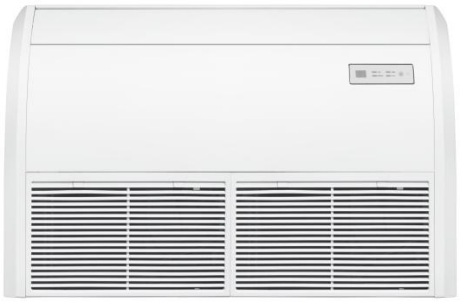
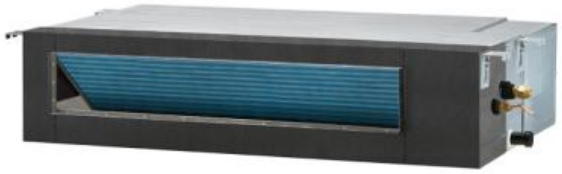
U-MATCH 2 SERIES DC INVERTER AIR CONDITIONERS

Service Manual





Foreword

Thank you for choosing TCL 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 first read the instruction manual.
	Before installing the air conditioner, please first read the instruction manual.
	Before repairing the air conditioner, please first read the technical service manual.

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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Notes for Installation and Maintenance

Safety Precautions Important!

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

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

⚠Warnings

Electrical Safety Precautions

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

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

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

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

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

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

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

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

9)If power cord or connection wire is broken, it must be replaced by 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 then 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. (See the requirements in installation part).

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

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

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

5)Use equipped components or appointed components during installation.

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

Improper installation may lead to fire hazard, explosion, electric shock or injury.Safety precautions for Installing and Relocating the unit.To ensure safety, please be mindful of the following precautions.

⚠ Warnings

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

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

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

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

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

If refrigerant recovery takes too much time, may be 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 when the valves is open and connecting pipe is not yet connected, 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 pipe is securely connected before the compressor starts running.

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

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

7)Do not use extension cords for electrical connections. If the electric wire is not long enough,please contact a local service center authorized and ask for a proper electric wire. Poor connection may lead to electric shock or fire.

8)Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire

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 or objects.
- A leak test must be done after the installation is 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

Installation Safety Principles

Site Safety



peration Safety




Mind Static Electricity Must wear protective clothing and anti-static gloves Don`t use mobile phone

Installation Safety

Refrigerant Leak Detector Appropriate Installation Location	 The left picture is the schematic diagram of a refrigerant leak detector.

Caution:

- The installation should be in a well-ventilated condition location.
- When you installing or maintaining an air conditioner using Refrigerant R32, the location

should be free fire from open or any other goods temperature higher than 548°Cfor R32 which easily produces open fire include welding, smoking, drying oven.

- When installing an air conditioner of R32, it is necessary to take appropriate anti-static measures such as wear anti-static clothing and gloves.
- It is necessary to choose the location for installation or maintenance where in the air inlets and outlets of the indoor and outdoor units should be not surrounded by obstacles or close to any heat source or combustible and/or explosive environment.
- If the indoor unit suffers 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 till the refrigerant leaks completely for 15 minutes. If the product is damaged, it is a must 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 is even.
- It is necessary to avoid the places where there are other electrical products, power switch plugs and sockets, kitchen cabinet, bed, sofa and other valuables right under the lines on two sides of the indoor unit.

Special tools:

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 Refrigerant 22 can be used for Refrigerants R290 and R161; the pressure gauge used for R410A can be used for Refrigerant 32.
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 in handy

Maintenance

1). Inspections before maintenance.

（1）Inspection of maintenance environment

- There should be no leaked 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 any other goods temperature higher than 548℃ (R32) 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 drying powder or carbon dioxide fire extinguisher and that such fire extinguisher can work.

（2）Inspection of maintenance equipment

- Check the maintenance equipment is applicable to 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 whether 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 powered supply to air conditioner is off. Before maintenance, it is necessary to cut off the power and discharge the capacitor power which used in the air conditioner. If it is a must to need the power supply during the maintenance, it is necessary to do ongoing leak 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 the air conditioner leak or not.

Warning

If leak may exist, it is necessary to move all the fire out 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 well-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 lower than 40%, it is necessary to wear

anti-static clothing and gloves.

- If the combustible refrigerant is found leaking during the maintenance, it is a must to immediately take forced ventilation and plug up 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 maintenance station for maintenance. (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 part during the maintenance. Moreover, it is a must to ensure that the refrigerating system is in secure 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 stipulated 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 leveled 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 on the maintenance location.

6).Requirements for fill the refrigerants

- It is necessary to use nitrogen to clear the cyclic system before operating the refrigerating system and vacuumize the outdoor unit for 30 minutes at least.
- 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 such pipeline.
- 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 leak 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 separately placed in a well-ventilated place at the temperature ranging from -10℃ to 50℃ and label them with warning labels.

9).Emergency Accident Handling

A maintenance station should establish emergency handling plans. It is necessary to take appropriate precautionary measures in work. For example, it is prohibited to enter the location with any kindling material 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 evacuating for over 20 meters from the location,

make an alarm call, set the emergency area and prohibit irrelevant personnel and vehicles from approaching.

● The professional firefighters should wear anti-static clothing to handle the emergency on the site and cut off the source of leak.

● It is necessary to use nitrogen for blowing the site, especially the low-lying positions, clear away the residual combustible 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 concentration of refrigerant is zero.

Installation

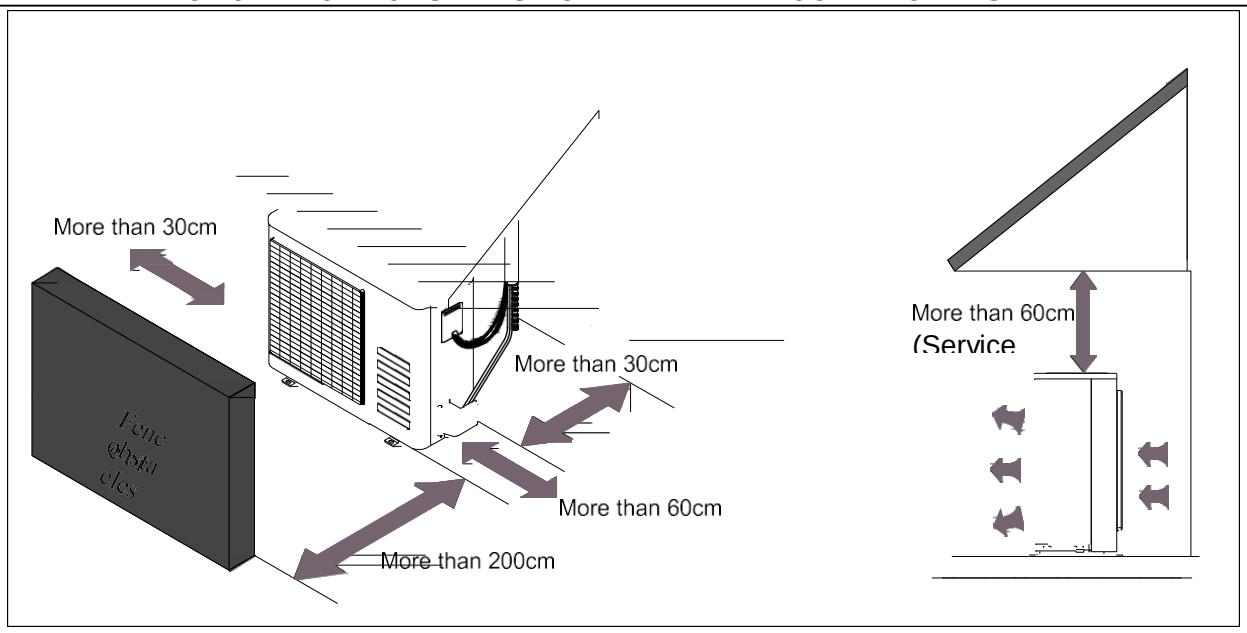
2.1 Location Selection

2.1.1 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 air circulation in the room should be good.
- There should not be any heat source or steam near the unit.
- There should not be any oil gas near the unit
- There should not be any corrosive gas near the unit
- There should not be any salty air neat the unit
- There should not be strong electromagnetic wave near the unit
- There should not be inflammable materials or gas near the unit
- There should not be strong voltage vibration.

2.1.2 Outdoor Unit Location Selection

- The place shall easily support the outdoor unit's weight.
- Locate the outdoor unit as close to indoor unit as possible
- The piping length and height drop can not 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 ventilation 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 is built over the unit to prevent direct sunlight, rain exposure, direct strong wend, snow and other scraps accumulation, make sure that heat radiation from the condenser is not restricted.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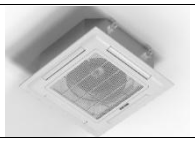
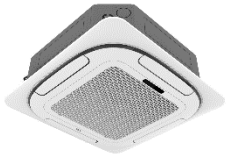
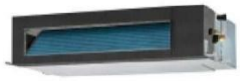
1. Model List

1.1 Indoor Units

Type	Model Name	Nominal Capacity Cooling/Heating (w)	Power Supply (V,Ph,Hz)	Appearance
Cassette Type	TCD-18CHRH/DV(Q8)	5280/5570	220-240V ~ 1ph 50Hz	
	TCC- 18CHRH/DVI(02)	5300/5800	220-240V ~ 1ph 50Hz	
	TCC- 24CHRH/DVI(02)	7030/7900	220-240V ~ 1ph 50Hz	
	TCC- 30CHRH/DVI(02)	8800/9380	220-240V ~ 1ph 50Hz	
	TCC- 36CHRH/DVI(02)	10550/11720	220-240V ~ 1ph 50Hz	
	TCC- 42CHRH/DVI(02)	12100/13500	220-240V ~ 1ph 50Hz	
	TCC- 48CHRH/DVI(02)	14070/16120	220-240V ~ 1ph 50Hz	
	TCC- 55CHRH/DVI(02)	16000/18170	220-240V ~ 1ph 50Hz	
Duct Type	TCC- 18D2HWH/DVI(02)	5300/5800	220-240V ~ 1ph 50Hz	
	TCC- 24D2HWH/DVI(02)	7030/7900	220-240V ~ 1ph 50Hz	
	TCC- 30D2HWH/DVI(02)	8800/9380	220-240V ~ 1ph 50Hz	
	TCC- 36D2HWH/DVI(02)	10550/11720	220-240V ~ 1ph 50Hz	
	TCC- 42D2HWH/DVI(02)	12100/13500	220-240V ~ 1ph 50Hz	
	TCC- 48D2HWH/DVI(02)	14070/16120	220-240V ~ 1ph 50Hz	
	TCC- 55D2HWH/DVI(02)	16000/18170	220-240V ~ 1ph 50Hz	

TCL U-MATCH-R32 SERIES DC INVERTER AIR CONDITIONERS

Type	Model Name	Nominal Capacity Cooling/Heating (w)	Power Supply (V,Ph,Hz)	Appearance
Ceiling&Floor Type	TCC-18ZHRH/DV(02)	5300/5800	220-240V ~ 1ph 50Hz	
	TCC-24ZHRH/DV(02)	7030/7900	220-240V ~ 1ph 50Hz	
	TCC-30ZHRH/DV(02)	8800/9380	220-240V ~ 1ph 50Hz	
	TCC-36ZHRH/DV(02)	10550/11720	220-240V ~ 1ph 50Hz	
	TCC-42ZHRH/DV(02)	12100/13500	220-240V ~ 1ph 50Hz	
	TCC-48ZHRH/DVI(02)	14070/16120	220-240V ~ 1ph 50Hz	
	TCC-55ZHRH/DVI(02)	16000/18170	220-240V ~ 1ph 50Hz	

1.2 Outdoor Units

Model Name	Power Supply(V,Ph,Hz)	Appearance
TCC-18HH/DVO(02)	220-240V ~ 1ph 50Hz	
TCC-18HH/DVO(03)	220-240V ~ 1ph 50Hz	
TCC-24HH/DVO(02)	220-240V ~ 1ph 50Hz	
TCC-30HH/DVO(02)	220-240V ~ 1ph 50Hz	
TCC-36HH/DVO(02)	220-240V ~ 1ph 50Hz	
TCC-42HH/DVO(02)	220-240V ~ 1ph 50Hz	
TCC-48HH/DV7O(02)	380-415V ~ 3ph 50Hz	
TCC-55HH/DV7O(02)	380-415V ~ 3ph 50Hz	

1.3 Electric Characteristics

Model	Power supply	Circuit Breaker Capacity	Min.sectional area of power cord
	V/Ph/Hz	A	mm2
TCC-18HH/DVO(02)	220-240V~50Hz	20A	2.5
TCC-24HH/DVO(02)		25A	2.5
TCC-30HH/DVO(02)		32A	2.5
TCC-36HH/DVO(02)		32A	2.5
TCC-42HH/DVO(02)		32A	2.5
TCC-48HH/DV7O(02)	380-415V~50Hz	20A	2.5
TCC-55HH/DV7O(02)		20A	2.5

Indoor Unit	Power Supply	Fuse Capacity	Circuit Breaker Capacity	Min. Sectional Area of Power Cord
	V/Ph/Hz	A	A	mm2
18K	220-240V ~50Hz	5A	20	2.5
24K			25	2.5
30K			32	2.5
36K-55K			10	1.5

NOTICE：

① Fuse is located on the main board.

② Install a circuit breaker near the outdoor units with at least 3mm contact gap. The units must be able to be plugged or unplugged.

③ Circuit breaker and power cord specifications listed in the above table are determined based on the maximum power input of the units.

④ Specifications of circuit breaker are based on a working condition where the working temperature is 40℃. If working condition changes, please adjust the specifications according to national standards.

⑤ Adopt 1.0mm² power cords between indoor and outdoor units. The maximum length of 18-30k units is 30m and 36K units is 50m, the maximum length of 48-55K units is 65m . Please select a proper length according to local conditions. To be in compliance EN 55014, it is necessary to use 8 meters long wire.

⑥ Adopt 2pc of 0.75mm² power cords to be the communication cords between wired controller and indoor unit. The maximum length is 30m. Please select a proper length according to local conditions. Communication cords must not be twisted together. To be in compliance with EN 55014, it is necessary to use 8 meters long wire.

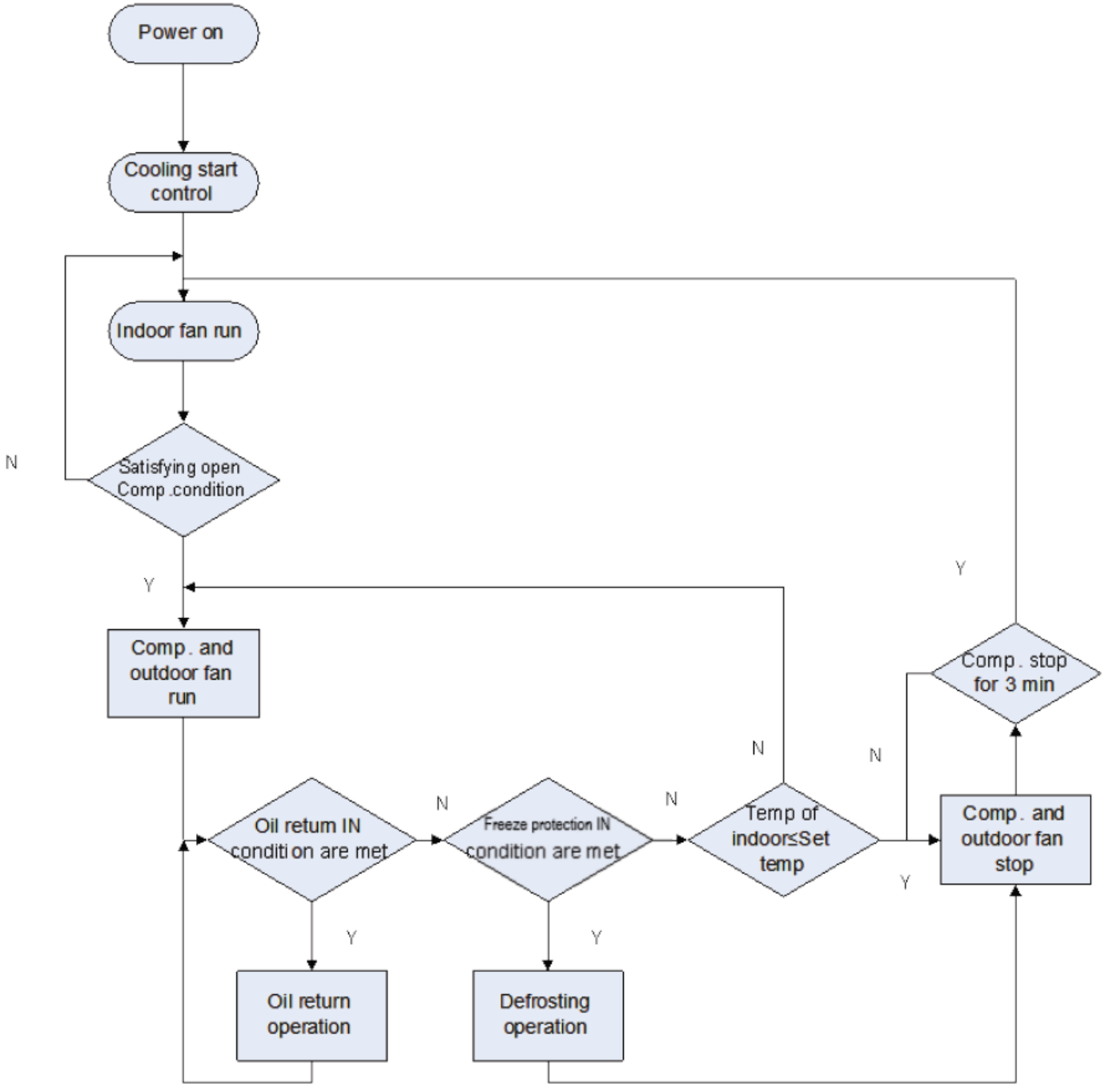
⑦ The wire gauge of communication cord should not be less than 0.75mm² . It’s recommended to use

0.75mm² power cords as the communication cords.

2. Control

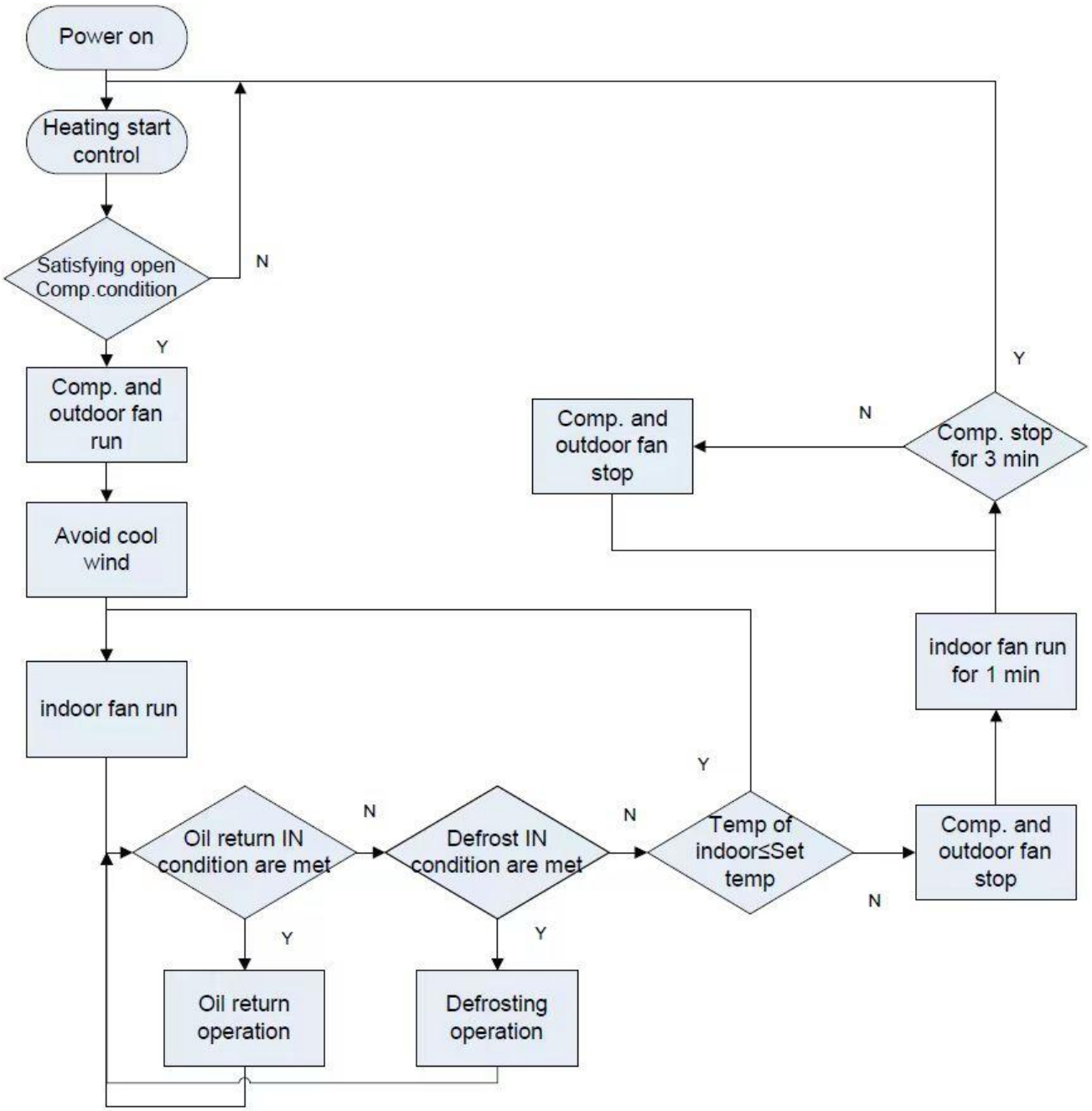
2.1 Operation Mode

2.1.1 Cooling Mode



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

2.1.2 Heating Mode



2.2 Control Mode

2.2.1 Based Control

2.2.1.1 Compressor Control

When cooling or heating 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. In fan mode, outdoor fan will not work.

2.2.1.4 4-way Valve Control

After heating mode is turned on for a while, 4-way valve will be energized to change the direction of refrigerant flow so that the system can run in heating and the indoor unit will not blow cold air. Under other modes, the valve will not be energized.

To avoid the 4-way valve from incorrectly changing directions, when the unit stops in heating, due to a temperature point or other protection reasons, the 4-way valve will continue to function temporarily and lose power after a while.

There must be adequate differential pressure for the 4-way valve to change directions.

2.2.2 Special Control

2.2.2.1 Defrosting Control

ODU defrosting control in heating: Defrosting will start when the temperature sensed by outdoor tube temperature sensor reaches a preset value. During defrosting, the 4-way valve will switch to the cooling condition, and outdoor and indoor fans will both stop. When the temperature sensed by outdoor tube temperature sensor reaches the preset value of defrosting stop, system will quit defrosting. The 4-way valve will switch back to the heating condition, outdoor fan will start working first and indoor fan will resume its previous fan speed after performing cold air prevention.

2.2.2.2 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.

2.2.2.3 Refrigerant Recovery Control

Within 3 minutes after power-on, when pressing the button in the standby state: press the emergency switch for at least 5s and less than 10s, and enter the fluorine receiving state.

1) Fluorine collection 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 ℃. 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 fluorine collection operation. If no fault code is displayed, the set

temperature is displayed until the end of the fluorine collection operation.

2) After 10 minutes of fluorine collection operation, the system automatically exits the fluorine collection operation and enters the standby state.

3) The protection and fault functions are invalid during fluorine collection operation (except for internal and external machine 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:

1) Press the emergency switch to quit the fluoride recovery operation to be standby.

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

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

4) Quit the fluoride recovery operation automatically after 10min from such operation.

5) Quit the fluoride recovery operation to be standby when the timed shutdown is out.

2.2.2.4 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 light board.

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;

In the emergency heating mode, operate in the standby state when the emergency key is ready;

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 receives any remote controller signal or button control signal.

2.2.3 Protection Control

2.2.3.1 Low Pressure Protection Control (Only for 36/42/48/55K units)

System will enable low pressure protection control if the low pressure switch is detected open for continuously a little time. Under low pressure protection, system will be shut down and display error code H2. When low pressure protection occurs, system will restore operation if the low pressure switch is detected to be reclosed within a few minutes after shutdown. If low pressure protection occurs for several times in a period of time, system will not restore operation automatically. You need to manually turn off the unit before restarting up the unit.

2.2.3.2 High Temperature Prevention Control

Under heating mode, system will enable high temperature prevention control if the temperature sensed by indoor tube temperature sensor reaches a certain value. When high temperature prevention control is enabled, outdoor fan will slow down.

2.2.3.3 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 Setting of Filter Cleaning Reminder

Turn on Filter Clean Reminder Function: When unit is on, if there are 500h timed at least, the full dust sign is set, and the CL reminder is displayed 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 this function if meeting any of the following conditions:

1) When powered off

2) When the unit is powered off and then on, and operated for 24h cumulatively after the full dust sign is available.

2.3.2 SELF-CLEAN function (Optional)

Only optional for some heating pump inverter appliance.

To active this function, turn off the indoor unit at first, then press CLEAN button then you will hear a beep, AC will appear on the indoor LED, and will  appear on the remote display .

1. This function helps carry away the accumulated dirt, bacteria, etc. from the indoor evaporator.

2. This function will run about 30 minutes, and it will return to the pre-setting mode. You can press  button to cancel this function during the process.

You will hear 2 beeps when it's finished or cancelled.

 It's normal if there is some noise during this function process, as plastic materials expand with heat and contract with cold.

 We suggest operating this function at the following ambient conditions to avoid certain safety protection features.

Indoor unit	Temp < 86°F (30℃)
Outdoor unit	41 °F(5℃) < Temp < 86°F (30℃)

2.3.3 Door Control Function

Control the air conditioner ON and OFF through testing the level status of the access control signal cable.

1) When the access control is ON, the remote control, wire controller, emergency switch and APP control are normal;

2) When the air conditioner is OFF and the access control is tested to be turned off, the remote control, 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 [t access control delay OFF time] for 6min. In the countdown period, the air conditioner is kept at the current running state, and the remote control, wire controller, emergency switch and APP

can still be controlled normally;

In the countdown period, if the access control is re-turned 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 control, 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;

2.3.4 Switch between Fahrenheit(℉) and Degree Celsius(℃)

Power on 3 minutes, long press ‘MODE’ button and ‘FAN’ button, or ‘MODE’ button、‘FAN’ button、‘SWING’ button for 5s and the temperature zone displays “00”; then press ‘+’/ ‘-’ button until the temperature zone displays “46”.

2.3.5 Inquiry of Ambient Temperature

Power on 3 minutes, long press ‘MODE’ button and ‘FAN’ button, or ‘MODE’ button、‘FAN’ button、‘SWING’ button for 5s and the temperature zone displays “00”; then press ‘+’/ ‘-’ button until the temperature zone displays “44”.

Then, repeat the above operations, the temperature zone displays what temperature we set.

2.3.6 Inquiry of Historical Malfunction

In the running state, press the energy saving key consecutively for eight times within 8s (within 3min after being powered on: in the refrigeration 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 fault query mode, and then show all current faults and protections in turn.

2) Continue for 30s in the fault query mode, and automatically quit after 30s or shutdown.

2.3.7 TIMER function

To automatically switch on the appliance. When the unit is switch-on, you can set the TIMER ON. To set the time of automatic switch-on as below:

1. Press TIMER button first time to set the switch-on,  and  will appear on the remote display and flashes.

2. Press ‘∧’ or ‘∨’ to button to set desired Timer-on time. Each time you press the button, the time increases/decreases by half an hour between 0 and 10 hours and by one between 10 and 24 hours.

3. Press TIMER button second time to confirm.

4. After Timer-on setting, set the needed mode (Cool/ Heat/ Auto/ Fan/ Dry), by press the MODE button. And set the needed fan speed, by press FAN button. And press ‘∧’or ‘∨’ to set the needed operation temperature.

Cancel it by press TIMER button.

When the unit is switch-on, you can set the TIMER OFF. To set the time of automatic switch-off, as

below:

1. Confirm the appliance is ON.

2. Press the TIMER button at first time to set the switch-off. Press '∧'or '∨' to set the needed timer.

3. Press TIMER button at the second time to confirm.

CANCEL it by press TIMER button.

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

2.3.8 SLEEP function

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 Selecting fan mode of indoor fan motor

Select the static pressure gear for the dial switch. There are four static pressure gears totally, and 7 air gears at each static pressure gear correspond to different motor speeds.

There are 4 selections for external pressure (ESP) duct in mainboard SW2 (From left to right):

(1) 01 (The printing on the indoor unit PCB is SW2-3-OFF, SW2-4-OFF).

(2) 02 (The printing on the indoor unit PCB is SW2-3-OFF, SW2-4-ON).

(3) 03 (The printing on the indoor unit PCB is SW2-3-ON, SW2-4-OFF).

(4) 04 (The printing on the indoor unit PCB is SW2-3-ON, SW2-4-ON).

Static pressure selection	Super high speed	High speed	Medium high speed	Medium speed	Medium Low speed	Low speed	Quiet
01	S09	S08	S07	S06	S05	S04	S02
02	S08	S06	S05	S04	S03	S02	S01
03	S09	S08	S07	S06	S05	S03	S01
04	S10	S09	S08	S07	S06	S05	S03

Note:

① The external static pressure (ESP) can be changed in 4 levels by the code on mainboard SW2.

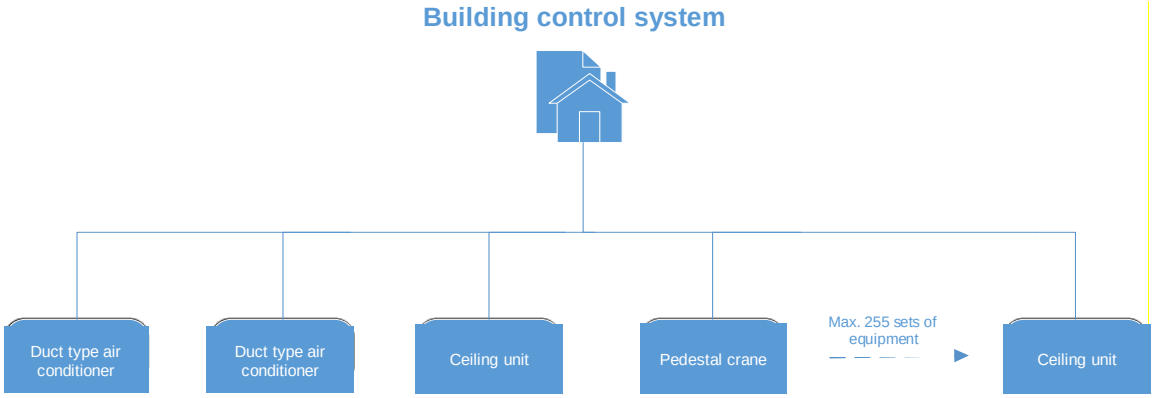
② The default ESP mode setting is 01 which is the rated ESP.

③ The remote controller can be used to change turbo, H, M-H,M,M-L and L. There are 7 selections for static pressure (ESP) duct:

Note: You can select 01, 02, 03, 04 in fan mode of indoor fan motor, which means different fan mode combinations are corresponding to different static pressure. Ex-factory defaulted mode is 01. You can set the mode through dial-up to mainboard. 02, 01, 03, 04 means the rotation speed of indoor unit is from low to high.

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 TCL for the MODBUS protocol.



(1) Interface description:

1) The indoor unit is connected to the BMS terminal on the internal electrical control panel, and connected to the building control system;

2) Electrical characteristics: Baud rate 9,600bps; standard: RS485;

3) 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:

① 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.

② Connect the wires after cutting off the power supply of the unit.

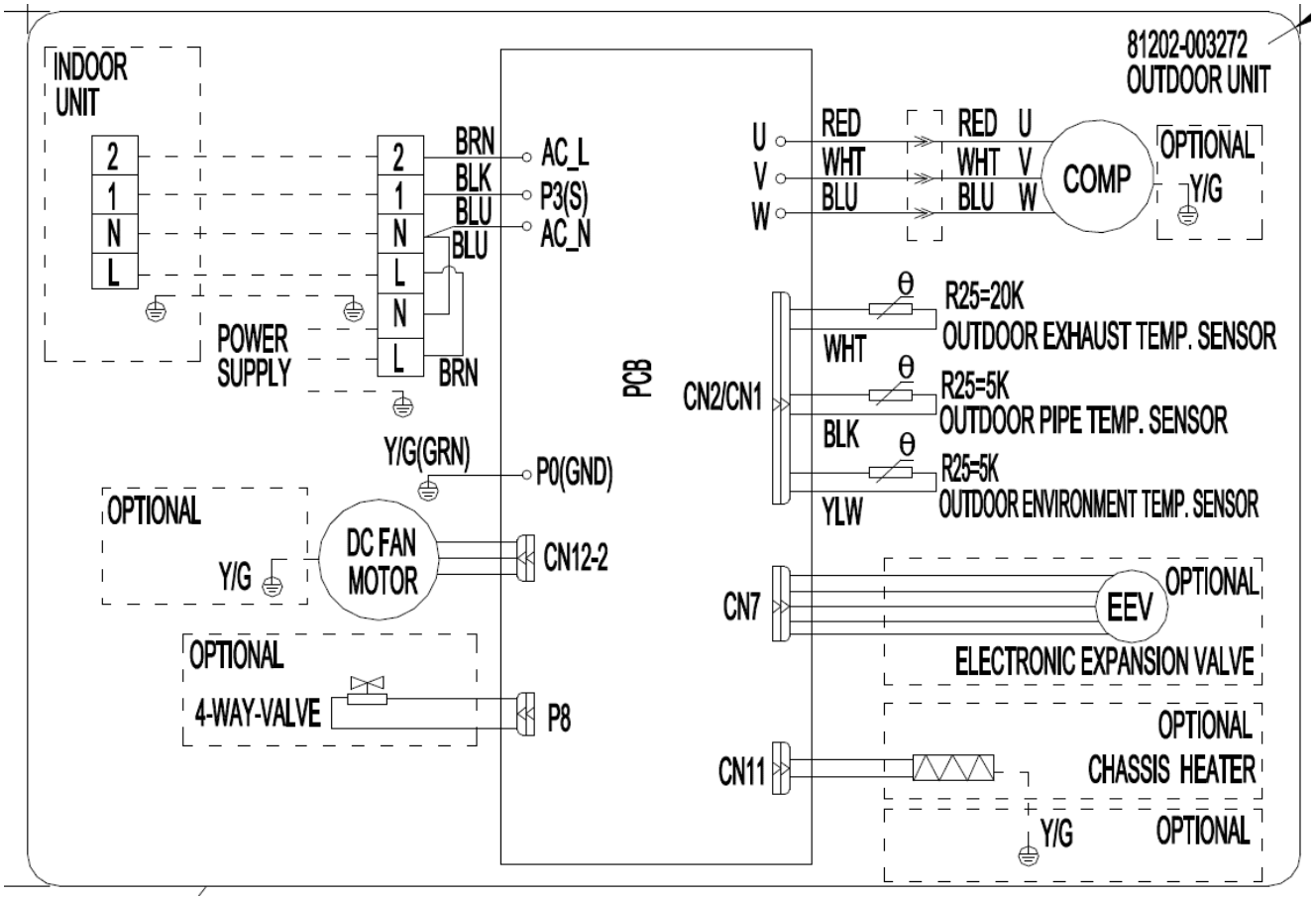
3. Troubleshooting

3.1 Wiring Diagrams

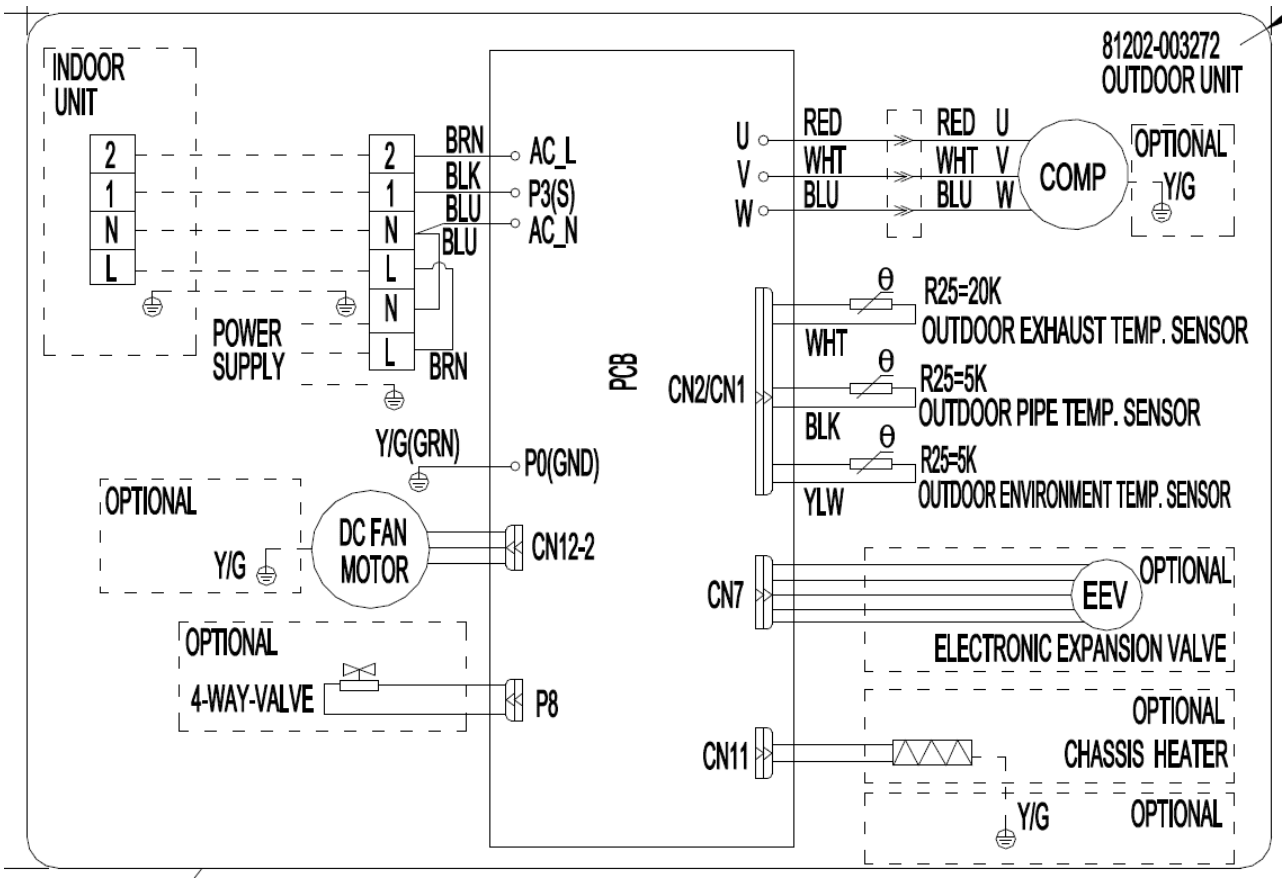
The following electric diagram is for reference only. Please refer to diagram sticked on the unit as the latest version.

3.1.1 Wiring Diagrams of ODUS

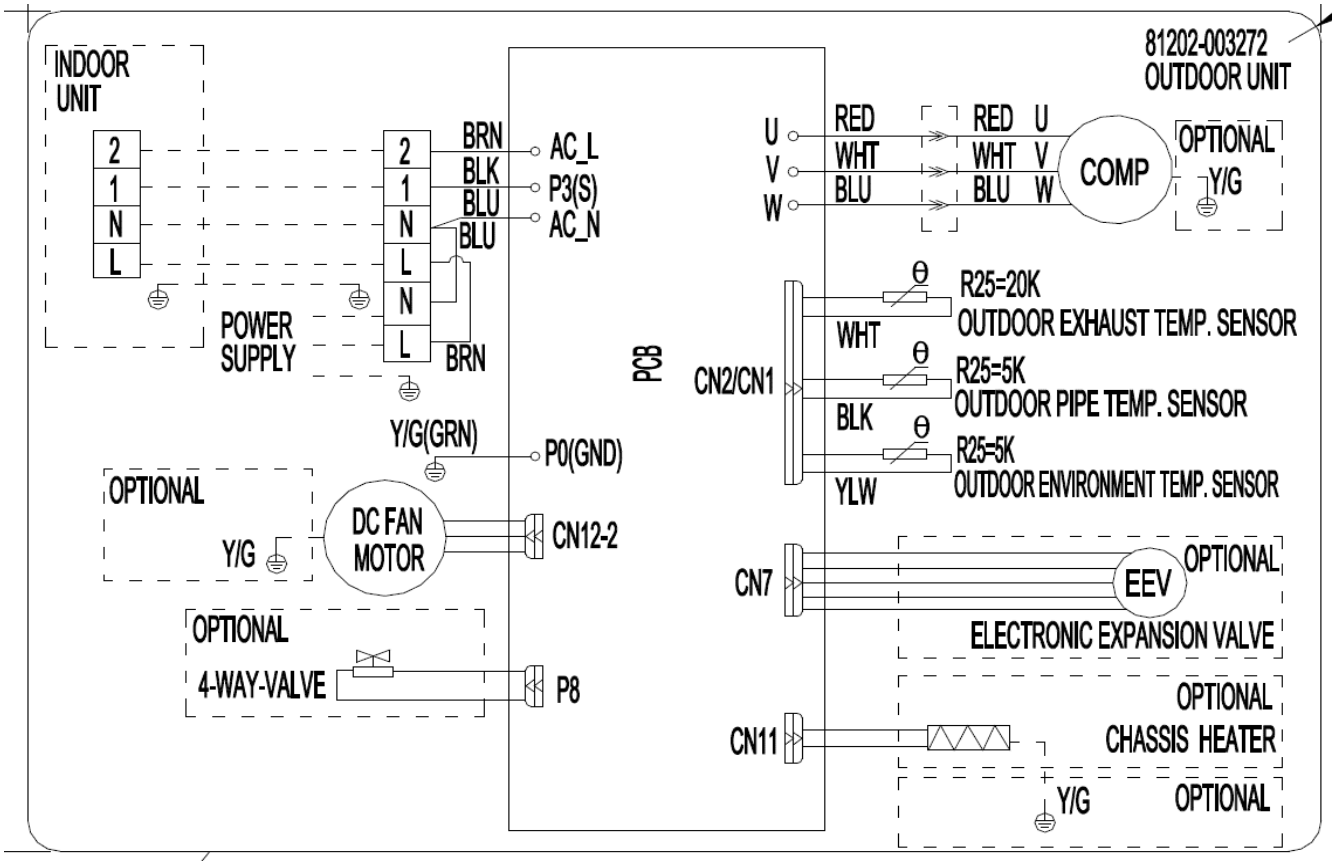
Model: TCC-18HH/DVO(03)、TCC-18HH/DVO(02)



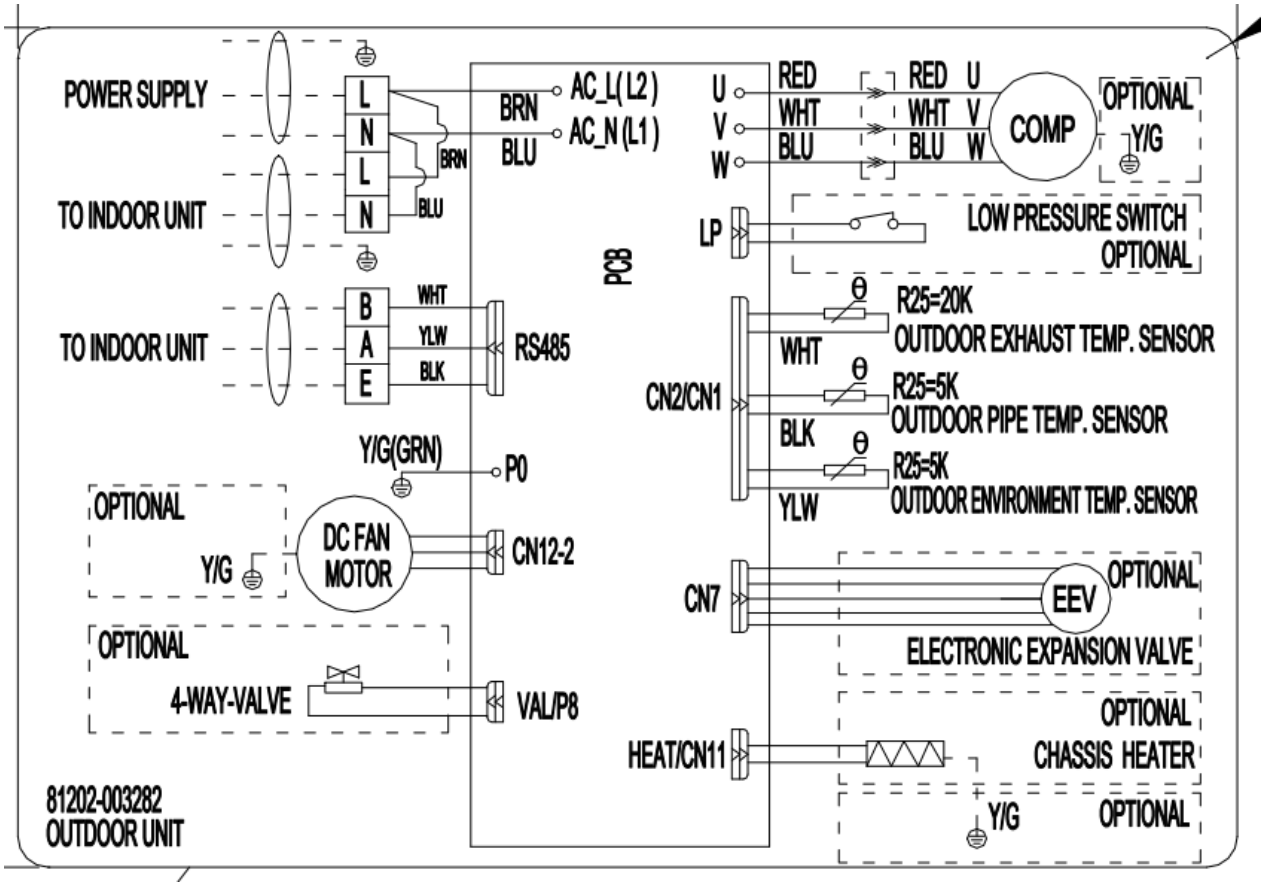
Model: TCC-24HH/DVO(02)



