



MODELS: GWC09UB-K3DNA1A GWH09UB-K3DNA1A GWC12UB-K3DNA1A GWH12UB-K3DNA1A GWH09UB-K3DNA2A GWH12UB-K3DNA2A (Refrigerant R410A)

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

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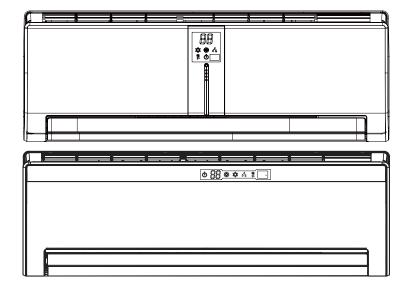
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Summary and Features

Indoor Unit:

GWC09UB-K3DNA1A/I GWH09UB-K3DNA1A/I GWC12UB-K3DNA1A/I GWH12UB-K3DNA1A/I

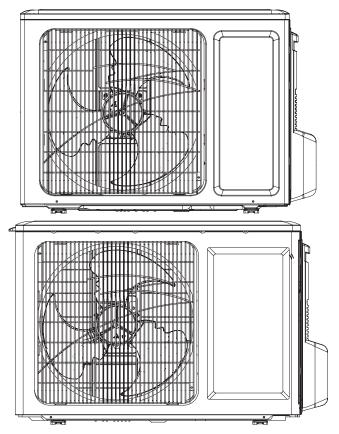
GWH09UB-K3DNA2A/I GWH12UB-K3DNA2A/I



Outdoor Unit:

GWC09UB-K3DNA1A/O GWH09UB-K3DNA1A/O

GWC12UB-K3DNA1A/O GWH12UB-K3DNA1A/O



Remote Controllor:

YAA1FB1



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.



Incorrect handling may result in minor injury,or damage to product or property.



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.



- 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			GWC09UB-K3DNA1A	GWH09UB-K3DNA1A GWH09UB-K3DNA2A
Product Code			CB204000100	CB204000200 CB221000201
Dannan	Rated Voltage	V~	220/240	220/240
Power	Rated Frequency	Hz	50	50
Supply	Phases		1	1
Power Su	pply Mode		Indoor	Indoor
Cooling C	apacity (Min~Max)	W	2600(1000~3400)	2600(1000~3400)
Heating C	apacity (Min~Max)	W	/	2870(600~3800)
Cooling P	ower Input (Min~Max)	W	645(200~1200)	645(200~1200)
Heating P	ower Input (Min~Max)	W	/	695(160~1250)
Cooling P	ower Current	Α	2.83	2.83
	ower Current	A	1	3.05
Rated Inp		W	1400	1450
Rated Cui		A	5.25	5.50
	/olume(Min~Max)	m³/h	560/490/450/400/360/350/340	560/490/450/400/360/350/340
	fying Volume	L/h	0.8	0.8
EER	yg	W/W	4.01	4.01
COP		W/W	/	4.11
SEER		W/W	,	/
HSPF		W/W	,	,
Applicatio	n Area	m ²	12-18	12-18
Applicatio	Model of indoor unit		GWC09UB-K3DNA1A/I	GWH09UB-K3DNA1A/I GWH09UB-K3DNA2A/I
	Fan Type		Cross-flow	Cross-flow
	Diameter Length(DXL)	mm	Ф85Х687	Ф85Х687
	Fan Motor Cooling Speed(Min~Max)	r/min	1400/1200/1100/1000/900/800/700	1400/1200/1100/1000/900/800/700
	Fan Motor Heating Speed(Min~Max)	r/min	/	1380/1250/1170/1090/1020/950/900
	Output of Fan Motor	W	20	20
	Fan Motor RLA	A	0.2	0.2
	Fan Motor Capacitor	μF	1	1
	Input of Heater	W	1	1
	Evaporator Form	V V	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Ф7	Ф7
Indoor	Row-fin Gap	mm	2-1.4	2-1.4
Unit	•	mm	670X25.4X324	670X25.4X324
	Coil Length (LXDXW)	mm		MP24AC/MP24AD
	Swing Motor Model	W	MP24AC/MP24AD	
	Output of Swing Motor		0.6 3.15	0.6
	Fuse	AD (A)		3.15
	Sound Pressure Level(Min~Max)	dB (A)	38/34/32/29/27/25/22	38/34/32/29/27/25/22
	Sound Power Level(Min~Max)	dB (A)	48/44/42/39/37/35/32	48/44/42/39/37/35/32
	Dimension (WXHXD)	mm	896X320X159	896X320X159
	Dimension of Carton Box (L/W/H)	mm	970X400X240	970X400X240
	Dimension of Package (L/W/H)	mm	973X403X255	973X403X255
	Net Weight	kg	11.5	11.5
	Gross Weight	kg	14.5	14.5

	Model of Outdoor Unit		GWC09UB-K3DNA1A/O	GWH09UB-K3DNA1A/O
	Compressor Manufacturer/Trademark		LANDA	LANDA
	Compressor Model		QXA-A086zC190	QXA-A086zC190
	Compressor Oil		FVC 68D or RB 68EP	FVC 68D or RB 68EP
	Compressor Type		Rotary	Rotary
	L.R.A.	А	25	25
	Compressor RLA	A	12	12
	Compressor Power Input	W	850±3%	850±3%
	Overload Protector		1NT11L-6233	1NT11L-6233
	Throttling Method		Electron expansion valve	Electron expansion valve
	Operation temp	°C	16~30	16~30
	Ambient temp (cooling)	°C	18~43	18~43
	Ambient temp (heating)	°C	/	-5~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Ф7	Ф7
	Rows-fin Gap	mm	2-1.4	2-1.4
	Coil Length (LXDXW)	mm	725X38.1X508	725X38.1X508
	Fan Motor Speed	rpm	900/660	900/660
	Output of Fan Motor	W	30	30
	Fan Motor RLA	Α	0.27	0.27
Outdoor	Fan Motor Capacitor	μF	0	0
Unit	Air Flow Volume of Outdoor Unit	m³/h	1600	1600
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	400	400
	Defrosting Method		/	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating	MPa	2.8	2.8
	Pressure for the Discharge Side	IVIFA	2.0	2.0
	Permissible Excessive Operating	MPa	1.2	1.2
	Pressure for the Suction Side			
	Sound Pressure Level(Min~Max)	dB (A)	50/48/44/39/37/35/32	50/48/44/39/37/35/32
	Sound Power Level(Min~Max)	dB (A)	60/58/52/49/47/45/42	60/58/52/49/47/45/42
	Dimension (WXHXD)	mm	776X540X320	776X540X320
	Dimension of Carton Box (L/W/H)	mm	820X355X580	820X355X580
	Dimension of Package (L/W/H)	mm	823X358X595	823X358X595
	Net Weight	kg	29	29
	Gross Weight	kg	33	33
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	0.85	0.85
	Length	m	5	5
	Gas Additional Charge	g/m	20	20
Connecti	Outer Diameter Liquid Pipe	mm	Ф6	Ф6
on Pipe	Outer Diameter Gas Pipe	mm	Ф9.52	Ф9.52
J 190	Max Distance Height	m	10	10
	Max Distance Length	m	15	15
	INIAN DISTAILOG LETIGUT	1111	IU	15

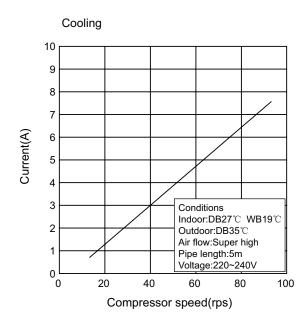
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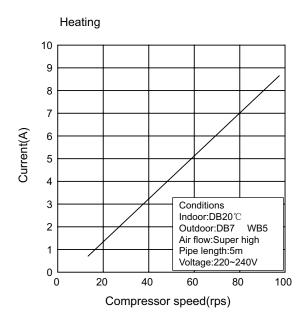
Model			GWC12UB-K3DNA1A	GWH12UB-K3DNA1A GWH12UB-K3DNA2A
Product Code			CB204000300	CB204000400 CB221000401
Davisan	Rated Voltage	V~	220-240	220-240
Power	Rated Frequency	Hz	50	50
Supply	Phases		1	1
Power Su	pply Mode		Indoor	Indoor
Cooling C	apacity (Min~Max)	W	3500(1300~4000)	3500(1300~4000)
Heating C	apacity (Min~Max)	W	/	3810(900~4300)
Cooling P	ower Input (Min~Max)	W	970(360~1300)	970(360~1300)
Heating P	ower Input (Min~Max)	W	/	1055(340~1360)
Cooling P	ower Current	А	4.22	4.22
	ower Current	А	/	4.58
Rated Inp	ut	W	1500	1600
Rated Cur		A	5.76	6.15
Air Flow V	/olume(Min~Max)	m³/h	560/490/450/400/360/350/340	560/490/450/400/360/350/340
	fying Volume	L/h	1.4	1.4
EER	, , ,	W/W	3.61	3.61
COP		W/W	/	3.61
SEER		W/W	,	/
HSPF		W/W	,	,
Application	n Area	m ²	16-24	16-24
7 tppilodilo	Model of indoor unit	 	GWC12UB-K3DNA1A/I	GWH12UB-K3DNA1A/I GWH12UB-K3DNA2A/I
	Fan Type		Cross-flow	Cross-flow
	Diameter Length(DXL)	mm	Ф85Х687	Ф85Х687
	Fan Motor Cooling Speed(Min~Max)	r/min	1400/1250/1150/1050/950/850/700	1400/1250/1150/1050/ 950/850/700
	Fan Motor Heating Speed(Min~Max)	r/min	/	1400/1270/1180/1100/1040/980/900
	Output of Fan Motor	l w	20	20
	Fan Motor RLA	A	0.2	0.2
	Fan Motor Capacitor	μF	1	1
	Input of Heater	W	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
landa en	Pipe Diameter	mm	Ф7	Φ7
Indoor Unit	Row-fin Gap	mm	2-1.4	2-1.4
Onit	Coil Length (LXDXW)	mm	670X25.4X324	670X25.4X324
	Swing Motor Model	1	MP24AC/MP24AD	MP24AC/MP24AD
	Output of Swing Motor	l w	0.6	0.6
	Fuse	A	3.15	3.15
	Sound Pressure Level(Min~Max)	dB (A)	39/36/34/31/28/25/23	39/36/34/31/28/25/23
	Sound Power Level(Min~Max)	dB (A)	49/46/44/41/38/35/33	49/46/44/41/38/35/33
	Dimension (WXHXD)	mm	896X320X159	896X320X159
	Dimension of Carton Box (L/W/H)	mm	970X400X240	970X400X240
	Dimension of Package (L/W/H)	mm	973X403X255	973X403X255
	Net Weight	kg	11.5	11.5
	Gross Weight	+	14.5	14.5
	O1033 Weight	kg	14.5	14.0

	Model of Outdoor Unit		GWC12UB-K3DNA1A/O	GWH12UB-K3DNA1A/O
	Compressor Manufacturer/Trademark		ZHUHAI GREE DAIKIN DEVICE	PANASONIC WANBAO COMPERSSOR (GUANGZHOU)
	·		CO., LTD.	CO.LTD/PANASONIC
	Compressor Model		1YC23AEXD	5RS102ZJA21
	Compressor Oil		FV50S	FV50S
	Compressor Type		Rotary	Rotary
	L.R.A.	А	25.00	25
	Compressor RLA	А	5.00	4.47
	Compressor Power Input	W	600	985
	Overload Protector		CS-7SA	1NT11L-5270
	Throttling Method		Capillary	Capillary
	Operation temp	°C	16~30	16~30
	Ambient temp (cooling)	°C	18~48	18~43
	Ambient temp (heating)	°C	1	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Ф9.52	Ф9.52
	Rows-fin Gap	mm	2-1.4	2-1.4
	Coil Length (LXDXW)	mm	785X44X508	785X44X508
	Fan Motor Speed	rpm	900/660	900/660
	Output of Fan Motor	W	30	30
Outdoor	Fan Motor RLA	А	0.27	0.27
Unit	Fan Motor Capacitor	μF	0	0
	Air Flow Volume of Outdoor Unit	m³/h	1600	1600
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	400	400
	Defrosting Method		/	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	2.8	2.8
	Permissible Excessive Operating Pressure for the Suction Side	MPa	1.2	1.2
	Sound Pressure Level (H/M/L)	dB (A)	52/-/-	52/-/-
	Sound Power Level (H/M/L)	dB (A)	62/-/-	62/-/-
	Dimension (WXHXD)	mm	848X540X320	848X540X320
	Dimension of Carton Box (L/W/H)	mm	878X360X580	878X360X580
	Dimension of Package (L/W/H)	mm	881X363X595	881X363X595
	Net Weight	kg	35	38
	Gross Weight	kg	40	43
	Refrigerant	19	R410A	R410A
	Refrigerant Charge	ka	1.26	1.26
		kg		1.20
	Length Con Additional Charge	m g/m	5	20
	Gas Additional Charge	g/m	20	
Connecti	Outer Diameter Liquid Pipe	mm	Ф6	Ф6
on Pipe	Outer Diameter Gas Pipe	mm	Ф12	Ф12
	Max Distance Height	m	10	10
	Max Distance Length	m	20	20

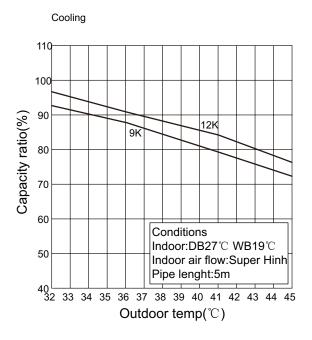
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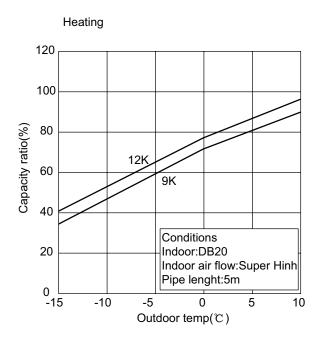
2.2 Operation Characteristic Curve





2.3 Capacity Variation Ratio according to Temperature





2.4 Operation Data

Cooling

'	erature tion (°C)	Model name	Standard pressure	Heat exchanger pipe temp.		Indoor fan mode(rpm)	Outdoor fan mode(rpm)	Compressor revolution(rps)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)	inode(rpm)	mode(rpm)	revolution(rps)
27/19	35/-	9K	0.58	in 10/out 11	in 78/out 38	1400	900/600	64
27/19	35/-	12K	0.6	in 11/out 12	in 80/out 38	1400	900/600	64

