor	15012115	15012115	1
38	Pipe Clamp	26112164	26112164	1
39	Jumper	4202300128	4202300128	1
40	Capacitor CBB61	33010002	33010002	1
41	Shield cover of Electric Box sub-assy	01592073	01592073	1
42	Shield cover of Electric Box	01412036	01412036	1
43	Electric Box Cover1	22242135	22242135	1

The data above are subject to change without notice.

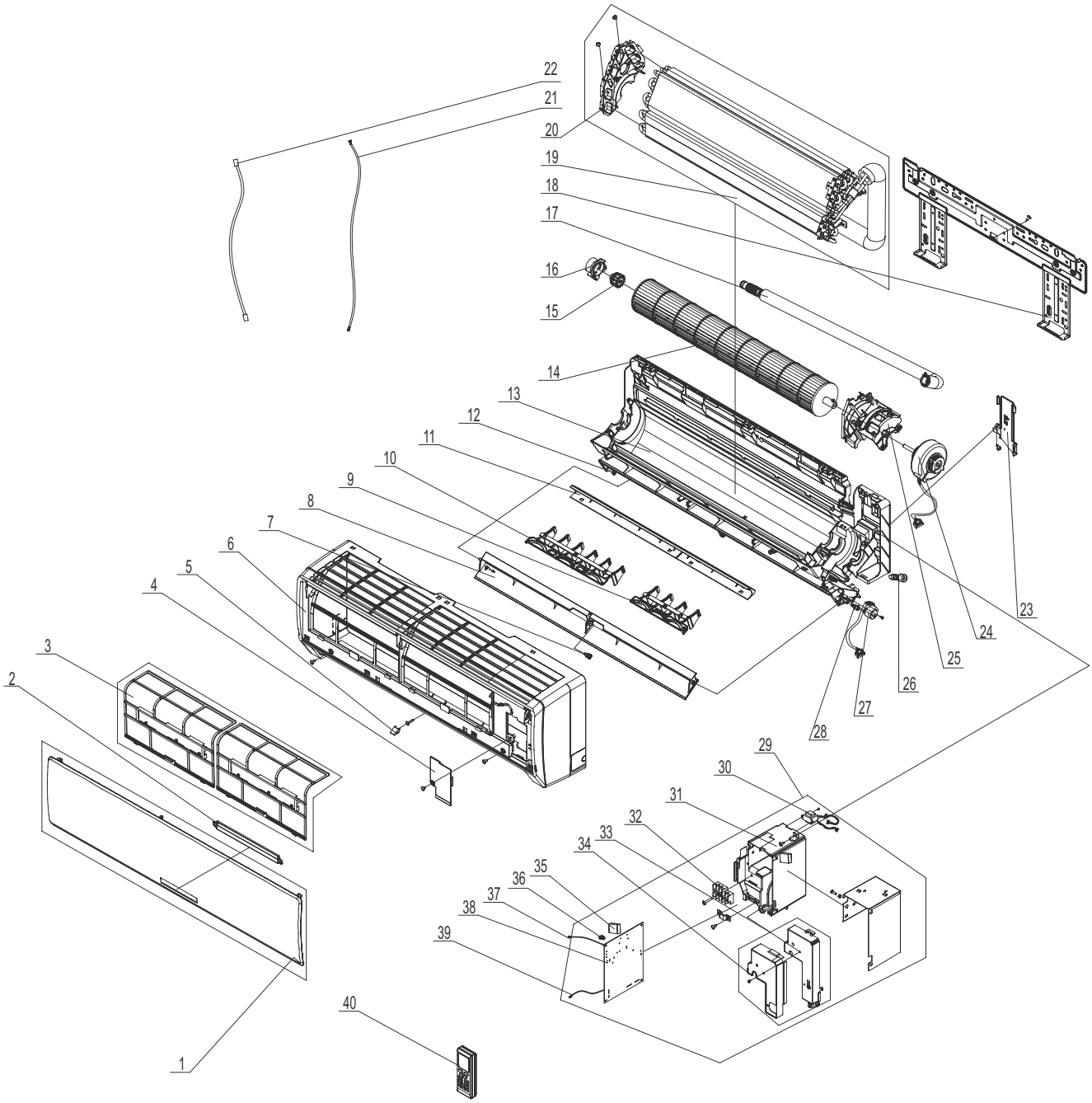
(2)GWH(09)MA-K1NNA1A/I、GWH(09)MA-K1NNE2A/I



No.	Description	Part Code		Qty
		GWH(09)MA-K1NNA1A/I	GWH(09)MA-K1NNE2A/I	
	Product Code	CA155N0900	CA401N01400	
1	Front Panel	2001214301S	20012815S	1
2	Filter Sub-Assy	11122081	11122081	2
3	Screw Cover	24252016	24252016	3
4	Electric Box Cover2	20122075	20122075	1
5	Front Case	20012179	20012179	1
6	Axile Bush	10542036	10542036	1
7	Guide Louver	10512111	10512111	1
8	Air Louver 1	10512113	10512113	1
9	Air Louver 2	10512114	10512114	1
10	Helicoid tongue	26112162	26112162	1
11	Axile Bush	10542704	10542704	1
12	Rear Case assy	2220210101	2220210101	1
13	Cross Flow Fan	10352018	10352018	1
14	Fan Bearing	76512210	76512210	1
15	O-Gasket sub-assy of Bearing	76512051	76512051	1
16	O-Gasket of Cross Fan Bearing	76512203	76512203	1
17	Ring of Bearing	26152022	26152022	1
18	Remote Controller	30510041	305100413	1
19	Drainage hose	0523001406	0523001406	1
20	Wall Mounting Frame	01252015	01252015	1
21	Evaporator Assy	0100255204	0100255204	1
22	Evaporator Support	24212090	24212090	1
23	Connecting Cable	400205235	400205235	0
24	Connecting Cable	40020536	40020536	0
25	Display Board	30565008	30565126	1
26	Temperature Sensor	390000597	390000597	1
27	Ambient Temperature Sensor	390000453	390000453	1
28	Main Board	30135244	30135248	1
29	Terminal Board	4201026201	4201026201	1
30	Electric Box	2011208201	2011208201	1
31	Transformer	43110236	43110236	1
32	Electric Box Assy	2020207204	2020290702	1
33	Crank	10582070	10582070	1
34	Step Motor	1521212901	1521212901	1
35	Rubber Plug (Water Tray)	76712012	76712012	1
36	Motor Press Plate	26112160	26112160	1
37	Fan Motor	15012115	15012115	1
38	Pipe Clamp	26112164	26112164	1
39	Jumper	4202300128	4202300128	1
40	Capacitor CBB61	33010002	33010002	1
41	Shield cover of Electric Box sub-assy	01592073	01592073	1
42	Shield cover of Electric Box	01412036	01412036	1
43	Electric Box Cover1	22242135	22242135	1

The data above are subject to change without notice.

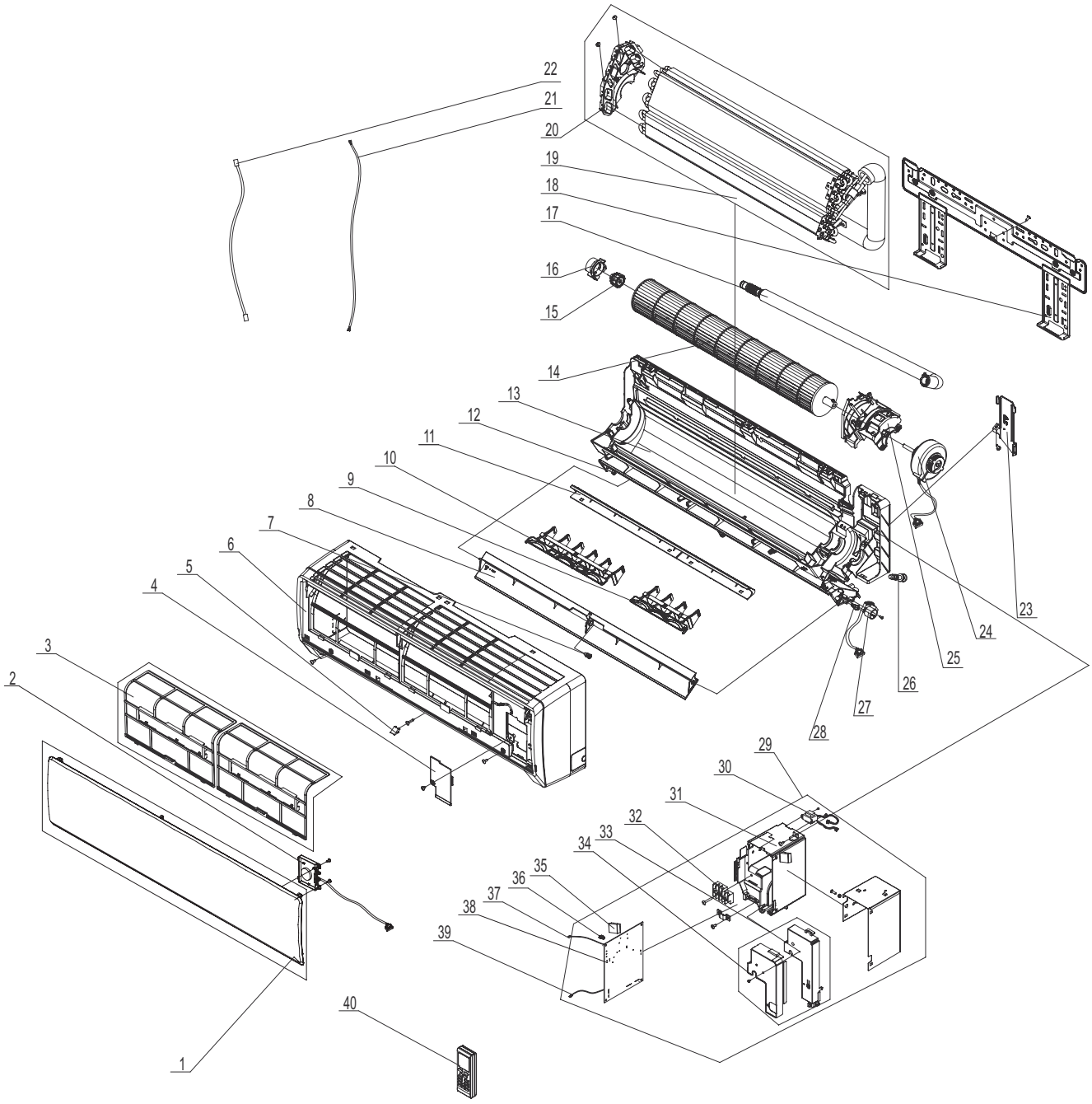
(3)GWH(12)MB-K1NNA2A/I、GWH(12)MB-K1NNA3A/I、GWH(12)MB-K1NNA4A/I