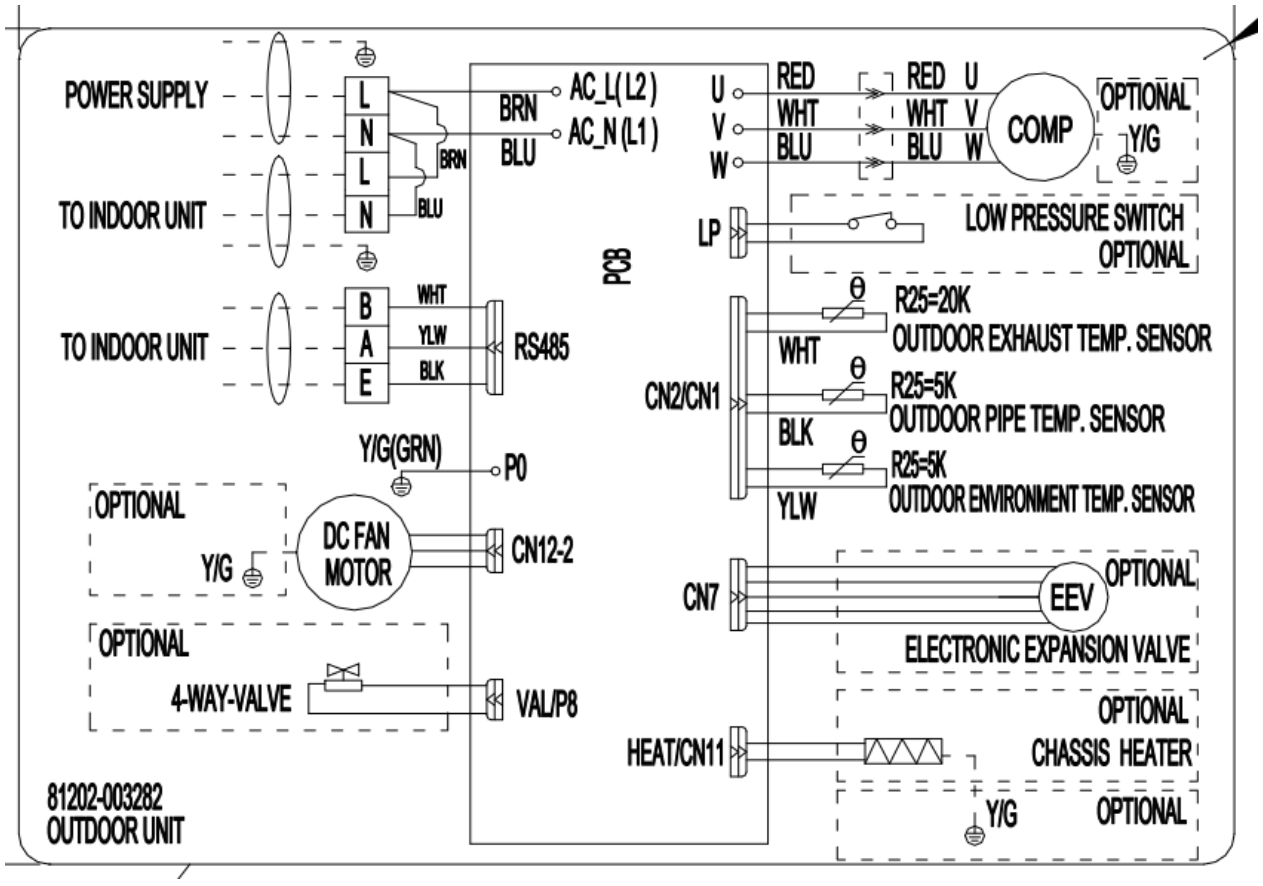
Model: TCC-30HH/DVO(02)



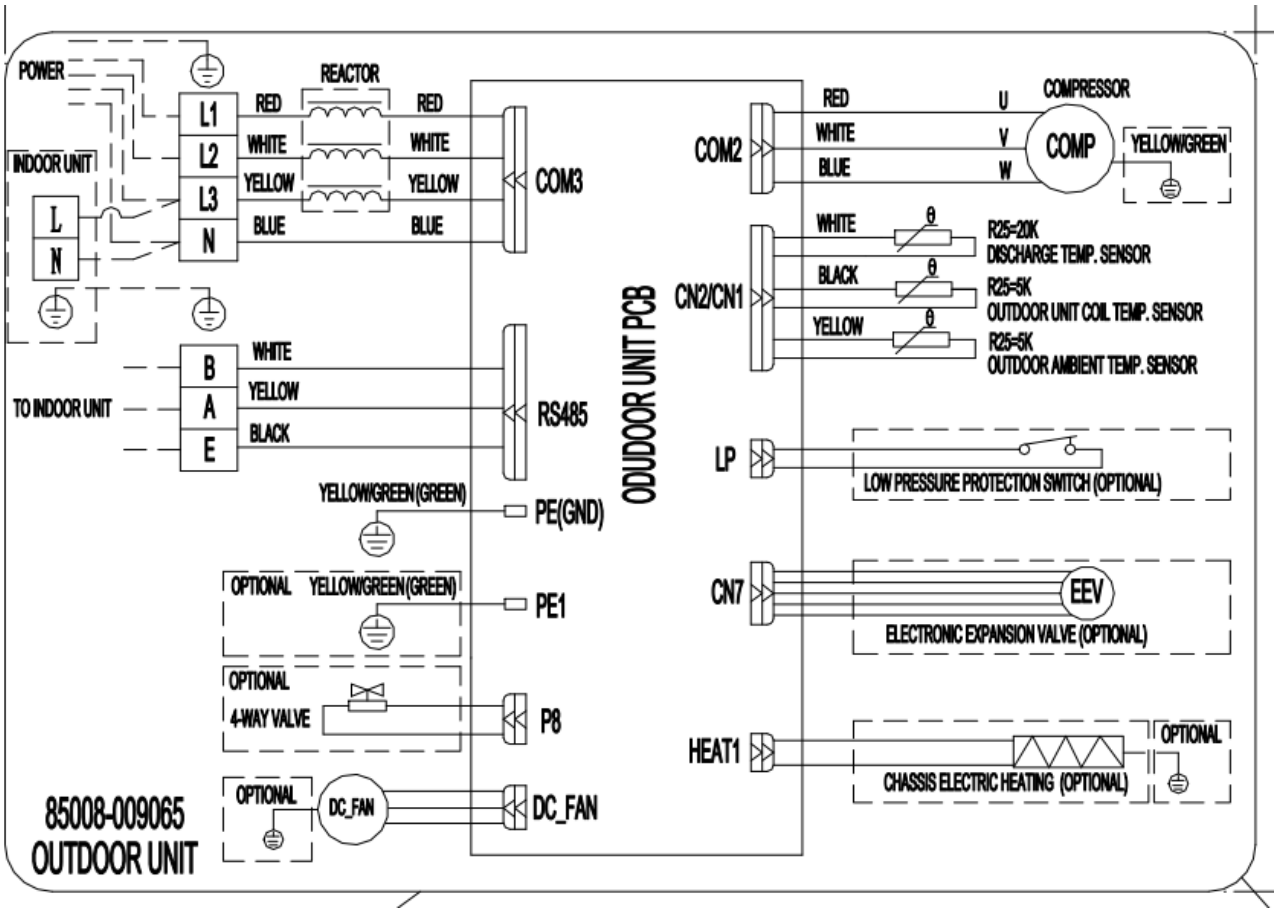
Model: TCC-36HH/DVO(02)



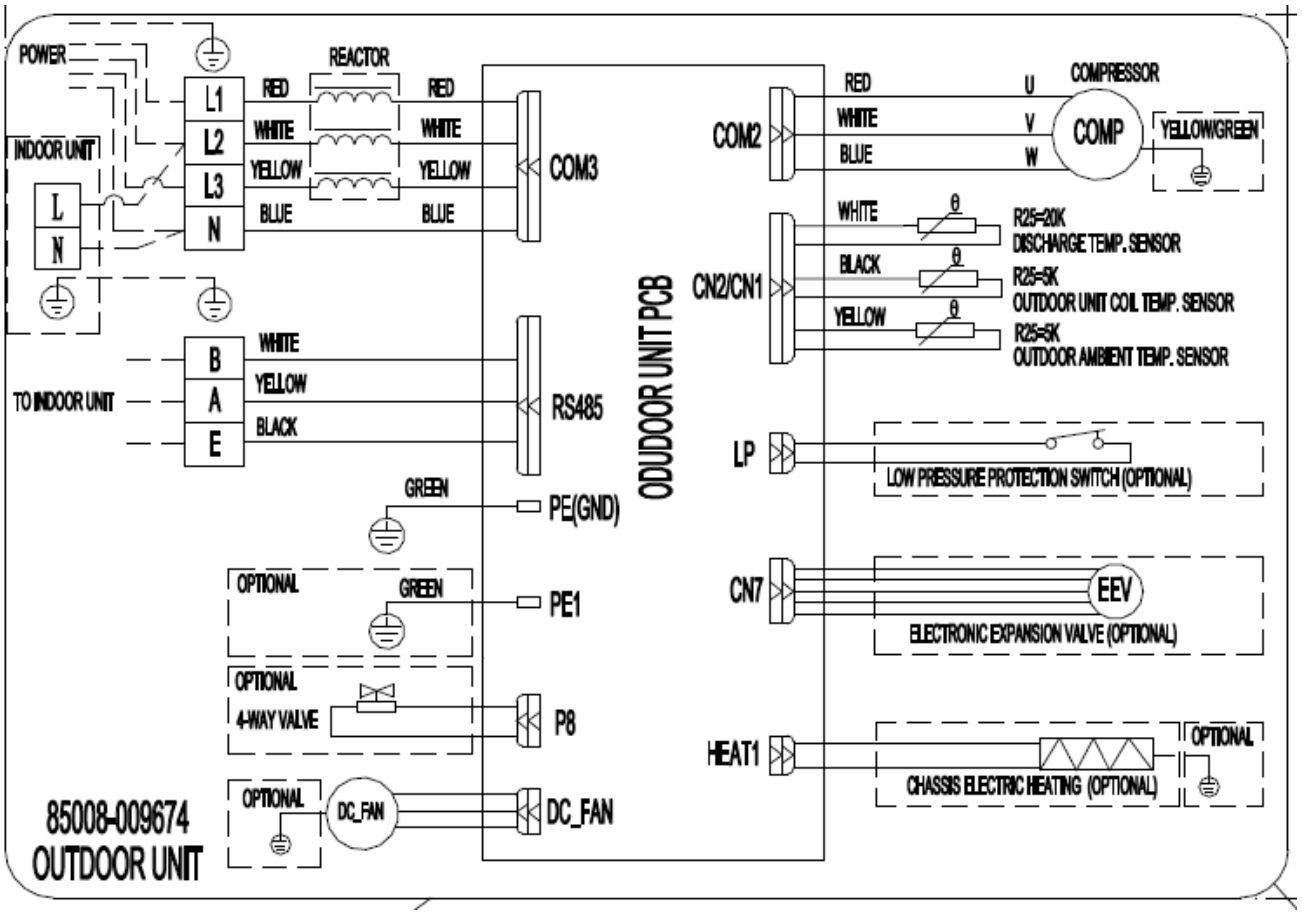
Model: TCC-42HH/DVO(02)



Model: TCC-48HH/DV7O(02)



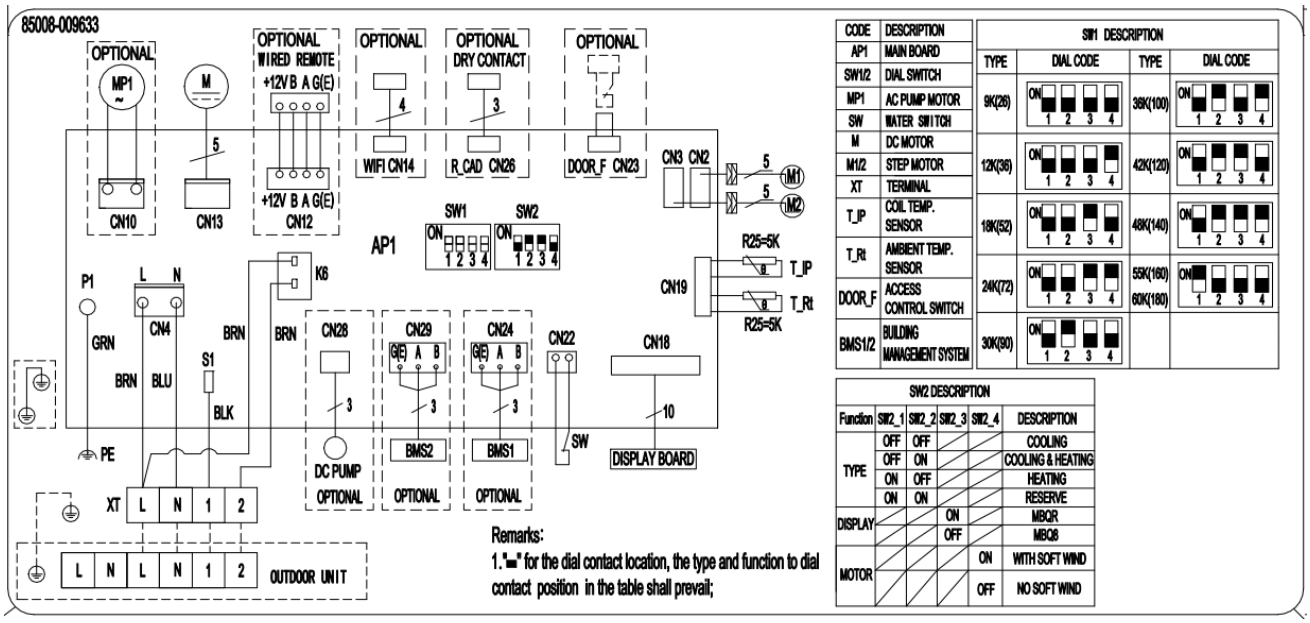
Model: TCC-55HH/DV7O(02)



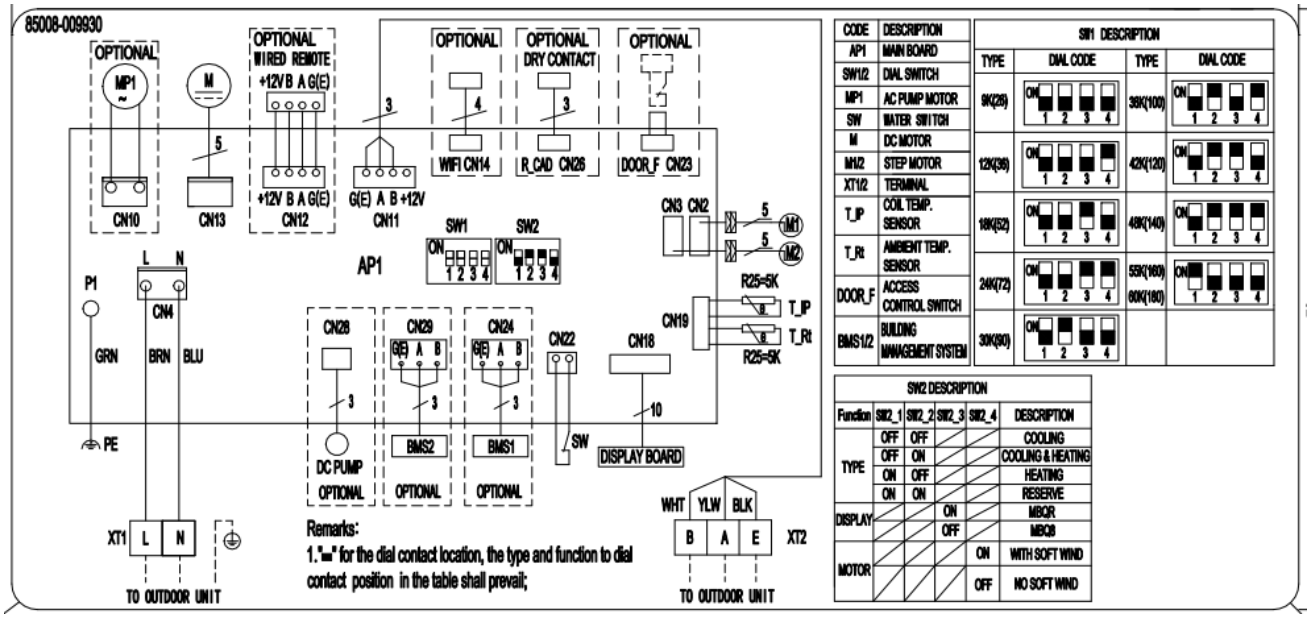
3.1.2 Wiring Diagrams of IDUs

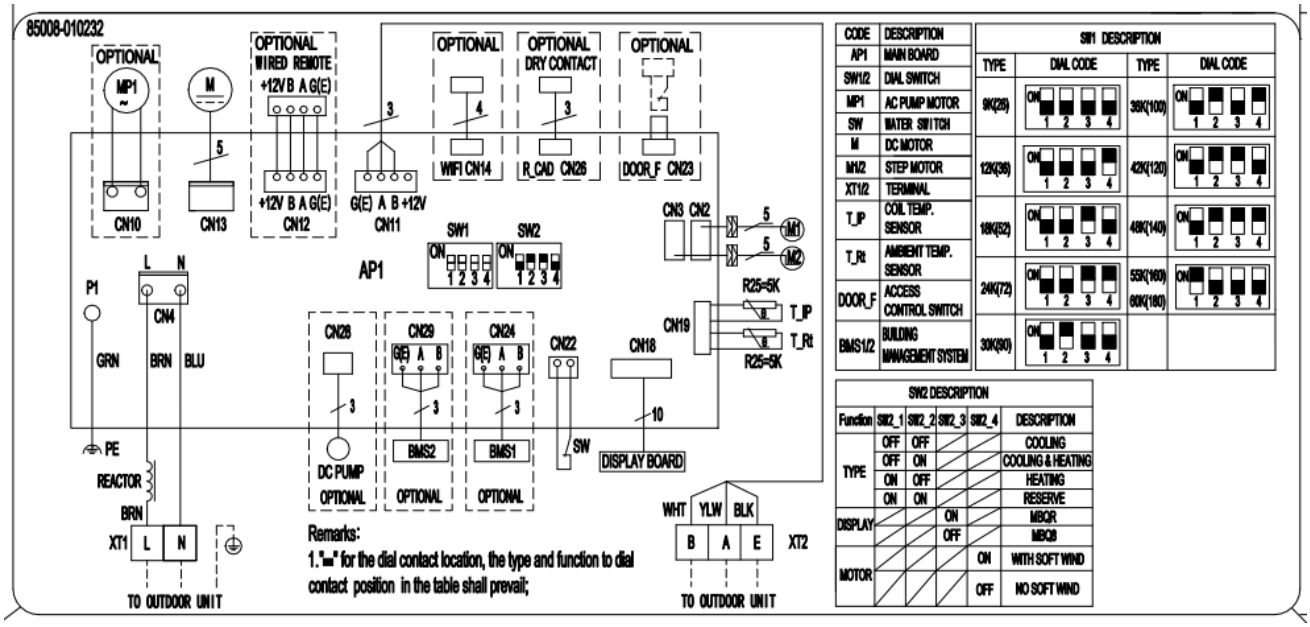
Cassette Type

Model: TCD-18CHRH/DVI(Q8)、TCC-18CHRH/DV(02)，TCC-24CHRH/DV(02)，TCC-30CHRH/DV(02)



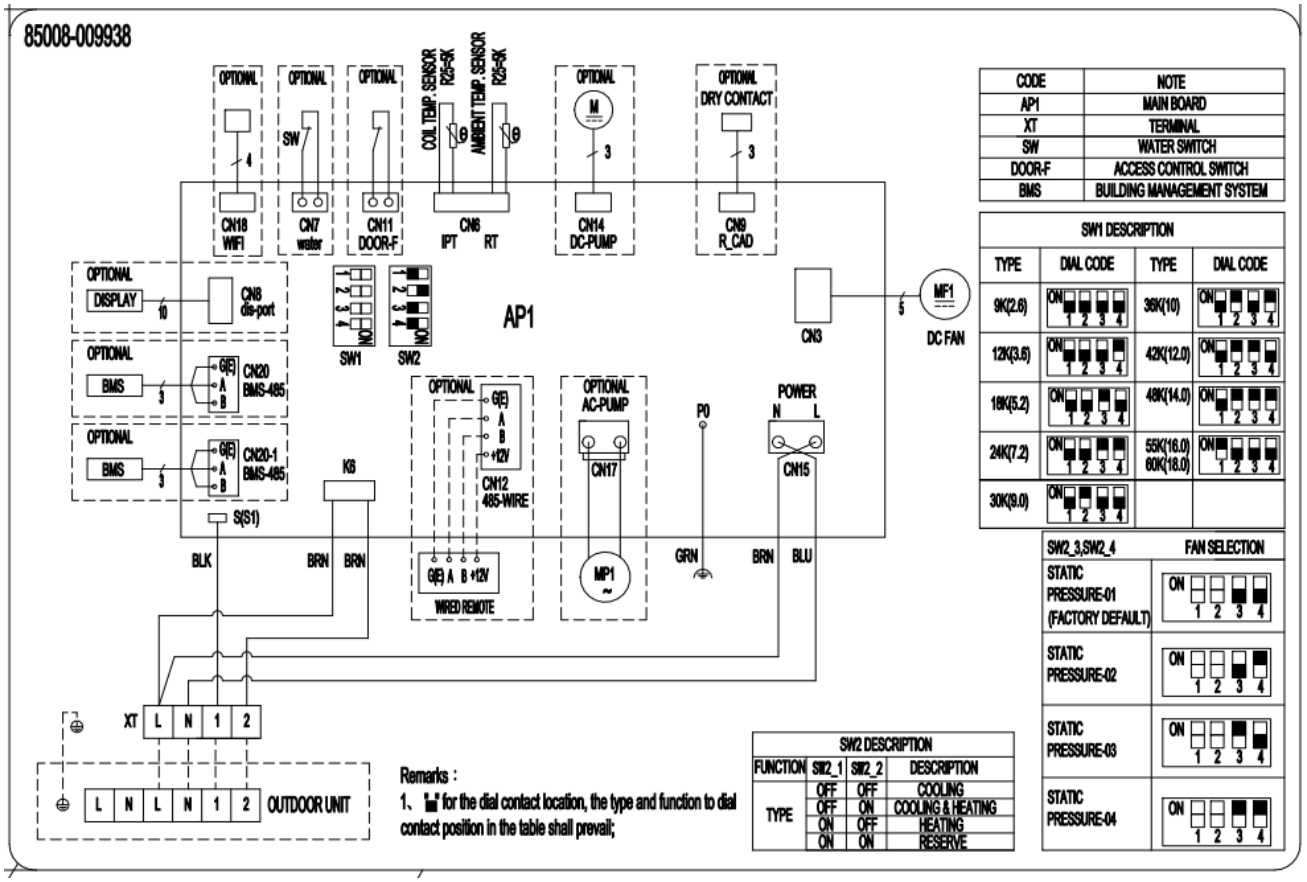
Model: TCC-36CHRH/DV(02)，TCC-42CHRH/DV(02)， TCC-48CHRH/DV7(02)



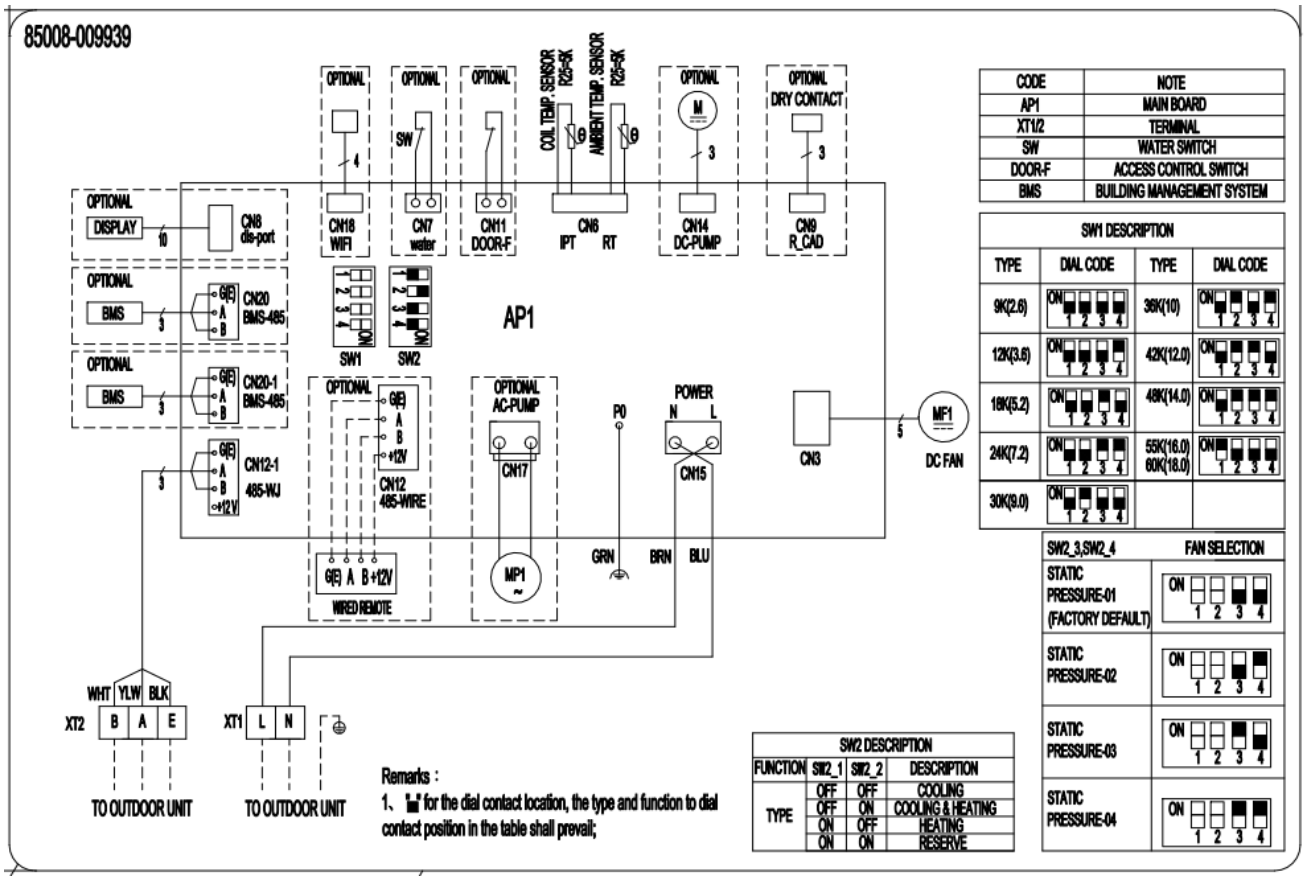


Duct Type

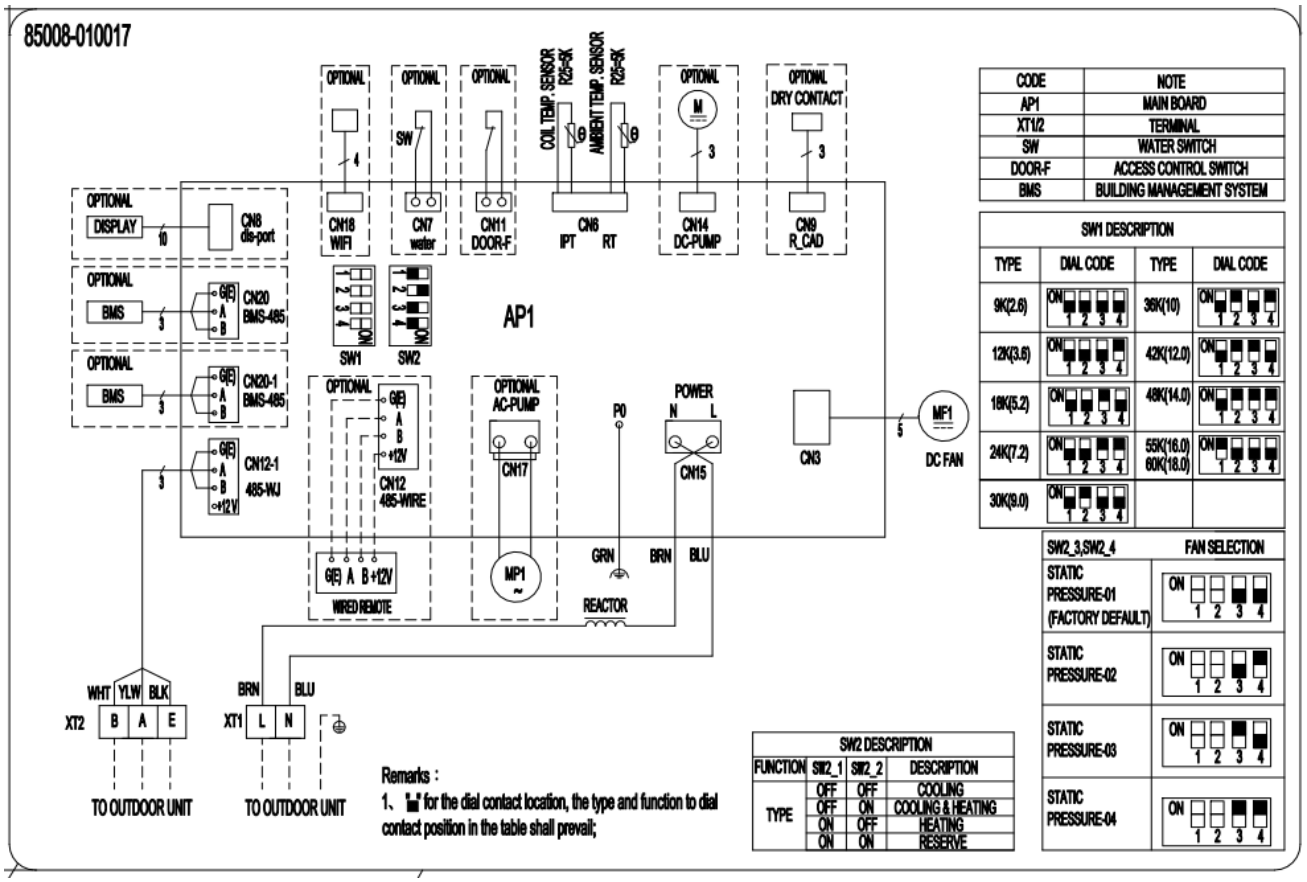
Model: TCC-18D2HRH/DV(02)，TCC-24D2HRH/DV(02)，TCC-30D2HRH/DV(02)



Model: TCC-36D2HRH/DV(02), TCC-42D2HRH/DV(02)

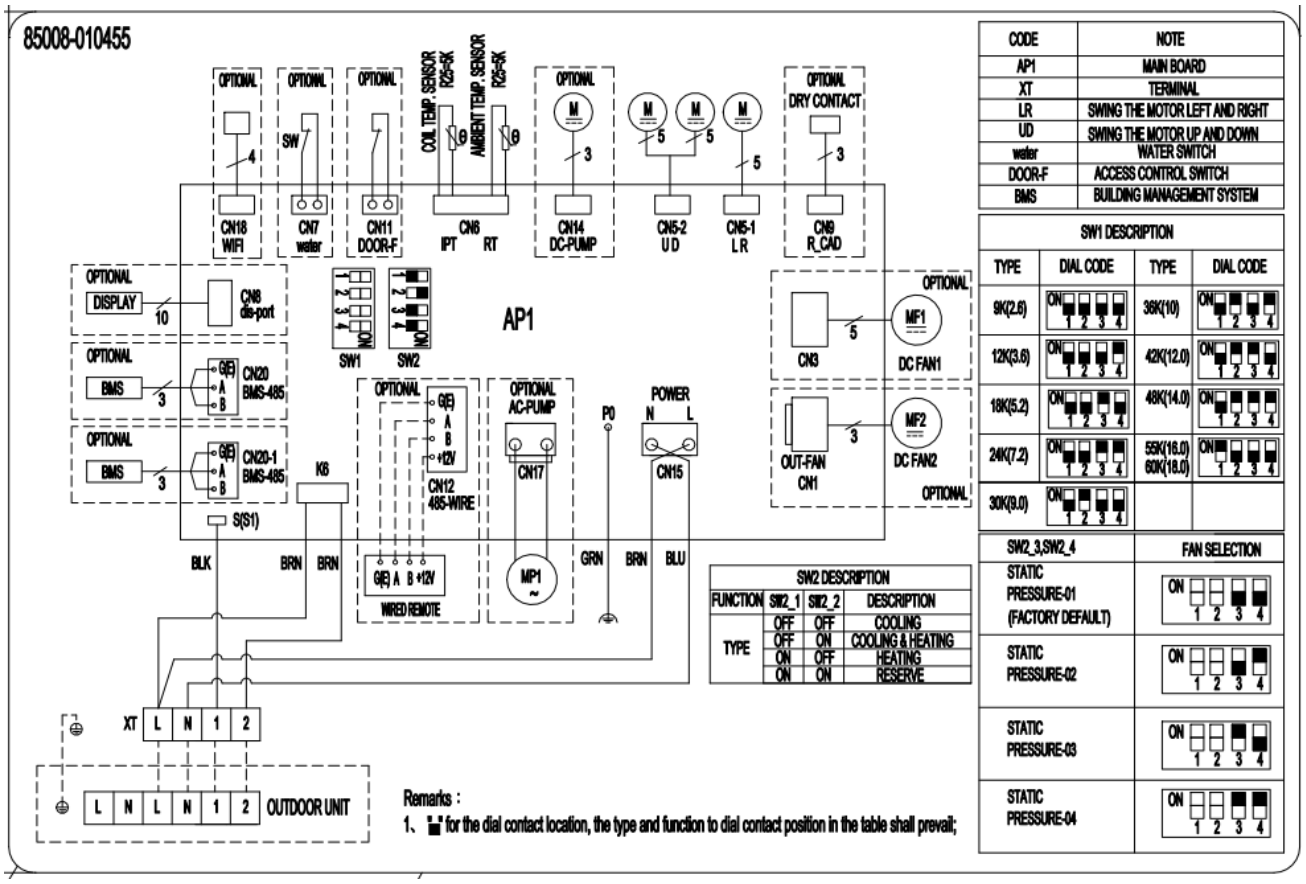


Model: TCC-48D2HRH/DV7(02),TCC-55D2HRH/DV7(02)

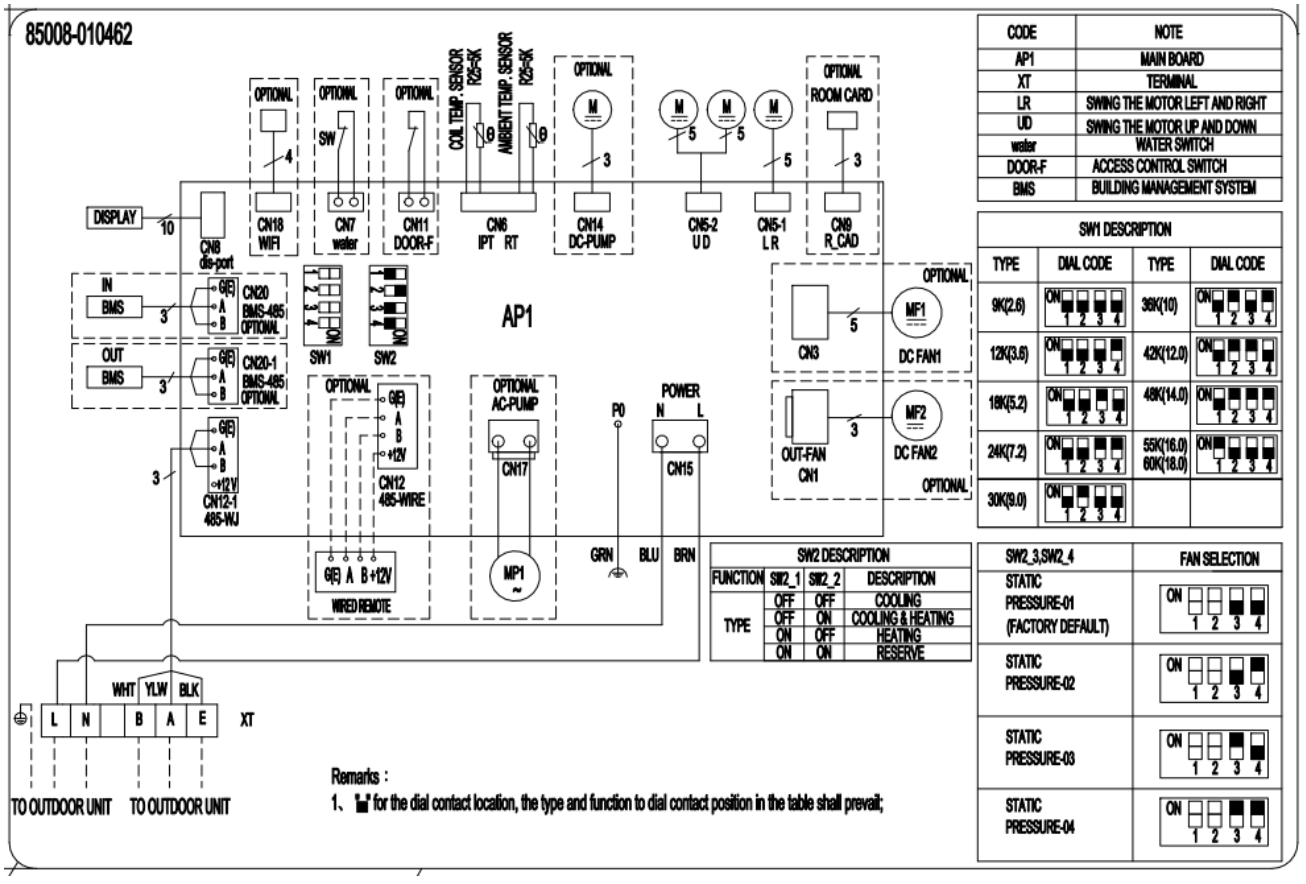


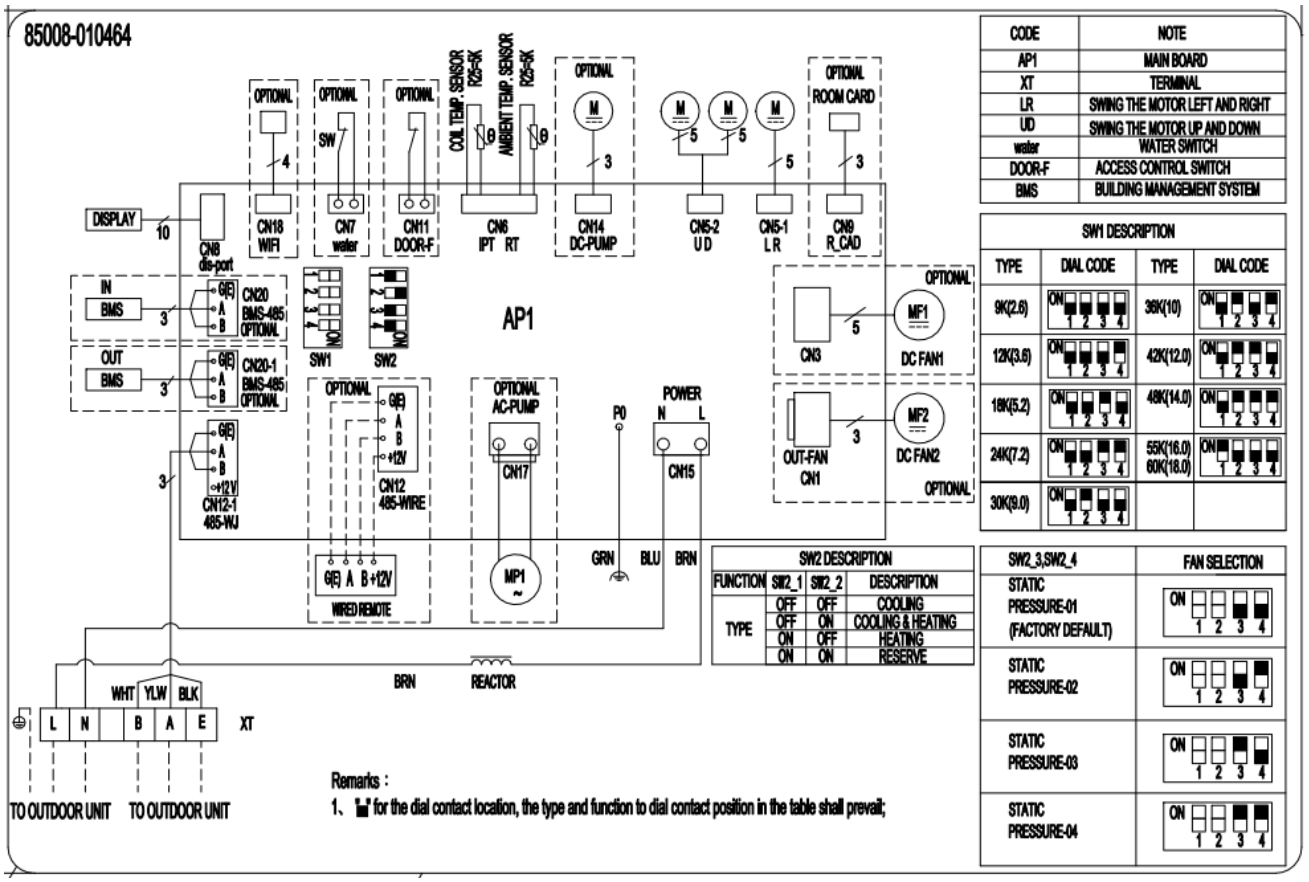
Floor Ceiling Type

Model: TCC-18ZHRH/DV(02), TCC-24ZHRH/DV(02), TCC-30ZHRH/DV(02)



Model: TCC-36ZHRH/DV(02), TCC-42ZHRH/DV(02), TCC-48ZHRH/DV7(02)





CODE	NOTE
AP1	MAIN BOARD
XT	TERMINAL
LR	SWING THE MOTOR LEFT AND RIGHT
UD	SWING THE MOTOR UP AND DOWN
water	WATER SWITCH
DOOR-F	ACCESS CONTROL SWITCH
BMS	BUILDING MANAGEMENT SYSTEM

SW1 DESCRIPTION

TYPE	DIAL CODE	TYPE	DIAL CODE
9K(2.6)		36K(10)	
12K(3.6)		42K(12.0)	
18K(5.2)		48K(14.0)	
24K(7.2)		55K(16.0) 60K(18.0)	
30K(9.0)			

SW2 DESCRIPTION

FUNCTION	SW2_1	SW2_2	DESCRIPTION
TYPE	OFF	OFF	COOLING
	OFF	ON	COOLING & HEATING
	ON	OFF	HEATING
	ON	ON	RESERVE

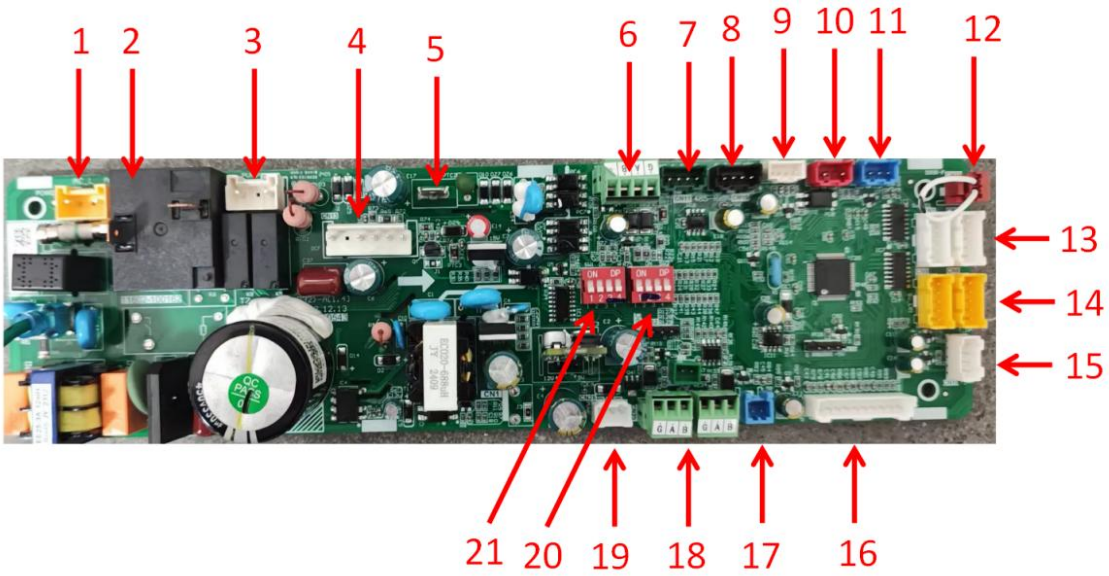
SW2_3,SW2_4	FAN SELECTION
STATIC PRESSURE-01 (FACTORY DEFAULT)	
STATIC PRESSURE-02	
STATIC PRESSURE-03	
STATIC PRESSURE-04	

3.2 PCB Layout

3.2.1 Interface

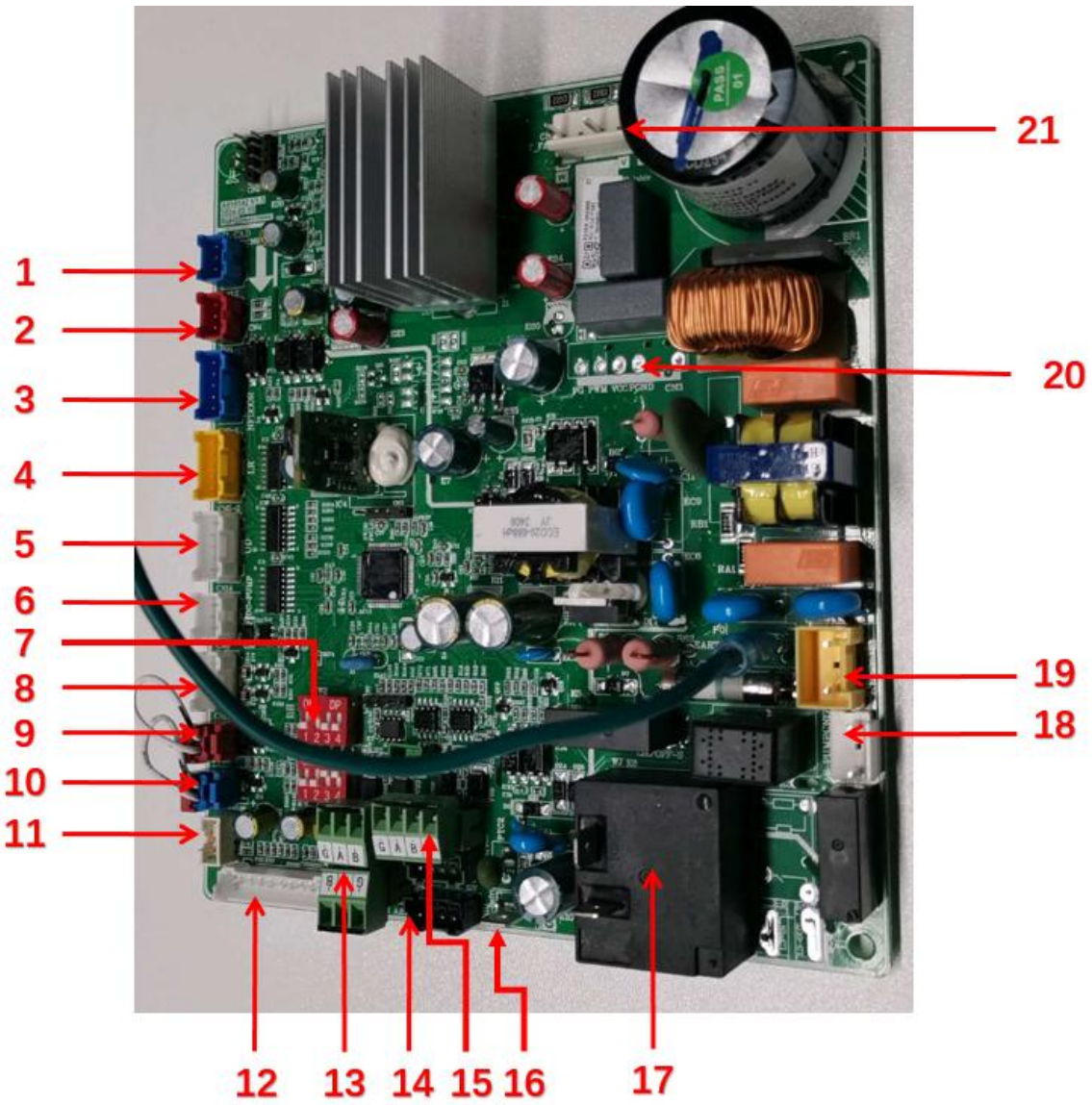
Indoor unit:

Cassette Type



S/N	Tag No.	Silk screen	Function description	Detailed description
1	CN4	POWER_IN	Power Input	Power cord interface, to power on the electric control
2	K6	K6	Low power consumption control relay	Low power consumption functional relay, used to disconnect the power supply of outdoor unit, not available for the model 36-55K
3	CN10	PUMP	AC pump port	AC pump port, used to control the AC pump
4	CN13	DCF	DC fan interface	DC fan interface, used to control the DC internal drive fan
5	S1	S1	Current loop communication port	Current loop communication interface, used to connect the indoor and outdoor units for communication regarding the models with the cooling capacity of 3P and below
6	CN12	485-WIRE	Wire controller interface	Used to communicate with the wire controller
7	CN11	485-WJ	Communication interface of outdoor unit	485 communication interface, used to connect the indoor and outdoor units for communication regarding the models with the cooling capacity of 5P and above
8	CN15	485-Refri	485 refrigerant detection	Refrigerant detection interface, used to detect whether the refrigerant leaks
9	CN14	WIFI	WIFI interface	Communication interface, used to connect the WiFi module
10	CN25	FLZ	Anion interface	Anion interface, used to control the anion module

11	CN26	R_CAD	Room card switch interface	Room card switch interface, used to detect the signals from room card switch module
S/N	**Tag No.**	**Silk screen**	**Function description**	**Detailed description**
12	CN23	DOOR-F	Access control detection	Access control detection, used to detect the access control switching signal.
13	CN2	Sw UD	Stepper motor of sweeping up and down	Stepper motor interface, used to control the stepper motor of sweeping up and down
	CN3	Sw_UD1		
14	CN8	Sw_LR	Stepper motor of sweeping left and right	Stepper motor interface, used to control the stepper motor of sweeping left and right
	CN9	Sw_LR1		
15	CN19	T_IP	Temperature wrap	Detect the ambient temperature and the temperatures at air outlet
		T_Rt		
16	CN18	CN-DISP	Display board interface	Display board interface, used to control the display board
17	CN22	Water	Water level switch detection	Water level switch interface, used to detect the water level in the basin
18	CN24	BMS1	Building centralized control functional interface	Building centralized control functional interface, used for the communication between indoor units with the centralized control function
	CN29	BMS2		
19	CN28	PUMP	DC pump	DC pump port, used to control the DC pump
20	SW2	SW2	Dial switch	Used to set the electric control functions, such as model, cooling capacity and existence of fresh air
21	SW1	SW1		

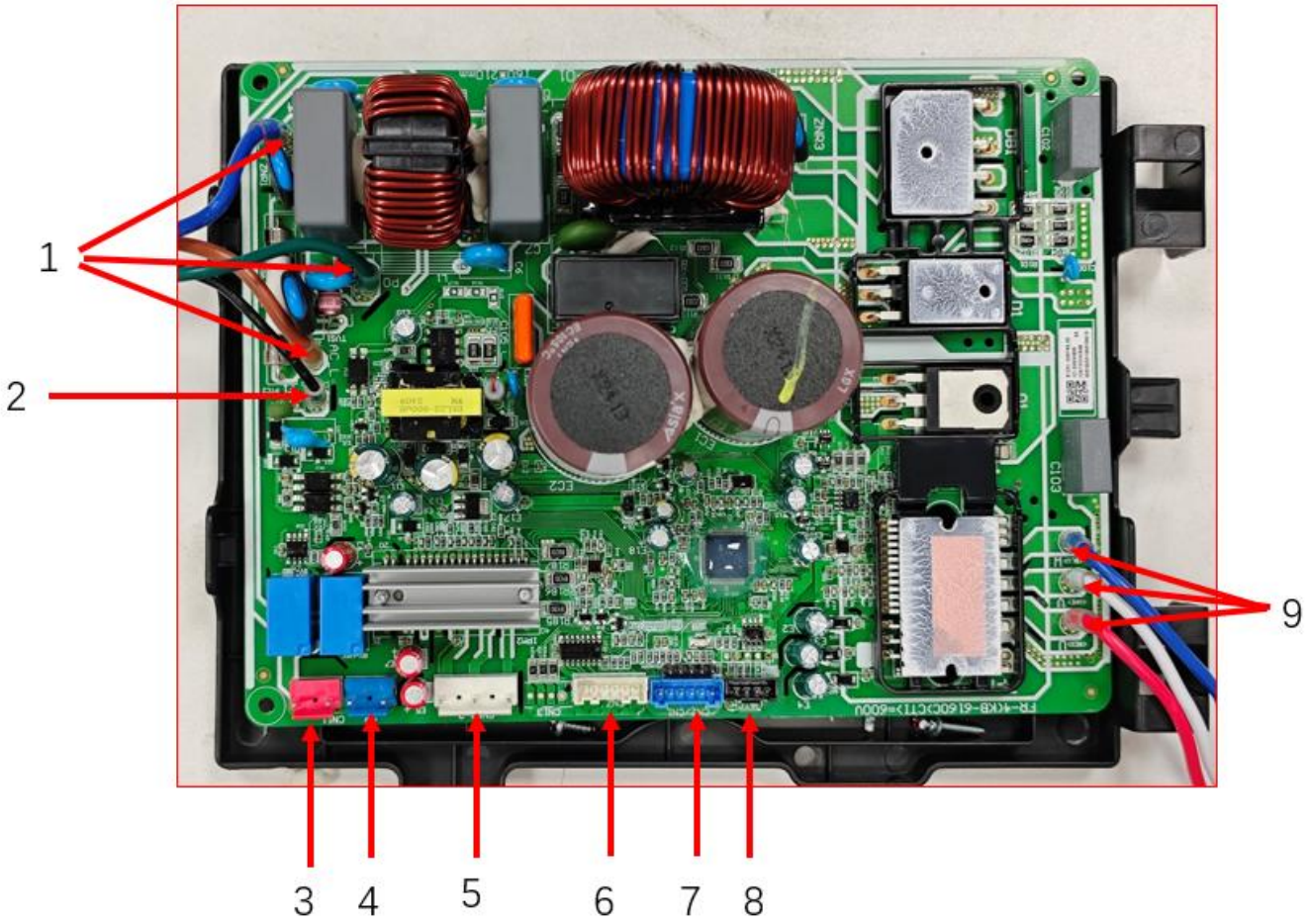


S/N	Tag No.	Silk screen	Function description	Detailed description
1	CN9	R_CAD	Room card detection	Detection interface, used to detect whether the room card is inserted
2	CN4	FLZ	Anion control	Anion interface, used to control the anion ON
3	CN5	NFDOOR	Fresh air valve control	Fresh air valve port, used to control the fresh air valve
4	CN5-1	LR	Control of swinging up and down	Swinging interface, used to control the swinging motor ON in a up-and-down manner
5	CN5-2	UD	Control of swinging up and down	interface, used to control the left-right swinging motor ON
6	CN14	DC-PUMP	Drainage pump control	DC pump port, used to control the draining pump
7	/	SW1	Dial switch	Used to set the electric control functions, such as model, cooling capacity and other function selection
		SW2		
8	CN6	IPT	Pipe temperature sensor	Used to detect the indoor ambient temperature and the inlet pipe temperature
		RT	Ambient temperature sensor	
9	CN11	DOOR-F	Window control detection	Detection interface, used to detect whether the access control is turned off

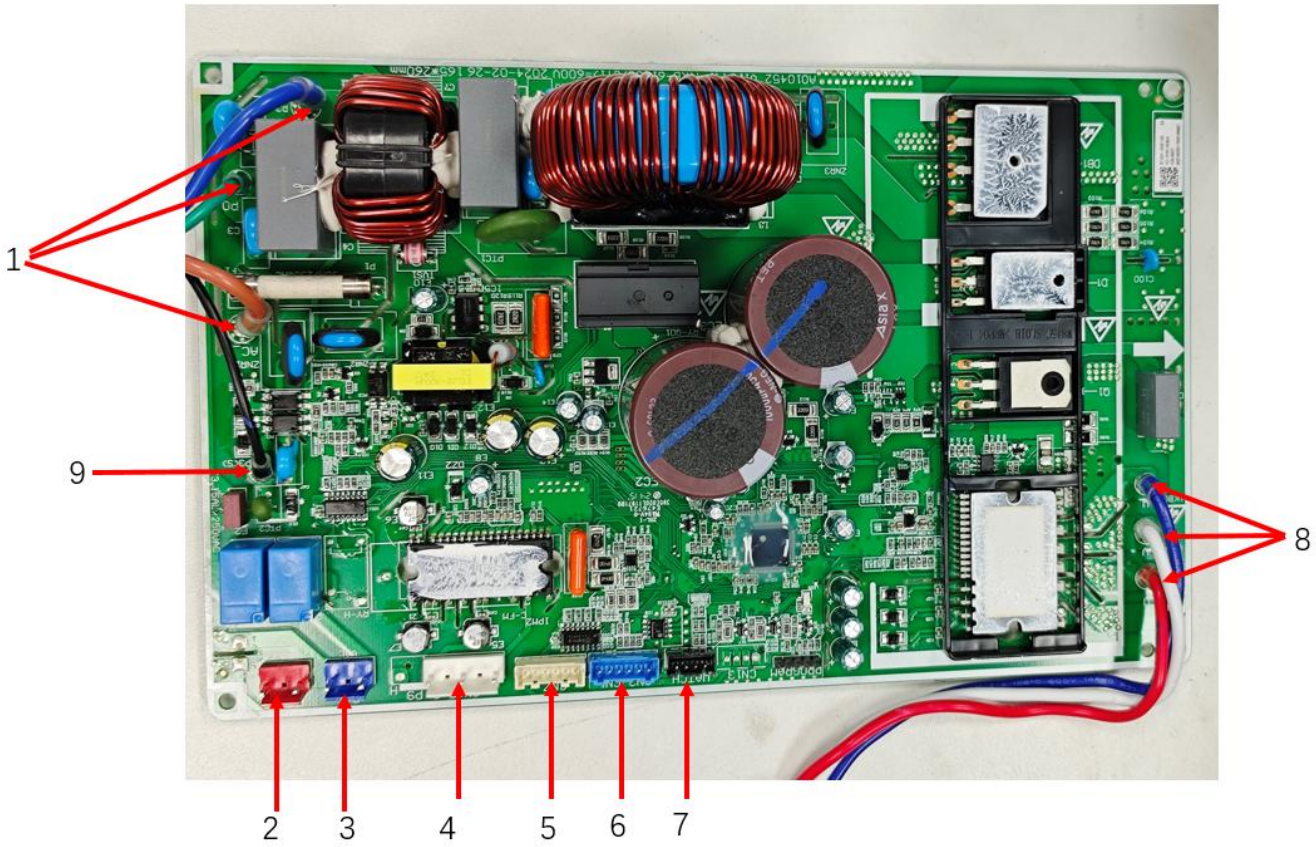
10	CN7	water	Water level detection	Detection interface, used to detect whether the water pan is full of water
11	CN18	WIFI	WIFI port	WIFI connection module, used for the machine to connect WIFI
12	CN8	Dis-port	Display lamp panel	Display lamp panel connection, used for remote operation
13	CN20 C20-1	BMS-485	Centralized control	Communication interface, used to connect the centralized control 485 communication
14	CN10	485-Refri	Refrigerant detection	Communication interface, used to connect the refrigerant detection communication
15	CN12	485-WIRE	Wire controller communication	Communication interface, used to connect the wire controller 485 communication
	CN12-1	485-WJ	Communication between indoor and outdoor units	Communication interface, used to connect the indoor and outdoor units 485 communication
16	S	S1	Communication between indoor and outdoor units	Communication interface, used to connect the current loop communication of indoor and outdoor units
17	K6	K6	Low power consumption control relay	Low power consumption functional relay, used to disconnect the power supply of outdoor unit, not available for the model 36-55K
18	CN17	AC-PUMP	Drainage pump control	AC pump port, used to control the draining pump
19	CN15	L N	Power Supply	Power supply connection, to power on the electric control
20	CN3	/	Internal drive fan	Fan interface, used to control the internal drive motor, not available for the models TCC-42ZHRH/DVI (02), TCC-48ZHRH/DVI(02), and TCC-55ZHRH/DVI (02)
21	CN1	OUT_FAN	External drive fan	Fan interface, used to control the indoor external drive motor, only for TCC-42ZHRH/DVI (02), TCC-48ZHRH/DVI(02), and TCC-55ZHRH/DVI (02)

Outdoor unit:

Model: TCC-18HH/DVO(02)

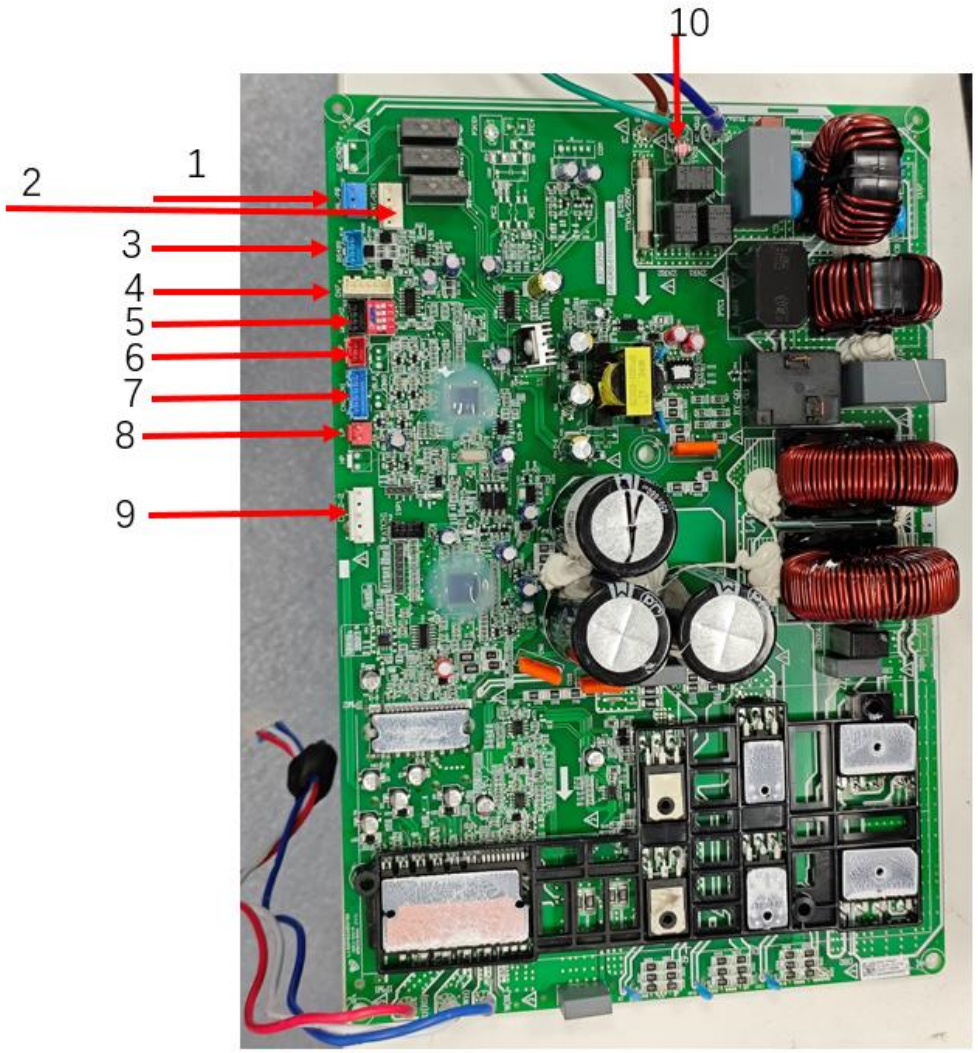


S/N	Tag No.	Silk screen	Function description	Detailed description
1	AC-L AC-N/P0	AC-L AC-N/P3/P0	Power terminal, and ground wire	Power supply connection, to power on the electric control, enabling the safe grounding of electric control
2	P3(S)	P3(S)	Current loop communication terminal	Signal communication between indoor and outdoor units
3	CN11	CN11	Electrical heating of chassis	Used for electrical heating of chassis
4	P8	P8	Four-way valve	Used for the switching between refrigeration and heating in the system
5	CN12-2	CN12-2	External DC fan	Used to control the external drive DC fan
6	CN7	CN7	Electronic expansion valve	Used to control the flow of refrigerant
7	CN2/CN1	CN2/CN1	Temperature wrap	Used to detect the temperature changes
8	WATCH	WATCH	Monitoring	Used to monitor the operating parameters of the machine
9	UVW	UVW	Compressor terminal	Power on and control the compressor



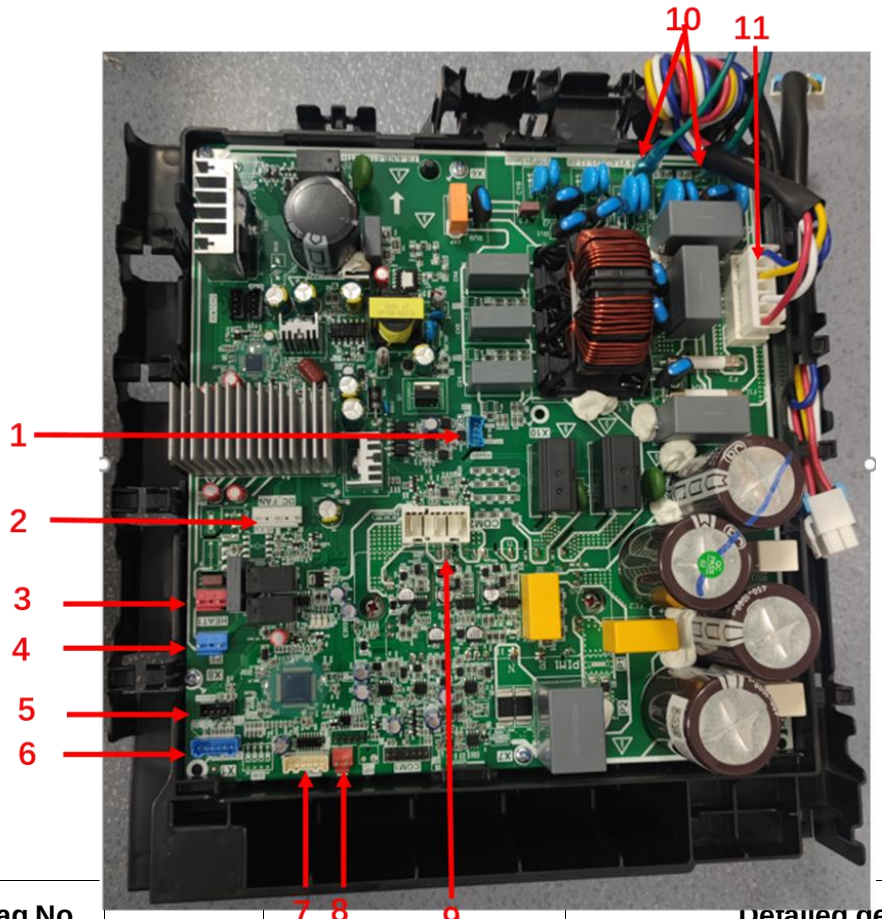
S/N	Tag No.	Silk screen	Function description	Detailed description
1	AC-L AC-N/P0	AC-L AC-N/P3/P0	Power terminal, and ground wire	Power supply connection, to power on the electric control, enabling the safe grounding of electric control
2	CN11	HEAT	Electrical heating of chassis	Used for electrical heating of chassis
3	P8	UAL	Four-way valve	Used for the switching between refrigeration and heating in the system
4	CN12-2	CN12-2	External DC fan	Used to control the external drive DC fan
5	CN7	CN7	Electronic expansion valve	Used to control the flow of refrigerant
6	CN2/CN1	CN2/CN1	Temperature wrap	Used to detect the temperature changes
7	WATCH	WATCH	Monitoring	Used to monitor the operating parameters of the machine
8	UVW	UVW	Compressor terminal	Power on and control the compressor
9	P3(S)	P3(S)	Current loop communication terminal	Signal communication between indoor and outdoor units

Model: TCC-36HH/DVO(02)、TCC-42HH/DVO(02)

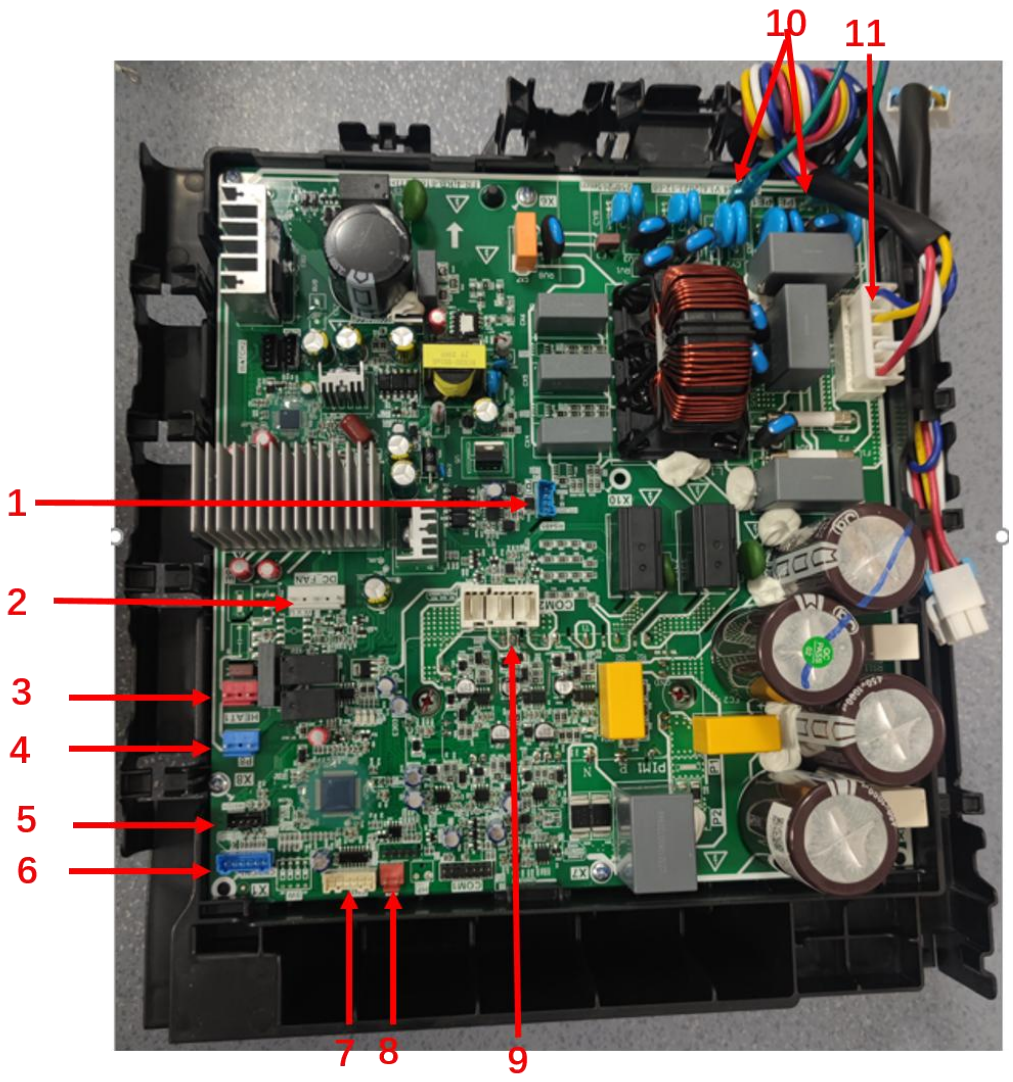


S/N	Tag No.	Silk screen	Function description	Detailed description
1	P8	VAL	Four-way valve	Used for the switching between refrigeration and heating in the system
2	CN11	HEAT1	Electrical heating of chassis	Used for electrical heating of chassis
3	RS485	RS485	485 communication	Signal communication between indoor and outdoor units
4	CN7	CN7	Electronic expansion valve	Used to control the flow of refrigerant
5	WATCH2	WATCH2	Monitoring	Used to monitor the operating parameters of the machine
6	SHP	SHP	High pressure sensor	Monitor the pressure of refrigerant at the high pressure side to ensure that it is within the normal range
7	CN2/CN1	CN2/CN1	Temperature wrap	Used to detect the temperature changes
8	LP	LP	Low pressure switch	Used for protection
9	CN12-2	CN12-2	External DC fan	Used to control the external drive DC fan

Model: TCC-48HH/DV7O(02)



S/N	Tag No.	screen	description	Detailed description
1	RS485	RS485	485 communication	Signal communication between indoor and outdoor units
2	DC_FAN	DC_FAN	External drive fan	Used to control the external drive DC fan
3	HEAT1	HEAT1	Electrical heating of chassis	Used for electrical heating of chassis
4	P8	P8	Four-way valve	Used for the switching between refrigeration and heating in the system
5	WATCH	WATCH	Monitoring	Used to monitor the operating parameters of the machine
6	CN2/CN1	CN2/CN1	Temperature wrap	Used to detect the temperature changes
7	CN7	CN7	Electronic expansion valve	Used to control the flow of refrigerant
8	LP	LP	Low pressure switch	Used for protection
9	COM2	COM2	Compressor terminal	Power on the compressor for operation
10	PE/PE1	PE/PE1	Ground wire	For safe grounding of electric control
11	COM3	COM3	Power terminal	Power supply connection, to power on the electric control



S/N	Tag No.	Silk screen	Function description	Detailed description
1	RS485	RS485	485 communication	Signal communication between indoor and outdoor units
2	DC_FAN	DC_FAN	External drive fan	Used to control the external drive DC fan
3	HEAT1	HEAT1	Electrical heating of chassis	Used for electrical heating of chassis
4	P8	P8	Four-way valve	Used for the switching between refrigeration and heating in the system
5	WATCH	WATCH	Monitoring	Used to monitor the operating parameters of the machine
6	CN2/CN1	CN2/CN1	Temperature wrap	Used to detect the temperature changes
7	CN7	CN7	Electronic expansion valve	Used to control the flow of refrigerant
8	LP	LP	Low pressure switch	Used for protection
9	COM2	COM2	Compressor terminal	Power on the compressor for operation
10	PE/PE1	PE/PE1	Ground wire	For safe grounding of electric control
11	COM3	COM3	Power terminal	Power supply connection, to power on the electric control

3.2.2 IPM Testing Method

3.2.2.1 Method of Testing IPM Module

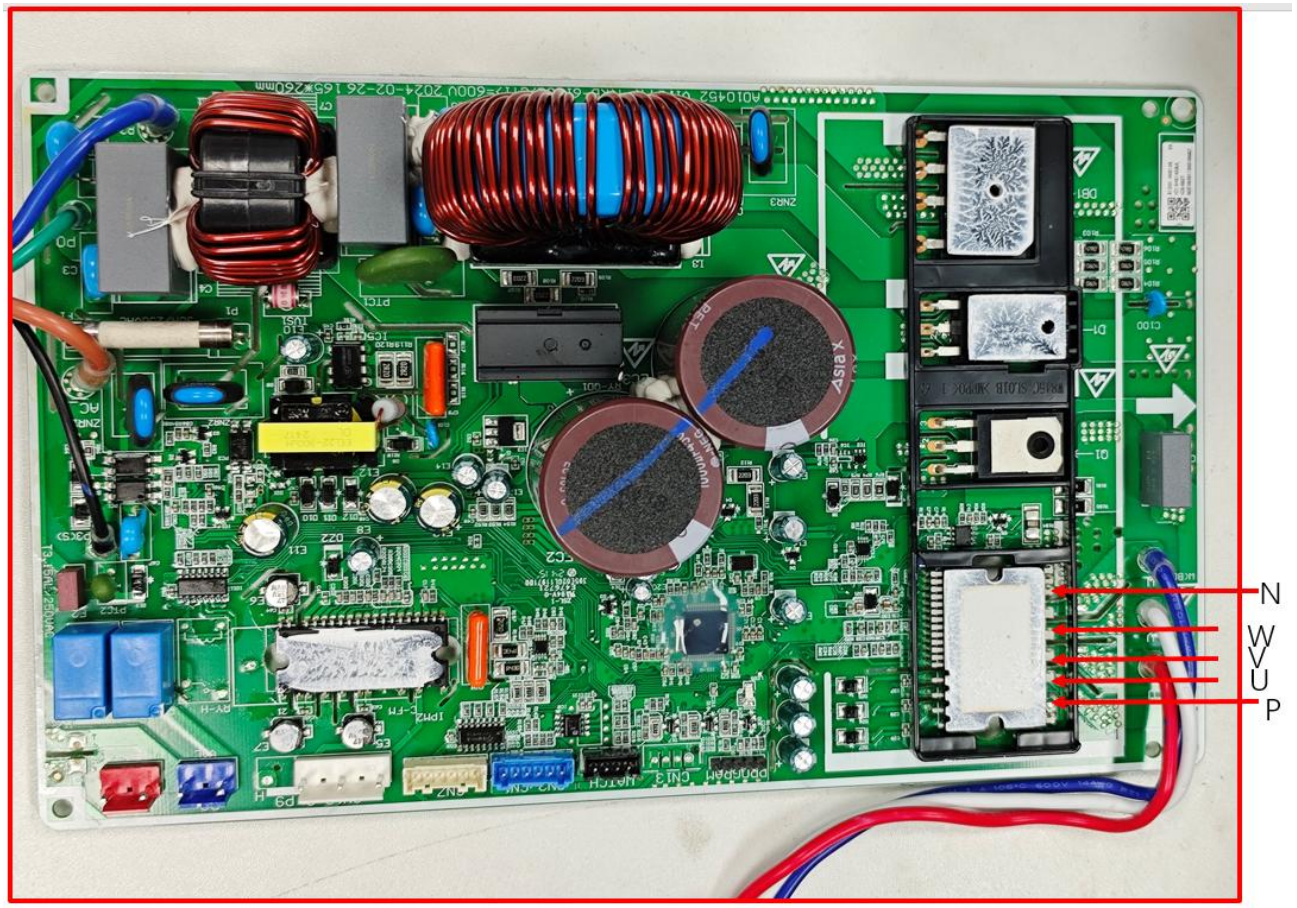
(1) Preparation before test: prepare a universal meter and turn to its diode option, and then remove the wires U, V, W of the compressor after it is powered off for one minute.

(2) Testing Steps

(3) Step 1: put the black probe on the place P and the red one on the wiring terminal U, V, W respectively as shown in the following figure to measure the voltage between UP, VP and WP.

(4) Step 2: put the red probe on the place N and the black one on the wiring terminal U, V, W respectively as shown in the following figure to measure the voltage between NU, NV and NW.

(5) If the measured voltages between UP, VP, WP, NU, NV, NV are all among 0.3V-0.7V, then it indicates the IPM module is normal; If any measured valve is 0, it indicates the IPM is damaged.



3.3 Error Code

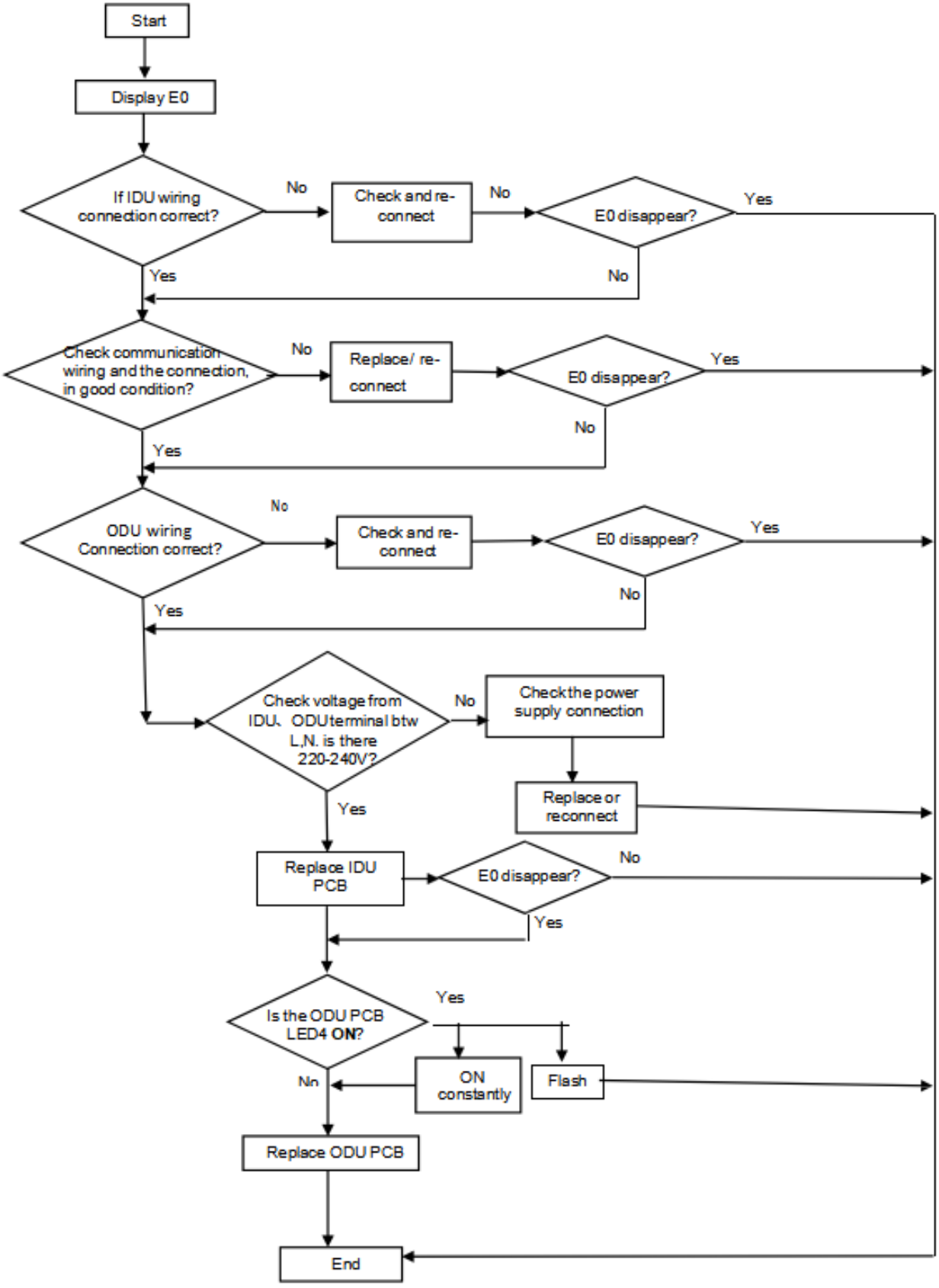
Number	Error Code	Error Content
1	E0	Indoor and outdoor communication failure
2	E1	Indoor ambient temperature sensor failure
3	E2	Indoor fan coil temperature sensor failure
4	E3	Outdoor fan coil temperature sensor failure
5	E4	Abnormal system malfunction(lack of fluorine)
6	E5	Model configuration error
7	E6	Indoor PG/DC fan failure
8	E7	Outdoor ambient temperature sensor failure
9	E8	Outdoor exhaust temperature sensor failure
10	E9	Outdoor IPM module failure/compressor drive failure
11	EA	Outdoor current sensor failure
12	Eb	PCB and display screen communication failure
13	EC	Outdoor modules Communication failure
14	EE	Outdoor EEPROM fault
15	EF	Outdoor DC fan failure
16	EH	Outdoor suction sensor failure
17	EP	Outdoor compressor casing top failure
18	EU	Outdoor voltage sensor failure
30	Ej	Outdoor central coil temperature sensor failure
31	En	Outdoor air pipe temperature sensor failure
32	Ey	Outdoor liquid pipe temperature sensor failure
19	P0	IPM module protection
20	P1	Overvoltage and under-voltage protection
21	P2	Overcurrent protection
22	P3	Other protections
23	P4	Protection against excessive outdoor exhaust temperature
24	P5	Cooling protection against overcooling
25	P6	Cooling and anti-overheating protection
26	P7	Heating and anti-overheating protection
27	P8	Protection against high or low outdoor temperature
28	P9	Compressor drive protection(abnormal load)
29	PA	Communication failure/mode conflict
33	F0	Infrared human sensing sensor failure

34	F1	Battery module failure
35	F2	Exhaust temperature sensor failure protection
36	F3	Failure protection of outer tube temperature sensor
37	F4	Abnormal protection of refrigerant circulation
38	F5	PFC protection
39	F6	Compressor missing/reverse phase protection
40	F7	Module temperature protection
41	F8	Abnormal commutation of four-way valve
42	F9	Module temperature sensor circuit malfunction
43	FA	Compressor phase current detection fault
44	Fb	Cooling and heating overload protection limit frequency reduction
45	FC	High power protection limit/frequency reduction
46	FE	Module current(compressor phase current)protection limit/frequency reduction
47	FF	Module temperature protection limit/frequency reduction
48	FH	Drive protection limit/frequency reduction
49	FP	Anti-condensation protection limit/frequency reduction
50	FU	Anti-freezing protection limit/frequency reduction
51	Fj	Exhaust protection limit/frequency reduction
52	Fn	External AC current protection limit frequency reduction
53	Fy	Fluorine deficiency protection
54	H1	High pressure switch malfunction
55	H2	Low pressure switch malfunction
56	bf	TVOC sensor failure
57	bc	PM2.5 sensor failure
58	b j	Humidity sensor failure
59	bE	CO2 sensor malfunction
60	bd	Fresh air fan failure
61	d4	Water full protection
62	d5	Access control protection
63	b5	Faults of internal fan drive and main control chip drive

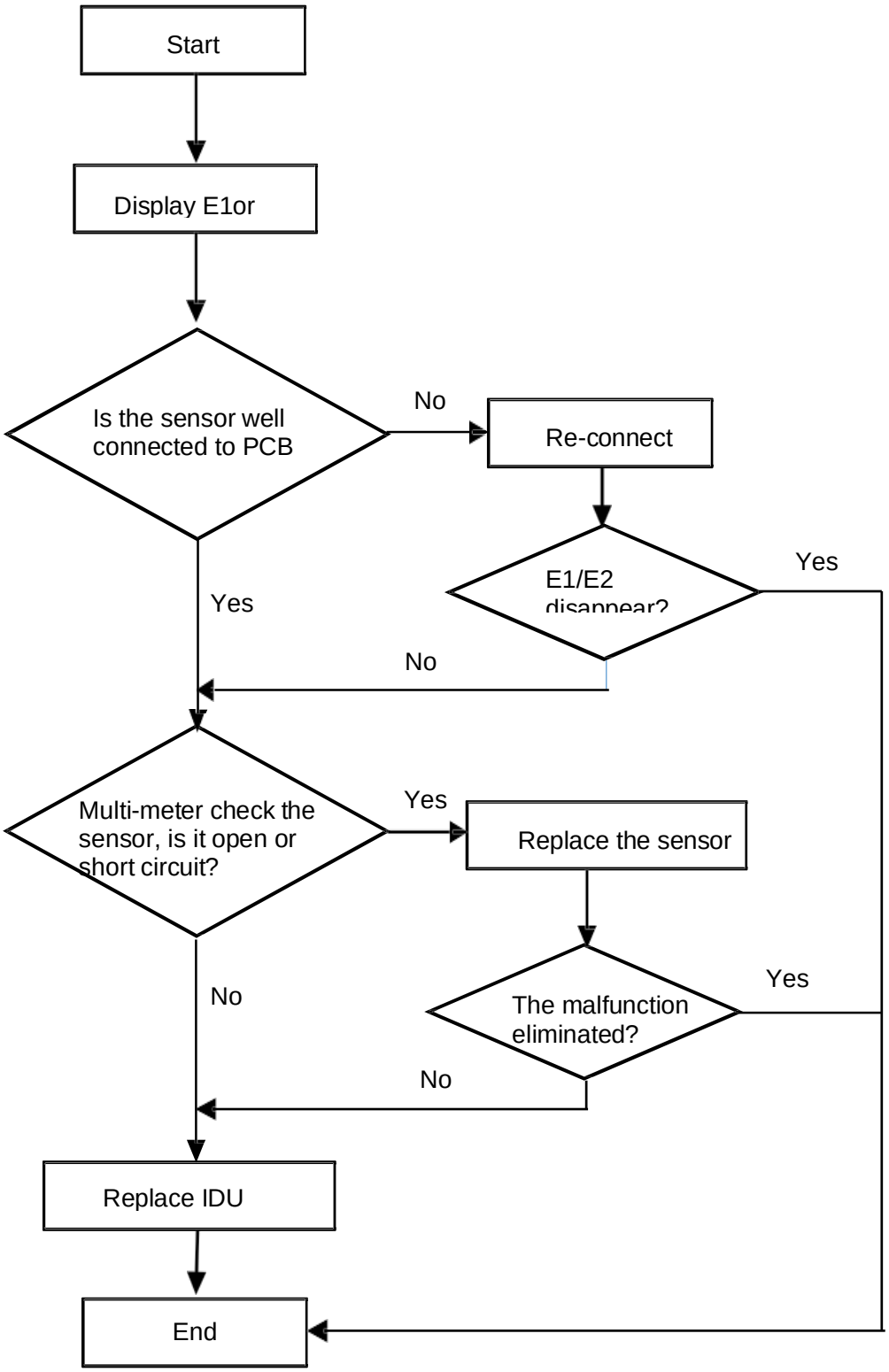
If malfunction occurs during operation, LCD temperature display zone will show the failure information. If several malfunctions occur at the same time, their corresponding error codes will be shown in turn. When malfunction occurs, please shut off the unit and send for professional personnel to repair.

