P/N：207188511E1

DC Split Air Conditioner User Manual

188511

T A 030/F/D

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Foreword

Summary

The manual describes the using of HRUS A 030/F/D, product composition, working principle, installation, wiring, operating instructions, routine maintenance, troubleshooting, and technical indicators.

Audience

This manual applies to the following engineers:

- Technical support engineer
- Maintenance engineer
- Marketing Engineer
- Service Engineer

Revision record

Modify records recorded the document that every time the update, the latest version manual contains all the update information

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1 Instructions

- This manual applies to the following model：T A 030/F/D.
- Read this manual before using the Air Conditioner
- Any operations not specified in this manual will cause the Air Conditioner to be out of the normal warranty service

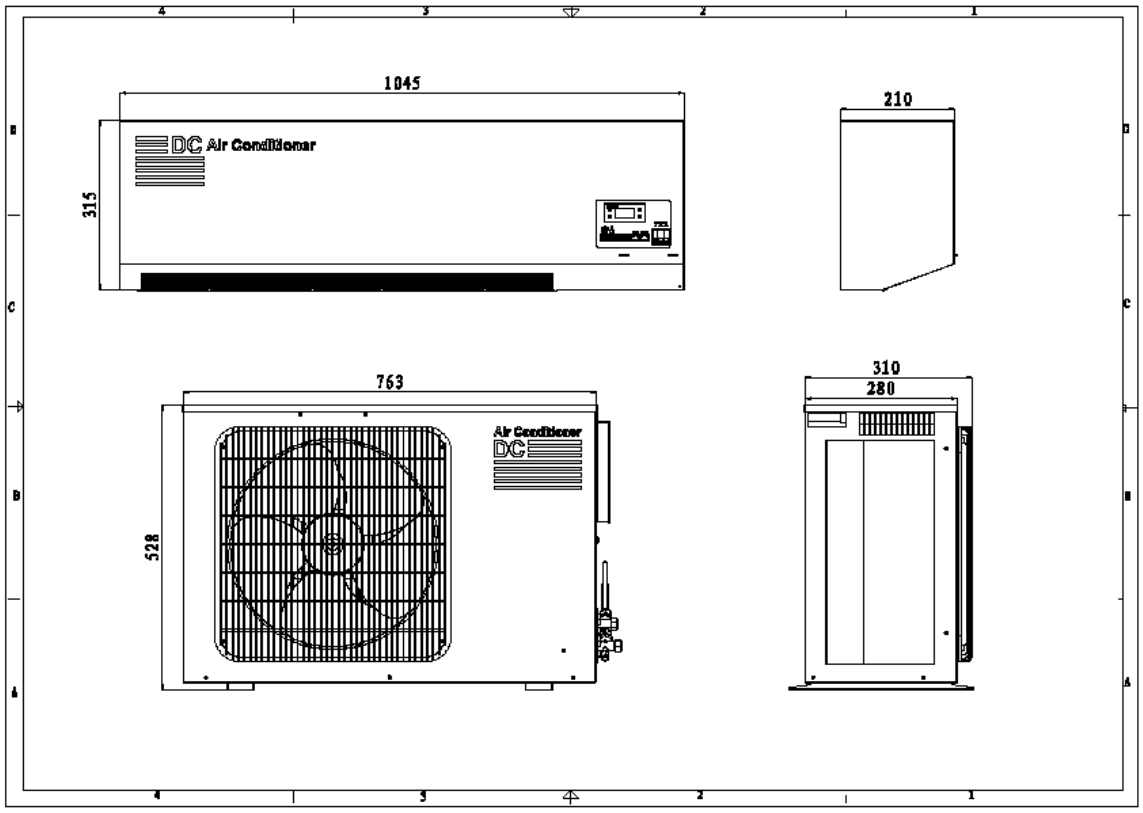
2 Product Overview

About this chapter

This chapter describes the shape, application scenarios, product nameplates, product features, product composition, technical parameters, the working principle, duct design, control logic, and communication, protocols and user parameters, alarm and fault processing ect. Please strictly in accordance with the relevant provisions of this manual!

2.1 Product appearance

Figure 2-1 Product appearance (unit: mm)



2.2 Application scences

Important

- The Air Conditioner, specially designed for communications equipment and similar industrial equipment, is a high-performance and reliable DC type air conditioner supplied with –48 V DC power. After being installed in a contained equipment room, The Air Conditioner controls the temperature inside the equipment room to be within 20°C to 40°C to ensure that all electronic components in the equipment room work properly at their optimal performance.
- We will not shoulder the responsibility for any damage caused if you use the Air Conditioner in any other application scenarios except the previous ones.

Warning

- Never turn over or excessively tilt (> 15°) the Air Conditioner when carrying or moving it.
- Store: Never store the Air Conditioner outside or in a high-temperature (70°C) and high-humidity (95% RH) environment for more than two days.
- Shutdown: Disconnect the power supply if the Air Conditioner will not be used for a long time.

Warning

- Never use the Air Conditioner in an oily or corrosive environment or expose it to explosive air. Otherwise, the Air Conditioner will be severely damaged, which is beyond our normal after-sales service.
- Unqualified personnel are not allowed to operate the Air Conditioner.
- Keep children away from the Air Conditioner.
- Replace damaged components with the qualified ones of the same specifications or from the same manufacturer.

2.3 Nameplate

Figure 2-2 Indoor unit nameplate

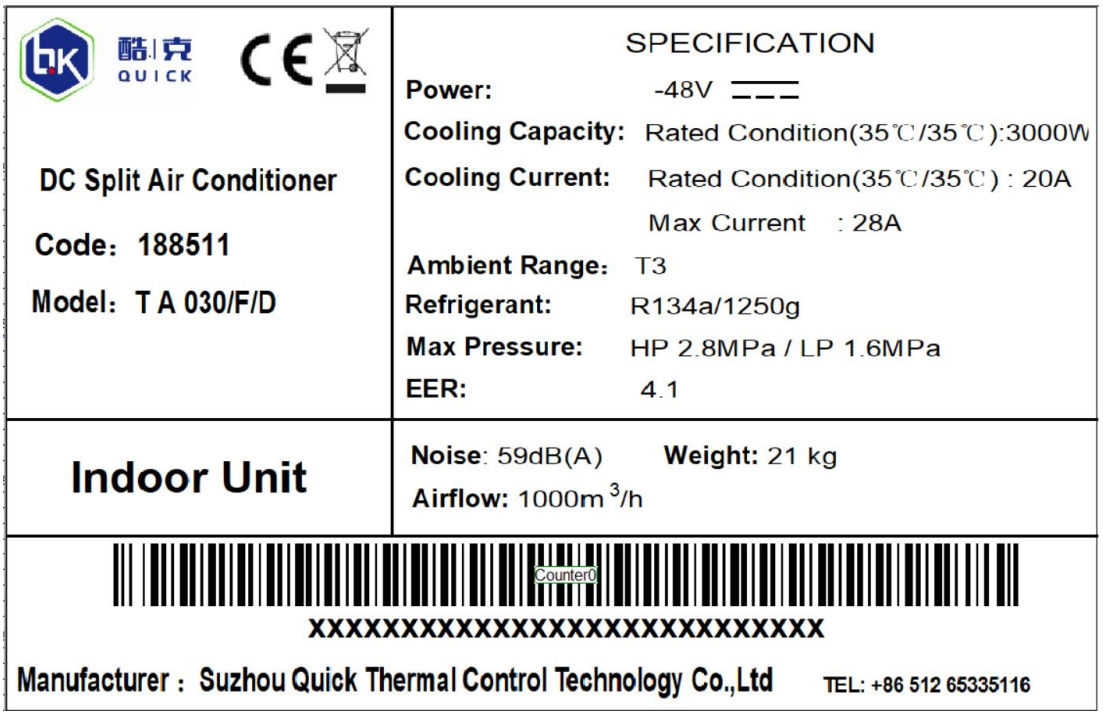
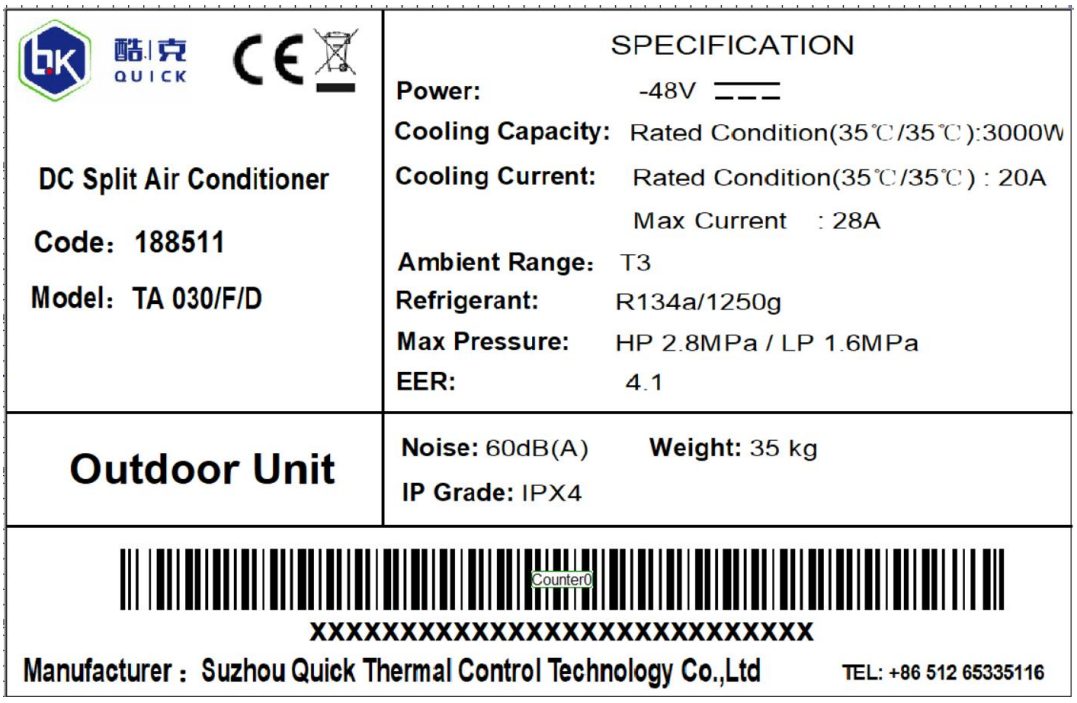


Figure 2-3 Outdoor unit nameplate



2.4 Product features

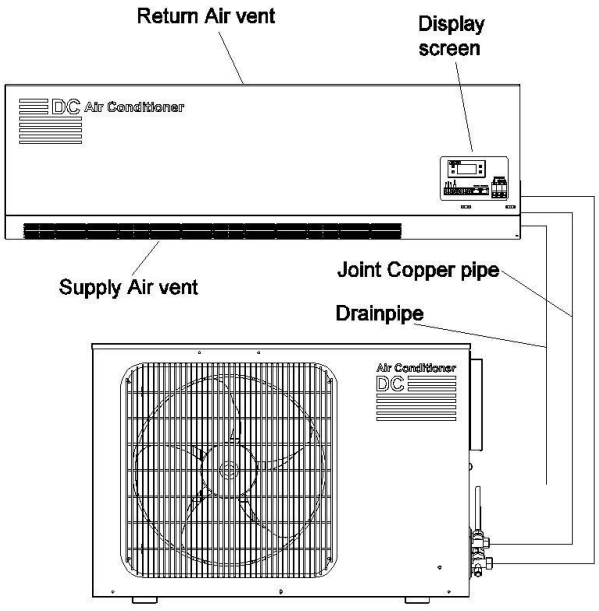
- Is configured with only DC components.
- Provides appropriate temperatures for solar, wind, and battery power supply systems.
- Refrigerates with little dehumidification capacity.
- Applies to high temperatures.
- Uses environmentally friendly R134a refrigerant.
- Starts a self-check after being started.
- Provides multiple protection mechanisms.
- Can be monitored remotely.
- Generates alarms.
- Is easy to maintain.

