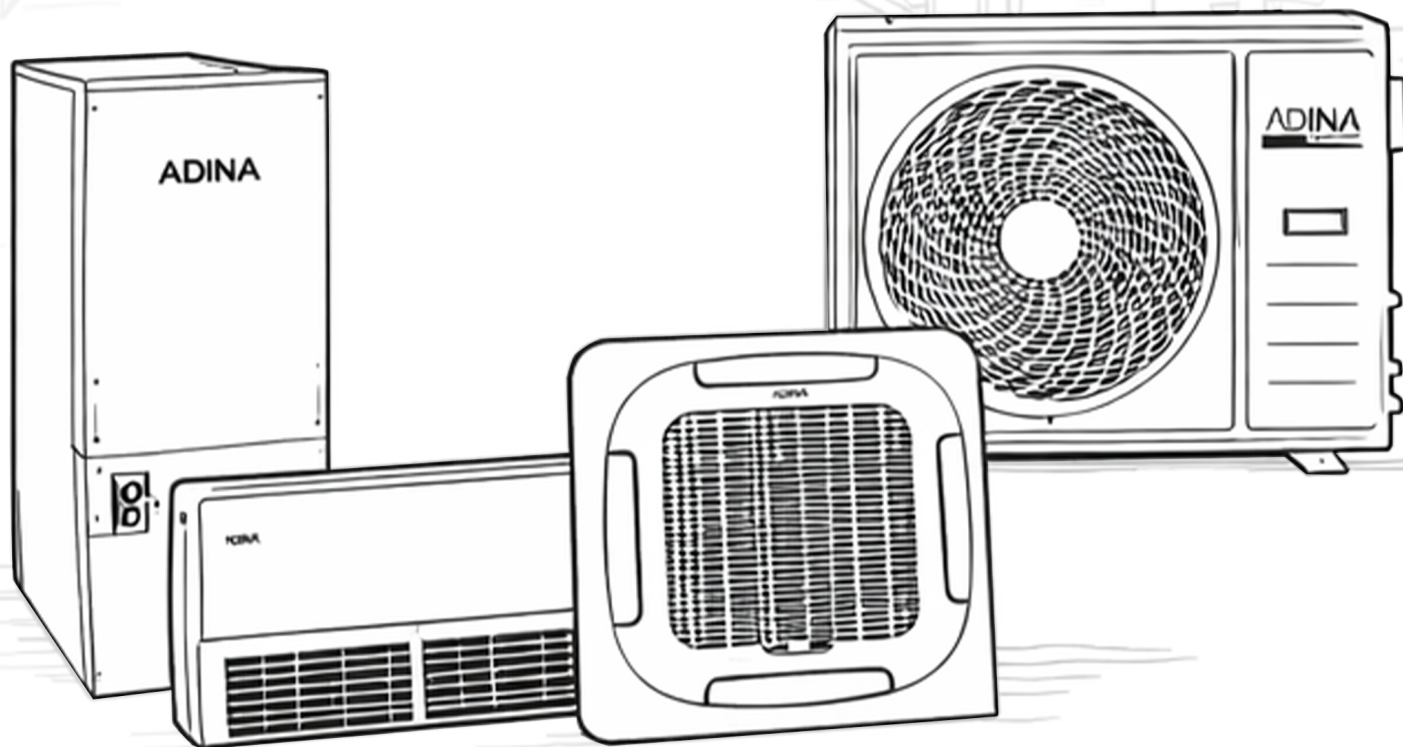




Service Manual

TITAN^{Slim} SERIES



Capacities from **2 to 5 tons**

Foreword

Thank you for choosing our U-Match air conditioners. In order to correctly install and use our units, and for the satisfactory operation effect, please read this manual carefully.

This manual specifies safe operation requirements from perspectives of product introduction, control, troubleshooting and maintenance as well as basic principles and implementation methods. Professional operators must abide by relevant national (local) safety requirements and technical specifications set forth in this manual during operations, otherwise, the air conditioning system may fail or be damaged, and personnel safety accident may also occur.

Safety Notice

	The air conditioner is charged with inflammable refrigerant R32.
	Before using the air conditioner, please read the instruction manual first.
	Before installing the air conditioner, please read the instruction manual first.
	Before repairing the air conditioner, please read the technical service manual first.

Compared with common refrigerant, R32 is an environmental-friendly refrigerant that has no harm to the ozone layer and weak greenhouse effect. Its GWP is 675. Because of its thermodynamic characteristics, R32 requires a smaller charging quantity to reach high energy efficiency. It is inflammable and odourless, but may cause explosion under certain circumstances.

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Precautions for Installation, Operation and Maintenance

Safety Precautions!

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 licensed technician according to the local regulations and Instructions given in this manual.
- Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty or any other accidents.

Warnings

Electrical Safety Precautions

- 1) Cut off the power supply of air conditioner before checking and maintenance.
- 2) The air conditioner must apply specialized circuit and prohibit it share with other appliances.
- 3) The air conditioner should be installed in a suitable location and ensure the power plug 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 power cord of the air conditioner.
- 8) The power cord and connection wires can't be pressed by hard objects.
- 9) If power cord or connection wire is broken, it must be replaced by 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 Precaution

- 1) Select the installation location according to the requirement of this manual. (For details please refer to the

installation)

- 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 and outdoor unit,a sufficient fixing bolt must be installed,make sure the installation supporter is firmly enough.
- 4) Wear the 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 left in the unit after finishing installation.

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 substances in the refrigerant circuit will cause system pressure abnormally increased or compressor broken,and even resulting in injury.

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

Otherwise,it may cause abnormal operation,wrong action,mechanical malfunction,or even serious 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 (two-way valve).About 30-40 seconds later,fully close the valve at low pressure side (3-way valve),immediately stop the unit.Please note that the time for refrigerant recover should not exceed 1 minute.

If refrigerant recovery takes too long,may cause compressor overheat,resulting in injury.

- 4) During refrigerant recovery,make sure that two-way valve and 3-way valve are fully closed and power is disconnected before detaching the connecting pipe.

If compressor starts running with the valves open,air will be sucked in and cause pressure rise and then compressor overheat or gas leak,resulting in injury.

- 5) When installing the unit,make sure that connecting pipes is securely connected before the compressor starts running.

If compressor starts running while the connecting pipes is not yet well connected,air will be sucked in and cause pressure rise and then compressor overheat or gas leak,resulting in injury.

- Prohibit installing the unit at the place where there may be leaking corrosive or flammable gas.
- 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 connection may lead to electric shock or fire.

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

 Cautions:

- Please contact the nearest after-sale service center when maintenance is necessary. At the time of maintenance, the maintenance personnel must strictly comply with the Operation Manual provided by the corresponding manufacturer and any non-professional is prohibited to maintain the air conditioner.
- It is necessary to comply with the provisions of gas-related national laws and regulations.
- It is necessary to clear away the refrigerant in the system when maintaining or scrapping an air conditioner.
- When filling the combustible refrigerant, any of your rude operations may cause serious injury or injuries to human body or bodies and object(s).
- A leak test must be done after the installation completed.

It is a must to do the safety inspection before maintaining or repairing an air conditioner using combustible refrigerant in order to ensure that the fire risk is reduced to minimum.



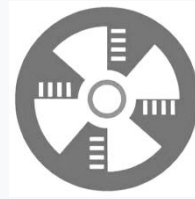
Installation Safety



Open Flames Prohibited



Mind Static Electricity



Ventilation Necessary



Must wear protective clothing and anti-static gloves



Installation Safety

- Refrigerant Leak Detector
- Appropriate Installation Location



- The left picture is the schematic diagram of a refrigerant leak detector.



Cautions:

- The installation should be in a well-ventilated location.
- When you are installing or maintaining an air conditioner using Refrigerant R32, the location should be free from fire or any other goods temperature higher than 648°C for R32 which easily produces open fire include welding, smoking, drying ovens.
- When installing an air conditioner of R32, it is necessary to take appropriate anti-static measures such as to wear anti-static clothing and gloves.
- It is necessary to choose the location for installation or maintenance where the air inlets and outlets of the indoor and outdoor units should not be surrounded by obstacles or close to any heat source or combustible and/or explosive environment.
- If the indoor unit suffers a refrigerant leak during the installation, it is necessary to immediately turn off the valve of the outdoor unit and all the personnel should go out until the refrigerant has completely leaked for 15 minutes. If the product is damaged, it is mandatory to carry such damaged product back to the maintenance station and it is prohibited to weld the refrigerant pipe or conduct other operations on the user's site.
- It is necessary to choose the place where the inlet and outlet air of the indoor unit flows evenly.
- It is necessary to avoid the places where there are other electrical appliances, power switch plugs and sockets, kitchen cabinet, bed, sofa and other valuable objects directly below the lines on both sides of the indoor unit.

Installation Safety

Tool Name	Requirement(s) for User
Mini Vacuum Pump	It should be an explosion-proof vacuum pump can ensure certain precision and its vacuum degree should be lower than 10Pa.
Filling Device	It should be a special explosion-proof filling device have certain precision and its filling deviation should be less than 5g.
Leak Detector	It should be calibrated regularly and its annual leak rate should not exceed 10g.
Concentration Detector	A) The maintenance site should be equipped with a fixed-type combustible refrigerant concentration detector and connected to a safeguard alarm system, its error must be not more than 5%. B) The installation site should be equipped with a portable combustible refrigerant concentration detector which can realize two-level audible and visual alarm, its error must be not more than 10%. C) The concentration detectors should be calibrated regularly.
Pressure Gauge	A) The pressure gauges should be calibrated regularly. B) The pressure gauge used for R22 can be used for R290 and R161, the pressure gauge used for R410A can be used for R32.
Fire Extinguisher	It is necessary to carry fire extinguisher(s) when installing and maintaining an air conditioner. On the maintenance site, there should be two or more kinds of dry powder, carbon dioxide and foam fire extinguishers and that such fire extinguishers should be placed at stipulated positions, with eye-catching labels and within easy reach.

Location Selection

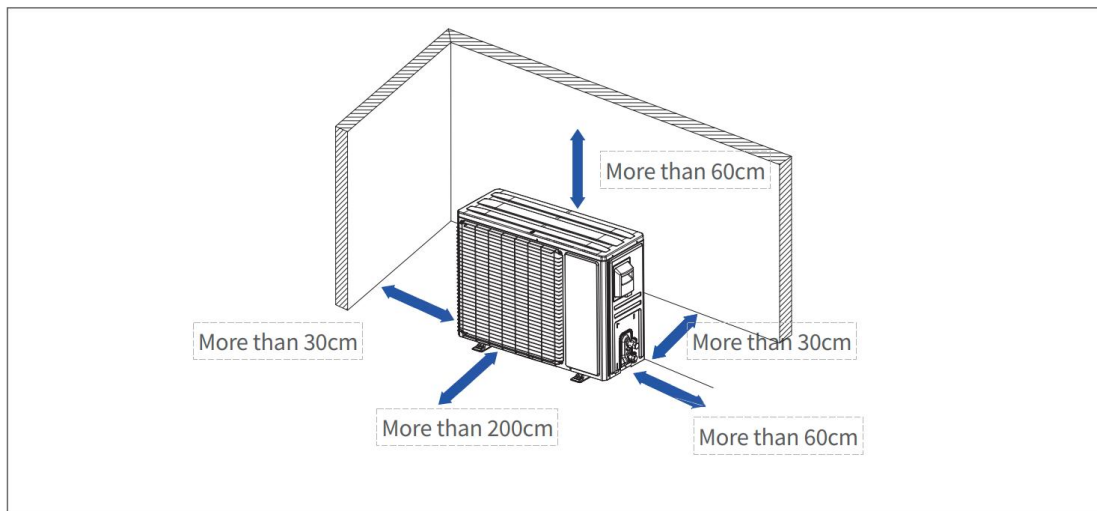
Indoor Unit Location Selection

- The place shall easily support the indoor unit's weight.
- The place can ensure the indoor unit installation and inspection.
- The place can ensure the indoor unit horizontally installed.
- The place shall allow easy water drainage.
- The place shall easily connect with the outdoor unit.
- The place where there is good air circulation.
- There should not be any heat source or steam near the unit.
- There should not be any oil vapor near the unit.
- There should not be any corrosive gas near the unit.
- There should not be any salty air near the unit.
- There should not be strong electromagnetic waves near the unit.
- There should not be inflammable materials or gas near the unit.
- There should be no excessive voltage fluctuation.

Outdoor Unit Location Selection

- The place should be sufficient to support the weight of the outdoor unit.
- Locate the outdoor units as close to indoor unit as possible.
- The piping length and height drop can't exceed the allowable value.
- The place where the noise, vibration and outlet air do not disturb the neighbors.

- There is enough room for installation and maintenance.
- The air outlet and the air inlet are not impeded, and not face the strong wind.
- It is easy to install the connecting pipes and cables.
- There is no danger of fire due to leakage of inflammable gas.
- It should be a dry and well ventilated place.
- The support should be flat and horizontal.
- Do not install the outdoor unit in a dirty or severely polluted place, so as to avoid blockage of the heat exchanger in the outdoor unit.
- If a structure is built over the unit to prevent direct sunlight, rain exposure, direct strong wind, snow and other debris accumulation, make sure that heat radiation from the condenser is not restricted.



1. Inspections before maintenance.

1) Inspection of maintenance environment

- There should be no leaking refrigerant in the room before operation.
- It is only allowed to operate in a room which meets the area requirement on the nameplate.
- It is necessary to make the room keep a continuous ventilation state at the time of maintenance.
- The room in the maintenance should be free from fire or welding, smoking, drying oven or all other materials temperature higher than which easily produces fire.
- During the maintenance, it is necessary to ensure that any person's any mobile phone or any electronic product with radiation in the room is powered off.
- The maintenance area should be equipped with a dry powder or carbon dioxide fire extinguisher and that such fire extinguisher can work.

2) Inspection of maintenance equipment

- Check the maintenance equipment is suitable for the refrigerant or not and it is only allowed to use the professional equipment recommended by the air conditioner manufacturer.
- Check the refrigerant leak detector if it has been calibrated. The set maximum alarm concentration of the refrigerant leak detector should not exceed 25% of the lower explosion limit (LEL), the refrigerant leak detector must be working during maintenance.

2. Inspection of air conditioner

- It is necessary to ensure that the air conditioner is in reliable ground connection before maintenance.
- Make sure power supply to air conditioner is off. Before maintenance, it is necessary to cut off the power and discharge the capacitor's charge used in the air conditioner. If it is necessary to have the power supply during the maintenance, it is necessary to do ongoing leakage detection at the most dangerous position/point in order to avoid potential danger.
- Check the warning labels on the air conditioner whether are in good condition. It is necessary to replace the damaged or smeared warning labels.

3. Leak inspection before maintenance

Before maintenance, use the leak detector or concentration detector (pump-type) recommended by the corresponding air conditioner manufacturer to check for any leaks in the air conditioner.

Warnings

If a leak may exist, it is necessary to remove all sources of fire from the site or extinguish fire and then immediately shut off the air conditioner. Meanwhile, it is necessary to make sure well-ventilated.

4. Safety principles during the maintenance

- At the time of maintenance, it is necessary to ensure proper ventilation on the site.
- It is prohibited to use fire including welding, smoking or other purposes. It is prohibited to use mobile phones.
- At the time of maintenance, if the relative humidity is below 40%, it is necessary to wear anti-static clothing and gloves.
- If the flammable refrigerant is found leaking during the maintenance, it is a must to immediately activate forced ventilation and locate and seal the leak source.
- If the product is damaged to the extent that it is a must to open the refrigerating system for maintenance, it is a must to carry the product back to the service center for repair. (It is prohibited to weld the refrigerant pipe and do other operations on the user's site.)
- It is necessary to return the air conditioner to its initial state if it is necessary to provide visiting service again due to lacking spare parts during the maintenance. Moreover, it is a must to ensure that the refrigerating system is in safe ground connection.
- If it is necessary to provide visiting service with a refrigerant cylinder, the volume of refrigerant filled in such refrigerant cylinder should not exceed the specified value. When such cylinder is stored in a vehicle or placed on the installation or maintenance site, it is necessary to place it vertically and securely and keep it away from any place where there is any heat source, combustion source, radiation source or electrical equipment.

5. Requirements for the site of maintenance station

- The maintenance location should be well-ventilated, with level ground and not in a basement.
- The maintenance should be divided into welding and non-welding areas both of which should be labeled clearly. There should be a certain safety distance between the two areas. The maintenance location should be equipped with ventilating and air-exhausting equipment to prevent the refrigerant gas from aggregating.

- It is necessary to provide some relevant instruments such as combustible refrigerant leak detector and have a leak detecting instrument management system. It is necessary to confirm that the leak detector can work normally before maintenance.
- The main power switch should be set outside the maintenance location and equipped with protective (explosion-proof) devices.
- It is necessary to provide firefighting devices such as dry powder or carbon dioxide fire extinguisher appropriate for extinguishing the electrical fire and keep such firefighting devices in a usable condition.
- Temporary wires and sockets are prohibited at the maintenance location.

6. Requirements for filling the refrigerants

- It is necessary to use nitrogen to clear the circuit system before operating the refrigerating system and vacuum the outdoor unit for at least 30 minutes.
- It is necessary to ensure that there is no cross contamination among different refrigerants when the refrigerant filling device is used. The total length including the refrigerant pipeline should be as short as possible in order to reduce the residual refrigerant inside these pipelines.
- It is necessary to vertically place the refrigerant storage tanks.
- It is necessary to ensure that the refrigerating system is in ground connection before the refrigerant is filled.
- When filling the refrigerant, it is necessary to fill corresponding type and volume of refrigerant as per the requirements on the product nameplate and overfilling is prohibited.
- It is necessary to seal the system in a safe sealing way after maintaining the refrigerating system.
- It is necessary to ensure that the maintenance will not damage or reduce the safety protection grade of the original system.

7. In-maintenance welding

- It is necessary to ensure that the maintenance location is well-ventilated.
- Before welding the outdoor unit, it is a must to confirm that the refrigerating system has been drained and the system has been cleaned and ensure that there has been no refrigerant in the outdoor unit.
- It is necessary to close the stop valve of the outdoor unit when using a welding gun to do the maintenance work such as cutting and welding.

8. Maintenance of electrical components

- It is necessary to use a special leak detector to check whether the maintained electrical parts location have the leaking refrigerant.
- It is not allowed to refit, remove or cancel any component with the safety protection function after finishing the maintenance process.
- When maintaining the sealed parts, it is necessary to turn off the power of air conditioner before opening the sealing cover. When power supply is needed, it is necessary to do the ongoing leak detection at the most dangerous position in order to prevent potential danger.
- It is necessary to specially note that the maintenance of electrical components will not affect the replacement of protective cover.
- In order to ensure that the sealing function is not damaged after maintenance or the sealing material will not lose the effect of preventing the combustible gas leak due to ageing. So the substitute components should

meet the requirements recommended by the air conditioner manufacturer.

Warnings

- Before doing the trial operation after finishing the maintenance, it is a must to use a practical leak detector to inspect the leakage and reliability of ground connection in order to ensure that no refrigerant leakage and reliable ground connection.
- The refrigerant storage tanks should be stored separately in a well-ventilated location at the temperature range from -10°C to 50°C and label them appropriately with warning labels.

9. Emergency Accident Handling

A maintenance station should establish emergency response plans. It is necessary to take appropriate precautionary measures in the workplace. For example, it is prohibited to enter the location with any flammable materials and it is prohibited to wear clothing or shoes which easily produce static.

Handling suggestions when a large amount of combustible refrigerant leaks:

- It is necessary to immediately operate the ventilating equipment while cutting off other power supply and evacuating the affected personnel urgently from the location.
- It is necessary to inform near residents of evacuate to a distance of over 20 meters from the location, sound an alarm, mark the emergency area and prohibit irrelevant personnel and vehicles from approaching.
- The professional firefighters should wear anti-static protective clothing to handle the emergency on the site and cut off the source of leak.
- It is necessary to use nitrogen for blow the site, especially the low-lying positions, clear away the residual flammable refrigerant gas from any area nearby and surrounding the leak point and use a handheld detector for detection and not clear the alarm until the refrigerant concentration is zero until the concentration of refrigerant is zero.

1 Model List

1.1 Indoor Units

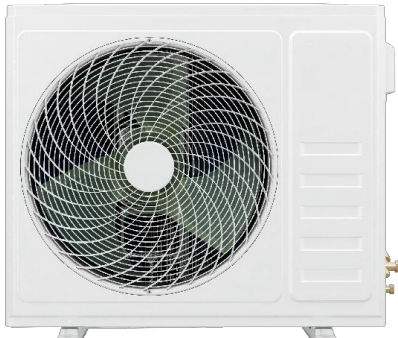
Type	Model Name	Nominal Capacity Cooling (w)	Power Supply (V/Ph/Hz)	Appearance
Cassette Type	TCC-24CCRH/DV2I-C	7034	208-230V~1ph 60Hz	
	TCC-36CCRH/DV2I-C	10550	208-230V~1ph 60Hz	
	TCC-48CCRH/DV2I-C	14067	208-230V~1ph 60Hz	
	TCC-55CCRH/DV2I-C	16120	208-230V~1ph 60Hz	

Type	Model Name	Nominal Capacity Cooling (w)	Power Supply (V/Ph/Hz)	Appearance
Duct Type	TCC-24D1CWH/DV2I-C	7034	208-230V~1ph 60Hz	

	TCC-36D1CWH/DV2I-C	10550	208-230V~1ph 60Hz	
	TCC-48D1CWH/DV2I-C	14067	208-230V~1ph 60Hz	
	TCC-55D1CWH/DV2I-C	16120	208-230V~1ph 60Hz	

Type	Model Name	Nominal Capacity Cooling (w)	Power Supply (V/Ph/Hz)	Appearance
Ceiling&-Floor Type	TCC-24ZCRH/DV2I-C	7034	208-230V~1ph 60Hz	
	TCC-36ZCRH/DV2I-C	10550	208-230V~1ph 60Hz	
	TCC-48ZCRH/DV2I-C	14067	208-230V~1ph 60Hz	
	TCC-55ZCRH/DV2I-C	16120	208-230V~1ph 60Hz	

1.2 Outdoor units

Model Name	Power SUPPLY(V/ph/Hz)	Appearance
TCC-24CH/DV2O-C TCC-36CH/DV2O-C	208-230V~1ph 60Hz	
TCC-48CH/DV2O-C TCC-55CH/DV2O-C	208-230V~1ph 60Hz	

Note:

Threaded pipes are used to connect the refrigerant pipes of indoor unit and outdoor unit.

1.3 Electric Characteristics

Outdoor units	Power Supply	Fuse Capacity	Circuit Breaker capacity	Min.sectional area of power cord
	V/Ph/Hz	A	A	mm ²
TCC-24CH/DV2O-C	208-230V~1ph 60Hz	30	32	2.5
TCC-36CH/DV2O-C		30	32	2.5
TCC-48CH/DV2O-C		60	50	6.0
TCC-55CH/DV2O-C		60	50	6.0

Duct Type	Power Supply	Fuse capacity	Circuit Breaker capacity	Min.sectional area of power cord
	V/Ph/Hz	A	A	mm ²
TCC-24D1CWH/DV2I-C	208-230V~1ph 60Hz	8	6	1.5
TCC-36D1CWH/DV2I-C		8	6	1.5
TCC-48D1CWH/DV2I-C		8	6	1.5
TCC-55D1CWH/DV2I-C		8	6	1.5

Cassette Type	Power Supply	Fuse capacity	Circuit Breaker capacity	Min.sectional area of power cord
	V/Ph/Hz	A	A	mm ²
TCC-24CCRH/DV2I-C	208-230V~1ph 60Hz	5	6	1.5
TCC-36CCRH/DV2I-C		5	6	1.5
TCC-48CCRH/DV2I-C		5	6	1.5
TCC-55CCRH/DV2I-C		5	6	1.5

Ceiling&-Floor Type	Power Supply	Fuse capacity	Circuit Breaker capacity	Min.sectional area of power cord
	V/Ph/Hz	A	A	mm ²
TCC-24ZCRH/DV2I-C	208-230V~1ph 60Hz	5	6	1.5
TCC-36ZCRH/DV2I-C		5	6	1.5
TCC-48ZCRH/DV2I-C		5	6	1.5
TCC-55ZCRH/DV2I-C		5	6	1.5

 Note:

If the unit uses outdoor power supply only, add a leakage protector to the outdoor unit. If the indoor unit and outdoor unit are powered separately, install a leakage protector to the indoor and outdoor units separately.

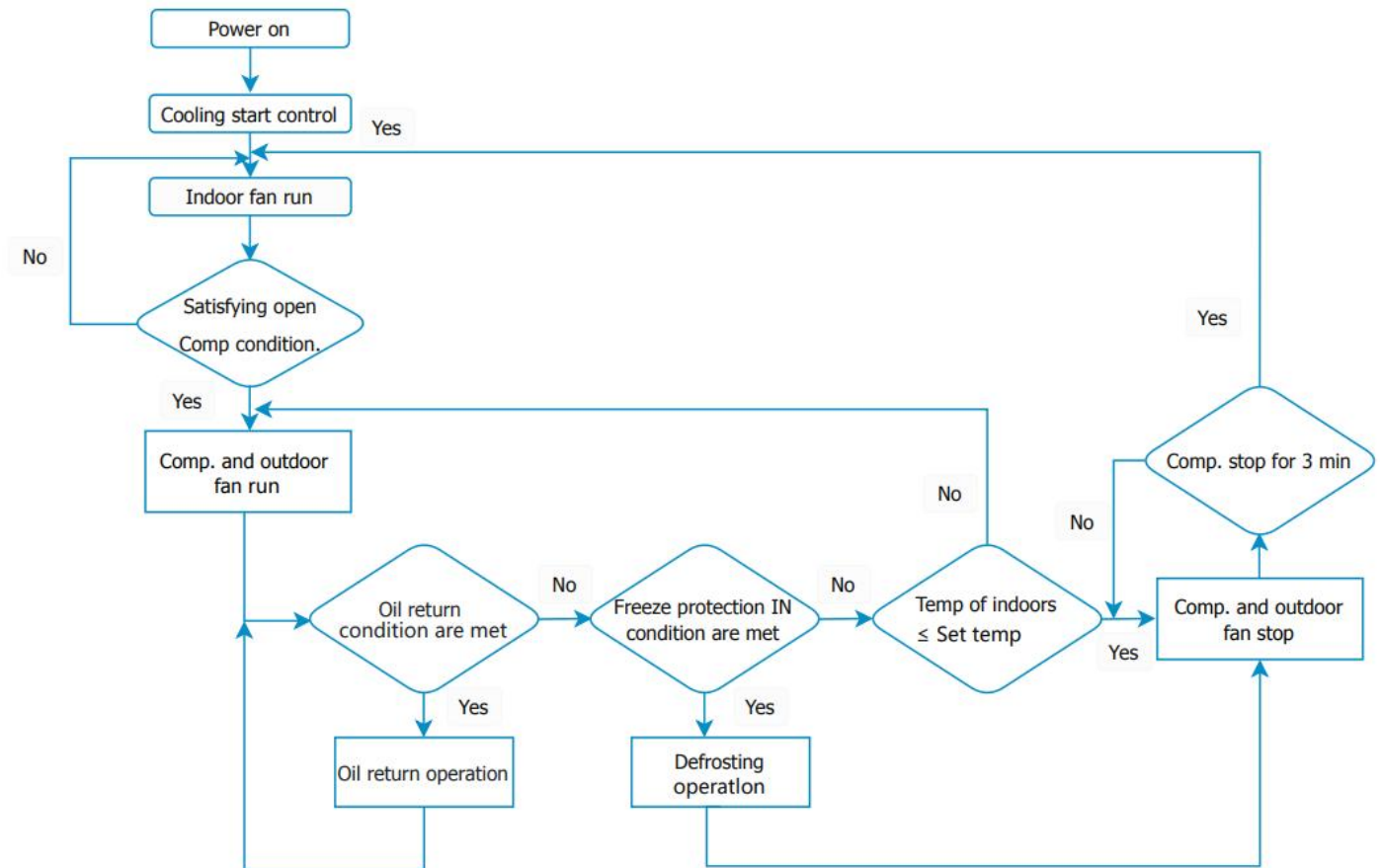
 Notices:

- Fuse is located on the main board.
- Install a circuit breaker near the outdoor units with at least 3mm contact gap. The units must be able to be plugged in or unplugged.
- Circuit breaker and power cord specifications listed in the above table are determined based on the maximum power input of the units.
- Specifications of circuit breaker are based on a working condition where the working temperature is 40°C. If working condition changes, please adjust the specifications according to national standards.
- The wire gauge of power cords and communication cords requirements should be used according to the wiring diagrams. The maximum length of 24K units is 30m, the maximum length of 36K units is 50m, the maximum length of 48/55K units is 60m. Please select a proper length according to local conditions.
- The diameter of the communication cable should not be less than 0.75 mm². It is recommended to use a 0.75 mm² power cable with a twisted pair and shielding layer as the communication cable.

2 Control

2.1 Operation Mode

2.1.1 Cooling Mode



Note:

The cassette and floor ceiling type indoor fan run after outdoor fan.

This flowchart is only for the 485 communication mode, and is not described here due to the differences in the control logic of each company under the 24V communication logic.

2.2 Control Mode

2.2.1 Based Control

2.2.1.1 Compressor Control

When cooling mode is turned on, indoor fan will run for a while before the compressor starts. Under different modes, the compressor can only be stopped after running for some time (special cases excluded). This is to protect the compressor from frequent start or stop. Once the compressor is stopped, it must not be restarted right away. Please wait for a few minutes.

2.2.1.2 EXV Control

When the unit is first started, the electronic expansion valve will reset control. During the process, the expansion valve will produce rattling sound. When cooling or heating mode is turned on, the valve will be open at a certain step before the compressor starts.

2.2.1.3 Outdoor Fan Control

The outdoor fan can run at the highest level 5 and the lowest level 1. By controlling the speed of outdoor fan, the unit can achieve cooling at low temperature and heating at high temperature. When indoor unit works in the fan mode, the outdoor fan will not work.

2.2.2 Special Control

2.2.2.1 Oil Return Control

If the unit is running at low frequency for a long time, system will enable oil return control. This is to lead oil in the pipeline back to the compressor so that the compressor will not be lack of oil. Generally, the oil return takes about 5min. The compressor running frequency will be raised to the preset oil return frequency.

2.2.2.2 Refrigerant Recovery Control

Enable method: within 3 minutes after power on, when in the stand-by state, press the ON/OFF switch on the display panel (optional) for at least 5s and less than 10s, and enter the refrigerant recovery.

Refrigerant recovery operation according to the boot refrigeration mode and forced operation, not affected by the set temperature and ambient temperature. The set temperature is fixed at 16°C. The indoor fan rotates at a moderate speed and the air deflector cools by default. The fault code of the last occurrence is displayed during the refrigerant recovery operation. If no fault code is displayed, the set temperature is displayed until the end of the fluorine collection operation. After 10 minutes of refrigerant recovery operation, the system automatically exits the refrigerant recovery operation and enters the standby state.

The protection and fault functions are invalid during refrigerant recovery operation (except for indoor and outdoor units communication failure, water full, exhaust protection and high pressure protection, other faults will be displayed but not shut down).

Quit if meeting one of the following conditions:

Press the ON/OFF switch to quit the refrigerant recovery operation to be standby.

If receiving the effective signal from the remote controller/wire controller during the refrigerant recovery operation, quit the refrigerant recovery operation, and execute the settings of remote controller /wire controller.

If receiving an effective WIFI signal during the refrigerant recovery operation, quit the refrigerant recovery operation and execute the WIFI settings.

Quit the refrigerant recovery operation automatically after 10min from such operation.

Quit the refrigerant recovery operation to be standby when the timed shutdown is out.

2.2.2.3 Forced Operation Control

This control is used to quickly check whether the unit can operate normally after installation. For cassette type unit, you can enable the control through the display panel.

In the standby mode, when the Manual Switch  key is ready, operate in the emergency refrigeration mode.

In the emergency refrigeration mode, operate in the heating mode when the emergency key is ready within 3s, and operate in the standby state when the emergency key is ready after 3s.

Generally, in the running mode, operate in the standby state when the emergency key is ready.

Note: Forced test mode can only be enabled when the unit is first turned on and not yet received any remote controller signal or button control signal.

2.2.3 Protection Control

2.2.3.1 Overload Protection Function

Overload protection function in cooling and dehumidification mode. Motor overload protection and overcurrent protection: When the motor's load exceeds the motor's capacity, the temperature increases, and the motor current exceeds the rated value. The value of overload protection is far below the value of overcurrent protection, but it prevents the device overload than the normal load.

2.3 Functions

2.3.1 Filter Cleaning Reminder

When unit is on, if there are 500h timed at least, the full dust sign is set, and the CL reminder is displayed on the display panel or wired controller when the unit is OFF (flickering every 0.5s for 10 times totally). When quitting the full dust reminder, the full dust timing and sign will be reset. When the full dust reminder is ready, app will remind the user in details to power off the unit and to clean the filter screen.

Quit if meeting one of the following conditions:

- 1) When powered off.
- 2) When the unit is powered off and then on, After it's running for a total of 24 hours cumulatively (at the same time, the air conditioner begins to calculate the next dust full cumulative running time).

2.3.2 Door Control Function

Control the air conditioner ON and OFF through the access control signal cable.

- 1) When the access control is ON, the remote controller, wire controller, emergency switch and APP control work normally.
- 2) When the air conditioner is OFF and the access control is detected to be turned off, the remote controller, wire controller, emergency switch and App are used for control, and the buzzer sounds short twice without response control.
- 3) When the air conditioner is ON, if the access control is tested to be switched from ON to OFF, start the countdown of [the access control delay OFF time] for 6min. In the countdown period, the air conditioner is kept at the current running state, and the remote controller, wire controller, emergency switch and APP can still be controlled normally.

In the countdown period, if the access control is returned on, the air conditioner is kept at the current running state, and the countdown is stopped and reset.

In the countdown period, if the air conditioner is turned off manually, the countdown is stopped and reset.

After the countdown is ended, if the access control is kept OFF, the air conditioner is turned off automatically. Then, the user controls the remote controller, wire controller, emergency switch and App, and the buzzer sounds short twice without response control, and the air conditioner is waiting for that the access control is ON.

2.3.3 Dry Contact (Optional)

Note:

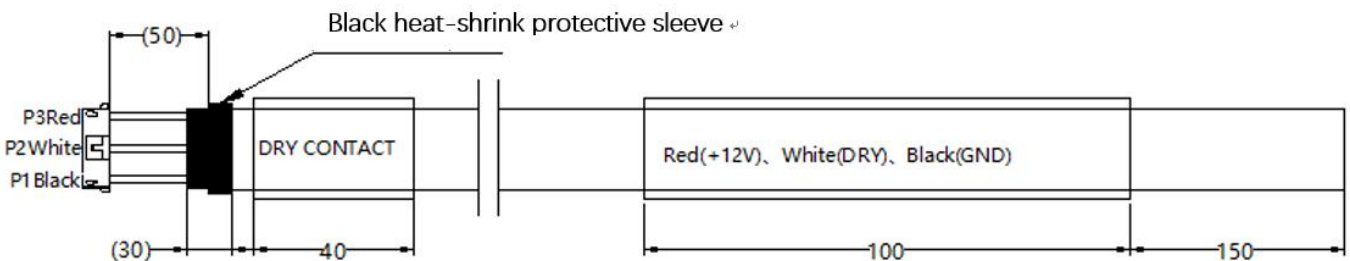
Dry contact and access control cannot be used simultaneously.

- 1) **Cassette as an example:**

Refer to the wiring diagram for the inside unit,Cassette PCB dry contact connector CN26.



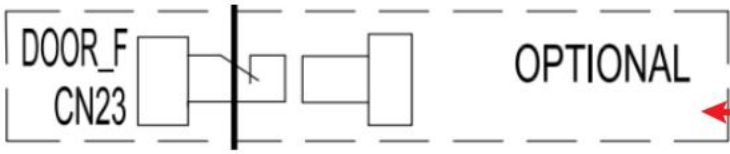
The optional dry contact wiring is shown below,and the blue port is plugged into CN26 on the electronic control board when the dry contact wiring is wired.



Room card and access control function is the same,room card is normally open signal,access control is normally closed signal.

Cassette as an example,refer to the wiring diagram of the indoor unit,when using CN26 (R_CAD) dry contact function,you need to unplug the short wiring of the access control function on the PCB (bit number refer to the wiring diagram),the interface of the access control function of the Cassette for the CN23 (DOOR-F),when using the dry contact function of the CN26,you need to unplug the short wiring of the PCB CN23,so that the PCB to the room card signal shall prevail.

The control signal is based on the logic table below.



Dry contact short-circuit means signal "ON"

Dry contact open-circuit means signal "OFF"

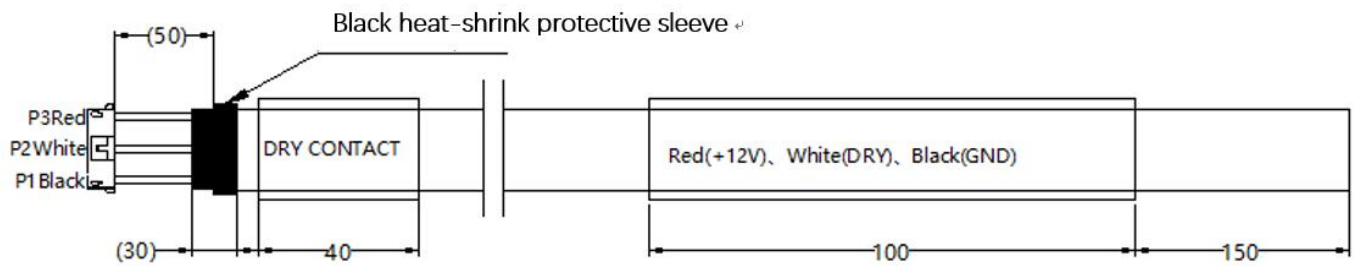
DOOR	CARD	Air conditioner instruction
ON	ON	The A/C can operate
ON	OFF	The A/C can operate
OFF	OFF	The A/C can not operate
OFF	ON	The A/C can operate

2) Duct/Ceiling&floor as an example:

Referring to the wiring diagram for the indoor unit,the dry contact connector for the Duct/ Ceiling&floor PCB is CN9.

Interface	Duct Type	Dry contact	Ceiling&-Floor Type	Dry contact
	24K 36K 48K 55K		24K 36K 48K 55K	

The optional dry contact wiring is shown below,and the blue port is plugged into CN9 on the PCB when the dry contact wiring is wired.



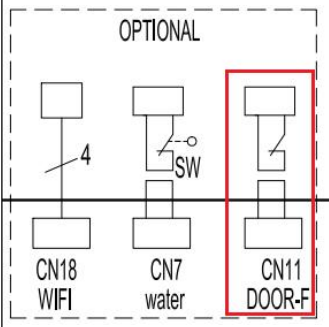
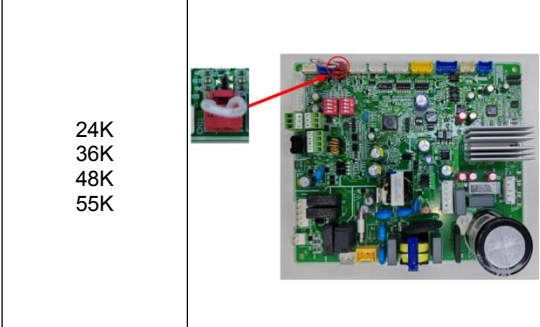
Room card and access control function is the same, room card is normally open signal, access control is normally closed signal.

Take Duct/Ceiling&floor unit as an example, refer to the wiring diagram of indoor unit, when using CN9 (R_CAD) dry contact function, you need to unplug the short wiring of the access control function on the PCB (refer to the wiring diagram for the bit number), and the interface of Duct/Ceiling&floor unit for access control function is CN11 (DOOR-F), when using the dry contact function of CN9, you need to unplug the short wiring of the CN11 on the PCB so that the main board will be based on the signal of the room card.

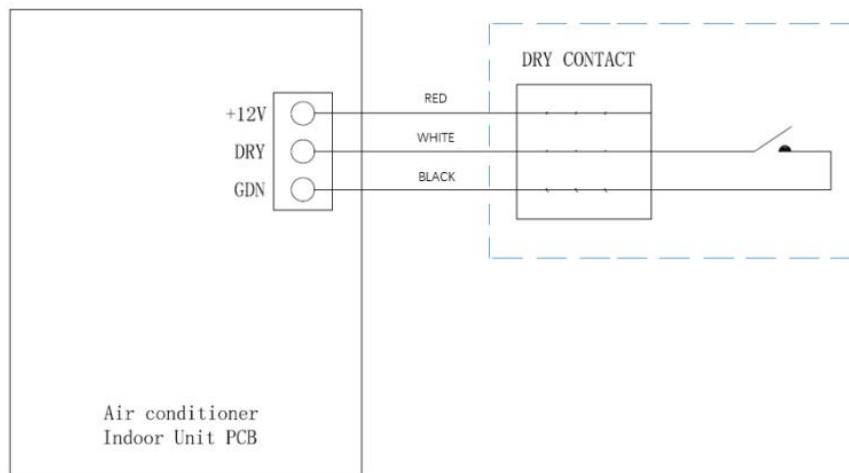
The control signal is based on the logic table.