3.4 Troubleshooting

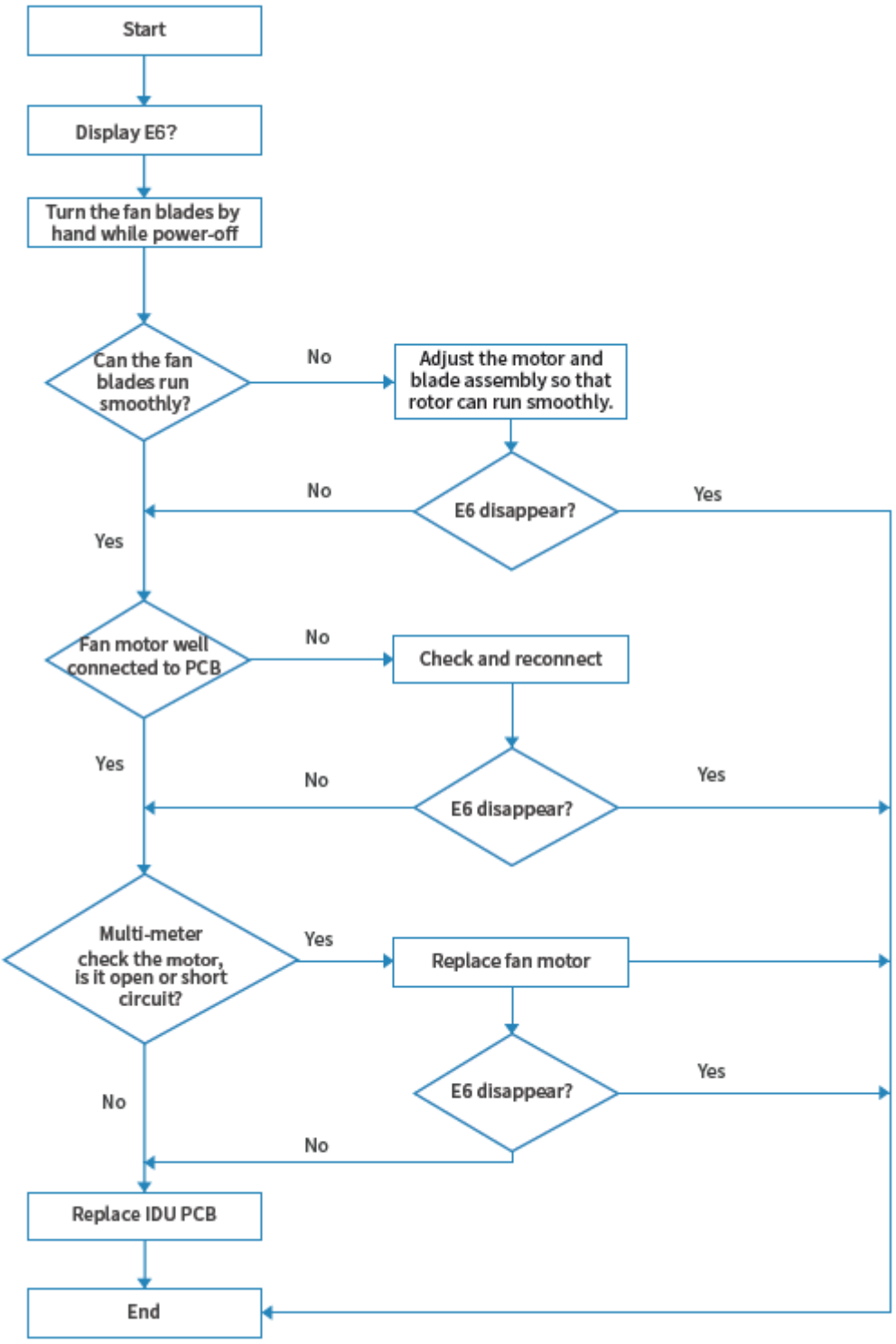
3.4.1 E0 ---IDU & ODU communication failure



3.4.2 E1, E2 ---IDU Room temperature sensor or coil temperature sensor failure.

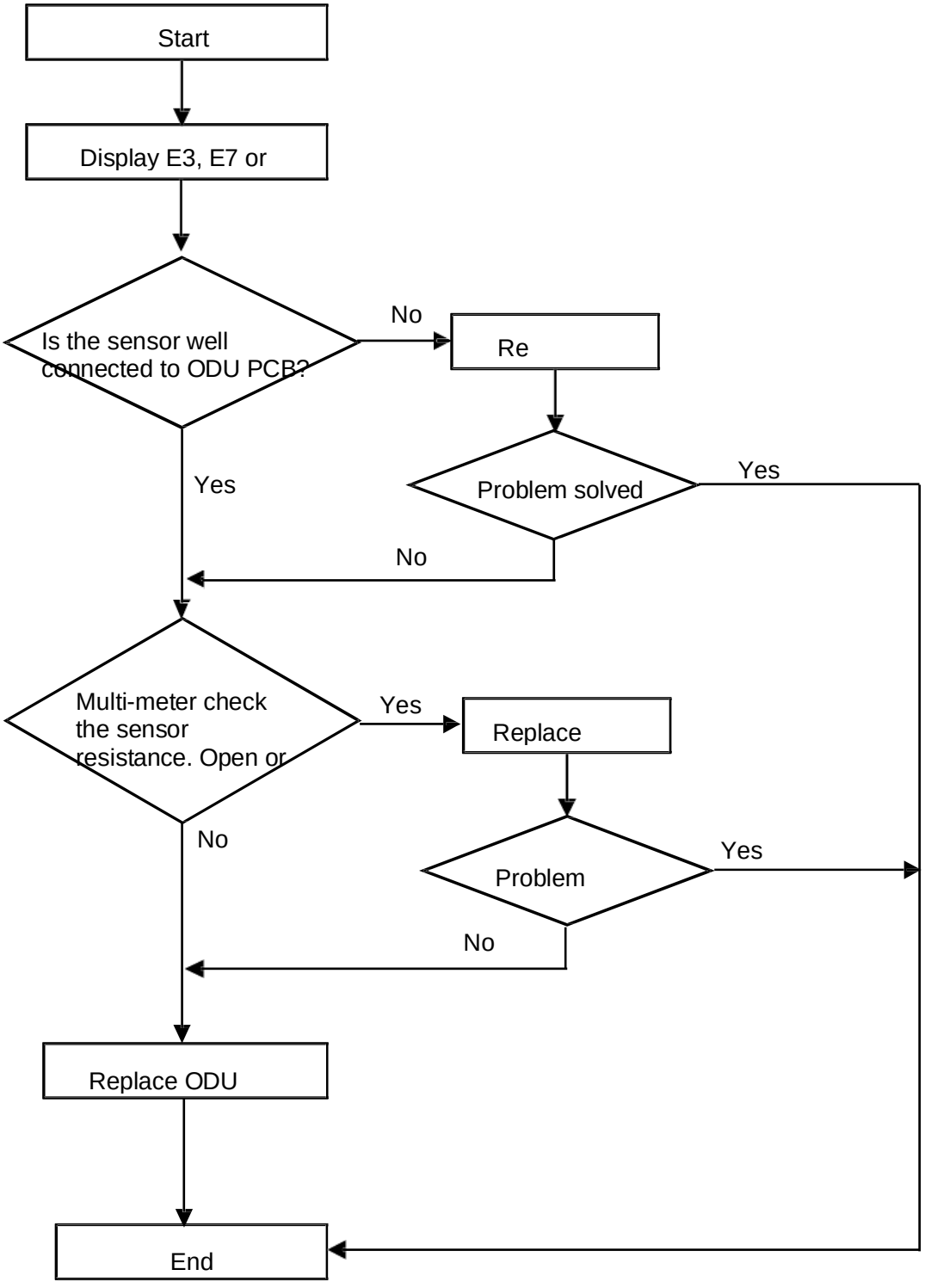


3.4.3 E6----IDU ventilation failure (PG and DC fan motor only)

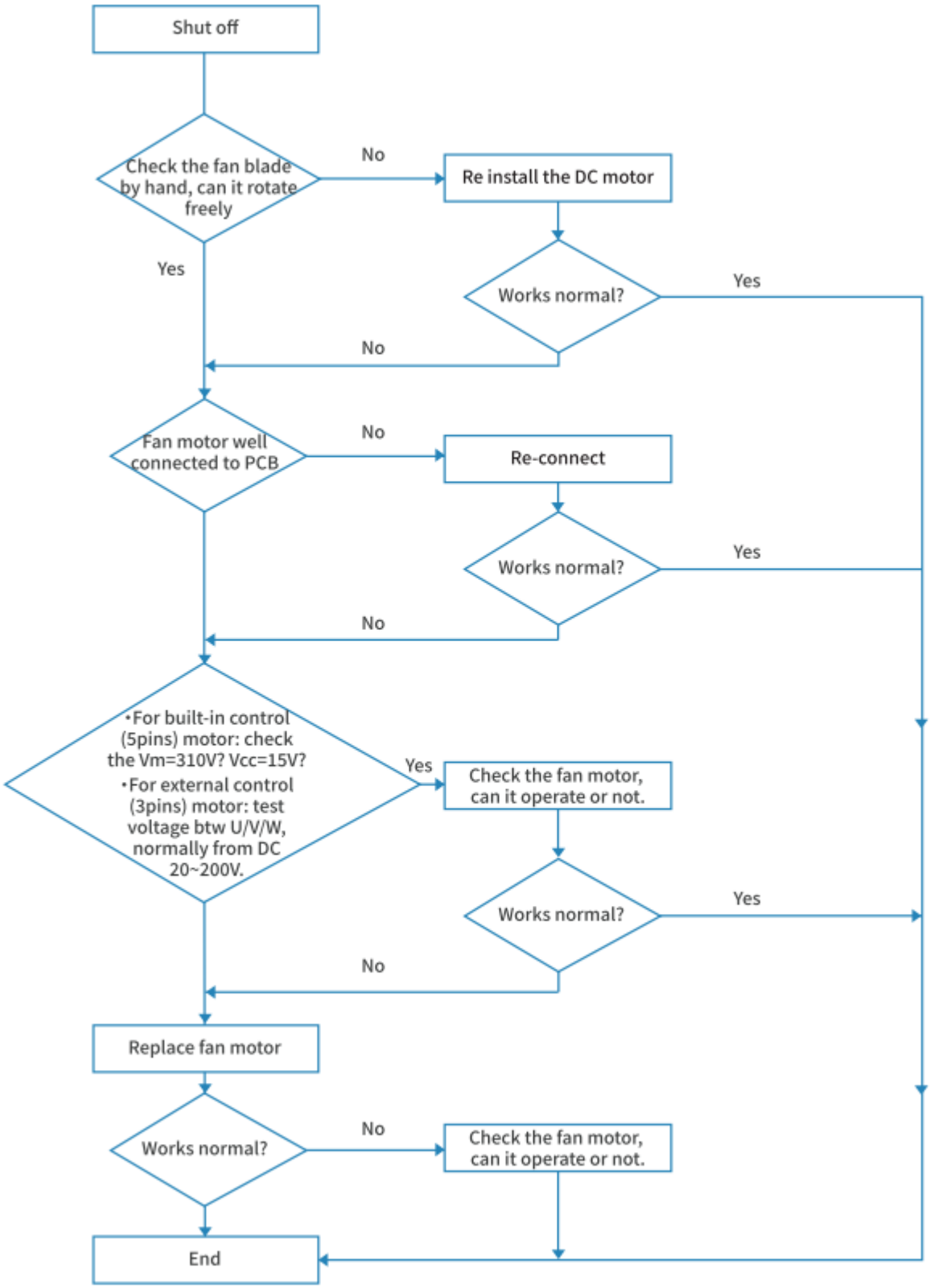


3.4.4 E3, E7 or E8----ODU Coil temperature sensor, Ambient temperature sensor or Discharge temperature sensor failure.

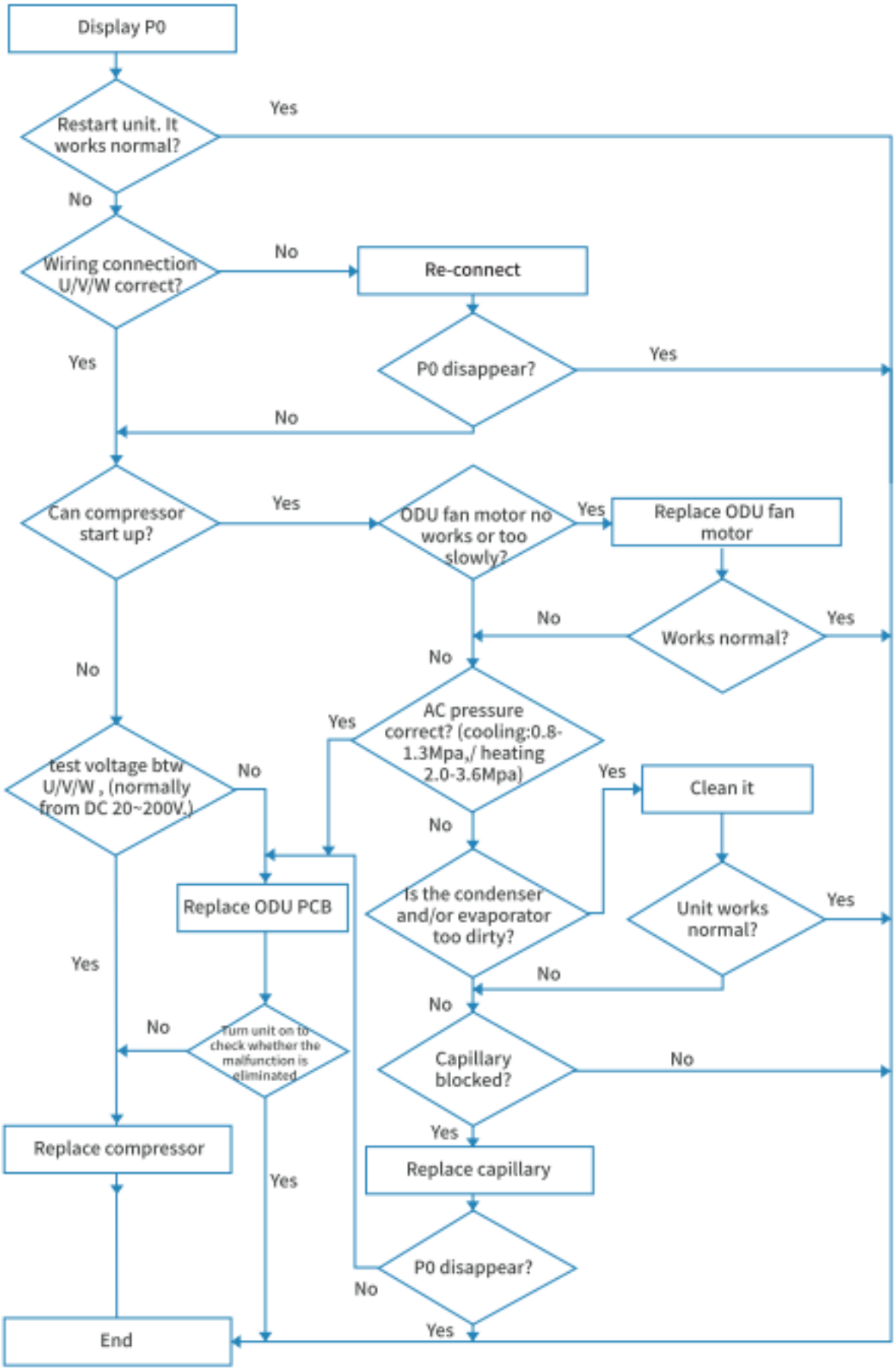
When any of the sensor resistance open or short circuit , unit will display failure code as E3/E7 or E8, IDU and ODU turns off. When the sensor resistance recovery, unit revert to be standby, customer can switch on the unit directly.



3.4.5 EF---ODU DC fan motor failure



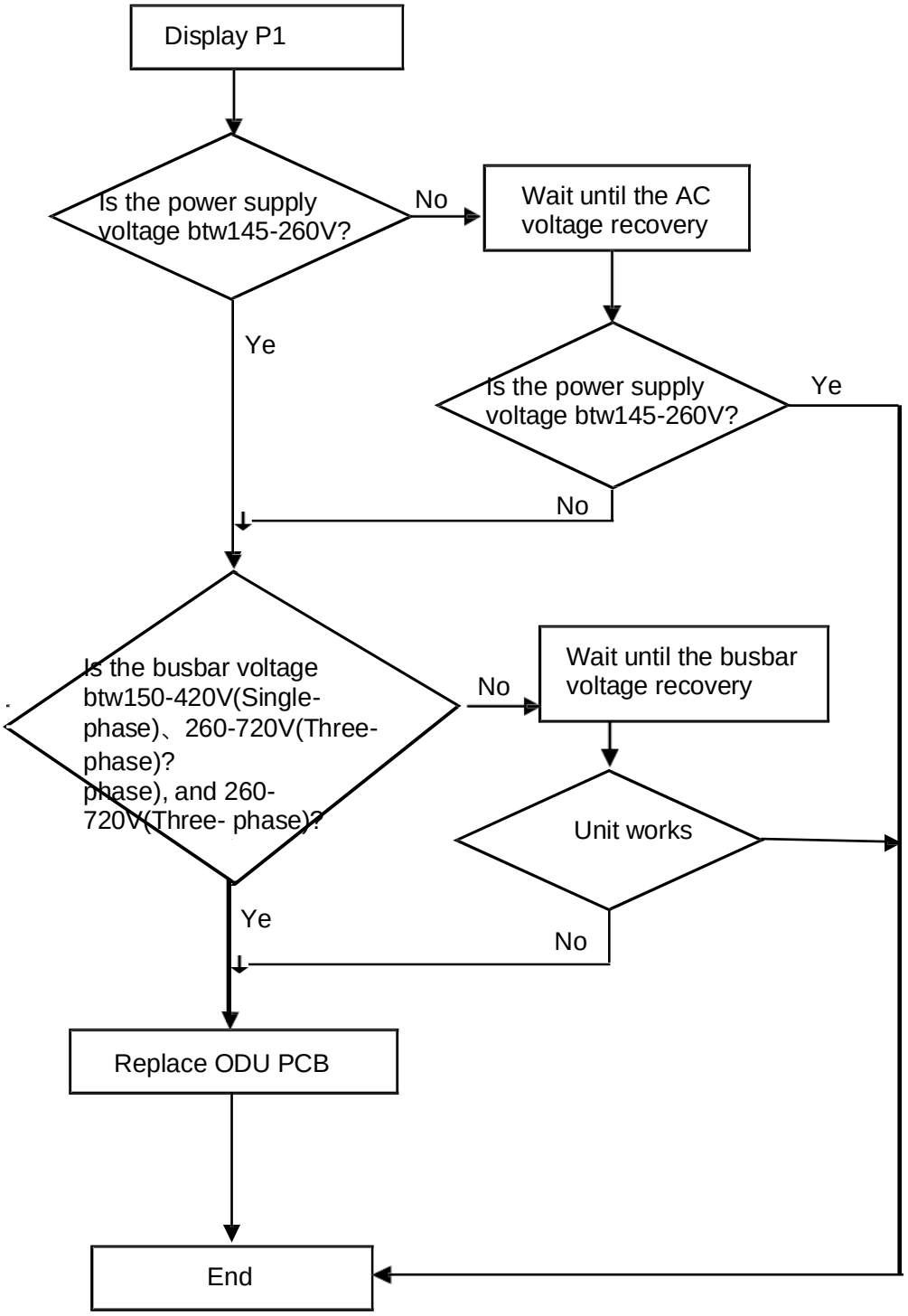
3.4.6 P0---IPM protection



3.4.7 P1--- Over / under voltage protection

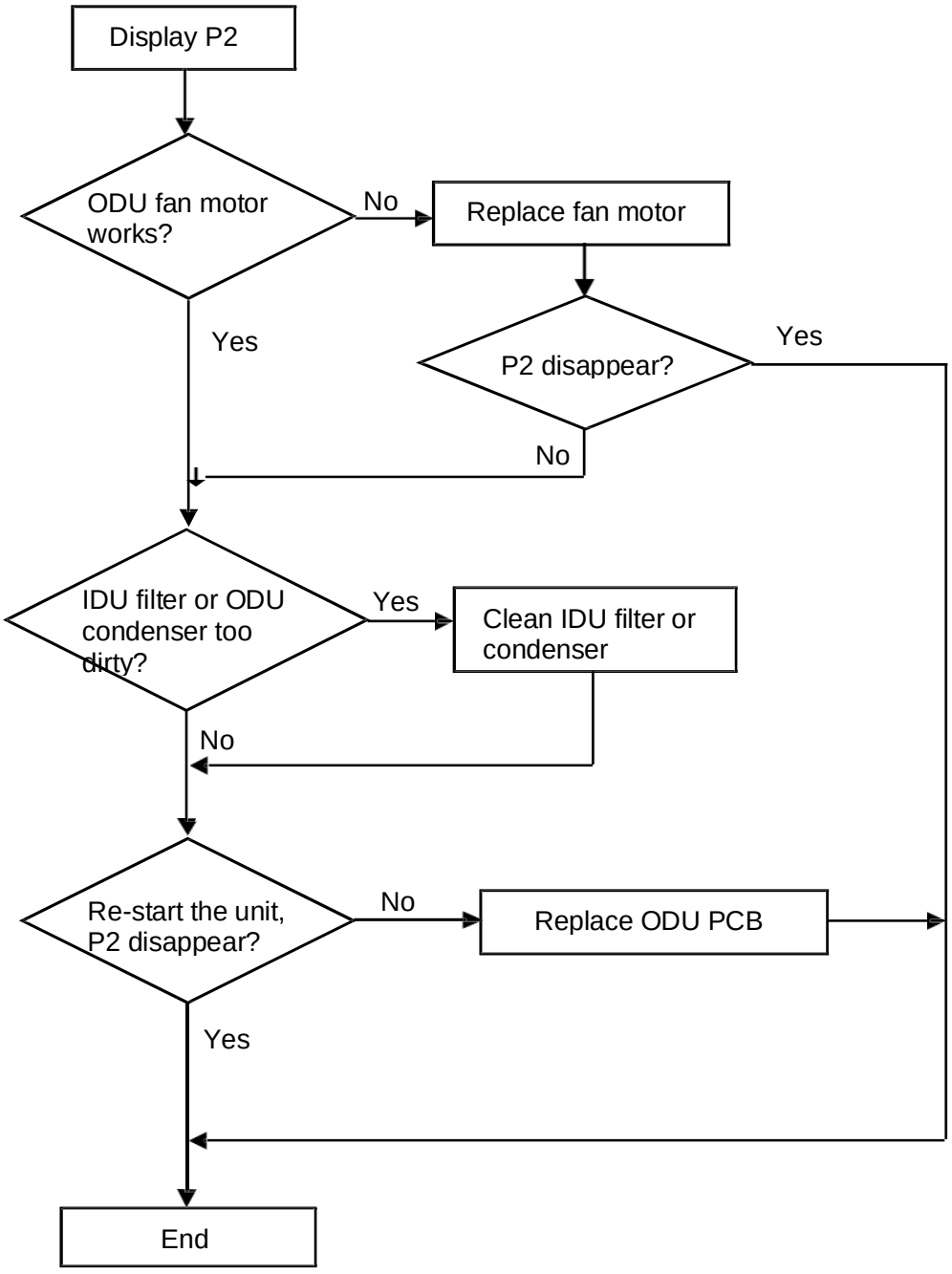
• Test voltage between L &N, When the power supply V > AC260V or V < AC150V, AC will display P1 protection, unit will recover back to previous status while V > AC155V.

• 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

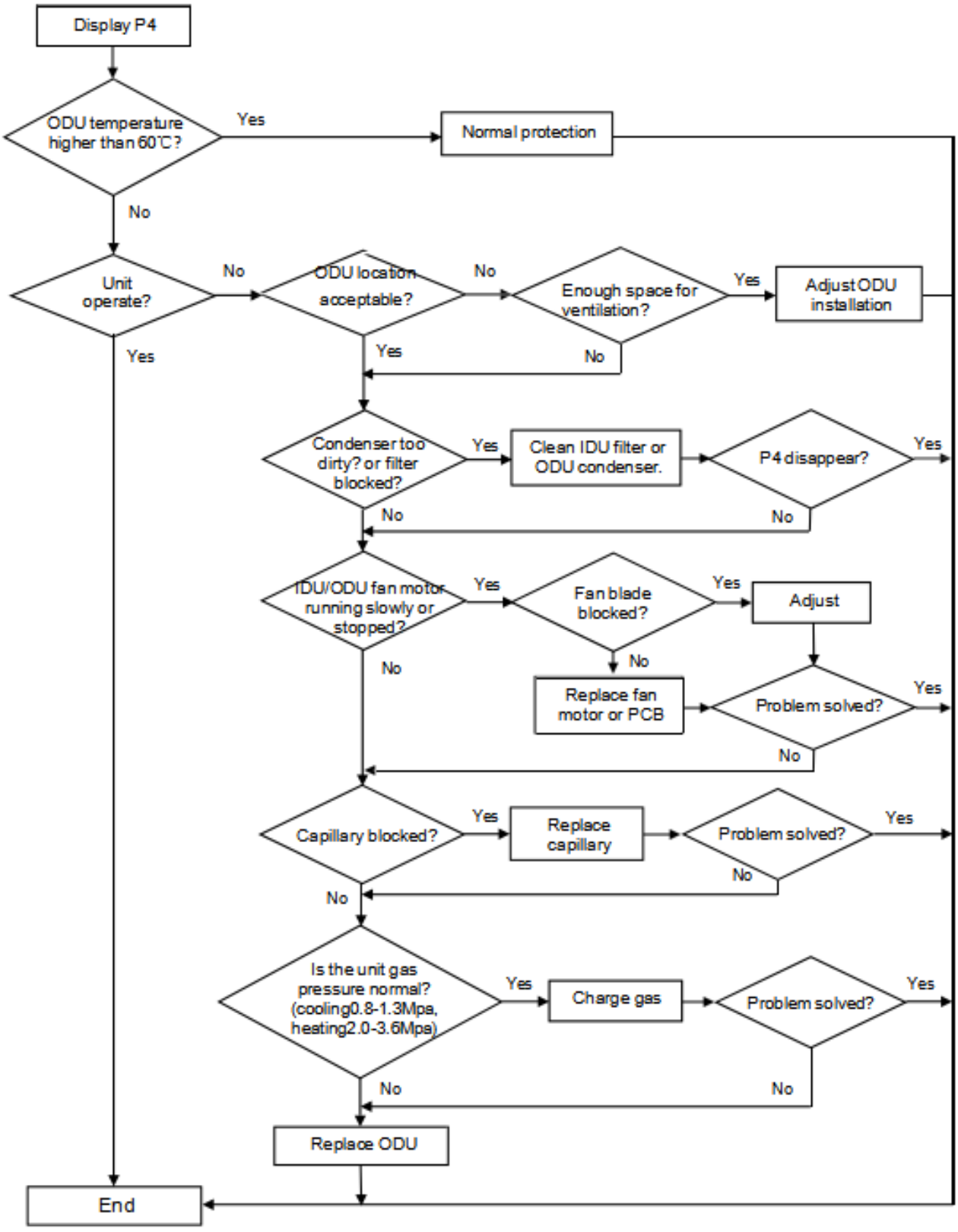


3.4.8 P2---Over Current protection

When the AC unit running current more than Imax, it will stop and display P2 protection.
Note: for different AC model, Imax has difference valve.

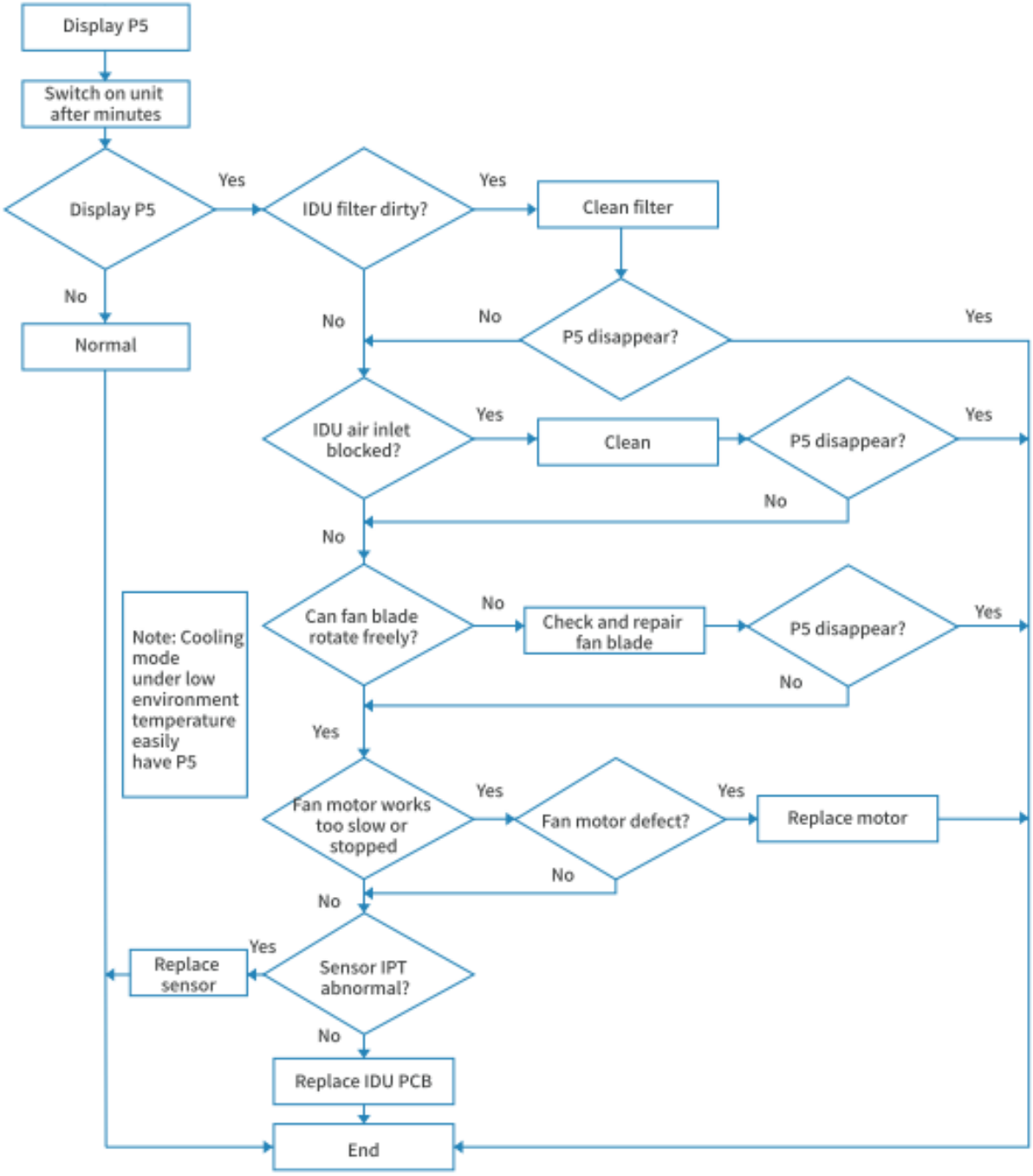


3.4.9 P4 ---ODU Discharge temperature overheating-protection



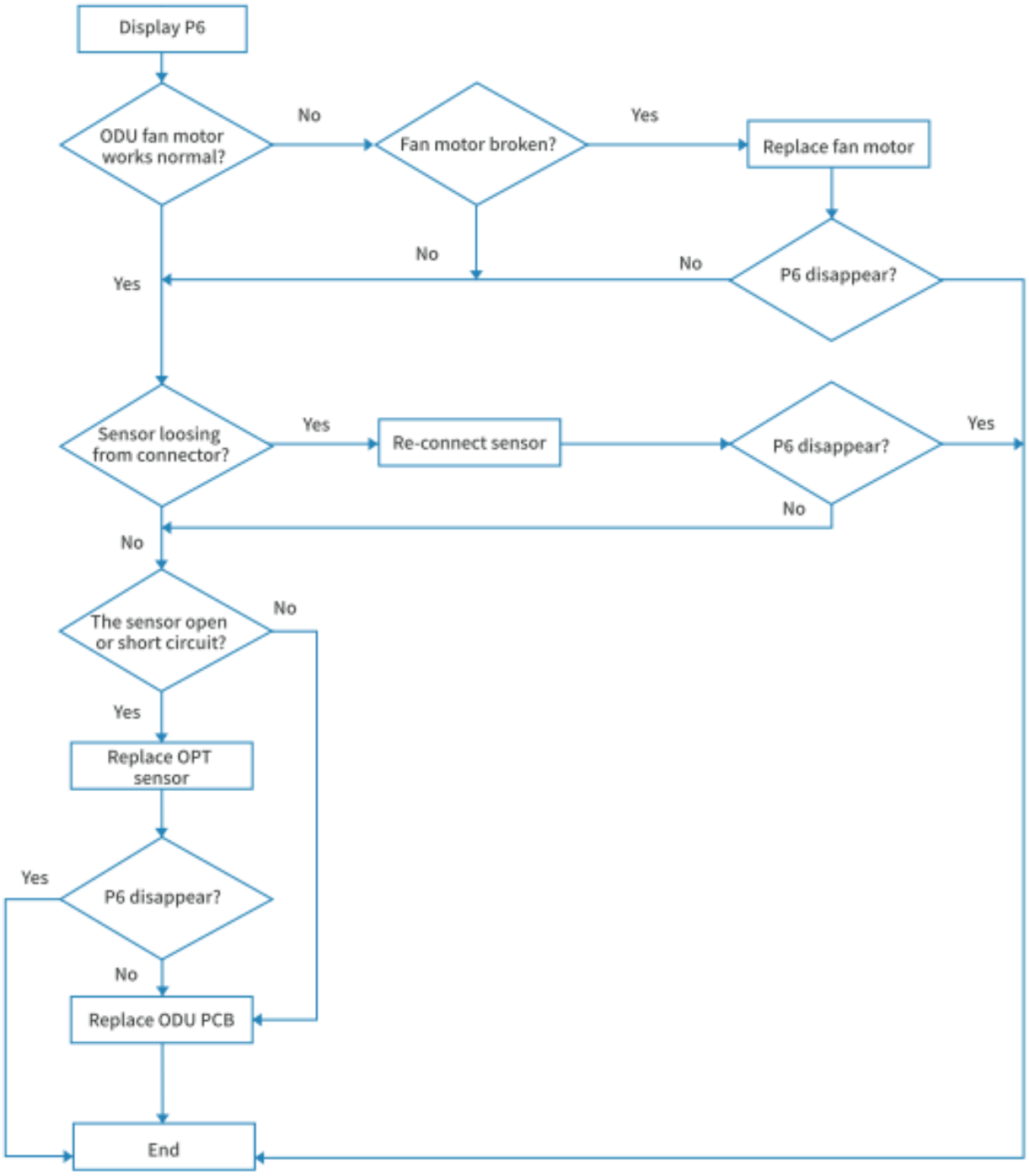
3.4.10 P5---Sub-cooling protection in Cooling/Dry mode

In Cooling or Dry mode, when IDU evaporator coil temperature **IPT＜1℃** continuously for 3 min after compressor start up for 6 min, CPU will switch off outdoor unit and show P5 failure code.



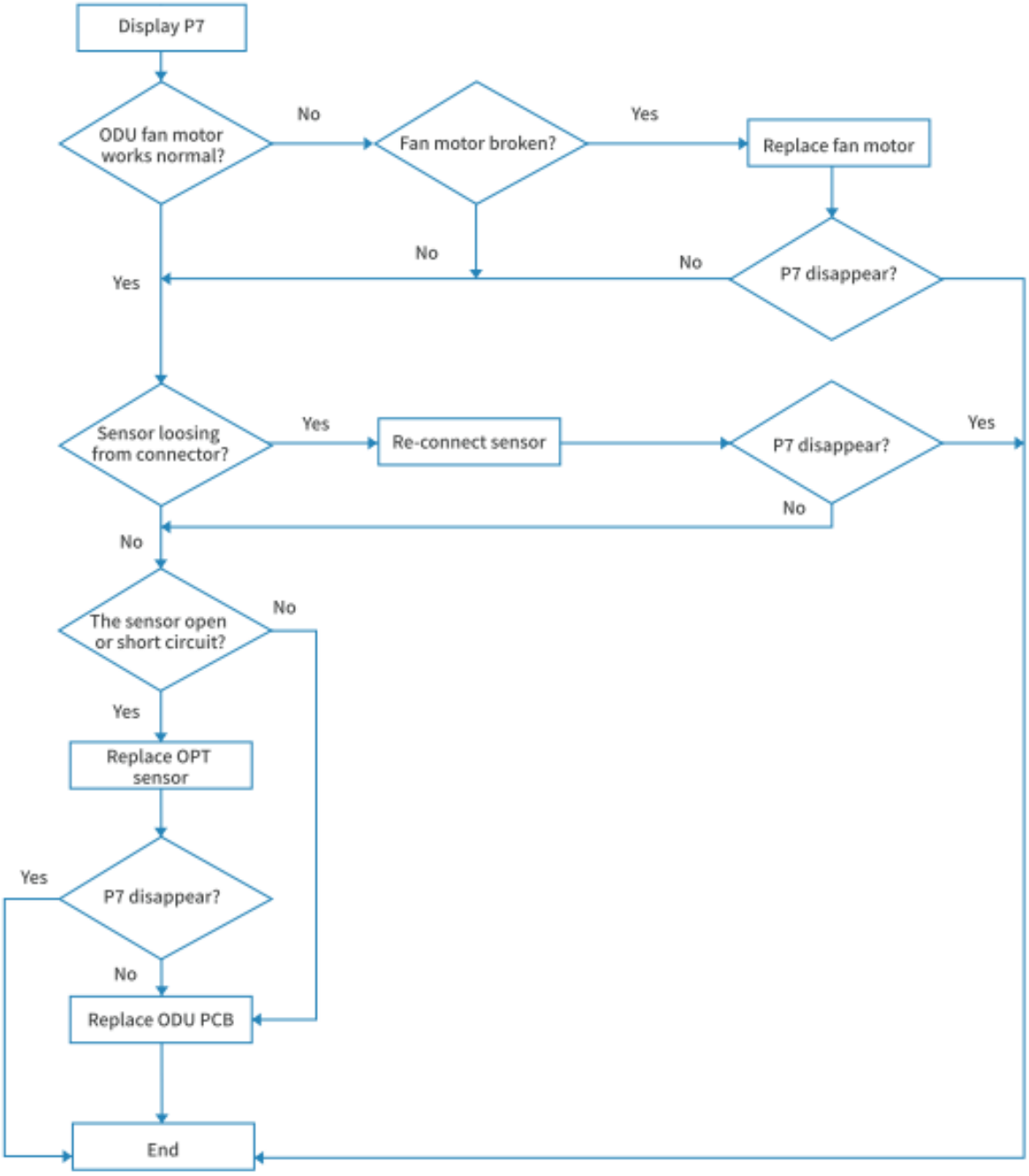
3.4.11 P6---Overheating protection in Cooling mode

In Cooling or Dry mode, when ODU condenser coil temperature OPT≥65℃(149℉) , MCU will switch off outdoor unit and show P6 failure code.



3.4.12 P7---Overheating protection in Cooling mode

In heating mode, when IDU evaporator coil temperature IPT≥64℃(147.2℉), ODU PCB will switch off outdoor unit and show P7 failure code

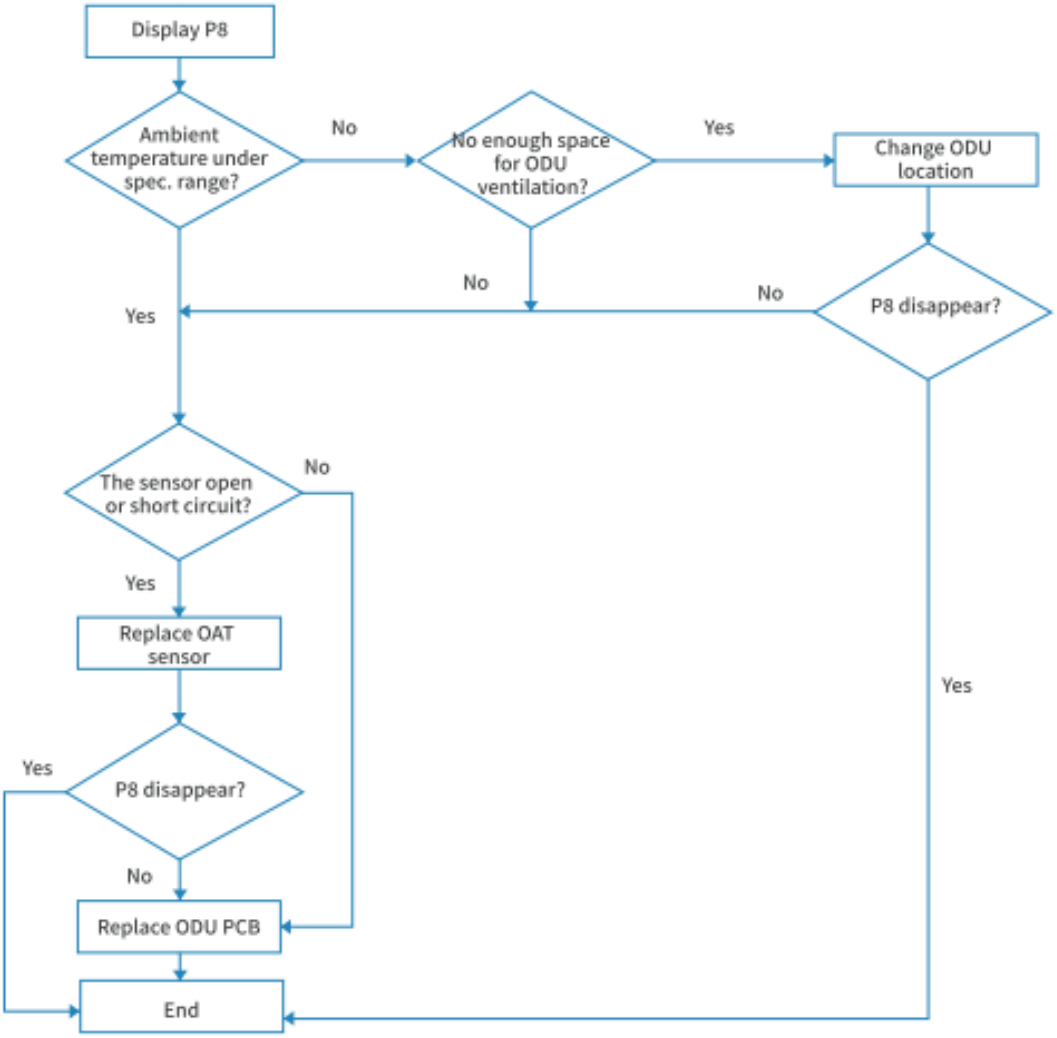


3.4.13 P8---Outdoor Over-temperature/Under-temperature protection

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

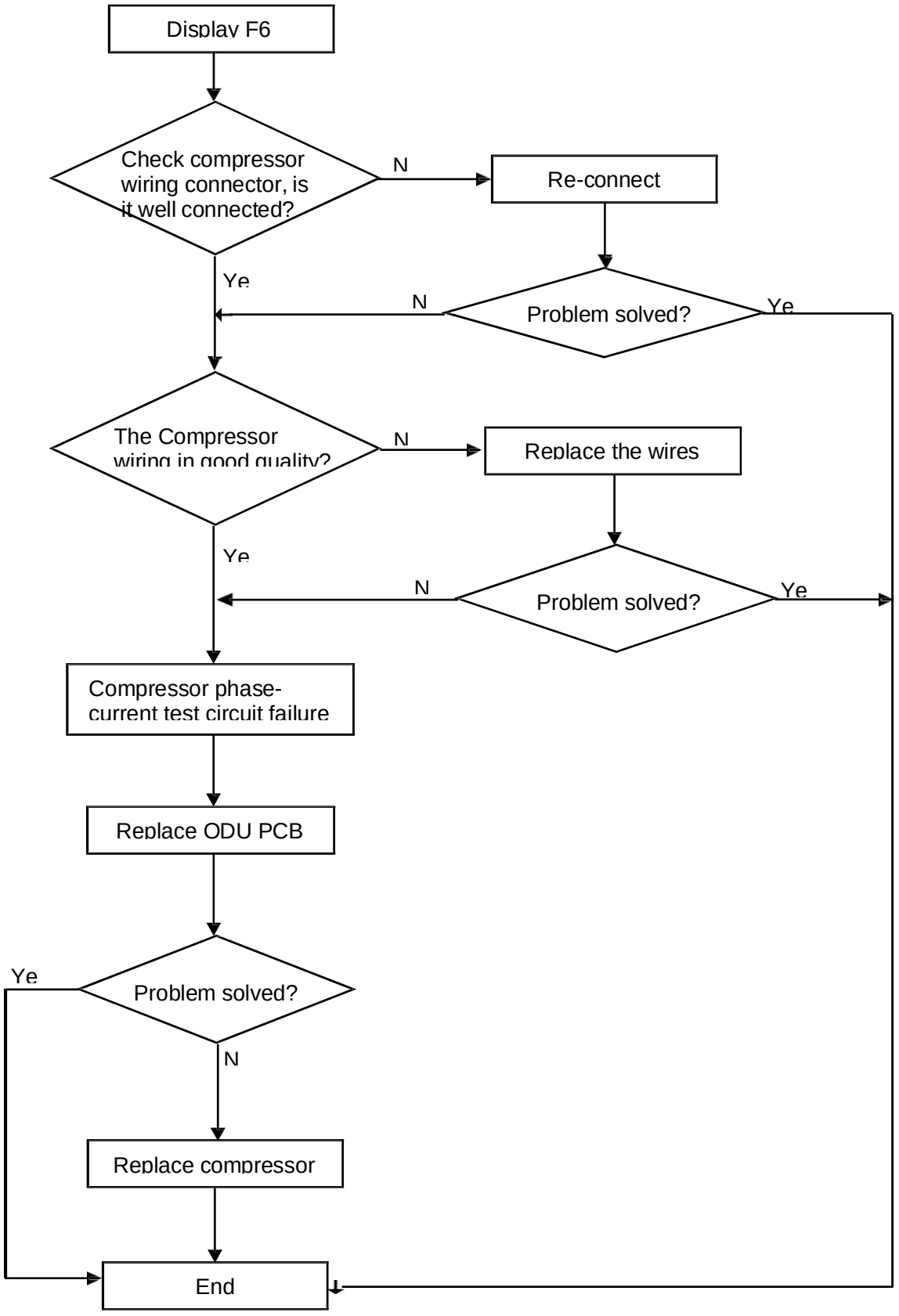
（1）On Cooling or Dry mode: ODU ambient temperature: OAT＜-15℃(5℉)or OAT＞60℃(140℉);

（2）On heating mode：OAT≥40℃（104℉）

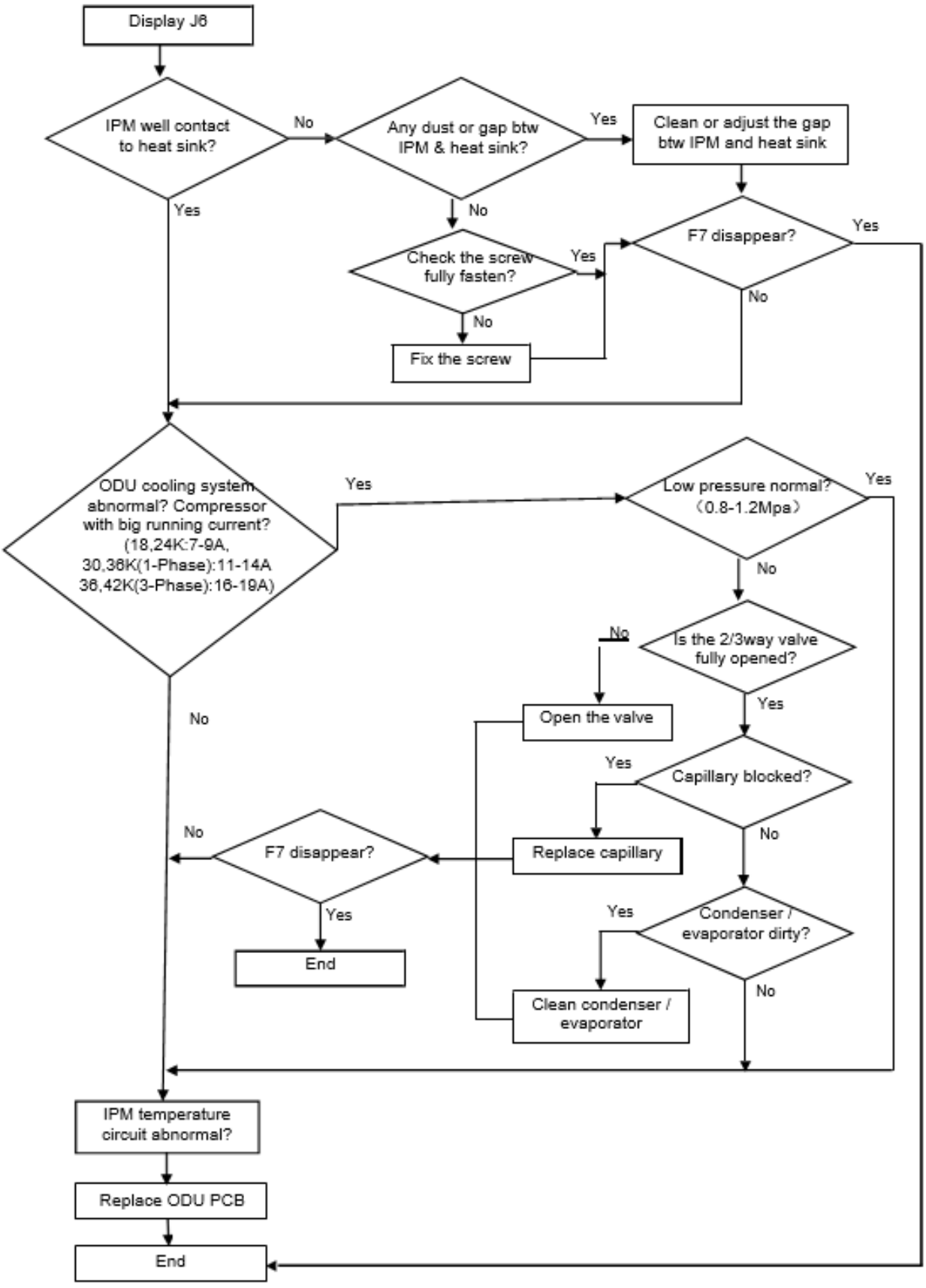


3.4.14 F6 The Compressor Lack of phase / Anti-phase protection

If ODU PCB can't test one, or even three phase of compressor current, it will show F6 protection.

