EN

SERVICE MANUAL

Cooper&Hunter

Split Air Conditioner
Inverter Consol Series
Generation III

MODELS: CH-S09FVX
CH-S12FVX
CH-S18FVX

For proper operation, please read and keep this manual carefully.

Designed by Cooper&Hunter International Corporation, Oregon, USA
www.cooperandhunter.com

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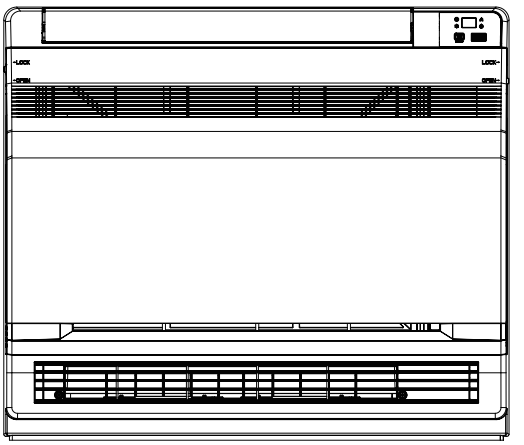
Part Ⅰ : Technical Information

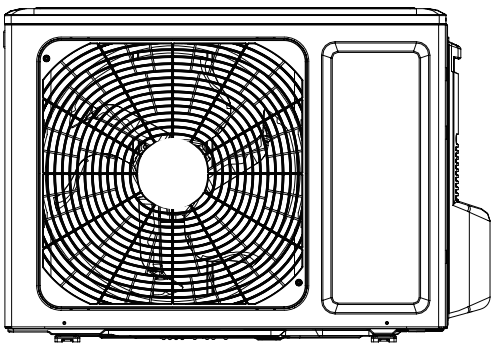
1. Summary

Indoor Unit

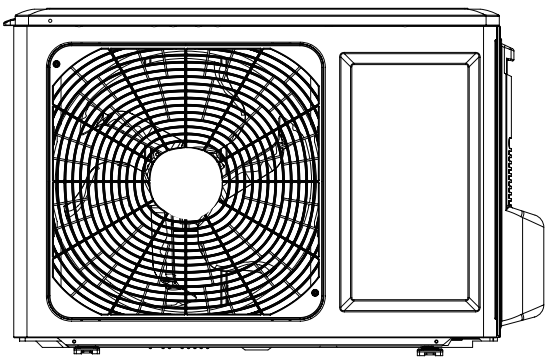


Outdoor Unit

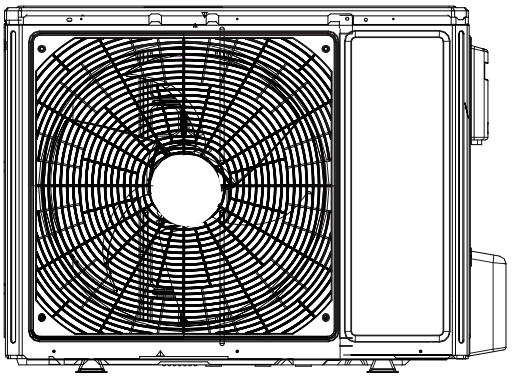
CH-S09FVX



CH-S12FVX



CH-S18FVX



Remote Controller

2. Specifications

2.1 Specification Sheet

Parameter		Unit	Value
Model			CH-S09FVX
Product Code			CV010002000
Power Supply	Rated Voltage	V ~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Indoor
Cooling Capacity(Min~Max)		W	2600(450~3200)
Heating Capacity(Min~Max)		W	2750(450~3750)
Cooling Power Input(Min~Max)		W	660(200~1550)
Heating Power Input(Min~Max)		W	810(200~1350)
Cooling Current Input		A	3.0
Heating Current Input		A	3.68
Rated Input		W	1550
Rated Current		A	5.3
Air Flow Volume(SH/H/HM/M/LM/L/SL)		m^3/h	500/430/410/370/330/280/250
Dehumidifying Volume		L/h	0.8
EER		W/W	3.93
COP		W/W	4.10
SEER		W/W	6.5
HSPF		W/W	/
Application Area		m^3	78
Indoor Unit	Indoor Unit Model		CH-S09FVX
	Indoor Unit Product Code		CV010N02000
	Fan Type		Centrifugal
	Fan Diameter Length(DXL)	mm	Φ80X370
	Cooling Speed (SH/H/HM/M/LM/L/SL)	r/min	650/560/530/480/430/370/320
	Heating Speed (SH/H/HM/M/LM/L/SL)	r/min	650/560/530/480/430/370/320
	Fan Motor Power Output	W	30
	Fan Motor RLA	A	0.15
	Fan Motor Capacitor	μF	/
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	2-1.3
	Evaporator Coil Length (LXDXW)	mm	511X25.4X400
	Swing Motor Model		MP24EB/MP24AE
	Swing Motor Power Output	W	1.5/1.5
	Fuse Current	A	3.15
	Sound Pressure Level (SH/H/HM/M/LM/L/SL)	dB (A)	37/34/32/29/26/24/22
	Dimension (WXHXD)	mm	700X600X215
	Dimension of Carton Box (LXWXH)	mm	785X682X280
	Dimension of Package(LXWXH)	mm	788X697X283
	Net Weight	kg	15
	Gross Weight	kg	18

Outdoor Unit	Outdoor Unit Model		CH-S09FVX
	Outdoor Unit Product Code		CV010W02000
	Compressor Manufacturer		DAIKIN
	Compressor Model		1GDY23AXDG8
	Compressor Oil		DAPHNE FVC50K
	Compressor Type		Rotary
	Compressor LRA.	A	16.5
	Compressor RLA	A	4
	Compressor Power Input	W	845
	Compressor Overload Protector		KSD115ºC or HPC115/95
	Throttling Method		Electron expansion valve
	Set Temperature Range	ºC	16~30
	Cooling Operation Ambient Temperature Range	ºC	-15~43
	Heating Operation Ambient Temperature Range	ºC	-25~24
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7
	Condenser Rows-fin Gap	mm	2-1.4
	Condenser Coil Length (LXDXW)	mm	506X38.1X679
	Fan Motor Speed	rpm	900
	Fan Motor Power Output	W	30
	Fan Motor RLA	A	0.36
	Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	m^3/h	1600
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ400
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	50/-/-
	Dimension(WXHXD)	mm	776X540X320
	Dimension of Carton Box (LXWXH)	mm	848X360X580
	Dimension of Package(LXWXH)	mm	851X363X595
	Net Weight	kg	32
	Gross Weight	kg	34.5
	Refrigerant		R410A
	Refrigerant Charge	kg	0.9
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	20
	Outer Diameter Liquid Pipe	mm	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52
	Max Distance Height	m	10
	Max Distance Length	m	15
	Note: The connection pipe applies metric diameter.		

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

Parameter		Unit	Value
Model			CH-S12FVX
Product Code			CV010001900
Power Supply	Rated Voltage	V ～	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Indoor
Cooling Capacity(Min~Max)		W	3500(600~3950)
Heating Capacity(Min~Max)		W	3650(600~4700)
Cooling Power Input(Min~Max)		W	980(220~1400)
Heating Power Input(Min~Max)		W	1000(220~1580)
Cooling Current Input		A	4.45
Heating Current Input		A	4.55
Rated Input		W	1580
Rated Current		A	6.2
Air Flow Volume(SH/H/HM/M/LM/L/SL)		m^3/h	600/520/480/440/400/360/280
Dehumidifying Volume		L/h	1.2
EER		W/W	3.6
COP		W/W	4.0
SEER		W/W	6.3
HSPF		W/W	/
Application Area		m^3	108
Indoor Unit	Indoor Unit Model		CH-S09FVX
	Indoor Unit Product Code		CV010N01900
	Fan Type		Centrifugal
	Fan Diameter Length(DXL)	mm	Φ80X370
	Cooling Speed (SH/H/HM/M/LM/L/SL)	r/min	750/650/600/550/500/450/350
	Heating Speed (SH/H/HM/M/LM/L/SL)	r/min	750/650/600/550/500/450/350
	Fan Motor Power Output	W	30
	Fan Motor RLA	A	0.15
	Fan Motor Capacitor	μF	/
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	2-1.3
	Evaporator Coil Length (LXDXW)	mm	511X25.4X400
	Swing Motor Model		MP24EB/MP24AE
	Swing Motor Power Output	W	1.5/1.5
	Fuse Current	A	3.15
	Sound Pressure Level (SH/H/HM/M/LM/L/SL)	dB (A)	38/35/32/30/28/26/24
	Dimension (WXHXD)	mm	700X600X215
	Dimension of Carton Box (LXWXH)	mm	785X682X280
	Dimension of Package(LXWXH)	mm	788X697X283
	Net Weight	kg	15
	Gross Weight	kg	18

Outdoor Unit	Outdoor Unit Model		CH-S12FVX
	Outdoor Unit Product Code		CV010W01900
	Compressor Manufacturer		DAIKIN
	Compressor Model		1GDY23AXDG8
	Compressor Oil		DAPHNE FVC50K
	Compressor Type		Rotary
	Compressor LRA.	A	16.5
	Compressor RLA	A	4
	Compressor Power Input	W	845
	Compressor Overload Protector		KSD115ºC or HPC115/95
	Throttling Method		Electron expansion valve
	Set Temperature Range	ºC	16~30
	Cooling Operation Ambient Temperature Range	ºC	-15~43
	Heating Operation Ambient Temperature Range	ºC	-25~24
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ9.52
	Condenser Rows-fin Gap	mm	2-1.4
	Condenser Coil Length (LXDXW)	mm	512X44X741
	Fan Motor Speed	rpm	900
	Fan Motor Power Output	W	30
	Fan Motor RLA	A	0.36
	Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	m^3/h	1800
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ400
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	51/-/-
	Dimension(WXHXD)	mm	848X540X320
	Dimension of Carton Box (LXWXH)	mm	878X360X580
	Dimension of Package(LXWXH)	mm	881X363X595
	Net Weight	kg	34
	Gross Weight	kg	36.5
	Refrigerant		R410A
	Refrigerant Charge	kg	1.15
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	20
	Outer Diameter Liquid Pipe	mm	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52
	Max Distance Height	m	10
	Max Distance Length	m	20
	Note: The connection pipe applies metric diameter.		

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

Parameter		Unit	Value
Model			CH-S18FVX
Product Code			CV010001800
Power Supply	Rated Voltage	V ～	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Indoor
Cooling Capacity(Min~Max)		W	5270(900~5600)
Heating Capacity(Min~Max)		W	5500(900~6600)
Cooling Power Input(Min~Max)		W	1420(350~2500)
Heating Power Input(Min~Max)		W	1530(350~2500)
Cooling Current Input		A	6.45
Heating Current Input		A	6.95
Rated Input		W	2500
Rated Current		A	10.9
Air Flow Volume(SH/H/HM/M/LM/L/SL)		m^3/h	700/650/580/520/460/410/320
Dehumidifying Volume		L/h	1.8
EER		W/W	3.71
COP		W/W	3.59
SEER		W/W	5.8
HSPF		W/W	/
Application Area		m^3	159
Indoor Unit	Indoor Unit Model		CH-S18FVX
	Indoor Unit Product Code		CV010N01800
	Fan Type		Centrifugal
	Fan Diameter Length(DXL)	mm	Φ80X370
	Cooling Speed (SH/H/HM/M/LM/L/SL)	r/min	840/800/720/650/580/530/410
	Heating Speed (SH/H/HM/M/LM/L/SL)	r/min	930/840/760/690/620/570/450
	Fan Motor Power Output	W	30
	Fan Motor RLA	A	0.15
	Fan Motor Capacitor	μF	/
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	2-1.3
	Evaporator Coil Length (LXDXW)	mm	511X25.4X400
	Swing Motor Model		MP24EB/MP24AE
	Swing Motor Power Output	W	1.5/1.5
	Fuse Current	A	3.15
	Sound Pressure Level (SH/H/HM/M/LM/L/SL)	dB (A)	40/38/36/34/32/30/28
	Dimension (WXHXD)	mm	700X215X600
	Dimension of Carton Box (LXWXH)	mm	785X280X682
	Dimension of Package(LXWXH)	mm	788X283X697
	Net Weight	kg	15
	Gross Weight	kg	18

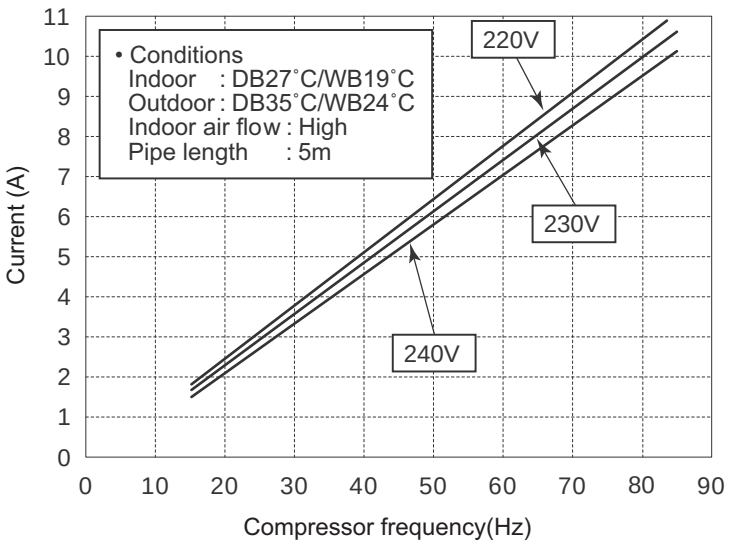
Outdoor Unit	Outdoor Unit Model		CH-S18FVX
	Outdoor Unit Product Code		CV010W01800
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO.,LTD
	Compressor Model		QXA-B141zF030G8
	Compressor Oil		68EP
	Compressor Type		Rotary
	Compressor LRA.	A	18
	Compressor RLA	A	7.2
	Compressor Power Input	W	1440
	Compressor Overload Protector		1NT11L-6233 or KSD115ºC or HPC115/95U1
	Throttling Method		Electron expansion valve
	Set Temperature Range	ºC	16~30
	Cooling Operation Ambient Temperature Range	ºC	-15~43
	Heating Operation Ambient Temperature Range	ºC	-25~24
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7
	Condenser Rows-fin Gap	mm	2-1.4
	Condenser Coil Length (LXDXW)	mm	851X38.1X660
	Fan Motor Speed	rpm	800
	Fan Motor Power Output	W	60
	Fan Motor RLA	A	0.39
	Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	m^3/h	3200
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ520
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	53/-/-
	Dimension(WXHXD)	mm	963X700X396
	Dimension of Carton Box (LXWXH)	mm	1026X455X735
	Dimension of Package(LXWXH)	mm	1029X458X750
	Net Weight	kg	45
	Gross Weight	kg	49.5
	Refrigerant		R410A
	Refrigerant Charge	kg	1.3
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	20
	Outer Diameter Liquid Pipe	mm	Φ6
	Outer Diameter Gas Pipe	mm	Φ12
	Max Distance Height	m	10
	Max Distance Length	m	25
	Note: The connection pipe applies metric diameter.		

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

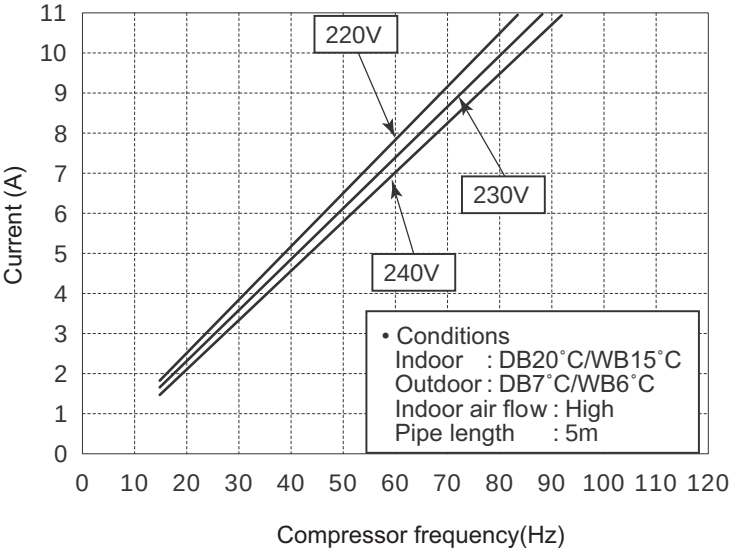
2.2 Operation Characteristic Curve

09K 12K

Cooling

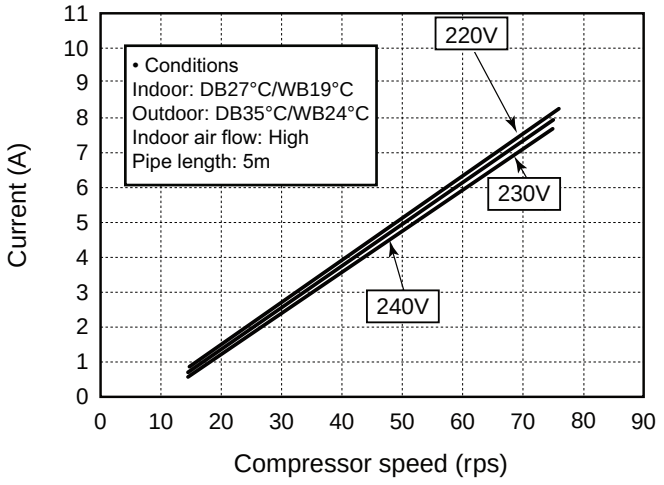


Heating

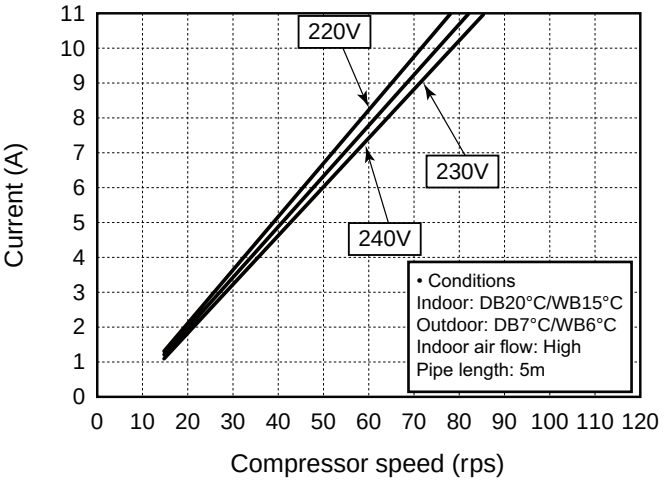


18K

Cooling



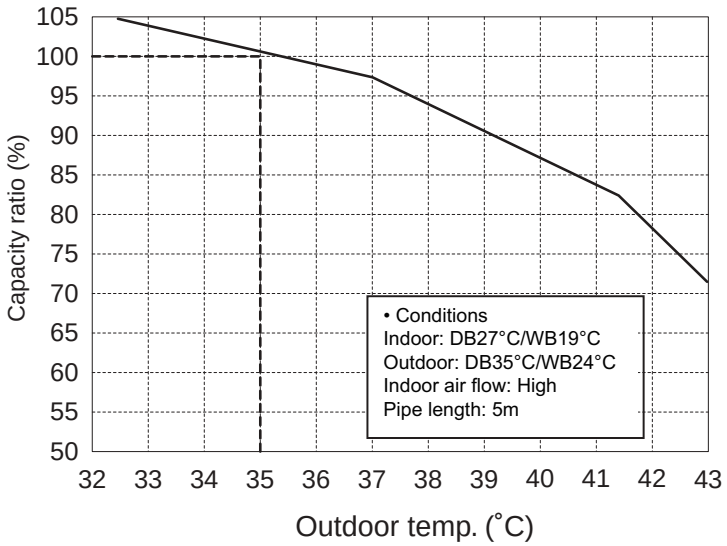
Heating



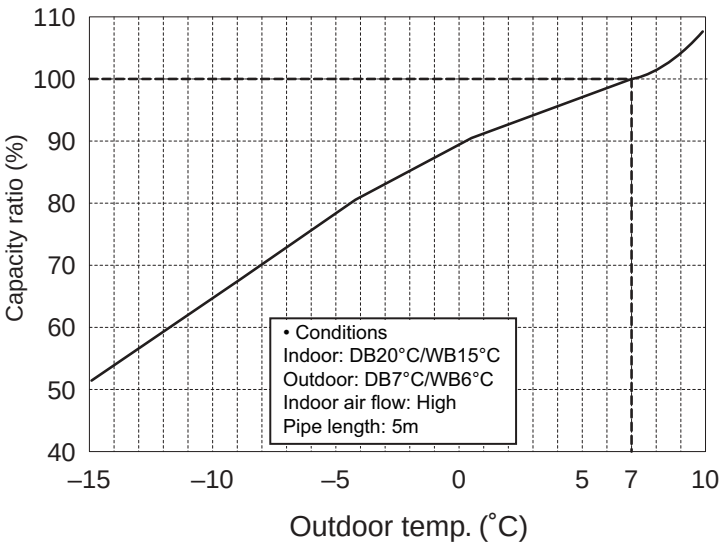
2.3 Capacity Variation Ratio According to Temperature

09K 12K

Cooling

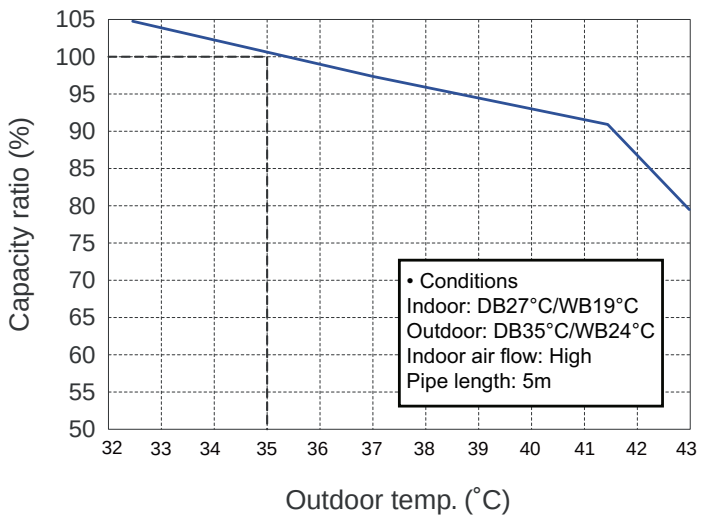


Heating



18K

Cooling



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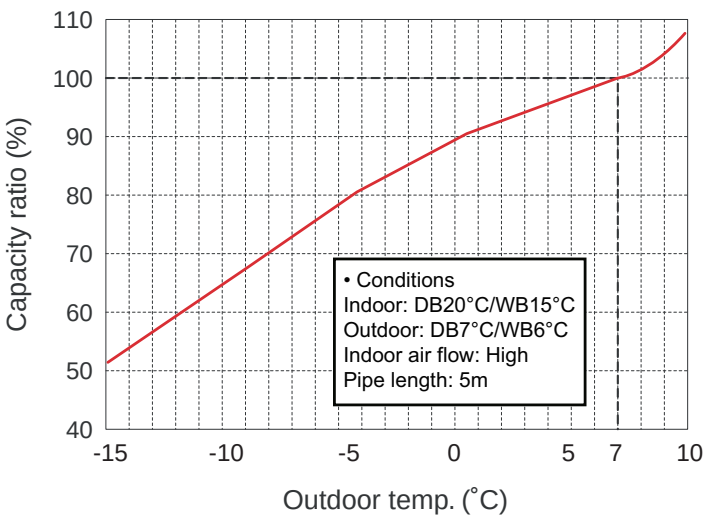


2.4 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

Rated cooling condition(°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
27/19	35/24	09K	0.9 to 1.1	12 to 14	70 to 40	Super High	High	52
		12K	0.9 to 1.1	12 to 14	70 to 40	Super High	High	72
		18K	0.9 to 1.1	12 to 14	80 to 40	Super High	High	70

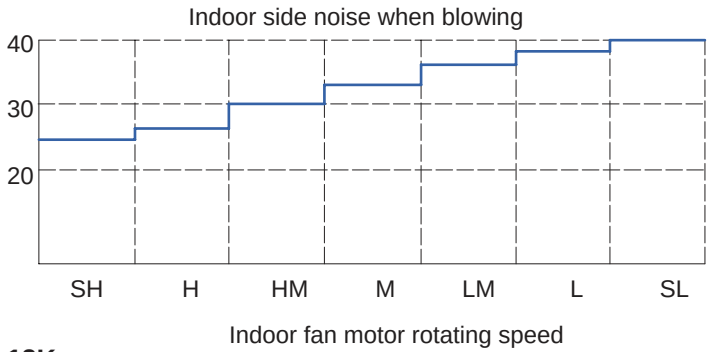
Heating:

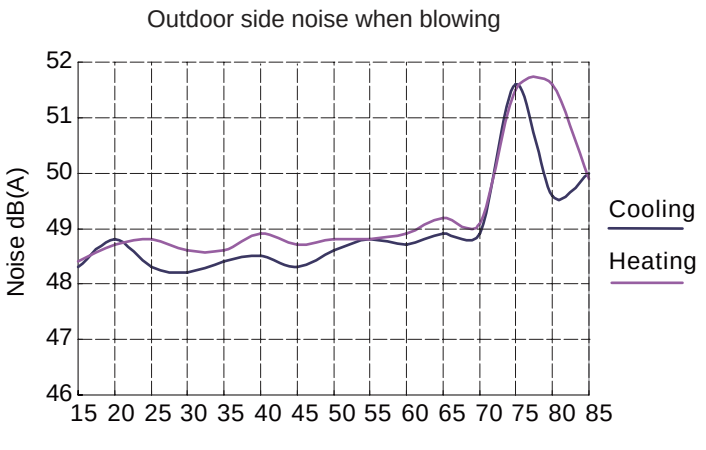
Rated heating condition(°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor frequency (Hz)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
20/-	7/6	09K	2.2 to 2.4	70 to 35	2 to 4	Super High	High	65
		12K	2.2 to 2.4	70 to 35	2 to 4	Super High	High	77
		18K	2.2 to 2.4	70 to 40	1 to 5	Super High	High	70

Instruction:
T1: Inlet and outlet pipe temperature of evaporator
T2: Inlet and outlet pipe temperature of condenser
P: Pressure at the side of big valve
Connection pipe length: 5 m.