Heatling

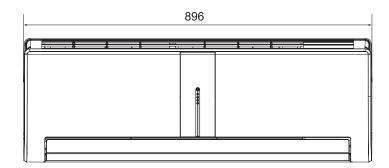
_	·							
	erature ion (°C)	Model name	Standard pressure	Heat exchanger pipe temp. T1 (°C) T2 (°C)		Indoor fan	Outdoor fan	Compressor
Indoor	Outdoor		P (MPa)			mode(rpm)	mode(rpm)	revolution(rps)
20/-	7/6	9K	2.6	in 76/ out 42	in 3/out 1	1380	900/600	66
20/-	1/6	12K	2.7	in 76/ out 42	in 4/out 2	1400	900/600	66

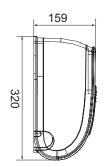
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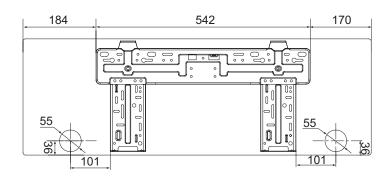
- (1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor themometer)
- (2) Connecting piping condition : 5m.
- T1: Inlet and outlet pipe temperature of evaporator
- T2: Inlet and outlet pipe temperature of condenser
- P: Pressure of air pipe connecting indoor and outdoor units

3. Construction Views

3.1 Indoor Unit



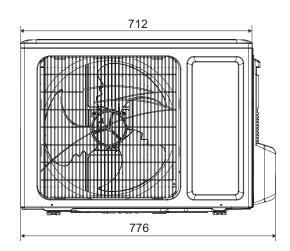


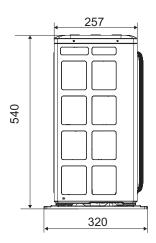


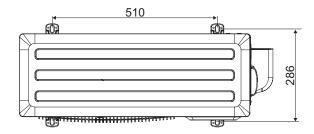
Unit: mm

3.2 Outdoor Unit

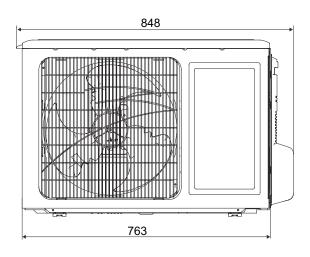
09K

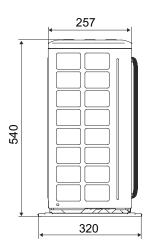


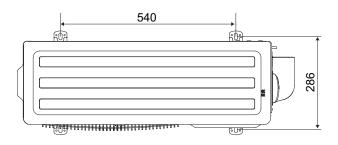




12K



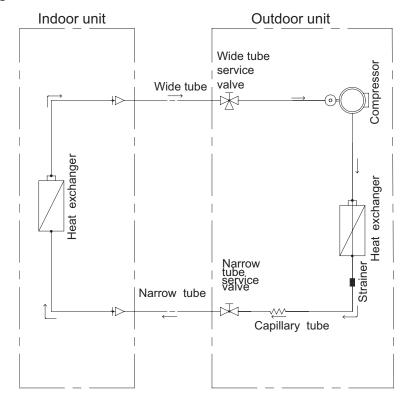




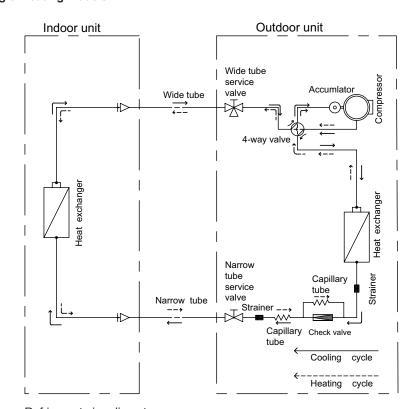
Unit: mm

4. Refrigerant System Diagram

Cooling Models



Cooling & Heating Models



Refrigerant pipe diameter Liquid: 1/4" (6 mm)

Gas: 3/8" (9.52mm)(09K) Gas: 1/2" (12mm)(12K)

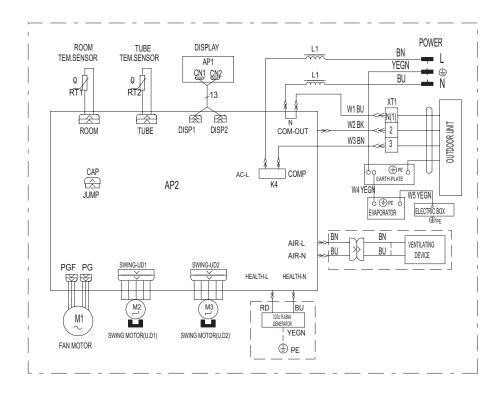
5. Schematic Diagram

5.1 Electrical Wiring

• Electrical Data

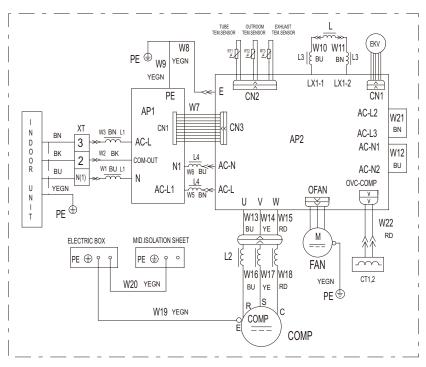
Symbol	Color symbol	Symbol	Color symbol
BU	BLUE	BN	BROWN
YE	YELLOW	вк	BLACK
RD	RED	YEGN	YELLOW GREEN
VT	VIOLET	WH	WHITE
OG	ORANGE	(1)	PROTECTIVE EARTH

• Indoor Unit

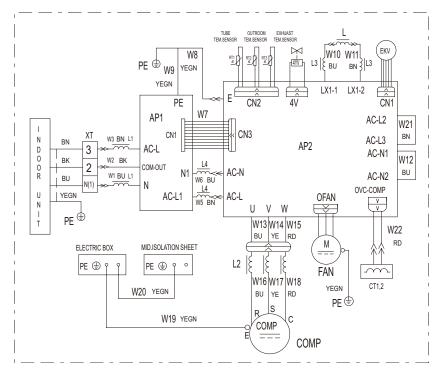


Outdoor Unit

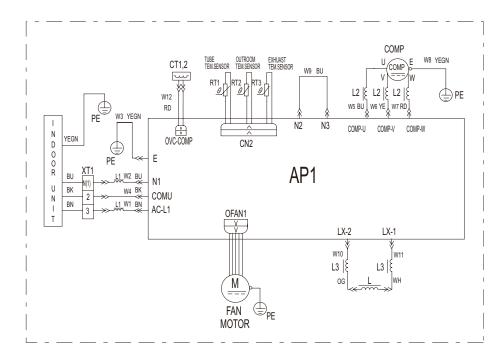
GWC09UB-K3DNA1A/O



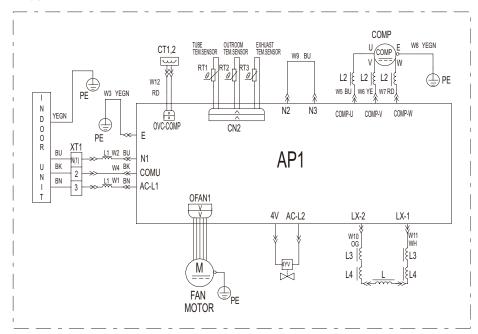
GWH09UB-K3DNA1A/O



GWC12UB-K3DNA1A/O



GWH12UB-K3DNA1A/O

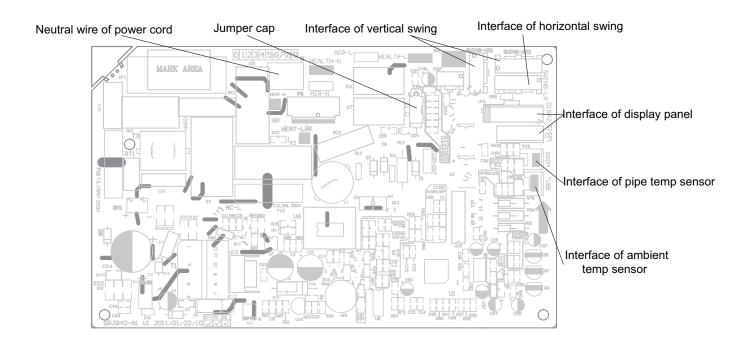


These circuit diagrams are subject to change without notice. Please refer to the one supplied with the unit.

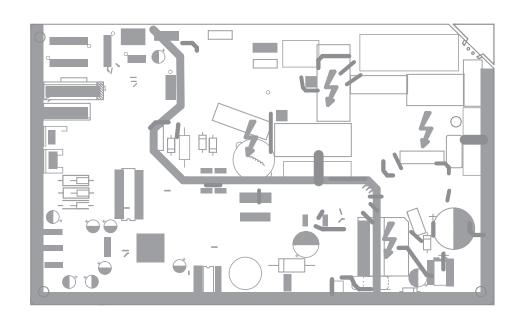
5.2 Printed Circuit Board

Indoor Unit

• TOP VIEW



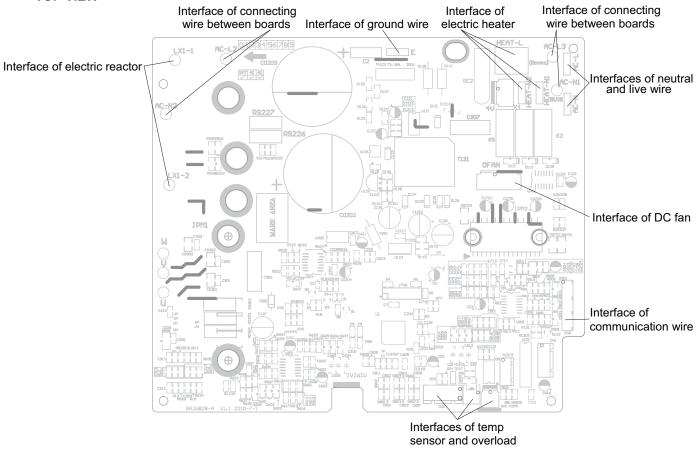
• BOTTOM VIEW



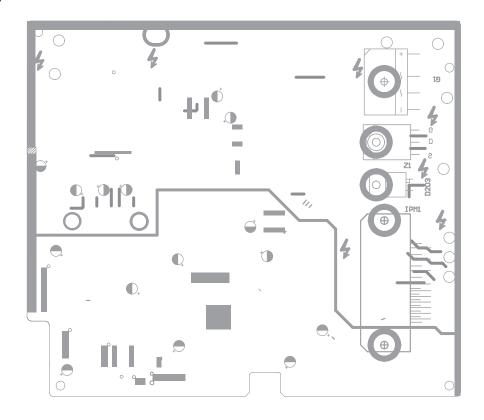
Outdoor Unit

GWC09UB-K3DNA1A/O, GWH09UB-K3DNA1A/O

TOP VIEW

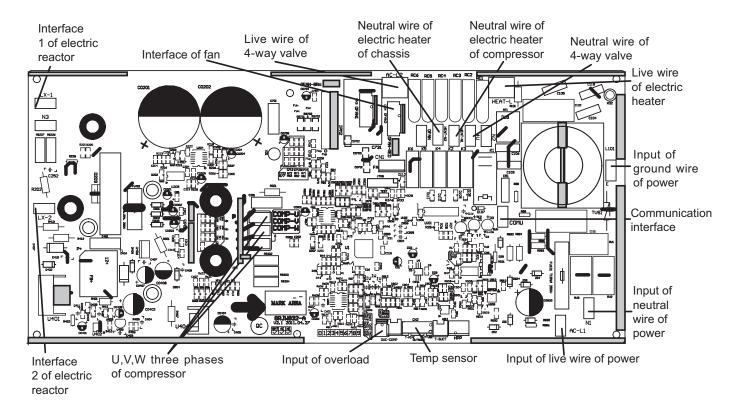


BOTTOM VIEW

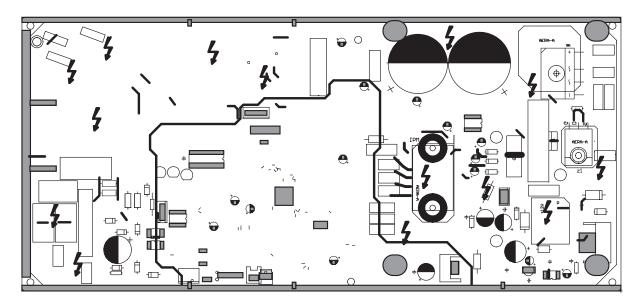


GWC12UB-K3DNA1A/O, GWH12UB-K3DNA1A/O

• TOP VIEW



• BOTTOM VIEW



6. Function and Control

6.1 Remote Control Operations



1 ON/OFF

Press it to start or stop operation.

2 .

Press it to decrease temperature setting.

3 +

Press it to increase temperature setting.

4 MODE

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

5 FAN

Press it to set fan speed.

6 SWING

Press it set swing angle.

- 7 I FEEL
- 8 条/纪

Press it to set HEALTH or AIR function.

- 9 SLEEP
- 10 TEMP
- 11 QUIET

Pressitto set QUIET function.

12 CLOCK

Press it set clock.

13 T-ONIT-OFF

Press it to set auto-off/auto-on timer.

- 14 TURBO
- 15 LIGHT

Press it to turn on/off the light.

16 X-FAN

ON/OFF

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

2 -

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

3 +

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

4 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:



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.

5 FAN

to Auto



6 SWING

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

This remote controller is universal . If any command $\stackrel{\searrow}{=}$, $\stackrel{\searrow}{=}$ or $\stackrel{\longrightarrow}{=}$ is sent out, the unit will carry out the command as $\stackrel{\searrow}{=}$ indicates the guide louver swings as: ╏┇╌╏╬

7 | I FEEL

Press this button to turn on I FEEL function. The unit automatically adjust temperature according to the sensed temperature. Press this button again to cancel I FEEL function.

8 条/纪

Press this button to achieve the on and off of healthy and scavenging functions in operation status. Press this button for the first time to start scavenging function; LCD displays" 滔 ". Press the button for the second time to start healthy and scavenging functions simultaneously; LCD displays" 🐔 " and 🞏 Press this button for the third time to quit healthy and scavenging functions simultaneously. Press the button for the fourth time to start healthy function; LCD display " * ". Press this button again to repeat the operation above.