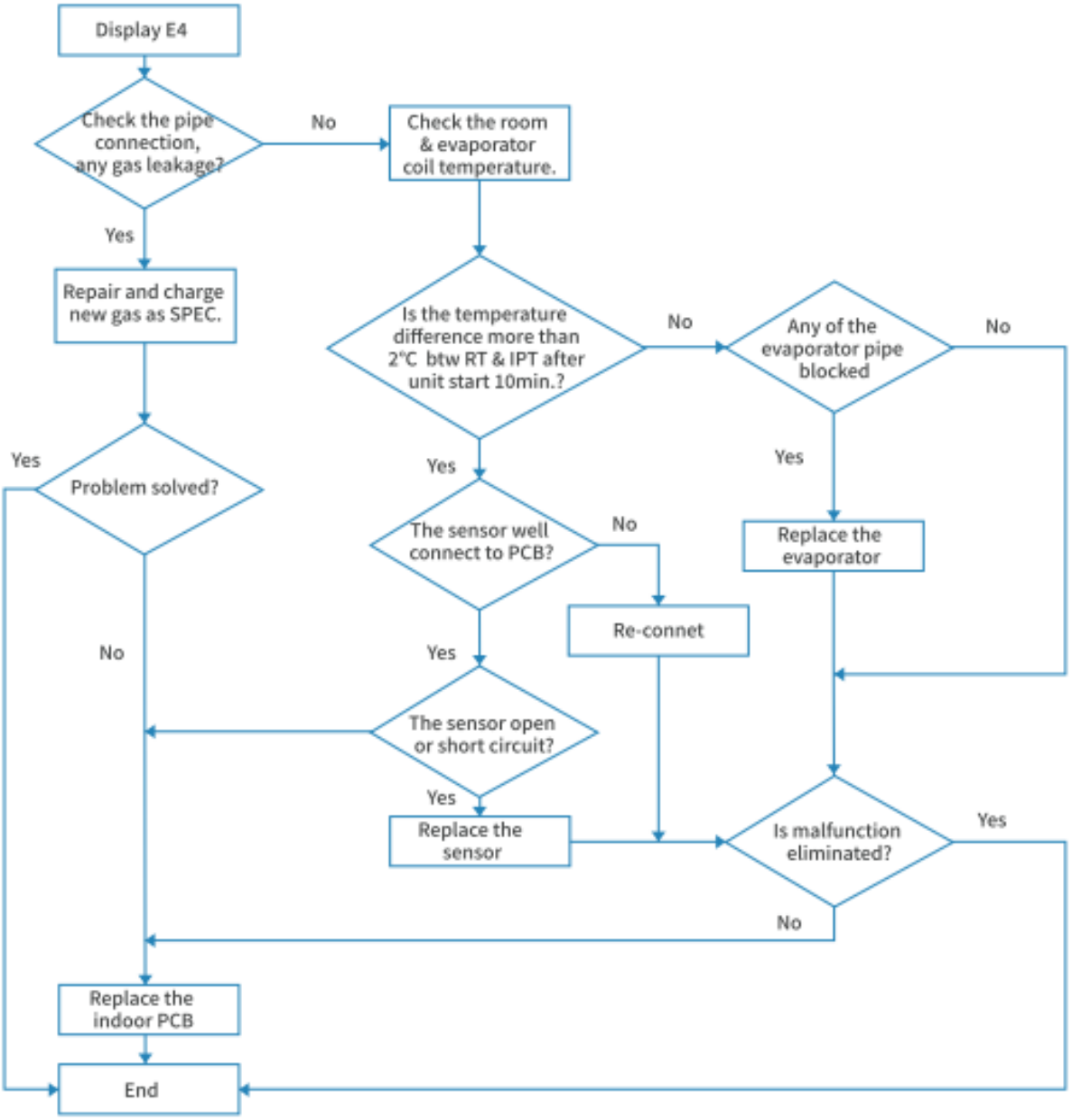


3.4.15 P0---Module temperature protection

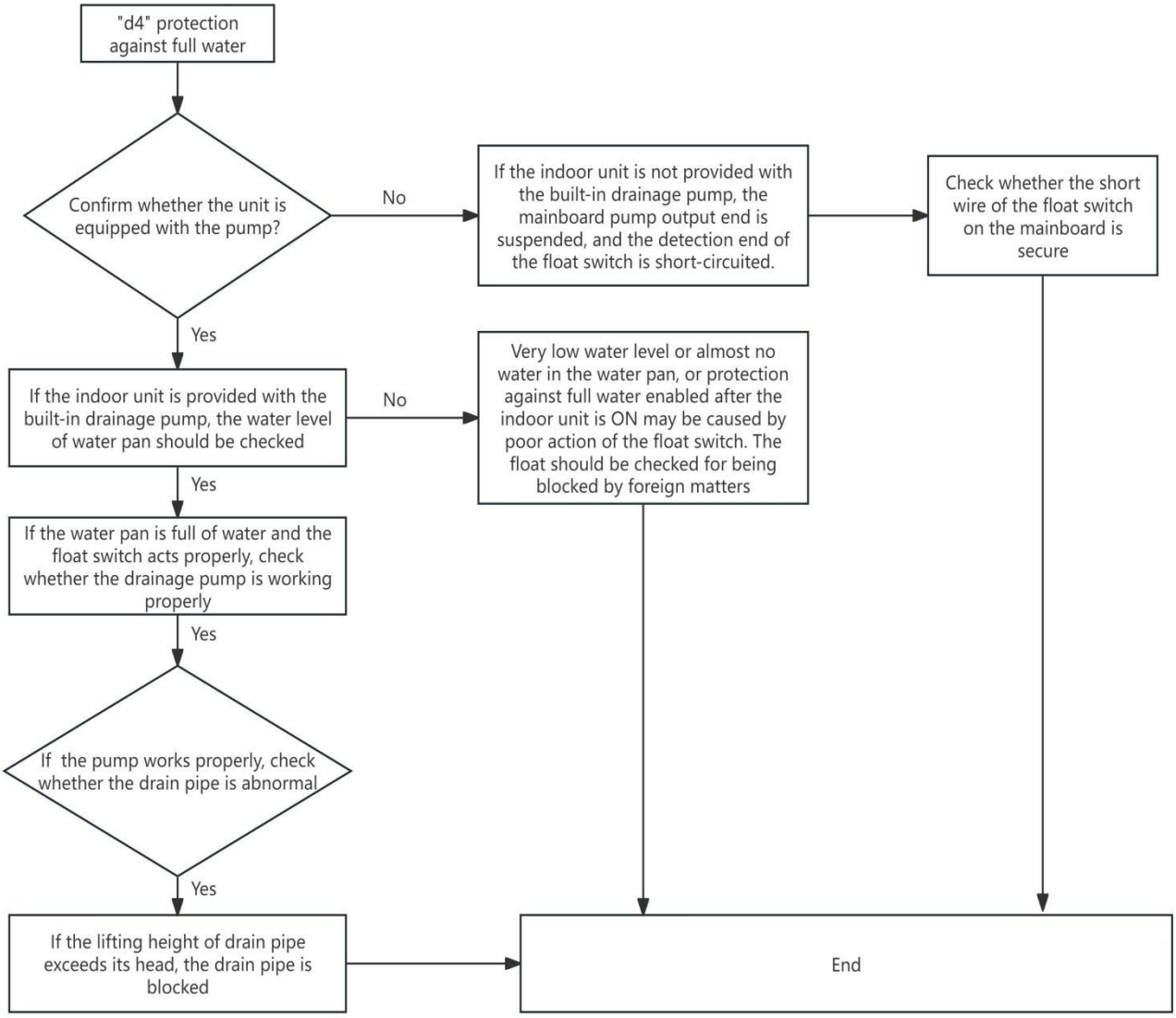


3.4.16 E4--- Gas leakage protection

After compressor works in high frequency for 9 min, if the temperature on IDU evaporator & ODU condenser has only a little variation comparing previous, but, the compressor discharge temperature on high level, then the unit will show H6 failure code.



3.4.17 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 or heating 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.
Dust comes from the air conditioner.	When the unit is turned on, it purrs.	When the system is just started, the refrigerant is not stable. About 30s later, the purr of the unit becomes low.
	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.
	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.

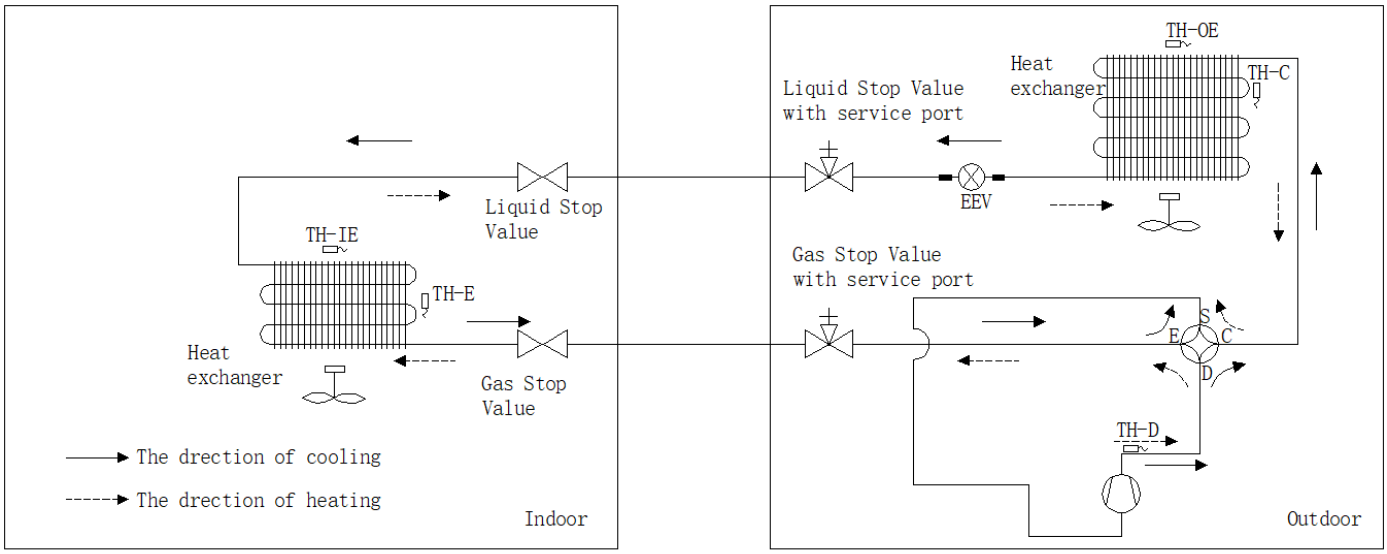
NOTICE:

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 TCL's authorized local service center. Ask our professional service staff to check and repair the unit.

4. Maintenance

4.1 System Diagram

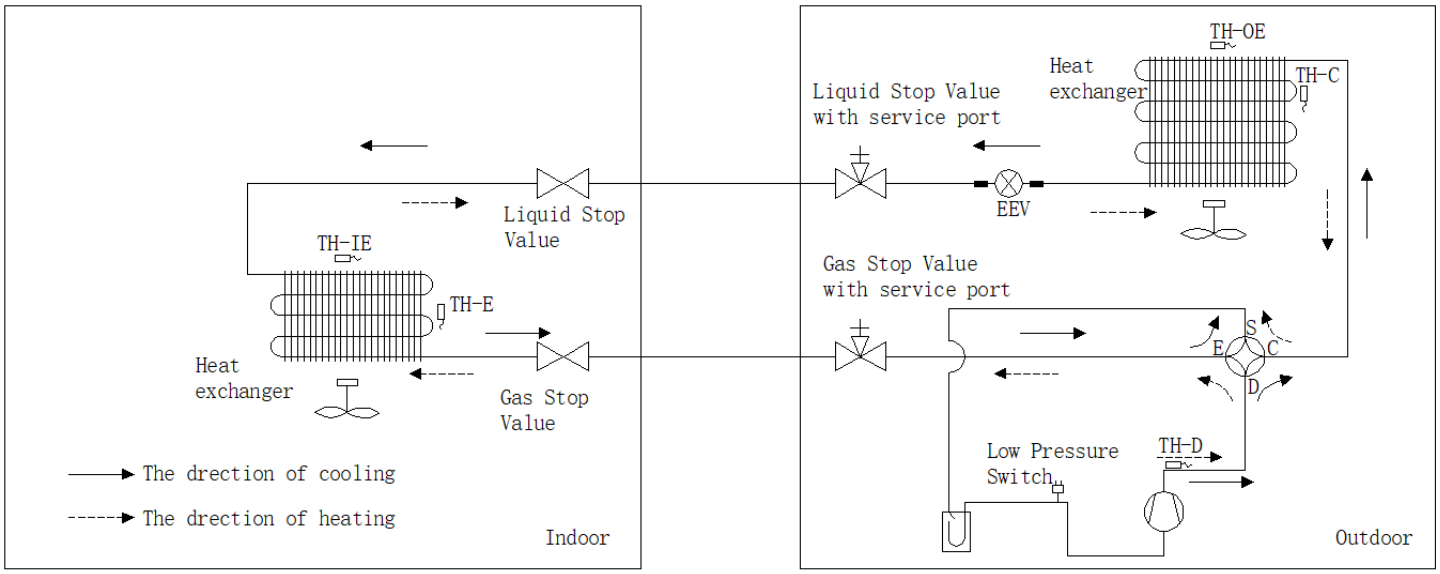
Model: TCC-18HH/DVO(02), TCC-24HH/DVO(02), TCC-30HH/DVO(02)



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

Model: TCC-36HH/DVO(02), TCC-42HH/DVO(02), TCC-48HH/DV7O(02), TCC-55HH/DV7O(02)



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

⚠NOTICE
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.

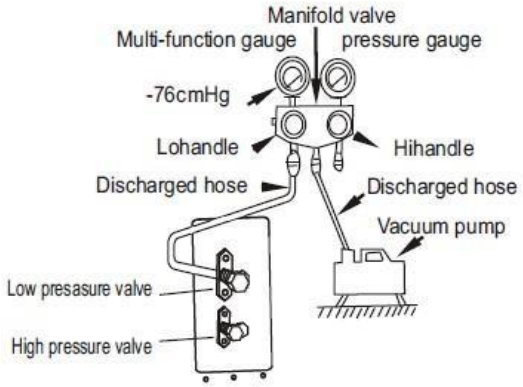
Model	Time(min)
TCC-18HH/DVO(02), TCC-24HH/DVO(02)	20
TCC-30HH/DVO(02), TCC-36HH/DVO(02), TCC-42HH/DVO(02)	30
TCC-48HH/DV7O(02), TCC-55HH/DV7O(02)	45

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 somewhere. 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

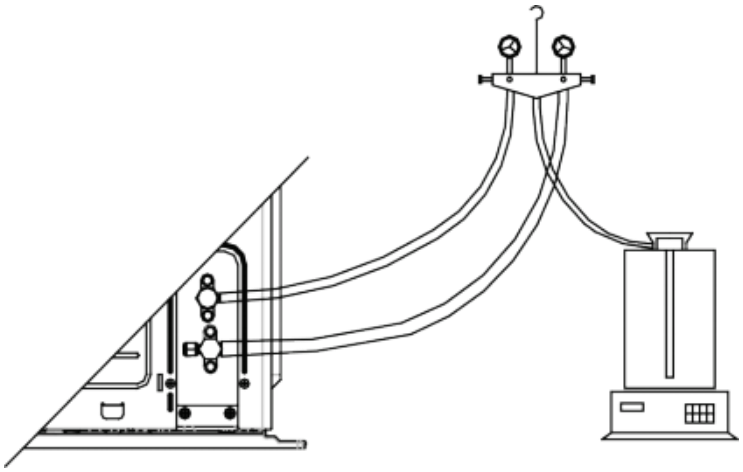
Pre-charging

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: m1-m2=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=m1-m2

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: Close the valve of refrigerant tank. First remove the pressure gauge lines and connect the outdoor unit to the indoor unit. Then reconnect the pressure gauge lines. Connect the low pressure gauge line to the other joint of gas valve and connect the high pressure gauge line to the liquid valve. 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: Turn on the air conditioner and let it run for a while.

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

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 wired controller

Please refer to the instruction manual of wired 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. Refer to the 3.4.15 based on the recommended working current. The electric current of an inverter compressor will be different under different rotation speed or different working conditions. If the compressor is working at 60Hz, the working current corresponding to different condensing temperature and evaporating temperature is shown below:

Step 2:

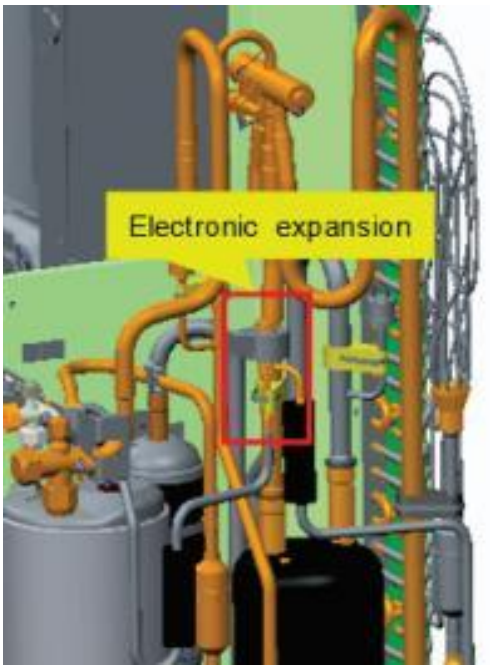
Judge whether the operating noise of the compressor is normal, and whether there is a sharp noise or obvious scraping. If there is a normal compressor working nearby, compare their operating noise.

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:

(1) 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.



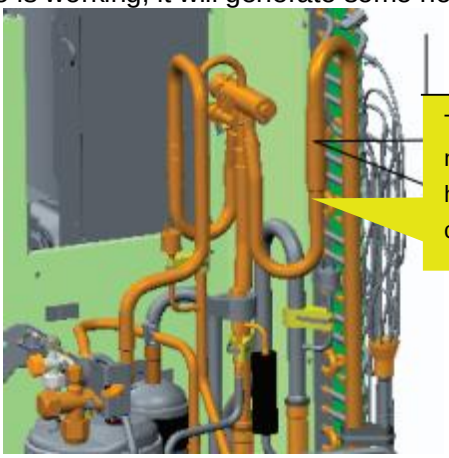
Touch the electronic expansion valve:

a. Touch the top of the electronic expansion valve and you can feel its move as it is reset upon startup.

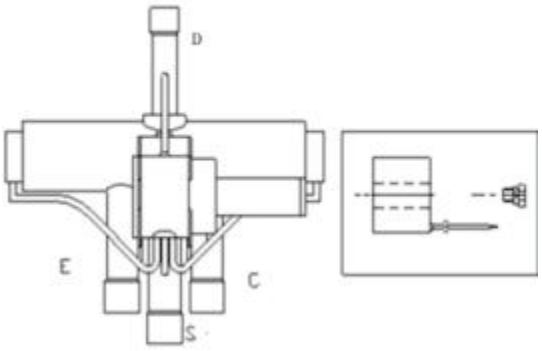
b. Make sure the coil is fixed firmly.

(2) 4-way valve:

During normal operation, the 4 copper tubes that connect to the valve will have different temperature.When the 4-way valve is working, it will generate some noise and vibration.



This is the position of the 4-way valve. Do not touch it directly with your hands. There is hot refrigerant at the exhaust pipe, so be careful not to be scalded.



D- Connect to the exhaust side

Caution! High temperature!

Labels on the 4-way valve:

D-connect to the exhaust side; E-connect to the evaporator of indoor unit;

S-connect to the inhalation side of the liquid separator; C-connect to the condenser;

When the system is in cooling mode, C-the pipeline is with high pressure and high temperature; E, S-the pipeline is with low pressure and low temperature;

When the system is in heating mode, E-the pipeline is with high pressure and high temperature; C, S-the pipeline is with low pressure and low temperature;

Because D is connected to the exhaust side, it is with high pressure and high temperature regardless of the operating mode. When the unit is powered on, in defrosting or oil return mode, the 4-way valve will produce some noise. Do not touch the pipes directly with your hands and be cautious of the hot temperature.

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.

Check the drive board of compressor, i.e. the IPM module.

Please refer to the IPM checking method in the section of troubleshooting.

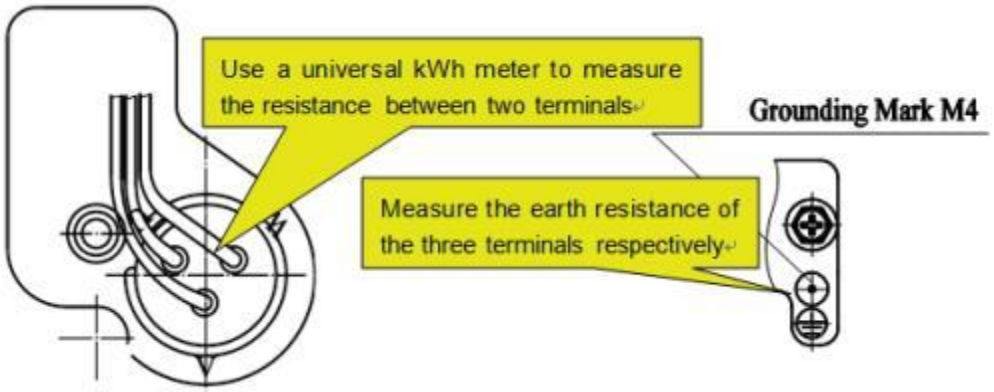
B . On condition that the unit cannot be started up

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
KSN140D53UFZ3	1.97±5%Ω	1.97±5%Ω	1.97±5%Ω
C-6RZ180H3AAF	1.042±5% Ω	1.042±5% Ω	1.042±5% Ω
C-6RZ210H3CDF	0.924±5%Ω	0.924±5%Ω	0.924±5%Ω
KTM240D43UMT	1.04±7% Ω	1.04±7% Ω	1.04±7% Ω
C-7RZ320H3CCF	0.908±5%Ω	0.908±5%Ω	0.908±5%Ω
GTH420SKPC8DQ	0.405±5%Ω	0.405±5%Ω	0.405±5%Ω

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:

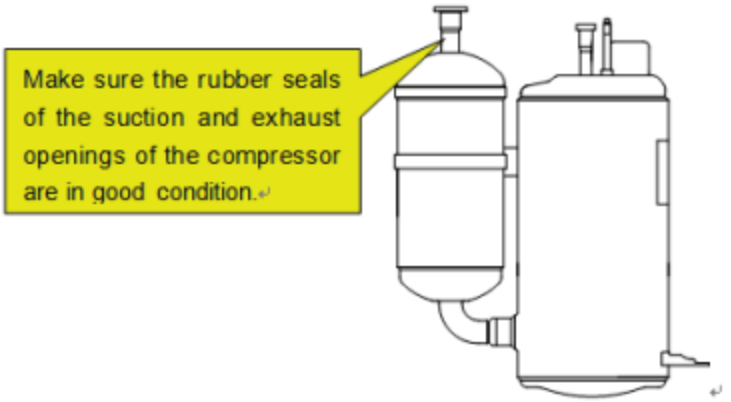
Check whether the IPM module is normal. Please refer to the IPM checking method in the section of troubleshooting.

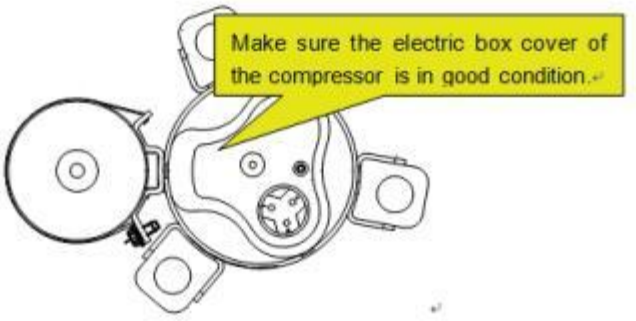
4.4.2.2 Replacement of compressor

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 ±30° . 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, user 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.

(2) Prepare relevant tools

1) 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;

2) 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;

3) 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.

4) 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
(1) 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.
(2) 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.

(a) 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:

(1) 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.

(2) 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:

1) The axial direction of the compressor should not slant at an angle larger than 20° to the horizontal direction.

2) Prevent the compressor from falling.

3) Put a transparent container (over 150ml in volume) under the exhaust pipe to collect the compressor oil, thus we can see the oil quality.

(3) 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.

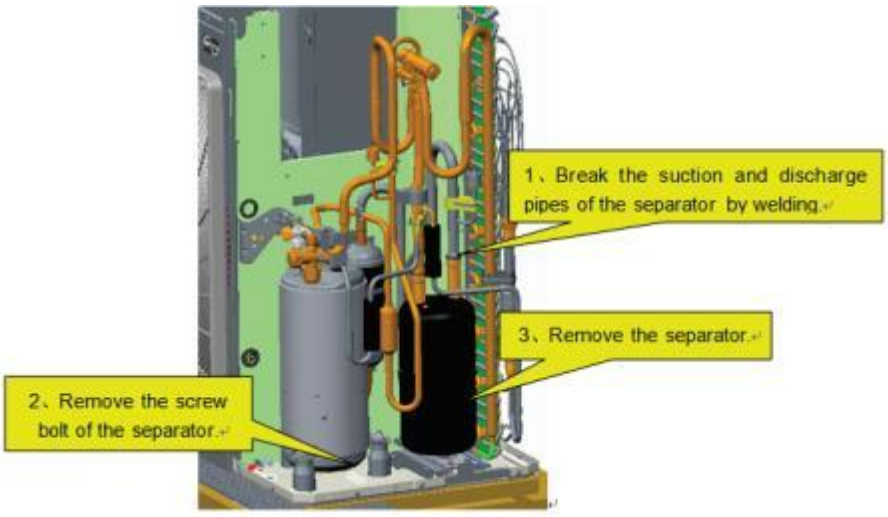
(b) If the oil is contaminated, replace the compressor and the gas-liquid separator.

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: Check the components

If the oil is contaminated, check the components of the unit, including the gas-liquid separator. Check the gas-liquid separator



When the separator is detached, check whether there are impurities inside. Below is the checking method:

Note:

When pouring the liquid from the separator, make sure the discharge pipe is at the lower position. Slant at an angle not larger than 20°

Use a transparent container to collect the content inside the separator. Check its color, seal it well and return it to the factory for inspection.

Note:

If the compressor is damaged and needs to be replaced, the gas-liquid separator should also be replaced, whether or not there are impurities in the separator or other abnormal conditions.

Confirm which parts of the system should be replaced. Make sure the pipe mouths of the damaged parts or components are sealed by adhesive tape as soon as they are detached. Keep them in the original condition for future analysis.

Step 7: Clear the pipeline

After confirming which parts of the system should be replaced, check the pipeline 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 8: Replace the compressor

For the removal of compressor, please refer to the section: Removal of Major Components. Step 9: Check/Replace the gas-liquid separator

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.

For the removal of gas-liquid separator, please refer to the section: Removal of Major Components. Step 10: Check the system for leaks

(1) 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.

(2) 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.

(3) 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℃, pressure will change by 0.01MPa or so.

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

Step 11: Evacuate the system and charge refrigerant

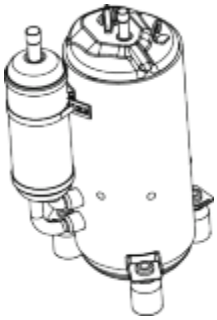
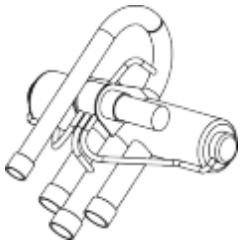
Please refer to the section of maintenance: vacuum pumping and refrigerant charging. Step 12: Connect electric components

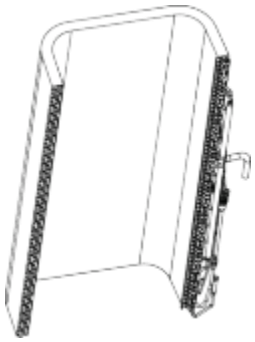
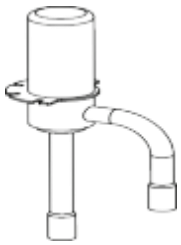
Connect cables, compressor wires and the electric heating belt according to the signs marked before and the wiring diagram on the cover of the electric box.

4.5 Removal of Major Components

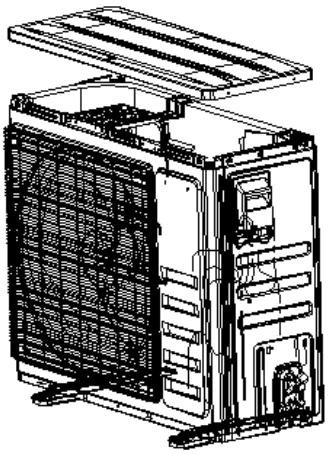
4.5.1 Structure Supplementary and Part Disassembly Drawing

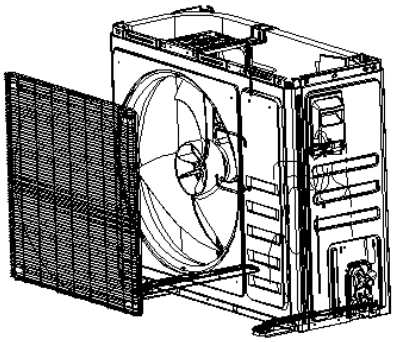
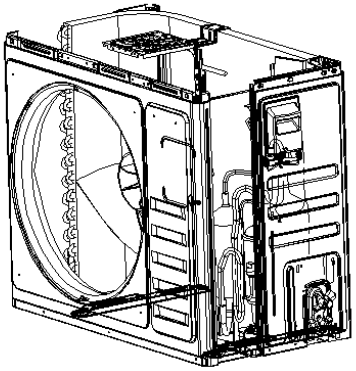
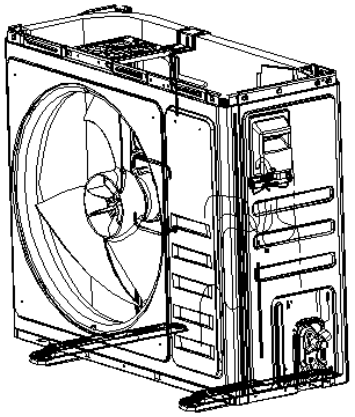
Removal of ODU Major Components

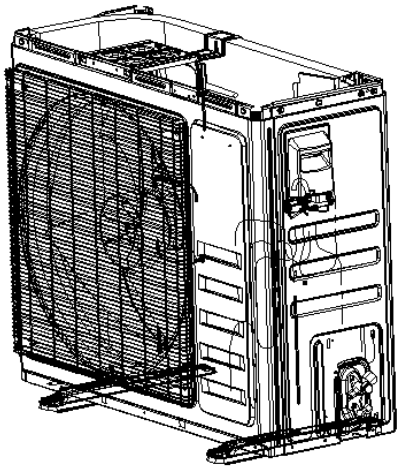
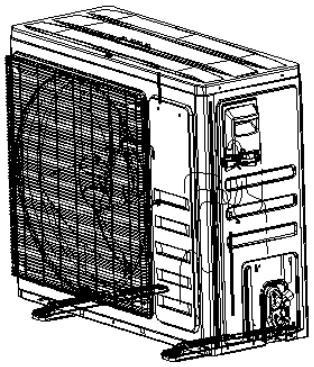
Picture	Name	Function
	Compressor	Through compression, the low pressure refrigerant occupies a less space. As its pressure and temperature both rise, it becomes high pressure and high temperature refrigerant. It is the power drive of the system.
	4-way valve	It is used to change directions, the flow of refrigerant in cooling/heating.
	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.
	Gas liquid separator	Installed at the suction side of compressor, it can separate the liquefied refrigerant from the gaseous refrigerant to make sure that only gaseous refrigerant will be sucked into the compressor. If liquefied refrigerant gets inside the compressor, ineffective compressor or slugging phenomenon will occur.

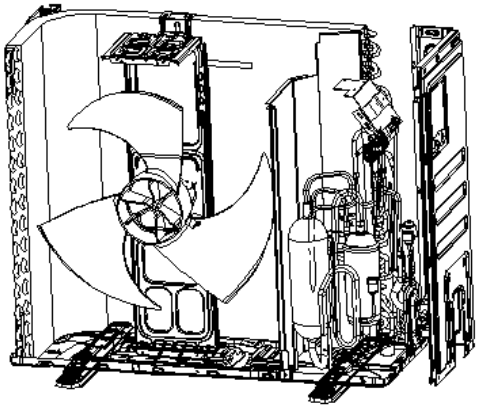
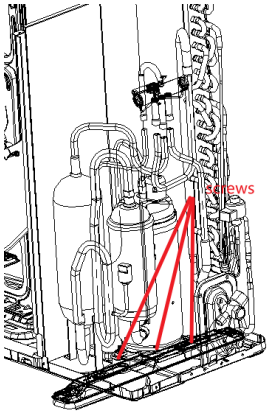
Picture	Name	Function
	Condenser	It is used to transfer partial heat of the hot flow to the cold flow so that the flow temperature can reach the specified index. It is an energy exchanging device.
	Electronic expansion valve	It is used to lower the pressure and temperature of liquefied refrigerant and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

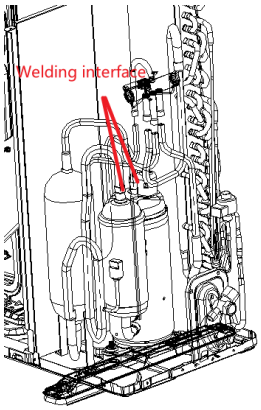
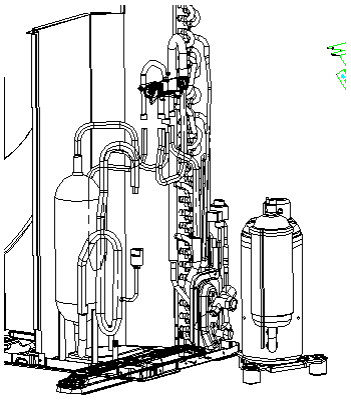
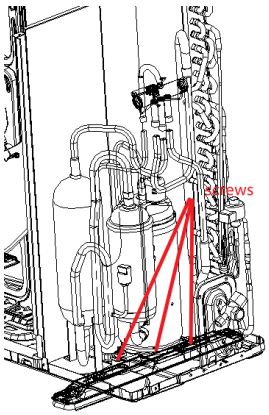
Model: TCC-18HH/DVO(03)，TCC-18HRH/DVO(02)，TCC-24HRH/DVO(02)，TCC-30HH/DVO(02)，TCC-36HH/DVO(02)，TCC-42HH/DVO(02)

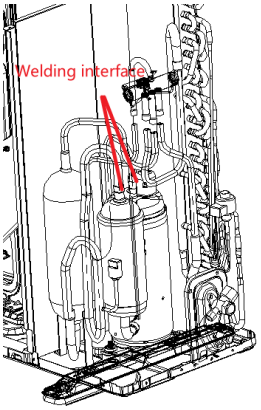
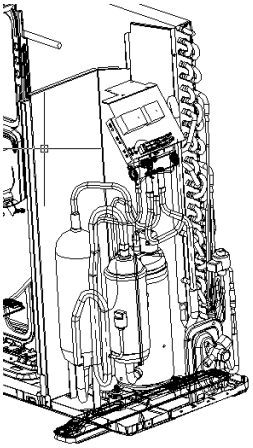
Removal of front panel		
Note: Before removing the front panel, make sure power is cut off.		
Step	**Picture**	**Work instruction**
1. Remove the upper cover plate.		• Unscrew the screws of the upper cover plate with a screwdriver.

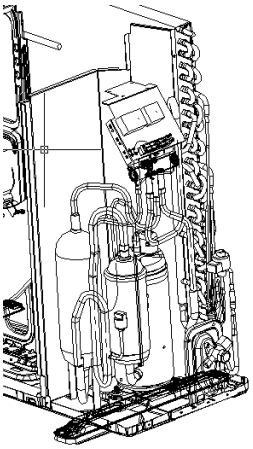
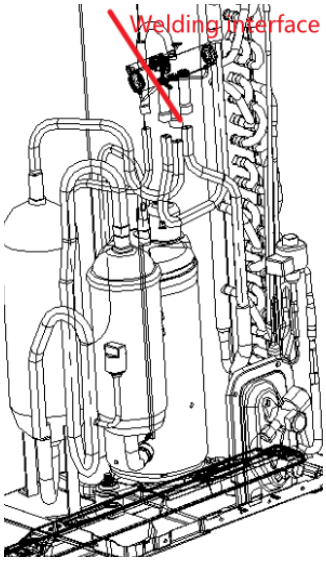
2. Remove the front grill.		• Unscrew the screws of the front grill with a screwdriver.
3. Remove the front plate.		• Unscrew the screws of the front plate with a screwdriver.
4. Install the front panel.		• Tighten up the screws around the front side plate.

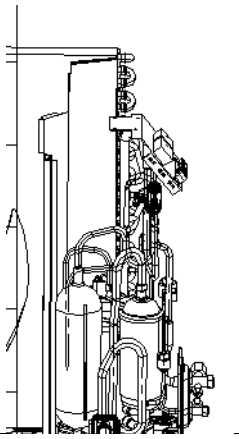
5. Install the grill..		• Attach the grill back in place and tighten up the screws.
6. Install the upper cover plate.		• Tighten up the screws around the upper cover plate.

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 twist off the screws at the foot of compressor.

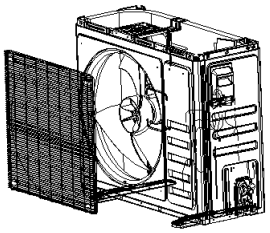
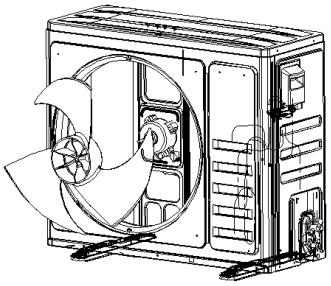
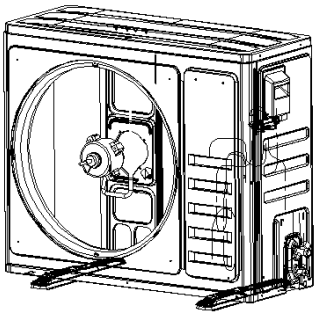
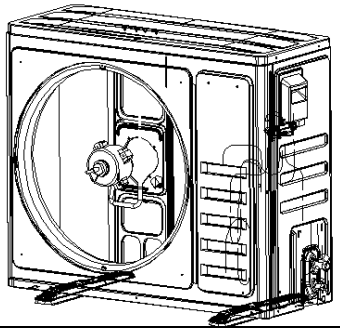
3. Break off the pipes that connecting to the compressor.		• Weld the pipes that are connected to the compressor. • Then remove the pipes. Note: When welding the pipes, do not let the flame burn the other components.
4. Remove the compressor from the chassis.		• Take out the compressor and replace it. 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.

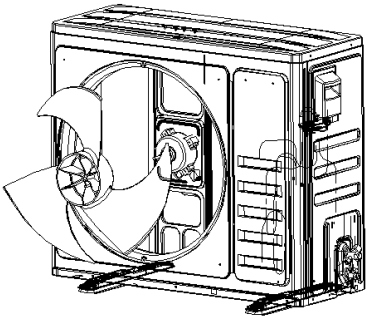
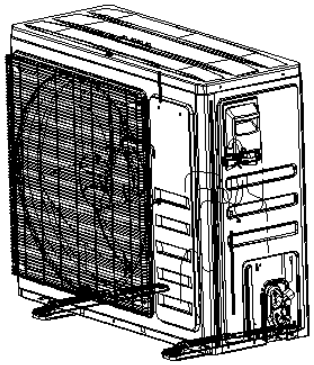
6. Connect the compressor suction port and exhaust port with the pipes.		• Weld the compressor connection pipes and connect them to the compressor. Note: When replacing the compressor, avoid touching the nearby pipeline and components.
7. Connect the compressor wires.		• Connect the compressor wires 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.

Removal of 4-way valve		
Note: Before removing the 4-way valve, make sure refrigerant is fully discharged from the unit and power is cut off.		
Step	**Picture**	**Work instruction**
1. Take off the electromagnetic coil of the 4-way valve.		● Carefully unscrew the screws of electromagnetic coil with a screwdriver.
2. Break off the connection pipes from the 4-way valve.		● Use a soldering gun to loosen the 4 joints on the 4-way valve and then remove the connection pipes. Note: When welding the pipes, the 4-way valve should be wrapped with wet cloth for cooling. Do not let the flame burn the other components.

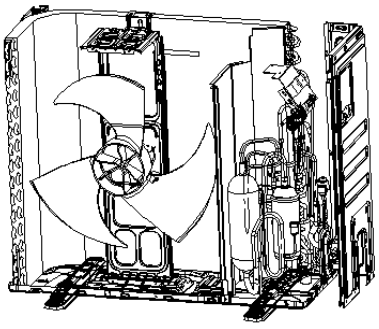
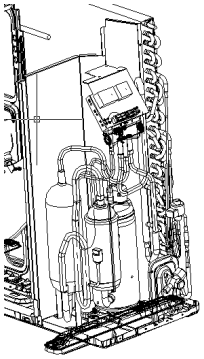
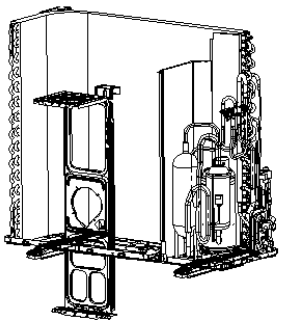
3. Replace the 4-way valve and connect it to the connection pipes.		• Replace the 4-way valve and then use a soldering gun to weld the 4 joints of the 4-way valve. • Tighten up the screws of electromagnetic coil with a screwdriver. Note: When welding the pipes, the 4-way valve should be wrapped with wet cloth for cooling. Do not let the flame burn the other components.

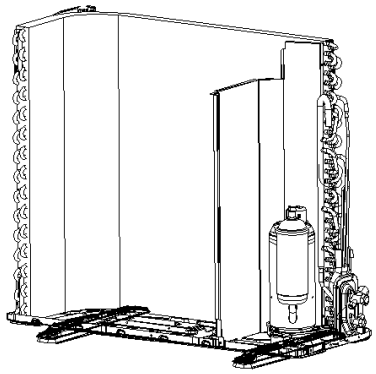
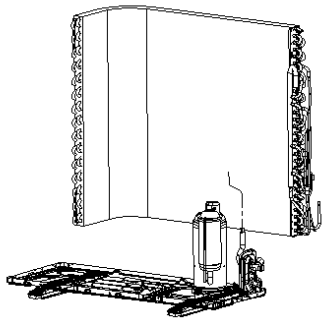
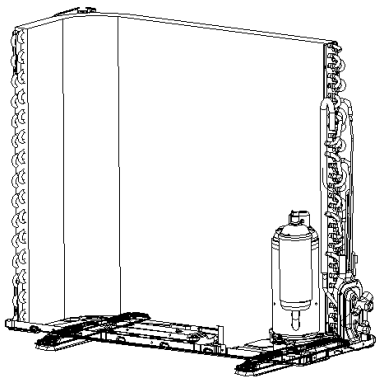
Model: TCC-18HH/DVO(03)，TCC-18HRH/DVO(02)，TCC-24HRH/DVO(02)，TCC-30HH/DVO(02)，TCC-36HH/DVO(02)，TCC-42HH/DVO(02)

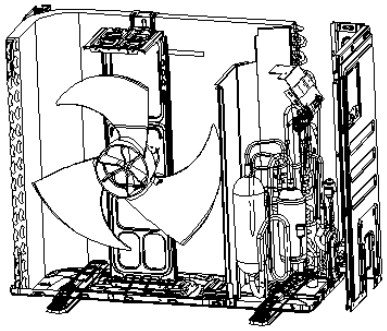
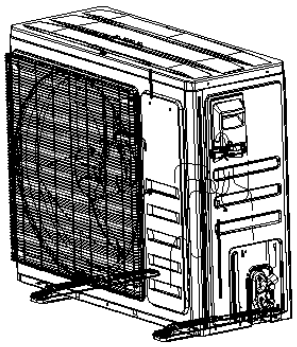
Removal of fan and motor		
Note: Before removing the fan, make sure power is cut off.		
Step	**Picture**	**Work instruction**
1. Remove the grill.		● Use a screwdriver to unscrew the two screws on the upper left and lower right corners.
2. Remove the fan.		● Use a wrench to remove the specialized nut 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.		• After replacing the motor, use a screwdriver to tighten up the screw bolt that secures the motor.

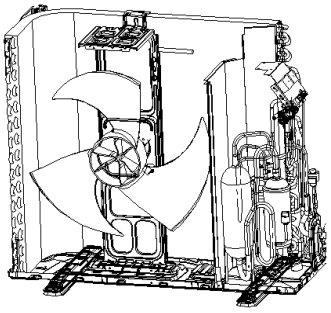
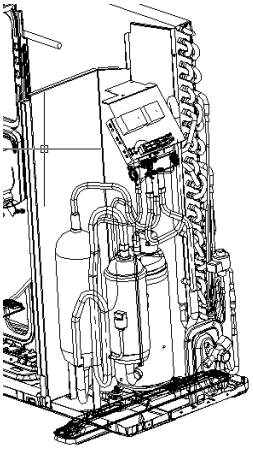
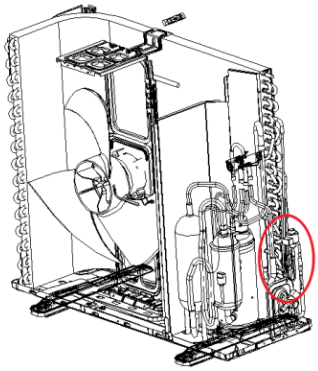
Model: TCC-18HH/DVO(03)，TCC-18HRH/DVO(02)，TCC-24HRH/DVO(02)，TCC-30HH/DVO(02)，TCC-36HH/DVO(02)，TCC-42HH/DVO(02)

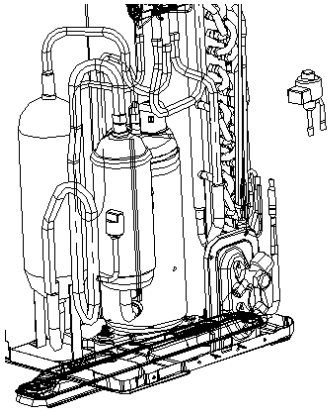
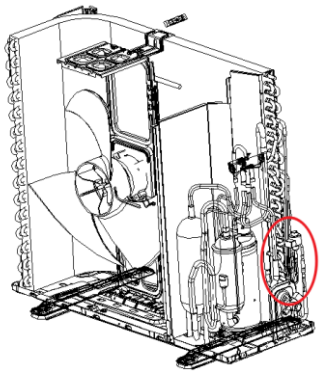
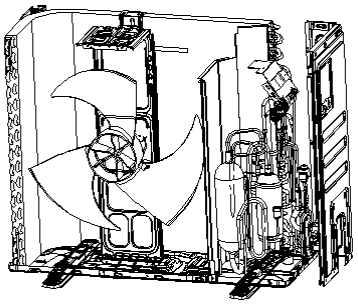
Removal of condenser		
Note: Before removing the condenser, make sure there is no refrigerant in the pipeline and power is cut off.		
Step	**Picture**	**Work instruction**
1. Remove the panels.		• Remove the upper, lower and front panels.
2. Remove the electric box.		• Loosen the wire clamp at the bottom 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.