No.	Description	Part Code			Qty
		GWH(12)MB-K1NNA2A/I	GWH(12)MB-K1NNA3A/I	GWH(12)MB-K1NNA4A/I	
	Product Code	CA155N0980	CA155N0180	CA155N1000	
1	Front Panel	20012150S	20012122S	20012153S	1
2	Display Board	30565056	30565007	30565012	1
3	Filter Sub-Assy	1112220403	1112220403	1112220403	2
4	Electric Box Cover2	20122075	20122075	20122075	1
5	Screw Cover	24252016	24252016	24252016	1
6	Front Case Sub-Assy	20012139	20012139	20012139	1
7	Axile Bush	10542036	10542036	10542036	1
8	Guide Louver	10512157	10512157	10512157	1
9	Air Louver 1	10512156	10512156	10512156	1
10	Air Louver 2	10512155	10512155	10512155	1
11	Helicoid tongue	26112163	26112163	26112163	1
12	Left Axile Bush	10512037	10512037	10512037	1
13	Rear Case assy	2220210301	2220210301	2220210301	1
14	Cross Flow Fan	10352017	10352017	10352044	1
15	O-Gasket sub-assy of Bearing	76512051	76512051	76512051	1
16	Ring of Bearing	26152022	26152022	26152022	1
17	Drainage hose	0523001401	0523001401	0523001401	1
18	Wall Mounting Frame	01252021	01252021	01252021	1
19	Evaporator Assy	0100256402	0100256402	0100256402	1
20	Evaporator Support	24212091	24212091	24212091	1
21	Connecting Cable	40020536	40020536	40020536	0
22	Connecting Cable	40020538	40020538	40020538	0
23	Pipe Clamp	26112164	26112164	26112164	1
24	Fan Motor	150120874	150120874	150120874	1
25	Motor Press Plate	26112161	26112161	26112161	1
26	Rubber Plug (Water Tray)	76712012	76712012	76712012	1
27	Step Motor	1521212901	1521212901	1521212901	1
28	Crank	10582070	10582070	10582070	1
29	Electric Box Assy	20302295	20202069	2020206901	1
30	Transformer	43110236	43110236	43110236	1
31	Electric Box	2011208201	2011208201	2011208201	1
32	Terminal Board	4201026201	4201026201	4201026201	1
33	Shield cover of Electric Box sub-assy	01592073	01592073	01592073	1
34	Electric Box Cover1	22242135	22242135	22242135	1
35	Capacitor CBB61	33010002	33010002	33010002	1
36	Jumper	4202300130	4202300130	4202300130	1
37	Ambient Temperature Sensor	390000453	390000453	390000453	1
38	Main Board	30135248	30135248	30135248	1
39	Temperature Sensor	390000597	390000597	390000597	1
40	Remote Controller	305100413	30510041	30510041	1

The data above are subject to change without notice.

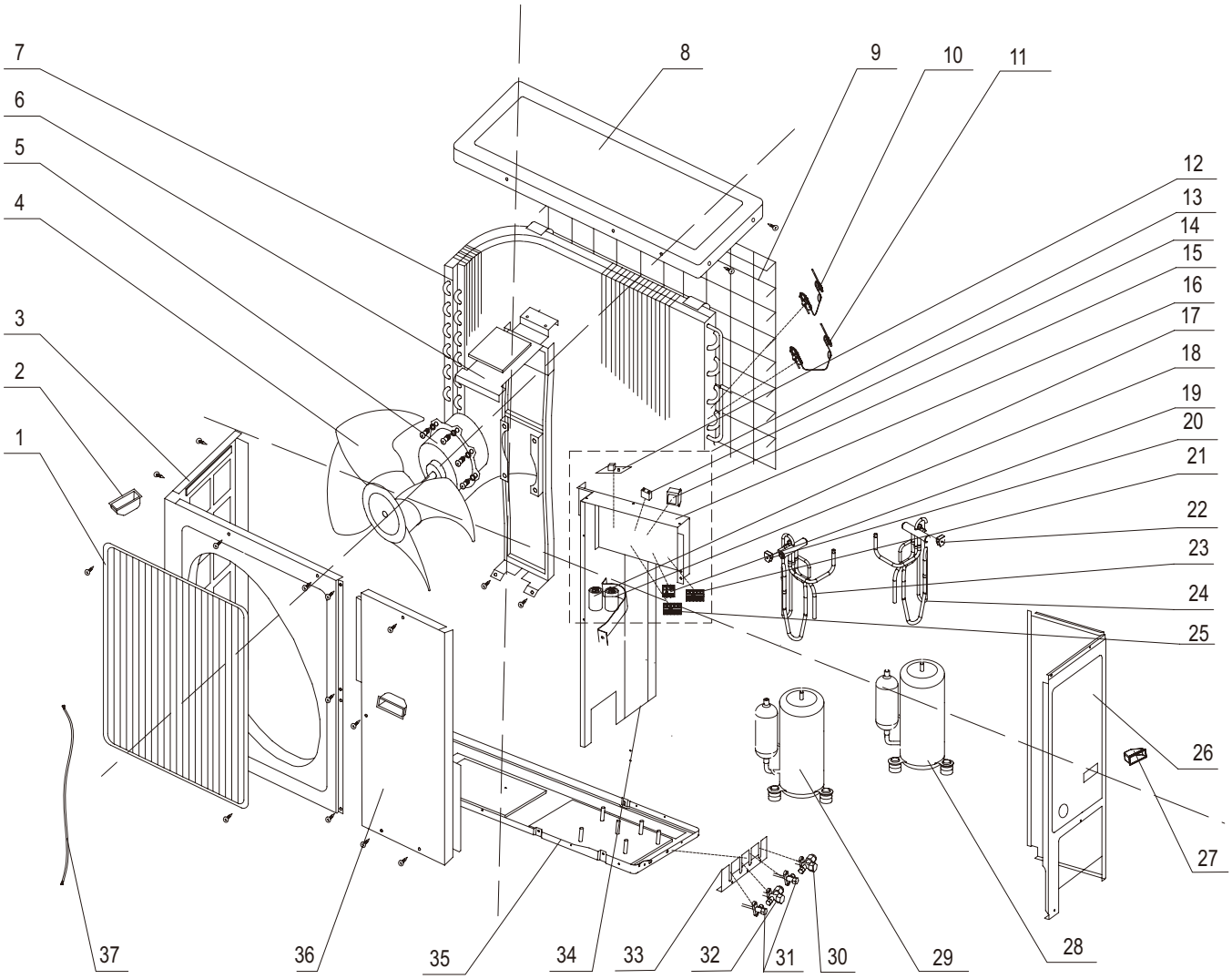
(4)GWH(12)MB-K1NNE2A/I



No.	Description	Part Code	Qty
		GWH(12)MB-K1NNE2A/I	
	Product Code	CA401N00800	
1	Front Panel	20012813S	1
2	Display Board	30565126	1
3	Filter Sub-Assy	1112220403	2
4	Electric Box Cover2	20122075	1
5	Screw Cover	24252016	1
6	Front Case Sub-Assy	2001213901	1
7	Axile Bush	10542036	1
8	Guide Louver	10512157	1
9	Air Louver 1	10512156	1
10	Air Louver 2	10512155	1
11	Helicoid tongue	26112163	1
12	Left Axile Bush	10512037	1
13	Rear Case assy	2220210301	1
14	Cross Flow Fan	10352044	1
15	O-Gasket sub-assy of Bearing	76512051	1
16	Ring of Bearing	26152022	1
17	Drainage hose	0523001401	1
18	Wall Mounting Frame	01252021	1
19	Evaporator Assy	0100256402	1
20	Evaporator Support	24212091	1
21	Connecting Cable	40020536	0
22	Connecting Cable	40020538	0
23	Pipe Clamp	26112164	1
24	Fan Motor	150120874	1
25	Motor Press Plate	26112161	1
26	Rubber Plug (Water Tray)	76712012	1
27	Step Motor	1521212901	1
28	Crank	10582070	1
29	Electric Box Assy	2020207104	1
30	Transformer	43110236	1
31	Electric Box	2011208201	1
32	Terminal Board	4201026201	1
33	Shield cover of Electric Box sub-assy	01592073	1
34	Electric Box Cover1	22242135	1
35	Capacitor CBB61	33010002	1
36	Jumper	4202300130	1
37	Ambient Temperature Sensor	390000453	1
38	Main Board	30135248	1
39	Temperature Sensor	390000597	1
40	Remote Controller	30510041	1

The data above are subject to change without notice.

