# AZURI®

## SERVICE MANUAL



DELTRON®

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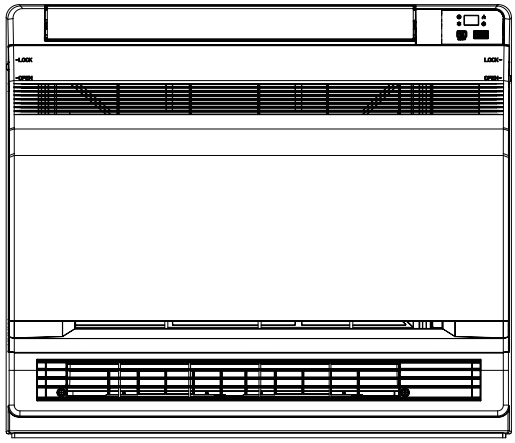

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# 1. Summary

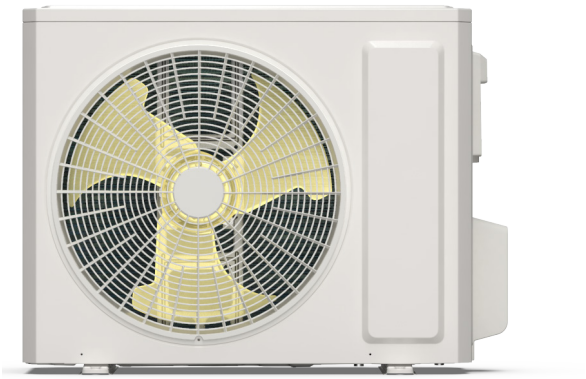
**Indoor Unit:**

AZI-FO25VE/I
AZI-FO35VE/I
AZI-FO50VE/I

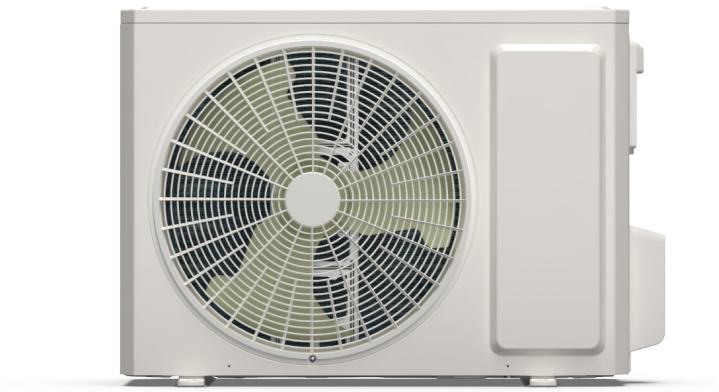


**Outdoor Unit:**

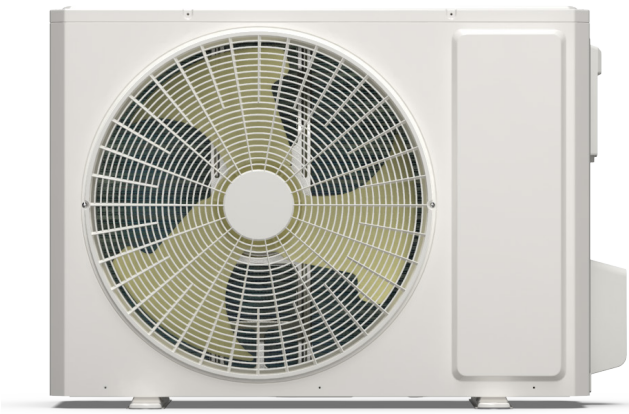
AZI-FO25VE/O



AZI-FO35VE/O



AZI-FO50VE/O



**Remote Controller:**

YAA1FB8(WiFi)



# 2. Specifications

## 2.1 Specification Sheet

| Model | | | AZI-FO25VE | AZI-FO35VE |
|---|---|---|---|---|
| Product Code | | | CV010003100 | CV010003200 |
| Power Supply | Rated Voltage | V~ | 220-240 | 220-240 |
| | Rated Frequency | Hz | 50 | 50 |
| | Phases | | 1 | 1 |
| Power Supply Mode | | | Outdoor | Outdoor |
| Cooling Capacity | | W | 2700 | 3520 |
| Heating Capacity | | W | 2900 | 3800 |
| Cooling Power Input | | W | 700 | 926 |
| Heating Power Input | | W | 730 | 960 |
| Cooling Power Current | | A | 3.5 | 4.6 |
| Heating Power Current | | A | 3.5 | 4.6 |
| Rated Input | | W | 1200 | 1700 |
| Rated Cooling Current | | A | 5.5 | 7 |
| Rated Heating Current | | A | 6 | 7.5 |
| Air Flow Volume | | $m^3/h$ | 500/430/410/370/330/280/250 | 600/520/480/440/400/360/280 |
| Dehumidifying Volume | | L/h | 0.8 | 1.2 |
| EER | | W/W | 3.86 | 3.8 |
| COP | | W/W | 3.97 | 3.96 |
| SEER | | | 7.8 | 7.2 |
| HSPF | | | / | / |
| Application Area | | $m^2$ | 12-18 | 16-24 |
| Indoor Unit | Model of indoor unit | | AZI-FO25VE/I | AZI-FO35VE/I |
| | Indoor Unit Product Code | | CV010N03100 | CV010N03200 |
| | Fan Type | | Centrifugal | Centrifugal |
| | Fan Diameter Length(DXL) | mm | Φ370×80 | Φ370×80 |
| | Cooling Speed | r/min | Turn on the upper air louver:<br>650/560/530/480/430/370/320<br>Turn off the lower air louver:<br>620/530/500/450/400/340/290 | Turn on the upper air louver:<br>750/650/600/550/500/450/350<br>Turn off the lower air louver:<br>720/620/570/520/470/420/320 |
| | Heating Speed | r/min | Turn on the upper air louver:<br>650/560/530/480/430/370/320<br>Turn off the lower air louver:<br>620/530/500/450/400/340/290 | Turn on the upper air louver:<br>750/650/600/550/500/450/350<br>Turn off the lower air louver:<br>720/620/570/520/470/420/320 |
| | Fan Motor Power Output | W | 30 | 30 |
| | Fan Motor RLA | A | 0.15 | 0.15 |
| | Fan Motor Capacitor | μF | / | / |
| | Evaporator Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube |
| | Evaporator Pipe Diameter | mm | Φ7 | Φ7 |
| | Evaporator Row-fin Gap | mm | 2-1.3 | 2-1.3 |
| | Evaporator Coil Length (LXDXW) | mm | 511×400×25.4 | 511×400×25.4 |
| | Swing Motor Model | | MP24EB/MP24AE | MP24EB/MP24AE |
| | Swing Motor Power Output | W | 1.5/1.5 | 1.5/1.5 |
| | Fuse Current | A | 3.15 | 3.15 |
| | Sound Pressure Level | dB (A) | Cooling:39/36/34/32/29/26/23<br>Heating:39/36/34/32/29/25/22 | Cooling:44/40/38/36/33/29/25<br>Heating:44/40/38/36/33/29/25 |
| | Sound Power Level | dB (A) | Cooling:52/48/46/44/41/38/35<br>Heating:52/48/46/44/41/37/34 | Cooling:55/51/49/47/44/40/36<br>Heating:55/51/49/47/44/40/36 |
| | Dimension (WXHXD) | mm | 700X600X215 | 700X600X215 |
| | Dimension of Carton Box (LXWXH) | mm | 785X280X682 | 785X280X682 |
| | Dimension of Package (LXWXH) | mm | 788X283X697 | 788X283X697 |
| | Net Weight | kg | 15.5 | 16 |
| | Gross Weight | kg | 18.5 | 19 |

| | | | | |
|---|---|---|---|---|
| Outdoor Unit | Outdoor Unit Model | | AZI-FO25VE/O | AZI-FO35VE/O |
| | Outdoor Unit Product Code | | CV010W03100 | CV010W03200 |
| | Compressor Manufacturer | | ZHUHAI LANDA COMPRESSOR CO.,LTD. | ZHUHAI LANDA COMPRESSOR CO.,LTD. |
| | Compressor Model | | QXF-A082zC170 | FTz-AN108ACBD |
| | Compressor Oil | | ZE-G;ES RB68GX or equivalent | FW68DA or equivalent |
| | Compressor Type | | Rotary | Rotary |
| | Compressor LRA. | A | 15 | / |
| | Compressor RLA | A | 2.56 | 4.4 |
| | Compressor Power Input | W | 757 | / |
| | Compressor Overload Protector | | / | / |
| | Throttling Method | | Electron expansion valve | Electron expansion valve |
| | Set Temperature Range | ºC | 16~30 | 16~30 |
| | Cooling Operation Ambient Temperature Range | ºC | -15~43 | -15~43 |
| | Heating Operation Ambient Temperature Range | ºC | -22~24 | -22~24 |
| | Condenser Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube |
| | Condenser Pipe Diameter | mm | Φ7 | Φ7.94 |
| | Condenser Rows-fin Gap | mm | 1-1.2 | 1-1.2 |
| | Condenser Coil Length (LXDXW) | mm | 666×19.05×527 | 761.5×38.1×528 |
| | Fan Motor Speed | rpm | 850 | 850 |
| | Fan Motor Power Output | W | 30 | 30 |
| | Fan Motor RLA | A | 0.4 | 0.4 |
| | Fan Motor Capacitor | μF | / | / |
| | Outdoor Unit Air Flow Volume | $m^3/h$ | 1950 | 2200 |
| | Fan Type | | Axial-flow | Axial-flow |
| | Fan Diameter | mm | Φ400 | Φ420 |
| | Defrosting Method | | Automatic Defrosting | Automatic Defrosting |
| | Climate Type | | T1 | T1 |
| | Isolation | | I | I |
| | Moisture Protection | | IPX4 | IPX4 |
| | Permissible Excessive Operating Pressure for the Discharge Side | MPa | 4.3 | 4.3 |
| | Permissible Excessive Operating Pressure for the Suction Side | MPa | 2.5 | 2.5 |
| | Sound Pressure Level | dB (A) | 51 | 53 |
| | Sound Power Level | dB (A) | 61 | 63 |
| | Dimension(WXHXD) | mm | 732X555X330 | 802X555X350 |
| | Dimension of Carton Box (LXWXH) | mm | 791X373X590 | 869X395X594 |
| | Dimension of Package(LXWXH) | mm | 794X376X615 | 872X398X620 |
| | Net Weight | kg | 24 | 27.5 |
| | Gross Weight | kg | 26.5 | 30 |
| | Refrigerant | | R32 | R32 |
| | Refrigerant Charge | kg | 0.51 | 0.75 |
| Connection Pipe | Connection Pipe Length | m | 5 | 5 |
| | Connection Pipe Gas Additional Charge | g/m | 16 | 16 |
| | Outer Diameter Liquid Pipe | | 1/4" | 1/4" |
| | Outer Diameter Gas Pipe | | 3/8" | 3/8" |
| | Max Distance Height | m | 10 | 10 |
| | Max Distance Length | m | 15 | 20 |
| | Note: The connection pipe applies metric diameter. | | | |

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

| Model | | | AZI-FO50VE |
|---|---|---|---|
| Product Code | | | CV010003300 |
| Power Supply | Rated Voltage | V~ | 220-240 |
| | Rated Frequency | Hz | 50 |
| | Phases | | 1 |
| Power Supply Mode | | | Outdoor |
| Cooling Capacity | | W | 5200 |
| Heating Capacity | | W | 5330 |
| Cooling Power Input | | W | 1445 |
| Heating Power Input | | W | 1545 |
| Cooling Power Current | | A | 6.6 |
| Heating Power Current | | A | 7.1 |
| Rated Input | | W | 2400 |
| Rated Cooling Current | | A | 11.5 |
| Rated Heating Current | | A | 11.5 |
| Air Flow Volume | | $m^3/h$ | 750/670/600/520/470/430/350 |
| Dehumidifying Volume | | L/h | 1.8 |
| EER | | W/W | 3.6 |
| COP | | W/W | 3.45 |
| SEER | | | 7.2 |
| HSPF | | | / |
| Application Area | | $m^2$ | 23-34 |
| Indoor Unit | Model of indoor unit | | AZI-FO50VE/I |
| | Indoor Unit Product Code | | CV010N03300 |
| | Fan Type | | Centrifugal |
| | Fan Diameter Length(DXL) | mm | Φ370×80 |
| | Cooling Speed | r/min | Turn on the upper air louver :840/800/720/650/580 /530/410<br>Turn off the lower air louver:810/770/690/620/550 /500/380 |
| | Heating Speed | r/min | Turn on the upper air louver :930/840/760/690/620 /570/480<br>Turn off the lower air louver:850/800/720/650/580 /530/470 |
| | Fan Motor Power Output | W | 30 |
| | Fan Motor RLA | A | 0.15 |
| | Fan Motor Capacitor | μF | / |
| | Evaporator Form | | Aluminum Fin-copper Tube |
| | Evaporator Pipe Diameter | mm | Φ7 |
| | Evaporator Row-fin Gap | mm | 2-1.3 |
| | Evaporator Coil Length (LXDXW) | mm | 511×400×25.4 |
| | Swing Motor Model | | MP24EB/MP24AE |
| | Swing Motor Power Output | W | 1.5/1.5 |
| | Fuse Current | A | 3.15 |
| | Sound Pressure Level | dB (A) | Cooling:49/47/45/42/40/37/32<br>Heating:51/48/45/43/40/38/33 |
| | Sound Power Level | dB (A) | Cooling:60/58/56/53/51/48/43<br>Heating:60/57/54/52/49/47/42 |
| | Dimension (WXHXD) | mm | 700X600X215 |
| | Dimension of Carton Box (LXWXH) | mm | 785X280X682 |
| | Dimension of Package (LXWXH) | mm | 788X283X697 |
| | Net Weight | kg | 16 |
| | Gross Weight | kg | 19 |

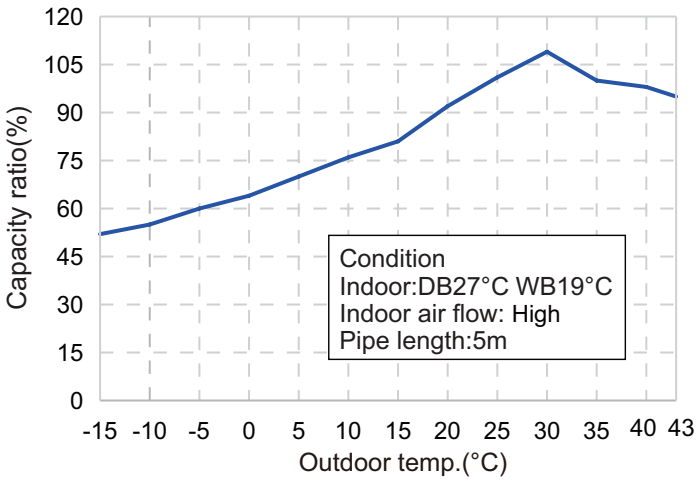
| | | | |
|---|---|---|---|
| Outdoor Unit | Outdoor Unit Model | | AZI-FO50VE/O |
| | Outdoor Unit Product Code | | CV010W03300 |
| | Compressor Manufacturer | | ZHUHAI LANDA COMPRESSOR CO., LTD. |
| | Compressor Model | | QXF-M130zF170 |
| | Compressor Oil | | RB68GX or equivalent |
| | Compressor Type | | Rotary |
| | Compressor LRA. | A | 22 |
| | Compressor RLA | A | 5.36 |
| | Compressor Power Input | W | 1196 |
| | Compressor Overload Protector | | / |
| | Throttling Method | | Electron expansion valve |
| | Set Temperature Range | ºC | 16~30 |
| | Cooling Operation Ambient Temperature Range | ºC | -15~43 |
| | Heating Operation Ambient Temperature Range | ºC | -22~24 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Condenser Pipe Diameter | mm | Φ7 |
| | Condenser Rows-fin Gap | mm | 2-1.4 |
| | Condenser Coil Length (LXDXW) | mm | 839×38.1×616 |
| | Fan Motor Speed | rpm | 820 |
| | Fan Motor Power Output | W | 60 |
| | Fan Motor RLA | A | 0.65 |
| | Fan Motor Capacitor | μF | / |
| | Outdoor Unit Air Flow Volume | $m^3/h$ | 3600 |
| | Fan Type | | Axial-flow |
| | Fan Diameter | mm | Φ520 |
| | 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 | dB (A) | 59 |
| | Sound Power Level | dB (A) | 65 |
| | Dimension(WXHXD) | mm | 958X660X402 |
| | Dimension of Carton Box (LXWXH) | mm | 1029X453X715 |
| | Dimension of Package(LXWXH) | mm | 1032X456X737 |
| | Net Weight | kg | 41 |
| | Gross Weight | kg | 45.5 |
| | Refrigerant | | R32 |
| | Refrigerant Charge | kg | 1 |
| Connection Pipe | Connection Pipe Length | m | 5 |
| | Connection Pipe Gas Additional Charge | g/m | 16 |
| | Outer Diameter Liquid Pipe | | 1/4" |
| | Outer Diameter Gas Pipe | | 1/2" |
| | Max Distance Height | m | 10 |
| | Max Distance Length | m | 25 |
| | Note: The connection pipe applies metric diameter. | | |

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

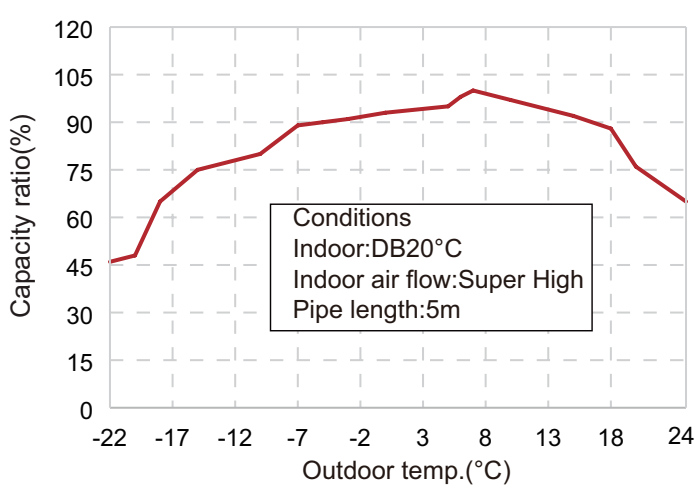
## 2.2 Capacity Variation Ratio According to Temperature

**25/35**

Cooling

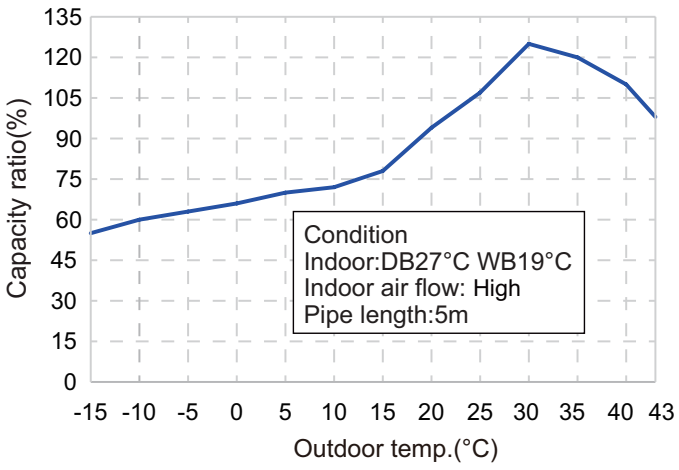



Heating

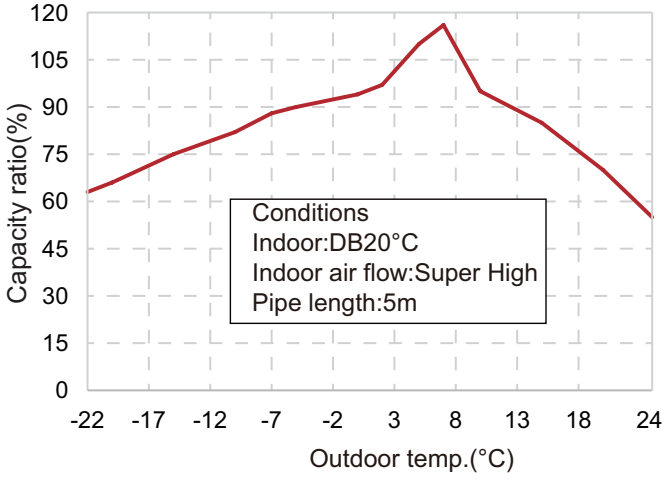



**50**

Cooling

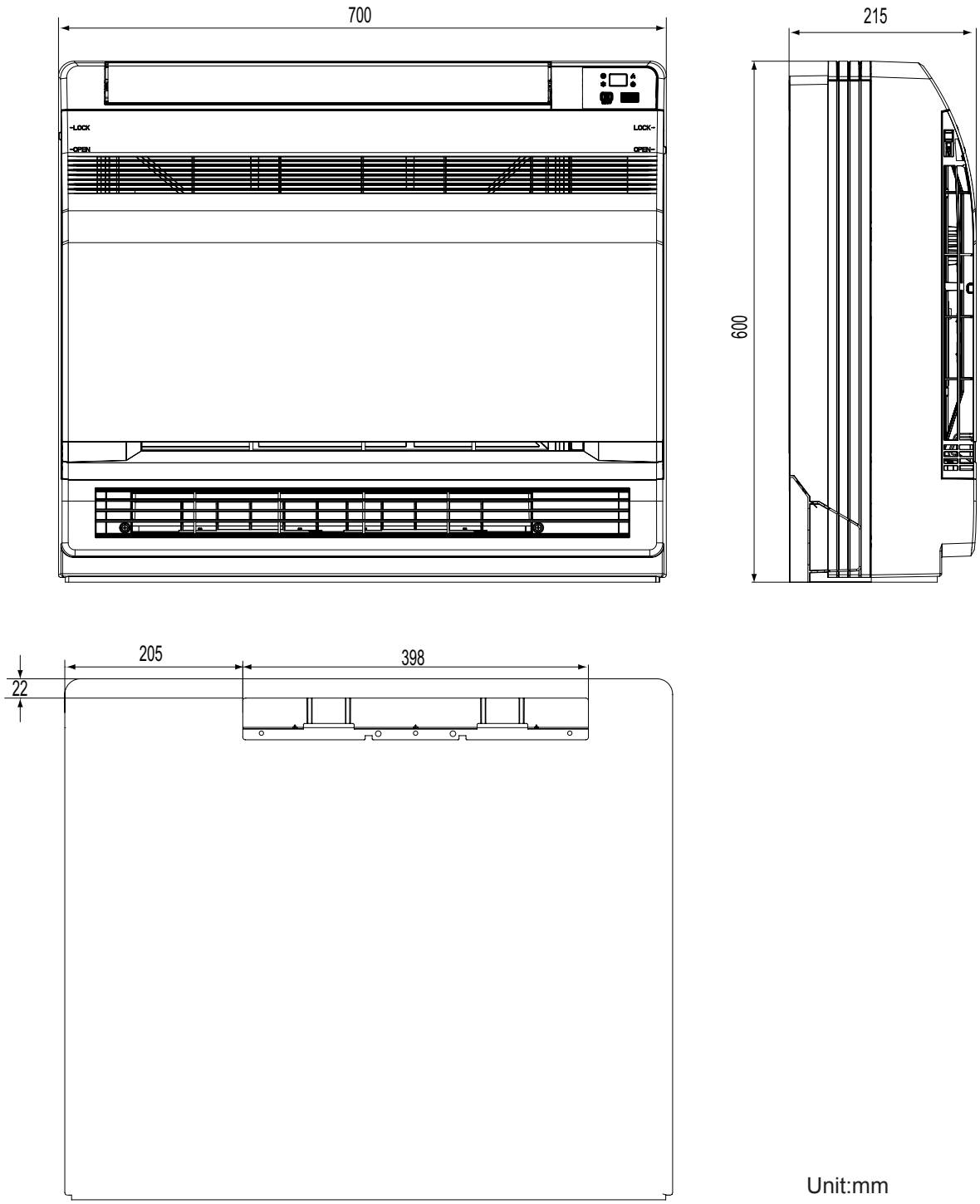



Heating



# 3. Outline Dimension Diagram

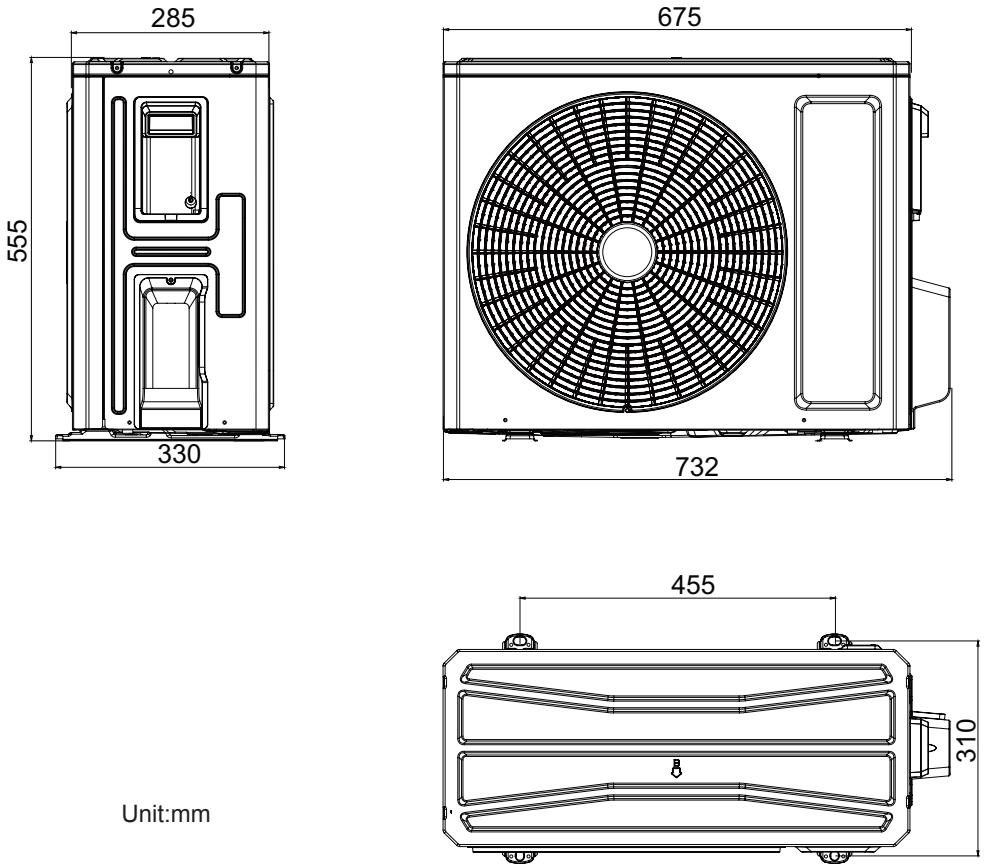
## 3.1 Indoor Unit




Unit:mm

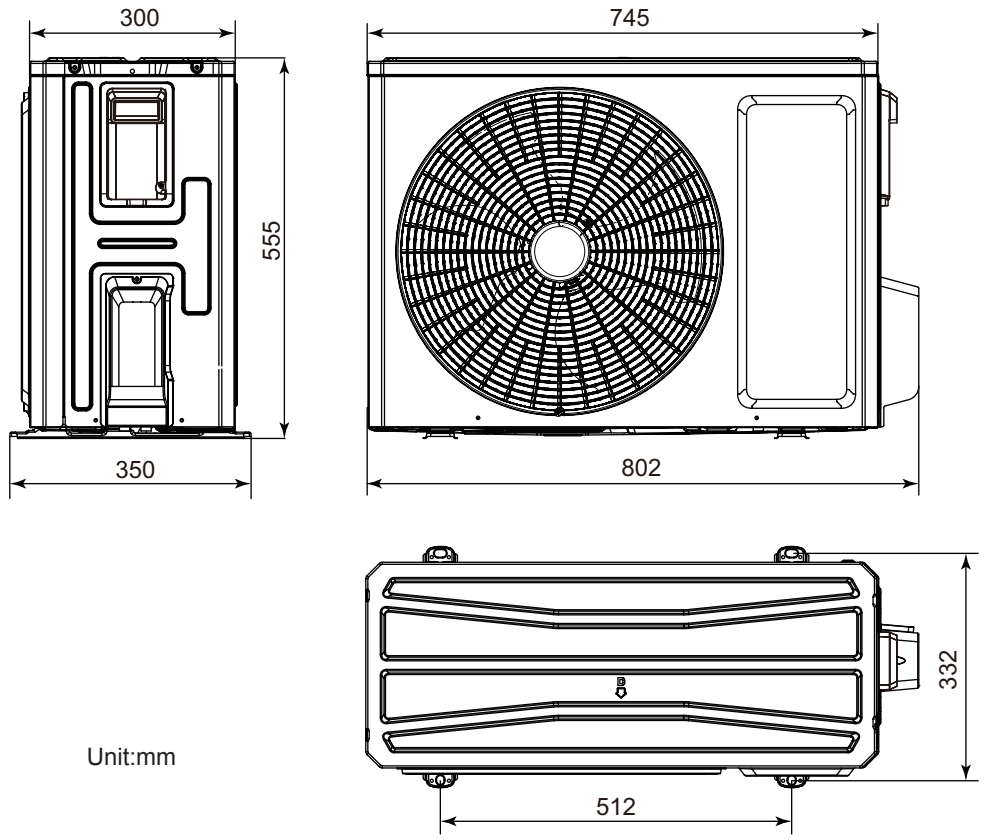
## 3.2 Outdoor Unit

AZI-FO25VE/O



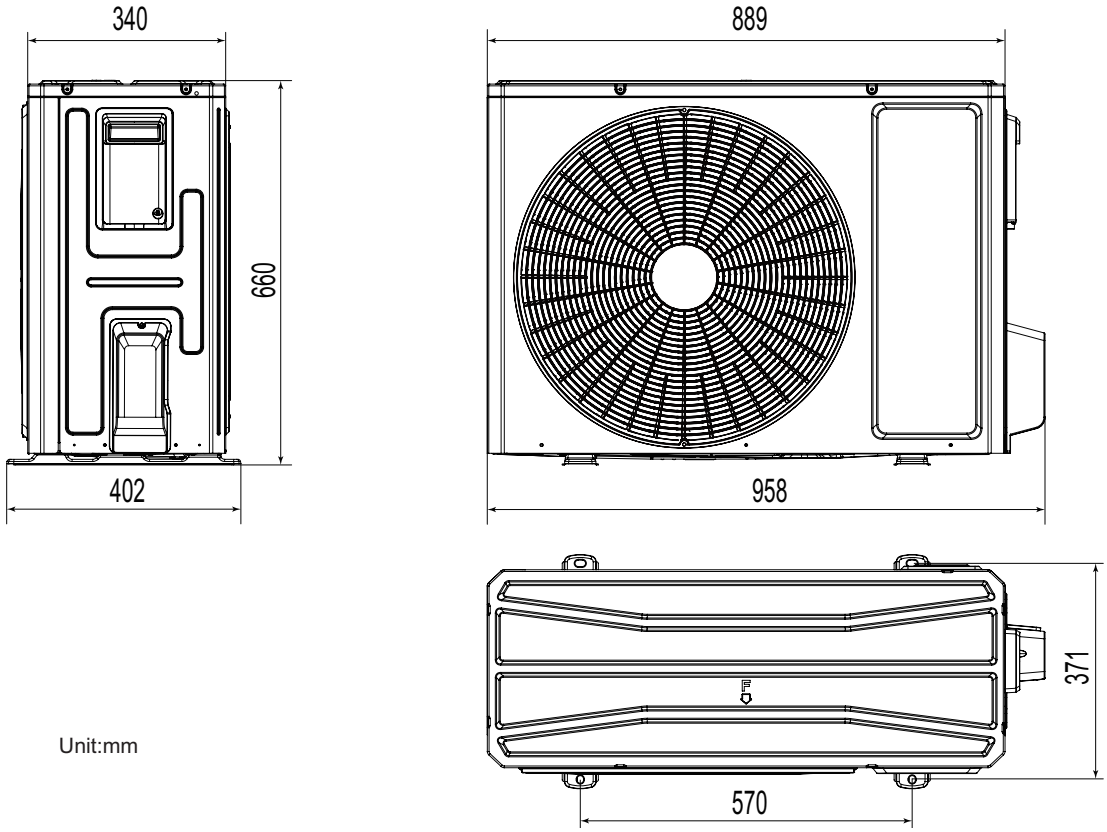

Unit:mm

AZI-FO35VE/O



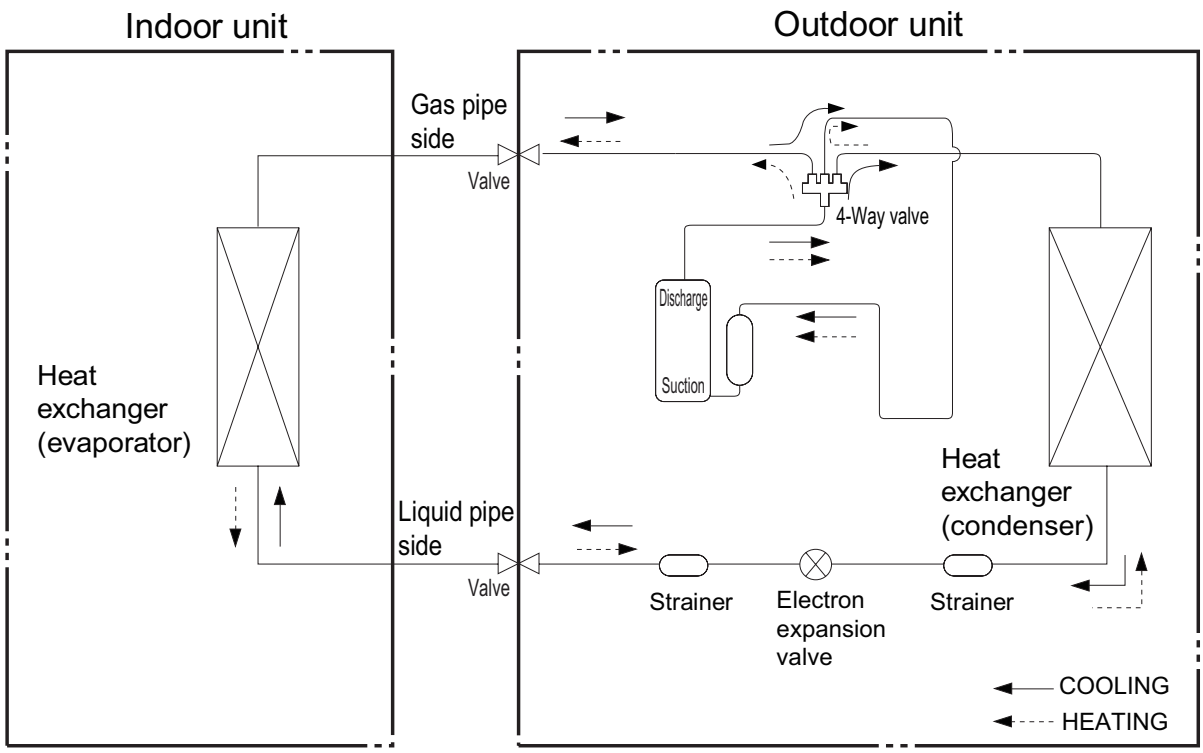

Unit:mm

AZI-FO50VE/O




Unit:mm

# 4. Refrigerant System Diagram




Connection pipe specification:
Liquid pipe:1/4"
Gas pipe:3/8"  25/35
Gas pipe:1/2" 50