2.5 Product composition

The Air Conditioner includes the following components:

Figure 2-4 Components diagram

The Air Conditioner consists of an indoor unit and an outdoor unit and can be controlled by a display screen.



- Return air vent**:** draws recirculation air from the indoor unit and then filters it by using the air filter.
- Air supply vent**:** sends cool air out.
- Display screen**:** sets the return air temperature.
- Joint copper pipe**:** connects the indoor unit and the outdoor unit and provides a circulation route for refrigerant.
- Outdoor unit**:** consists of a compressor, a condenser, and an external fan.
- Drainpipe**:** exhausts condensate water in

the indoor unit out of the room.

2.6 Technical Specifications

Table 2-1 lists the Air Conditioner technical specifications.

Table 2-1 Technical specifications

Item	Specifications
Rated voltage(V)	-48VDC(-44V～-57V)
Rated refrigeration capacity (W) (L35˚C / L35˚C)	3000
Rated refrigeration capacity (W) (L35˚C / L55˚C)	2100
Rated power(W) (L35˚C / L35˚C)	960W/20A
Rated power(W) (L35˚C / L55˚C)	1100W/23A
Max current	28A
Refrigerant	R134a/1250g
Energy efficiency ratio (EER)(L35˚C / L35˚C)	4.1
Energy efficiency ratio (EER)(L35˚C / L55˚C)	2.7
Control mode	Smart control
Temperature setting range	+20～+40 ℃
Environment condition	T3
Ambient temperature range(℃)	-15~55
Relative humidity range	5~95%
Storage environmental	-20~70℃, 0~95%
Maximum noise	60
Noise (dB/A)（Indoor unit）	59
Noise (dB/A)（Outdoor unit）	60
IP protection level（Outdoor unit）	IPX4
Service life (Year)	8
Dimension W*D*H (mm)（Indoor unit） Dimension W*D*H (mm)（Outdoor unit）	1045×210×315 763×310×528

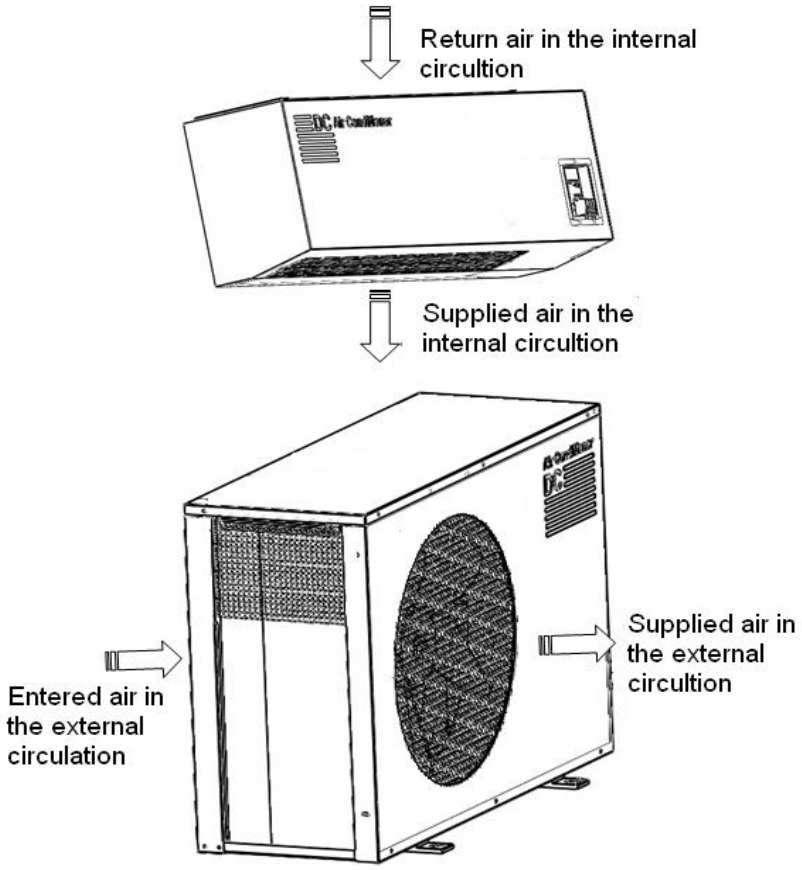
2.7 Operating Principles

- The Air Conditioner uses a compressor for refrigeration.
- The other components involved in refrigeration include the condenser, throttle valve, evaporator, internal fan, and external fan.
- Refrigeration principle: The compressor abstracts low-temperature and low-pressure gas refrigerant from the evaporator and compresses it into high-temperature and high-pressure gas refrigerant. The refrigerant then flows into the condenser and condenses into liquid refrigerant after a heat exchange with outside air. The liquid refrigerant passes through the throttle valve (with its pressure decreases) and then evaporates in the evaporator. The internal recirculation air converts into cold air because the heat is abstracted by the refrigerant in the evaporator.

2.8 Channels

Figure2-5 shows the air channels in internal and external circulations.

Figure2-5 Air channels



2.9 Control logic

- The Air Conditioner starts a self-check after being powered on.
- When detecting a fault during the self-check, the Air Conditioner generates an alarm and the monitor display alarm fault code. Then the Air Conditioner operates in a troubleshooting mode based on the alarm.
- If the Air Conditioner detects no faults during the self-check, it operates normally after the self-check succeeds.
- If the return air temperature is below 0°C, the Air Conditioner does not perform a self-check.

Self-check:

The self-check process is as follows:

1: The Air Conditioner checks the voltage

2: The Air Conditioner checks the temperature sensor

3: The internal fan starts to run at a medium speed for 1 minute

4: The internal fan stops, and the external fan starts to run at a medium speed for 1 minute

5: The internal fan starts to run again at a medium speed, and the external fan continues running at a medium speed for 1 minute

6: The internal fan runs at a medium speed, the external fan runs at a high speed, and the compressor runs at a medium speed for 2 minutes.

After self-check

- **Standby mode**

  The Air Conditioner enters the standby mode if the return air temperature is below the compressor startup temperature.

- **Cooling running**

  If the return air temperature is higher than or equal to the sum of the compressor startup temperature plus the temperature hysteresis, the Air Conditioner enables the internal fan to run for 60 seconds and then starts the compressor.The compressor runs for at least 5 minutes.

- **Refrigeration completed**

  If the return air temperature is lower than or equal to the sum of the compressor startup temperature plus the compressor temperature hysteresis and the compressor runtime is longer than or equal to the minimum runtime (5 minutes by default), refrigeration stops. In this case, the compressor shuts down.

- **Component Status**

  1. Control mode of internal fan

     Internal fan always keep running (default setting)

2. Control mode of external fan

Standby: The external fan is not running.

Refrigerating: The external fan starts as the compressor starts, and stops as the compressor stops.

3. Control mode of compressor

Standby: The compressor is not running.

Refrigerating: The compressor starts if the return air temperature is higher than the compressor startup temperature, and stops if the return air temperature is lower than or equal to the compressor stop temperature.

- **Temperature setting**

1. Before the Air Conditioner is delivered, the refrigeration temperature 25°C and the temperature hysteresis is 2.5°C. The refrigeration start temperature is 25°C + 2.5°C, and the refrigeration stop temperature is 25°C – 2.5°C. In manual setting mode, you can set the refrigeration temperature by displayscreen. (Figure 2-4)
2. When connecting the monitor of upper computer with air conditioner through RS485 “COM_IN” port, can set start temperature by upper computer.

2.10 Instructions of Display Panel

The display panel shows cabinet temperature under normal circumstance, and shows alarm code when there is a malfunction.

In the bottom is the status bar, different lamp represents different status.

You can check and set various parameters of air conditioner by the display panel (User Parameters).

Figure 2-6 the display panel diagram

Table 2-2 the meanings of lamps on the display panel

lamps	Description
	Flashing when self diagnose or temperature setting mode

	Lamp on when cooling and flash when compressor is abnormal
	Lamp on when heating
	Lamp on when external fan is running and flash when external fan is abnormal
	Lamp on when alarm

- **Parameter setting**

Long press "M" key for 5 seconds, enter the parameter setting mode, then display the code of parameters, with "▲▼" key to select the code of parameters, select a code and press "Set" button will display corresponding parameter values of the code, then re-use "▲▼" button can set the parameters, after finished the setting, press "Set "button, Password, the password is correct, click again "Set" key, the system keep new Set parameters and display End, back to display states. During the setting mode, Press "M" key to exit the parameter setting mode, in the process of the parameter values setting by pressing "M" button that give up, quit, but does not change the parameter value.

Table 2-3 describes the setting code.

Table 2-3 Setting Code

Set number	Parameter name	Default Value	Set Range	Unit
F28	Correspondence address	1	1-255	
F42	Compressor start temperature	25	18～50	℃
F43	Compressor hysteresis	2.5	1～8	℃
F29	High temperature alarm point	55	30～100	℃
F45	password	1111	0000～9999	

- **Display working voltage**

In the display return air temperature state (main interface), and press the "Set" button, the system will be the current dc input voltage value，Display format for：LXXX，unit：V; According to a "M" key, return to display return air temperature of the main interface.

- **External fan speed query**

Under the return air temperature interface, press both“▼” and “Set” button will show outside fan speed, Press the “▼” fourth will return the main interface.

- **Internal fan speed query**

Under the return air temperature interface, press both“▲” and “Set” button will show inside fan speed, Press the “▲”fourth will return the main interface.

2.11 Alarm management

- **Indicator light illustrate**

Table 2-4 describes the alarm code.

Table 2-4 Alarm Code

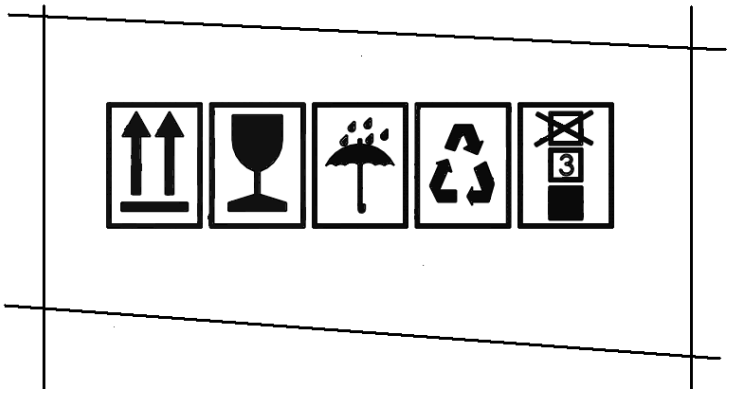
Code	Defination
E01	Internal fan alarm.
E03	External fan alarm.
E05	Compressor fault alarm
E11	Internal temperature sensor alarm
E12	Condenser temperature sensor alarm
E13	DC Power over voltage alarm
E14	DC Power under voltage alarm
E15	High temperature alarm
E17	System high pressure alarm

3 Packing and shipping

- The air conditioner is packed in wooden packing cases. The packing cases includes accessories. For details, see Table 4-1.
- During the transportation, please pay attention to the following items