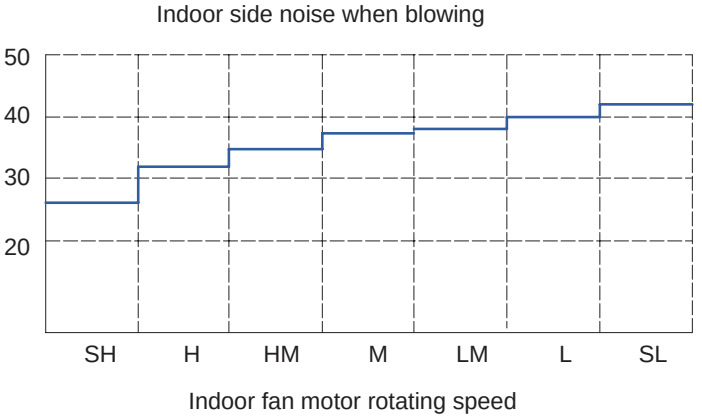
2.5 Noise Curve

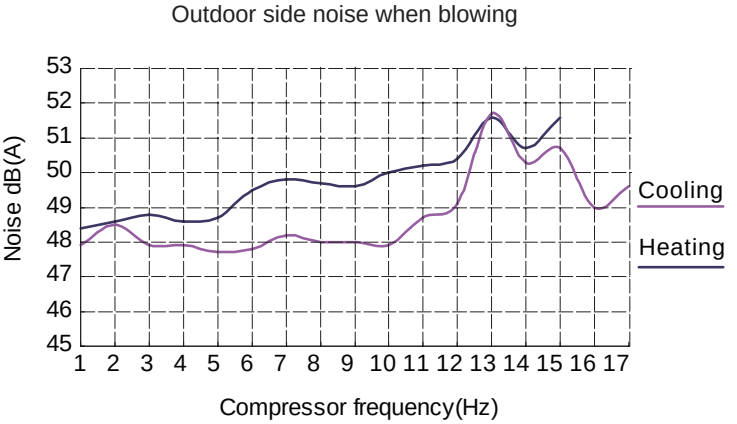
09K





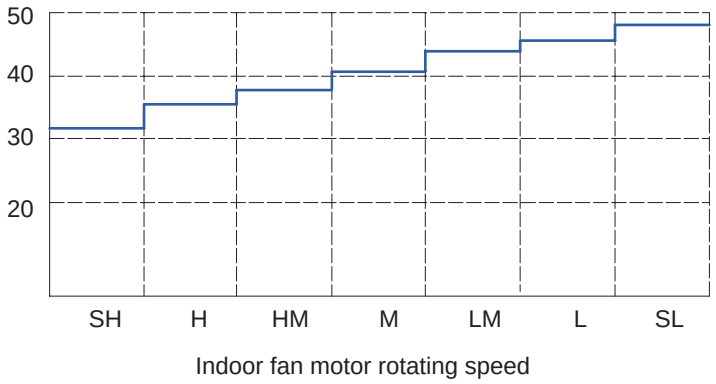
12K





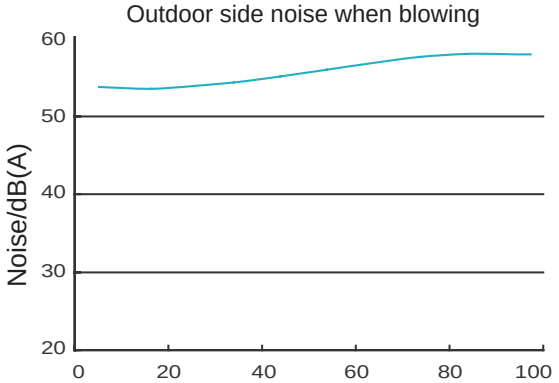
18K

Indoor side noise when blowing



Indoor fan motor rotating speed

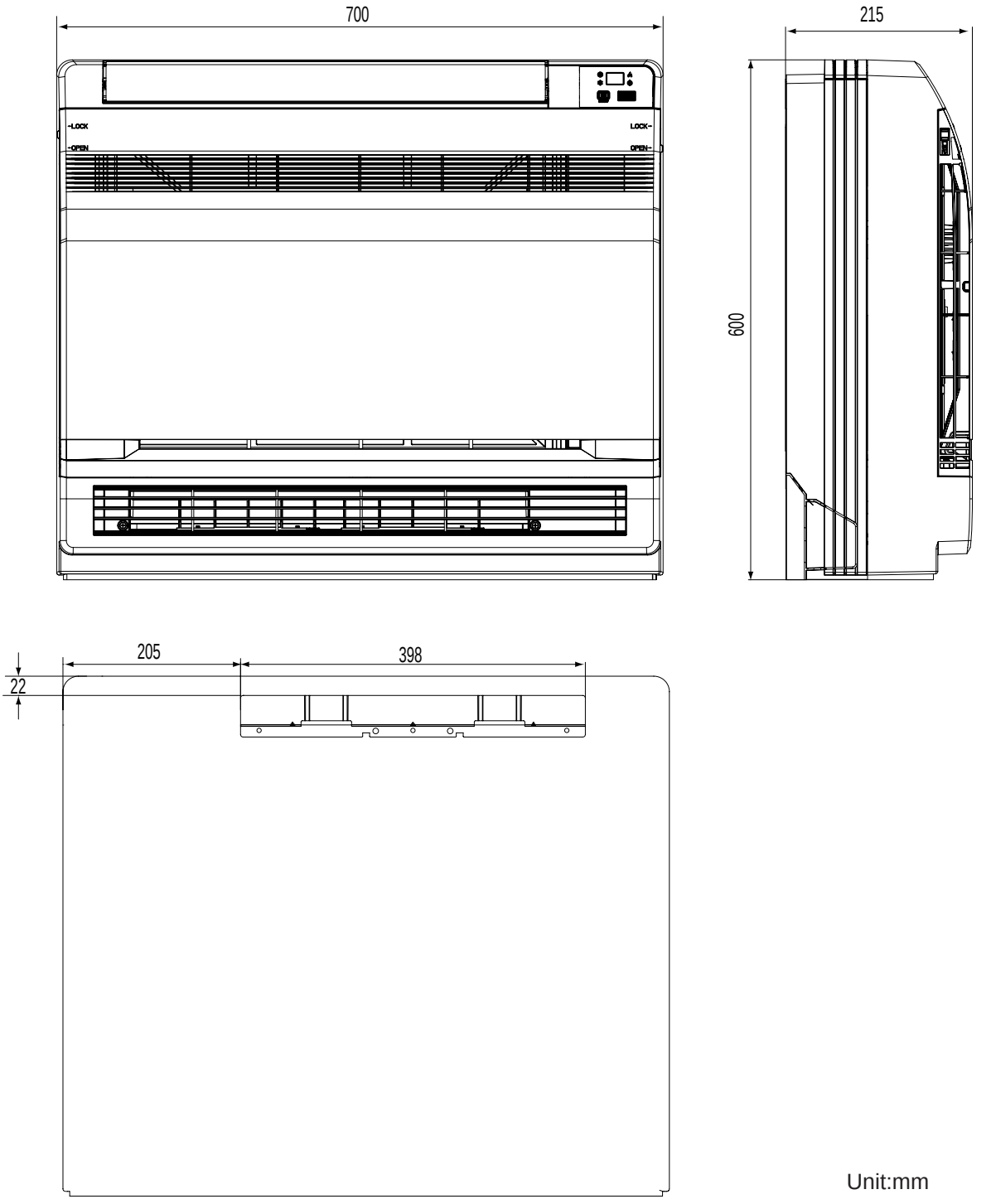
Outdoor side noise when blowing



Compressor frequency(Hz)

3. Outline Dimension Diagram

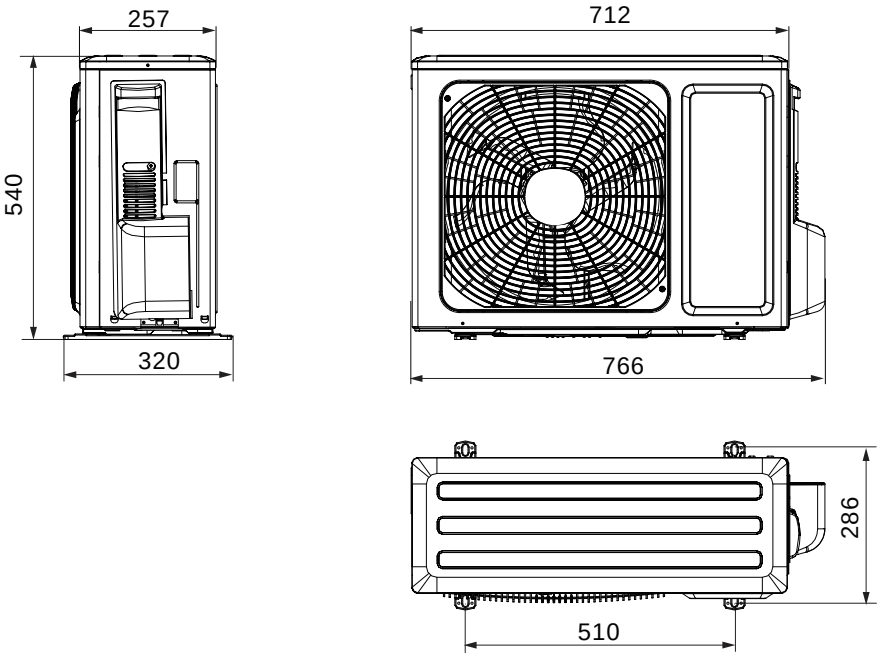
3.1 Indoor Unit



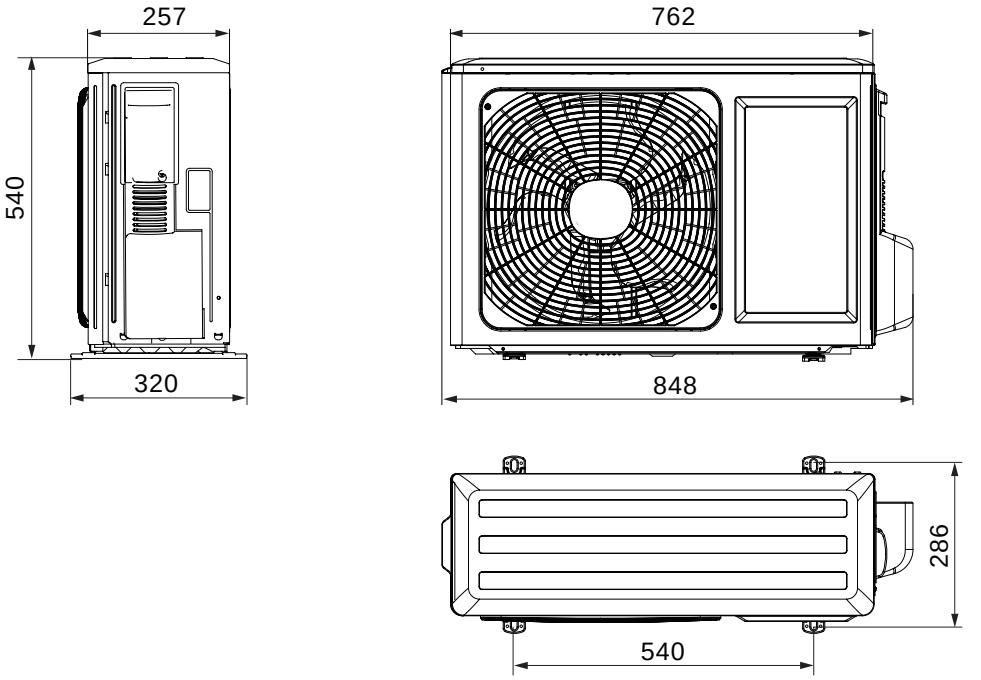
Unit:mm

3.2 Outdoor Unit

09K

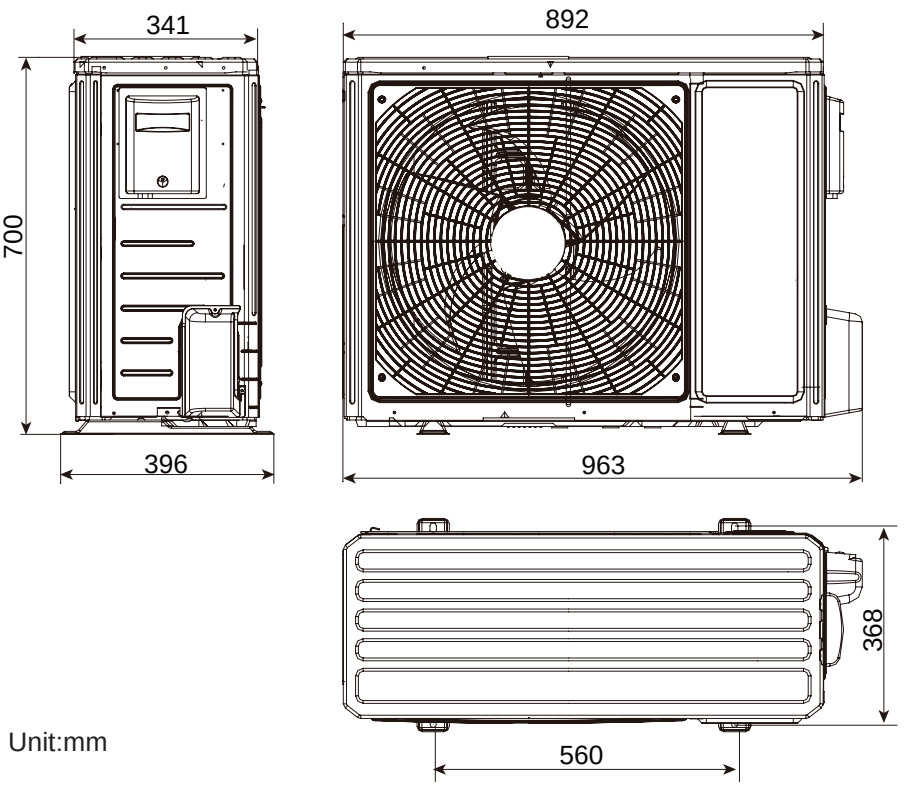


12K



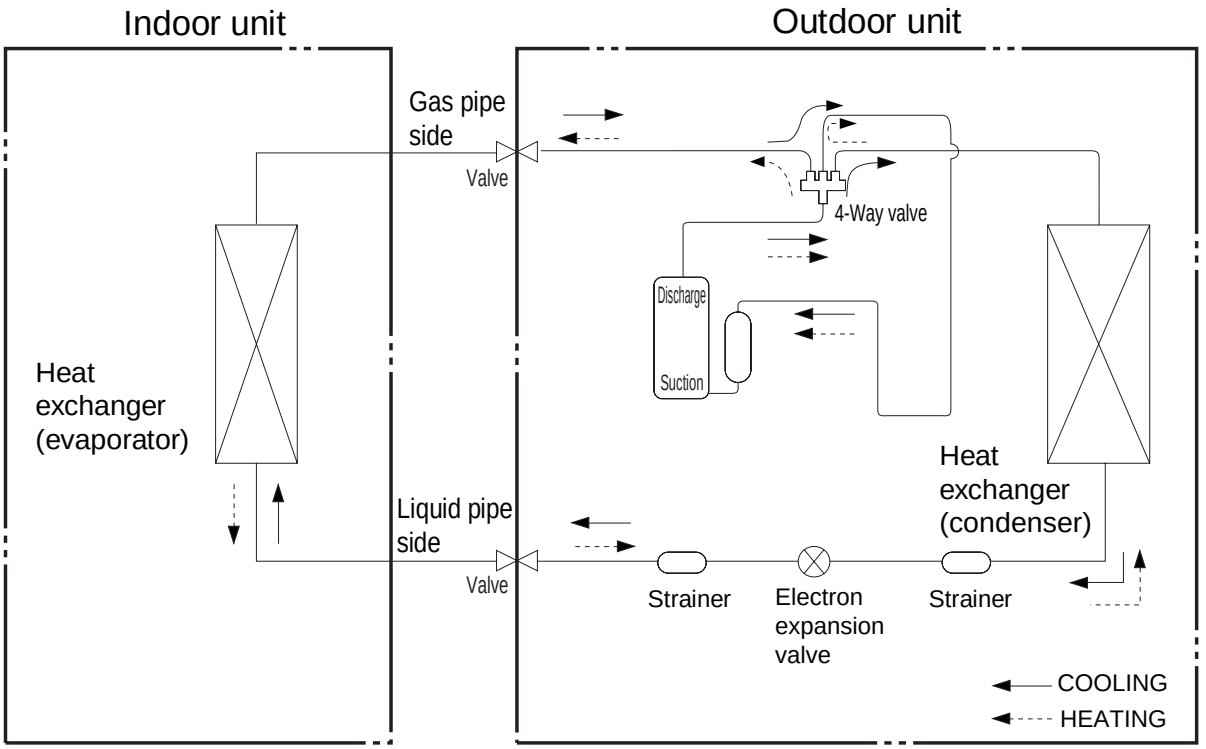
Unit:mm

18K



Unit:mm

4. Refrigerant System Diagram



Connection pipe specification:
Liquid pipe:1/4" (6mm)
Gas pipe:3/8" (9.52mm)(09K/12K)
Gas pipe:1/2" (16mm)(18K)

5. Electrical Part

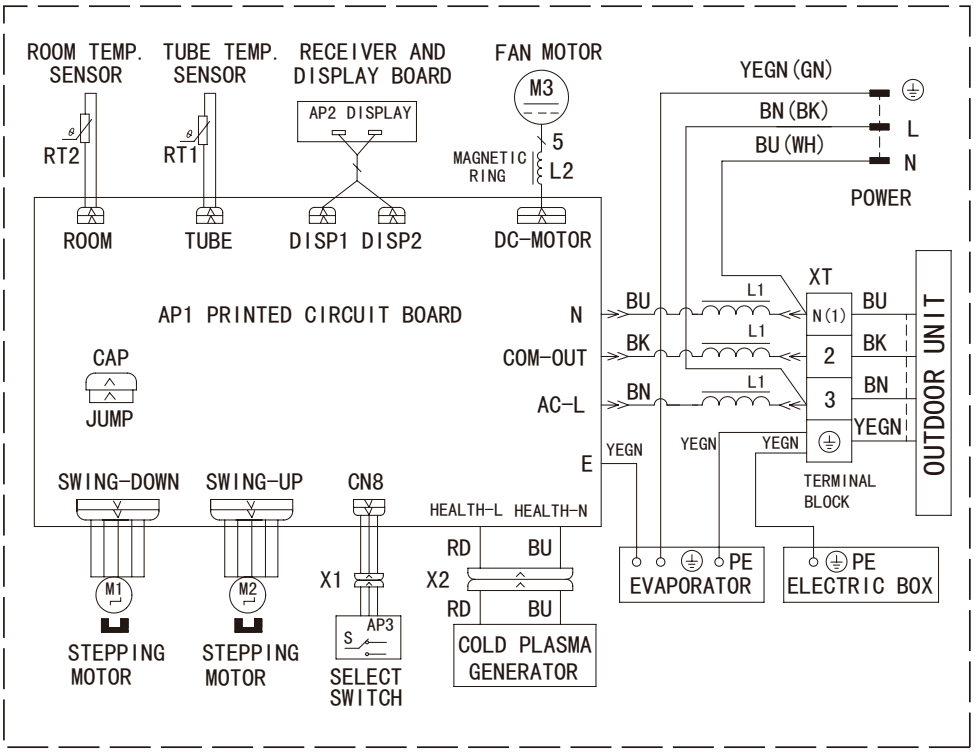
5.1 Wiring Diagram

● Instruction

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

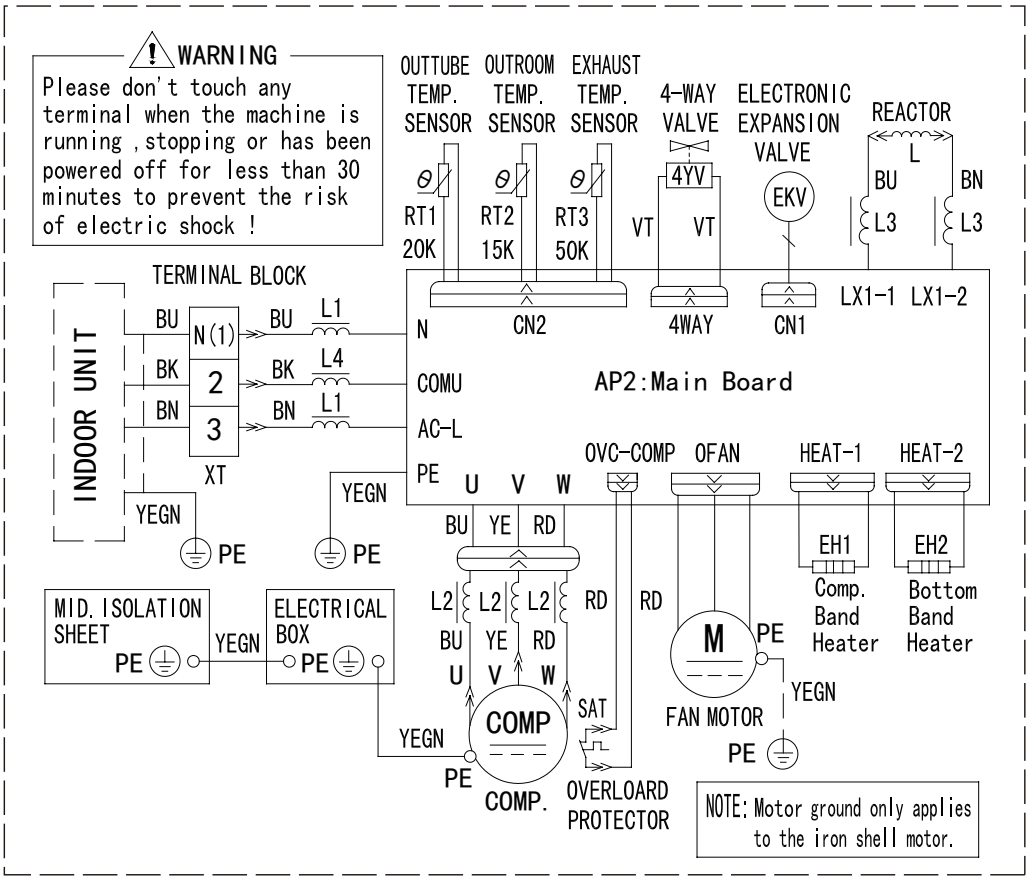
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

● Indoor Unit

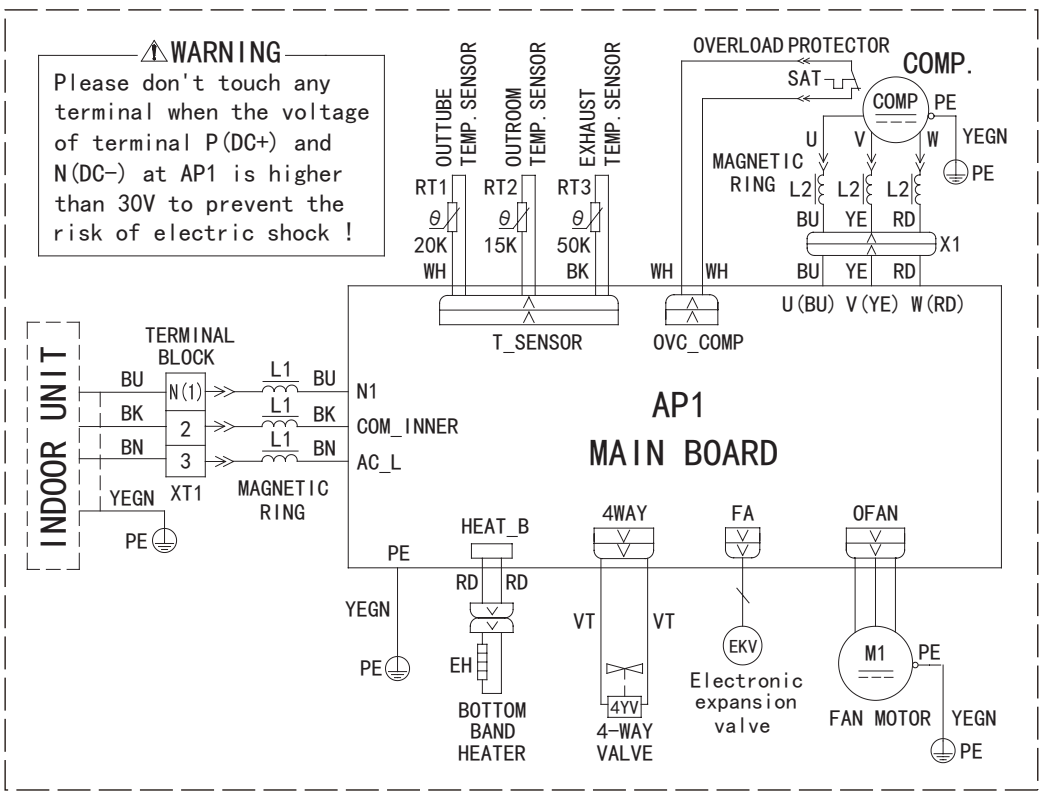


● Outdoor Unit

09K & 12K



18K

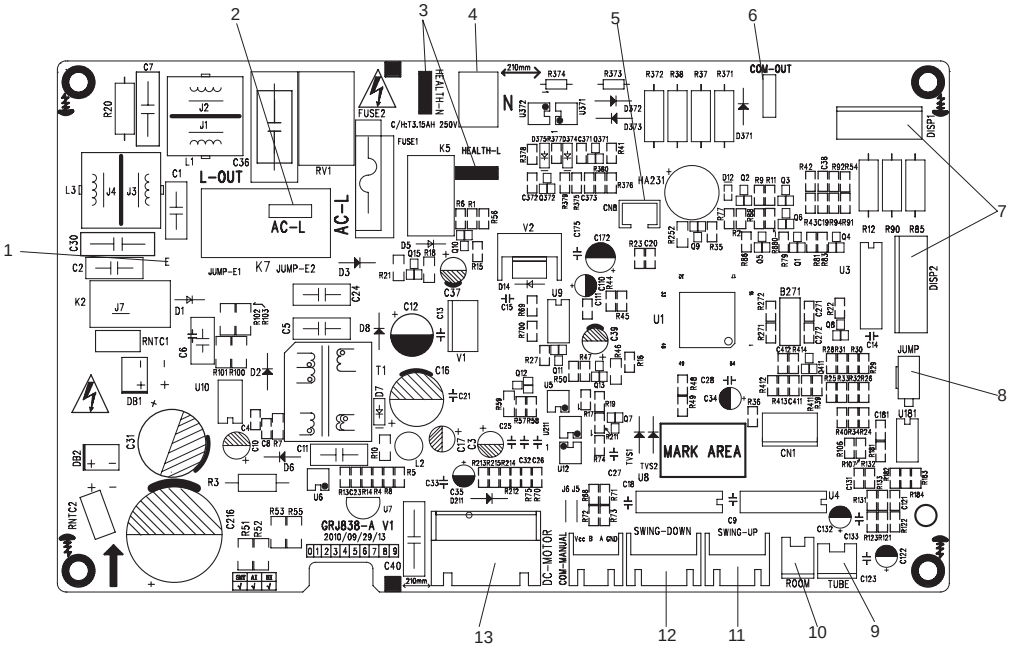


These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

5.2 PCB Printed Diagram

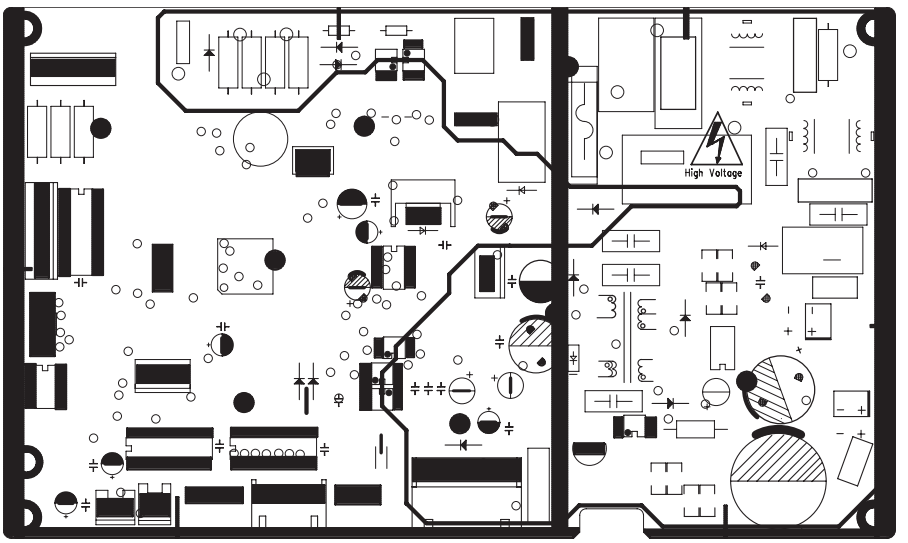
Indoor Unit

● Top view



No.	Name
1	Connect earthing wire
2	Input of live wire
3	Wiring terminal for health function (optional)
4	Input of neutral wire
5	Control the wiring terminal of down swing
6	Communication interface for indoor unit and outdoor unit
7	Terminal of display interface
8	Needle stand of jumper cap
9	Wiring terminal of indoor tube temperature sensor
10	Wiring terminal of indoor ambient temperature sensor
11	Wiring terminal of up swing
12	Wiring terminal of down swing
13	Wiring terminal of DC motor