9 SLEEP

- Press this button, can select Sleep 1 (🗘), Sleep 2 (🗘), Sleep 3 (🐧) and cancel the Sleep, circulate between these, after electrified, Sleep Cancel is defaulted.
- •Sleep 1 is Sleep mode 1, in Cool, Dehumidify modes: sleep status after run for one hour, the main unit setting temperature will increase 1 temperature increased 2 , the unit will run at this setting temperature; In Heat mode: sleep status after run for one hour, the setting temperature will decrease 1 , 2 hours, setting temperature will decrease 2 , then the unit will run at this setting temperature.

 •Sleep 2 is sleep mode 2, that is air conditioner will run according to the presetting a group of sleep temperature curve.
- •Sleep 3- the sleep curve setting under Sleep mode by DIY:
- (1) Under Sleep 3 mode, press "Turbo" button for a long time, remote control enters into user individuation sleep setting status, at this time, the time of remote control will display "1hour", the setting temperature "88" will display the corresponding temperature of last setting sleep curve and blink (The first entering will display according to the initial curve setting value of original factory);
- (2) Adjust "+" and "-" button, could change the corresponding setting temperature, after adjusted, press "Trubo "button for confirmation;
- (3) At this time, 1hour will be automatically increased at the timer postion on the remote control, (that are "2hours" or "3hours" or "8hours"), the place of setting temperature "88" will display the corresponding temperature of last setting sleep curve and blink;
- (4) Repeat the above step (2) ~ (3) operation, until 8hours temperature setting finished, sleep, curve setting finished, at this time, the remote control will resume the original timer display; temperature display will resume to original setting temperature.
- •Sleep3- the sleep curve setting under Sleep mode by DIY could be inquired:
- The user could accord to sleep curve setting method to inquire the presetting sleep curve, enter into user individuation sleep setting status, but do not change the temperature, press "Turbo" button directly for confirmation. Note: In the above presetting or enquiry procedure, if continuously within 10s, there is no button pressed, the sleep curve setting within 10s, there is no button pressed, the sleep curve setting status will be automatically quit and resume to display the original displaying. In the presetting or enquiry procedure, press "ON/OFF" button, "Mode" button, "Timer"button or "Sleep" button, the sleep curve setting or enquiry status will quit similarly.

10 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.

11 QUIET

Press this button, the Quiet status is under the Auto Quiet mode (display " p" signal)and Quiet mode (display " signal)and Quiet mode (display " signal)and Quiet mode (display " signal)and Quiet of the Quiet of the Quiet of the Quiet function cannot be set up in Fan and Dry mode; Under the Quiet mode (Display " under the Quiet mode (Display " signal), the fan speed is not available.

12 CLOCK

Press CLOCK button, blinking . 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.

13 T-ONIT-OFF

14 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.

15 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 , \circ is displayed. If the light is turned off, \circ disappears.

16 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.

- 17 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.
- Combination of "MODE" and "-" buttons: About switch between Fahrenheit and centigrade At unit OFF, press "MODE" and " " buttons simultaneously to switch between and .
- 19 Combination of "TEMP" and "CLOCK" buttons: About Energy-saving Function Press "TEMP" and "CLOCK" simultaneously in COOL mode to start energy-saving function. Nixie tube on the remote controller displays "SE". Repeat the operation to quit the function.
- Combination of "TEMP" and "CLOCK" buttons: About 8 Heating Function

 Press "TEMP" and "CLOCK" simultaneously in HEAT mode to start 8 Heating Function Nixie tube on the remote controller displays "\$" and a selected temperature of "8". (46 if Fahrenheit is adopted). Repeat the operation to quit the function.
- 21 About Back-lighting Function

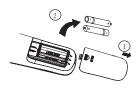
The unit lights for 4s when energizing for the first time, and 3s for later press.

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.
- •When replacing the batteries, do not use old or different types of batteries,
- •If the remote controller will not be used for a long time, please otherwise, it may cause malfunction.

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

Once energized, in no case should the compressor be restarted within less than 3 minutes. In the situation that memory function is available, for the first energization, if the compressor is at stop before de-energization, the compressor will be started without a 3-minute lag; if the compressor is in operation before de-energization, the compressor will be started with a 3-minute lag; and once started, the compressor will not be stopped within 6 minutes regardless of changes in room temperature;

(1) Cooling Mode

1 Working conditions and process of cooling

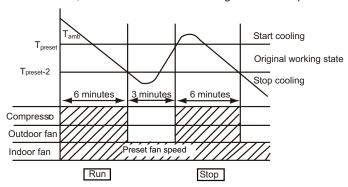
When Tamb.≥Tpreset, the unit will enter cooling operation, in which case the indoor fan, the outdoor fan and the compressor will work and the indoor fan will run at preset speed.

When Tamb.≤Tpreset -2°C , the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will run at preset speed.

When Tpreset -2° < Tamb. < Tpreset, the unit will remain at its previous state.

Under this mode, the four-way valve will be de-energized and temperature can be set within a range from 16 to 30 ℃.

If the compressor is shut down for some reason, the indoor fan and the swing device will operate at original state.



② Protection

♦Freeze protection

Under cooling and drying mode, 6 minutes after the compressor is started:

If T evap≤2°C , the compressor will operate at reduced frequency.

If T evap≤-1℃ is detected for durative 3 minutes, the compressor will stop, and after 30 seconds, the outdoor fan will stop; and under cooling mode, the indoor fan and the swing motor will remain at the original state.

If T evap. ≥10 °C and the compressor has remained at OFF for at least 3 minutes, the compressor will resume its original operation state.

(2) Dehumidifying Mode

① Working conditions and process of drying

If Tamb>Tpreset, the unit will enter cooling and drying mode, in which case the compressor and the outdoor fan will operate and the indoor fan will run at low speed.

If Tpreset -2°C ≤Tamb≤Tpreset, the compressor remains at its original operation state.

If Tamb.< Tpreset -2° C, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will operate at low speed.

2 Protection

Protection is the same as that under the cooling mode.

(3) Heating Mode

① Working conditions and process of heating

If Tamb.≤Tpreset +2 °C , the unit enters heating mode, in which case the four-way valve, the compressor and the outdoor fan will operate simultaneously, and the indoor fan will run at preset speed in the condition of preset cold air prevention.

If T amb.≥Tpreset +5℃, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will stop after 60-second blow at low speed

Under this mode, the four-way valve is energized and temperature can be set within a range of 16 - 30° C. The operating symbol, the heating symbol and preset temperature are revealed on the display.

2 Condition and process of defrost

When duration of successive heating operation is more than 45 minutes, or accumulated heating time more than 90 minutes, and one of the following conditions is reached, the unit will enter the defrost mode after 3 minutes.

- (1). T outdoor ambient $> 5^{\circ}$ C, T outdoor tube $\leq -2^{\circ}$ C;
- (2) -2°C ≤T outdoor ambient < 5°C , T outdoor tube≤-6°C ;
- (4) -10 $^{\circ}$ C \leq T outdoor ambient < -5 $^{\circ}$ C , T outdoor tube \leq (T outdoor ambient-3) $^{\circ}$ C .

9K: In that case, indoor fan and compressor stop operation, in 30s later, outdoor fan stop operation and in another 30s later, 4-way valve stop operation; in 30s later, compressor increases its frequency for defrosting. When compressor operates for defrosting for 9min, or TB outdoor pipe B ≥10°C, the target frequency will be set as 46Hz and in 30s later, compressor will stop operation and in another 30s, 4-way valve will start operation; in 60s later, compressor and outdoor fan will operate while indoor fan operates at cold-air prevention operation. H1 will be displayed on display panel and the defrosting frequency is 85Hz.

12K: In that case, indoor fan and compressor stop operation, in 30s later, outdoor fan stop operation and in another 30s later, 4-way valve stop operation; in 30s later, compressor increases its frequency for defrosting. When compressor operates for defrosting for 7.5min, or TB outdoor pipe B≥10°C, the compressor will decreases its frequency and in 30s later, compressor will stop operation and in another 30s, 4-way valve will start operation; in 60s later, compressor and outdoor fan will operate The defrosting frequency is 80Hz. ③ Protection

Cold air prevention

In heating mode, compressor operates or enters defrosting mode, and horizontal louver will turn to P7 position of heating (18K: the upper horizontal louver will clockwise rotate to 120 $^{\circ}$ while lower horizontal louver will clockwise rotate to 145 $^{\circ}$). When the horizontal louver is not at swing status, if Tpipe $>31^{\circ}$ C, horizontal louver will rotate the default degree or the previous position. Such operation will be only executed once. If Tpipe $\leq31^{\circ}$ C and cold air prevention operation finishes, horizontal louver will rotate to P3 position of heating and stop at the position until Tpipe $\geq35^{\circ}$ C. Then horizontal louver will rotate the default degree or the previous position. Such operation will be only executed once. In other conditions, when cold air prevention operation quit, horizontal louver will return to previous status. Within 9min, when Tpipe \leq Tindoor amb.+ 5 $^{\circ}$ C, indoor fan will not operate. After 9min, or when Tpipe \geq Tindoor amb.+ 5 $^{\circ}$ C, such condition will not be detected to avoid frequent startup and turning off of the fan. And also, the unit will operate at the following mode:

① When Tindoor amb. <24℃:</p>

Within 2min: if Tpipe \leq 40 °C, indoor fan will not operate; after 2min, if Tpipe >27 °C, indoor fan will operate at low speed for 2min or 3min, the cold air prevention will quit and the unit will operate at heating control mode of indoor fan. Within 5min of cold air prevention, if Tpipe >40 °C, cold air prevention will quit immediately, and the unit will operate at heating control mode of indoor fan.

When Tindoor amb. ≥24°C, if Tpipe ≤ 27°C, indoor fan will not operate; if Tpipe >27°C or in 2min later, cold air prevention will quit and the unit will operate at heating control mode of heating.

When the unit stop operation due to protection or reaching set temperature, the horizontal louver will stop at the position when indoor unit stops. Note: 1. the text with underlined is applicable to the one-to-two unit and not applicable to one-to-one unit. 2.

Tindoor amb. means the indoor ambient temperature before starting compressor under heating mode or the indoor ambient temperature before clearing defrosting mark after defrosting operation quits.

◆ Protection when total current increases and frequency decreases:

When total current IB total B≤W, frequency is allowed to increase;

When total current IB total B≥X, frequency is prohibited to increase;

When total current IB total B≥Y, the compressor decreases frequency;

When total current IB total B≥Z, compressor stops operation and in 30s later, outdoor fan stops operation.

W=6A, X=7A,Y=8A,Z=9A

Protection of compressor power

When Pc ≥1500w, frequency is prohibited to increase;

When PcB ≥1600w, the compressor decreases frequency;

When PcB ≥1700w, compressor stops operation;

When Pc≤1400w, protection will be removed.

(4) Fan Mode

Under the mode, the indoor fan will run at preset speed and the compressor, the outdoor fan, the four-way valve and the electric heater will stop.

Under the mode, temperature can be set within a range of 16 - 30° C .

(5) AUTO Mode

① Working conditions and process of AUTO mode

- a. When T ambient ≥26°C , the unit will operate in Cool mode. The set temperature is 25°C .
- b. When T ambient \leq 22°C , the heat pump unit will operate in Heat mode., set temperature be 20°C ; the cooling only unit will operate in Fan mode, set temperature be 25°C .
- c. When 23° C \leq T ambient \leq 25 $^{\circ}$ C, the unit will operate in the previous state. If it is energized for the first time, it will operate in Fan mode
- d. When the unit operates in Auto mode, the compressor frequency during cooling operation is the same with that of heating mode.

2 Protection

- a. In cooling operation, protection is the same as that under the cooling mode;
- b. In heating operation, protection is the same as that under the heating mode;
- c. When ambient temperature changes, operation mode will be converted preferentially. Once started, the compressor will remain unchanged for at least 6 minutes.

(6) Common Protection Functions and Fault Display under COOL, HEAT, DRY and AUTO Models

① Overload protection

T tube: measured temperature of outdoor heat exchanger under cooling mode; and measured temperature of indoor heat exchanger under heating mode.

1) Cooling overload

- a. If T tube≤52℃, the unit will return to its original operation state.
- b. If T tube≥55°C, frequency rise is not allowed.
- c. If T tube≥58°C, the compressor will run at reduced frequency.
- d. If T tube≥62°C, the compressor will stop and the indoor fan will run at preset speed.

2) Heating overload

- a. If T tube $\leq 50\,^{\circ}$ C, the unit will return to its original operation state.
- b. If T tube≥53°C , frequency rise is not allowed.
- c. If T tube≥56°C, the compressor will run at reduced frequency.
- d. If T tube≥60°C, the compressor will stop and the indoor fan will blow residue heat and then stop.

2 Exhaust temperature protection of compressor

If exhaust temperature ≥98°C , frequency is not allowed to rise.

If exhaust temperature $\geq 103^{\circ}$ C, the compressor will run at reduced frequency.

If exhaust temperature $\geq 110^{\circ}$ C, the compressor will stop.

If exhaust temperature ≤90°C and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

③ Communication fault

If the unit fails to receive correct signals for durative 3 minutes, communication fault can be justified and the whole system will stop.

4 Module protection

Under module protection mode, the compressor will stop. When the compressor remains at stop for at least 3 minutes, the compressor will resume its operation. If module protection occurs six times in succession, the compressor will not be started again.

(5) Overload protection

If temperature sensed by the overload sensor is over 115°C , the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. If temperature is below 95°C , the overload protection will be relieved °C .

If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. When voltage on the DC bus returns to its normal value and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

6 Faults of temperature sensors

Designation of sensors	Faults
Indoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Indoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds, and no detection is performed within 10 minutes after defrost begins.
Exhaust	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.
Overload	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.

3. Other Controls

(1) ON/OFF

Press the remote button ON/OFF: the on-off state will be changed once each time you press the button.

(2) Mode Selection

Press the remote button MODE, then select and show in the following ways: AUTO, COOL, DRY, FAN, HEAT, AUTO.

(3) Temperature Setting Option Button

Each time you press the remote button TEMP+ or TEMP-, the setting temperature will be up or down by 1° C. Regulating Range: $16\sim30^{\circ}$ C, the button is useless under the AUTO mode.