Warning

Figure3-1 Packing mark



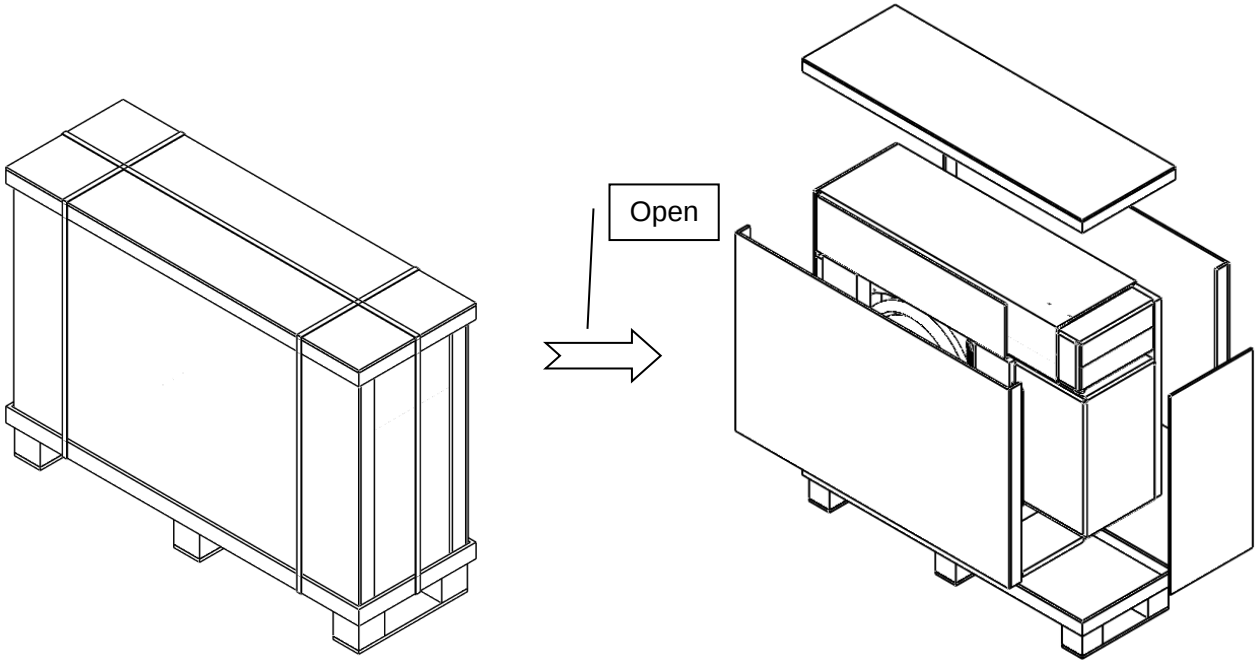
- During handling or transport, the air conditioner must be upward placed. Inversion, flat laying, excessive tilt, and collision are prohibited.
- The air conditioner is a precision instrument that should be handled with care during handling or transport. Do not step or stand on the packing cases or place heavy objects on them.
- During handling or transport, ensure that the air conditioner is not exposed to moisture, water, or rain.

4 Unpacking and Acceptance

Warning

- Make sure that the packing case stands upright as shown in Figure4-1 and Figure4-2 before you open a packing case. Check that the packing case is not damaged, deformed, or wet.
- Use a slot type screwdriver to knock on hasps, and then open the package.

Figure4-1 Open the wooden package



- Check the products against the packing list (see Table4-1)

Table 4-1 Packing list

NO.	Item	Model / Specifications	Quantity (Pcs)
1	Indoor unit	TA 030/F/D Indoor unit	1
2	Wallboard	N/A	1
3	Outdoor unit	TA 030/F/D Outdoor unit	1
4	Certificate	T A 030/F/D Certificate	1
5	User manual	188511-Ver.A	1
6	Mounting bracket	N/A	2
7	Mounting strut	N/A	2
8	Φ8 flat washer	N/A	12
9	Φ8 spring washer	N/A	12
10	M8*20 Hex bolts	N/A	12
11	M8 nuts	N/A	12
12	2.7m drain-pipe	N/A	1
13	M8 expansion screw	N/A	9
14	Φ4 rivet	SUS304	30
15	M4 expansion screw	N/A	8
16	Protection pipe	N/A	1
17	Seal mud	N/A	2
18	Wrap belts	N/A	2
19	5 mm Hex key	CRV 5mm	1
20	Cable Ties	N/A	10
21	Connection copper pipe	ϕ9.52 and ϕ12.7	1
22	Connection cable (Compressor)	5.5m	1
23	Connection cable (EXT Fan)	5.5m	1
24	RS485 Communication Cable	5m	1

5 Installation

About this chapter

Air conditioner installation and wiring

5.1 Mechanical Installation

5.1.1 Installation readiness

（1）Installation personnel

- The installation personnel must be experienced in installing split air conditioners or have been well trained in installing split air conditioners.

（2）Installation tools

Name	pictures
Hammer drill and ϕ65 drill bit	
Shifting wrench(2Pcs)	
M4 Phillips screwdriver	
M3 flat-head screwdriver	

Diagonal pliers	
Scissors	
Level instrument	
Measuring tape	
ϕ10 and ϕ6 drill bit (if bracket mounted by expansion bolts)	
ϕ4 drill bit and riveting gun (if bracket mounted by rivets)	
hammer(if bracket mounted by expansion bolts)	
Multimeter	
5 mm Hex key	

ladder	
marking pen	
Suds	None

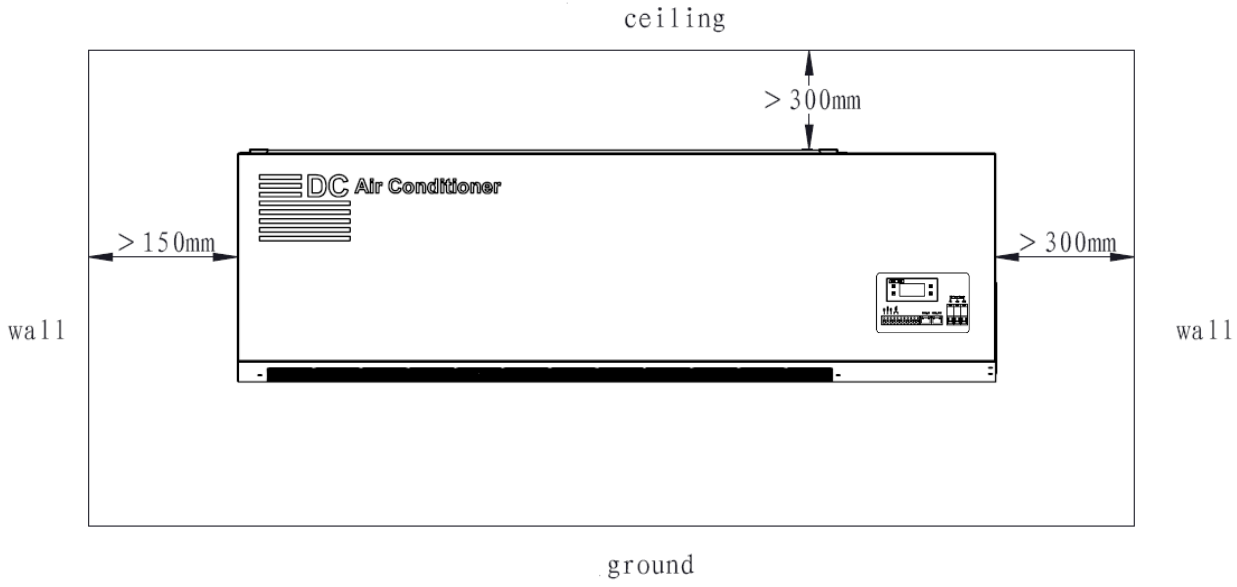
5.1.2 Installation positions

（1）Indoor unit position

Note: There are no barriers 30 cm above or below the machine

- The installation position is appropriate to ensure that equipment can be evenly cooled
- The installation position is able to bear the air conditioner
- The connection pipes and drainpipes outdoors are shortest
- There is enough space to operate and maintain the air conditioner and the air flow is smooth, as shown in Figure 5-1

图 5-1 Figure5-1



（2）Outdoor unit position

- The outdoor unit is not exposed to direct sunlight and is far away from heat sources, damp and uneven places, and flammable containers
- The installation position is cool and has good ventilation
- There is enough space to operate and maintain the air conditioner and the air flow is smooth
- The air conditioner has a strong base or installation support and is 10 cm or more above the ground to prevent damage due to moisture or corrosion.
- The machine is bolted to the base or support

5.1.3 Installing the Indoor Unit

（1）Fixing the wallboard

- Take out the wallboard from the packing case.（Figure5-2-1）
- Decide the nailing points with a level instrument but not by visual estimation, as shown in Figure 5-2. Ensure that the nailing points are horizontal.

Figure 5-2-1

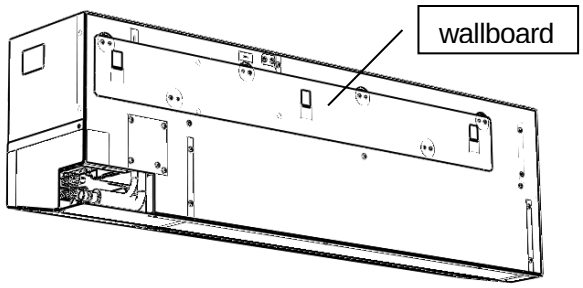
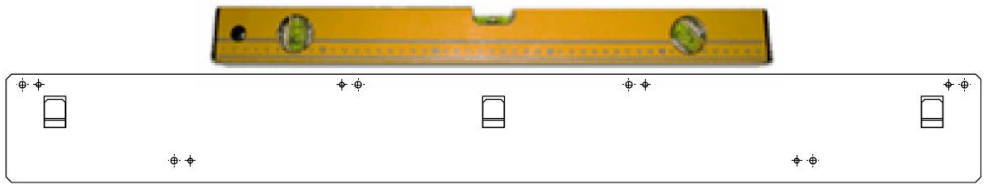


Figure 5-2

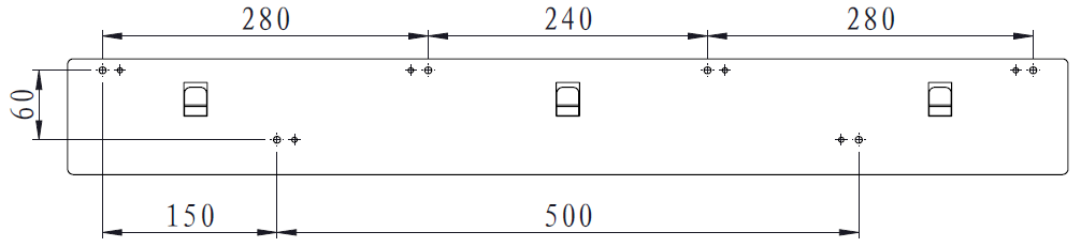


◎ **Note:**

- Ensure that the wallboard is horizontal or tilts down within 15 mm on the right side. The wallboard should not tilt down on the left side.
- Ensure that the wallboard adheres to the wall to minimize noise and vibration generated during running.

- If the wallboard is to be installed on a brick wall or concrete wall, drill holes in the wall by using a φ6 drill bit, as shown in Figure 5-3. Knock φ8 plastic expansion tubes into the holes using a hammer, and tighten M4 tapping screws into the φ6 holes in the wallboard using a Phillips screwdriver, as shown in Figure 5-5）

Figure 5-3



- If the wallboard is to be installed on an iron sheet wall, drill holes in the wall by using a φ4.2 drill bit, as shown Figure 5-4.Fix the φ4 rivets in the φ4.5 holes in the wallboard, as shown in Figure5-5）

Figure 5-4

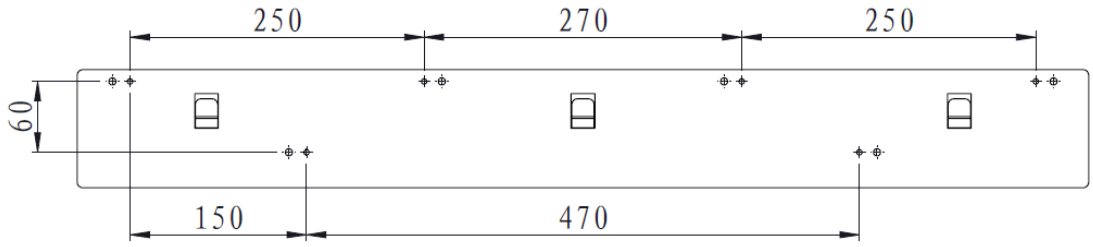
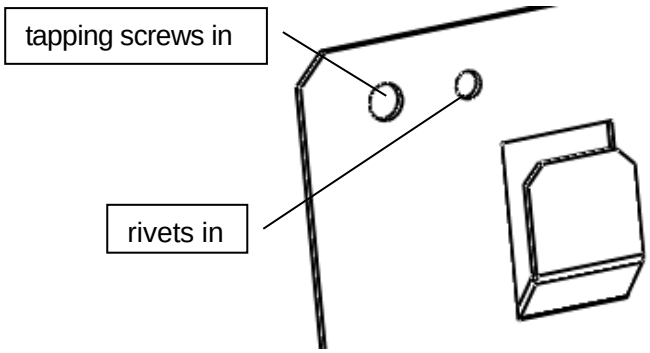


Figure 5-5



（2）Drilling a Wall Hole

◎ Note:

- Before drilling, check that there is no wire or pipe inside the wall at the target position.