Dry contact short-circuit means signal "ON"		
Dry contact open-circuit means signal "OFF"		
DOOR	CARD	Air conditioner instruction
ON	ON	The A/C can operate
ON	OFF	The A/C can operate
OFF	OFF	The A/C can not operate
OFF	ON	The A/C can operate

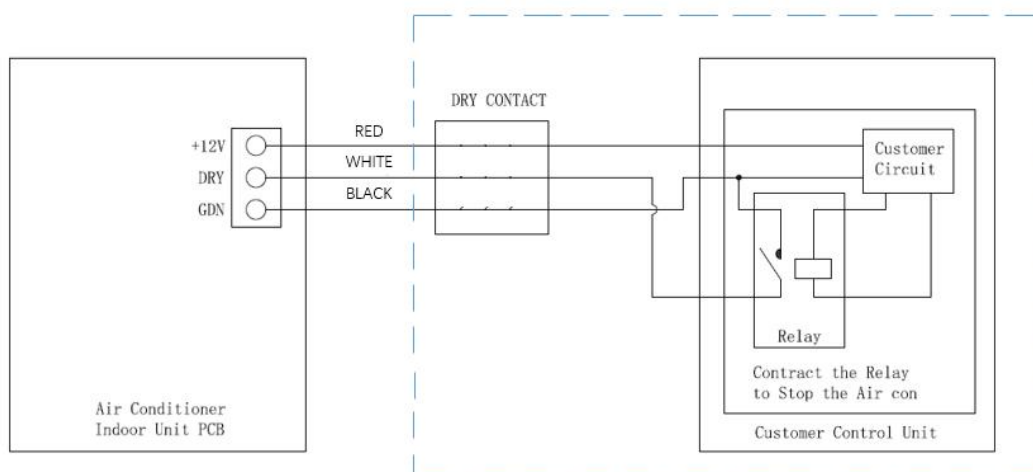
Interface	Duct Type	Access Control	Ceiling&-Floor Type	Dry contact
-----------	-----------	----------------	---------------------	-------------

OPTIONAL  24K 36K 48K 55K		
---	---	--

As shown in the figure below, the wiring in the dotted line box is the customer project wiring. When the customer load does not use the 12V power interface, the principle is as follows (only as a switching signal):



As shown in the figure below, the wiring in the dotted box is the customer's engineering wiring. When the customer uses the 12V power interface, the principle is as follows:



2.3.4 Switch between Fahrenheit(°F) and Degree Celsius(°C)

Enable method(remote controller setting): Power on within 3 minutes,long press[MODE] button and[FAN] button for 5s and the temperature zone displays“00”,then press[$\wedge$] and[V]button until the temperature zone displays “46”. Short press the [MODE] key to enter the settings.

Enable method(wired controller setting): Power on within 3 minutes,long press[MODE] button and [V] button for 5s and the Dual 8-Hour Zone Timer displays“P0”,then press[$\wedge$] and[V]button until the Dual 8-Hour Zone Timer displays “P6”. Short press the [func] key to enter the settings. Press [$\wedge$] and[V]button to adjust the parameter to °C or°F , press [func] to confirm the change, and press [ON/OFF] to exit the settings.

2.3.5 Inquiry of Ambient Temperature

Note: Default displayed set temperature for the unit

Enable method(remote controller setting):Power on within 3 minutes,long press [MODE] button and [FAN] button(remote controller settings) for 5s and the temperature zone displays “00”, then press[$\wedge$] and[V] button until the temperature zone displays “44”. Short press the [MODE] key to enter the settings.Then,repeat the above operations,the temperature zone displays what temperature we set.

Enable method(wired controller setting): Power on within 3 minutes,long press[MODE] button and [V] button for 5s and the Dual 8-Hour Zone Timer displays“P0”,then press[$\wedge$] and[V]button until the Dual 8-Hour Zone Timer displays “PA”. Short press the [func] key to enter the settings. Press the [$\wedge$] and[V]button to switch between parameter “00” (display set temperature) or “01” (display ambient temperature). Press the [Funct] key to confirm. Finally, press [ON/OFF] key to exit the settings.

2.3.6 Inquiry of Historical Error Code

Enable method (remote controller settings):In the running state,press the energy saving key consecutively for eight times within 8s (within 3min after being powered on: in the cooling mode,the temperature is set to 30°C,in addition to the conditions with medium-speed wind) to enter the fault query mode.The buzzer sounds short twice.

Then:

- 1) Enter the error code query list,and then show all current error code and protections codes in turn.
- 2) Continue for 30s in the fault query mode,and quit after 30s or shutdown automatically.

2.3.7 Timer Function

Enable method: To automatically switch on the appliance.When the unit is switched off,you can set the TIMER ON.To set the time of automatic switch-on/OFF as below, and you can just press TIMER button to cancel timer on.

86N3 wired controller

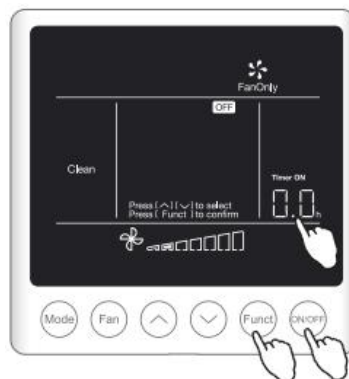
Timer On:

- 1) In the shutdown state, briefly press the [Funct] key to enter the function settings page.
- 2) Use the [^] and [V] keys to switch to the timer function, and press the [Funct] key to set the "timer" function



Timer Off:

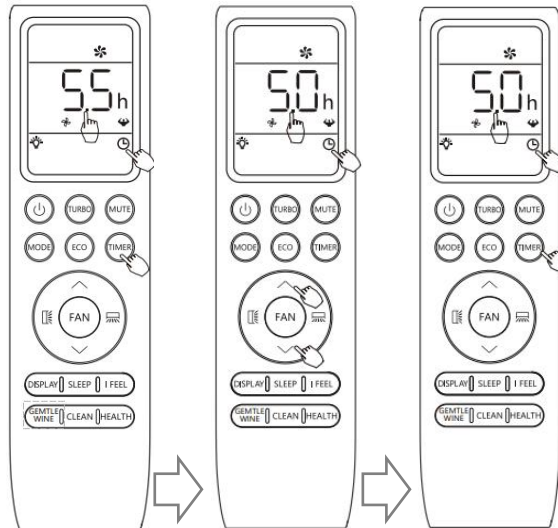
- 1) While the device is turned on, briefly press the [Funct] key to enter the function settings page.
- 2) Use the [^] and [V] buttons to switch to the timer function, then press the [Funct] key to enter the "Timer" function settings.



Remote controller

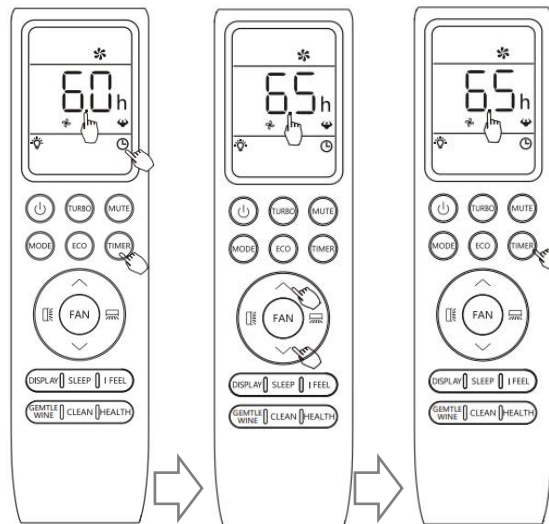
Timer On:

- 1) When the device is turned off, briefly press the [Timer] button to enter the timer function settings page.
- 2) Briefly press the [^] and [V] buttons to switch to the timer time, and press the [Timer] button to confirm the timer time.



Timer Off:

- 1) When the device is turned on, briefly press the [Timer] button to enter the timer function settings page.
- 2) Briefly press the [∧] and [∨] buttons to switch to the timer time, and press the [Timer] button to confirm the timer time.



Note:

All programming should be operated within 5s, otherwise the setting will be cancelled.

2.3.8 Sleep Function

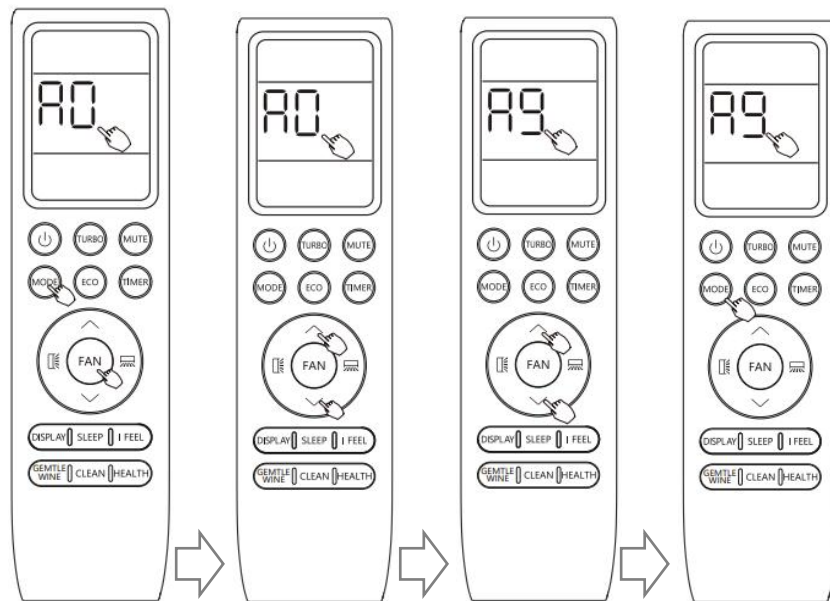
Enable method (remote controller settings): Press [SLEEP] button to activate the SLEEP function, and appears on the display. Press again to cancel this function. After 10 hours running in sleep mode, the air conditioner will change to the previously set mode.

2.3.9 Constant Air Volume (Just for Duct)

Select the static pressure code according to the actual installation scenario. There are nine static pressure gears in total. The static pressure of each static pressure level differs by 25 pa. The adjustment methods for the static pressure gears are as follows:

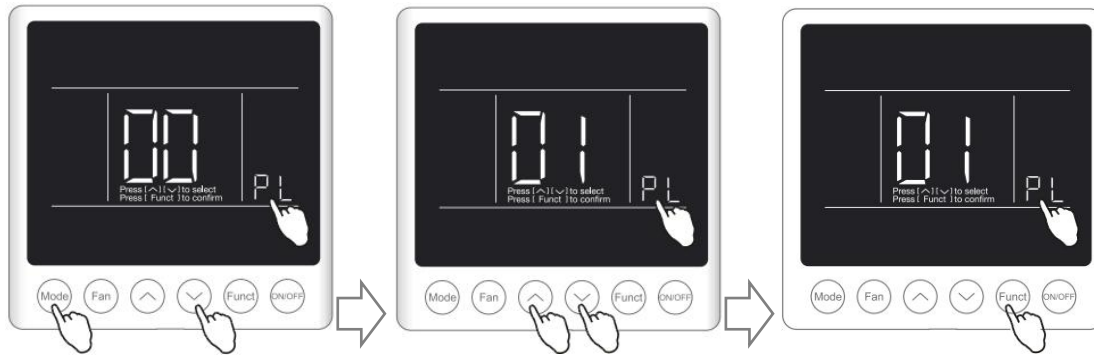
Entry method (Remote controller) :

- 1) When the unit is powered on, press and hold the [FAN] key and the [MODE] key for 5 seconds. Then the remote controller will enter the setting interface, with the static pressure gear codes ranging from A0 to b1.
- 2) The [^] and [V] keys can be used to adjust the codes up and down. Press the [MODE] key to confirm and send the infrared command. The buzzer will beep once, and the light panel will display as follows.



Entry method (86N3 wired controller) :

- 1) In the on or off state, press and hold the [Mode]+ [V] keys for 5 seconds. The buzzer will beep briefly, and you will enter the parameter setting interface. The time area will display the parameter code, and the set parameter code will flash.
- 2) At this point, use the [^] and [V] keys to switch between parameter codes paired with PL. Press the [Func] key briefly to stop the parameter code from flashing, and the corresponding parameter value will begin to flash. After selecting the parameter code, use the [^] and [V] keys to adjust the parameter value. Press the [Func] key briefly to save and return, and the parameter code will begin to flash again.



remote/wired controller setting	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	B1	B2
Display code on the light panel	Current static pressure value	01	02	03	04	05	06	07	08	09	10	11
Definition	Current operating Static pressure value is displayed on the light panel	P1	P2	P3	P4	P5	P6	P7	P8	P9	Current indoor unit free static pressure function setting	

The indoor unit starts to operate according to the rotational speeds of different static pressure levels. The current operating rotational speeds are as follows:

Static Pressure Pa		Static Pressure Level								
		P1	P2	P3	P4	P5	P6	P7	P8	P9
Cooling Capacity Btu	24/36/48/55K	0	25	50	75	100	125	150	175	200

Note:

The default static pressure of the factory-assembled units is 37 Pa (for 24K/36K), and 50 Pa (for 48/55K). If the default static pressure fails to meet the requirements of the static pressure of the actual installation duct, the rotational speed can be adjusted according to the above-mentioned method to satisfy the users' needs.

2.3.10 Connect to Interface of the MODBUS

The indoor unit of this series has MODBUS interface. If the user needs to connect the unit to the management system of the building, Please enquire us for the MODBUS control.

Building Management System



Interface description:

- The indoor unit is connected to the BMS terminal on the internal electrical control panel, and connected to the building control system.
- Electrical characteristics: Baud rate 9,600bps, standard: RS485.
- Operating principle:
The indoor mainboard is able to send out the running status of the unit through this interface, and to receive the logic control information, enabling the unit control and monitoring.

⚠ Notes:

- There are 255 units connectable at most to the same network, and the unit addresses in the same network cannot be the same, which will otherwise affect the unit control.
- Connect the wires after cutting of the power supply of the unit.
- For wiring details see section 3.2.1 Fresh air module (blue boxed line), Gentle air panel (red boxed line).

Set address method

120 wired controller:

1、Enter the parameter setting:

In the powered-on state, press and hold the [Fan] + [V] keys for 5 seconds to enter the parameter setting interface. The time zone displays the parameter code, and the set parameter code flashes.

2、Switch the parameter code:

Switch parameter codes: Press the [Λ] and [V] keys to switch parameter codes.

3、Select the parameter code:

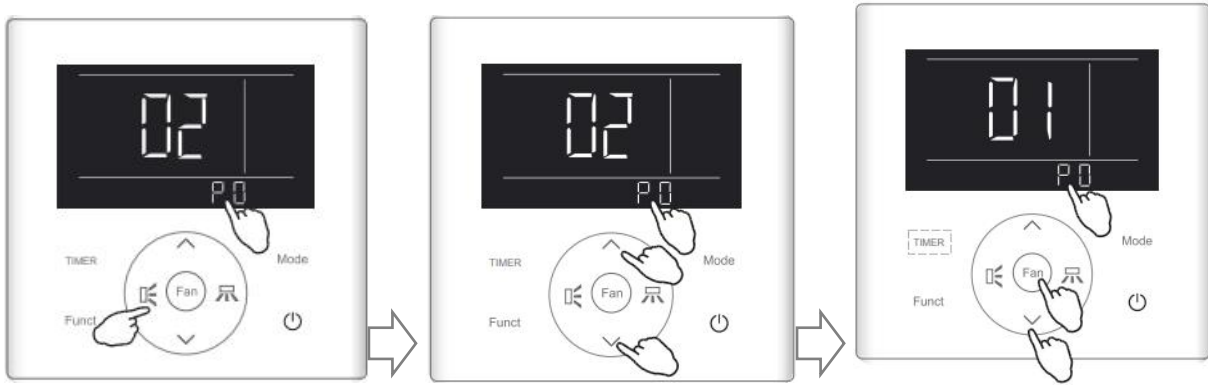
After switching the parameter code, briefly press the  button to stop the parameter code from flashing, and the corresponding parameter value will begin to flash.

4、Change parameter value:

After selecting the parameter code, use the [Λ] and [V] buttons to adjust the parameter value. Briefly press the

[ENTER] button to save and return, and the parameter code will begin to flash again.

5、After the setting is completed, operate the [ON/OFF] button to exit the parameter setting.



86N3 wired controller:

1、Enter the parameter setting:

In the powered-on or powered-off state, press and hold the [Mode] + [V] keys for 5 seconds. The buzzer will beep briefly, and the parameter setting interface will be entered. The time zone will display the parameter code, and the corresponding parameter code will flash.

2、Switch the parameter code:

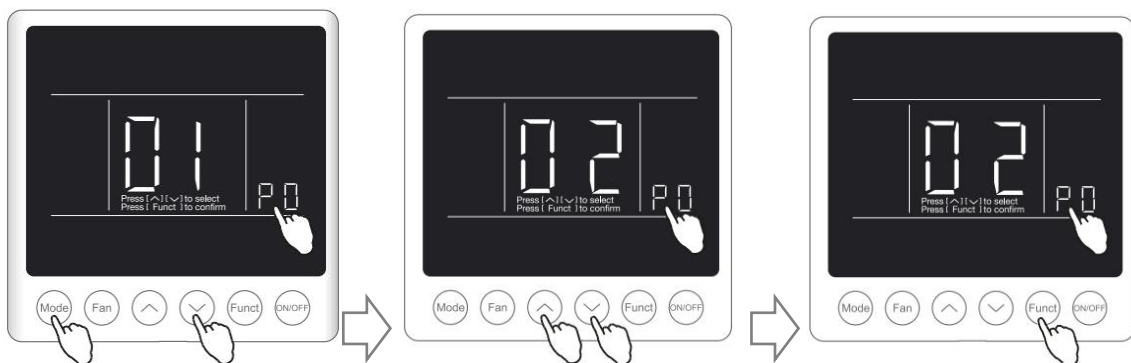
At this point, use the [^] and [V] keys to switch between parameter codes paired with P0.

3、Select the parameter code:

Briefly press the [Funct] key to stop the parameter code from flashing, and the corresponding parameter value will begin to flash.

4、Change parameter value:

After selecting the parameter code, press [^] and [V] to modify the size of the parameter value, short press [funct] key to save the adjustment to the address value to be set and return, the parameter code starts to blink, and then wait 5s. After the setting is completed, operate the [ON/OFF] button to exit the parameter setting.



Remote Controller:

1、Enter the parameter setting:

Within the first 20 seconds after powering on the remote controller, while the device is off, press the [Fan] + [V] buttons

for 5 seconds to enter the setup interface. Once in this interface, only the double eight symbol is displayed, with the default display showing E1. Pressing the power button will exit this mode.

2、Switch the parameter code:

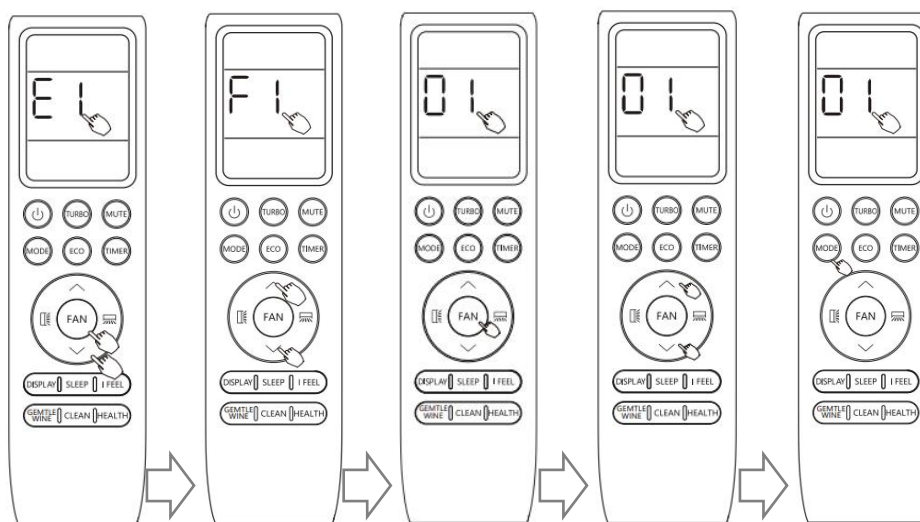
Pressing the [Λ] and [V] keys adjusts the parameter code F1.

3、Select the parameter code:

Pressing the [FAN] key enters the parameter value adjustment interface corresponding to the current parameter number, with the default display being 01.

4、Change parameter value:

In the parameter value adjustment interface, press the [Λ] and [V] keys to adjust the parameter value. After adjustment, press the [MODE] key to transmit the code.



Parameter Code	Level Parameter Code	Parameter Name	Current Parameter Setting Value	Parameter Setting Range	Remarks
P0	Time Zone	Current Unit Number	Current unit Number (*xx)	Temperature Zone	1~255 (16-bit display) Note: unit number is the address of the indoor unit.

2.3.11 Refrigerant Recovery Function

The refrigerant recovery function is designed to force the whole unit to run and perform refrigerant recovery action when the unit fails and needs to be repaired pipes, or when the unit needs to be moved. Before activating this function, it is necessary to close the stop valve of the liquid pipe of the outdoor unit.

Display panel operation:

Within 3min after power-on, in standby mode: Long pressing the emergency switch for 5~10 s to enter the refrigerant recovery operation state.

Wired controller operation:

- 1) Enter the parameter setting: In the state of power on or power off, long press [Fan] + [V] key for 5s, it will enter into

the parameter setting interface,the time area displays the parameter code and the set parameter code blinks.

- 2) Switching parameter code: Press [Λ] and [V] key to switch parameter code.
- 3) Select parameter code: after switching parameter code,press [Funct] key briefly,the parameter code stops flashing,and the corresponding parameter value flashes.
- 4) Change parameter value: After selecting parameter code,press [Λ] and [V] to adjust the parameter value,press [Funct] briefly to save and return,and the parameter code starts to blink.

Parameter Setting Portal						
Level parameter code			Setting Current Parameters		Setting range	Note
Parameter code	Display area	Parameter name	Set value	Display area		
B9	Time Area	Refrigerant Recovery	OF	Temperature Area	On: Refrigerant recovery on OF: Refrigerant Recovery Shutdown	Effective within 3 minutes after power on Adjust the parameter selection to B9 and confirm the operation to turn on the refrigerant recovery.

2.3.12 Gentle Wind Air Function (Optional for Cassette)

This function requires a piece of gentle wind panel.

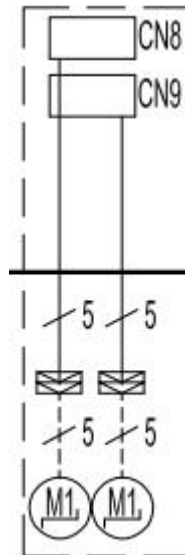
Enable method:receive the signal to turn on the [gentle wind] function,and the air guide plate reaches the soft wind angle.

Notes:

- Powerful cooling mode and soft air function cannot be turned on at the same time.
- For wiring details see section 3.2.1 Gentle wind panel (CN8.CN9).

2.3.13 Gentle Air Panel (Optional)

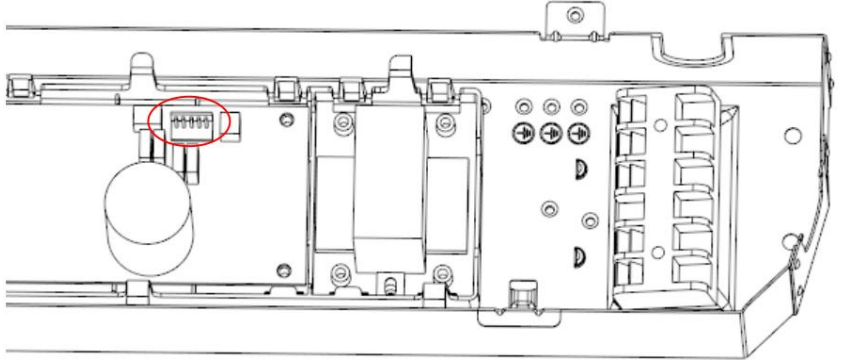
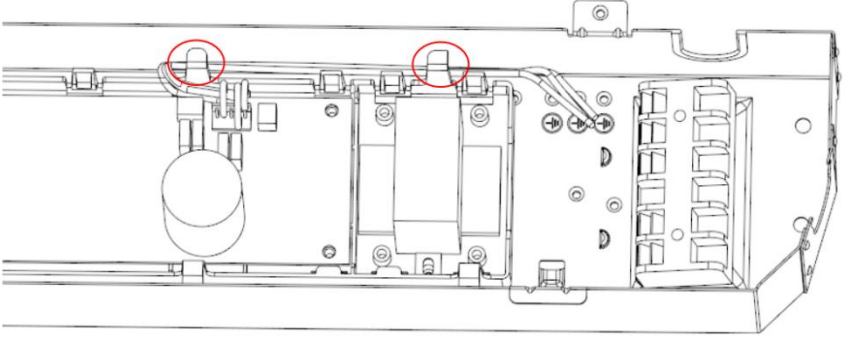
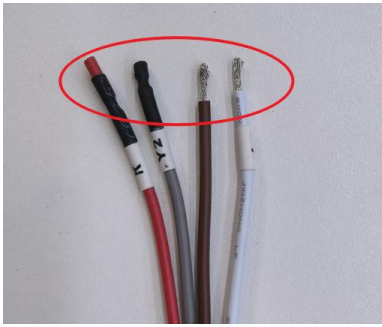
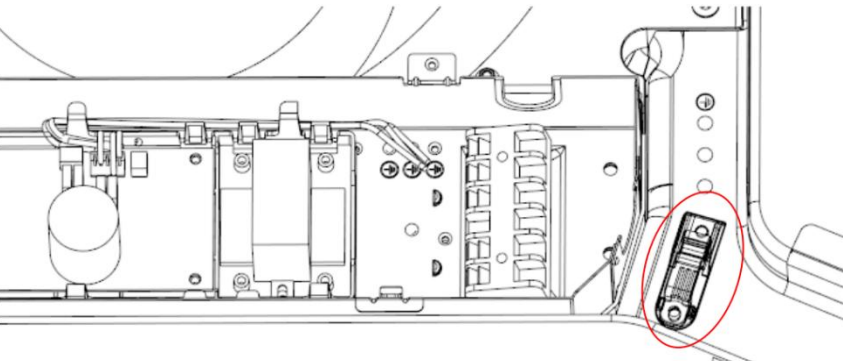
- 1) When connecting the gentle air panel,the gentle air panel stepping motor needs to be connected to the PCB CN8,CN9.



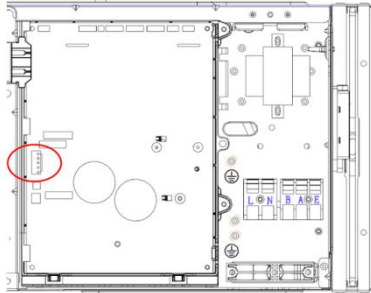
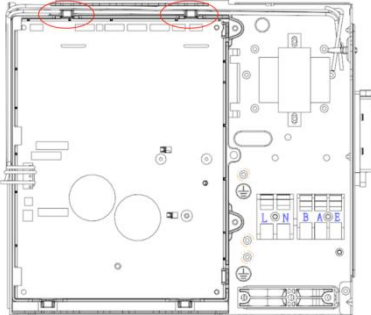
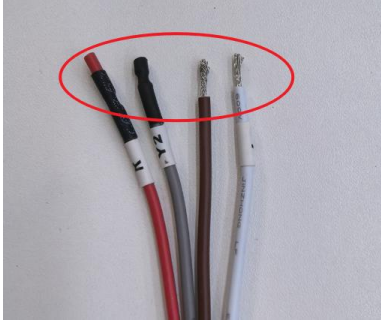
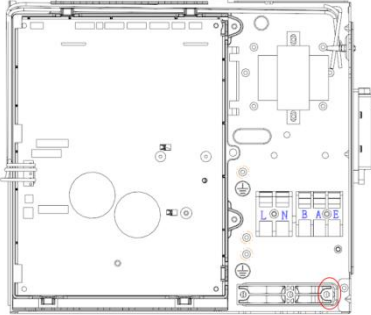
- 2) Check the dial code of the indoor unit, ensure the 3rd and 4th position of SW2 is dialled to ON position.

2.4 24V Communication Wiring Guidelines

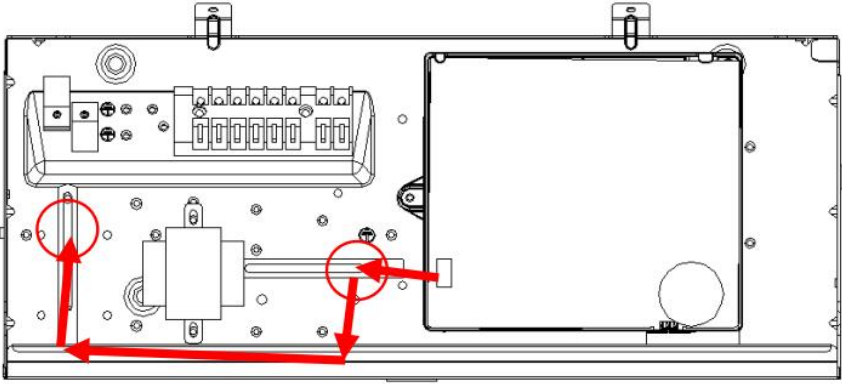
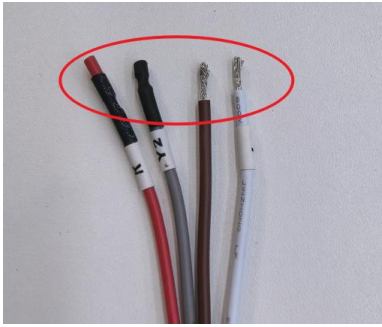
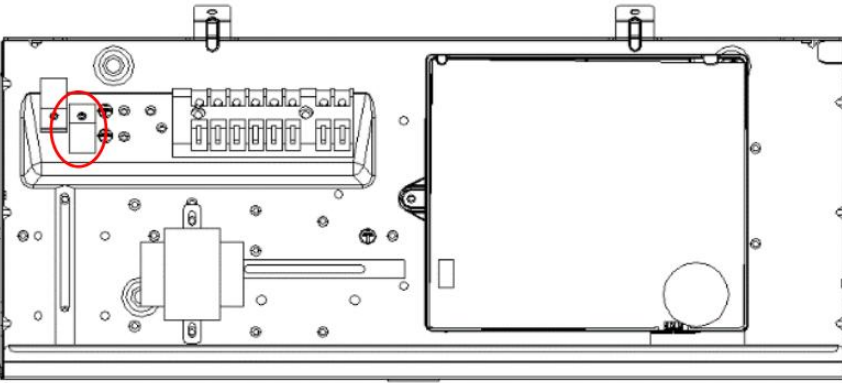
1) Cassette as an example:

Note: Power must be cut off.	
Step	Picture
1. Take out the 24V communication cable from the indoor unit accessory package and insert it into CN34 on the electric control board	
2. Secure the routing of the 24V communication cable via the electric control box clips	
3. During engineering installation, strip off the insulation layer of the 24V communication cable and splice it with the 3×0.75 engineering wiring. Note that proper insulation protection must be done after splicing; otherwise, it may easily cause communication failures, damage to the electric control board, or other potential safety hazards	
4. After completing the above three steps, to prevent the spliced wires from being pulled, route the spliced engineering installation wires and secure them with the cable clamp (If necessary, auxiliary fixation can be done with the cable ties from the accessory bag)	

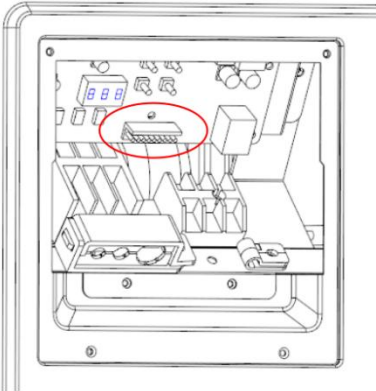
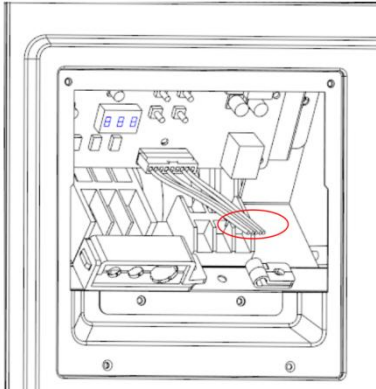
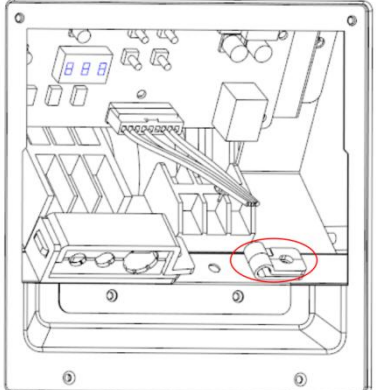
2) Duct as an example:

Note: Power must be cut off.	
Step	Picture
1. Take out the 24V communication cable from the indoor unit accessory package and insert it into CN34 on the electric control board	
2. Secure the routing of the 24V communication cable via the electric control box clips	
3. During engineering installation, strip off the insulation layer of the 24V communication cable and splice it with the 3×0.75 engineering wiring. Note that proper insulation protection must be done after splicing; otherwise, it may easily cause communication failures, damage to the electric control board, or other potential safety hazards	
4. After completing the above three steps, to prevent the spliced wires from being pulled, route the spliced engineering installation wires and secure them with the cable clamp (If necessary, auxiliary fixation can be done with the cable ties from the accessory bag)	

3) Floor ceiling as an example:

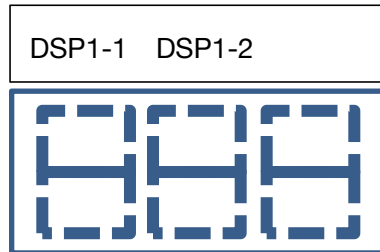
Note: Power must be cut off.	
Step	Picture
1. Take out the 24V communication cable from the indoor unit accessory package and insert it into CN34 on the electric control board 2. The 24V communication line is traced as the red line, and the wire is fixed by 2 iron-plastic strips.	
3. During engineering installation, strip off the insulation layer of the 24V communication cable and splice it with the 3×0.75 engineering wiring. Note that proper insulation protection must be done after splicing; otherwise, it may easily cause communication failures, damage to the electric control board, or other potential safety hazards	
4. In order to prevent the spilled wire from being pulled, the spilled engineering installation line is fixed and traced through the crimping clamp (If necessary, the zip ties in the accessory bag can be used to assist in fixing)	

4) ODU as an example:

Note: Power must be cut off.	
Step	Picture
1. Take out the 24V communication cable from the indoor unit accessory package and insert it into CN27 on the electric control board	
2. During engineering installation, strip off the insulation layer of the 24V communication cable and splice it with the 3×0.75 engineering wiring. Note that proper insulation protection must be done after splicing; otherwise, it may easily cause communication failures, damage to the electric control board, or other potential safety hazards	
3. In order to prevent the spilled wire from being pulled, the spilled engineering installation line is fixed and traced through the crimping clamp (If necessary, the zip ties in the accessory bag can be used to assist in fixing)	

2.5 24V Communication Board, Key Function Description

2.5.1 Digital Tube Display Description



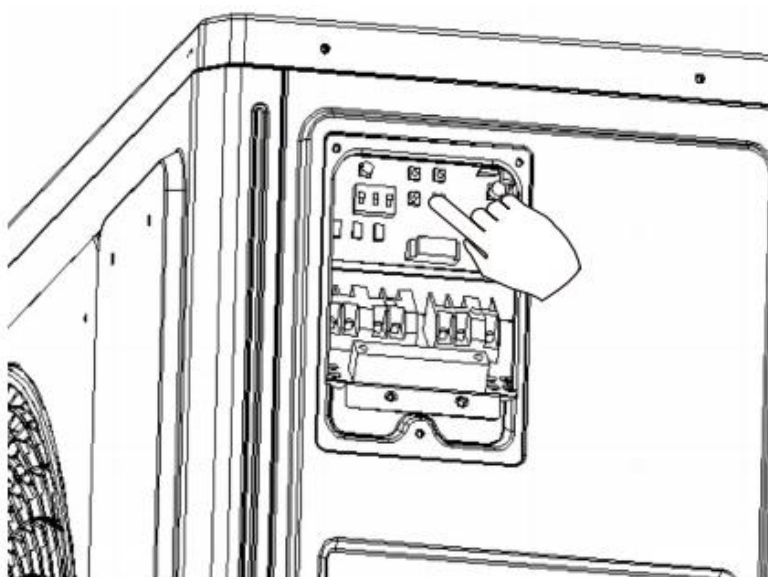
DSP1 First Digit, DSP1 Second Digit : blank display under normal conditions, if there is protection or fault will be displayed, see “3.3 Error Code”. DSP1 Third Digit: Displays the operating mode of the outdoor unit.

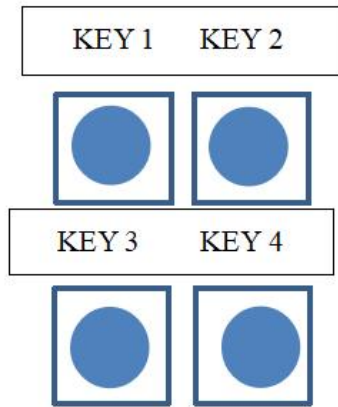
DSP1 Third Digit Code	Code Description
0	No startup signal received, shutdown state
1	Startup signal received, ready to start
2	Cooling mode operation
4	Oil return operation
7	Forced cooling operation
A	Fault or protection shutdown state
H	Dehumidification mode operation

2.5.2 Definition of Outdoor Operation Panel Keys

⚠ Warnings

Be sure to protect against electric shock when operating the outdoor operating panel keys.





Serial Number	Function Definition
KEY1	Reserved
KEY2	Selection Key
KEY3	Menu/Confirm Key
KEY4	Forced Operation Key

2.5.2.1 Parameter Search

Short press KEY3 key to enter the default mode selection menu, short press KEY2 key to switch the serial number 01~15-, the digital tube alternately displays the serial number and the outdoor unit operating parameters, the interval time 1s, the following table:

Serial Number	Serial number content	Operational parameters (examples)	Description
01-	Outdoor unit type and cooling capacity	C3	C: Cooling only 3: 3 tons of refrigeration
02-	Compressor frequency	56	56Hz
03-	Electronic expansion valve opening	200	200P
04-	Fan speed	800	800rpm
09-	Pressure	145	145psi
10-	Discharge temperature	185	185F °
11-	Coil temperature	113	113F °
13-	Module temperature	172	172F °
14-	Outdoor unit AC current	16	16A
15-	Compressor phase current	7	7A

2.5.2.2 Forced Start Function of Outdoor Unit

Enable method: Under 24V communication, long-press the KEY4, release it after 3 seconds. The third digit of the digital tube (DSP1-3) will display 7, and the system will enter forced cooling operation after 1 minute.

This function is used for quickly checking whether the unit is normal. After entering the forced start control, the anti-freezing protection only judges the shutdown conditions, shields the protection-related frequency reduction conditions, and does not respond to the Y (compressor port) signal.

Quit if meeting one of the following conditions:

- 1) Press KEY4 once during forced operation;
- 2) The forced operation duration reaches 120 minutes;
- 3) After low-pressure protection or anti-freezing protection occurs, it will exit after 20 minutes; after any other shutdown fault occurs, it will exit after 1 minute.