8.2 Outdoor Unit



No.	Description	Part Code	Qty
		GWH18(09X2)MA-K1NNA3A/O	
	Product Code	CA155W0120	
1	Front grill	22414102	1
2	Handle	26235253	1
3	Cabinet	01433017P	1
4	Axial Flow Fan	10338731	1
5	Fan Motor	15013106	1
6	Motor Support Sub-Assy	01705204	1
7	Condenser Assy	01113009	1
8	Top Cover	01255013P	1
9	Rear Grill	01473028	1
10	Capillary Sub-assy A	0300379802	1
11	Capillary Sub-assy B	0300379902	1
12	Main Board	30038001	1
13	Electric Box Assy	0140385405	1
14	Capacitor CBB61	33010027	1
15	Transformer	43110233	1
16	Electric Box Cover Plate	01413049	1
17	Capacitor CBB65	33010743	1
18	Capacitor CBB65	33010743	1
19	Terminal Board	42011147	1
20	Magnet Coil	430004002	1
21	Terminal Board	42010178	1
22	Magnet Coil	430004002	1
23	4-Way Valve Assy A	03023862	1
24	4-Way Valve Assy B	0302386101	1
25	Terminal Board	420101941	2
26	Rear Side Plate Sub-Assy	01303044	1
27	Handle	26235253	1
28	Compressor and Fittings	00103276	1
29	Compressor and Fittings	00103276	1
30	Cut-off Valve	07100018	1
31	Cut off Valve Sub-Assy	071302201	2
32	Cut-off Valve	07100018	1
33	Valve Support Sub-Assy	01713027	1
34	Mid Clapboard Sub-assy	012330241	1
35	Chassis Assy	0120373001P	1
36	Front Side Plate Sub-Assy	01303018	1
37	Connecting Cable	40020318	1

The data above are subject to change without notice.

No.	Description	Part Code	Qty
		GWH24(12X2)MB-K1NNA3A/O	
	Product Code	CA155W0180	
1	Front grill	22414102	1
2	Handle	26235253	1
3	Cabinet	01433017P	1
4	Axial Flow Fan	10338731	1
5	Fan Motor	15015210	1
6	Motor Support Sub-Assy	01705204	1
7	Condenser Assy	01113019	1
8	Top Cover	01255013P	1
9	Rear Grill	01473028	1
10	Capillary Sub-assy A	0300398601	1
11	Capillary Sub-assy B	0300398701	1
12	Main Board	30038001	1
13	Electric Box Assy	0140319412	1
14	Capacitor CBB61	33010010	1
15	Transformer	43110226	1
16	Electric Box Cover Plate	01413049	1
17	Capacitor CBB65	33010743	1
18	Capacitor CBB65	33010743	1
19	Terminal Board	42011147	1
20	Magnet Coil	430004002	1
21	Terminal Board	42010178	1
22	Magnet Coil	430004002	1
23	4-Way Valve Assy A	03023897	1
24	4-Way Valve Assy B	03123172	1
25	Terminal Board	420101941	2
26	Rear Side Plate Sub-Assy	01303021	1
27	Handle	26235253	1
28	Compressor and Fittings	00103241	1
29	Compressor and Fittings	00103241	1
30	Cut off Valve	07130000	1
31	Cut off Valve	07130001	2
32	Cut off Valve	07130000	1
33	Valve Support Sub-Assy	01713027	1
34	Mid Clapboard Sub-assy	012330241	1
35	Chassis Assy	01203648P	1
36	Front Side Plate Sub-Assy	01303018	1
37	Connecting Cable	40020318	1

The data above are subject to change without notice.

No.	Description	Part Code	Qty
		GWH21(09+12)MB-K1NNA3A/O	
	Product Code	CA155W0150	
1	Front grill	22414102	1
2	Handle	26235253	1
3	Cabinet	01433017P	1
4	Axial Flow Fan	10338731	1
5	Fan Motor	15015210	1
6	Motor Support Sub-Assy	01705204	1
7	Condenser Assy	0111301902	1
8	Top Cover	01255013P	1
9	Rear Grill	01473028	1
10	Capillary Sub-assy A	0300398801	1
11	Capillary Sub-assy B	0300398901	1
12	Main Board	30038001	1
13	Electric Box Assy	0140319416	1
14	Capacitor CBB61	33010010	1
15	Transformer	43110226	1
16	Electric Box Cover Plate	01413049	1
17	Capacitor CBB65	33010743	1
18	Capacitor CBB65	33010743	1
19	Terminal Board	42011147	1
20	Magnet Coil	430004002	1
21	Terminal Board	42010178	1
22	Magnet Coil	430004002	1
23	4-Way Valve Assy A	03123553	1
24	4-Way Valve Assy B	0302398401	1
25	Terminal Board	420101941	2
26	Rear Side Plate Sub-Assy	01303021	1
27	Handle	26235253	1
28	Compressor and Fittings	00103241	1
29	Compressor and Fittings	00103276	1
30	Cut-off Valve	07100018	1
31	Cut off Valve	07130001	2
32	Cut off Valve	07130000	1
33	Valve Support Sub-Assy	01713027	1
34	Mid Clapboard Sub-assy	012330241	1
35	Chassis Assy	01203648P	1
36	Front Side Plate Sub-Assy	01303018	1
37	Connecting Cable	40020318	1

The data above are subject to change without notice.