- Choose the drilling position based on the air conditioner installation position and wire layout. The wall hole position should be at least 230 mm away from the lower edge of the wallboard, or at least 50 mm away from the lower edge of the indoor unit installed (Figure 5-6）

Figure 5-6

- Drill a φ65 mm wall hole
- Clean the spot

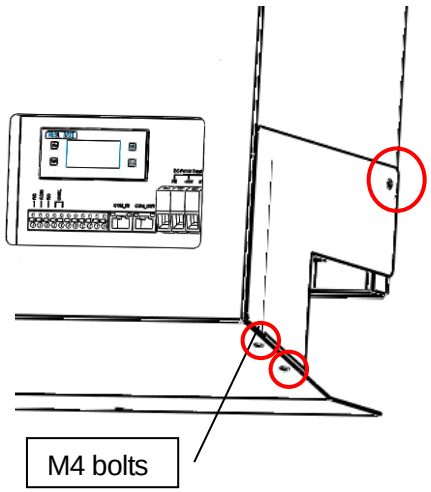
（3）Connecting Pipes and Cables to the Indoor Unit

◎ Note:

- To prevent dust, debris, and water from entering the pipe, do not remove the covers before connecting pipes .To prevent refrigerant leaks, use appropriate force to tighten the copper pipes. Ensure that the drainpipe is lower than the water outlet of the indoor unit.

- Remove the three M4 screws from the terminal block cover, as shown in Figure 5-7.

Figure 5-7



- Pull the drainpipe outlet out of the shell, as shown in Figure 5-9

Figure 5-9

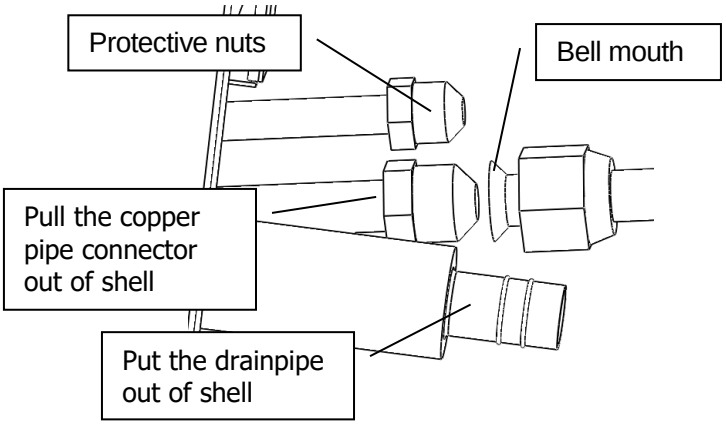
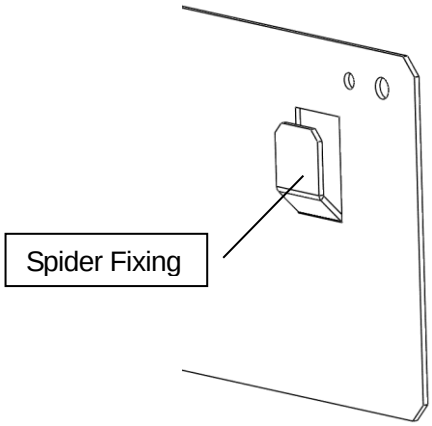


Figure 5-10



- Hang the three installation slots (shown in Figure 5-10) on the rear of the indoor unit onto the spider fixings (shown in Figure 5-11, Figure 5-10) on the wallboard and check that the indoor unit is secured.

Figure 5-11

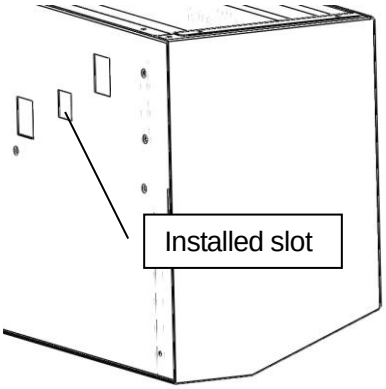
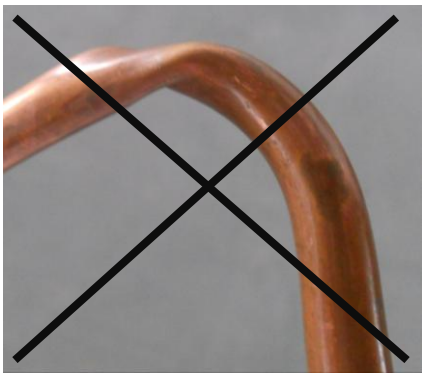
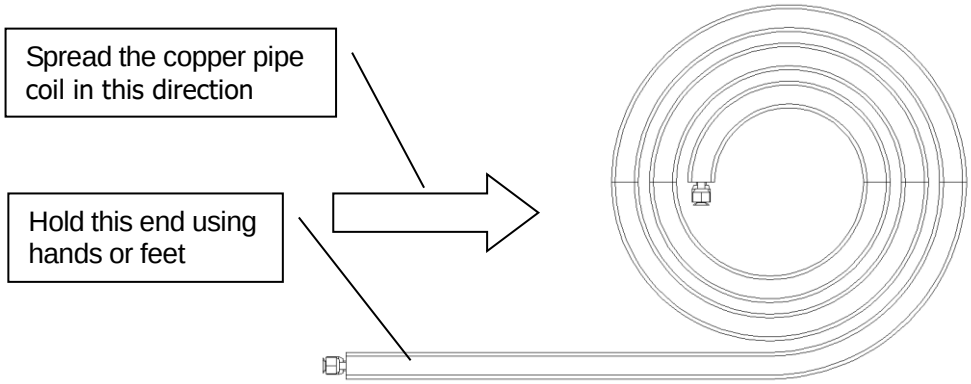


Figure 5-12



- Spread the copper pipe coil by holding the external end using hands or feet and pulling the pipe coil in the arrow direction shown in Figure 5-13.

Figure 5-13



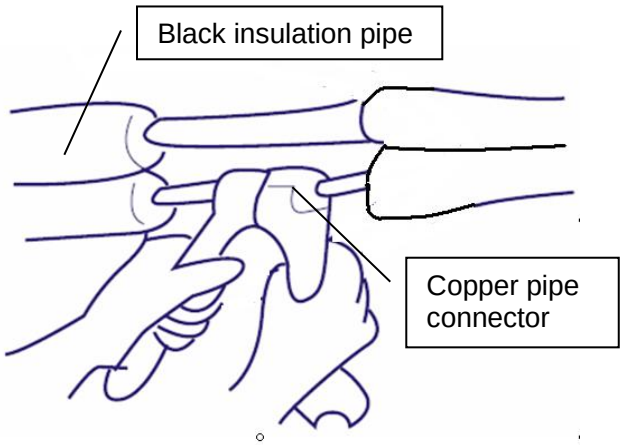
- Route the pipe and cables into the wall and bend the copper pipe gently until it connects to the connector of the copper pipe in the indoor unit.

◎ **Note:**

- To prevent copper pipe deformation shown in Figure 5-12, exert appropriate force slowly when spreading the copper pipe coil.

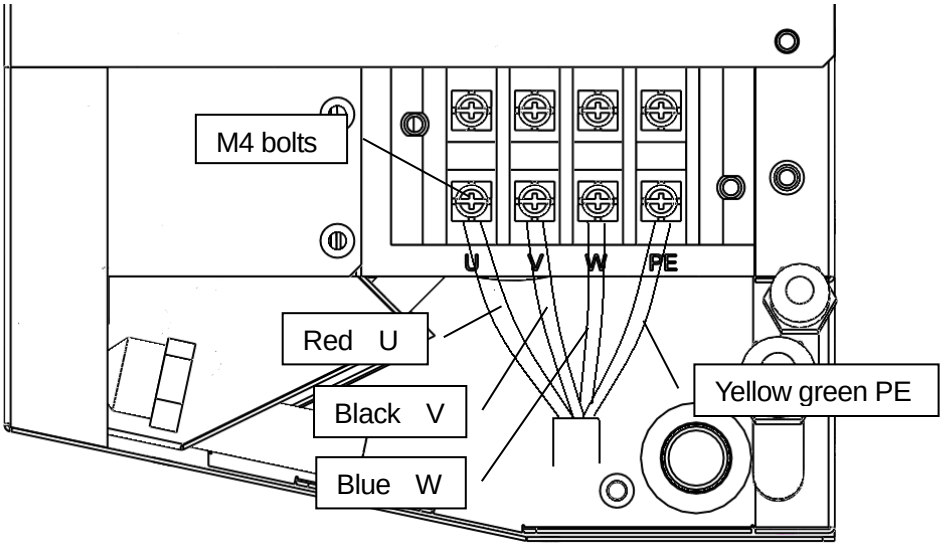
- Remove the protective nut from the copper pipe in the indoor unit and align the connector of the copper pipe with the center of the bell mouth, as shown in Figure 5-9. Then tighten the nuts using two wrenches. Pull out the black insulation pipe to cover the copper pipe connectors, as shown in Figure 5-14.

Figure 5-14



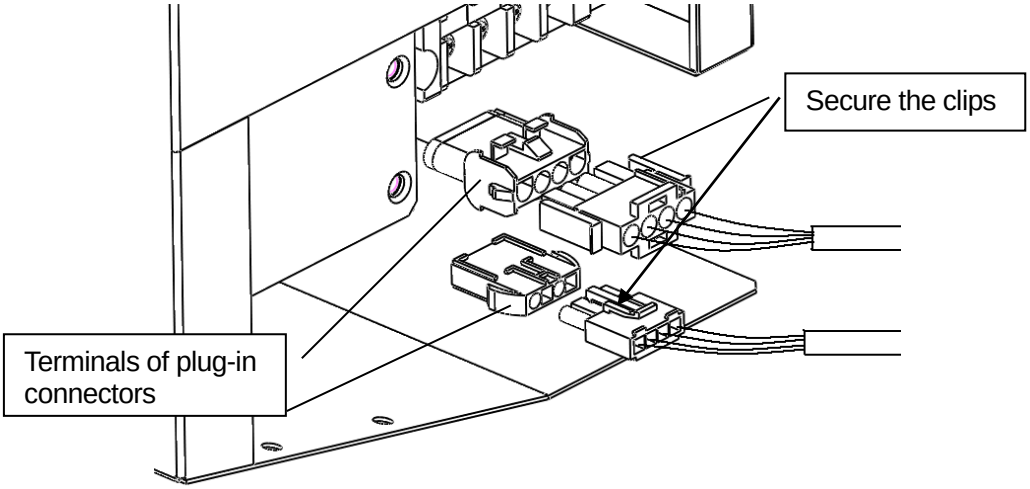
- Remove the four M4 screws from the lower row of the terminal block on the indoor unit, and use the four screws to secure the OT terminals of the compressor cable to the terminal block according to the cable colors and labels, as shown in Figure 5-15.

Figure 5-15



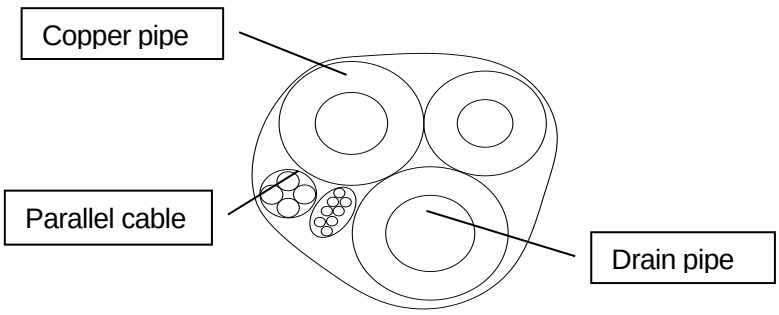
- Connect the two terminals of plug-in connectors, as shown in Figure 5-16.

