MUND CLIMA®

FLOOR STANDING
Service manual
MUCO-H6T

Table of Contents

Part Ⅰ : Technical Information

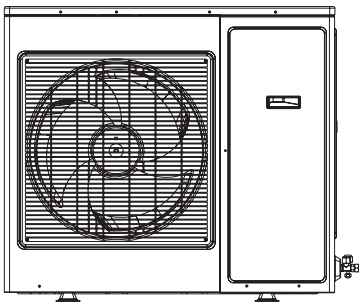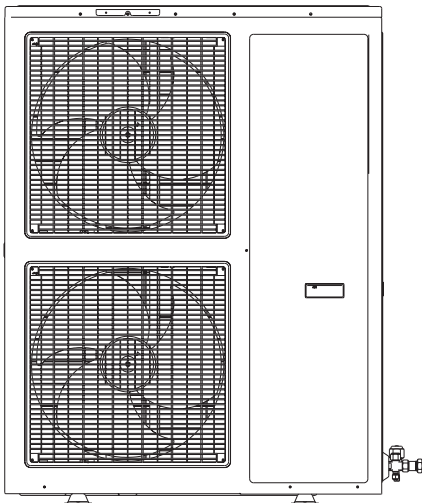## 1. Summary

Indoor Unit:

MUCO-48-H6T
MUCO-60-H6T
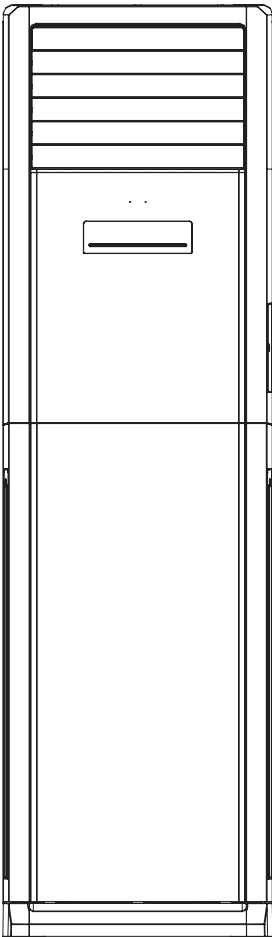
Outdoor Unit:

MUCO-48-H6T

MUCO-60-H6T

Remote Controller:

YB1F2(XFAN)
(CL96462)

2. Specifications

2.1 Specification Sheet

Model			MUCO-48-H6T
Product Code			CL20390
Power Supply	Rated Voltage	V~	380-415
	Rated Frequency	Hz	50
	Phases		3
Power Supply Mode			Outdoor
Cooling Capacity		W	12310
Heating Capacity		W	12310
Cooling Power Input		W	4900
Heating Power Input		W	4400
Cooling Power Current		A	9
Heating Power Current		A	9
Rated Input		W	6400
Rated Current		A	13
Air Flow Volume(SH/H/M/L/SL)		m^3/h	1950/1900/1700/1530/-
Dehumidifying Volume		L/h	5
EER		W/W	2.51
COP		W/W	2.80
SEER		W/W	/
HSPF		W/W	/
Application Area		m^2	55-85
Indoor Unit	Model of indoor unit		MUCO-48-H6T
	Indoor Unit Product Code		UI20390
	Fan Type		Centrifugal
	Diameter Length(DXL)	mm	Φ379X180.5
	Fan Motor Cooling Speed(SH/H/M/L/SL)	r/min	620/585/500/460/-
	Fan Motor Heating Speed(SH/H/M/L/SL)	r/min	620/585/500/460/-
	Output of Fan Motor	W	180
	Fan Motor RLA	A	1.5
	Fan Motor Capacitor	μF	/
	Input of Heater	W	/
	Evaporator Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7
	Row-fin Gap	mm	2-1.4
	Coil Length (LXDXW)	mm	876.3X25.4X472
	Swing Motor Model		MP35AK/MP35AB
	Output of Swing Motor	W	2
	Fuse	A	5
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	55/53/49/45/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	65/63/59/55/-
	Dimension (WXHXD)	mm	581X1870X395
	Dimension of Carton Box (LXWXH)	mm	2080X735X530
	Dimension of Package (LXWXH)	mm	2083X738X545
	Net Weight	kg	58
	Gross Weight	kg	84

Outdoor Unit	Model of Outdoor Unit		MUCO-48-H6T
	Outdoor Unit Product Code		UE20390
	Compressor Manufacturer/Trademark		Dalian SANYO Compressor Co.;Ltd.
	Compressor Model		C-SBP160H38C
	Compressor Oil		FV68S
	Compressor Type		Scroll
	L.R.A.	A	66
	Compressor RLA	A	7.58
	Compressor Power Input	W	4300
	Overload Protector		37HM536-15
	Throttling Method		Capillary
	Operation Temp	°C	16~30
	Ambient Temp (Cooling)	°C	18~43
	Ambient Temp (Heating)	°C	-7~24
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ9.52
	Rows-fin Gap	mm	2-1.4
	Coil Length (LXDXW)	mm	975X44X813
	Fan Motor Speed	rpm	850
	Output of Fan Motor	W	82
	Fan Motor RLA	A	0.81
	Fan Motor Capacitor	μF	3.5
	Air Flow Volume of Outdoor Unit	m³/h	3600
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ480
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	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)	59/-/-
	Sound Power Level (H/M/L)	dB (A)	69/-/-
	Dimension (WXHXD)	mm	840X1018X412
	Dimension of Carton Box (LXWXH)	mm	1100X450X880
	Dimension of Package (LXWXH)	mm	1103X453X1010
	Net Weight	kg	90
	Gross Weight	kg	100
	Refrigerant		R410A
	Refrigerant Charge	kg	3.1
Connection Pipe	Length	m	5
	Gas Additional Charge	g/m	100
	Outer Diameter Liquid Pipe	mm	Φ12
	Outer Diameter Gas Pipe	mm	Φ19
	Max Distance Height	m	20
	Max Distance Length	m	30
	Note: The connection pipe applies metric diameter.		

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

Model			MUCO-60-H6T
Product Code			CL20391
Power Supply	Rated Voltage	V~	380-415
	Rated Frequency	Hz	50
	Phases		3
Power Supply Mode			Outdoor
Cooling Capacity		W	15000
Heating Capacity		W	17500
Cooling Power Input		W	6000
Heating Power Input		W	5850
Cooling Power Current		A	9.61
Heating Power Current		A	9.6
Rated Input		W	8000(10500)
Rated Current		A	13
Air Flow Volume(SH/H/M/L/SL)		m³/h	2000
Dehumidifying Volume		L/h	5.5
EER		W/W	2.5
COP		W/W	2.99
SEER		W/W	/
HSPF		W/W	/
Application Area		m²	80-100
Indoor Unit	Model of indoor unit		MUCO-60-H6T
	Indoor Unit Product Code		UI20391
	Fan Type		Centrifugal
	Diameter Length(DXL)	mm	Φ379X180.5
	Fan Motor Cooling Speed(SH/H/M/L/SL)	r/min	620/585/500/460/-
	Fan Motor Heating Speed(SH/H/M/L/SL)	r/min	620/585/500/460/-
	Output of Fan Motor	W	180
	Fan Motor RLA	A	/
	Fan Motor Capacitor	μF	/
	Input of Heater	W	2500
	Evaporator Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7.94
	Row-fin Gap	mm	3-1.5
	Coil Length (LXDXW)	mm	836X62X472
	Swing Motor Model		MP35AK
	Output of Swing Motor	W	4
	Fuse	A	5
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	52/50/46/44/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	62/60/56/54/-
	Dimension (WXHXD)	mm	581X1870X395
	Dimension of Carton Box (LXWXH)	mm	2080X735X530
	Dimension of Package (LXWXH)	mm	2083X738X545
	Net Weight	kg	61
	Gross Weight	kg	87

|			
Outdoor Unit	Model of Outdoor Unit		MUCO-60-H6T
	Outdoor Unit Product Code		UE20391
	Compressor Manufacturer/Trademark		Dalian SANYO Compressor Co.; Ltd.
	Compressor Model		C-SBP185H38A
	Compressor Oil		FV68S
	Compressor Type		Scroll
	L.R.A.	A	/
	Compressor RLA	A	9.31
	Compressor Power Input	W	5200
	Overload Protector		UP18RA052-550
	Throttling Method		Capillary
	Operation Temp	°C	16~30
	Ambient Temp (Cooling)	°C	18~43
	Ambient Temp (Heating)	°C	-7~24
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ9.52
	Rows-fin Gap	mm	2-1.4
	Coil Length (LXDXW)	mm	975X44X813
	Fan Motor Speed	rpm	830
	Output of Fan Motor	W	68
	Fan Motor RLA	A	0.8
	Fan Motor Capacitor	μF	3.5
	Air Flow Volume of Outdoor Unit	m³/h	3600
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ472
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	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)	62/-/-
	Sound Power Level (H/M/L)	dB (A)	72/-/-
	Dimension (WXHXD)	mm	1032X1250X412
	Dimension of Carton Box (LXWXH)	mm	1100X450X1280
	Dimension of Package (LXWXH)	mm	1103X453X1295
	Net Weight	kg	114
	Gross Weight	kg	125
	Refrigerant		R410A
	Refrigerant Charge	kg	4.3
Connection Pipe	Length	m	5
	Gas Additional Charge	g/m	100
	Outer Diameter Liquid Pipe	mm	Φ12
	Outer Diameter Gas Pipe	mm	Φ19
	Max Distance Height	m	20
	Max Distance Length	m	30
	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 Capacity Curve in Different Outdoor Temperature

Cooling:
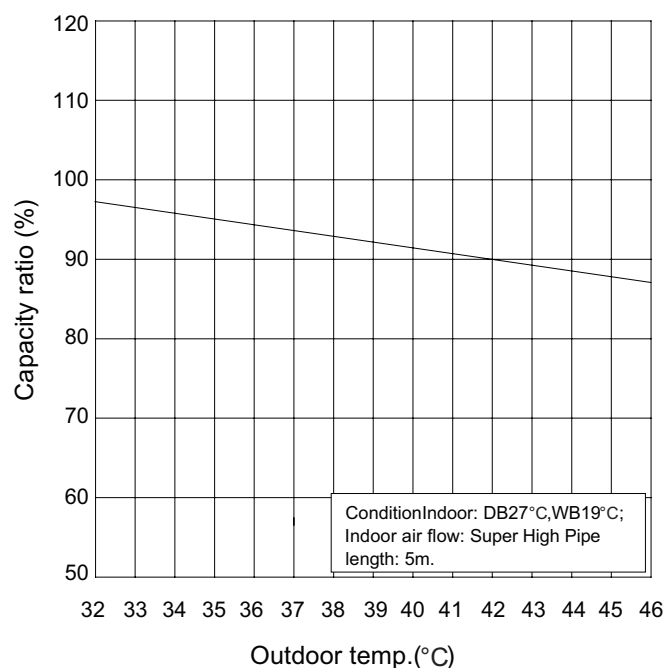
Heating:
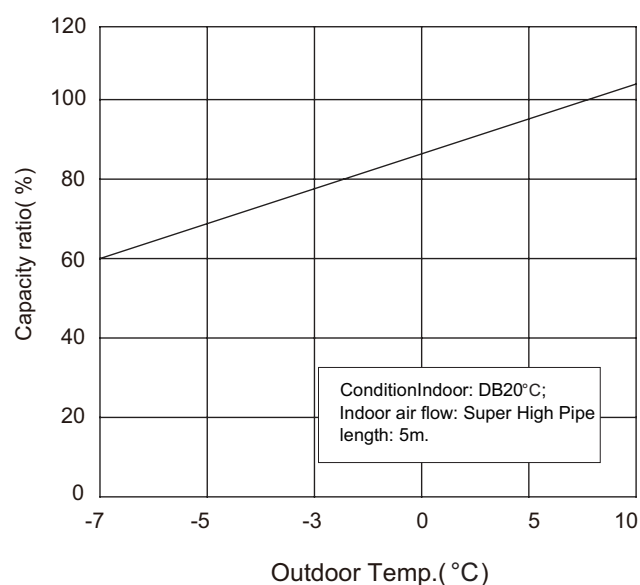
2.3 Cooling and Heating Data Sheet in Rated Frequency

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
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
27/19	35/24	48/60K	0.8~1.0	8.0~12	43~39	Super High	High

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
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
20/-	7/6	48/60K	1.7~1.8	44~42	-4~3	Super High	High

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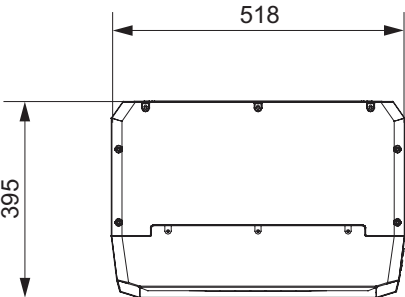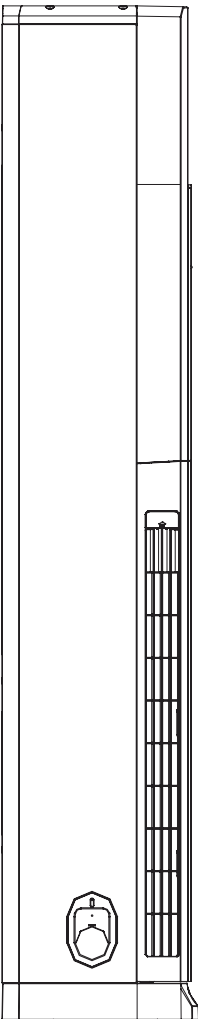P: Pressure at the side of big valve
Connection pipe length: 5m.

3. Outline Dimension Diagram

3.1 Indoor Unit

MUCO-48-H6T
MUCO-60-H6T

1870

518

395

Unit:mm

3.2 Outdoor Unit

MUCO-48-H6T

340

950

840

412

1018

Unit:mm

378

572

MUCO-60-H6T

340

950

1250

412

1032

572

378
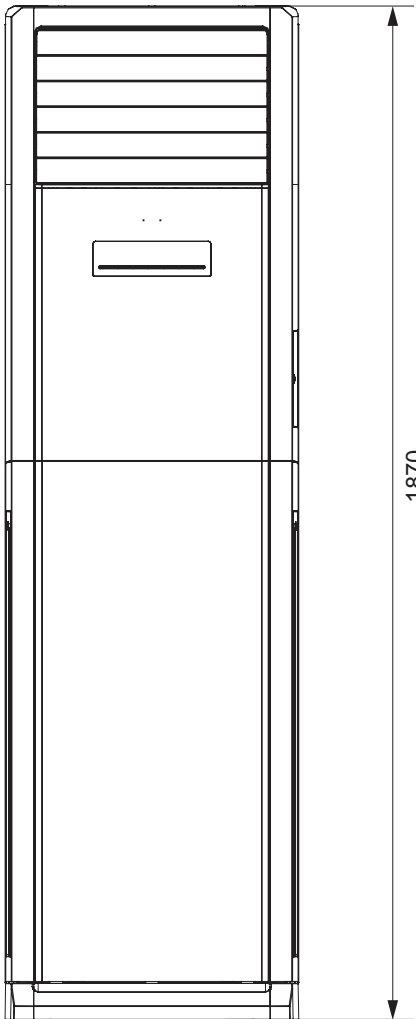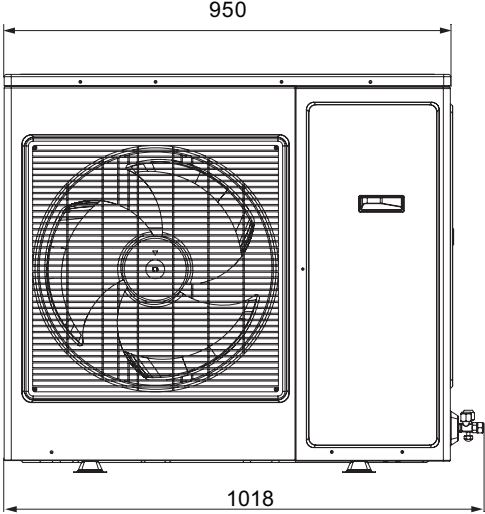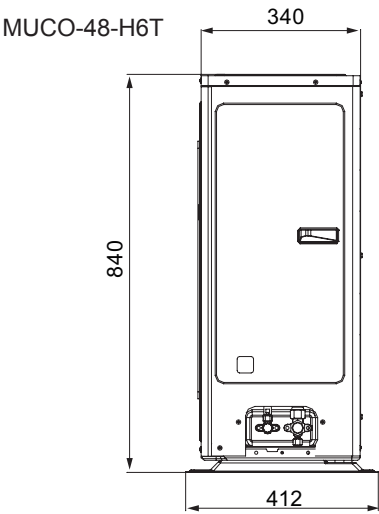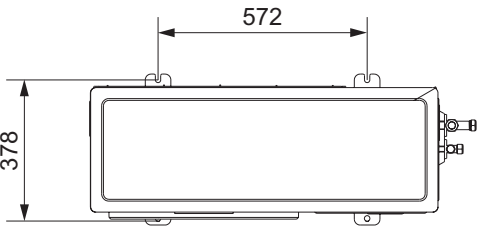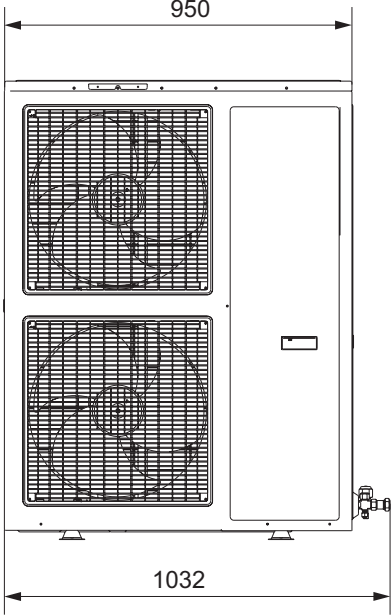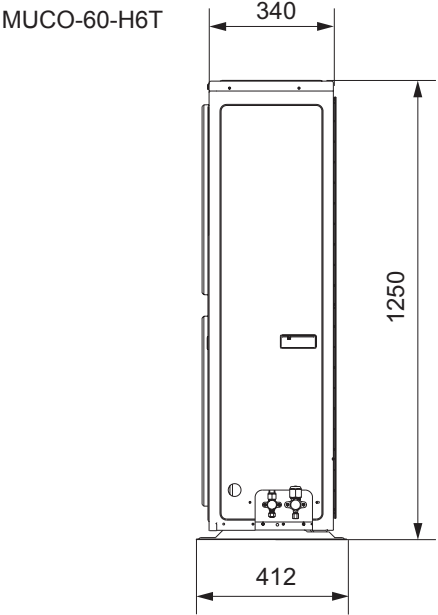
Unit:mm

4. Refrigerant System Diagram
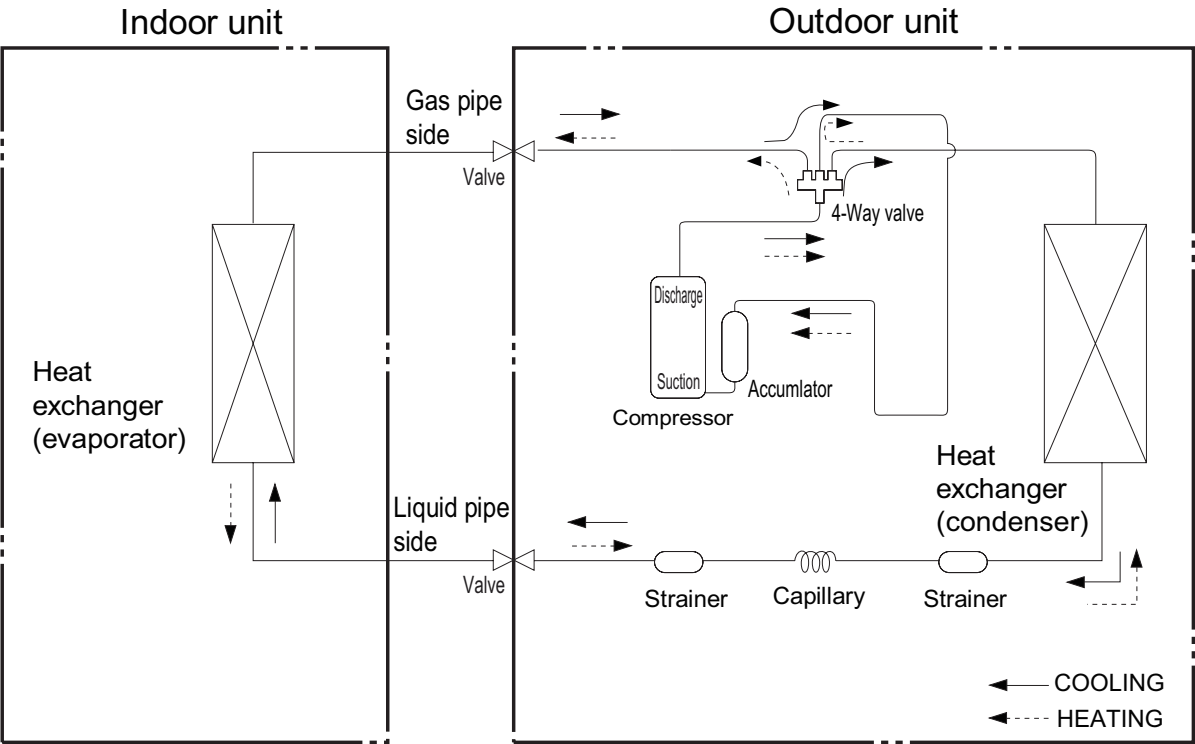
Connection pipe specification:
Liquid pipe:1/2" (12mm) Gas pipe:3/4" (19mm)

5. Electrical Part

5.1 Wiring Diagram

● **Instruction**

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	SAT	OVERLOAD
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue	⏚	Grounding wire
YEGN	Yellow/Green	BK	Black	C1	CBB65
VT	Violet	OG	Orange	C2	CBB61