# 5. Electrical Part

## 5.1 Wiring Diagram

### ● Instruction

| Symbol | Symbol Color |
|---|---|
| YE | Yellow |
| RD | Red |
| YEGN | Yellow/Green |

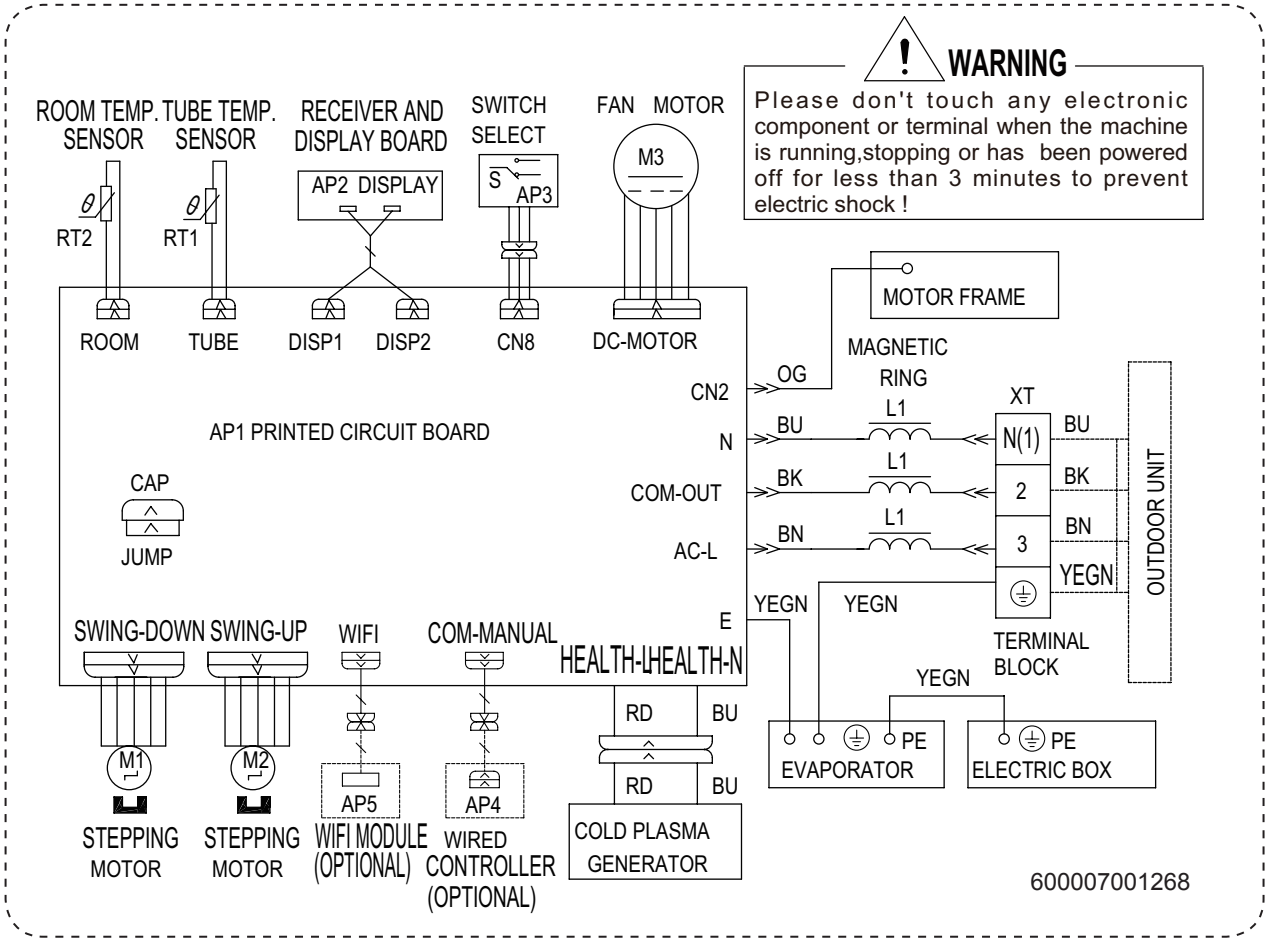
| Symbol | Symbol Color |
|---|---|
| BN | Brown |
| BU | Blue |
| BK | Black |

| Symbol | Name |
|---|---|
| COMP | Compressor |
| ⏚ | Grounding wire |
| / | / |

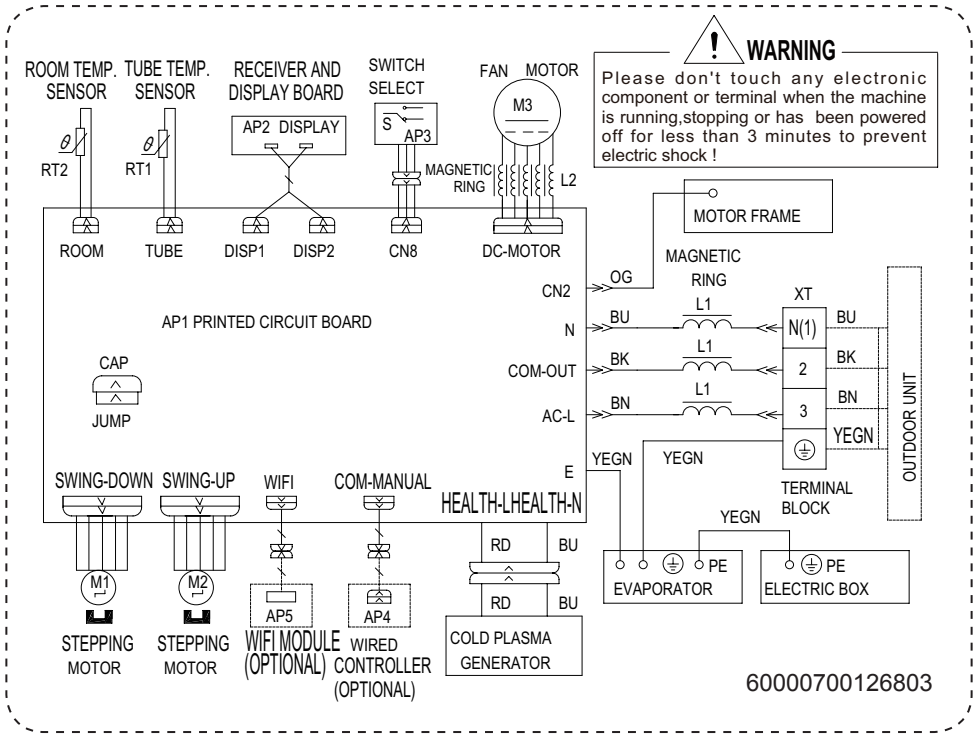
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

### ● Indoor Unit

AZI-FO25VE/I

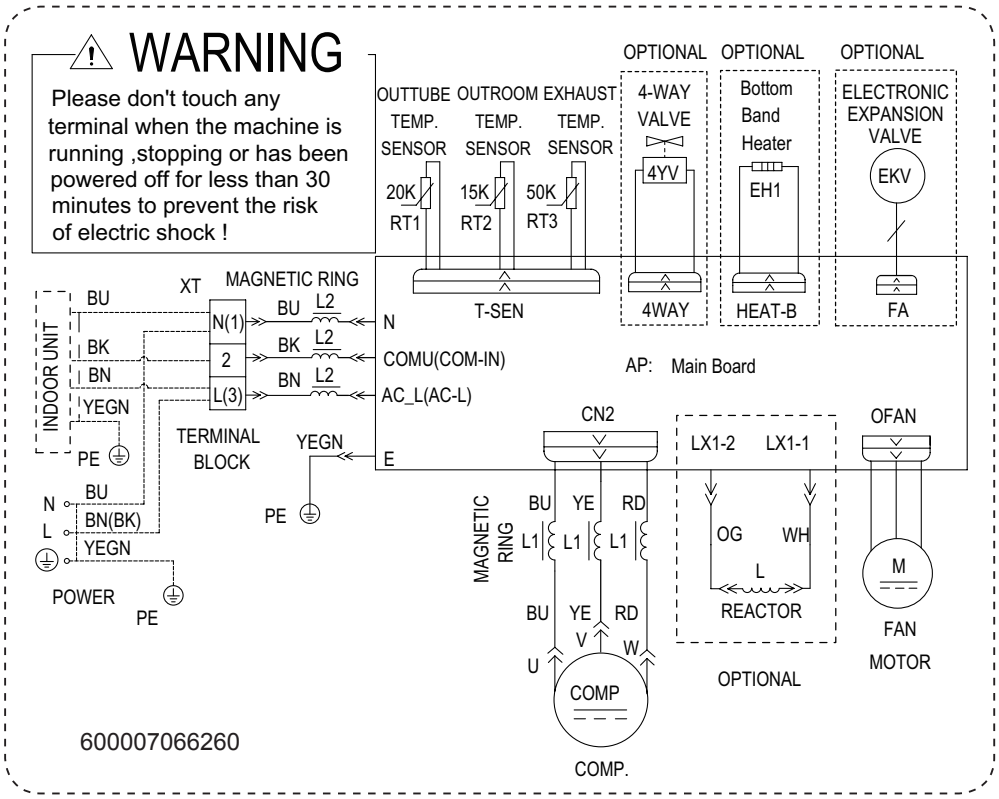


AZI-FO35VE/I
AZI-FO50VE/I

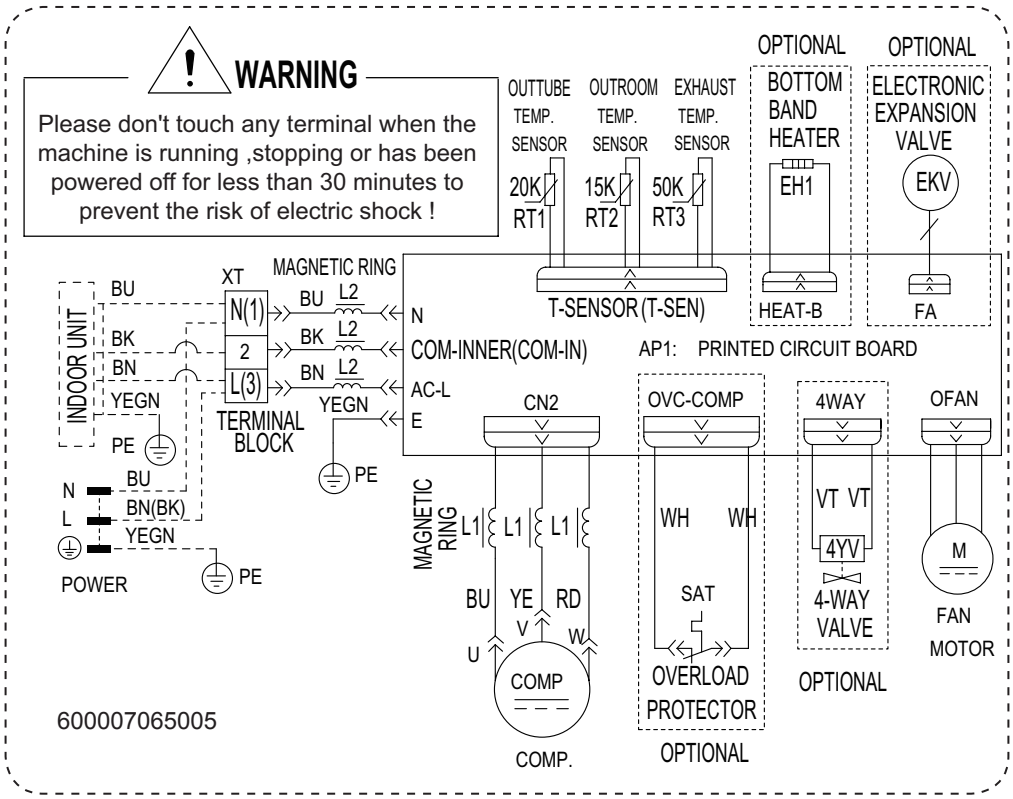


## ● Outdoor Unit

AZI-FO25VE/O
AZI-FO35VE/O



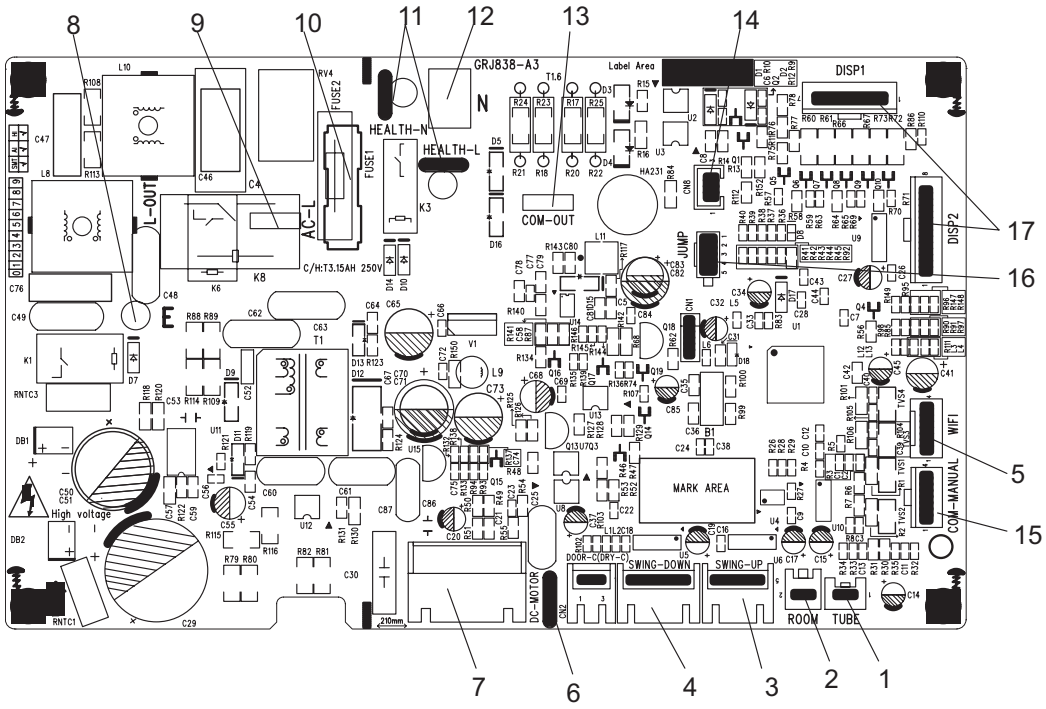

AZI-FO50VE/O




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

## 5.2 PCB Printed Diagram

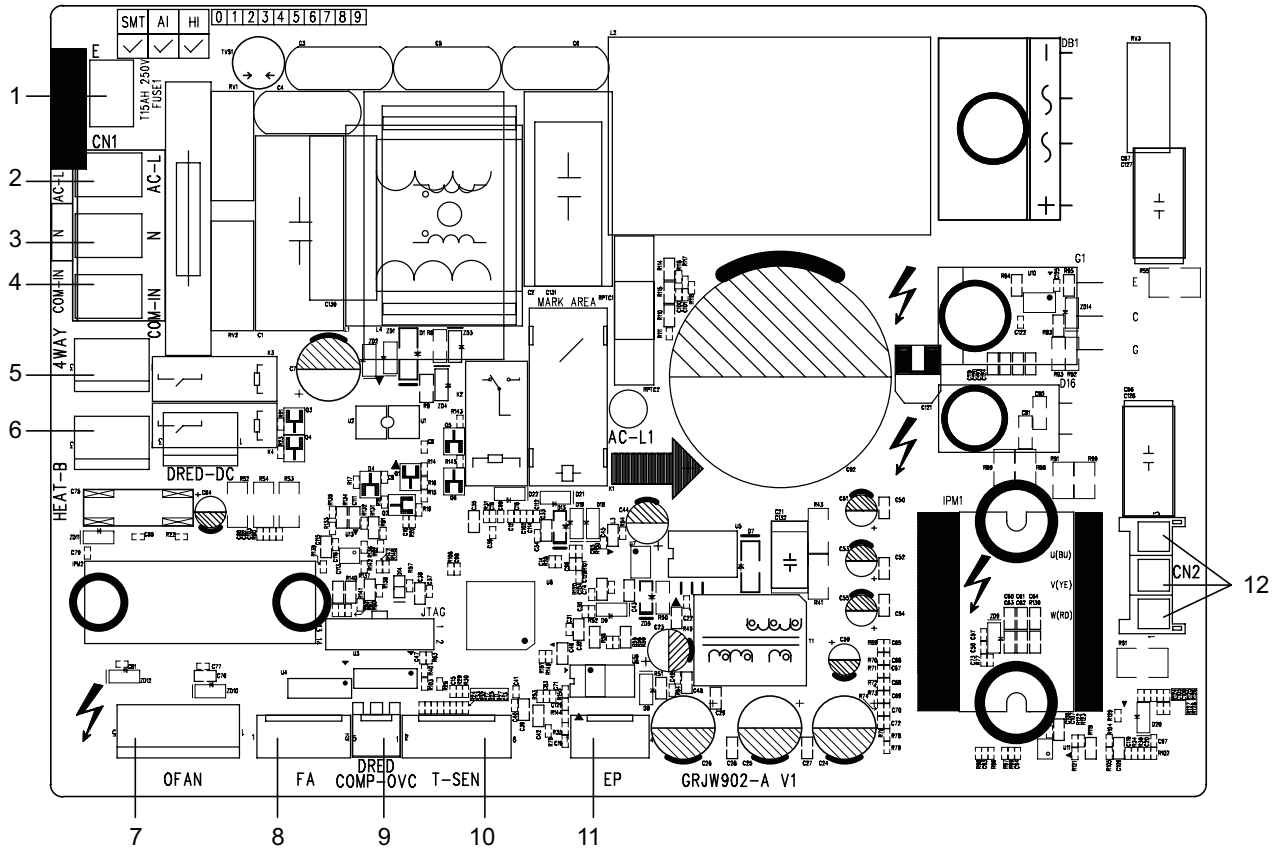
● **Indoor Unit**




| No. | Name | No. | Name |
|---|---|---|---|
| 1 | Interface of tube temperature sensor | 10 | Fuse |
| 2 | Interface of ambient temperature sensor | 11 | Terminal for health function (only for the mode with this function) |
| 3 | Up swing interface | 12 | Terminal of neutral wire |
| 4 | Down swing interface | 13 | Communication interface between indoor unit and outdoor unit |
| 5 | WIFI interface | 14 | Control interface of Down swing |
| 6 | Interface of EMC shielding wire | 15 | Wired controlled interface |
| 7 | DC motor interface | 16 | Needle stand of jumper cap |
| 8 | Earthing wire of main board | 17 | Interface of display board |
| 9 | Terminal of live wire | | |

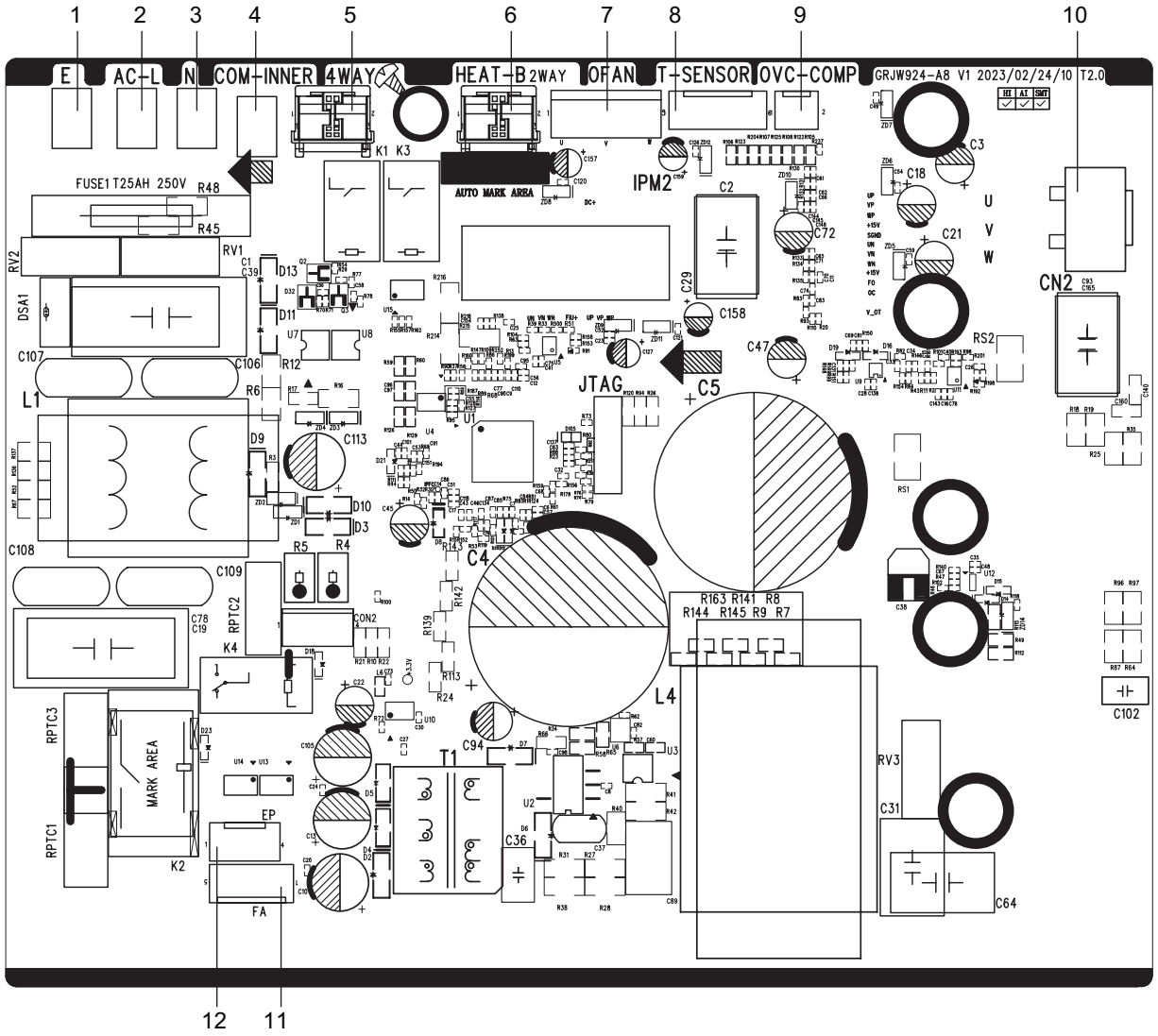
## ● Outdoor Unit

AZI-FO25VE/O
AZI-FO35VE/O




| No. | Name |
|---|---|
| 1 | Earthing wire terminal |
| 2 | Live wire terminal |
| 3 | Neutral wire terminal |
| 4 | Communication terminal |
| 5 | 4-way valve terminal |
| 6 | Electric heating terminal of chassis |

| No. | Name |
|---|---|
| 7 | Fan motor terminal |
| 8 | Electron expansion valve terminal |
| 9 | Compressor overload terminal |
| 10 | Temperature sensor terminal |
| 11 | E store terminal |
| 12 | Compressor terminal |




| No. | Name | No. | Name |
|---|---|---|---|
| 1 | Earthing Wire Insertion | 7 | Outdoor Fan Needle Stand |
| 2 | Live Wire Insertion | 8 | Temperature Sensor Needle Stand |
| 3 | Neutral Wire Insertion | 9 | Compressor Overload Needle Stand |
| 4 | Communication Wire Insertion | 10 | Compressor Needle Stand |
| 5 | Four-way Valve Needle Stand | 11 | Electronic Expansion Valve Needle Stand |
| 6 | Chassis Electric Heating Belt Needle Stand | 12 | EEP Flash Drive Needle Stand |

# 6. Function and Control

## 6.1 Remote Controller Introduction

### Buttons on remote controller




1 ON/OFF
Press it to start or stop operation.

2 - : Press it to decrease temperatue setting.

3 + : Press it to increase temperature setting.

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

5 FAN
Press it to set fan speed.

6 SWING
Pressi ts et swinga ngle.

7 I FEEL

8 /
Press it to set HEALTH or AIR function.

9 SLEEP

10 TEMP

11 QUIET
Pressi t to set QUIET function.

12 CLOCK
Pressi ts et clock.

13 T-ON|T-OFF
Pressi t to seta uto-off/auto-ont imer.

14 TURBO

15 LIGHT
Press it to turn on/off the light.

16 WiFi

## 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.

**1. ON/OFF button**

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

**2. - button**

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

**3.+ button**

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

4.MODE:

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

AUTO ▶ COOL ▶ DRY ▶ FANH ▶ EAT *

*Note:Only for models with heating function.

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

**5.FAN :**

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




Low speed Low-Medium speed Medium speed

Medium-High speed High speed

● X-FAN function:Hold fan speed button for 2s in COOL or DRY mode, the icon " " is displayed and the indoor fan will continue operation for a few minutes in order to dry the indoor unit even though you have turned off the unit. After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode.

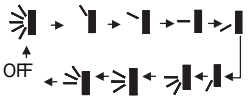
This function indicates that moisture on evaporator of indoor unit will be blowed after the unit is stopped to avoid mould.

● Having set X-FAN function on: After turning off the unit by pressing ON/OFF button indoor fan will continue running for a few minutes. at low speed. In this period, Hold fan speed button for 2s to stop indoor fan directly.

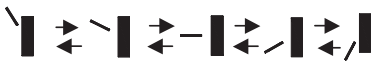
● Having set X-FAN function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.

**6.SWING:**

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




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



**7.I FEEL:**

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

When I FEEL function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

**8. /**

Press this button to achieve the on and off of health and scavenging functions in operation status.

Press this button for the first time to start scavenging function;

LCD displays" ". Press the button for the second time to start health and scavenging functions simultaneously; LCD displays" " and " " . Press this button for the third time to quit health and scavenging functions simultaneously. Press the button for the fourth time to start health function; LCD display " " . Press this button again to repeat the operation above.

NOTE: This function is applicable to partial of models.

**9.SLEEP:**

Press this button, can select Sleep 1 ( 1 ), Sleep 2 ( 2 ),Sleep 3 ( 3 ) and cancel the Sleep,circulate between these, after electrified, Sleep Cancel is defaulted.

Sleep 1 is Sleep mode 1, in Cool mode: sleep status after run for one hour, the main unit setting temperature will increase 1°C,setting temperature increased 2°C, the unit will run at this setting temperature; In Heat mode: sleep status after run for one hour, the setting temperature will decrease 1°C, 2 hours, setting temperature will decrease 2 °C, then the unit will run at this setting temperature.

Sleep 2 is sleep mode 2, that is air conditioner will run according to the presetting a group of sleep temperature curve.Sleep 3- the

sleep curve setting under Sleep mode by DIY:

(1) Under Sleep 3 mode, press "Turbo" button for a long time, remote control enters into user individuation sleep setting status, at this time, the time of remote control will display "1 hour ", the setting temperature "88" will display the corresponding temperature of last setting sleep curve and blink (The first entering will display according to the initial curve setting value of original factory);

(2) Adjust "+" and "-" button, could change the corresponding setting temperature, after adjusted, press "Turbo "button for confirmation;

(3) At this time, 1 hour will be automatically increased at the timer position on the remote control, (that are "2 hours " or "3 hours " or "8 hours "), the place of setting temperature "88" will display the

corresponding temperature of last setting sleep curve and blink;

(4) Repeat the above step (2) ~ (3) operation, until 8 hours temperature setting finished, sleep curve setting finished, at this time, the remote control will resume the original timer display;temperature display will resume to original setting temperature.