Figure 5-16



- Connect the condensate pipe to the drainpipe in the indoor unit securely to prevent condensate water leaks.
- Bind pipes, cables, and the drainpipe together and ensure that the drainpipe is below the other pipes, as shown in Figure 5-17.

Figure 5-17



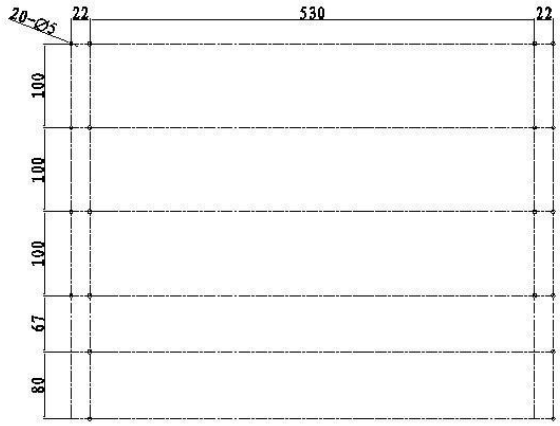
5.1.4 Installing the Outdoor Unit

- Determine the installation position by referring to "Outdoor Unit Position." Before installing the outdoor unit on a wall, ensure that the wall and supports can bear the unit weight.
- Install the board for securing the supports
- If the outdoor unit is to be installed on a brick wall or concrete wall, drill holes in the wall by using a φ10 drill bit, as shown in Figure 5-18. Knock M8 expansion bolts into the holes using a hammer,

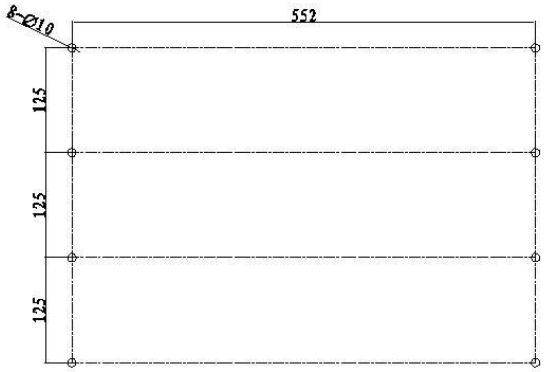
and secure the board for securing supports to the expansion bolts by using M8 nuts, as shown in Figure 5-19.

- If the outdoor unit is to be installed on an iron sheet wall, drill holes in the wall by using a φ4.2 drill bit, and secure the board for securing supports to the wall by using rivets, as shown in Figure 5-18.

Figure 5-18



Rivet hole of installation template



Expansion bolt hole of installation template

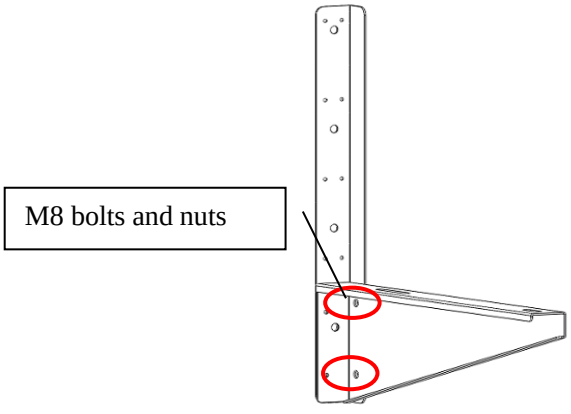


Figure 5-19

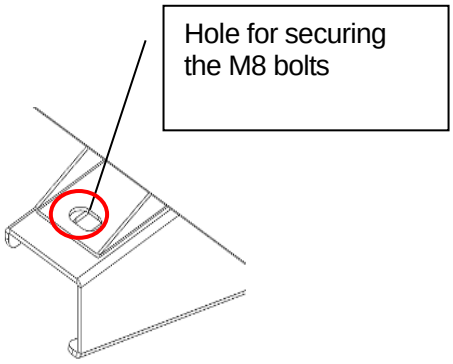


Figure 5-20

- Secure the supports using M8 bolts and nuts, as shown in Figure 5-19.
- Gently place the outdoor unit onto the supports, and secure the feet of outdoor unit to the supports using M8 bolts, as shown in Figure 5-20.

Figure 5-21

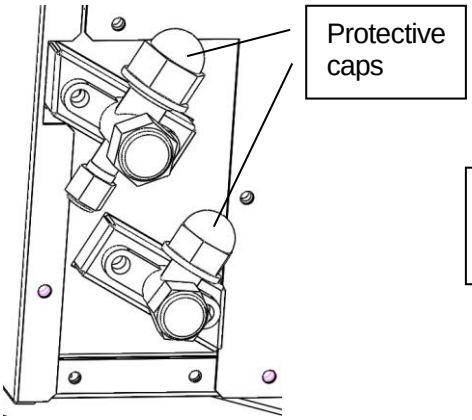
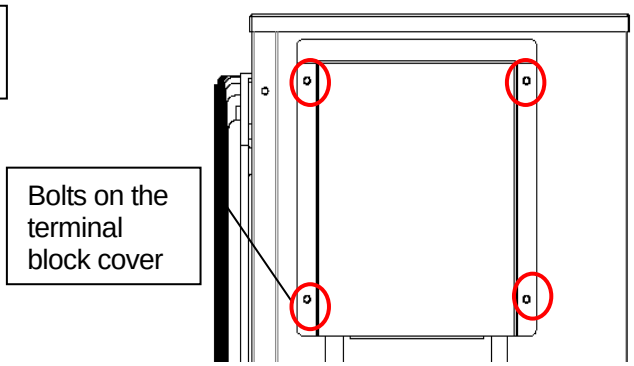


Figure 5-22



- Remove the protective caps from the stop valves, as shown in Figure 5-21. Face the copper pipe in the indoor unit to the center of the bell mouth and tighten the conical nuts using a wrench.
- Remove the six M4 screws from the terminal block cover using a Phillips screwdriver, as shown in Figure 5-22.
- Remove the four screws from the lower row on the terminal block, and use the four screws to secure the OT terminals of the compressor cables to the terminal block according to the cable colors and labels. Then bind the excess cables to the holes in the cover, as shown in Figure 5-24.

Figure 5-23

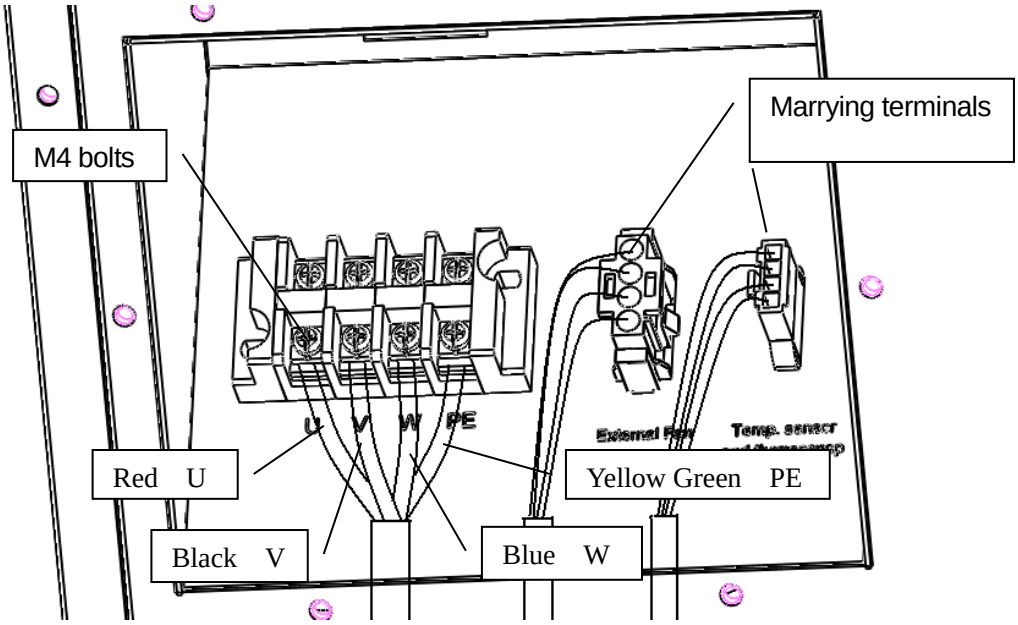
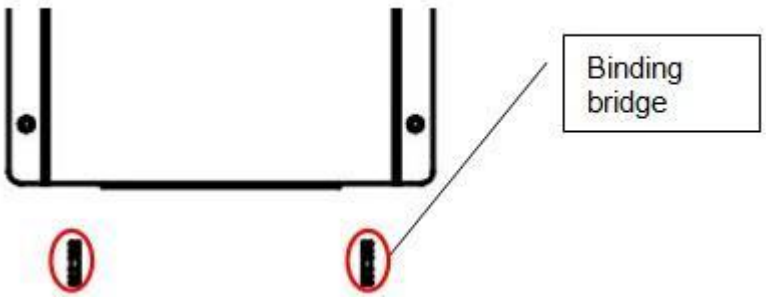


Figure 5-24



- Connect the two terminals of plug-in connectors properly, as shown in Figure 5-23. Then bind the excess cables to the holes in the cover, as shown in Figure 5-24.

Warning

To avoid accidents, do not put excess cables inside the terminal block. (Place the magnetic ring outside the terminal block cover.）

- Connect connectors securely, put on the terminal block cover, and tighten all screws.

5.2 Exhausting Air and Checking for Refrigerant Leaks

（1）Exhausting Air

- Remove the bonnets from the thick pipe valve, thin pipe valve, and air outlet, as shown in Figure 5-25.
- Open the valve plug of the thin pipe valve by rotating it counterclockwise one turn using a 5 mm hex key, and insert a sharp object into the needle valve at the air outlet, as shown in Figure 5-26.
- Air exhausts out of the air outlet of the thick pipe valve .
- Remove the needle valve at the air outlet after 20 to 25 seconds (record the time using a stopwatch)

Figure 5-25

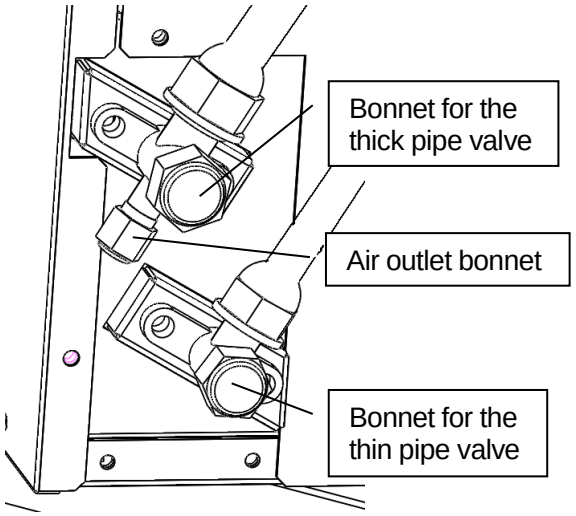
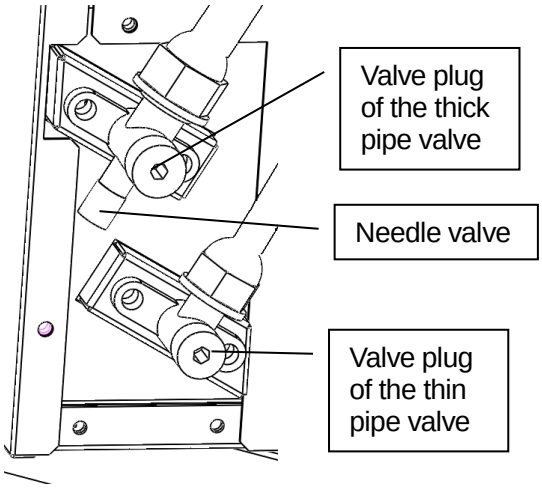


Figure 5-26



- Fully open the valve plugs of the thick pipe valve and thin pipe valve by rotating the valve plugs counterclockwise using a 5 mm hex key
- Reinstall and tighten the bonnets.