● **Indoor Unit**

MUCO-48-H6T
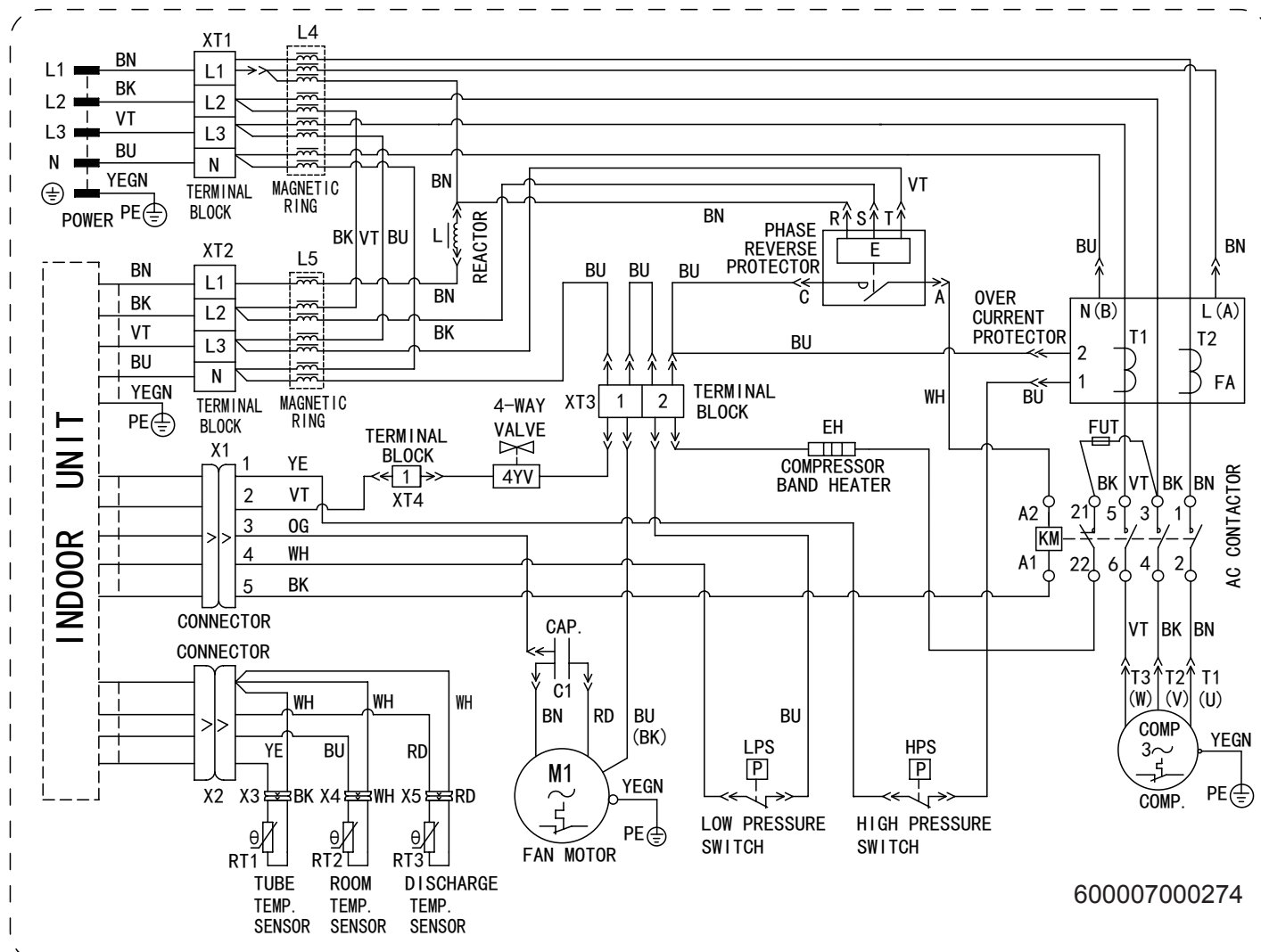
MUCO-60-H6T

TRANSFORMER
HEARTER
SAT1
TERMINAL BLOCK

AP1 PRINTED CIRCUIT BOARD

O-HEAT1 KM1 I-HEAT1
O-HEAT2 KM2 I-HEAT2
O-HEAT3 KM3 I-HEAT3

FAN
N1 IFAN
AP3
FAN MOTOR
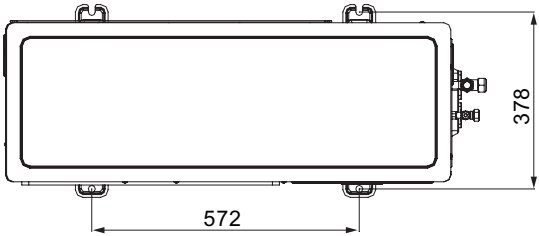
MAGNETIC RING

AP2 RECEIVER AND DISPLAY BOARD

UP-DOWN STEPPING MOTOR
LEFT-RIGHT STEPPING MOTOR
ROOM TEMP. SENSOR
PIPE TEMP. SENSOR

OUTDOOR UNIT

CONNECTOR

600007000276

● Outdoor Unit

MUCO-48-H6T

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

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MUCO-60-H6T
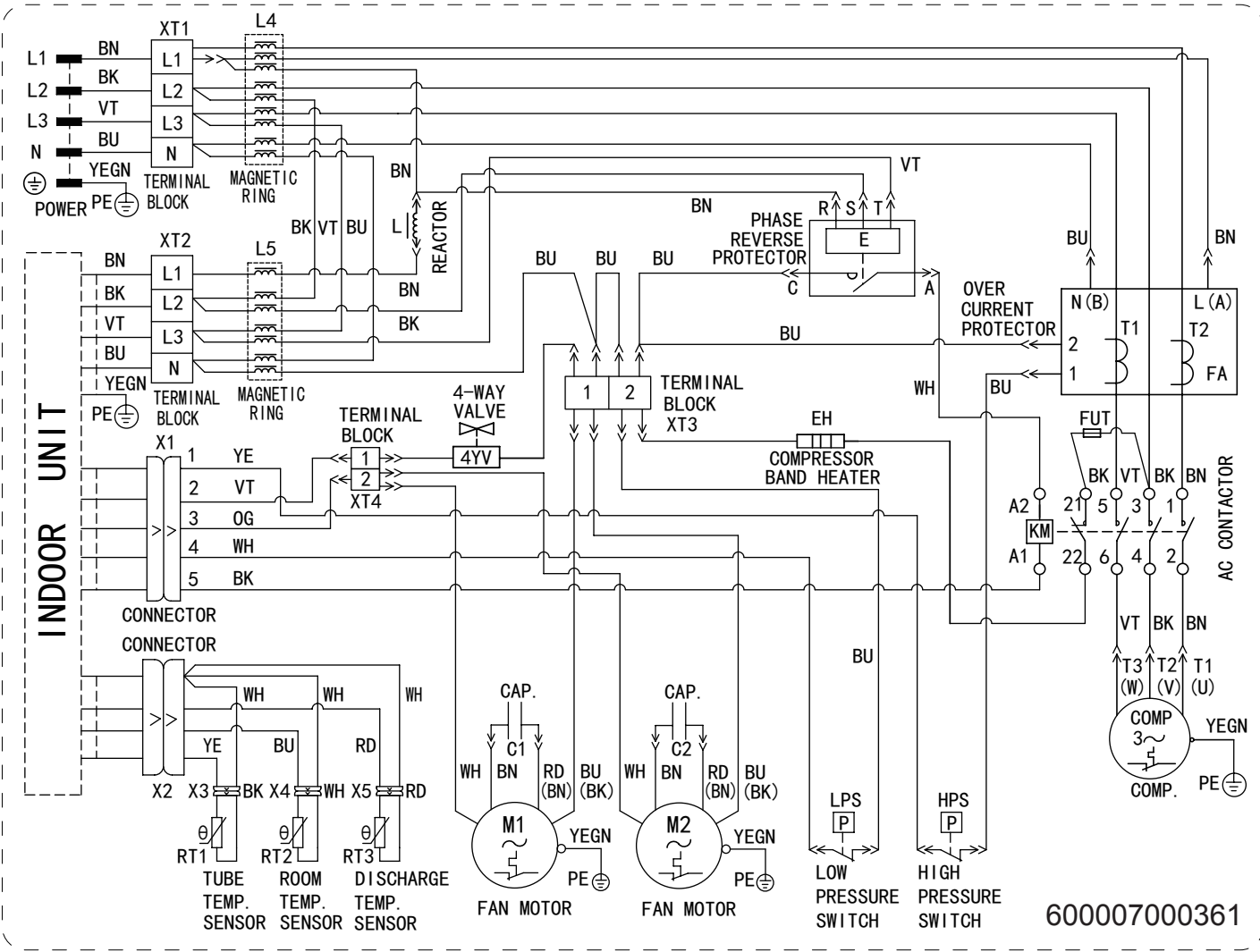
These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

600007000361

5.2 PCB Printed Diagram

MUCO-48-H6T

● **Top view**

No.	Name
1	Output terminal 2 of transformer
2	Output terminal 1 of transformer
3	Terminal of high pressure switch
4	Terminal of low pressure switch
5	Input terminal of transformer
6	Fuse
7	Terminal of live wire
8	Control terminal of compressor
9	Control terminal of 4-way valve
10	Control terminal of electric heating belt (only for the model with this function)
11	Control terminal of outdoor fan
12	Terminal of neutral wire
13	Live wire terminal of indoor fan
14	Needle stand of indoor fan
15	Wiring terminal 1 of E-heater
16	Wiring terminal 2 of E-heater
17	Wiring terminal 3 of E-heater

● **Bottom view**

17

MUCO-60-H6T

● **Top view**

No.	Name
1	Output terminal 2 of transformer
2	Output terminal 1 of transformer
3	Terminal of high pressure switch
4	Terminal of low pressure switch
5	Input terminal of transformer
6	Fuse
7	Terminal of live wire
8	Control terminal of compressor
9	Control terminal of 4-way valve
10	Control terminal of electric heating belt (only for the model with this function)
11	Control terminal of outdoor fan
12	Terminal of neutral wire
13	Live wire terminal of indoor fan
14	Needle stand of indoor fan
15	Wiring terminal 1 of E-heater
16	Wiring terminal 2 of E-heater
17	Wiring terminal 3 of E-heater

● **Bottom view**

6. Function and Control

6.1 Instructions of Control Buttons on Indoor Panel

Model:GVA48AH-M3NNA5C

Buttons function and displayer

ON/OFF

ON/OFF Button

- Press this button, to turn on the unit. When unit is turned on, the original setting like Timer, Sleep function will be canceled.Note: When the unit is running in Dry mode, press ON/OFF button that can turn on the unit directly.

- ⏻ When the unit start up running, the status light will display in red indicated as power turn-on and free-duty.

Mode

Mode Button

- Press the button, the circulating changes of mode are shown as below:

  Auto → Cooling → Dehumidification

  Heating ← Air Supply ←

  Auto: the controller will determine its operation mode according to changes of room temperatures under this mode.

  Cooling: display cooling state.

  Dehumidification: reduce temperature and keep the setting room temperature without any change.

  Air supply: The compressor doesn't on work and only the indoor blower is on running under this mode.

  Heating: Display the state of heating. (Note: Single-cooling machine is not equipped with heating mode)

▲ and ▼

▲ and▼ Button

- Under the situation without setting the function, press▲and ▼buttons, the setting temperature goes up and down 1℃, the regulating range is from 16℃ to 30℃.

- Under the conditions of setting the functions, can proceed with the round-trip option of this function (set ▲ and ▼ opposite direction of circulation).

- Keep pressing ▲ and ▼ buttons for 3 seconds continuously, functions of all buttons on the display panel will be conductively-closed, and then press any button, the buzzer will ring once while "LC" is flashing for three times on the location of double 8 and resume to normal display so as to prompt users that the buttons have been locked up.When keep pressing again the two buttons for another 3 seconds continuously, the function of lockup will be removed and resume to display in normal state.

Buttons function and displayer

| | RUN | TIMER | BLOW | SWING | SET | | h | COOL | HEAT | AUTO | DRY | FAN |
| SLEEP | AIR | E-HEATER | SWING | TEMP | SPEED AUTO L M H TURBO | ℃ | SE SAVE | ROOM | OFFICE | RESTAURANT | COMMON |

| Speed | Function | ▼ | ▲ | AMB. | Mode | ON/OFF |

▲ and ▼

▲ and ▼ Buttons (Continued)

- After switch-on at first time, if without any button input:1. consecutively press twice of ▲ buttons in 20 seconds and soon access to the running of forced heating.After the blades of blowing up and down opens to the minimum position, start up running of all loads, indoor and outdoor high-speed blowers. All characters will be displayed when the non-inductive thermometer bulb is broken down. The fault codes of breakdown will be displayed when the inductive thermometer bulb is broken down and then the buzzer rings. After shutdown for five minutes or receiving shutdown signal within 5 minutes, it enter the status of normal standby. 2. consecutively press twice of ▼ buttons in 20 seconds and soon access to the running of forced cooling. After the blades of blowing up and down opens to the minimum position,start up running of all loads, indoor and outdoor high-speed blowers besides the four-way valve and then the buzzer rings. After shutdown for five minutes or receiving shutdown signal within 5 minutes,it enter the status of normal standby.
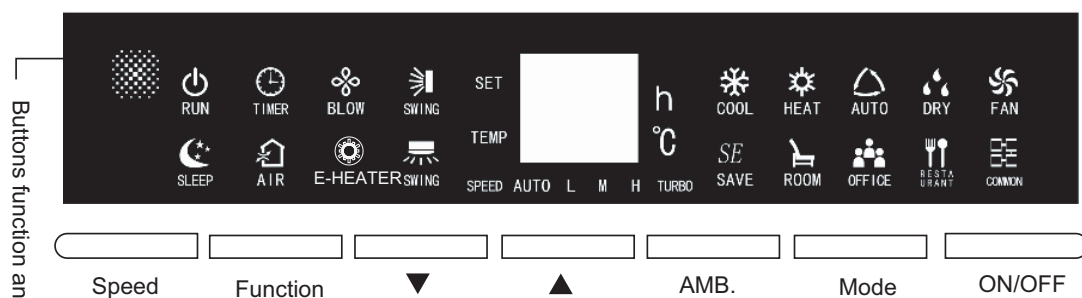The 1 and 2 Functions are for trial use only.

Speed

Speed Button

- Press this button, the speed can shift in the circulation among of " Auto→Low→Medium→High →Super →Auto"
Note: the function of forced low speed under operation of dehumi-dification is not available.

AMB.

AMB. Button

- Press this button, AMB.circulating changes set forth below:

Energy saving → Living Room → Conference/Office → Restaurant → Normal → (back to Energy saving)

- Adjustable method of AMB. Button:The switch-on of AMB.mode at first time is the default of normal mode,when shutting down and starting up again,the AMB. mod will keep the setting status before last shutting down. Under the modes of energy-saving, conference/office and restaurant,the sleep function will be automatically cancelled. And the sleep function is not adjustable: sleep function is only available on service for cooling, dehumidification and heating under normal mode.

Buttons function and displayer

				SET				COOL	HEAT	AUTO	DRY	FAN
RUN	TIMER	BLOW	SWING	TEMP		h						
SLEEP	AIR	E-HEATER	SWING	SPEED	AUTO L M H TURBO	℃		SE SAVE	ROOM	OFFICE	RESTAURANT	COMMON

| Speed | Function | ▼ | ▲ | AMB. | Mode | ON/OFF |

AMB.

AMB. Buttons (Continued)

- Under the modes of living room, restaurant, conference/office,The setting temperature, speed, blowing up and down as well as left and right can be adjustable. If users change the setting temperature, speed, blowing up and down as well as left and right, the operation will run in accordance with the status of setting adjustment. The services setting of blowing up and down as well as left and right of next time start-up will be remained before last shutdown while the setting temperature and speed will run with the default.
- Under the energy-saving mode, while the heating service is on running, the setting temperature, speed, blowing up and down as well as left and right can be adjustable. If users change the setting speed, blowing up and down as well as left and right,
- it will run according the status of users' setting adjustment. But the setting temperature under the energy-saving cooling function can not be adjusted.
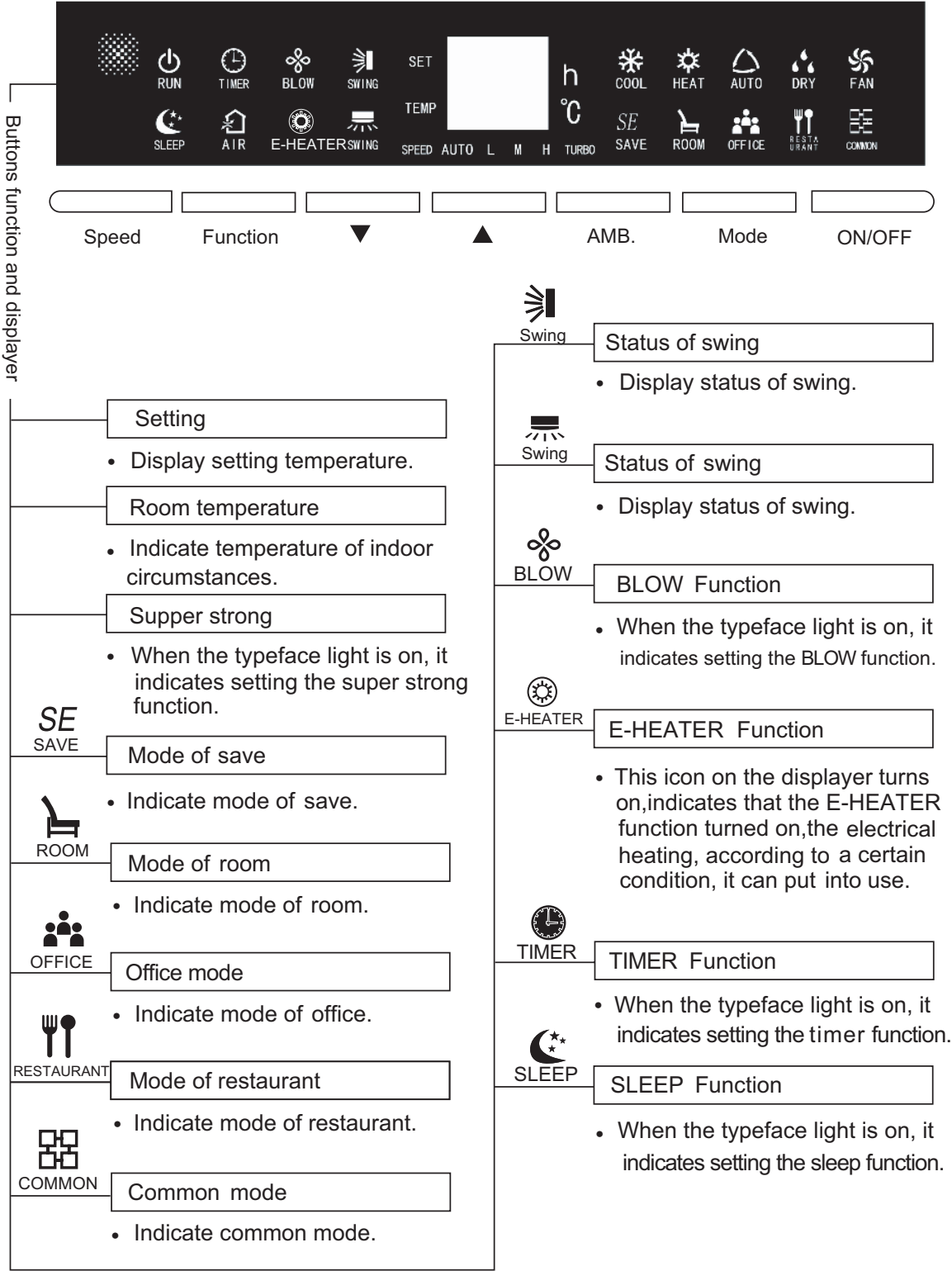
AMB.

AMB.Buttons (Continued)

- The modes of living room, restaurant, conference/office can only be called out by pressing buttons of air conditioner panel. If receiving the signal from remote control when the air conditioner is running the modes of living room, restaurant, conference/office, it will exit from the abovementioned modes and run according to the modes of remote control.
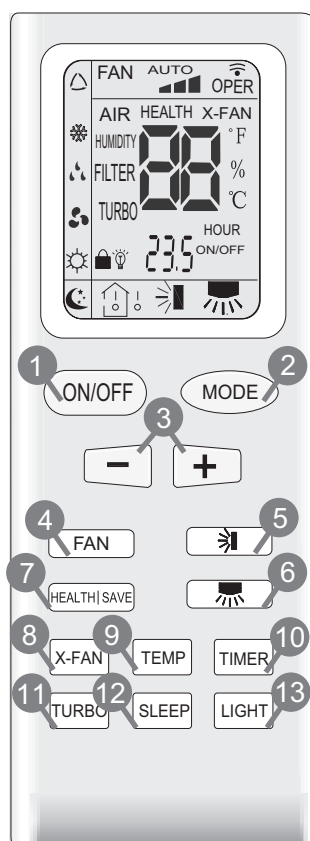
Function

Function Button

- Under the status of switch-on, Every time press the function button, the settings of up and down, left and right, drying, concurrent heating, timing, air renewal, setting and room temperature can be shifted in sequence. When a certain character is flashing, it indicates can proceed its setting and go on setting by press buttons. The action will be confirmed if without receiving other operating order in 5 seconds. Or press the function button to leave for the confirm.
- Press the function button under the status of running drying service can directly proceed shutdown. Press the function button under the status of shutdown and non-drying can proceed timing setting.
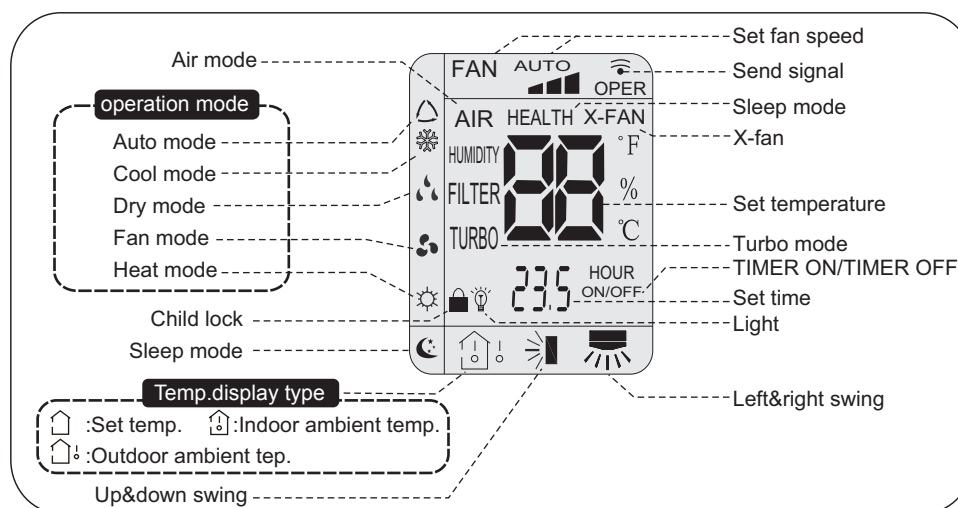
Buttons function and displayer

RUN	TIMER	BLOW	SWING	SET		h	COOL	HEAT	AUTO	DRY	FAN
SLEEP	AIR	E-HEATER	SWING	TEMP		℃	*SE* SAVE	ROOM	OFFICE	RESTAURANT	COMMON
				SPEED AUTO L M H TURBO							

Speed   Function   ▼   ▲   AMB.   Mode   ON/OFF

Setting
- Display setting temperature.

Room temperature
- Indicate temperature of indoor circumstances.

Supper strong
- When the typeface light is on, it indicates setting the super strong function.

SE SAVE — **Mode of save**
- Indicate mode of save.

ROOM — **Mode of room**
- Indicate mode of room.

OFFICE — **Office mode**
- Indicate mode of office.

RESTAURANT — **Mode of restaurant**
- Indicate mode of restaurant.

COMMON — **Common mode**
- Indicate common mode.

Swing — **Status of swing**
- Display status of swing.

Swing — **Status of swing**
- Display status of swing.

BLOW — **BLOW Function**
- When the typeface light is on, it indicates setting the BLOW function.

E-HEATER — **E-HEATER Function**
- This icon on the displayer turns on,indicates that the E-HEATER function turned on,the electrical heating, according to a certain condition, it can put into use.

TIMER — **TIMER Function**
- When the typeface light is on, it indicates setting the timer function.

SLEEP — **SLEEP Function**
- When the typeface light is on, it indicates setting the sleep function.

6.2 Remote Controller Introduction

Buttons on Remote Controller

① **ON/OFF Button**

② **MODE Button**

③ **+/- Button**

④ **FAN Button**

⑤ **≩| Button**

⑥ **▅ Button**

⑦ **HEALTH|SAVE Button**

⑧ **X-FAN Button**

⑨ **TEMP Button**

⑩ **TIMER Button**

⑪ **TURBO Button**

⑫ **SLEEP Button**

⑬ **LIGHT Button**

Introduction for Icons on Display Screen

Air mode

operation mode
Auto mode
Cool mode
Dry mode
Fan mode
Heat mode

Child lock

Sleep mode

Temp.display type
⌂ :Set temp.   ⌂̂ :Indoor ambient temp.
⌂₀ :Outdoor ambient tep.

Up&down swing

Set fan speed
Send signal
Sleep mode
X-fan

Set temperature

Turbo mode
TIMER ON/TIMER OFF
Set time
Light

Left&right swing

Introduction for Buttons on Remote Controller
Note:

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

• After putting through the power, the air conditioner will give out a sound. Operation indictor " ⏻ " is ON (red indicator). After that, you can operate the air conditioner by using remote controller.

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

• At OFF status, display screen on remote controller displays set temperature.

At on status, display screen on remote controller displays the corresponding startup function's icon.

1. ON/OFF Button

Press this button can turn on or turn off the air conditioner. After turning on the unit, operation indicator " ⏻ "on indoor unit is ON (green indicator. Color may be different for different models) and indoor unit gives out a sound.

2. MODE Button

Press this button to select your required operation mode.

AUTO COOL DRY FAN HEAT

• After selecting auto mode, air conditioner will operate automatically according to ambient temperature. Set temperature can't be adjusted and also can't be displayed. Press "FAN" button can adjust fan speed. Press" ⋙ "button and" ⋙ "button can adjust swing angle

• After selecting cool mode, air conditioner operates under cool mode. Cool indicator" ❄ "on indoor unit is ON. You can press "+" or "-" button to adjust set temperature. Press "FAN" button can adjust fan speed. Press" ⋙ "button and" ⋙ "button can adjust swing angle.

• After selecting dry mode, air conditioner operates under dry mode at low speed. Dry indicator" ⋅⋅ "on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press" ⋙ "button and" ⋙ "button to adjust swing angle.

• After selecting fan mode, air conditioner operates only under fan mode, All mode indicators on indoor unit is OFF. Press "FAN" button can adjust fan speed. Press" ⋙ "button and" ⋙ "button to adjust swing angle.

• After selecting heat mode, air conditioner operates under heat mode. Heat indicator" ☀ "on indoor unit is ON. You can press "+"or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press" ⋙ "button and" ⋙ "button to adjust swing angle. (Cooling only unit can't receive the signal for heating mode.)

Note: For preventing cold wind, after starting up heating mode, indoor fan will blow fan after delaying 1-5min. (Details time is decided by indoor ambient temperature)

Temperature setting range on remote controller: 16℃ -30℃ . Fan speed setting range: auto, low speed, medium speed and high speed.

3. "+"or "-" button

• After each pressing of "+"or "-" button, it can increase or decrease set temperature 1℃ . Hold "+"or "-" button, 2s later, set temperature on remote controller will change quickly. After reaching to your required time, loosen the button. Temperature indicator on indoor unit will also change accordingly. (Temperature can't be adjusted under auto mode)

• Under TIMER ON, TIMER OFF or Clock setting, you can press "+"or "-" button to adjust time. (Refer to TIMER button for details)

4. FAN button

Press this button you can select the fan speed in sequence: auto (AUTO),low speed(◢), medium speed, ◢◢)high speed(◢◢◢).
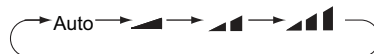
Auto → ◢ → ◢◢ → ◢◢◢

Note:

• Under auto mode, air conditioner will select proper fan speed according to ex-factory setting automatically. Air conditioner will select proper fan speed according to ex-factory setting automatically.