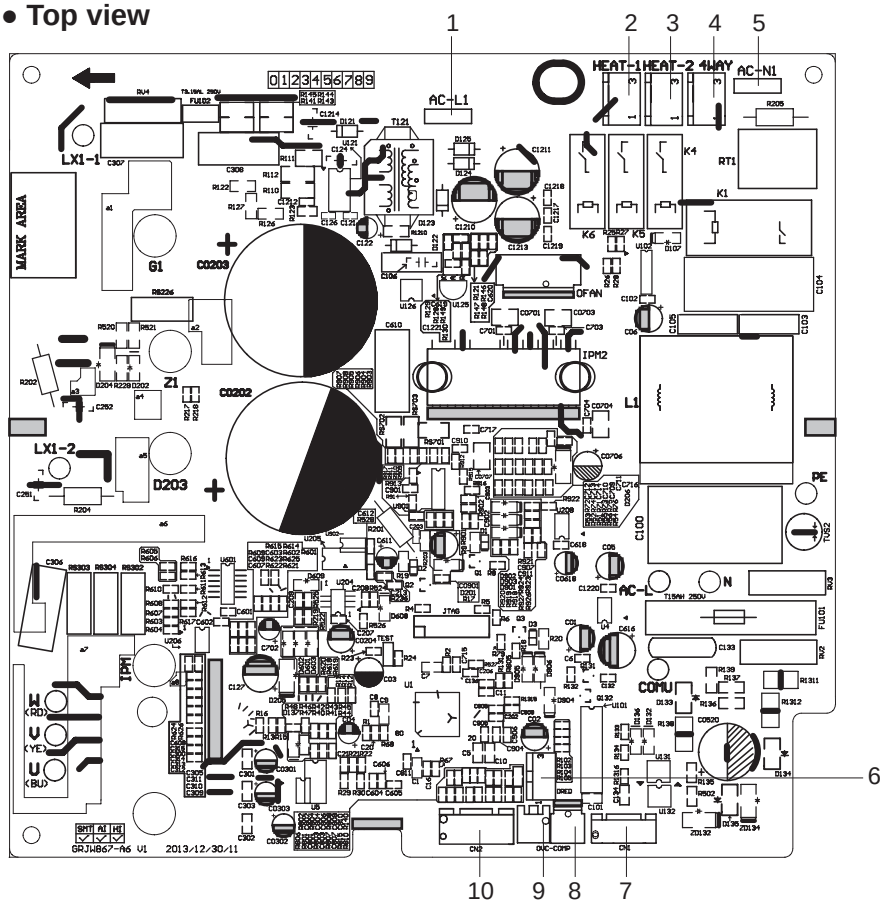
● Bottom view



Outdoor Unit

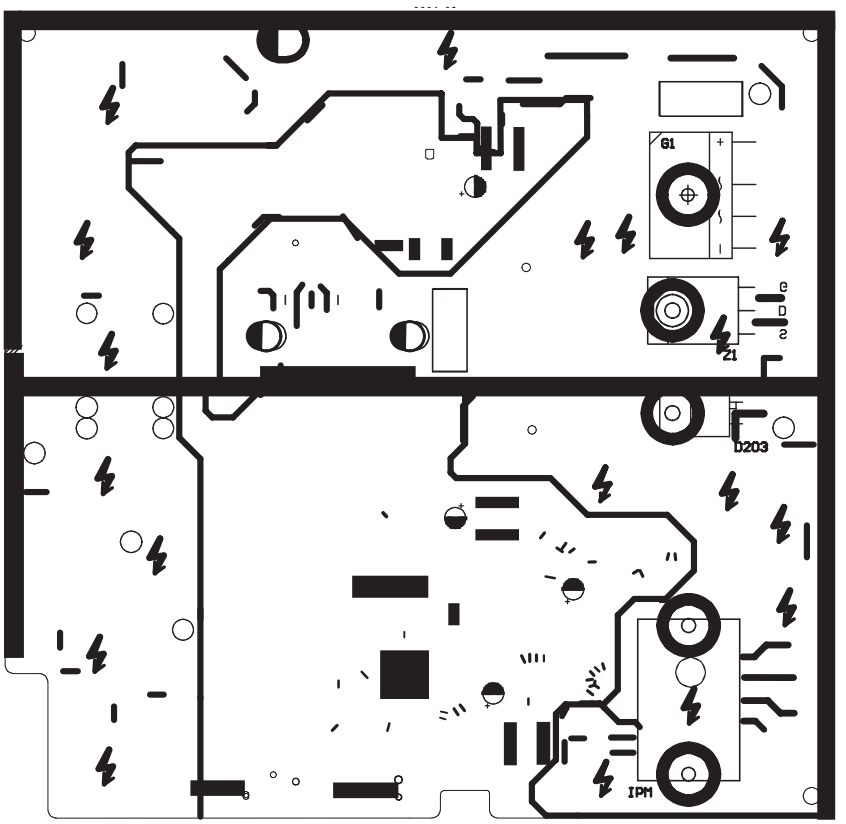
09K & 12K

• Top view



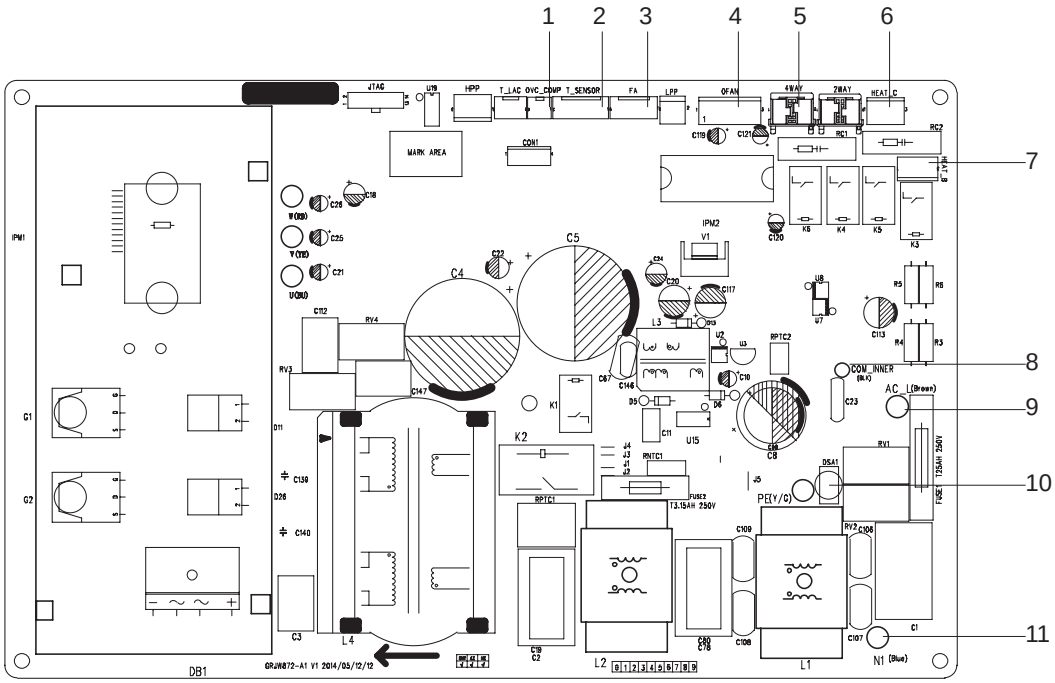
1	Live wire input of Dred communication plate
2	Heating belt 1
3	Heating belt 2
4	4-way valve
5	Neutral wire input of Dred communication plate
6	Dred function terminal
7	Electronic expansion valve terminal
8	Overload terminal of compressor
9	Overload terminal of compressor
10	Temperature sensor terminal

• Bottom view



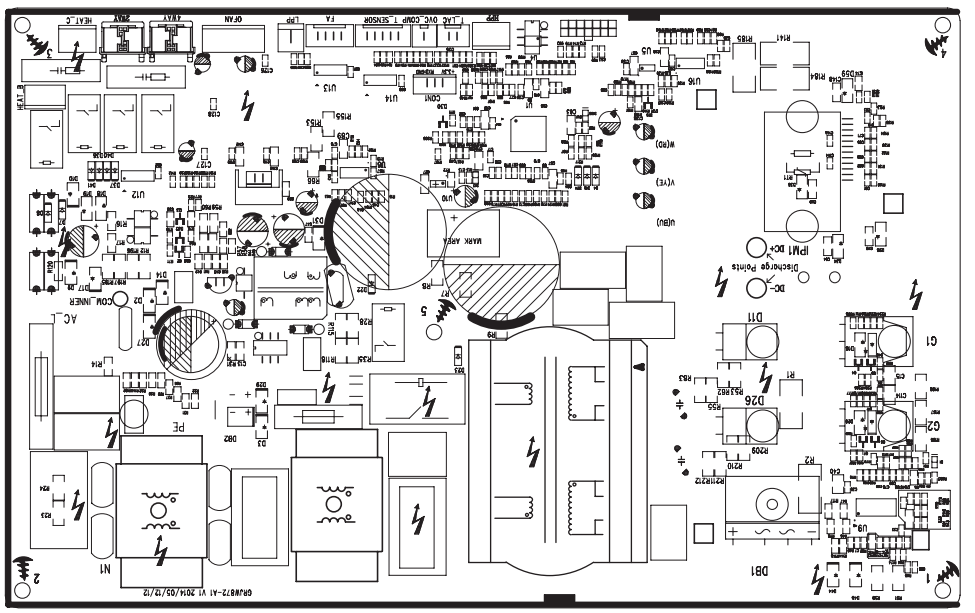
18K

● Top view



No.	Name
1	Terminal of compressor overload protection
2	Terminal of temperature sensor
3	Terminal of electronic expansion valve
4	Terminal of outdoor fan
5	Terminal of 4-way valve
6	Terminal of compressorelectric heating
7	Terminal of chassis electric heating
8	Terminal of indoor unit and outdoor unit communication
9	Power supply live wire
10	Earthing wire
11	Power supply neutral wire

● Bottom view



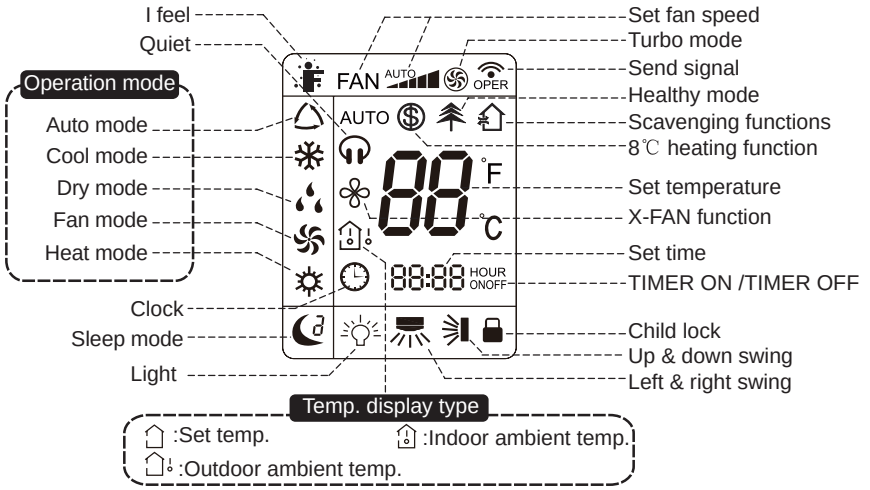
6. Function and Control

6.1 Remote Controller Introduction

Buttons on Remote Controller

1. ON/OFF button
2. +/- button
3. MODE button
4. FAN button
5. SWING button
6. I FEEL button
7. ↟/⌂ button
8. SLEEP button
9. TEMP button
10. QUIET button
11. ClOCK button
12. T-ON/T-OFF button
13. TURBO button
14. X-FAN button
15. LIGHT button

Introduction for Icons on Display Screen



Introduction for Buttons on Remote Controller

1 ON/OFF button

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

2 - button

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.

\+ button

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.

3 MODE button

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

AUTO ▶ COOL ▶ DRY ▶ FAN ▶ HEAT*

*Note:Only for models with heating function.

After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operation mode in accordance with the room temperature to make indoor room comfortable.(As for cooling only unit,it won't have any action when it receives the signal of heating operation.)

4 FAN button

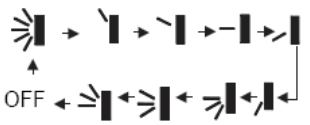
This button is used for setting Fan Speed in the sequence that goes from AUTO, , , , to , then back to Auto.

Low speed Low-Medium speed Medium speed

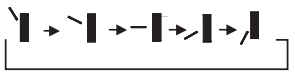
Medium-High speed High speed

5 SWING button

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



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



6 I FEEL button

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.

7 / button (Only applicable for some models)

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 "". 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.Air function is applicable for some models.

8 SLEEP button

- 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 mode: after run for one hour in sleep mode, the main unit setting temperature will increase 1℃ , after 2 hours, the setting temperature will increase 2 ℃ , but the maximal setting temperature is 30 ℃ , then the unit will run at this setting temperature all along; In Heat mode: after run for one hour in sleep mode, the setting temperature will decrease 1 ℃ after 2 hours the setting temperature will decrease 2℃ , but the minimal setting temperature is 16℃ , then the unit will run at this setting temperature all along.
- 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:

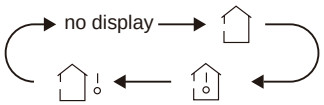
(1) Under Sleep 3 mode, press "Turbo" button for a long time, remote control enters into user individuation sleep setting status, at this time, the time of remote control will display "1hour ",the setting temperature "88" will display the corresponding temperature of last setting sleep curve and blink (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 within10s, 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.

9 TEMP button

Press this button, you can see indoor set temperature, indoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:



When selecting " " with remote controller or no display, temperature indicator on indoor unit displays set temperature; When selecting " " with remote controller, temperature indicator on indoor unit displays indoor ambie nt temperature; 3s later or within 3s it receives other remote control signal that will return to display the setting temperature.

Caution:

- This model hasn't outdoor ambient temperature display function. While remote controller can operate " " and indoor unit displays set temperature.
- It's defaulted to display set temperature when turning on the unit.
- Only for the models with temperature indicator on indoor unit.

10 QUIET button

Press this button, the Quiet status is under the Auto Quiet mode (display " " "signal)and Quiet mode (display " " singal) and Quiet OFF (there is no signal of " " "displayed),after powered on, the Quiet OFF is defaulted. Note: the Quiet function cannot be set up in Fan and Dry mode;Under the Quiet mode (Display" " Under the Quiet mode) the fan speed is not available.

11 ClOCK button

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.

12 T-ON / T-OFF button

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

13 TURBO button

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.

14 X-FAN button

Pressing X-FAN button in COOL or DRY mode, the icon is displayed and the indoor fan will continue operation for 2 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.

15 LIGHT button

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

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 °C and °F.

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°C Heating Function

Press "TEMP" and "CLOCK" simultaneously in HEAT mode to start 8°C Heating Function Nixie tube on the remote controller displays "" and a selected temperature of "8°C".(46°F if Fahrenheit is adopted). Repeat the operation to quit the function.

About Back-lighting Function

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

Replacement of Batteries in Remote Controller

1.Press the back side of remote controller marked with“ OPEN ”as shown in the fig, and then push out the cover of battery box along the arrow direction.

2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of “+” polar and “-“ polar are correct.

3. Reinstall the cover of battery box.

Note:

● During operation, point the remote control signal sender at the receiving window on indoor unit.

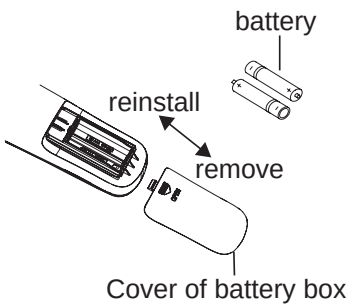
● The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.

● Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.

● Replace new batteries of the same model when replacement is required.

● When you don’t use remote controller for a long time, please take out the batteries.

● If the display on remote controller is fuzzy or there’s no display, please replace batteries.



6.2 Brief Description of Modes and Functions

1. Cooling mode

(1) Under this mode, the fan and the up swing will operate at setting status. The temperature setting range is 16~30ºC.
(2) The unit is stopped because of malfunction of outdoor unit or protection. The indoor unit keeps original operation status and the error code is displayed.
(3) Indoor unit is stopped due to mode shock.

2. Drying mode

(1) Under this mode, the fan operates at low speed and the swing operates at setting status. The temperature setting range is 16~30ºC.
(2) The unit is stopped because of malfunction of outdoor unit or protection. The indoor unit keeps original operation status and the error code is displayed.

3. Heating mode

(1) Under this mode, the temperature setting range is 16~30ºC.
(2) Working condition and process for heating
When the unit is turned on under heating mode, the indoor unit turns to cold air prevention status. When the unit is turned off and the indoor unit has been started up before, the indoor unit blows the residual heat.
(3) Protection function: When the compressor is stopped due to malfunction under heating mode, the indoor unit blows the residual heat.
(4) Blow residual heat
When the unit stops operation as it reaches the temperature point, indoor unit will continue to run for 60s. The fan speed cant be switched during blowing residual heat period. The upper horizontal louver will turn to the defaulted position in cooling. When the unit operates under heating mode or auto heating mode, compressor will be turned on and the corresponding electric expansion valve is more than 65 and the unit stops operation during the operation status of indoor unit. The upper horizontal louver will turn to the defaulted position in heating mode. The indoor unit operates at low speed for 10s and then the unit stops operation.
(5) Defrosting, oil-returning
As it received the signal of defrosting and oil-returning from outdoor unit, the upper horizontal louver will turn to the minimum angle in cooling. 10s later, the in door fan stop operation. During defrosting and oil-returning process and they are quitted within 5mins, all malfunctions for indoor tube temperature sensor wont be detected.

4. Working process for AUTO mode (Mode judgment will be performed every 30s)

Under AUTO mode, standard cooling Tpreset=25ºC (77ºF), standard heating Tpreset=20ºC (68ºF), and standard fan Tpreset= 25ºC (77ºF).
(1) When Tamb≥26ºC (79ºF), the unit operation in cooling mode;
(2) Heating pump unit: When Tamb≤19ºC (66ºF), the unit operates in heating mode;
(3) Cooling only unit: Tamb≤19ºC (66ºF), the unit operates in fanmode;
(4) When 19ºC<Tindoor amb.<26ºC, if it turns to auto mode as the unit is turned on for the first time the unit will operates at auto fan mode. If it switch to auto mode from other modes, the unit will keep previous operation mode (when it turns to dry mode, the unit operates at auto fan mode).
(5) Protection function
Protection function is the same as that in cooling or heating mode.

5. Fan mode

Under fan mode, only indoor fan and swing operates. When it operates at auto fan speed, it will operate according to auto fan speed condition in cooling.

6. Mode shock

If the mode shock is 1 which is received by indoor unit from outdoor unit, the loads of indoor unit (indoor unit, auxiliary heating,swing) stop operation and the error code is displayed. The mode sent to outdoor unit is still remote control receiving mode. The unit will be turned off during mode shock.
If timer ON is reached, and the mode shock is 1 which is received by indoor unit from outdoor unit, the loads of indoor unit (indoor unit,auxiliary heating, swing) stop operation and the error code is displayed. The mode sent to outdoor unit is still remote control receiving mode.

7. Other control

7.1 Buzzer

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

7.2 Auto button

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

7.3 8 ºC heating function

Under heating mode, press TEMP+CLOCK buttons simultaneously. Under this mode, “cold air prevention protection” will be shielded.

7.4 I FEEL function

When I FEEL command is received, the controller will operate according to the ambient temperature sent by the remote controller (For defrosting and cold blow prevention, the unit operates according to the ambient temperature sensed by the air conditioner). The remote controller will send ambient temperature data to the controller every 10min. When the data has not been received after 11mins,the unit will operate according to the temperature sensed by the air conditioner. If I FEEL function is not selected, the ambient temperature will be that sensed by the air conditioner. I FEEL function will not to be memorized.

7.5 Timer function

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

(1)General Timer

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

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

(2)Clock Timer

Timer ON

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

Timer OFF

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

Timer Change

Although timer has been set, the unit still can be turned on/off by pressing ON/OFF button of remote controller. You can also set the timer once again, and then the unit will operate according to the last setting. If timer ON and timer OFF are set at the same time during operation of the unit, the unit will keep operating at current status till OFF time reaches. If timer ON and timer OFF are set at the same time at unit OFF, the unit will keep stop till ON time reaches. In the future's every day, the system will operate according to presetting mode till OFF.

7.6 Sleep function

This mode is only valid in cooling and heating modes. The unit will select proper sleep curve to operate according to different set temperature.

7.7 Compulsory defrosting function

When the unit is turned on in heating by remote controller and the set temperature is 16°C, press "+,-,+,-,+,-"continuously within 5s, the indoor unit turns to compulsory defrosting setting and it will send compulsory defrosting mode to outdoor unit.

When indoor unit received the compulsory defrosting signal from outdoor unit, the indoor unit will quit from the compulsory defrosting setting and it will cancel to send compulsory defrosting mode to outdoor unit.

7.8 Refrigerant recovery function

Turn to Freon recovery mode: After the unit is energized for 5min, and the unit is turned on at 16ºC under cooling mode, press light button on remote controller for 3 times successively within 3s to turn to Freon recovery mode. Fo is displayed and it will send Freon recovery mode to outdoor unit.

Quit from Freon recovery mode:After it turns to Freon mode, if it receives any signal from remote controller or it turns to Freon recovery mode for 25 mins, it will quit from Freon recovery mode.

Turn to the action for Freon recovery mode: indoor unit will be turned on in cooling mode. The fan speed is super-high fan speed and the set temperature is 16°C. The horizontal louver will turn to the minimum operation angle.

Quit the action for Freon recovery mode: The indoor fan operates at the previous set status by remote controller.

7.9 Pilot run function

When the set temperature is 30°C under cooling mode, press "+,-,+,-,+,-"continuously within 3s, the indoor unit turns to pilot run setting mode and it will send pilot run mode to outdoor unit.

Pilot run mode: it operates under cooling mode and "dd" is displayed.

Quit the pilot run mode and indoor unit cancels "dd" display. If it receives "wrong wire connection of malfunction of expansion valve" from outdoor unit, "dn" will be displayed.

Part Ⅱ : Installation and Maintenance

7. Notes for Installation and Maintenance

Safety Precautions: Important!

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

Please follow the instructions below.

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

Warnings

Electrical Safety Precautions:

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

Installation Safety Precautions:

1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)
2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 20kg.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Ware safety belt if the height of working is above 2m.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

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

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

Main Tools for Installation and Maintenance

1. Level meter, measuring tape 	**2. Screw driver** 	**3. Impact drill, drill head, electric drill** 
4. Electroprobe 	**5. Universal meter** 	**6. Torque wrench, open-end wrench, inner hexagon spanner** 
7. Electronic leakage detector 	**8. Vacuum pump** 	**9. Pressure meter** 
10. Pipe pliers, pipe cutter   	**11. Pipe expander, pipe bender**  	**12. Soldering appliance, refrigerant container**  

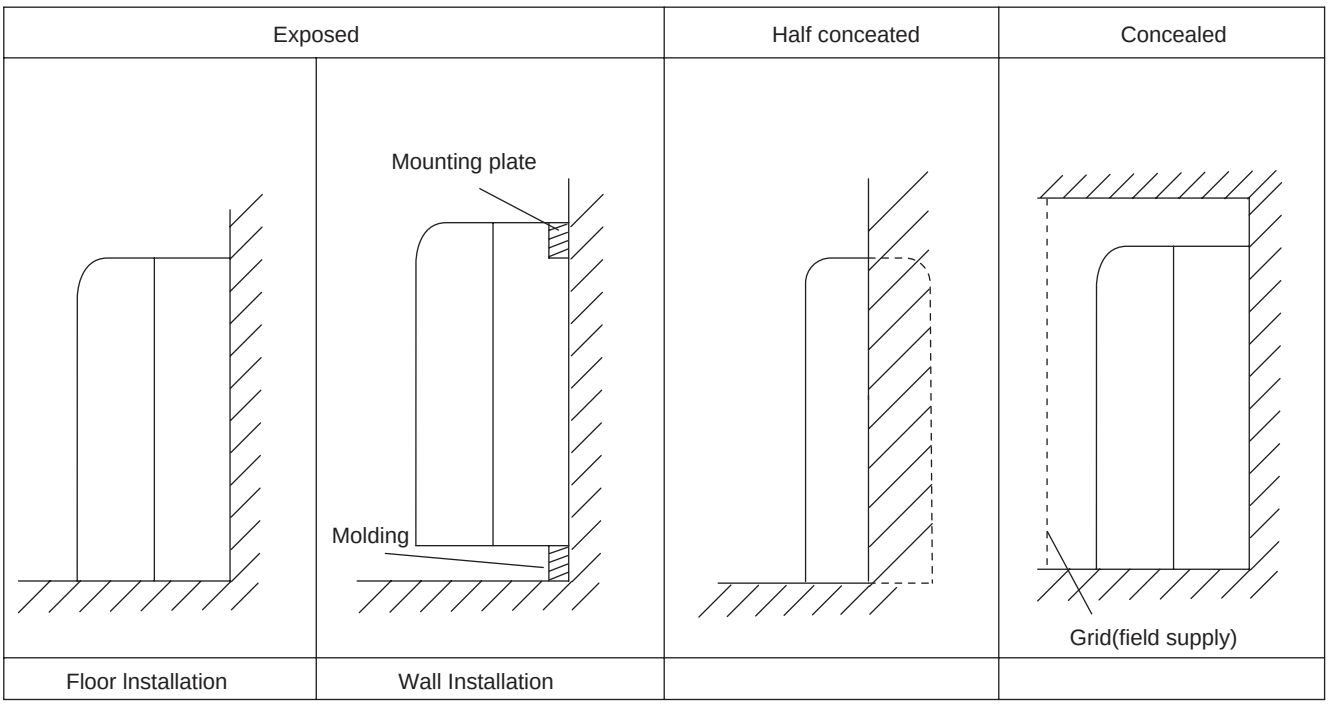
8. Installation

8.1 Choosing an Installation Site

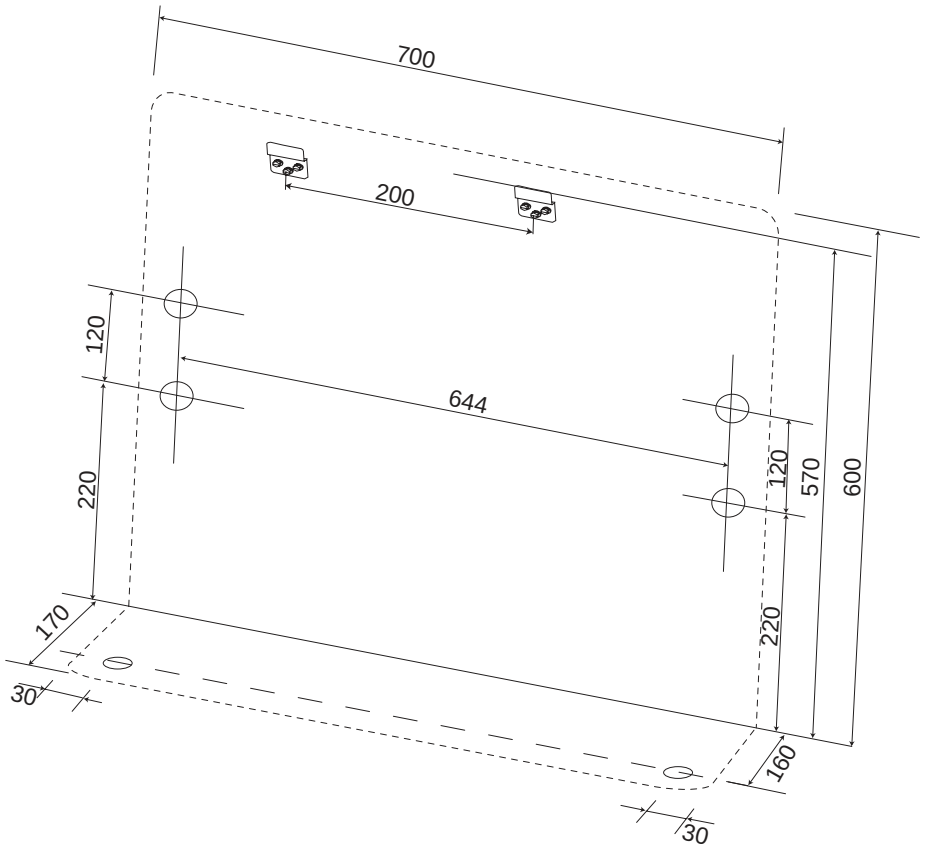
Before choosing the installation site,obtain user approval.
Indoor unit
The indoor unit should be sited in a place where:
(1) The restrictions on installation specified in the indoor unit installation drawings are met.
(2) Both air intake and exhaust have clear paths met.
(3) The unit is not in the path of direct sunlight.
(4) The unit is away from the source of heat or steam.
(5) There is no source of machine oil vapour (this may shorten indoor unit life).
(6) Cool(warm) air is circulated throughout the room.
(7) The unit is away from electronic ignition type fluorwscent lamps (inverter or rapid stert type) as they may shorten the remote controller range.
(8) The unit is at least 1 metre away from any television or radio set(unit may cause interference with the picture or sound).