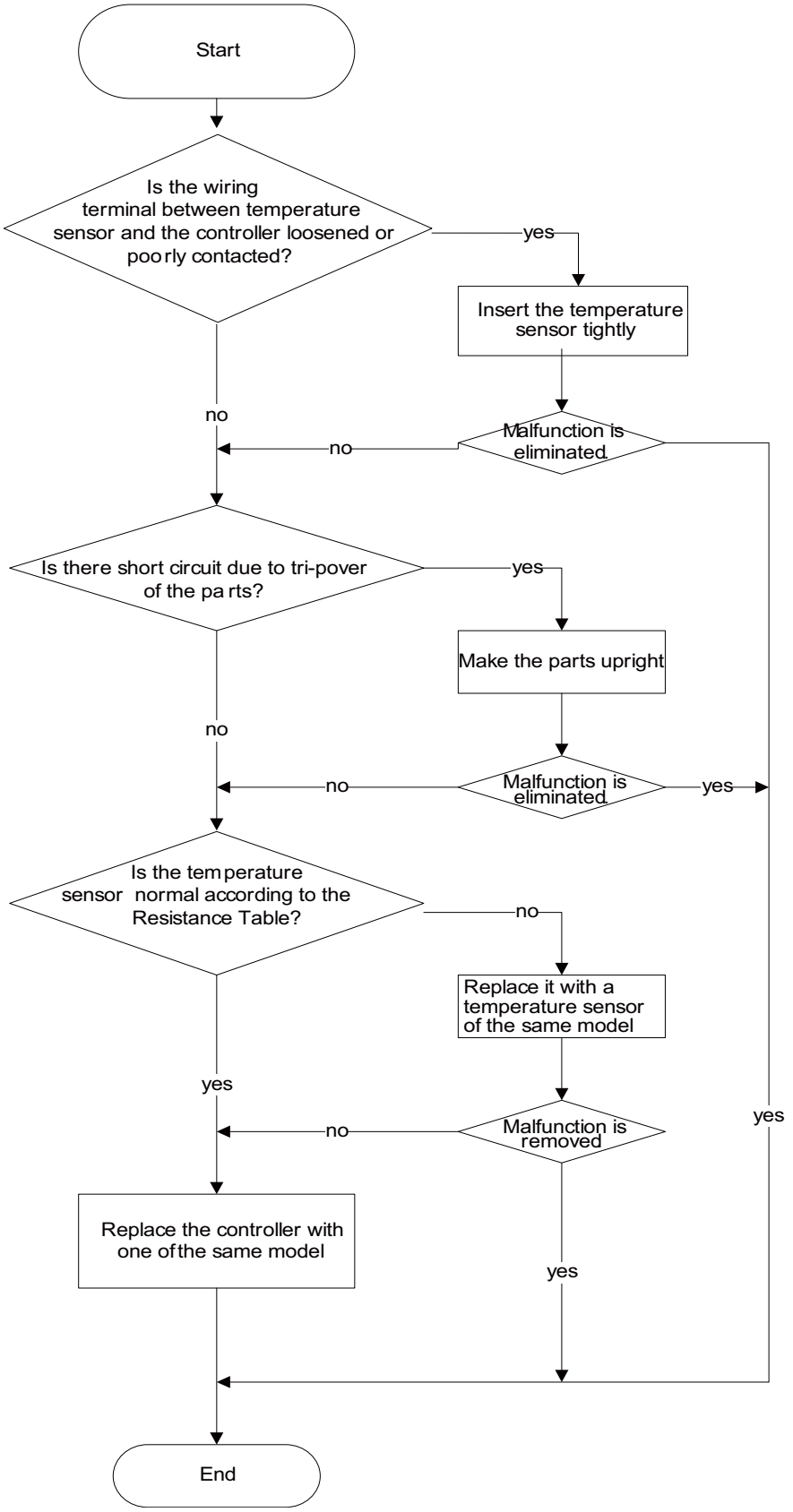
9. Troubleshooting

9.1 Error Code List

No.	Malfunction Name	Display Method of Indoor Unit			A/C Status	Possible Causes
		Error Code	Indicator lamp (During blinking, ON for 0.5S and OFF for 0.5 S)			
			Operation Lamp	COOL Lamp		
1	Indoor ambient temperature sensor is open/ short- circuited	F1		OFF 3S and blinks once	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except indoor fan operates, other loads （such as compressor, outdoor fan, 4-way valve） stop operation; During heating operation, the complete unit stops operation.	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		OFF 3S and blinks twice	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except indoor fan operates, other loads stop operation; During heating operation, the complete unit stops operation.	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	PG motor (indoor fan motor) does not operate	H6	OFF 3S and blinks 11 times		Indoor fan, outdoor fan, compressor and electric heat tube stop operation. 2 minutes later, 4-way valve stops; horizontal louver stops at the current position.	1.The feedback terminal of PG motor is not connected tightly. 2.The control terminal of PG motor is not connected tightly. 3.Fan blade rotates unsmoothly due to improper installation. 4.Motor is not installed properly and tightly. 5.Motor is damaged. 6.Controller is damaged.
4	Malfunction protection of jumper cap	C5	OFF 3S and blinks 15 times		Operation of remote controller or control panel is available, but the unit won't act.	1.There's not jumper cap on the controller. 2.Jumper cap is not inserted properly and tightly. 3.Jumper cap is damaged. 4.Controller is damaged.
5	PG motor (indoor fan) circuit malfunction by zero cross detection	U8	OFF 3S and blinks 17 times		Operation of remote controller or control panel is available, but the unit won't act.	1. Controller is damaged.

9.2 How to Check Simply the Main Part

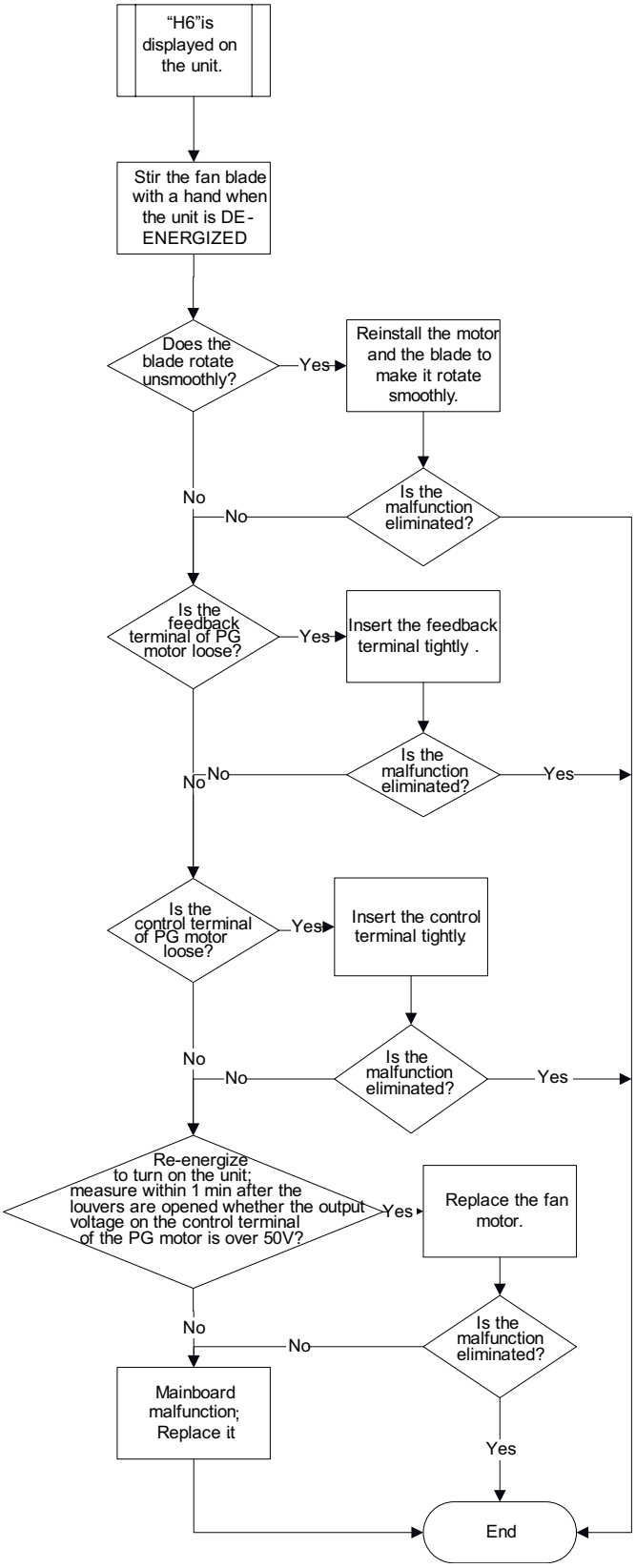
(1) F1/F2 Malfunction



(2) H6 Malfunction

Possible causes:
1. Fan motor is locked;
2. The.feedback.terminal of PG motor is not connected tightly;
3. The control terminal of PG motor is not connected tightly;
4. Motor is damaged;
5. Malfunction of the rotation speed detection circuit of the mainboard.

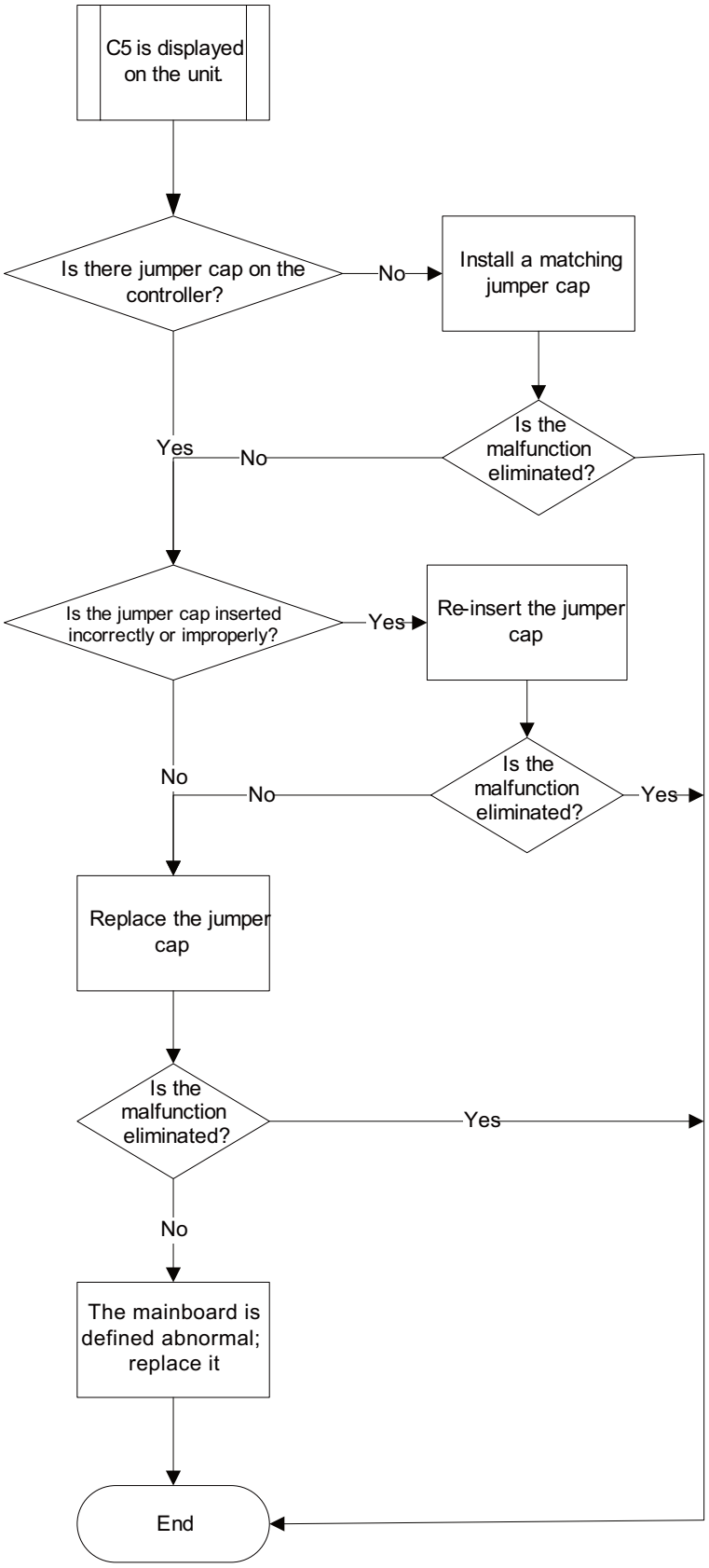
See the flow chart below:



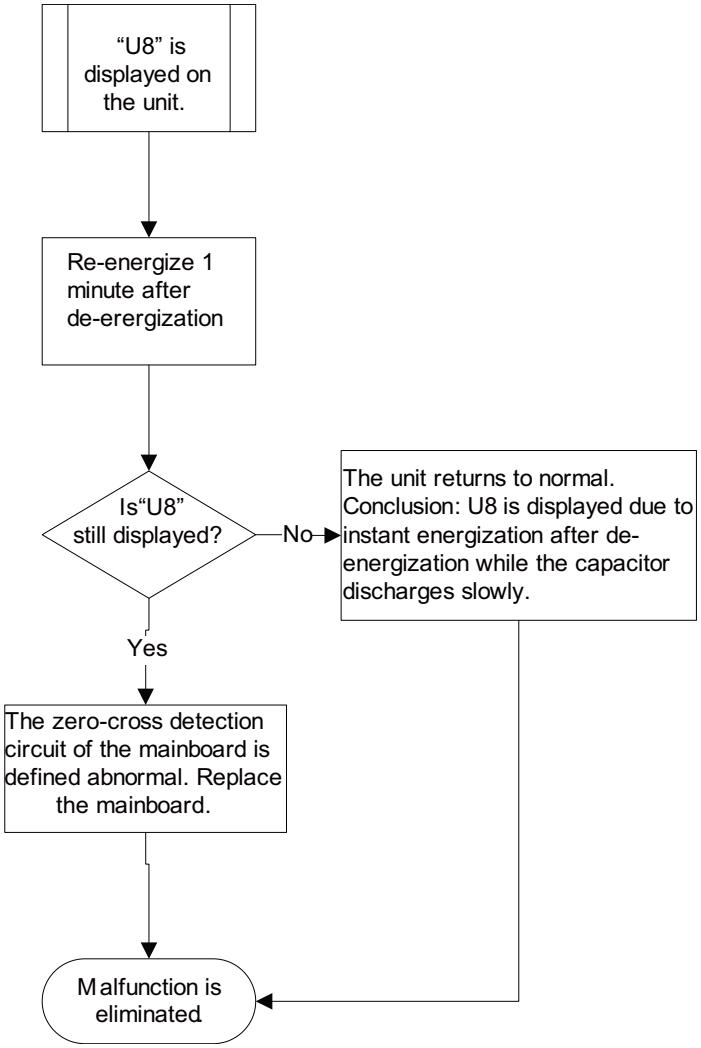
(3) C5 Malfunction

Possible causes:
1. There is no jumper cap on the controller;
2. Jumper cap is not inserted properly and tightly;
3. Jumper cap is damaged;
4. Controller is damaged.

See the flow chart below:



(4) U8 Malfunction



Appendix 1: Resistance Table for Indoor and Outdoor Ambient Temperature Sensors (15K)							
Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	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

Appendix 2: Resistance Table for Indoor and Outdoor Tube Temperature Sensor (20K)							
Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	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

Appendix 3: Resistance Table for Outdoor Discharge Temperature Sensor (50K)							
Temp.（℃）	Resistance（kΩ）	Temp.（℃）	Resistance（kΩ）	Temp.（℃）	Resistance（kΩ）	Temp.（℃）	Resistance（kΩ）
-29	853.5	10	98	49	18.34	88	4.754
-28	799.8	11	93.42	50	17.65	89	4.609
-27	750	12	89.07	51	16.99	90	4.469
-26	703.8	13	84.95	52	16.36	91	4.334
-25	660.8	14	81.05	53	15.75	92	4.204
-24	620.8	15	77.35	54	15.17	93	4.079
-23	580.6	16	73.83	55	14.62	94	3.958
-22	548.9	17	70.5	56	14.09	95	3.841
-21	516.6	18	67.34	57	13.58	96	3.728
-20	486.5	19	64.33	58	13.09	97	3.619
-19	458.3	20	61.48	59	12.62	98	3.514
-18	432	21	58.77	60	12.17	99	3.413
-17	407.4	22	56.19	61	11.74	100	3.315
-16	384.5	23	53.74	62	11.32	101	3.22
-15	362.9	24	51.41	63	10.93	102	3.129
-14	342.8	25	49.19	64	10.54	103	3.04
-13	323.9	26	47.08	65	10.18	104	2.955
-12	306.2	27	45.07	66	9.827	105	2.872
-11	289.6	28	43.16	67	9.489	106	2.792
-10	274	29	41.34	68	9.165	107	2.715
-9	259.3	30	39.61	69	8.854	108	2.64
-8	245.6	31	37.96	70	8.555	109	2.568
-7	232.6	32	36.38	71	8.268	110	2.498
-6	220.5	33	34.88	72	7.991	111	2.431
-5	209	34	33.45	73	7.726	112	2.365
-4	198.3	35	32.09	74	7.47	113	2.302
-3	199.1	36	30.79	75	7.224	114	2.241
-2	178.5	37	29.54	76	6.998	115	2.182
-1	169.5	38	28.36	77	6.761	116	2.124
0	161	39	27.23	78	6.542	117	2.069
1	153	40	26.15	79	6.331	118	2.015
2	145.4	41	25.11	80	6.129	119	1.963
3	138.3	42	24.13	81	5.933	120	1.912
4	131.5	43	23.19	82	5.746	121	1.863
5	125.1	44	22.29	83	5.565	122	1.816
6	119.1	45	21.43	84	5.39	123	1.77
7	113.4	46	20.6	85	5.222	124	1.725
8	108	47	19.81	86	5.06	125	1.682
9	102.8	48	19.06	87	4.904	126	1.64

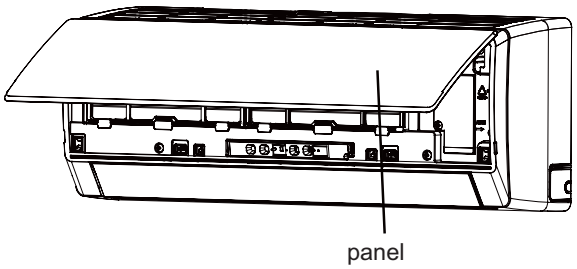
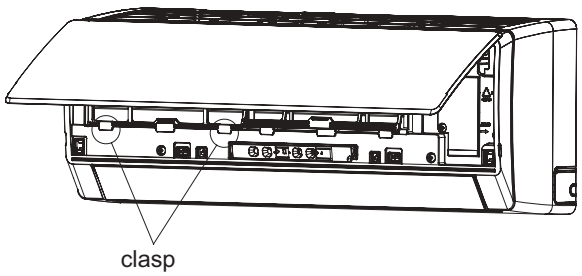
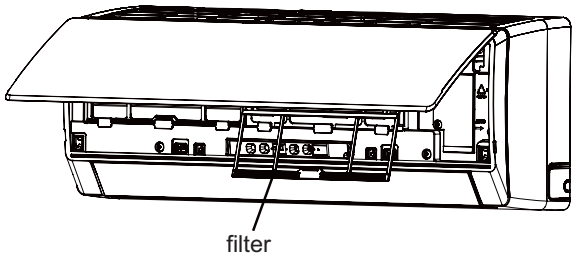
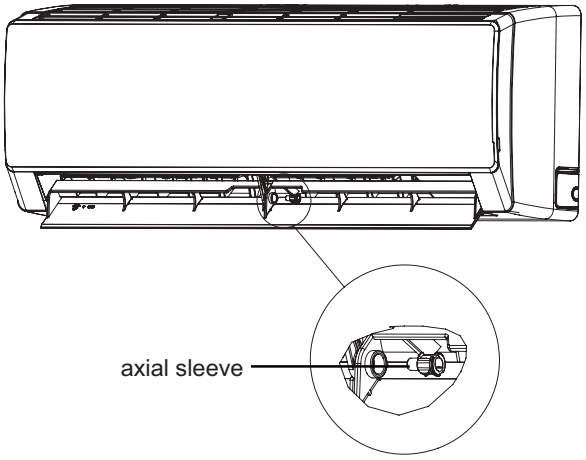
Note: The information above is for reference only.

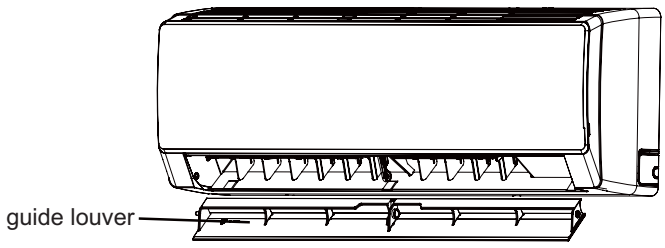
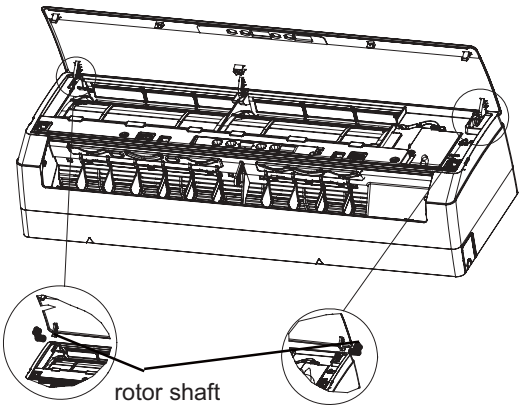
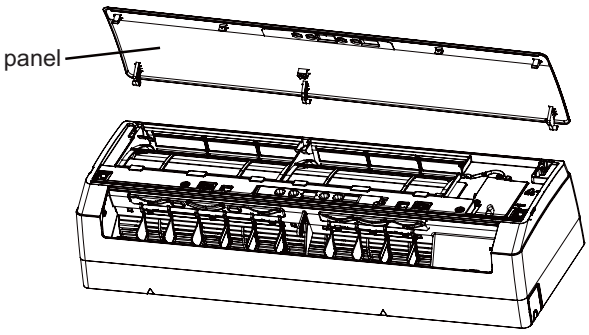
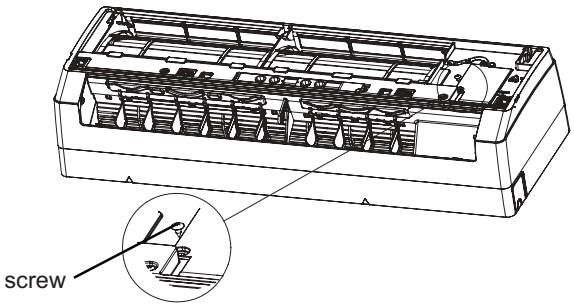
10. Removal Procedure