(4) Time Switch

You should start and stop the machine according to the setting time by remote control.

(5) SLEEP State Control

- Sleep mode 1
- 1.1 In cooling and drying mode, in 1 hour after setting sleep mode, Tpreset increases 1°C; in 2 hours later, Tpreset increases 2°C; After that, Tpreset will not change.
- 1.2 In heating mode, , in 1 hour after setting sleep mode, Tpreset decreases 1°C; in 2 hours later, Tpreset decreases 2°C; After that, Tpreset will not change.
- 1.3 In auto mode, Tpreset will not change after setting sleep mode.
- 2. Sleep mode 2
- 2.1 Cooling mode:

When initial set temperature range is $16\sim23^{\circ}$ C, if turning on sleep mode, temperature will increase 1° C for every hour. After 3° C has been increased, the temperature will not change. In 7 hours later, temperature will decrease 1° C. After that, the unit will keep operating at that temperature.

When initial set temperature range is $24\sim27^{\circ}$ C, if turning on sleep mode, temperature will increase 1 $^{\circ}$ C for every hour. After 2° C has been increased, the temperature will not change. In 7 hours later, temperature will decrease 1° C. After that, the unit will keep operating at

that temperature.

When initial set temperature range is $28\sim29^{\circ}$ C, if turning on sleep mode, temperature will increase 1 $^{\circ}$ C for every hour. After 1 $^{\circ}$ C has been increased, the temperature will not change. In 7 hours later, temperature will decrease 1 $^{\circ}$ C. After that, the unit will keep operating at that temperature.

When initial set temperature range is 30° C, the unit will operate at that temperature. In 7 hours later, temperature will decrease 1° C. After that, the unit will keep operating at that temperature.

(6) Indoor Fan Control

The Indoor Fan can be set as HIGH, MED, LOW by remote control, and the Indoor Fan will be respectively run at high, medium, low speed. It will also be set as AUTO, and the Indoor Fan is as the followings at the automatic wind speed.

Cooling mode: T ring \geq T setting + 2, high speed; T setting - 2<T ring \leq T setting + 2, medium speed; T ring \leq T setting - 2, low speed. Sending wind mode: T ring \geq T setting+ 4, high speed; T setting+2 \leq T ring \leq T setting+ 4, medium speed; T ring \leq T setting+ 2, low speed.

Moisture removal mode: force to be set as the low speed

Heating mode: Tring≤ T setting + 1 high speed; T setting +1<Tring<T setting + 5, medium speed; Tring≥T setting + 2, low speed.

(7) Buzzer Control

The buzzer will send a "Di" sound when the air conditioner is powered up or received the information sent by the remote control or there is a button input, the single tube cooler doesnt receive the remote control ON signal under the mode of heating mode.

(8) Auto buttor

If the controller is on, it will stop by pressing the button, and if the controller is off, it will be automatic running state by pressing the button, swing on and light on, and the main unit will run based on the remote control if there is remote control order.

(9)Up & Down Swing

- ① After energization, the upper horizontal louver will firstly open to a certain degree and then the up & down horizontal louver will rotate to P0 to close the air outlet.
- ② Swing function has not been set after startup of the unit Start up the unit, after finishing swinging and rotating to P0, the horizontal louver will firstly open to a certain degree and then the up & down horizontal louver will rotate at the same time. In other modes except heating mode, the up & down horizontal louver will rotate to P7. In heating mode, the up & down horizontal louver will rotate to P4.
- 3 Swing function is set when starting up the unit

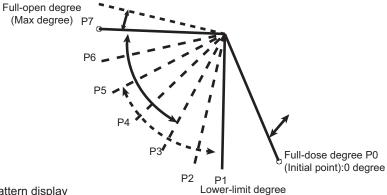
In other modes except heating mode, the set degrees of swinging are: P7-P6-P5-P4-P3. In heating mode, the set degrees of swinging are: P2-P3-P4-P5-P6.

4 Auto swing

When receive the order of auto swing from the remote controller, under other modes except heating mode, the up & down horizontal louver will rotate from P7 to P3; under heating mode, the up & down horizontal louver will rotate from P2 to P6. If auto swing is cancelled, the horizontal louver will stop at the present position.

- (5) Anti-moisture protection (available in cooling, auto cooling and dry modes)
- When the indoor fan runs in quiet speed, the rotation range of the upper horizontal louver is from P6-P4.
- 6 Anti-noise function
- The indoor fan, the compressor and the outdoor fan are able to be energized when the horizontal louver rotates to P2.
- $\ensuremath{{\ensuremath{\bigcirc}}}$ Swing function after turning off the unit

After turning off the unit, the horizontal louver will close at PO.



(10) Display

1 Operation pattern and mode pattern display

All the display patterns will display for a time when the power on, the operation indication pattern will display in red under standby status. When the machine is start by remote control, the indication pattern will light and display the current operation mode (the mode light includes: Cooling, heating and dehumidify). If you close the light key, all the display patterns will close.

2 Double-8 display

According to the different setting of remote control, the nixie light may display the current temperature (the temperature scope is from 16° C to 30° C) and indoor ambient temperature. The heating and air supply temperature will display 25° C under auto-mode, the temperature will display 18° C under the heating mode, Defrosting indicator is ON during defrosting; Dual-8 nixie tube won't display H1.(If you set the fahrenheit temperature display, the nixie light will display according to fahrenheit temperature)

(11) Protection function and failure display

E6: Communication failure E8: Overload protection

F1: Indoor ambient sensor start and short circuit (continuously measured failure in 30S)

F2: Indoor evaporator sensor start and short circuit (continuously measured failure in 30S)

F3: Outdoor ambient sensor start and short circuit (continuously measured failure in 30S)

F4: Outdoor condenser sensor start and short circuit (continuously measured failure in 30S, and dont measure within 10 minutes after defrosted)

F5: Outdoor exhausting sensor start and short circuit (continuously measured failure in 30S after the compressor operated 3 minutes)

H3: Overload protection of compressor H5: Module protection
PH: High-voltage protection PL: Low-voltage protection
P1: Nominal cooling and heating P2: Maximum cooling and heating
P3: Medium cooling and heating P0: Minimum cooling and heating

(12) Drying Function

You may start or stop the drying function under the modes of cooling and dehumidify at the starting status (The modes of automatism, heating and air supply do not have drying function). When you start the drying function, after stop the machine by pressing the switch button, you should keep running the inner fans for 10 minutes under low air damper (The swing will operate as the former status within 10 minutes, and other load is stopped), then stop the entire machine; When you stop the drying function, press the switch button will stop the machine directly. When you start the drying function, operating the drying button will stop the inner fans and close the guide louver.

(13) Memory function when interrupting the power supply

Memory content: mode, swing function, light, set temperature and wind speed. After interrupted the power supply, the machine will start when recovering the power according to the memory content automatically. If the last remote control command has not set the timed function, the system will remember the last remote control command and operate according it. If the last remote control command has set timed function and the power supply is interrupted before the timed time, the system will remember the timed function of the last remote control command, the timed time will recounted form power on. If the last remote control command has set timed function, the time is out and the system is start or stop according to the set time when the power supply is interrupted, the system will remember the operation status before the power supply was interrupted, and do not carry out timed action; The timed clock will not remembered.

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.

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.

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
- 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.

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.

- 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 A m, and the length of the connecting tubing does not exceed B m.

	А	В
09K	10	15
12K	10	20

- 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.

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:

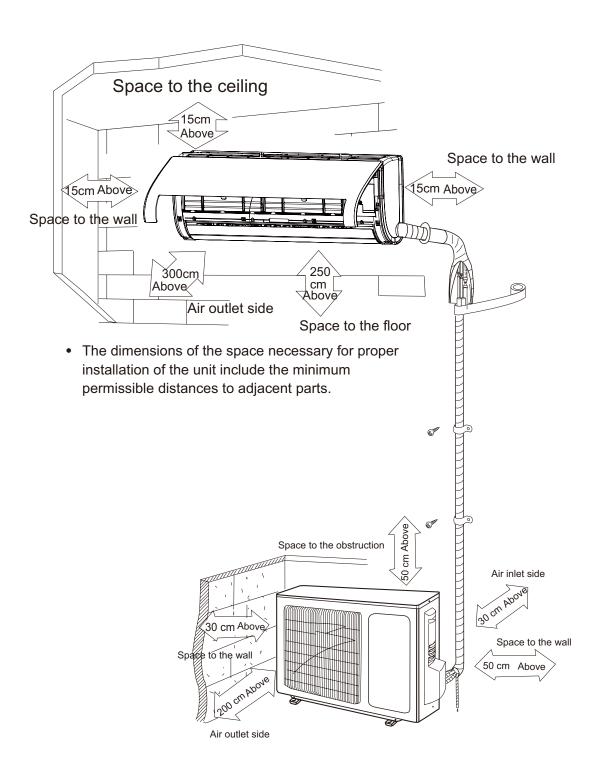
Make sure the live wire ,neutral wire and earth wire in the family power socket are properly connected. There should be reliable circuit in the diagram.

Inadequate or incorrect electrical connections may cause electrocution or fire.

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) Tap water pipe (2) Gas pipe (3) Contamination pipe
- (4) Other places 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.

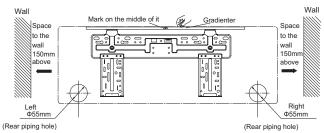
7.2 Installation Drawing



7.3 Install indoor unit

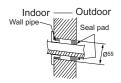
Install the rear panel

- 1. Mounting plate should be installed horizontally. As the water tray's outlet for the indoor unit is two-way type, during installation, the indoor unit should slightly slant to water tray's 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.



Install the piping hole

- 1. Slant the piping hole (Φ 55) 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.



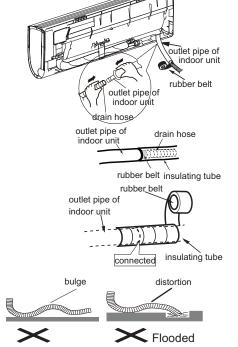
Install Drain Hose

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.

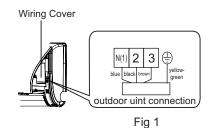
3. Wrap the insulating tube with wide rubber belt to prevent the shift of insulating tube. Slant the drain hose downward slightly for smooth drainage of condensate.

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.



Connecting Indoor and Outdoor Electric Wires

- 1. Open the front panel.
- 2.Remove the wiring cover, connect and fix power connection cord to the terminal board as shown in Fig 1.
- 3. Make the power connection cord pass through the hole at the back of indoor unit.
- 4. Reinstall the cord anchorage and wiring cover.
- 5. Reinstall the front panel.



NOTE:

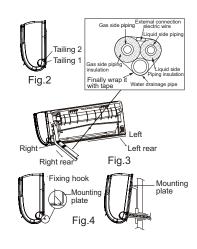
All wires between indoor and outdoor units must be connected by the qualified electric contractor.

- 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 it's 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.

Install the indoor unit

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

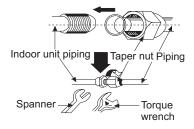
- 1. When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis when necessary(As shown in Fig.2)
- (1)Cut off tailing 1 when routing the wiring only;
- (2)Cut off tailing 1 and tailing 2 when routing both the wiring and piping.
- 2. Take out 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.3)
- 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.4)
- 4. The installation site should be 250cm or more above the floor.



Install the 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)
Ф6	15~20
Ф 9.52	31~35
Ф 12	50~55
Ф 16	60~65
Ф 19	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

Electric Wiring

- 1. Remove the handle on the right side plate of outdoor unit.
- 2. Take off wire cord anchorage. Connect and fix power connection cord to the terminal board. Wiring should fit that of indoor unit.
- 3. Fix the power connection cord with wire clamps and then connect the corresponding connector.
- 4. Confirm if the wire has been fixed properly.
- 5. Reinstall the handle.

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.

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).
- 2. 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
- -1.0X10⁵pa(-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.5).

-76cmHg Manometer Lo Handle Hi handle Charging hose Vacuum pump

Multimeter

Manifold Valve

Handle

N(1) 2 3

blue black brown

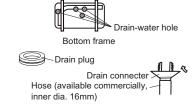
Indoor unit

connection

Fig.5

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 25 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 Test Operation

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 well?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked	It may cause electric malfunction or damage the part.
on the nameplate?	
Is the electric wiring and piping connection installed	It may cause electric malfunction or damage the part.
correctly and securely?	
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the part
Is the inlet and outlet been covered?	It may cause insufficient cooling(heating) capacity.
Has the length of connection pipes and refrigerant capacity	The refrigerant capacity is not accurate.
been recorded?	

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.

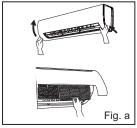
2. Operation Test Method

- (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

Installation Instructions

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)



2. Attach the healthy filter onto the air filter,(as shown in Fig.b).



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



Cleaning and Maintenance

Remove the healthy filter and reinstall it after cleaning according to the installation instruction. Do not use brush or hard objects to clean the filter. After cleaning, be sure to dry it in the shade.

Service Life

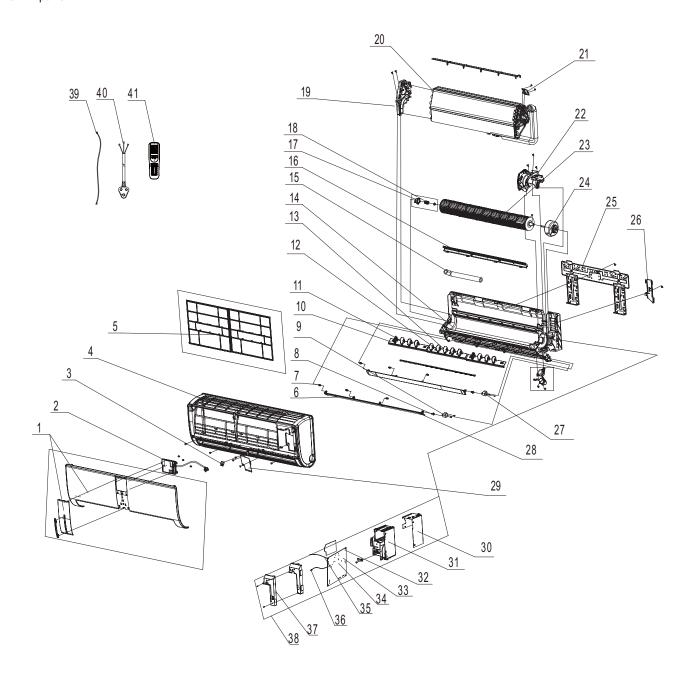
The general service life for the healthy filter is about one year under normal condition. As for silver ion filter, it is ineffective when its surface becomes black (green).