8.2 Indoor Unit Installation Drawings

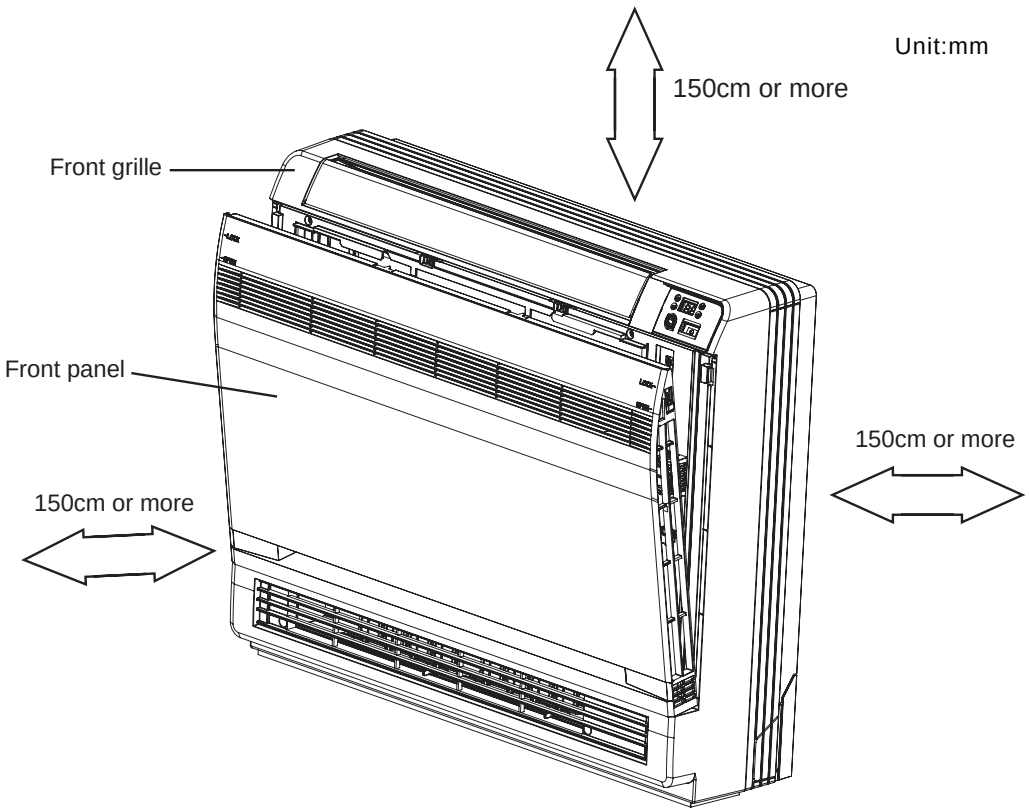
The indoor unit may be mounted in any of the three styles shown here.



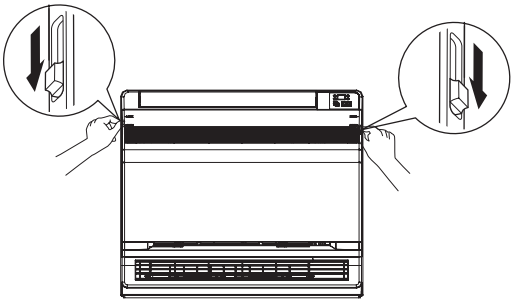
Location for securing the installation panel.


700
200
120
644
220
120
570
600
220
170
30
160
30

Unit:mm


150cm or more
Front grille
Front panel
150cm or more
150cm or more

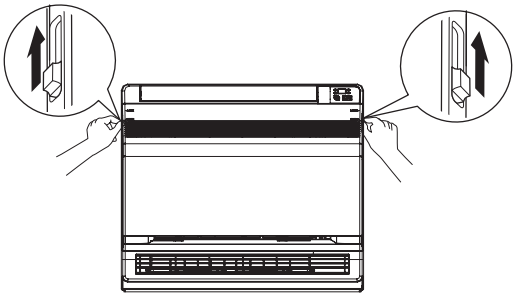
8.3 Installation Tips



1. Removing and Installing Front Pane

●Removal Method

(1) Slide until the 2 stoppers click into place
(2) Open the front panel forward and undo the string
(3) Remove the front panel



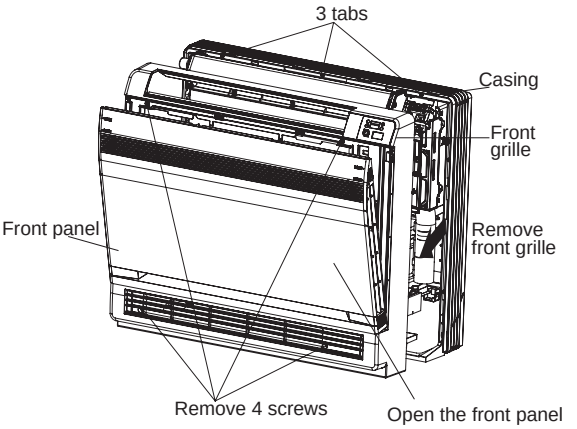
●Installation Method

(1) Attach the front grille and front panel after pulling the string around them.
(2) Close the front panel and slide until the stoppers click outside.

2. Removing and Installing Front Grille

●Removal Method

(1) Open the front panel.
(2) Remove the 4 screws and remove the front grille while pulling it forward(3 tabs).

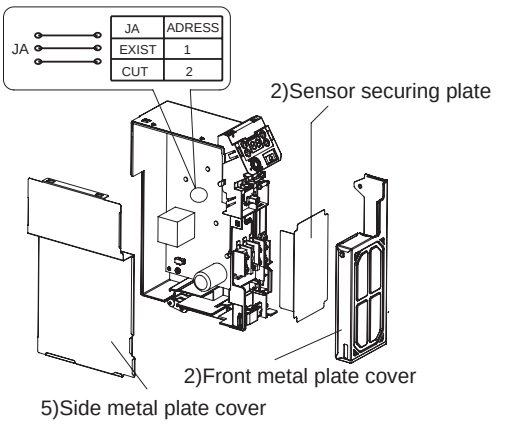


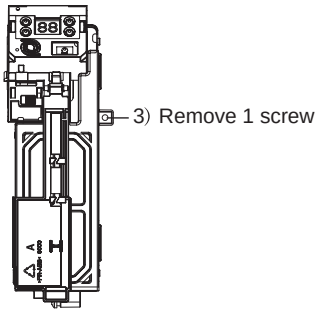
●Installation Method

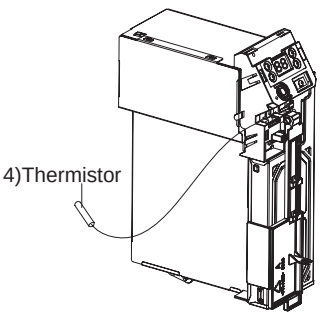
(1) Secure the front grille with the 4 installation screws(3 tabs)
(2) Return the front panel to the original position.

3.How to Set the Different Addresses

When two indoor units are installed in one room, the two wireless remote controllers can be set for different addresses.
(1) Remove the front grille.
(2) Live the sensor securing plate and remove the front metal plate cover.
(3) Remove the electric box(1 screw).
(4) Remove the thermistor.
(5) Remove the side metal plate cover(7 tabs).
(6) Cut the address jumper(JA)on the printed circuit board.





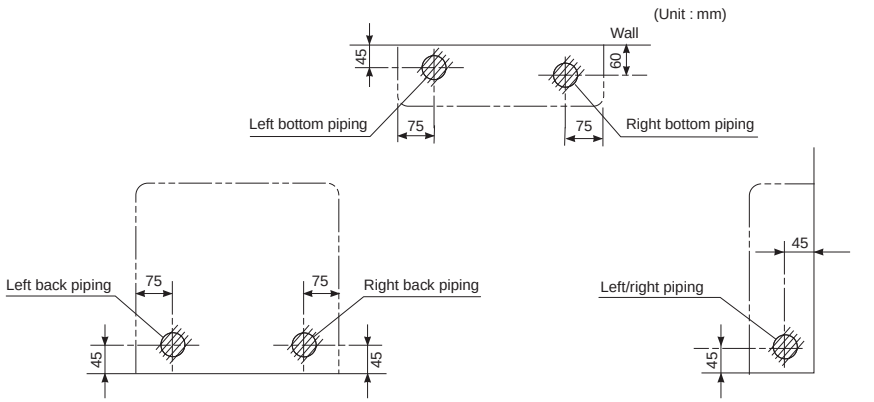


8.4 Indoor Unit Installation

1.Refrigerant Piping

(1) Drill a hole (65mm in diameter) in the spot indicated by ▨ the symbol in the illustration ad below .

(2) The location of the hole is different depending on which side of the pipe is taken out .
(3) For piping ,see6.Connecting the refrigerant pipe , under Indoor Unit Installation(1).
(4) Allow space around the pipe for a easier indoor unit pipe connection.



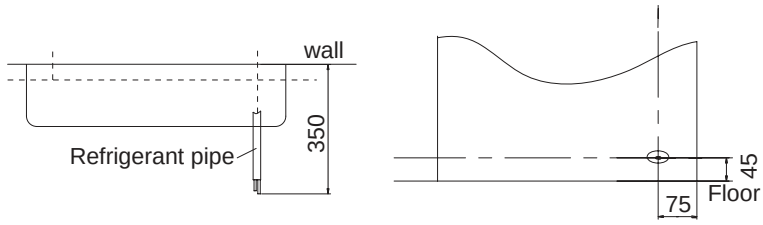
CAUTION

Min.allowable length

●The suggested shortest pipe length is 2.5m,in order to avoid noise from the outdoor unit and vibration. (Mechanical noise and vibration may occur depending on how the unit is installed and the environment in which it is used.)

●See the installation manual for the outdoor unit for the maximum pipe length.

●For multi-connections ,see the installation manual for the multi-outdoor unit.

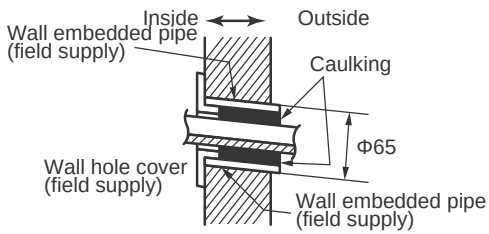


2. Boring A Wall Hole and Installing Wall Embedded Pipe

●For walls containing metal frame or metal board ,be sure to use a wall embedded pipe and wall cover in the feed-through hole to

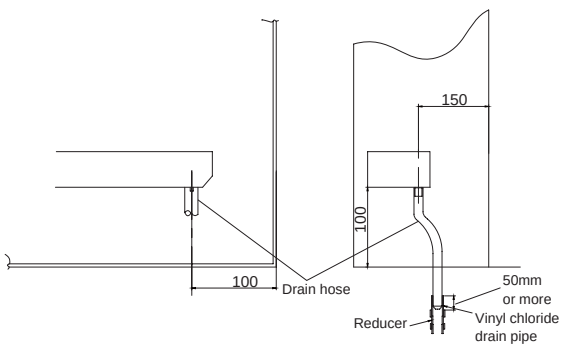
●Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.

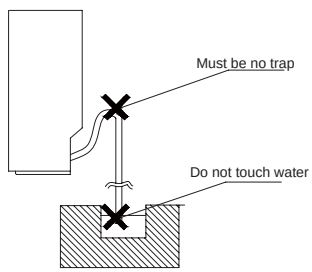
(1) Bore a feed-through hole of 65mm in the wall so it has a down slope toward the outside.
(2) Insert a wall pipe into the hole.
(3) Insert a wall cover into wall pipe .
(4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.



3. Drain Piping

(1) Use commercial regid polyvinyl chloride pipe general VP 20 pipe, outer diameter 26mm, inner diameter 20mm for the drain pipe.
(2)The drain hose (outer diameter 18mm at connecting end, 220mm long)is supplied with the indoor unit. Prepare the drain pipe picture below position.
(3) The drain pipe should be inclined downward so that water will flow smoothly without any accumulation.(Should not be trap.)
(4) Insert the drain hose to this depth so it wont be pulled out of the drain pipe.
(5) Insulate the indoor drain pipe with 10mm or more of insulation material to prevent condensation.
(6) Remove the air filters and pour some water into the drain pan to check the water flows smoothly.





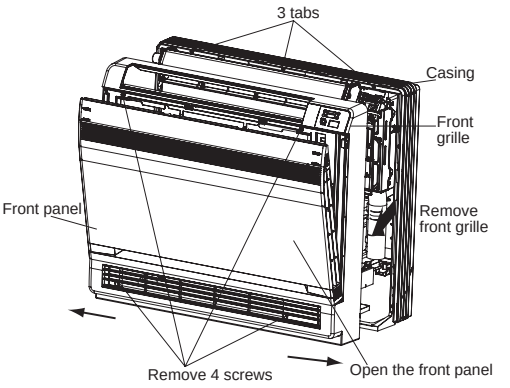
CAUTION

Use polyvinyl chloride adhesive agent for gluing. Failure to do so may cause water leakage.

4. Installing Indoor Unit

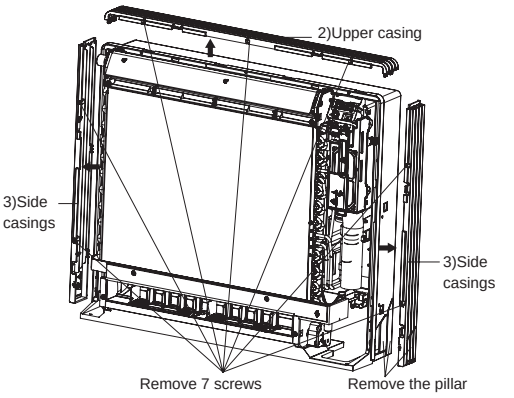
4-1.Preparation

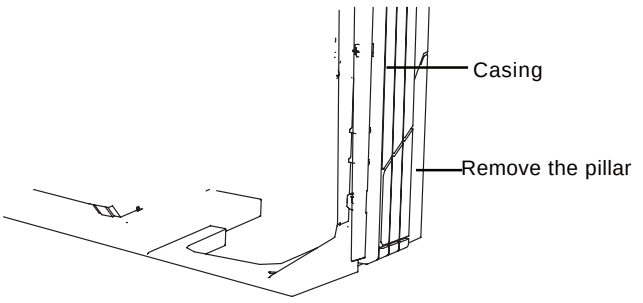
●Open the front panel, remove the 4 screws and dismount the front grille while pulling it forward.
●Follow the arrows to disengage the clasps on the front case to remove it.
●Follow the procedure below when removing the slit portions.

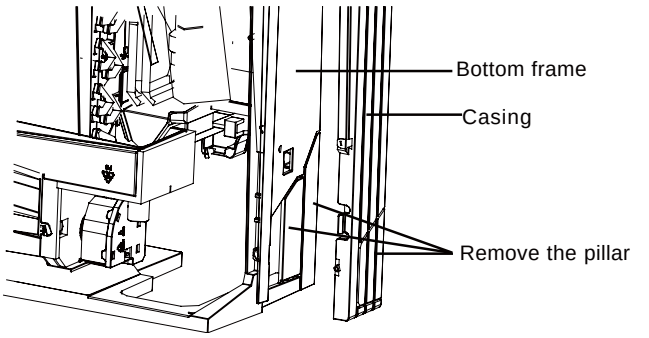


■For Moldings
●Remove the pillars. (Remove the slit portions on the bottom frame using nippers.)

■For Side Piping
●Remove the pillars.
(1) Remove the 7screws.
(2) Remove the upper casing (2 tabs).
(3) Remove the left and right casings (2 tabs on eachside).
(4) Remove the slit portions on the bottom frame and casings using nippers .
(5) Return by following the steps in reverse order(3>2>1).



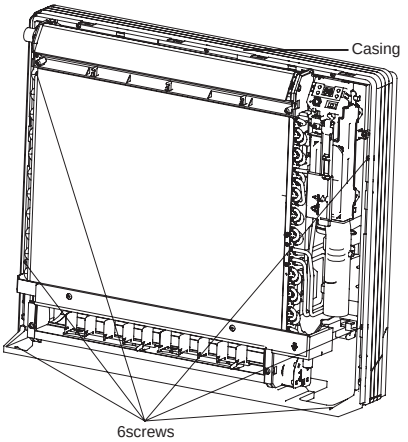




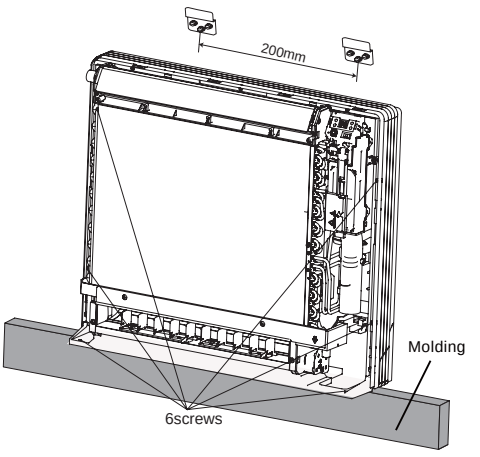
4-2.Installation

●Secure using 6 screws for floor installations.(Do not forget to secure to the rear wall.)
●For wall installations, secure the mounting plate using 5 screws and the indoor unit using 4 screws.The mounting plate should be installed on a wall which can support the weight of the indoor unit.
(1) Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the boring points on the wall.
(2) Secure the mounting plate to the wall with screws.

Floor Installation



Wall Installation



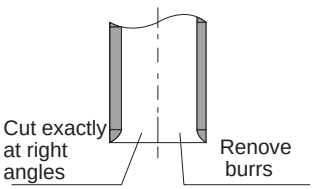
(3) Once refrigerant piping and drain piping connections are complete, fill in the gap of the through hole with putty. A gap can lead to condensation on the refrigerant pipe, and drain pipe, and the entry of insects into the pipes.
(4) Attach the front panel and front grille in their original positions once all connections are complete.

5.Flaring the Pipe End

(1) Cut the pipe end with a pipe cutter.
(2) Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
(3) Fit the flare nut on the pipe.
(4) Flare the pipe.
(5) Check that the flaring is properly made.

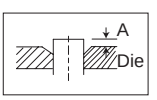
CAUTION

(1) DO not use mineral oil on flared part.
(2) Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
(3) Never use piping which had been used for previous installations. Only use parts which are delivered with the unit.
(4) Do never install a drier to this R410A unit in order to guarantee its lifetime.
(5) The drying material may dissolve and damage the system.
(6) Incomplete flaring may cause refrigerant gas leakage.

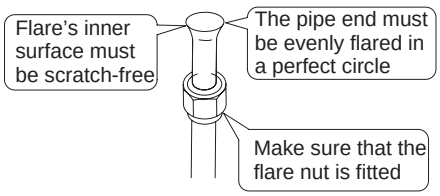


Flaring

Set exactly at the position shown below

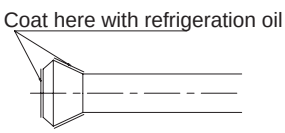


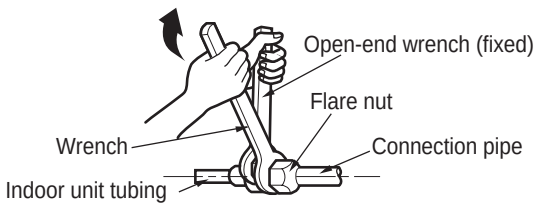
	Flare tool for R410A	Conventional flare tool	
	Clutch-type	Clutch-type (Rigid-type)	Wing-nut type (Imperial-type)
A	0-0.5mm	1.0-1.5mm	1.5-2.0mm



6.Connecting the Refrigerant Pipe

(1) Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and gas leaks.



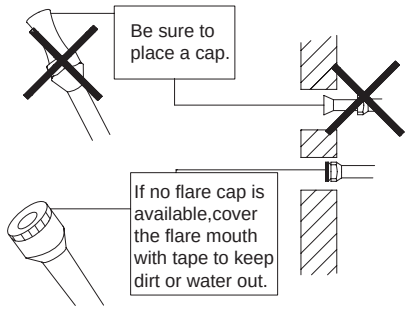


(2) Align the centres of both flares and tighten the flares and tighten the flare nuts 3 or 4 turns by hand.
Then tighten them fully with the torque wrenches.
(3) To prevent gas leakage, apply refrigeration oil on both inner and outer surfaces in the flare. (Use refrigeration oil for R410A.)

Hex nut diameter(mm)	Tightening torque(N.m)
Φ6	15~20
Φ9.52	30~40
Φ12	45~55
Φ16	60~65
Φ19	70~75

6-1.Caution on Piping Handling

(1) Protect the open end of the pipe against dust and moisture.
(2) All pipe bends should be as gentle as possible. Use a pipe bender for bending.
(Bending radius should be 30 to 40mm or larger.)



6-2. Selection of Copper and Heat Insulation Materials

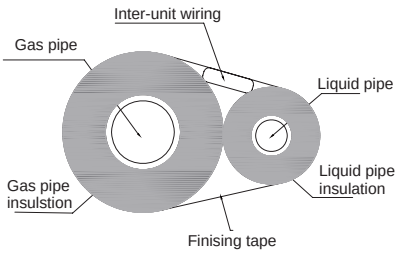
When using commercial copper pipes and fittings, observe the following:

(1) Insulation material: Polyethylene foam

Heat transfer rate:0.041 to 0.052W/mK(0.035 to 0.045kca/(mh^{O}C

Refrigerant gas pipes surface temperature reaches 110 max.

Choose heat insulation materials that will withstand this temperature.



(2) Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

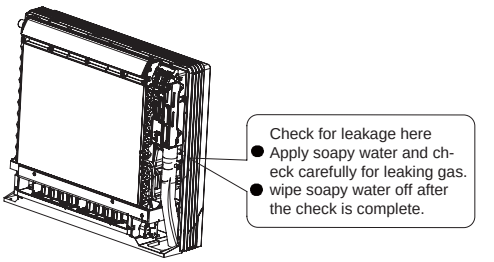
Gas side	Liquid side	Gas pipe thermal insulation	Liquid pipe thermal insulation
09K/12K		09K/12K	
O.D. 9.55mm	O.D. 6.4mm	I.D. 12-15mm	I.D. 8-10mm
Thickness 0.8mm		Thickness 10mm Min.	

(3) Use separate thermal insulation pipes for gas and liquid refrigerant pipes.

7.Checking for Gas Leakage

(1) Check for leakage of gas after air purging

(2) See the sections on air purges and gas leak checks in the installation manual for the outdoor unit.



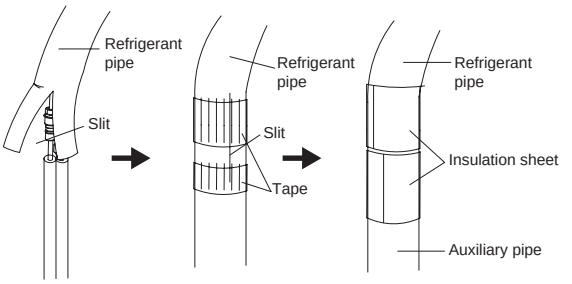
8.Attaching the Connection Pipe

●Attach the pipe after checking for gas leakage, described above.

(1) Cut the insulated portion of the on-site piping, matching it up with the connecting portion.

(2) Secure the slit on the refrigerant piping side with the butt joint on the auxiliary piping using the tape, making sure there are no gaps.

(3) Wrap the slit and butt joint with the included insulation sheet, making sure there are no gaps.



CAUTION

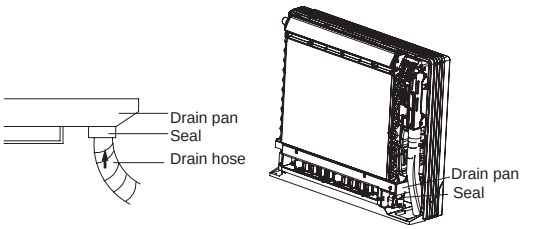
(1) Insulate the joint of the pipes securely. Incomplete insulation may lead to water leakage.

(2) Push the pipe inside so it does not place undue force on the front grille.

9.Connecting the Drain Hose

Insert the supplied C drain hose into the socket of the drain pan.

Fully insert the drain hose until it adheres to a seat of the socket.



10.Wiring

With a Multi indoor unit, install as described in the installation manual supplied with the Multi outdoor unit.

●Live the sensor securing plate, remove the front metal plate cover, and connect the branch wiring to the terminal block.

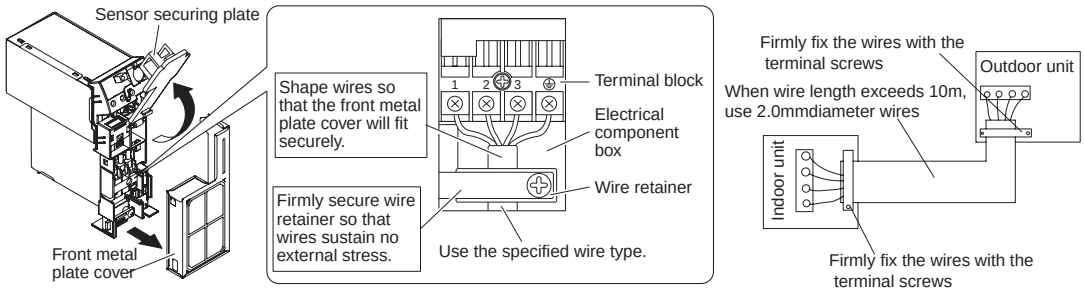
(1) Strip wire ends (15mm)

(2) Mach wire colours with terminal numbers on indoor and outdoor units terminal blocks and firmly screw wires to the corresponding terminals.