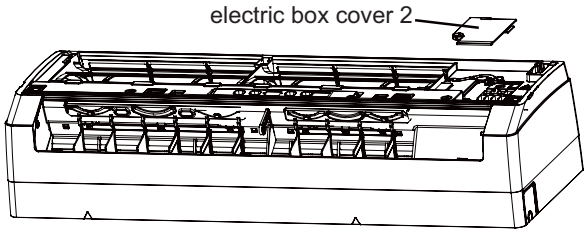
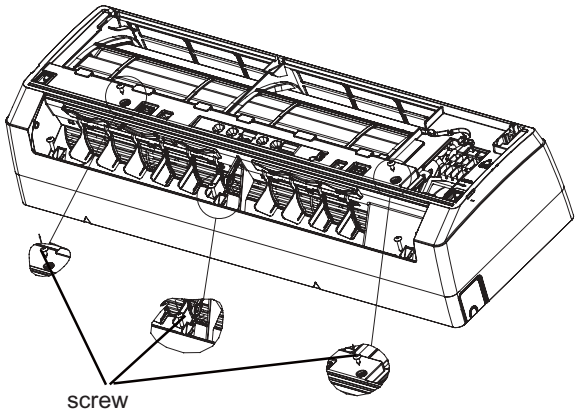
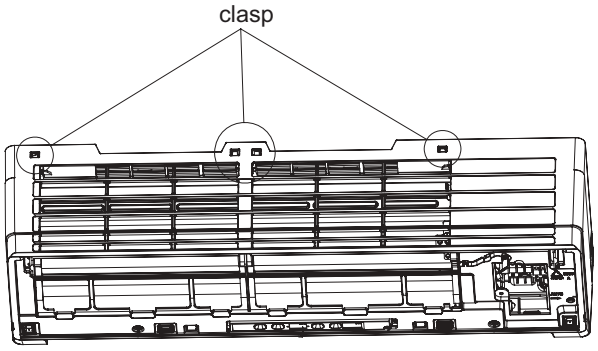
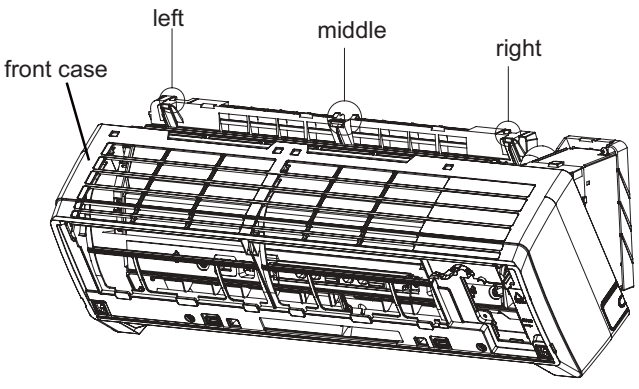
10.1 Removal Procedure of Indoor Unit

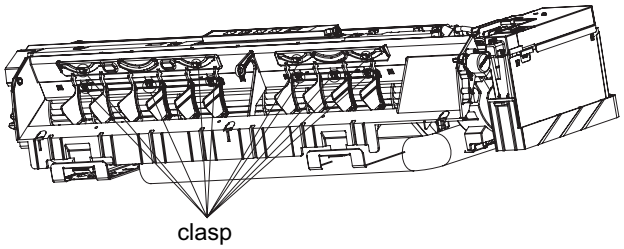
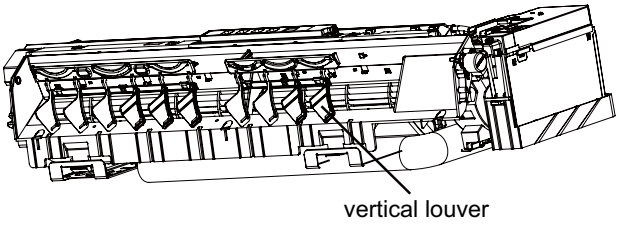
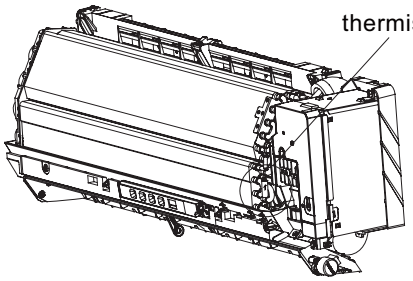
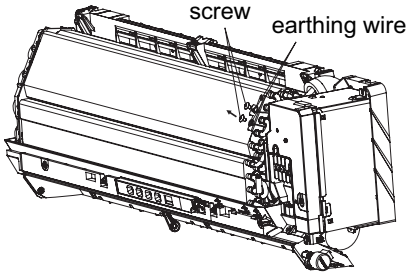
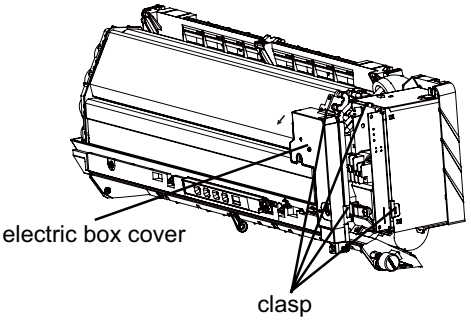
⚠ Warning Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.

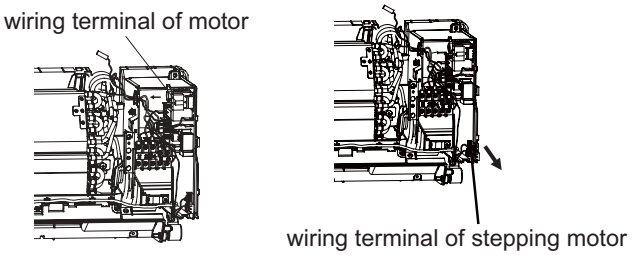
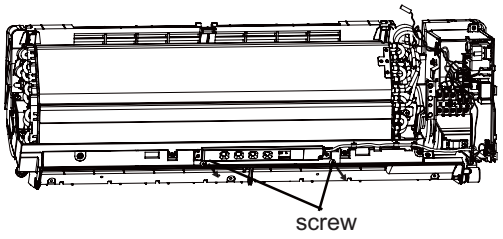
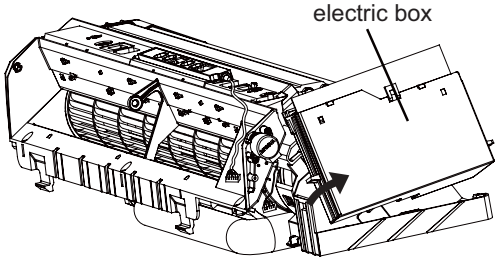
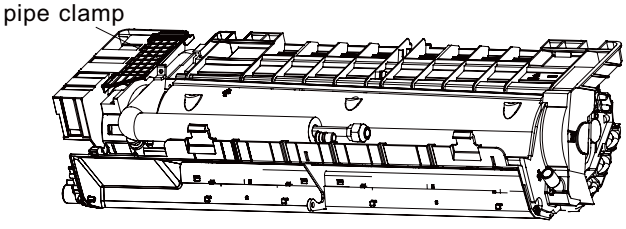
NOTE:Take GWH(12)MB-K1NNA3A/I for example.