• Low speed under dry mode.

5. ⋙ button

Press this button can select up&down swing. Swing angle can be selected in sequence as below:
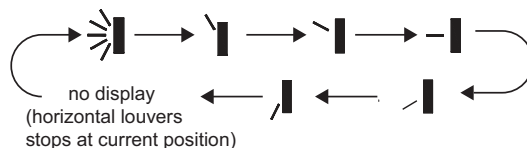
no display
(horizontal louvers
stops at current position)

When selecting" ⋙ "with remote controller, it's auto swing. Horizontal louver of air conditioner will swing up&down automatically at the maximum angle.

When selecting" ❘、❘、−❘、◢❘、❘ "with remote controller, it's the fixed position swing. Horizontal louver of air conditioner will stop at that position as shown by the icon to swing.

Under unit off status, press "+" button and ⋙ button simultaneously to switch between simple swing setting and fixed-angle swing setting. During switching the two swing settings, ⋙ icon will blink for 2s.

6. ![button icon] button

Press this button can select left&right swing. Swing angle can be selected circularly in sequence as below:
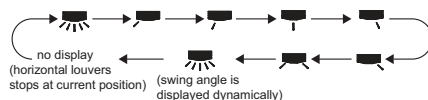
no display
(horizontal louvers stops at current position)   (swing angle is displayed dynamically)

When selecting" ![icon] "with remote controller, it's auto swing. Horizontal louver of air conditioner will swing left&right automatically at the maximum angle.

When selecting" ![icons] "with remote controller, it's the fixed position swing. Horizontal louver of air conditioner will stop at that position as shown by the icon to swing.

When selecting" ![icon] (swing angle is displayed dynamically) "it's the circulating swing. Horizontal louver of air conditioner will swing circularly according to the angle as shown by the icon.

Under unit off status, press "+" button and ![icon] button simultaneously to switch between simple swing setting and fixed-angle swing setting. During switching the two swing settings, ![icon] icon will blink for 2s.

7.HEALTH/SAVE button (Note:Health function is not available for some models.)
HEALTH FUNCTION:

After pressing HEALTH button, remote controller will switch circularly as below:

"HEALTH"→ "AIR" → "AIR HEALTH" → "no display"

When selecting "HEALTH" by remote controller, HEALTH function will be started up.

When selecting "AIR" by remote controller, AIR function will be started up.

When selecting "AIT HEALTH", AIR and HEALTH function will be started up.

When there's no display on remote controller, AIR and HEALTH function will be turned off.

SAVE function:

Under cool mode, press SAVE button and the unit will operate under SAVE mode. Dual-8 nixie tube on remote controller displays "SE". Air conditioner will operate at auto speed. Set temperature can't be adjusted. Press SAVE button again to exit SAVE mode. Air conditioner turn back to original set speed and set temperature.

8. X-FAN button

After pressing this button under cooling or dry mode, remote controller displays the character of "X-FAN" and X-FAN function is started up. Press this button again to cancel X-FAN function. The character of "X-FAN" will disappear.

Note:
• After starting up X-FAN function, when turning off the unit, indoor fan will continue to operate for a while at low speed to dry the residual water inside the indoor unit.

• When the unit operates under X-FAN mode, press "X-FAN" button can turn off X-FAN function. Indoor fan stops operation immediately.

9. TEMP button

Press this button can see indoor set temperature, indoor ambient temperature or outdoor ambient temperature on indoor unit's display. Temperature is set circularly by remote controller as below:

no display

When selecting" ![icon] "by remote controller or no display, temperature indicator on indoor unit displays set temperature;

When selecting" ![icon] "by remote controller, temperature indicator on indoor unit displays indoor ambient temperature;

When selecting" ![icon] "by remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:
• Outdoor ambient temperature display may can't be selected for some models. When indoor unit receives" ![icon] "signal, it displays indoor set temperature.

• Only for the model whose indoor unit has dual-8 display.

10. TIMER button
• At ON status, press this button once can set TIMER OFF. The character of HOUR and OFF will flash. Press "+" or "-" button within 5s can adjust the time of TIMER ON. After each pressing of "+" or "-" button, time will increase or decrease half an hour. When holding "+" or "-" button, 2s later, the time will change quickly until to reach to your required time. After that, press "TIMER" button to confirm it. The character of HOUR and OFF won't flash again.

Cancel TIMER OFF: Press "TIMER" button again under TIMER OFF status.

• At OFF status, press this button once can set TIMER ON. Please refer to TIMER off for detailed operation.

Cancel TIMER ON: Press "TIMER" button again under TIMER ON status.

Note:

• Time setting range: 0.5-24 hours.

• Time interval between two operations can't exceed 5s. Otherwise, remote controller will exit the setting status automatically.

11. TURBO button

When pressing this button under cooling or heating mode, air conditioner will enter into quick cooling or quick heating mode. The character of "TURBO" is displayed on remote controller. Press this button again to exit turbo function and the character of "TURBO" will be disappeared on remote controller.

12. SLEEP button

Press this button under cooling, heating or drying mode can start up sleep function" ☾ "icon will be displayed on remote controller. Press this button again to cancel sleep function" ☾ "icon on remote controller will be displayed.

13. LIGHT button

Press this button can turn off the light for indoor unit's display" ☼ "icon on remote controller will disappear. Press this button again to turn on the light for indoor unit's display" ☼ "icon on remote controller will be displayed.

Function Introduction for Combination Buttons

Child lock function:

Press "+" and "-" buttons simultaneously can turn on or turn off child lock function. When child lock function is started up" 🔒 "icon will be displayed on remote controller. If operate remote controller" 🔒 "icon will flash three times, while remote controller won't send signal.

Switchover function for temperature display:

After turning off the unit by remote controller, press "-" button and "MODE" button simultaneously to switch between ℃ and ℉ .

Operation Guide

1. After putting through the power, press "ON/OFF" button on remote controller to turn on the air conditioner.
2. Press "MODE" button to select your required mode:AUTO,COOL,DRY,FAN,HEAT.
3. Press "+" or "-" button to set your required temperature. (Temperature can't be adjusted under auto mode).
4. Press 'FAN" button to set your required fan speed: auto, low, medium and high speed.
5. Press " ⟫ "button and" 🔲 "button to select fan blowing angle.

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.

Signal sender   Battery

Reinstall

Cover of
battery box   Remove
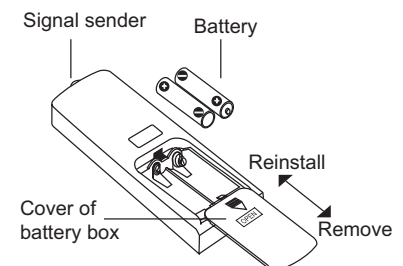
6.3 Introduction of Each Mode Function

1. Running Mode

1. cooling;   2. dry;   3. fan;   4: heating;   5. AUTO;   6. others (Freon recovery mode).

2. Temperature Para meter

1. Indoor ambient temperature Tamb. (adopt 15K temperature sensor, external connect 15K partial resistance);

2. Outdoor ambient temperature $T_{outdoor\ amb.}$ (adopt 15K temperature sensor, external connect 15K partial resistance);

3. Discharge temperature (Tdischarge)

4. Indoor evaporator tube temperature Tevaporator (adopt 20K temperature sensor, external connect 20K partial resistance);

5. Outdoor condenser tube temperature Tcondenser (adopt 20K temperature sensor, external connect 20K partial resistance).

3. Basic Functions of System

In all modes, once the compressor is started up, it will run within 6mins all the time; once the compressor is stopped, it can only be started up after 3mins delayed.

（1）Cooli ng Mode

1. Working conditions and process of cooling

When Tamb.≥ Tpreset+1℃, the unit will run in cooling mode. Meanwhile, compressor, outdoor fan will start running, and indoor will run at setting fan speed;

When Tamb.≦Tpreset-1℃, the unit is at OFF status in cooling mode. Meanwhile, compressor, outdoor fan will all stop running, while indoor fan will run at setting fan speed;

When Tpreset-1℃<Tamb.<Tpreset+1℃, the unit will keep previous running status.

➢   In this mode, the temperature setting range is 16℃~30℃ and the initial value is 25℃.
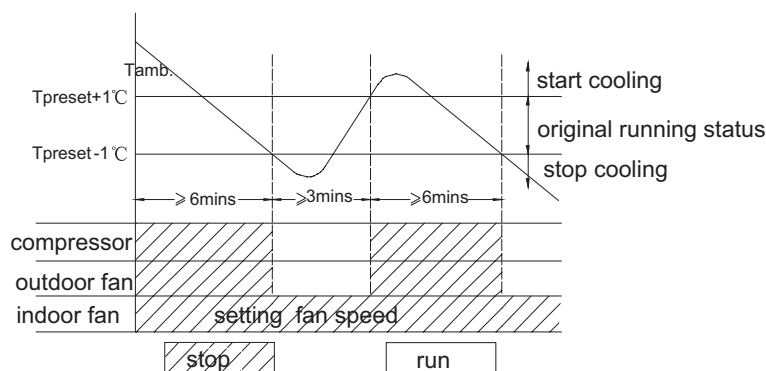
（2）Dry Mode

1. Working conditions and process of dry

When Tamb.>Tpreset+2℃, the unit will run in cooling mode. Meanwhile, compressor and outdoor fan will start running, and indoor fan will run at low fan speed;

When Tpreset-2≦Tamb.≦Tpreset+2℃, compressor and outdoor fan will run for 6mins and then stop for 4 mins, and they will run like that circularly. Indoor fan will run at low fan speed;

When Tamb.<Tpreset-2℃, compressor and outdoor fan will stop running, while indoor fan will run at low fan speed.

➢   In this mode, the temperature setting range is 16℃~30℃ and the initial value is 25℃.
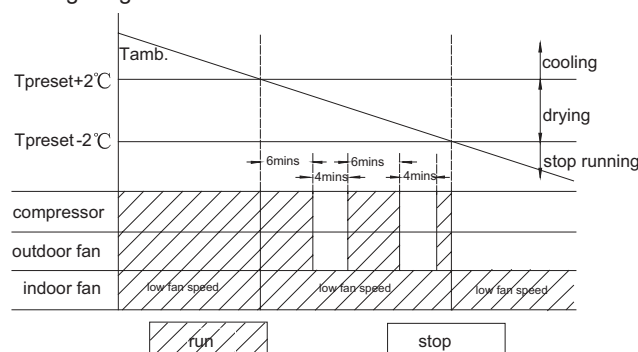
（3）Heating Mode（this mode is not available for cooling only unit)

1. Working condition and process for heating

When Tamb.≦Tpreset-1℃, the unit will run in heating mode. Meanwhile, compressor and outdoor fan will start running. Indoor fan may be start running after delayed for a period of time to prevent blowing out cold air. If the unit turns to heating mode for the first time or switches to heating mode from other modes, the four-way valve will be energized after compressor was started up for the first time for 20s.

When Tamb.≥ Tpreset+1℃, compressor and outdoor fan will stop running. The four-way valve is energized all the same and indoor fan will stop running after running at low fan speed for 10s;

When Tpreset-1℃<Tamb.<Tpreset+1℃, the unit will keep original running status;

➢ In this mode, the temperature setting range is 16℃~30℃ and the initial value is 25℃. When tuning off the unit in heating mode or switching to other modes from heating mode, the four-way valve will be de-energized after 2mins delayed.

➢ When turning off the unit, if the complete unit is at running status in heating mode, the unit will stop running when reaching the setting temperature and the unit will be turned off after lowing residual heat for 10s. If the unit is at the status of blowing residual heat when the unit is stopped after reaching the temperature point, the unit will continue to blow residual heat and then it will be turned off; if the unit is stopped after reaching the temperature and indoor fan is stopped, the unit will be turned off directly without blowing residual heat.
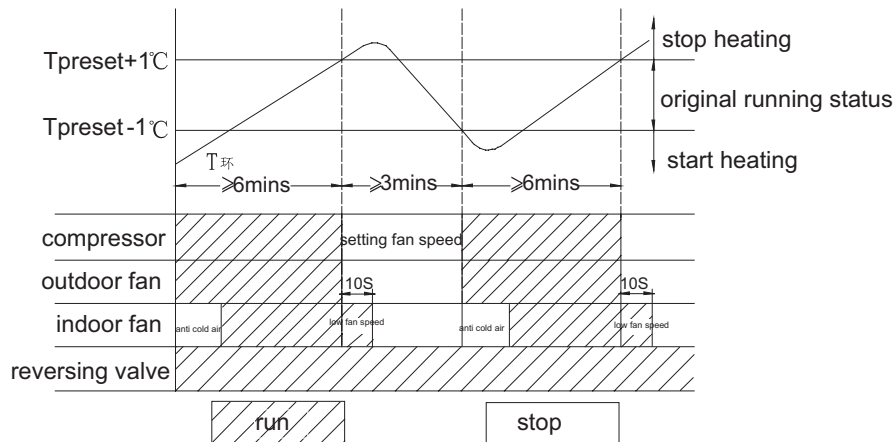
2. Defrosting condition and process

System will defrost intelligently and automatically. When it's detected that the system is reached the defrosting condition, the system will turn to defrosting status;

After defrosting is started up, H1 will be displayed. If there's auxiliary heating, auxiliary heating will be stopped and then compressor, indoor fan and outdoor fan will stop running after 1min delayed. 3mins later, the four-way valve will be closed. After four-way valve has closed for 30s, compressor will be started up.

After defrosting is finished, compressor will stop running, while the four-way valve will be start up. 30s later, compressor and outdoor fan will be restarted up and turn to the next periods. Indoor fan is running at anti cold air status.

Defrosting time can't exceeds 12mins at the most.

3. Working condition for auxiliary heating

Auxiliary heating can be turned on/off by buttons.

If auxiliary heating is at ON status, when indoor fan is running, and indoor ambient temperature and air discharge temperature are low, auxiliary heater will start running;

When indoor fan isn't running, or indoor ambient temperature is high, or air discharge temperature is high, auxiliary heater will stop running. Once the auxiliary heater is stopped, it can only be restarted up after 2mins delayed.

If auxiliary heating is set OFF, the auxiliary heating will be turned off directly.

（4）Fan Mode

Indoor fan is running at setting fan speed: auto fan speed → low fan speed → medium fan speed → high fan speed

➢ The temperature setting range is 16℃~30℃ and the initial value is 25℃.

（5）Auto Mode

In this mode, the system will select the running mode (cooling, dry, heating, fan) automatically according to the change of ambient temperature.

➢ Once the mode is started up, the unit will only switch to the running status under auto mode according to Tamb after it has run for 30s at least.

（6）Freon Recovery Mode

That's the recovery operation method for refrigerant:

1. After the A/C is energized for the first time, set the A/C at FAN mode, low fan speed by remote controller and the indoor temperature is set as 20℃; Meanwhile, indoor fan will start running.

2. Press the light button on remote controller for twice successively within 5s; meanwhile, indoor fan and compressor will start running automatically.

3. After compressor has run for 3mins, close the cut-off valve completely.

4. When the protector for Low-pressure switch has an action, compressor and outdoor unit will stop running automatically. Please close the cut-off valve immediately.

5. After stopping blowing wind by remote controller, the refrigerant recovery operation is finished completely.

Notice: 1. After refrigerant is recovered, if the recovery operation should be operated again, please cut off the power at first and then put through the power again.

2. Above methods are applicable for the movement or reinstallation of indoor unit or outdoor unit; during this process, the low voltage switch can't be short circuited.

4.Other Controls

1. Sleep Function

Sleep in cooling mode:

When initial temperature is set as 16~23℃, after sleep function is started up, the temperature will increase by 1℃ every 1hr. After the temperature has increased by 3℃, the unit will keep this temperature. After the unit has run for 7hrs, the temperature will decrease 1℃ and then the unit will run at this temperature all the time.

When initial temperature is set as 24~27℃, after sleep function is started up, the temperature will increase by 1℃ every 1hr. After the temperature has increased by 2℃, the unit will keep this temperature. After the unit has run for 7hrs, the temperature will decrease 1℃ and then the unit will run at this temperature all the time.

When initial temperature is set as 28~29℃, after sleep function is started up, the temperature will increase by 1℃ every 1hr. After the temperature has increased by 1℃, the unit will keep this temperature. After the unit has run for 7hrs, the temperature will decrease 1℃ and then the unit will run at this temperature all the time.

When initial temperature is set as 30 ℃, the unit will run at this temperature. After the unit has run for 7hrs, the temperature will decrease by 1℃ and then the unit will run at this temperature all the time.

Sleep in heating mode:

When initial temperature is set as 16℃, the unit will run at this temperature all the time;

When initial temperature is set as 17~20℃, after sleep function is started up, the temperature will decrease by 1℃ every 1hr. After the temperature has decreased for 1℃, the unit will keep this temperature.

When initial temperature is set as 21~27℃, after sleep function is started up, the temperature will decrease by 1℃ every 1hr. After the temperature has decreased for 2℃, the unit will keep this temperature.

When initial temperature is set as 28~30℃, after sleep function is started up, the temperature will decrease by 1℃ every 1hr. After the temperature has decreased for 3℃, the unit will keep this temperature.

Sleep in dry mode:

When setting sleep function in dry mode, after the sleep function has run for 1hr, Tpreset will increase by 1℃ and it will increase by another 1℃ after 2hrs. Tpreset will increase by 2℃ at all within 2hrs and then the unit will run at this temperature.

Sleep in fan mode and auto mode:

Sleep function is nor available in fan mode and auto mode.

2. Timer Function

Timer ON: Timer ON can be set at the OFF status of the unit. After timer ON is reached, controller will run according to the setting mode. The time setting range is 0.5~25hrs and the interval is 0.5hr. If the time on display screen is less than 10hrs, the display interval is 0.5hr; if the time is more than 10hrs, the display interval is 1hr.

Timer OFF: Timer OFF can be set at the ON status of the unit. After timer OFF is reached, the unit will be turned off. The time setting range is 0.5~25hrs and the setting interval is 0.5hr. If the time on display screen is less than 10hrs, the display interval is 0.5hr; if the time is more than 10hrs, the display interval is 1hr.

3. Swing Control

Swing motor can be turned on/off by pressing the swing button on remote controller. Swing is valid only when the indoor fan is running.

Right & left swing: swing blade has 7 kinds of status: ① angle 1, ② angle 2, ③ angle 3, ④angle 4, ⑤ angle 5, ⑥ swing, ⑦ stop. After the unit is turned on by the ON/OFF button on control panel every time, the default status of swing is OFF and the position is ③ angle 3. After the unit is turned on by remote controller, the status of swing motor is basing on the display status on remote controller. After the unit is energized every time, right & left swing motor will be reset.

(0°)
set this place as the starting point

set this place as the starting point (0°)

UP & down swing: when turning off the unit, the swing blade will stop at the starting point (zero position). When turning on the unit, there are 7 kinds of status: ① angle 1 (max position), ② angle 2, ③angle 3, ④angle 4, ⑤angle 5 (min position), ⑥swing, ⑦stop. If turn on the unit by the ON/OFF button on control panel, the setting swing status is basing on the status before turning off the unit; while if turn on the unit by remote controller, the setting swing status is basing on the status on remote controller (if the receiving remote controller is 35, 25, 24, 14 or 13, it's ⑥ swing). When turning on the unit each time (including turn on the unit by remote controller or control panel), if the setting swing status is not ⑦stop, then it will at the actual swing status; if the setting swing status is ⑦stop, after turning the unit, it will be defaulted at angle 3 in cooling, angle 4 in heating and angle 3 in dry. As for mode switchover, it will also switch like that until the setting swing status is not ⑦stop, then the above compulsory default status will be cancelled.
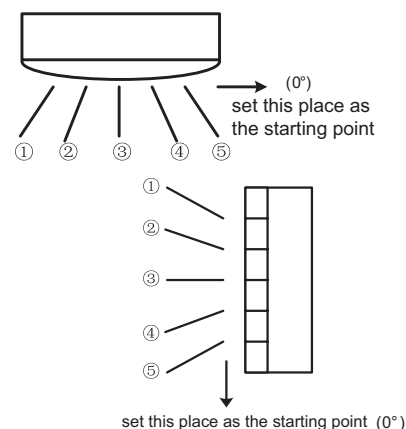
When turning on the unit each time, the swing blade must be open to angle 5 (mini position), and then compressor, fan etc. can run. When switching on controller or turning off the unit each time, the swing blade must be at OFF status.

4. Buzzer

Upon energization or operation, the buzzer will give out pleasant sound (digital chord).

5. Auto Fan Speed Control of Indoor fan

In auto fan speed, indoor fan will select high, medium or low fan speed automatically according to the change of ambient temperature. For the switchover between any two kinds of fan speed, the unit must be make sure that it has run at each fan speed for 3mins and 30s at least.

6. AIR Function（it's reserved for some models）

AIR function is invalid when the unit is turned off. Upon receiving the order for starting up AIR function from remote controller or control panel, indoor fan will be turned on and the AIR function will be started up; once receiving the order for turning off AIR function, AIR function will be turned off. After the unit is turned off, AIR function will be cleared automatically.

7. BLOW function

Blow function can be turned on/off by the FUNCTION button on control panel or BLOW· E-HEATER button on remote controller. If start up BLOW function in cooling or dry mode, after the unit is turned off, indoor unit will still run for a few minutes to dry the water inside the unit, and then the indoor unit will be turned off automatically.

8. Turbo Function

In cooling and heating mode, turbo function can be turned on/off (there's no turbo function in auto, dry and fan mode) by the turbo button After pressing turbo button for once, remote controller will display the characters of "turbo" and fan speed won't change, Meanwhile, indoor fan will run at super-high fan speed and display panel will display the super-high fan speed; After repressing turbo button, th turbo function will be quitted and the characters of "turbo" on remote controller will be disappeared. Meanwhile, indoor fan will turn back to setting fan speed. Super-high fan speed will also be quitted after operating the fan speed button and the fan speed will also be changed correspondingly. Display panel will display the setting fan speed.

Turbo function is default to be turned off when remote controller is energized.

When restarting up the unit or switching the mode, turbo function will be memorized.

When restarting up the unit by remote controller and controller or switch to cooling or heating mode, turbo function will be memorized. While when switching to auto, dry or fan mode, the turbo function is unavailable.

9. Power-off Memory Function

When re-energizating the unit after power failure, the unit will run at the memory content. Memory content : mode, up&down swin (7kinds of status), right and left swing (7 kinds of status), setting temperature, setting fan speed, light, timer, turbo, AIR, health and environment mode.

If the unit is at ON status after power failure, compressor will be started up 3mins delayed after energization; if the unit is at OFF status, compressor will be started up without 3mins delayed.

If the timer hasn't been reached before power failure, the unit will time again according to the setting timer before power failure.

5. Protective Measures

1. Indoor antifreezing protection

When cooling in cooling mode or dry mode (that's Tamb>Tpreset+2℃), if it's detected that the evaporator tube temperature is too low the system will turn to antifreezing protection status. Meanwhile, compressor and outdoor fan will stop running, while indoor fan and swing motor will keep original status. When evaporator tube temperature resumes to normal range and compressor has stopped for 6mins, controller will run at the setting mode.

Buttons won't be shielded during the antifreezing protection.

2. High-pressure protection of system

When the high-pressure protection is detected for 3s successively, all loads will be turned off. Meanwhile, all buttons and signal will be shielded and E1 will be displayed. When it's detected that the high-pressure protection of compressor has been released for 6s successively, the shield for button and signal will be released and E1 will still be displayed. E1 can be cleared after pressing ON/OF button to turn off the unit. The unit will resume running after repressing ON/OFF button.

3. Low-pressure protection of system

This function is unavailable for some modes. But if the controller is the general controller and the shielded wire of low-pressur protection is loosened or not connected well, it will take it as low-pressure protection by mistake. The details are as below:

1. After compressor is started up for 2mins, it will begin to detect the signal of low pressure switch. If it's detected that the low pressure switch is broken for 1mins successively, the complete unit will stop running. 3mins later, if the low pressure switch is resumed, the unit will resume running automatically. If low pressure switch protection occurs for 2 times successively, E3 will be displayed and the can't resume running automatically to warn users that it's leaking. After restarting up the unit and low pressure switch is resumed, the unit will resume running.

2. When compressor is stopped, if it's detected that the low pressure switch is broken for 30s successively, the complete unit will stop running. Meanwhile, E3 will be displayed and the unit can't resume running automatically. Only after restarting up the unit and the low pressure switch is resumed, the unit can resume sunning.

3. When compressor hasn't been start up after energization each time, if it's detected that the low pressure switch is broken for 1s successively, all loads won't be turned on after turning on the unit, and E3 will be displayed on the display screen. E3 will still be displayed after restarting up the unit. Only when the low pressure switch is resumed, E3 will be cleared and then all loads will run normally.

4. In compulsory cooling or heating mode, it will begin to detect the signal of low pressure switch after compressor has started up for 2mins. When it's detected that the low pressure switch is broken for 1s successively, the complete unit will stop running and E3 will be displayed. During compulsory heating, if outdoor ambient temperature $\leqq 0℃$, the detection for low pressure switch will be shielded.