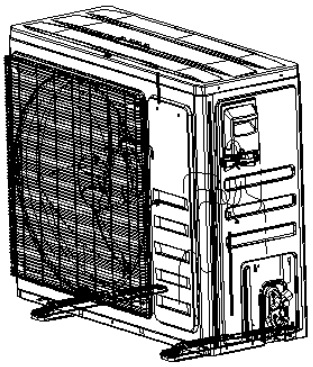
4. Remove the condenser.		• Heat up the welding points of connection pipes through gas welding until the pipes break off. Note: When welding the pipes, do not let the flame burn the other components. The welding points of condenser are steel and copper welding points. Be sure to maintain the welding 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 by referring to the positions of entering and leaving pipes. Weld the connection pipes. • Nitrogen welding: the pressure of nitrogen is 0.5±0.1kgf/ c m (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 OK, place back the upper, left and right side panels.

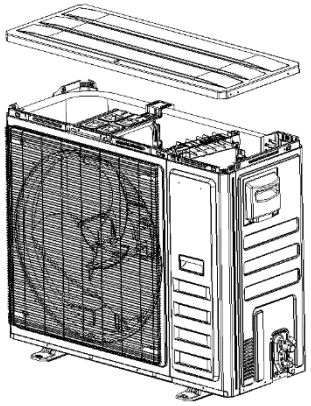
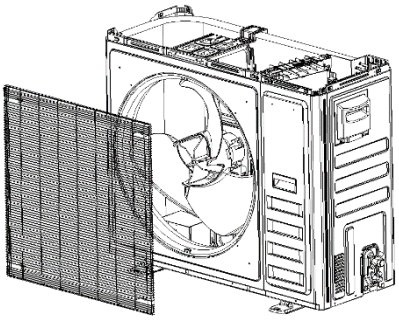
Model: TCC-18HH/DVO(03)，TCC-18HRH/DVO(02)，TCC-24HRH/DVO(02)，TCC-30HH/DVO(02)，TCC-36HH/DVO(02)，TCC-42HH/DVO(02)

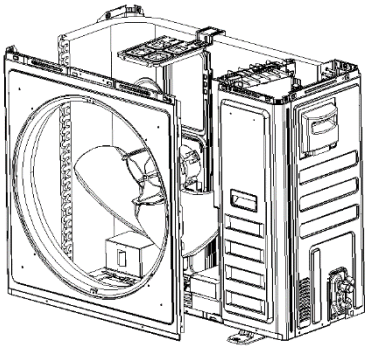
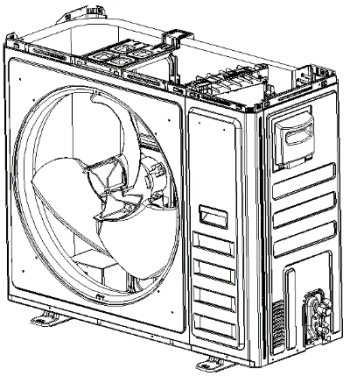
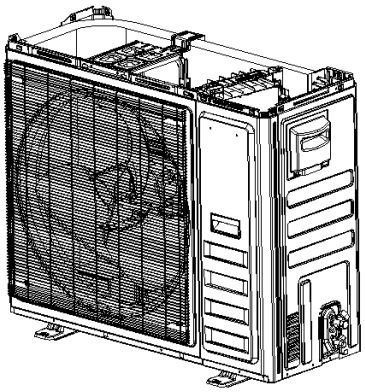
Removal of electronic expansion valve		
Note: Before removing the electronic expansion valve, make sure there is no refrigerant in the pipeline and power is cut off.		
Step	**Picture**	**Work instruction**
1. Loosen the wire clamp at the bottom of the electric box and the screws of electric box.		• Remove 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 valve.		• 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 bunt the other components.

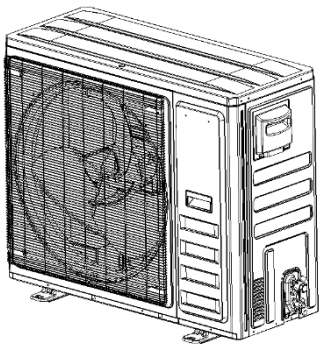
4. Take out the electronic expansion valve.		• Take out the electronic expansion valve
5. Install the new electronic expansion valve.		• Weld the connection pipe of electronic expansion valve. • When welding the electronic expansion valve, the valve should be wrapped with wet cloth. • Nitrogen welding: the pressure of nitrogen is 0.5±0.1kgf/ c m (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.

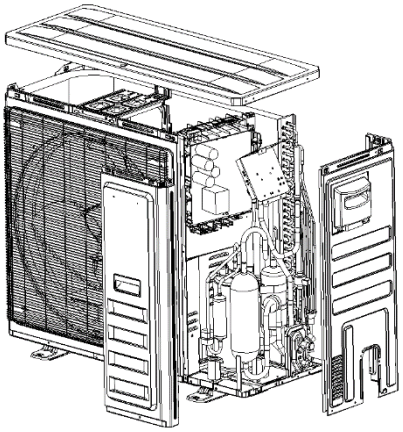
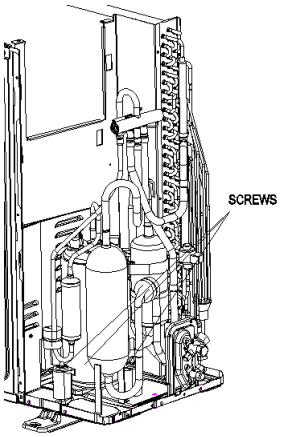
7. Check and install the panels.		• Check whether each component and connection wire is well connected. • If everything is OK, install the upper, left and right panels. Tighten up the screws.

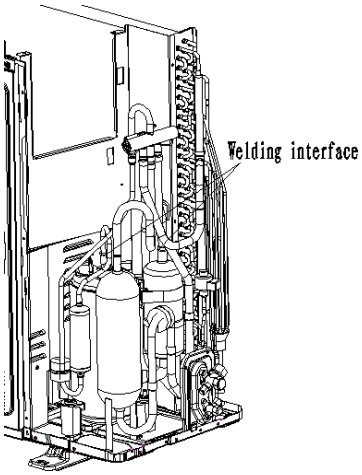
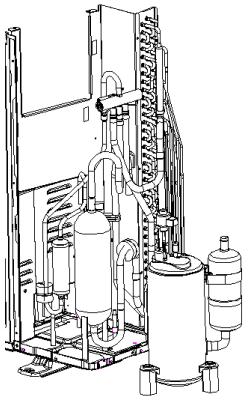
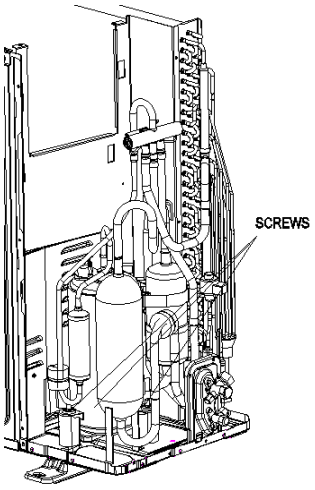
Model: TCC-48HH/DV7O(02)，TCC-55HH/DV7O(02)

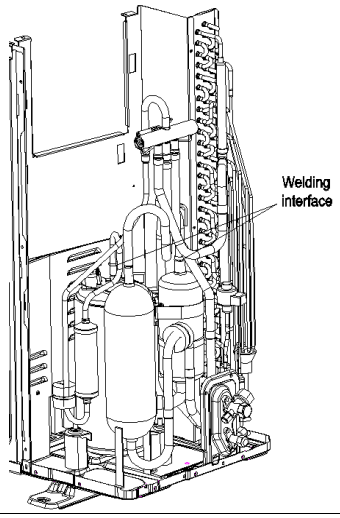
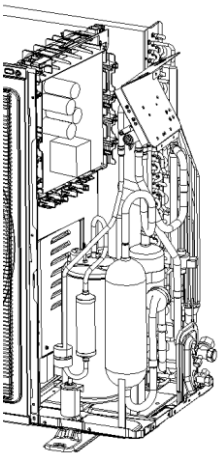
Removal of front panel		
Note: Before removing the front panel, make sure power is cut off.		
Step	**Picture**	**Work instruction**
1. Remove the upper cover plate.		• Unscrew the screws of the upper cover plate with a screwdriver.
2. Remove the front grill.		• Unscrew the screws of the front grill with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

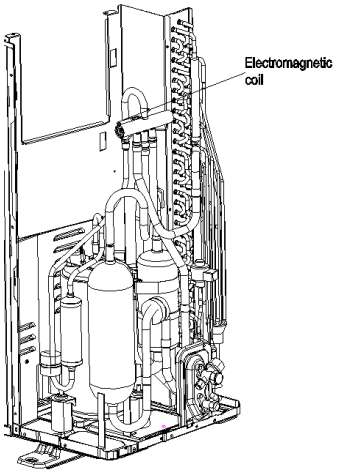
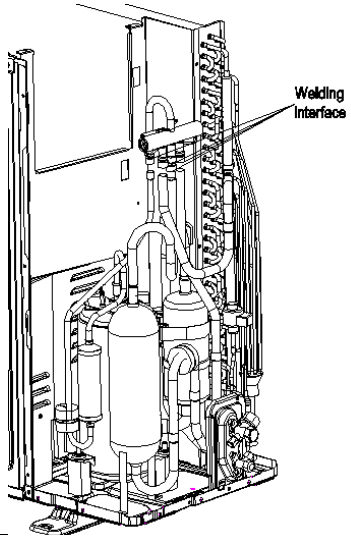
3. Remove the front plate.		• Unscrew the screws of the front plate with a screwdriver.
4. Install the front panel. .		• Tighten up the screws around the front side plate.
5. Install the grill..		• Attach the grill back in place and tighten up the screws.

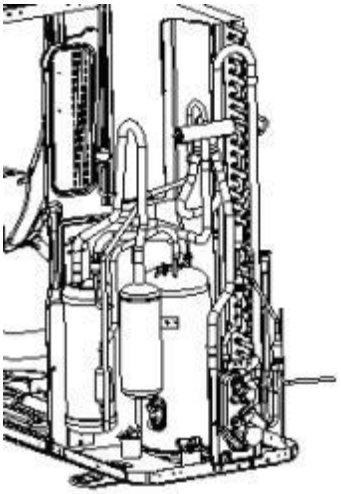
6. Install the upper cover plate.		• Tighten up the screws around the upper cover plate.

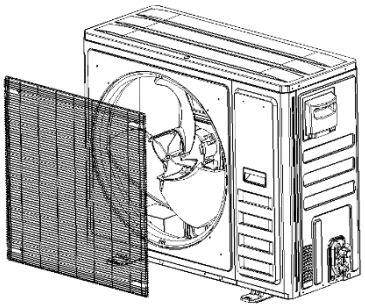
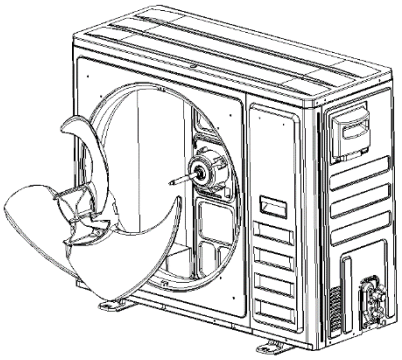
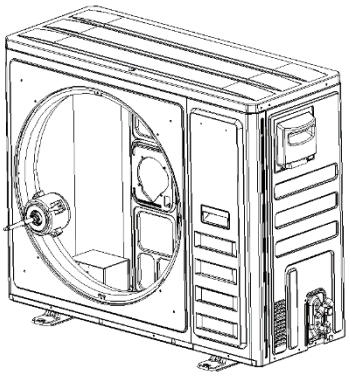
Removal of compressor		
Note: Before removing the compressor, make sure there is no refrigerant in the pipeline and power is cut off.		
Step	**Picture**	**Work instruction**
1. Remove the panels and wires.		• Remove the upper, lower and front panels. • Loosen the securing screws of the wires with a screwdriver. • 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 twist off the screws at the foot of compressor.

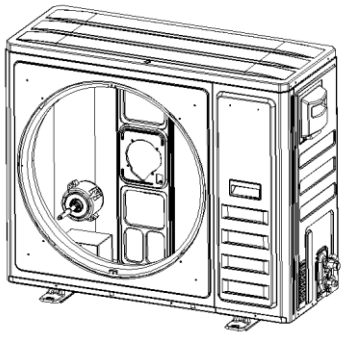
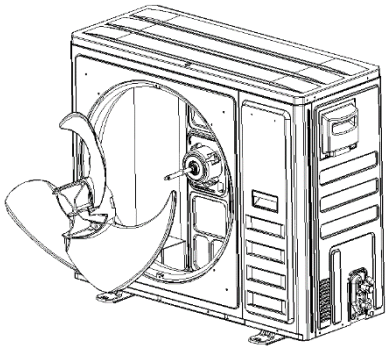
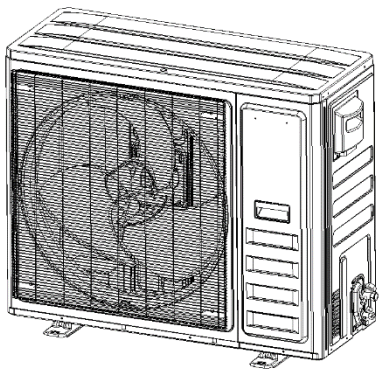
3. Break off the pipes that connecting to the compressor.		• Weld the pipes that are connected to the compressor. • Then remove the pipes. Note: When welding the pipes, do not let the flame burn the other components.
4. Remove the compressor from the chassis.		• Take out the compressor and replace it. 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.

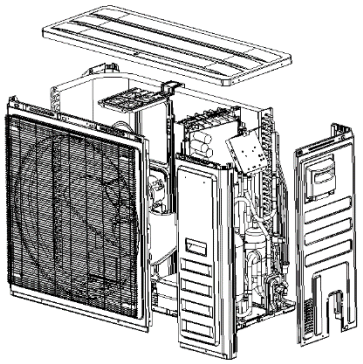
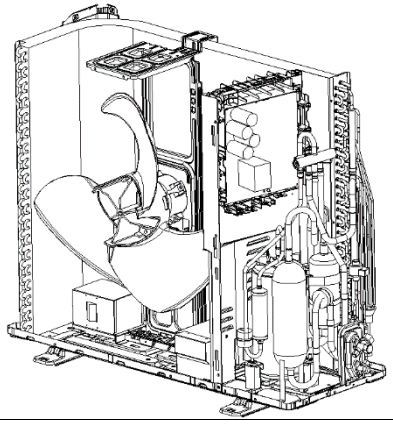
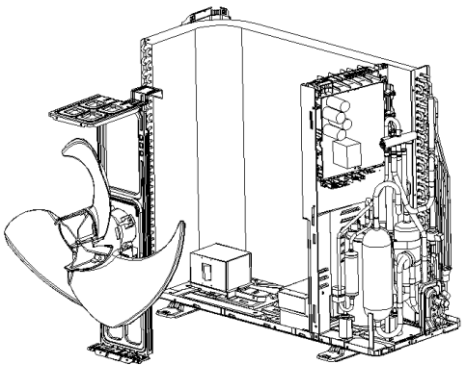
6. Connect the compressor suction port and exhaust port with the pipes.		• Weld the compressor connection pipes and connect them to the compressor. Note: When replacing the compressor, avoid touching the nearby pipeline and components.
7. Connect the compressor wires.		• Connect the compressor wires 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.

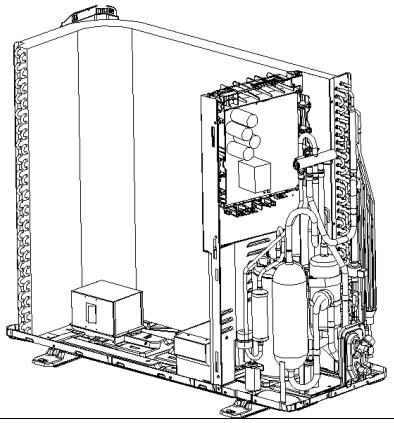
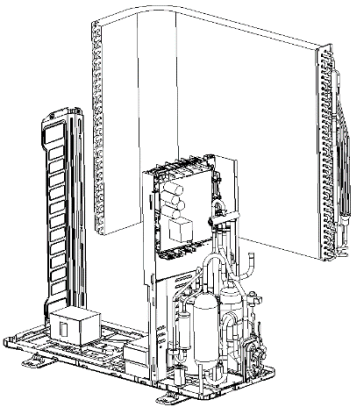
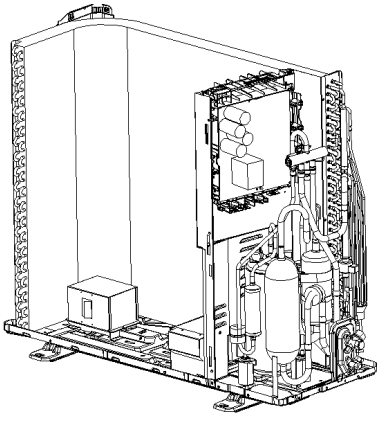
Removal of 4-way valve		
Note: Before removing the 4-way valve, make sure refrigerant is fully discharged from the unit and power is cut off.		
Step	**Picture**	**Work instruction**
1. Take off the electromagnetic coil of the 4-way valve.		● Carefully unscrew the screws of electromagnetic coil with a screwdriver.
2. Break off the connection pipes from the 4-way valve.		● Use a soldering gun to loosen the 4 joints on the 4-way valve and then remove the connection pipes. Note: When welding the pipes, the 4-way valve should be wrapped with wet cloth for cooling. Do not let the flame burn the other components.

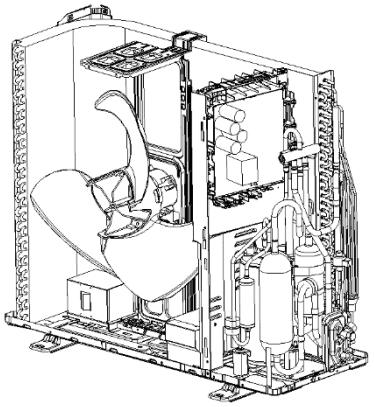
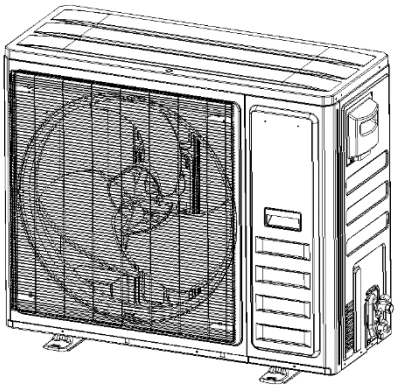
3. Replace the 4-way valve and connect it to the connection pipes.		• Replace the 4-way valve and then use a soldering gun to weld the 4 joints of the 4-way valve. • Tighten up the screws of electromagnetic coil with a screwdriver. Note: When welding the pipes, the 4-way valve should be wrapped with wet cloth for cooling. Do not let the flame burn the other components.

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.

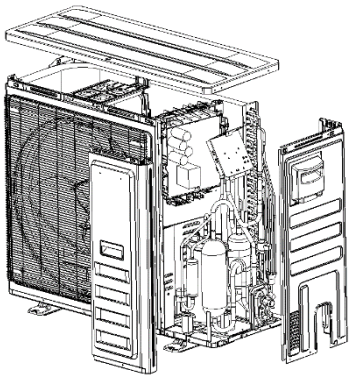
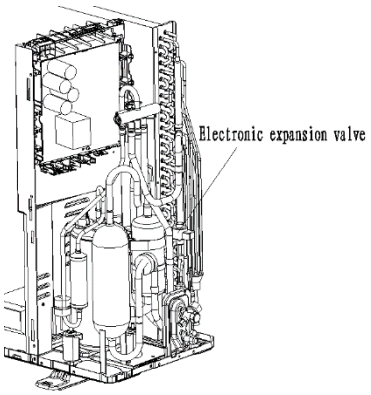
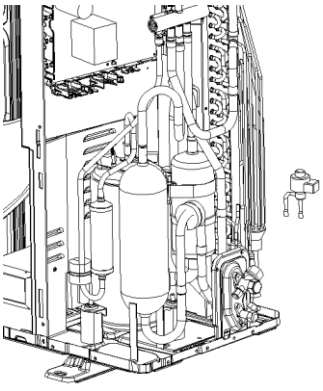
4. Install the motor.		• Replace with a new motor. Then tighten up the screw bolt.
5. Install the fan.		• Install the fan in place. Put on the gasket and use a wrench to secure the screw nut. Note: After installing the fan, turn the fan by hand to see if it can run normally. If not, please check for the reason.
6. Install the grill.		• After replacing the motor, use a screwdriver to tighten up the screw bolt that secures the motor.

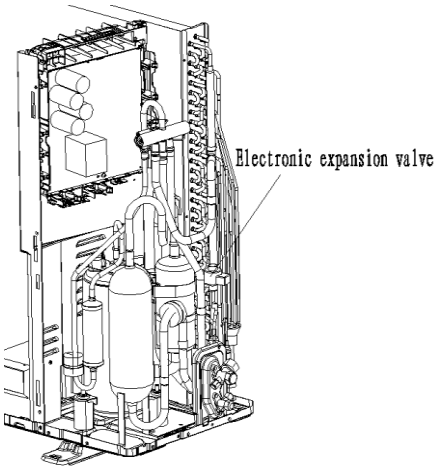
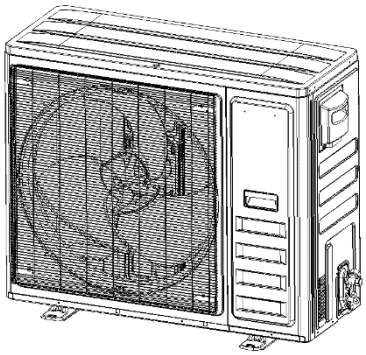
Removal of condenser		
Note: Before removing the condenser, make sure there is no refrigerant in the pipeline and power is cut off.		
Step	**Picture**	**Work instruction**
1. Remove the panels.		• Remove the upper, lower and front panels.
2. Remove the electric box.		• Loosen the wire clamp at the bottom 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 welding points of connection pipes through gas welding until the pipes break off. 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 by referring to the positions of entering and leaving pipes. Weld the connection pipes. • Nitrogen welding: the pressure of nitrogen is 0.5±0.1kgf/ c m (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 OK, place back the upper, left and right side panels.

Model: TCC-48HH/DV7O(02)，TCC-55HH/DV7O(02)

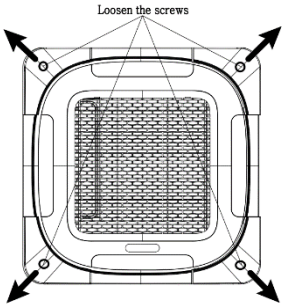
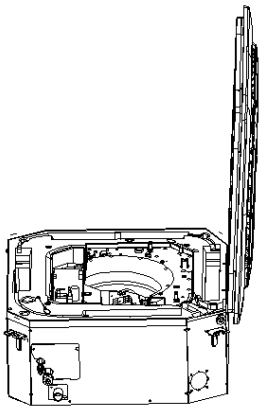
Removal of electronic expansion valve		
Note: Before removing the electronic expansion valve, make sure there is no refrigerant in the pipeline and power is cut off.		
Step	**Picture**	**Work instruction**
1. Remove the panels		● Remove the upper and right side panels.
2. Remove the electronic expansion valve.		● 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 bunt the other components.
3. Take out the electronic expansion valve.		● Take out the electronic expansion valve

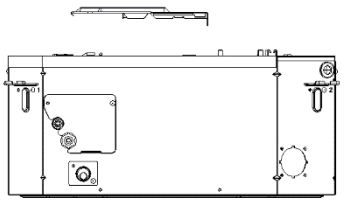
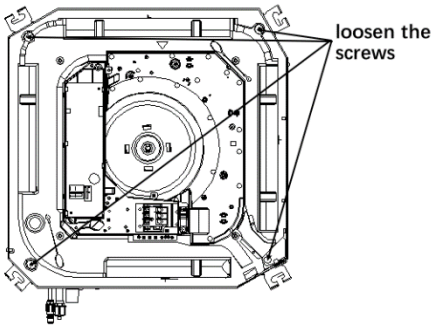
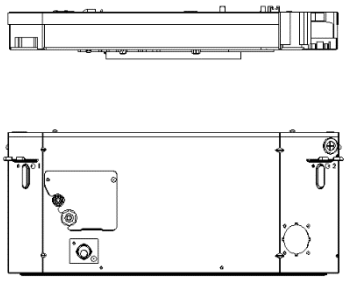
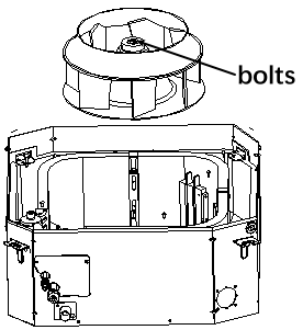
4. Install the new electronic expansion valve.		● Weld the connection pipe of electronic expansion valve. ● When welding the electronic expansion valve, the valve should be wrapped with wet cloth. ● Nitrogen welding: the pressure of nitrogen is 0.5±0. 1kgf/ cm2 (relative pressure). Note: When welding 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 OK, install the upper and right panels. Tighten up the screws.

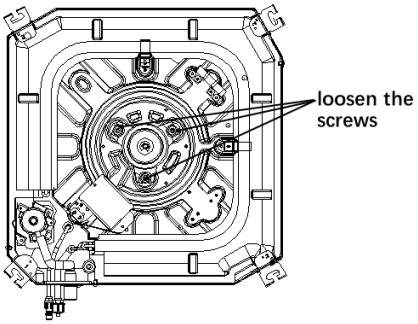
4.5.2 Removal of IDU Major Components

4.5.2.1 Cassette Type Unit

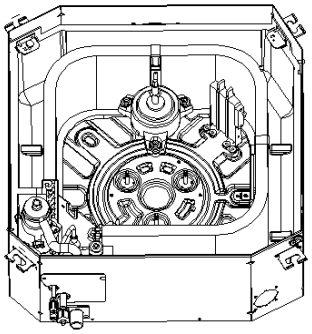
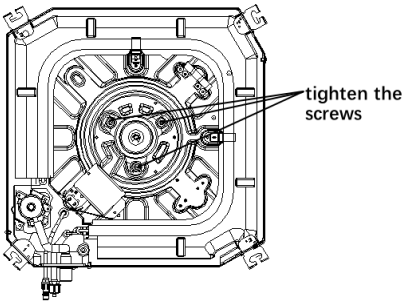
Take model TCC-18HH/DVO(03) as an example.

<table>
<tr><td colspan="3">Removal of fan and motor</td></tr>
<tr><td colspan="3">Note: Before removing the motor, power must be cut off.</td></tr>
<tr><td>Step</td><td>Picture</td><td>Work instruction</td></tr>
<tr><td rowspan="2">1. Remove the front panel.</td><td> 
</td><td rowspan="2">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.</td></tr>
<tr><td>  </td></tr>
</table>

<table>
<tr>
<td>2. Remove the cover of electric box and the clamp of power cord.</td>
<td>  </td>
<td>● Remove the motor wire and water pump of the electric box.</td>
</tr>
<tr>
<td rowspan="2">3. Remove the water tray.</td>
<td> 
</td>
<td rowspan="2">● Loosen the screws in the 4 corners and then remove the water tray.</td>
</tr>
<tr>
<td>  </td>
</tr>
<tr>
<td>4. Remove the fan.</td>
<td> 
</td>
<td>● Use a screwdriver to remove the clamping band of motor. Then remove the fan.</td>
</tr>
</table>

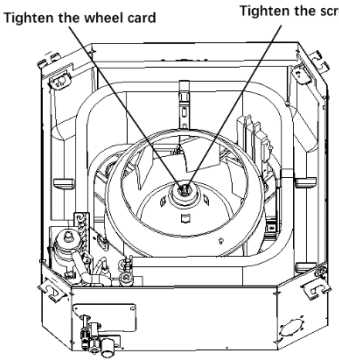
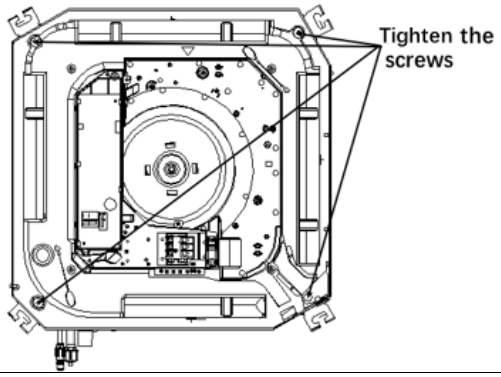
<table>
<tr>
<td rowspan="2">5. Remove motor.</td>
<td> 
</td>
<td rowspan="2">

Use a screwdriver to unscrew the 4 screws of motor.
Then remove the motor.

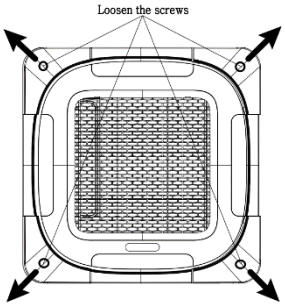
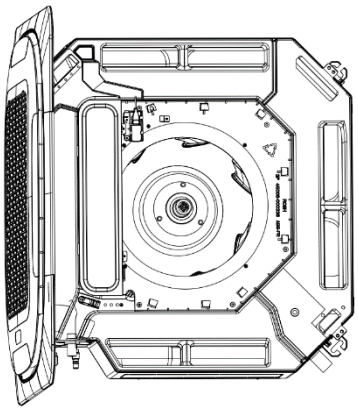
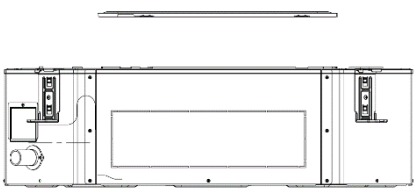
</td>
</tr>
<tr>
<td>  </td>
</tr>
<tr>
<td>6. Replace and install the motor.</td>
<td> 
</td>
<td>

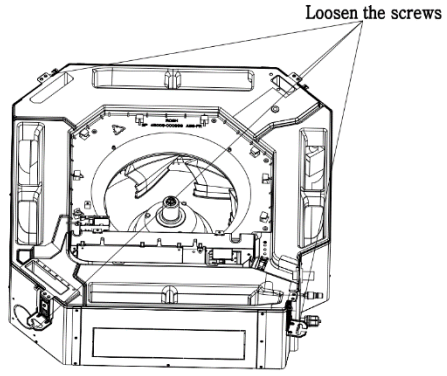
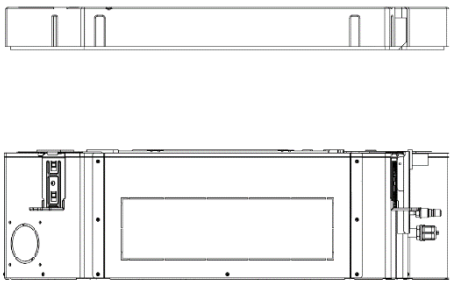
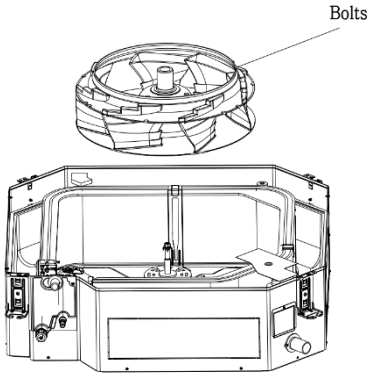
Remove the motor from motor support and then replace with a new motor.
Tighten the 4 screws of motor with a screwdriver.

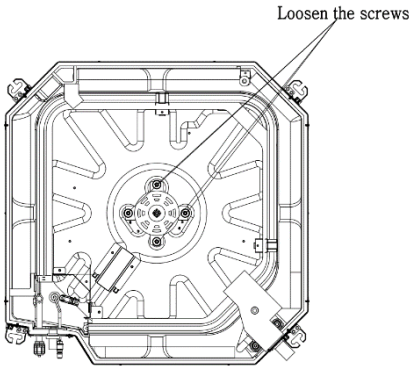
</td>
</tr>
</table>

7. 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.
8. 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.

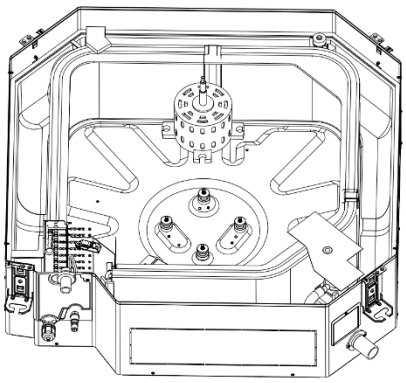
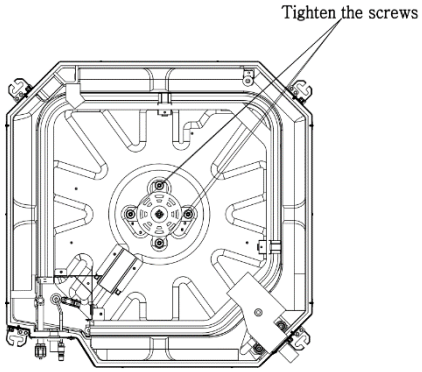
Take model TCC-55CHRH/DVI(02) as an example.

<table>
<tr><td colspan="3">Removal of fan and motor</td></tr>
<tr><td colspan="3">Note: Before removing the motor, power must be cut off.</td></tr>
<tr><td>Step</td><td>Picture</td><td>Work instruction</td></tr>
<tr><td rowspan="2">1. Remove the front panel.</td><td> 
</td><td rowspan="2">● 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.</td></tr>
<tr><td>  </td></tr>
<tr><td>2. Remove the cover of electric box and the clamp of power cord.</td><td>  </td><td>● Remove the motor wire and water pump of the electric box.</td></tr>
</table>

<table>
<tr>
<td rowspan="2">3. Remove the water tray.</td>
<td> 
</td>
<td rowspan="2">● Loosen the screws in the 4 corners and then remove the water tray.</td>
</tr>
<tr>
<td>  </td>
</tr>
<tr>
<td>4. Remove the fan.</td>
<td> 
</td>
<td>● Use a screwdriver to remove the clamping band of motor. Then remove the fan.</td>
</tr>
</table>

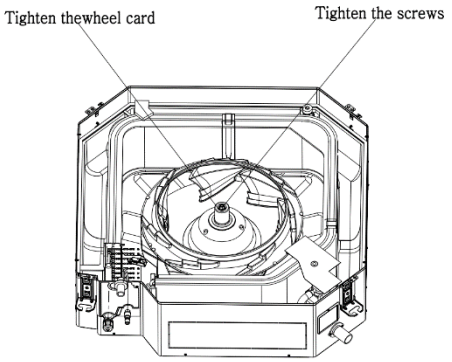
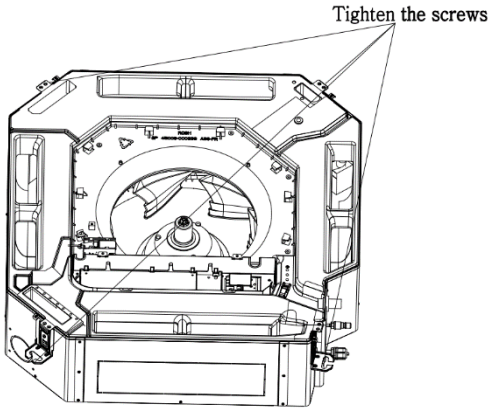
<table>
<tr>
<td rowspan="2">5. Remove motor.</td>
<td> 
</td>
<td rowspan="2">

Use a screwdriver to unscrew the 4 screws of motor. Then remove the motor.

</td>
</tr>
<tr>
<td>  </td>
</tr>
<tr>
<td>6. Replace and install the motor.</td>
<td> 
</td>
<td>

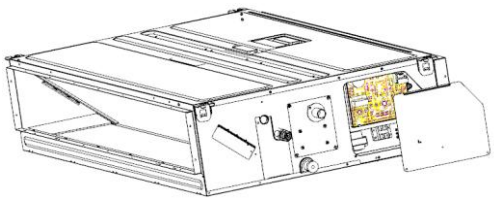
Remove the motor from motor support and then replace with a new motor.
Tighten the 4 screws of motor with a screwdriver.

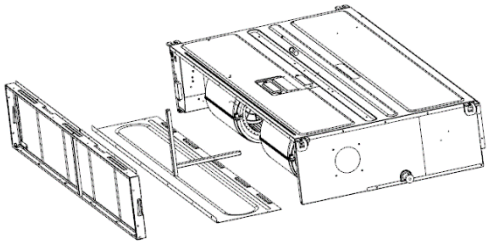
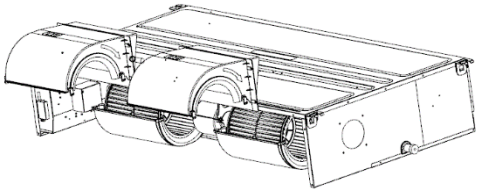
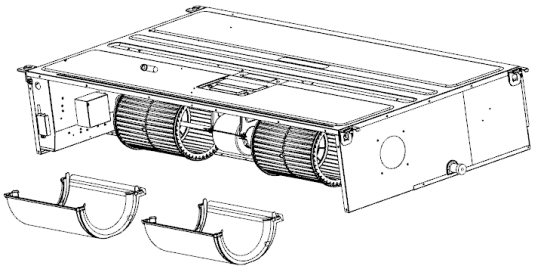
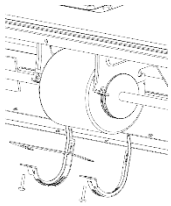
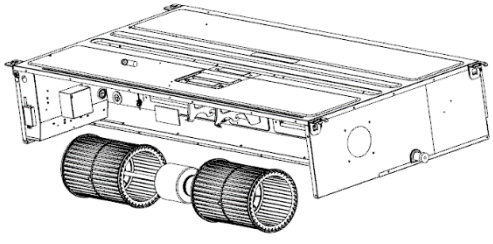
</td>
</tr>
</table>

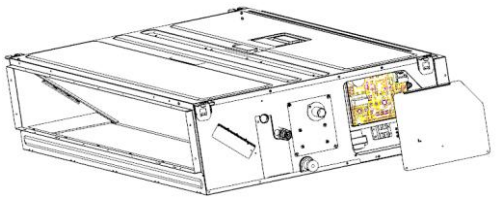
7. Install the fan.		• Direct the hole of fan to the motor shaft and then mount on the fan. • Tighten the clamping band of motor with a wrench.
8. Install the water tray and electric box.		• Direct the 4 corners of water tray to the 4 corners of the unit and then press them. Use a screwdriver to tighten 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

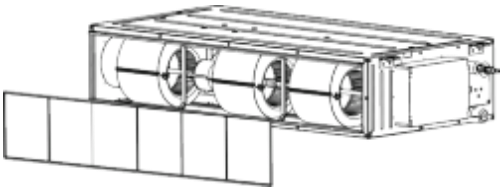
Take model TCC-55D2HWH/DVI(02) as an example.

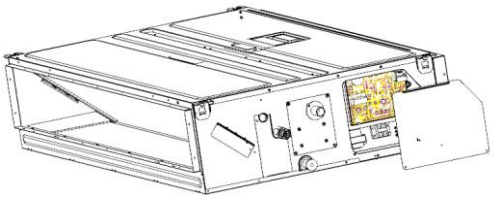
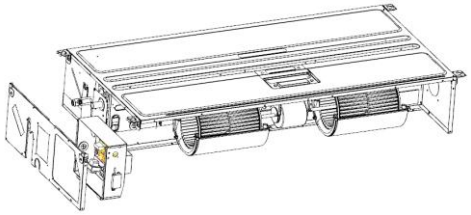
Removal of fan and motor		
Note: Before removing the motor, make sure power is cut off.		
Step	Picture	Work instruction
1. Remove the cover of electric box.		• Turn off the power supply of indoor unit. Use a screwdriver to remove the cover of electric box. Disconnect the motor wire inside the electric box.

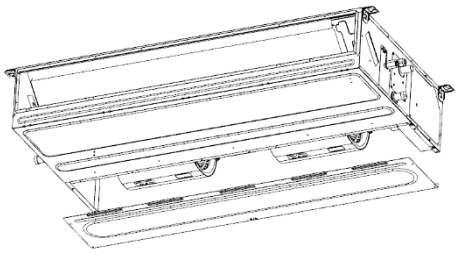
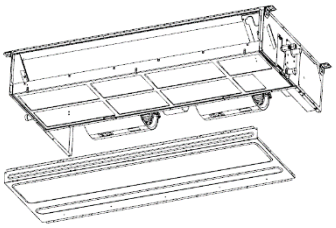
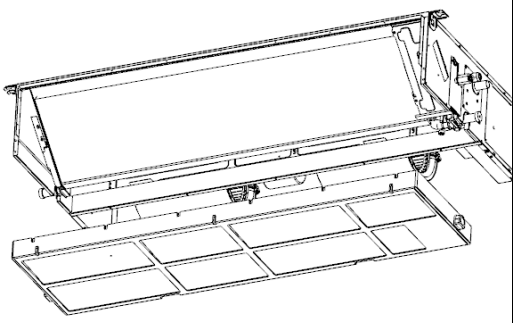
2. Remove air return plate, the longitudinal component and air return frame.		• Use a hex wrench to loosen the screws of fan. • Order of removal: air return plate, air return frame, longitudinal component, cross beam
3. Remove the upper volute.		• Loosen the screws of upper volute and then pull out the 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.

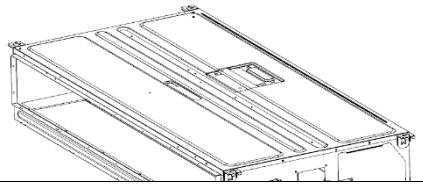
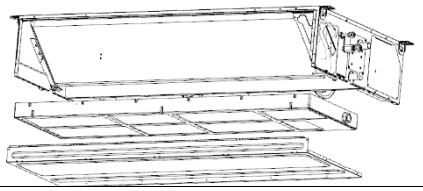
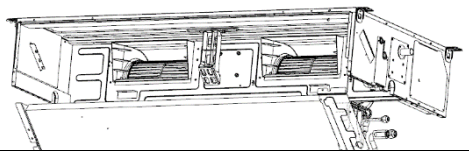
7. Re-install the device in a reverse order of the removal procedure.		• Re-install the device in a reverse order of the removal procedure. Then connect power and test it.

Take model TCC-55D2HWH/DVI(02) as an example.

Removal of air return filter		
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 air return filter.		• Press the air return filters on the guide way sponge. There are 2 or 3 air return filters.

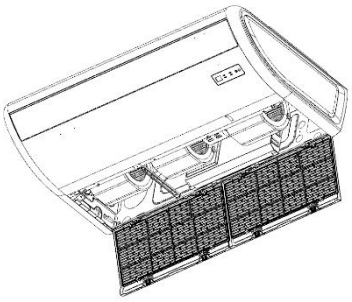
Removal of the cover of electric box and the electric box		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components, especially the electric components. Do not hit or beat.		
Step	Picture	Work instruction
1. Remove the cover of electric box.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

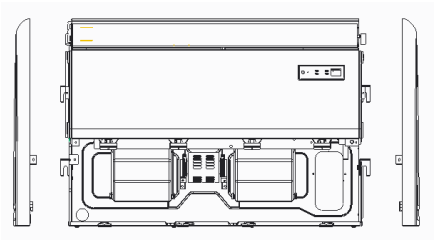
<table>
<tr><th colspan="3">Removal of water tray</th></tr>
<tr><td colspan="3">Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components.</td></tr>
<tr><th>Step</th><th>Picture</th><th>Work instruction</th></tr>
<tr><td rowspan="2">1. Remove the cover plate.</td><td>  </td><td rowspan="2">● 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.)</td></tr>
<tr><td>  </td></tr>
<tr><td>2. Remove the water tray.</td><td>  </td><td>● Loosen the screws of water trap. Pull it up and remove it. The removed water tray is as shown in the picture.</td></tr>
</table>

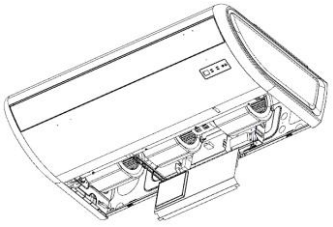
Removal of evaporator		
Note: Make sure power is cut off. Take good care of the copper pipe and aluminum fins. If the removal takes a long time, please put the copper pipe under pressure.		
Step	Picture	Work instruction
1. Remove the screws on the side plate of evaporator.		● Remove the screws of evaporator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

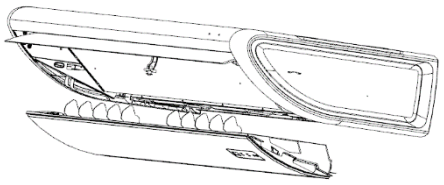
4.5.2.3 Floor Ceiling Unit

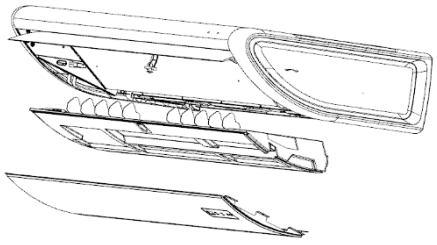
Take model TCC-55ZHRH/DVI(02) as an example.

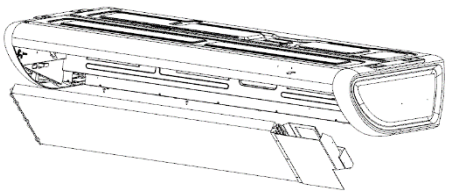
Removal of front grill		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components. Do not place the filter near any heat source.		
Step	Picture	Work instruction
Remove the sub-assembly of front grill.		• Twist off the 2 hooks of the grill and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

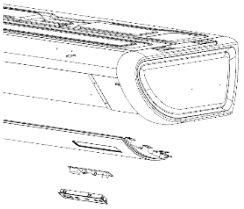
Remove the right and left decorative boards		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components. Do not scratch the appearance components.		
Step	Picture	Work instruction
Remove the left and right panels.		• Use a screwdriver to loosen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

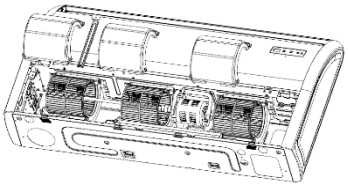
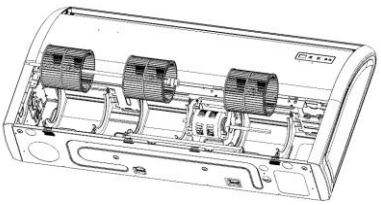
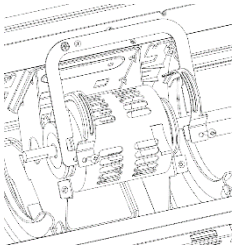
Removal of electric box assembly		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components, especially the components in electric box. Protect it from water and collision.		
Step	Picture	Work instruction
Remove the electric box.		• Unscrew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

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 off the connectors from the swing motor. (As shown in the picture, the lines indicate the supporting assembly.)