Sleep3- the sleep curve setting under SLEEP mode by DIY could be inquired:

The user could accord to sleep curve setting method to inquire the presetting sleep curve, enter into user individuation sleep setting status, but do not change the temperature, press "Turbo" button directly for confirmation.

Note: In the above presetting or enquiry procedure, if continuously within10s, there is no button pressed, the sleep curve setting within10s, there is no button pressed, the sleep curve setting status will be automatically quit and resume to display the original displaying. In the presetting or enquiry procedure, press "ON/OFF"

button, "Mode" button, "Timer"button or "Sleep" button, the sleep curve setting or enquiry status will quit similarly.

**10.TEMP:**

Press this button, could select displaying the indoor setting temperature or indoor ambient temperature.When the indoor unit firstly power on it will display the setting temperature,

if the temperature's displaying status is changed from other status to" ",displays the ambient temperature, 5s later or within 5s, it receives other remote control signal that will return to display the setting temperature. if the users haven't set up the temperature

displaying status,that will display the setting temperature.

**11.QUIET:**

Press this button, the Quiet status is under the Auto Quiet mode (display " " and "Auto" signal) and Quiet mode (display " " signal) and Quiet OFF (there is no signal of " " displayed), after powered on, the Quiet OFF is defaulted. Note: Under the Quiet mode (Display " " signal), the fan speed is not available.

**12.CLOCK :**

Press CLOCK button, blinking . Within 5 seconds,pressing + or - button adjusts the present time.

Holding down either button above 2 seconds increases or decreases the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting,and then will be constantly displayed.

**13. T-ON / T-OFF:**

Press T-ON button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again.

After press of this button, disappears and "ON "blink s .00:00 is displayed for ON time setting.Within 5 seconds,press + or - butt on to adjust the time value.Every press of either button changes the time setting by 1minute. Holding down either button rapidly changes the time setting by 1 minute and then 10 minutes.Within 5 Seconds after setting,press TIMER ON button to confirm.

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

**14.TURBO:**

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

**15.LIGHT:**

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

**16.WiFi:**

Press " WiFi " button to turn on WiFi function, " WiFi " icon will be displayed on the remote controller;

Hold " WiFi " button for 5s to turn off WiFi function and " WiFi " icon will disappear.(This function is only available for some models.)

Under off status, press " MODE " and " WiFi " buttons simultaneously for 1s, WiFi module will restore factory settings.

● This function is only available for some models.

**17.Combination of "+" and "-" buttons: About lock**

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

**18.Combination of "MODE " and "-" buttons : About switch between Fahrenheit and centigrade**

At unit OFF, press "MODE"and " - " buttons simultaneously to switch between ºC and ºF .

**19. Combination of " TEMP " and "CLOCK" buttons : About Energy-saving Function**

Press "TEMP" and "CLOCK" simultaneously in COOL mode to start energy-saving function.

Nixie tube on the remote controller displays "SE". Repeat the operation to quit the function.

**20.Combination of " TEMP " and "CLOCK" buttons : About 8ºC Heating Function**

Press "TEMP" and "CLOCK" simultaneously in HEAT mode to start 8ºC Heating Function

Nixie tube on the remote controller displays " $ " and a selected temperature of " 8ºC".

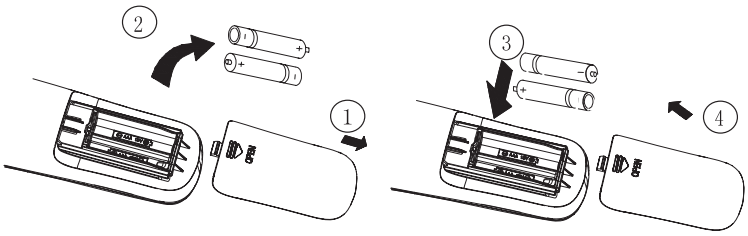
(46ºF if Fahrenheit is adopted). Repeat the operation to quit the function.

**21. About Back-lighting Function**

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

**Replacement of Batteries**

1.Remove the battery cover plate from the rear of the remote controller. (As shown in the figure)




Sketch map for replacing batteries

2.Take out the old batteries.

3.Insert two new AAA1.5V dry batteries, and pay attention to the polarity.

4. Reinstall the battery cover plate.

★ **Notes**:

● When replacing the batteries, do not use old or different types of batteries,

● If the remote controller will not be used for a long time, please otherwise, it may cause malfunction. remove batteries to prevent batteries from leaking.

● The operation should be performed in its receiving range.

● It should be kept 1m away from the TV set or stereo sound sets.

● If the remote controller does not operate normally, please take the batteries out and reinsert them after 30 seconds.If it still can't operate properly,replace the batteries.

## 6.2 Brief Description of Modes and Functions

**1. Cooling mode**

(1) Under this mode, the fan and the up swing will operate at setting status. The temperature setting range is 16~30ºC.

(2) The unit is stopped because of malfunction of outdoor unit or protection. The indoor unit keeps original operation status and the error code is displayed.

(3) Indoor unit is stopped due to mode shock.

**2. Drying mode**

(1) Under this mode, the fan operates at low speed and the swing operates at setting status. The temperature setting range is 16~30ºC.

(2) The unit is stopped because of malfunction of outdoor unit or protection. The indoor unit keeps original operation status and the error code is displayed.

**3. Heating mode**

(1) Under this mode, the temperature setting range is 16~30ºC.

(2) Working condition and process for heating

When the unit is turned on under heating mode, the indoor unit turns to cold air prevention status. When the unit is turned off and the

indoor unit has been started up before, the indoor unit blows the residual heat.

(3) Protection function: When the compressor is stopped due to malfunction under heating mode, the indoor unit blows the residual heat.

(4) Blow residual heat

When the unit stops operation as it reaches the temperature point, indoor unit will continue to run for 60s. The fan speed cant be switched during blowing residual heat period. The upper horizontal louver will turn to the defaulted position in cooling. When the unit operates under heating mode or auto heating mode, compressor will be turned on and the corresponding electric expansion valve is

more than 65 and the unit stops operation during the operation status of indoor unit. The upper horizontal louver will turn to the defaulted position in heating mode. The indoor unit operates at low speed for 10s and then the unit stops operation.

(5) Defrosting, oil-returning

As it received the signal of defrosting and oil-returning from outdoor unit, the upper horizontal louver will turn to the minimum angle in

cooling. 10s later, the in door fan stop operation. During defrosting and oil-returning process and they are quitted within 5mins, all malfunctions for indoor tube temperature sensor wont be detected.

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

Under AUTO mode, standard cooling Tpreset=25ºC (77ºF), standard heating Tpreset=20ºC (68ºF), and standard fan Tpreset= 25ºC

(77ºF).

(1) When Tamb≥26ºC (79ºF), the unit operation in cooling mode;

(2) Heating pump unit: When Tamb≤19ºC (66ºF), the unit operates in heating mode;

(3) Cooling only unit: Tamb≤19ºC (66ºF), the unit operates in fanmode;

(4) When 19ºC<Tindoor amb.<26ºC, if it turns to auto mode as the unit is turned on for the first time the unit will operates at auto fan mode. If it switch to auto mode from other modes, the unit will keep previous operation mode (when it turns to dry mode, the unit operates at auto fan mode).

(5) Protection function

Protection function is the same as that in cooling or heating mode.

**5. Fan mode**

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

condition in cooling.

**6. Mode shock**

If the mode shock is 1 which is received by indoor unit from outdoor unit, the loads of indoor unit (indoor unit, auxiliary heating,swing)

stop operation and the error code is displayed. The mode sent to outdoor unit is still remote control receiving mode. The unit will be turned off during mode shock.

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

**7. Other control**

**7.1 Buzzer**

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

**7.2 Auto button**

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

**7.3 8 ºC heating function**

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

**7.4 I FEEL function**

When I FEEL command is received, the controller will operate according to the ambient temperature sent by the remote controller (For

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

temperature will be that sensed by the air conditioner. I FEEL function will not to be memorized.

**7.5 Timer function**

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

(1)General Timer

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

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

(2)Clock Timer

Timer ON

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

Timer OFF

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

Timer Change

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

**7.6 Sleep function**

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

**7.7 Compulsory defrosting function**

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

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

**7.8 Refrigerant recovery function**

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

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

Turn to the action for Freon recovery mode: indoor unit will be turned on in cooling mode. The fan speed is super-high fan speed and

the set temperature is 16°C. The horizontal louver will turn to the minimum operation angle.

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

**7.9 Pilot run function**

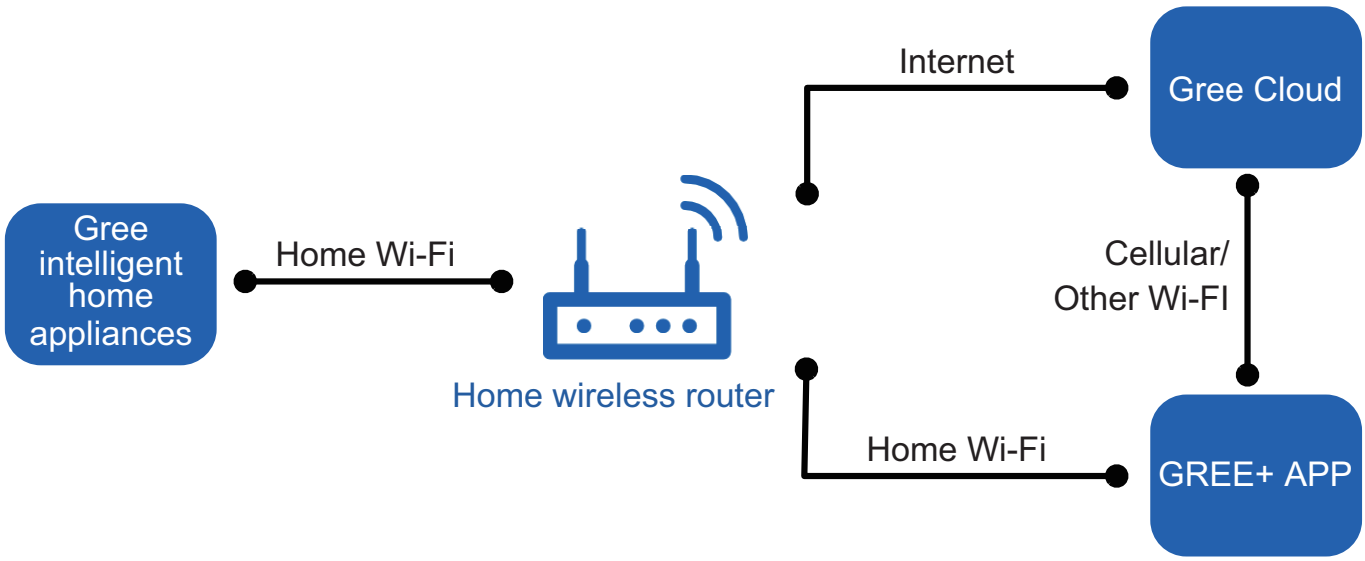
When the set temperature is 30°C under cooling mode, press "+,-,+,-,+,-"continuously within 5s, the indoor unit turns to pilot run setting mode and it will send pilot run mode to outdoor unit.

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

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

## 6.3 GREE+ App Operation Manual

### Control Flow Chart




### Operating Systems

Requirement for User's smart phone:

iOS system
Support iOS7.0 and above version

Android system
Support Android 4.4 and above version

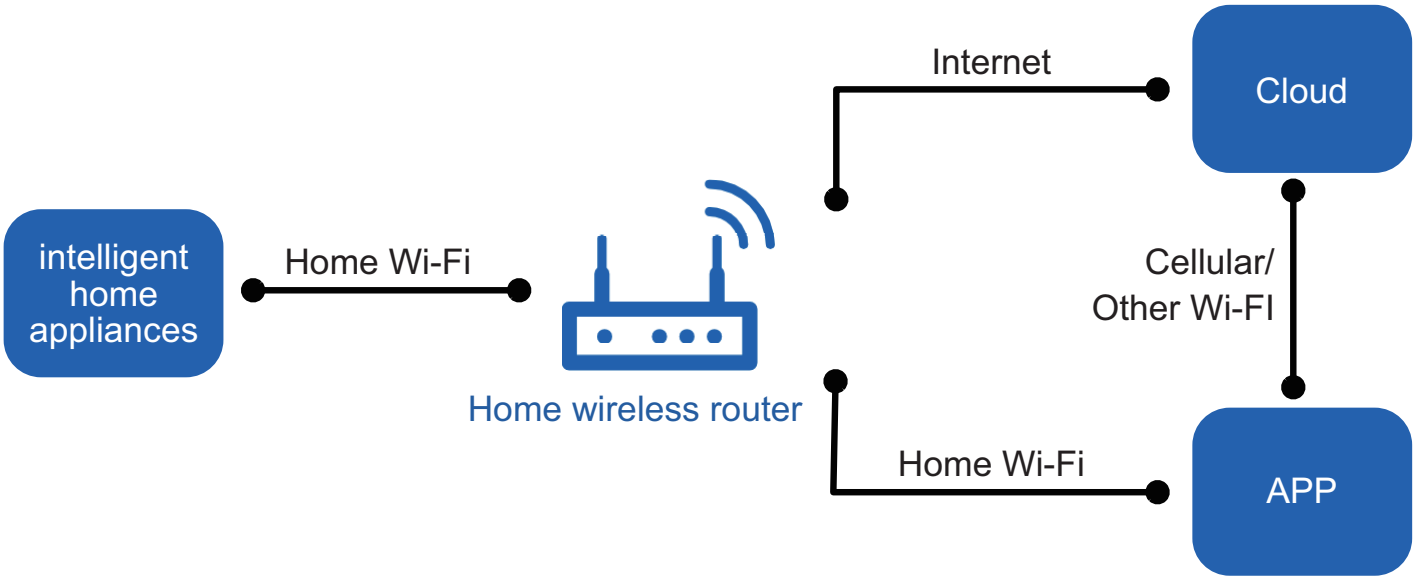
### Download and installation

GREE+ App Download Linkage

Scan the QR code or search "GREE+" in the application market to download and install it. When "GREE+" App is installed, register the account and add the device to achieve long-distance control and LAN control of Gree smart home appliances.
For more information, please refer to "Help" in App.

## 6.4 Ewpe Smart App Operation Manual

### Control Flow Chart




### Operating Systems

Requirement for User's smart phone:

iOS system
Support iOS7.0 and above version

Android system
Support Android 4.4 and above version

### Download and installation

App Download Linkage

Scan the QR code or search "Ewpe Smart" in the application market to download and install it. When "Ewpe Smart" App is installed, register the account and add the device to achieve long-distance control and LAN control of smart home appliances.
For more information, please refer to "Help" in App.

# 7. Notes for Installation and Maintenance

## Safety Precautions: Important!

**Please read the safety precautions carefully before installation and maintenance.**

**The following contents are very important for installation and maintenance.**

**Please follow the instructions below.**

**●The installation or maintenance must accord with the instructions.**

**●Comply with all national electrical codes and local electrical codes.**

**●Pay attention to the warnings and cautions in this manual.**

**●All installation and maintenance shall be performed by distributor or qualified person.**

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

**●Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.**

## ⚠ WARNINGS

**Electrical Safety Precautions:**

**1. Cut off the power supply of air conditioner before checking and maintenance.**

**2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.**

**3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.**

**4. Make sure each wiring terminal is connected firmly during installation and maintenance.**

**5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.**

**6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.**

**7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.**

**8. The power cord and power connection wires can't be pressed by hard objects.**

**9. If power cord or connection wire is broken, it must be replaced by a qualified person.**

**10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.**

**11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.**

**12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.**

**13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.**

**14. Replace the fuse with a new one of the same specification if it is burnt down; Don't replace it with a cooper wire or conducting wire.**

**15. If the unit is to be installed in a humid place, the circuit breaker must be installed.**

**Installation Safety Precautions:**

**1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)**

**2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 20kg.**

**3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.**

**4. Ware safety belt if the height of working is above 2m.**

**5. Use equipped components or appointed components during installation.**

**6. Make sure no foreign objects are left in the unit after finishing installation.**

**Refrigerant Safety Precautions:**

**1. When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.**

**2.Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.**

**3. 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.**

**4. Make sure no refrigerant gas is leaking out when installation is completed.**

**5. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.**

**6. 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.**

# Safety Precautions for Installing and Relocating the Unit:

**To ensure safety, please be mindful of the following precautions.**

## ⚠ WARNINGS

**1. When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**

Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.

**2.When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.**

Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.

**3.When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode.Then, fully close the valve at high pressure side (liquid valve).About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.**

If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.

**4.During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.**

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

**5.When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.**

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

**6.Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.**

If there leaked gas around the unit, it may cause explosion and other accidents.

**7.Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire.**

Poor connections may lead to electric shock or fire.

**8.Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.**

Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

## Safety Precautions for Refrigerant

 **Appliance filled with flammable gas R32.**

 **Before install and use the appliance, read the owner's manual first.**

 **Before install the appliance, read the installation manual first.**

 **Before repair the appliance, read the service manual first.**

**●To realize the function of the air conditioner unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R32,which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can leads to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.**
**●Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozonosphere. The influence upon the greenhouse effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units therefore need a less filling.**

## WARNING:

**●Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacture.**
**Should repair be necessary,contact your nearest authorized Service Centre. Any repairs carried out by unqualified personnel may be dangerous. The appliance shall be stored in a room without continuously operating ignition sources. (for example:open flames , an operating gas appliance or an operating electric heater.)**
**●Do not pierce or burn.**
**●Appliance shall be installed, operated and stored in a room with a floor area larger than Xm$^2$.(Please refer to table "a" in section of " Safety operation of flammable refrigerant " for space X.)**
**●Appliance filled with flammable gas R32. For repairs, strictly follow manufacturers instructions only.Be aware that refrigrants not contain odour.**
**●Read specialists manual.**



**This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision**

## Safety Operation of Flammable Refrigerant

### Qualification requirement for installation and maintenance man

**●All the work men who are engaging in the refrigeration system should bear the valid certification awarded by the authoritative organization and the qualification for dealing with the refrigeration system recognized by this industry. If it needs**
**other technician to maintain and repair the appliance, they should be supervised by the person who bears the qualification for using the flammable refrigerant.**
**●It can only be repaired by the method suggested by the equipments manufacturer.**

### Installation notes

**●The air conditioner is not allowed to use in a room that has running fire (such as fire source,working coal gas ware, operating heater).**
**●It is not allowed to drill hole or burn the connection pipe.**
**●The air conditioner must be installed in a room that is larger than the minimum room area.**
**The minimum room area is shown on the nameplate or following table a.**
**●Leak test is a must after installation.**

**table a - Minimum room area ( m$^2$ )**

| Charge amount (kg) | floor location | window mounted | wall mounted | ceiling mounted |
|---|---|---|---|---|
| ≤1.2 | / | / | / | / |
| 1.3 | 14.5 | 5.2 | 1.6 | 1.1 |
| 1.4 | 16.8 | 6.1 | 1.9 | 1.3 |
| 1.5 | 19.3 | 7 | 2.1 | 1.4 |
| 1.6 | 22 | 7.9 | 2.4 | 1.6 |
| 1.7 | 24.8 | 8.9 | 2.8 | 1.8 |
| 1.8 | 27.8 | 10 | 3.1 | 2.1 |
| 1.9 | 31 | 11.2 | 3.4 | 2.3 |
| 2 | 34.3 | 12.4 | 3.8 | 2.6 |
| 2.1 | 37.8 | 13.6 | 4.2 | 2.8 |
| 2.2 | 41.5 | 15 | 4.6 | 3.1 |
| 2.3 | 45.4 | 16.3 | 5 | 3.4 |
| 2.4 | 49.4 | 17.8 | 5.5 | 3.7 |
| 2.5 | 53.6 | 19.3 | 6 | 4 |

### Maintenance notes

**●Check whether the maintenance area or the room area meet the requirement of the nameplate.**
**— Its only allowed to be operated in the rooms that meet the requirement of the nameplate.**

●Check whether the maintenance area is well-ventilated.
— The continuous ventilation status should be kept during the operation process.
●Check whether there is fire source or potential fire source in the maintenance area.
— The naked flame is prohibited in the maintenance area; and the "no smoking" warning board should be hanged.
●Check whether the appliance mark is in good condition.
— Replace the vague or damaged warning mark.

### Welding

●If you should cut or weld the refrigerant system pipes in the process of maintaining, please follow the steps as below:
a. Shut down the unit and cut power supply
b. Eliminate the refrigerant
c. Vacuuming
d. Clean it with $N_2$ gas
e. Cutting or welding
f. Carry back to the service spot for welding
●Make sure that there isnt any naked flame near the outlet of the vacuum pump and its well-ventilated.
●The refrigerant should be recycled into the specialized storage tank.

### Filling the refrigerant

●Use the refrigerant filling appliances specialized for R32. Make sure that different kinds of refrigerant wont contaminate with each other.
●The refrigerant tank should be kept upright at the time of filling refrigerant.
●Stick the label on the system after filling is finished (or havent finished).
●Dont overfilling.
●After filling is finished, please do the leakage detection before test running; another time of leak detection should be done when its removed.

### Safety instructions for transportation and storage

●Please use the flammable gas detector to check before unload and open the container.
●No fire source and smoking.
●According to the local rules and laws.

## Specialist's Manual

● The following checks shall be applied to installations using flammable refrigerants:
– the charge size is in accordance with the room size within which the refrigerant containing parts are installed;
– the ventilation machinery and outlets are operating adequately and are not obstructed;
– if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
– marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
– refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
● Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
● Initial safety checks shall include:
– that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
– that no live electrical components and wiring are exposed while charging, recovering or purging the system;
– that there is continuity of earth bonding.
● Checks to the area
Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, DD.4.3 to DD.4.7 shall be completed prior to conducting work on the system.
● Work procedure
Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or capour being present while the work is being performed.
● General work area
All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoides.
● Checking for presence of refrigerant
The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for
use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
● Presence of fire extinguisher
If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or $CO_2$ fire extinguisher adjacent to the charging area.
● Ventilated area
Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and

preferably expel it externally into the atmosphere.

• Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

• Checks to electrical devices

– that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;

– that no live electrical components and wiring are exposed while charging, recovering or purging the system.

• No ignition sources

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks.

"No Smoking" signs shall be displayed.

• Repairs to sealed components

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc.

If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

– Ensure that the apparatus is mounted securely.

– Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.

Replacement parts shall be in accordance with the manufacturer’s specifications.

NOTE: The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

• Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

• Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

• Leak detection methods

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

• Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibretion.

(Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the reftigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE: Examples of leak detection fluids are

- bubble method,
- fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/ extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to clause DD.9.

• Removel and evacuation

When breaking into the refrigerant circuit to make repairs - or for any other purpose

- conventional procedures shall be used. However, for

flammable refrigerants it is important that best practice is followed sinse flammability is a consideration. The following procedure shall be adhered to:

- remove refrigerant;
- purge the circuit with inert gas (optional for A2L);
- evacuate (optional for A2L);
- purge with inert gas (optional for A2L);
- open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct tecovery cylinders.

For appliances containing flammable refrigerants other than A2L refrigerants, the system shall be perged process may need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, other than A2L refrigerants,

refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved,

then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

- Charging procedures

In additon to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigerating system.Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

- Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.

b) Isolate system electrically.

c) Before attempting the procedure, ensure that:

– mechanical handling equipment is available, if required, for handling refrigerant cylinders;

– all personal protective equipment is available and being used correctly;

– the recovery process is supervised at all times by a competent person;

– recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery takes place.

g) Start the recovery machine and operate in accordance with manufacturer's instructions.

h) Do not overfill cylinders. (No more than 80% volume liquid charge).

i ) Do not exceed the maximum working pressure of the cylinder, even temporarily.

j ) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

- Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

- Recovery

When removing refrigerant from a system, either for servicing or decommissioning,

it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refri- gerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good work- ing order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

**The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.**

**The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.**

**If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.**

**• General**

**That compliance with national gas regulations shall be observed.**

**That mechanical connections made in accordance with 22.118 shall be accessible for maintenance purposes.**

# Main Tools for Installation and Maintenance



Level meter




Measuring tape



Screw driver



Impact drill



Drill head



Electric drill



Electroprobe



Universal meter



Torque wrench



Open-end wrench



Inner hexagon spanner



Electronic leakage detector



Vacuum pump



Pressure meter



Pipe pliers



Pipe pliers



Pipe cutter



Pipe expander



Pipe bender



Soldering appliance



Refrigerant container



Electronic scale

# 8. Installation

## 8.1 Requirements for Electric Connection

**1. 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 air switch.

(4) A air switch having a contact separation of at least 3mm in all poles should be 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.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.

(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.

**2. 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.

| Air-Conditioner | Air Switch Capacity |
|---|---|
| 09/12K | 10A |
| 18K | 16A |

## 8.2 Installation of indoor unit

**1. Selection of Installation Location**

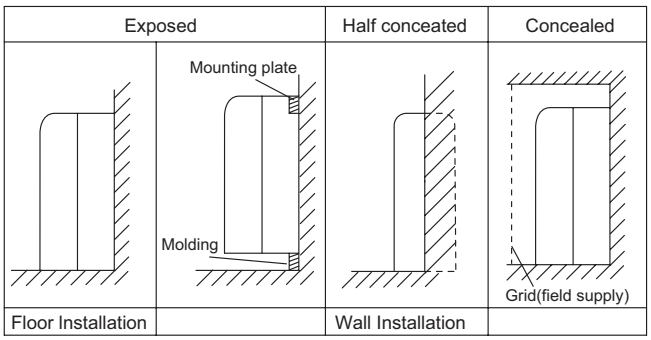
(1) Such a place where cool air can be distributed throughout the room.

(2) Such a place where condensation water is easily drained out.

(3) Such a place that can handle the weight of indoor unit.

(4) Such a place which has easy access for maintenance.

(5) The appliance shall not be installed in the laundry.




**There are 2 styles of installation**

**● Ceiling type ● Floor type**

**Each type is similar to the other as follows:**

The indoor unit should be sited in a place where:

(1) The restrictions on installation specified in the indoor unit installation drawings are met.

(2) Both air intake and exhaust have clear paths met.

(3) The unit is not in the path of direct sunlight.

(4) The unit is away from the source of heat or steam.

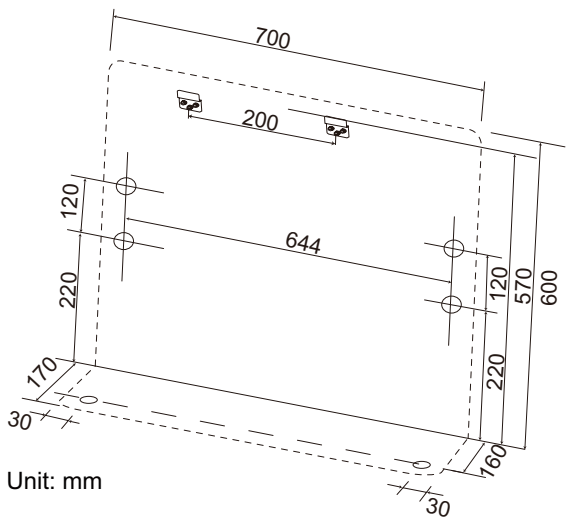
(5) There is no source of machine oil vapour (this may shorten indoor unit life).

(6) Cool(warm) air is circulated throughout the room.

(7) The unit is away from electronic ignition type fluorwscent lamps (inverter or rapid stert type) as they may shorten the remote controller range.

(8) The unit is at least 1 metre away from any television or radio set(unit may cause interference with the picture or sound).

Location for securing the installation panel.




Unit: mm

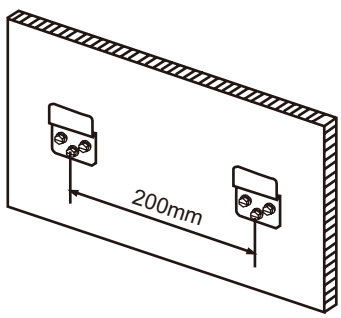
**Cautions for installation where air conditioner troubleis liable tooccur.**

Where there is toomuch of oil area.

Where it is acid base area.

Where there is irregular electrical supply.

Schematic drawing of hooks:

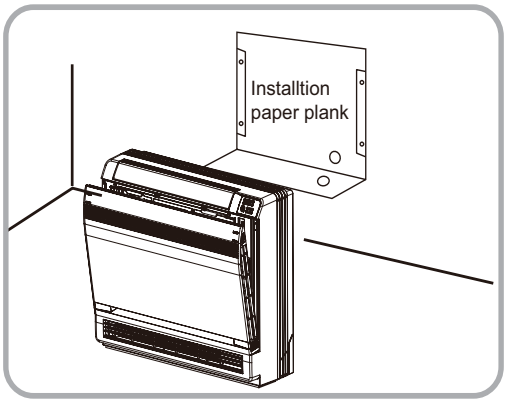


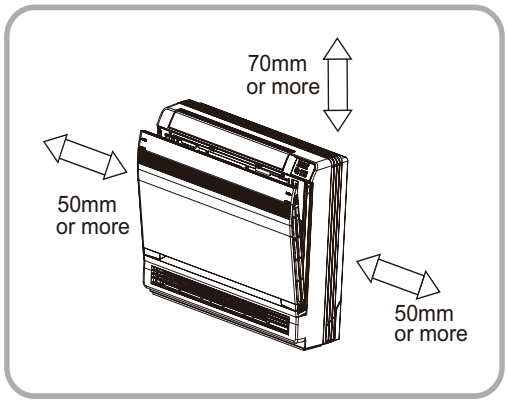

**2. Indoor Unit Installation Drawings**

**The indoor unit may be mounted in any of the three styles**

**shown here.**

Console unit shall be installed on the ground or the position where is 0.3m from the floor.



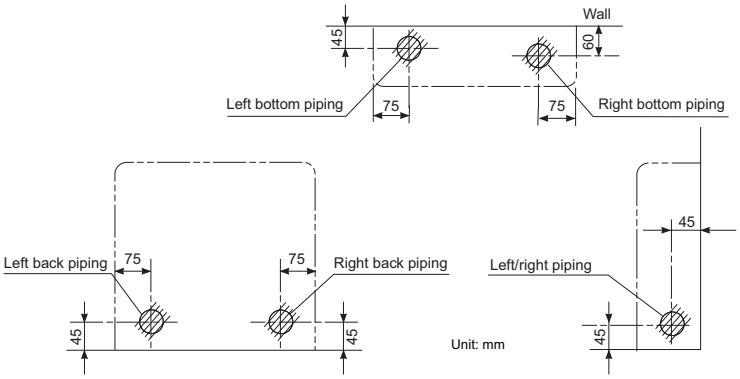

### 3. Refrigerant Piping

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

(2) The location of the hole is different depending on which side of the pipe is taken out .

(3) For piping ,see6.Connecting the refrigerant pipe , under Indoor Unit Installation.

(4) Allow space around the pipe for a easier indoor unit pipe connection.



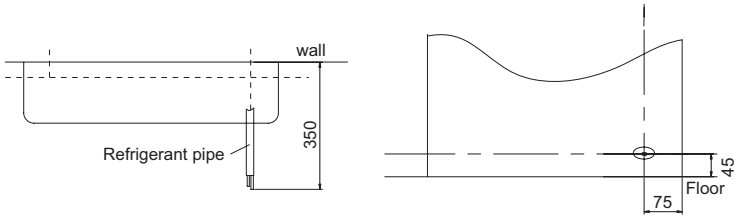

## ⚠ CAUTION

**Min.allowable length**

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

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

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




### 4. Boring a Wall Hole and Installing Wall Embedded Pipe

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

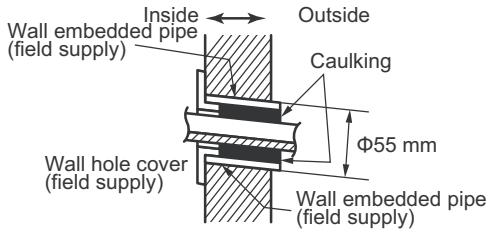
● Be sure to caulk the gaps around the pipes with caulking material to prevent
water leakage.