Correct disposal method: after cutting off the power, insert the shielded wire again to make sure that the shielded wire is connected firmly and then restart up the unit.

4. High temperature protection for discharge pipe

After the compressor is started up, if it's detected that the discharge temperature is too high for 30s successively, the unit will stop running when indoor ambient temperature is reached to setting temperature. When compressor has stopped for 3mins and discharge temperature resumes to normal range Tdischarge <90℃, the complete unit will resume running.

If above protection is occurred for twice successively, the complete unit can't resume running and E4 will be displayed. When restarting up the unit and Tdischarge <90℃, the unit will run at setting mode.

If turning on the unit to turn to heating mode or switching to heating mode from other modes, discharge protection will be shielded for 1min when compressor is started up for the first time.

5. Indoor high temperature resistance protection

In heating mode, when it's detected that the evaporator tube temperature is too high, outdoor fan will stop running; when evaporator tube temperature resumes to normal range, outdoor fan will be started up.

6. Overcurrent protection

After compressor is started up, if it's detected that the current is exceeds $I_0(I_0=25A)$ for 3s successively, the unit will stop running when Indoor ambient temperature is reached to setting temperature. After compressor has stopped for 3mins, the unit will resume original running status. If protection times exceeds 6 times, indicator will blink and display E5 and the unit can't resume original running status. The unit can only resume running after restarting up the unit.

7. Malfunction of temperature sensor

Under ON status, it will detect the malfunction of indoor tube temperature (exclude defrosting period and the period when defrosting is finished for 5mins) and outdoor discharge temperature sensor (in heating mode, it starts detecting the malfunction after compressor has started up for 1min; the malfunction won't be detected when compressor is stopped). It's the malfunction when they are short circuit or broken circuit for 30s successively. When there's malfunction of temperature sensor, the complete unit will stop running. Meanwhile the indicator will blink and display the corresponding error code. Malfunction of temperature sensor won't shield the button and remote controller.

8. Malfunction and protection code

E1: high-pressure protection of system;

E3: low-pressure protection of system;

E4: high temperature protection for discharge pipe;

E5: overcurrent protection;

F1: malfunction of indoor ambient temperature sensor;

F2: malfunction of indoor tube temperature sensor;

F3: malfunction of outdoor ambient temperature sensor

F4: malfunction of outdoor tube temperature sensor

F5: malfunction of discharge temperature sensor

When multiple malfunctions are occurred simultaneously, each malfunction error will be displayed for 3s and they be will displayed in cycle.

6 Button

When remote controlling by remote controller:

1.If the display mode for remote controller is the heating mode and A/C is the cooling only type, A/c won't receive other signal except the signal for turning off the unit.

2.If pressing the invalid button on remote controller, the buzzer will still give out a sound but the function won't be carried out.

There are those buttons on the panel: ON/FF button, mode button, ambient setting button, ▲ button, ▼button, function button, fan speed button.

Display screen:
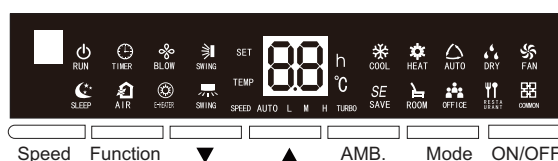
1. ON/OFF button

Controller is turned on/off by pressing this button. After each pressing of this button, the on/off status will be switched for once.

2. Mode button

After pressing this button, it will be selected and displayed as below:

Auto ⟶ cooling ⟶ dry ⟶ fan ⟶ heating   (heat pump type)
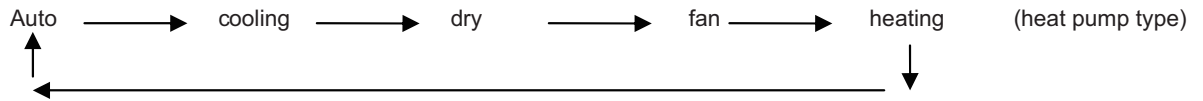
3. Ambient setting button

After pressing AMB. button, it will be selected as below:

SAVE mode ⟶ room mode ⟶ office mode ⟶ restaurant mode ⟶ common mode
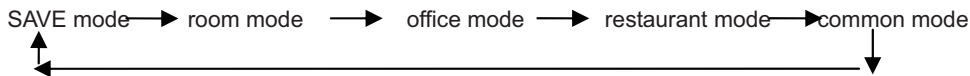
① In each mode, after pressing AMB. mode on control panel, the ambient mode can be selected and cycled as : SAVE mode---room mode---office mode---restaurant mode---common mode; when the unit is turned on for the first time, ambient mode is default as common mode; when restarting up the unit, ambient mode will keep the setting status before turning off the unit.

② When using the remote controller, the unit can only turn to SAVE mode or common mode after receiving the order from remote controller, and the unit will run according to the order transmitted by remote controller all the time.

③ In SAVE mode, room mode, office mode or restaurant mode, sleep will be cancelled automatically and sleep can't be adjusted; Sleep is only valid in cooling, dry and heating mode under the common mode.

④ Room, restaurant and office modes
   Cooling and heating mode: setting temperature, fan speed and swing will run at the default status. If users have adjusted the parameters, they will run according to adjusting status. 30mins later, it will turn back to auto adjusting status; when restating the unit, swing will keep the status before turning off the unit.
   Fan, dry and auto mode: running status is the same as that in common mode.

⑤ SAVE mode
   In cooling mode: setting temperature and fan speed can be adjusted automatically; if users have adjusted the setting temperature and setting fan speed, it will run according to the adjusting status. 30mins later, it will turn back to auto adjusting status.
   Heating, fan, dry and auto mode: the running status is the same as that in common mode.

   Notice : room, restaurant and office mode can only be adjusted by buttons on control panel. If controller is receiving the order from remote controller when it's running in room, rest aurant or office mode, those modes will be quitted and it will run according to the mode on remote controller.

4. Selection button for setting temperature (▲and ▼)

(1) During the status when don't set the function, after pressing ▲ button or ▼button for once, the setting temperature will increase or decrease for 1℃ and the temperature setting range is 16℃~30℃.

(2) During the status when setting the function, the function can be selected circularly. （the circulatory direction for ▲and▼ is opposite）

① up & down（swing）：swing, stop swinging.
② right & left (swing): swing, stop swinging.
③ blow: start up blow, turn off blow.
④ E-HEATER: start up E-HEATER, turn off E-HEATER.
⑤ TIMER: set timer and it can be adjusted among 0~24hrs. If the time is less than 10hrs, the interval is 0.5hr; if the time is more than 10hrs, the interval is 1hr.
⑥ AIR: start up AIR, turn off AIR.
⑦ Sleep: start up sleep, turn off sleep.
⑧ Health: start up the electrostatic dedusting, turn off the electrostatic dedusting.
⑨ Turbo: start up turbo, turn off turbo.

⑩Setting: default to display the setting temperature at ON status, default to display the setting temperature at off status

⑪ Room temperature: default to display room temperature at on status, default to display to room temperature at off status.

(3) After pressing ▲ button and ▼button simultaneously, all buttons on the display panel will be shielded. When pressing any buttons, the buzzer will give out a sound and dual 8 will display "LC". The display will resume normal after the dual 8 blinks 3 times to warn users that the buttons are locked. When repressing those two buttons simultaneously, shield will be released and the display will resume normal status.

(4) After the unit is energized for the first time, if there isn't any input:

① If pressing ▲ buttons within 20s successively, the unit will turn to compulsory heating immediately and up & down swing blade will open to angle I （minimum position）. Meanwhile, all loads will be started up and indoor fan and outdoor fan will run at high fan speed. When there's no malfunction of temperature sensor, all characters will be displayed. When there's malfunction of temperature sensor, dual 8 will display error codes circularly and the buzzer will give out sound. When the unit is stopped 5 mins later or the unit is stopped after receiving the signal for turning off the unit within 5mins, the unit will turn to normal standby status.

② If pressing ▼button within 20s successively, the unit will turn to compulsory cooling immediately and up & down swing blade will open to angle I (minimum position). Meanwhile, all loads will be turned on except the four-way valve and the indoor fan and outdoor fan will run at high fan speed. When there's no malfunction of temperature sensor, all characters will be displayed. When there's malfunction of temperature sensor, dual 8 will display error codes circularly and the buzzer will give out sound. When the unit is stopped 5 mins later or the unit is stopped after receiving the signal for turning off the unit within 5mins, the unit will turn to normal standby status.

After above tests are all displayed for 2s, it will begin to detect the malfunction of indoor ambient, indoor tube temperature, outdoor ambient, outdoor ambient, outdoor tube temperature and discharge temperature sensor. When it's detected that there are multiple malfunctions, each error code will be displayed for 3s and they will be displayed circularly.

Item ① and ② are only used for testing. During this period, high pressure, overcurrent and discharge protection won't be detected.

5. Function button

In the ON state of the unit, after each pressing of the function button, you can switch among up&down swing, right&left swing, blow, E-HEATER, timer, AIR, sleep, health (this is unavailable for L-shape floor standing A/C), turbo, setting and room temperature setting in sequence. When a certain character is blinking, it means that you can set this function and you can press "▲"button or "▼"button to set it. The setting will be confirmed after the setting has been set for 5 mins and there's no change for the operation.

In blow running status, the unit will be turned off after pressing the function button. If repressing the function button, you can set the timer or health function.

After a function is selected by function button, if the unit hasn't been turned off and it hasn't received the signal from remote controller within 2 mins, the unit will circulate starting from the original setting function after repressing the function button. 2mins later or the unit is turned off or the unit has received the signal from remote controller, the unit will circulate from the first icon after repressing function button.

6. Fan Speed Button

After pressing speed button, it will be selected and displayed as: auto ➔ low ➔ medium ➔ high
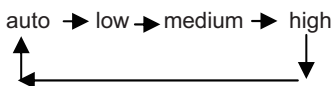
7. Display Method

1.Middle Number Part

(1) When there's malfunction protection (E1, E3, E4, E5, F2, F5), the unit only displays the error code and others won't be displayed. When there's multiple malfunctions, those malfunctions will be displayed circularly.

(2)In the normal running status, when setting temperature or timer is set, the unit will display the corresponding setting for 5s. After that, the unit will display the setting temperature and it will default to display H1 during the time of defrosting. When setting the setting temperature, timer and temperature display, they will be displayed in sequence as below: setting temperature, timer, temperature display and defrosting H1 and each status will be displayed for 5s. If one status (setting temperature, timer, temperature display, defrosting H1) isn't exist, that status will be omitted and the display will stop at the defaulted or setting temperature display. After the unit is energized, it defaults to display the ambient temperature.

The corresponding character and icon will be displayed simultaneously.

2. Fan Speed

When setting auto, low, medium and low fan speed, the corresponding character for the selected fan speed will be bright, and others won't be bright.

When setting auto, cooling, dry, fan and heating mode, the corresponding character for the selected mode will be bright and others won't be bright. The character and icon for the selected mode will be bright simultaneously. In auto mode, the auto and actual running mode will be displayed at the same time.

3. Ambient Mode

Ambient mode is including 5 kinds of mode: SAVE mode, room mode, office mode, restaurant mode and common mode. The selected ambient mode will be bright, others won't be bright.

① Up&down swing: when setting up&down swing, the icon and character will blink; when selecting the up&down swing, the icon and the character of (up&down) will be displayed. When there's no up&down swing or the swing the stopped, the icon and the character of "up&down" won't be displayed.

② Right&left swing: when setting right&left swing, the icon and character will blink; when selecting the right&left swing, the icon and the character of (right&left swing) will be displayed. When there's no right&left swing swing or the swing the stopped, the icon and the character of "right&left swing" won't be displayed.

③ Blow: when setting blow function, the icon and character will blink; when this function is selected, the icon and character will be displayed. If the blow function hasn't been selected, the icon and character won't be displayed. During the time of blow, only the icon and character are displayed, others won't be displayed.

④ E-HEATER: when setting E-HEATER function, the icon and character will blink; when this function is selected, the icon and character will be displayed. If the E-HEATER function hasn't been selected, the icon and character won't be displayed.

⑤ Timer: when setting timer function, the icon and character will blink; when this function is selected, the icon and character will be displayed. If the timer function hasn't been selected, the icon and character won't be displayed.

⑥ AIR: when setting AIR function, the icon and character will blink; when this function is selected, the icon and character will be displayed. If the AIR function hasn't been selected, the icon and character won't be displayed.

⑦ Sleep: when setting AIR function, the icon and character will blink; when this function is selected, the icon and character will be displayed. If the sleep function hasn't been selected, the icon and character won't be displayed.

⑧ Health: when setting AIR function, the icon and character will blink; when this function is selected, the icon and character will be displayed. If the health function hasn't been selected, the icon and character won't be displayed.

⑨ Turbo: when setting turbo function, the character will blink; when this function is selected, the character will be displayed. If the turbo function hasn't been selected, the character won't be displayed.

⑩ Setting: when setting function, the character of setting will blink; when this function is selected, the character will be displayed and the dual 8 will display the setting temperature. If the setting function hasn't been selected, the character and setting temperature won't be displayed.

⑪ Room temperature: when setting function, the character of room temperature will blink; when this function is selected, the character will be displayed and the dual 8 will display the indoor room temperature. If the room temperature function hasn't been selected, the character and indoor room temperature won't be displayed.

5. Indicator Control

When the unit is at standby status after energizing, the power LED will be bright. After the unit is turned on, the running LED will be bright. When any one of the circumstances as below are occurred, the running LED will blink: defrosting, overcurrent protection, high pressure protection of compressor, low pressure protection of compressor, high temperature protection of discharge pipe，malfunction of indoor tube temperature sensor, malfunction of discharge temperature sensor.

6. Light Control

LED display can be turned off by the light button on remote controller. When using remote controller to cancel "light", the complete LED displayer screen will go out, except the running LED. When turning off the light, if there's signal from button or remote controller, LED will go out after displaying for 5s.

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 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 .

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 require- ment 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 suffi- cient 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 dur- ing installation.
6. Make sure no foreign objects are left in the unit after fin- ishing 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. 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 Installation Dimension Diagram

Away from wall (30cm at least for piping side)

10cm above

Away from ceiling

30cm

Away from obstacles

200cm above

Away from wall (30cm at least for piping side)

10cm above

Away from back side

5cm above

Away from obstacled

60cm above

Away from wall

10cm above

Away from obstacles

10cm above

Away from obstacles

200cm above

Away from obstacles

60cm above
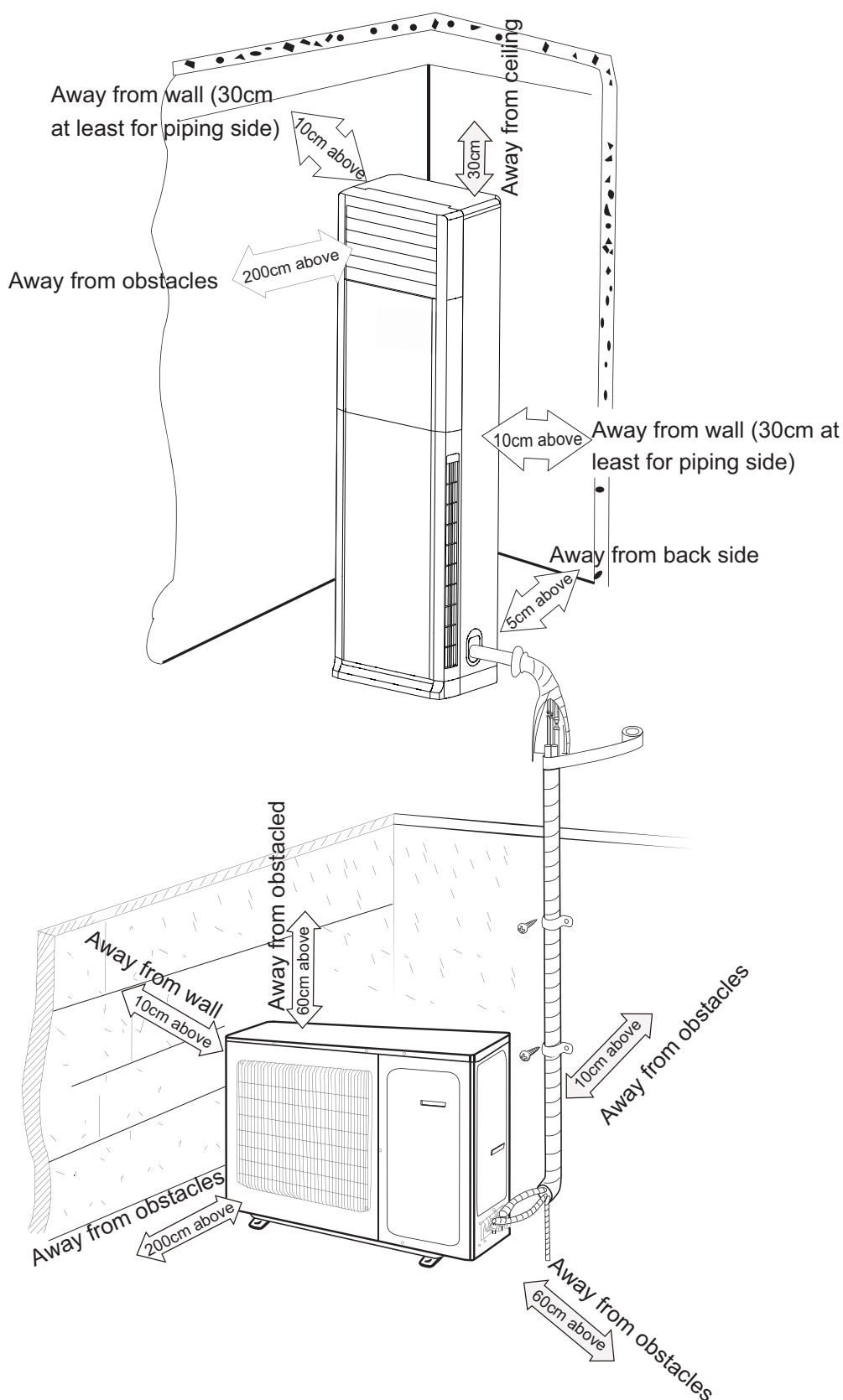
8.2 Installation Procedures

```
                              Start installation

                          Preparation before installation

   Read the requirements      select installation      Prepare tools
   for electric connection     location

          Select indoor unit                Select outdoor unit
          installation location              installation location

                                        Install the support of outdoor unit
             Drill wall holes           (select it according to the actual situation)

      Connect pipes of indoor                Fix outdoor unit
      unit and drainage pipe

      Connect wires of indoor unit      Install drainage joint of outdoor unit
                                        (only for cooling and heating unit)

             Bind up pipes
                                        Connect pipes of outdoor unit

            Make the bound pipes pass
            through the wall hole and then
             connect outdoor unit

                                     Connect wires of outdoor unit

                 Neaten the pipes

              Vacuum pumping and leakage detection

           Check after installation and test operation

                 Finish installation
```

Note: this flow is only for reference; please find the more detailed installation steps in this section.

8.3 Installation Parts-Checking

No.	Name	No.	Name
1	Indoor unit	7	Sealing gum
2	Outdoor unit	8	Wrapping tape
3	Connection pipe	9	Support of outdoor unit
4	Drainage pipe	10	Fixing screw
5	Connecting cable(power cord)	11	Drainage plug(cooling and heating unit)
6	Wall pipe	12	Owner's manual, remote controller

⚠ **Note:**
1.Please contact the local agent for installation.
2.Don't use unqualified power cord.

8.4 Selection of Installation Location

Basic Requirement:
Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:
1.The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
2.The place with high-frequency devices (such as welding machine, medical equipment).
3. The place near coast area.
4. The place with oil or fumes in the air.
5. The place with sulfureted gas.
6. Other places with special circumstances.
7. Please try your best to keep way from fluorescent lamp.

Indoor Unit:
1. Avoid installing the indoor unit in a place where generated or leaked inflammable gas will stay.
2. Avoid installing the indoor unit in a moist place or in a place where oil may be splashed on the unit.
3. Select a location where outlet air may reach each corner of the room.
4. Select a location where connection pipe can be led to outdoor conveniently.
5. Select a location where air inlet and outlet won't be blocked.
6. Select a location with least affection of outdoor air.
7. Select a location with firm and flat floor.
8. Retain sufficient space for maintenance and installation.
9. Ensure the installation meets the requirement of installation dimension diagram.
10.Do not use the unit in the immediate surroundings of a laundry a bath a shower or a swimming pool.

Outdoor Unit:
1. Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
2. The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
3. The location should be able to withstand the weight of outdoor unit.
4. Make sure that the installation follows the requirement of installation dimension diagram.
5. Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add fence for safety purpose.
6. The height difference between indoor unit and outdoor unit should be within 5m. The length of connection pipe should be within 10m.

8.5 Electric Connection Requirement

⚠ **Safety precaution:**
1. Must follow the electric safety regulations when installing the unit.
2. If the supply cord is damaged, it must be replaced by the manufacturer or its
service agent or a similarly qualified person in order to avoid a hazard.
3. According to the local safety regulations, use qualified power supply circuit and
4. A air switch having a contact separation of at least 3mm in all poles should be air switch.
fixed in fixed wiring.
5. The appliance shall be installed in accordance with national wiring regulation.
6. The air switch must have the functions of magnetic tripping and heat tripping in order to prevent short circuit or overload. Please install the air switch with suitable capacity according to the sheet below.
7. Make sure the power supply matches with the requirement of air conditioner.
8. Properly connect the live wire, neutral wire and grounding wire of power socket.
9. Be sure to cut off the power supply before proceeding any work related to electric safety.
10. Do not put through the power before finishing installation. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.

⚠ **Grounding Requirement:**
1. The air conditioner is first class electric appliance. It must be properly grounded with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
2. The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
3. The grounding resistance should comply with national electric safety regulations.

Model	Capacity of air switch
48/60K	25A

8.6 Installation of Indoor Unit

Step one: Choosing Installation location
Recommend the installation location to the client and then confirm it with the client.

Step two: open piping hole
1.Choose the position of piping hole according to the direction of outlet pipe.

2.Open a piping hole with the diameter of Φ70mm on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°. (As show in Fig.1)

Model	Piping hole
48/60K	Φ70mm
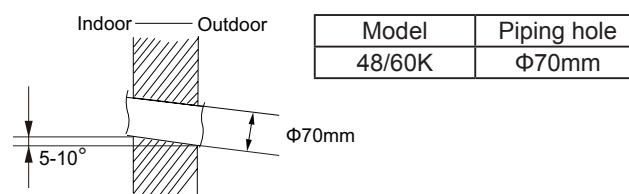
Fig.1

⚠ **Note:**

1.Pay attention to dust prevention and take relevant safety measures when opening the hole.
2.The plastic expansion particles are not provided and should be bought locally.