This supplementary instruction is provided for reference to the unit with healthy filter. If the graphics provided herein are different from the actual product, please refer to the actual product. The quantity of healthy filters is based on the actual delivery.

8. Exploded Views and Parts List

8.1 Indoor Unit

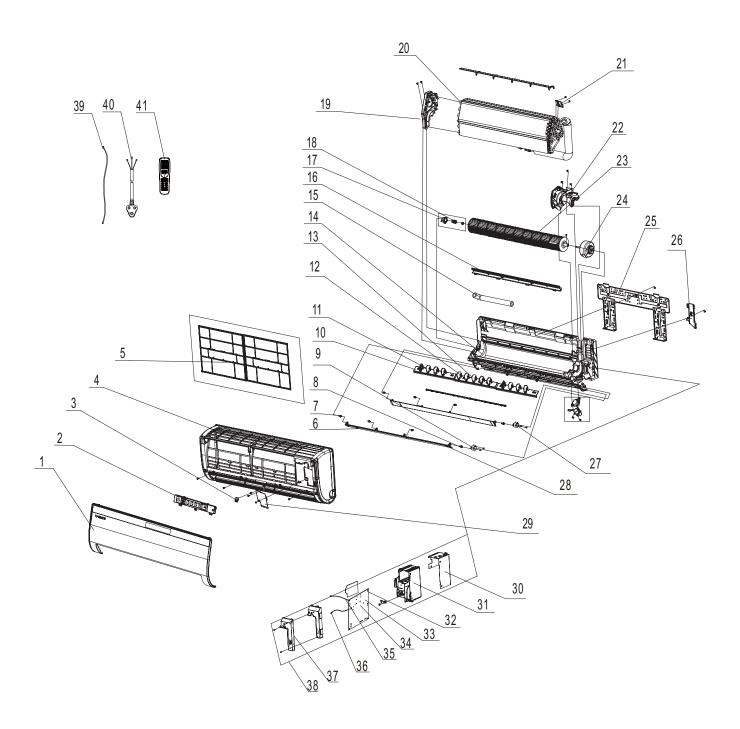
For A1 panel



	B	Part Code			
NO.	Description	GWC09UB-K3DNA1A/I	GWH09UB-K3DNA1A/I	Qty	
	Product Code	CB204N00100	CB204N00200	7	
1	Front Panel Assy	20012859	20012859	1	
2	Display Board	30565133	30565133	1	
3	Screw Cover	24252024	24252024	1	
4	Front Case Sub-Assy	20012727	20012727	1	
5	Filter Sub-Assy	11122134	11122134	2	
6	Guide Louver 2	10512215	10512215	1	
7	Shaft of guide louver	1054202001	1054202001	6	
8	Crank	73012005	73012005	2	
9	Step Motor	1521212201	1521212201	1	
10	Louver Clamp1	26112263	26112263	2	
11	Air Louver 1	10512184	10512184	2	
12	Louver Clamp2	26112264	26112264	1	
13	Air Louver 2	10512185	10512185	1	
14	Rear Case assy	22202200	22202200	1	
15	Drainage hose	05230014	05230014	1	
16	Helicoid tongue	26112262	26112262	1	
17	Axile Bush sub-assy	10542024	10542024	1	
18	Damping washer sub-assy	76512011	76512011	1	
19	Evaporator Support	24212128	24212128	1	
20	Evaporator Assy	0100229401	0100229401	1	
21	Shield board (elbow)	01382010	01382010	1	
22	Motor Press Plate	26112261	26112261	1	
23	Cross Flow Fan	10352041	10352041	1	
24	Fan Motor	150120874	150120874	1	
25	Wall Mounting Frame	01252121	01252121	1	
26	Pipe Clamp	26112164	26112164	1	
27	Step Motor	1521210804	1521210804	1	
28	Guide Louver 1	10512214	10512214	1	
29	Electric Box Cover2	20122133	20122133	1	
30	Lower Shield sub-assy of Electric Box	01592300	01592300	1	
31	Electric Box	20112121	20112121	1	
32	Capacitor CBB61	33010002	33010002	1	
33	Main Board	301388711	301388701	1	
34	Jumper	4202300102	4202300102	1	
35	Tube Sensor	3900007402G	3900007402G	1	
36	Temperature Sensor	390000455	390000455	1	
37	Upper Shield Cover sub-assy of Electric Box	01592301	01592301	1	
38	Electric Box Assy	2020273806	2020273801	1	
39	Connecting Cable	400204055	400204055	1	
40	Power Cord	4002046422	4002046422	1	
41	Remote Controller	30510134	30510134	1	

		Part Code			
NO.	Description	GWC12UB-K3DNA1A/I	GWH12UB-K3DNA1A/I	Qty	
	Product Code	CB204N00300	CB204N00400	1	
1	Front Panel Assy	20012859	20012859	1	
2	Display Board	30565133	30565133	1	
3	Screw Cover	24252024	24252024	1	
4	Front Case Sub-Assy	20012727	20012727	1	
5	Filter Sub-Assy	11122134	11122134	2	
6	Guide Louver 2	10512215	10512215	1	
7	Shaft of guide louver	1054202001	1054202001	6	
8	Crank	73012005	73012005	2	
9	Step Motor	1521212201	1521212201	1	
10	Louver Clamp1	26112263	26112263	2	
11	Air Louver 1	10512184	10512184	2	
12	Louver Clamp2	26112264	26112264	1	
13	Air Louver 2	10512185	10512185	1	
14	Rear Case assy	22202200	22202200	1	
15	Drainage hose	05230014	05230014	1	
16	Helicoid tongue	26112262	26112262	1	
17	Axile Bush sub-assy	10542024	10542024	1	
18	Damping washer sub-assy	76512011	76512011	1	
19	Evaporator Support	24212128	24212128	1	
20	Evaporator Assy	01002294	01002294	1	
21	Shield board (elbow)	01382010	01382010	1	
22	Motor Press Plate	26112261	26112261	1	
23	Cross Flow Fan	10352041	10352041	1	
24	Fan Motor	150120874	150120874	1	
25	Wall Mounting Frame	01252121	01252121	1	
26	Pipe Clamp	26112164	26112164	1	
27	Step Motor	1521210804	1521210804	1	
28	Guide Louver 1	10512214	10512214	1	
29	Electric Box Cover2	20122133	20122133	1	
30	Lower Shield sub-assy of Electric Box	01592300	01592300	1	
31	Electric Box	20112121	20112121	1	
32	Capacitor CBB61	33010002	33010002	1	
33	Main Board	301388711	301388701	1	
34	Jumper	4202300104	4202300104	1	
35	Tube Sensor	3900007402G	3900007402G	1	
36	Temperature Sensor	390000455	390000455	1	
37	Upper Shield Cover sub-assy of Electric Box	01592301	01592301	1	
38	Electric Box Assy	2020273807	2020273802	1	
39	Connecting Cable	400204055	400204055	1	
40	Power Cord	4002046422	4002046422	1	
41	Remote Controller	30510134	30510134	1	

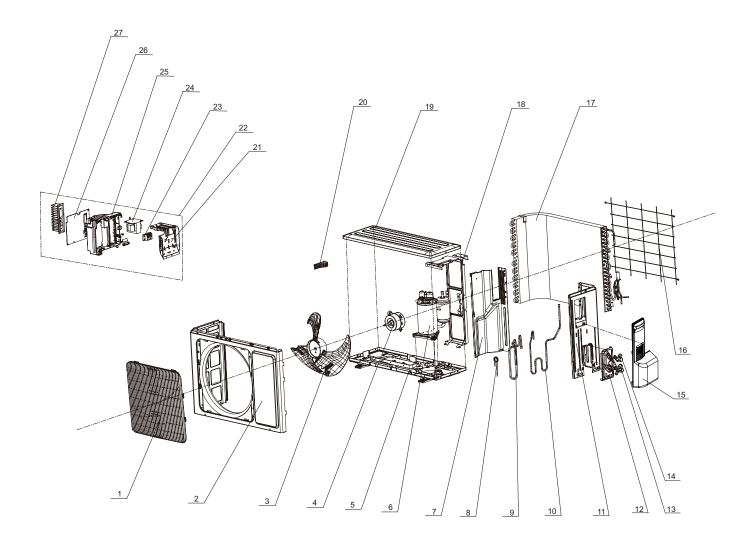
For A2 panel



		Part Code				
NO.	Description	GWH09UB-K3DNA2A/I	GWH12UB-K3DNA2A/I	Qty		
	Product Code	CB221N00201	CB221N00401	1		
1	Front Panel Assy	20022103	20022103	1		
2	Display Board	30565152	30565152	1		
3	Screw Cover	2425202401	2425202401	1		
4	Front Case Sub-Assy	2001263101	2001263101	1		
5	Filter Sub-Assy	1112213402	1112213402	2		
6	Guide Louver 2	1051221501	1051221501	1		
7	Shaft of guide louver	10542020	10542020	6		
8	Crank	73012005	73012005	2		
9	Step Motor	1521212201	1521212201	1		
10	Louver Clamp1	2611226301	2611226301	2		
11	Air Louver 1	1051218401	1051218401	2		
12	Louver Clamp2	2611226401	2611226401	1		
13	Air Louver 2	1051218501	1051218501	1		
14	Rear Case assy	2220222001	2220222001	1		
15	Drainage hose	05230014	05230014	1		
16	Helicoid tongue	2611226201	2611226201	1		
17	Axile Bush sub-assy	10542024	10542024	1		
18	Damping washer sub-assy	76512011	76512011	1		
19	Evaporator Support	24212128	24212128	1		
20	Evaporator Assy	0100229401	01002294	1		
21	Shield board (elbow)	01382010	01382010	1		
22	Motor Press Plate	26112261	26112261	1		
23	Cross Flow Fan	10352041	10352041	1		
24	Fan Motor	150120874	150120874	1		
25	Wall Mounting Frame	01252121	01252121	1		
26	Pipe Clamp	26112164	26112164	1		
27	Step Motor	1521210804	1521210804	1		
28	Guide Louver 1	1051221401	1051221401	1		
29	Electric Box Cover2	20122133	20122133	1		
30	Lower Shield sub-assy of Electric Box	01592300	01592300	1		
31	Electric Box	20112121	20112121	1		
32	Capacitor CBB61	33010002	33010002	1		
33	Main Board	301388701	301388701	1		
34	Jumper	4202300102	4202300104	1		
35	Tube Sensor	3900007402G	3900007402G	1		
36	Temperature Sensor	390000455	390000455	1		
37	Upper Shield Cover sub-assy of Electric Box	01592301	01592301	1		
38	Electric Box Assy	2020273809	2020273805	1		
39	Connecting Cable	400204055	400204055	1		
40	Power Cord	4002046422	4002046422	1		
41	Remote Controller	30510134	30510134	1		

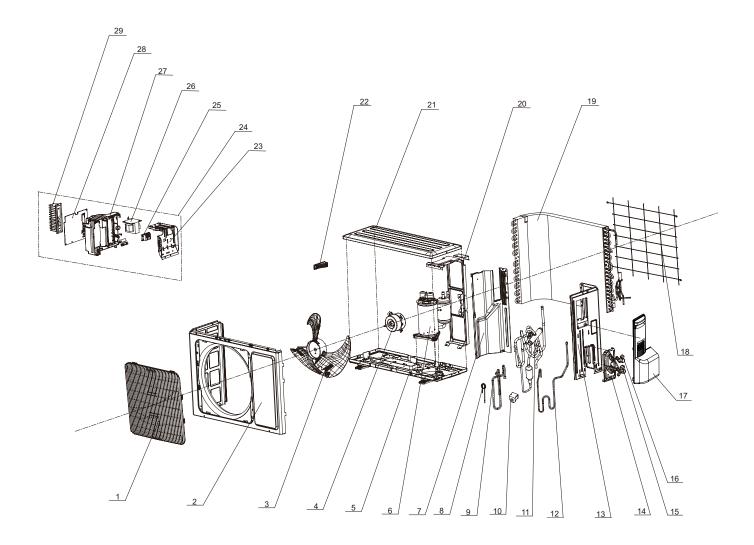
8.2 Outdoor Unit

GWC09UB-K3DNA1A/O



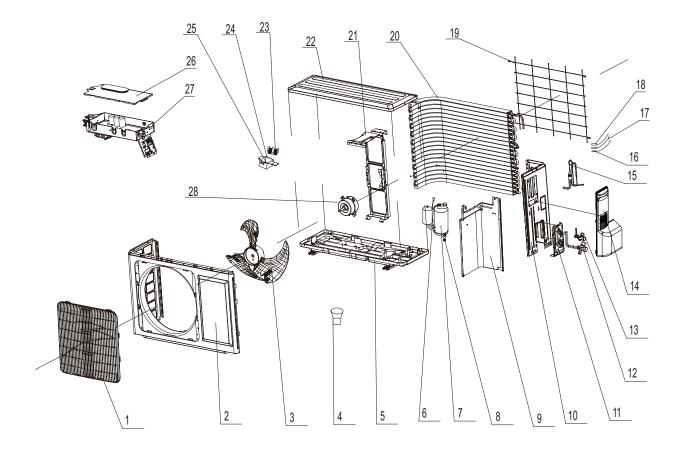
	Description	Part Code	Qty	
NO.	Безоприон	GWC09UB-K3DNA1A/O		
Product Code		CB204W00100		
1	Front Grill	22413433	1	
2	Front Panel	01533029P	1	
3	Axial Flow Fan	10333004	1	
4	Fan Motor	1501308502	1	
5	Chassis Sub-assy	01203912P	1	
6	Compressor and fittings	00103224_G	1	
7	Clapboard Sub-Assy	01233385	1	
8	Capillary Sub-Assy	03133860	1	
9	Inhalation Tube Sub-Assy	03733191	1	
10	Vent-pipe Sub-Assy	03733192	1	
11	right Side Plate Sub-Assy	0130317801	1	
12	Valve support	0170308901P	1	
13	Cut-off valve	07133082	1	
14	Valve	07100005	1	
15	big Handle	26233433	1	
16	Rear Grill	01473009	1	
17	Condenser Assy	01163054	1	
18	Motor Support	0170309701Y	1	
19	Top Cover Sub-Assy	01253454	1	
20	small handle	26233100	1	
21	Terminal Board support-Assy	01713149	1	
22	Electric Box Assy	260347802	1	
23	Terminal Board	42011113	1	
24	Reactor	43130184	1	
25	Electric Box	20113014	1	
26	Main Board	30138875	1	
27	Radiator	49013027	1	