（2）Checking for Refrigerant Leaks

- Apply soapy water around every connector using a wet towel or sponge. Keep the soapy water on for at least 10 seconds. If bubbles appear, tighten the nuts.
- After checking for refrigerant leaks, remove the soapy water from the copper pipes to prevent pipe discoloration

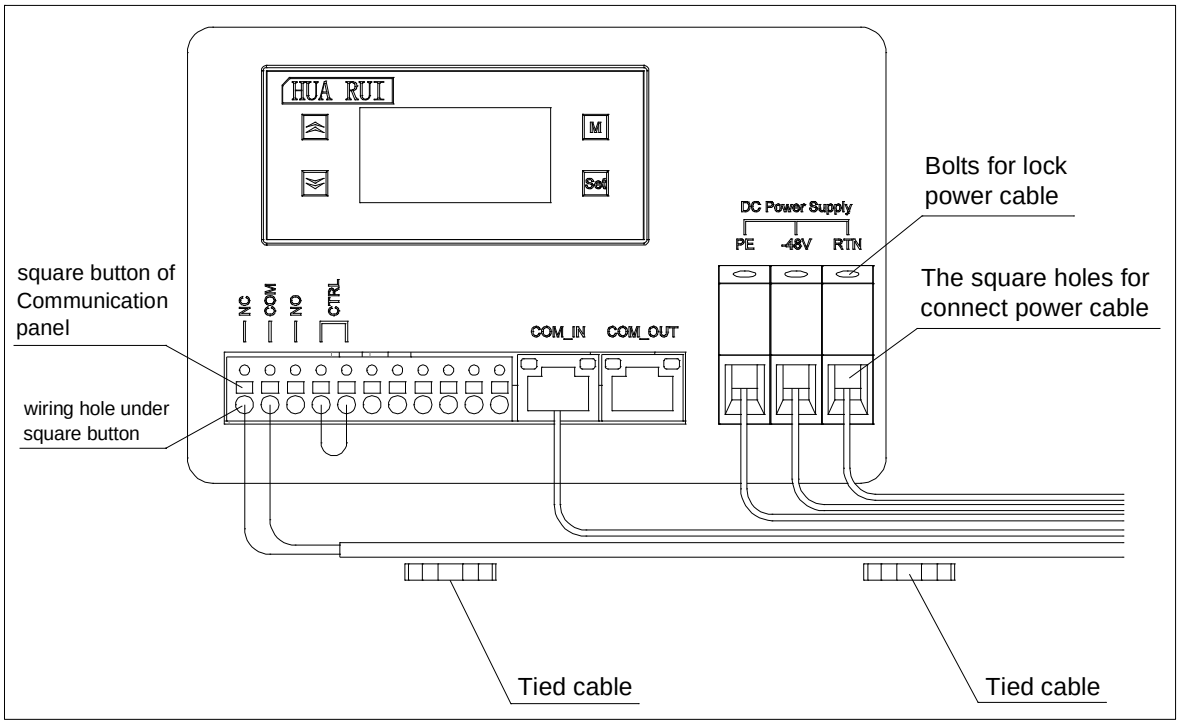
（3）Follow-up Procedure for Pipes

- Wrap the connectors in the indoor unit with insulting foam
- Route pipes straight and secure them closely to the wall .
- Seal cracks by applying sealing mud neatly.

5.3 Connecting Power Cables and Communications Cables

- The wiring method of Interface board as following: (Figure5-27)

Figure 5-27



① Connect the positive power cable to the square hole on the connector with ”RTN”, then screw the bolt on that connector to lock the power cable. Connect the negative power cable to the square hole on the connector with ”-48V”, then screw the bolt on that connector to lock the power cable. Connect the ground cable to the square hole on the connector with ”PE”, then screw the bolt on that connector to lock the ground cable.

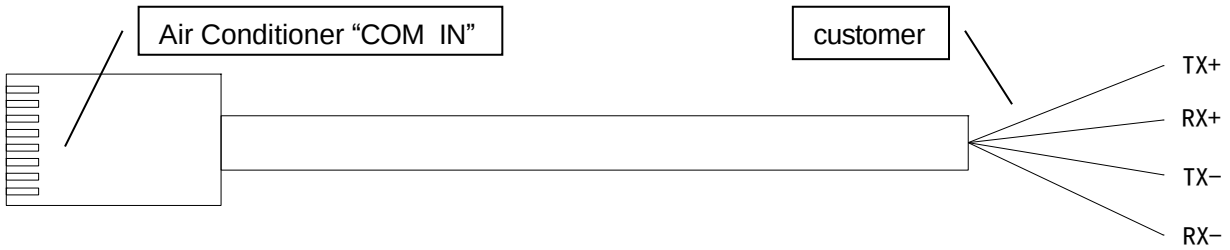
Note:

Be sure to screw tightly the bolts, to prevent wiring loose.

② Connect RS485 communication cable to the connector with “COM_IN”.

“TX+” and “RX+” connect to customer communication +

“TX-” and “RX-” connect to customer communication -



③ Connect alarm cable to the connector with “COM” and “NC” or “NO” option.

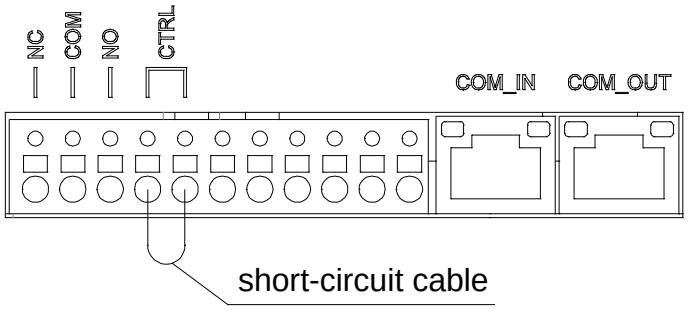
Press the square button of Communication panel with “COM” and “NC” or “NO”, Insert the alarm cable to wiring hole under that square button, then Loosen square button. Pull the alarm cable, observe whether the cable locked.

④ Connect control cable to the connector with “CTRL”.

Press the square button of Communication panel with “CTRL “ , Pull down the short-circuit cable on the terminal .then insert the control cable to wiring hole under that square button, then Loosen square button. Pull the control cable, observe whether the cable locked.

Note : If not connect this control cable, please do not pull down the short-circuit cable. (Figure5-28)

Figure 5-28



⑤ Tie the cable to the hole.

5.3.3 Set addresses

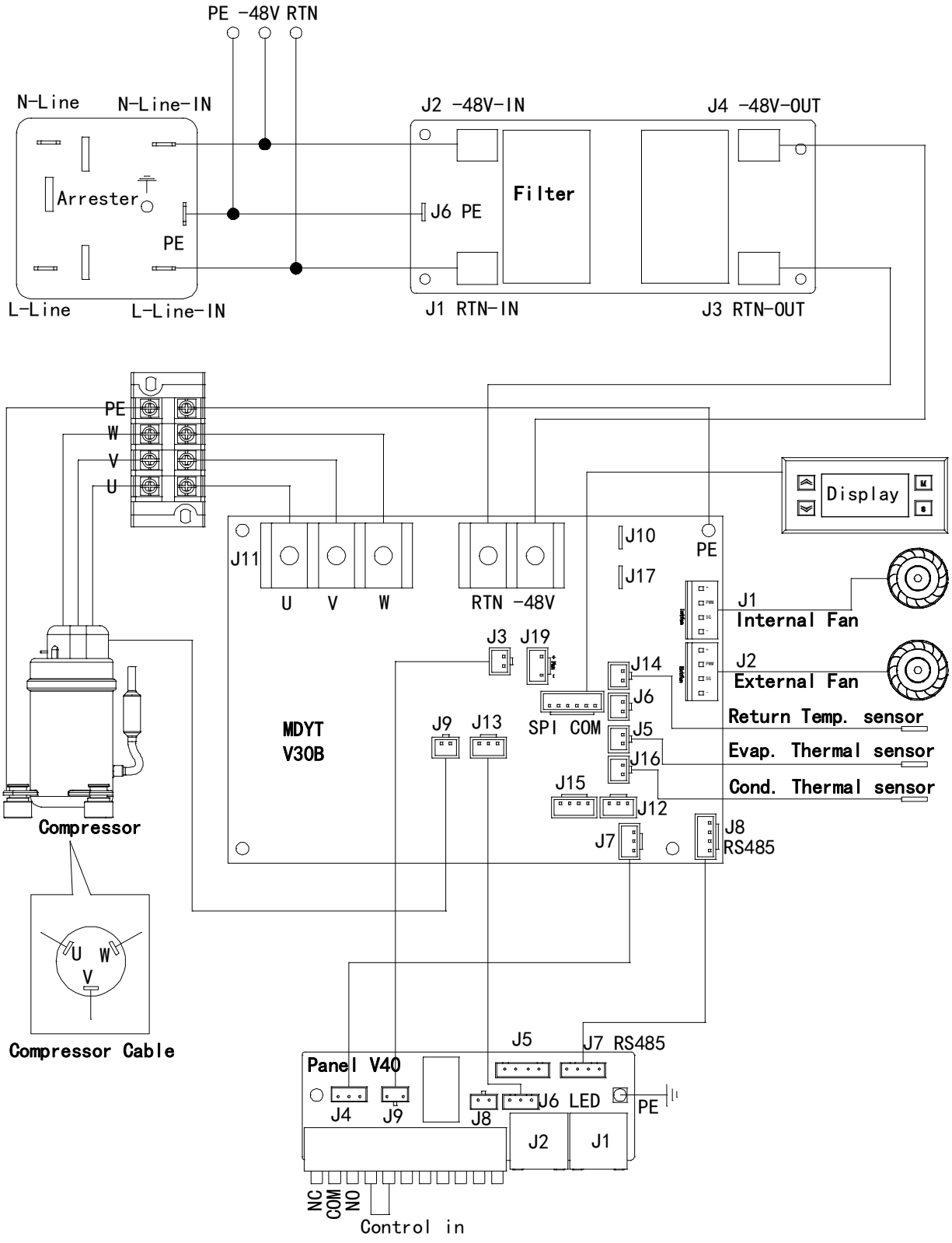
- If two Air Conditioners connect to upper computer, set the address of one of two Air Conditioners to 2,method as follow
- Long press "M" key for 5 seconds, enter the parameter setting mode, then display the code of parameters, with "▲ ▼" key to select the code of parameters to F28, then press "Set" button will display corresponding parameter values of the code, then re-use "▲ ▼" button can set the parameters, after finished the setting, press "Set "button, Password, the password is correct, click again "Set" key, the system keep new Set parameters and display End, back to display states.

Figure 5-29

- For any question, contact Our after-sales service personnel.