(3) Connect the earth wires to the corresponding terminals.

(4) Pull wires to make sure that they are securely latches up, then retain wires with wire retainer.

(5) In case of connecting to an adapter system, Run the remote controller cable and attach the S21. (Refer to 11. When connecting go an system.)

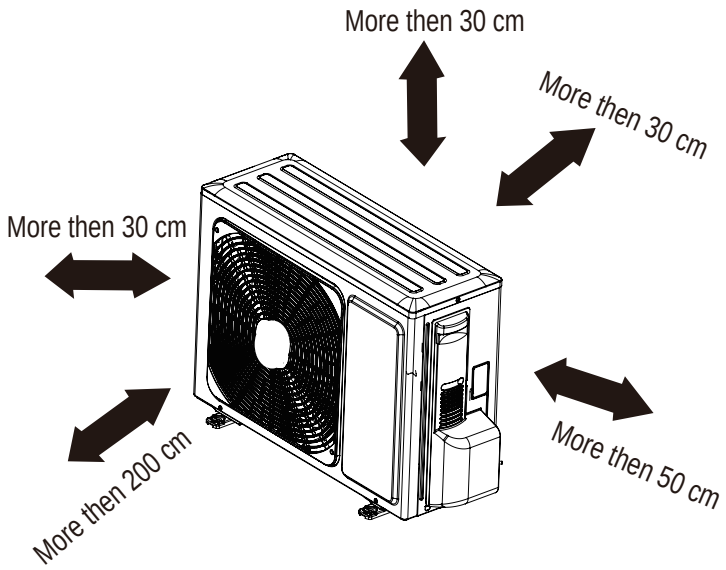


(1) Do not use tapped wires, stranded wires, extensioncords, or starburst connections, as they may cause overheating, electrical shock, or fire.
(2) Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc, from the terminal block.) Doing so may cause electric shock or fire.)

8.5 Outdoor Unit Installation

1. Where to Install Outdoor Unit

●The foundation must be solid enough to bear the weight and vibration unit.
●The space around the units is adequate for ventifation.
●The location is not close to any flamable gases.
●The location is sufficiently isolated so that the running noise and the hot exhaust air do not disturb the users or their neighbors.
●Easy access to check and to maintain.
●Ensure the spaces indicated by arrows from the wall,ceiling,fence,or other obstacies.



CAUTION

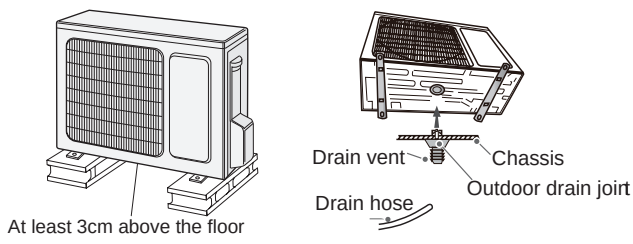
Installation in the following places may cause problems.
If it is unavoidable to use such places,consult with your distributor or dealer.
●A place with machine oil.
●A saline place such as a place very close to a seashore.
●A place with sulphur gas.
●A place where high-frequency waves are generated by radio equipment, welder and medical equipment.

2. Fix the Support of Outdoor Unit(select it according to the actual installation situation)

(1) Select installation location according to the house structure.
(2) Fix the support of outdoor unit on the selected location with expansion screws.

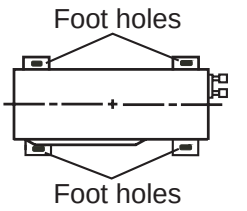
⚠ **Note:**

(1) Take sufficient protective measures when installing the outdoor unit.
(2) Make sure the support can withstand at least four times the unit weight.
(3) The outdoor unit should be installed at least 3cm above the floor in order to install drain joint.
(4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.



2. Install Drain Joint(Only for cooling and heating unit)

(1) Connect the outdoor drain joint into the hole on the chassis. (2) Connect the drain hose into the drain vent.

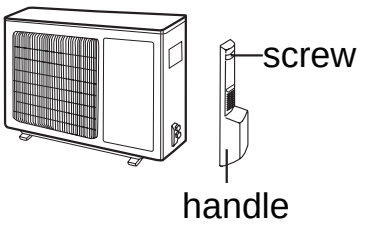


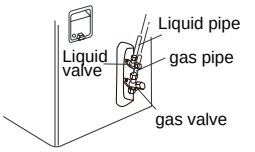
3. Fix Outdoor Unit

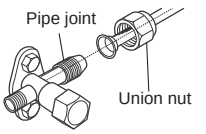
(1) Place the outdoor unit on the support. (2) Fix the foot holes of outdoor unit with bolts.

4. Fix Outdoor Unit

(1) Remove the screw on the right handle of outdoor unit and then remove the handle.
(2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.
(3) Pretightening the union nut with hand.
(4) Tighten the union nut with torque wrench .







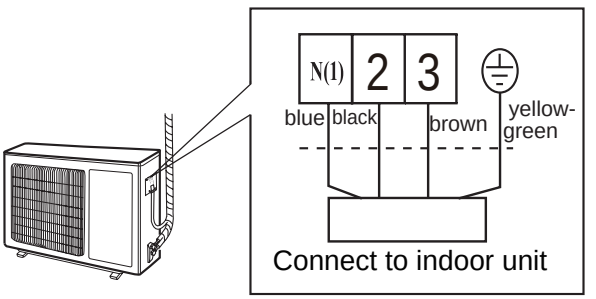
Refer to the following table for wrench moment of force:

Hex nut diameter(mm)	Tightening torque(N·m)
Φ6	15~20
Φ9.52	30~40
Φ12	45~55
Φ16	60~65
Φ19	70~75

5. Connect Outdoor Electric Wire

(1) Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; fix them with screws.

(2) Fix the power connection wire with wire clip.

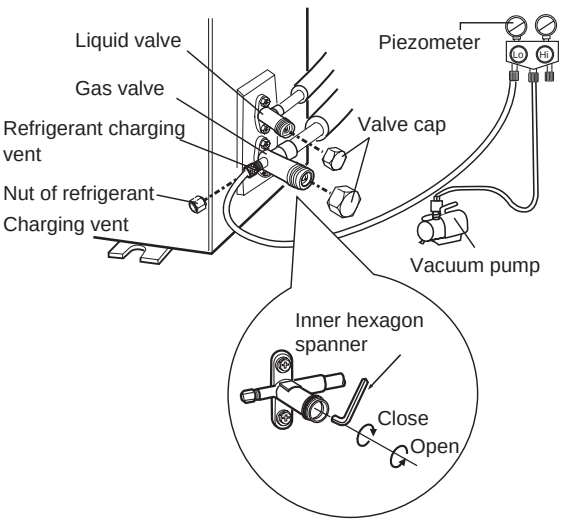


⚠ **Note:**
(1) After tightening the screw, pull the power cord slightly to check if it is firm.
(2) Never cut the power connection wire to prolong or shorten the distance.

8.6 Vacuum Pumping and Leak Detection

1. Use Vacuum Pump

(1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
(2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
(3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
(4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
(5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
(6) Tighten the screw caps of valves and refrigerant charging vent.



2. Leakage Detection

(1) With leakage detector:

Check if there is leakage with leakage detector.

(2) With soap water:

If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leakage.

8.7 Check after Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

NO.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating).
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.

2. Test Operation

(1) Preparation of test operation

- The client approves the air conditioner installation.
- Specify the important notes for air conditioner to the client.

(2) Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16℃ , the air conditioner can’t start cooling.

9. Maintenance

9.1 Error Code List

Malfunction and mode display sheet					
Malfunction name	Malfunction type	Double 8	Display of indicator		
			Operation indicator	Cooling indicator	Heating indicator
Zero-cross detection circuit malfunction	Hardware malfunction	U8	blinks 17 times		
Malfunction protection of jumper cap	Hardware malfunction	C5	blinks 15 times		
No feedback of indoor motor	Hardware malfunction	H6	blinks 11 times		
Indoor ambient temperature sensor is open/short- circuited	Hardware malfunction	F1		blinks 1 times	
Indoor evaporator temperature sensor is open/short-circuited	Hardware malfunction	F2		blinks 2 times	
Liquid valve temperature sensor is open/short-circuited	Hardware malfunction	b5		blinks 19 times	
Gas valve temperature sensor is open/short-circuited	Hardware malfunction	b7		blinks 22 times	
Module temperature sensor is open/short-circuited	Hardware malfunction	P7			blinks 18 times
Outdoor ambient temperature sensor is open/short- circuited	Hardware malfunction	F3		blinks 3 times	
Outdoor condenser inlet pipe temperature sensor is open/short- circuited	Hardware malfunction	A5			
Outdoor condenser middle pipe temperature sensor is open/short- circuited	Hardware malfunction	F4		blinks 4 times	
Outdoor condenser outlet pipe temperature sensor is open/short- circuited	Hardware malfunction	A7	/	/	/
Outdoor discharge temperature sensor is open/short- circuited	Hardware malfunction	F5		blinks 5 times	
Communication malfunction of indoor unit and outdoor unit	Hardware malfunction	E6	blinks 6 times		
Compressor phase current circuit detection malfunction	Hardware malfunction	U1			blinks 12 times
Compressor demagnetization protection	Hardware malfunction	HE			blinks 14 times
DC busbar voltage drop malfunction	Hardware malfunction	U3			blinks 20 times
Module temperature protection	Hardware malfunction	P8			blinks 19 times
shortage of freon or blockage protection for the system	Hardware malfunction	F0		blinks 10 times	
Capacitor charging malfunction	Hardware malfunction	PU			blinks 17 times
High voltage protection for the system	Hardware malfunction	E1	blinks 1 times		
Low voltage protection for the system	Hardware malfunction	E3	blinks 3 times		
Compressor blockage	Hardware malfunction	LE	/	/	/
Drive module reset	Hardware malfunction	P0	/	/	/
Overspeed	Hardware malfunction	LF	/	/	/
Drive board ambient temperature sensor malfunction	Hardware malfunction	PF	/	/	/
AC contactor protection	Hardware malfunction	P9	/	/	/

Temperature drift protection	Hardware malfunction	PE	/	/	/
Sensor connection protection	Hardware malfunction	Pd	/	/	/
Drive board communication malfunction	Hardware malfunction	P6	blinks 16 times		
Compressor heat overload protection	Hardware malfunction	H3			blinks 3 times
Indoor unit and outdoor unit do not match	Hardware malfunction	LP	blinks 19 times		
Memory chip malfunction	Hardware malfunction	EE			blinks 15 times
Wrong connection of communication cable or expansion valve malfunction	Hardware malfunction	dn	/	/	/
Complete unit current detection malfunction	Hardware malfunction	U5		blinks 13 times	
Wrong connection of communication cable or expansion valve malfunction detection mode	Running mode	dd	/	/	/
Mode conflict	Running mode	E7	blinks 7 times		
Refrigerant recovery mode	Running mode	Fo	blinks 1 times	blinks 1 times	
Defrosting or oil return in heating mode	Running mode	H1			blinks 1 times
Rating cooling or heating	Running mode	P1	/	/	/
Max cooling or heating	Running mode	P2	/	/	/
Middle cooling or heating	Running mode	P3	/	/	/
Min cooling or heating	Running mode	P0	/	/	/
Compressor losing of synchronism	Displayed on the remote controller in 200s; display on the nixie tube after 200s	H7			blinks 7 times
Compressor start failure		Lc			blinks 11 times
High discharge temperature protection of compressor		E4	blinks 4 times		
Overload protection		E8	blinks 8 times		
Complete unit overcurrent protection		E5	blinks 5 times		
Phase current overcurrent protection		P5			blinks 15 times
Module current protection		H5			blinks 5 times
4-way valve commutation malfunction		U7		blinks 20 times	
Complete unit current protection with limiting frequency or lowing down frequency	Displayed on the remote controller	F8		blinks 8 times	
Module current protection with limiting frequency or lowing down frequency	Displayed on the remote controller	En	/	/	/
Overhigh discharge with limiting frequency or lowing down frequency	Displayed on the remote controller	F9		blinks 9 times	
Freeze protection with limiting frequency or lowing down frequency	Displayed on the remote controller	FH		blinks 2 times	blinks 2 times
Overload with limiting frequency or lowing down frequency	Displayed on the remote controller	F6		blinks 6 times	
Module temperature protection with limiting frequency or lowing down frequency	Displayed on the remote controller	EU		blinks 6 times	blinks 6 times
Oil return in cooling mode	Displayed on the remote controller	F7		blinks 7 times	
Cold blow protection	Displayed on the remote controller	E9	blinks 9 times		
Freeze protection	Displayed on the remote controller	E2	blinks 2 times		
外风机故障保护（外风机堵转或未接——当有双外风机时 L3 表示风机 1 而 LA 表示风机 2）	Hardware malfunction	LA	blinks 24 times		
直流风机故障 / 外风机故障保护（外风机堵转或未接——当有双外风机时 L3 表示风机 1 而 LA 表示风机 2）	Hardware malfunction	L3	blinks 23 times		

9.2 Troubleshooting for Main Malfunction

(1) Troubleshooting for malfunction of temperature sensor

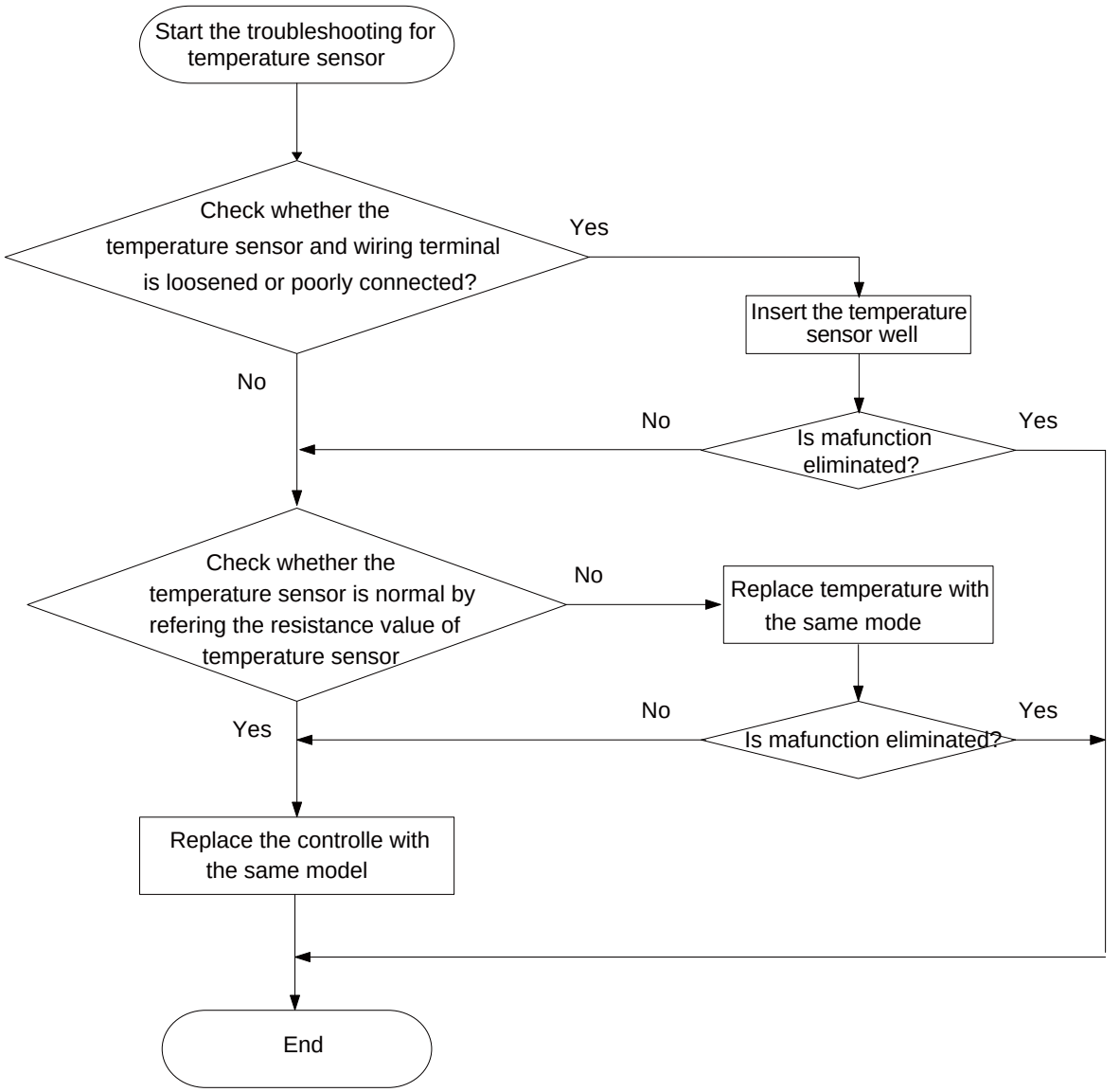
main check point:

●Whether the temperature sensor is broken or damaged;

●Whether the temperature sensor terminal is loosened or not connected;

●Whether the mainboard is damged;

Check flow chart:



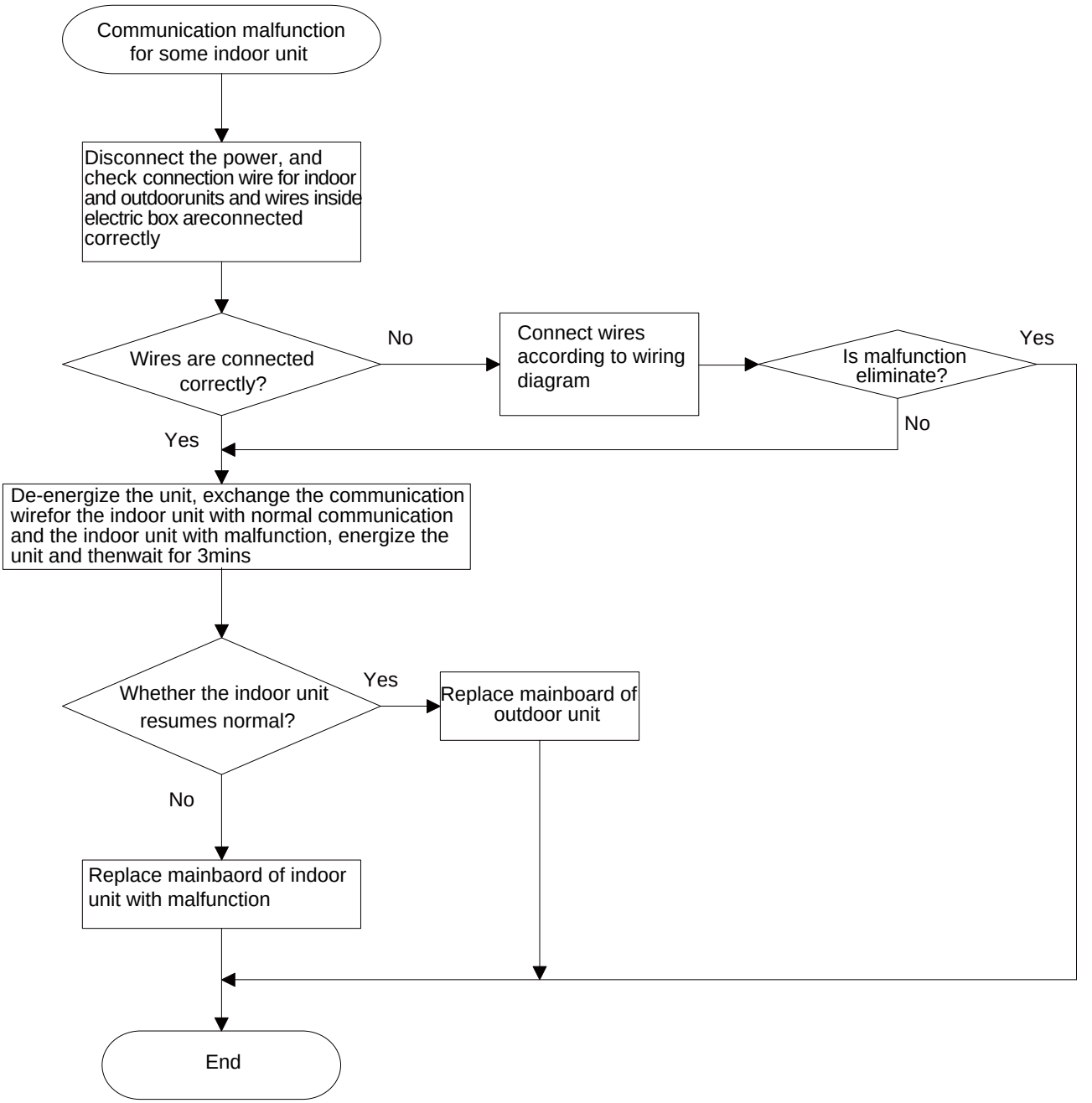
(2) Troubleshooting for communiction malfunction

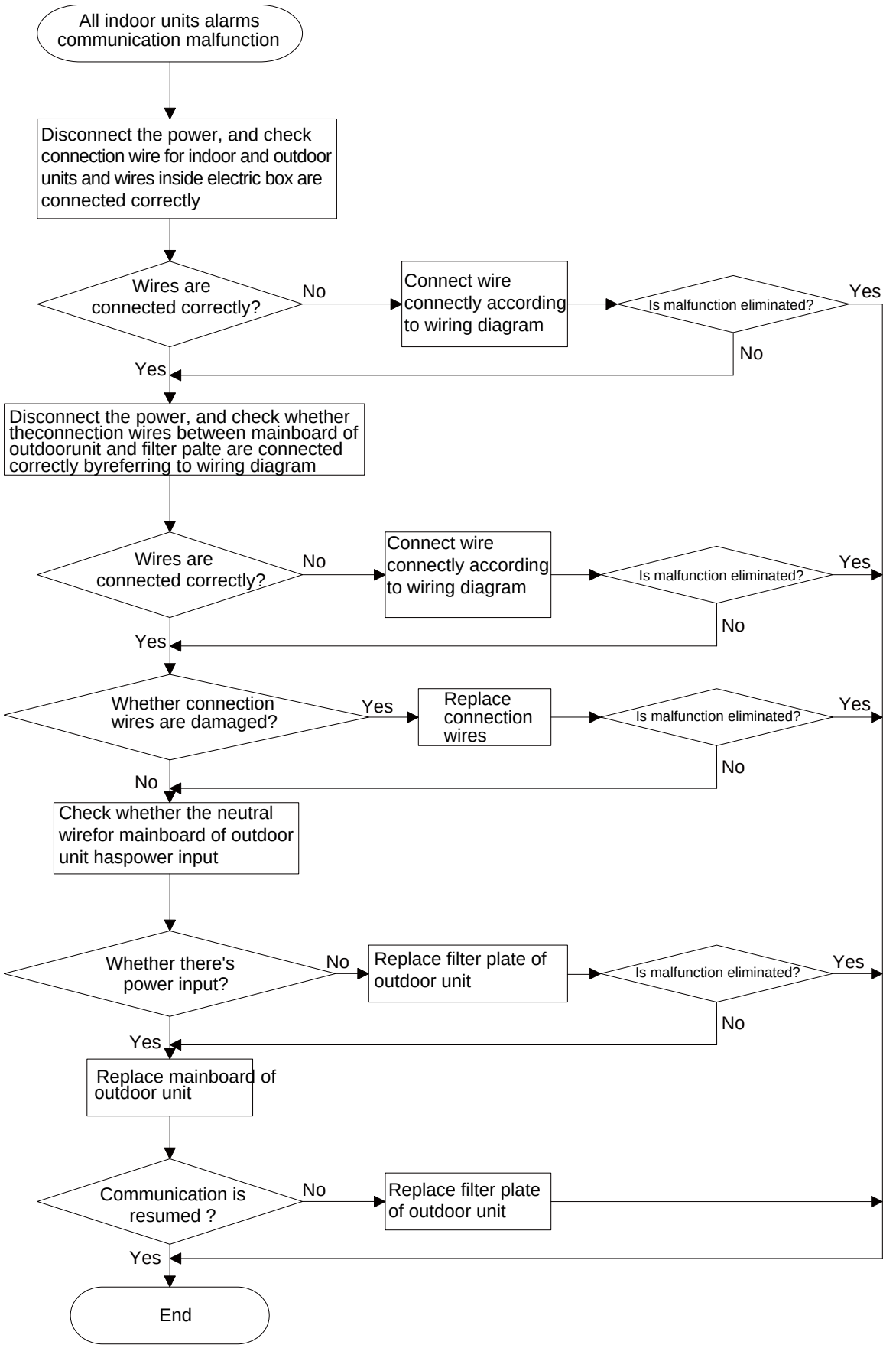
Main check point:

●Check whether the connection wire for indoor and outdoor units and the wires inside the indoor unit is connected well;

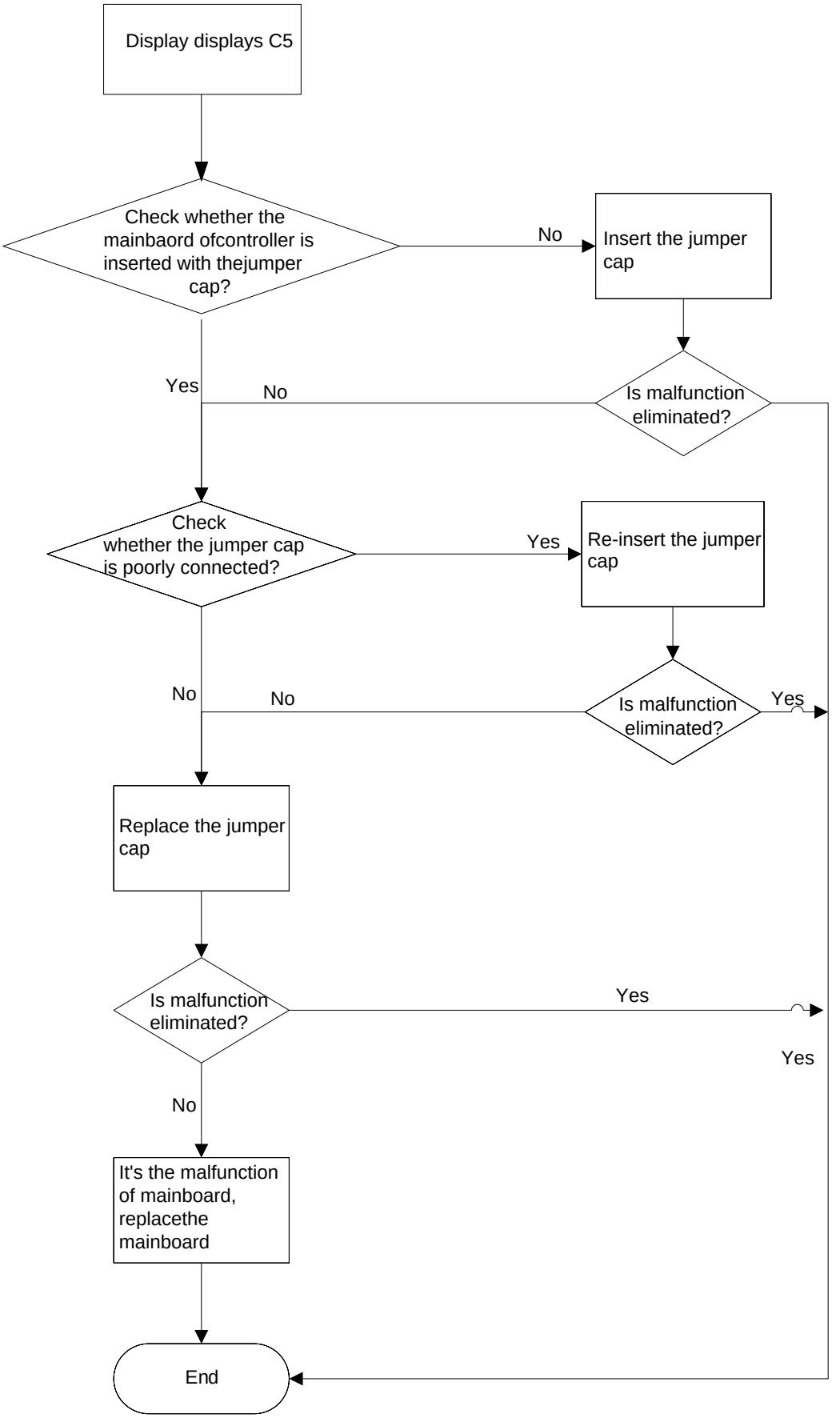
●Check whether the mainboards of indoor unit or outdoor unit are damaged;