(1) Bore a feed-through hole of 55mm in the wall so it has a down slope toward the
outside.

(2) Insert a wall pipe into the hole.

(3) Insert a wall cover into wall pipe .

(4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.




### 5. Drain Piping

(1) Use commercial regid polyvinyl chloride pipe general VP 20 pipe, outer diameter 26mm, inner diameter 20mm for the drain pipe.

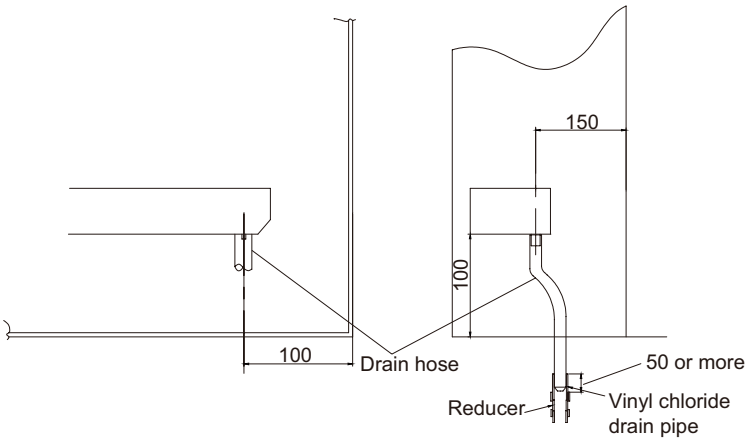
(2)The drain hose (outer diameter 18mm at connecting end, 220mm long)is supplied with the indoor unit. Prepare the drain pipe picture below position.

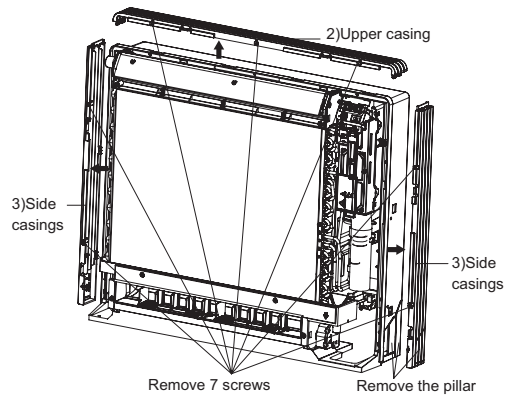
(3) The drain pipe should be inclined downward so that water will flow smoothly without any accumulation.(Should not be trap.)

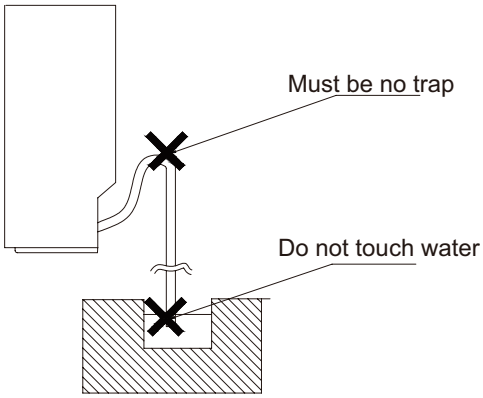
(4) Insert the drain hose to this depth so it wont be pulled out of the drain pipe.

(5) Insulate the indoor drain pipe with 10mm or more of insulation material to prevent condensation.

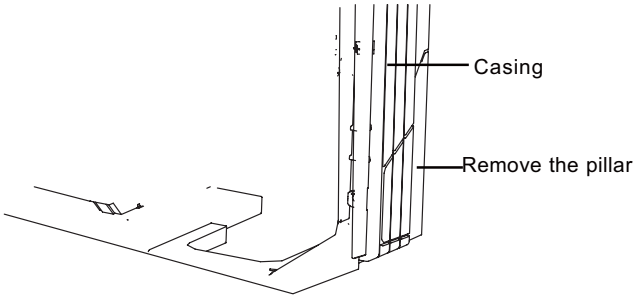
(6) Remove the air filters and pour some water into the drain pan to check the water flows smoothly.

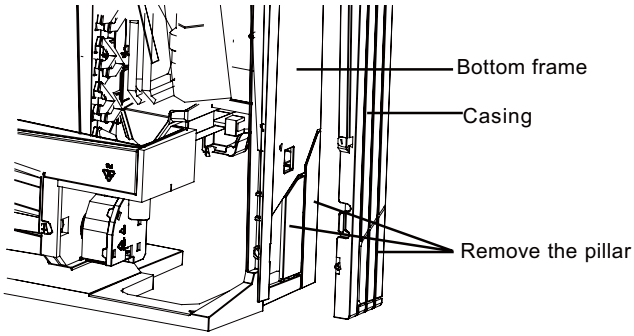


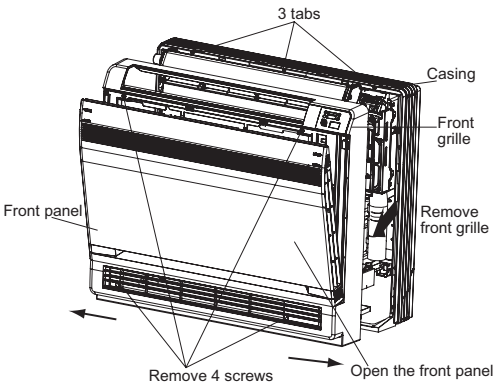




■For Side Piping
●Remove the pillars.
(1) Remove the 7screws.
(2) Remove the upper casing (2 tabs).
(3) Remove the left and right casings (2 tabs on eachside ).
(4) Remove the slit portions on the bottom frame and casings using nippers .
(5) Return by following the steps in reverse order(3>2>1).



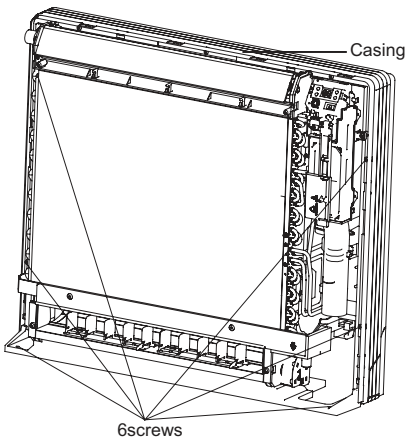



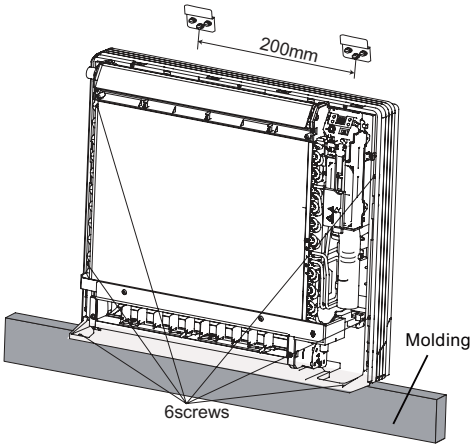

**6. Installing Indoor Unit**
**Preparation**
●Open the front panel, remove the 4 screws and dismount the front grille while pulling it forward.
●Follow the arrows to disengage the clasps on the front case to remove it.
●Follow the procedure below when removing the slit portions.




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

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



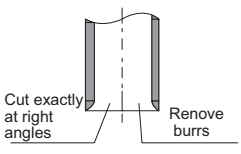

(3) Once refrigerant piping and drain piping connections are complete, fill in the gap of the through hole with putty. A gap can lead to condensation on the refrigerant pipe, and drain pipe, and the entry of insects into the pipes.
(4) Attach the front panel and front grille in their original positions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

**7. Flaring the Pipe End**

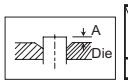
(1) Cut the pipe end with a pipe cutter.
(2) Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
(3) Fit the flare nut on the pipe.
(4) Flare the pipe.
(5) Check that the flaring is properly made.

## ⚠ CAUTION

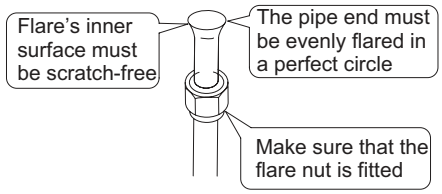
**(1) DO not use mineral oil on flared part.**
**(2) Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.**
**(3) Never use piping which had been used for previous installations. Only use parts which are delivered with the unit.**
**(4) Do never install a drier to this R32 unit in order to guarantee its lifetime.**
**(5) The drying material may dissolve and damage the system.**
**(6) Incomplete flaring may cause refrigerant gas leakage.**




Flaring
Set exactly at the position shown below

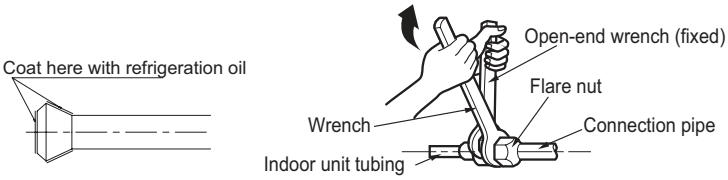



| | Flare tool for R32 | Conventional flare tool | |
|---|---|---|---|
| | Clutch-type | Clutch-type (Rigid-type) | Wing-nut type (Imperial-type) |
| A | 0-0.5mm | 1.0-1.5mm | 1.5-2.0mm |




**8. Connecting the Refrigerant Pipe**

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

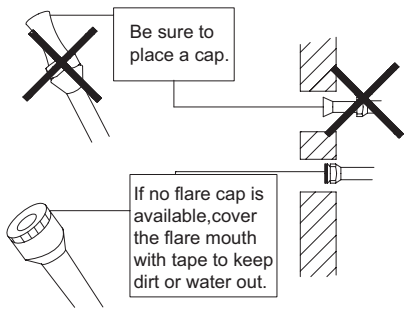



(2) Align the centres of both flares and tighten the flares and tighten the flare nuts 3 or 4 turns by hand.
Then tighten them fully with the torque wrenches.
(3) To prevent gas leakage, apply refrigeration oil on both inner and outer surfaces in the flare. (Use refrigeration oil for R32.)

| Hex nut diameter(inch) | Tightening torque(N·m) |
|---|---|
| 1/4 | 15~20 |
| 3/8 | 30~40 |
| 1/2 | 45~55 |
| 5/8 | 60~65 |
| 3/4 | 70~75 |

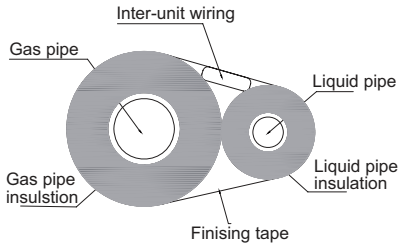
**Caution on Piping Handling**

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




**Selection of Copper and Heat Insulation Materials**

When using commercial copper pipes and fittings, observe the following:
(1) Insulation material: Polyethylene foam
Heat transfer rate:0.041 to 0.052W/mK(0.035 to 0.045kca/(mh°C
Refrigerant gas pipes surface temperature reaches 110 max.
Choose heat insulation materials that will withstand this temperature.



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

| Gas side | | Liquid side |
|---|---|---|
| 09/12K | 18K | |
| O.D. 3/8 inch | O.D. 1/2 inch | O.D. 1/4 inch |
| Thickness 0.8mm | | |

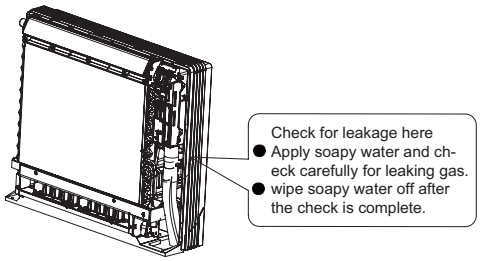
| Gas pipe thermal insulation | | Liquid pipe thermal insulation |
|---|---|---|
| 09/12K | 18K | |
| I.D. 12-15 mm | I.D. 14-16 mm | I.D. 8-10 mm |
| Thickness 10mm Min. | | |

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

**9. Checking for Gas Leakage**

(1) Check for leakage of gas after air purging

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



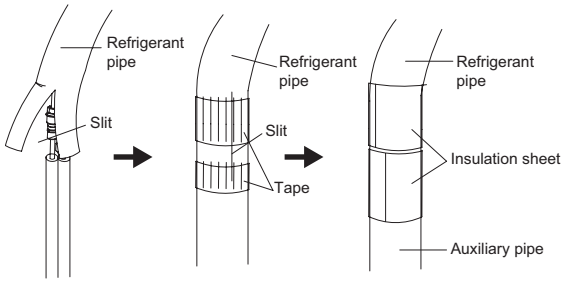

**10. Attaching the Connection Pipe**

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

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

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

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



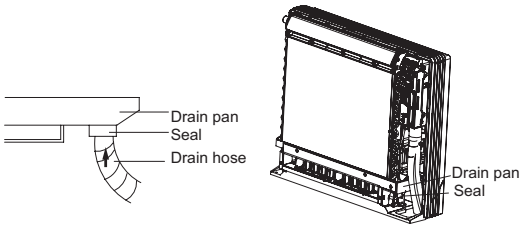

## ⚠ CAUTION

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

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

**11. Connecting the Drain Hose**

Insert the supplied C drain hose into the socket of the drain pan. Fully insert the drain hose until it adheres to a seat of the socket.




**12. Wiring**

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

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

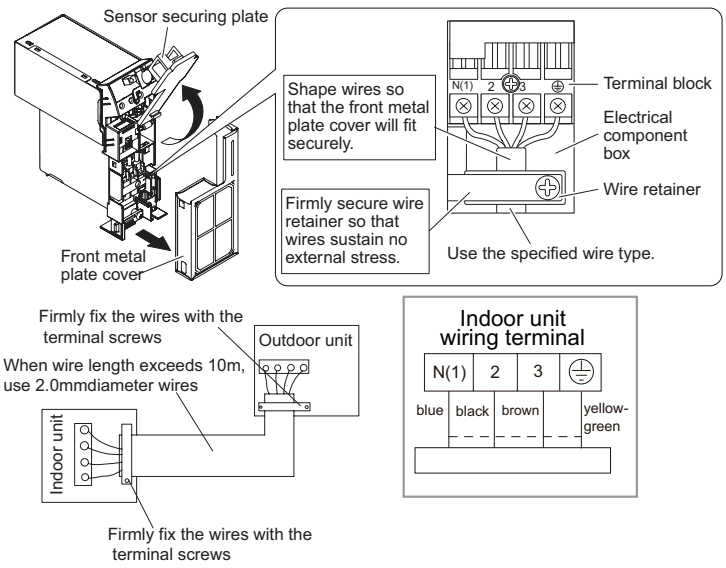
(1) Strip wire ends (15mm)

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

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

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

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




## ⚠ CAUTION

**(1) Do not use tapped wires, stranded wires, extensioncords, or starburst connections, as they may cause overheating, electrical shock, or fire.**

**(2) Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc, from the terminal block.) Doing so may cause electric shock or fire.)**

## 8.3 Outdoor Unit Installation

**1. 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.

**CAUTION**

(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.A)

(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.

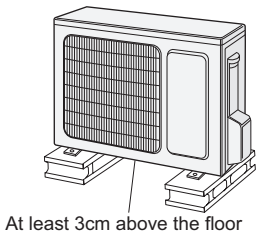



Fig.A

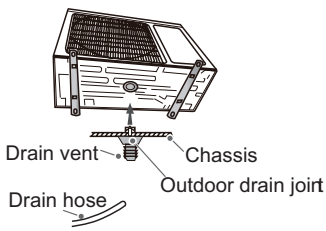



Fig.B

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

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

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

**3. 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.C)

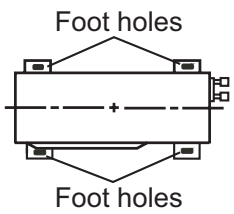



Fig.C

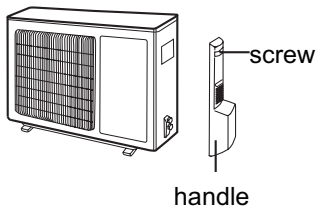



Fig.D

**4. Connect Indoor and Outdoor Pipes**

(1) Remove the screw on the right handle of outdoor unit and then remove the handle.(As show in Fig.D)

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

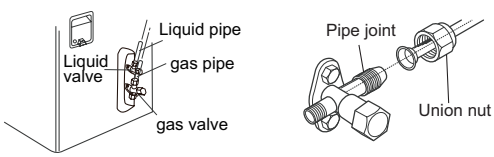



Fig.E

(3) Pretightening the union nut with hand.

(4) Tighten the union nut with torque wrench .

Refer to the following table for wrench moment of force:

| Hex nut diameter(inch) | Tightening torque(N·m) |
|---|---|
| 1/4 | 15~20 |
| 3/8 | 30~40 |
| 1/2 | 45~55 |
| 5/8 | 60~65 |
| 3/4 | 70~75 |

**5. 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 them with screws.(As show in Fig.F)

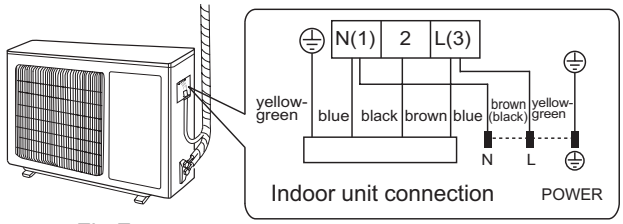



Fig.F

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

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

**Note:**

(1) After tightening the screw, pull the power cord slightly to check if it is firm.

(2) Never cut the power connection wire to prolong or shorten the distance.

## 8.4 Vacuum Pumping and Leak Detection

**1. Use Vacuum Pump**

(1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.

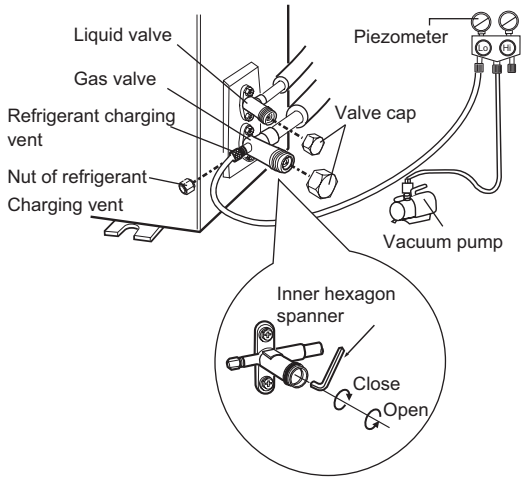
(2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.

(3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.

(4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.

(5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.

(6) Tighten the screw caps of valves and refrigerant charging vent.



**2. Leakage Detection**

(1) With leakage detector:

Check if there is leakage with leakage detector.

(2) With soap water:

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

## 8.5 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) capacity. |
| 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. |
| 12 | Is the inlet and outlet of piping hole been covered? | It may cause insufficient cooling (heating) capacity or waster eletricity. |

**2. Test Operation**

(1) Preparation of test operation

● The client approves the air conditioner installation.

● Specify the important notes for air conditioner to the client.

(2) Method of test operation

● Put through the power, press ON/OFF button on the remote controller to start operation.

● Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.

● If the ambient temperature is lower than 16℃ , the air conditioner cant start cooling.

# 9. Maintenance

## 9.1 Error Code List

| Error code | Malfunction name | AC status | Possible causes |
|---|---|---|---|
| C5 | Malfunction of jumper cap | The complete unit stops operation | 1. Jumper cap is not installed in control panel;<br>2. Poor contact of jumper cap;<br>3. Jumper cap is damaged;<br>4. The tested circuit of jumper cap on control panel is abnormal. |
| E6 | Communication malfunction between indoor unit and outdoor unit | Cool: compressor stops operation, while indoor fan operates;<br>Heat: all loads stops operation. | See “Communication malfunction” |
| H5 | IPM protection | Cool/Dry: compressor stops operation, while indoor fan operates.<br>Heat: all loads stops operation. | See “IPM protection, over-phase current of compressor” |
| L3<br>LA | Malfunction of outdoor fan/ malfunction of DC motor | Cool/Dry: all loads stops operation except indoor fan.<br>Heat: all loads stops operation. | 1. Outdoor condenser, air inlet and air outlet are blocked by filth or dirt;<br>2. Fan is blocked or loosened;<br>3. Motor or connection wire of motor is damaged;<br>4. Main board of outdoor unit is damaged;<br>(As for dual-outdoor fan, L3 indicates fan 1; LA indicates fan 2) |
| H3 | Overload protection of compressor | Cool/Dry: compressor stops operation, while indoor fan operates.<br>Heat: all loads stops operation. | 1. Overload wire of compressor is loose;<br>2. The overload protector is damaged. Under normal circumstances, the resistance between both ends of terminal is less than 1ohm.<br>3.See “Overload protection of compressor , High discharge temperature protection of compressor” |
| F0 | Refrigerant insufficient protection, cut-off protection of refrigerant | Cool: compressor and outdoor fan stops operation, while indoor fan operates;<br>Heat: Compressor, outdoor fan and indoor fan stops operation. | 1. Is system cooling under high humidity environment, thus temperature difference of heat transfer is small;<br>2. Check whether the big valve and small valve of outdoor unit are opened completely;<br>3. Is the temperature sensor of evaporator of indoor unit loose?<br>4. Is the temperature sensor of condenser of outdoor unit loose?<br>5. Is the capillary or the electronic expansion valve blocked?<br>6. Is refrigerant leaking? |
| F1 | Indoor ambient temperature sensor is open/short-circuited | Cool/Dry: indoor fan operates, while compressor and outdoor fan stops operation;<br>Heat: all loads stops operation. | 1. Temperature sensor is not well connected;<br>2. Temperature sensor is damaged<br>3. Main board of indoor unit is damaged. |
| F2 | Indoor evaporator temperature sensor is open/short-circuited | Cool/Dry: indoor fan operates, while compressor and outdoor fan stops operation;<br>Heat: all loads stops operation. | 1. Temperature sensor is not well connected;<br>2. Temperature sensor is damaged<br>3. Main board of indoor unit is damaged. |
| H6 | No feedback from indoor unit’s motor | The complete unit stops operation | 1. Is the fan blocked?<br>2. Is the motor terminal loose?<br>3. Is the connection wire of motor damaged?<br>4. Is the motor damaged?<br>5. Is the main board of indoor unit damaged? |
| LP | Indoor unit and outdoor can be matched with each other | Heat: compressor, outdoor unit and indoor fan stops operation. | Capacity of indoor unit and outdoor unit can’t be matched. |
| C4 | Malfunction of jumper cap of outdoor unit | Heat: all loads are stopped; other modes: outdoor unit stops operation. | Jumper cap of outdoor unit hasn’t been installed. |
| b7 | Gas valve temperature sensor is ON / short-circuited | | 1. Temperature sensor is not well connected or damaged;<br>2. The wire of temperature sensor is damaged, causing short circuit to copper pipe or outer casing;<br>3. Main board of outdoor unit is damaged. |

| Error code | Malfunction name | AC status | Possible causes |
|---|---|---|---|
| b5 | Liquid valve temperature sensor is ON / short-circuited | | 1. Temperature sensor is not well connected or damaged;<br>2. The wire of temperature sensor is damaged, causing short circuit to copper pipe or outer casing;<br>3. Main board of outdoor unit is damaged. |
| E1 | High pressure protection of system | Cool/Dry: all loads stops operation except indoor fan;<br>Heat: all loads stops operation. | 1. Heat exchange of outdoor unit is too dirty, or it blocked the air inlet/outlet;<br>2. Is power voltage normal; (three-phase unit)<br>3. Ambient temperature is too high;<br>4. Wiring of high pressure switch is loose or high pressure switch is damaged;<br>5. The internal system is blocked; (dirt blockage, ice blockage, oil blockage, angle valve is not completely opened)<br>6. Main board of outdoor unit is damaged;<br>7. Refrigerant is too much. |
| E3 | Low pressure/low system pressure protection/ compressor low pressure protection | Cool: compressor, outdoor fan and indoor fan stop operation;<br>Heat: compressor and outdoor fan stop operation at first. About 1min later, indoor fan stops operation; 2mins later, the 4-way valve stop operation. | 1. Low pressure switch is damaged;<br>2. Refrigerant inside the system is insufficient. |
| E4 | High discharge temperature protection of compressor | Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates;<br>Heat: all loads stops operation. | See “Overload protection of compressor , High discharge temperature protection of compressor” |
| E5 | AC overcurrent protection | Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates;<br>Heat: all loads stops operation. | 1. Power voltage is unstable;<br>2. Power voltage is too low;<br>3. System load is too high, which leads to high current;<br>4. Heat exchange of indoor unit is too dirty, or it blocked the air inlet/outlet;<br>5. Fan motor operation is abnormal; the fan speed is too low or not functioning;<br>6. Compressor is blocked;<br>7. The internal system is blocked; (dirt blockage, ice blockage, oil blockage, angle valve is not completely opened)<br>8. Main board of outdoor unit is damaged.<br>See “AC overcurrent protection” |
| E7 | Mode shock/sysmte mode shock | Load of indoor unit stops operation (indoor fan, E-heater, swing) | Malfunction of one-to-more system; there may be two indoor units which has set the shock mode, such as one is cooling and the other is heating. |
| E8 | High temperature prevention protection | Cool: compressor stops operation while indoor fan operates;<br>Heat: all loads stops operation. | See “High temperature prevention protection; high power; system isabnormal” |
| EE | Malfunction of EEPROM | Cool/Dry: compressor stops operation, while indoor fan operates;<br>Heat: all loads stops operation. | Main board of outdoor unit is damaged. |
| Fo | Refrigerant-recovery mode | Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates. | Refrigerant recovery.<br>The maintenance personnel operate it when he is maintaining the unit. |
| F3 | Outdoor ambient temperature is open/short-circuited | Cool/Dry: compressor and outdoor fan stop operation, while indoor fan operates;<br>Heat: all loads stops operation. | 1. Temperature sensor is not connected well or damaged;<br>2.Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case<br>3.Main board of outdoor unit is damaged; |

| Error code | Malfunction name | AC status | Possible causes |
|---|---|---|---|
| F4 | Outdoor condenser temperature sensor is open/short-circuited | Cool/Dry: compressor and outdoor fan stop operation, while indoor fan operates;<br>Heat: after operating for 3mins, all loads stops operation. | 1. Temperature sensor is not connected well or damaged;<br>2. Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case;<br>3. Main board of outdoor unit is damaged. |
| F5 | Outdoor air discharge temperature is open/short-circuited | Complete unit stops operation; motor of sliding door is cut off power. | 1. The exhaust temperature sensor is not connected well or damaged.<br>2.Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case<br>3.Main board of outdoor unit is damaged; |
| FC | Malfunction of micro switch | Cool/Dry: compressor stops operation, while indoor fan operates;<br>Heat: all loads stops operation. | 1. The sliding door is blocked;<br>2. Malfunction of the photoelectric inspection panel of sliding door; |
| H4 | System is abnormal | Cool/Dry: all loads stops operation except indoor fan;<br>Heat: all loads stops operation. | See “High temperature prevention protection; high power; system isabnormal” |
| H7 | Desynchronizing of compressor | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | See “Desynchronization diagnosis for compressor” |
| HC | PFC protection | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | 1. The power grid quality is bad; AC input voltage fluctuates sharply;<br>2. Power plug of air conditioner or wiring board or reactor is not connected reliably;<br>3. Indoor and outdoor heat exchanger is too dirty, or air inlet/ outlet is blocked;<br>4. Main board of outdoor unit is damaged. |
| HE | Demagnetization protection of compressor | Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation. | 1. The main board of outdoor unit is damaged;<br>2. Compressor is damaged; |
| JF | Communication malfunction between indoor unit and inspection board | Normal operation | 1. Poor connection between the indoor unit and the inspection board.<br>2.The main board of indoor unit is damaged;<br>3. The inspection board is damaged; |
| L1 | Malfunction of humidity sensor | Compressor, outdoor fan and indoor fan stop operation; | The inspection board is damaged. |
| L9 | High power protection | Cool: compressor and outdoor fan stops operation, while indoor fan operates. | See “High temperature prevention protection; high power; system is abnormal” |
| Lc | Start-up failed | Cool/Dry: compressor stops, while indoor fan operates; Heat: all loads stops operation. | See “Malfunction diagnosis for failure startup” |
| Ld | Lost phase | Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation. | 1. The main board of outdoor unit is damaged;<br>2. The compressor is damaged;<br>3. The connection wire of compressor is not connected well. |
| PS | Over-phase current protection of compressor | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | See “Overload protection of compressor , High discharge temperature protection of compressor” |

| Error code | Malfunction name | AC status | Possible causes |
|---|---|---|---|
| oE | Undefined outdoor unit error | Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stop operation. | 1. Outdoor ambient temperature exceeds the operation range of unit (eg: less than-20°C or more than 60°C for cooling; more than 30°C for heating);<br>2. Are wires of compressor not connected tightly?<br>3. Failure startup of compressor?<br>4. Is compressor damaged?<br>5. Is main board damaged? |
| P6 | Communication malfunction between the drive board and the main board | Cool: compressor and outdoor fan stops operation; Heat: compressor and outdoor fan stop at first; about 1min later, indoor fan stops operation; | 1. The drive board is damaged;<br>2. The main board of outdoor unit is damaged;<br>3. The drive board and the main board is not connected well. |
| P7 | Circuit malfunction of module temperature sensor | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | Replace outdoor control board |
| P8 | Module overheating protection | Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | 1. Air inlet / air outlet of outdoor unit are blocked by filth or dirt;<br>2. Condenser of outdoor unit is blocked by filth or dirt;<br>3. IPM screw of main board is not tightened;<br>4. Main board of outdoor unit is damaged; |
| PF | Malfunction of ambient temperature sensor of drive board | Cool: compressor, outdoor fan and indoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation. | 1. The ambient temperature sensor of the drive board is not connected well;<br>2. Malfunction of the ambient temperature sensor of drive board. |
| PH | DC bus voltage is too high | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | 1. Measure the voltage between position L and position N on the wiring board (XT). If it's higher than 265 VAC, please turn on the unit until the power voltage is decreased to the normal range;<br>2. If the AC input is normal, please replace the outdoor control board. |
| PL | DC bus voltage is too low | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | 1. Measure the voltage between position L and position N on the wiring board (XT). If it's lower than 150 VAC, please turn on the unit until the power voltage is increased to the normal range;<br>2. If the AC input is normal, please replace the outdoor control board. |
| PU | Charging malfunction of capacitor | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | See "Charging malfunction of capacitor" |
| rF | Malfunction of RF module | Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation. | 1. The connection wire of RF module is not connected well.<br>2. Malfunction of RF module; |
| U1 | Phase current detection circuit malfunction of | Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stops operation. | The control board is damaged |
| U2 | Lost phase protection of compressor | Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation. | 1. The main board of outdoor unit is damaged;<br>2. The compressor is damaged;<br>3. The connection wire of compressor is not connected well. |

| Error code | Malfunction name | AC status | Possible causes |
|---|---|---|---|
| U3 | DC bus voltage drop malfunction | Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | The power voltage is unstable. |
| U5 | Current detection malfunction of unit | Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stops operation. | 1. Is the complete unit lacking of refrigerant?<br>2. There's malfunction for the circuit of control board of outdoor unit. Replace the control board of outdoor unit. |
| U7 | 4-way valve is abnormal | This malfunction occurs when the unit is heating. All loads stops operation. | 1. Power voltage is lower than AC175V;<br>2. Wiring terminal of 4-way valve is loose or broken;3. 4-way valve is damaged. Replace the 4-way valve. |
| U8 | Malfunction of zero-crossing signal of indoor unit | Compressor, outdoor fan and indoor fan stop operation. | 1. The power is abnormal;<br>2. Main board of indoor unit is damaged. |
| U9 | Zero-crossing malfunction of outdoor unit | Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation. | Replace the control board of outdoor unit. |
| E2 | Evaporator anti-freezing protection | | Not error code, it is the status code in cooling process |
| E9 | Anti cold air protection | | Not error code, it is the status code in cooling process |
| | Defrosting | Heat indicator Flash once/10s | Not error code, it is the status code in cooling process |

**Analysis or processing of some of the malfunction display:**

**1. Compressor discharge protection**

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

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

**2. Low voltage overcurrent protection**

Possible cause: Sudden drop of supply voltage.