GWH09UB-K3DNA1A/O



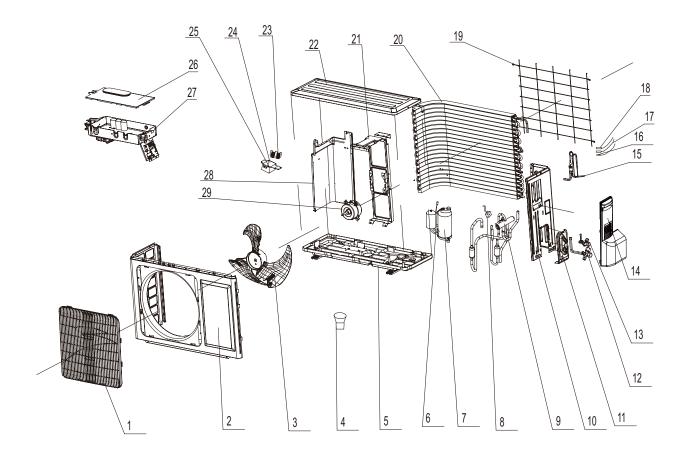
NO.	Description	Part Code	Qty	
	Description	GWH09UB-K3DNA1A/O		
	Part Code	CB204W00200		
1	Front Grill	22413433	1	
2	Front Panel	01533029P	1	
3	Axial Flow Fan	10333004	1	
4	Fan Motor	1501308502	1	
5	Chassis Sub-assy	01203912P	1	
6	Compressor and fittings	00103224_G	1	
7	Clapboard Sub-Assy	01233385	1	
8	Capillary Sub-Assy	03133253	1	
9	Inhalation Tube Sub-Assy	03733079	1	
10	Magnet Coil	4300040050	1	
11	4-Way Valve Assy	3123385	1	
12	Vent-pipe Sub-Assy	03733230	1	
13	right Side Plate Sub-Assy	0130317801	1	
14	Valve support	0170308901P	1	
15	Cut-off valve	07133082	1	
16	Valve	07100005	1	
17	big Handle	26233433	1	
18	Rear Grill	01473009	1	
19	Condenser Assy	01113546	1	
20	Motor Support	0170309701Y	1	
21	Top Cover Sub-Assy	01253454	1	
22	small handle	26233100	1	
23	Terminal Board support-Assy	01713149	1	
24	Electric Box Assy	0260347801	1	
25	Terminal Board	42011113	1	
26	Reactor	43130184	1	
27	Electric Box	20113014	1	
28	Main Board	30138874	1	
29	Radiator	49013027	1	

GWC12UB-K3DNA1A/O



	Description	Part Code	Qty	
NO.	Description	GWC12UB-K3DNA1A/O		
	Product Code	CB204W00300		
1	Front grill	22413433	1	
2	Front Panel	015330124	1	
3	Axial Flow Fan	10333004	1	
4	Drainage Connecter	06123401	1	
5	Chassis Sub-assy	0120380601P	1	
6	Temperature Sensor	02143017	1	
7	Compressor and fittings	0010376101P	1	
8	Compressor Gasket	76713027	3	
9	Clapboard assy	01233034	1	
10	Right Side Plate Assy	0130200404	1	
11	Valve Support	01713041	1	
12	Valve	07100006	1	
13	Valve	07100004	1	
14	Big Handle	26233433	1	
15	Capillary Sub-Assy	03063595	1	
16	Temperature Sensor	39000310G	1	
17	Tube Sensor	39000310G	1	
18	Discharge sensor	39000310G	1	
19	Rear Grill	01473014	1	
20	Condenser Assy	01163055	1	
21	Motor Support Sub-Assy	017030501	1	
22	Top Cover Plate	01253443	1	
23	Reactor	43130185	1	
24	Reactor Box	01413092	1	
25	Base Plate (reactor)	01413029	1	
26	Electric Box Cover Sub-Assy	0260309601	1	
27	Electric Box Assy	0140398698	1	
28	Fan Motor	15013085	1	

GWH12UB-K3DNA1A/O

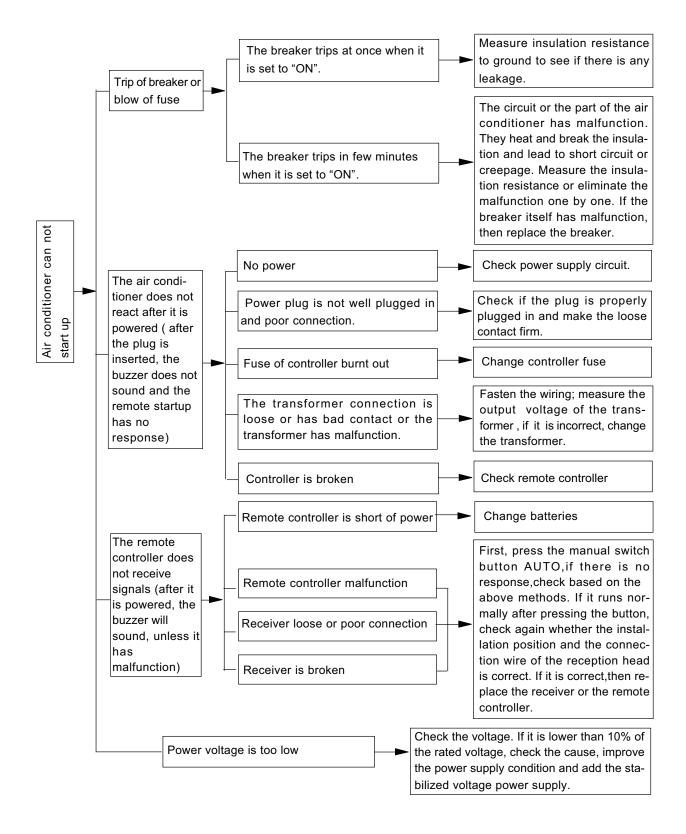


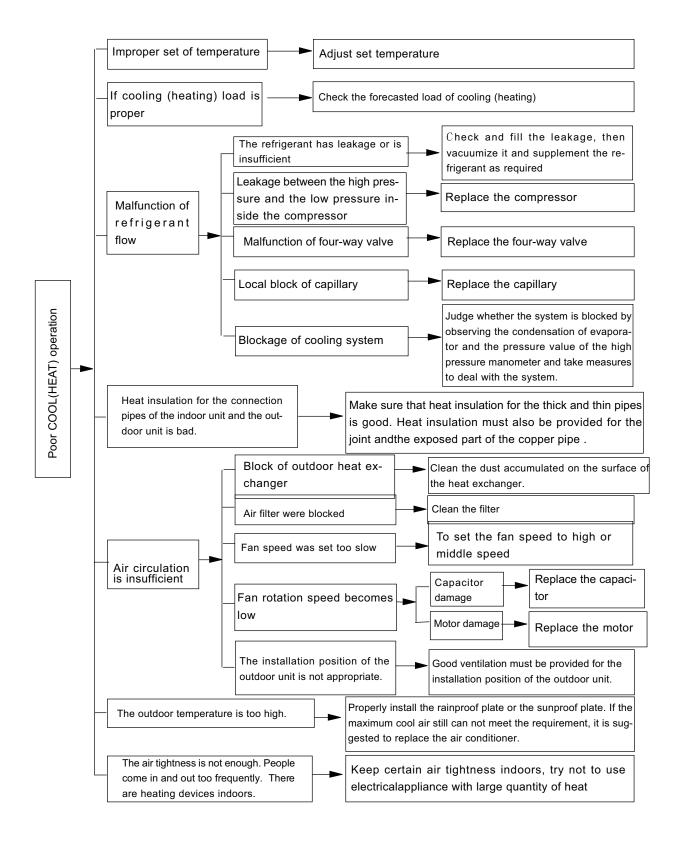
	Description	Part Code	Qty	
NO.	Description	GWH12UB-K3DNA1A/O		
	Product Code	CB204W00400		
1	Front grill	22413433	1	
2	Front Panel	015330124	1	
3	Axial Flow Fan	10333004	1	
4	Drainage Connecter	06123401	1	
5	Chassis Sub-assy	0120391901P	1	
6	Temperature Sensor	02143017	1	
7	Compressor and fittings	00103215	1	
8	4-way Valve Fittings	4300040047	1	
9	4-way Valve Sub-Assy	0312342001	1	
10	Right Side Plate Assy	0130200404	1	
11	Valve Support	01713041	1	
12	Valve	07100006	1	
13	Valve	07100004	1	
14	Big Handle	26233433	1	
15	Capillary Sub-Assy	03063596	1	
16	Temperature Sensor	39000310G	1	
17	Tube Sensor	39000310G	1	
18	Discharge sensor	39000310G	1	
19	Rear Grill	01473014	1	
20	Condenser Assy	01163124	1	
21	Motor Support Sub-Assy	017030501	1	
22	Top Cover Plate	01253443	1	
23	Reactor	43130185	1	
24	Reactor Box	01413092	1	
25	Base Plate (reactor)	01413029	1	
26	Electric Box Cover Sub-Assy	0260309601	1	
27	Electric Box Assy	0140398695	1	
28	Clapboard assy	01233034	1	
29	Fan Motor	15013085	1	

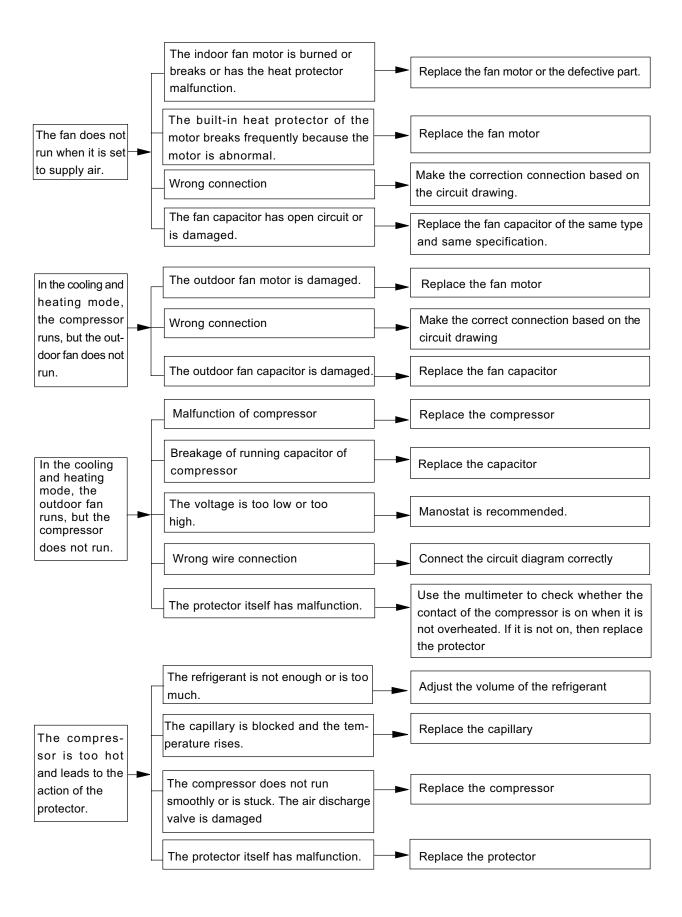
9. Troubleshooting

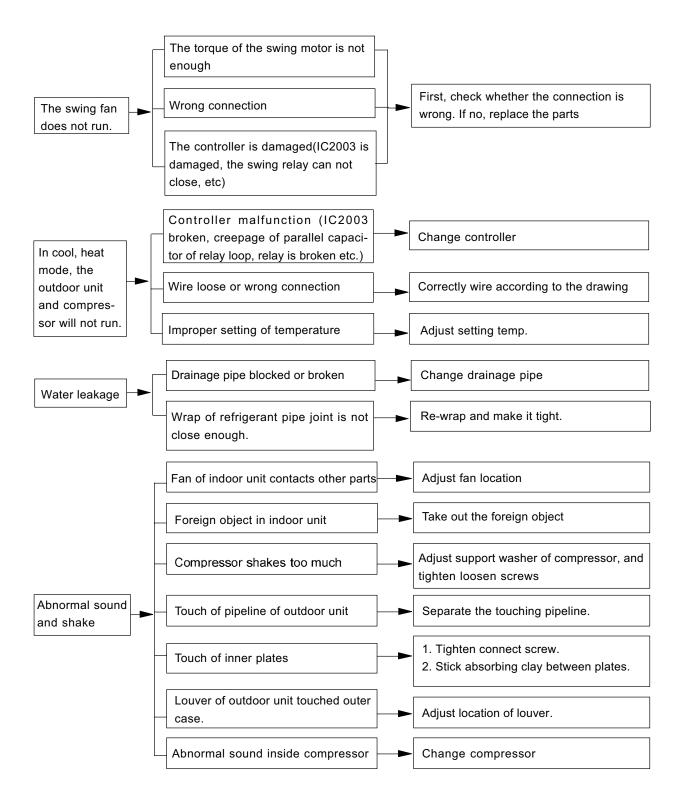
9.1 Malfunction Analysis

Note: When replacing the controller, make sure insert the wire jumper into the new controller, otherwire the unit will display C5.