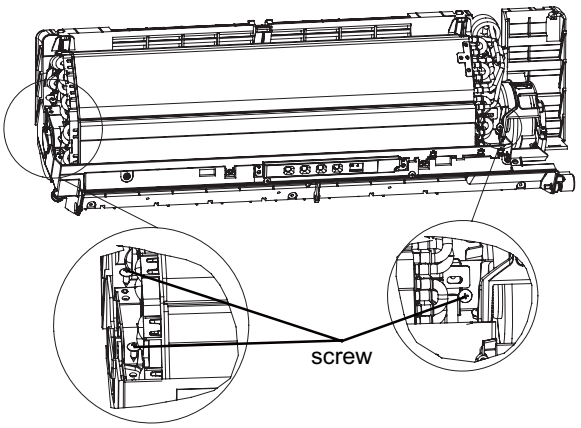
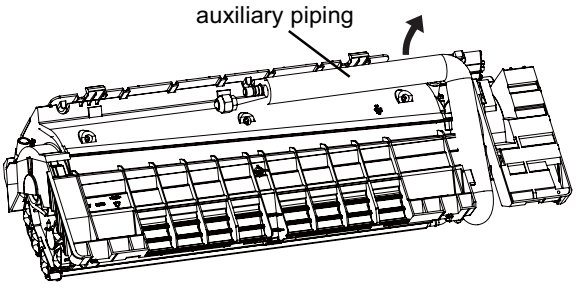
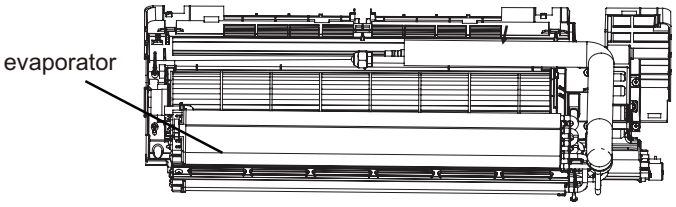
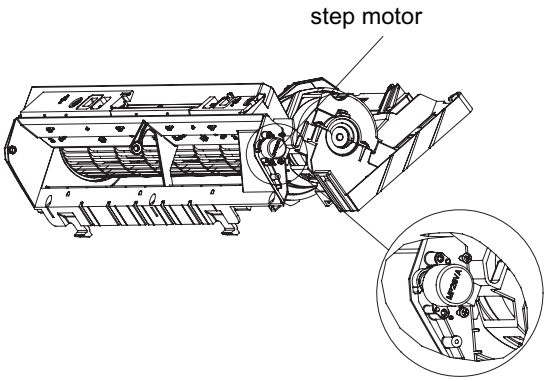
Steps	Procedure	
1.Remove the filter		
1	Open the front panel.	
2	Loosen the clasp of the filter.	
3	Push the filter inward and then draw it upward to remove it.	
2.Remove guide louver		
1	Remove axial sleeve of guide louver.	

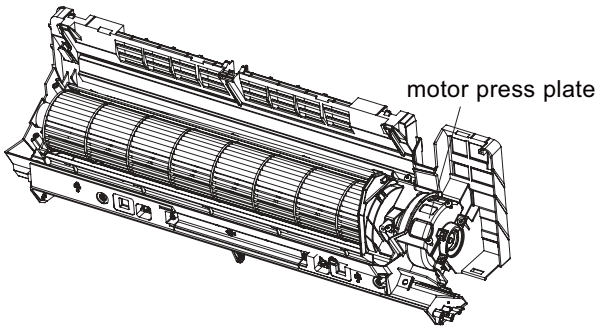
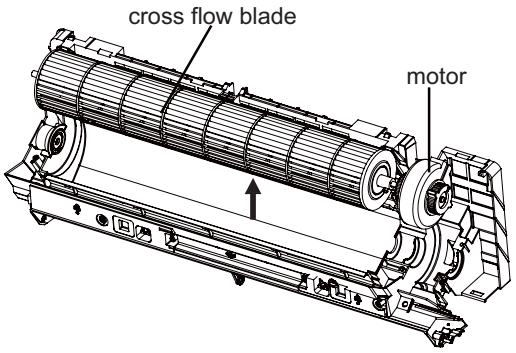
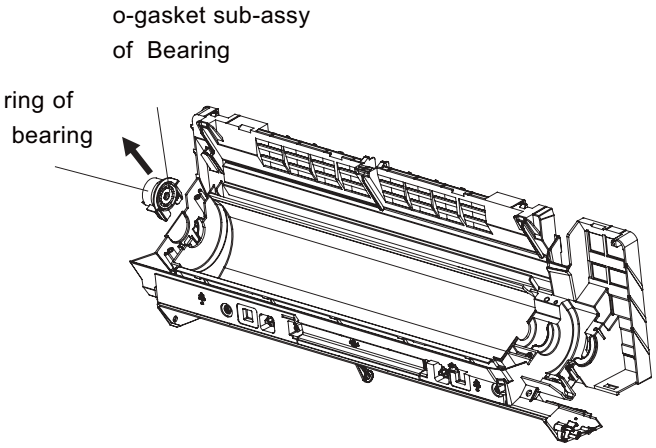
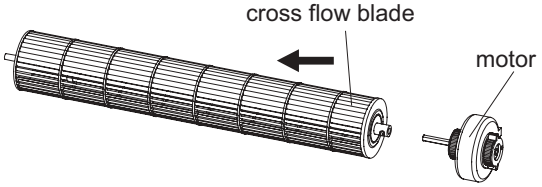
Steps	Procedure	
2	Bend the louver outwards and then remove the louver.	
3.Remove panel		
	Push the rotor shaft on both sides of the panel to make it separate from the groove. Remove the panel.	 
4.Remove electric box cover 2		
1	Loosen the screws of the electric box cover 2 with screwdriver.	

Steps	Procedure	
2	Remove the electric box cover, seperate it from the front case.	
5.Remove the front case		
1	Open the screw cap on the front case. Remove the screws fixing the front case.	
2	Loosen the six clasps of the front case.	
3	Remove the front case to seperate it with bottom assembly.	

Steps	Procedure	
6.Remove vertical louver		
1	Loosen the clasp connecting the vertical louver and rear case assy.	
2	Remove the vertical louver to the separate louver with bottom assembly.	
7.Remove electric box		
1	Disconnect the indoor tube temperature sensor.	
2	Remove the screws at the joint of the earthing wire and evaporator.	
3	Loosen the clasp at the joint of the electric box cover and the electric box. Remove the electric box cover.	

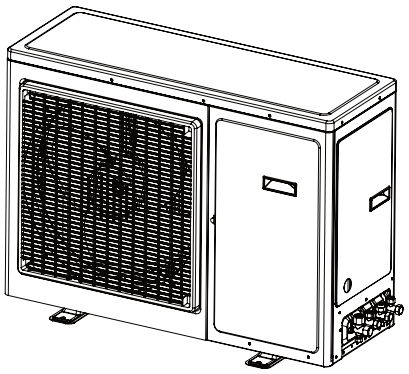
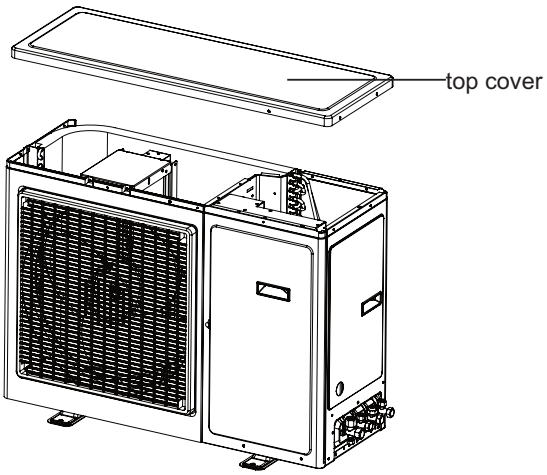
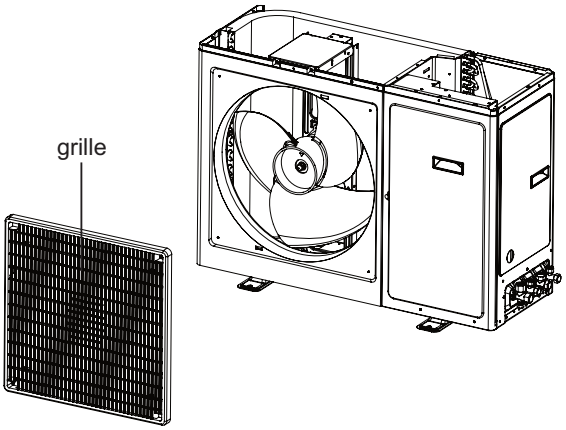
Steps	Procedure	
4	Pull out the wiring terminal of motor and stepping motor.	
5	Remove the 2 screws of the display.	
6	Remove the screw of electric box, remove the electric box to separate it with bottom assembly.	
8.Remove the press plate of connection pipe		
	Remove the screw of press board of connection pipe, then remove the press board to separate it with the rear case assy.	