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.

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 off 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.

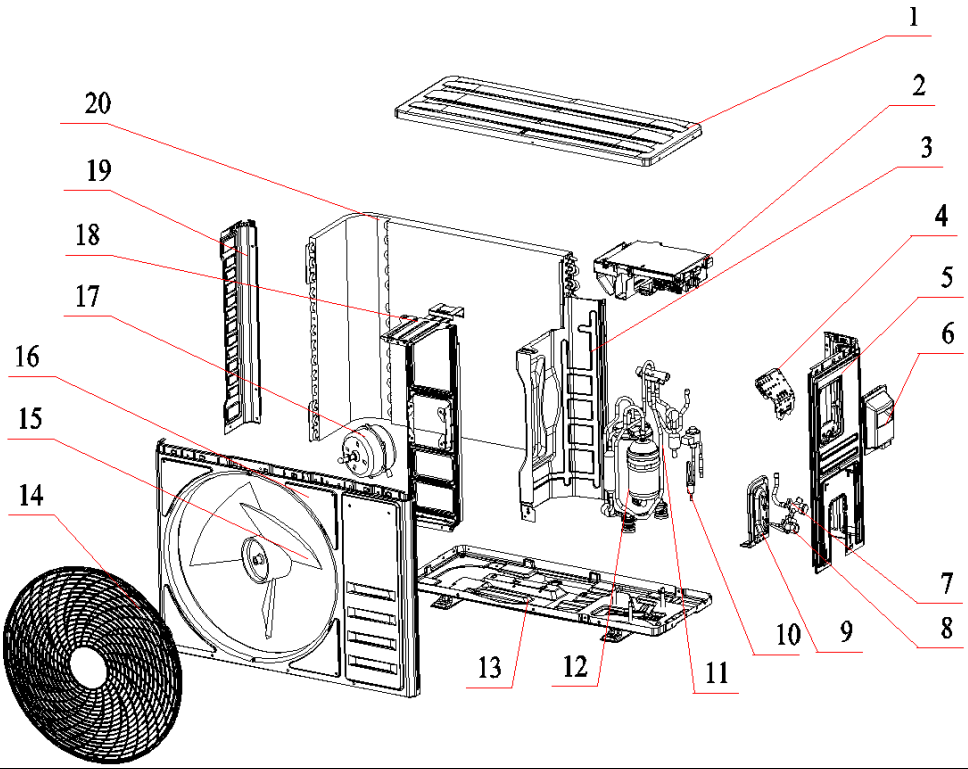
Removal of display panel and fan assembly		
Note: Before removal, make sure power is cut off. During the removal procedure, take good care of all the components.		
Step	Picture	Work instruction
Remove the display panel and fan assembly.		• First remove the display panel, next the bracket and then the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

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
1. 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.
2. Remove the fan.		• Loosen the 1 screws of the coupler. Take out the shaft and axial flow fan. Loosen the screws of axial flow fan and remove the axial flow fan.
3. Remove the motor		• Loosen the 2 screws of the motor securing clip. Remove the motor securing clip and its assembly.

4.6 Explosive View and Lists of Parts

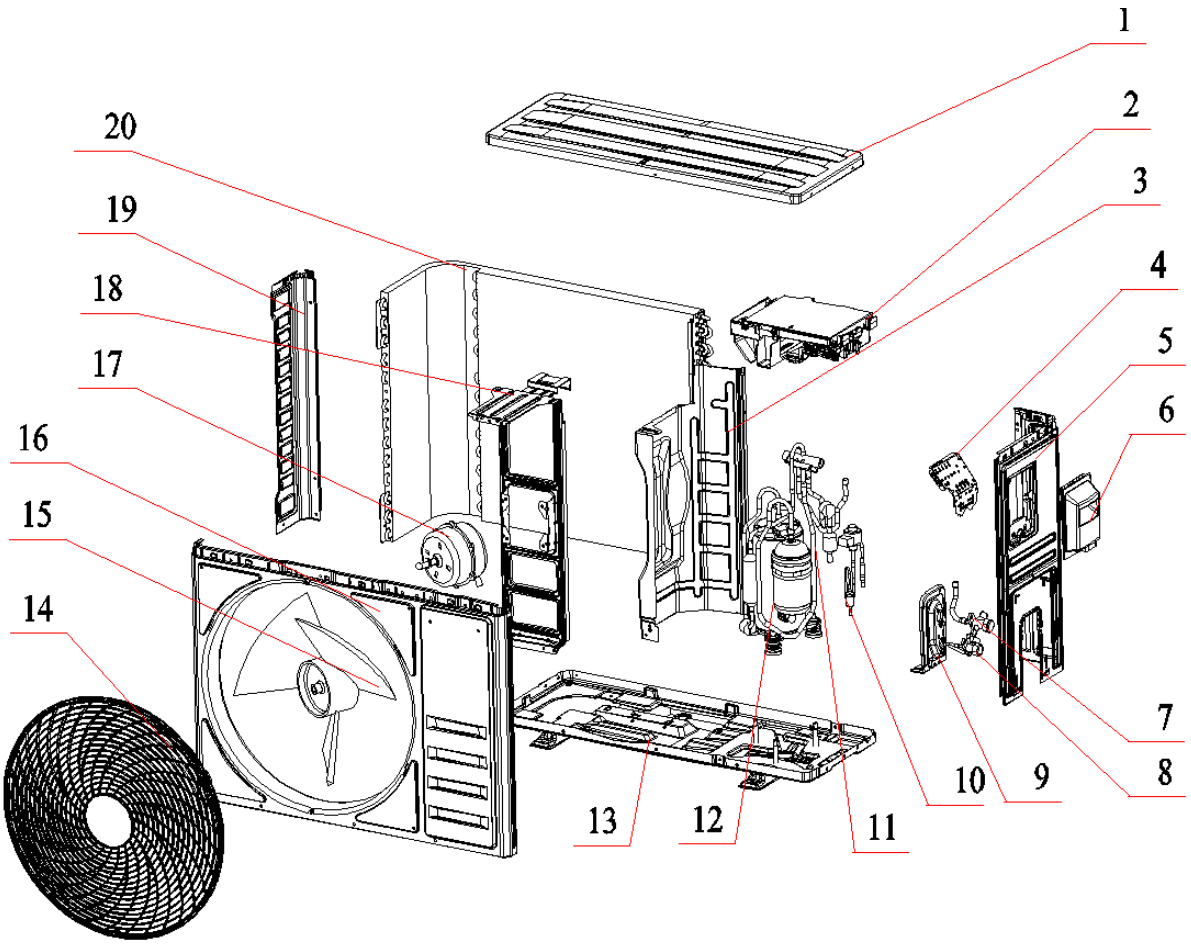
4.6.1 ODU Explosive View and Lists of Parts

TCC-18HH/DVO(03) (Product Code: Z2U30307001393)



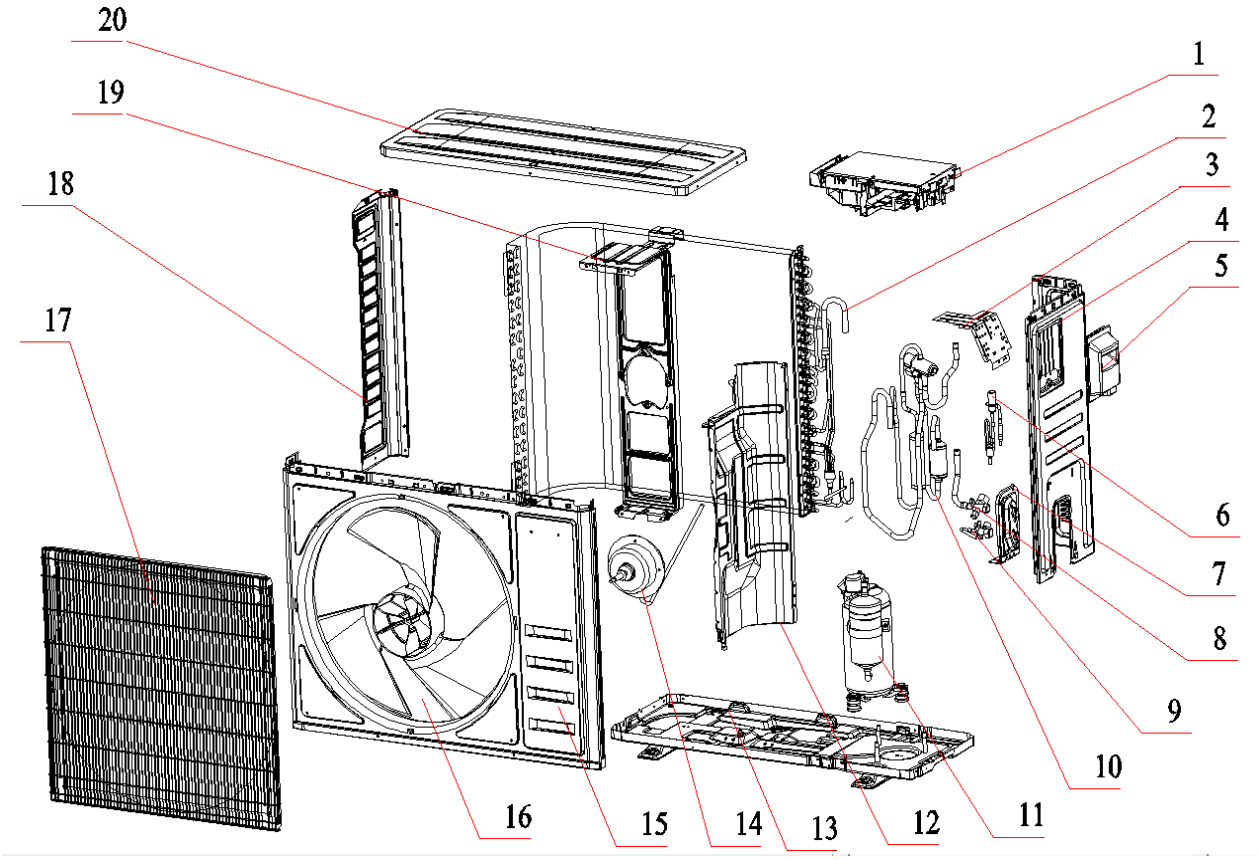
No.	Material Name	Finished Product Code	Quantity
1	top cover	41207-000033	1
2	Electrical component	31201-003493	1
3	Partition plate	41208-001054	1
4	Electrical Control Mounting Plate	45006-001538	1
5	right panel	41205-000870	1
6	Electricl Box Cover	41201-000015	1
7	Three-way valve	92007-001066	1
8	Two-way valve	92007-018937	1
9	valve supporter	41204-000020	1
10	Electronic Expansion Valve Assembly	92007-019526	1
11	Four-way valve module	92007-020601	1
12	Compressor	92014-000929	1
13	Base assembly	41202-000524	1
14	Fan guard	42011-000090	1
15	Propeller Fan	42004-000245	1
16	front panel	41206-000211	1
17	ODU motor	22001-000493	1
18	Motor Supporter	41203-000052	1
19	left plate	41205-000119	1
20	Condenser assembly	95003-004369	1

TCC-18HRH/DVO(02) (Product Code: Z2U30307001090)



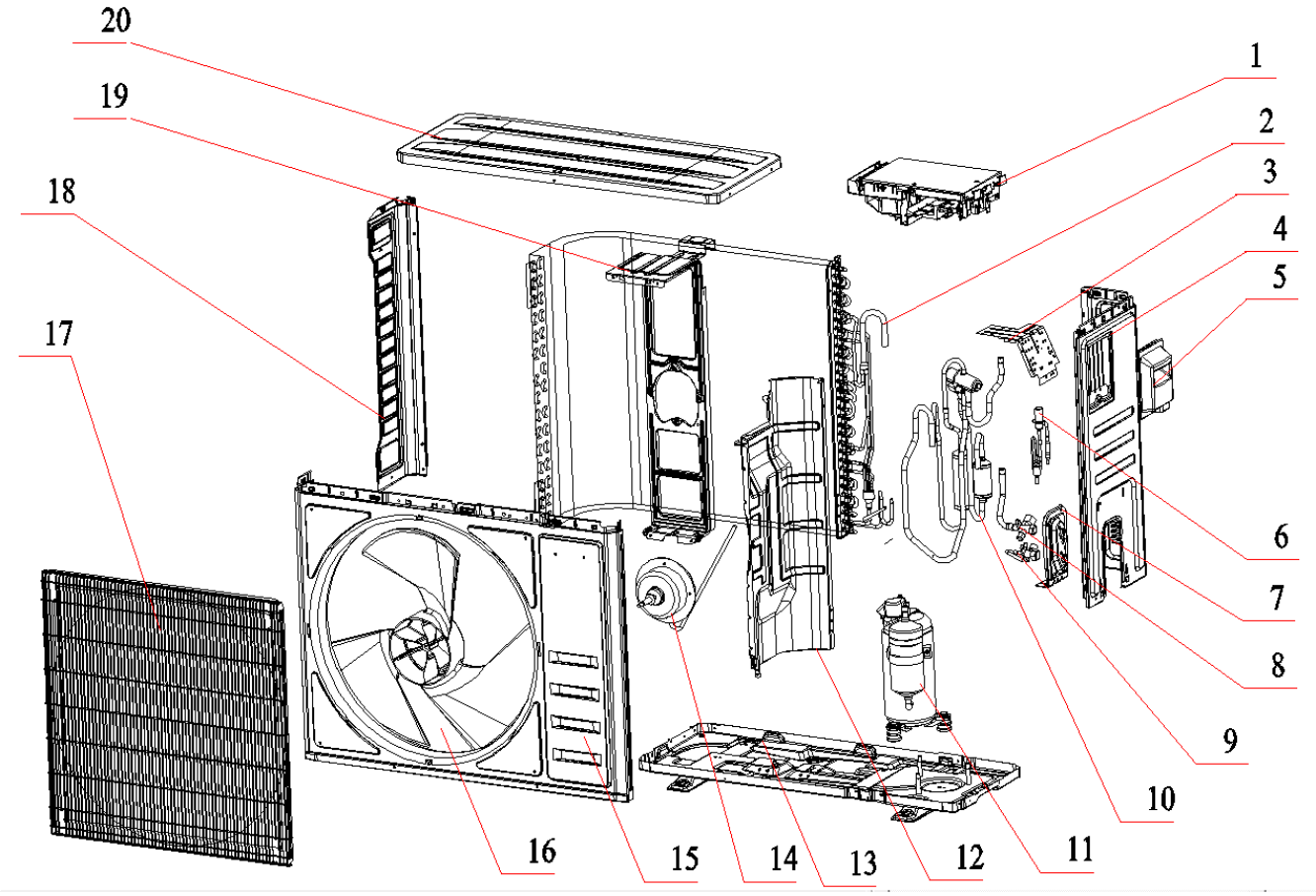
No.	Material Name	Finished Product Code	Quantity
1	top cover	41207-000033	1
2	Electrical component	32099-040530	1
3	Partition plate	41208-001054	1
4	Electrical Control Mounting Plate	45006-001538	1
5	right panel	41205-000870	1
6	Electricl Box Cover	41201-000015	1
7	Three-way valve	92007-001041	1
8	Two-way valve	92007-018937	1
9	valve supporter	41204-000020	1
10	Electronic Expansion Valve Assembly	92007-019526	1
11	Four-way valve module	92007-018992	1
12	Compressor	92014-000929	1
13	Base assembly	41202-000524	1
14	Fan guard	42011-000090	1
15	Propeller Fan	42004-000245	1
16	front panel	41206-000211	1
17	ODU motor	22001-000493	1
18	Motor Supporter	41203-000052	1
19	left plate	41205-000119	1
20	Condenser assembly	95003-004369	1

TCC-24HRH/DVO(02) (Product Code: Z2U30307001091)



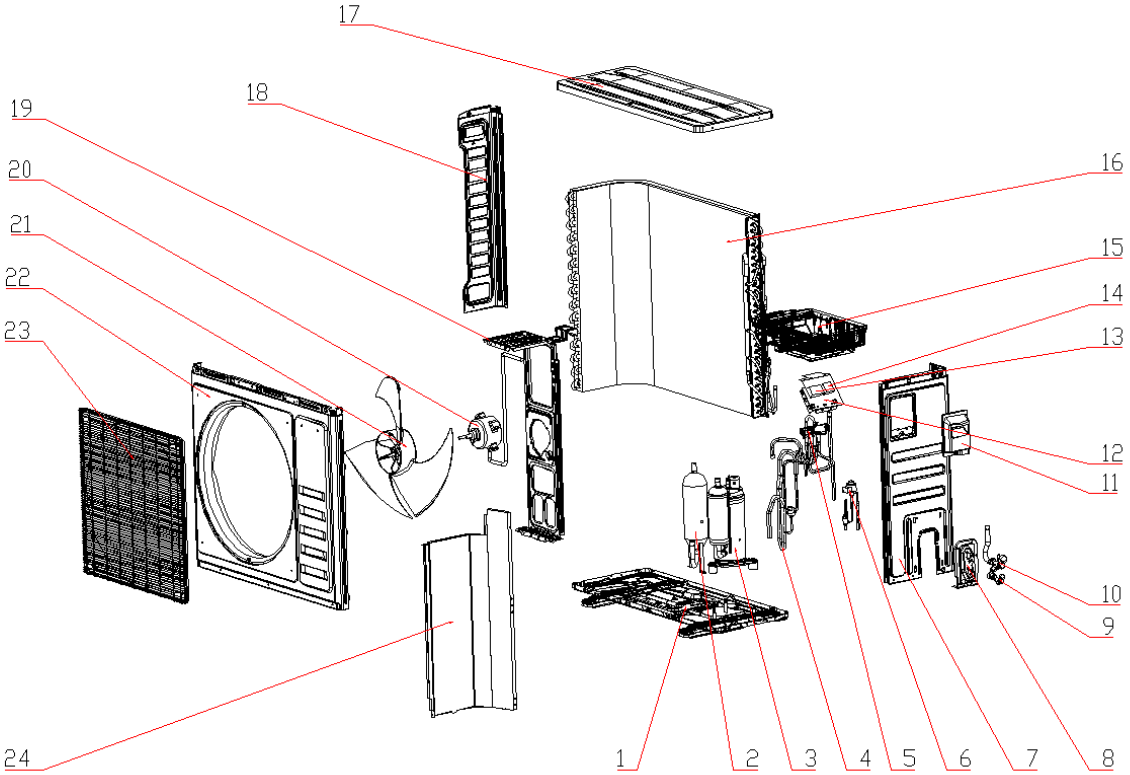
No.	Material Name	Finished Product Code	Quantity
1	Electrical assembly	35001-000680	1
2	Condenser assembly	95003-004370	1
3	Electrical Control Mounting Plate	45006-001539	1
4	right plate	41205-000868	1
5	Electricl Box Cover	41201-000010	1
6	Electronic Expansion Valve Assembly	95015-001966	1
7	valve supporter	41204-000020	1
8	Three-way valve	92007-001042	1
9	Two-way valve	92007-001052	1
10	Four-way valve module	92007-019200	4
11	Compressor	92014-000857	1
12	Partition plate	41208-001053	1
13	Base assembly	41202-000521	1
14	OUD motor	22001-000602	1
15	front panel	41206-000252	1
16	Propeller Fan	42004-000249	1
17	Fan guard	42011-000031	1
18	Left plate	41205-000117	1
19	Motor bracket assembly	41203-000032	1
20	top cover	41207-000028	1

TCC-30HH/DVO(02) (Product Code: Z2U30307001263)



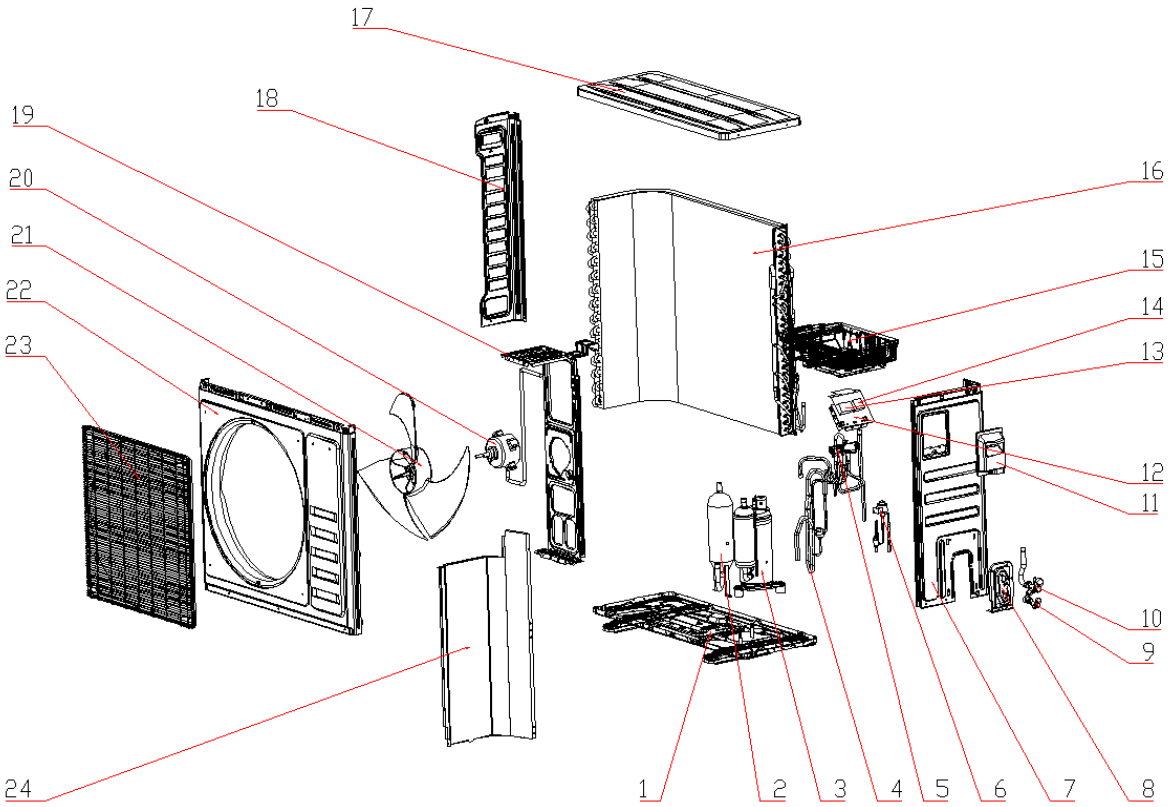
No.	Material Name	Finished Product Code	Quantity
1	Electrical assembly	31201-003102	1
2	Condenser assembly	95003-004370	1
3	Electrical Control Mounting Plate	45006-001539	1
4	right plate	41205-000868	1
5	Electricl Box Cover	41201-000010	1
6	Electronic Expansion Valve Assembly	95015-001966	1
7	valve supporter	41204-000020	1
8	Three-way valve	92007-005289	1
9	Two-way valve	95015-002087	1
10	Four-way valve module	92007-019200	1
11	Compressor	92014-000934	1
12	Partition plate	41208-001053	1
13	Base assembly	41202-000521	1
14	OUD motor	22001-000605	1
15	front panel	41206-000252	1
16	Propeller Fan	42004-000249	1
17	Fan guard	42011-000031	1
18	Left plate	41205-000117	1
19	Motor bracket assembly	41203-000032	1
20	top cover	41207-000028	1

TCC-36HH/DVO(02) (Product Code: Z2U30307001105)

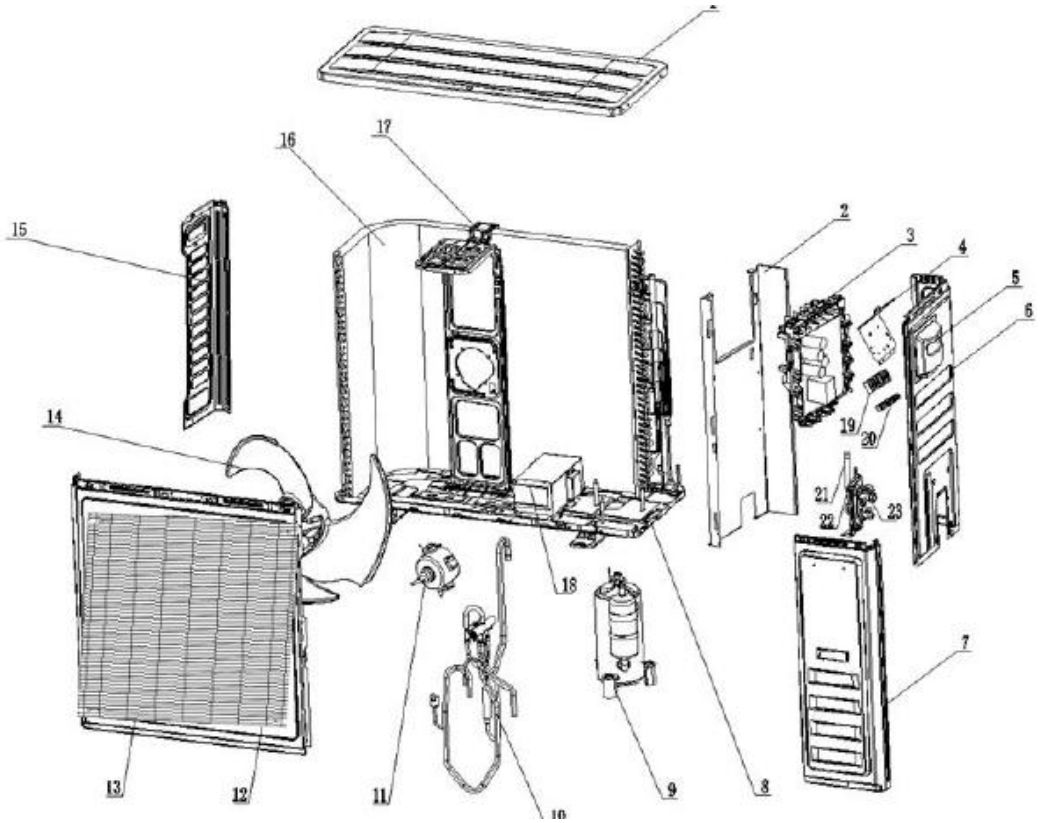


No.	Material Name	Finished Product Code	Quantity
1	Base assembly	41202-000573	1
2	gas liquid separator	92003-000196	1
3	Compressor	95017-000031	1
4	Suction Tube Assemblies	92006-009114	1
5	Four-way valve assembly	95015-001962	1
6	Electronic Expansion Valve Assemblies	92007-020052	1
7	right panel	41205-000784	1
8	valve supporter	41204-000020	1
9	Two-way valve	92007-020045	1
10	Three-way valve	92007-005289	1
11	Electricl Box Cover	45014-003070	1
12	Electrical mounting plate	41211-000280	1
13	terminal L/N/L/N	11304-100141	1
14	terminal-485 Communication Terminal	35005-000151	1
15	Electronic components	35001-000682	1
16	Condenser assembly	92011-010761	1
17	top cover	41207-000048	1
18	Left panel assembly	41205-000651	1
19	Motor Supporter	41203-000115	1
20	ODU motor	22001-000605	1
21	Propeller Fan	42004-000249	1
22	front panel	41206-000076	1
23	fan guard	42011-000031	1
24	Partition plate	41208-001074	1

TCC-42HH/DVO(02) (ProductCode: Z2U30307001250)



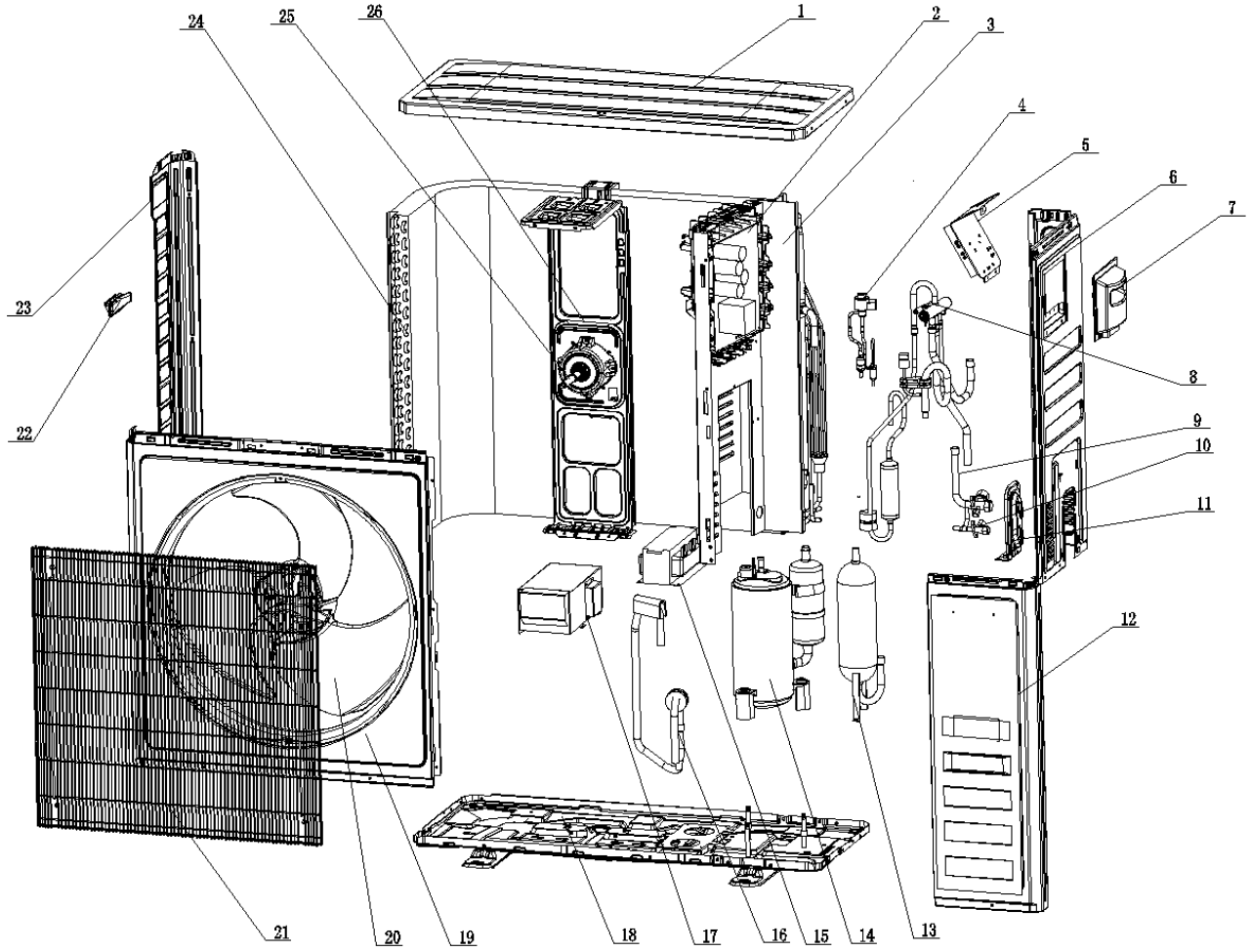
No.	Material Name	Finished Product Code	Quantity
1	Base assembly	41202-000573	1
2	gas liquid separator	92003-000196	1
3	Compressor	95017-000031	1
4	Suction Tube Assemblies	92006-009114	1
5	Four-way valve assembly	95015-001962	1
6	Electronic Expansion Valve Assemblies	95015-002053	1
7	right panel	41205-000784	1
8	valve supporter	41204-000020	1
9	Two-way valve	92007-020045	1
10	Three-way valve	92007-005289	1
11	Electricl Box Cover	45014-003070	1
12	Electrical mounting plate	41211-000280	1
13	terminal L/N/L/N	11304-100141	1
14	terminal-485 Communication Terminal	35005-000151	1
15	Electronic components	35001-000682	1
16	Condenser assembly	92011-010761	1
17	top cover	41207-000048	1
18	Left panel assembly	41205-000651	1
19	Motor Supporter	41203-000115	1
20	ODU motor	22001-000605	1
21	Propeller Fan	42004-000249	1
22	front panel	41206-000076	1
23	fan guard	42011-000031	1
24	Partition plate	41208-001074	1



TCC-48HH/DV7O(02) (Product Code: Z2U30307001242)

No.	Material Name	Finished Product Code	Quantity
1	top cover	45007-000096	1
2	Partition plate	45014-005433	1
3	Electrical component	31201-003116	3
4	Electrical Control Mounting Plate	45006-001444	1
5	Electricl Box Cover	41201-000001	1
6	Right back side panel	45003-000325	1
7	Right front side panel	45003-000324	1
8	Base assembly	45004-000533	1
9	Compressor	92014-000900	1
10	Four-way valve assembly	92007-020800	1
11	ODU motor	25001-000415	1
12	front panel	45013-000265	1
13	Fan guard	42011-000490	1
14	Propeller Fan	45009-000093	1
15	left panel	45003-000326	1
16	Condenser assembly	95003-004642	3
17	Motor Supporter	45005-000538	1
18	reactor	22011-000029	1
19	Power Terminal block	11304-100142	1
20	Clamp	42001-000106	1
21	Three-way valve	92008-000116	1
22	valve supporter	41204-000020	1
23	Two-way valve	92007-020045	1

TCC-55HH/DV7O(02) (Product Code: Z2U30307001251)

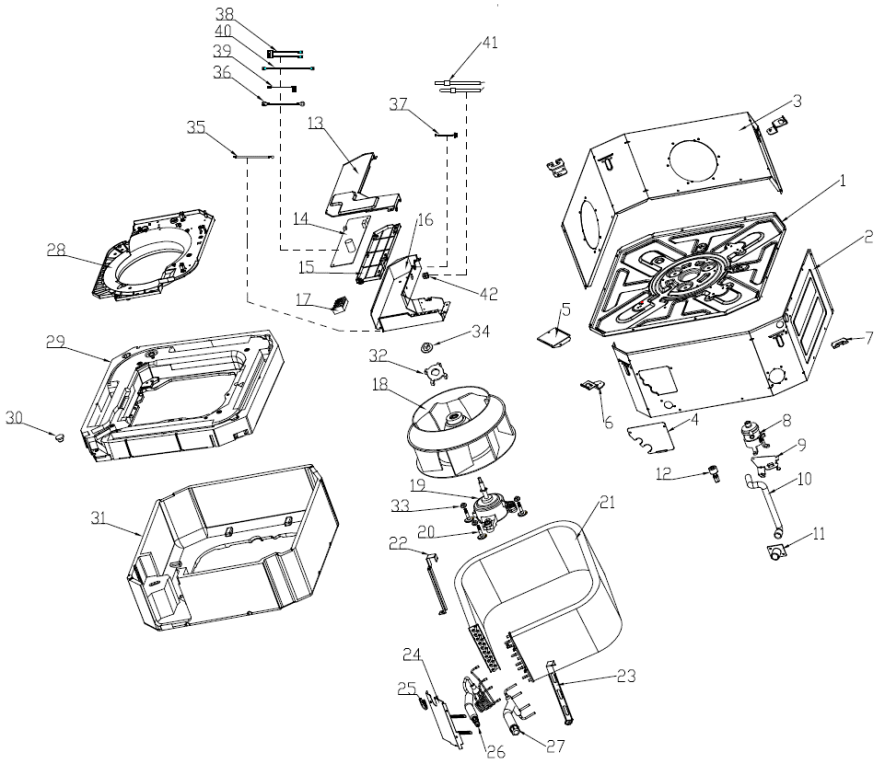


No.	Material Name	Finished Product Code	Quantity
1	top cover	45007-000096	1
2	Electrical assembly	31201-003118	1
3	Partition assembly	45014-005558	1
4	Electronic Expansion Valve Assembly	95015-002156	1
5	Electrical Control Mounting Plate	45006-001726	1
6	Right back side panel	45003-000325	1
7	Electricl Box Cover	41201-000001	1
8	Four-way valve module	92007-021092	1
9	three-way valve	92008-000116	1
10	Two-way valve	92007-020045	1

No.	Material Name	Finished Product Code	Quantity
11	valve supporter	41204-000020	1
12	Right front side panel assembly	45003-000342	1
13	gas-liquid separator	92003-000196	1
14	Compressor	95017-000205	1
15	reactor	25009-000236	1
16	Inlet Pipe Module	92007-021097	1
17	Reactor cover assembly	45006-001777	1
18	Base assembly	41202-000656	1
19	front panel	45013-000265	1
20	Propeller Fan	45009-000093	1
21	Fan guard	42011-000490	1
22	Left Handle	41201-000038	1
23	Left panel assembly	45003-000343	1
24	Condenser assembly	95003-004763	1
25	ODU motor	25001-000415	1
26	Motor Supporter	45005-000538	1

4.6.2 IDU Explosive View and Lists of Parts

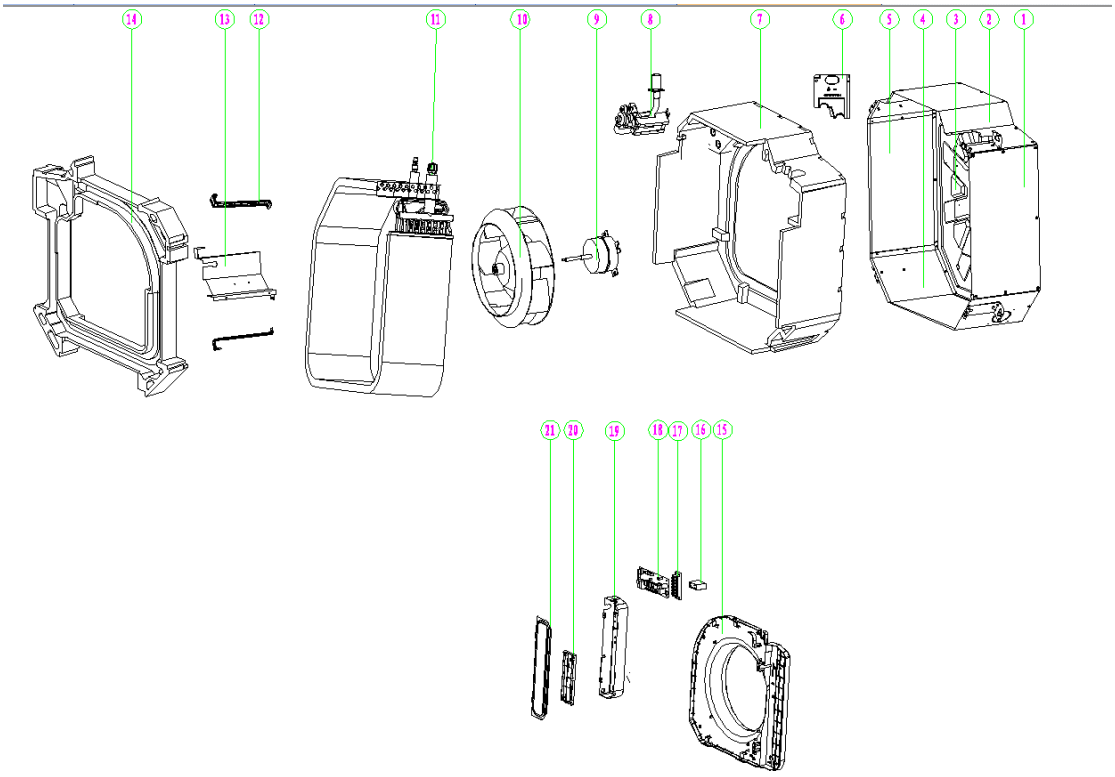
TCD-18CHRH/DVI(Q8) (Product Code Z2U30303001023)



No.	Material Name	Finished Product Code	Quantity
1	Base assembly	45004-000651	1
2	dash panel	45901-000138	1
3	back surround plate	45901-000139	1
4	Outlet tube sealing plate assembly	45901-000140	1
5	clamp	45002-000336	1
6	Hook1	45014-005467	1
7	Hook2	45014-005469	1
8	water pump	22015-000029	1
9	DC Pump Mounting Supporter	45014-005473	1
10	drainage pipe	95004-001470	1
11	Drainage pipe joint	45014-005472	1
12	water level switch	25006-000068	1
13	Electrical box cover	45006-001702	1
14	Main PCB assembly	35004-001899	4
15	PCB Box	45901-000130	1
16	Electrical box assembly	45006-001767	1
17	terminal	11304-100159	1

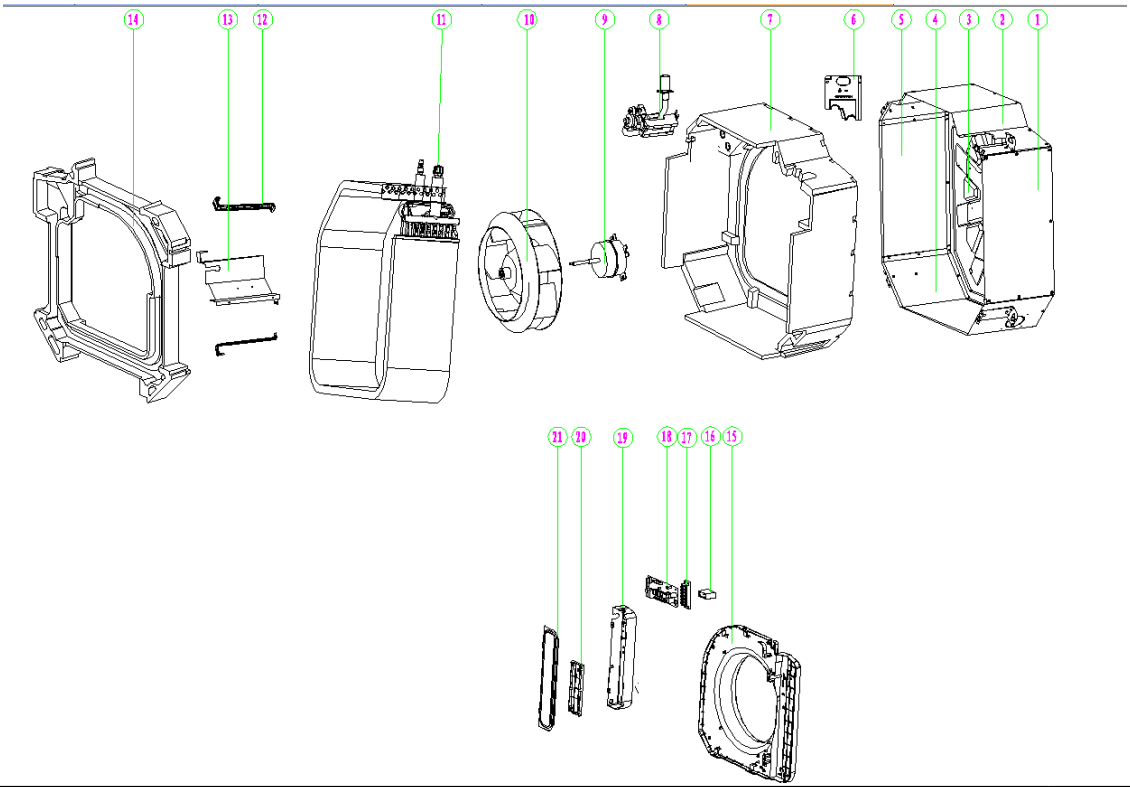
No.	Material Name	Finished Product Code	Quantity
18	Propeller Fan	42004-000296	1
19	DC motor	25001-000441	1
20	Motor fixing screws	50515-100001	3
21	Evaporator assembly	95003-005113	1
22	Evaporator fixing hook 2	45014-005471	1
23	Evaporator fixing hook 1	45014-005470	1
24	Evaporator fixing plate assembly	95003-005255	1
25	Clamp	41214-000519	1
26	Evaporator input tube assembly	95016-001772	1
27	Evaporator output tube assembly	95016-001774	1
28	Wind deflector	45008-000455	1
29	Water pan assembly	45011-000198	1
30	drain plug	45014-005531	1
31	Base Foam Component	45004-000653	1
32	Fan fixing plate	45008-000249	1
33	nuts	50610-450006	3
34	locknut	50610-100052	1
35	grounding wire	22007-000391	2
36	Main board earth wire	22007-001221	1
37	Stepper Motor Docking Wiring	35006-001006	2
38	PCB power supply cable	35006-000469	1
39	single branch line	35003-000431	2
40	single branch line	35003-000415	1
41	thermistor	25004-000310	1
42	Clip	45002-000339	1

TCC-18CHRH/DV(02) (Product Code: Z2U30303001109



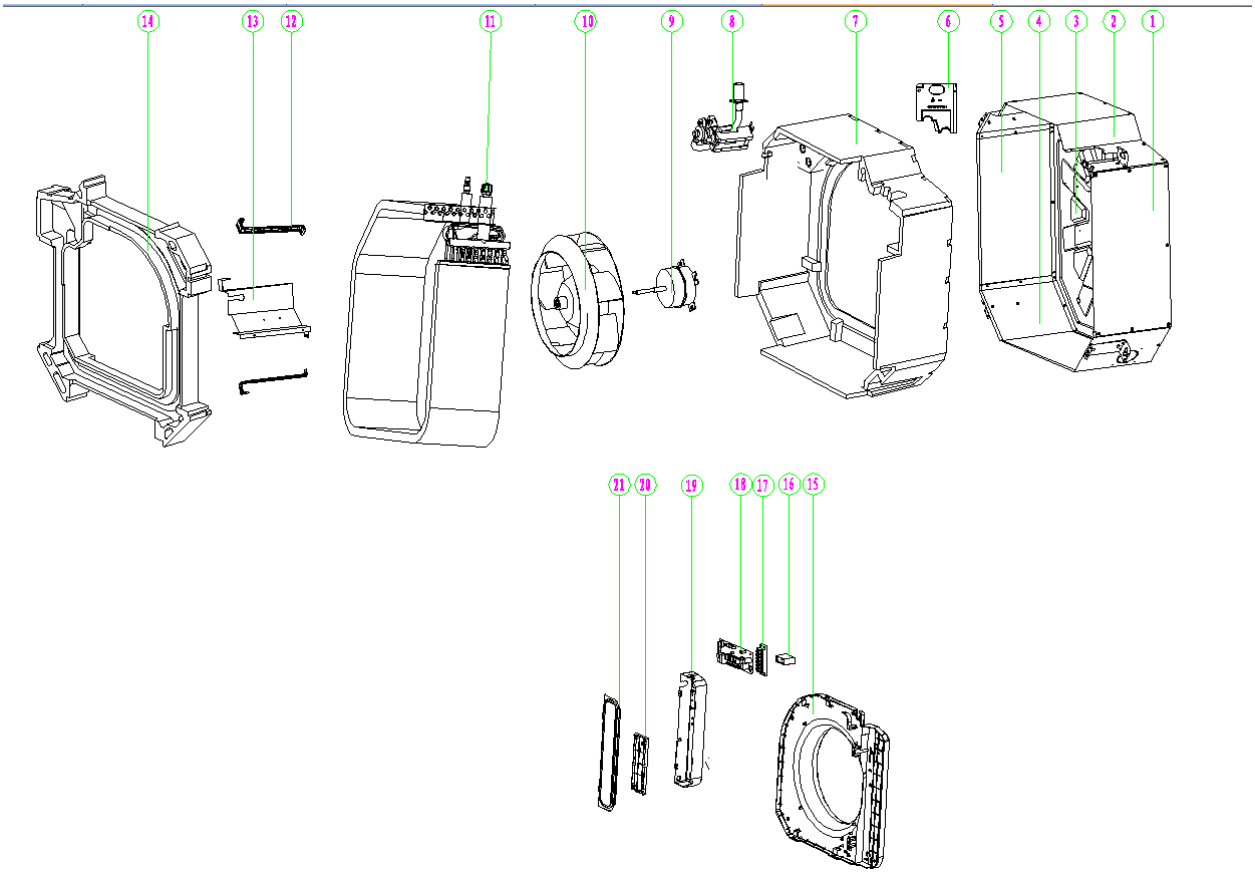
No.	Material Name	Finished Product Code	Quantity
1	Left and right surround plate assembly	45901-000103	1
2	Front coaming assembly	45901-000089	1
3	Base assembly	45004-000537	1
4	Back surround plate	45901-000091	1
5	Left and right surround plate assembly	45901-000103	1
6	Outlet tube sealing plate assembly	45901-000035	1
7	Base Foam Component	45004-000325	1
8	Water pump component	45014-003541	1
9	DC motor	25001-000429	1
10	Centrifugal fan	45009-000076	1
11	Evaporator assembly	95003-004393	1
12	Evaporator fixing hook	46301-000171	2
13	Evaporator fixing plate	95003-002186	1
14	Water pan assembly	45011-000120	1
15	wind deflector2	45008-000336	1
16	terminal	35005-000124	1
17	Main PCB assembly	35004-001942	1
18	electrical control box	45006-000399	1
19	Electrical PCB Mounting Box	45901-000112	1
20	Electrical box cover	35001-000374	1
21	Left and right panel assembly	45901-000103	1