Step three: outlet pipe

1. The pipe can be led out in the direction of left, right or rear. (As show in Fig.2)

2. After confirming the direction of outlet pipe, loosen the screws at the upper and lower adjusting baffle to let the connection pipe/drain pipe connects the indoor unit. (As show in Fig.3)

left   back   right   Fig.2

left   back   right

upper and lower adjusting baffle   Fig.3
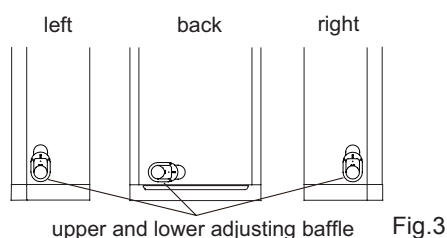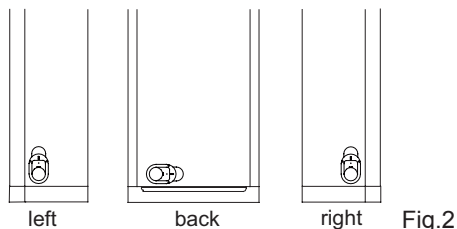
Step four: connect the pipe of indoor unit

1. Take out the left and right screw cover and then remove the screws on air-inlet panel to remove the panel.(As show in Fig.4)

2. Aim the pipe joint at the corresponding bellmouth.(As show in Fig.5)

3. Pretightening the union nut with hand.

4. Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench.(As show in Fig.6)

5. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape. (As show in Fig.7)

screw

air-inlet panel

pipe joint   union nut   pipe

Fig.4   Fig.5

open-end wrench

union nut

torque wrench   pipe

indoor pipe

Fig.6

insulating pipe

Fig.7
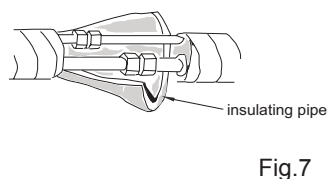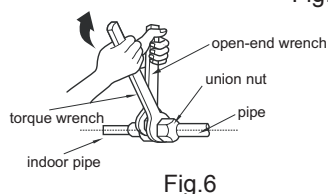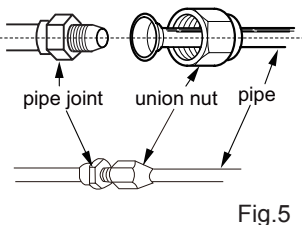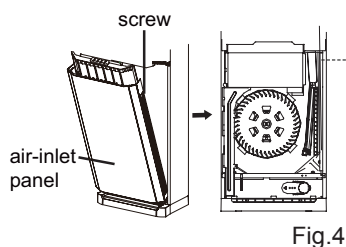
Refer to the following table for wrench moment of force：

Hex nut diameter(mm)	Tightening torque(N·m)
Φ6(1/4")	15~20
Φ9.52(3/8")	30~40
Φ12(1/2")	45~55
Φ16(5/8")	60~65
Φ19(3/4")	70~75

Step five: install drain hose

1. Connect the drain hose to the outlet pipe of indoor unit.(As show in Fig.8)

2. Bind the joint with tape.(As show in Fig.8)

3.Add insulating pipe in the indoor drain hose in order to prevent condensation.(As show in Fig.10)

drain hose

outlet pipe   drain hose

tape

outlet pipe   Fig.9

Fig.8

drain hose

insulating pipe

Fig.10
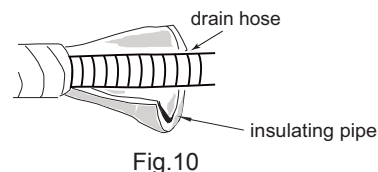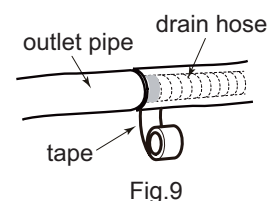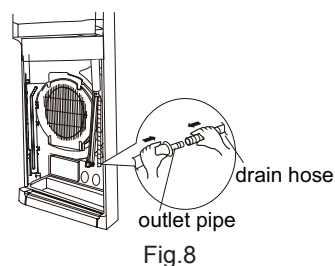
Step six: connect wire of indoor unit

1. Make the power connection wire go through the cable-cross hole of indoor unit(As show in Fig.11)

power connection wire   cable-cross hole

Fig.11
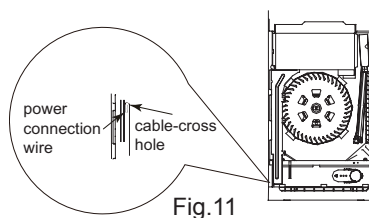
2. Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; tighten the screw and then fix the power connection wire with wire clip.(As show in Fig.12)
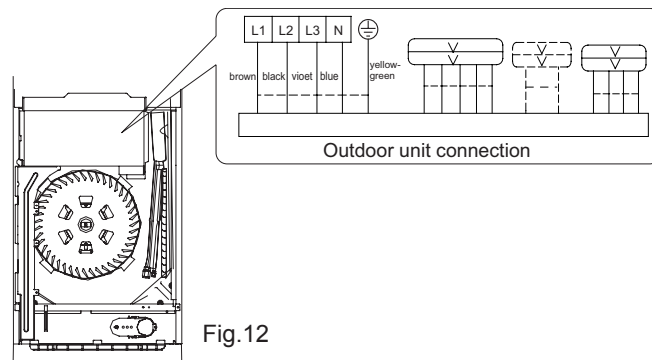
L1 L2 L3 N ⏚

brown black vioet blue   yellow-green

Outdoor unit connection

Fig.12

Note: the wiring connection is for reference only; please refer to the actual one.

(a)   (b)   (c)
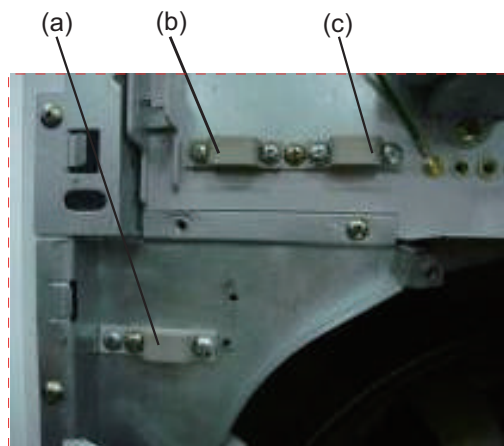
Relationship between wire clip and connection wire. Fig.13
3.(a)Wire clip :Connection wire (type B) (5X0.75).
(b)Wire clip (grey):Connection wire (type A/5 core)(5G1.0).
(c)Wire clip :Connection wire (type B) (4X0.75).
(As show in Fig.13)

4. Adjust the position of upper and lower adjusting baffle; clamp the connection pipe and drain pipe as firm as possible.
5. Tighten the screws.
⚠ Note:

All wires of indoor unit and outdoor unit should be connected by a professional.
1.If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
2.For the air conditioner with plug, the plug should be reachable after finishing installation.
3.For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

Step seven: bind up pipe
1. Bind up the connection pipe, power cord and drain hose with the band.(As show in Fig.14)
2. Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)
3. Bind them evenly.
4. The liquid pipe and gas pipe should be bound separately at the end.
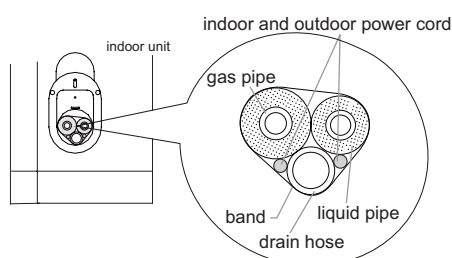
Fig.14
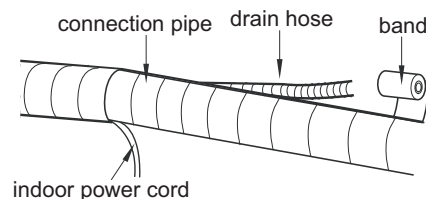
Fig.15

⚠ **Note:**

1.The power cord and control wire can't be crossed or winding.
2.The drain hose should be bound at the bottom.

Step eight: place the indoor unit
1.Put the bound pipes in the wall pipe and then make them pass through the wall hole.
2. Stuff the gap between pipes and wall hole with sealing gum. (As show in Fig.16)
3. Fix the wall pipe.
4.Check if the indoor unit is installed firmly.
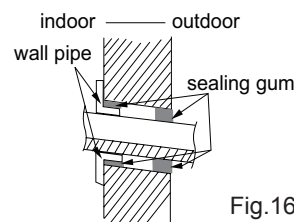
Fig.16

⚠ **Note:**

Do not bend the drain hose too excessively in order to prevent blocking.

8.7 Installation of Outdoor Unit

Step one: 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.(As show in Fig.17)
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.

Installation and Maintenance
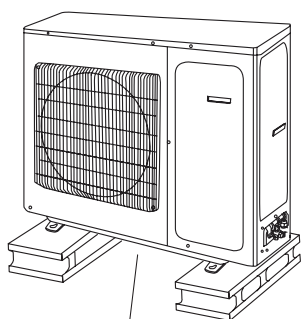
Fig.17

At least 3cm above the floor

Step two: install drain joint (only for cooling and heating unit)

1. Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.

2. Connect the drain hose into the drain vent.(As show in Fig.18)

drain vent — chassis
drain hose — outdoor drain joint
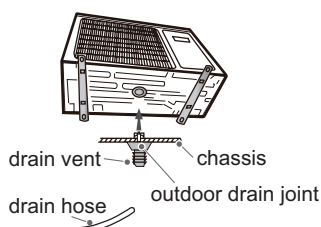
Fig.18

Step three: fix outdoor unit

1. Place the outdoor unit on the support.

2. Fix the foot holes of outdoor unit with bolts.(As show in Fig.19)

foot holes

Front side plate

foot holes
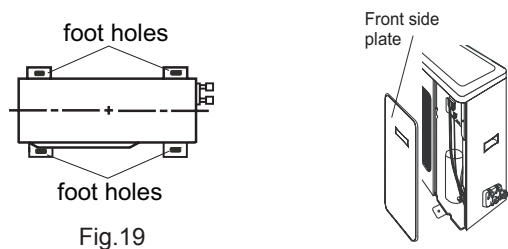
Fig.19

Fig.20

Step four: connect indoor and outdoor pipes

1. Remove the front side plate.(As show in Fig.20)

2. Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.(As show in Fig.21)

liquid pipe   gas pipe
gas valve
pipe joint
union nut
liquid valve
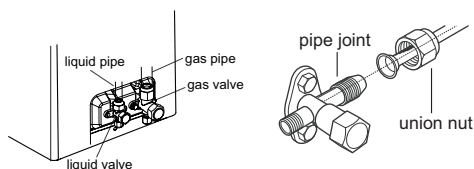
Fig.21

3. Pretightening the union nut with hand.

4. Tighten the union nut with torque wrench by referring to the sheet below.

Hex nut diameter(mm)	Tightening torque(N·m)
Φ6(1/4")	15~20
Φ9.52(3/8")	30~40
Φ12(1/2")	45~55
Φ16(5/8")	60~65
Φ19(3/4")	70~75

Step five: connect outdoor electric wire

1.Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color; fix the power connection wire with screws.(As show in Fig.22)

| N | L3 | L2 | L1 |
yellow-green | blue | violet | black | brown
Indoor unit connection

| N | L3 | L2 | L1 |
yellow-green | blue | violet | black | brown
N   L3   L2   L1
POWER
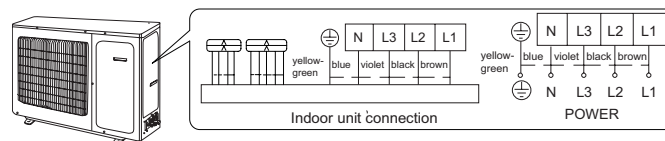
Fig.22

Note: the wiring connection is for reference only, please refer to the actual one.

2.Fix the power connection wire and signal control wire (only for cooling and heating unit) with wire clip.

(a)   (b)   (c)
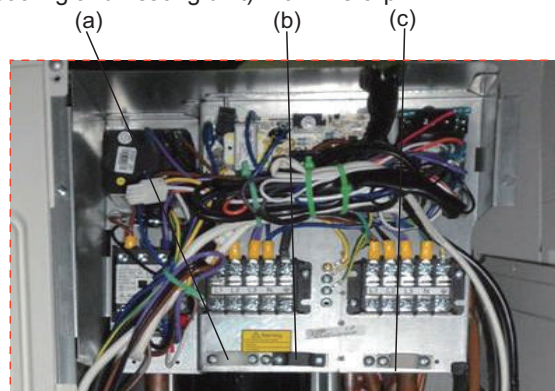
Figure of wire clip location. Fig.23

3. (a) Wire clip (grey) fixes connection wire (type B, 5X0.75) and connection wire (type B, 4X0.75).
(b) Wire clip fixes connection wire (type A, 5 core)(5G1.0).
(c) Wire clip fixes connection wire (type A, 5 core)(5G2.5).
(As show in Fig.23).

⚠ **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.

Step six: neaten the pipes

1. The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.

2. If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room. (As show in Fig.24)

Wall
U-shaped curve
Drain hose

Fig.24

the drain hose can't raise upwards.
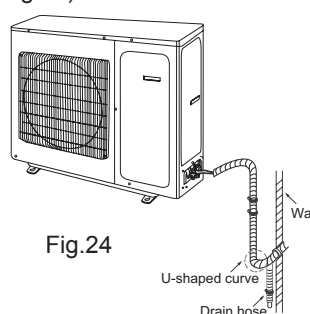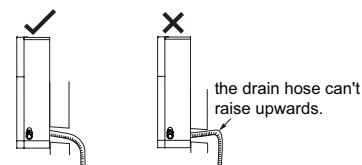
Fig.25

⚠ Note:

1.The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)

2. Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc. (As show in Fig.26)

3.The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)
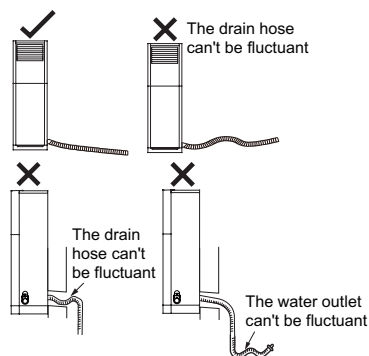
Fig.26
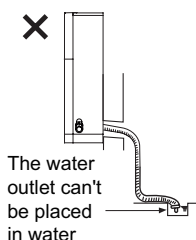
Fig.27

8.8 Vacuum Pumping and Leak Detection

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. (As show in Fig.28)
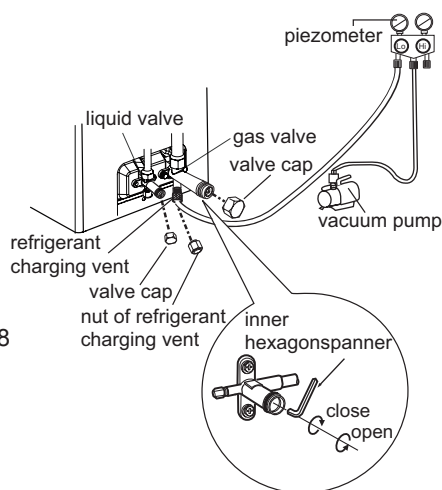
Fig.28

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.

8.9 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°C, the air conditioner can't start cooling.

9. Maintenance

9.1 Error Code

No.	Malfunction Name	Display Method of Indoor Unit / Nixie tube display	A/C Status	Possible Causes	Maintenance measures
1	High pressure protection	E1	During cooling and drying operation, except IDU fan motor operates, all loads stop operation. During heating operation, the complete unit stops and operation of remote controller or buttons is unavailable.	1. The mainboard and the display board are not connected well; 2. The OVC terminal on mainboard is not connected well with the high pressure switch on the complete unit; 3. The wiring terminal between high pressure switch and maiboard is loosened or the high pressure switch is broken; 4. Refrigerant is superabundant; 5. Poor heat exchange (including blocked heat exchanger and bad radiating environment); 6. Ambient temperature is too high; (if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason); 7. The supply voltage is abnormal (if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason); 8. The air intake and air discharge at indoor / outdoor heat exchanger are not smooth; 9. Filter and heat exchange fins of indoor/outdoor units are blocked; 10. The pipeline is blocked; 11. The gas valve and liquid valve for outdoor unit are not completely opened; 12. The OVC input is at high level.	Refer to Malfunction Detection Flowchart
2	Low pressure protection of compressor	E3	The complete unit stops.	1.The mainboard and display board are not connected well; 2. The LPP terminal on the mainboard is not connected well with the high pressure switch; 3. The wiring of high pressure switch is loosened or high pressure switch is damaged. 4. The refrigerant is insufficient; 5. The LPP input is at high level.	Refer to Malfunction Detection Flowchart
3	High discharge temperature protection of compressor	E4	During cooling and drying operation, compressor and ODU fan motor stop while IDU fan motor operates. During heating operation, all loads stop.	1. The system is abnormal. (e.g.: blockage, etc) 2. Abnormal rotation speed of outdoor motor (cooling); 3. Abnormal outdoor air intake (cooling); 4. System is normal, but the compressor discharge temperature sensor is broken or poorly contacted (Please check it by referring to the resistance table for temperature sensor).	Refer to Malfunction Detection Flowchart

4	Overcurrent protection	E5	During cooling and drying operation, compressor and ODU fan motor stop while IDU fan motor operates. During heating operation, all loads stop.	1. Unstable supply voltage. Normal fluctuation shall be within 10% of the rated voltage on the nameplate;	Refer to Malfunction Detection Flowchart
				2. Supply voltage is too low and load is too high;	
				3. Measure the current of live wire on mainboard. If the current isn't higher than the overcurrent protection value, please check the mainboard;	
				4. The indoor and outdoor heat exchangers are too dirty, or the air inlet and air outlet are blocked;	
				5. The fan speed of fan motor is too low or the fan motor doesn't run;	
				6. The compressor is not running normally. There is abnormal sound, oil leakage or the temperature of the shell is too high, etc;	
				7. There's blockage in the system (filth blockage, ice blockage, greasy blockage or valve hasn't been opened completely）.	

9.2 Procedure of Troubleshooting

1. High pressure protection (E1)

```
                              ┌──────────┐
                              │  Start   │
                              └──────────┘
                                   │
                                   ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Are the display board and        │──no──▶│ Connect the display board with the     │──────▶│ Malfunction is eliminated. │──yes──▶
        │ mainboard connected tightly?     │        │ mainboard well                         │        └──────────────────────────┘
        └─────────────────────────────────┘        └──────────────────────────────────────┘                    │ no
                    │ yes ◀──────────────────────────────────── no ──────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Are the OVC terminal on the       │──no──▶│ Connect the OVC terminal on the        │──────▶│ Malfunction is eliminated. │──yes──▶
        │ mainboard connected well with the │        │ mainboard with the high pressure       │        └──────────────────────────┘
        │ high pressure switch on the       │        │ switch on the complete unit well       │                    │ no
        │ complete unit ?                   │        └──────────────────────────────────────┘                    │
        └─────────────────────────────────┘                                                                       │
                    │ yes ◀──────────────────────────────────── no ──────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Is the wiring of high pressure    │──yes─▶│ If the wire of high pressure switch is │──────▶│ Malfunction is eliminated. │──yes──▶
        │ switch loosened? Is the high      │        │ loosened, please connect the wires     │        └──────────────────────────┘
        │ pressure switch broken or poorly  │        │ according to the circuit diagram.      │                    │ no
        │ contacted?                        │        │ If the high pressure switch is broken  │                    │
        └─────────────────────────────────┘        │ or poorly contacted, please replace it.│                    │
                    │ no ◀───────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Is the refrigerant superabundant? │──yes─▶│ Adjust the volume of refrigerant       │──────▶│ Malfunction is eliminated. │──yes──▶
        └─────────────────────────────────┘        │ according to the requirement of the    │        └──────────────────────────┘
                    │ no                            │ system                                 │                    │ no
                    │ ◀──────────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Is there poor heat exchange?      │──yes─▶│ Adjust the unit to improve the heat    │──────▶│ Malfunction is eliminated. │──yes──▶
        │ (Including filth blockage of heat │        │ exchange of unit                       │        └──────────────────────────┘
        │ exchanger and bad radiating       │        └──────────────────────────────────────┘                    │ no
        │ environment )                     │                                                                      │
        └─────────────────────────────────┘                                                                       │
                    │ no ◀───────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Is the ambient temperature too    │──yes─▶│ The ambient temperature exceeds normal │──────▶│ Malfunction is eliminated. │──yes──▶
        │ high? (If it is a 3-phase unit,   │        │ operation range; high pressure         │        └──────────────────────────┘
        │ high pressure protection may be   │        │ protection will occur once turning on  │                    │ no
        │ caused by overcurrent protection  │        │ the unit, which is a normal phenomenon │                    │
        │ due to this)                      │        └──────────────────────────────────────┘                    │
        └─────────────────────────────────┘                                                                       │
                    │ no ◀───────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Is the supply voltage normal? (If │──no──▶│ The normal fluctuation is within 10%   │──────▶│ Malfunction is eliminated. │──yes──▶
        │ it is a 3-phase unit, high        │        │ of the rated voltage on the nameplate  │        └──────────────────────────┘
        │ pressure protection may be caused │        └──────────────────────────────────────┘                    │ no
        │ by overcurrent protection due to  │                                                                      │
        │ this)                             │                                                                      │
        └─────────────────────────────────┘                                                                       │
                    │ yes ◀──────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Are the air intake and air        │──no──▶│ Adjust the system to make the air      │──────▶│ Malfunction is eliminated. │──yes──▶
        │ discharge at indoor / outdoor heat│        │ intake and air discharge of indoor and │        └──────────────────────────┘
        │ exchanger smooth?                 │        │ outdoor heat exchangers smooth         │                    │ no
        └─────────────────────────────────┘        └──────────────────────────────────────┘                    │
                    │ yes ◀──────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Is there filth blockage on the    │──yes─▶│ Remove the blockage.                   │──────▶│ Malfunction is eliminated. │──yes──▶
        │ filter or on the heat exchanger   │        └──────────────────────────────────────┘        └──────────────────────────┘
        │ fins of indoor / outdoor unit?    │                                                                      │ no
        └─────────────────────────────────┘                                                                       │
                    │ no ◀───────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌─────────────────────────────────┐        ┌──────────────────────────────────────┐        ┌──────────────────────────┐
        │ Are the gas valve and liquid valve│──no──▶│ Open the outdoor gas valve and liquid  │──────▶│ Malfunction is eliminated. │──yes──▶
        │ for outdoor unit opened           │        │ valve completely                       │        └──────────────────────────┘
        │ completely?                       │        └──────────────────────────────────────┘                    │ no
        └─────────────────────────────────┘                                                                       │
                    │ yes ◀──────────────────────── no ─────────────────────────────────────────────────────────┘
                    ▼
        ┌──────────────────────┐
        │ Replace the mainboard │
        └──────────────────────┘
                    │ ◀──────────────────────────────────────────────────────────────────────────────────────────
                    ▼
              ┌──────────┐
              │   End    │
              └──────────┘
```

2. Compressor low pressure protection (E3)

```
                              ┌─────────────┐
                              │    Start    │
                              └──────┬──────┘
                                     │
                                     ▼
        ┌──────────────────────┐                    ┌──────────────────────┐
        │ Is the terminal of low│                   │ Reconnect it firmly to make│
        │ pressure switch is    │────── no ────────▶│ sure it is properly contacted│
        │ properly connected?   │                   └──────────┬───────────┘
        └──────────┬───────────┘                               │
              yes ──── no ──────────────────┐                  ▼
                     │                       │       ┌──────────────────────┐
                     ▼                       └──────▶│   Malfunction is      │
        ┌──────────────────────┐                    │   eliminated          │
        │ Is the system pressure│                   └──────────┬───────────┘
        │ higher than the       │                              │
        │ operation pressure    │────── yes ──────▶ ┌──────────────────────┐
        │ value of low pressure │                   │ Charge refrigerant according│
        │ switch?               │                   │ to the system requirement│
        └──────────┬───────────┘                   └──────────┬───────────┘
              no ──── no ───────────────────┐                 ▼
                     │                       │      ┌──────────────────────┐
                     ▼                       └─────▶│   Malfunction is      │── yes ─▶
        ┌──────────────────────┐                   │   eliminated          │
        │ In power-off status,  │                   └──────────┬───────────┘
        │ check if the two      │                              │
        │ terminals led out from│────── no ──────▶  ┌──────────────────────┐
        │ the switch are put    │                   │ Replace the low       │
        │ through?              │                   │ pressure switch       │
        └──────────┬───────────┘                   └──────────┬───────────┘
              yes ──── no ──────────────────┐                 ▼
                     │                       │      ┌──────────────────────┐
                     ▼                       └─────▶│   Malfunction is      │── yes ─▶
        ┌──────────────────────┐                   │   eliminated          │
        │ The mainboard is      │                   └──────────┬───────────┘
        │ abnormal; replace the │                              │ yes
        │ mainboard             │                              │
        └──────────┬───────────┘                               │
                     │                                          │
                     ▼                                          │
              ┌─────────────┐                                   │
              │     End     │◀──────────────────────────────────┘
              └─────────────┘
```

3. High discharge temperature protection of compressor (E4)

```
                        ┌─────────────┐
                        │    Start    │
                        └─────────────┘
                               │
                               ▼
        ◇ Is the system abnormal? (eg; blockage, etc.) ◇ ──yes──▶ ┌──────────────┐      ◇ Problem is ◇ ──yes──▶
                               │                                  │ Solve the problem │    ◇  solved.  ◇
                               │                                  │  of system.  │      
                               │                                  └──────────────┘            │
                               │                                         ▲                     │
                               no                                        └────────no───────────┘
                               │
                               ▼
        ◇ Is the speed of outdoor motor abnormal? (in ◇ ──yes──▶ ┌──────────────┐      ◇ Problem is ◇ ──yes──▶
        ◇          cooling mode)                      ◇           │ Check the wiring │    ◇  solved.  ◇
                               │                                  │ and fan capacitor; │    
                               │                                  │ replace motor │      
                               │                                  └──────────────┘            │
                               │                                         ▲                     │
                               no                                        └────────no───────────┘
                               │
                               ▼
        ◇ Is the outdoor air intake abnormal? ◇ ──yes──▶ ┌──────────────┐      ◇ Problem is ◇ ──yes──▶
        ◇        (in cooling mode)            ◇           │ Solve the problem │    ◇  solved.  ◇
                               │                          │  of air intake │      
                               │                          └──────────────┘            │
                               │                                 ▲                     │
                               no                                └────────no───────────┘
                               │
                               ▼
        ◇ The system is normal, but the ◇ ──yes──▶ ┌──────────────┐      ◇ Problem is ◇ ──yes──▶
        ◇ compressor discharge temperature ◇        │ Replace the   │    ◇  solved.  ◇
        ◇       sensor is abnormal        ◇         │ temperature   │      
                               │                    │   sensor      │            │
                               │                    └──────────────┘            │
                               │                           ▲                     │
                               no                          └────────no───────────┘
                               │
                               ▼
                        ┌─────────────┐
                        │ Replace the │
                        │  mainboard  │
                        └─────────────┘
                               │
                               ▼
                        ┌─────────────┐
                        │     End     │
                        └─────────────┘
```

4. Malfunction of Overcurrent Protection (E5)

```
                    ┌─────────────────┐
                    │ Troubleshooting │
                    │ for E5 malfunction│
                    └─────────────────┘
                             │
                             ▼
```