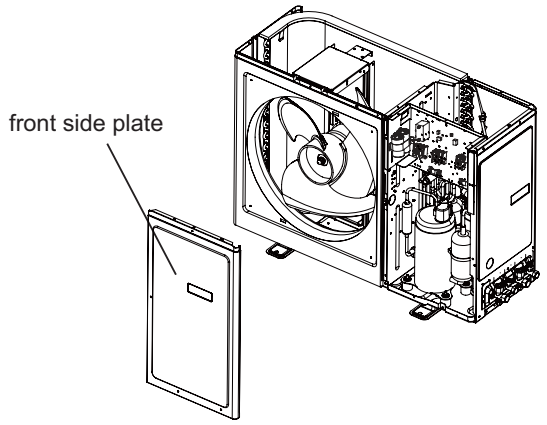
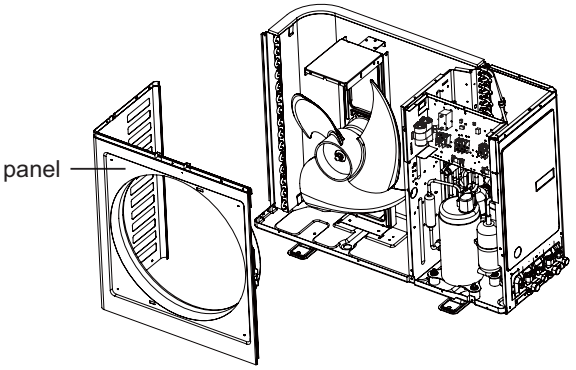
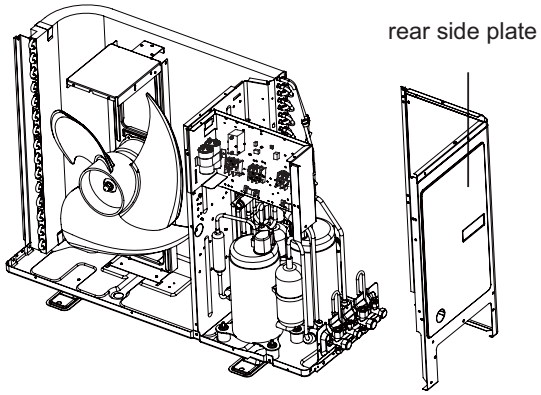
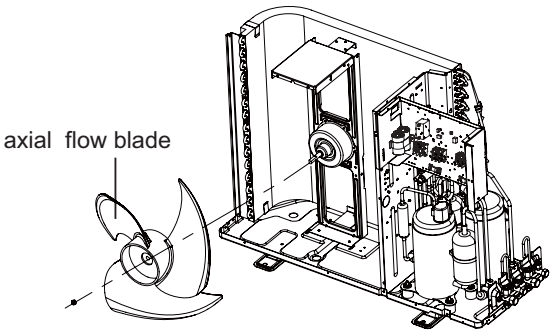
Steps	Procedure	
9.Remove evaporator		
1	Remove the 3 screws at the joint of the evaporator and rear case.	
2	Adjust slightly the pipe on the evaporator to separate the pipe with the evaporator.	
3	Remove the evaporator to separate the evaporator with rear case assy.	
10.Remove motor and cross flow blade		
1	Remove screws of step motor and then remove the step motor.	

Steps	Procedure	
2	Remove the screw of the motor press plate and then remove the press plate.	
3	Remove the cross flow blade and motor.	
4	Remove the rubber cushion of the bearing.	
5	Remove the screws at the joint of the cross flow blade and the motor. Take down the motor.	

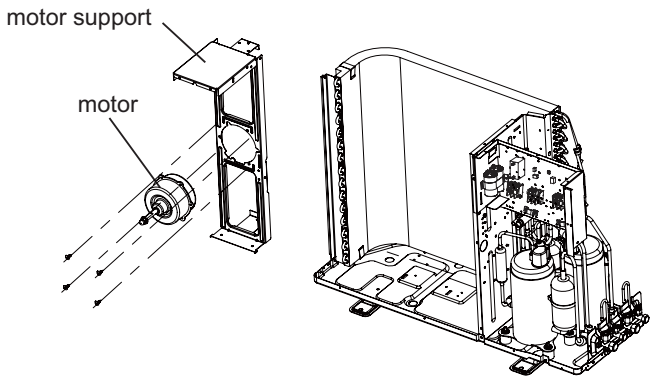
10.2 Removal Procedure of Outdoor Unit

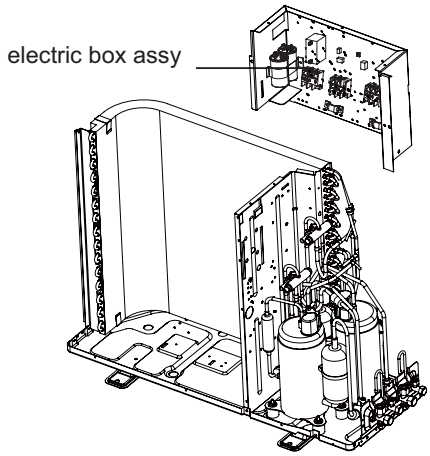
⚠ Warning Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.

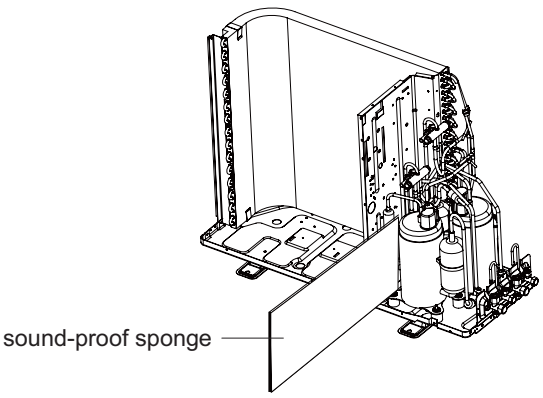
Steps	Procedure
1.Before disassembling the unit	
2. Remove top cover Remove connection screws among top cover plate, front panel and side plate. Then remove top cover plate.	
3.Remove grille Remove connection screws between front grill and front panel.Then remove front grill.	

Steps	Procedure
4. Remove front side plate Remove connection screws among front side plate, chassis and rear side plate. Then remove front side plate.	
5. Remove panel Remove connection screws among front panel, chassis and motor support. Then remove front panel.	
6. Remove rear side plate Remove connection screws among rear side plate, chassis, valve support and electric box. Then remove rear side plate.	
7. Remove axial flow blade Remove nut fixing fan blade.Then remove axial flow fan blade.	

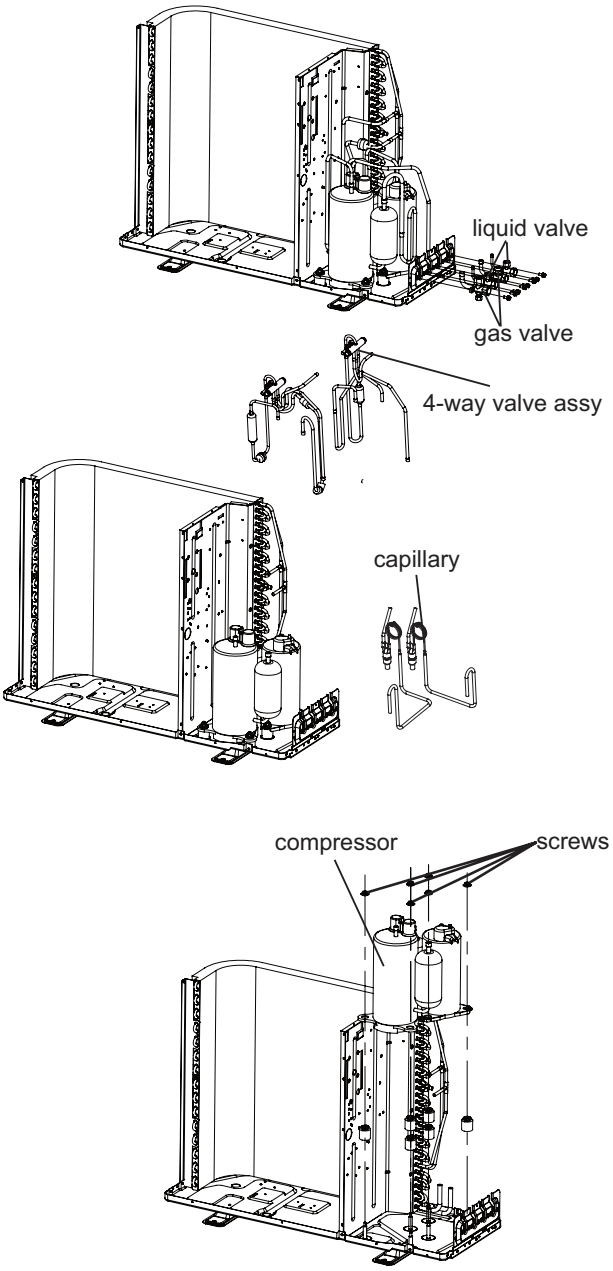
Steps	Procedure
8. Remove motor or motor support	
	Remove self-threading screws fixing motor. Unplug insert of lead-inwire of motor and then remove motor. Remove self-threading screws fixing motor support and then lift it up to remove motor support.
9.Remove electric box assy	
	Remove screws fixing electric box assembly. Untiewire bundle and unplugwiring terminal. Lift the electric box up to remove it.
10. Remove sound-proof sponge	
	Remove sound-proof spongewrapping compressor.

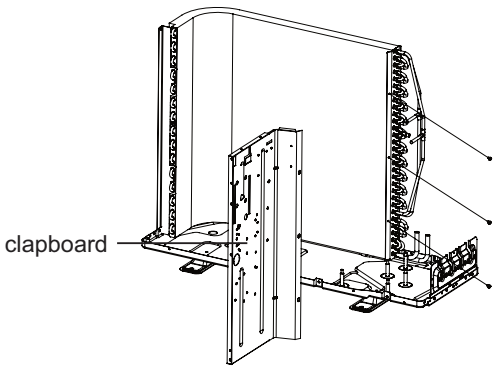






Steps	Procedure
11. Remove compressor	
a	Unsolderwelding points among capillary, valve and outlet pipe of condenser.Then remove capillary. Don't block capillarywith welding slag. (Note: discharge refrigerant completely before unsoldering.) Remove bolts fixing cut-off valve and unsolderweldingpoints between cut-off valveand pipe. Then remove cut-off valve. (Note:wrap the cut-off valve withwet cloth to prevent it from being damaged byhigh temperature.)
b	Unsolder pipe connecting to compressor.
c	Remove hold-down nuts of compressor. Then remove compressor.
12. Remove clapboard	
	Remove screws fixing middle isolation sheet. Then remove middle isolation sheet.





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