Check flow chart:

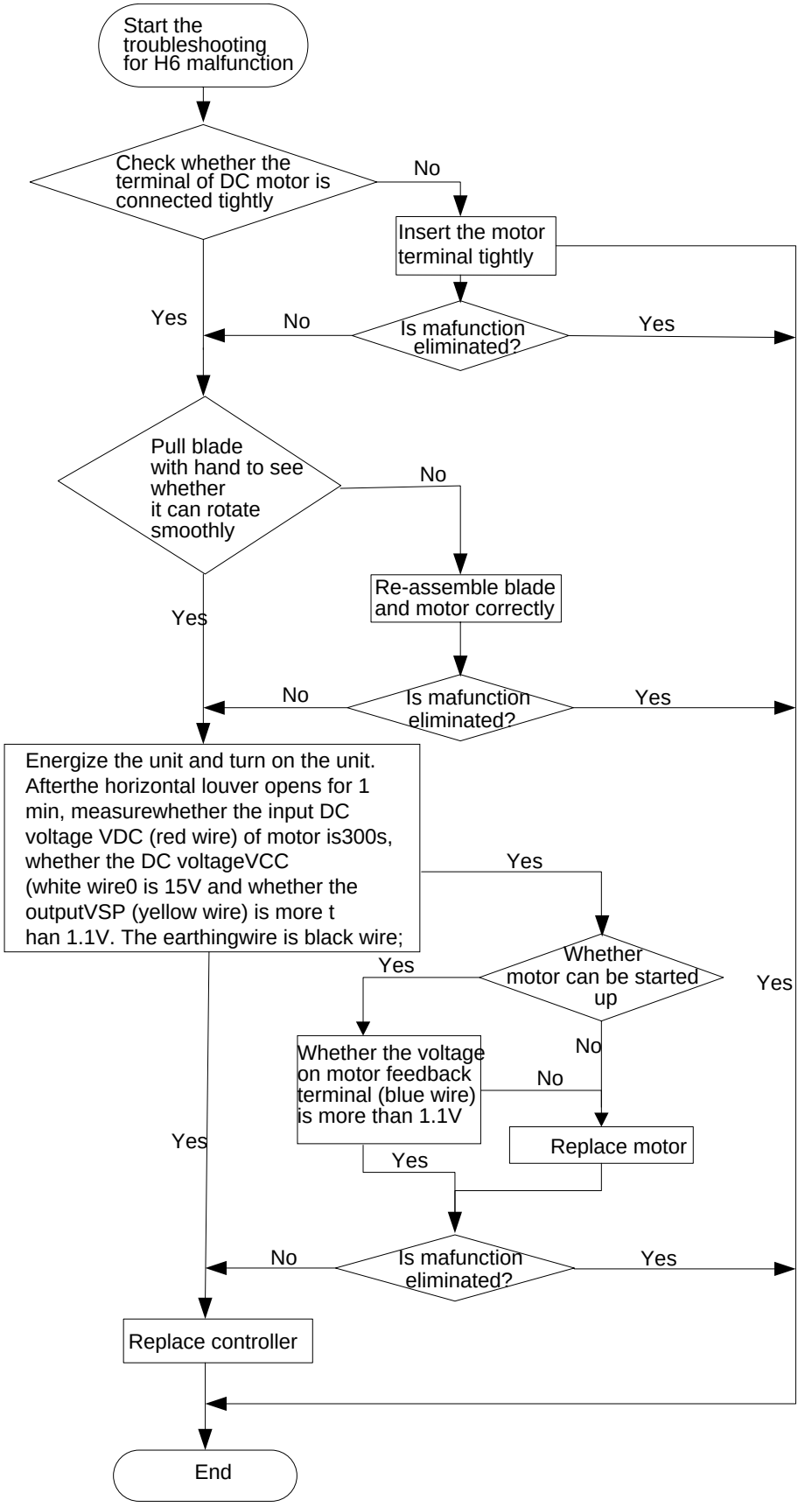



All indoor units alarms communication malfunction
Disconnect the power, and check connection wire for indoor and outdoor units and wires inside electric box are connected correctly
Wires are connected correctly?
No
Connect wire connectly according to wiring diagram
Is malfunction eliminated?
Yes
No
Yes
Disconnect the power, and check whether theconnection wires between mainboard of outdoorunit and filter palte are connected correctly byreferring to wiring diagram
Wires are connected correctly?
No
Connect wire connectly according to wiring diagram
Is malfunction eliminated?
Yes
No
Yes
Whether connection wires are damaged?
Yes
Replace connection wires
Is malfunction eliminated?
Yes
No
No
Check whether the neutral wirefor mainboard of outdoor unit haspower input
Whether there's power input?
No
Replace filter plate of outdoor unit
Is malfunction eliminated?
Yes
No
Yes
Replace mainboard of outdoor unit
Communication is resumed ?
No
Replace filter plate of outdoor unit
Yes
End

(3) Troubleshooting for C5 malfunction



(4) Troubleshooting for H6 malfunction



9.3 Maintenance Method for Normal Malfunction

1. Air Conditioner Can't be Started Up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	Under normal power supply circumstances, operation indicator isn't bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord.
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action.	Replace batteries for remote controller Repair or replace remote controller

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see it's blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit't pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver Can't Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. ODU Fan Motor Can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of the ODU fan motor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the capacity of fan
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor Can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air Conditioner is Leaking

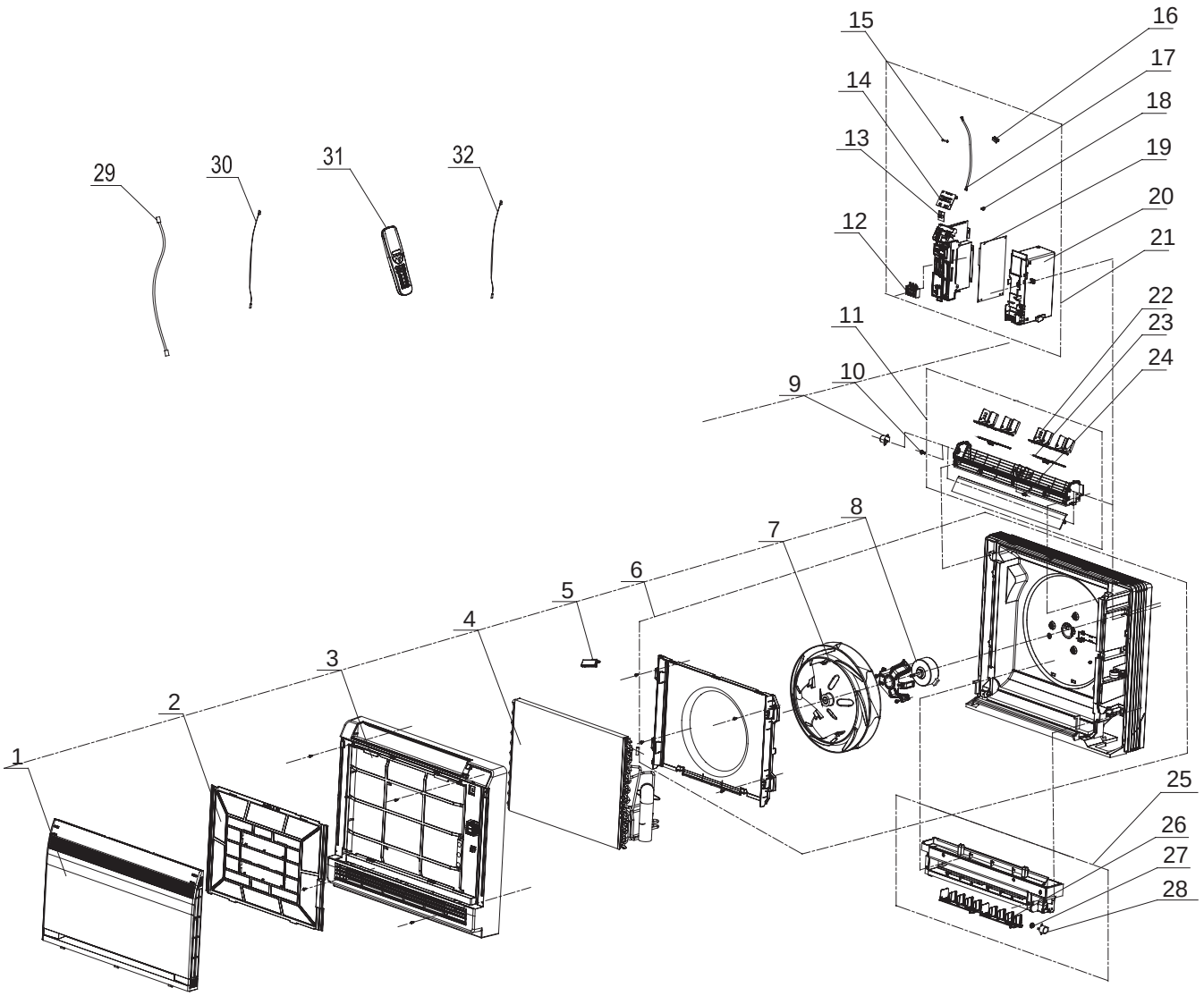
Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe connection place of indoor unit	Wrap it again and bundle it tightly

7. Abnormal Sound and Vibration

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound	There's the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, there's abnormal sound due to flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or there're parts touching together inside the indoor unit	There's abnormal sound fro indoor unit	Remove foreign objects. Adjust all parts' position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or there're parts touching together inside the outdoor unit	There's abnormal sound fro outdoor unit	Remove foreign objects. Adjust all parts' position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	During heating, the way valve has abnormal electromagnetic sound	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

10. Exploded View and Parts List

10.1 Indoor Unit



NO.	Description	Part Code			Qty
		CH-S09FVX	CH-S12FVX	CH-S18FVX	
	Product Code	CV010N02000	CV010N01900	CV010N01800	
1	Front Panel Assy	20012756	20012756	20012756	1
2	Filter Sub-Assy	11122139	11122139	11122139	1
3	Front Case Assy	20012601	20012601	20012601	1
4	Evaporator Assy	01100100161	01100100160	01100100164	1
5	Cold Plasma Generator	1114001604	1114001604	1114001604	1
6	Rear Case Assy	22202462	22202462	22202462	1
7	Centrifugal Fan	10312005	10312005	10312005	1
8	Fan Motor	15012123	15012123	15012123	1
9	SteppingMotor	1521210101	1521210101	1521210101	1
10	Crank	73012005	73012005	73012005	1
11	Swing Assy	10102042	10102042	10102042	1
12	Terminal Board	42011233	42011233	42011233	1
13	Switch Board	30112007	30112007	30112007	1
14	Display Board	30568131	30568131	30568131	1
15	Fuse	46010055	46010055	46010055	1
16	Radiator	49010252	49010252	49010252	1
17	Signal Wire	4003004202	4003004202	4003004202	1
18	Jumper	4202300101	4202300102	4202300102	1
19	Main Board	30138000047	30138000047	30138000047	1
20	Electric Box	20112116	20112116	20112116	1
21	Electric Box Assy	20402618	20402617	20402617	1
22	Air Louver (upper)	10512143	10512143	10512143	2
23	Swing Lever	10582096	10582096	10582096	1
24	Shaft of Guide Louver	10542020	10542020	10542020	1
25	Water Tray Assy	20182141	20182141	20182141	1
26	Air Louver (lower)	10512144	10512144	10512144	1
27	Axis (lower step motor)	10542034	10542034	10542034	1
28	SteppingMotor	1521210805	1521210805	1521210805	1
29	Connecting Cable	400205235	400205235	40020538	0
30	Temperature Sensor	390000451	390000451	390000451	1
31	Remote Controller	30510134	30510134	30510134	1
32	Temperature Sensor	390000591	390000591	390000591	1

Above data is subject to change without notice.

10.2 Outdoor Unit

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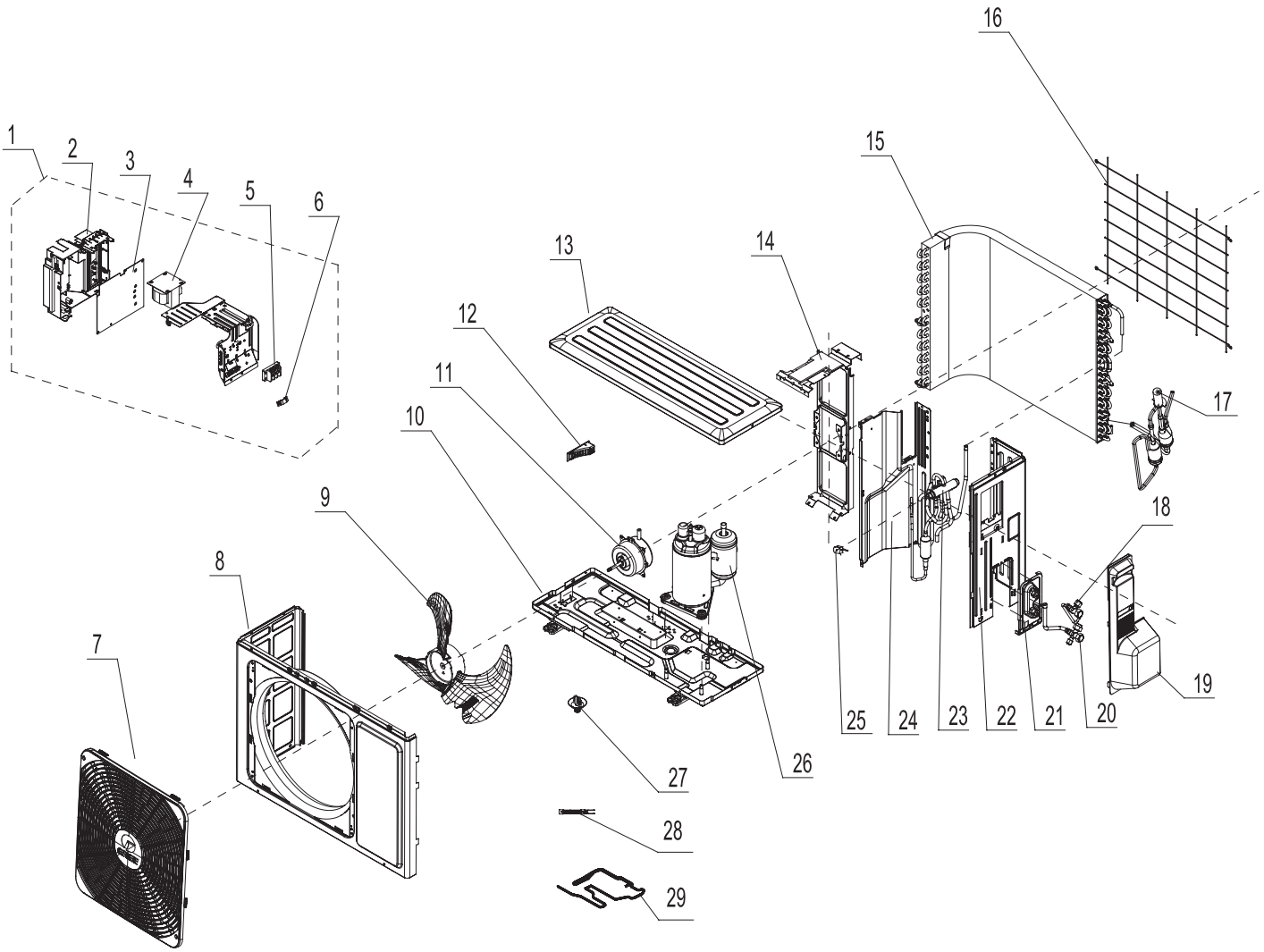

NO.	Description	Part Code	Qty
		CH-S09FVX	
	Product Code	CV010W02000	
1	Electric Box Assy	10000100274	1
2	Electric Box Sub-Assy	10000500127	1
3	Main Board	30138000676	1
4	Reactor	43130184	1
5	Terminal Board	42011113	1
6	Wire Clamp	71010003	1
7	Front Grill	22413027	1
8	Front Panel	0153304802	1
9	Axial Flow Fan	10333004	1
10	Chassis Sub-assy	01700000081P	1
11	Fan Motor	1501308506	1
12	Small Handle	26233100	1
13	Top Cover Sub-Assy	0125307002	1
14	Motor Support	0170310401	1
15	Condenser Assy	01100200333	1
16	Rear Grill	01473009	1
17	Electronic Expansion Valve	07135228	1
18	Cut off Valve	071302391	1
19	Big Handle	262334332	1
20	Valve	05103973	1
21	Valve Support	0171314201P	1
22	Right Side Plate Sub-Assy	0130317801	1
23	4-Way Valve Assy	03073240	1
24	Clapboard Sub-Assy	0123338502	1
25	Magnet Coil	4300040050	1
26	Compressor and Fittings	00103892	1
27	Drainage Connecter	06123401	1
28	Electrical Heater(Compressor)	7651300403	1
29	Electrical Heater(Chassis)	7651000414	1

Above data is subject to change without notice.

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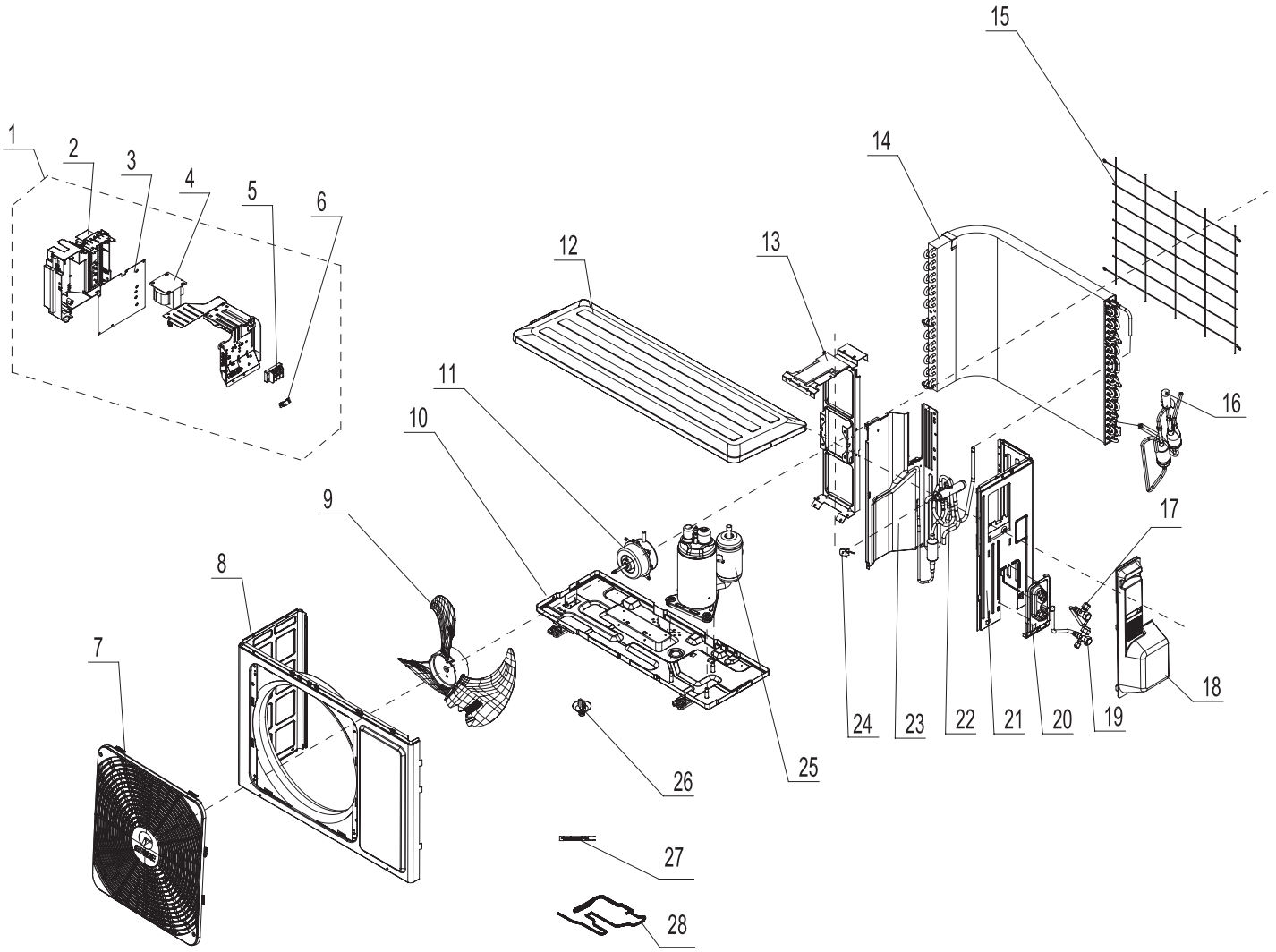

NO.	Description	Part Code	Qty
		CH-S12FVX	
	Product Code	CV010W01900	
1	Electric Box Assy	10000100271	1
2	Electric Box Sub-Assy	20113032	1
3	Main Board	30138000675	1
4	Reactor	43130184	1
5	Terminal Board	420111041	1
6	Wire Clamp	71010003	1
7	Front Grill	22413027	1
8	Front Panel	0153304701	1
9	Axial Flow Fan	10333004	1
10	Chassis Sub-assy	01700000078P	1
11	Fan Motor	1501308507	1
12	Top Cover Plate	01253443	1
13	Motor Support	0170310201	1
14	Condenser Assy	01100200325	1
15	Rear Grill	01473057	1
16	Electronic Expansion Valve	07135228	1
17	Cut off Valve	071302391	1
18	Big Handle	262334332	1
19	Valve	07100003	1
20	Valve Support	07133805	1
21	Right Side Plate Sub-Assy	0130317801	1
22	4-Way Valve Assy	03015200099	1
23	Clapboard Sub-Assy	0123314201	1
24	Magnet Coil	4300040050	1
25	Compressor and Fittings	00103892	1
26	Drainage Connecter	06123401	1
27	Electrical Heater(Compressor)	7651300403	1
28	Electrical Heater(Chassis)	7651000414	1

Above data is subject to change without notice.

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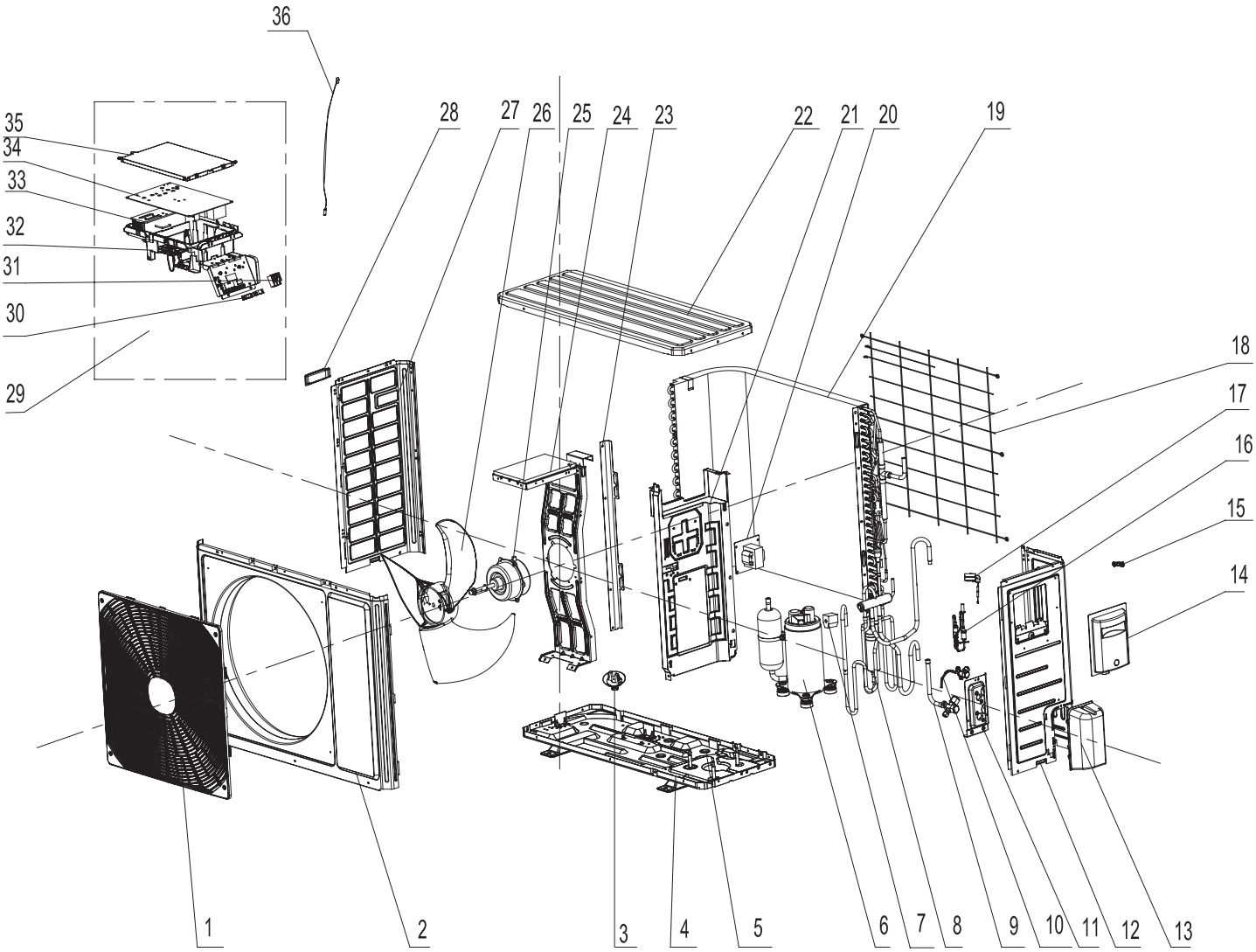
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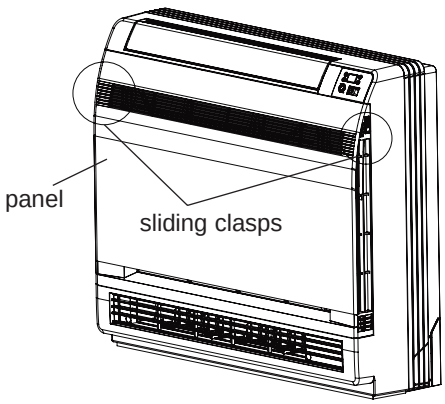
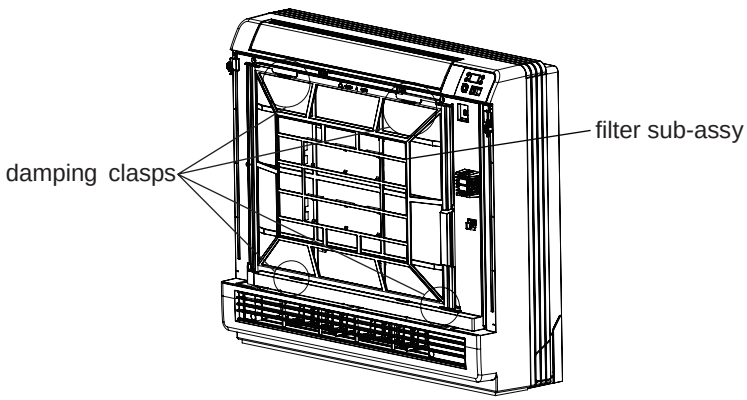
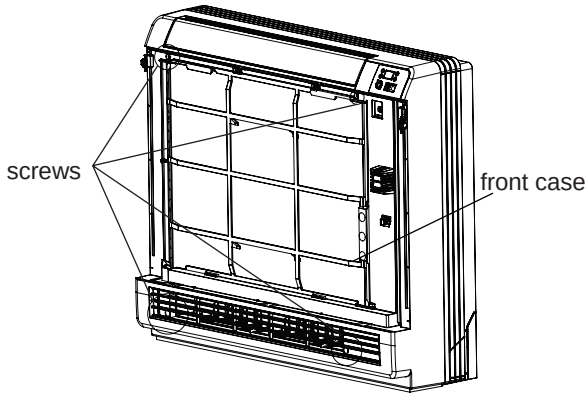
NO.	Description	Part Code	Qty
		CH-S18FVX	
	Product Code	CV010W01800	
1	Front Grill	22413025	1
2	Front Panel	01535013P	1
3	Drainage Connecter	06123401	1
4	Chassis Sub-assy	02803270P	1
5	Drainage hole Cap	06813401	1
6	Compressor and fittings	00105246G	1
7	Magnet Coil	4300040045	1
8	4-Way Valve Assy	03015200069	1
9	Cut off Valve Assy 1/2	07133774	1
10	Cut off Valve Sub-Assy	07133058	1
11	Valve support assy	01715010P	1
12	Right Side Plate	0130509402P	1
13	Valve cover	22245002	1
14	Handle	26233053	1
15	Wiring Clamp	26115004	1
16	Electronic Expansion Valve assy	03017400018	1
17	Electric Expand Valve Fitting	4300876704	1
18	Rear Grill	01473043	1
19	Condenser Assy	0116348702	1
20	Reactor	/	1
21	Clapboard Assy	01233153	1
22	Coping	01255005P	1
23	Supporting Board(Condenser)	01795010	1
24	Motor Support Sub-Assy	01705036	1
25	Fan Motor	1501506402	1
26	Axial Flow Fan	10335008	1
27	Left Side Plate	01305093P	1
28	left handle	26235254	1
29	Electric Box Assy	10000100266	1
30	Wire Clamp	71010003	1
31	Terminal Board	420111041	1
32	Electric Box	20113027	1
33	Radiator	49013060	1
34	Main Board	30138000672	1
35	Insulated Board (Cover of Electric Box)	20113003	1
36	Temperature Sensor	39000072	1