Is the supply voltage unstable with big fluctuation? → yes →	Normal fluctuation is within 10 % of the rated voltage on the nameplate	→	Malfunction is eliminated → yes →
no ↓ ← no			
Is the supply voltage too low with overload? → yes →	Adjust the supply voltage to maintain it within normal range	→	Malfunction is eliminated → yes →
no ↓ ← no			
Is the indoor / outdoor heat exchanger too dirty,or are the air inlet and outlet blocked? → yes →	Clean the indoor and outdoor heat exchangers and remove the blockage of air inlet and outlet	→	Malfunction is eliminated → yes →
no ↓ ← no			
The fan is abnormal? Fan speed is too low or fan doesn't rotate → yes →	Check the motor and reinstall the motor to have the fan run normally	→	Malfunction is eliminated → yes →
no ↓ ← no			
Measure the current of live wireon the main board with a clamp ampere meter. Is the current higher than the value of the overcurrent protection? → no →	Replace the mainboard with the same model	→	Malfunction is eliminated → yes →
yes ↓ ← no			
Is there blockage inside the system? (Filth blockage, ice plug, greasy blockage, the Y-valve hasn't been opened completely) → yes →	Flush the heat exchangers with high pressure nitrogen	→	Malfunction is eliminated → yes →
no ↓ ← no			
Is the compressor running abnormally? Is there abnormal sound or oil leakage; is the temperature of the shell too high, etc.? → yes →	Replace the mainboard with the same model	→	Malfunction is eliminated → yes →
no ↓ ← no			

```
┌──────────────────────┐
│ Replace the mainboard │
│ with the same model   │
└──────────────────────┘
           │
           ▼
    ┌─────────────┐
    │     End     │
    └─────────────┘
```

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

MUCO-48-H6T
MUCO-60-H6T
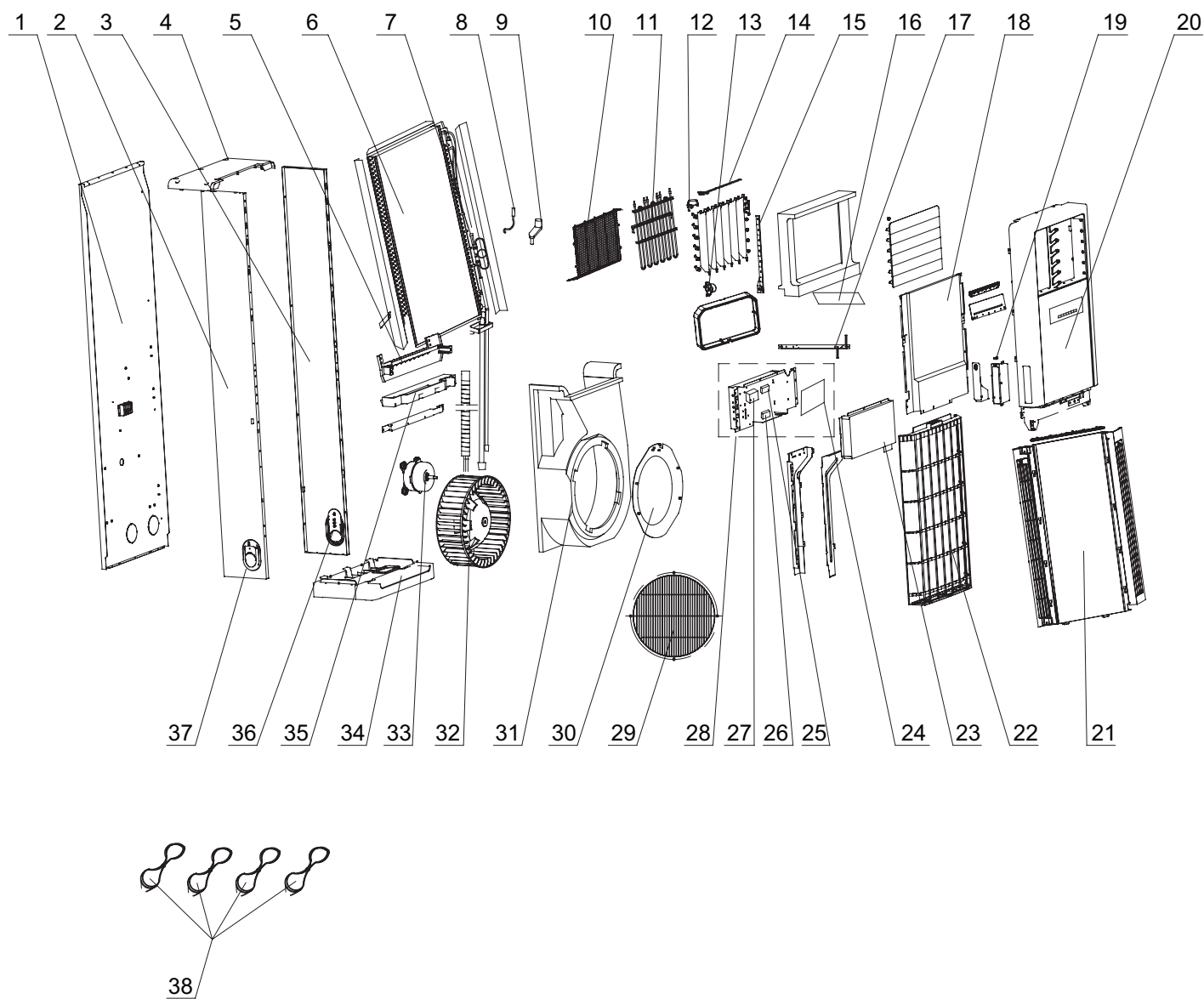
The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code		Qty
		MUCO-48-H6T		
	Product Code	UI20390		
1	Rear Plate Assy	01304500		1
2	Left Side Plate Sub-Assy	0130451901		1
3	Right Side Plate Sub-Assy	0130451801		1
4	Top Cover Sub-Assy	22244152		1
5	Breakwater Sub-Assy	01364154P		1
6	Evaporator Assy	0100427201		1
7	Capillary Sub-assy (Heating)	03004012		1
8	Ambient Temperature Sensor	3900019003		1
9	Crank	73014023		1
10	Rear Grill	01474057		1
11	Electric Heater	32004124		1
12	Step Motor	1521400803		1
13	Step Motor	1521401601		1
14	Swing Lever	10584218		1
15	Guide Blade Lever	10584089		1
16	Display Board	30563195		1
17	Propeller HousingPress Plate Sub-assy	01384061		1
18	Air Guard Assy	01364509		1
19	Latch	70810302		1
20	Air Outlet Panel Assy	008014000020		1
21	Air Intake Panel Assy	20004536		1
22	Filter Sub-Assy	11124100		1
23	Electric Box Cover Sub-Assy	01404388		1
24	Main Board	300002000040		1
25	Capacitor CBB61	/		/
26	Terminal Board	42010052		1
27	Transformer	43110287		1
28	Electric Box Assy	100002000367		1
29	Protective Covering	01474027		1
30	Diversion Circle	10374435		1
31	Propeller Housing Sub-assy	12104058		1
32	Centrifugal Fan	10314401		1
33	Fan Motor	1501442502		1
34	Chassis	22224020		1
35	Water Tray Sub-Assy	12314811		1
36	Baffle Plate	2611454401		3
37	Rear Cover	2224422201		3
38	Connecting Cable	4002053910		1

Above data is subject to change without notice.

No.	Description	Part Code MUCO-60-H6T	Qty
		Product Code UI20391	
1	Rear Plate Assy	01304500	1
2	Left Side Plate Sub-Assy	0130451901	1
3	Right Side Plate Sub-Assy	0130451801	1
4	Top Cover Sub-Assy	22244152	1
5	Breakwater Sub-Assy	01364503P	1
6	Evaporator Assy	011001000168	1
7	Capillary Sub-assy (Heating)	030006000230	1
8	Ambient Temperature Sensor	3900019003	1
9	Crank	73014023	1
10	Rear Grill	01474057	1
11	Electric Heater	32004124	1
12	Step Motor	1521401601	1
13	Step Motor	1521400803	1
14	Swing Lever	10584218	1
15	Guide Blade Lever	10584089	1
16	Display Board	30563195	1
17	Propeller HousingPress Plate Sub-assy	01384061	1
18	Air Guard Assy	01364509	1
19	Latch	70810302	1
20	Air Outlet Panel Assy	008014000020	1
21	Air Intake Panel Assy	20004536	1
22	Filter Sub-Assy	11124100	1
23	Electric Box Cover Sub-Assy	01404388	1
24	Main Board	300002000040	1
25	Capacitor CBB61	/	1
26	Terminal Board	42010052	1
27	Transformer	43110287	1
28	Electric Box Assy	100002000367	1
29	Protective Covering	01474027	1
30	Diversion Circle	10374435	1
31	Propeller Housing Sub-assy	12104058	1
32	Centrifugal Fan	10314401	1
33	Fan Motor	1501442502	1
34	Chassis	22224020	1
35	Water Tray Sub-Assy	12314811	1
36	Baffle Plate	2611454401	3
37	Rear Cover	2224422201	3
38	Connecting Cable	400205396	1

Above data is subject to change without notice.

10.2 Outdoor Unit

MUCO-48-H6T
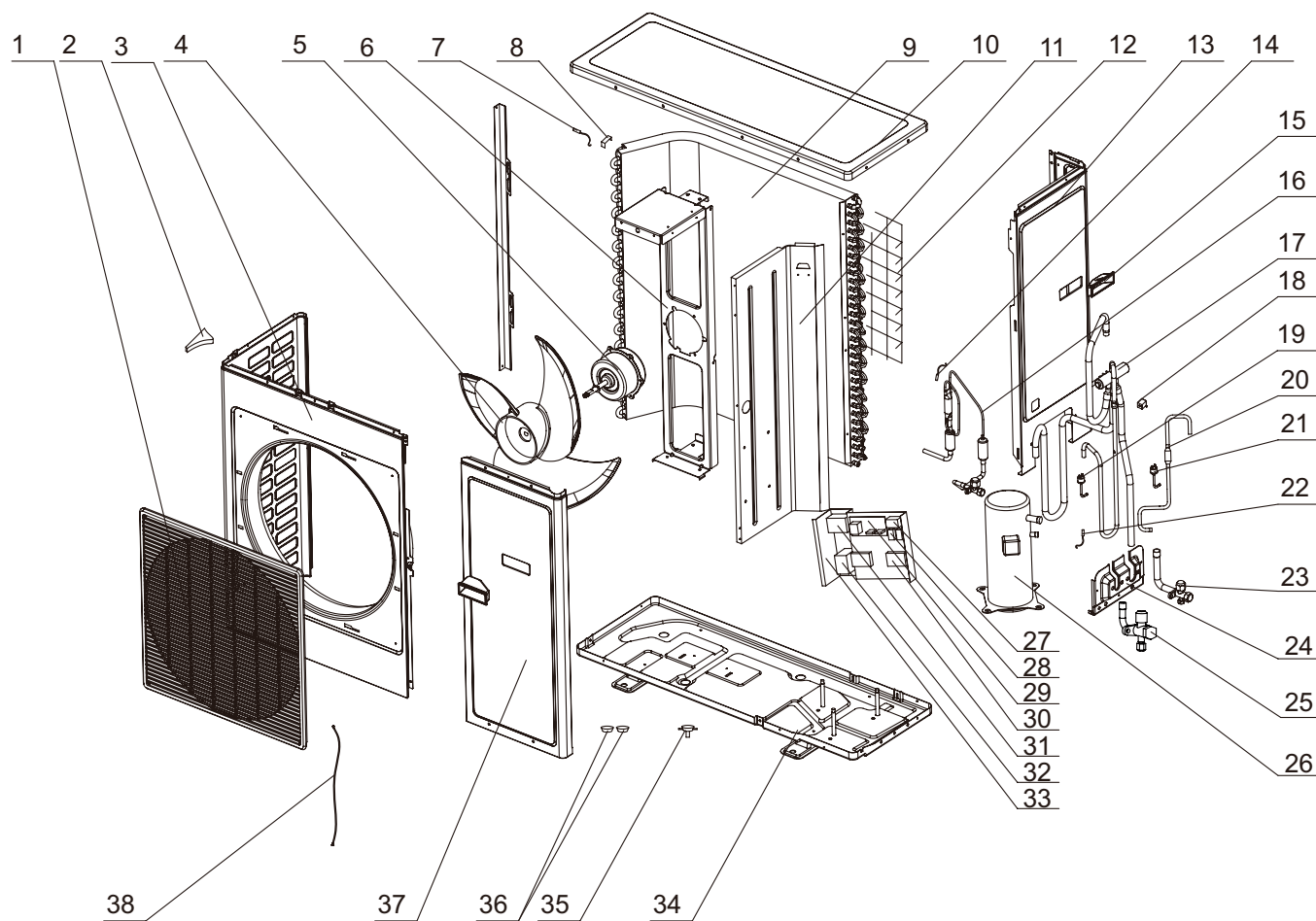
The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code MUCO-48-H6T	Qty
	Product Code	UE20390	
1	Front Grill	01475401	1
2	Left Handle	26235401	1
3	Cabinet	01435103P	1
4	Axial Flow Fan	10335401	1
5	Fan Motor	15010100000101	1
6	Motor Support	01705401	1
7	Ambient Temperature Sensor	39000199	1
8	Sensor Support	24215101	1
9	Condenser Assy	011002000212	1
10	Coping	01255012P	1
11	Clapboard Sub-Assy	01235403	1
12	Rear Grill	01473003	1
13	Rear Side Plate Sub-Assy	01303290	1
14	Outdoor Tube Sensor	39000194	1
15	Handle	26235253	2
16	Assistant Capillary Sub-Assy	03133489	1
17	4-Way Valve Assy	030152000131	1
18	Magnet Coil	4300040022	1
19	Pressure Protect Switch	4602000603	1
20	Inhalation Tube Assy	03735085	1
21	Pressure Protect Switch	46020007	1
22	Air-out Temp Sensor	39000163	1
23	Cut off Valve Sub-Assy	07130212	1
24	Valve Support Sub-Assy	01715402	1
25	Gas Valve Sub-Assy	/	/
26	Compressor and Fittings	00105065	1
27	Capacitor CBB61	3301074705	1
28	Terminal Board	42010052	2
29	Over Current Protector	46020112	1
30	Terminal Board	42011103	2
31	Anti-phase Protector	46020052	1
32	AC Contactor	44010226	1
33	Electric Box Assy	100002000129	1
34	Chassis Sub-assy	012054026P	1
35	Drainage Connecter	06123401	1
36	Drainage Hole Cap	06813401	2
37	Front Side Plate Sub-Assy	01305507	1
38	Electrical Heater	7651540413	1

Above data is subject to change without notice.