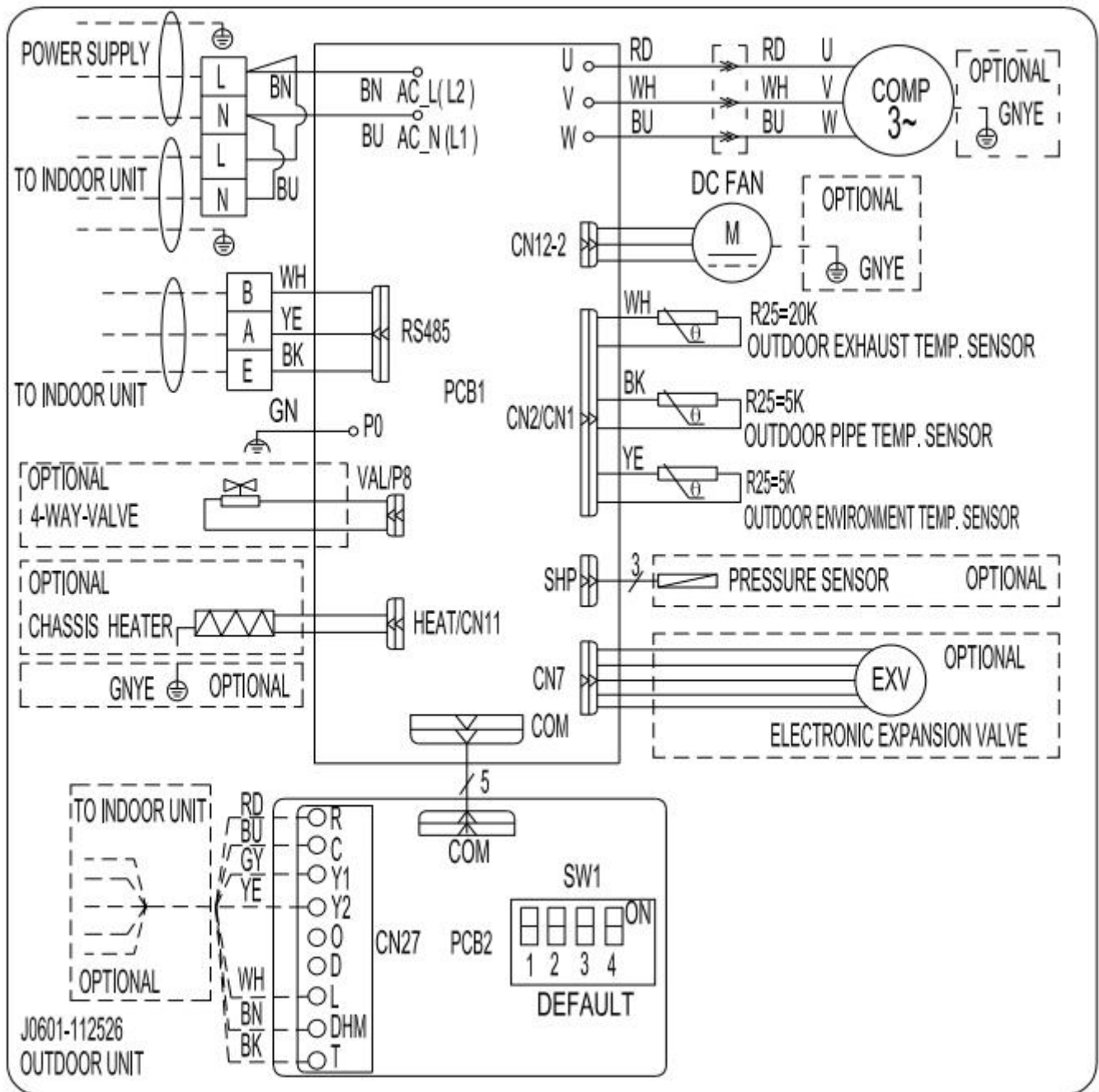
3 Troubleshooting

3.1 Wiring Diagrams

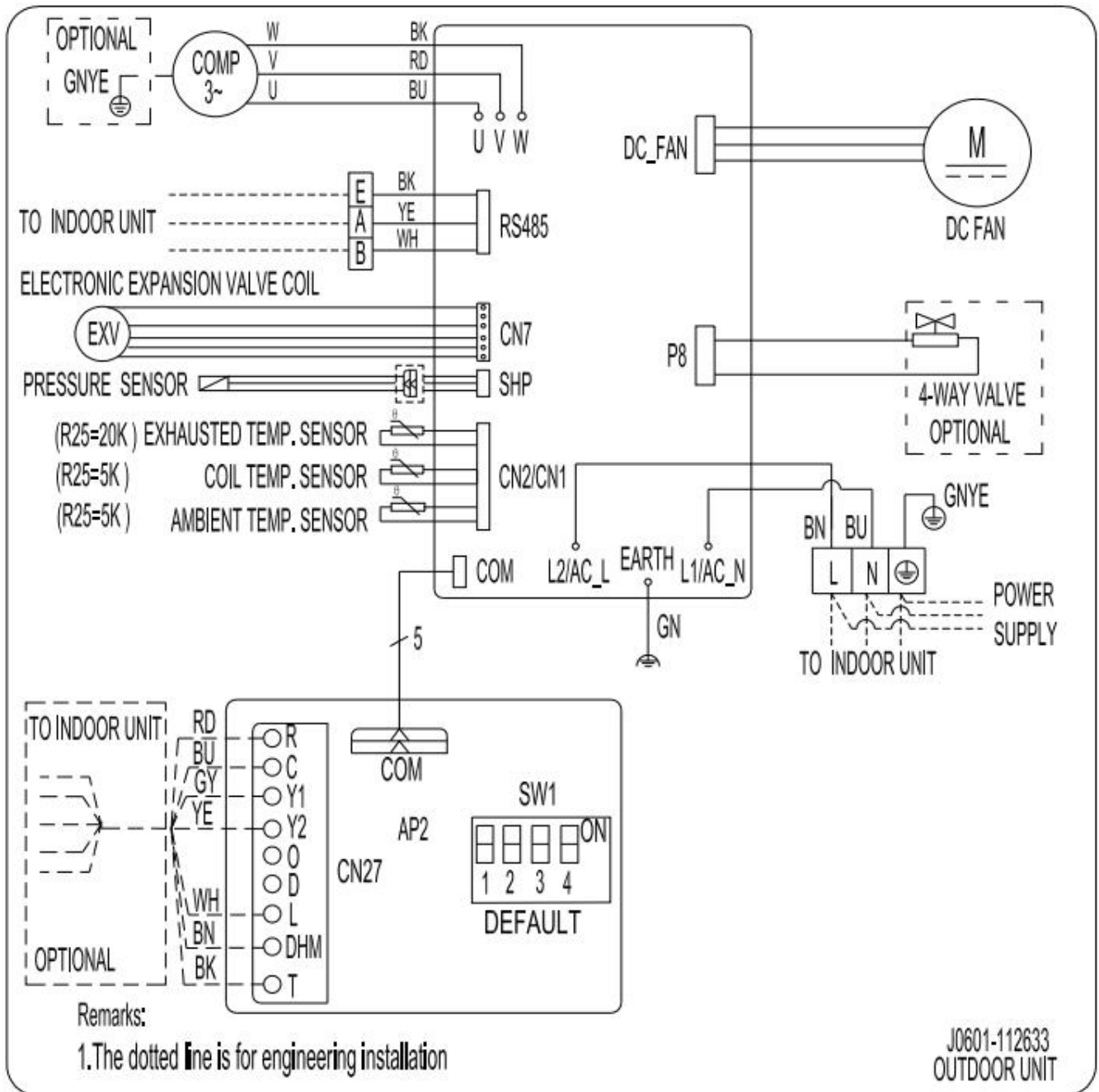
The following electric diagram is for reference only. Please refer to diagram sticked on the unit as the latest version.

3.1.1 Wiring Diagrams of ODUS

Model: TCC-24CH/DV2O-C, TCC-36CH/DV2O-C

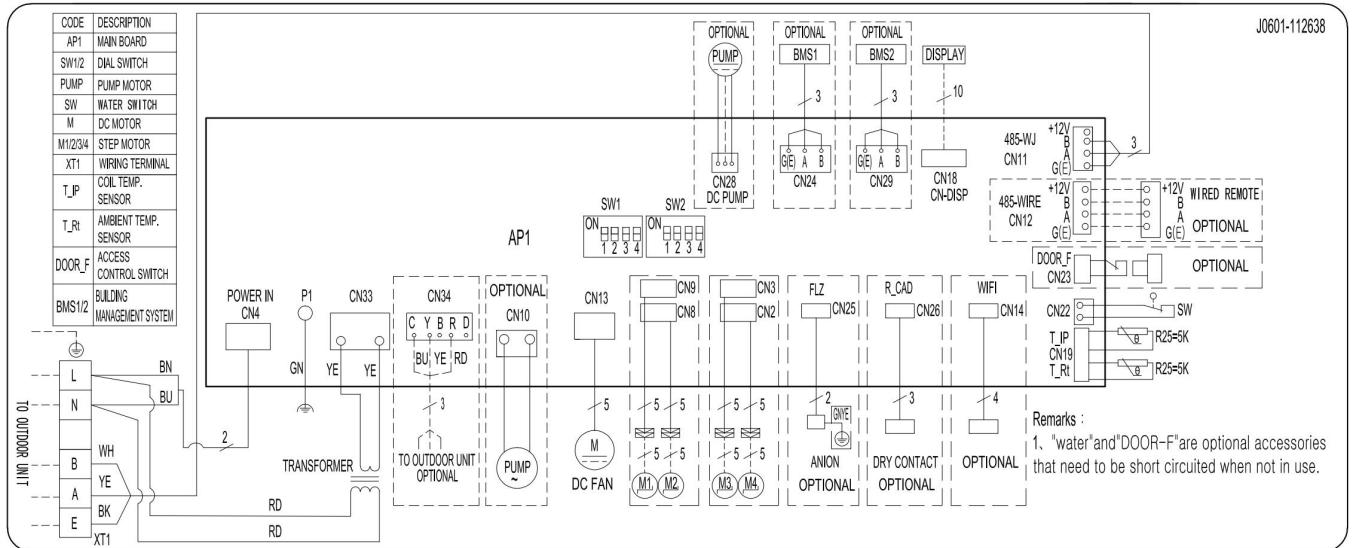


Model: TCC-48CH/DV2O-C, TCC-55CH/DV2O-C

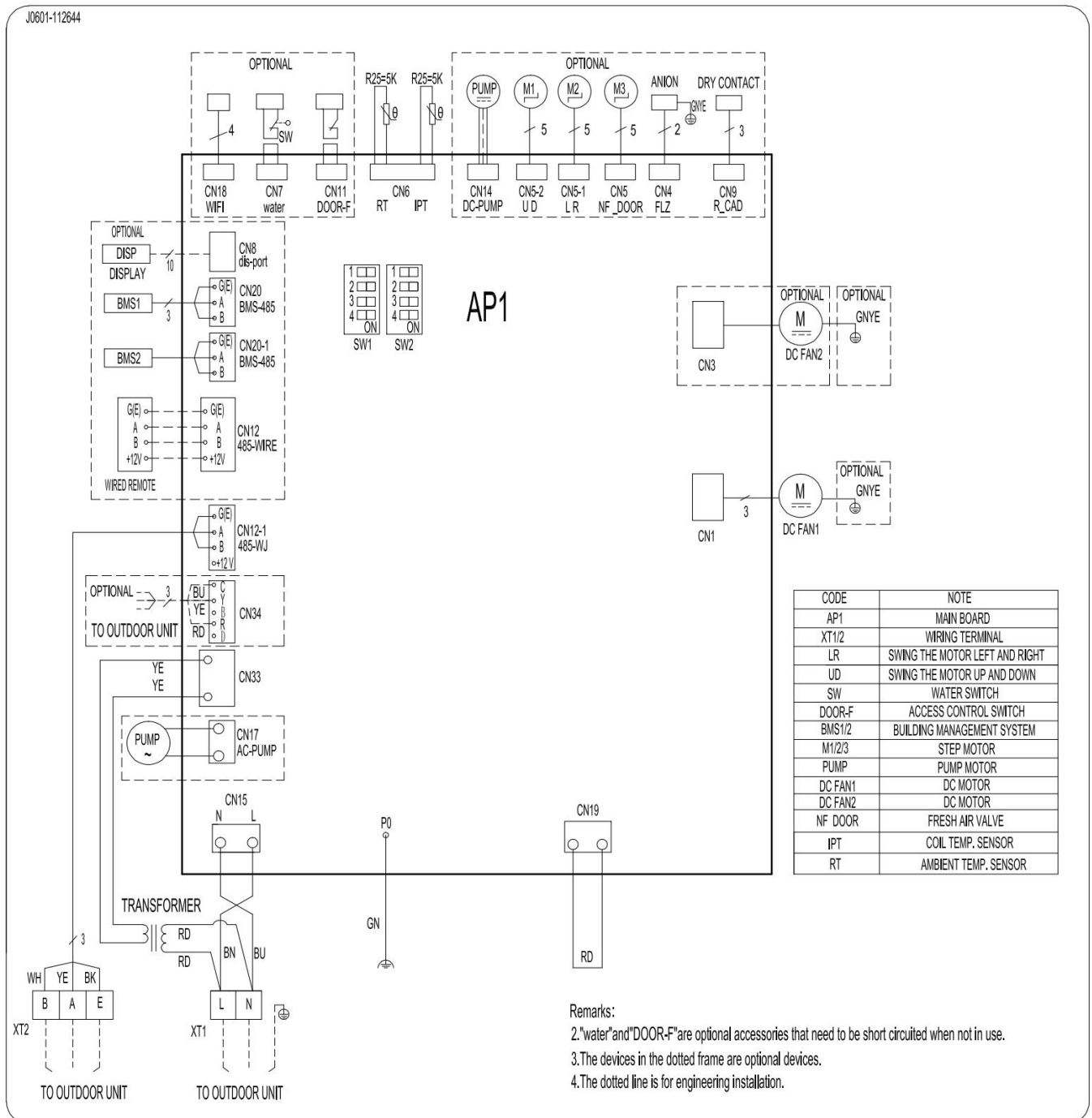


3.1.2 Wiring Diagrams of IDUs

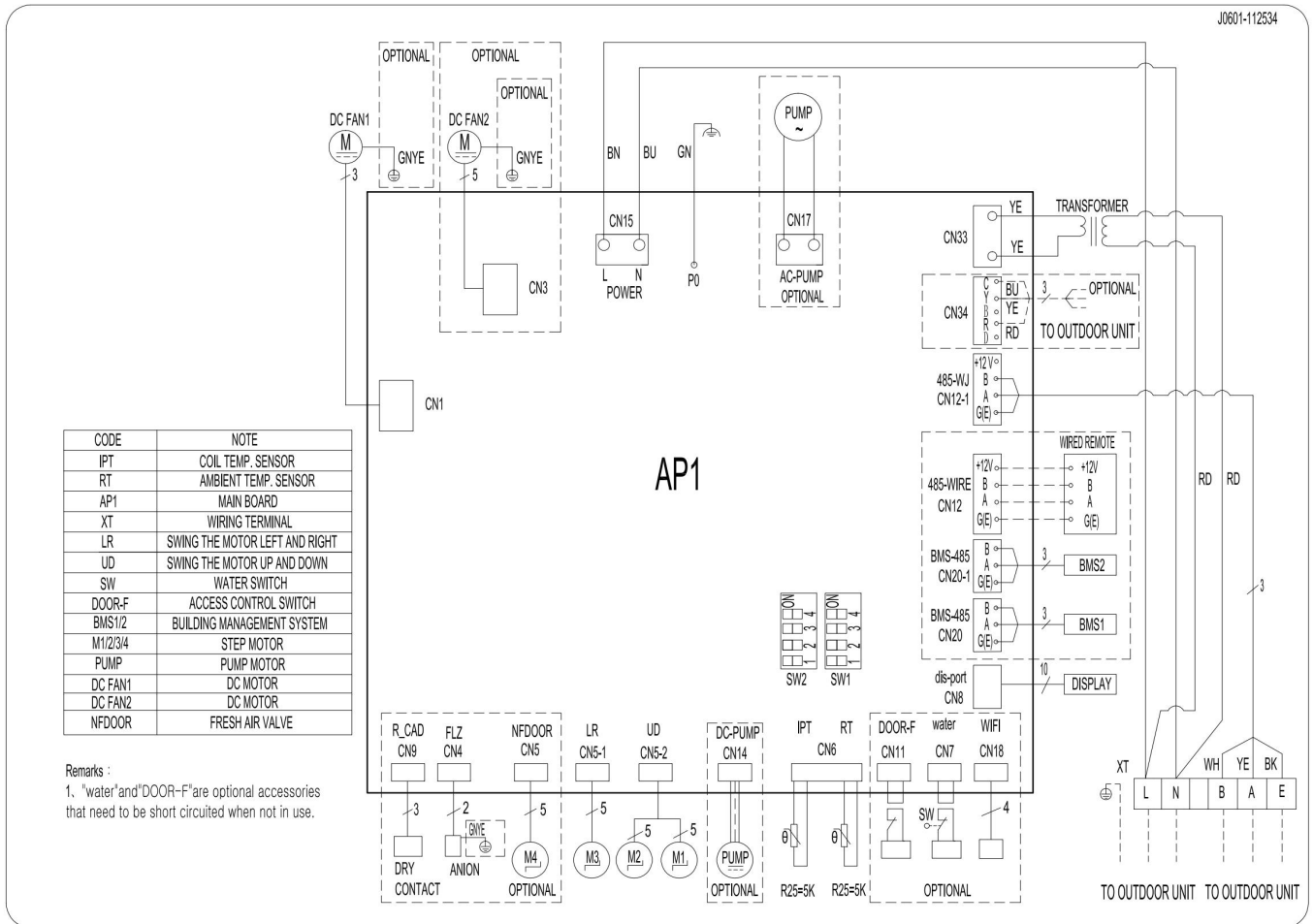
3.1.2.1 Cassette Type



3.1.2.2 Duct Type



3.1.2.3 Floor Ceiling Type



Note: Letter code

The letter code of the commonly used colour symbols is shown as follow.

If it is necessary to use colours other than those shown in the table below, this should be stated in the technical documentation (e.g. product specifications) of the corresponding equipment.

Letter Code of Common Colour Symbols

Colour Name	Letter code
Black	BK
Brown	BN
Red	RD
Orange	OG
Yellow	YE
Green	GN
Blue (including light blue)	BU
Purple (Fuchsia)	VT
Grey (blue-grey)	GY
White	WH
Pink	PK

Golden yellow	GD
Lime green	TQ
Silver white	SR
Green/Yellow	GNYE
Note: In this standard, upper and lower case letters have the same meaning, but upper case letters are preferred.	

The latest function dip switch definition table is as follows(ODUS).

Serial Number	SW1-1	SW1-2	SW1-3	SW1-4	Remarks
1	ON		-	-	Cooling
2	OFF		-	-	Cooling & Heating
3		ON	-	-	24K/48K
4		OFF			36K/55K
5	-	-	ON		24V Communication
6	-	-	OFF		485 Communication
7	-	-		ON	Indoor unit is AHU
8	-	-		OFF	Indoor unit is Cassette/Ceiling&floor/Duct

The latest cooling capacity dip switch definition table is as follows.

Serial Number	SW1-1	SW1-2	SW1-3	SW1-4	Remarks
1	OFF	OFF	OFF	OFF	9K(2.6)(1)
2	OFF	OFF	OFF	ON	12K(3.6)(1.5)
3	OFF	OFF	ON	OFF	18K(5.2)(2)
4	OFF	OFF	ON	ON	24K(7.2)(3)
5	OFF	ON	OFF	OFF	30K(8.5/9.0)(3.5)
6	OFF	ON	OFF	ON	36K(10)(4) single-phase/three-phase
7	OFF	ON	ON	OFF	42K(12.0) (5) three-phase
8	OFF	ON	ON	ON	48K(14.0) (6) three-phase
9	ON	OFF	OFF	OFF	55K(16.0) (7)/ 60K(18.0) (8) three-phase
10	ON	OFF	OFF	ON	42K(12.0) (5) single-phase
11	ON	OFF	ON	OFF	48K(14.0) (6) single-phase
12	ON	OFF	ON	ON	55K(16.0) (7)/ 60K(18.0) (8) single-phase

The latest function dip switch definition table is as follows(Duct Type).

Serial Number	SW2-1	SW2-2	SW2-3	SW2-4	Remarks
1		OFF	-	-	Cooling
2		ON	-	-	Cooling & Heating
3	ON		-	-	24V Communication
4	OFF		-	-	485 Communication
5	-	-	OFF	OFF	DC Series: Pressure 01 Setting; Non-DC: Reserved
6	-	-	OFF	ON	DC Series: Pressure 02 Setting Non-DC: Reserved
7	-	-	ON	OFF	DC Series: Pressure 03 Setting Non-DC: Reserved
8	-	-	ON	ON	DC Series: Pressure 04 Setting Non-DC: Reserved

The latest function dip switch definition table is as follows(Cassette Type).

Serial Number	SW2-1	SW2-2	SW2-3	SW2-4	Remarks
1		OFF	-	-	Cooling

2		ON	-	-	Cooling & Heating
3	ON		-	-	24V Communication
4	OFF		-	-	485 Communication
5	-	-	OFF	-	MBQ8
6	-	-	ON	-	MBQR
7	-	-	-	OFF	No Gentle Wind
8	-	-	-	ON	With Gentle Wind

The latest function dip switch definition table is as follows(Floor Ceiling Type)

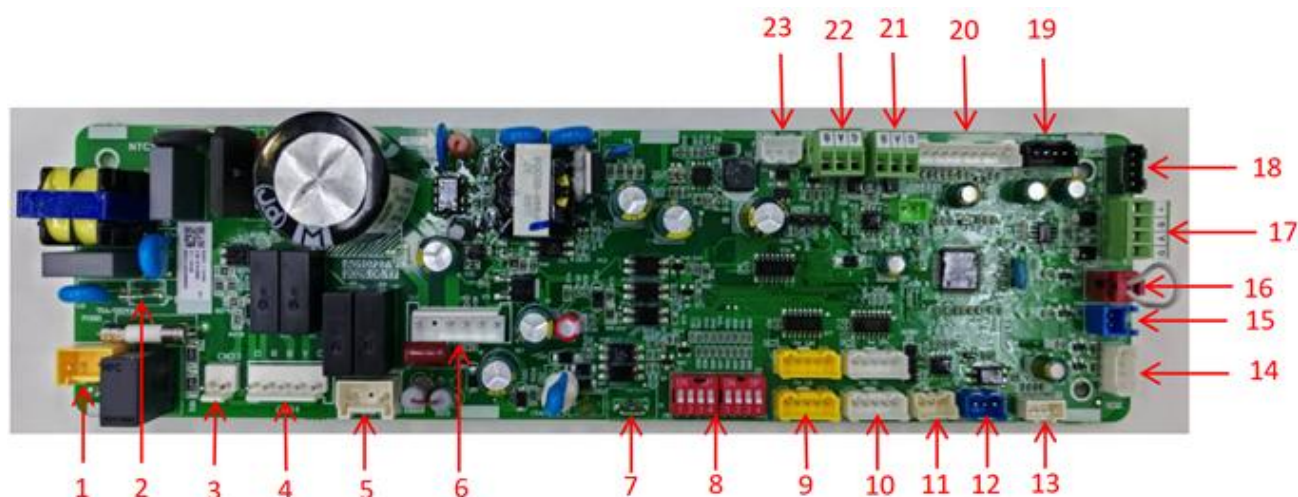
Serial Number	SW2-1	SW2-2	SW2-3	SW2-4	Remarks
1		OFF	-	-	Cooling
2		ON	-	-	Cooling & Heating
3	ON		-	-	24V Communication
4	OFF		-	-	485 Communication
5	-	-	OFF	-	No Forward/Reverse Rotation
6	-	-	ON	-	With Forward/Reverse Rotation
7	-	-	-	OFF	Reserve
8	-	-	-	ON	Reserve

3.2 PCB Layout

3.2.1 Terminals

3.2.1.1 Indoor unit:

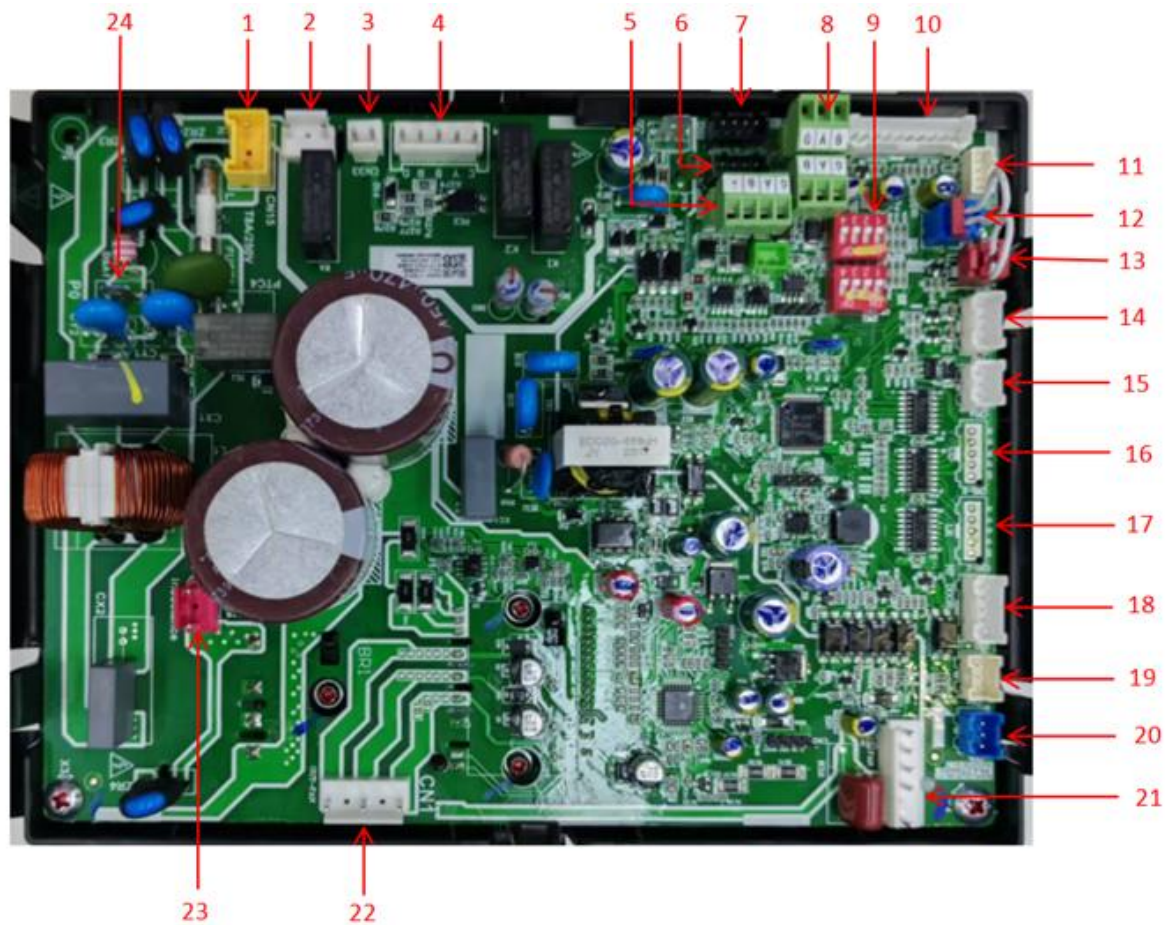
Cassette Type



S/N	Tag No	Silk screen	Function description	Detailed description
1	CN4	POWER_IN	Power Input	Power cord interface, supplies power to the electronic control
2	P1	/	Ground wire	Ground wire interface
3	CN33	24V	24V power supply	24V power supply interface, used for 24V communication power supply
4	CN34	D/R/B/Y/C	Indoor and outdoor unit communication	Communication interface, used to connect indoor and outdoor units for 24V communication D is reserved port R is the 24V power supply terminal B is reserved port Y is the compressor signal. C is the 24V common terminal
5	CN10	AC-PUMP	AC pump interface	AC pump interface, used to control the AC pump
6	CN13	DCF	DC fan interface	DC fan interface (for controlling DC internal - drive fan)
7	S	S1	Current loop communication port	Current loop communication interface, 3P and below cooling capacity models are used to connect indoor and outdoor units for communication
8	SW1	SW1	Dip switch	Used to set the functions of the electronic control, such as model cooling capacity and other function selections
	SW2	SW2		
9	CN8	Sw_LR	Left and right swing stepper motor	Stepper motor interface, used to control the left and right swing stepper motor
	CN9	Sw_LR1		
10	CN2	Sw_UD	Up/down swing stepper motor	Stepper motor interface for controlling the up/down swing stepper motor

	CN3	Sw_UD1		
11	CN25	FLZ	Negative ion interface	Negative ion interface for controlling the negative ion module
12	CN26	R_CAD	Room card switch interface	Room card switch interface, used to detect room card switch module signals
13	CN14	WIFI	WiFi interface	Communication interface, used to connect WiFi modules
14	CN19	T_IP	Temperature sensor bulb	Detects ambient temperature and outlet temperature
		T_Rt		
15	CN22	Water	Water level switch detection	Water level switch interface, used to detect water tank water level
16	CN23	DOOR-F	Door access detection	Door access detection, used to detect door access switch signals
17	CN12	485-WIRE	Wired controller interface	Used for communication with the wired controller
18	CN11	485-WJ	Indoor-outdoor unit communication interface	485 communication interface, used for 5P and above cooling capacity models to connect indoor and outdoor units for communication
19	CN15	485-Refri	485 refrigerant detection	Refrigerant detection interface, used to detect refrigerant leaks
20	CN18	CN-DISP	Display panel interface	Display panel interface, used to control the display panel
21	CN24	BMS_485	Centralised control	Communication interface, used to connect to centralised control 485 communication
22	CN29			
23	CN28	DC-PUMP	Direct current pump	Direct current pump interface, used to control the direct current pump

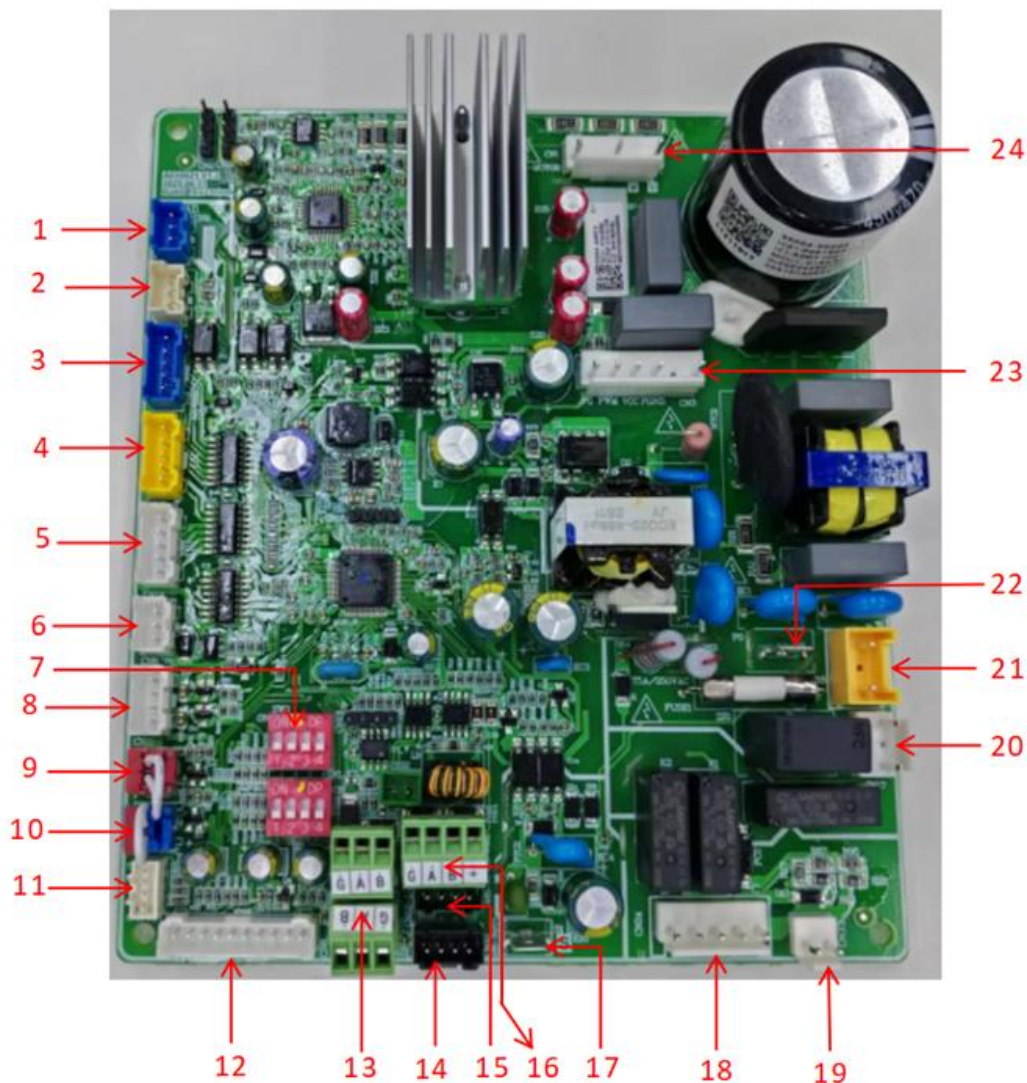
Duct Type



S/N	Tag No	Silk screen	Function description	Detailed description
1	CN15	L	Power supply	Connect the power supply to provide power to the electronic control.
		N		
2	CN17	AC-PUMP	Drain pump control	AC water pump interface for controlling the drain pump.
3	CN33	24V	24V power supply	24V power supply interface for 24V communication power supply.
4	CN34	D/R/B/Y/C	Indoor/outdoor unit communication	Communication interface, used to connect indoor and outdoor units for 24V communication D is reserved port R is the 24V power supply terminal B is reserved port Y is the compressor signal. C is the 24V common terminal
5	CN12	485-WIRE	Wired controller communication	Communication interface for connecting the wireless controller for 485 communication.
6	CN12-1	485-WJ	Indoor/outdoor unit communication	Communication interface for connecting indoor and outdoor units for 485 communication.
7	CN10	485-Refri	Refrigerant detection	Communication interface for connecting refrigerant detection communication
8	CN20	BMS-485	Centralised control	Communication interface for connecting centralised control 485 communication
	C20-1			
9	/	SW1	Dip switch	Used to set the functions of the electronic control, such as model cooling capacity and

		SW2		other function selections
10	CN8	dis-port	Display light board	Connect the display light board for remote control operation
11	CN18	WIFI	WiFi port	Connect the WiFi module for machine WiFi connection
12	CN7	water	Water level detection	Detection interface for detecting whether the water tray is full (ground switch signal)
13	CN11	DOOR-F	Door lock detection	Detection interface for detecting whether the door lock is closed (ground switch signal)
14	CN6	IPT	Inlet Temperature Sensor	Used to detect indoor environment and inlet temperature (5.1K)
		RT	Ambient Temperature Sensor	
15	CN14	DC-PUMP	Drainage pump control	DC water pump interface, used to control the drainage pump
16	CN5-2	UD	Up-down swing control	Swing interface, used to control the up-down swing motor
17	CN5-1	LR	Left-right swing control	Swing interface, used to control the left-right swing motor
18	CN5	NF_DOOR	Fresh air valve control	Fresh air valve interface, used to control the fresh air valve
19	CN4	FLZ	Negative ion control	Negative ion interface, used to control the activation of negative ions
20	CN9	R_CAD	Room card detection	Detection interface, used to detect whether the room card is inserted
21	CN3	FAN	Internal drive fan	Fresh air fan interface, used to control the internal drive motor
22	CN1	OUT_FAN	External drive fan	Fan interface, used to control the indoor and outdoor drive motors
23	CN19	Inductance	Short-circuit interface	Reserved
24	/	P0	Ground wire	Ground wire interface

Floor ceiling Type

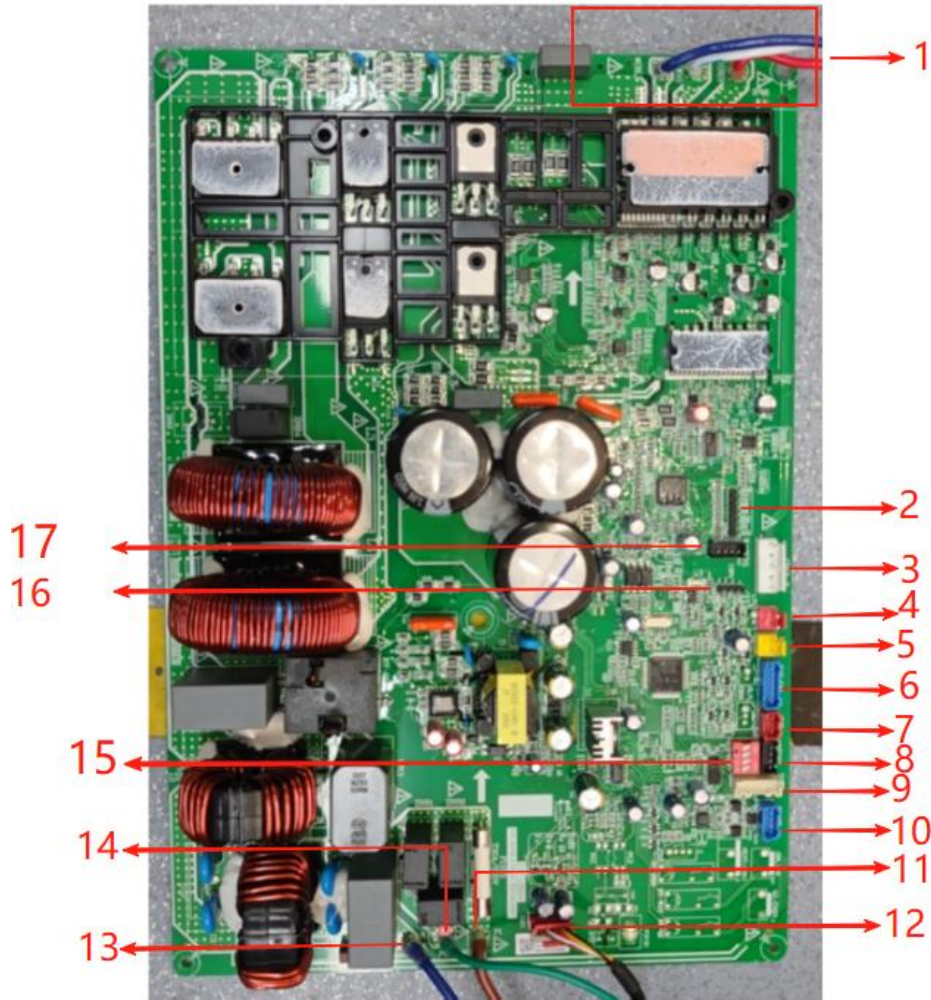


S/N	Tag No	Silk screen	Function description	Detailed description
1	CN9	R_CAD	Room card detection	Detection interface for detecting whether the room card is inserted
2	CN4	FLZ	Negative ion control	Negative ion interface for controlling the activation of negative ions
3	CN5	NF_DOOR	Fresh air valve control	Fresh air valve interface for controlling the fresh air valve
4	CN5-1	LR	Left-right swing control	Swing interface, used to control the left-right swing motor
5	CN5-2	UD	Up-down swing control	Swing interface, used to control the up-down swing motor
6	CN14	DC-PUMP	Drain Pump Control	DC water pump interface for controlling the drain pump
7	/	SW1	Dip Switch	Used to set electrical control functions, such as model cooling capacity and other function selections
		SW2		
8	CN6	IPT	Inlet pipe temperature sensor	Used to detect indoor environment and inlet pipe temperature
		RT	Ambient temperature sensor	
9	CN11	DOOR-F	Door lock detection	Detection interface, used to detect whether the door lock is closed

10	CN7	water	Water level detection	Detection interface for detecting whether the water tray is full.
11	CN18	WIFI	WIFI port	Connects to the WIFI module for machine connection to WIFI.
12	CN8	dis-port	Display light board	Connects to the display light board for remote control operation.
13	CN20	BMS-485	Centralised control	Communication interface for connecting to centralised control 485 communication.
	C20-1			
14	CN10	485-Refri	Refrigerant detection	Communication interface for connecting to refrigerant detection communication
15	CN12-1	485-WJ	Indoor/outdoor unit communication	Communication interface for connecting to indoor/outdoor unit 485 communication
16	CN12	485-WIRE	Wired controller communication	Communication interface for connecting to wired controller 485 communication
17	S	S1	Indoor/outdoor unit communication	Communication interface for connecting to indoor/outdoor unit current loop communication
18	CN34	D/R/B/Y/C	Indoor/outdoor unit communication	Communication interface, used to connect indoor and outdoor units for 24V communication D is reserved port R is the 24V power supply terminal B is reserved port Y is the compressor signal. C is the 24V common terminal
19	CN33	24V	24V power supply	24V power supply interface for 24V communication power supply
20	CN17	AC-PUMP	Drain pump control	AC water pump interface for controlling the drain pump
21	CN15	L	Power supply	Connect the power supply to provide power to the electronic control
		N		
22	/	P0	Ground wire	Ground wire interface
23	CN3	/	Indoor drive fan	Fan interface for controlling the indoor drive motor
24	CN1	OUT_FAN	Outdoor drive fan	Fan interface for controlling the indoor and outdoor drive motors