**3.Communication malfunction**

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

**4. Sensor open or short circuit**

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

**5. Compressor over load protection**

**P**ossible causes: insufficient or too much refrigrant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

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

**6. System malfunction**

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

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

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

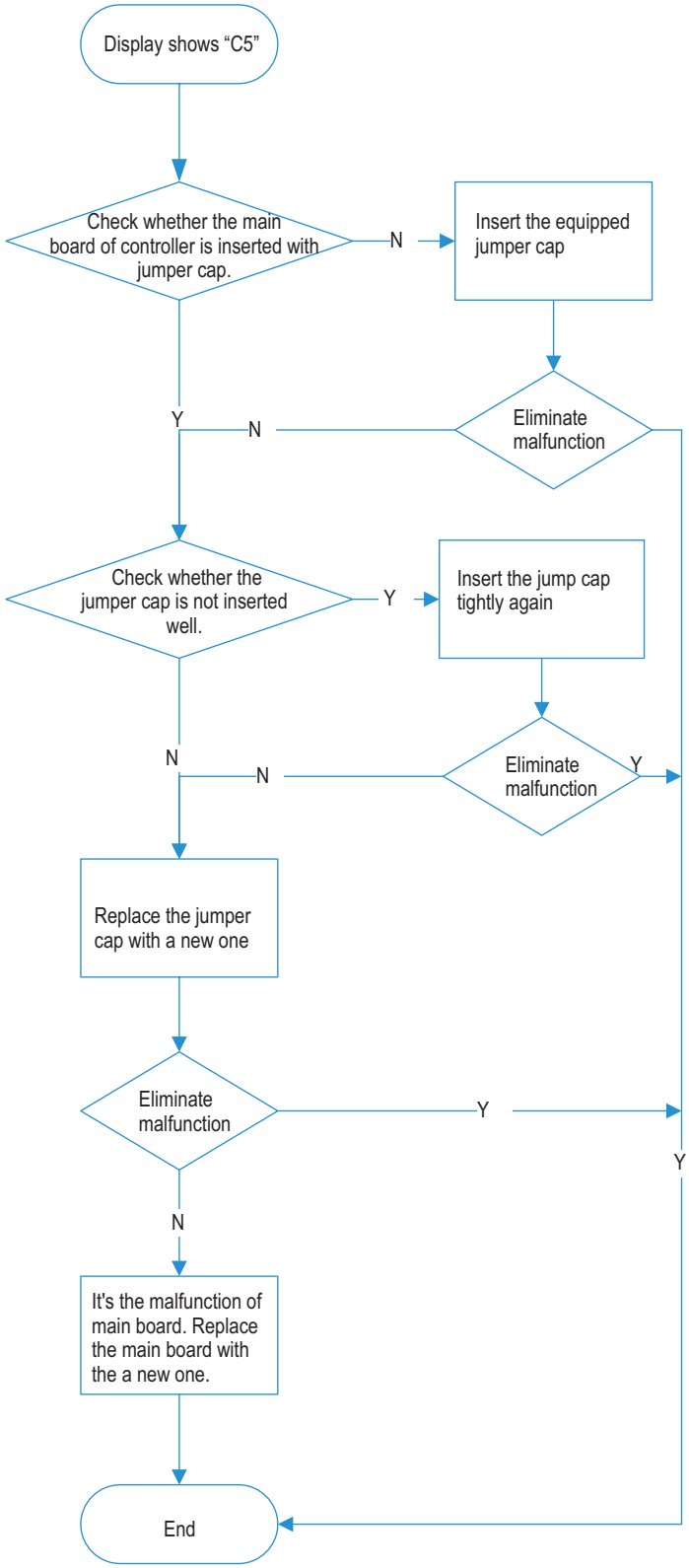
**7. IPM module protection**

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

## 9.2 Procedure of Troubleshooting

### 1. Troubleshooting for jumper cap C5

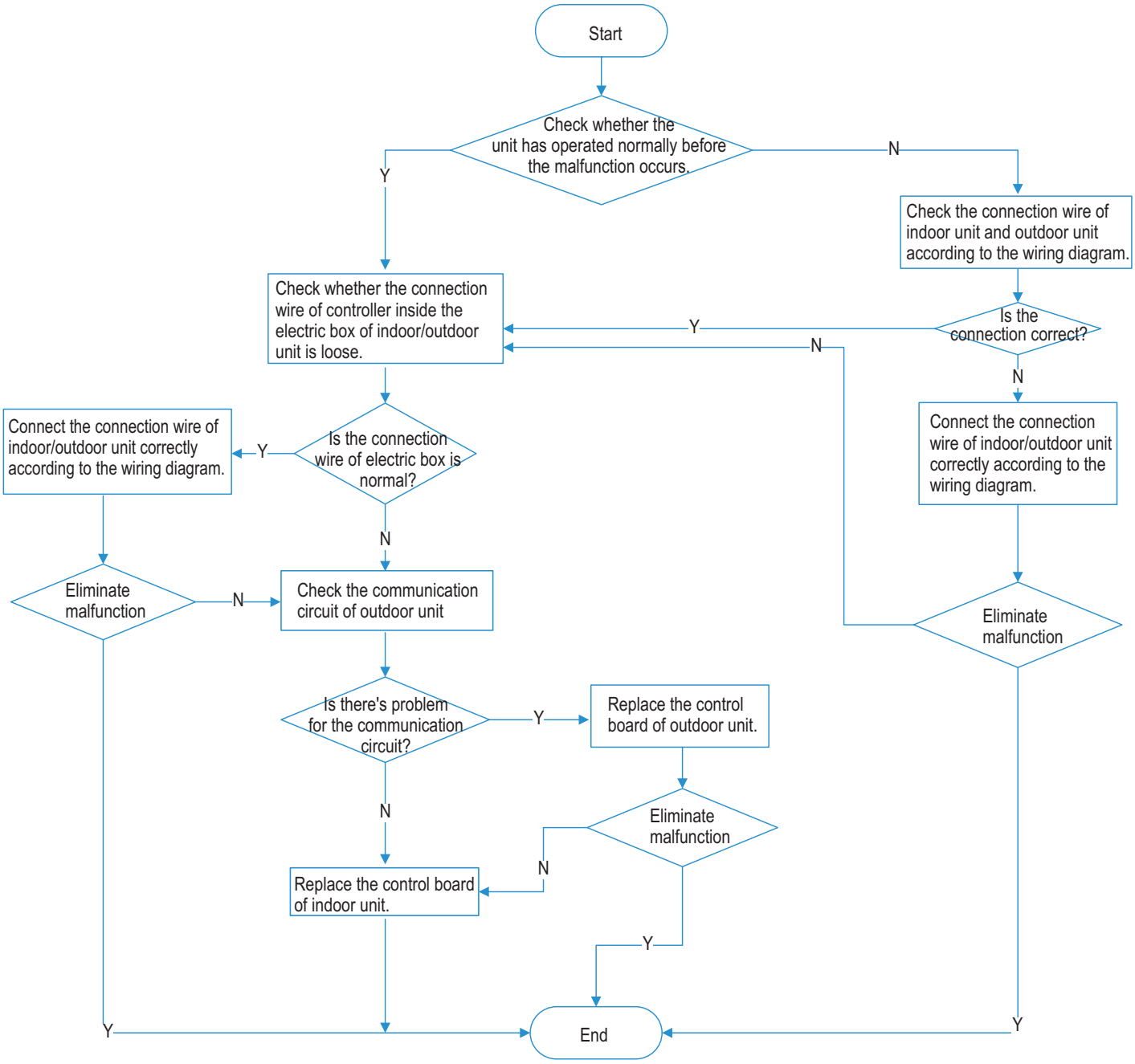
Main check points:
(1) jumper cap (2) control board of indoor unit



## 2. Communication malfunction E6

Main check points:

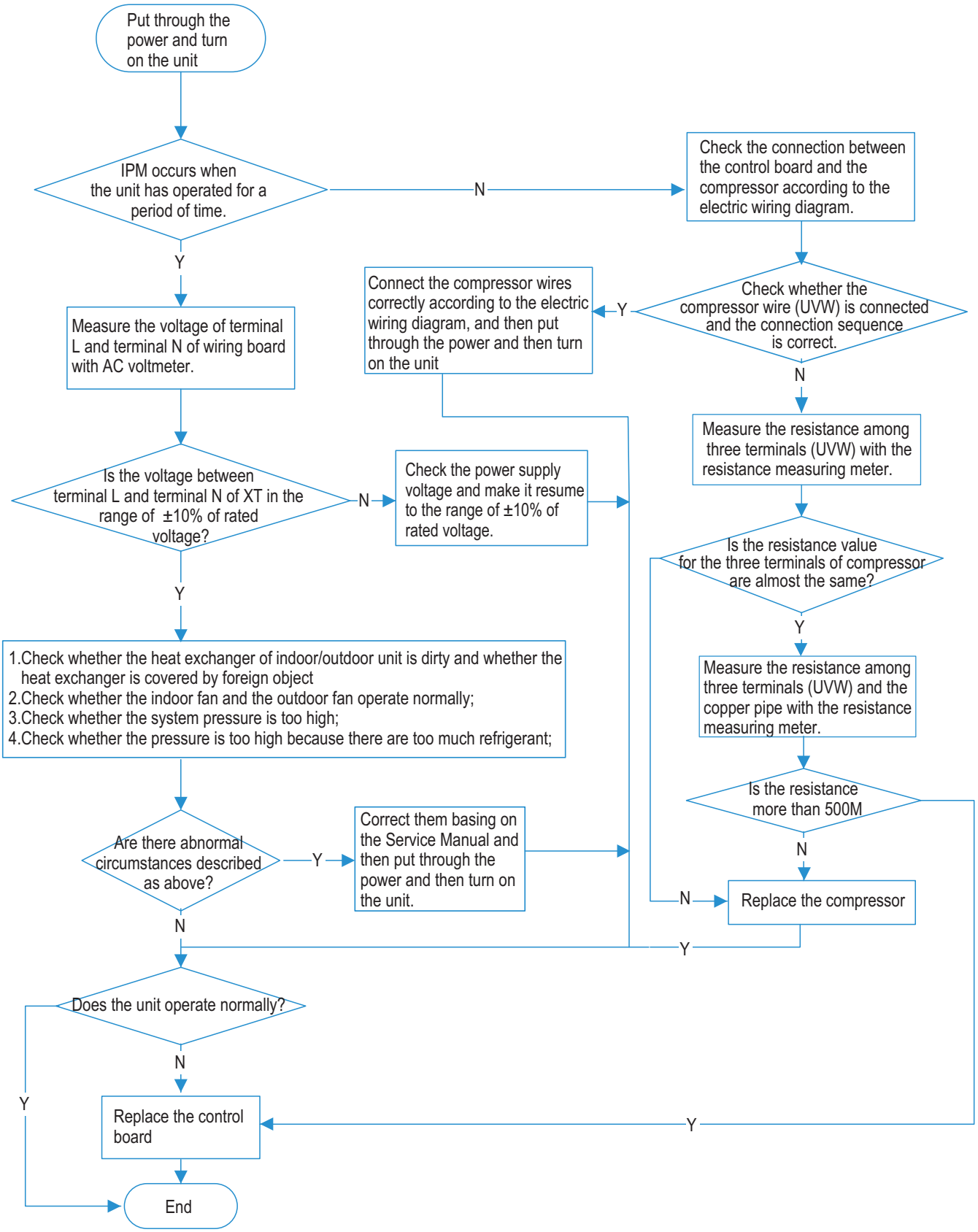
(1) Connection wire between indoor unit and outdoor unit
(2) Wiring inside the unit
(3) Communication circuit of control board of indoor unit
(4) Communication circuit of control board of outdoor unit



## 3. IPM protection H5, over-phase current of compressor P5

Main check points:
(1) compressor COMP terminal (2) power supply voltage (3) compressor
(4) charging amount of refrigerant (5) air inlet and air outlet of indoor/outdoor unit

NOTE:The control board as below means the control board of outdoor unit.



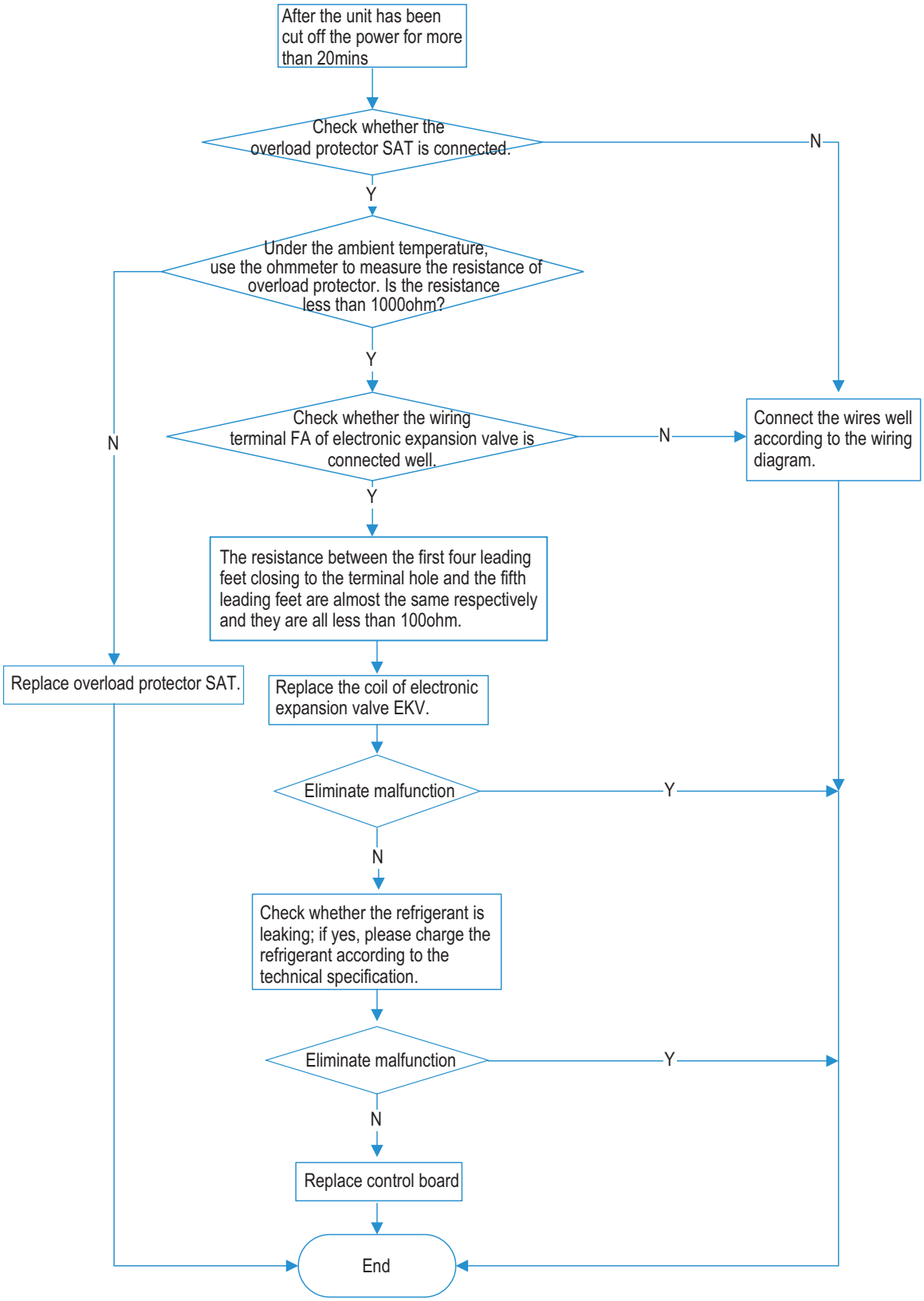
## 4. Overload protection of compressor H3, high discharge temperature, protection of compressor E4

Main check points:

(1) electronic expansion valve (2) expansion valve terminal

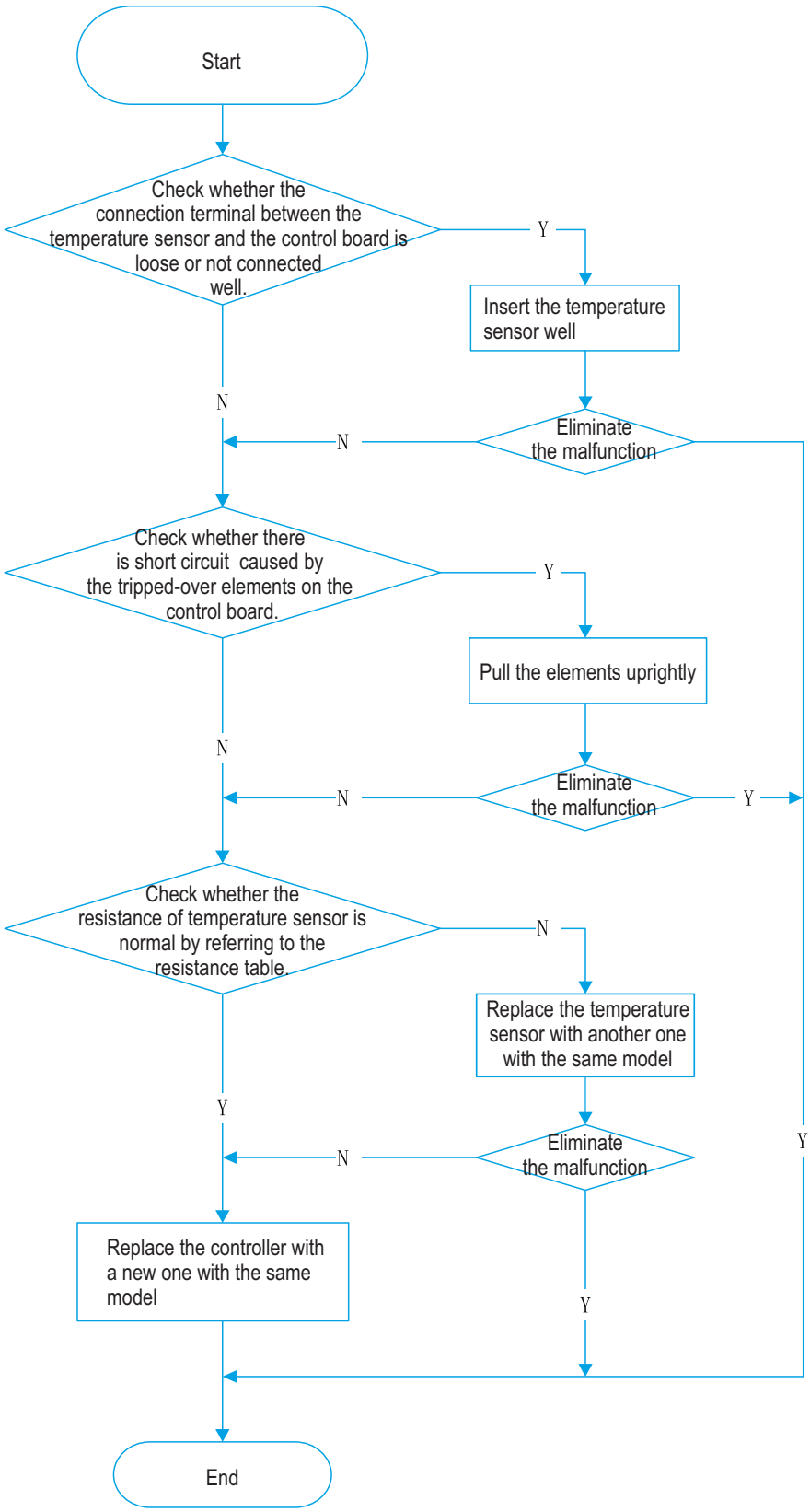
(3) charging amount of refrigerant (4) overload protector

NOTE:The control board as below means the control board of outdoor unit.



## 5.Troubleshooting for temperature sensor F 1,F2,F3,F4,F5

Main check points:
(1) connection terminal (2) temperature sensor (3) main board

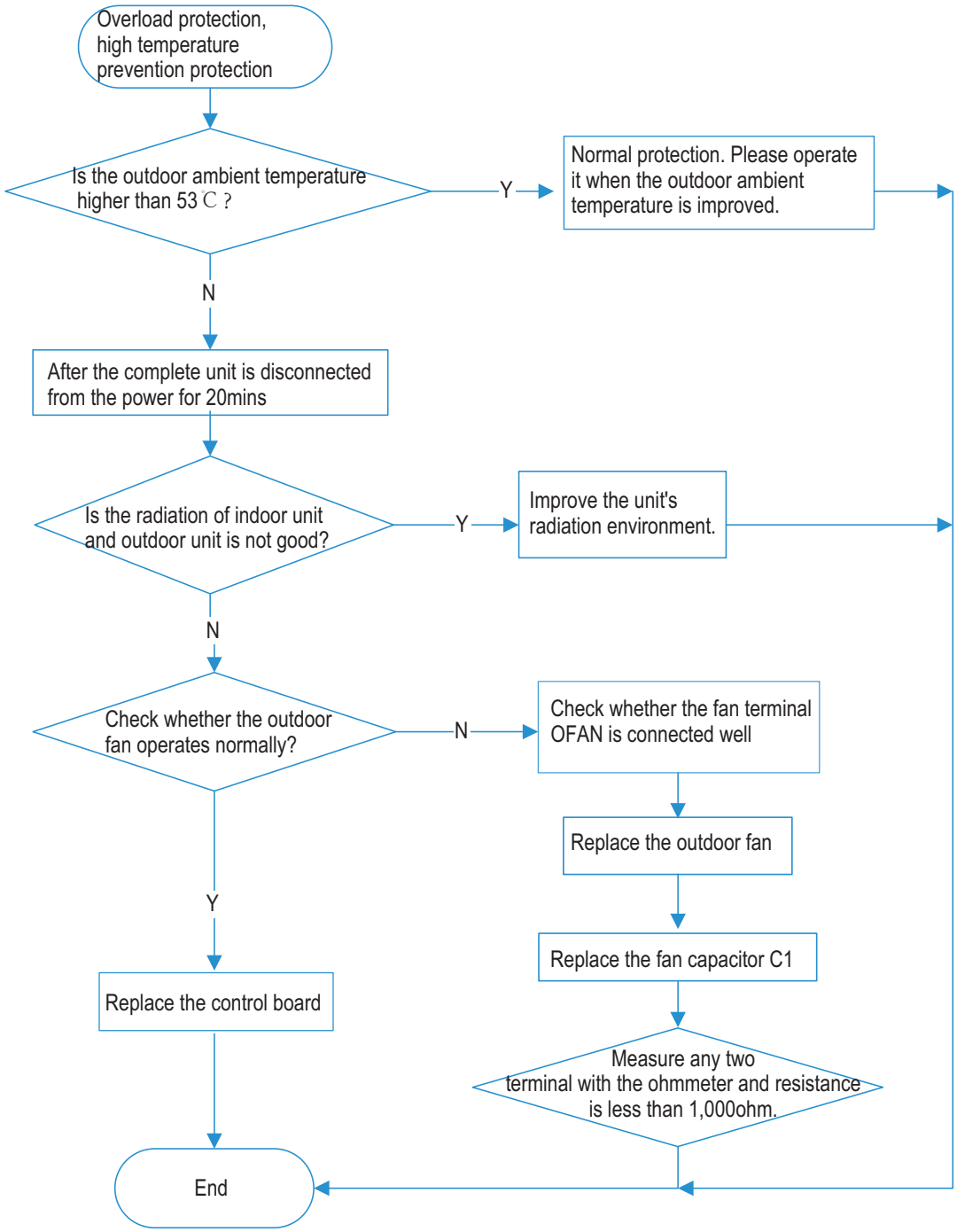


## 6.High temperature prevention protection E8; high power L9; system is abnormal H4

Main check points:

(1) outdoor temperature (2) fan (3)air inlet and air outlet of indoor/outdoor unit

NOTE:The control board as below means the control board of outdoor unit.

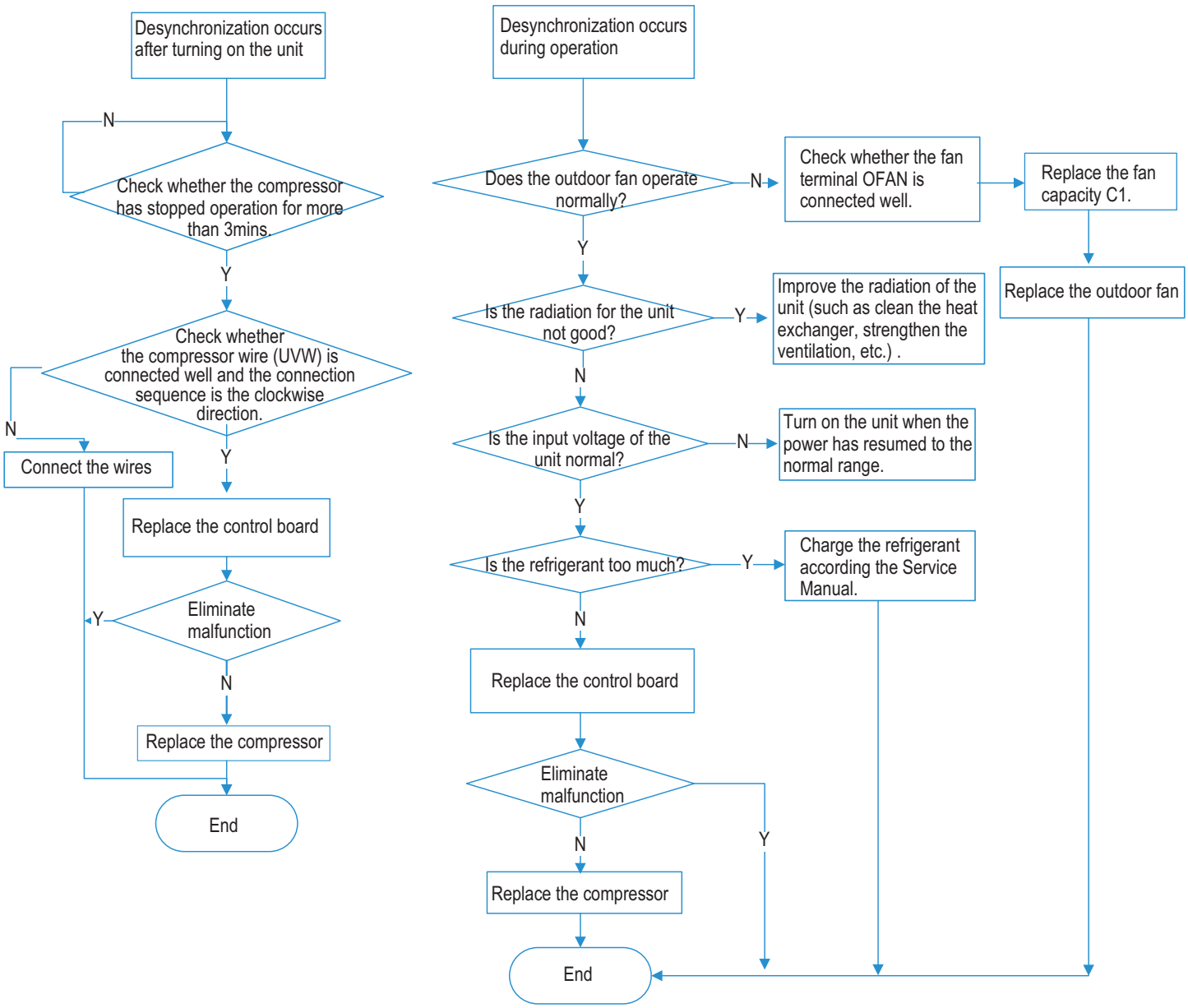


## 7.Desynchronization diagnosis for compressor H7

Main check point:

(1) system pressure (2) power supply voltage

NOTE:The control board as below means the control board of outdoor unit.