MUCO-60-H6T
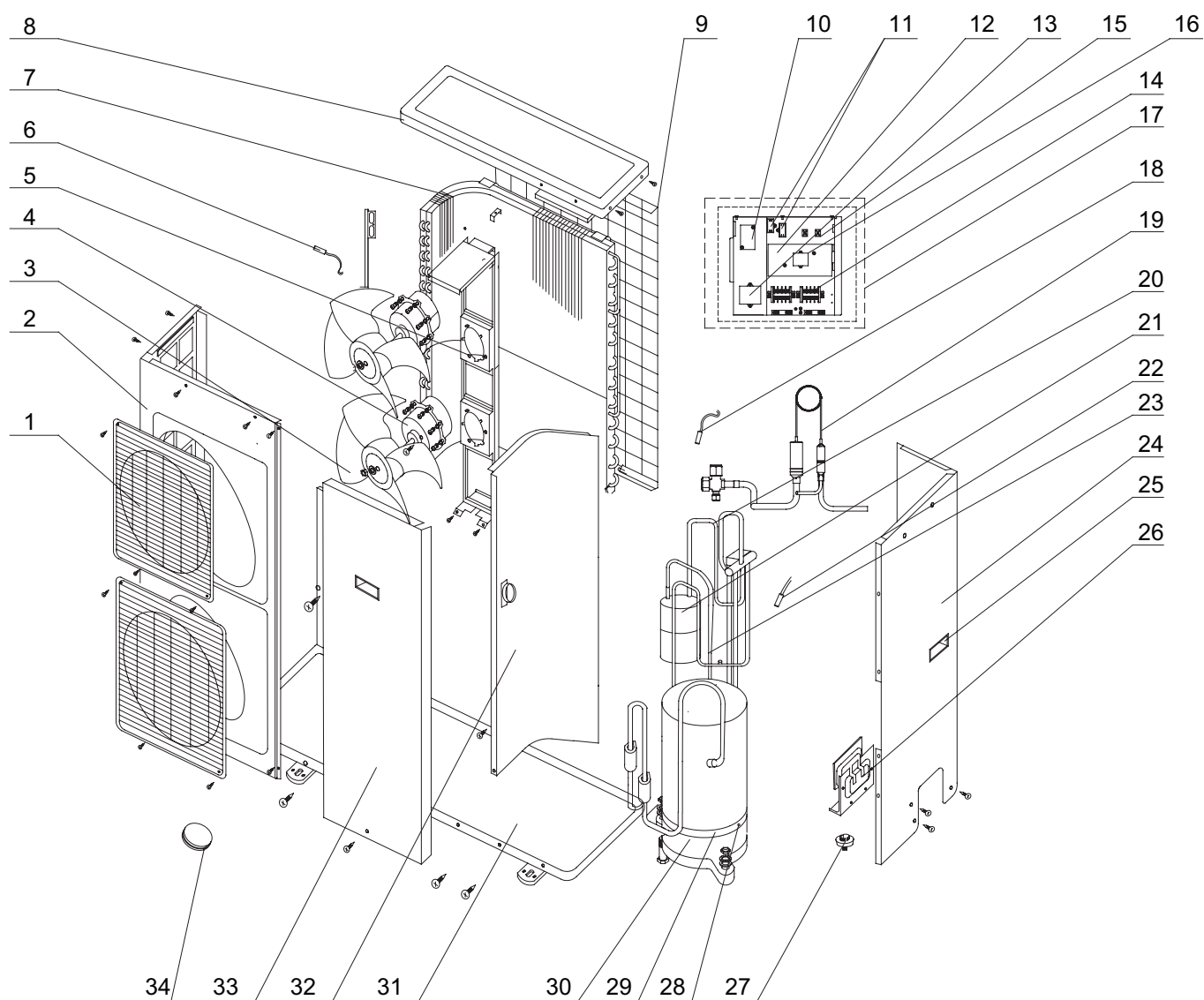
The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code		Qty
		MUCO-60-H6T		
	Product Code	UE20391		
1	Front grill	01473001		2
2	Cabinet	0143543601		1
3	Axial Flow Fan	10434100004		2
4	Fan Motor	1501506715		2
5	Motor Support Sub-Assy	01705070		1
6	Ambient Temperature Sensor	39000199		1
7	Condenser Assy	01105734		1
8	Top Cover	01255013P		1
9	Rear Grill	01475006		1
10	AC Contactor	44010226		1
11	Capacitor CBB61	3301074705		2
12	Over Current Protector	46020112		1
13	Phase Reverse Protector	46020052		1
14	Terminal Board	42010052		2
15	Terminal Board	42010052		2
16	Transformer	43110325		1
17	Electric Box Assy	100002000518		1
18	Outdoor Tube Sensor	/		1
19	Capillary Sub-assy	030036000003		1
20	4-Way Valve Assy	030152000162		1
21	Gas-liquid Separator Sub-Assy	07225016		1
22	Air-out Temp Sensor	39000163		1
23	Inhalation tube Assy	03001000271		1
24	Rear Side Plate Sub-Assy	01305102		1
25	Handle	26235253		3
26	Valve Support Sub-Assy	01715001		1
27	Drainage Connecter	06123401		1
28	Terminal Board	42010052		2
29	Electric Heater(Compressor)	7651540410		1
30	Compressor and Fittings	00105066		1
31	Chassis Sub-assy	0120543311P		1
32	Clapboard Sub-Assy	0124526201		1
33	Front Side Plate	01305431		1
34	Drainage Plug	06813401		3
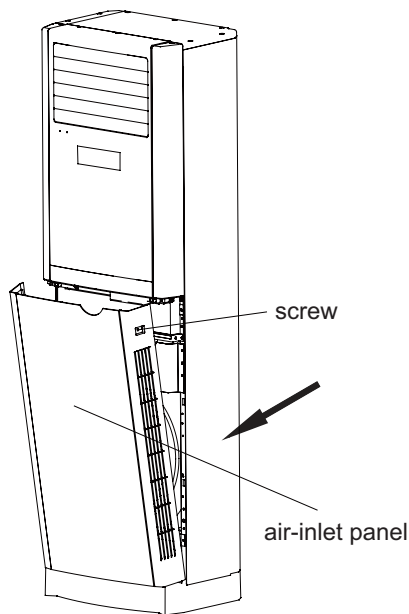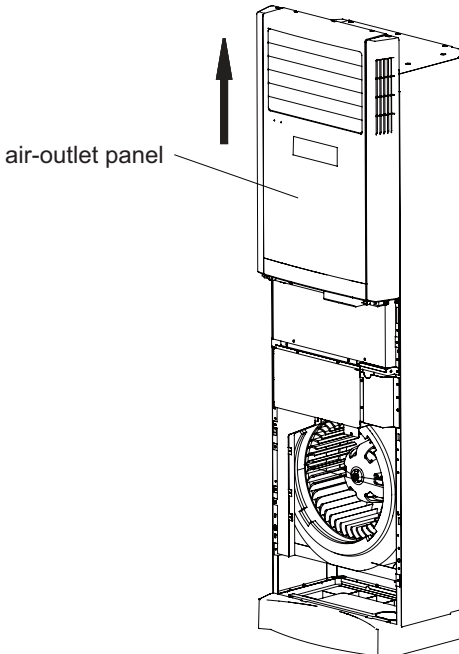
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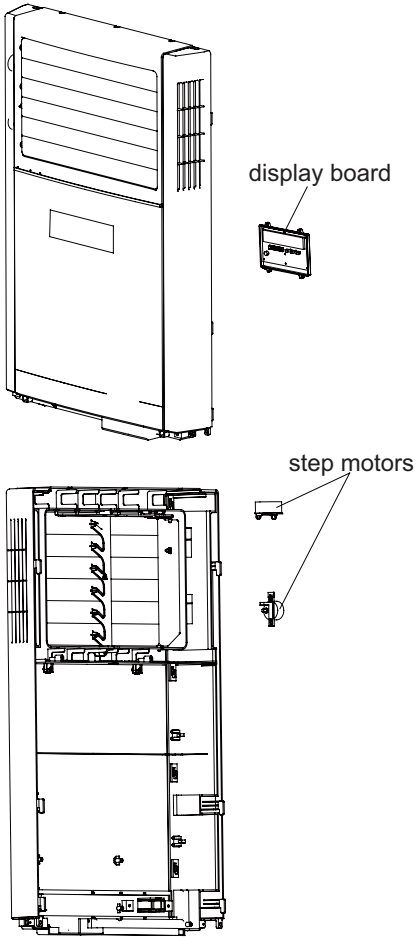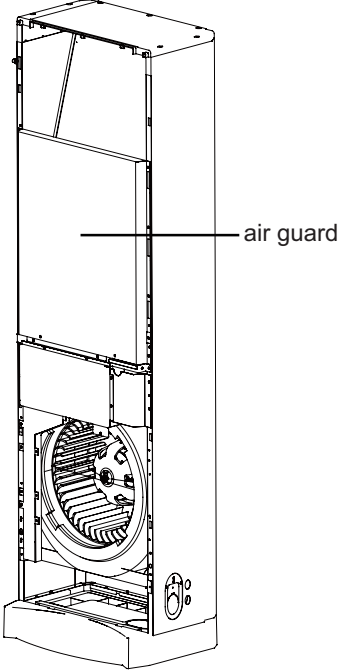
11. Removal Procedure
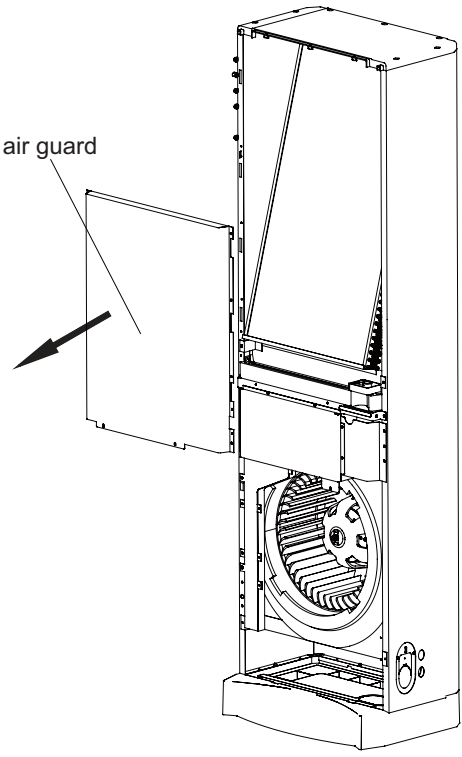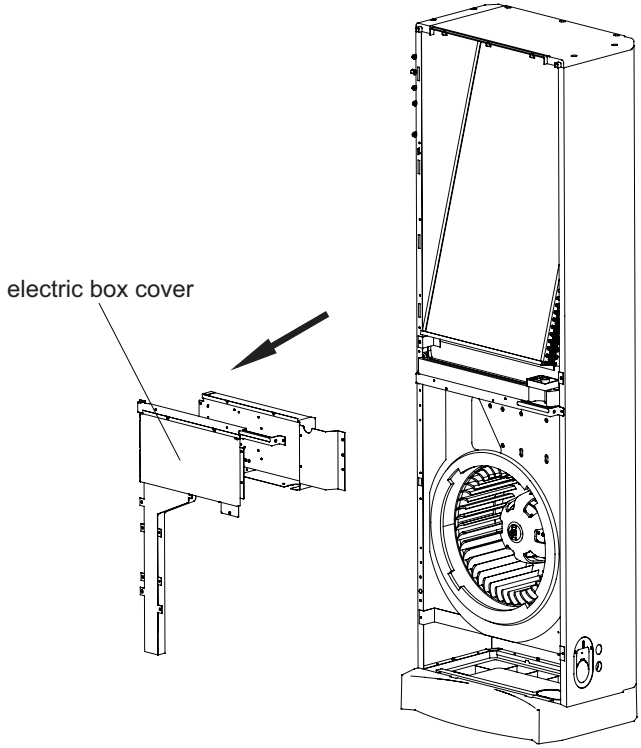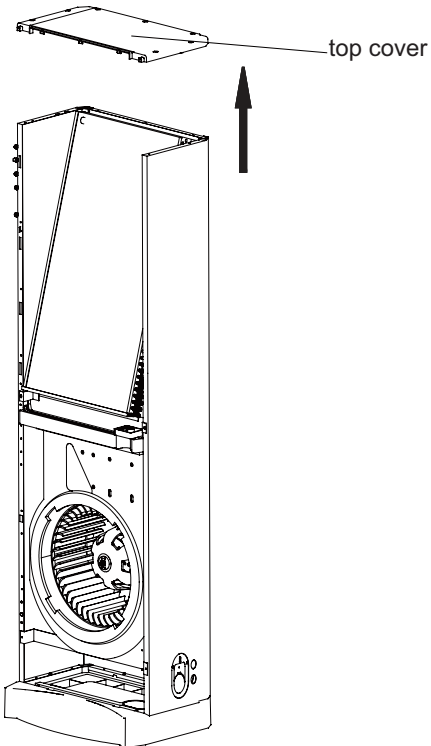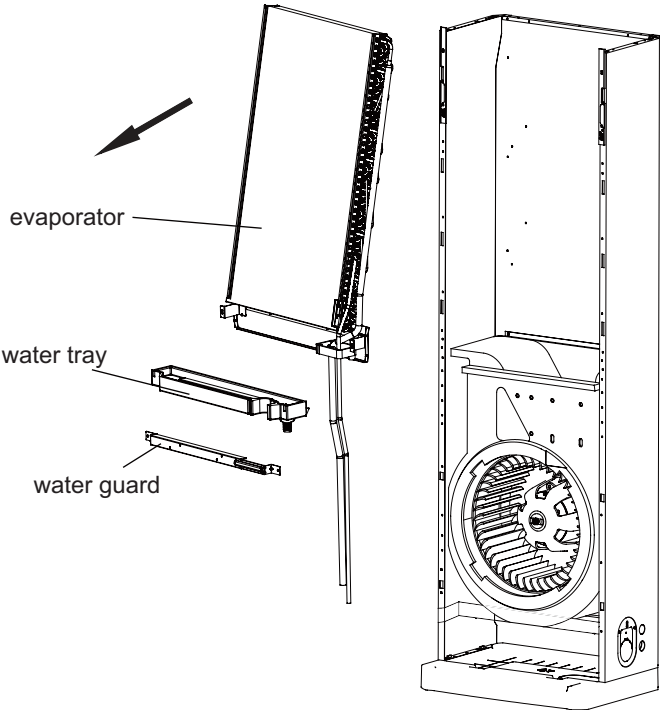
⚠ **Caution: discharge the refrigerant completely before removal.**
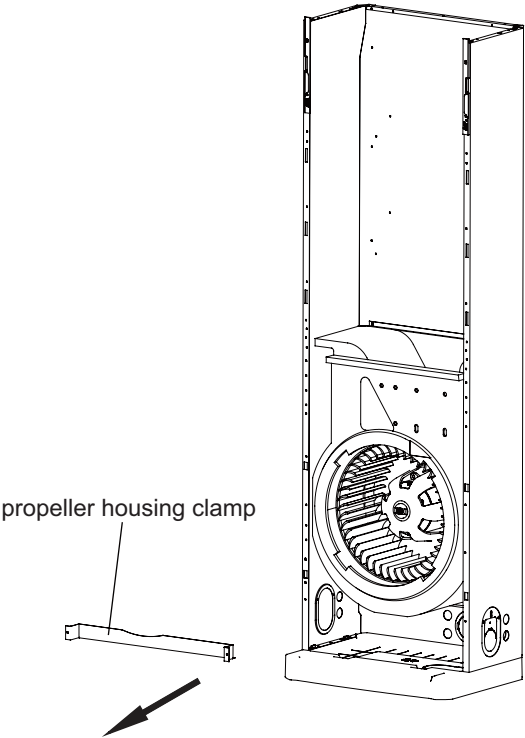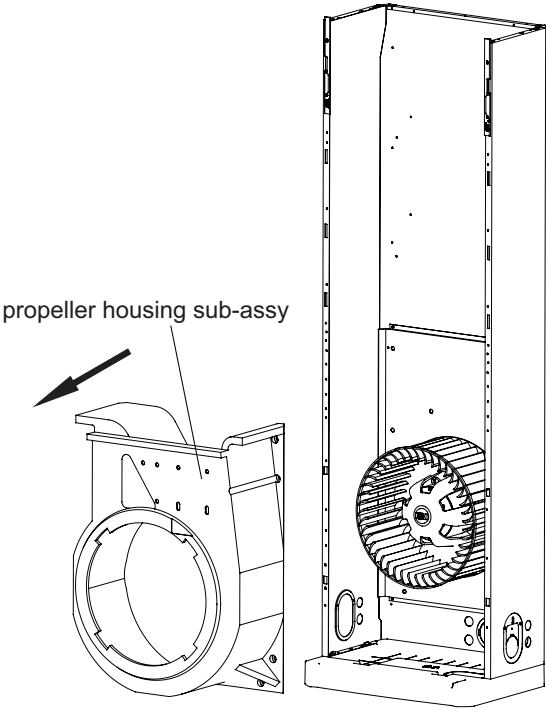
11.1 Removal Procedure of Indoor Unit
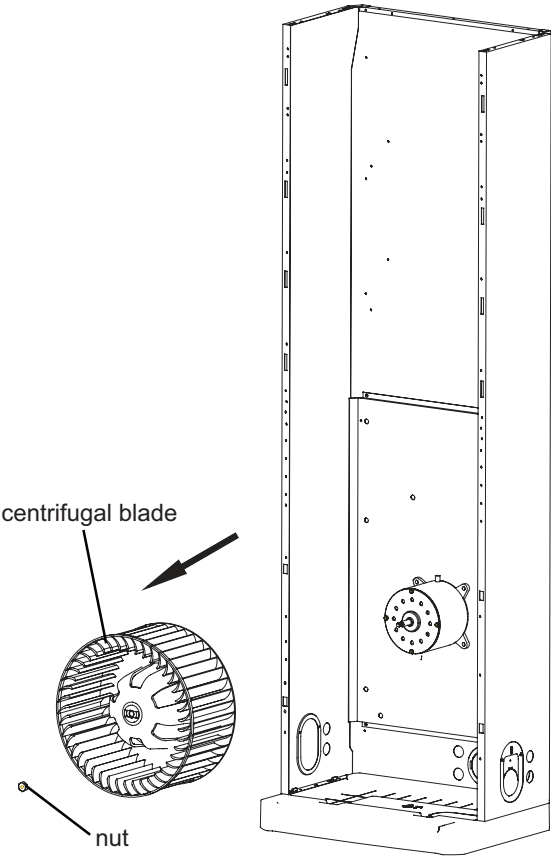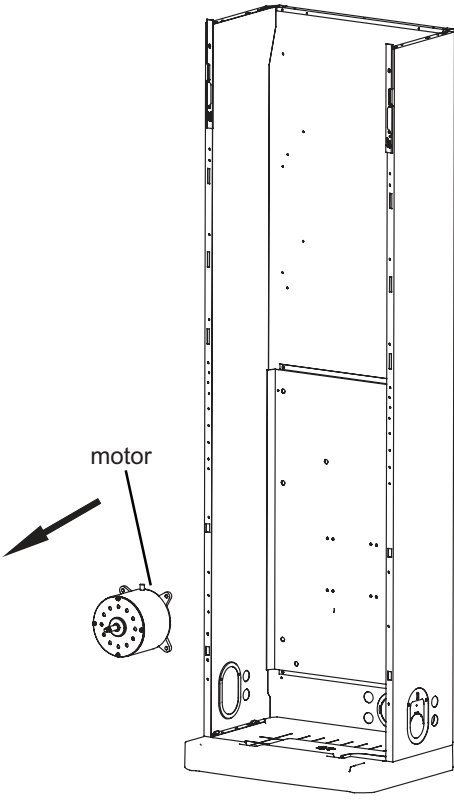
Steps	Procedure
1. Remove air-inlet panel	
Remove the screw stopper; remove the screws fixing air-inlet panel and pull the upper part of air-inlet panel outwards.	
2. Remove air-outlet panel	
Remove the screws fixing the top and lower part of air-outlet panel; push the air-outlet panel upwards slightly and then remove the air-outlet panel.	
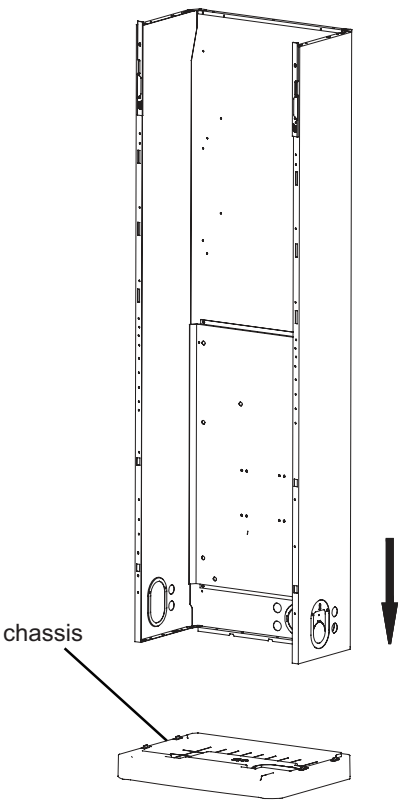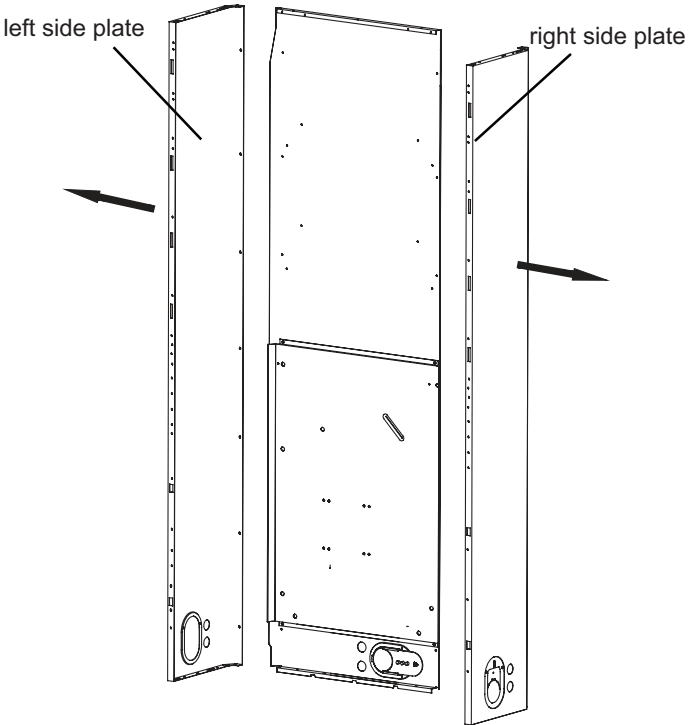
Steps	Procedure
3. Remove display board, horizontal swing motor and vertical swing motor	
Remove the screws fixing controller box; remove the controller box cover to remove the display board; remove the screw fixing motor in the air-outlet panel sub-assy; remove the horizontal swing motor and vertical swing motor.	display board step motors
4. Remove air guard	
Remove the screw fixing air guard and then remove the air guard.	air guard

Steps	Procedure
	air guard
5. Remove electric box assy	
Remove the screw fixing electric box cover to remove the electric box cover; disconnect each wiring terminal; remove the relevant electrical elements according to the requirement; remove the screw fixing electric box to remove the electric box assy.	electric box cover

Steps	Procedure
6. Remove top cover	
Remove the screw fixing top cover to remove the top cover.	top cover
7. Remove evaporator assy	
Remove the screws fixing the top connection plate and lower connection plate of evaporator; pull the left side plate and right side plate outwards slightly to remove the evaporator, water guard and water tray; after removing the evaporator, remove the left and right air guard and water guard at the top side of evaporator.	evaporator water tray water guard
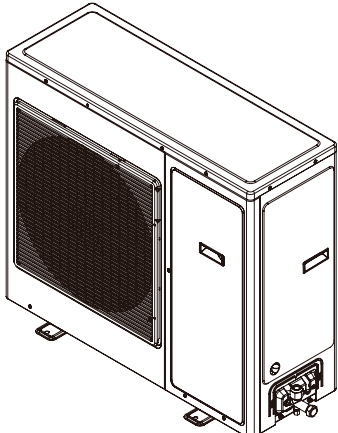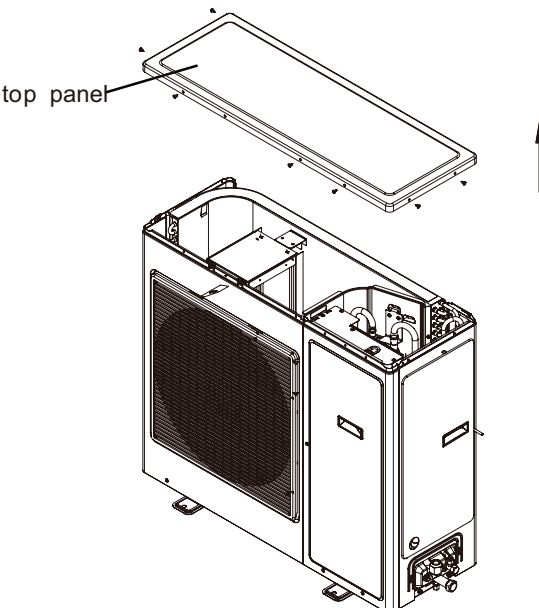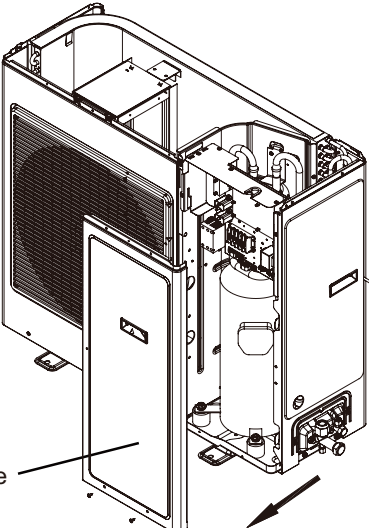
Steps	Procedure
8. Remove propeller housing clamp	
Remove the screws fixing propeller housing clamp and then pull the propeller housing clamp outwards to remove the propeller housing clamp.	propeller housing clamp
9. Remove propeller housing sub-assy	
Remove the screws fixing propeller housing to remove the propeller housing sub-assy.	propeller housing sub-assy

63
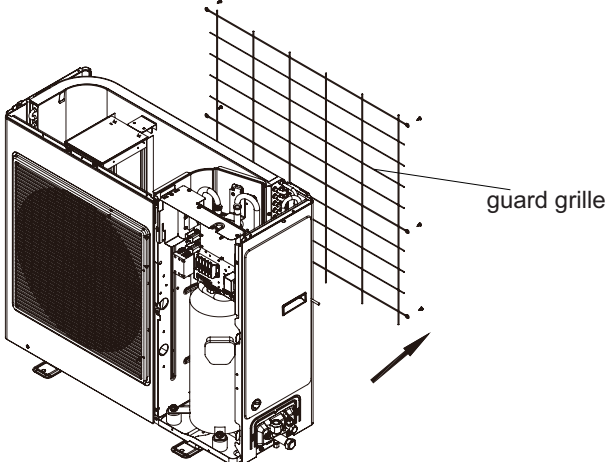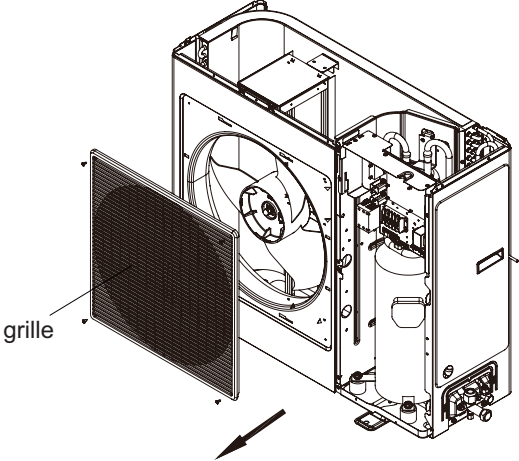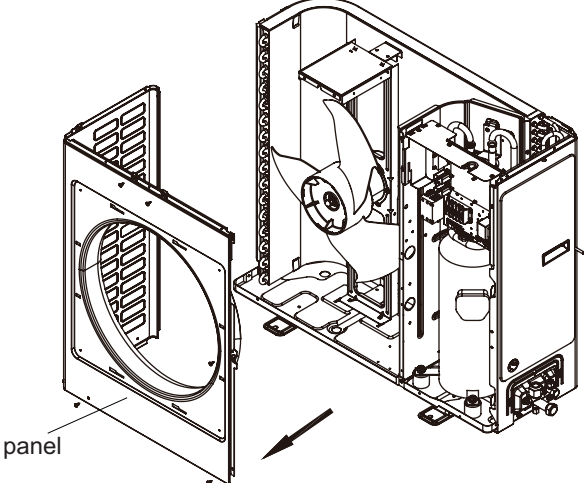
Steps	Procedure
10. Remove centrifugal blade	
Remove the nut fixing centrifugal blade to remove the centrifugal blade.	centrifugal blade nut
11. Remove motor	
Remove the remove the wire clamp on the rear plate; disconnect the motor wire and remove the screws fixing motor to remove the motor.	motor
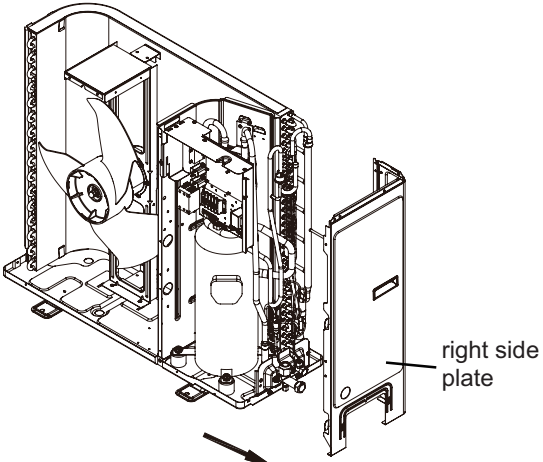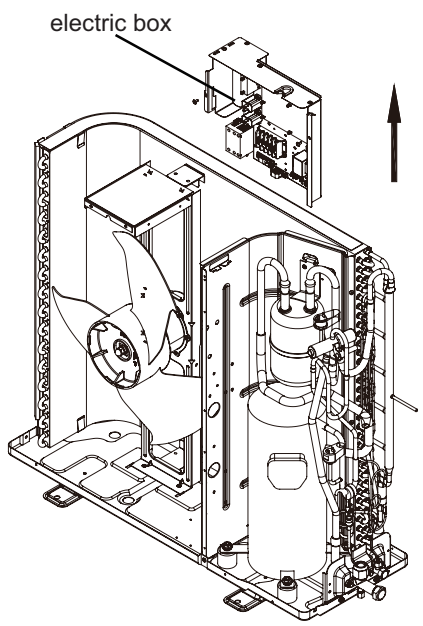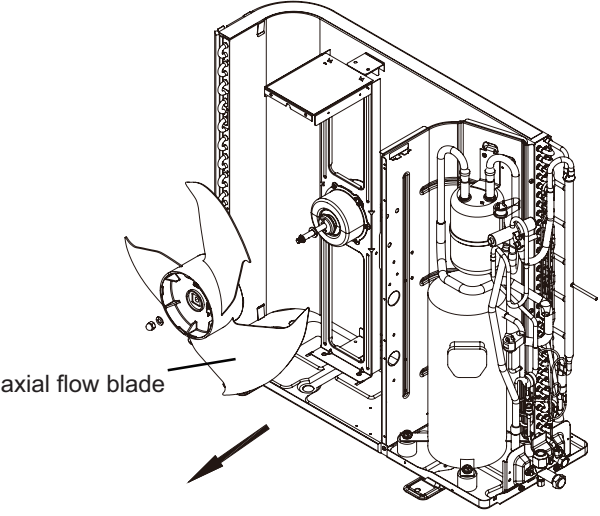
Steps	Procedure
12. Remove chassis	
Remove the screws fixing chassis to remove the chassis.	chassis
13. Remove left side plate and right side plate	
Remove the screws fixing left side plate and right side plate to remove the left side plate and right side plate sub-assy.	left side plate right side plate
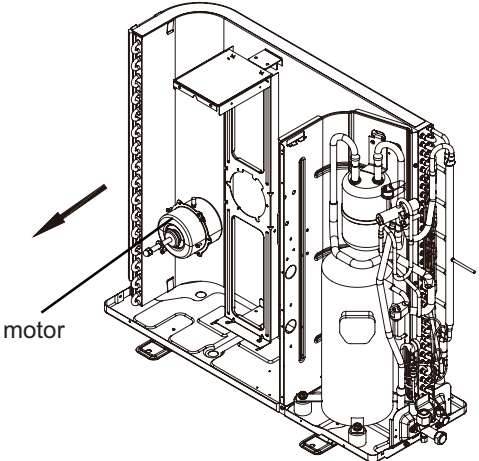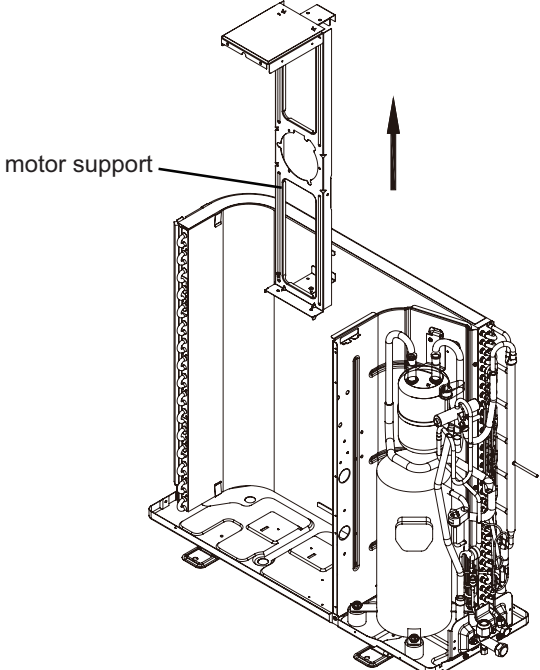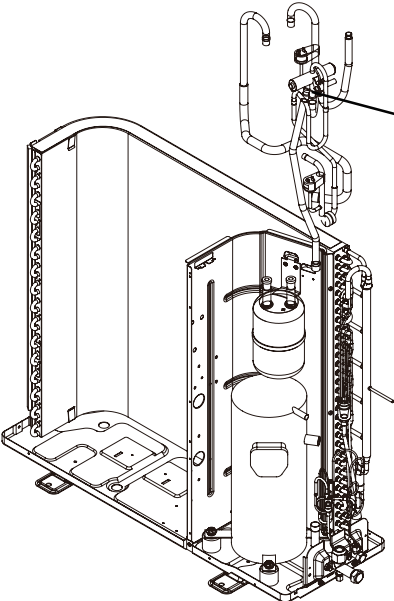
11.2 Removal Procedure of Outdoor Unit
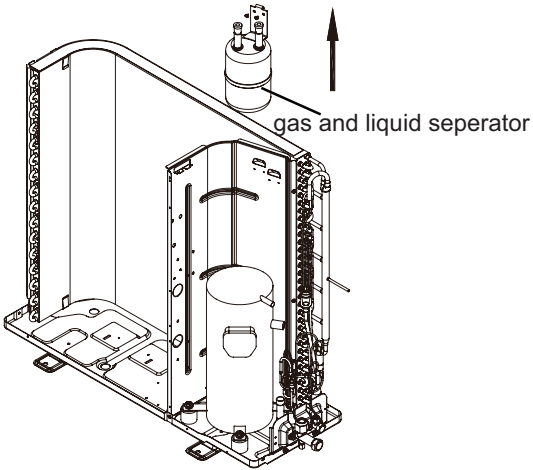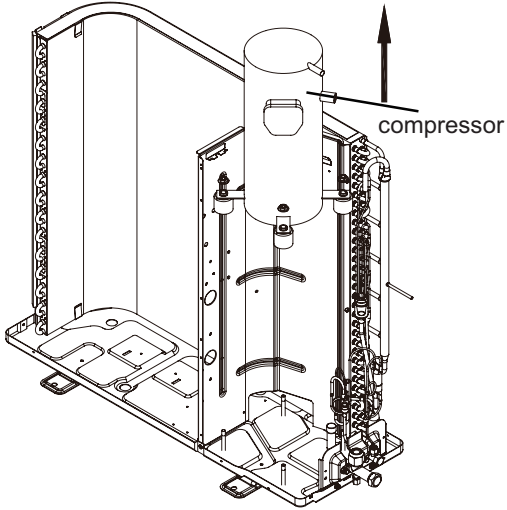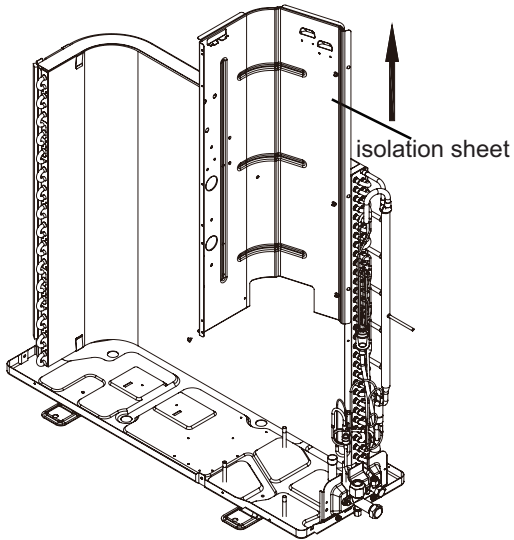
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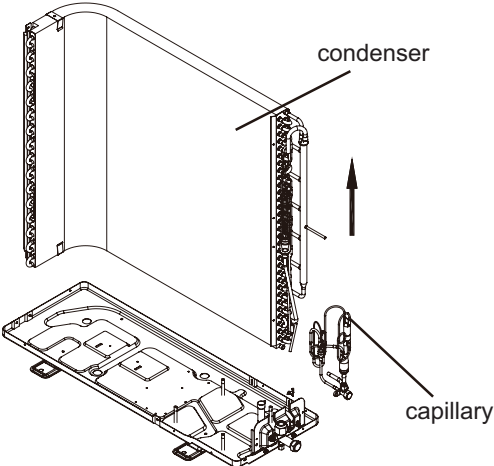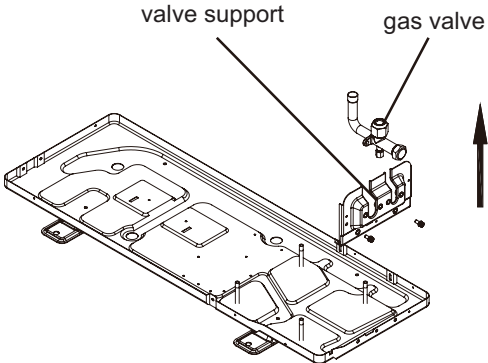
Step	Procedure
1.Before disassembly of unit	
2.Remove top panel	
	Twist off the screws used for fixing the top cover with screwdriver, lift up the top cover and then remove the top cover.
3.Remove front side plate	
	Twist off the screws used for fixing the front side plate, pull the front side plate forward and outward and then remove the front side plate.