5.3.4 Cable Connections to the Air Conditioner Control Board

Figure 5-30 Air conditioner system wiring diagram



6 Powering On and Checking the Air Conditioner

About this chapter

Introduce the air conditioner powering On and Checking

6.1 Checking Before Powering On the Air Conditioner

- After installing and connecting the Air Conditioner, check the items listed in Table 6-1:

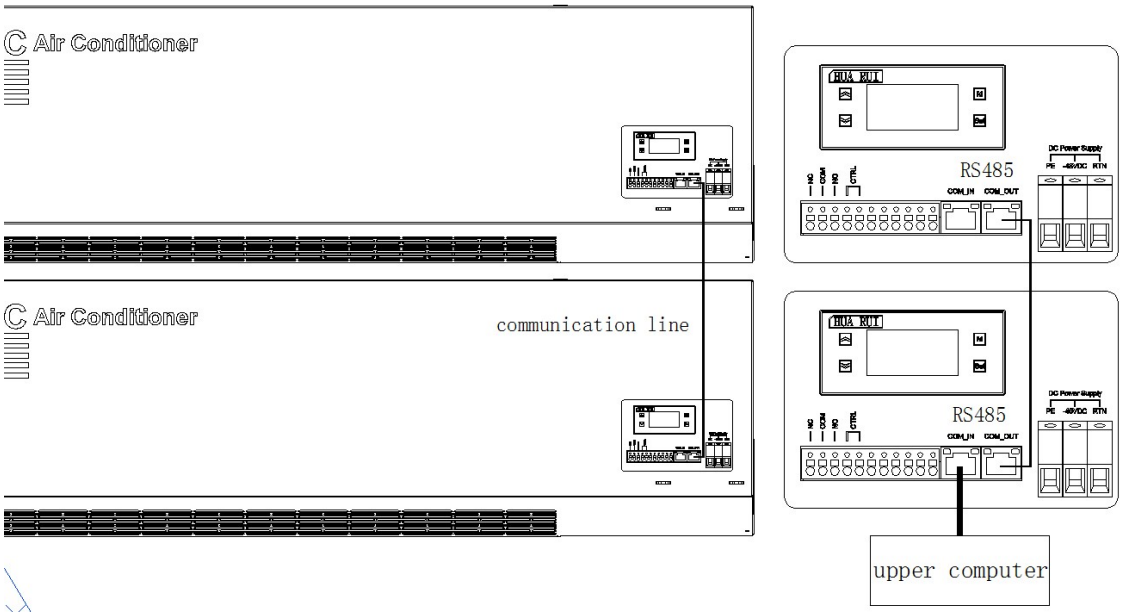
Table 6-1 Pre-operational checks

NO.	Check item
1	Screws are tightened
2	The air intake vent and air exhaust vent are not blocked
3	The power cable and alarm signal cable are connected correctly Alarm signal cables are connected correctly
4	The power supply voltage is within the normal range specified on the Air Conditioner nameplate.
5	All pipes in the fitting bag, cables, and the drainpipe for the indoor and outdoor units are connected, and the stop valve is open

6.2 Starting the Air Conditioner

- After you start the Air Conditioner, the self-check program runs. The Air Conditioner starts to run properly after the self-check.
- Two air conditioners linkage control
  1) Power on One of the air conditioner，change its address to 2 through the display screen or upper computer (This air conditioner will be the host air conditioner)
  2) Connect communication wire from another air conditioner (slave air conditioner) to the host air conditioner (see Figure 6-2).
  3) Then power on the two air conditioners.

Figure 6-2 Communication wire connection diagram



Warning

If there is any abnormal noise or vibration during the Air Conditioner power-on, disconnect the power supply and turn to professionals

Self-Check:

The Air Conditioner starts a self-check after being powered on. For details, see section 2.9 “Control Logic”.

- When detecting a fault during the self-check, the Air Conditioner generates an alarm. Then the Air Conditioner operates in a troubleshooting mode based on the alarm.
- If the Air Conditioner detects no faults during the self-check, it operates normally after the self-check succeeds.

Normally, the Air Conditioner works in standby mode and refrigerating mode. For details, see section 2.10 “Control Logic”.

7 Maintenance and Warranty

About this chapter

These chapters introduce maintenance and warranty

7.1 Maintenance

7.1.1 Tools:

Table7-2 Maintenance Tools

Number	Tools	Appearance
1	Multimeter	

Number	Tools	Appearance
2	Phillips screwdriver	
3	Flat-head screwdriver	
4	Two adjustable wrenches	

7.1.2 Common check:

- Perform a common check at least two times every year

Table7-2 Common check

NO.	Check items	Check methods	Solution
1	Power cable	1、Disconnect the power supply to the Air Conditioner 2、Pull the power cable and check whether the cable is disconnected 3、Turn the screw on the power cable terminal using a screwdriver and check whether the cable becomes loose.	If the power cable is disconnected or loose, bind the cable again with cable ties, or secure the screws using a screwdriver.
2	Stability of the input voltage	Check whether the Air Conditioner input voltage is within the normal range by suing a multimeter.	If the input voltage is beyond the normal range, disconnect the power supply immediately. Start the Air Conditioner when the input voltage is stable.

NO.	Check items	Check methods	Solution
3	Bolts for the outdoor unit	Turn the bolts using an adjustable wrench, and check whether the bolts are loose	If the bolts are loose, secure the bolts or drive rivets again
4.	Indoor unit	Check whether the panel at the rear of the indoor unit is loose	If the panel is loose, remove the indoor unit, and secure the screws or drive rivets again
5.	Pipe leakage	Apply soapy water around every joint of the pipes by using wet towel or sponge, and keep the soap water for at least 30 seconds.	If any leakage is found, secure the bolt at the joint
6	Refrigeration	When powering on the Air Conditioner after a power failure, check whether the self-check program starts properly.	1、If there is any abnormal noise or vibration during the self-check, disconnect the power supply and turn to professionals. 2、If an alarm is generated during the self-check, determine the fault based on the indicator status described in Table 2-4, and turn to professionals.

7.1.3 Maintenance and Cleaning

Warning

- Before cleaning the Air Conditioner, disconnect the power supply for safety
- Do not pour water onto the indoor unit. Otherwise, internal electrical components will be damaged, and accidents will be caused
- Clean the shell by using a vacuum cleaner or clean soft cloth.
- If dirt cannot be eliminated by using only water, dip a clean soft cloth into medium detergent and then wipe the shell by using the cloth. Exercise caution when cleaning the shell to protect the mesh from damage,

- Do not clean the indoor and outdoor units by using strong chemical products or solvent.
- Disconnect the power supply if the Air Conditioner will not be used for at least one month

（1） Air Filter for the Indoor Unit

Note:

The air filter is on the top of the indoor unit. You are advised to check or clean it at least every three months.

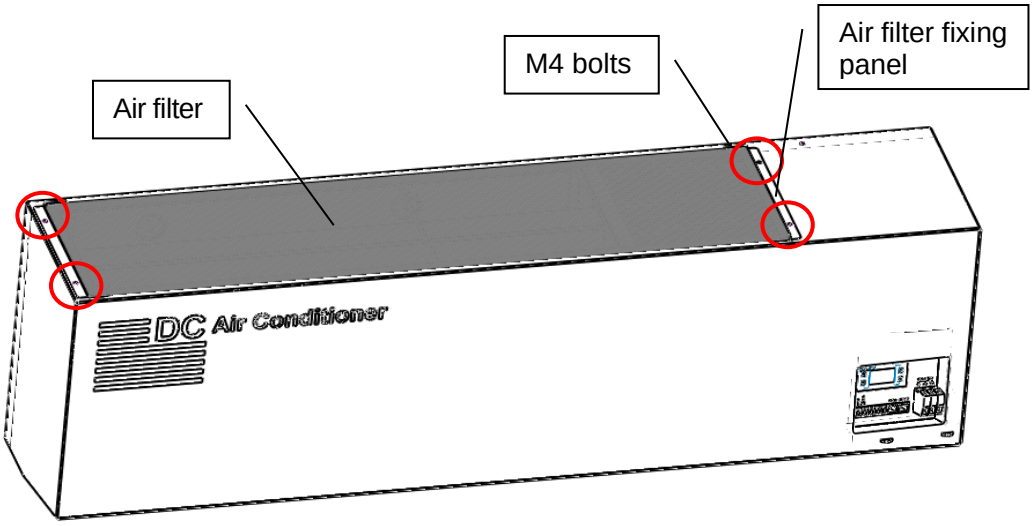
- **Remove the air filter**, as shown in Figure7-1

  ① Remove the four M4 screws that secure the air filter

  ② Remove the air filter fixing plate

  ③ Remove the air filter

Figure 7-1



- **Clean the air Filter**

  Remove dirt from the air filter by using a vacuum cleaner. If the air filter is still dirty, wash it by using warm soapy water, and then dry the filter by using dry gauze

- **Install the air filter**, as shown in Figure7-1

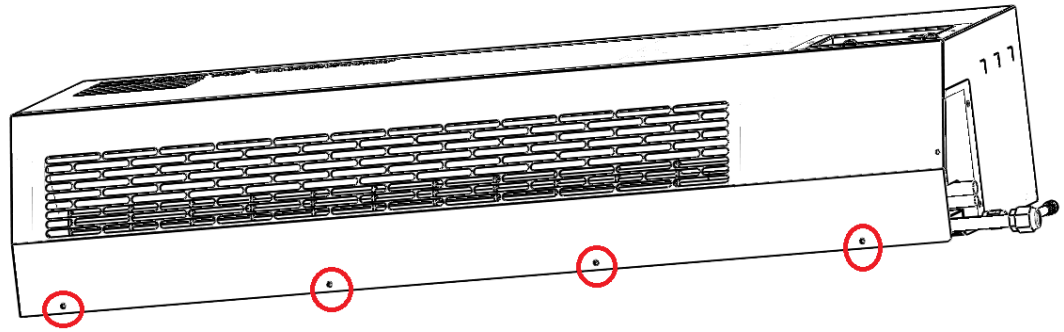
  ① Place the air filter on the top of the indoor unit, and hold down the air filter by using the fixing plate

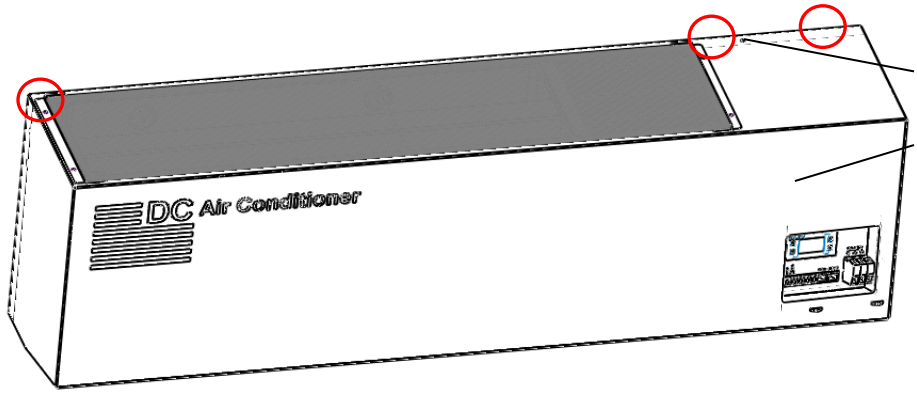
  ② Install the four M4 screws

（2） Fan motor for the Indoor Unit

- Unscrew the indoor unit shell, as shown in Figure 7-2

Figure 7-2

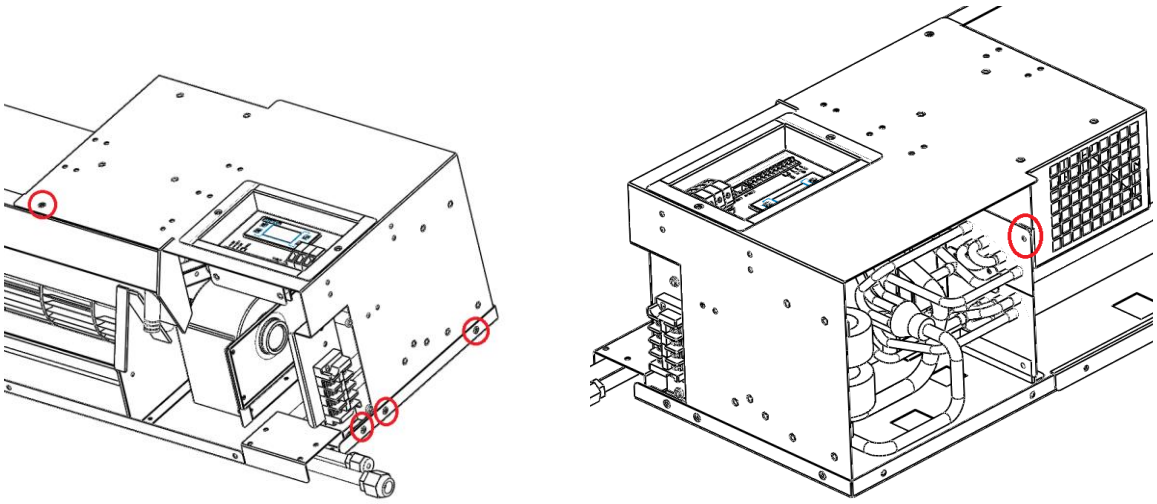




ısor, and remove

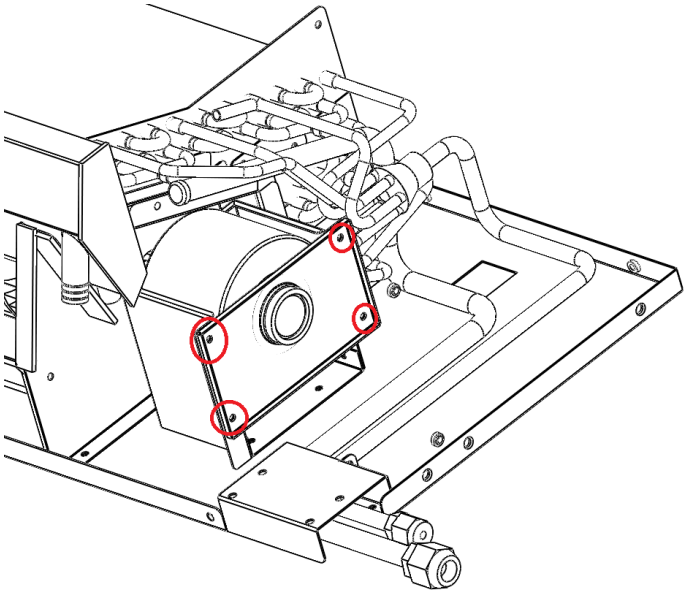
- Unscrew the control board, take out the internal fan and Evap. Thermal sensor, and remove the control board, as shown in Figure 7-3