3.2.1.2 Outdoor unit:

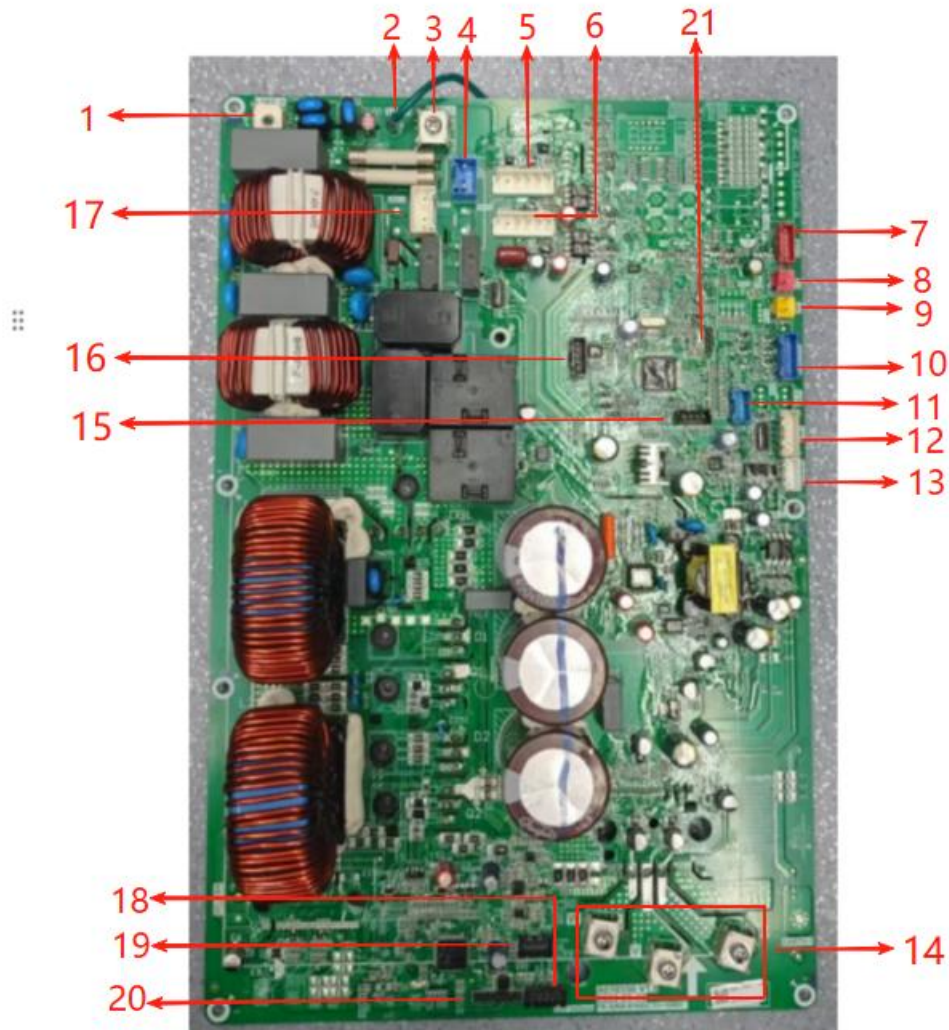
Model: TCC-36CH/DV20-C



S/N	Tag No	Silk screen	Function description	Detailed description
1	U(RD)、V(WH)、W(BL)	Compressor connection port	Compressor interface, used to control the compressor	used for the switching between refrigeration and heating in the system
2	JTAG	JTAG	Programming interface	Programming interface
3	CN12-2	CN12-2	External DC fan	Used to control external DC fan
4	LP	LP	Low pressure switch	Used for protection
5	HP	HP	High pressure switch	Used for protection
6	CN2/CN1	CN2/CN1	Temperature sensor bulb	Used to detect temperature changes

7	SHP	SHP	High-pressure pressure sensor	Monitors high-pressure refrigerant pressure to ensure it remains within the normal range.
8	WATCH2	WATCH2	Monitoring	Used to monitor machine operating parameters.
9	CN7	CN7	Electronic expansion valve	Used to control refrigerant flow.
10	RS485	RS485	485 communication	Signal communication between indoor and outdoor units
11	AC_I(L2)	AC_I(L2)	Power terminals	Connect power supply to the electrical control unit
12	COM	COM	24V communication interface	External 24V communication board interface
13	AC_N(L1)	AC_N(L1)	Power terminals	Connect power supply to the electrical control unit
14	P0	P0	Ground wire	Electrical control safety grounding
15	SW1	SW1	Dip switches	Used to set electrical control functions, such as machine type and cooling capacity selection
16	ISP1	ISP1	Programming interface	Programming interface
17	WATCH1	WATCH1	Monitoring	Used to monitor machine operating parameters

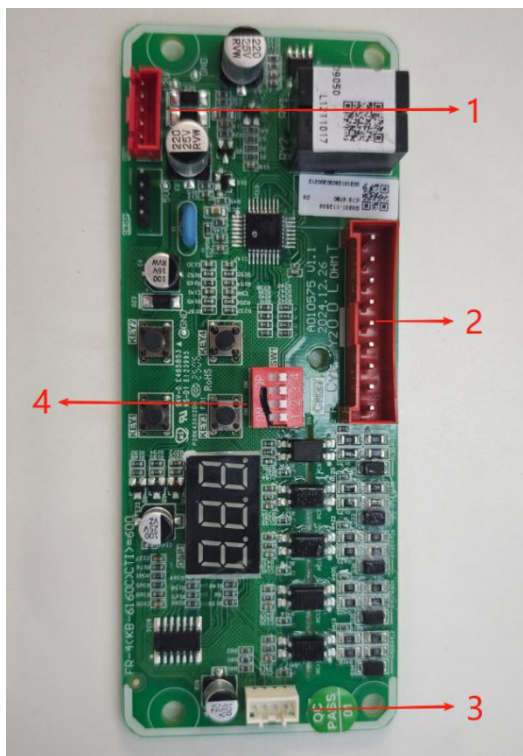
Model: TCC-55CH/DV2O-C



S/N	Tag No	Silk screen	Function description	Detailed description
1	L1/AC_N	L1/AC_N	Power cord	Single-phase power N line, connected to the power supply, providing power to the electronic control unit
2	EARTH	EARTH	Ground wire	Power ground wire
3	L2/AC_L	L2/AC_L	Power cord	Single-phase power L line, connected to the power supply, providing power to the electronic control unit
4	P8	P8	Four-way valve interface	Cooling and heating reversing valve control interface
5	P10	P10	Fan interface	Fan interface, used to control the internal drive motor
6	P9	P9	Fan interface	Fan interface, used to control the internal drive motor
7	COM	COM	24V communication interface	External 24V communication board interface
8	LP	LP	Low-pressure switch	Low-pressure switch interface

9	HP	HP	High-pressure switch	High-pressure switch interface
10	CN2/CN1	CN2/CN1	Temperature sensing bulb interface	External ring temperature, external tube temperature, and exhaust temperature detection interface
11	CN3	CN3	Australian DRED interface	Australian DRED interface
12	CN7	CN7	Electronic expansion valve interface	Electronic expansion valve interface
13	RS485	RS485	RS485 communication interface	Communication interface for connecting the 485 communication controller
14	U、V、W	U、V、W	Compressor interface	Compressor interface, used to control the compressor
15	WATCH2	WATCH2	Main control monitoring interface	Upper computer monitoring interface
16	CN17	CN17	Main Control EE Programming Interface	Main Control EE Storage Chip Programming Interface
17	HEAT1	HEAT1	Chassis Electric Heating	Chassis Heating Interface
18	CN18	CN18	Drive EEPROM programming interface	Drive EE memory chip programming interface
19	JTAG	JTAG	Drive program programming interface	Drive program programming interface
20	WATCH1	WATCH1	Drive monitoring interface	Host computer monitoring interface
21	CN22	CN22	Main control program programming interface	Main control program programming interface

24V communication board



S/N	Tag No	Silk screen	Function description	Detailed description
1	COM	COM	24V Communication Interface	For communicating with the outdoor unit mainboard
2	CN27	R/C/Y1/Y2/O/D/L/DHM/T	24V Communication Interface	Communication interface, used to connect indoor and outdoor units for 24V communication R is the 24V power supply terminal C is the 24V common terminal Y1 is reserved port Y2 is the compressor signal O is reserved port D is reserved port L is the fault signal DHM is the dehumidify signal T is reserved port
3	CN16	CN16	Reserved	Reserved
4	SW1	SW1	DIP Switch	For selecting communication modes

3.3 Error Code

Error code	Error content	Error content
E0	Indoor and outdoor communication failure	Hardware Error
E1	Indoor ambient temperature sensor failure	Hardware Error
E2	Indoor fancoil temperature sensor failure	Hardware Error
E3	Outdoor fancoil temperature sensor failure	Hardware Error
E4	Abnormal system malfunction(lack of fluorine)	Hardware Error
E5	Model configuration error	Hardware Error
E6	Indoor PG/DC fan failure	Hardware Error
E7	Outdoor ambient temperature sensor failure	Hardware Error
E8	Outdoor exhaust temperature sensor failure	Hardware Error
E9	Outdoor IPM module failure/compressor drive failure	Hardware Error
EA	Outdoor current sensor failure	Hardware Error
Eb	PCB and display screen communication failure	Hardware Error
EC	Outdoor modules communication failure	Hardware Error
EE	Outdoor EEPROM fault	Hardware Error
EF	Outdoor DC fan failure	Hardware Error
EH	Outdoor suction sensor failure	Hardware Error
EP	Outdoor compressor casing top failure	Hardware Error
EU	Outdoor voltage sensor failure	Hardware Error
Ej	Outdoor central coil temperature sensor failure	Hardware Error
En	Outdoor gas pipe temperature sensor failure	Hardware Error
Ey	Outdoor liquid pipe temperature sensor failure	Hardware Error
P0	IPM module protection	Others Error
P1	Overvoltage and undervoltage protection	Others Error
P2	Overcurrent protection	Others Error
P3	Other protections	Others Error
P4	Protection against excessive outdoor exhaust temperature	Others Error
P5	Cooling protection against overcooling	Others Error
P6	Cooling and anti overheating protection	Others Error

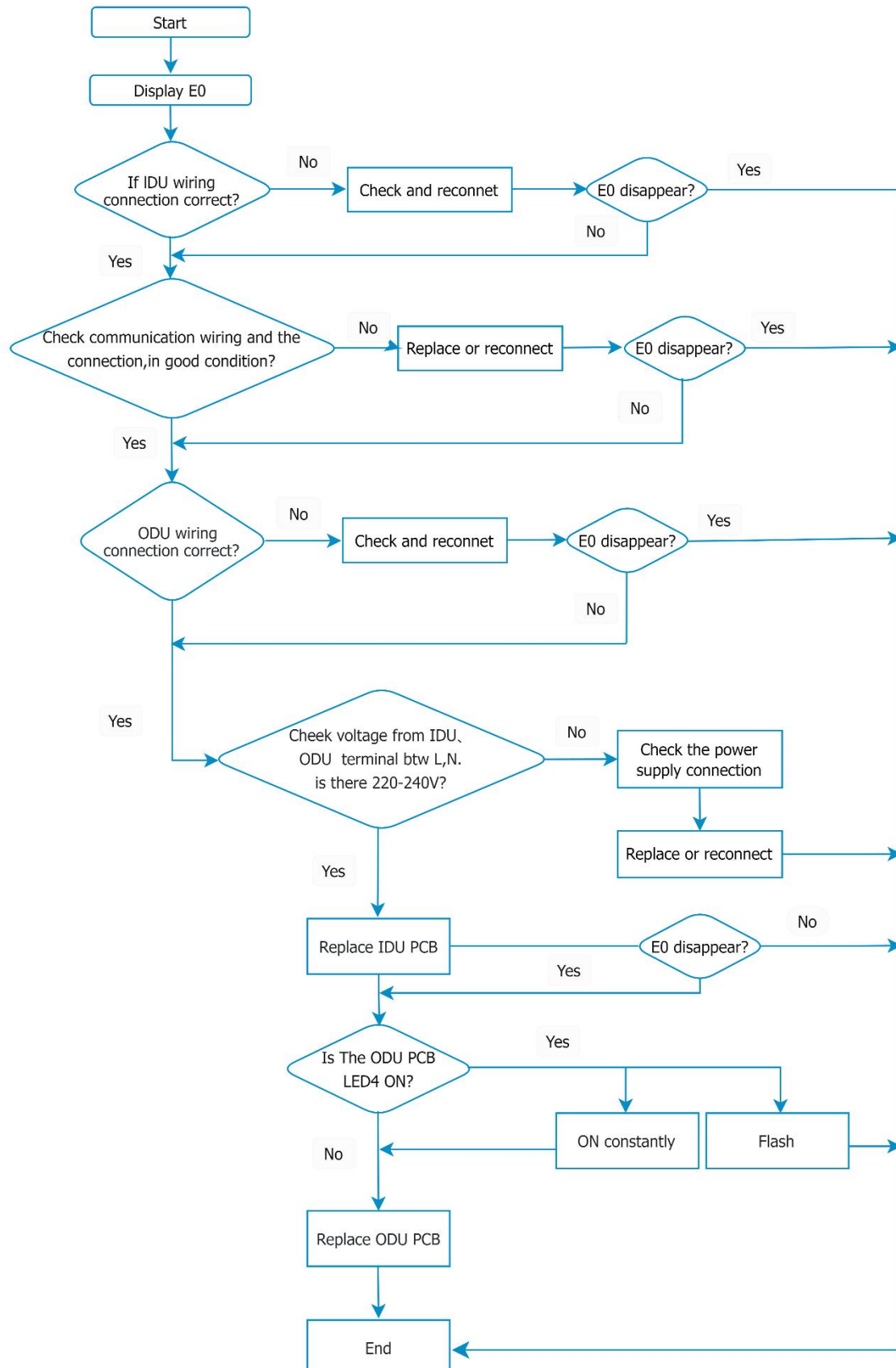
P7	Heating and anti overheating protection	Others Error
P8	Protection against high or low outdoor temperature	Others Error
P9	Compressor drive protection (abnormal load)	Others Error
PA	Ejector air plate communication failure/mode conflict	Others Error
F0	Infrared human sensing sensor failure	Others Error
F1	Battery module failure	Others Error
F2	Exhaust temperature sensor failure protection	Others Error
F3	Failure protection of outer tube temperature sensor	Others Error
F4	Abnormal protection of refrigerant circulation	Others Error
F5	PFC protection	Others Error
F6	Compressor missing/reverse phase protection	Others Error
F7	Module temperature protection	Others Error
F8	Abnormal commutation of four-way valve	Others Error
F9	Module temperature sensor circuit malfunction	Hardware Error
FA	Compressor phase current detection fault	Hardware Error
Fb	Cooling and heating overload protection limit / reduce frequency	Others Error
FC	High power protection limit / reduce frequency	Others Error
FE	Module current (compressor phase current) protection limit / reduce frequency	Others Error
FF	Module temperature protection limit / reduce frequency	Others Error
FH	Drive protection limit / reduce frequency	Others Error
FP	Anti condensation protection limit / reduce frequency	Others Error
FU	Anti freezing protection limit / reduce frequency	Others Error
Fj	Exhaust protection limit / reduce frequency	Others Error
Fn	External AC current protection limit / reduce frequency	Others Error
Fy	Fluorine deficiency protection	Others Error
H1	High pressure switch malfunction	Hardware Error
H2	Low pressure switch malfunction	Hardware Error
bf	TVOC sensor failure	Hardware Error
bc	PM2.5 sensor failure	Hardware Error
bj	Humidity sensor failure	Hardware Error
bE	CO2 sensor malfunction	Hardware Error

bd	Fresh air fan failure	Hardware Error
d4	Waterfull protection	Others Error
d5	Access control protection	Hardware Error
Fd	Refrigerant sensor failure	Hardware Error
Hd	Refrigerant leakage protection	Hardware Error
H3	High-pressure sensor fault (not displayed on indoor unit, displayed on outdoor unit)	Hardware Error
H4	Low-pressure sensor fault (not displayed on indoor unit, displayed on outdoor unit)	Hardware Error

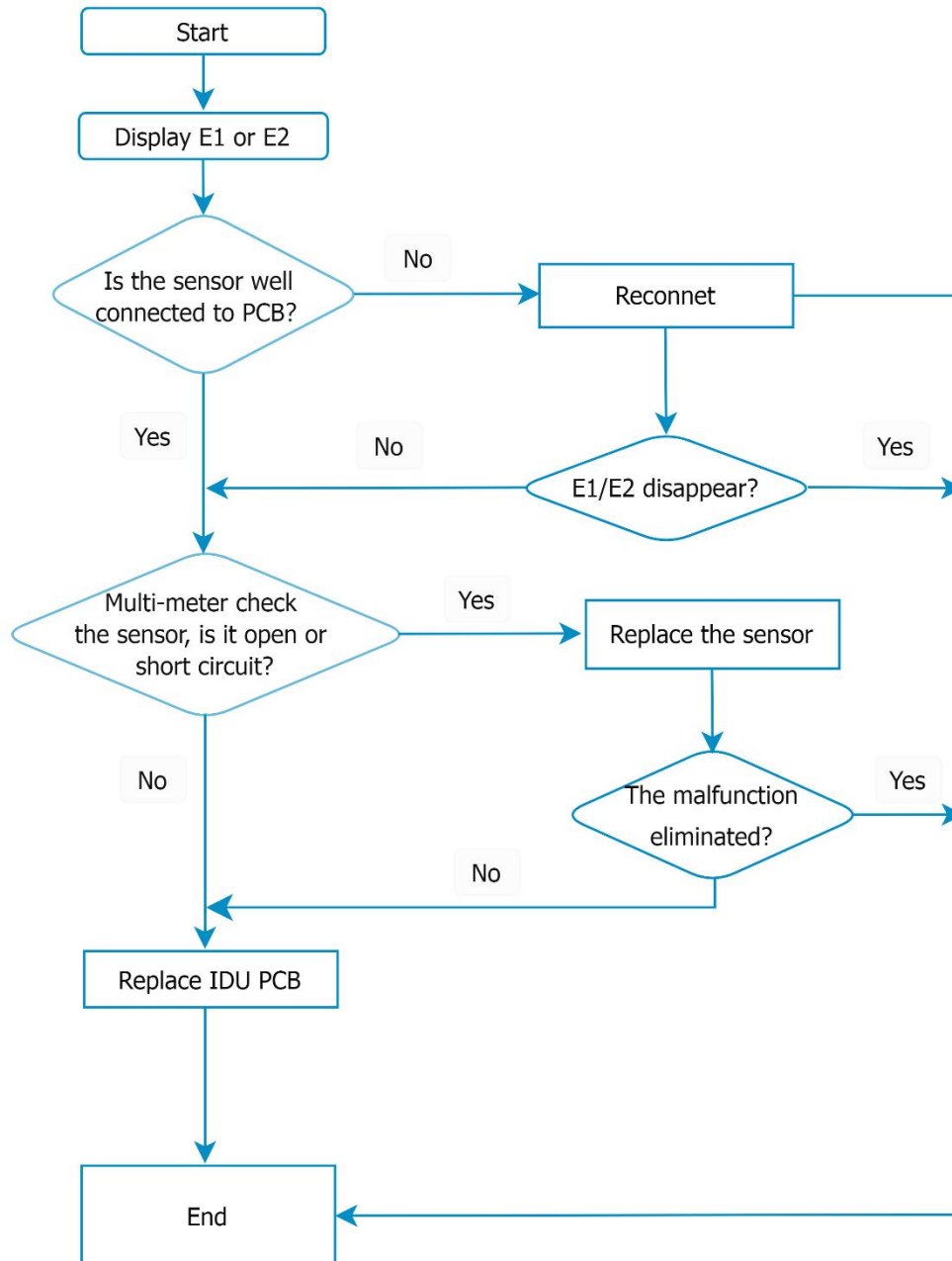
If malfunction occurs during operation, LCD temperature display zone will show the failure information. If several malfunctions occur at the same time, their corresponding error codes will be shown in turn. When malfunction occurs, please shut down the unit and send for professional personnel to repair.

3.4 Troubleshooting

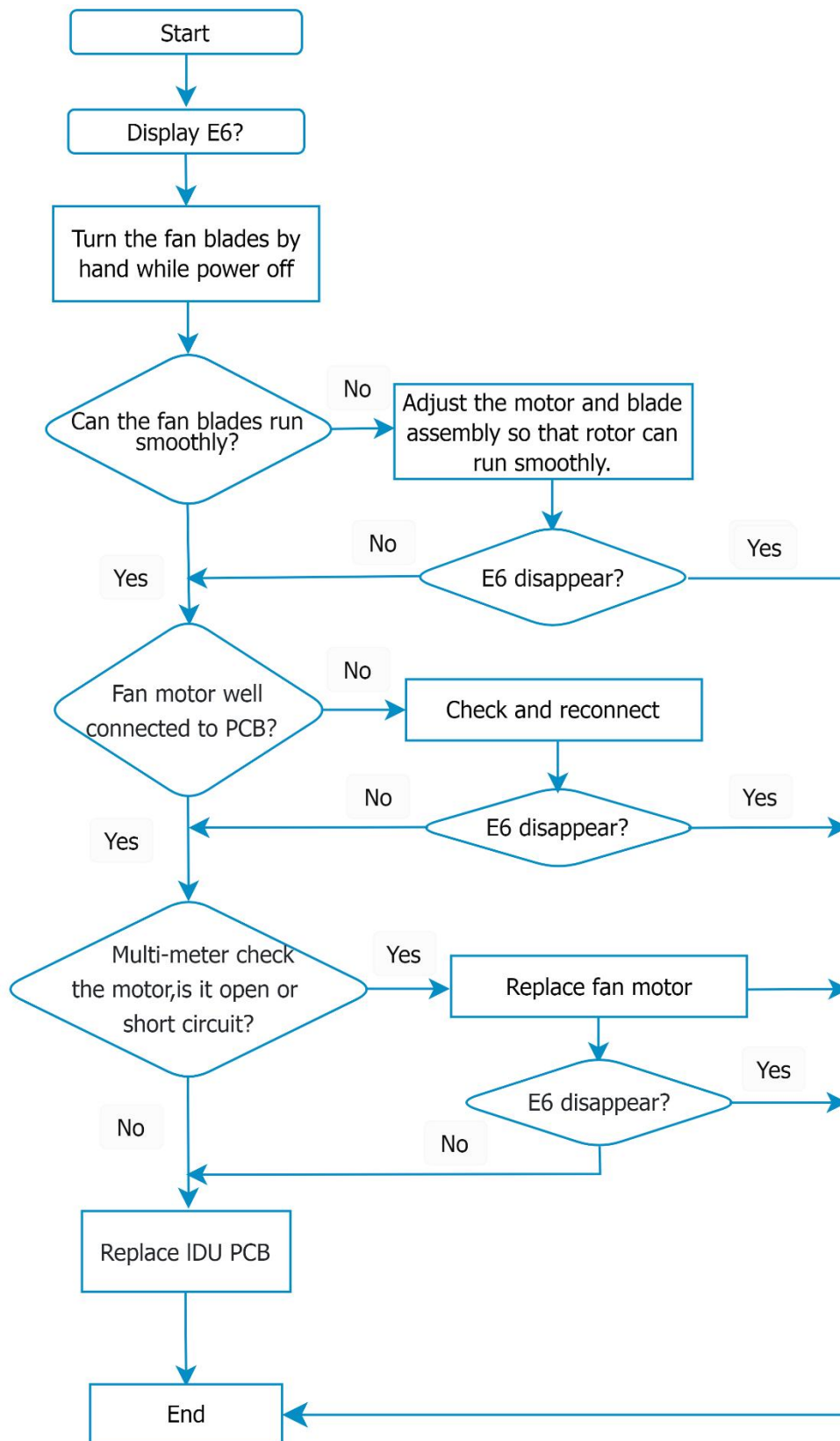
3.4.1 E0 ---IDU & ODU Communication Failure



3.4.2 E1,E2 ---IDU Room Temperature Sensor or Coil Temperature Sensor Failure.

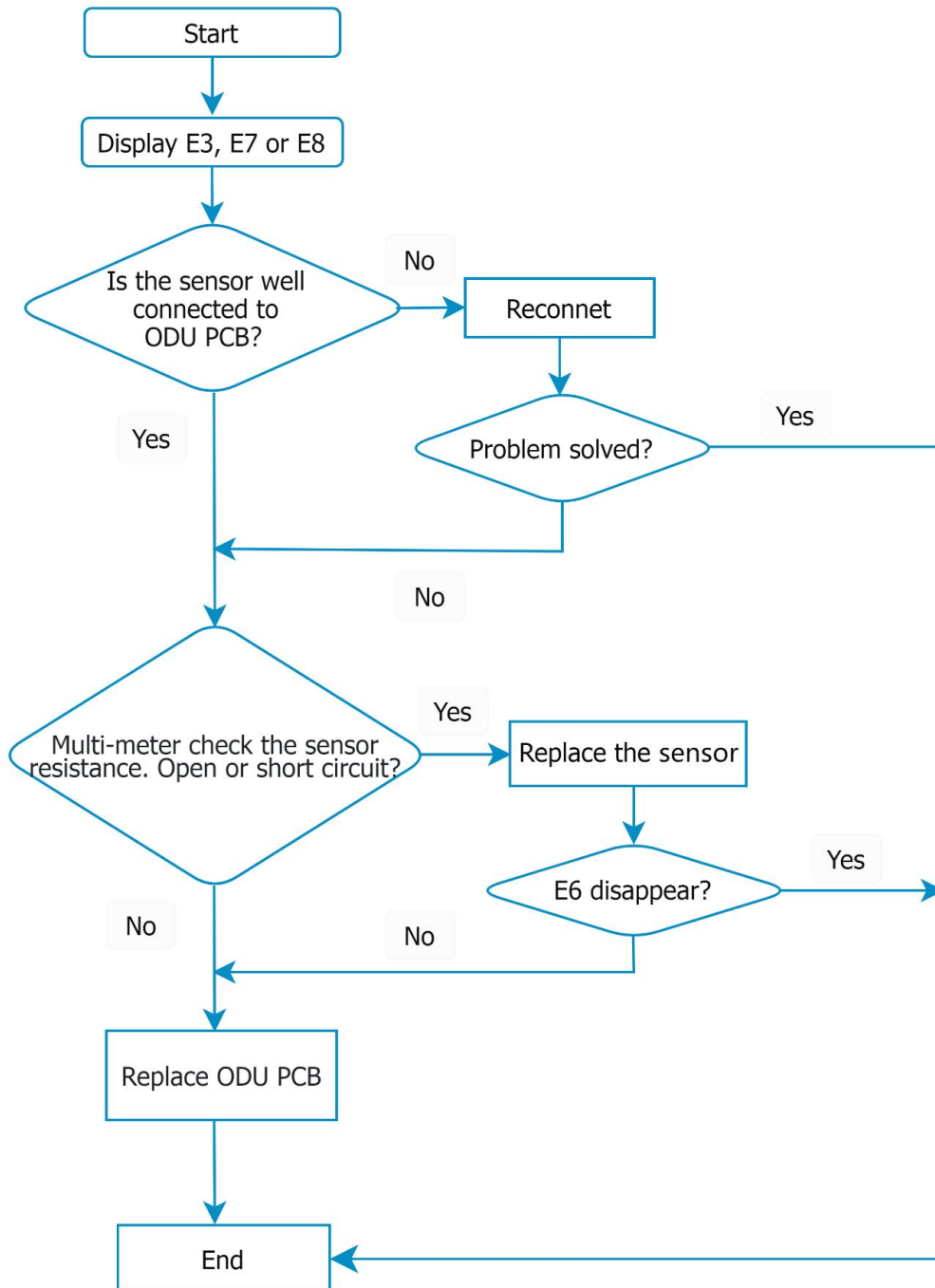


3.4.3 E6----IDU Ventilation Failure (PG and DC Fan Motor only)

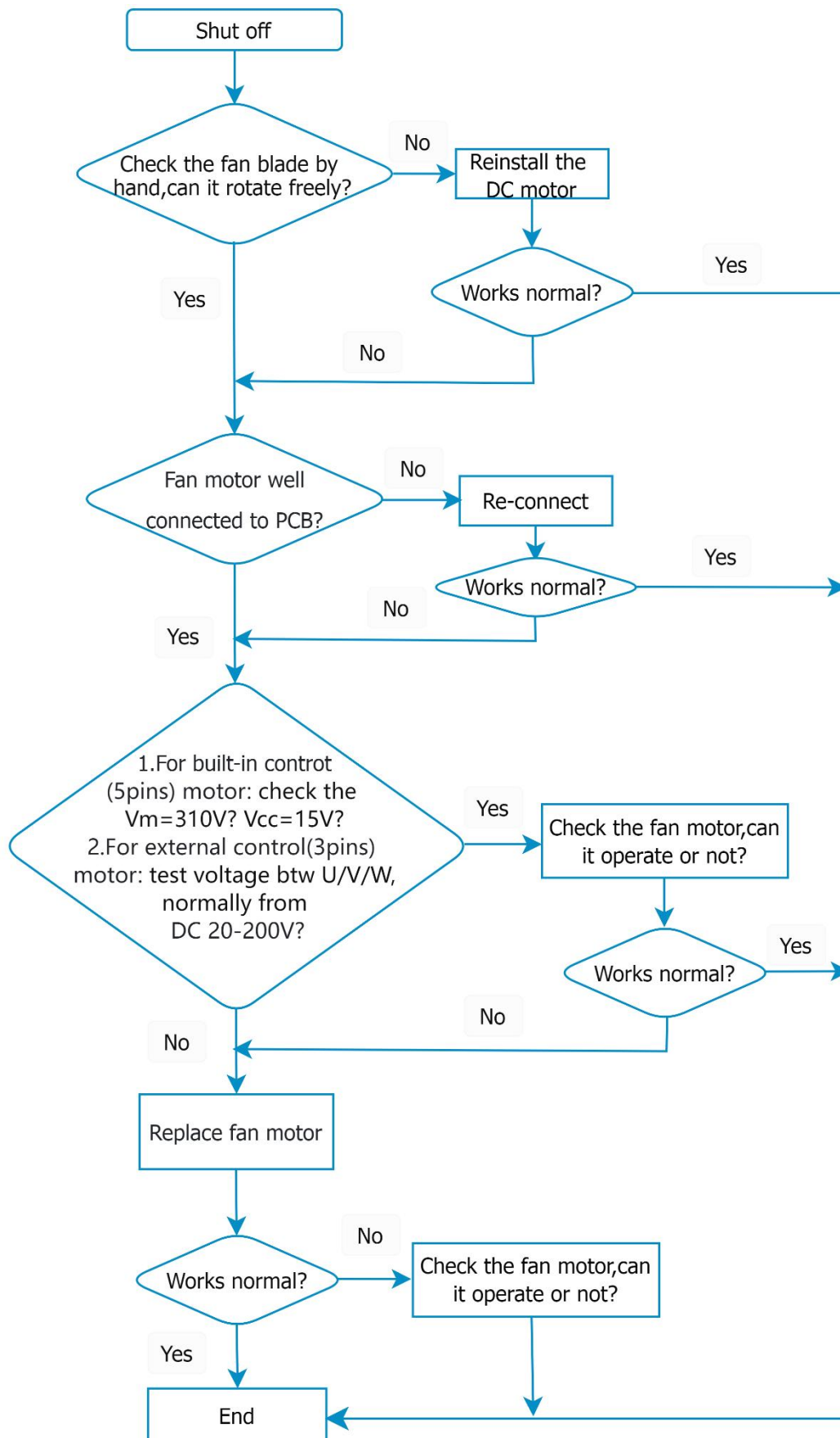


3.4.4 E3,E7 or E8----ODU Coil Temperature Sensor,Ambient Temperature Sensor or Discharge temperature sensor failure.

When any of the sensor resistance open or short circuit,unit will display failure code as E3/E7 or E8,IDU and ODU turns off.When the sensor resistance recovery,unit revert to be standby,customer can switch on the unit directly.

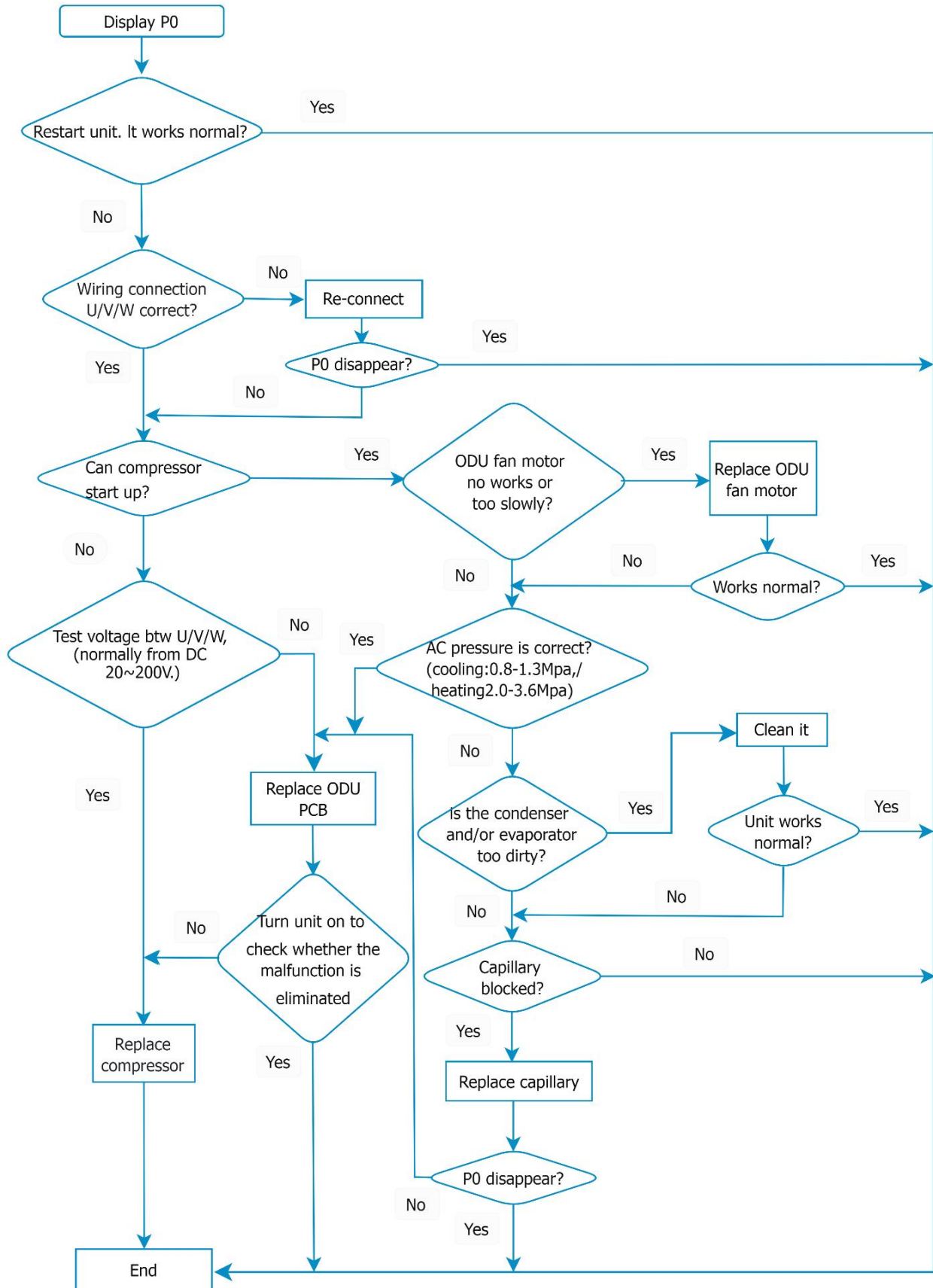


3.4.5 EF---ODU DC Fan Motor Failure



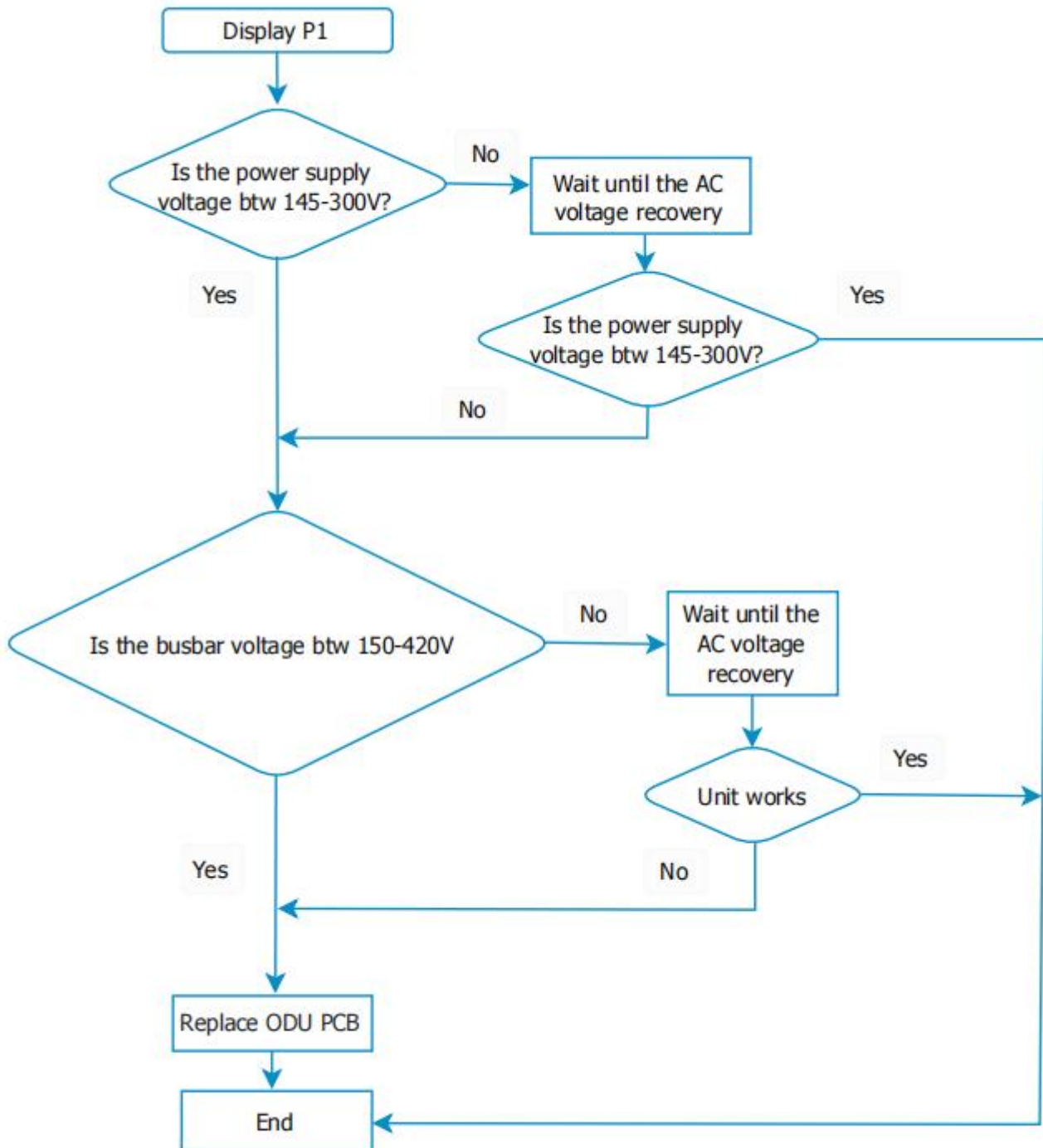
3.4.6 P0---IPM Protection

When overheat or overcurrent for IPM, AC Unit will display P0 protection



3.4.7 P1--- Over / under Voltage Protection

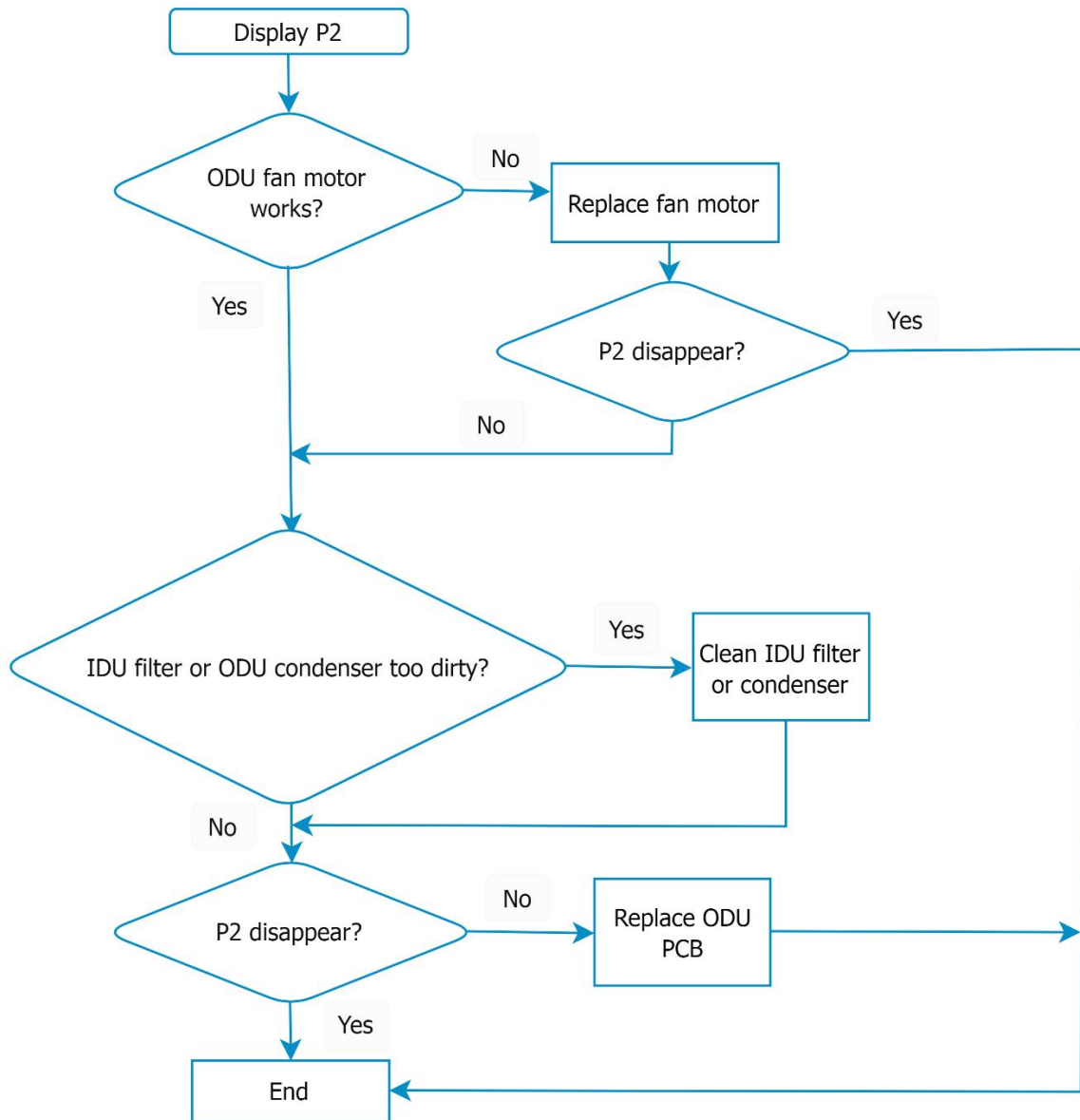
- Test voltage between L&N, When the power supply $V > AC300V$ or $V < AC145V$, AC will display P1 protection, unit will recover back to previous status while $V > AC155V$.
- Test voltage on the big size electrolytic capacitor of ODU PCB, When DC busbar voltage $V > DC420V$ or $V < DC150V$, unit will recover back to previous status while $DC190V < V < DC410V$.