top panel

front side plate

Step	Procedure
4.Remove guard grille	
Twist off the screws used for fixing the guard grille, pull the guard grille outward and then remove the guard grille.	guard grille
5.Remove grille	
Twist off the screw used for fixing the grille, loosen the clasp, pull out the grille outward and then remove the grille.	grille
6.Remove panel	
Twist off the screw used for fixing the outer case, pull the panel outwardand then remove the panel.	panel
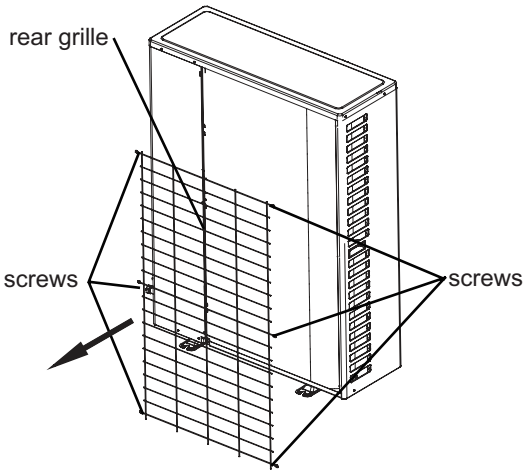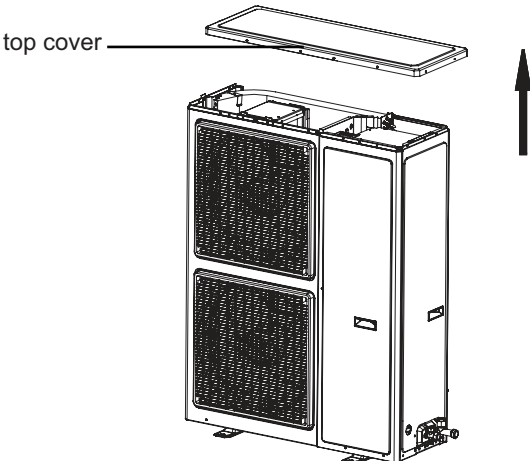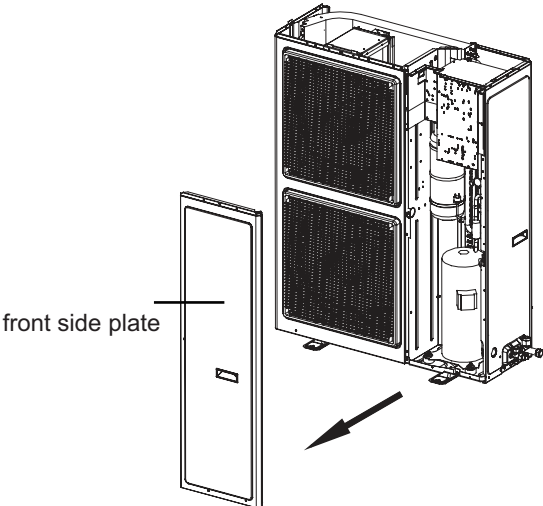
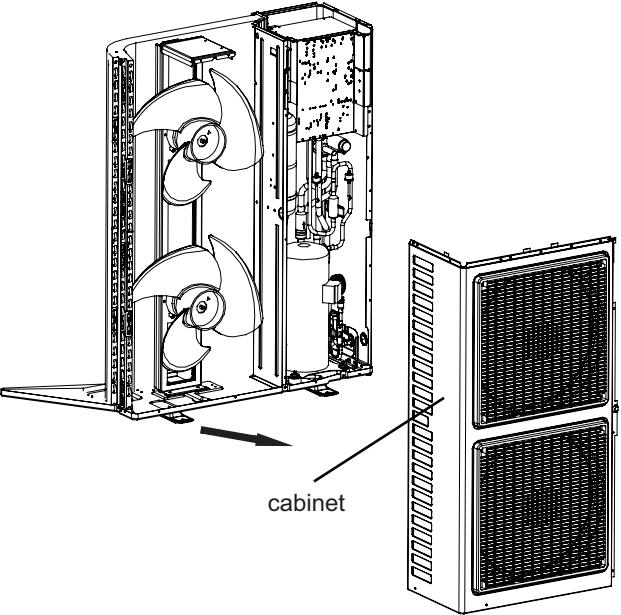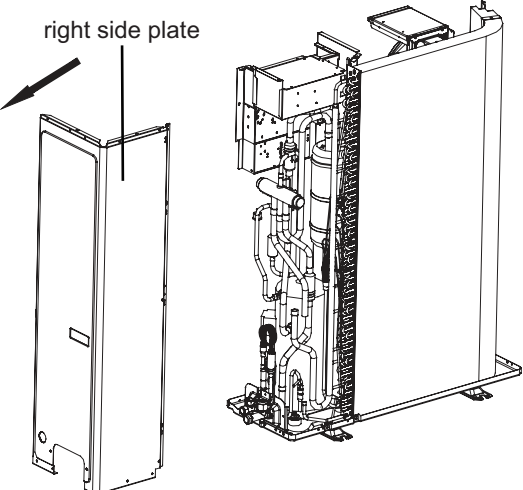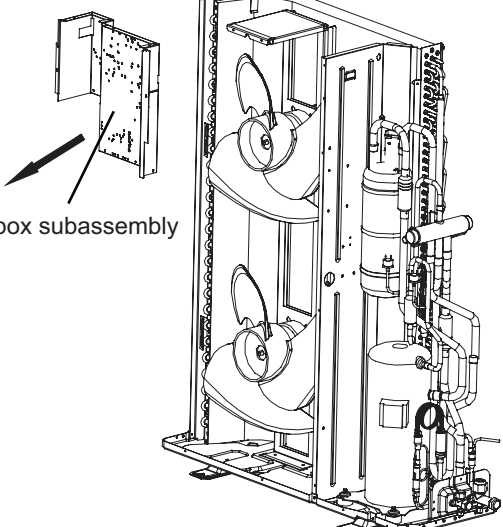| Step	Procedure
7.Remove right side plate	
Twist off the screw used for fixing the right side plate and then pull the right side plate outward.	right side plate
8.Remove electric box	electric box
Cut off the tieline, pull out the wiring terminal, remove all the connecting wires, twist off the screws used for fixing the electric box, pull it upward and then remove the electric box.	
9.Remove axial flowblade	
Twist off the nuts used for fixing the axial flow blade, pull the axial flowblade outwardand then remove the blade.	axial flow blade

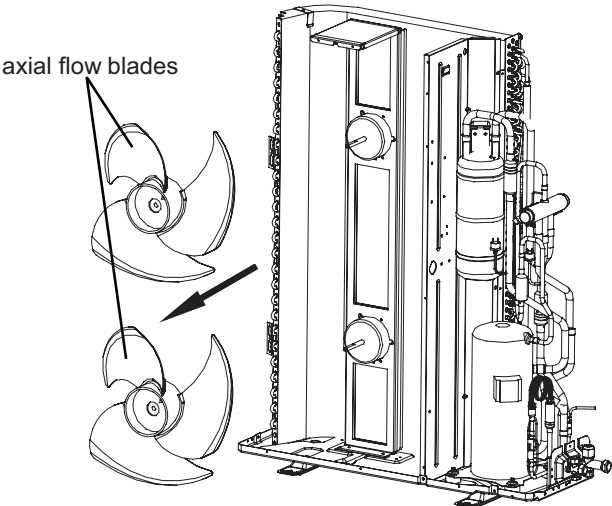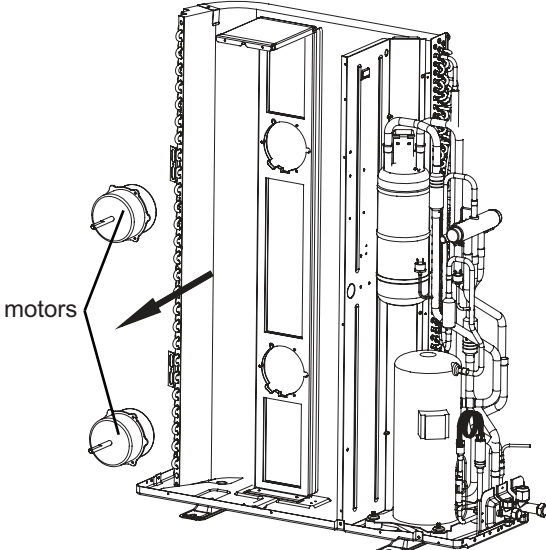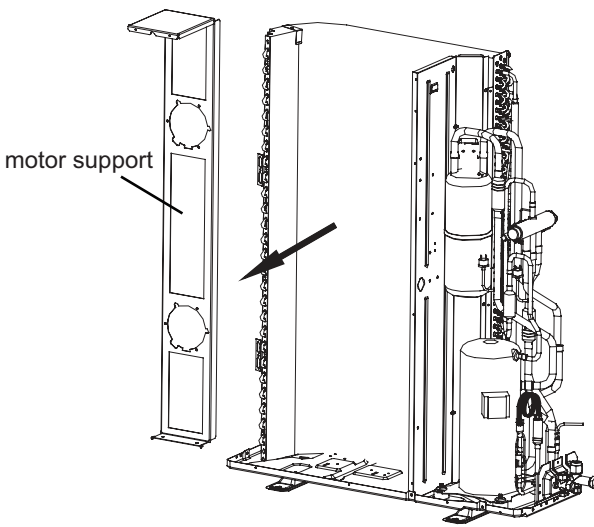| Step	Procedure
10.Remove motor	
Twist off the screws used for fixing the motor, pull out the motor wire and pull it outward,then remove the motor.	 motor
11.Remove motor support	
Twist off the screws used for fixing the motor support, pull it upward and then remove the motor support.	 motor support
12.Remove four-way valve and air intake pipe	
Release the refrigerant completely, unsolder the air intake pipe of compressor, outlet pipe of condenser, connecting pipe of gas valve and gas and liquid separator, then pull the four-way valve and air intake pipe.	 four-way valve

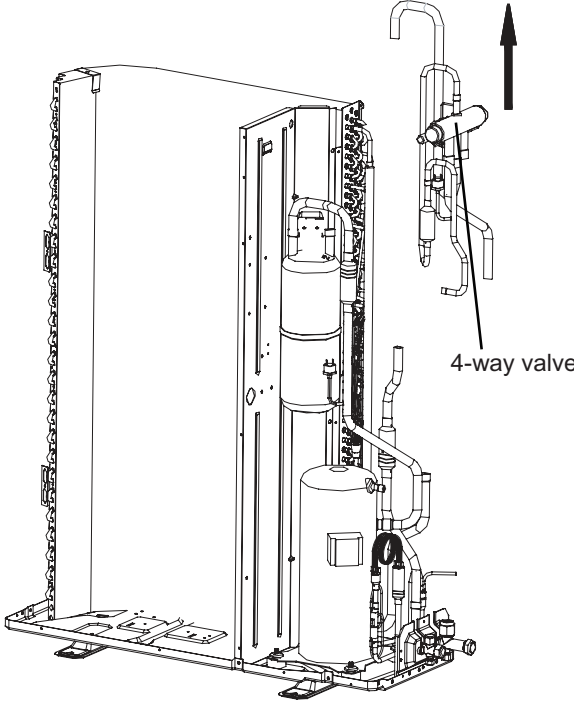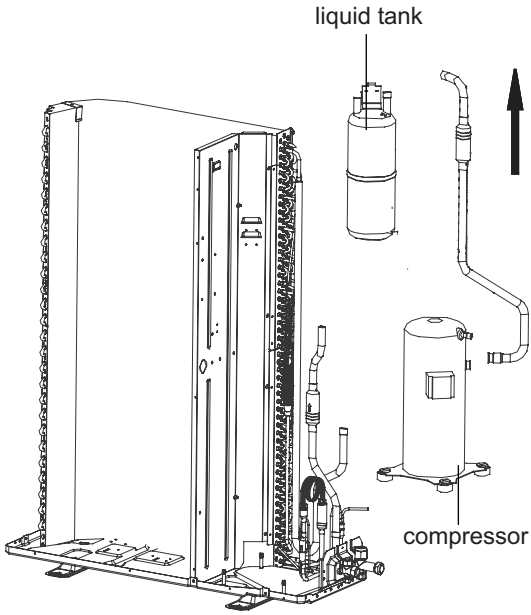| Step	Procedure
13.Remove gas and liquid separator	
Loosen the two screws used for fixing the gas and liquid separator, pull it upward and then remove the gas and liquid separator.	gas and liquid seperator
14.Remove compressor	
Twist off the nuts used for fixing the compressor withwrench, pull the compressor upward to remove it.	compressor
15.Remove middle isolation sheet	
Twist off the screws used for fixing the middle isolation sheet, pull it upward and then remove the isolation sheet.	isolation sheet

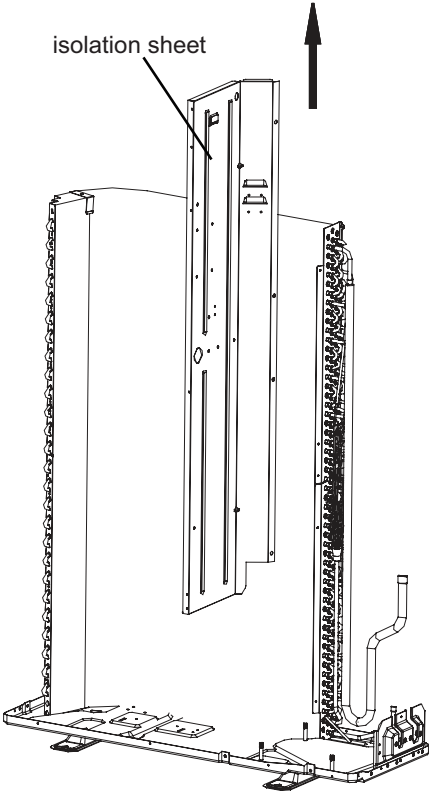| Step	Procedure
16.Remove condenser and capillary	
Twist off thescrews used for fixing the condenser, unsolder the spot weld between capillary and condenser (notice: before soldering, the refrigerant should be released completely), pull it outward and then remove the condenser and capillary.	condenser capillary
17.Remove gas valve and valve support	
Twist off the bolts used for fixing the gas valve and valve support, and thenremove the gas valve; Twist off the screws used for connecting the valve support and chassis, pull it upward and then remove thevalve support.	valve support gas valve
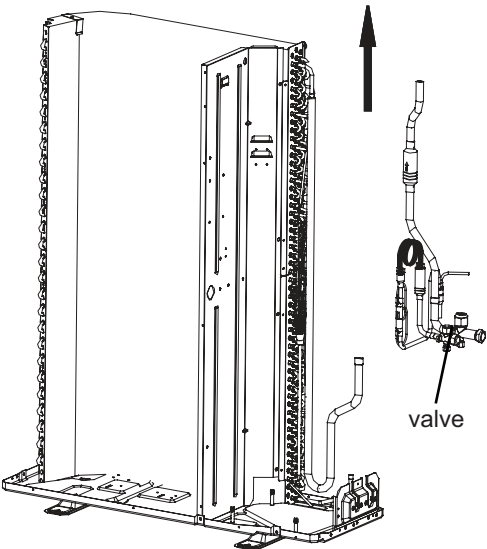
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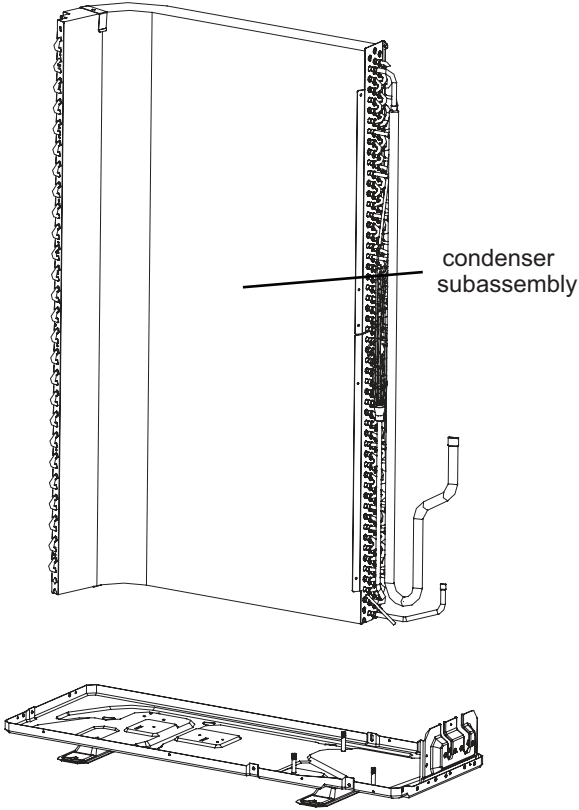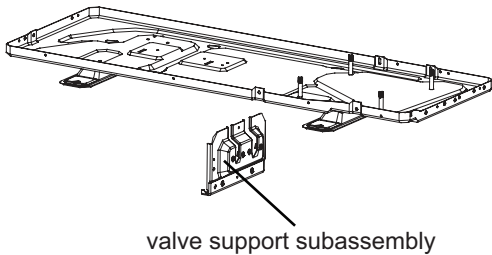| Steps	Procedure
1. Remove the rear grille	
Remove the tapping screws connecting the back grille with the back-side plate, the front case and the chassis. Remove the back grille.	rear grille screws screws
2. Remove the top cover	
Remove the screws fixing the top cover. Raise the top cover to remove it.	top cover
3. Remove the front side plate	
Remove the 3 tapping screws fixing the front side plate. Take the front side plate outward to remove it.	front side plate

Steps	Procedure
4. Remove the cabinet	
Remove the connecting screws fixing the cabinet. Remove the cabinet.	cabinet
5. Remove right side plate subassembly	right side plate
Remove the screws fixing the right side plate. Remove the right side plate.	
6. Remove electric box subassembly	
Remove the screws fixing the electric box cover. Disconnect the wire terminals and remove the electric box.	electric box subassembly

Steps	Procedure
7. Remove axial flow blades	
Remove the nut on the axial flow blades. Remove the blades.	axial flow blades
8. Remove the motors	
Remove the 4 screws fixing the motors. Disconnect the leading wire inserts of the motors. Remove the motors.	motors
9. Remove the motor support	
Remove the screws connecting the motor support and the chassis. Raise the motor support to remove it.	motor support

Steps	Procedure
10. Remove the 4-way valve	
(Only available for heat pump unit) Remove the nut on the 4-way valve coil and then remove the coil. Wrap the 4-way valve with a wet cloth. Unsolder the 4-way valve quickly and remove it. Ensure that the cloth keeps wet and do not burn the compressor lead. (Recover the refrigerant before unsoldering)	4-way valve
11. Remove the compressor	
Unsolder the pipes connected to the compressor and liquid tank. Remove the 4 foot bolts of the compressor. Raise the liquid tank and compressor to remove them.	liquid tank compressor

Steps	Procedure
12. Remove the valve	
	Remove the 2 bolts fixing the gas valve. Unsolder the welding joint between the gas valve and the return air pipe. Remove the gas valve. Remove the 2 bolts fixing the liquid valve. Unsolder the welding joint between the liquid valve and the Y-type connecting pipe. Remove the liquid valve. (Note: During unsoldering, wrap the gas valve with a wet cloth to avoid damage to the valve caused by high temperature.) valve
13. Remove the isolation sheet	
	Remove the screws connecting the isolation sheet with the right side plate of condenser and the chassis. Remove the isolation sheet. isolation sheet

Steps	Procedure
14. Remove condenser subassembly	
Remove the screws connecting the condenser and the chassis. Raise the condenser subassembly to remove it.	condenser subassembly
15. Remove valve support subassembly	
Remove the screw connecting the valve support and the chassis. Remove the valve support subassembly.	valve support subassembly

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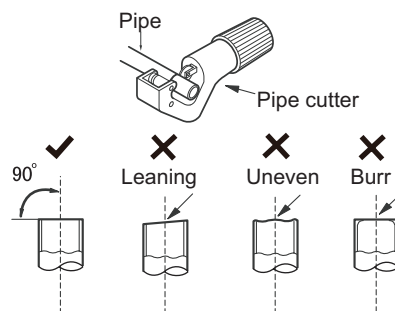
B:Remove the burrs
● Remove the burrs with shaper and prevent the burrs from getting into the pipe.

C:Put on suitable insulating pipe
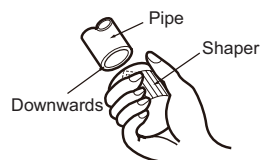
D:Put on the union nut

● Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.
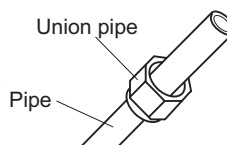
E:Expand the port
● Expand the port with expander.

⚠ **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
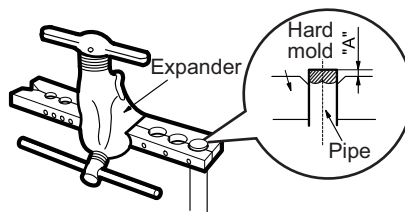
F:Inspection
● Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.
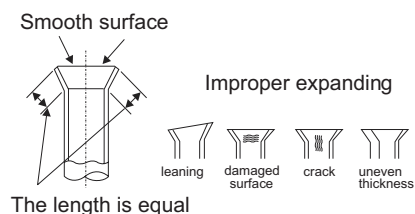
Appendix 4: List of Resistance for Temperature Sensor

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 Indoor and Outdoor (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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