Figure 7-3



- Unscrew the fan fixing plate and fan axis and remove the fan motor, as shown in Figure 7-4

Figure 7-4

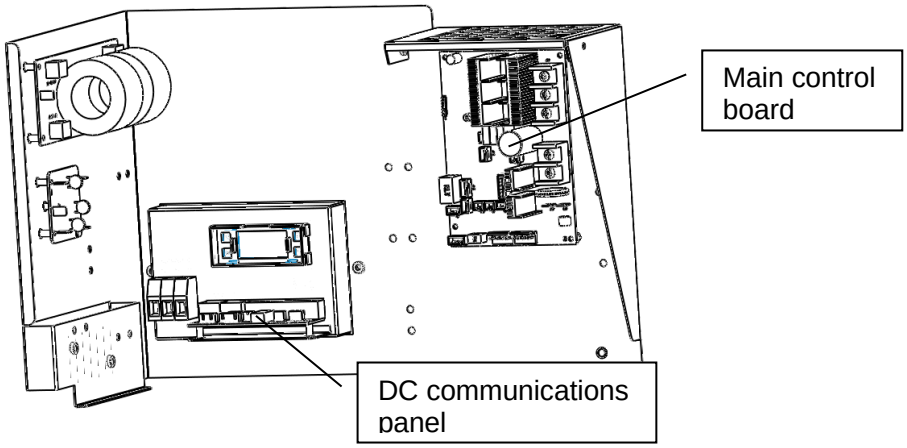


- Perform the previous steps in reverse order to install a new fan for the indoor unit.

（3） Control Board Unit (Figure7-5)

- Remove the control board, as shown in Figure 7-5

Figure 7-5



- Perform the previous steps in reverse order to install a new Control Board Unit.

（4） Cleaning the Condenser

Note:

To ensure the reliable running of the refrigerating system, clean the condenser once a year by using compressed air.

（5） Fan Motor for Outdoor Unit

- Unscrew the outdoor unit shell, as shown in
- Unscrewing the outdoor unit panel, as shown in

Figure 7-6

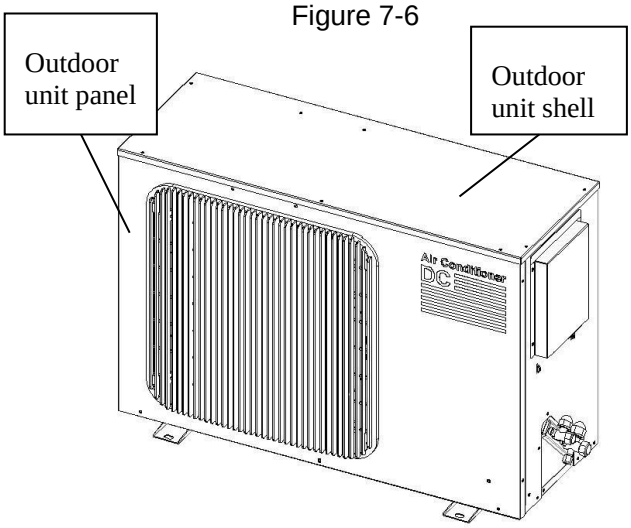
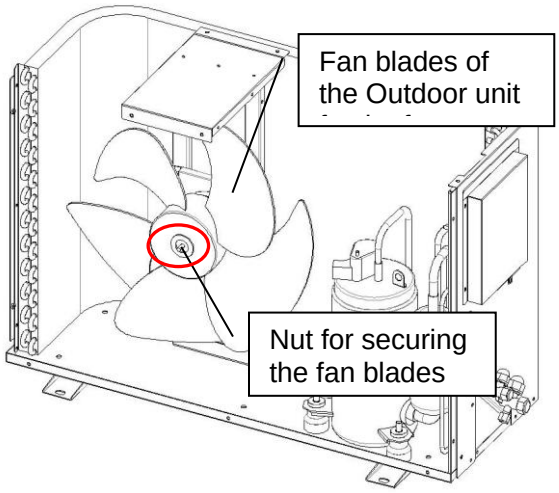
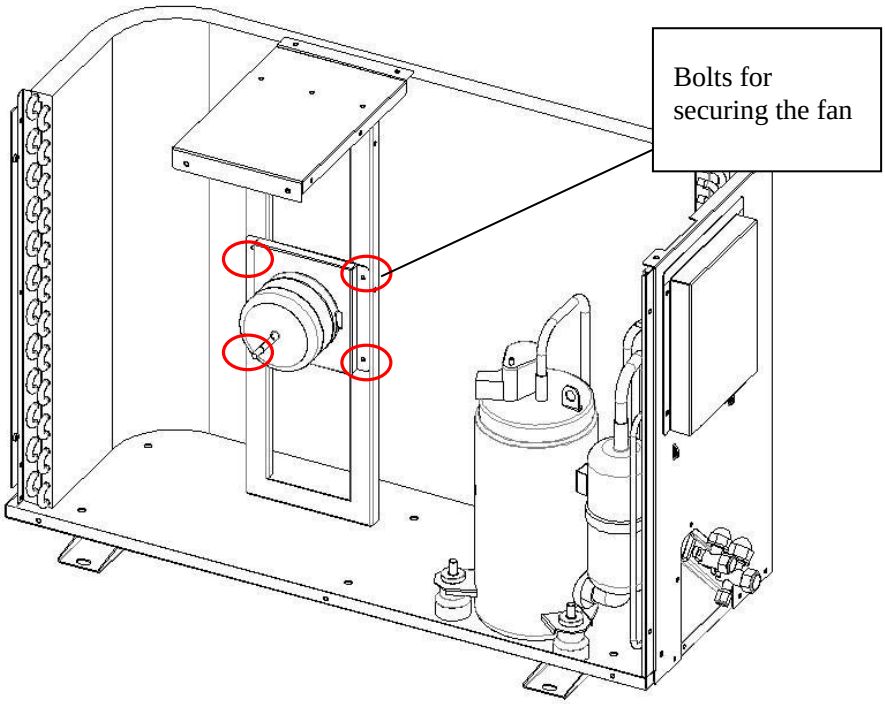


Figure 7-7



- Clean the fan blade of the outdoor unit using a brush, as shown in Figure 7-7
- Unscrew the fan blades, as shown in Figure 7-7
- Remove the fan terminals, and unscrew the fan, as shown in Figure 7-7

Figure 7-8



- Perform the previous steps in reverse order to install a new fan for the outdoor unit..

（6） Compressor

- If compressor damaged, need to be returned to factory to repair.

（7） Precautions

- Do not use organic solvent to clean the Air Conditioner
- Shut down the power before maintaining the Air Conditioner
- Disconnect the power supply if the Air Conditioner will not be used for at least one month

7.2 Other Faults and Troubleshooting Measures

Table7-3 Other faults and troubleshooting measures

Symptom	Possible Cause	Measures
After the power supply to the Air Conditioner is connected, the temperature in the cabinet exceeds the normal range, but the Air Conditioner does not work	No power is supplied	Check the power supply and circuits
	The compressor startup temperature is higher than the temperature in the cabinet	Set the compressor startup temperature as required
	A system fault occurs	Turn to professionals.
The Air Conditioner works, but the refrigeration effect is unsatisfactory	The heat generated by the equipment exceeds the Air Conditioner cooling capacity	Configure the Air Conditioner again or add Air Conditioners based on the equipment.
	The ambient temperature is higher than the maximum value	Ensure that the Air Conditioner works within a normal range.

	The air filter or condenser is dirty or blocked	Clean the air filter or condenser.
	The refrigerant is insufficient	Add refrigerant.
	A system fault occurs	Turn to professionals.
The Air Conditioner is working properly, and the electrical system is normal, but the Air Conditioner suddenly stops refrigerating.	The temperature in the cabinet equals the compressor startup temperature.	Set the compressor startup temperature as required.
	A system fault occurs.	Turn to professionals.

7.3 After-Sales Service

- **Warranty period**

  The warranty period is 12 months (starting from the time when the Air Conditioner starts to run), or extends to 18 months (starting from the time when the Air Conditioner is delivered)

- **Warranty Scope**

  During the warranty period, we will maintain the Air Conditioner that is faulty due to product problems for free. You need to provide the product number to repair the Air Conditioner.

  However, the faults due to the following reasons are beyond warranty scope.

  (1) The warranty period expires

  (2) The product number is unavailable (see the nameplate on the Air Conditioner);

  (3) The Air Conditioner works in abnormal conditions or the Air Conditioner is faulty because it is not installed, maintained, or operated as specified in this manual

  (4) The Air Conditioner is faulty due to the customer equipment or software

(5) The Air Conditioner is faulty due to the replacement, removal, or maintenance of you or unauthorized maintenance personnel.

(6) The Air Conditioner is faulty due to force majeure such as fire, earthquakes, or flood.

7.4 Exception Clauses

- We provides warranty service to delivered Air Conditioners only and is not responsible for any loss caused by faults of other equipment

Lists exception clauses for the Air Conditioner

Table 7-5 Exception clauses

Classify	Disclaimer note
System temperature	The system temperature becomes abnormal, the compressor service life is shortened, or the compressor is damaged because the Air Conditioner operates beyond a normal temperature range for a long time.
Condenser cleaning	The cooling capacity decreases because the condenser is not cleaned periodically.
Air filter cleaning	The cooling capacity decreases because the air filter is not checked or cleaned periodically.
External fan	The external fan service life is shortened or the fan is damaged because the fan operates beyond a normal temperature range for a long time.
Internal fan	The internal fan service life is shortened or the fan is damaged because the internal fan temperature is abnormal, and the abnormal temperature is not caused by any Air Conditioner faults.
Internal pipes and components	Internal pipes and components are damaged by rubbing or hitting each other, or the refrigerant leaks because of non-standard transportation operations.
Installation position	The Air Conditioner performance deteriorates or the service life decreases because the Air Conditioner is not installed in a correct position as specified.
Support	The support bearing capability decreases because the supports are not installed as specified.
Condensate draining	Condensate cannot be drained because the indoor unit is not installed as specified.
Pipe connections between the indoor unit and the outdoor	Refrigerant leaks because copper pipes are not connected according to the instructions and joints between copper pipes are not properly sealed.

Classify	Disclaimer note
unit	The Air Conditioner performance and reliability deteriorate because not all air is removed from the indoor unit and copper pipes.
	The cooling capacity deteriorates because the stop valve is not fully open.
Compressor power cable	The compressor is damaged because the power cables are not connected according to cable colors and labels.
	The compressor reliability decreases because screws are not tightened.
Cables to the external fan and temperature sensor	A false alarm is generated during operation because the terminals were not tightened when cables were connected to the external fan and temperature sensor.

8 Declaration

If the Air Conditioner service life ends or the Air Conditioner will never be used, do not dispose of it irresponsibly. Instead, submit it to a locally authorized waste collection center

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