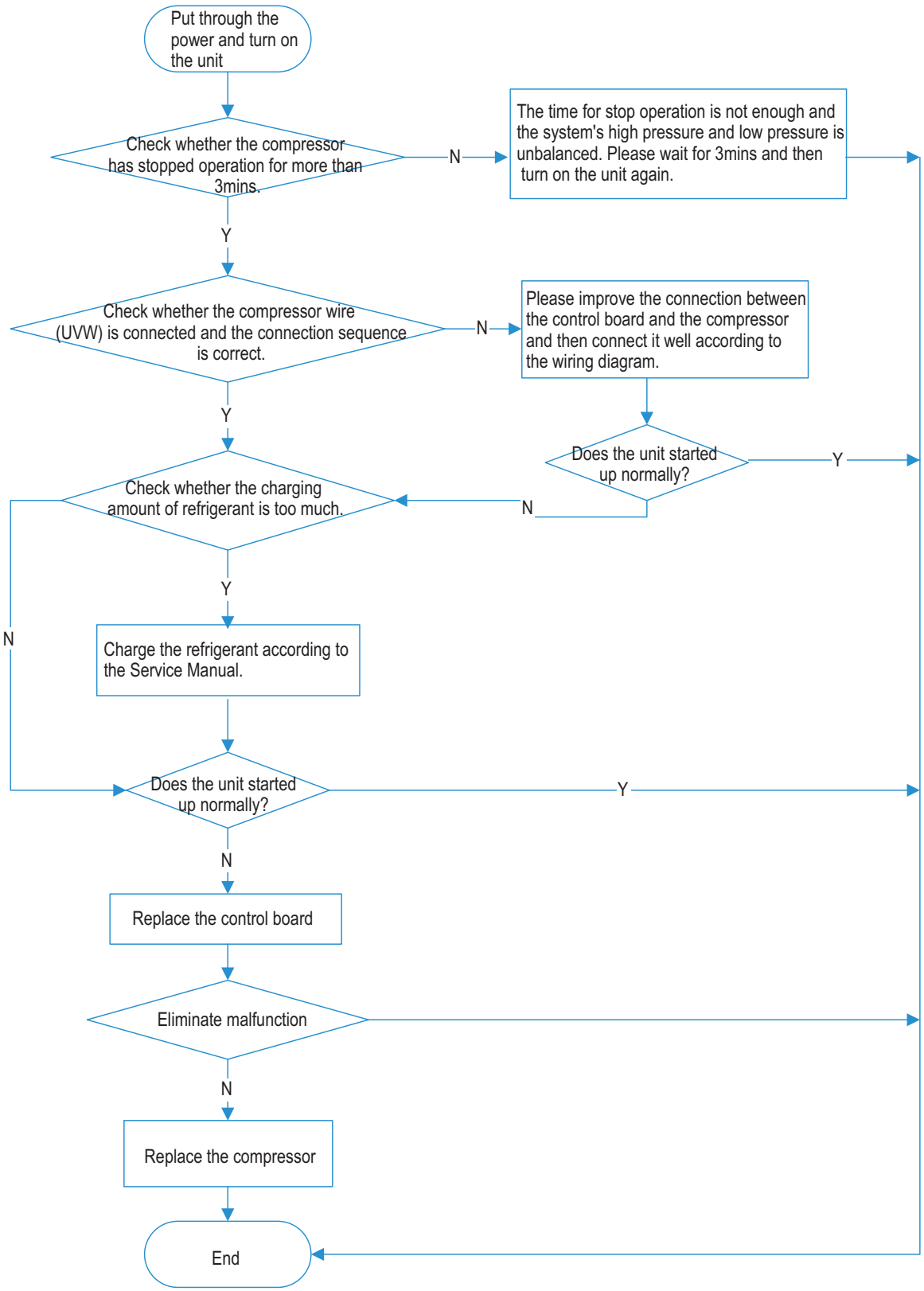


8.Malfunction diagnosis for failure startup Lc

Main check points:

(1) compressor wire (2) compressor (3) charging amount of refrigerant

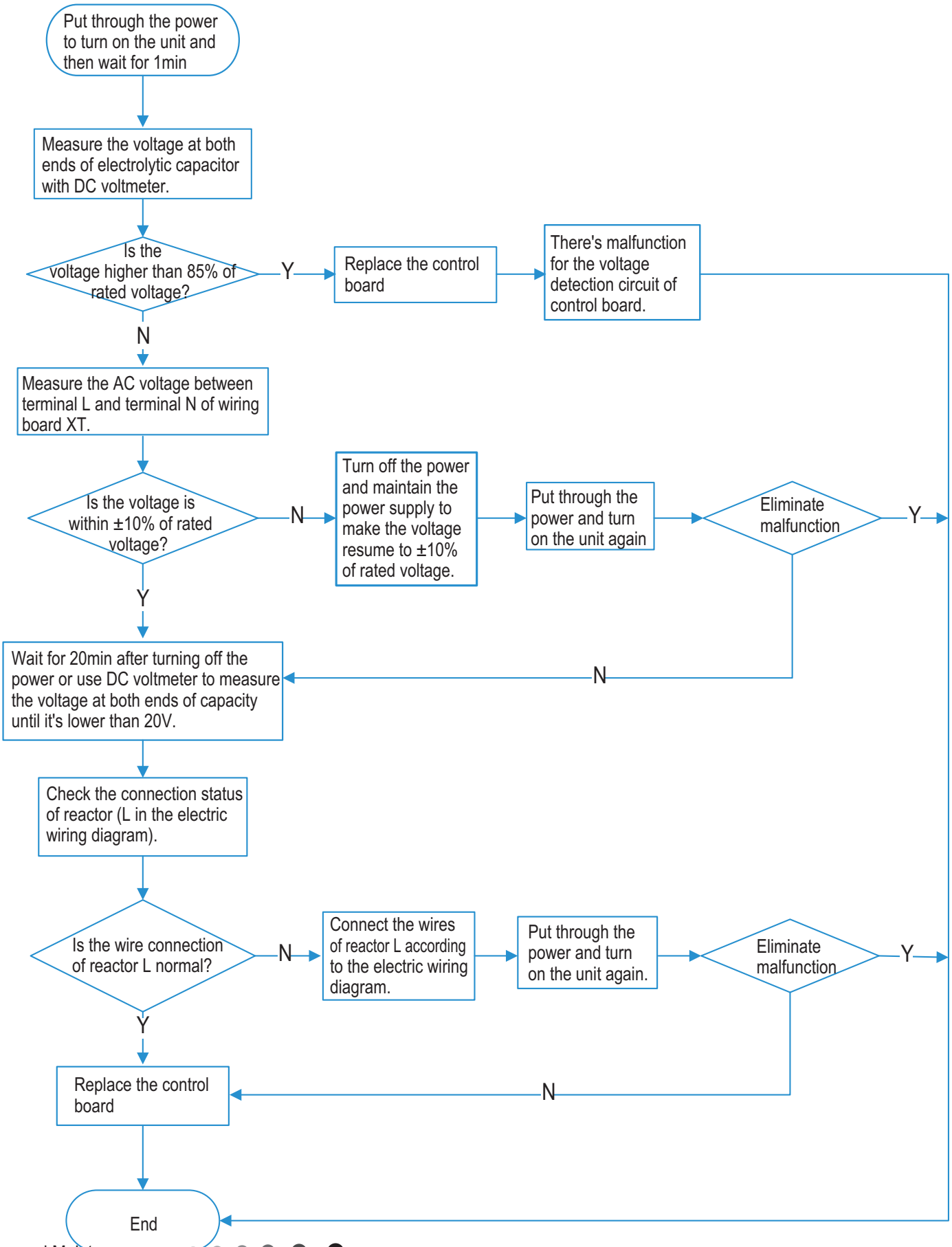
NOTE:The control board as below means the control board of outdoor unit.



## 9. Charging malfunction of capacitor PU

Main check points:
(1) wiring board XT (2) reactor

NOTE:The control board as below means the control board of outdoor unit.

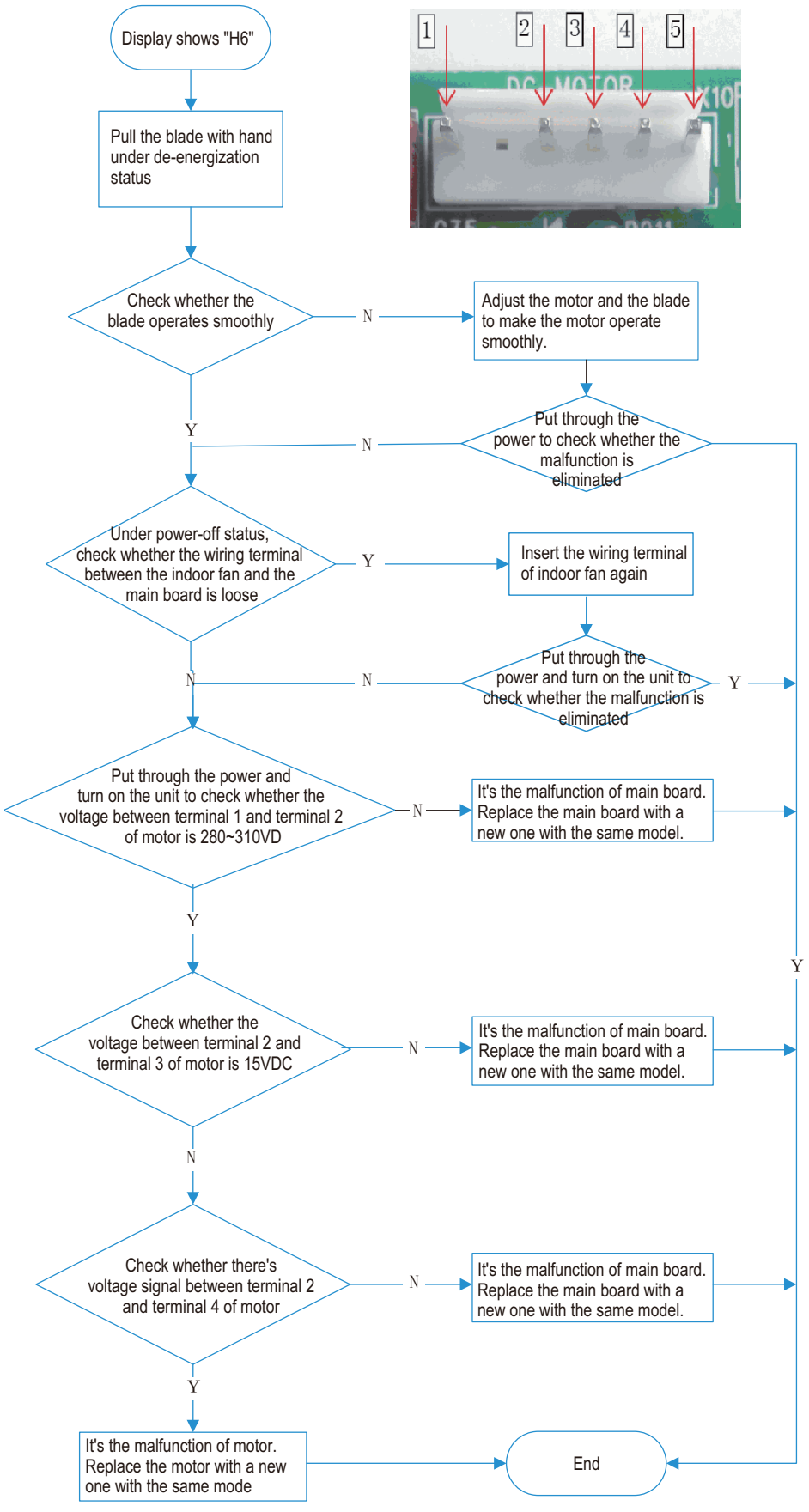


## 10. Troubleshooting-motor(indoor fan) doesn't operate H6

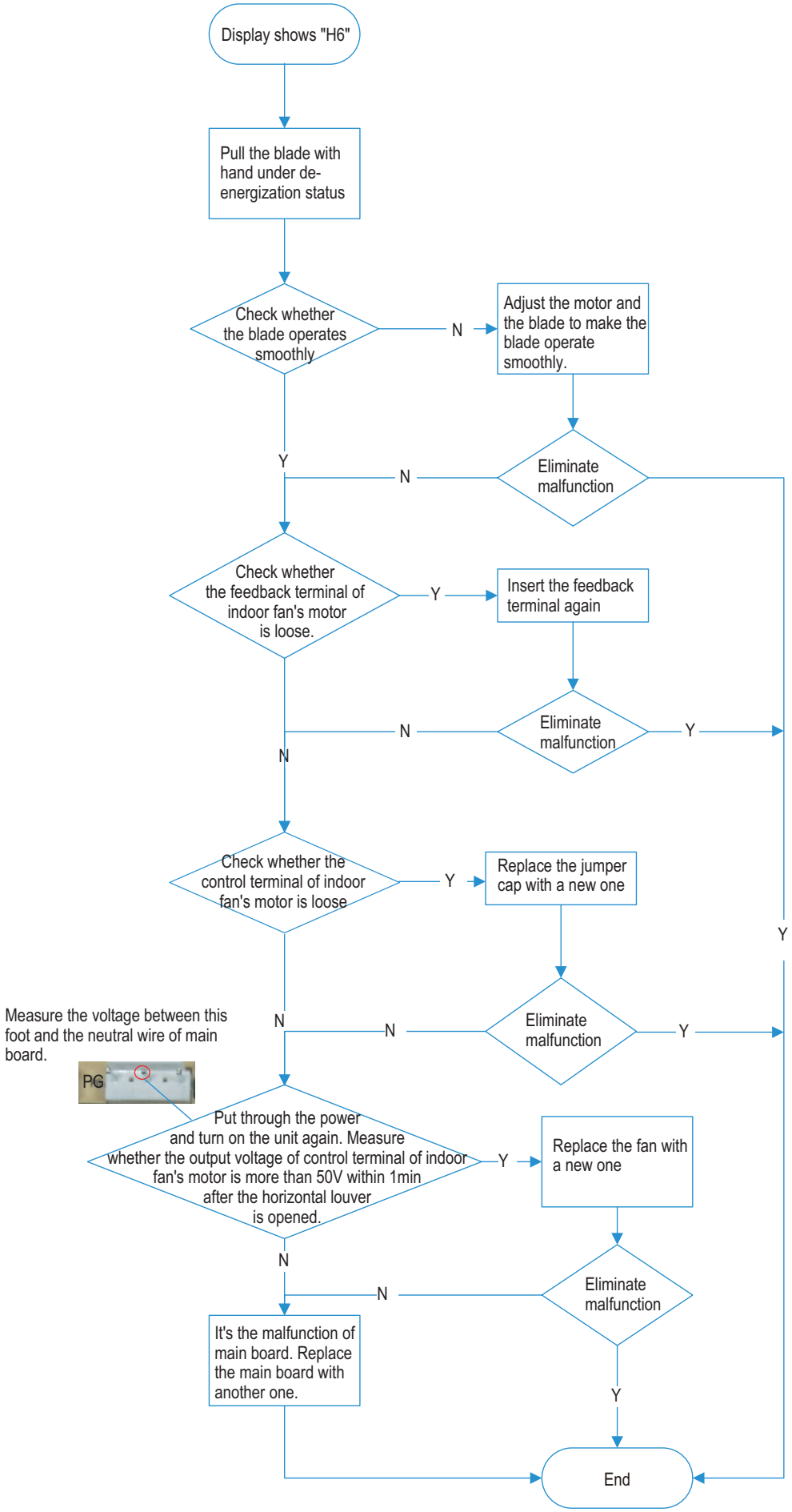
Main check points:

(1) connection terminal (2) motor (3) control board AP1 of indoor unit (4) blade

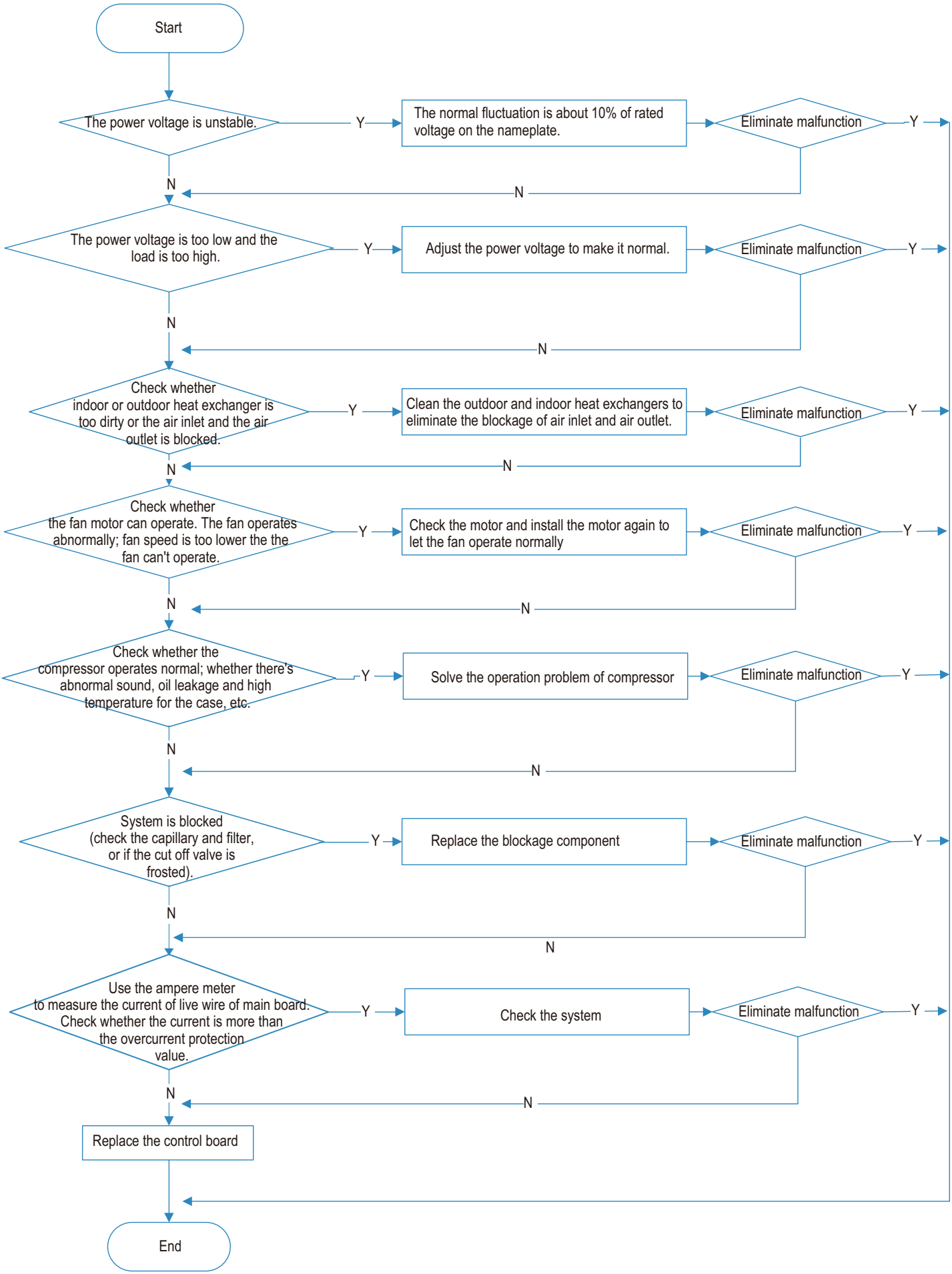
### 10.1 DC motor



## 10.2 PG motor


Display shows "H6"
Pull the blade with hand under de-energization status
Check whether the blade operates smoothly
N
Adjust the motor and the blade to make the blade operate smoothly.
Y
N
Eliminate malfunction
Check whether the feedback terminal of indoor fan's motor is loose.
Y
Insert the feedback terminal again
N
Eliminate malfunction
Y
N
Check whether the control terminal of indoor fan's motor is loose
Y
Replace the jumper cap with a new one
Y
Measure the voltage between this foot and the neutral wire of main board.
N
N
Eliminate malfunction
Y
PG
Put through the power and turn on the unit again. Measure whether the output voltage of control terminal of indoor fan's motor is more than 50V within 1min after the horizontal louver is opened.
Y
Replace the fan with a new one
N
N
Eliminate malfunction
It's the malfunction of main board. Replace the main board with another one.
Y
End

## 11. AC overcurrent protection E5



## 9.3 Troubleshooting 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<br>Make sure wires of air conditioner is connected correctly<br>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<br>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 its 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; Units 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; Unitt 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

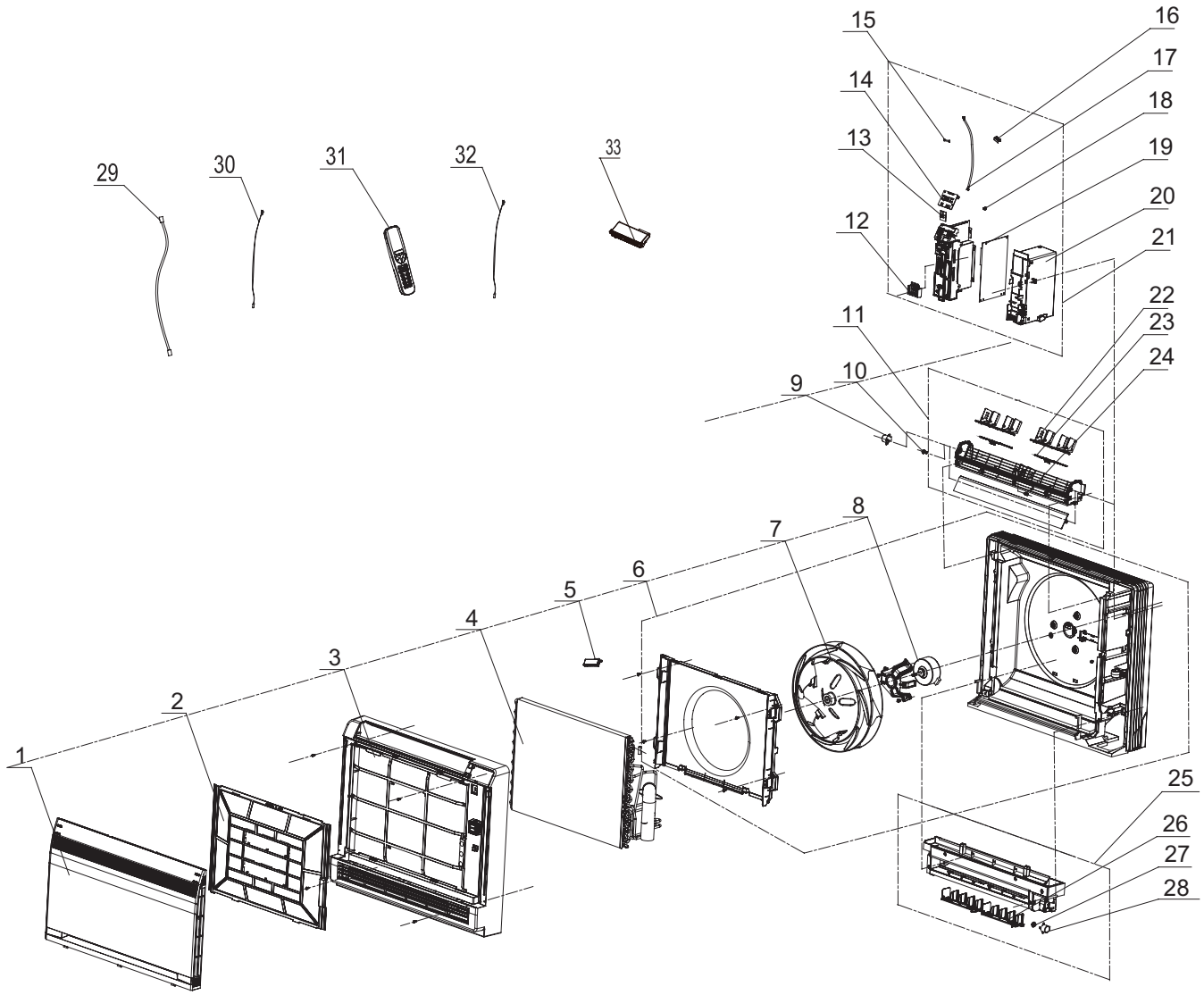
| Possible causes | Discriminating method (air conditioner status) | Troubleshooting |
|---|---|---|
| Drain pipe is blocked | Water leaking from indoor unit | Eliminate the foreign objects inside the drain pipe |
| Drain pipe is broken | Water leaking from drain pipe | Replace drain pipe |
| Wrapping 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 theres abnormal sound | Theres the sound of "PAPA" | Normal phenomenon. Abnormal sound will disappear after a few minutes. |
| When turn on or turn off the unit, theres 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 therere parts touching together inside the indoor unit | Theres 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 therere parts touching together inside the outdoor unit | Theres 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




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

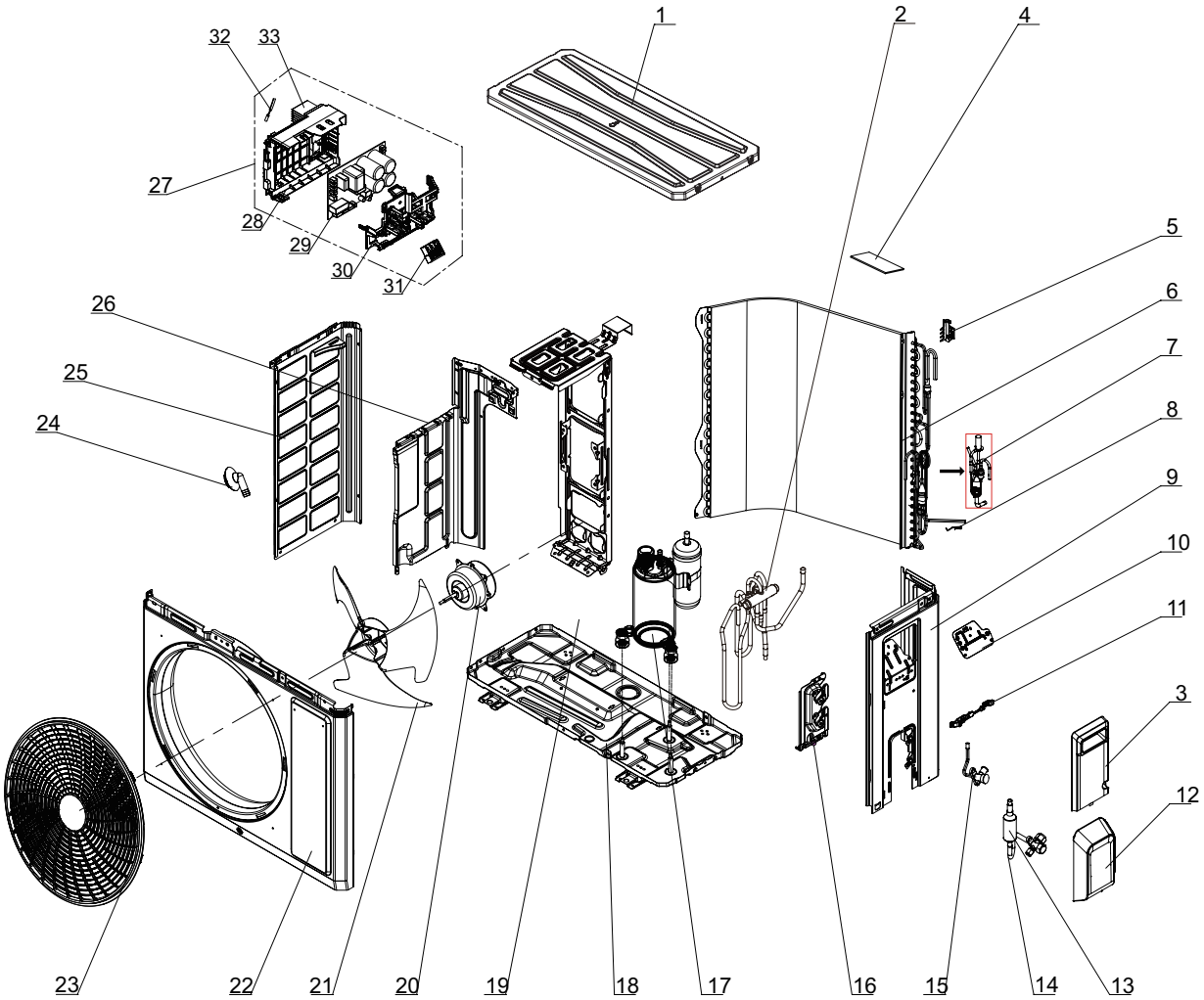
| NO. | Description |
|---|---|
| 1 | Front Panel Assy |
| 2 | Filter Sub-Assy |
| 3 | Front Case Assy |
| 4 | Evaporator Assy |
| 5 | Cold Plasma Generator |
| 6 | Rear Case Assy |
| 7 | Centrifugal Fan |
| 8 | Fan Motor |
| 9 | Stepping Motor |
| 10 | Crank |
| 11 | Swing Assy |
| 12 | Terminal Board |
| 13 | Switch Board |
| 14 | Display Board |
| 15 | Fuse |
| 16 | Radiator |
| 17 | Signal Wire |

| NO. | Description |
|---|---|
| 18 | Jumper |
| 19 | Main Board |
| 20 | Electric Box |
| 21 | Electric Box Assy |
| 22 | Air Louver (upper) |
| 23 | Swing Lever |
| 24 | Shaft of Guide Louver |
| 25 | Water Tray Assy |
| 26 | Air Louver (lower) |
| 27 | Axis (lower step motor) |
| 28 | Stepping Motor |
| 29 | Connecting Cable |
| 30 | Temperature Sensor |
| 31 | Remote Controller |
| 32 | Temperature Sensor |
| 33 | Detecting Plate |

Some models may not contain some parts,  please refer to the actual product.

## 10.2 Outdoor Unit

AZI-FO25VE/O




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

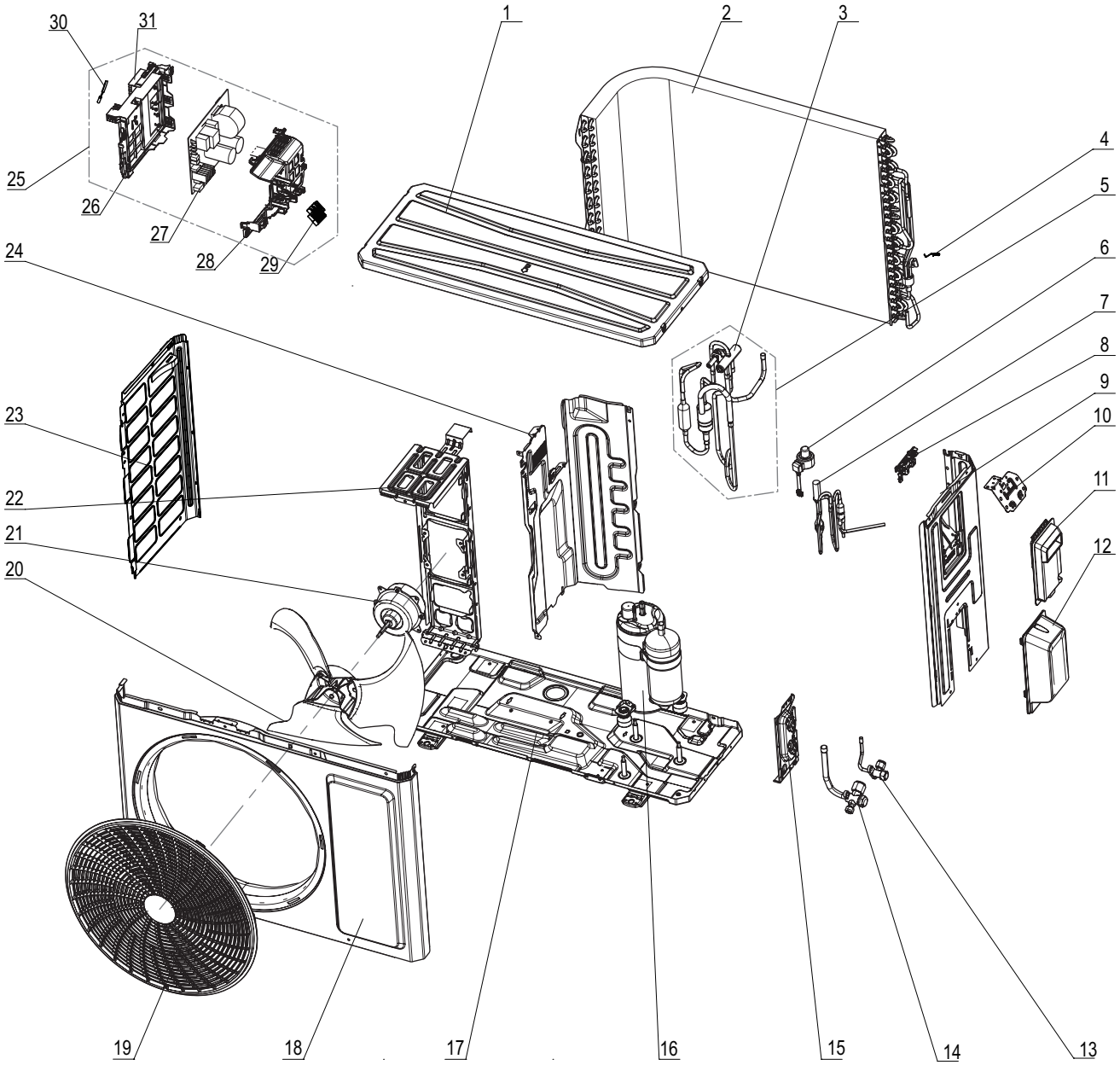
| NO. | Description |
|---|---|
| 1 | Coping |
| 2 | 4-Way Valve Assy |
| 3 | Handle (Right) |
| 4 | Sponge(Condenser) |
| 5 | Temperature Sensor Support |
| 6 | Condenser Assy |
| 7 | Electric Expansion Valve Sub-Assy |
| 8 | Sensor Insert |
| 9 | Right Side Plate |
| 10 | Earthing Plate Sub-Assy |
| 11 | Wire Clamp |
| 12 | Valve Cover |

| NO. | Description |
|---|---|
| 13 | Silencer |
| 14 | Cut off Valve Sub-Assy |
| 15 | Strainer |
| 16 | Valve Support |
| 17 | Compressor and Fittings |
| 18 | Chassis Sub-assy |
| 19 | Motor Support |
| 20 | Fan Motor |
| 21 | Axial Flow Fan |
| 22 | Cabinet |
| 23 | Front Grill |
| 24 | Drainage Joint(ODU) |

| NO. | Description |
|---|---|
| 25 | Left Side Plate |
| 26 | Clapboard |
| 27 | Electric Box Assy |
| 28 | Electric Box |
| 29 | Main Board |
| 30 | Electric Box Cover |
| 31 | Terminal Board |
| 32 | Temperature Sensor |
| 33 | Radiator |

Some models may not contain some parts, please refer to the actual product.