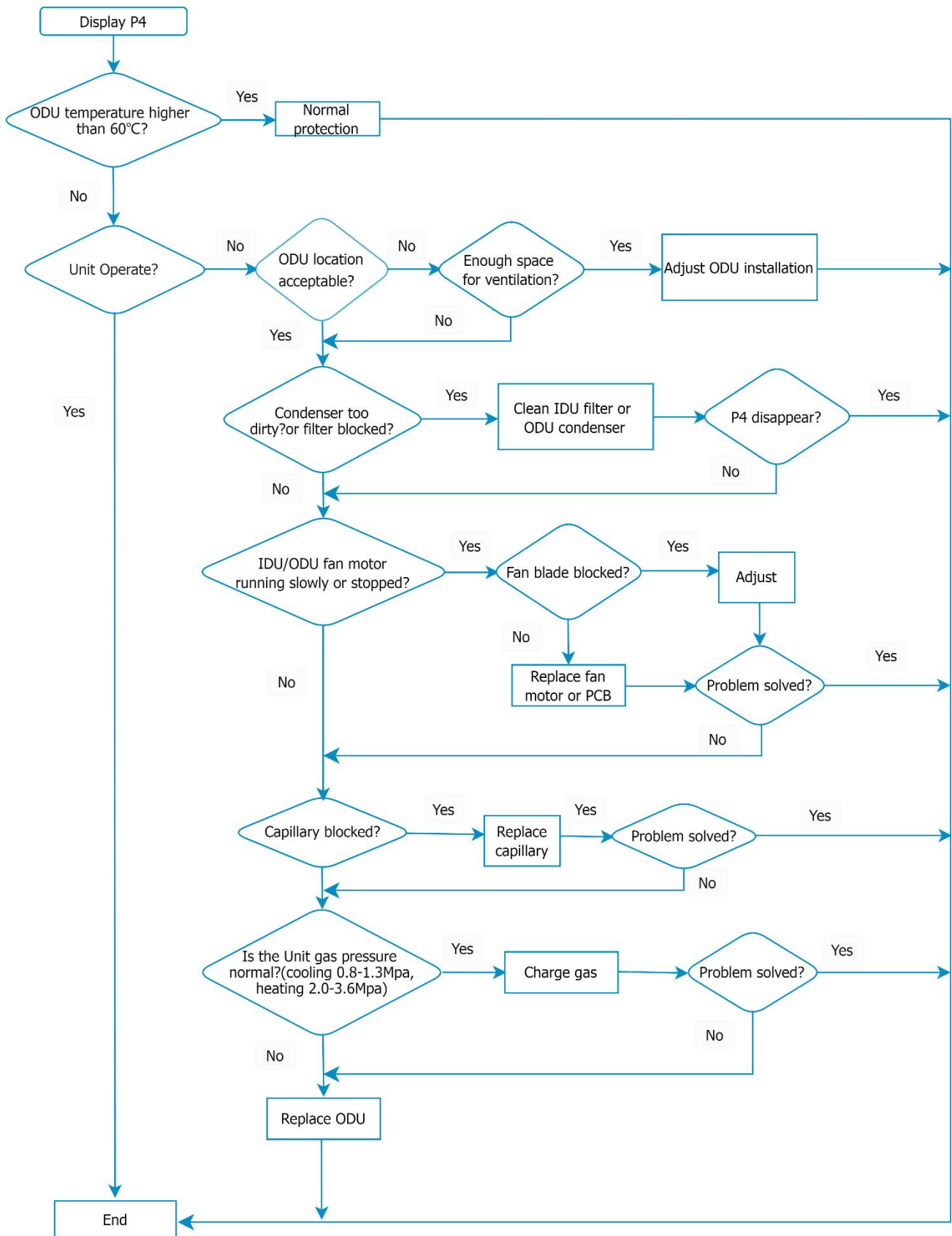
3.4.8 P2---Over Current Protection

When the AC unit running current more than I_{max} , it will stop and display P2 protection.

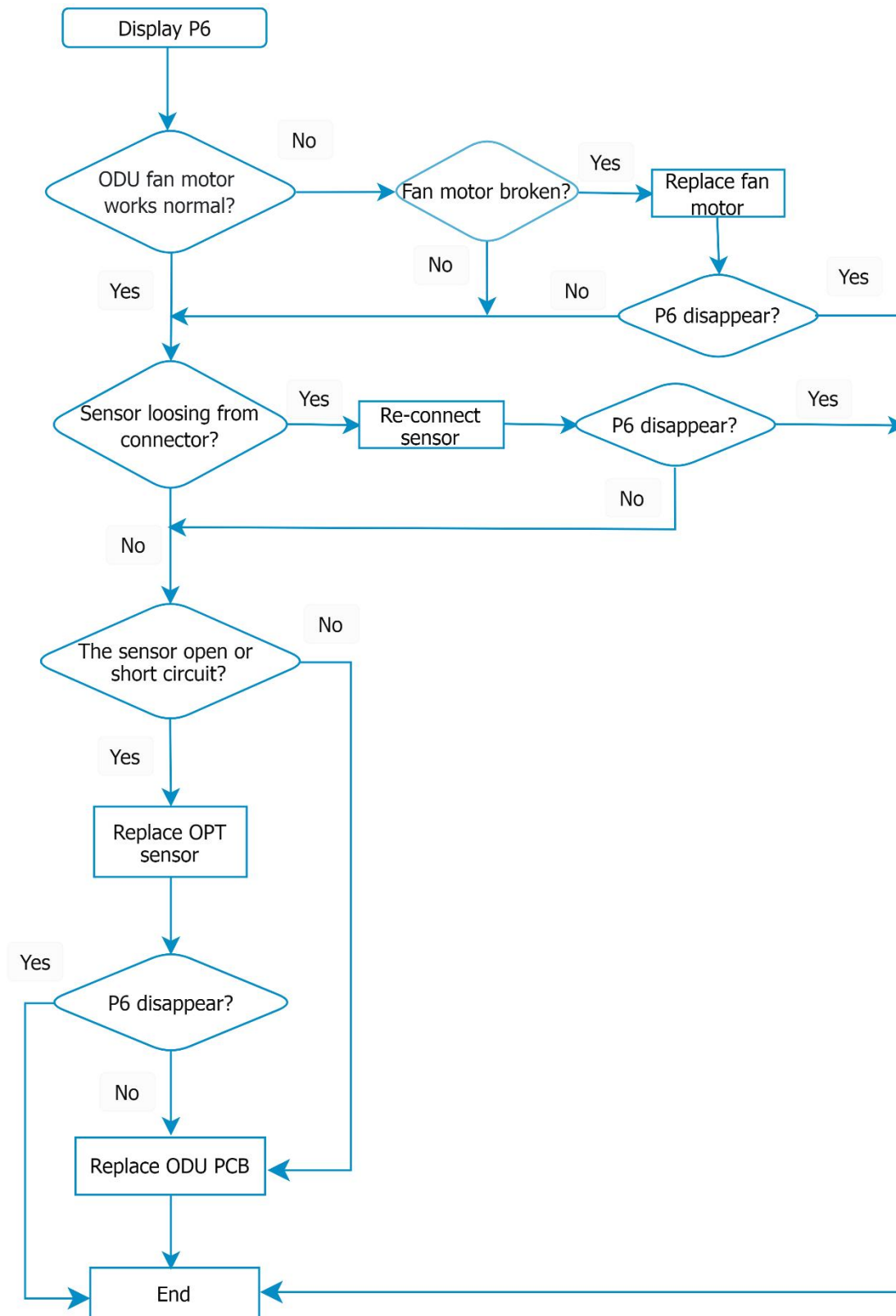
Note: for different AC model, I_{max} has difference value.



3.4.9 P4 ---ODU Discharge Temperature Overheating-protection



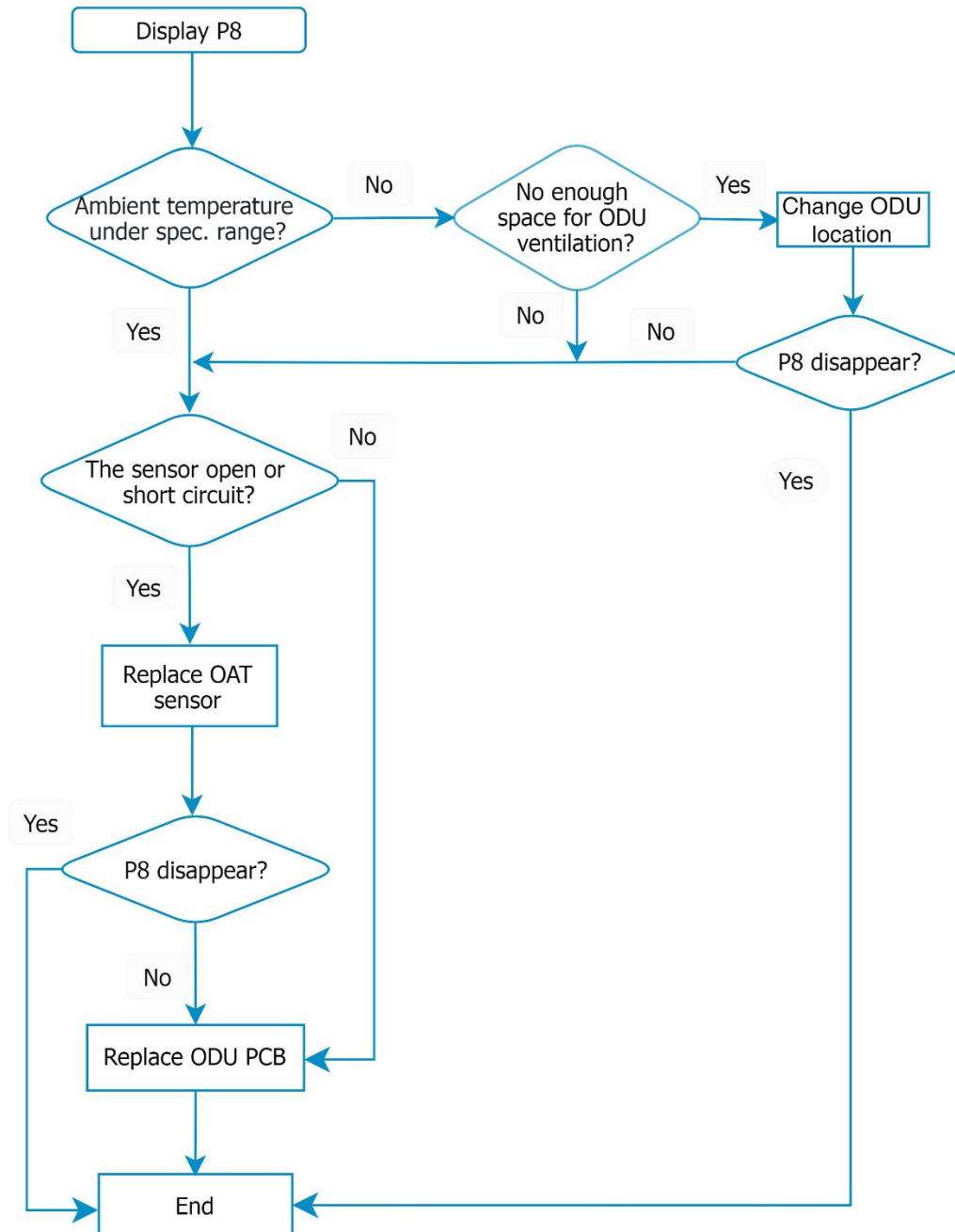
3.4.10 P6---Overheating Protection in Cooling Mode



3.4.11 P8---Outdoor Over-temperature/Under-temperature Protection

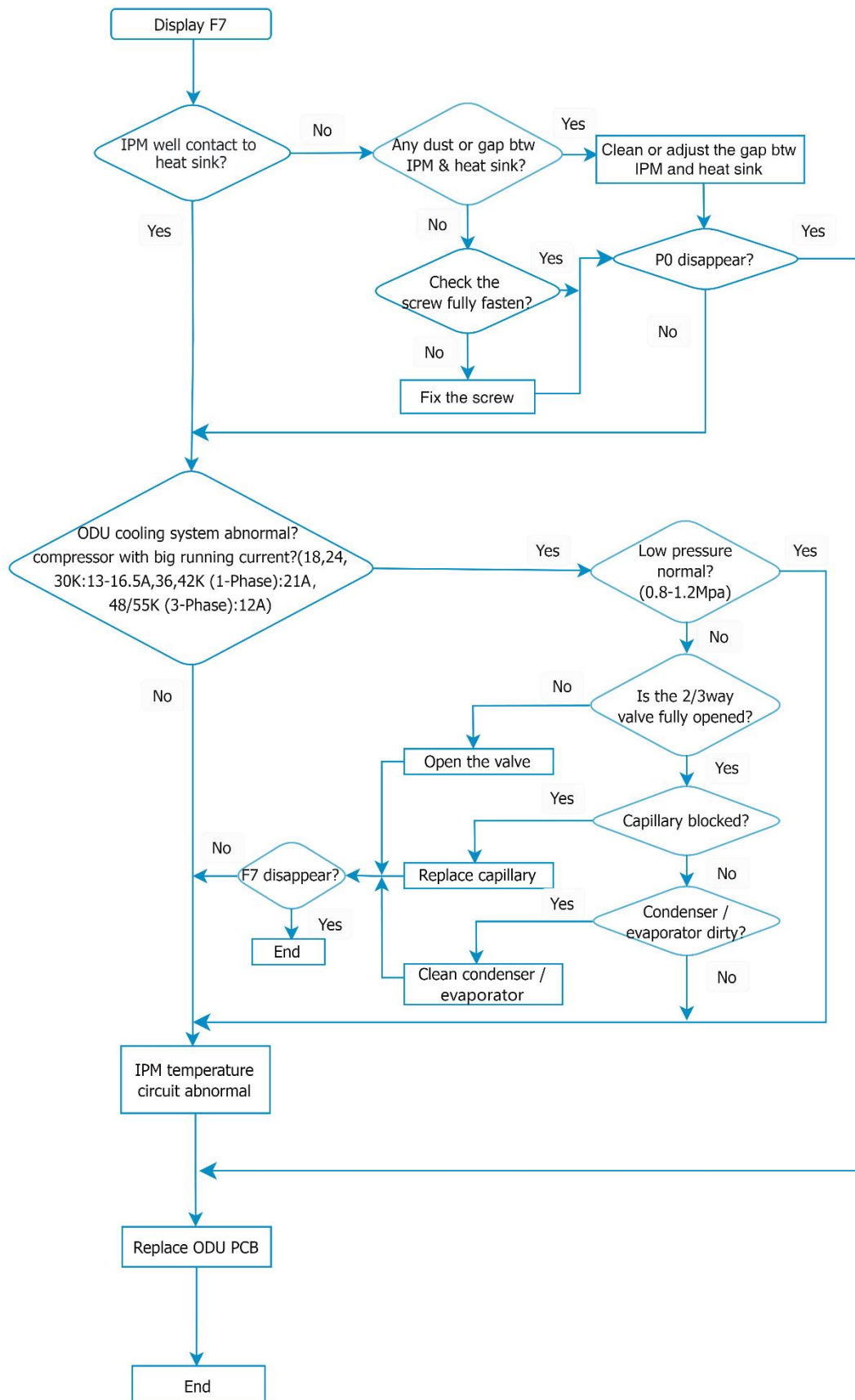
When environment temperature as below condition, the compressor will stop working, after 200s delay, the IDU will show P8 failure code.

Cooling or Dry mode: ODU ambient temperature: $OAT < -5^{\circ}\text{C}$ or $OAT > 60^{\circ}\text{C}$;

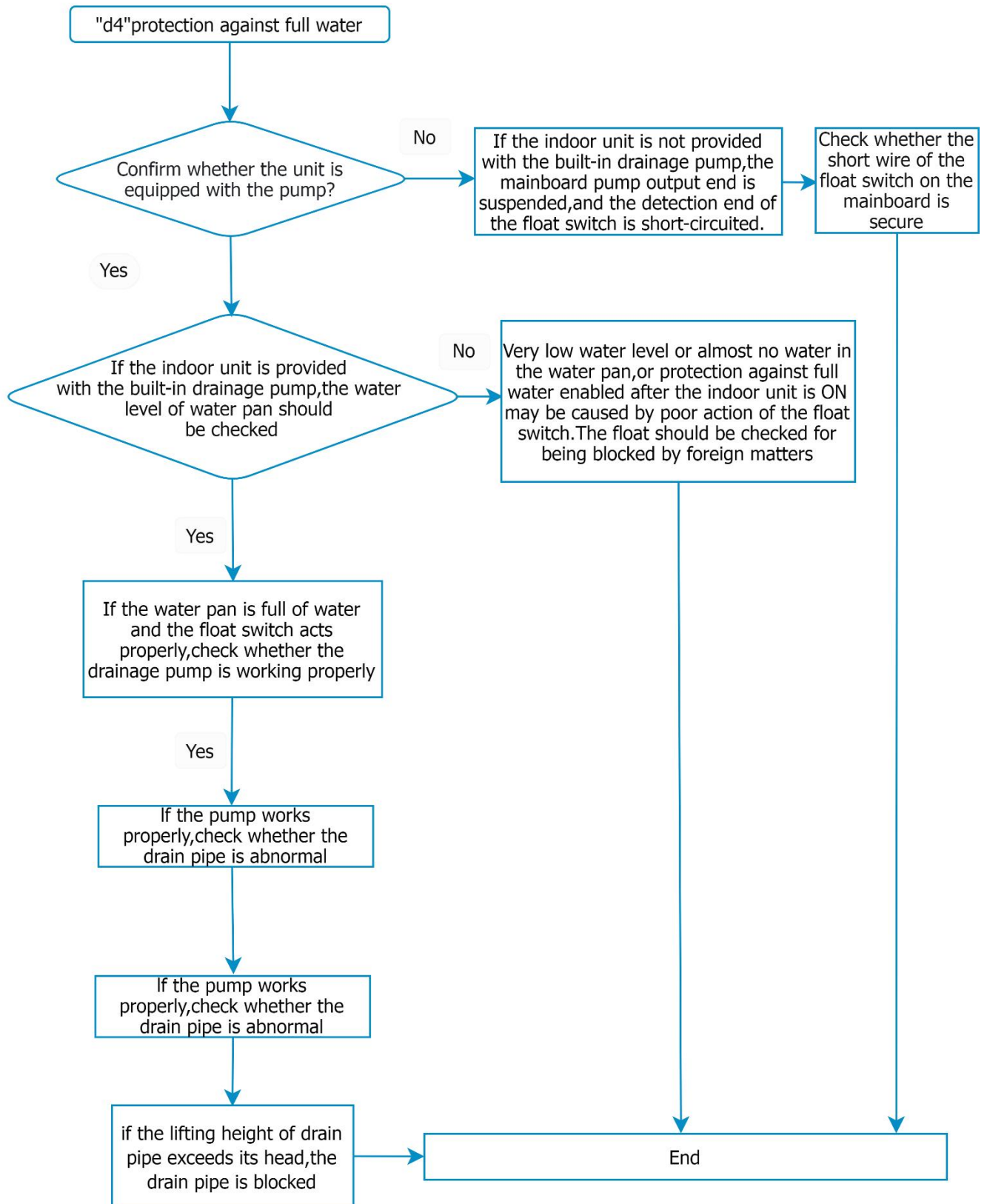


3.4.12 F7---Module Temperature Protection

IPM over-temperature protection,when IPM temperature more than 95°C,it will show F7.



3.4.13 d4 Protection against Full Water



3.5 Failures Not Caused by Errors

1) If your air conditioner fails to function normally, please first check the following items before maintenance:

Problem	Cause	Corrective measure
The air conditioner can't run.	If you turn off the unit and then immediately turn it on, in order to protect the compressor and avoid system overload, compressor will delay running for 3min.	Please wait for a while.
	Wire connection is wrong.	Connect wires according to the wiring diagram.
	Fuse or circuit breaker is broken.	Replace the fuse or switch on the circuit breaker.
	Power failure.	Restart after power is resumed.
	Power plug is loose.	Re-insert the power plug.
	Remote controller has low battery.	Replace the batteries.
Bad cooling effect.	Air inlet and outlet of indoor or outdoor units have been blocked.	Clear the obstacles and keep the room for indoor and outdoor units well ventilated.
	Improper temperature setting.	Reset a proper temperature.
	Fan speed is too low.	Reset a proper fan speed.
	Air flow direction is not right.	Change the direction of air louvers.
	Doors or windows are open.	Close them.
	Exposed under direct sunshine.	Put on curtains or louvers in front of the windows.
	Too many heat sources in the room.	Remove unnecessary heat sources.
	Filter is blocked or dirty.	Send for a professional to clean the filter.
	Air inlets or outlets of the units are blocked.	Clear away obstacles that are blocking the air inlets and outlets of indoor and outdoor units.

(2) The following situations are not operation failures.

Phenomenon	Time of occurrence	Cause
Mist comes from the air conditioner.	During operation.	If the unit is running under high humidity, the wet air in the room will be quickly cooled down.
The air conditioner generates some noise.	System switches to heating mode after defrosting.	Defrosting process will generate some water, which will turn to water vapor.
	The air conditioner is buzzing at the beginning of operation.	Temperature controller will be buzzing when it starts working. The noise will become weak 1min later.
	About 20s after the unit first enables the heating mode or there is refrigerant brushing sound when defrosting under heating.	It's the sound of 4-way valve switching direction. The sound will disappear after the valve changes its direction.
	There is hissing sound when the unit is started or stopped and a slight hissing sound during and after operation.	It's the sound of gaseous refrigerant that stops flowing and the sound of drainage system.
	There is a sound of crunching during and after operation.	Because of temperature change, front panel and other components may be swelled up and cause abrasion sound.

	There is a hissing sound when the unit is turned on or suddenly stopped during operation or after defrosting.	Because refrigerant suddenly stops flowing or changes the flow direction.
Dust comes from the air conditioner .	The unit starts operation after being unused for a long time.	Dust inside the indoor unit comes out together with the air
The air conditioner generates some smell.	During operation.	The room smell or the smell of cigarette comes out through the indoor unit.

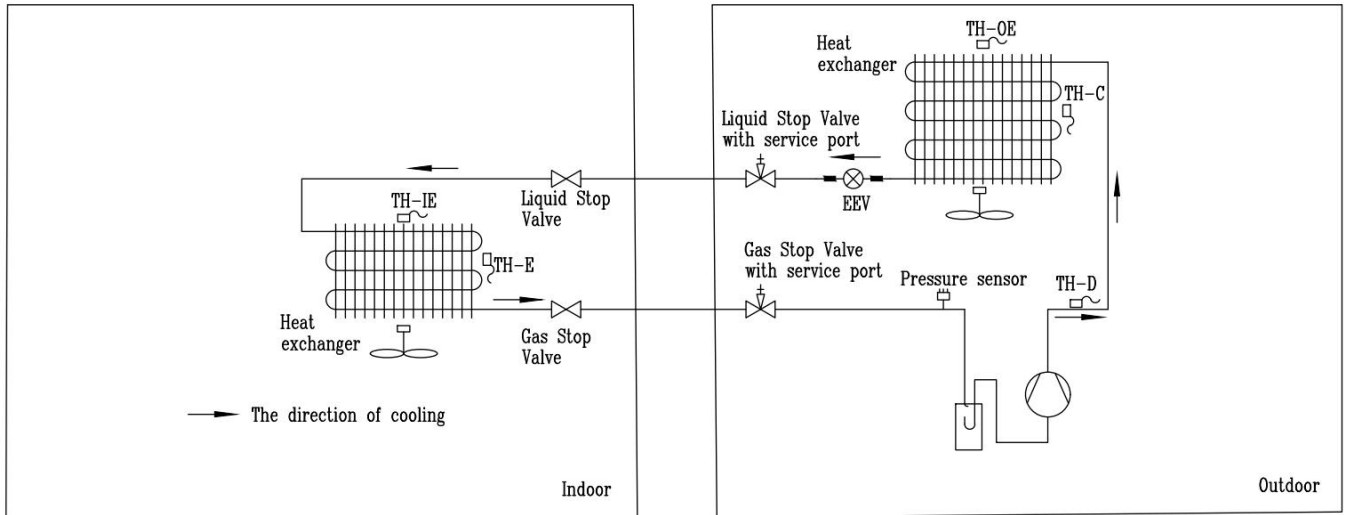


NOTICE:

Check the above items and adopt the corresponding corrective measures. If the air conditioner continues to function poorly, please stop the air conditioner immediately and contact our authorized local service center. Ask our professional service staff to check and repair the unit.

4 Maintenance

4.1 System Diagram



TH-IE Indoor Environment Thermal Bulb

TH-E Indoor Evaporator Thermal Bulb

TH-OE Outdoor Environment Thermal Bulb

TH-C Outdoor Condenser Thermal Bulb

TH-D Outdoor Compressor Discharge Thermal Bulb

4.2 Connection Pipe Vacuum Pumping



NOTICES:

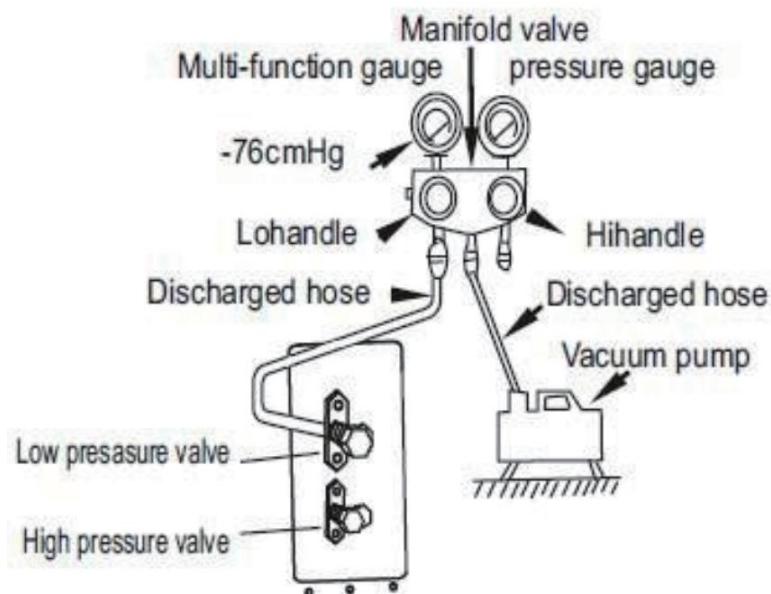
Make sure the outlet of vacuum pump is away from fire source and is well-ventilated.

- 1.Remove the caps of the liquid valve,gas valve and also the service port.
- 2.Meanwhile the gas and liquid valves should be kept closed in case of refrigerant leak.
- 3.Connect the hose used for evacuation to the vacuum pump.
- 4.Open the switch at the lower pressure side of the manifold valve assembly and start the vacuum pump.Meanwhile,the switch at the high pressure side of the manifold valve assembly should be kept closed,otherwise evacuation would fail.
- 5.The evacuation duration depends on the unit's capacity,generally.

Model	Time(min)
24K/36K	30
48K/55K	45

And verify if the pressure gauge at the low pressure side of the manifold valve assembly reads -0.1Mpa (-76cmHg), if not,it indicates there is leak some-where.Then, close the switch fully and then stop the vacuum pump.

- 1.Wait for 10min to see if the system pressure can remain unchanged.If the pressure increase,there may be leakage.
- 2.Slightly open the liquid valve and let some refrigerant go to the connection pipe to balance the pressure inside and outside of the connection pipe,so that air will not come into the connection pipe when removing the hose.Notice that the gas and liquid valve can be opened fully only after the manifold valve assembly is removed.
- 3.Place back the caps of the liquid valve,gas valve and also the service port.



NOTICE:

For large-size units, there are maintenance ports for liquid valve and gas valve.During evacuation, you may connect

the two hoses of the branch valve assembly to the maintenance ports to speed up the evacuation.

Refrigerant should be reclaimed into the appropriate storage tank. System should use oxygen-free nitrogen purging to ensure safety. This process may need to repeat several times. Do not use compressed air or oxygen in this process.

4.3 Refrigerant Charging



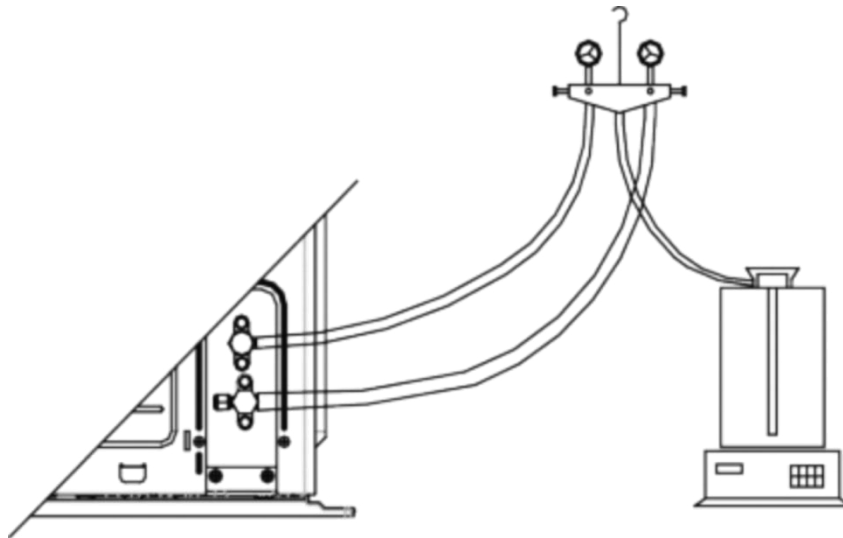
Pre-charging:

Step 1: connect the high pressure gauge line to the valve of liquid pipe and connect the low pressure gauge line to the valve of gas pipe. Connect the middle gauge line to the vacuum pump. Power on the vacuum pump and perform vacuum drying.

Step 2: After vacuum drying, close the high and low pressure gauge valves. Then remove the middle gauge line from the connector of vacuum pump. Then connect to the refrigerant tank.

Step 3: Loosen the middle gauge line from the connector of pressure gauge to a proper extent and slightly open the valve of refrigerant tank. Evacuate the middle gauge line. Then tighten up the connector again and completely open the valve of refrigerant tank at the same time.

Step 4: keep the refrigerant tank erect and put it on an electronic scale. Record the current weight as m1.



Step 5: Open the high pressure gauge valve (keep the low pressure gauge valve closed). Then charge refrigerant into the system. Meanwhile, record the weight of refrigerant tank as m2.

Step 6: $m_1 - m_2 = m$. If m equals to the required charging quantity M, close the valve of refrigerant tank at once. Then move to step 8.

Step 7: If you can't continue to charge refrigerant into the system and the quantity of charged refrigerant is less than the required charging quantity, then record the current quantity of charged refrigerant:

$$m = m_1 - m_2$$

$$m' = M - m$$

The remaining charging quantity is: $m' = M - m$

Step 8: After charging, remove the pressure gauge

Refrigerant charging when unit is turned on:

Step 1: connect the high pressure gauge line to the valve of liquid pipe and connect the low pressure gauge line to the valve of gas pipe. Connect the middle gauge line to the vacuum pump. Power on the vacuum pump and perform vacuum drying.

Step 2: After vacuum drying, close the high and low pressure gauge valves. Then remove the middle gauge line from the connector of vacuum pump. Then connect to the refrigerant tank.

Step 3: Loosen the middle gauge line from the connector of pressure gauge to a proper extent and slightly open the valve of refrigerant tank. Evacuate the middle gauge line. Then tighten up the connector again and completely open the valve of refrigerant tank at the same time.

Step 4: Keep the refrigerant tank erect and put it on an electronic scale. Record the current weight as m1.

Step 5: Open the low pressure gauge valve (keep the high pressure gauge valve closed). Then charge in the remaining charging quantity m.

Step 6: After all required refrigerant is charged in, close the valve of refrigerant tank.

Step 7: Remove the pressure gauge to finish the refrigerant charging work. procedure of refrigerant charging quantity M, close the valve of refrigerant tank at once. Then move to step 8.

Following is the supplementary requirement for refrigerant charging on the basis of normal procedure:

- 1) Make sure that when charging refrigerant into the system, no other types of refrigerant will be mixed. The pipeline for refrigerant charging should be as short as possible to reduce the amount of refrigerant left in it.
- 2) The refrigerant tank should stand erect.
- 3) Make sure the refrigerating system is already grounded before refrigerant charging.
- 4) When charging is completed (or not yet completed), stick a label on the system.
- 5) Before re-charging refrigerant into the system, use oxygen-free nitrogen to perform pressure test. When charging is completed, perform leak test before trial running. Before leaving the workplace, perform a leak test again.

4.4 Maintenance of Major Components

4.4.1 Replacement of Wire Controller

Please refer to the instruction manual of wire controller.

4.4.2 How to Replace The Compressor

4.4.2.1 Diagnosis of Compressor Failure

A.On condition that the unit can be started up

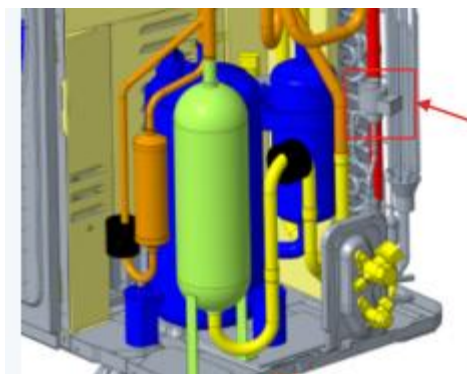
Step 1: If the unit can be started up, then start it up to check the current of the faulted compressor. Use a pressure gauge to measure the pressure of the big and small valves. Connect with a computer to monitor the data. The electric current of an inverter compressor will be different under different rotation speed or different working conditions.

Step 2: Judge whether the operating noise of the compressor is normal, and whether there is a sharp noise or obvious scraping. If there is a normal compressor working nearby, compare their operating noise.

Step 3: Examine whether the electronic expansion valve of the outdoor unit is active and whether the 4-way valve works or not. How to examine:

Electronic expansion valve:

The electronic expansion valve will be reset every time when the unit is powered on or off. Touch the valve and you can feel the movement of the valve spool. In the last stage of the reset process, you will hear the click of the valve and feel its vibration. The component framed in red in the picture is the electronic expansion valve:



Touch the electronic expansion valve:

- a. Touch the top of the electronic expansion valve and you can feel its move as it is reset upon startup.
- b. Make sure the coil is fixed firmly.

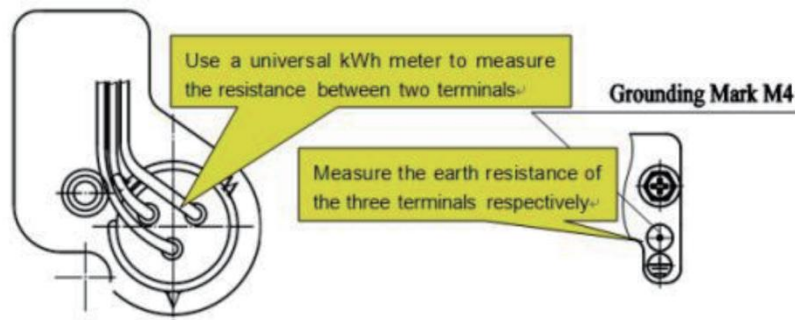
Step 4: Check the drive board of compressor, i.e. the IPM module. Please refer to the IPM checking method in the section of troubleshooting.

B.On condition that the unit cannot be started up

Step 1: Cut off the power supply and detach the cover of the wiring box of the compressor. Check the wiring of the

compressor.

Step 2: Check the resistance between the wiring terminals (U,V,W) of compressor.



Refer to the following table for the resistance between any two terminals:

Compressor Model	UV Winding Resistance	VW Winding Resistance	WU Winding Resistance
KTM240D46UMT2	$1.030 \pm 5\% \Omega$	$1.030 \pm 5\% \Omega$	$1.030 \pm 5\% \Omega$
GTH420SKPC8DQ	$0.405 \pm 5\% \Omega$	$0.405 \pm 5\% \Omega$	$0.405 \pm 5\% \Omega$

Measure the earth resistance of each wiring terminal. The resistance should be above 10 megohm. If not, we can judge that the compressor is faulted inside.

Step 3: On condition that the unit cannot be started up, we also need to check the solenoid valve assembly of the system, including the electronic expansion valve. The checking method is the same as instructed above.

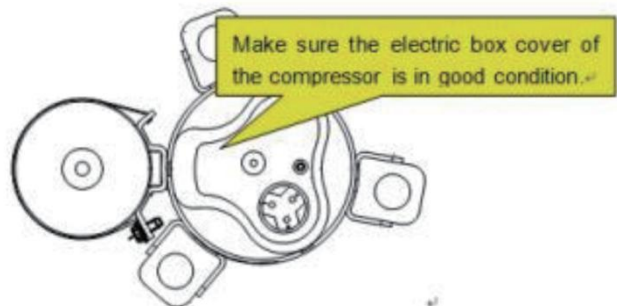
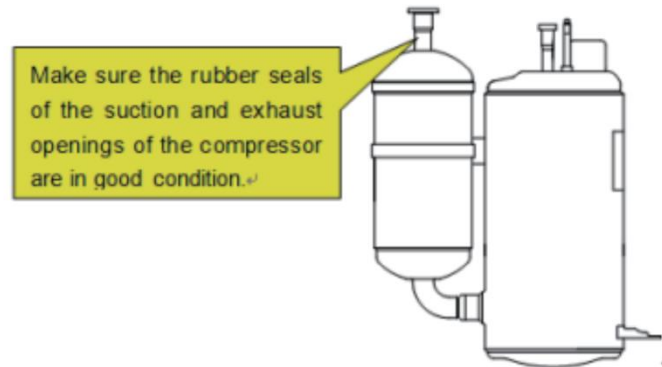
Step 4: Check whether the IPM module is normal. Please refer to the IPM checking method in the section of troubleshooting.

4.4.2.2 Replacement of compressor

Step 1: preparation

1. Prepare the components for replacement

When carrying the old and new compressors, do not place the compressors horizontally or upside down. The angle of inclination should be within $\pm 30^\circ$. Make sure the lubricant inside the compressors will not flow from the oil balance mouth. The suction and exhaust openings of the compressors must be sealed. If a rubber seal is missing, use adhesive tape to seal the opening. This is to prevent the compressor oil from contacting the air.



CAUTION!

Before replacement, make sure the nameplates and models of the compressors are identical.