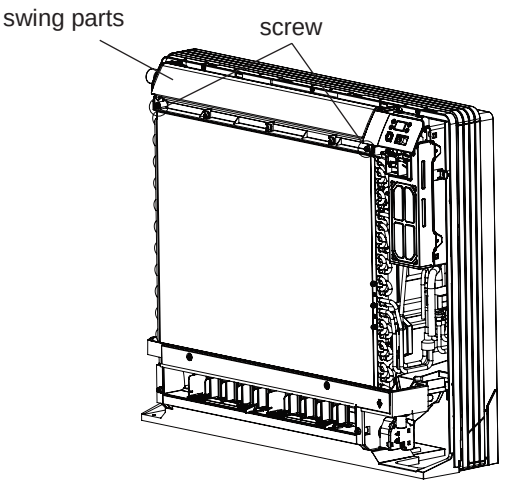
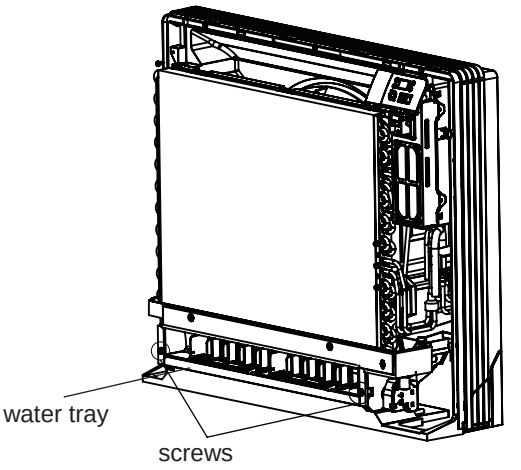
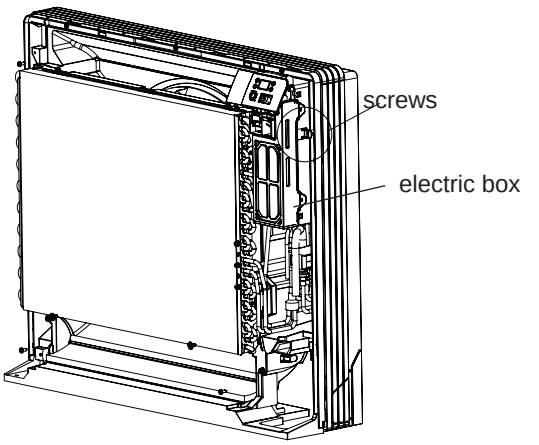
Above data is subject to change without notice.

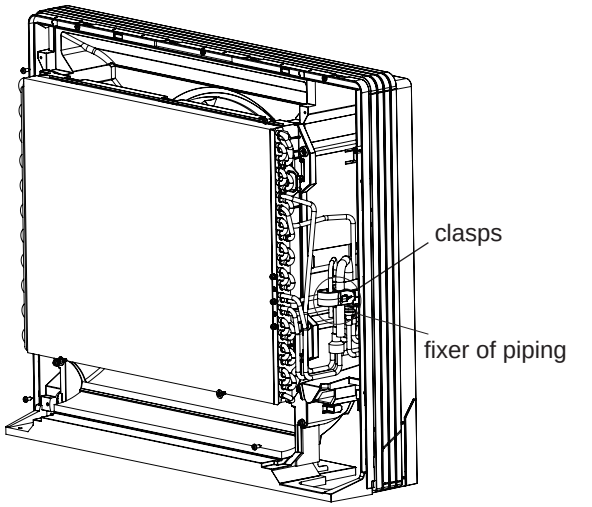
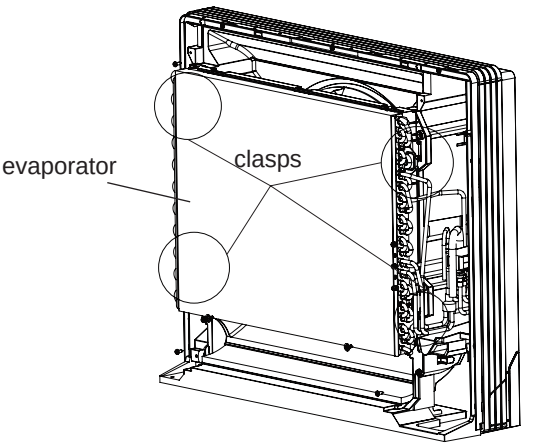
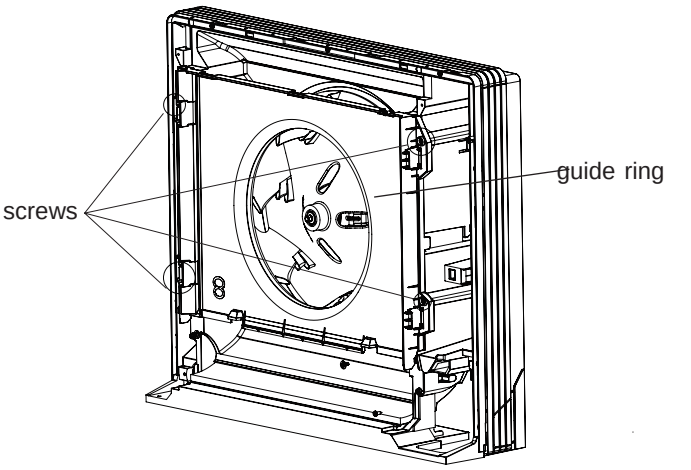
11. Removal Procedure

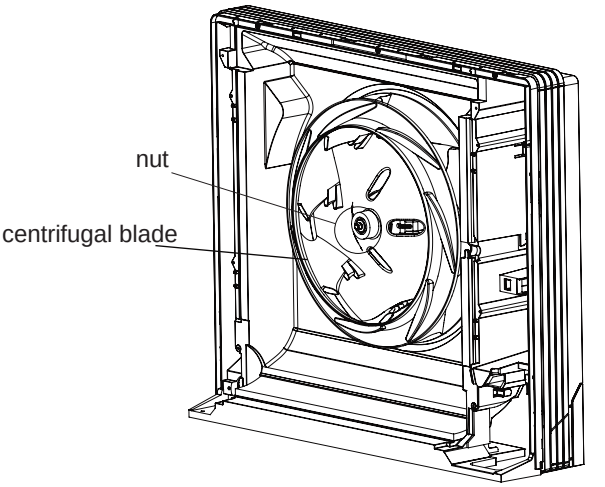
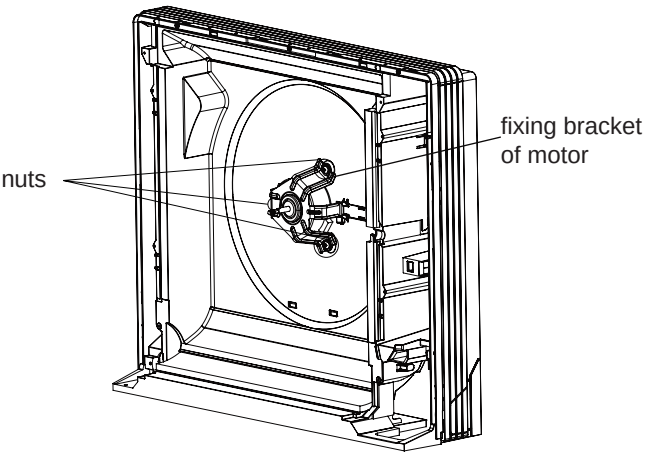
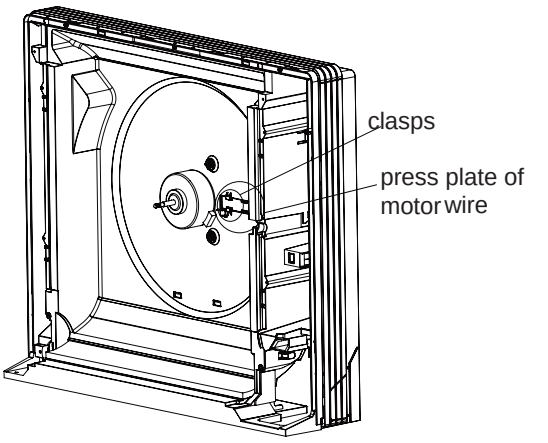
⚠ **Warning: Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.**

11.1 Removal Procedure of Indoor Unit

Steps	Procedure	
1. Remove panel		
	Pull sliding clasps at both sides of panel, pull out the panel outwards and then move the panel upwards to remove it.	
2. Remove filter sub-assy		
	Pull the damping clasps at upper/lower side of filter sub-assy, and then move the filter sub-assy outwards to remove it.	
3. Remove front case		
	Remove 4 screws fixing the front case, and then pull the front case outwards to remove it.	

Steps	Procedure
4. Remove swing parts	
Remove 2 screws fixing the swing parts, and then pull the swing parts outwards to remove it.	
5. Remove water tray	
Remove 2 screws fixing water tray, and then pull the water tray outwards to remove it.	
6. Remove electric box	
Remove one screw fixing the electric box, and then pull the electric box outwards to remove it.	

Steps	Procedure
7. Remove fixer of piping	
Pry out the clasps connecting fixer of piping and bottom case, and then pull the fixer of piping outwards to remove it.	
8. Remove evaporator	
Pry out the clasps connecting evaporator and bottom case, and then pull the evaporator outwards to remove it.	
9. Remove guide ring	
Remove 4 screws fixing guide ring, and then pull the guide ring outwards to remove it.	

Steps	Procedure
10. Remove centrifugal blade	
	Remove one nut fixing the centrifugal blade, and then pull the centrifugal blade outwards to remove it.
	
11. Remove fixing bracket of motor	
	Remove 3 nuts on fixing bracket of motor, and then pull the fixing bracket of motor outwards to remove it.
	
12. Remove press plate of motor wire	
	Loosen clasps between press plate of motor wire and bottom case, and then pull the press plate of motor wire outwards to remove it.
	

11.2 Removal Procedure of Outdoor Unit

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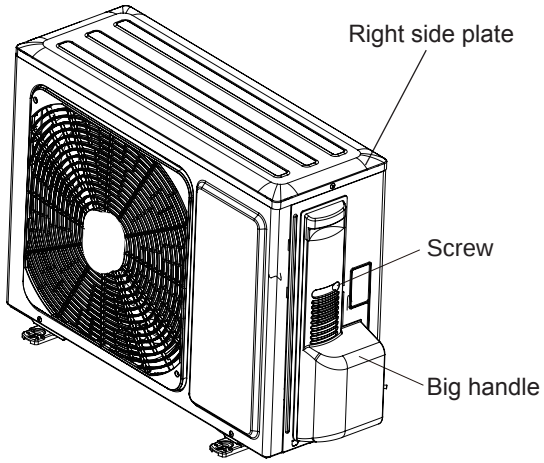
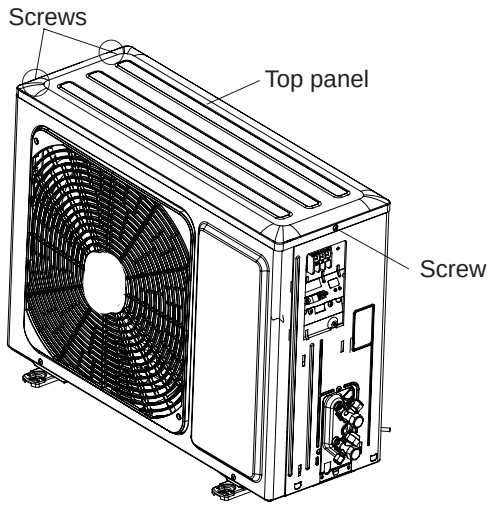
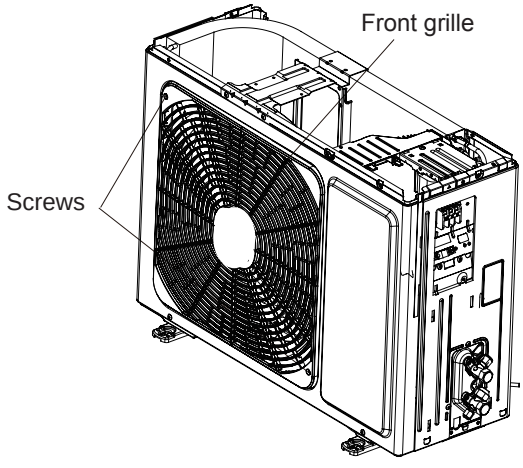
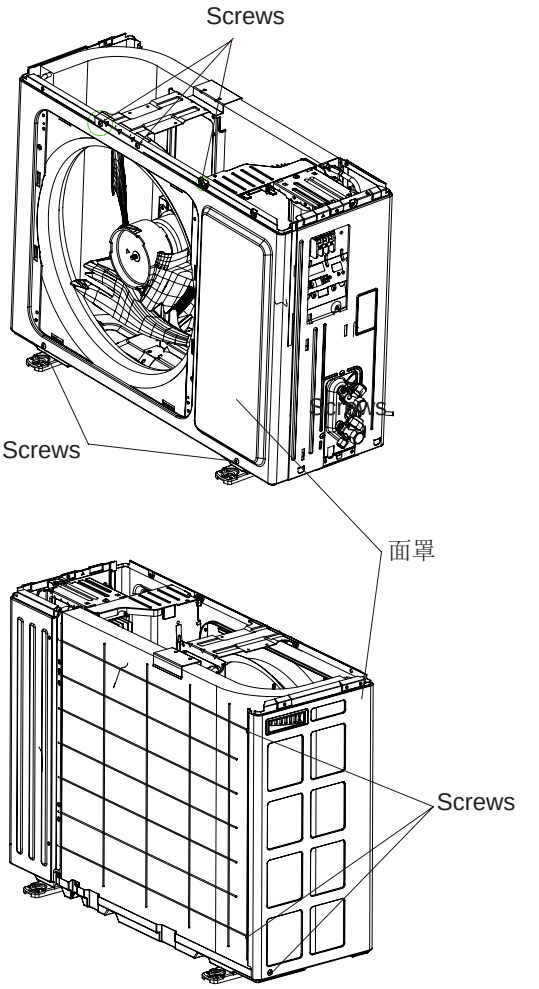
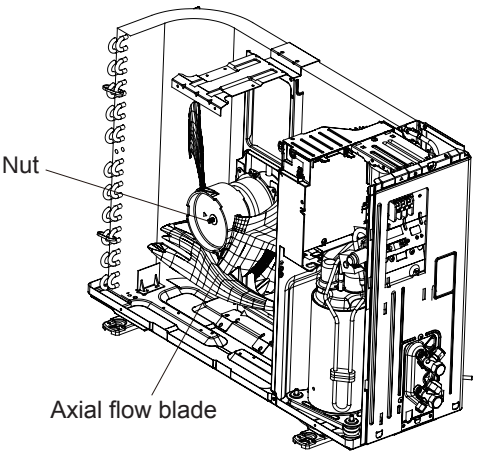
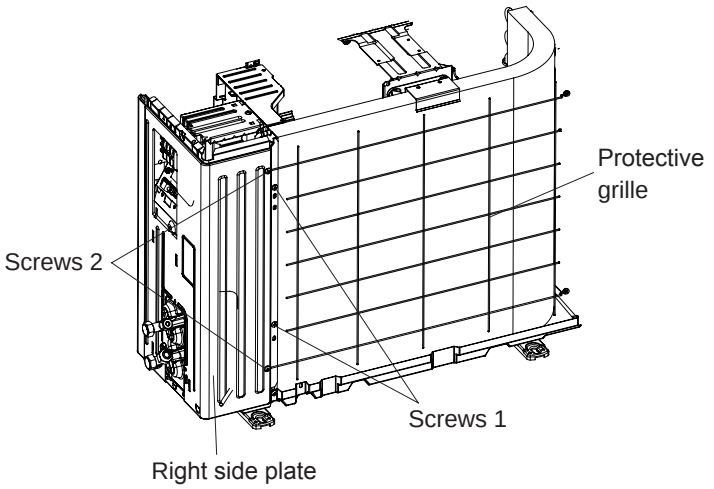
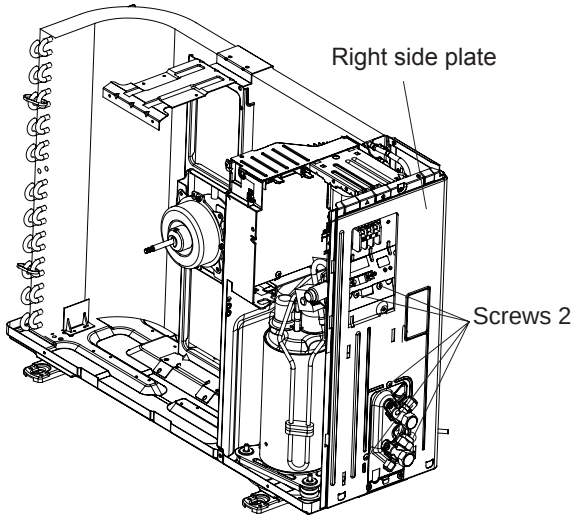
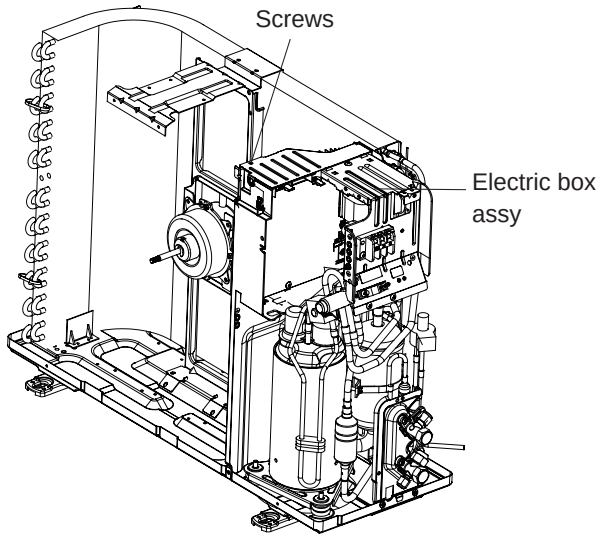
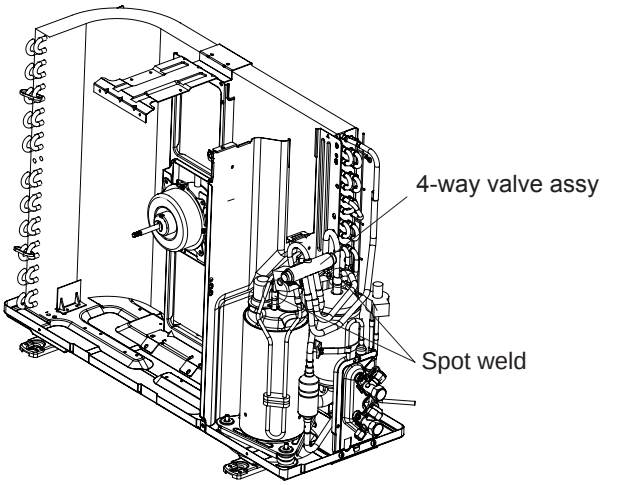
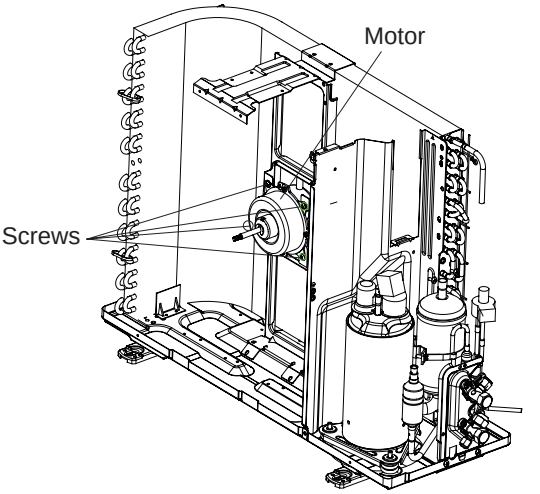
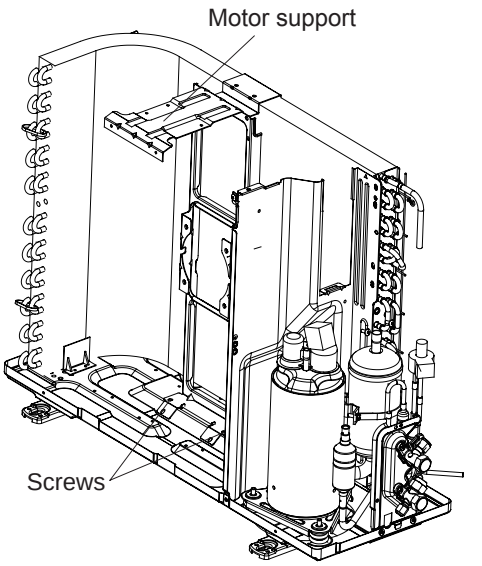
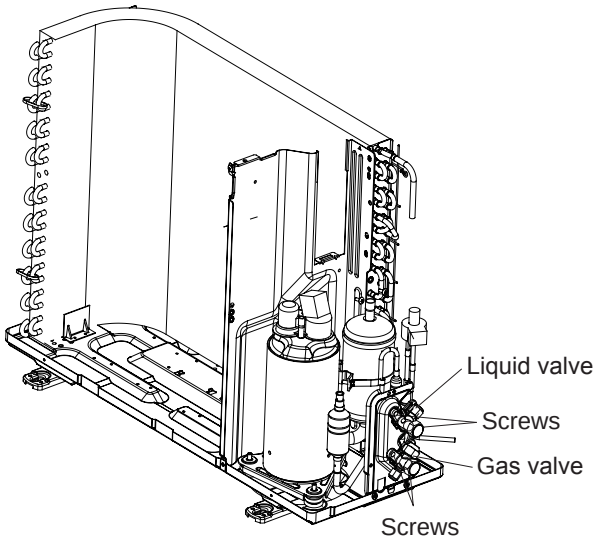
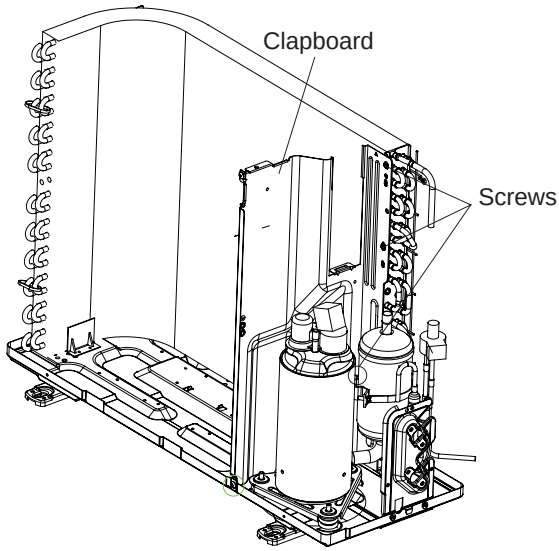
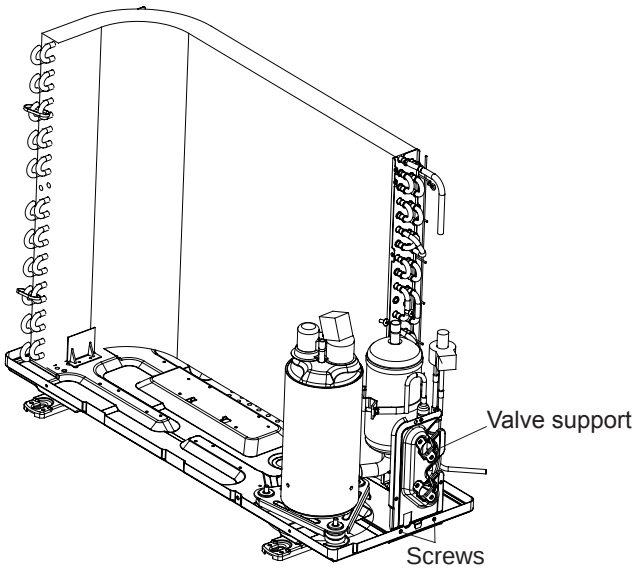
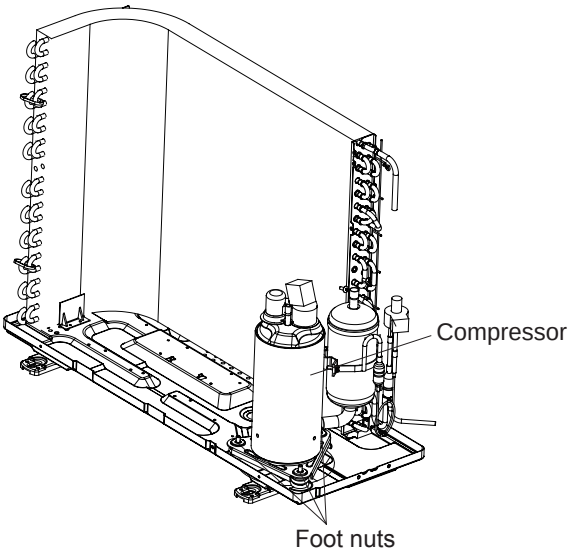
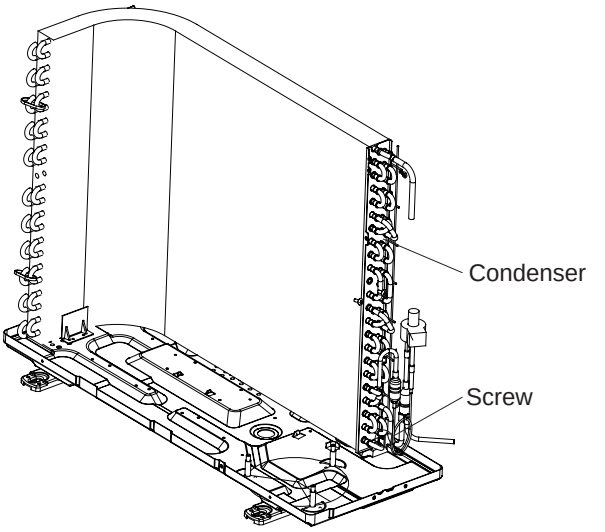
Steps	Procedure
1. Remove big handle Remove the screw fixing big handle; slide out the big handle upwards to make the clasp of big handle separate from the groove of right side plate, and then remove the big handle.	
2. Remove top panel Remove the screws fixing top panel and then remove the top panel.	
3. Remove front grille Remove connection screws between the front grille and the front panel. Then remove the front grille.	