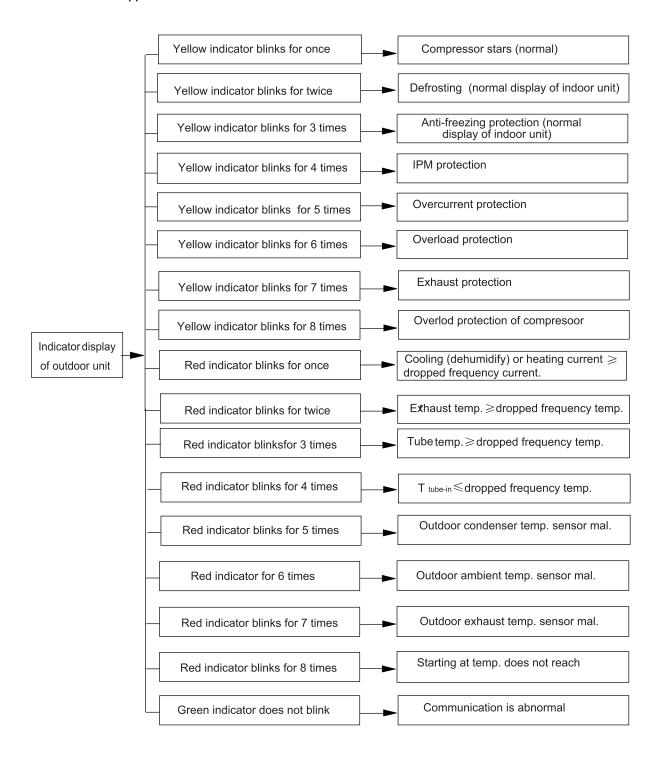
9.2 Malfunction Code

Flashing LED of Indoor/Outdoor Unit and Primary Judgement

	Name of Operation Status	Yellow LED	Red LED	Green LED	Display on IDU
1	Compressure operates	Blink once			
2	Defrosting	Blink twice			H1
3	Freeze prevention protection	Blink for 3 times			E2
4	IPM protection	Blink for 4 times			H5(displayed after it occurs for successively 6 times)
5	Overcurrent protection	Blink for 5 times			E5
6	Overload protection	Blink for 6 times			H4
7	Discharge protection	Blink for 7 times			E4
8	Overload protection	Blink for 8 times			H3
9	Capacity power protection	Blink for 9 times			L9
10	Read-write malfunction of EEPROM	Blink for 11 times			
11	Low-voltage protection	Blink for 12 times			PL
12	High-voltage protection	Blink for 13 times			PH
13	PFC overcurrent protection	Blink for 14 times			HC
14	Models of IDU and ODU don't not match	Blink for 16 times			LP
15	Limit frequency(current)		Blink once		
16	Limit frequency(discharge)		Blink twice		
17	Limit frequency(overload)		Blink for 3 times		
18	Limit frequency(freeze prevention)		Blink for 4 times		
19	Malfunction of outdoor ambient temp sensor		Blink for 6 times		F3
20	Malfunction of outdoor pipe temp sensor		Blink for 5 times		F4
21	Malfunction of outdoor discharge temp sensor		Blink for 7 times		F5
22	Temperature for operation of the unit is reached.		Blink for 8 times		
23	Limit frequency(power)		Blink for 13 times		
24	Protection of fan		Blink for 14 times		
25	Normal communication			Continuously blink	
26	Malfunction of communication			Off	E6
27	Malfunction of indoor ambient temp sensor				F1
28	Malfunction of indoor pipe temp sensor				F2

Malfunction Display

If malfunction occurs, corresponding code will display and the unit will resume normal until protection or malfunction disappears.



Analysis or processing of some of the malfunction display:

1. Compressor discharge protection

Possible reasons: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser; the system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.

Processing method: refer to the malfunction analysis in the above section.

2. Low voltage overcurrent protection

Possible reason: Sudden drop of supply voltage.

3. Communication malfunction

Processing method: Check if communication signal cable is connected reliably.

4. Sensor open or short circuit

Processing method: Check whether sensor is normal, connected with the corresponding position on the controller and if damage of lead wire is found.

5. Compressor overload protection

Possible reasons: insufficient or too much refrigerant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compressor is fine when it is not overheated, if not replace the protector.

6. System malfunction

i.e. overload protection. When tube temperature (Check the temperature of outdoor heat exchanger when cooling and check the temperature of indoor heat exchanger when heating) is too high, protection will be activated.

Possible reasons: Outdoor temperature is too high when cooling; insufficient outdoor air circulation; refrigerant flow malfunction.

please refer to the malfunction analysis in the previous section for handling method .

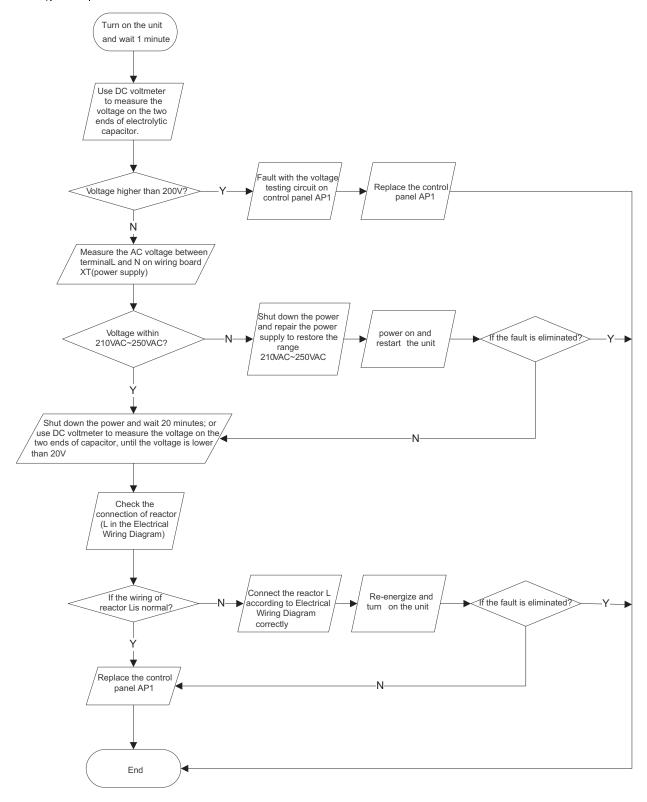
7. IPM module protection

Processing method:Once the module malfunction happens, if it persists for a long time and can not be self-canceled, cut off the power and turn off the unit, and then re-energize the unit again after about 10 min. After repeating the procedure for sever times, if the malfunction still exists, replace the module.

9.3 How to Check Simply the Main Part

(1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel) Main Check Points:

Use AC voltmeter to check if the voltage between terminal L and N on the wiring board is within 210VAC~240VAC. If the reactor (L) is correctly connected? If the connection is loose or fallen? If the reactor (L) is damaged? Fault diagnosis process:

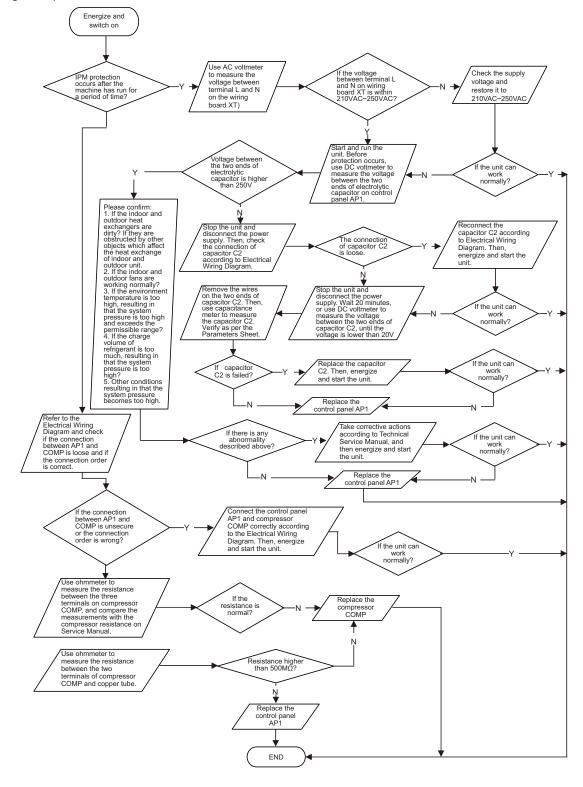


(2) IPM Protection, Out-of step Fault, Compressor Phase Over current(AP1 below refers to the outdoor control panel)

Mainly detect:

- If the connection between control panel AP1 and compressor COMP is secure? If loose? If the connection is in correct order?
- If the voltage input of the machine is within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
- If the compressor coil resistance is mormal? If the insulation of compressor coil against the coppertube is in good condition?
- If the working loads of the machine are too high? If the radiation is good?
- If the charge volume of refrigerant is correct?

Fault diagnosis process:



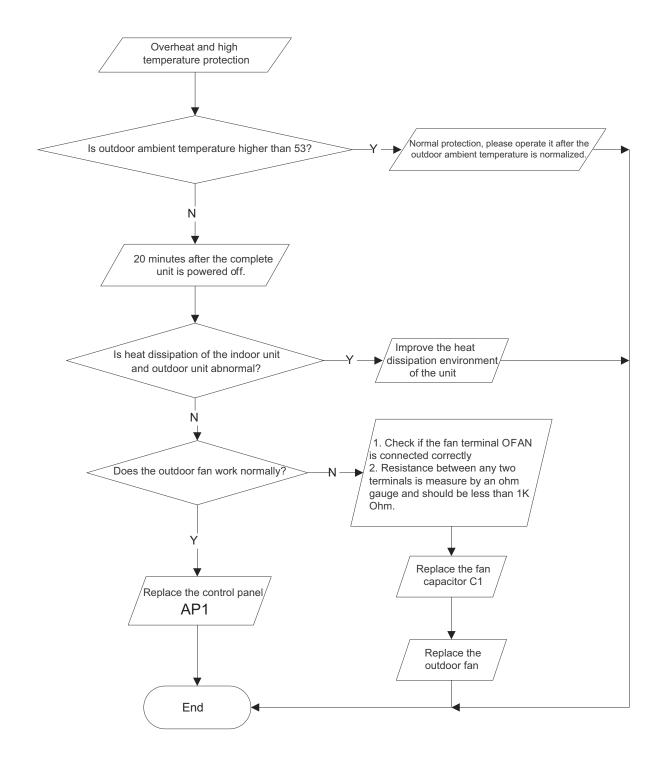
(3)High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

Is outdoor ambient temperature in normal range?

Are the outdoor and indoor fans operating normally?

Is the heat dissipation environment inside and outside the unit is good?



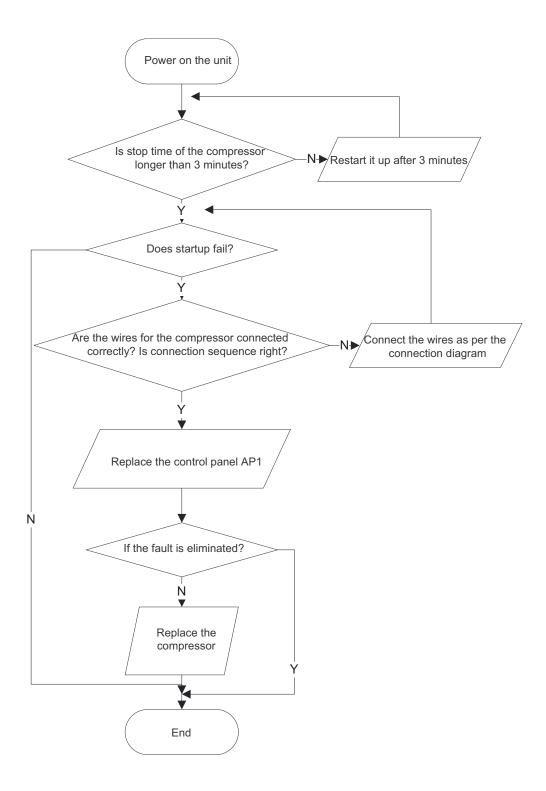
(4) Start-up failure(following AP1 for outdoor unit control board)

Mainly detect:

Whether the compressor wiring is connected correct?

Is time for compressor stopping enough?

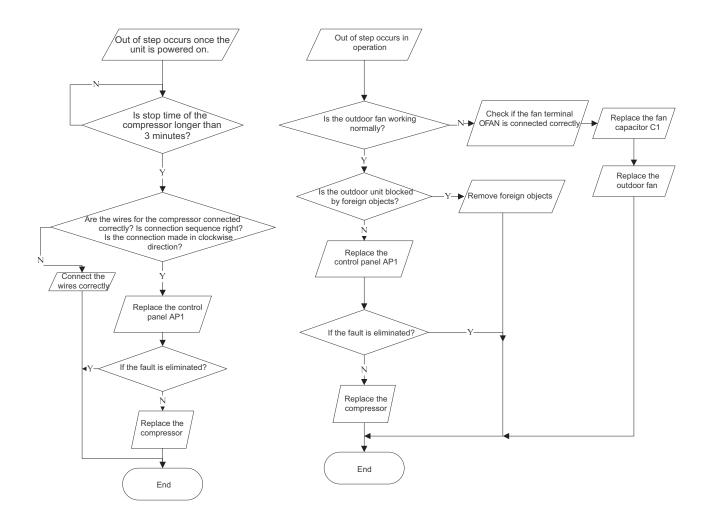
Is compressor broken?



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

Whether the system pressure is too high?

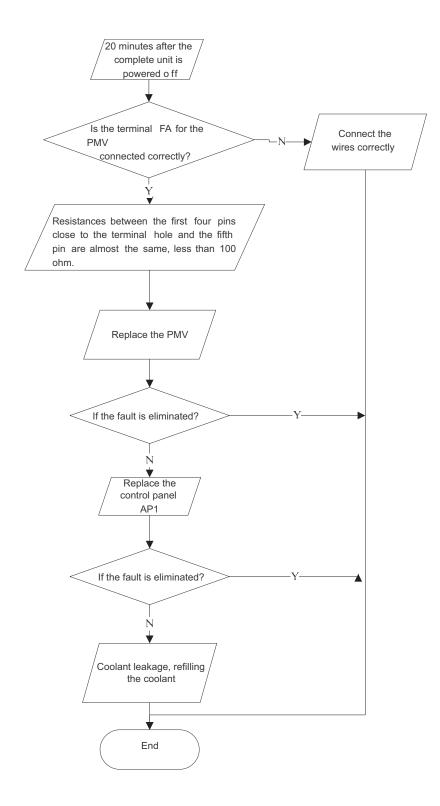
Whether the input voltage is too low?