AZI-FO35VE/O




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

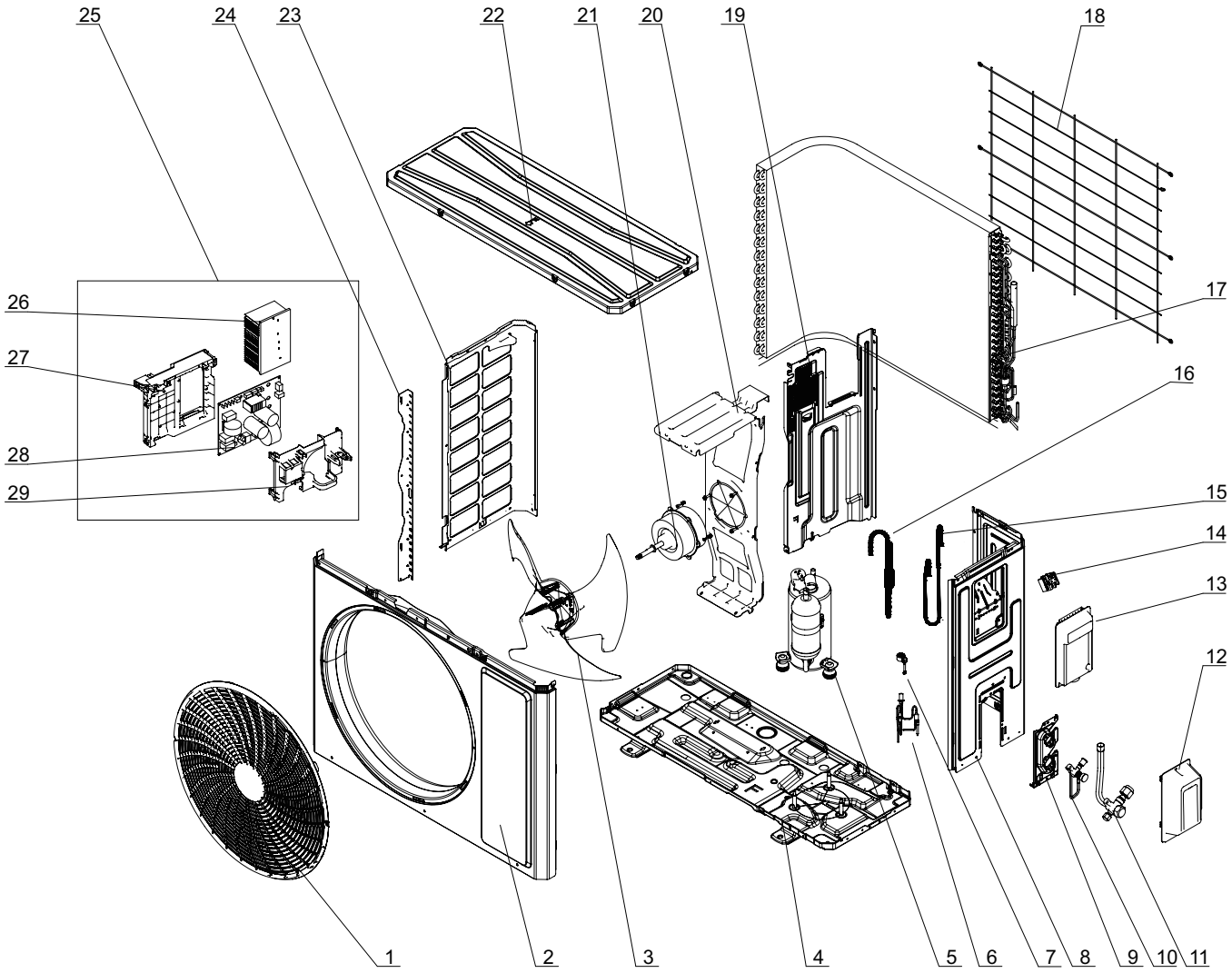
| NO. | Description |
|---|---|
| 1 | Top Cover Assy Grill |
| 2 | Condenser Assy |
| 3 | 4-Way Valve |
| 4 | Sensor Insert |
| 5 | 4-Way Valve Assy |
| 6 | Electric Expansion Valve Fitting |
| 7 | Electric Expansion Valve Sub-Assy |
| 8 | Wire Clamp |
| 9 | Right Side Plate |
| 10 | Earthing Plate Sub-Assy |

| NO. | Description |
|---|---|
| 11 | Handle |
| 12 | Valve Cover |
| 13 | Cut-off valve 1/4(N) |
| 14 | Cut-off valve 3/8(N) |
| 15 | Valve Support |
| 16 | Compressor and Fittings |
| 17 | Chassis Sub-assy |
| 18 | Front Panel Assy |
| 19 | Front Grill |
| 20 | Axial Flow Fan |

| NO. | Description |
|---|---|
| 21 | Brushless DC Motor |
| 22 | Motor Support |
| 23 | Left Side Plate |
| 24 | Clapboard |
| 25 | Electric Box Assy |
| 26 | Electric Box |
| 27 | Main Board |
| 28 | Electric Box Cover |
| 29 | Terminal Board |
| 30 | Temperature Sensor |
| 31 | Radiator |

Some models may not contain some parts, please refer to the actual product.

AZI-FO50VE/O




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

| NO. | Description |
|---|---|
| 1 | Front Grill |
| 2 | Front Panel |
| 3 | Axial Flow Fan |
| 4 | Chassis Sub-assy |
| 5 | Compressor and Fittings |
| 6 | Electronic Expansion Valve |
| 7 | Electric Expand Valve Fitting |
| 8 | Right Side Plate |
| 9 | Valve Support |
| 10 | Cut-off valve |

| NO. | Description |
|---|---|
| 11 | Cut-off valve |
| 12 | Valve Cover |
| 13 | Handle |
| 14 | Terminal Board |
| 15 | Discharge Tube |
| 16 | Inhalation Tube |
| 17 | Condenser Assy |
| 18 | Rear Grill |
| 19 | Clapboard Assy |
| 20 | Motor Support |

| NO. | Description |
|---|---|
| 21 | Brushless DC Motor |
| 22 | Top Cover Assy |
| 23 | Left Side Plate |
| 24 | Condenser Left Border Plate |
| 25 | Electric Box Assy |
| 26 | Radiator |
| 27 | Electric Box |
| 28 | Main Board |
| 29 | Electric Box Cover |

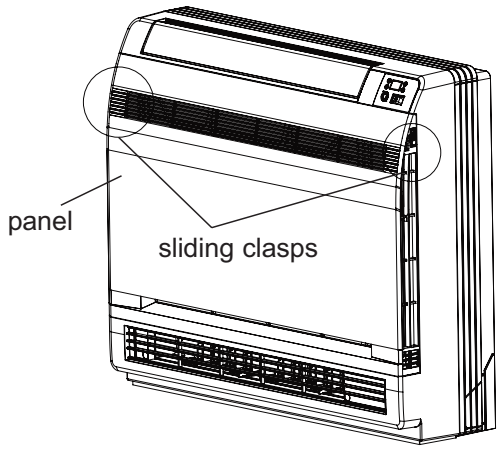
Some models may not contain some parts, please refer to the actual product.

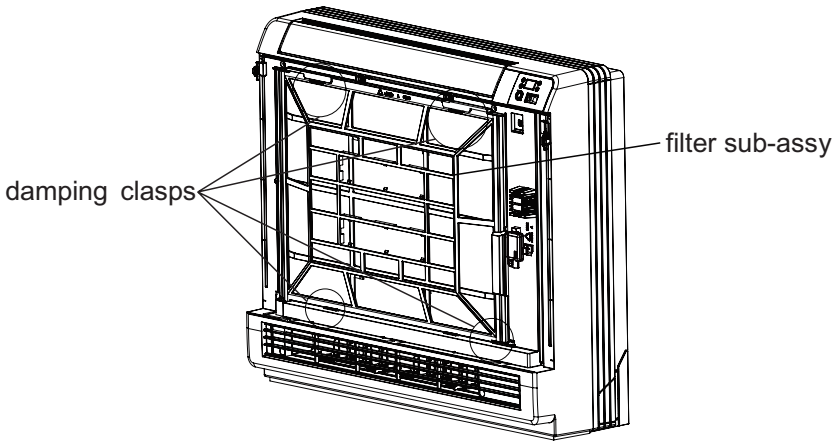
# 11. Removal Procedure

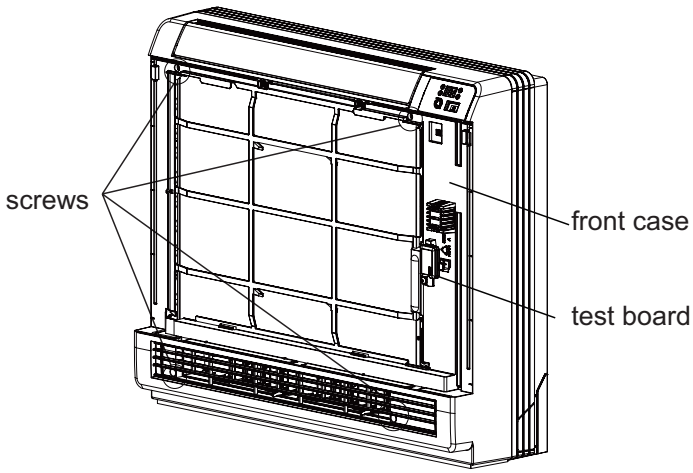
## 11.1 Removal Procedure of Indoor Unit

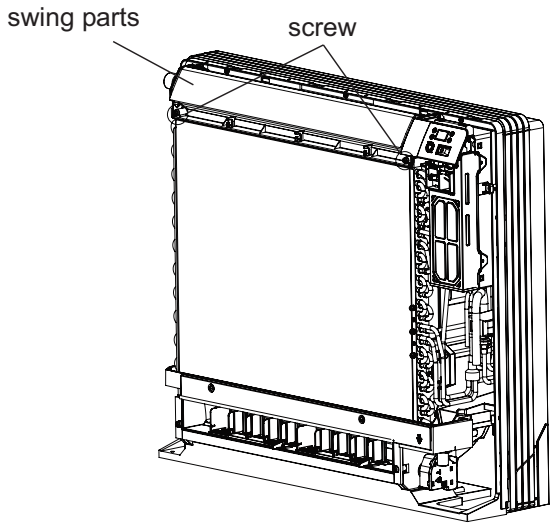
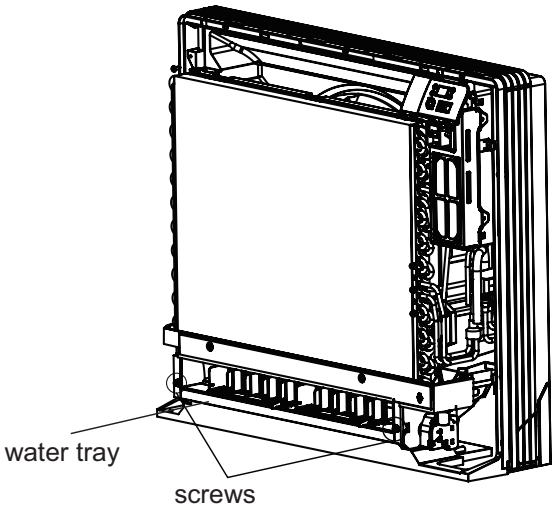
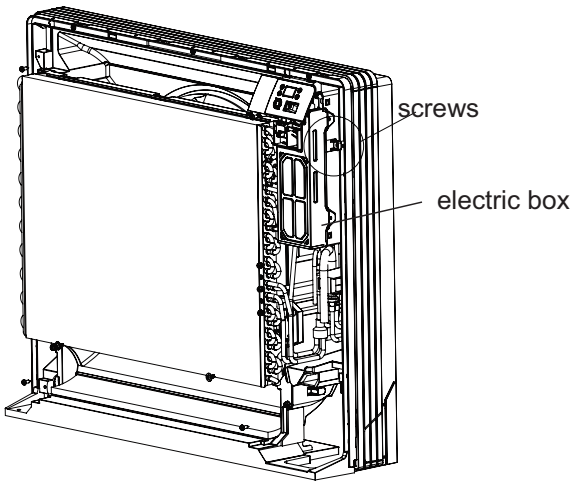
⚠ **Caution: discharge the refrigerant completely before removal.**

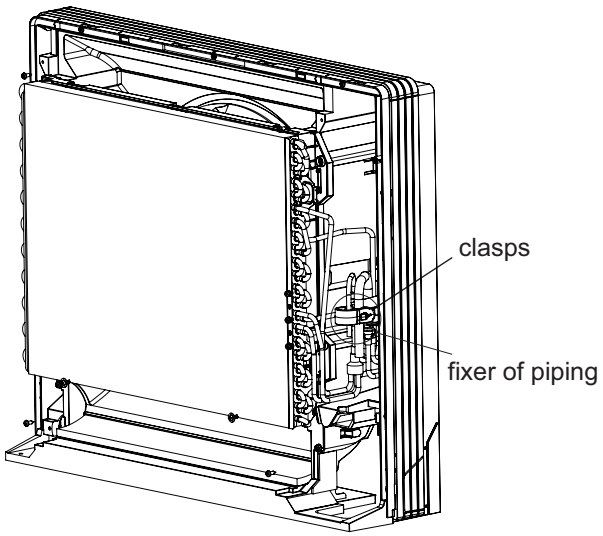
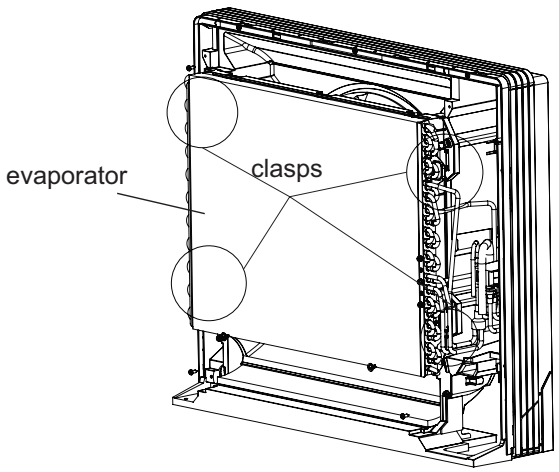
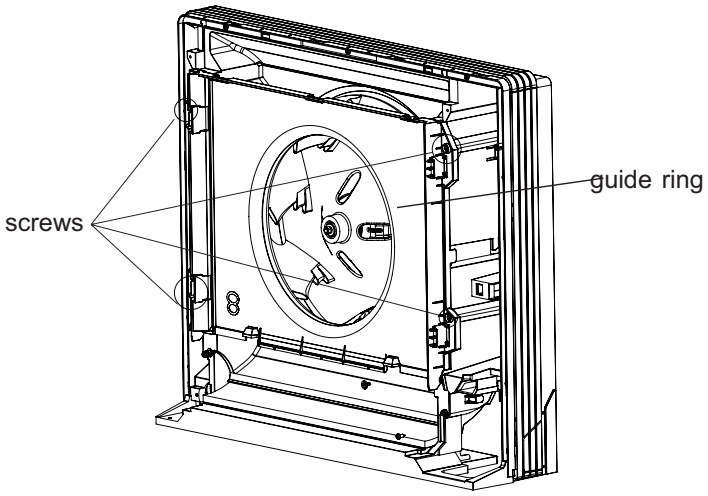
| Step | Procedure |
|---|---|
| **1. Remove panel** | Pull sliding clasps at both sides of panel, pull out the panel outwards and then move the panel upwards to remove it. |
| **2. Remove filter sub-assy** | Pull the damping clasps at upper/lower side of filter sub-assy, and then move the filter sub-assy outwards to remove it. |
| **3.Remove test board and front case** | Remove one screws fixing the test board, and t hen pull the test board outwards to remove it.<br>Remove 4 screws fixing the front case, and then pull the front case outwards to remove it. |

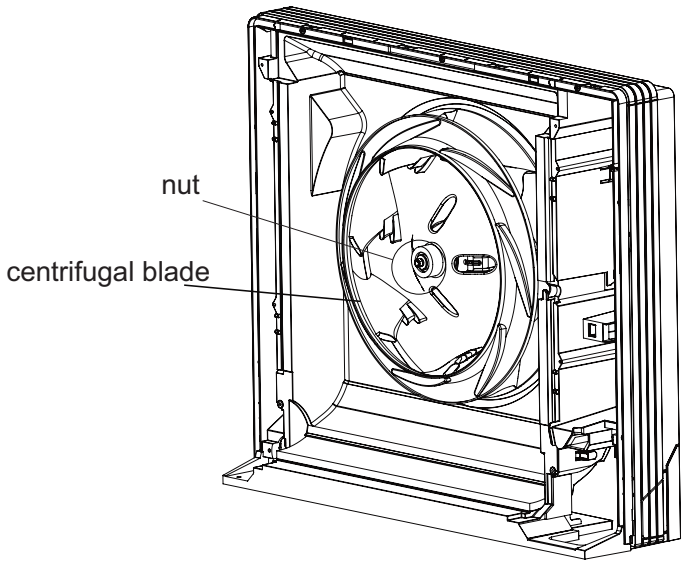
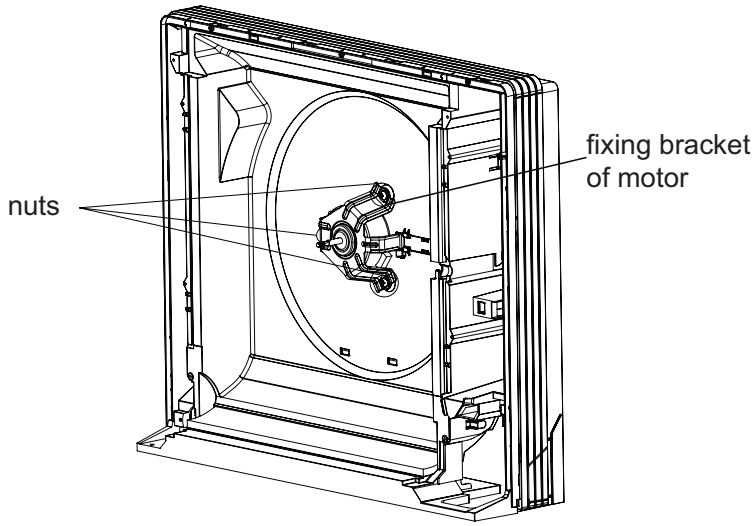
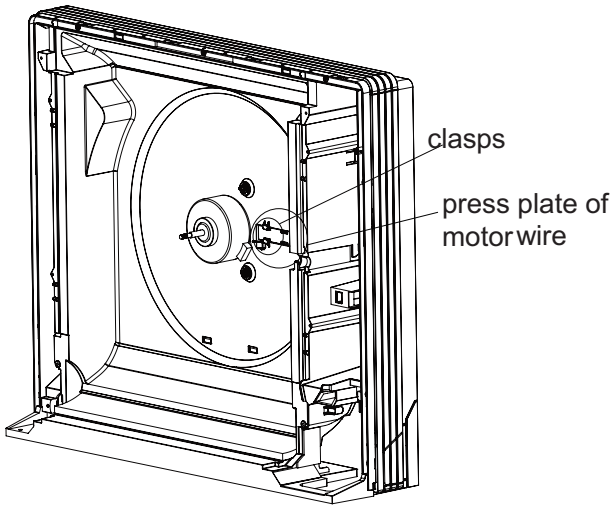


| Step | Procedure |
|---|---|
| **4.Remove swing parts** |  |
| Remove 2 screws fixing the swing parts, and then pull the swing parts outwards to remove it. | |
| **5. Remove water tray** |  |
| Remove 2 screws fixing water tray, and then pull the water tray outwards to remove it. | |
| **6. Remove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

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

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

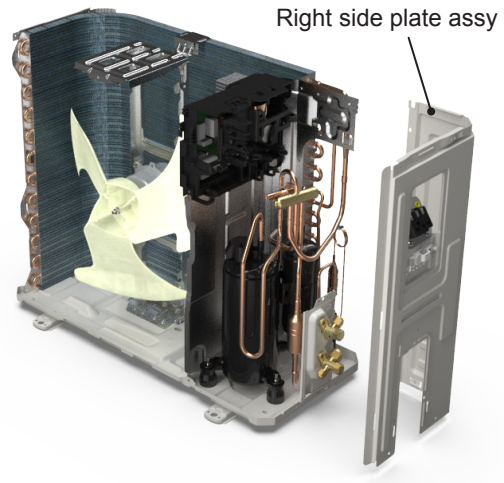
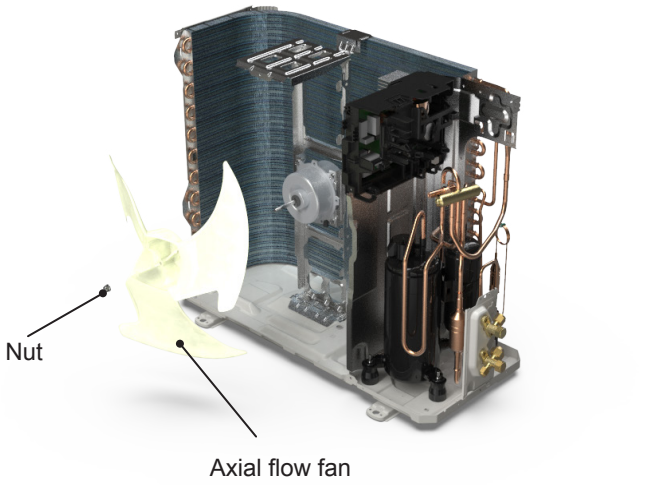
## 11.2 Removal Procedure of Outdoor Unit

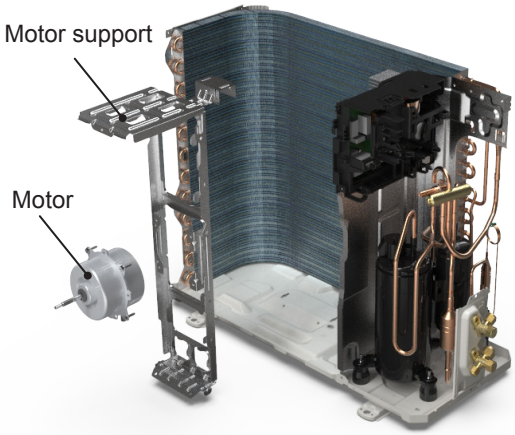
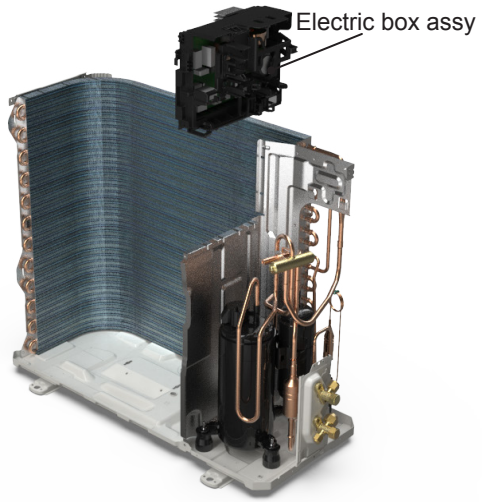
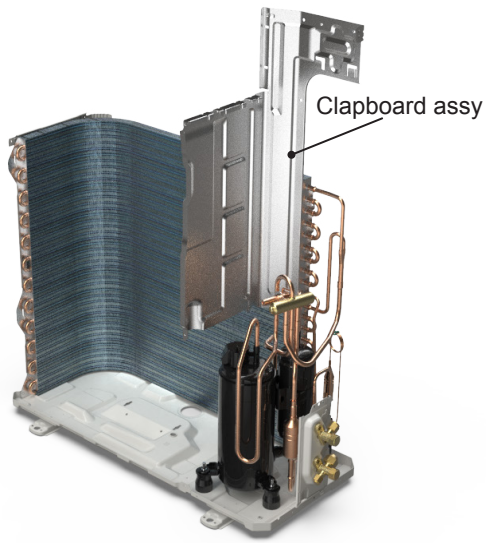
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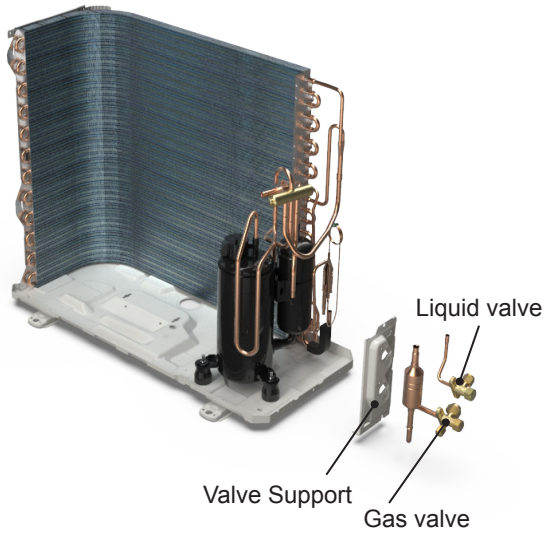
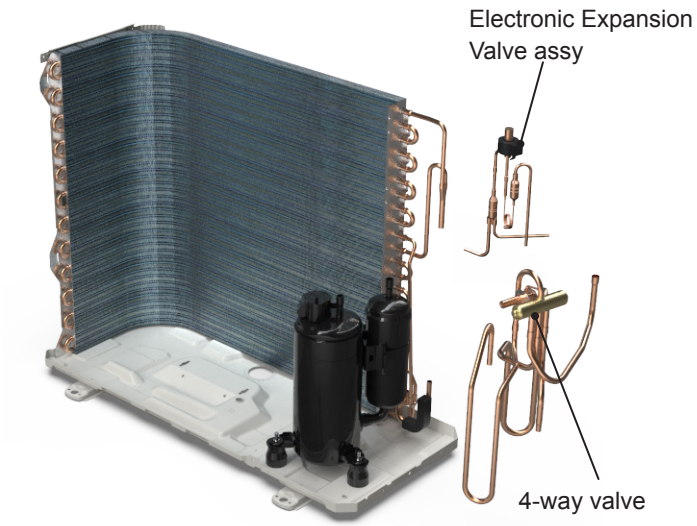
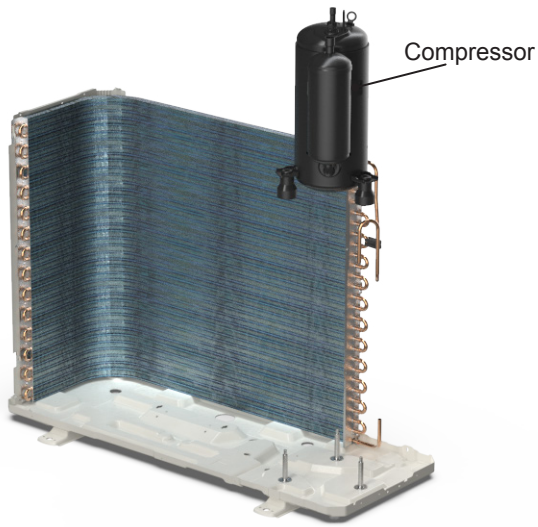
(The front grill appearance is for reference only)

**Caution: discharge the refrigerant completely before removal.**

| Step | Procedure |
|---|---|
| **1. Before disassembly** |  |
| **2. Remove big handle and valve cover**<br>Remove the screws fixing big handle, valve cover and then remove them. |  |
| **3. Remove top cover**<br>Remove the screws fixing top panel and then remove the top panel. |  |

| Step | Procedure |
|---|---|
| **4. Remove front panel assy** | |
| Remove connection screws connecting the front panel assy with the chassis and the motor support, and then remove the front panel assy. |  |
| **5. Remove right side plate assy** | |
| Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right plate, and remove the right side plate assy. |  |
| **6. Remove axial flow fan** | |
| Remove the nut on the fan and then remove the axial flow fan. |  |

| Step | Procedure |
|---|---|
| **7. Remove motor support and motor** | |
| | Remove the screws fixing the motor support and lift the motor support to remove it.<br>Remove the screws fixing the motor and then remove the motor. |
| |  |
| **8. Remove electric box assy** | |
| | Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed. |
| |  |
| **9. Remove clapboard assy** | |
| | Remove the screws fixing the clapboard assy and then remove the clapboard assy. |
| |  |

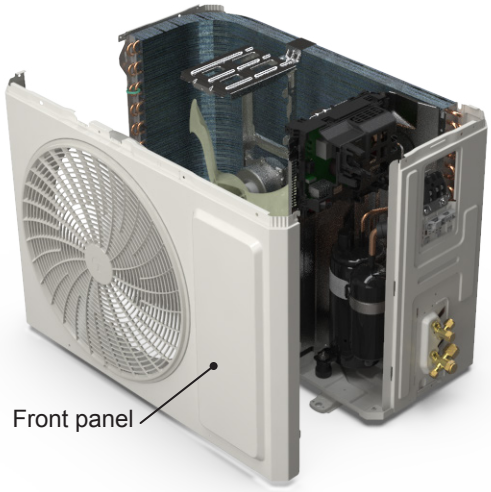
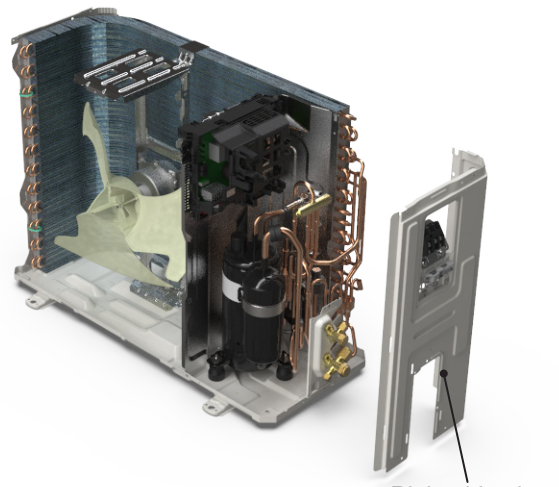
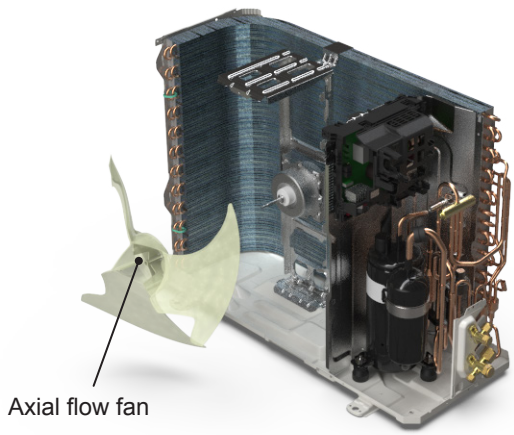
| Step | Procedure |
|---|---|
| **10. Remove gas valve and liquid valve** |  |
| Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them.<br>Note:<br>Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature. | |
| **11. Remove 4-way valve and Electronic Expansion Valve assy** |  |
| Unsolder the welding joints connecting Electronic Expansion Valve assy and then remove it.<br>Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy, compressor and condenser; remove the 4-way valve.Cooling only unit removes Discharge Tube and Inhalation Tube.<br>Note:<br>Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature. | |
| **12. Remove compressor** |  |
| Remove the 3 foot nuts on the compressor and then remove the compressor. | |