Steps	Procedure
4. 拆面罩 拧下固定面罩的螺钉，拆下面罩。	
5. Remove axial flow blade Remove the nut fixing axial flow blade and then remove the axial flow blade.	

Steps	Procedure
6. Remove protective grille and right side plate	
Remove the screws 1 fixing protective grille and then remove the protective grille.	
Remove the screws 2 fixing right side plate and then remove the right side plate.	
7. Remove electric box assy	
Remove the screws fixing electric box assy ; pull out each wiring terminal; lift the electric box assy upwards to remove it. Note: When pulling out the wiring terminal, pay attention to loose the clasp and don't pull it so hard.	

Steps	Procedure
8. Remove 4-way valve assy	
Unsolder the spot weld of 4-way valve assy, compressor and condenser, and then remove the 4-way valve assy . Note: When unsoldering the spot weld, wrap the 4-way valve with wet cloth completely to avoid damaging the valve due to high temperature.	
9. Remove motor	
Remove the screws fixing motor and then remove the motor.	
10. Remove motor support	
Remove the screws fixing motor support and then remove the motor support.	

Steps	Procedure
11. Remove gas valve and liquid valve	
Remove two screws fixing the gas valve, then remove the gas valve. Remove two screws fixing the liquid valve, then remove the liquid valve.	
12. Remove clapboard	
Remove the screws fixing clapboard and then remove the clapboard.	
13. Remove valve support	
Remove the screws fixing valve support and then remove the valve support.	

Steps	Procedure
14. Remove compressor	
Remove 3 foot nuts on compressor, and then remove the compressor. Note: Protect the ports of discharge pipe and suction pipe to avoid foreign objects to enter it.	
15. Remove condenser	
Remove one screw fixing the condenser, then remove the condenser.	

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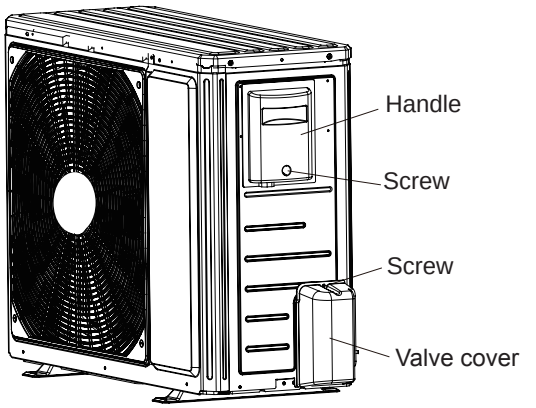
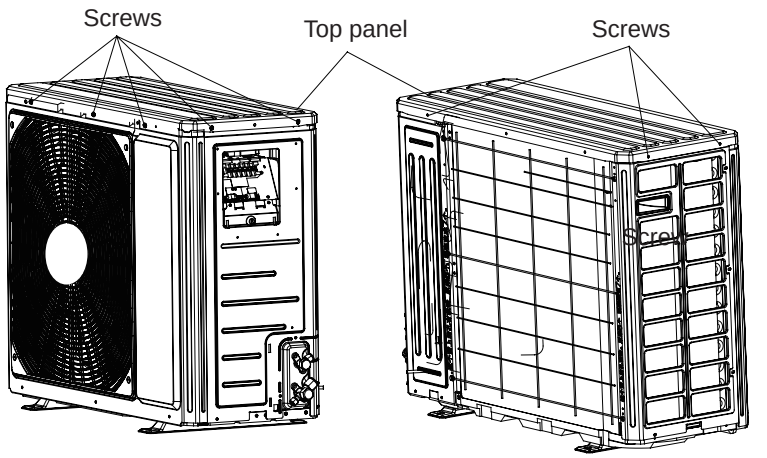
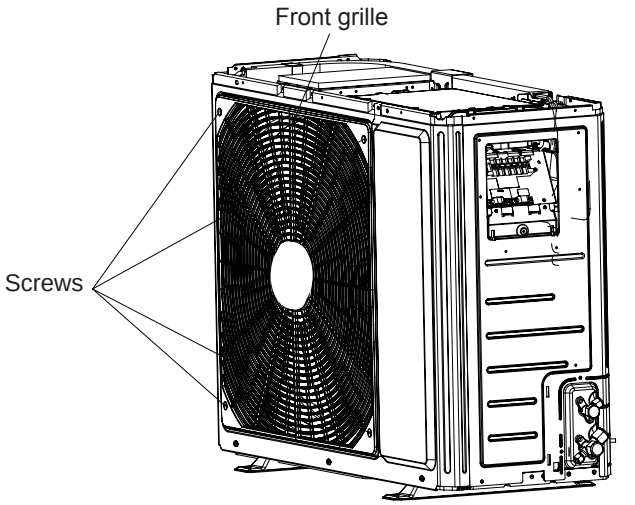
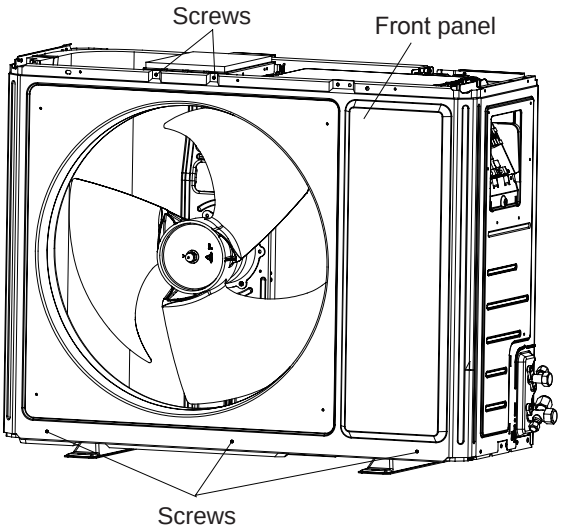
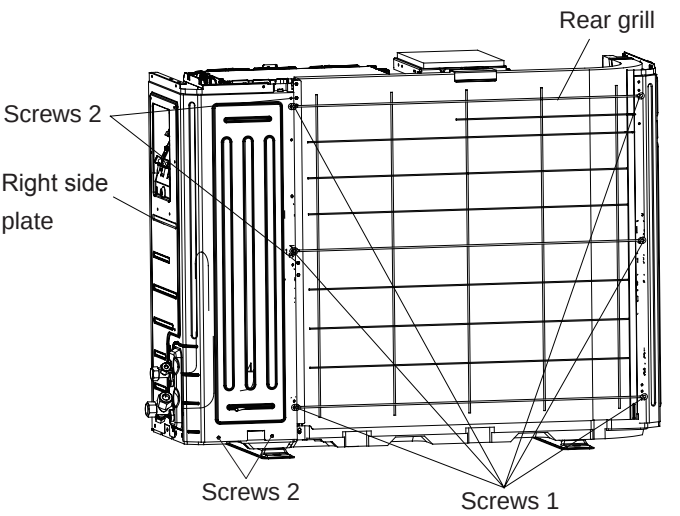
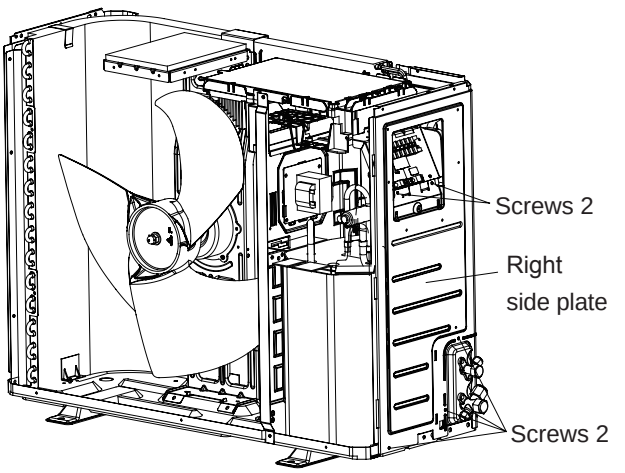
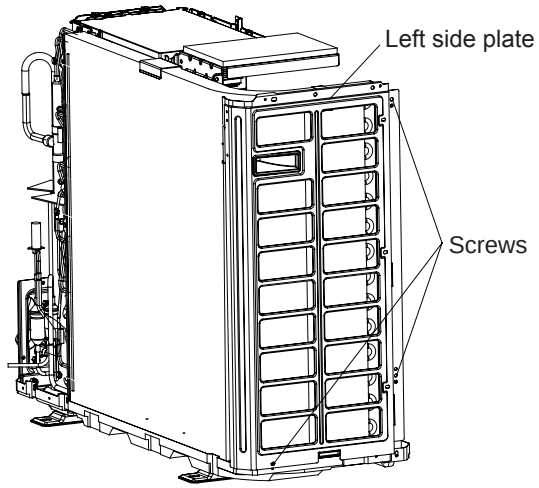
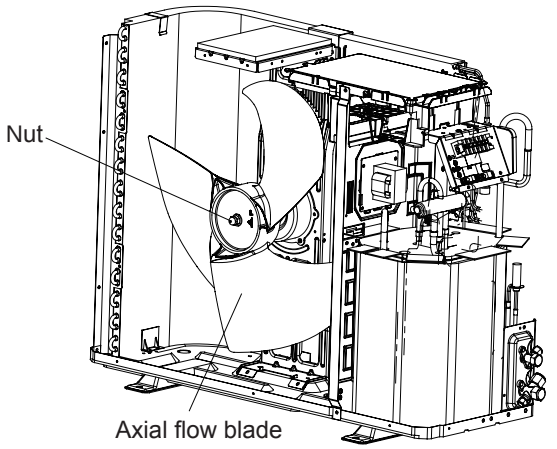
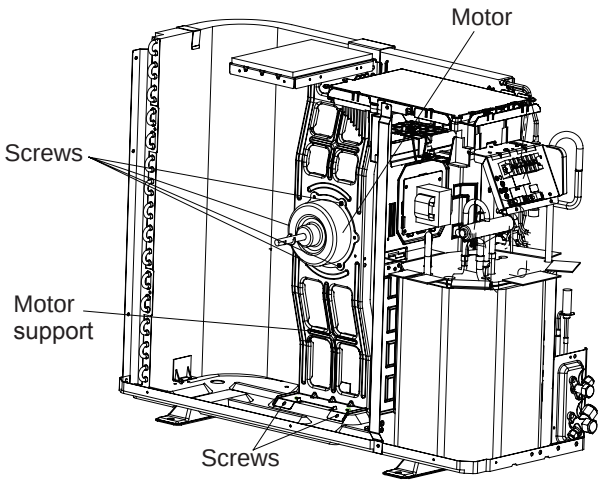
Steps	Procedure
1. Remove handle and valve cover	
Remove the screws used for fixing the handle and valve cover,pull the handle and valve cover up ward to remove them.	
2. Remove top panel	
Remove the screws fixing top panel and then remove the top panel.	
3. Remove front grille	
Remove connection screws between the front grille and the front panel. Then remove the front grille.	

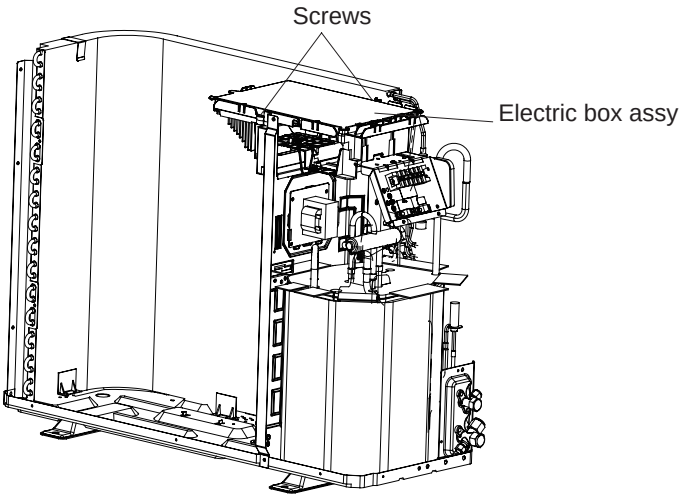
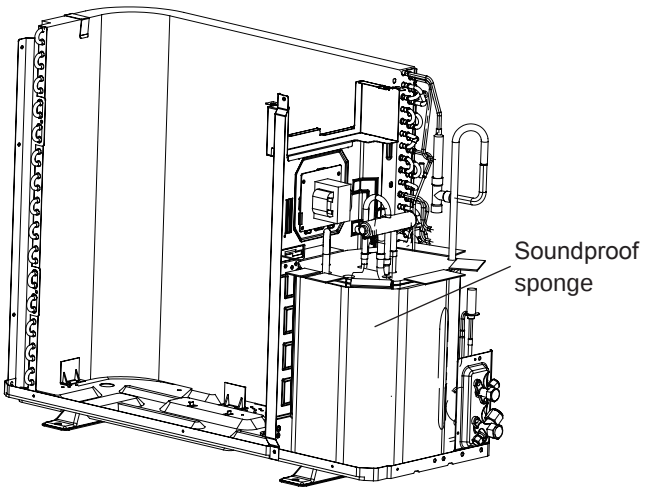
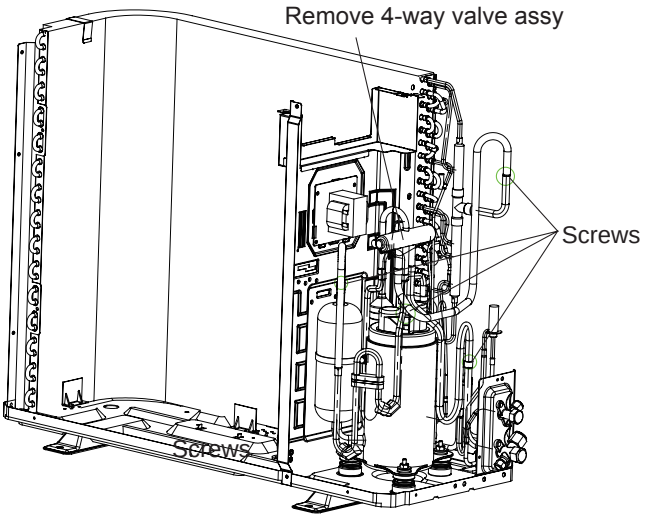
Steps	Procedure
4. Remove front panel	
	Remove the screws connecting the front panel with the chassis and the motor support, and then remove the front panel.
5. Remove rear grill and right side plate	
	Remove the screws 1 connecing the left side plate and right side plate and then remove rear grill.
	Remove the screws 2 connecting the right side plate with the chassis, the valve support and the electric box, and then remove the right side plate .

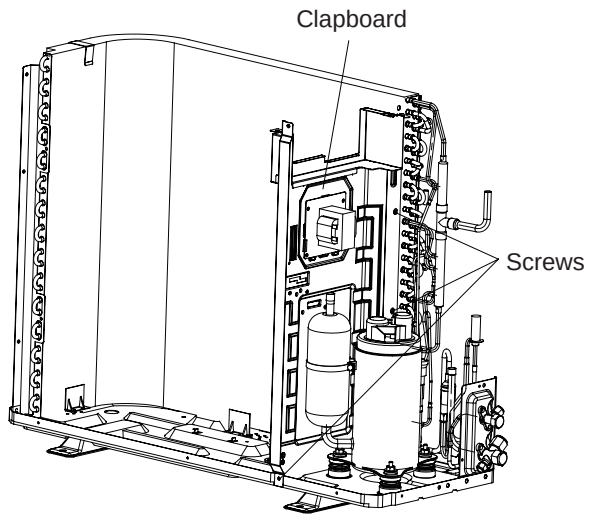
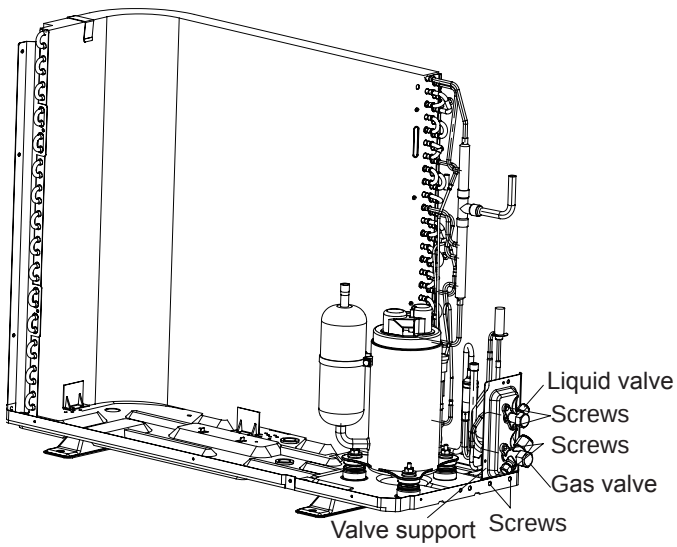
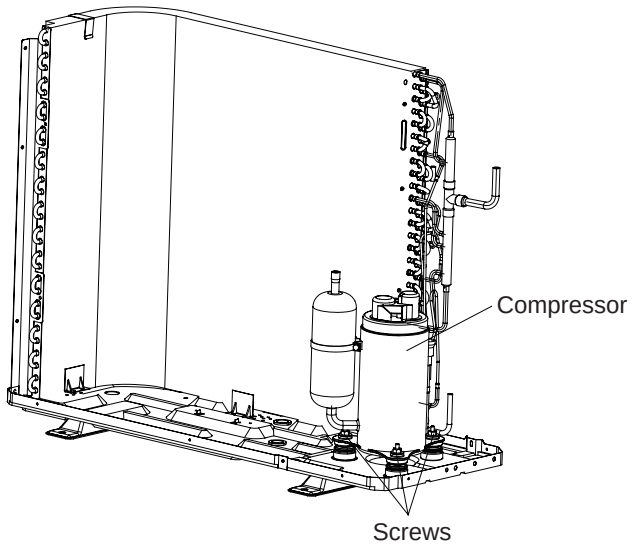


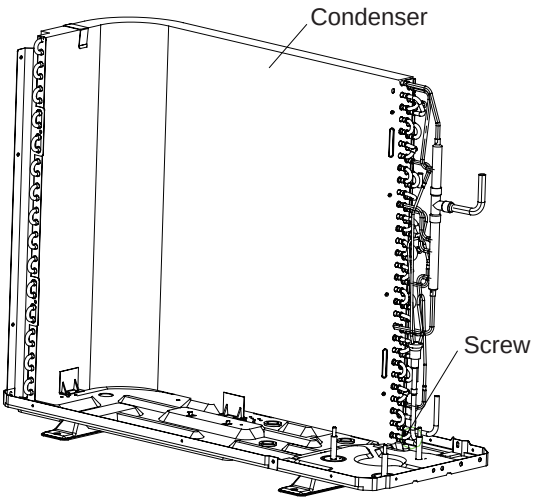




Steps	Procedure
6. Remove left side plate Remove the screws connecting the left side plate and the chassis, and then remove the left side plate.	
7. Remove axial flow blade Remove the nut fixing the blade and then remove the axial flow blade.	
8. Remove motor and motor support Remove the screws fixing motor and then remove the motor. Remove the screws fixing motor support and then remove the motor support.	

Steps	Procedure
9. Remove electric box assy	
Remove the screws fixing electric box assy ; pull out each wiring terminal; lift the electric box assy upwards to remove it. Note: When pulling out the wiring terminal, pay attention to loose the clasp and don't pull it so hard.	
10. Remove soundproof sponge	
Since the piping ports on the soundproof sponge are torn easily, remove the soundproof sponge carefully.	
11. Remove 4-way valve assy	
Unsolder the spot weld of 4-way valve assy, compressor and condenser, and then remove the 4-way valve assy . Note: When unsoldering the spot weld, wrap the 4-way valve with wet cloth completely to avoid damaging the valve due to high temperature.	

Steps	Procedure
12. Remove clapboard	
Remove the screws fixing clapboard and then remove the clapboard.	
13. Remove gas valve ,liquid valve and valve support	
Since the piping ports on the soundproof sponge are torn easily, remove the soundproof sponge carefully.	
14. Remove compressor	
Remove 3 foot nuts on compressor, and then remove the compressor. Note: Protect the ports of discharge pipe and suction pipe to avoid foreign objects to enter it.	

Steps	Procedure
15. Remove condenser	
Remove one screw fixing the condenser, then remove the condenser.	

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

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

Set temperature

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

Ambient temperature

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

Appendix 2: Configuration of Connection Pipe

1.Standard length of connection pipe

● 5m, 7.5m, 8m.

2.Min. length of connection pipe is 3m.

3.Max. length of connection pipe and max. high difference.

4.The additional refrigerant oil and refrigerant charging required after prolonging connection pipe

● After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.

● The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

Cooling capacity	Max length of connection pipe	Max height difference
5000 Btu/h(1465 W)	15 m	5 m
7000 Btu/h(2051 W)	15 m	5 m
9000 Btu/h(2637 W)	15 m	10 m
12000 Btu/h(3516 W)	20 m	10 m
18000 Btu/h(5274 W)	25 m	10 m
24000 Btu/h(7032 W)	25 m	10 m
28000 Btu/h(8204 W)	30 m	10 m
36000 Btu/h(10548 W)	30 m	20 m
42000 Btu/h(12306 W)	30 m	20 m
48000 Btu/h(14064 W)	30 m	20 m

● When the length of connection pipe is above 5m, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

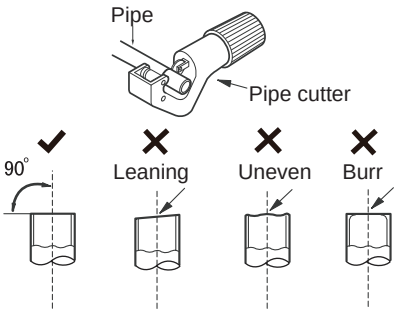
● Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R22, R407C, R410A and R134a			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(mm)	Gas pipe(mm)	Cooling only(g/m)	Cooling and heating(g/m)
Φ6	Φ9.5 or Φ12	15	20
Φ6 or Φ9.5	Φ16 or Φ19	15	20
Φ12	Φ19 or Φ22.2	30	120
Φ16	Φ25.4 or Φ31.8	60	120
Φ19	/	250	250
Φ22.2	/	350	350

Appendix 3: Pipe Expanding Method

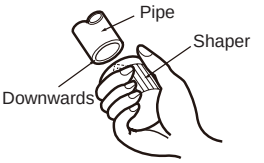
⚠ **Note:**

Improper pipe expanding is the main cause of refrigerant leakage.Please expand the pipe according to the following steps:



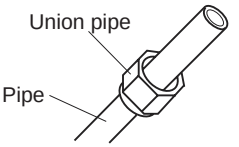
A:Cut the pip
- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.

B:Remove the burrs
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C:Put on suitable insulating pipe

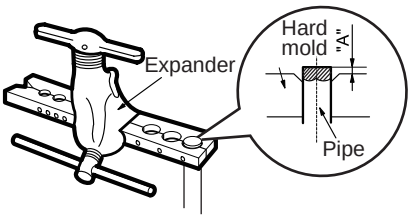
D:Put on the union nut
- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



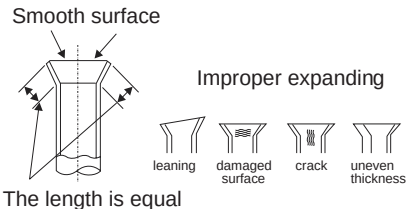
E:Expand the port
- Expand the port with expander.

⚠ **Note:**
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9.52 (3/8”)	1.6	1.0
Φ12 - 12.70 (1/2”)	1.8	1.0
Φ16 - 15.88 (5/8”)	2.4	2.2



F:Inspection
- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Appendix 4: List of Resistance for Temperature Sensor

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

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

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

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

Resistance Table of Discharge Temperature Sensor for Outdoor(50K)

Temp(°C)	Resistance(kΩ)		Temp(°C)	Resistance(kΩ)		Temp(°C)	Resistance(kΩ)		Temp(°C)	Resistance(kΩ)
-29	853.5		10	98		49	18.34		88	4.75
-28	799.8		11	93.42		50	17.65		89	4.61
-27	750		12	89.07		51	16.99		90	4.47
-26	703.8		13	84.95		52	16.36		91	4.33
-25	660.8		14	81.05		53	15.75		92	4.20
-24	620.8		15	77.35		54	15.17		93	4.08
-23	580.6		16	73.83		55	14.62		94	3.96
-22	548.9		17	70.5		56	14.09		95	3.84
-21	516.6		18	67.34		57	13.58		96	3.73
-20	486.5		19	64.33		58	13.09		97	3.62
-19	458.3		20	61.48		59	12.62		98	3.51
-18	432		21	58.77		60	12.17		99	3.41
-17	407.4		22	56.19		61	11.74		100	3.32
-16	384.5		23	53.74		62	11.32		101	3.22
-15	362.9		24	51.41		63	10.93		102	3.13
-14	342.8		25	49.19		64	10.54		103	3.04
-13	323.9		26	47.08		65	10.18		104	2.96
-12	306.2		27	45.07		66	9.83		105	2.87
-11	289.6		28	43.16		67	9.49		106	2.79
-10	274		29	41.34		68	9.17		107	2.72
-9	259.3		30	39.61		69	8.85		108	2.64
-8	245.6		31	37.96		70	8.56		109	2.57
-7	232.6		32	36.38		71	8.27		110	2.50
-6	220.5		33	34.88		72	7.99		111	2.43
-5	209		34	33.45		73	7.73		112	2.37
-4	198.3		35	32.09		74	7.47		113	2.30
-3	199.1		36	30.79		75	7.22		114	2.24
-2	178.5		37	29.54		76	7.00		115	2.18
-1	169.5		38	28.36		77	6.76		116	2.12
0	161		39	27.23		78	6.54		117	2.07
1	153		40	26.15		79	6.33		118	2.02
2	145.4		41	25.11		80	6.13		119	1.96
3	138.3		42	24.13		81	5.93		120	1.91
4	131.5		43	23.19		82	5.75		121	1.86
5	125.1		44	22.29		83	5.57		122	1.82
6	119.1		45	21.43		84	5.39		123	1.77
7	113.4		46	20.6		85	5.22		124	1.73
8	108		47	19.81		86	5.06		125	1.68
9	102.8		48	19.06		87	4.90		126	1.64

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