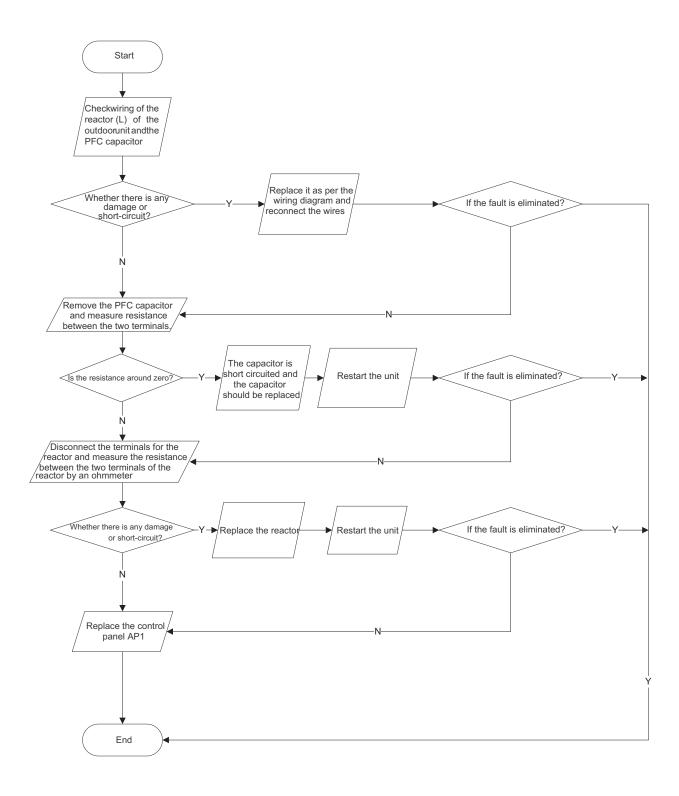
(6)Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit unit control board)

Mainly detect:

Wether the PMV is connected well or not? Is PMV damaged? Is refrigerant leaked?



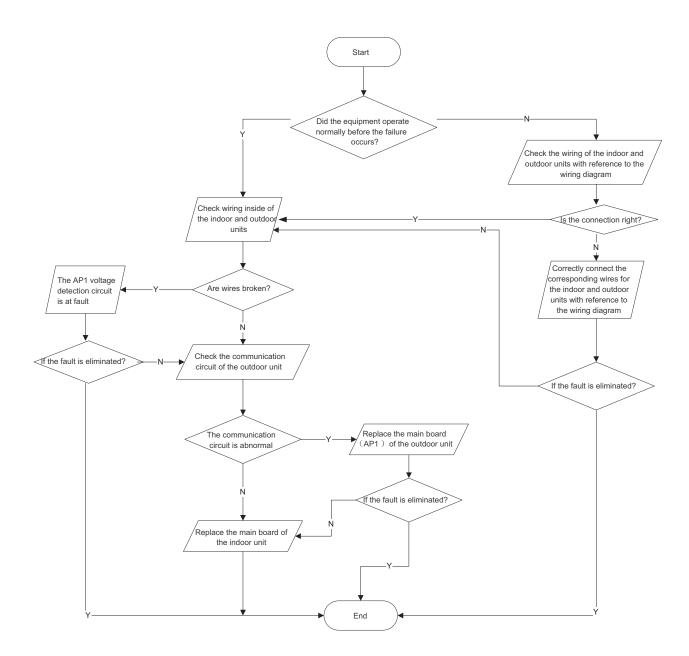
(7) Power factor correct or (PFC) fault (a fault of outdoor unit)(AP1 here in after refers to the control board of the outdoor unit)



(8) Communication malfunction: (following AP1 for outdoor unit control board)
Mainly detect:

Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, if is there any damage?

Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged? The flow chart for malfunction detect:



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

	Α	ppendix 3: Resista	ance Table for Outd	loor Discharge Te	mperature Sensor (5	50K)	
Temp. (°C)	Resistance $(k\Omega)$	Temp. (℃)	Resistance(kΩ)	Temp. (°C)	Resistance (kΩ)	Temp. (°C)	Resistance ($k\Omega$)
-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.

Take A1 panel for example.

Steps	Pr	ocedure
1 Befo	ore disassembly	
2 Rem	Loosen clasps on both sides of front panel and open front panel.	front panel
2	Loosen clasps on filter and push the filter inwards. Then lift it up to remove it.	clasps

Steps Procedure 3. Remove front panel display Remove screws fixing display on front scréws panel. Slide rotating shaft of front panel along the groove to remove the front panel. rotating shaft 4. Remove horizontal louver Remove axle sleeve of horizontal louver and bend the horizontal louver. clasps Then draw it outwards to remove it. horizontal louver 5. Remove front case screw Open screw caps and remove 6 1 screws fixing front case and 1 screw on electric box cover 2. screws

Steps	Procedure	
2	Remove electric box cover 2	electric box cover 2
3	Loosen clasps on the rear of front case. Lift the front case up to remove it.	front case
6. Remove electric box subassembly		
1	Loosen clasps on the joint of electric box cover 1 and electric box. Then remove electric box cover 1.	electric box cover 1
2	Unplug splicing ear of motor and step motor inside electric box.	

Steps	Pro	cedure
3	Remove screw fixing electric box.	screw
4	Remove electric box subassembly.	electric box subassembly
7.Remove evaporator		
1	Remove screws on connecting pipe clamp and then remove the connecting pipe clamp.	connecting pipe clamp
2	Remove screws on the joint of evaporator and rear case. Slightly adjust pipe of evaporator and then remove evaporator.	evaporator

Steps	Pro	cedure
8. R	emove cross flow fan blade and motor	_
1	Remove screws fixing motor clamp and step motor.	screws
2	Remove motor clamp and step motor	motor clamp step motor
3	Remove screws on the joint of cross flow fan blade and motor.	screw
4	Remove motor	motor
5	Unplug holder of bearing ring	holder of bearing ring

9. Remove vertical louver Loosen clasps between vertical louver and rear case. Then remove vertical louver.

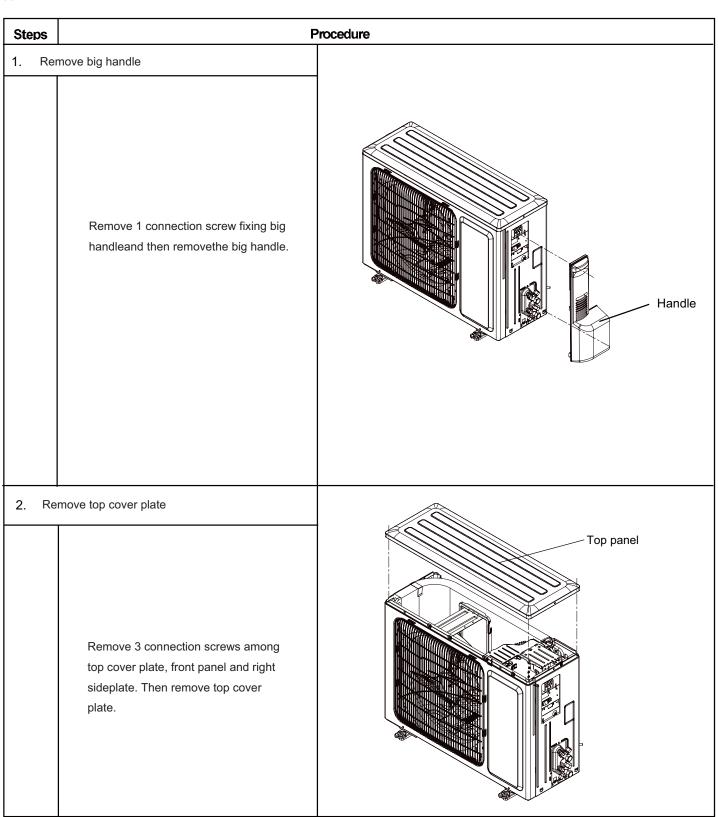
10.2 Removal Procedure of Outdoor Unit

/ Warning

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

Note: take heat pump unit as example.

09K

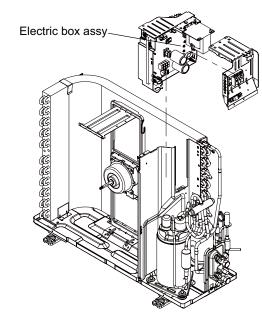


Steps Procedure 3. Remove front grill and front panel 1 Remove 2 connection screws between front grill and front panel. Then remove front panel. 2 Remove 5 connection screws among front panel, chassis and motor support. Then remove front panel. front grill front panel 4. Remove axial flow fan blade axial flow fan blade Remove nut of fan blade, and then remove axial flow fan blade. 5. Remove right side plate right side plate Remove 7 connection screws among right side plate, chassis, valve support and electric box.

Steps Procedure

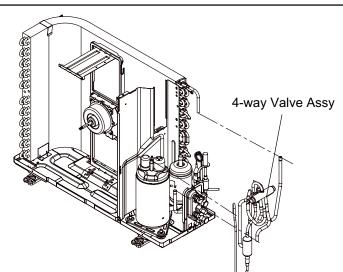
6. Remove electric box assy

Remove the 2 screws fixing the cover of electric box. Lift to remove the cover. Loosen the wire and disconnect the terminal. Lift to remove the electric box assy.



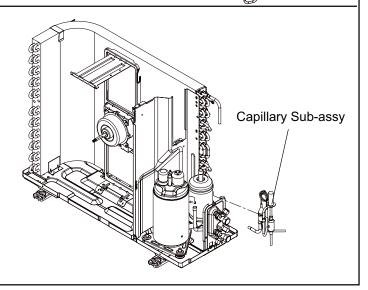
7. Disassemble 4-way Valve Assy

Unscrew the fastening nut of the 4-way Valve Assy coil and remove the coil. Wrap the 4-way Valve Assy with wet cotton and unsolder the 4 weld spots connecting the 4-way Valve Assy to take it out.(Note: Refrigerant should be discharged firstly.) Welding process should be as quickly as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.



8. Disassemble Capillary Sub-assy

Unsolder weld point of capillary Sub-assy, valve and outlet pipe of condensator. Then remove the capillary Sub-assy. Do not block the capillary when unsoldering it. (Note: before unsoldering, discharge refrigerants completely)



Steps **Procedure** 9. Disassemble motor and motor support Motor support Remove the 4 tapping screws fixing the motor. Pull out the lead-out wire and remove the Motor motor. Remove the 2 tapping screws fixing the motor support. Lift motor support to remove it. 10. Disassemble Clapboard Sub-Assy Clapboard Sub-Assy Loosen the screws of the Clapboard Sub-Assy . The Clapboard Sub-Assy has a hook on the lower side. Lift and pull the Clapboard Sub-Assy to remove.

Steps Procedure 11. Disassemble Compressor 1 Remove the 2 screws fixing the gas valve. Unsolder the welding spot connecting gas valve and air return pipe and remove the gas valve. (Note: it is necessary to warp the gas valve when unsoldering the welding spot.) Remove the 2 Liquid valve screws fixing liquid valve. Unsolder the welding spot connecting liquid valve and remove the liquid valve. Gas valve 2 Remove the 3 footing screws of the compressor and remove the compressor. Compressor

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

Note: take heat pump unit as example.

12K

Steps **Procedure** Remove big handle Remove 1 connection screw fixing big handleand then removethe big handle. Handle Remove top cover plate Top panel Remove 3 connection screws among top cover plate, front panel and right sideplate. Then remove top cover plate.

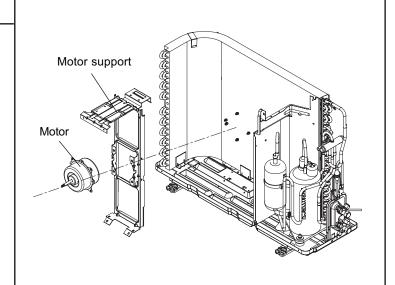
Steps	Procedure	
Remove front grill and front panel		
1	Remove 2 connection screws between front grill and front panel.Then remove front panel.	frontgrill
2	Remove 5 connection screws among front panel, chassis and motor support. Then remove front panel.	front panel
4. Remo	ove right side plate	
	Remove 7 connection screws among right side plate, chassis, valve support and electric box.	right side plate

Steps **Procedure** 5. Remove axial flow fan blade axial flow fan blade Remove nut of fan blade, and then remove axial flow fan blade. 6. Remove electric box assy Reactor sub-assy Remove the screws of theReactor sub-assy 1 and then remove it. Electric box assy 2 Remove the 2 screws fixing the cover of electric box. Lift to remove the cover. Loosen the wire and disconnect the terminal. Lift to remove the electric box assy.

Steps Procedure

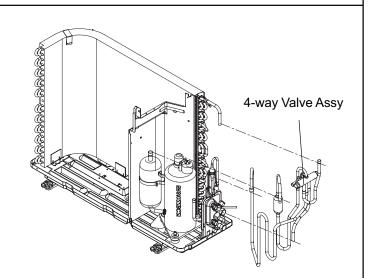
7. Disassemble motor and motor support

Remove the 4 tapping screws fixing the motor. Pull out the lead-out wire and remove the motor. Remove the 2 tapping screws fixing the motor support. Lift motor support to remove it.



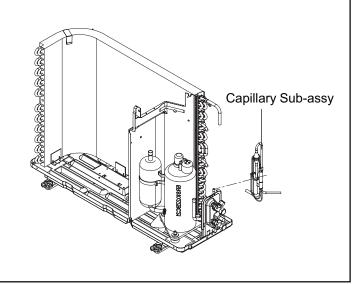
8. Disassemble 4-way Valve Assy

Unscrew the fastening nut of the 4-way Valve Assy coil and remove the coil. Wrap the 4-way Valve Assy with wet cotton and unsolder the 4 weld spots connecting the 4-way Valve Assy to take it out.(Note: Refrigerant should be discharged firstly.) Welding process should be as quickly as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.



9. Disassemble Capillary Sub-assy

Unsolder weld point of capillary Sub-assy, valve and outlet pipe of condensator. Then remove the capillary Sub-assy. Do not block the capillary when unsoldering it. (Note: before unsoldering, discharge refrigerants completely)



Procedure Steps 10. Disassemble Clapboard Sub-Assy Clapboard Sub-Assy Loosen the screws of the Clapboard Sub-Assy . The Clapboard Sub-Assy has a hook on the lower side. Lift and pull the Clapboard Sub-Assy to remove. 11. Disassemble Compressor Remove the 2 screws fixing the gas valve. Unsolder the welding spot connecting gas valve and air return pipe and remove the gas valve. (Note: it is necessary to warp the gas valve when Liquid valve unsoldering the welding spot.) Remove the 2 screws fixing liquid valve. Unsolder the welding spot connecting liquid valve and remove the liquid valve. Gas valve 2 Remove the 3 footing screws of the compressor Compressor and remove the compressor.





GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

Add:Jinji west Rd.Qianshan Zhuhai Guangdong China Tel:86-756-8522219 (After sale Service Dept)

Post code: 519070