Make sure the rubber seal of the liquid separator is complete. If it is lost during transport, use adhesive tape to seal

the opening at once. The container must be dry inside and well sealed.

CAUTION!

Make sure the lubricant is sealed inside the compressors.

1. Prepare relevant tools

- Prepare nitrogen. Please strictly follow the nitrogen welding standards during the welding process. Make sure there is sufficient nitrogen. The nitrogen pressure should be above 2.0Mpa.
- Prepare welding rods. Prepare some welding rods of common specifications and some special welding rods that contain more than 5% silver. They are used to weld the compressor. The suction and exhaust openings of the compressor are all connected to copper-plated steel pipes, so we need to use special welding rods and solder.
- Prepare applicable welding tools. Please evaluate how much oxygen and acetylene should be used according to the current welding condition. Try to avoid repeated welding.
- Prepare a complete set of tools, including an internal hexagonal wrench, diagonal pliers, pincer pliers, nipper pliers, a universal meter, a pressure gauge, cross screwdriver, straight screwdriver, more than two wrenches, insulating tape and wire cables.

Step 2: Disconnect power

If the compressor needs to be replaced after judging as above, then switch off the outdoor unit and disconnect the power cable of the outdoor unit. Use insulating tape to wrap the power cable and put a notice board on the power switch to remind people to be cautious of electric shock.

Step 3: Neaten the electric components

When you detach the compressor wires, temperature sensors and electric heaters, mark them correspondingly for the convenience of reconnecting them.

Step 4: Discharge refrigerant

Discharge refrigerant from the system. Discharge simultaneously from the high pressure side and low pressure side. Do not discharge too fast (It should take more than 12h to completely discharge the refrigerant), otherwise, large quantity of lubricant will escape from the system together with the refrigerant.

Step 5: Detach the compressor

WARNING

- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
- 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.

Check the condition of the damaged compressor, including its position and model. If the information of the compressor is confirmed, check the oil quality.

- 1) If the oil is clear and impurities-free, we consider that the oil of the system is not polluted. Meanwhile, if we confirm that the valves and pipes are also normal, then we can replace the compressor only. For the removal of

compressor, please refer to the section: Removal of Major components.

How to check oil quality:

- After the compressor is detached, put it on a solid ground and shake it at an angle of 30~45° to ensure that the contaminant at the bottom of the compressor can be poured out.
- Place the compressor at a position above the ground level and then pour out the oil from the air outlet of the compressor. Collect the oil in a transparent container. The amount of oil should be over 150ml.

 Note:

- The axial direction of the compressor should not slant at an angle larger than 20° to the horizontal direction.
- Prevent the compressor from falling.
- Put a transparent container (over 150ml in volume) under the exhaust pipe to collect the compressor oil, thus we can see the oil quality.
- Put the container of compressor lubricant in a bright location and see if there is impurity and discoloration. Sniff at the compressor lubricant. Normally, there is no pungent smell.

2) If the oil is contaminated, replace the compressor and the gas-liquid separator.

 Note:

Confirm whether the compressor needs to be replaced. The pipe mouths of the faulted compressor must be sealed by adhesive tape as soon as the compressor is detached. Make sure the compressor is well preserved for the ease of future analysis.

Step 6: Clear the pipeline

After confirming which parts of the system should be replaced, check the pipe-line of the system. Blow through the main pipeline with nitrogen. After clearing the pipeline, if the components are not replaced immediately, seal the pipeline with adhesive tape to prevent the system from being contaminated by water and impurities in the air.

Step 7: Replace the compressor

For the removal of compressor, please refer to the section: Removal of Major components.

Step 8: Check/Replace the gas-liquid separator

For the removal of gas-liquid separator, please refer to the section: Removal of Major components.

Note:

If a compressor is damaged and needs to be replaced, its gas-liquid separator should also be replaced. This is to avoid the abnormal condition of the separator from affecting the safe and reliable operation of the system.

Step 9: Check the system for leaks

First of all, check each welding point. Check whether the welding points are smooth and whether there is any obvious welding hole or other abnormal condition.

Next, fill high-pressure nitrogen into the system for leak detection. If it is only the outdoor unit that needs to be repaired and the indoor unit is confirmed normal, then it's Ok to charge high-pressure nitrogen into the outdoor unit only. Fill in the nitrogen simultaneously from the high pressure side and low pressure side. We recommend charging the nitrogen from the big and small valves at the same time. The pressure of nitrogen should be above 20kgf. Then

use soapy water to check for leaks. Check the welding points particularly.

Finally, retain the pressure of the system. Fill high-pressure nitrogen into the system and maintain the pressure above 25kgf. Close the big and small valves and keep the pressure of indoor and outdoor units for more than 12h. If the pressure remains unchanged, then start vacuum pumping, otherwise, check the system for leaks again.

Temperature should be considered when judging the pressure change. If temperature changes by 1°C, pressure will change by 0.01Mpa or so.

For example, if temperature is 30°C when nitrogen of 2.5Mpa is charged, and temperature changes to 25°C after 12h, we consider that the system is qualified if the pressure is found at 2.43Mpa or above.

Step 10: Evacuate the system and charge refrigerant

Please refer to the section of maintenance: vacuum pumping and refrigerant charging.

Step 11: connect electric components

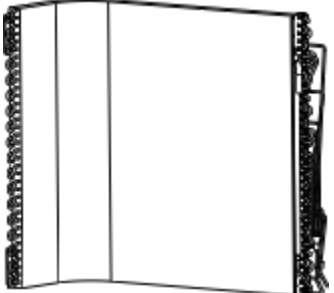
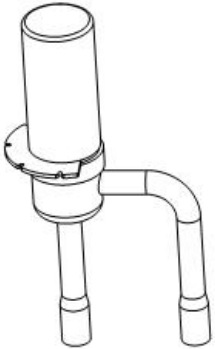
Connect cables, compressor wires and the electric heating belt according to the signs marked before and the wiring diagram on the cover of the electric box.

4.5 Removal of Major components

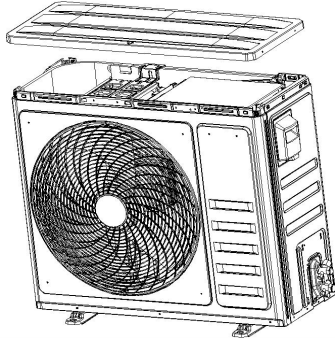
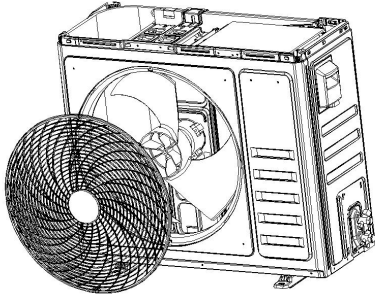
4.5.1 Structure supplementary and part Disassembly Drawing

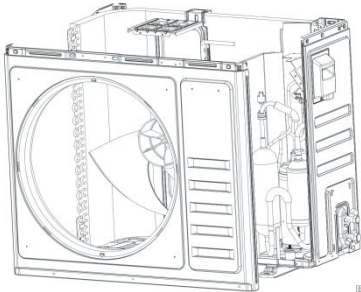
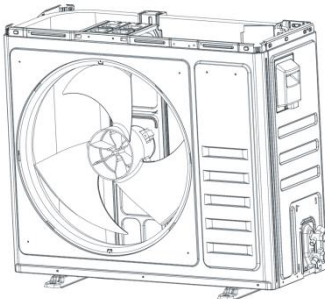
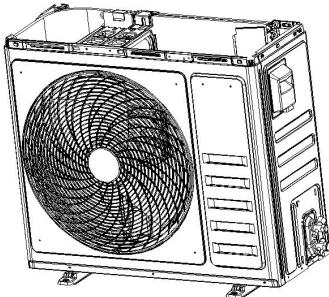
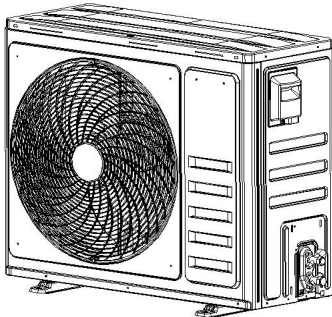
Removal of ODU Major Components

Picture	Name	Function
	compressor	Through compression, the low pressure refrigerant occupies a less space. As its pressure and temperature both rise, it becomes high pressure and high temperature refrigerant. It is the power drive of the system.
	Motor	The power drive of the fan. It enables the fan to run so as to provide smooth currents of air for forced convection and heat exchange of condenser and evaporator.
	Fan	It is used to provide smooth currents of air for forced convection and heat exchange of condenser and evaporator.

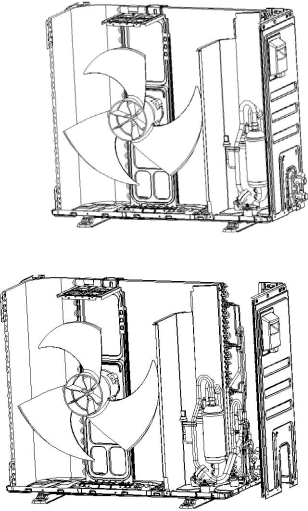
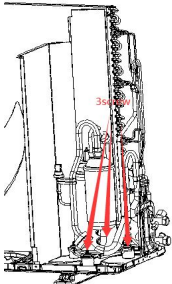
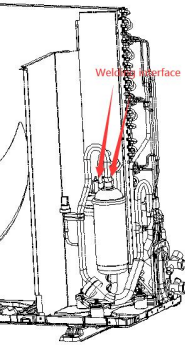
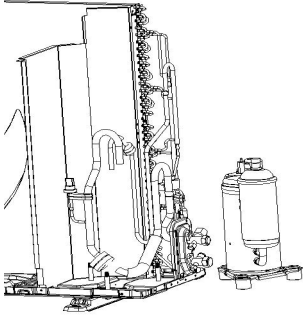
	condenser	It is used to transfer partial heat of the hot flow to the cold flow so that the flow temperature can reach the specified index. It is an energy exchanging device.
	Electronic expansion valve	It is used to lower the pressure and temperature of liquefied refrigerant and adjust the flow of refrigerant entering the evaporator.

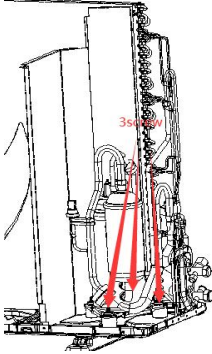
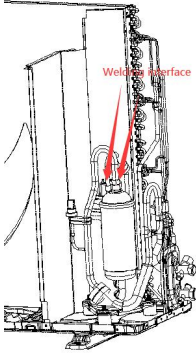
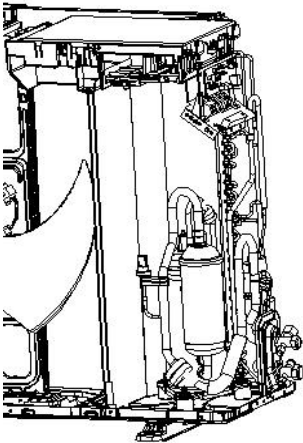
Model: TCC-24CH/DV2O-C, TCC-36CH/DV2O-C

Removal of front panel		
Note: Before removing the front panel, make sure power is cut off.		
Step	Picture	Work instruction
1. Remove the upper cover plate.		● Unscrew the screws of the upper cover plate with a screwdriver.
2. Remove the front grill.		● Unscrew the screws of the front grill with a screwdriver.

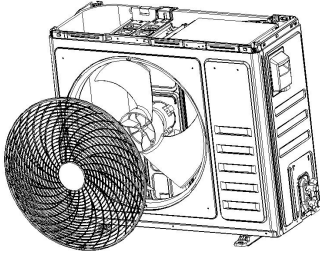
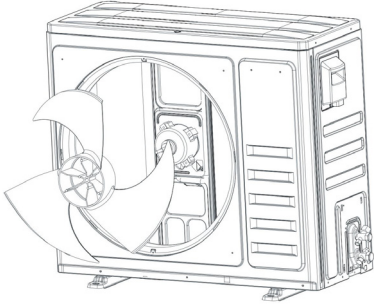
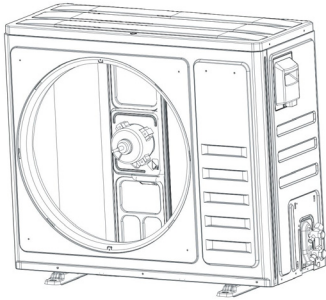
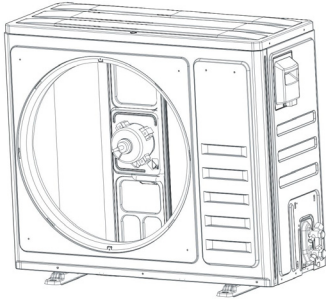
Removal of front panel		
Note: Before removing the front panel,make sure power is cut off.		
Step	Picture	Work instruction
3. Remove the front plate.		● Unscrew the screws of the front plate with a screwdriver
4. Install the front panel.		● Tighten up the screws around the front side plate.
5. Install the grill.		● Attach the grill back in place and tighten up the screws.
6. Install the upper cover plate.		● Tighten up the screws around the upper cover plate.

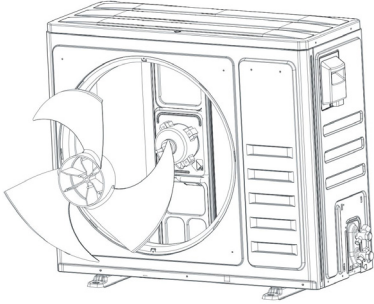
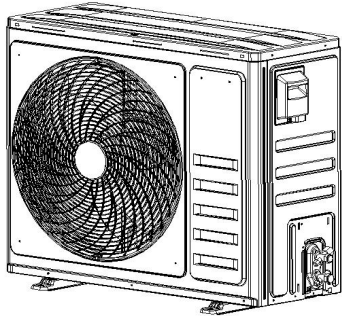
Model:TCC-24CH/DV2O-C,TCC-36CH/DV2O-C

Removal of compressor		
Note: Before removing the compressor,make sure there is no refrigerant in the pipeline and power is cut off.		
Step	Picture	Work instruction
1. Remove the panels and wires.		- Remove the upper,lower and front panels. - Loosen the securing screws of the wires with a screwdriver. - Remove the wires. - Note:When removing the wires,mark the wire terminals corresponding to their color so as to avoid misconnection.
2. Loosen the securing screws at the foot of compressor.		Use a wrench to remove the screws at the foot of compressor.
3. Break off the pipes connected to the compressor.		- Weld the pipes that are connected to the compressor. - Then remove the pipes. - Note: When welding the pipes,do not let the flame burn the other components.
4. Remove the compressor from the chassis.		- Remove the compressor and replace it. - Note:When replacing the compressor,avoid touching the nearby pipeline and components.

5. Fix the new compressor back onto the chassis.		● After replacing the compressor, tighten up the screws at the foot of compressor.
6. Connect the compressor suction port and exhaust port with the pipes.		● Weld the compressor connection pipes and connect them to the compressor. ● Note: When replacing the compressor, avoid touching the nearby pipeline and components.
7. Connect the compressor wires.		● Connect the compressor wires to the wire terminals on the top of compressor. ● Note: When connecting the wires, be sure to match the colors with the corresponding wire terminals.

Model:TCC-24CH/DV2O-C,TCC-36CH/DV2O-C

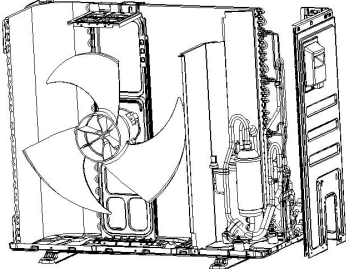
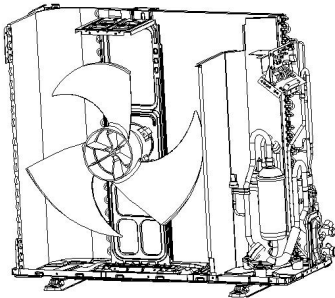
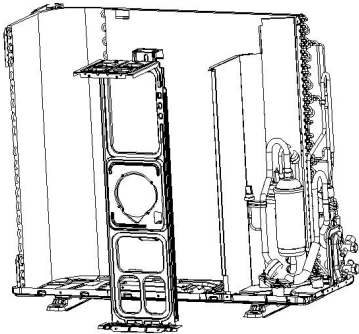
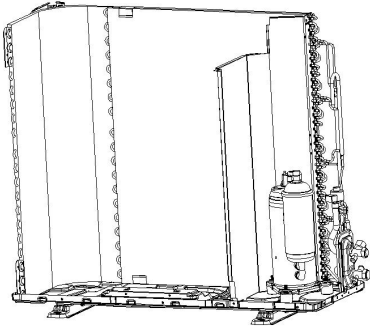
Removal of fan and motor		
Note: Before removing the fan,make sure power is cut off.		
Step	Picture	Work instruction
1. Remove the grill.		Use a screwdriver to unscrew the two screws on the upper left and lower right corners.
2. Remove the fan.		- Use a wrench to remove the specialized nut and gasket of the fan. - Note: Please keep the nut and gasket safe after removing them from the fan.
3. Remove motor.		- Use a screwdriver to unscrew the bolt of motor. - Note: Motor wire should be first removed from the electric box.
4. Install the motor.		Replace with a new motor. Then tighten up the screw bolt.

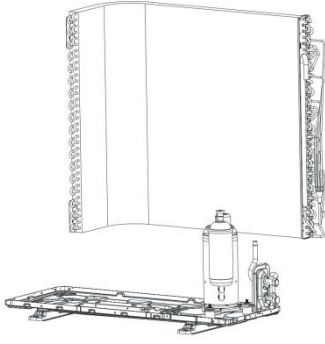
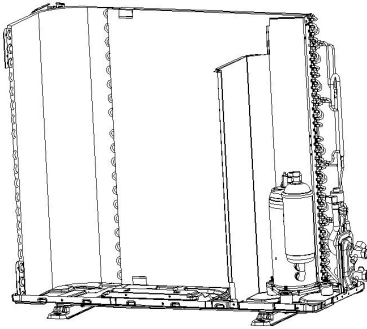
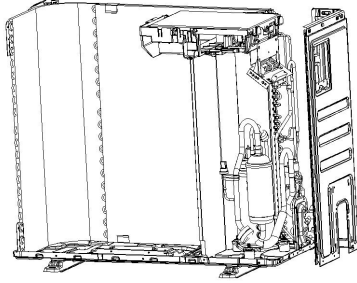
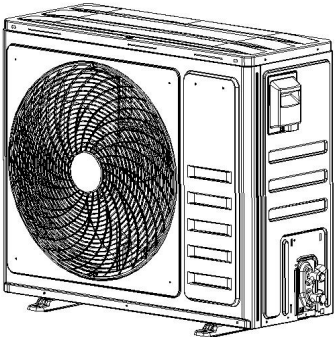
5. Install the fan.		● Install the fan in place. Put on the gasket and use a wrench to secure the screw nut. ● Note: After installing the fan, turn the fan by hand to see if it can run normally. If not, please check for the reason.
6. Install the grill.		● Attach the grill back in place and tighten up the screws.

Model:TCC-24CH/DV2O-C,TCC-36CH/DV2O-C

Removal of condenser

Note: Before removing the condenser,make sure there is no refrigerant in the pipeline and power is cut off.

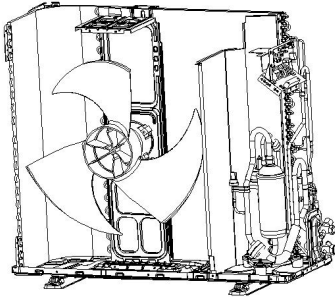
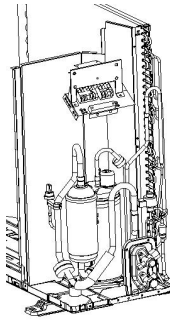
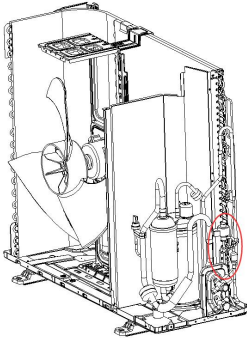
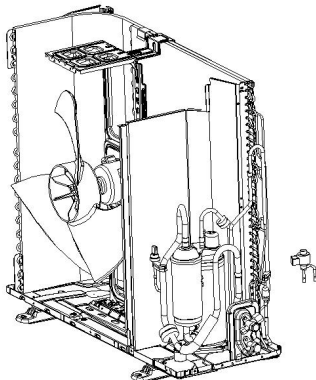
Step	Picture	Work instruction
1. Remove the panels.		Remove the upper,lower and front panels.
2. Remove the electric box.		- Loosen the wire clamp at the bottom of the electric box. - Unscrew the screws of electric box. - The connection wires inside and outside the electric box should be removed.
3. Remove motor support.		When removing the motor-support,be careful to protect the components.
4. Remove the condenser.		- Heat up the weld points of the connecting pipes using a gas torch until the pipes separate. - Note: when welding the pipes do not let the flame burn the other components. The welding points of condenser are steel and copper welding points. Be sure to maintain the welding quality.

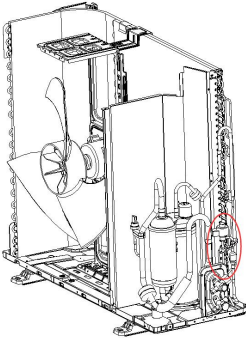
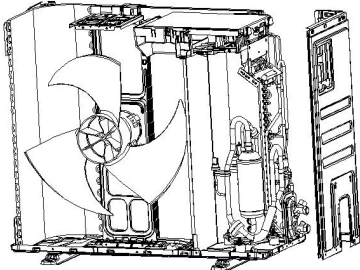
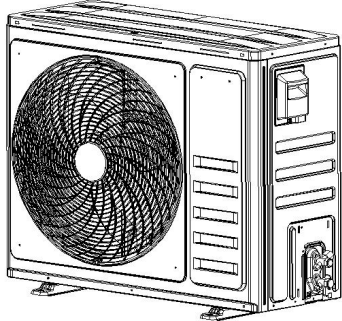
5. Take out the condenser.		● Loosen the securing screws of condenser support. Take off the plate type heat exchanger and the support as a whole.
6. Install the new condenser.		● Secure the screws of condenser and support. Then fix them together on the chassis. ● Install the condenser, aligning it according to the positions of the inlet and outlet pipes. ● Nitrogen welding: The pressure of nitrogen is $0.5 \pm 0.1 \text{ kgf/cm}$ (relative pressure). ● Note: When welding the pipes, do not let the flame burn the other components.
7. Secure the electric box and arrange the wires according to the requirement.		● Put the electric box in place and tighten up the screws of electric box. ● Arrange and secure the wires as original.
8. Check and open the upper and side panels.		● Check whether each component and connection wire is well connected. ● If everything is functioning correctly, reinstall the upper, left, and right side panels.

Model:TCC-24CH/DV2O-C,TCC-36CH/DV2O-C

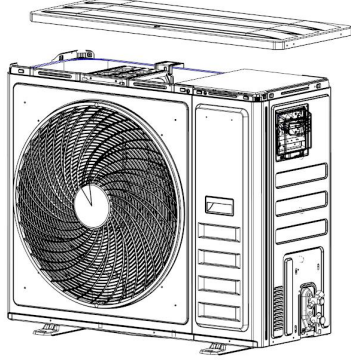
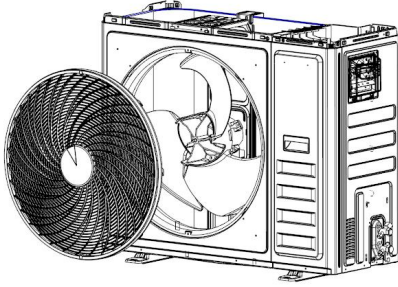
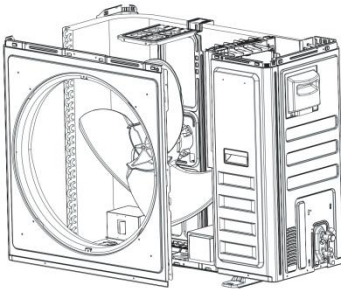
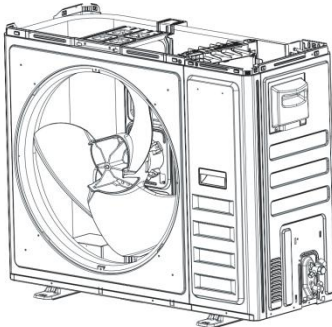
Removal of electronic expansion valve

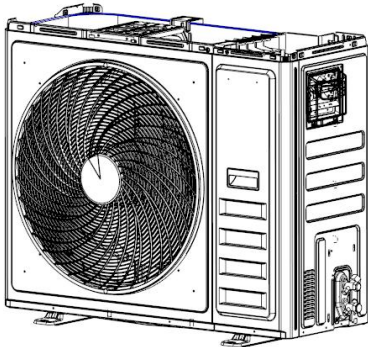
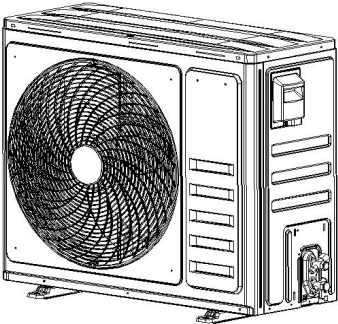
Note: Before removing the electronic expansion valve, make sure there is no refrigerant in the pipeline and power is cut off

Step	Picture	Work instruction
1. Loosen the wire lamp at the bottom of the electric box and the screws of electric box.		- Remove the upper lower and front panels. - Loosen the wire clamp at the bottom of the electric box. - Unscrew the screws of electric box.
2. Remove the electric box.		- The connection wires inside and outside the electric box should be removed. - When removing the electric box, be careful to protect the components.
3. Remove the electronic expansion.		- Take off the coil of electronic expansion valve. - Loosen the connection pipe of electronic expansion valve by welding. - Then remove the connection pipe. - Note: When welding the pipe, do not let the flame burn the other components.
4. Take out the electronic expansion valve		Take out the electronic expansion valve.

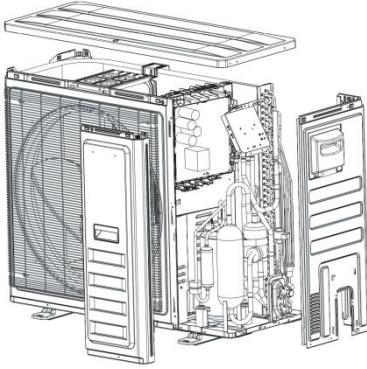
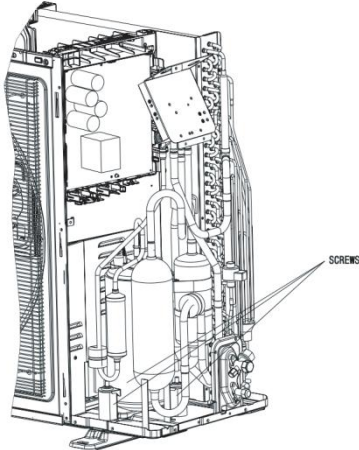
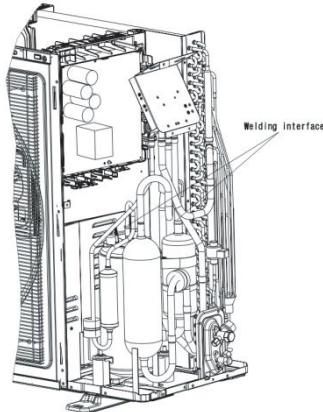
5. Install the new electronic expansion valve.		● Weld the connection pipe of electronic expansion valve. ● When welding the electronic expansion valve, the valve should be wrapped with wet cloth. ● Nitrogen welding: The pressure of nitrogen is $0.5 \pm 0.1 \text{ kgf/cm}$ (relative pressure). ● Note: When welding the pipes, do not let the flame burn the other components. ● Install the coil of electronic expansion valve.
6. Secure the electric box and arrange the wires as required.		● Put the electric box back in place and tighten up the screws. ● Arrange the wires as original.
7. Check and install the panels.		● If everything is functioning correctly, reinstall the upper, left, and right side panels.

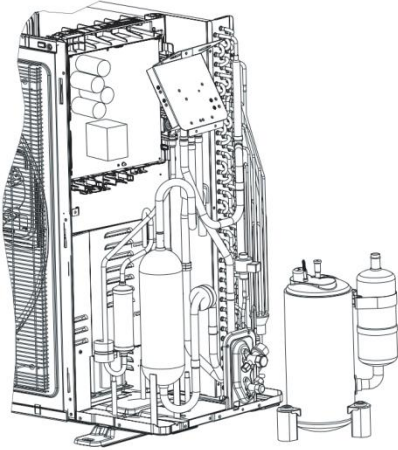
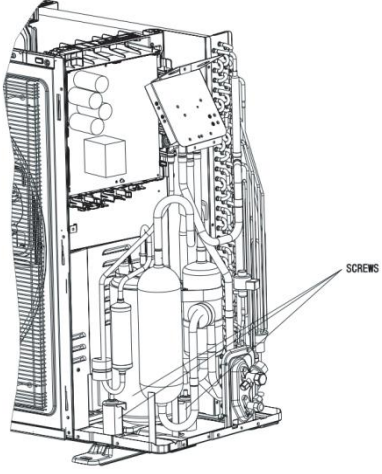
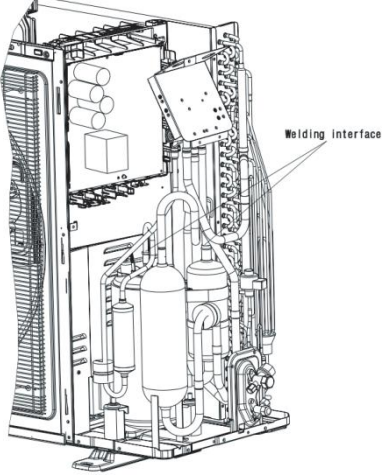
Model: TCC-48CH/DV2O-C, TCC-55CH/DV2O-C

Removal of front panel		
Note: Before removing the front panel, make sure power is cut off.		
Step	Picture	Work instruction
1. Remove the upper cover plate.		Unscrew the screws of the upper cover plate with a screwdriver.
2. Remove the front grill.		Unscrew the screws of the front grill with a screwdriver.
3. Remove the front plate.		Unscrew the screws of the front plate with a screwdriver.
4. Install the front panel.		Tighten up the screws around the front side plate.

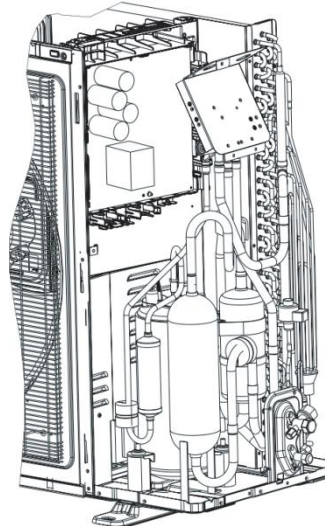
Removal of front panel		
Note: Before removing the front panel, make sure power is cut off.		
Step	Picture	Work instruction
5. Install the grill.		● Attach the grill back in place and tighten up the screws.
6. Install the upper cover plate.		● Tighten up the screws around the upper cover plate.

Model:TCC-48CH/DV2O-C,TCC-55CH/DV2O-C

Removal of compressor		
Note: Before removing the compressor,make sure there is no refrigerant in the pipeline and power is cut off.		
Step	Picture	Work instruction
1. Remove the panels and wires.		● Remove the upper,lower and front panels. ● Loosen the securing screws of the wires with a screwdriver. ● Remove the wires. ● Note:When removing the wires,mark the wire terminals corresponding to their color so as to avoid misconnection.
2. Loosen the securing screws at the foot of compressor.		● Use a wrench to remove the screws at the foot of compressor.
3. Break off the pipes that connecting to the compressor.		● Weld the pipes that are connected to the compressor. ● Then remove the pipes. ● Note: When welding the pipes,do not let the flame burn the other components.

4. Remove the compressor from the chassis.		● Remove the compressor and replace it. ● Note: When replacing the compressor, avoid touching the nearby pipeline and components.
5. Fix the new compressor back onto the chassis.		● After replacing the compressor, tighten up the screws at the foot of compressor.
6. Connect the compressor suction port and exhaust port with the pipes.		● Weld the compressor connection pipes and connect them to the compressor. ● Note: When replacing the compressor, avoid touching the nearby pipeline and components.

7. Connect the compressor wires.

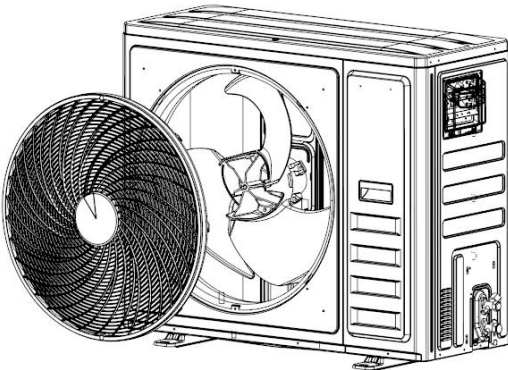
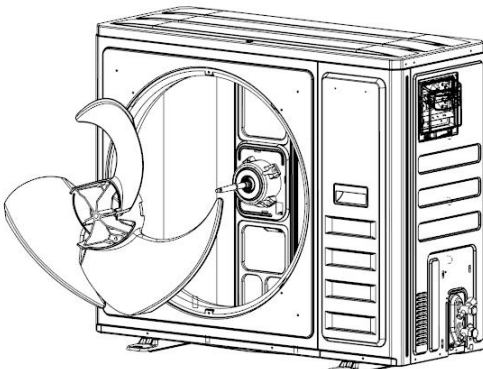


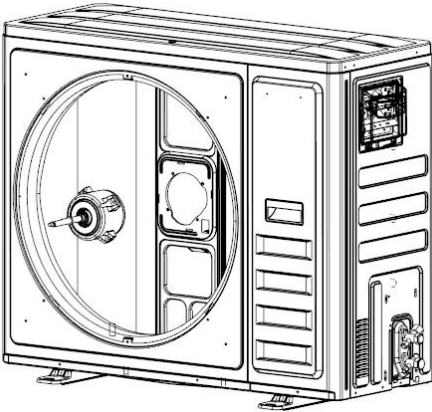
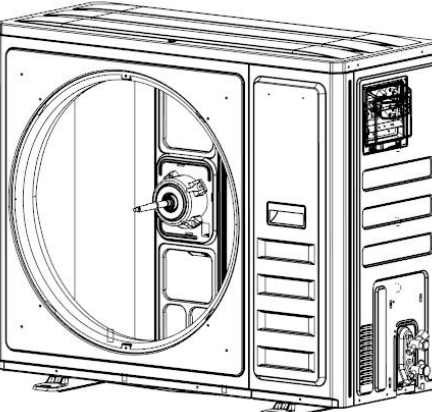
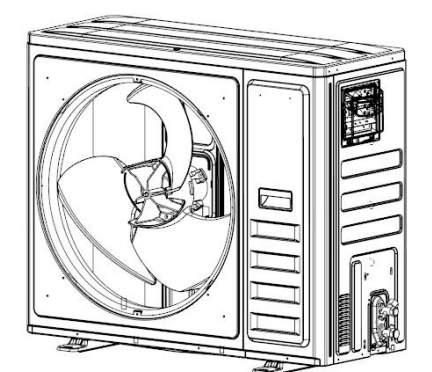
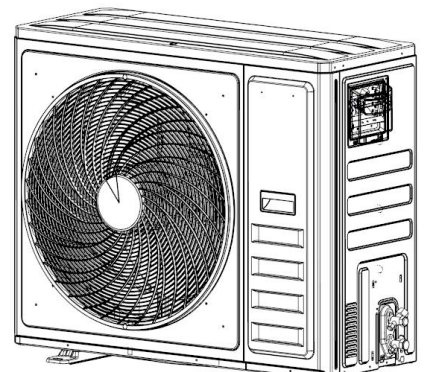
- Connect the compressor wires to the wire terminals on the top of compressor.
- Note: When connecting the wires, be sure to match the colors with the corresponding wire terminals.

Model:TCC-48CH/DV2O-C,TCC-55CH/DV2O-C

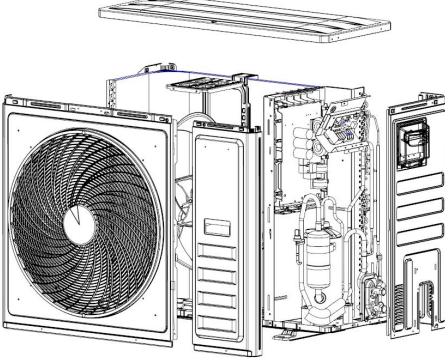
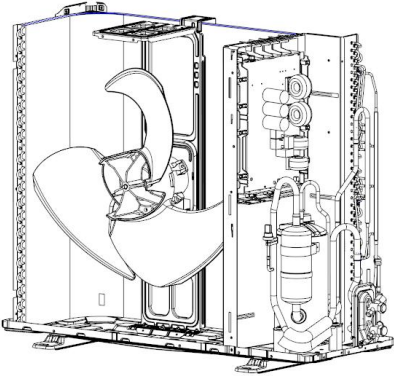
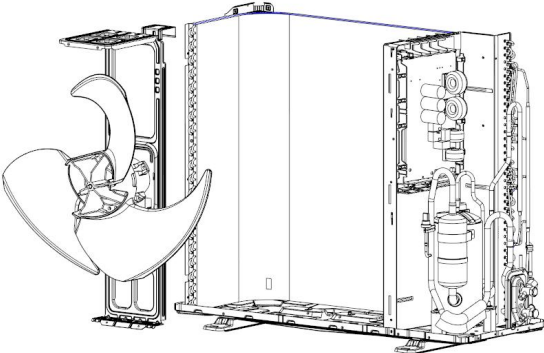
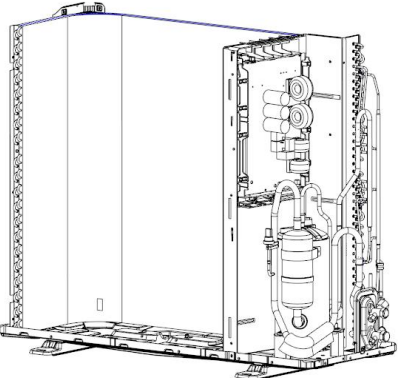
Removal of fan and motor

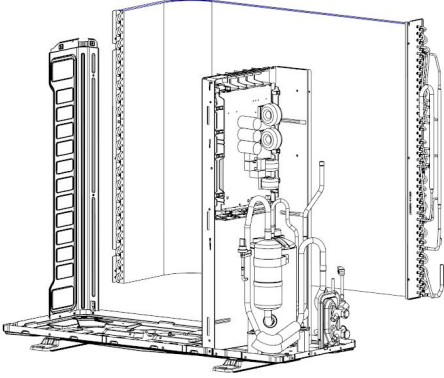
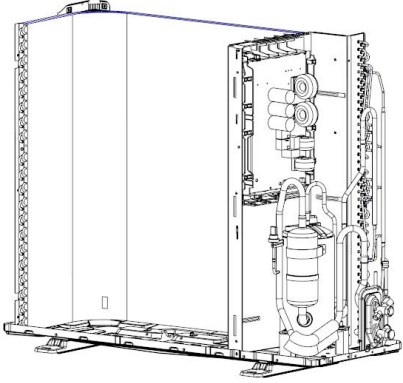
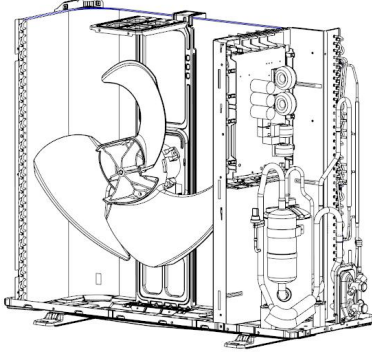
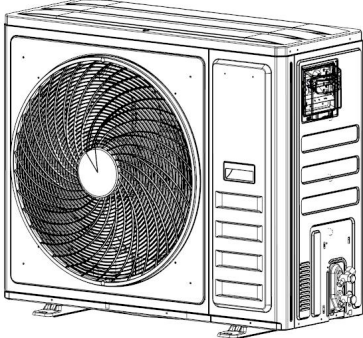
Note: Before removing the fan,make sure power is cut off.

Step	Picture	Work instruction
1. Remove the grill.		● Use a screwdriver to unscrew the two screws on the upper left and lower right corners.
2. Remove the fan.		● Use a wrench to remove the specialized nut and gasket of the fan. ● Note: Please keep the nut and gasket safe after removing them from the fan.