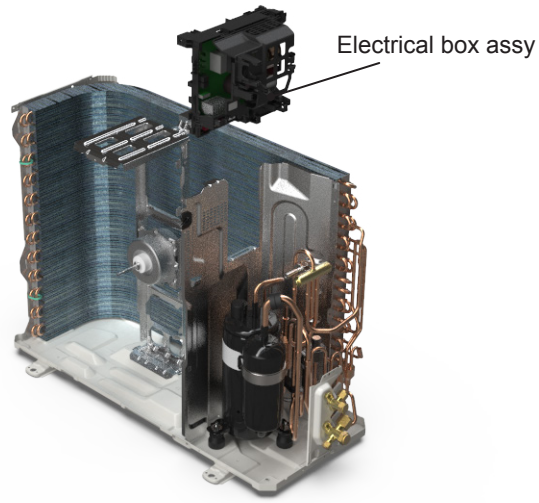
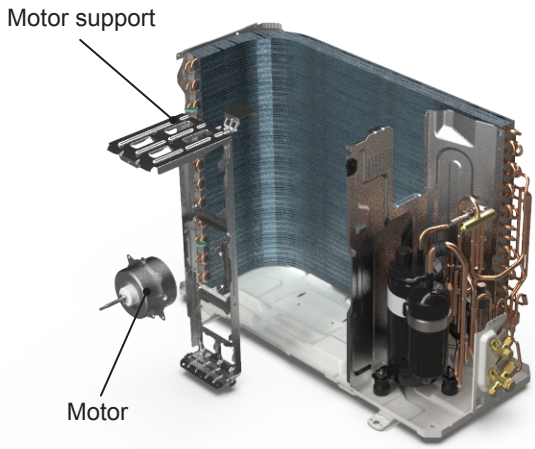
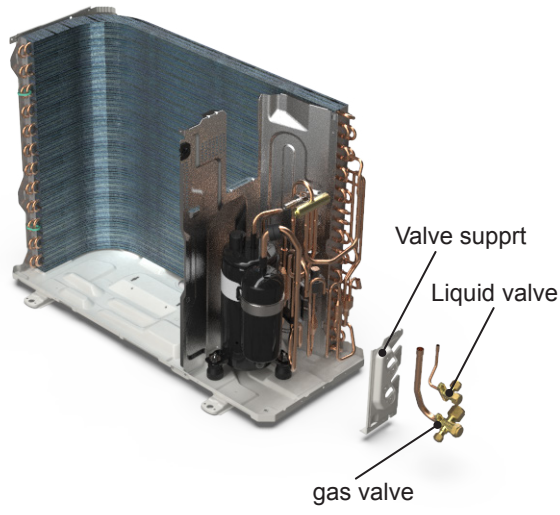
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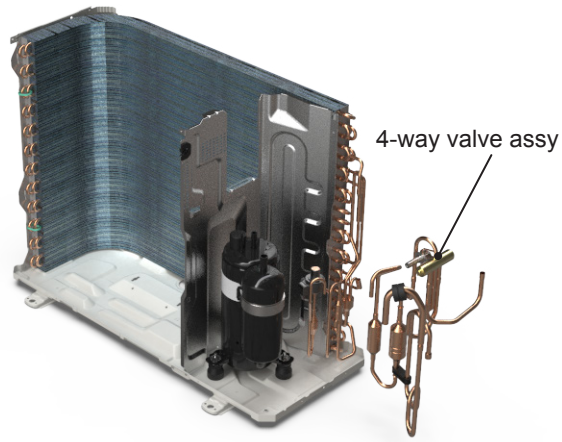
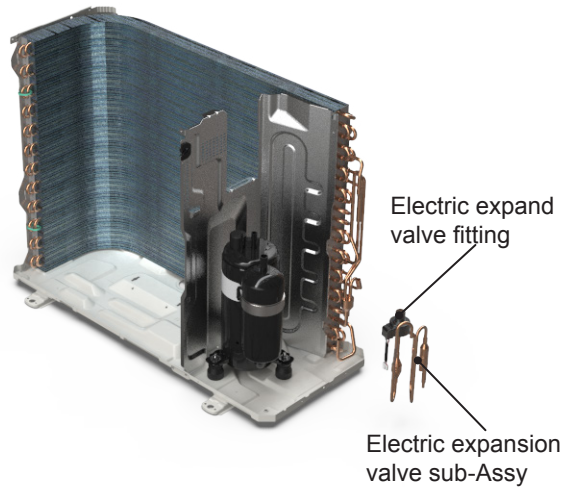
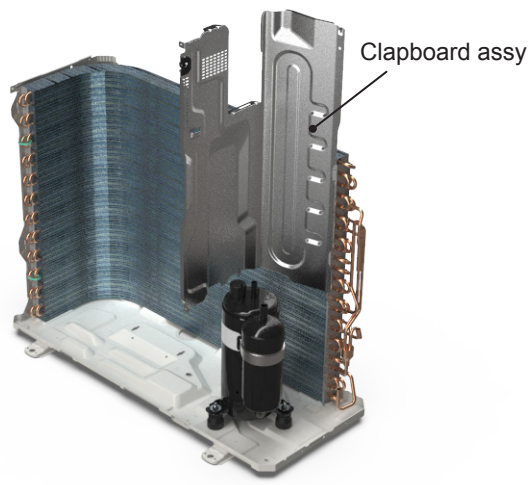
(The front grill appearance is for reference only)

⚠ **Caution: discharge the refrigerant completely before removal.**

| Step | Procedure |
|---|---|
| **1. Before disassembly** |  |
| **2. Remove big handle and valve cover** |  |
| Remove the screws fixing big handle, valve cover and then remove them. | |
| **3. Remove top cover** |  |
| Remove the screws fixing top panel and then remove the top panel. | |

| Step | Procedure |
|---|---|
| **4. Remove front panel assy** | |
| Remove connection screws connecting the front panel assy with the chassis and the motor support, and then remove the front panel assy. |  |
| **5. Remove right side plate assy** | |
| Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right plate, and remove the right side plate assy. |  |
| **6. Remove axial flow fan** | |
| Remove the nut on the fan and then remove the axial flow fan. |  |

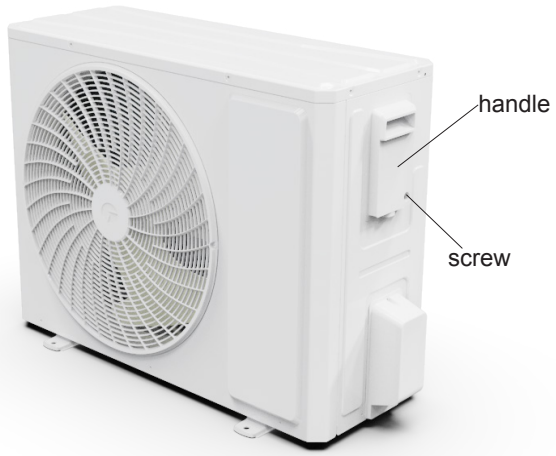
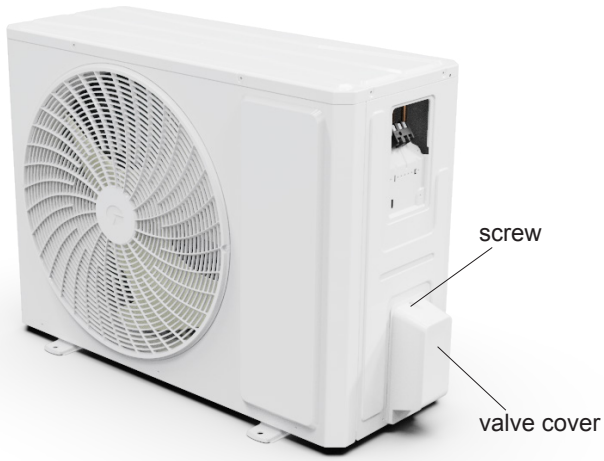
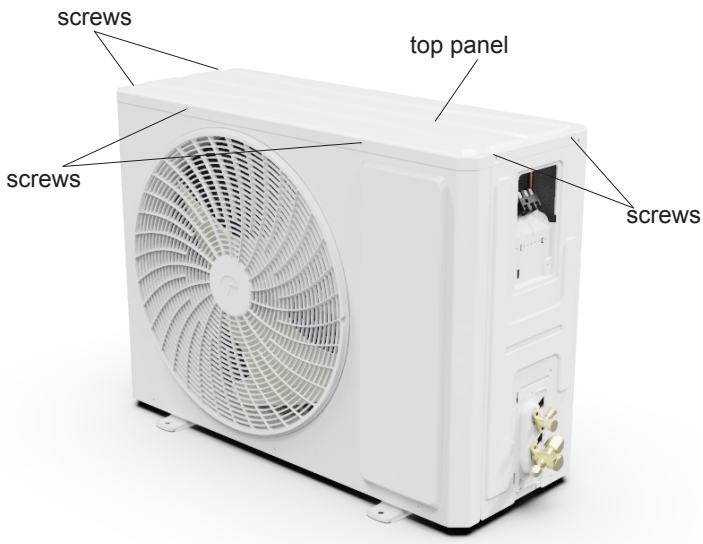
| Step | Procedure |
|---|---|
| **7. Remove electric box assy** |  |
| Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed. | |
| **8. Remove motor and motor support** |  |
| Remove the screws fixing the motor and then remove the motor.<br>Remove the screws fixing the motor support and lift the motor support to remove it. | |
| **9. Remove gas valve, liquid valve and valve suppprt** |  |
| Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them.<br>Note:<br>Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.<br>Remove the screws fixing valve support, then remove the valve support. | |

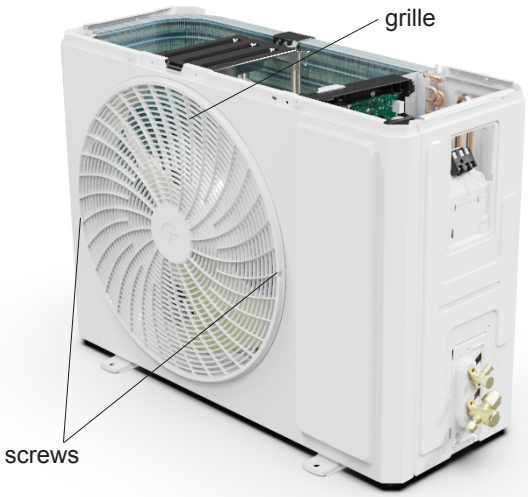
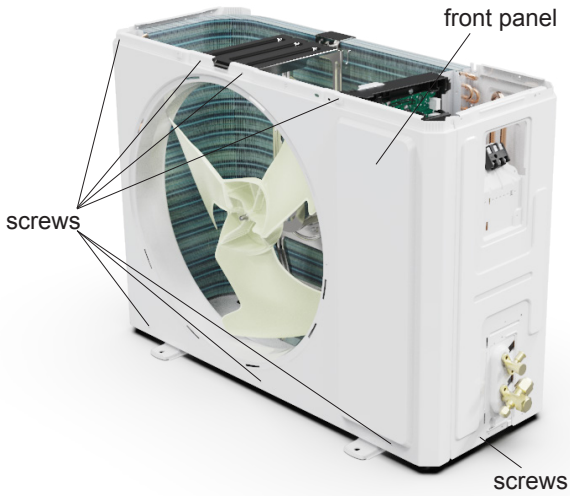
| Step | Procedure |
|---|---|
| **10. Remove 4-way valve assy** | |
| Unsolder the welding joints connecting the 4-way valve assy, remove the 4-way valve.<br>Note:<br>Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature. |  |
| **11. Remove electric expansion valve sub-Assy** | |
| Unsolder the spot weld of electric expansion valve sub-Assy and condenser, and then remove the electric expansion valve sub-Assy.<br>Note:<br>When unsoldering the spot weld, wrap the electric expansion valve sub-Assy with wet cloth completely to avoid damaging the valve due to high temperature. |  |
| **12. Remove clapboard assy** | |
| Remove the screws fixing the clapboard assy and then remove the clapboard assy. |  |

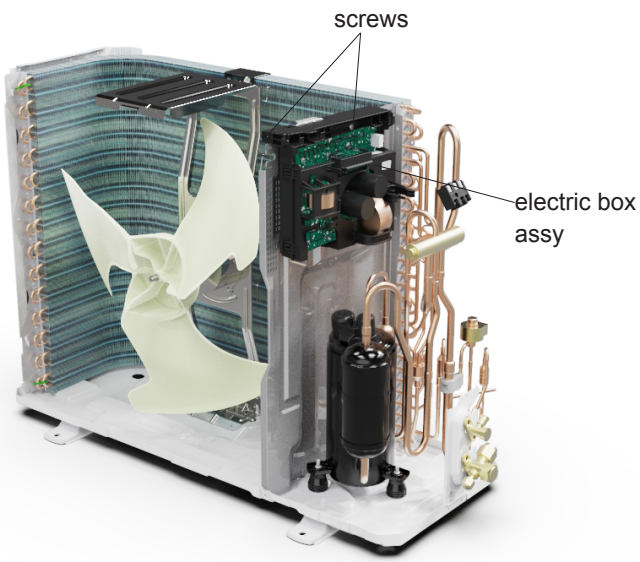
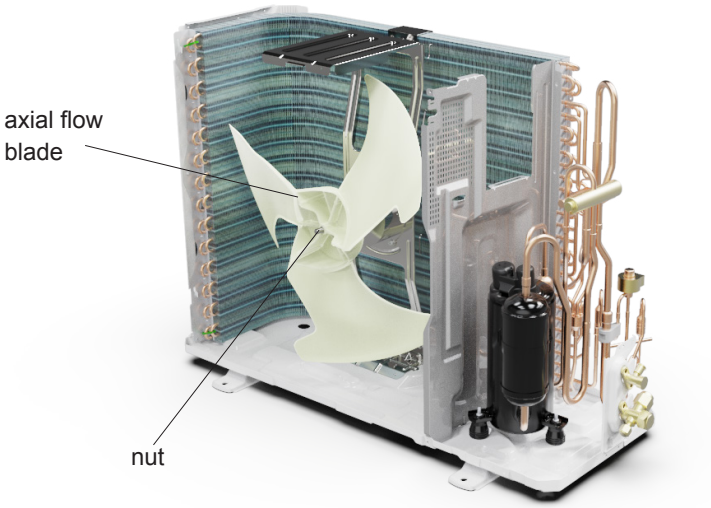
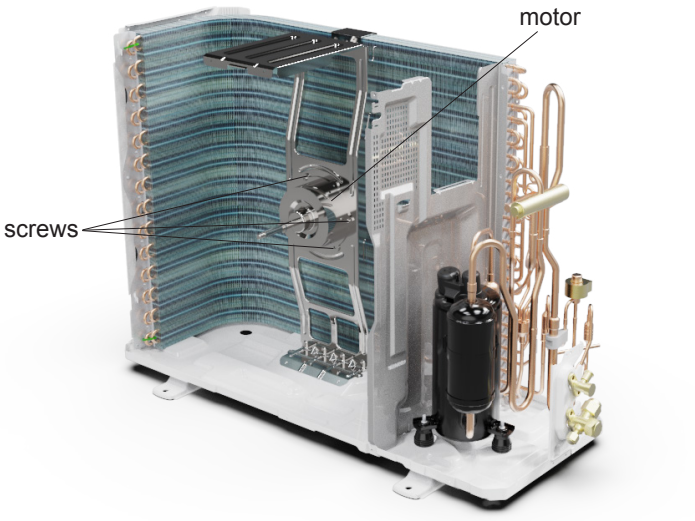
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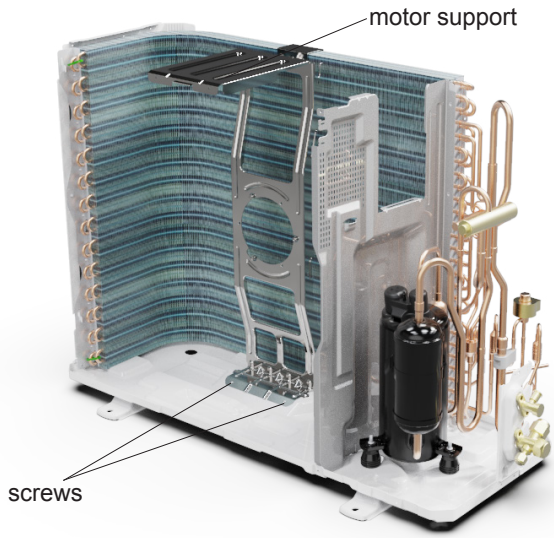
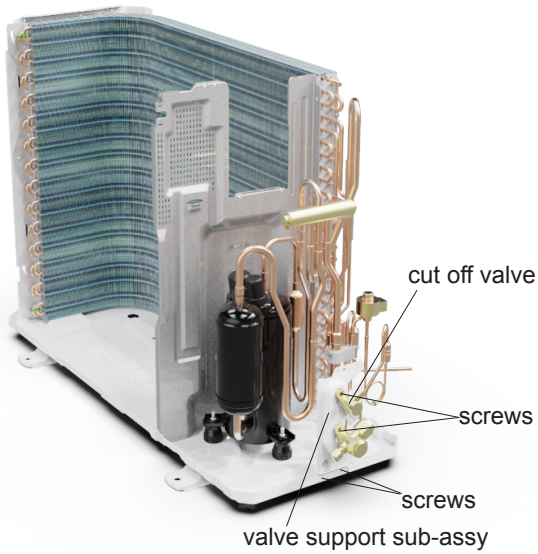
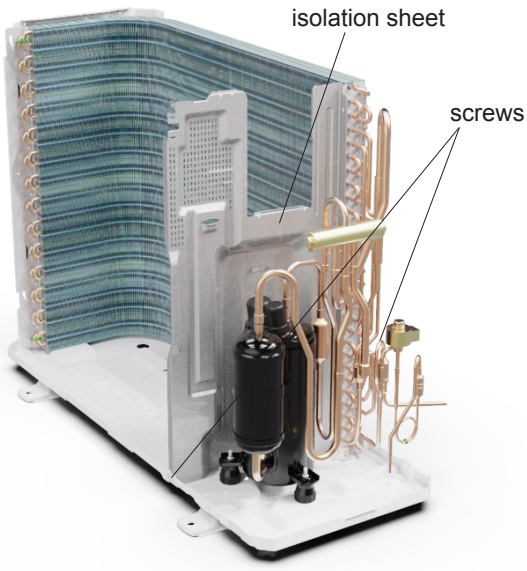
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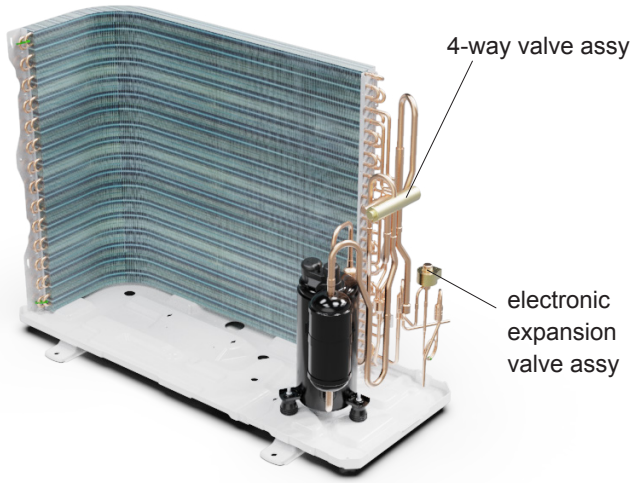
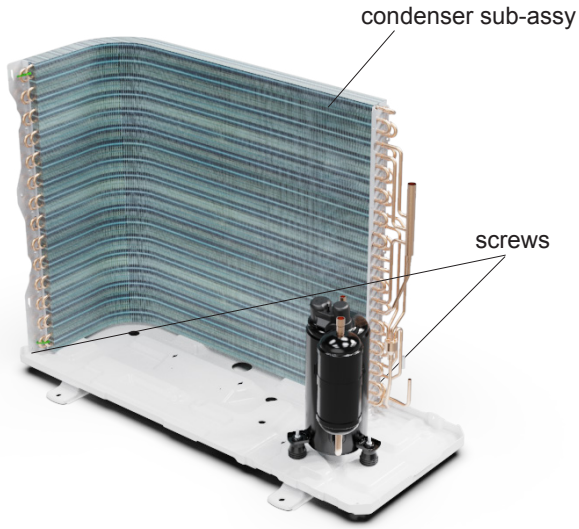
**Caution: discharge the refrigerant completely before removal.**

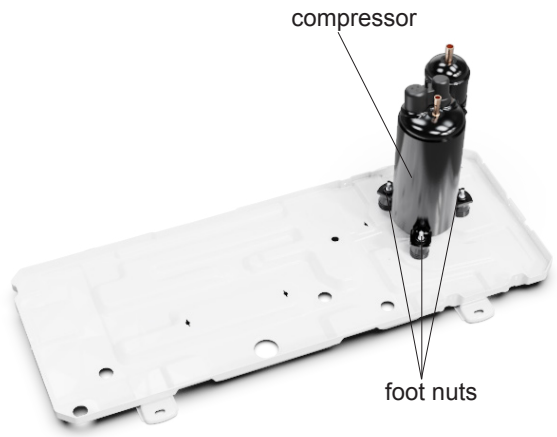
| Step | Procedure |
|---|---|
| **1. Remove handle** |  |
| TRemove the screw fixing the handle and then remove the handle. | |
| **2. Remove valve cover** |  |
| Remove the screw fixing the valve cover and then remove the valve cover. | |
| **3. Remove top panel** |  |
| Remove the screws fixing the top panel and then remove the top panel. | |

| Step | Procedure |
|---|---|
| **4. Remove grille** | |
| Remove the screws fixing the grille and then remove the panel grille. |  |
| **5. Remove front panel** | |
| Remove screws fixing the front panel and then remove the front panel. |  |
| **6. Remove right side plate** | |
| Remove screws fixing connecting the front panel with the chassis and the motor support, and then remove the right side plate. |  |

| Step | Procedure |
|---|---|
| **7. Remove electric box assy** | |
| | Remove the screws fixing the electricbox; loosen the wire bundle; pull out the wiring terminals and then pull electric boxupwards to remove it. |
| |  |
| **8. Remove axial flow blade** | |
| | Remove nut fixing the blade and then remove the blade. |
| |  |
| **9. Remove motor** | |
| | Remove screws fixing the motor and then remove the motor. |
| |  |

| Step | Procedure |
|---|---|
| **10. Remove motor support** | |
| | Remove screws fixing the motor support and then remove the motor support. |
| |  |
| **11. Remove cut off valve and valve support sub-assy** | |
| | Remove screws fixing the cut off valve and then remove the cut off valve;<br>Remove screws fixing the valve support subassy and then remove the valve support subassy.<br>Note:<br>When pulling out the wiring terminal, pay attention to loose the clasp and don't pull it so hard. |
| |  |
| **12. Remove isolation sheet** | |
| | Remove the screws fixing the isolation sheet and then remove the isolation sheet. |
| |  |

| Step | Procedure |
|---|---|
| **13. Remove left side plate** |  |
| Remove the screws fixing the left side plate and the chassis, and then remove the left side plate. | |
| **14. Remove 4-way valve assy and electronic expansion valve assy** |  |
| Unsolder the welding joints connecting electronic expansion valve assy the 4-way valve assy with capillary sub-assy, compressor and condenser; remove the electronic expansion valve assy and 4-way valve.<br><br>Note:<br>Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature. | |
| **15. Remove condenser sub-assy** |  |
| Remove the screws fixing the condenser and chassis, and then lift the condenser upwards to remove it. | |

| Step | Procedure |
|---|---|
| **16. Remove compressor** |  |
| | Remove the 3 foot nuts on the compressor and then remove the compressor. |

# 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（˚F） | Fahrenheit（˚F） | Celsius（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | Celsius（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | 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（˚F） | Fahrenheit（˚F） | Celsius（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | Celsius（℃） | Fahrenheit display temperature（˚F） | Fahrenheit（˚F） | 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 (More details please refer to the specifications.)
2. Min length of connection pipeFor the unit with standard connection pipe of 5m, there is no limitation for themin length of connection pipe. For the unit with standard connection pipe of 7.5m and 8m, the min length of connection pipe is 3m.
3. Max. length of connection pipe and max. high difference.(More details please refer to the specifications.)
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):

● Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. 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 R32 | | | | |
|---|---|---|---|---|
| Piping size | | Indoor unit throttle | Outdoor unit throttle | |
| Liquid pipe | Gas pipe | Cooling only, cooling and heating (g / m) | Cooling only(g/m) | Cooling and heating(g/m) |
| 1/4” | 3/8” or 1/2” | 14 | 12 | 16 |
| 1/4” or 3/8” | 5/8” or 3/4” | 40 | 12 | 40 |
| 1/2” | 3/4” or 7/8” | 80 | 24 | 96 |
| 5/8” | 1" or 1 1/4” | 136 | 48 | 96 |
| 3/4" | / | 200 | 200 | 200 |
| 7/8" | / | 280 | 280 | 280 |

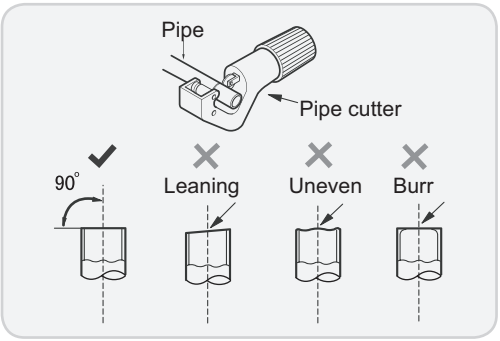
# Appendix 3: Pipe Expanding Method

⚠ **Note:**

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

A:Cut the pip

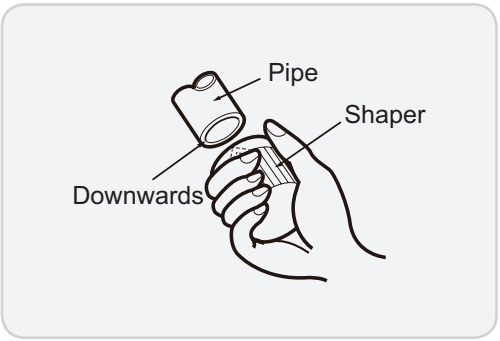
- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.




B:Remove the burrs

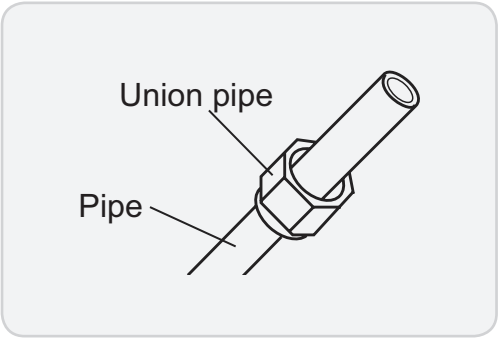
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.

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.



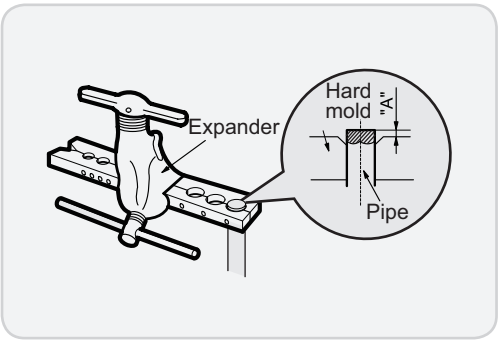

E:Expand the port

- Expand the port with expander.

⚠ **Note:**

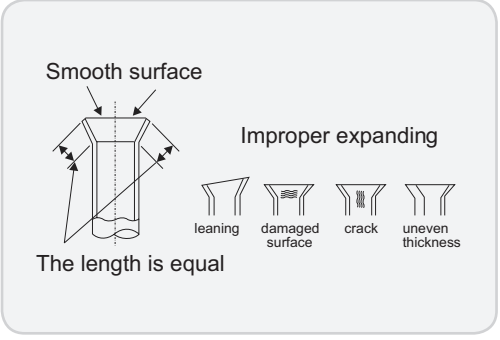
- "A" is different according to the diameter, please refer to the sheet below:

| 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 (25K)

| Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) |
|---|---|---|---|---|---|---|---|
| -19 | 138.10 | 0 | 49.02 | 20 | 18.75 | 40 | 7.97 |
| -18 | 128.60 | 2 | 44.31 | 22 | 17.14 | 42 | 7.35 |
| -16 | 115.00 | 4 | 40.09 | 24 | 15.68 | 44 | 6.79 |
| -14 | 102.90 | 6 | 36.32 | 26 | 14.36 | 46 | 6.28 |
| -12 | 92.22 | 8 | 32.94 | 28 | 13.16 | 48 | 5.81 |
| -10 | 82.75 | 10 | 29.90 | 30 | 12.07 | 50 | 5.38 |
| -8 | 74.35 | 12 | 27.18 | 32 | 11.09 | 52 | 4.99 |
| -6 | 66.88 | 14 | 24.73 | 34 | 10.20 | 54 | 4.63 |
| -4 | 60.23 | 16 | 22.53 | 36 | 9.38 | 56 | 4.29 |
| -2 | 54.31 | 18 | 20.54 | 38 | 8.64 | 58 | 3.99 |

### Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (35K)

| Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) | Temp(°C) | Resistance(kΩ) |
|---|---|---|---|---|---|---|---|
| -19 | 181.40 | 20 | 25.01 | 60 | 4.95 | 100 | 1.35 |
| -15 | 145.00 | 25 | 20.00 | 65 | 4.14 | 105 | 1.16 |
| -10 | 110.30 | 30 | 16.10 | 70 | 3.48 | 110 | 1.01 |
| -5 | 84.61 | 35 | 13.04 | 75 | 2.94 | 115 | 0.88 |
| 0 | 65.37 | 40 | 10.62 | 80 | 2.50 | 120 | 0.77 |
| 5 | 50.87 | 45 | 8.71 | 85 | 2.13 | 125 | 0.67 |
| 10 | 39.87 | 50 | 7.17 | 90 | 1.82 | 130 | 0.59 |
| 15 | 31.47 | 55 | 5.94 | 95 | 1.56 | 135 | 0.52 |

### 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) |
|---|---|---|---|---|---|---|---|
| -30 | 911.400 | 10 | 98 | 50 | 17.65 | 90 | 4.469 |
| -25 | 660.8 | 15 | 77.35 | 55 | 14.62 | 95 | 3.841 |
| -20 | 486.5 | 20 | 61.48 | 60 | 12.17 | 100 | 3.315 |
| -15 | 362.9 | 25 | 49.19 | 65 | 10.18 | 105 | 2.872 |
| -10 | 274 | 30 | 39.61 | 70 | 8.555 | 110 | 2.498 |
| -5 | 209 | 35 | 32.09 | 75 | 7.224 | 115 | 2.182 |
| 0 | 161 | 40 | 26.15 | 80 | 6.129 | 120 | 1.912 |
| 5 | 125.1 | 45 | 21.43 | 85 | 5.222 | 125 | 1.682 |

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