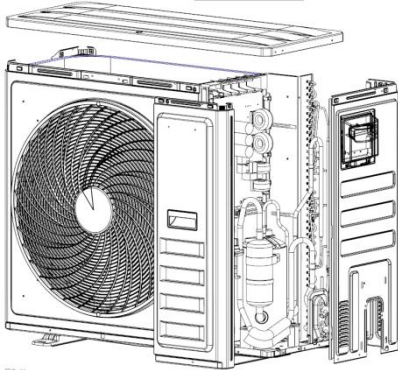
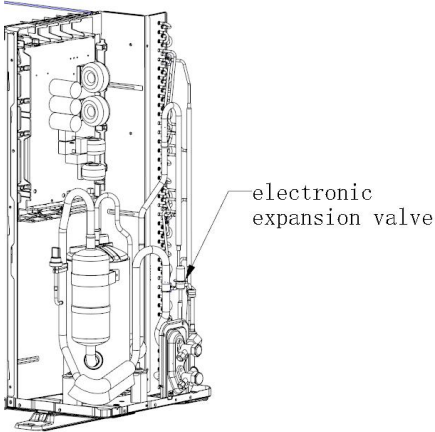
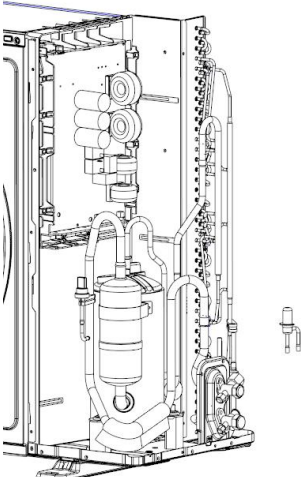
3. Remove motor.		● Use a screwdriver to unscrew the bolt of motor. ● Note: Motor wire should be first removed from the electric box.
4. Install the motor.		● Replace with a new motor. Then tighten up the screw bolt.
5. Install the fan.		● Install the fan in place. Put on the gasket and use a wrench to secure the screw nut. ● Note: After installing the fan, turn the fan by hand to see if it can run normally. If not, please check for the reason
6. Install the grill.		● Attach the grill back in place and tighten up the screws.

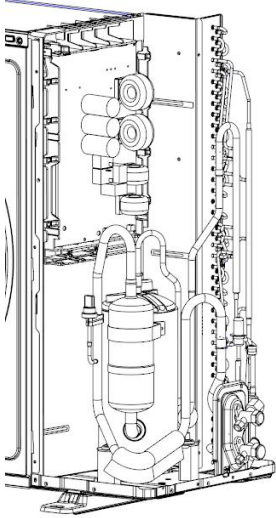
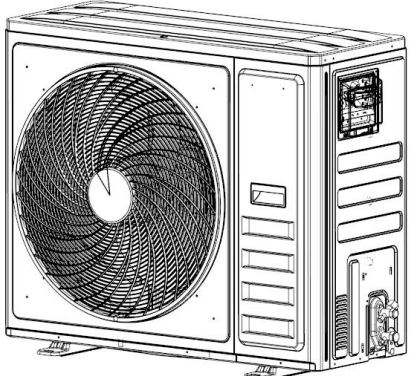
Model:TCC-48CH/DV2O-C,TCC-55CH/DV2O-C

Removal of condenser		
Note: Before removing the condenser,make sure there is no refrigerant in the pipeline and power is cut off.		
Step	Picture	Work instruction
1. Remove the panels.		Remove the upper,lower and front panels.
2. Remove the electric box.		- Loosen the wire clamp at the bottom of the electric box. - Unscrew the screws of electric box. - The connection wires inside and outside the electric box should be removed.
3. Remove motor support.		When removing the motor-support,be careful to protect the components.
4. Remove the condenser.		- Heat up the weld points of the connecting pipes using a gas torch until the pipes separate. - Note: When welding the pipes, do not let the flame burn the other components. The welding points of condenser are steel and copper welding points. Be sure to maintain the welding quality.

5. Take out the condenser.		Loosen the securing screws of condenser support. Take off the plate type heat exchanger and the support as a whole.
6. Install the new condenser.		- Secure the screws of condenser and support. Then fix them together on the chassis. - Install the condenser, aligning it according to the positions of the inlet and outlet pipes. - Nitrogen welding: The pressure of nitrogen is $0.5 \pm 0.1 \text{ kgf/cm}$ (relative pressure). - Note: When welding the pipes, do not let the flame burn the other components.
7. Secure the electric box and arrange the wires according to the requirement.		- Put the electric box in place and tighten up the screws of electric box. - Arrange and secure the wires as original.
8. Check and install the upper and side panels.		- Check whether each component and connection wire is well connected. - If everything is functioning correctly, reinstall the upper, left, and right side panels.

Model: TCC-48CH/DV2O-C, TCC-55CH/DV2O-C

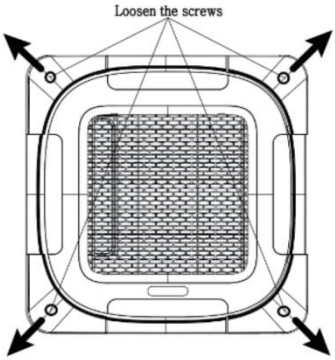
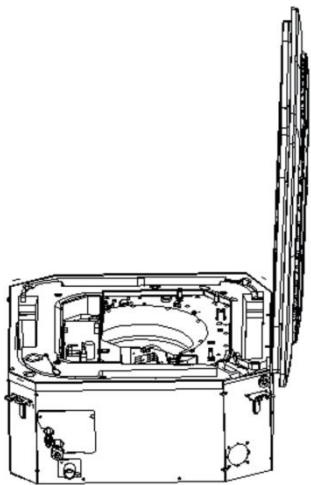
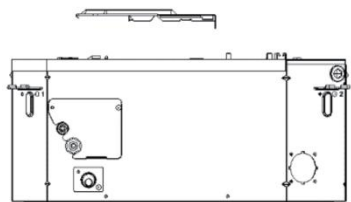
Removal of electronic expansion valve		
Note: Before removing the electronic expansion valve, make sure there is no refrigerant in the pipeline and power is cut off		
Step	Picture	Work instruction
1. Remove the panels		Remove the upper and right side panels.
2. Remove the electronic expansion valve.	 electronic expansion valve	- Take off the coil of electronic expansion valve. - Loosen the connecting pipes of electronic expansion valve by welding. - Then remove the connection pipe. - Note: When welding the pipe, do not let the flame burn the other components.
3. Take out the electronic expansion valve		Take out the electronic expansion valve.

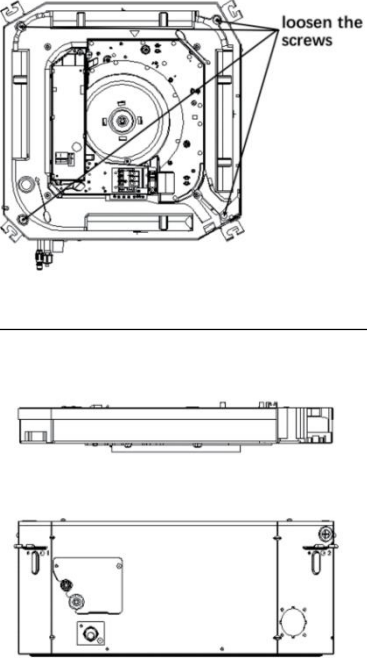
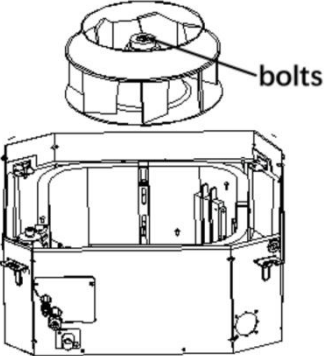
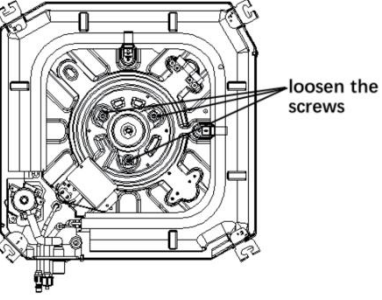
4. Install the new electronic expansion valve.		● Weld the connection pipe of electronic expansion valve. ● When welding the electronic expansion valve, the valve should be wrapped with wet cloth. ● Nitrogen welding: The pressure of nitrogen is $0.5 \pm 0.1 \text{ kgf/cm}$ (relative pressure). ● Note: When welding the pipes, do not let the flame burn the other components. ● Install the coil of electronic expansion valve.
5. Check and install the panels.		● Check whether each component and connection wire is well connected. ● If everything is functioning correctly, reinstall the upper and right panels. Tighten up the screws.

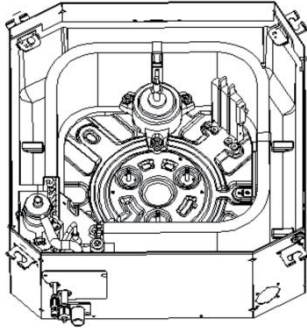
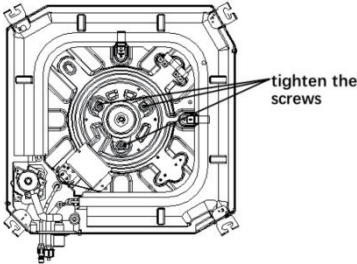
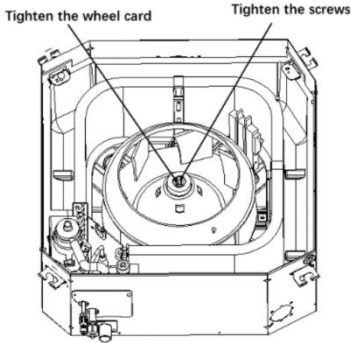
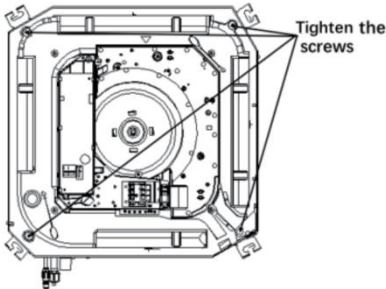
4.5.2 Removal of IDU Major Components

4.5.2.1 Cassette Type Unit

Take model TCC-36CCRH/DV2I-C as an example

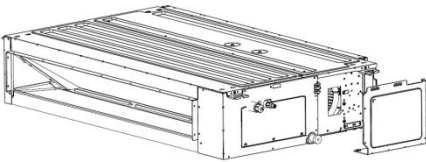
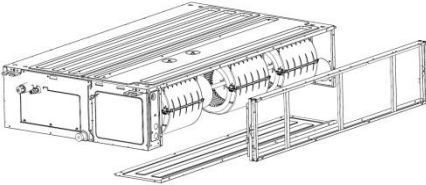
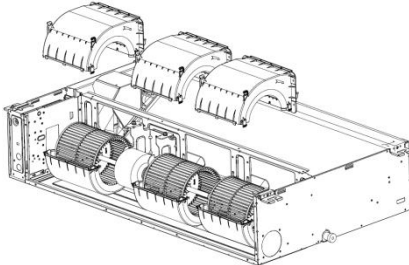
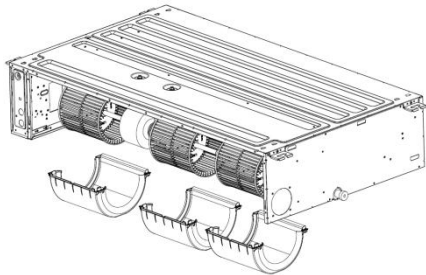
Removal of fan and motor		
Note: Before removing the motor, power must be cut off.		
Step	Picture	Work instruction
4. Remove the front panel.		● Turn off the power supply of indoor unit. ● Push the 4 corner plates in the directions shown by the arrows. ● Loosen the screws and remove the front panel.
		
5. Remove the cover of electric box and the clamp of power cord.		● Remove the motor wire and water pump of the electric box.

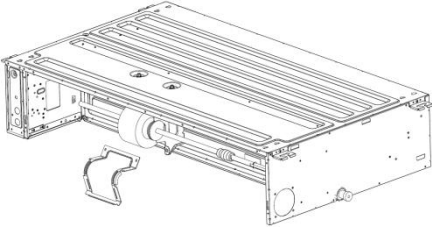
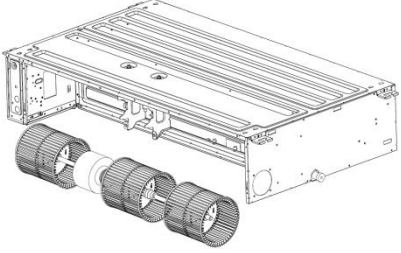
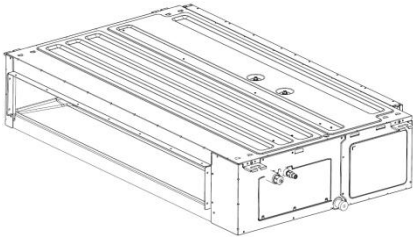
6. Remove the water tray.		● Loosen the screws in the 4 corners and then remove the water tray.
7. Remove the fan.		● Use a screwdriver to remove the clamping band of motor. Then remove the fan.
8. Remove motor.		● Use a screwdriver to unscrew the 4 screws of motor. Then remove the motor.

		
9. Replace and install the motor.		● Remove the motor from motor support and then replace with a new motor. ● Tighten the 4 screws of motor with a screwdriver.
10. Install the fan.		● Direct the hole of fan to the motor shaft and then mount on the fan. ● Tighten the clamping band of motor with a wrench.
11. Install the water tray and electric box.		● Direct the 4 corners of water tray to the 4 corners of the unit and then press them. Use a screwdriver to tighten the screws in the 4 corners. ● Connect the power cord and water pump wire. ● Place back the cover of electric box and the clamp of power cord. Then tighten the screws with a screwdriver.

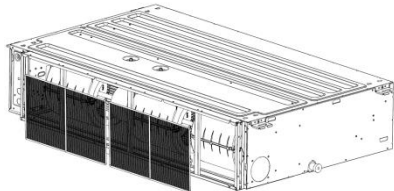
4.5.2.2 Duct Type unit

Take model TCC-36D1CWH/DV2I-C as an example.

Removal of fan and motor		
Note: Before removing the motor, make sure power is cut off.		
Step	Picture	Work instruction
1. Remove the cover of electric box.		Turn off the power supply of indoor unit. Use a screwdriver to remove the cover of electric box. Disconnect the motor wire inside the electric box.
2. Remove air return plate, the longitudinal component and air return frame.		- Use a hex wrench to loosen the screws of fan. - Order of removal: air return plate, air return frame, longitudinal component, cross beam.
3. Remove the upper volute.		Loosen the screws of upper volute and then pull out the upper volute.
4. Remove the lower volute.		Loosen the screws of lower volute and then rotate in the direction shown by the arrow.

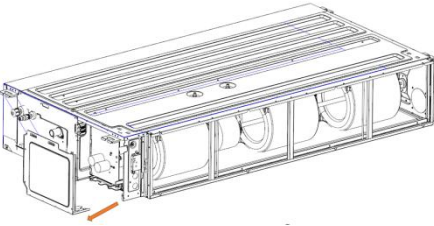
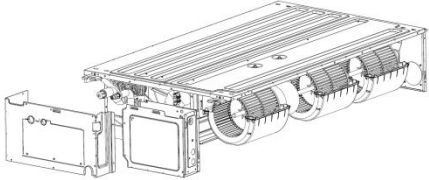
5. Remove the motor and fans.		Use a screwdriver to remove the clamping band of motor. Then remove the motor and fan as a whole.
6. Replace the motor.		- Remove the motor from the motor support. - Use a hex wrench to loosen the screws of fan. - Remove the fan from the motor.. - Replace with a new motor.
7. Re-install the device in a reverse order of the removal procedure.		Re-install the device in a reverse order of the removal procedure. Then connect power and test it.

Take model TCC-36D1CWH/DV2I-C as an example.

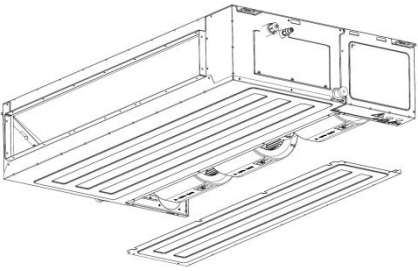
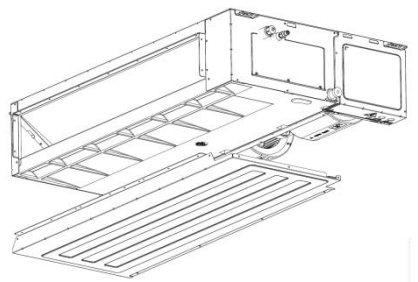
Removal of air return filter		
Note: Before removing the motor, make sure power is cut off.		
Step	Picture	Work instruction
Remove air return filter.		Press the air return filters on the guide way sponge. There are 2 or 3 air return filters.

Take model TCC-36D1CWH/DV2I-C as an example.

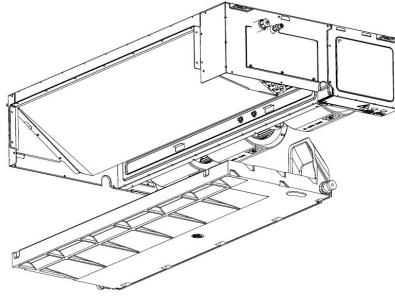
Removal of the cover of electric box and the electric box
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components, especially the electric components. Do not hit or beat.

Step	Picture	Work instruction
1. Remove the cover of electric box.		Loosen the screws as shown by the circle and the box. Remove the box in the direction shown by the arrow.
2. Remove the electric box.		Loosen the securing screws and remove the electric box.

Take model TCC-36D1CWH/DV2I-C as an example.

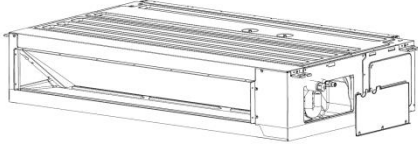
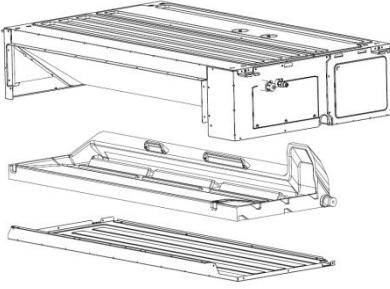
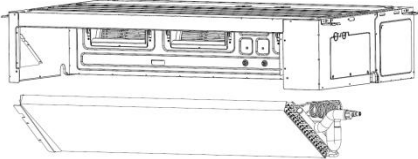
Removal of water tray		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components.		
Step	Picture	Work instruction
1. Remove the cover plate.	 	Loosen the screws of cover plate and then remove the cover plate. (As shown in the picture, the circle indicates 6 screws of the cover plate.)

2. Remove the electric box.



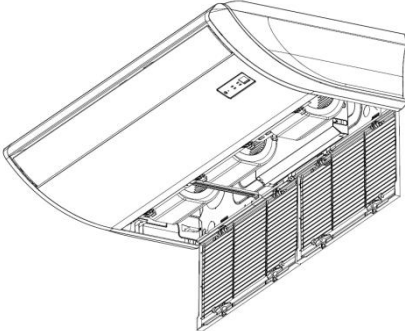
- Loosen the screws of water trap. pull it up and remove it. The removed water tray is as shown in the picture.

Take model TCC-36D1CWH/DV2I-C as an example.

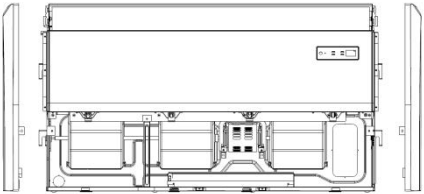
Removal of evaporator		
Note: Make sure power is cut off. Take good care of the copper pipe and aluminum fins. If the removal takes a long time, please put the copper pipe under pressure.		
Step	Picture	Work instruction
1. Remove the screws on the side plate of evaporator.		Remove the screws of evaporator and the screws that connect the upper cover plate to the left and right side plates.
2. Remove the sealing plate that connects to the evaporator valve and the screws that connect to the flange.		Remove the screws of the sealing plate of valve. Then remove the sealing plate of valve. Remove the screws that connect the evaporator to the flange.
3. Remove the evaporator.		Take of the evaporator. The removed evaporator is as shown in the picture.

4.5.2.3 Floor Ceiling unit

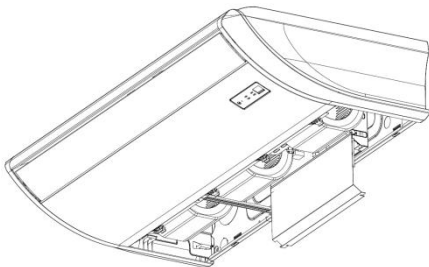
Take model TCC-36ZCRH/DV2I-C as an example.

Removal of front grill		
Note: Before removal ,make sure power is cut off. During the removal procedure, take good care of all the components. Do not place the filter near any heat source.		
Step	Picture	Work instruction
Remove the subassembly of front grill.		- Twist of the 2 hooks of the grill and the screws of the hooks. - Open the grill and remove 2 lower clamps. Then remove the grill.

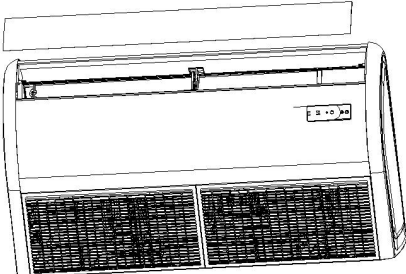
Take model TCC-36ZCRH/DV2I-C as an example.

Remove the right and left decorative boards		
Note: Before removal,make sure power is cut off.During the removal procedure, take good care of all the components.Do not scratch the appearance components.		
Step	Picture	Work instruction
Remove the left and right panels.		- Use a screwdriver to loosen the screws,as shown in the picture. - Then pull the right and left panels upward. (Lines in the picture indicate the positions of screws.)

Take model TCC-36ZCRH/DV2I-C as an example.

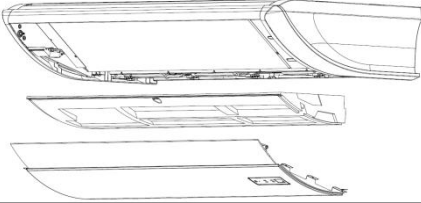
Removal of electric box assembly		
Note: Before removal,make sure power is cut off.During the removal procedure,take good care of all the components,especially the components in electric box. Protect it from water and collision.		
Step	Picture	Work instruction
Remove the electric box.		Unscrew 2 screws as shown in the left picture and then remove the electric box.

Take model TCC-36ZCRH/DV2I-C as an example.

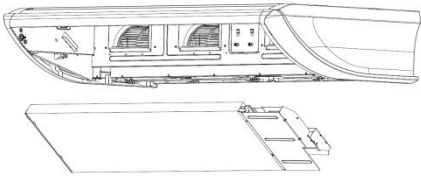
Removal of air guide louver		
Note: Before removal,make sure power is cut off.During the removal procedure, take good care of all the components ,especially the connectors of air guide louver.		
Step	Picture	Work instruction
Remove the air guide louver assembly.		Remove the air guide louver from its supporting assembly. Then take of the connectors from the swing motor.(As shown in the picture ,the lines indicate the supporting assembly.)

Take model TCC-36ZCRH/DV2I-C as an example.

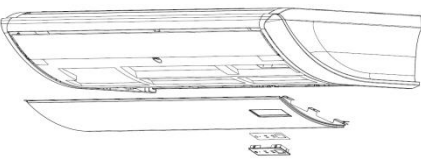
Removal of water tray		
Note: Before removal ,make sure power is cut off.During the removal procedure, take good care of all the components.		

Step	Picture	Work instruction
Remove the water tray		Remove the water tray.

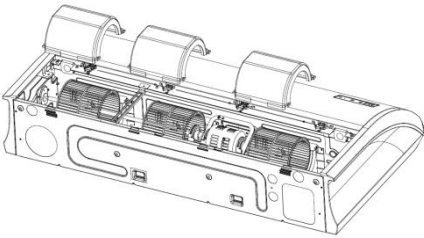
Take model TCC-36ZCRH/DV2I-C as an example.

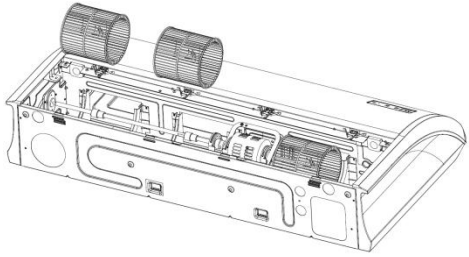
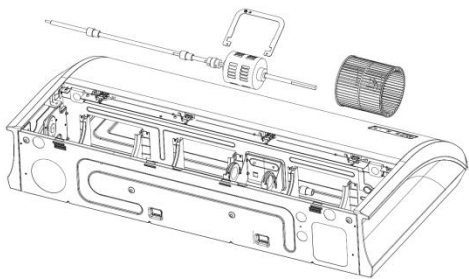
Removal of evaporator		
Note: Make sure power is cut off. Take good care of the copper pipe and aluminum fins. If the removal takes a long time, seal the copper pipe.		
Step	Picture	Work instruction
Remove the evaporator assembly.		Twist of the 6 screws of the evaporator, 3 screws of the plate board of water releasing flume, and 2 screws of the water tray. Then remove the evaporator.

Take model TCC-36ZCRH/DV2I-C as an example.

Removal of display panel and fan assembly		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components.		
Step	Picture	Work instruction
Remove the display panel and fan assembly.		First remove the display panel, next the bracket and then the swing motor mounting plate.

Take model TCC-36ZCRH/DV2I-C as an example.

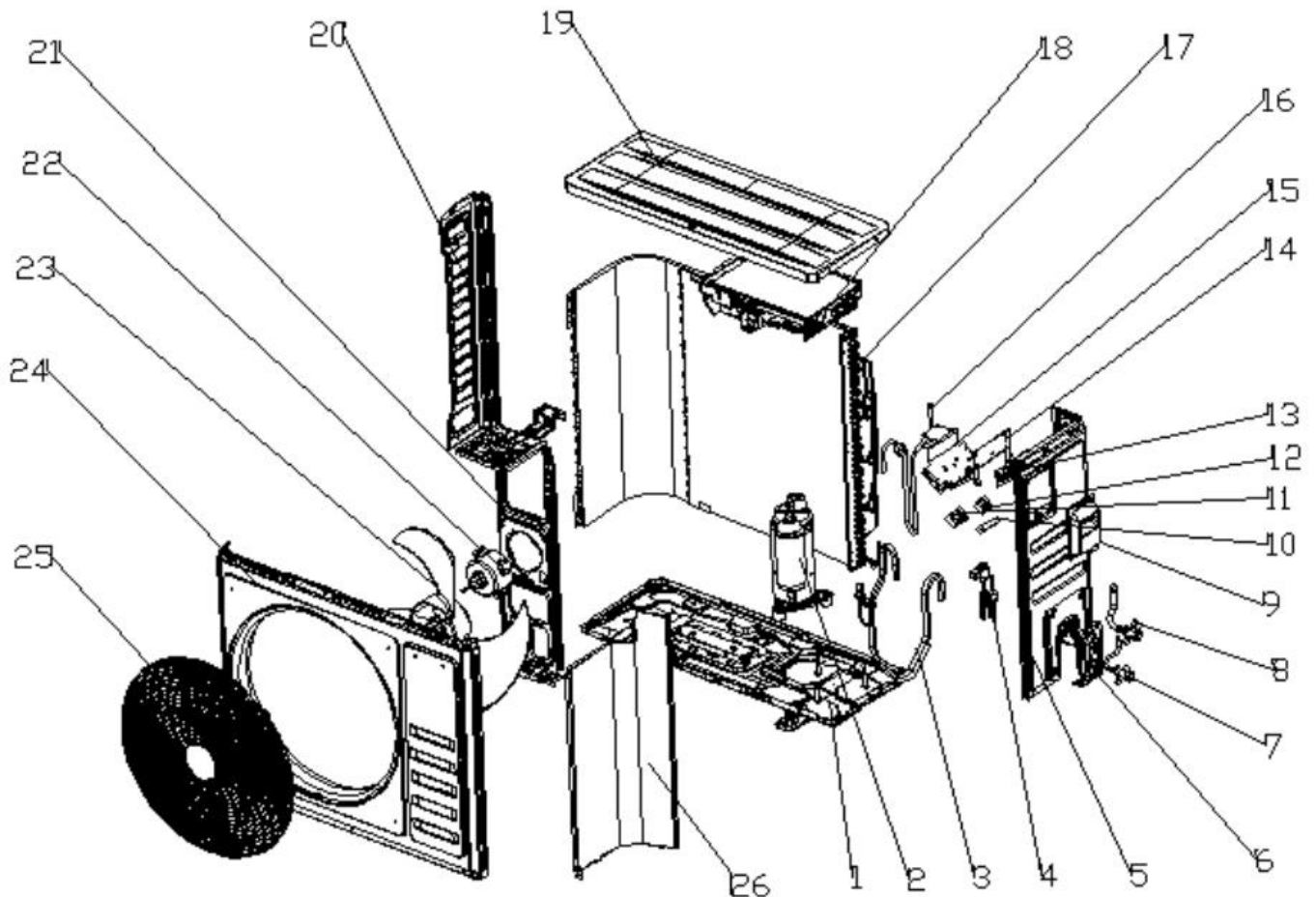
Removal of fan and motor		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components, especially the screws of fan.		
Step	Picture	Work instruction
Remove the volutes.		- Press the retaining ring at the joint of front and rear volutes. Then pull up the front volute - Then loosen the screws of the rear volute. Lift up the retaining ring of the rear volute and take it off. (As shown in the picture, the lines indicate the screws on both sides of the volutes)

Remove the fan.		● Loosen the 2 screws of the coupler. Take out the shaft and axial flow fan.
Remove the motor		● Loosen the 2 screws of the motor securing clip. Remove the motor securing clip and its assembly. ● Loosen the screws of axial flow fan and remove the axial flow fan.

4.6 Explosive view and Lists of parts

4.6.1 ODU Explosive view and Lists of parts

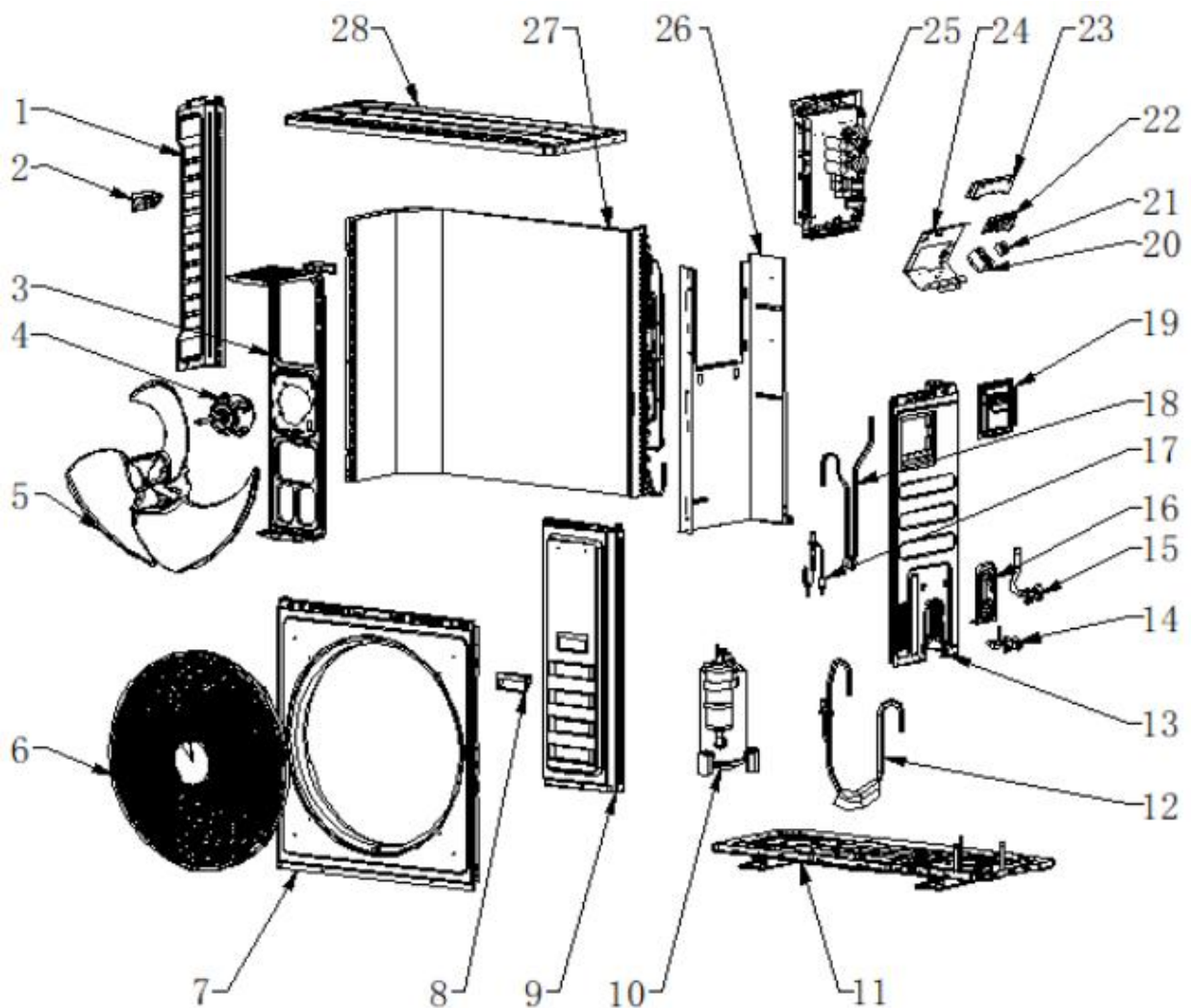
TCC-24CH/DV2O-C, TCC-36CH/DV2O-C



No.	Material Name	Finished Product Code	Quantity
1	Chassis assembly	41202-000573	1
2	Compressor	M0102-110138	1
3	Suction pipe module	K0206-111824	1
4	Electronic expansion valve assembly	K0103-110344	1
5	Right side panel	41205-000784	1
6	Valve Plate	41204-000020	1
7	High Pressure Valve Assembly	92007-021673	1
8	Cut-off valve assembly	92007-001045	1
9	Electrical box cover	41201-000015	1
10	Clamp	42001-000106	1
11	Power Supply Terminal	G0802-110125	1
12	485 Terminal	35005-000123	1
13	Split Outdoor inverter Outdoor unit control board	G0301-112509	1
14	Support Plate	H0218-110563	1

No.	Material Name	Finished Product Code	Quantity
15	Electrical fixing board	H0216-110955	1
16	Discharge pipe module	92007-021626	1
17	Condenser module	K0304-112057	1
18	Split Outdoor inverter Outdoor unit control board	G0301-114475	1
19	Top Cover	41207-000048	1
20	Left side panel assembly	41205-000651	1
21	Motor bracket	41203-000115	1
22	Propeller fan motor	22001-000643	1
23	Propeller fan	42004-000249	1
24	Front panel	41206-000075	1
25	Air outlet grille	42011-000417	1
26	mid.Isolation sheet assembly	41208-001074	1
Not displayed in 3D view	PTC Thermistor	10104-100002	1
	Pressure Sensor	25004-000248	1
	Temperature Sensor	10104-100058	1

TCC-48CH/DV2O-C,TCC-55CH/DV2O-C

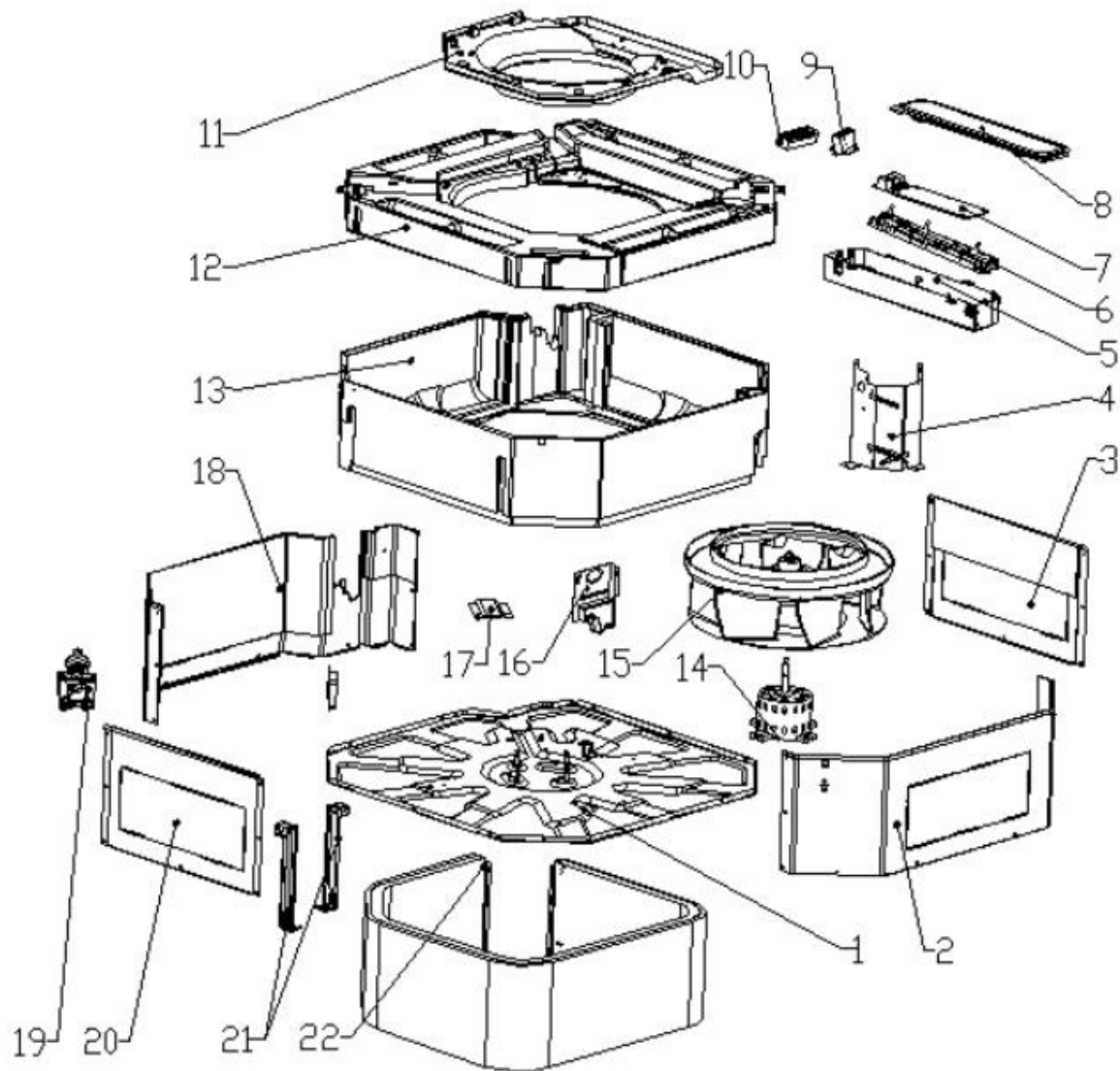


No.	Material Name	Finished Product Code	Quantity
1	Left side panel assembly	45003-000343	1
2	Left handle	41201-000038	1
3	Motor bracket	45005-000538	1
4	Propeller fan motor	M0201-110017	1
5	Propeller fan	45009-000093	1
6	Air outlet grille	45008-000413	1
7	Front panel	45013-000258	1
8	Handle	45014-004181	1
9	Right front plate assembly	45003-000342	1
10	Compressor	95017-000205	1
11	Chassis component	41202-000714	1
12	Suction pipe module	K0206-112202	1
13	Right rear side panel	45003-000325	1
14	Cut-off valve assembly	92007-021705	1
15	Cut-off valve assembly	92007-001045	1
16	Valve Plate	41204-000020	1
17	Electronic expansion valve assembly	K0103-110292	1
18	Exhaust Pipe Module1	K0206-112211	1
19	Electrical box cover	41201-000001	1
20	Terminal L/N/L/N	35005-000169	1
21	Terminal - 485 communication Terminal	35005-000123	1
22	Split Outdoor inverter Outdoor unit control board	G0301-112509	1
23	Control board box Mounting Plate	H0216-111004	1
24	Control board box Mounting Plate	H0216-111003	1
25	Split Outdoor inverter Outdoor unit control board	G0301-114840	1
26	mid.Isolation sheet assembly	45014-005248	1
27	Condenser component	K0304-112060	1
28	Top Cover	45007-000096	1
Not displayed in 3D view	Thermistor	10104-100002	1
	Pressure Sensor	25004-000248	1
	Temperature Sensor	25004-000326	1

4.6.2 IDU Explosive View and Lists of parts

4.6.2.1 Cassette Type

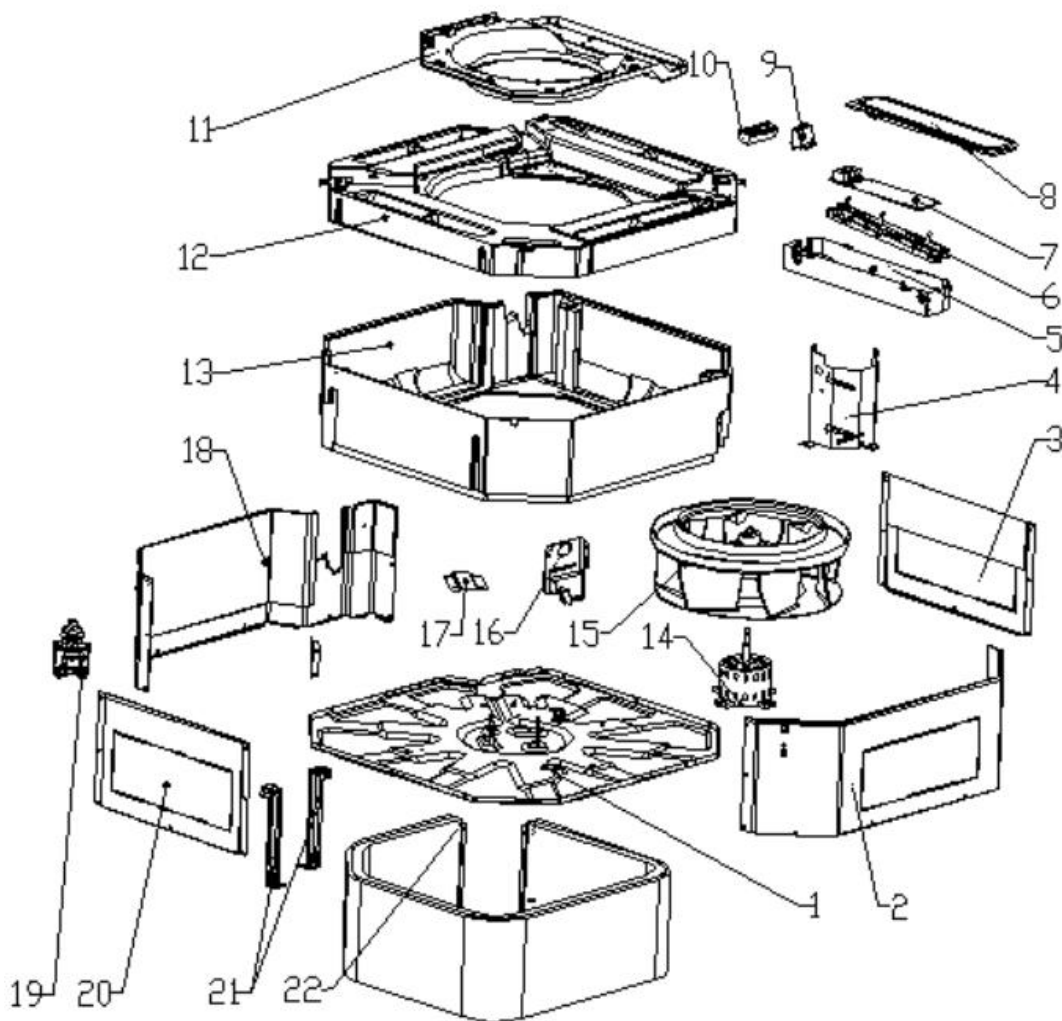
TCC-24CCRH/DV2I-C,TCC-36CCRH/DV2I-C



No.	Material Name	Finished Product Code	Quantity
1	Chassis assembly	45004-000537	1
2	5P Back plate assembly	45901-000095	1
3	5P left&right brattice assembly	45901-000102	1
4	Evaporator Fixing Plate assembly	95003-001688	1
5	Control board box	45006-000399	1
6	Main control board installation box	45901-000112	1
7	Indoor main control board components	G0301-115457	1
8	Control board box cover	35001-000374	1
9	Transformer	25009-000209	1
10	Terminal	G0802-110137	1
11	Wint inlet guide	45008-000369	1
12	Water pan	45011-000120	1
13	Base foam	45004-000326	1
14	Brushless DC motor	25001-000429	1
15	Centrifugal Fan	45009-000053	1
16	Outlet sealing plate component	45901-000035	1
17	Motor Wire Press Plate	45002-000199	1

No.	Material Name	Finished Product Code	Quantity
18	5P Front plate assembly	45901-000092	1
19	Water pump	25006-000104	1
20	5P left&right brattice assembly	45901-000102	1
21	Evaporator Fixing Hook	45014-004163	2
22	Evaporator	95003-004598	1
Not displayed in 3D view	Thermistor	10104-100248	1
	Temperature Sensor	25004-000281	1
	Water level switch	25006-000017	1

TCC-48CCRH/DV2I-C, TCC-55CCRH/DV2I-C

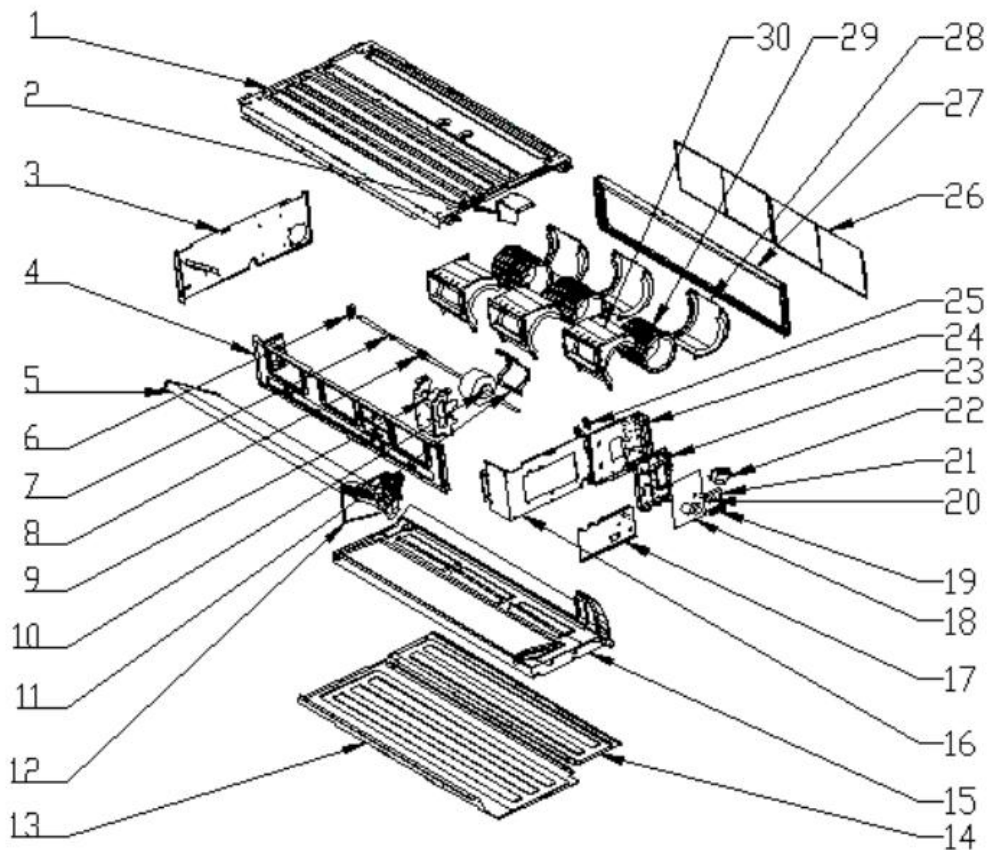


No.	Material Name	Finished Product Code	Quantity
1	Chassis assembly	45004-000390	1
2	5P Back plate assembly	45901-000095	1
3	5P left&right brattice assembly	45901-000102	1
4	Evaporator fixed plate assembly	95003-004358	1
5	Control board box	45006-000399	1
6	Main control board installation box	45901-000112	1
7	Indoor main control board components	G0301-115457	1

No.	Material Name	Finished Product Code	Quantity
8	Control board box cover	35001-000374	1
9	Transformer	25009-000209	1
10	Terminal	G0802-110137	1
11	Wint inlet guide	45008-000369	1
12	Water pan	45011-000120	1
13	Base foam	45004-000326	1
14	Brushless DC motor	25001-000337	1
15	Centrifugal Fan	45009-000053	1
16	Outlet sealing plate component	45901-000035	1
17	Motor Wire Press Plate	45002-000199	1
18	5P Front plate assembly	45901-000092	1
19	Water pump	25006-000104	1
20	5P left&right brattice assembly	45901-000102	1
21	Evaporator Fixing Hook	45014-004720	2
22	Evaporator	95003-004637	1
Not displayed in 3D view	Thermistor	25004-000312	1
	Water level switch	25006-000017	1

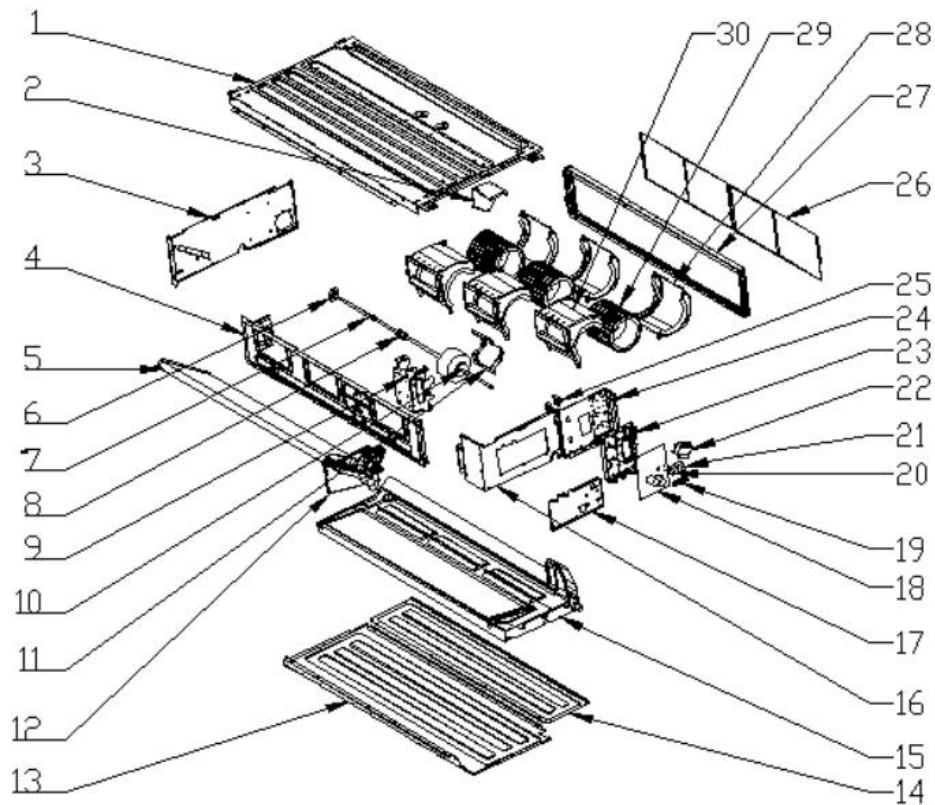
4.6.2.2 Duct Type

TCC-24D1CWH/DV2I-C, TCC-36D1CWH/DV2I-C



No.	Material Name	Finished Product Code	Quantity
1	Top Cover Board component	46101-000462	1
2	Cover Connector	46101-000493	1
3	Left side panel component	45003-000512	1
4	Middle Beam Partition component	46101-000466	1
5	Evaporator	95003-006325	1
6	Bearing Cover	45002-000071	1
	Bearing assembly	45002-000089	1
7	Connection shaft	46101-000497	1
8	Coupling shaft	H0801-110002	1
9	Motor bracket assembly	45005-000676	1
10	Brushless DC motor	25001-000488	1
11	Fixed/Bracket	45005-000663	1
12	Evaporator Fixing Plate assembly	45014-005780	1
13	Bottom Cover Plate assembly 1	46101-000464	1
14	Return Air inlet Base Plate Component	46101-000496	1
15	Water pan	45011-000257	1
16	Right side panel component	45003-000524	1
17	Cover plate assembly	46101-000468	1
18	Indoor unit Main control board assembly	G0301-115016	1
19	Clamp	45002-000078	2
20	Terminal - Power Terminal LN	35005-000114	1
21	Terminal - 485 communication Terminal	35005-000151	1
22	Transformer	25009-000209	1
23	Control board Fixing Plate	45014-005826	1
24	Control board box assembly	35004-002138	1
25	Overline Card	45014-005820	1
26	Filter assembly	45014-005783	1
27	Filter frame assembly	45002-000343	1
28	Fan lower volute	45008-000486	3
29	Centrifugal Fan	42004-000310	3
30	Fan Upper Volute	45008-000485	3
Not displayed in 3D view	Thermistor	10104-100099	1

TCC-48D1CWH/DV2I-C,TCC-55D1CWH/DV2I-C

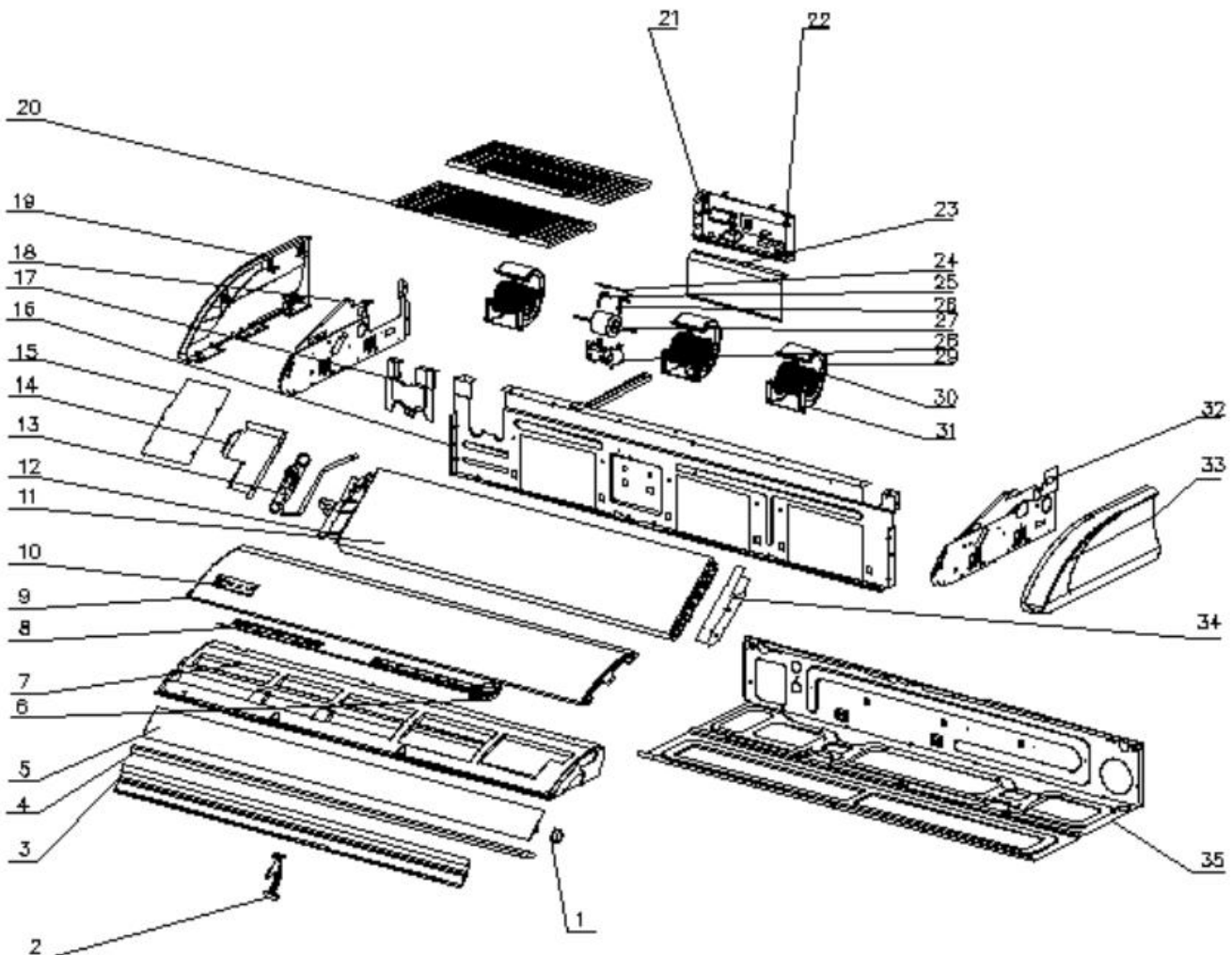


No.	Material Name	Finished Product Code	Quantity
1	Top Cover Board assembly	45007-000131	1
2	Cover Connector	46101-000493	1
3	Left side panel component	45003-000512	1
4	Middle Beam Partition component	46101-000503	1
5	Evaporator	95003-006348	1
6	Bearing Cover	45002-000071	1
	Bearing assembly	45002-000089	1
7	Connection shaft	46101-000504	1
8	Coupling shaft	H0801-110002	1
9	Motor bracket assembly	45005-000676	1
10	Brushless DC motor	25001-000488	1
11	Motor Limit Clamp	45005-000663	1
12	Evaporator Fixing Plate assembly	45014-005780	1
13	Bottom Cover Plate assembly 1	45004-000752	1
14	Bottom Cover Plate assembly 2	45004-000753	1
15	Water pan	45011-000263	1
16	Right side panel component	45003-000524	1
17	Cover plate assembly	46101-000468	1
18	Indoor unit Main control board assembly	G0301-115016	1
19	Clamp	45002-000078	2
20	Terminal - Power Terminal LN	35005-000114	1
21	Terminal - 485 communication Terminal	35005-000151	1
22	Transformer	25009-000209	1
23	Control board Fixing Plate	45014-005826	1

No.	Material Name	Finished Product Code	Quantity
24	Control board box assembly	35004-002138	1
25	Overline Card	45014-005820	1
26	Filter assembly	45014-005811	1
27	Filter frame assembly	45002-000355	1
28	Fan lower volute	45008-000486	3
29	Centrifugal Fan	42004-000310	3
30	Fan Upper Volute	45008-000485	3
Not displayed in 3D view	Thermistor	10104-100099	1

4.6.2.3 Floor ceiling Type

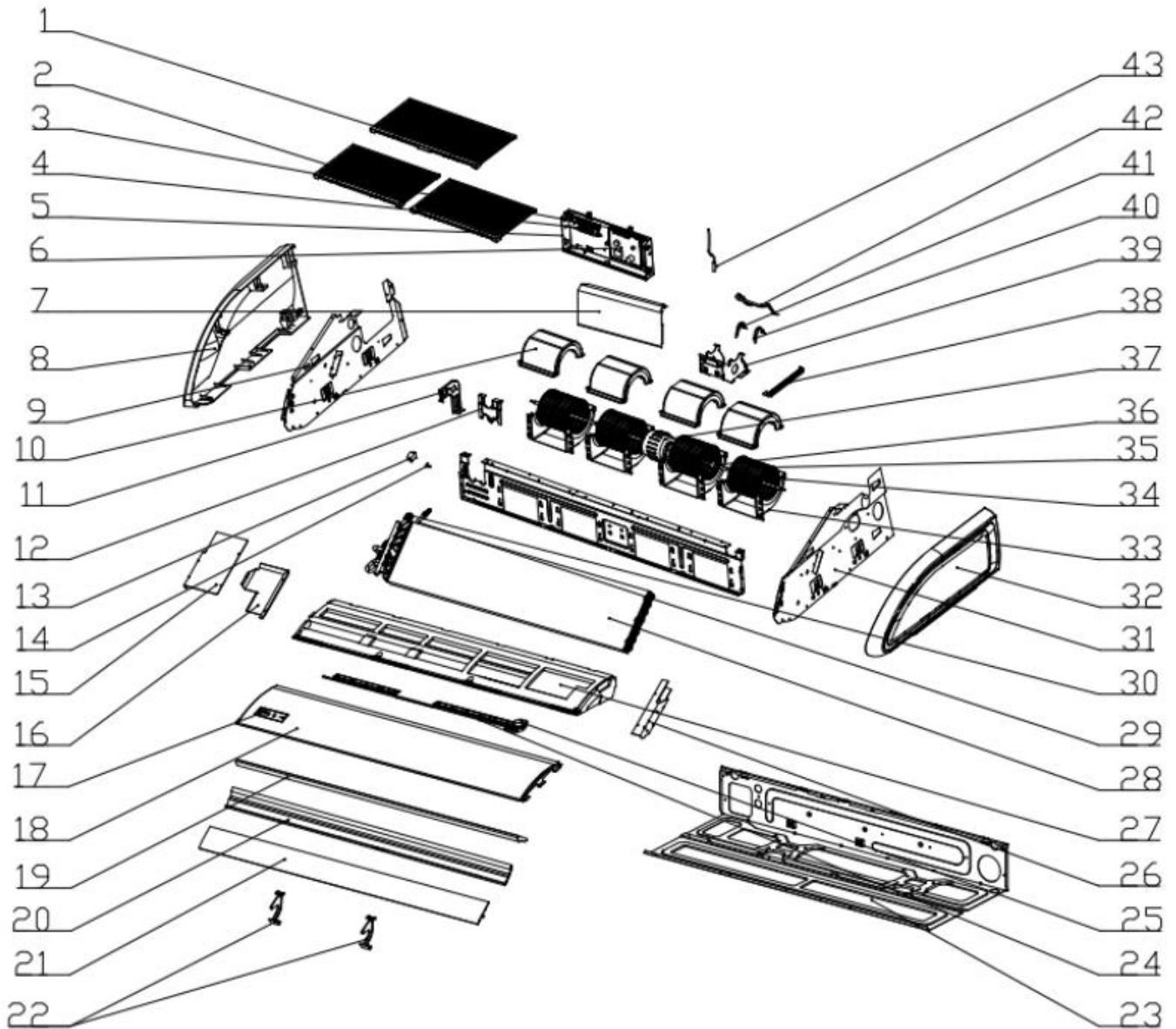
TCC-24ZCRH/DV2I-C,TCC-36ZCRH/DV2I-C



No.	Material Name	Finished Product Code	Quantity
1	Stepper motor	25001-000240	1
2	Louver Support	45008-000217	1
3	Air Outlet chassis	45008-000179	1
4	Air outlet foam assembly	45008-000156	1
5	Cowling	45008-000146	1

No.	Material Name	Finished Product Code	Quantity
6	Stepper motor	25001-000123	1
7	Water pan assembly	45011-000053	1
8	Blade Sub assembly	45801-000022	1
9	Front panel	45013-000162	1
10	Display lamp box	45801-000019	1
11	Evaporator assembly	95003-000807	1
12	Evaporator outlet pipe assembly	95016-001421	1
13	Evaporator Inlet pipe assembly	95016-001766	1
14	Evaporator Lower right sealing assembly	45801-000046	1
15	Evaporator right upper sealing assembly	45801-000074	1
16	mid.Isolation sheet assembly	45014-003318	1
17	Valve Plate	45014-003522	1
18	Right side panel assembly A	45003-000202	1
19	Right side block	45014-002001	1
20	Air intake grille assembly	45014-003013	2
21	Control board box assembly	H0216-110979	1
22	Indoor unit Main control board	G0301-115681	1
23	Control board box cover	45006-000354	1
24	Motor Limit Strip	45005-000583	1
25	Left Snap of Motor Bearing	45005-000232	1
26	Right Snap of Motor Bearing	45005-000196	1
27	Brushless DC motor	25001-000461	1
28	Motor fixed board	45005-000582	1
29	Fan Upper Volute assembly	45008-000195	3
30	Centrifugal Fan	45009-000015	3
31	Fan lower volute	45008-000153	3
32	Left side panel assembly A	45003-000092	1
33	Left Cover Plate	45003-000044	1
34	Evaporator left sealing cover plate	45801-000033	1
35	Chassis assembly	45004-000206	1
Not displayed in 3D view	24V Communication line	G0701-110252	1
	Thermistor	25004-000308	1
	Main control board Power Cord	35006-000469	1

TCC-48ZCRH/DV2I-C,TCC-55ZCRH/DV2I-C



No.	Material Name	Finished Product Code	Quantity
1	Air intake grille assembly	45014-003013	1
2	Air intake grille assembly	45014-002551	2
3	Control board board Installation box	45014-005425	1
4	Terminal	35005-000130	1
5	Control board box assembly	H0216-110954	1
6	Main control board assembly	35004-002031	1
7	Control board box cover	45006-000354	1
8	Right side block	45014-002001	1
9	Right side panel assembly	45003-000449	1
10	Fan Upper Volute assembly	45008-000195	4
11	Bearing block assembly	45002-000337	1
12	Valve Plate	45014-003522	1
13	Stepper motor	25001-000240	1
14	Bushing	45002-000066	2
15	Evaporator right upper sealing assembly	45801-000074	1
16	Evaporator Lower right sealing assembly	45801-000046	1

No.	Material Name	Finished Product Code	Quantity
17	Display assembly	35010-000074	1
18	Front panel	45013-000127	1
19	Air outlet foam assembly	45008-000125	1
20	Air Outlet chassis	45008-000229	1
21	Cowling	45008-000284	1
22	Louver Support	45008-000217	2
23	Chassis assembly	45004-000583	1
24	Blade Sub assembly	45801-000062	1
25	Stepper motor	25001-000123	1
26	Evaporator left sealing cover plate	45801-000033	1
27	Water pan assembly	45011-000087	1
28	Evaporator assembly	95003-000463	1
29	Evaporator Inlet pipe assembly	95016-000577	1
30	Evaporator outlet pipe assembly	95016-001393	1
31	Left side panel assembly	45003-000448	1
32	Left Cover Plate	45003-000044	1
33	Fan lower volute	45008-000153	4
34	Centrifugal Fan	45009-000015	4
35	Coupling shaft	35008-000016	2
36	Connection shaft	46101-000415	1
37	Brushless DC motor	25001-000462	1
38	Bulkhead Support bar	45801-000103	1
39	Motor fixed board	45005-000641	1
40	Left Snap of Motor Bearing	45005-000232	1
41	Right Snap of Motor Bearing	45005-000196	1
42	Motor Limit Strip	45005-000583	1
43	Thermistor	25004-000308	1
Not displayed in 3D view	24V Communication line	G0701-110252	1
	Thermistor	25004-000308	1
	Main control board Power Cord	35006-000469	1

5 Appendices

5.1 Resistance/Temperature Lists of Temperature sensors

5.1.1 Voltage List of 5 K Ω Temperature sensors (including ODU and IDU temperature sensors, temperature sensors for defroster, IDU and ODU pipes)

Temperature (°C)	Resistance (k Ω)		
	Rmax	R(t)Normal	Rmin
-50	233.591	211.635	189.678
-49	218.806	198.516	178.227
-48	205.062	186.305	167.548
-47	192.279	174.931	157.584
-46	180.383	164.333	148.283
-45	169.307	154.451	139.595
-44	158.989	145.232	131.476
-43	149.371	136.628	123.885
-42	140.403	128.594	116.785
-41	132.034	121.087	110.14
-40	124.223	114.071	103.919
-39	116.884	107.469	98.055
-38	110.03	101.296	92.562
-37	103.625	95.52	87.415
-36	97.638	90.114	82.59
-35	92.038	85.051	78.063
-34	86.798	80.307	73.816
-33	81.891	75.86	69.828
-32	77.296	71.69	66.083
-31	72.99	67.777	62.564
-30	68.952	64.104	59.256
-29	65.177	60.666	56.155
-28	61.61	57.413	53.216
-27	58.261	54.355	50.449
-26	55.116	51.48	47.844
-25	52.162	48.776	45.39
-24	49.385	46.232	43.079
-23	46.773	43.836	40.899
-22	44.318	41.581	38.844
-21	42.006	39.456	36.906
-20	39.851	37.473	35.095
-19	37.781	35.565	33.349
-18	35.852	33.785	31.718
-17	34.032	32.105	30.178
-16	32.318	30.52	28.722
-15	30.7	29.023	27.346
-14	29.174	27.609	26.044
-13	27.733	26.273	24.813

Temperature (°C)	Resistance (kΩ)		
	Rmax	R(t)Normal	Rmin
-12	26.373	25.01	23.647
-11	25.088	23.816	22.544
-10	23.875	22.687	21.499
-9	22.727	21.618	20.509
-8	21.642	20.607	19.572
-7	20.616	19.649	18.682
-6	19.645	18.742	17.839
-5	18.726	17.883	17.04
-4	17.855	17.068	16.281
-3	17.031	16.296	15.561
-2	16.25	15.563	14.876
-1	15.509	14.868	14.227
0	14.872	14.27	13.668
1	14.141	13.582	13.023
2	13.509	12.987	12.465
3	12.91	12.422	11.934
4	12.34	11.885	11.43
5	11.8	11.375	10.95
6	11.286	10.889	10.492
7	10.798	10.428	10.058
8	10.333	9.988	9.643
9	9.892	9.57	9.248
10	9.473	9.172	8.871
11	9.072	8.792	8.512
12	8.692	8.431	8.17
13	8.33	8.087	7.844
14	7.985	7.758	7.531
15	7.656	7.445	7.234
16	7.343	7.147	6.951
17	7.045	6.862	6.679
18	6.76	6.59	6.42
19	6.489	6.331	6.173
20	6.23	6.083	5.936
21	5.982	5.846	5.71
22	5.746	5.62	5.494
23	5.521	5.404	5.287
24	5.306	5.198	5.09
25	5.1	5	4.9
26	4.911	4.811	4.711
27	4.73	4.63	4.53
28	4.557	4.457	4.357
29	4.391	4.292	4.193
30	4.232	4.133	4.034
31	4.08	3.982	3.884
32	3.934	3.836	3.738
33	3.794	3.697	3.6
34	3.66	3.564	3.468
35	3.532	3.436	3.34
36	3.408	3.313	3.218

Temperature (°C)	Resistance (kΩ)		
	Rmax	R(t)Normal	Rmin
37	3.289	3.195	3.101
38	3.175	3.082	2.989
39	3.066	2.974	2.882
40	2.961	2.87	2.779
41	2.859	2.77	2.681
42	2.763	2.675	2.587
43	2.67	2.583	2.496
44	2.58	2.494	2.408
45	2.495	2.41	2.325
46	2.412	2.328	2.244
47	2.332	2.25	2.168
48	2.255	2.174	2.093
49	2.182	2.102	2.022
50	2.111	2.032	1.953
51	2.042	1.965	1.888
52	1.977	1.901	1.825
53	1.914	1.839	1.764
54	1.853	1.779	1.705
55	1.794	1.721	1.648
56	1.737	1.666	1.595
57	1.683	1.613	1.543
58	1.631	1.562	1.493
59	1.58	1.512	1.444
60	1.532	1.465	1.398
61	1.484	1.419	1.354
62	1.438	1.374	1.31
63	1.395	1.332	1.269
64	1.353	1.291	1.229
65	1.312	1.251	1.19
66	1.273	1.213	1.153
67	1.235	1.176	1.117
68	1.198	1.14	1.082
69	1.163	1.106	1.049
70	1.129	1.073	1.017
71	1.096	1.041	0.986
72	1.064	1.01	0.956
73	1.033	0.98	0.927
74	1.004	0.952	0.9
75	0.975	0.924	0.873
76	0.947	0.897	0.847
77	0.92	0.871	0.822
78	0.894	0.846	0.798
79	0.869	0.822	0.775
80	0.845	0.799	0.753
81	0.821	0.776	0.731
82	0.799	0.754	0.709
83	0.777	0.733	0.689
84	0.756	0.713	0.67
85	0.735	0.693	0.651

Temperature (°C)	Resistance (kΩ)		
	Rmax	R(t)Normal	Rmin
86	0.715	0.674	0.633
87	0.696	0.655	0.614
88	0.678	0.638	0.598
89	0.659	0.62	0.581
90	0.643	0.604	0.565
91	0.625	0.587	0.549
92	0.609	0.572	0.535
93	0.593	0.557	0.521
94	0.578	0.542	0.506
95	0.563	0.528	0.493
96	0.548	0.514	0.48
97	0.535	0.501	0.467
98	0.521	0.488	0.455
99	0.509	0.476	0.443
100	0.496	0.464	0.432
101	0.484	0.452	0.42
102	0.472	0.441	0.41
103	0.46	0.43	0.4
104	0.449	0.419	0.389
105	0.438	0.409	0.38

5.1.2 Voltage List of 20 KΩ Exhaustion Temperature sensors

Temperature (°C)	Resistance (kΩ)		
	Rmax	R(t)Normal	Rmin
-40	726.657	625.868	525.078
-39	681.023	587.424	493.824
-38	638.514	551.558	464.602
-37	598.9	518.084	437.269
-36	561.966	486.829	411.692
-35	527.516	457.633	387.75
-34	495.37	430.35	365.33
-33	465.362	404.844	344.326
-32	437.336	380.989	324.641
-31	411.152	358.67	306.187
-30	386.68	337.78	288.879
-29	363.797	318.219	272.641
-28	342.392	299.897	257.401
-27	322.363	282.727	243.092
-26	303.613	266.633	229.654
-25	286.054	251.541	217.028
-24	269.604	237.383	205.162
-23	254.188	224.097	194.005
-22	239.736	211.625	183.513
-21	226.181	199.912	173.642
-20	213.465	188.909	164.353

-19	201.53	178.569	155.608
-18	190.326	168.85	147.373
-17	179.803	159.71	139.616
-16	169.917	151.112	132.307
-15	160.627	143.022	125.417
-14	151.893	135.407	118.921
-13	143.679	128.236	112.794
-12	135.952	121.483	107.014
-11	128.68	115.12	101.559
-10	121.836	109.123	96.41
-9	115.391	103.469	91.548
-8	109.32	98.138	86.956
-7	103.6	93.108	82.617
-6	98.209	88.362	78.516
-5	93.126	83.883	74.64
-4	88.332	79.653	70.974
-3	83.81	75.659	67.507
-2	79.543	71.885	64.227
-1	75.515	68.319	61.123
0	71.712	64.948	58.184
1	68.12	61.761	55.402
2	64.726	58.746	52.766
3	61.519	55.894	50.269
4	58.488	53.195	47.903
5	55.621	50.641	45.661
6	52.91	48.222	43.534
7	50.345	45.931	41.517
8	47.917	43.761	39.604
9	45.619	41.704	37.789
10	43.443	39.755	36.066
11	41.383	37.907	34.431
12	39.43	36.154	32.878
13	37.58	34.491	31.403
14	35.826	32.914	30.001
15	34.163	31.417	28.67
16	32.586	29.995	27.404
17	31.09	28.645	26.2
18	29.671	27.363	25.056
19	28.324	26.145	23.967
20	27.044	24.988	22.931
21	25.83	23.888	21.946
22	24.676	22.842	21.007
23	23.579	21.847	20.114
24	22.538	20.9	19.263
25	21.547	20	18.453
26	20.605	19.143	17.681
27	19.71	18.327	16.945
28	18.858	17.551	16.243
29	18.047	16.811	15.575
30	17.275	16.106	14.937

31	16.541	15.434	14.328
32	15.841	14.794	13.748
33	15.175	14.184	13.194
34	14.54	13.602	12.665
35	13.935	13.048	12.16
36	13.358	12.518	11.678
37	12.809	12.013	11.217
38	12.284	11.531	10.777
39	11.784	11.071	10.357
40	11.307	10.631	9.955
41	10.852	10.211	9.571
42	10.417	9.81	9.203
43	10.002	9.427	8.852
44	9.606	9.061	8.516
45	9.228	8.711	8.194
46	8.866	8.376	7.886
47	8.52	8.056	7.591
48	8.19	7.75	7.309
49	7.874	7.456	7.039
50	7.572	7.176	6.78
51	7.283	6.908	6.532
52	7.007	6.65	6.294
53	6.743	6.404	6.066
54	6.489	6.168	5.847
55	6.247	5.942	5.638
56	6.015	5.726	5.437
57	5.793	5.518	5.244
58	5.58	5.319	5.059
59	5.376	5.129	4.882
60	5.18	4.946	4.711
61	4.993	4.77	4.548
62	4.813	4.602	4.39
63	4.641	4.44	4.24
64	4.475	4.285	4.094
65	4.317	4.136	3.955
66	4.164	3.993	3.821
67	4.018	3.855	3.693
68	3.878	3.723	3.569
69	3.743	3.596	3.45
70	3.614	3.475	3.335
71	3.49	3.357	3.225
72	3.37	3.245	3.119
73	3.255	3.136	3.017
74	3.145	3.032	2.919
75	3.039	2.932	2.824
76	2.937	2.835	2.733
77	2.839	2.742	2.646
78	2.745	2.653	2.561
79	2.654	2.567	2.48
80	2.567	2.484	2.401

81	2.483	2.404	2.326
82	2.402	2.327	2.253
83	2.324	2.253	2.183
84	2.249	2.182	2.115
85	2.176	2.113	2.05
86	2.109	2.047	1.984
87	2.045	1.983	1.921
88	1.982	1.921	1.86
89	1.922	1.862	1.801
90	1.864	1.804	1.744
91	1.808	1.749	1.69
92	1.754	1.695	1.637
93	1.701	1.644	1.586
94	1.651	1.594	1.537
95	1.602	1.546	1.49
96	1.555	1.5	1.444
97	1.509	1.455	1.4
98	1.465	1.412	1.358
99	1.423	1.37	1.317
100	1.382	1.329	1.277
101	1.342	1.29	1.239
102	1.303	1.253	1.202
103	1.266	1.216	1.166
104	1.23	1.181	1.132
105	1.195	1.147	1.099
106	1.162	1.114	1.066
107	1.129	1.082	1.035
108	1.098	1.051	1.005
109	1.067	1.022	0.976
110	1.038	0.993	0.948
111	1.009	0.965	0.921
112	0.981	0.938	0.895
113	0.955	0.912	0.869
114	0.929	0.887	0.845
115	0.904	0.862	0.821
116	0.879	0.839	0.798
117	0.856	0.816	0.776
118	0.833	0.794	0.754
119	0.811	0.772	0.733
120	0.789	0.751	0.713

5.2 Temperature/pressure List of Refrigerant

[illegible]

5.3 Refrigerant Notice/concentration

This air conditioner uses R32 refrigerant. The construction area for installation, operation and storage of the air conditioner must be larger than the minimum construction area. The minimum area for installation is determined by: Refrigerant charging quantity for the entire system (ex-factory charging quantity + additional charging quantity).

Checking out in the applicable tables:

- 5) For indoor unit, confirm the model of indoor unit and check the corresponding table.
- 6) For outdoor unit that is installed or placed indoors, select the corresponding table according to the height of the room.

Height of the room	Select the applicable table
< 1.8m	Floor standing type
≥1.8m	wall mounted type

Refer to the following table to check out the minimum construction area

Ceiling type	
Weight(kg)	Area (m2)
< 1.224	—
1.2	0.96
1.4	1.25
1.6	1.63
1.8	2.07
2.0	2.55
2.2	3.09
2.4	3.68
2.6	4.31
2.8	5.00
3.0	5.74
3.2	6.5
3.4	7.4
3.6	8.2
3.8	9.2
4.0	10.2
4.2	11.3
4.4	12.4
4.6	13.5
4.8	14.7
5.0	16.0
5.2	17.3
5.4	18.6
5.6	20.0
5.8	21.5
6.0	23.0
6.2	24.5
6.4	26.1
6.6	27.8
6.8	29.5
7.0	31.3
7.2	33.1
7.4	34.9
7.6	36.9
7.8	38.8
8.0	40.8

Wall mounted type	
weight (kg)	Area (m2)
< 1.224	—
1.2	1.43
1.4	1.87
1.6	2.44
1.8	3.09
2.0	3.81
2.2	4.61
2.4	5.49
2.6	6.44
2.8	7.47
3.0	8.58
3.2	9.8
3.4	11.0
3.6	12.4
3.8	13.8
4.0	15.3
4.2	16.8
4.4	18.5
4.6	20.2
4.8	22.0
5.0	23.8
5.2	25.8
5.4	27.8
5.6	29.9
5.8	32.1
6.0	34.3
6.2	36.6
6.4	39.1
6.6	41.5
6.8	44.1
7.0	46.7
7.2	49.4
7.4	52.2
7.6	55.1
7.8	58.0
8.0	61.0

Floor standing type	
weight (kg)	Area (m2)
< 1.224	—
1.2	12.9
1.4	16.8
1.6	22.0
1.8	27.8
2.0	34.3
2.2	41.5
2.4	49.4
2.6	58.0
2.8	67.3
3.0	77.2
3.2	88
3.4	99
3.6	111
3.8	124
4.0	137
4.2	151
4.4	166
4.6	182
4.8	198
5.0	215
5.2	232
5.4	250
5.6	269
5.8	289
6.0	309
6.2	330
6.4	351
6.6	374
6.8	397
397	420
7.0	445
420	470
7.2	496
445	522
7.4	549

5.4 Operation Tools

The following tools will be used:

- 1) Liquid-level gauge; 2) screwdriver; 3) Electric driven rotary hammer; 4) Drill; 5) pipe expander; 6) Torque wrench;
- 7) Open-end wrench; 8) pipe cutter; 9) Leak detector; 10) vacuum pump; 11) pressure gauge; 12) universal meter;
- 13) Hexagon wrench; 14) Tapeline.