TCC-24CHRH/DVI(02) (Product Code: Z2U30303001086)



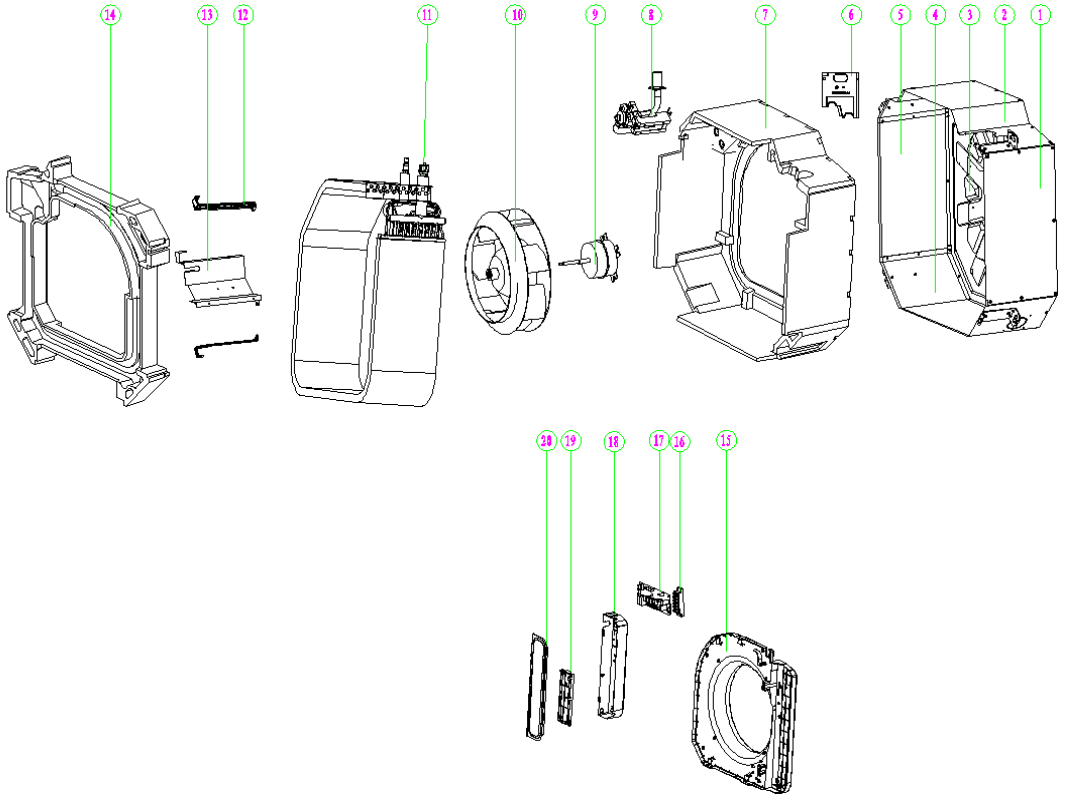
No.	Material Name	Finished Product Code	Quantity
1	Left and right surround plate assembly	45901-000103	1
2	Front coaming assembly	45901-000089	1
3	Base assembly	45004-000537	1
4	Back surround plate	45901-000091	1
5	Left and right surround plate assembly	45901-000103	1
6	Outlet tube sealing plate assembly	45901-000035	1
7	Base Foam Component	45004-000325	1
8	Water pump component	45014-003541	1
9	DC motor	25001-000429	1
10	Centrifugal fan	45009-000076	1
11	Evaporator assembly	95003-004601	1
12	Evaporator fixing hook	46301-000171	2
13	Evaporator fixing plate	95003-002186	1
14	Water pan assembly	45011-000120	1
15	wind deflector2	45008-000336	1
16	terminal	11304-100000	1
17	Main PCB assembly	35004-001942	1
18	electrical control box	45006-000399	1
19	Electrical PCB Mounting Box	45901-000112	1
20	Electrical box cover	35001-000374	1

TCC-30CHRH/DVI(02) (Product Code: Z2U30303001105)



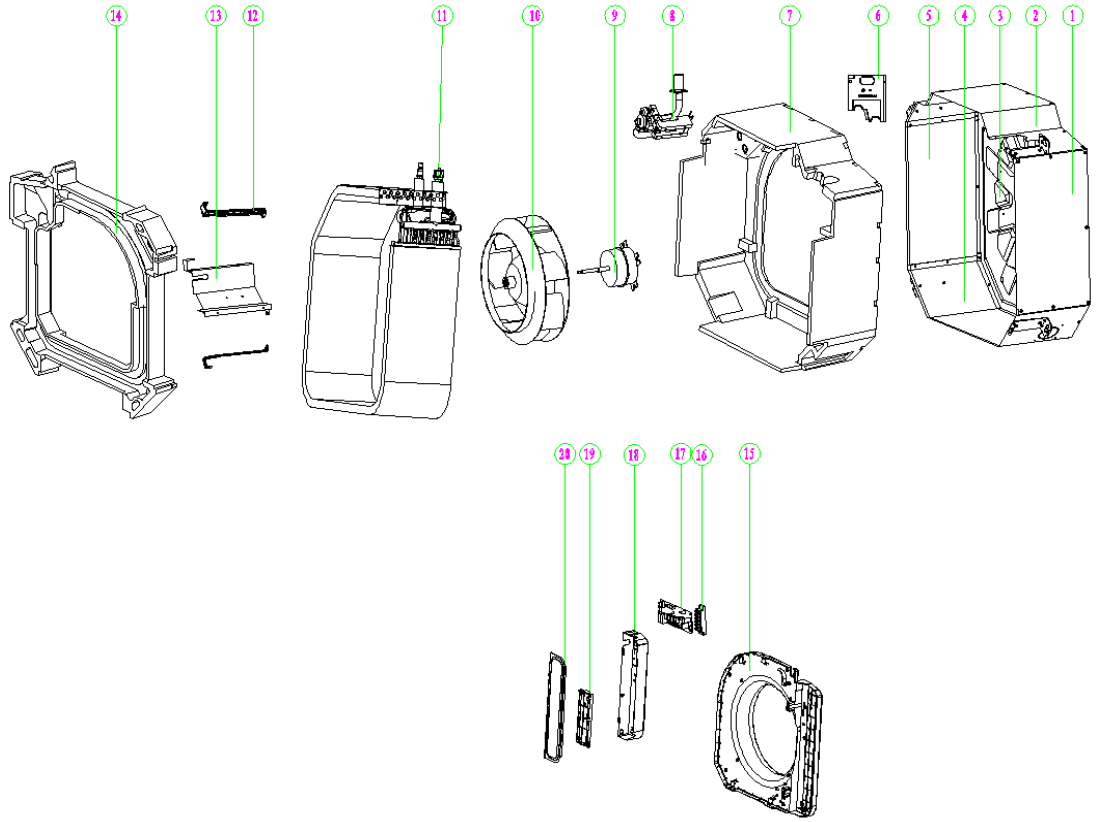
No.	Material Name	Finished Product Code	Quantity
1	Left and right surround plate assembly	45901-000103	1
2	Front coaming assembly	45901-000089	1
3	Base assembly	45004-000537	1
4	Back surround plate	45901-000091	1
5	Left and right surround plate assembly	45901-000103	1
6	Outlet tube sealing plate assembly	45901-000035	1
7	Base Foam Component	45004-000325	1
8	Water pump component	45014-003541	1
9	DC motor	25001-000429	1
10	Centrifugal fan	45009-000076	1
11	Evaporator assembly	95003-004684	1
12	Evaporator fixing hook	46301-000171	2
13	Evaporator fixing plate	95003-002186	1
14	Water pan assembly	45011-000120	1
15	wind deflector2	45008-000336	1
16	terminal	35005-000124	1
17	Main PCB assembly	35004-001942	1
18	electrical control box	45006-000399	1
19	Electrical PCB Mounting Box	45901-000112	1
20	Electrical box cover	35001-000374	1
21	Left and right panel assembly	45901-000103	1

TCC-36CHRH/DVI(02) (Product Code: Z2U30303001087)



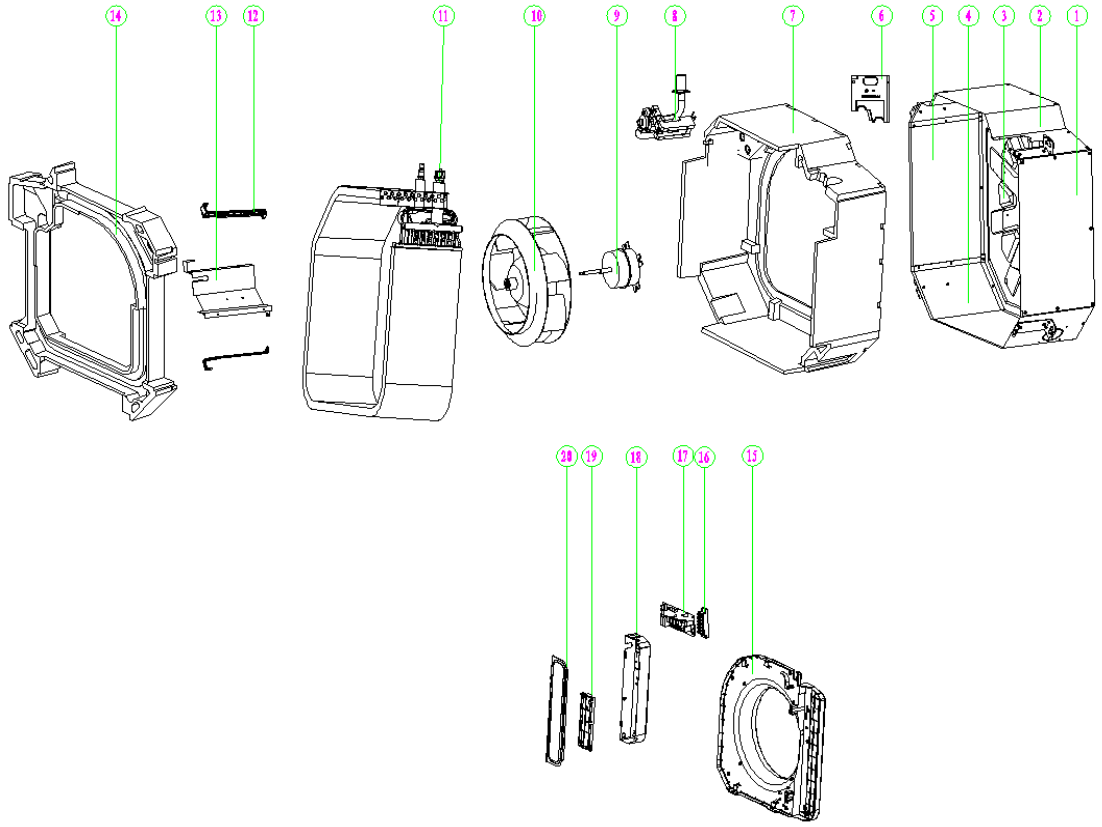
No.	Material Name	Finished Product Code	Quantity
1	45901-000102	Left and right surround plate assembly	1
2	45901-000092	Front coaming assembly	1
3	45004-000390	Base assembly	1
4	45901-000095	Back surround plate	1
5	45901-000102	Left and right surround plate assembly	1
6	45901-000035	Outlet tube sealing plate assembly	1
7	45004-000326	Base Foam Component	1
8	25006-000104	Water pump component	1
9	25001-000337	DC motor	1
10	45009-000053	Centrifugal fan	1
11	95003-004598	Evaporator assembly	1
12	45014-004163	Evaporator fixing hook	2
13	95003-001688	Evaporator fixing plate	1
14	45011-000120	Water pan assembly	1
15	45008-000369	wind deflector	1
16	35005-000114	terminal	1
17	35005-000074	terminal	1
18	35004-001941	Main PCB Assembly	1
19	45901-000112	Electrical Mounting Box	1
20	35001-000374	Electrical box cover	1

TCC-42CHRH/DVI(02) (Product Code: Z2U30303001108)



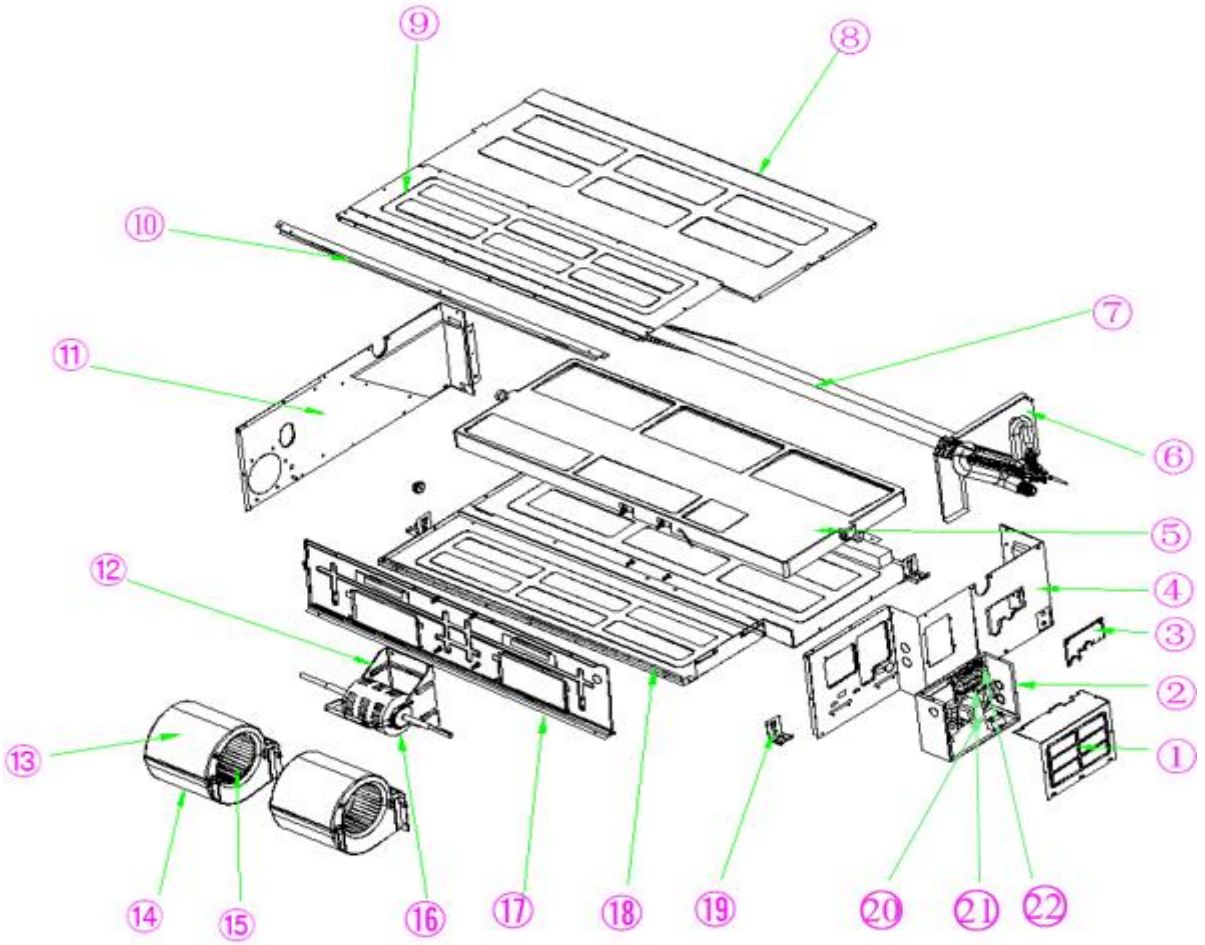
No.	Material Name	Finished Product Code	Quantity
1	Left and right surround plate assembly	45901-000102	1
2	Front coaming assembly	45901-000092	1
3	Base assembly	45004-000537	1
4	Back surround plate	45901-000095	1
5	Left and right surround plate assembly	45901-000102	1
6	Outlet tube sealing plate assembly	45901-000035	1
7	Base Foam Component	45004-000326	1
8	Water pump component	25006-000104	1
9	DC motor	25001-000337	1
10	Centrifugal fan	45009-000053	1
11	Evaporator assembly	95003-004635	1
12	Evaporator fixing hook	45014-004163	2
13	Evaporator fixing plate	95003-001688	1
14	Water pan assembly	45011-000120	1
15	wind deflector	45008-000369	1
16	terminal	35005-000114	1
17	terminal	35005-000074	1
18	Main PCB Assembly	35004-001941	1
20	electrical control box	45006-000399	1
21	Electrical Mounting Box	45901-000112	1
22	Electrical box cover	35001-000374	1

TCC-48CHRH/DVI(02) (Product Code: Z2U30303001106)，TCC-55CHRH/DVI(02) (Product Code: Z2U30303001107)



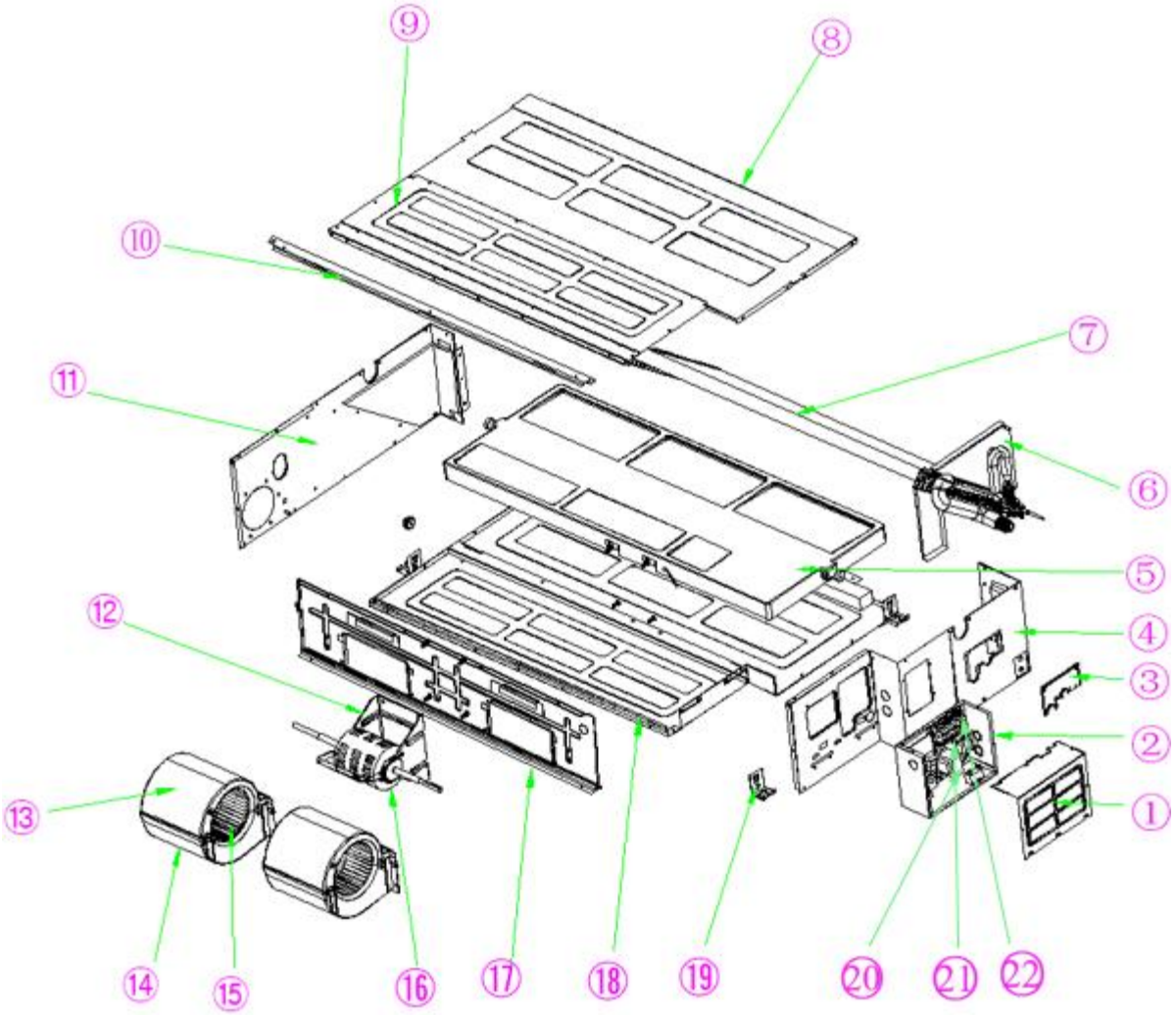
No.	Material Name	Finished Product Code	Quantity
1	Left and right surround plate assembly	45901-000102	4
2	Front coaming assembly	45901-000092	1
3	Base assembly	45004-000390	1
4	Back surround plate	45901-000095	1
5	Left and right surround plate assembly	45901-000102	2
6	Outlet tube sealing plate assembly	45901-000035	2
7	Base Foam Component	45004-000326	1
8	Water pump component	25006-000104	2
9	DC motor	25001-000337	
10	Centrifugal fan	45009-000053	
11	Evaporator assembly	95003-004637	
12	Evaporator fixing hook	45014-004720	
13	Evaporator fixing plate	45010-000247	
14	Water pan assembly	45011-000120	
15	wind deflector	45008-000369	
16	terminal	35005-000114	
16.1	terminal	35005-000074	
17	Main PCB Assembly	35004-001941	
18	electrical control box	45006-000399	
19	Electrical Mounting Box	45901-000112	
20	Electrical box cover	35001-000374	

TCC-18D2HWH/DVI(02) (Product Code: Z2U30304000576)



No.	Material Name	Finished Product Code	Quantity
1	Electrical control box cover	45006-000064	1
2	electrical control box	45006-000404	1
3	Input/Output Tube Cover Plate Assembly	46101-000149	1
4	Right panel assembly	45003-000024	1
5	Foam Water Pan Assembly	45011-000010	1
6	Evaporator plate assembly	45014-002323	1
7	Evaporator assembly	95003-004395	1
8	Base assembly	46101-000040	1
9	inlet sealing plate	45008-000228	1
10	Inlet strip	45008-000214	1
11	Left panel assembly	45003-000023	1
12	Motor Mount	45005-000573	1
13	Fan Shell	45008-000253	2
14	Fan Shell	45008-000141	2
15	centrifugal fan	45009-000021	2
16	Dual Axis Motors	25001-000477	1
17	Partition assembly	46101-000116	1
18	Top Plate Assembly	46101-000048	1
19	hook	45014-002175	4
20	IDU PCB	35004-001940	1
21	terminal	35005-000124	1
22	Clamp	45002-000078	2

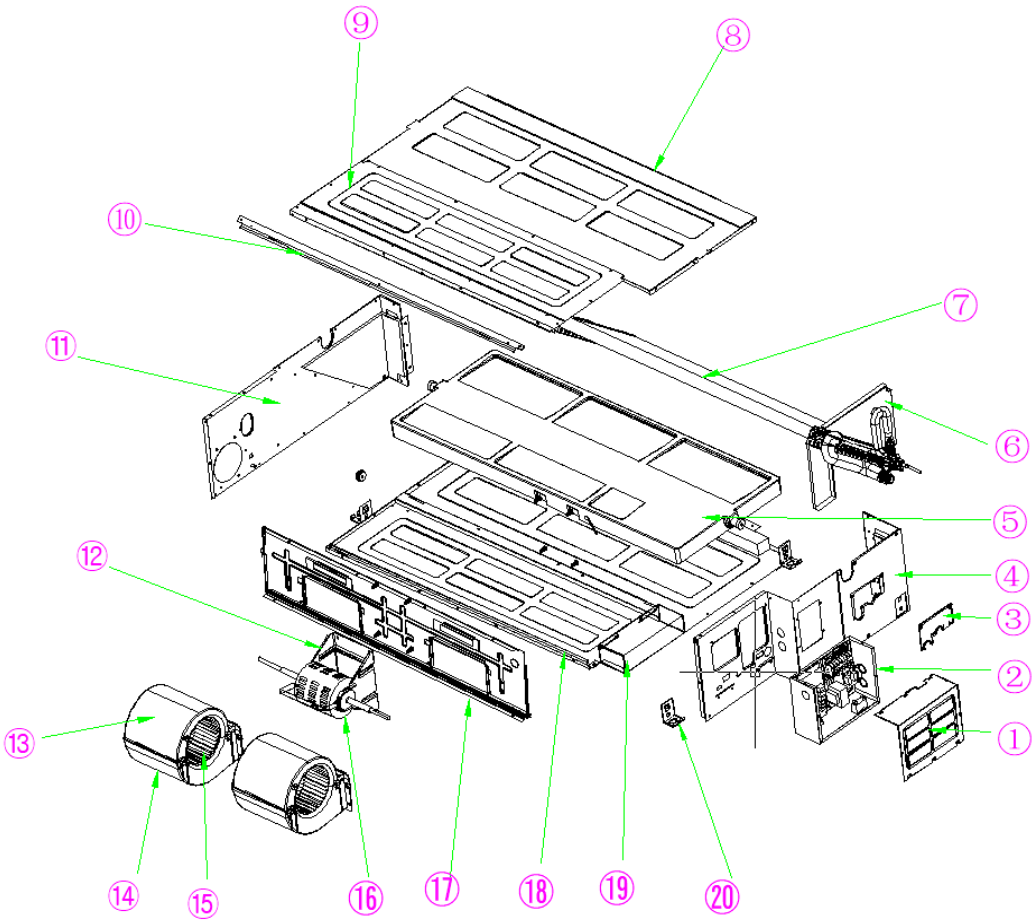
TCC-24D2HWH/DVI(02) (Product Code: Z2U30304000574),



No.	Material Name	Finished Product Code	Quantity
1	Electrical control box cover	45006-000064	1
2	electrical control box	45006-000404	1
3	Input/Output Tube Cover Plate Assembly	46101-000149	1
4	Right panel assembly	45003-000096	1
5	Foam Water Pan Assembly	45011-000010	1
6	Evaporator plate assembly	45014-004708	1
7	Evaporator assembly	95003-004397	1
8	Base assembly	46101-000040	1
9	inlet sealing plate	45008-000128	1
10	Inlet strip	45008-000242	1
11	Left panel assembly	45003-000147	1
12	Motor Mount	45005-000172	1
13	Fan Shell	45008-000299	2
14	Fan Shell	45008-000300	2
15	centrifugal fan	45009-000005	2

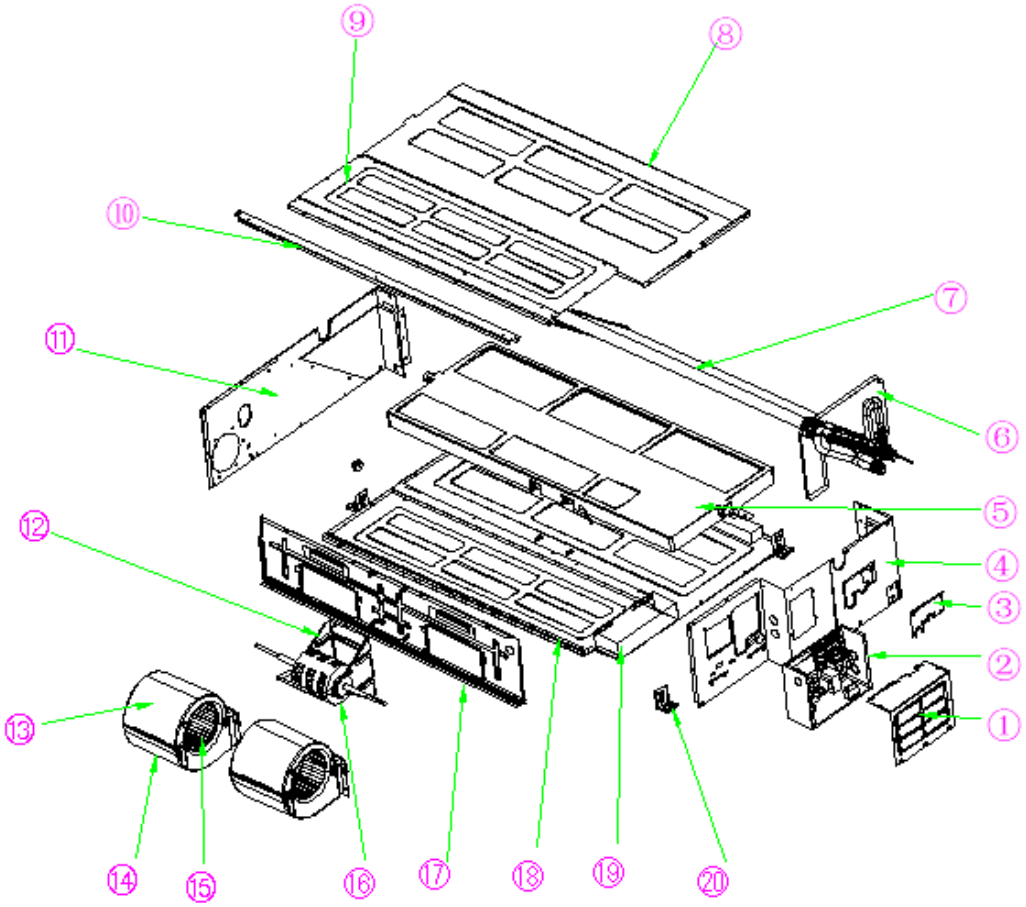
No.	Material Name	Finished Product Code	Quantity
16	Dual Axis Motors	22001-000173	1
17	Partition assembly	46101-000122	1
18	Top Plate Assembly	46101-000219	1
19	Hook supporter	45014-002883	1
20	hook	45014-002175	4
21	IDU PCB	35004-001940	1
22	terminal	35005-000124	1
23	Clamp	45002-000078	2
24	Dual Axis Motors	22001-000173	1

TCC-30D2HWH/DVI(02) (Product Code Z2U30304000586)



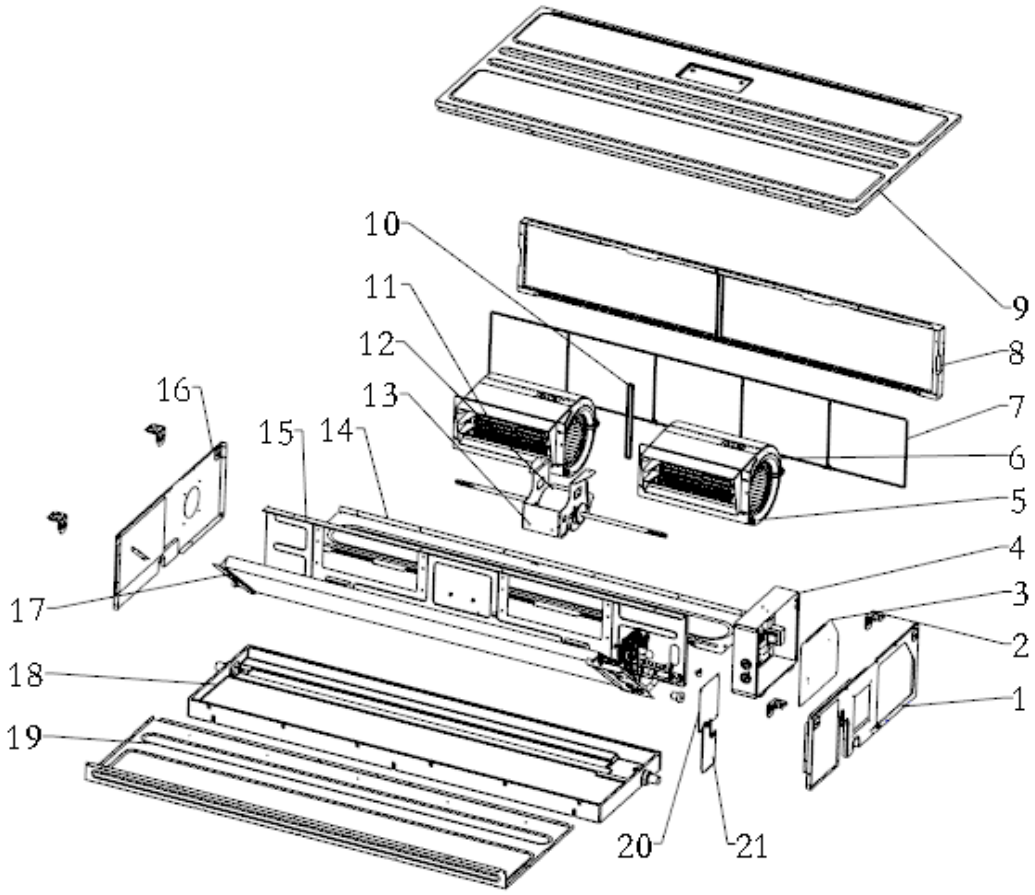
No.	Material Name	Finished Product Code	Quantity
1	Electrical control box cover	45006-000064	1
2	electrical control box	45006-001809	1
3	Input/Output Tube Cover Plate Assembly	46101-000149	1
4	Right panel assembly	45003-000114	1
5	Foam Water Pan Assembly	45011-000082	1
6	Evaporator plate assembly	45014-002547	1
7	Evaporator assembly	95003-004600	1
8	Base assembly	46101-000114	1
9	inlet sealing plate	45008-000164	1
10	Inlet strip	45008-000142	1
11	Left panel assembly	45003-000146	1
12	Motor Mount	45005-000256	2
13	Upper Fan Shell	45008-000299	2
14	Low Fan Shell	45008-000300	2
15	centrifugal fan	45009-000005	1
16	Dual Axis Motors	25001-000022	1
17	Partition assembly	46101-000118	1
18	Top Plate Assembly	46101-000046	1
19	Hook supporter	45014-002883	4
20	hook	45014-002175	1

TCC-36D2HWH/DVI(02) (Product Code: Z2U3030400057)



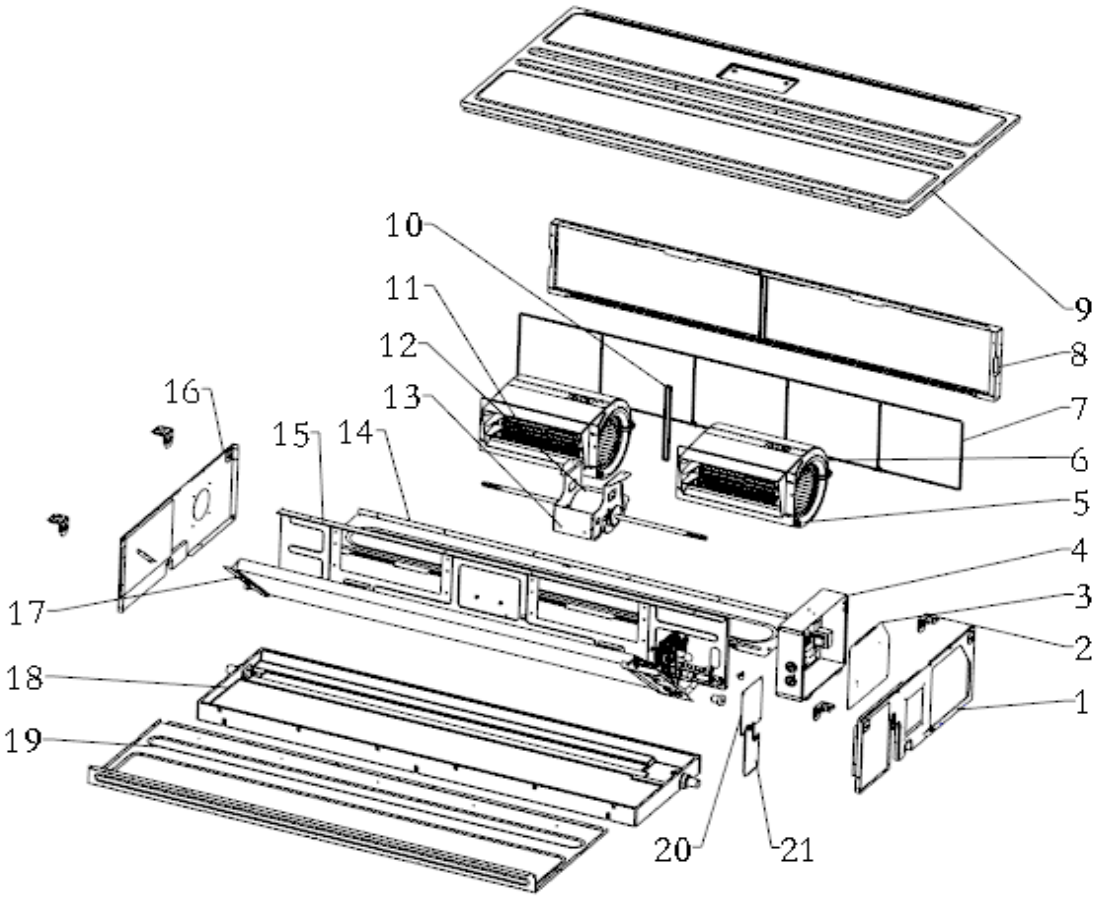
No.	Material Name	Finished Product Code	Quantity
1	Electrical control box cover	45006-000064	1
2	electrical control box	45006-001810	1
3	Input/Output Tube Cover Plate Assembly	46101-000149	1
4	Right panel assembly	45003-000114	1
5	Foam Water Pan Assembly	45011-000082	1
6	Evaporator plate assembly	45014-002547	1
7	Evaporator assembly	95003-004600	1
8	Base assembly	46101-000114	1
9	inlet sealing plate	45008-000164	1
10	Inlet strip	45008-000142	1
11	Left panel assembly	45003-000146	1
12	Motor Mount	45005-000256	1
13	Upper Fan Shell	45008-000299	2
14	Low Fan Shell	45008-000300	2
15	centrifugal fan	45009-000005	2
16	Dual Axis Motors	25001-000022	1
17	Partition assembly	46101-000118	1
18	Top Plate Assembly	46101-000046	1
19	Hook supporter	45014-002883	1
20	hook	45014-002175	4

TCC-42D2HWH/DVI(02) (Product Code: Z2U30304000570)



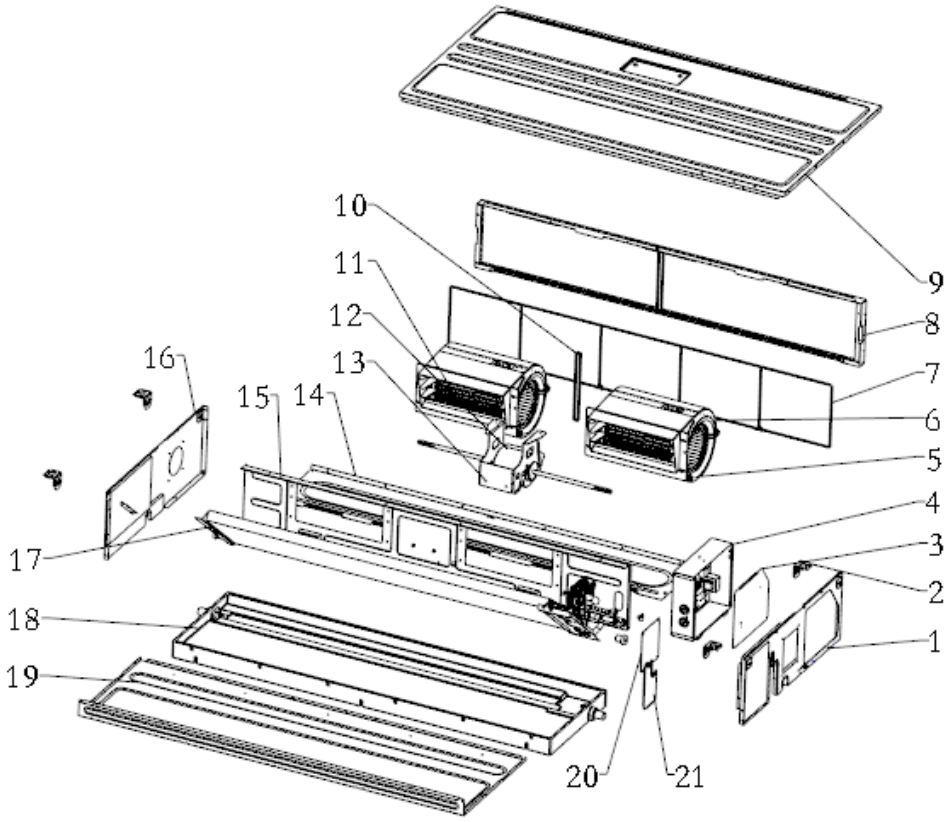
No.	Material Name	Finished Product Code	Quantity
1	Right panel assembly	45003-000319	1
2	Hook	46101-000263	4
3	Electrical control box cover	45006-001303	1
4	Electrical control box components	35001-000920	1
5	Upper shell	46101-000330	2
6	lower shell	46101-000331	2
7	Filter assembly	45014-005396	1
8	Filter Frame Assemblies	45002-000325	1
9	Top Plate Assembly	46101-000457	1
10	support strip	46101-000329	1
11	centrifugal fan	45009-000105	2
12	DC motor	25001-000470	1
13	Motor Bracket	45005-000638	1
14	Base assembly1	45004-000536	1
15	Partition Assembly	45014-005672	1
16	Left panel assembly	45003-000318	1
17	Evaporator assembly	95003-004622	1
18	Water pan assembly	45011-000020	1
19	Pump partition assembly	46101-000308	1
20	Pump partition assembly	45014-004811	1
21	Seal plate assembly	45014-004810	1

Z2U30304000567 (Product Code: TCC-48D2HWH/DVI(02))



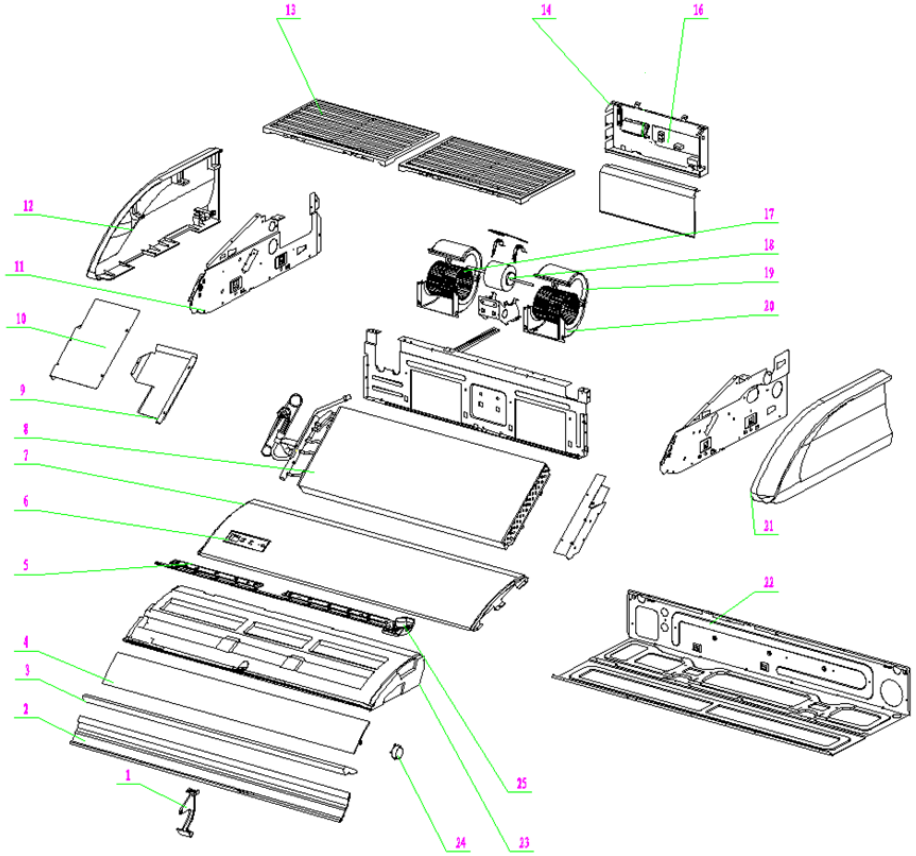
No.	Material Name	Finished Product Code	Quantity
1	Right panel assembly	45003-000319	1
2	Hook	46101-000263	4
3	Electrical control box cover	45006-001303	1
4	Electrical control box components	35004-001931	1
5	Upper shell	46101-000330	2
6	lower shell	46101-000331	2
7	Filter assembly	45014-005396	1
8	Filter Frame Assemblies	45002-000325	1
9	Top Plate Assembly	46101-000457	1
10	support strip	46101-000329	1
11	centrifugal fan	45009-000105	2
12	DC motor	25001-000470	1
13	Motor Bracket	45005-000638	1
14	Base assembly1	45004-000536	1
15	Partition Assembly	45014-005672	1
16	Left panel assembly	45003-000318	1
17	Evaporator assembly	95003-004622	1
18	Water pan assembly	45011-000020	1
19	Pump partition assembly	46101-000308	1
20	Pump partition assembly	45014-004811	1
21	Seal plate assembly	45014-004810	1

TCC-55D2HWH/DVI(02) (Product Code: Z2U30304000571)



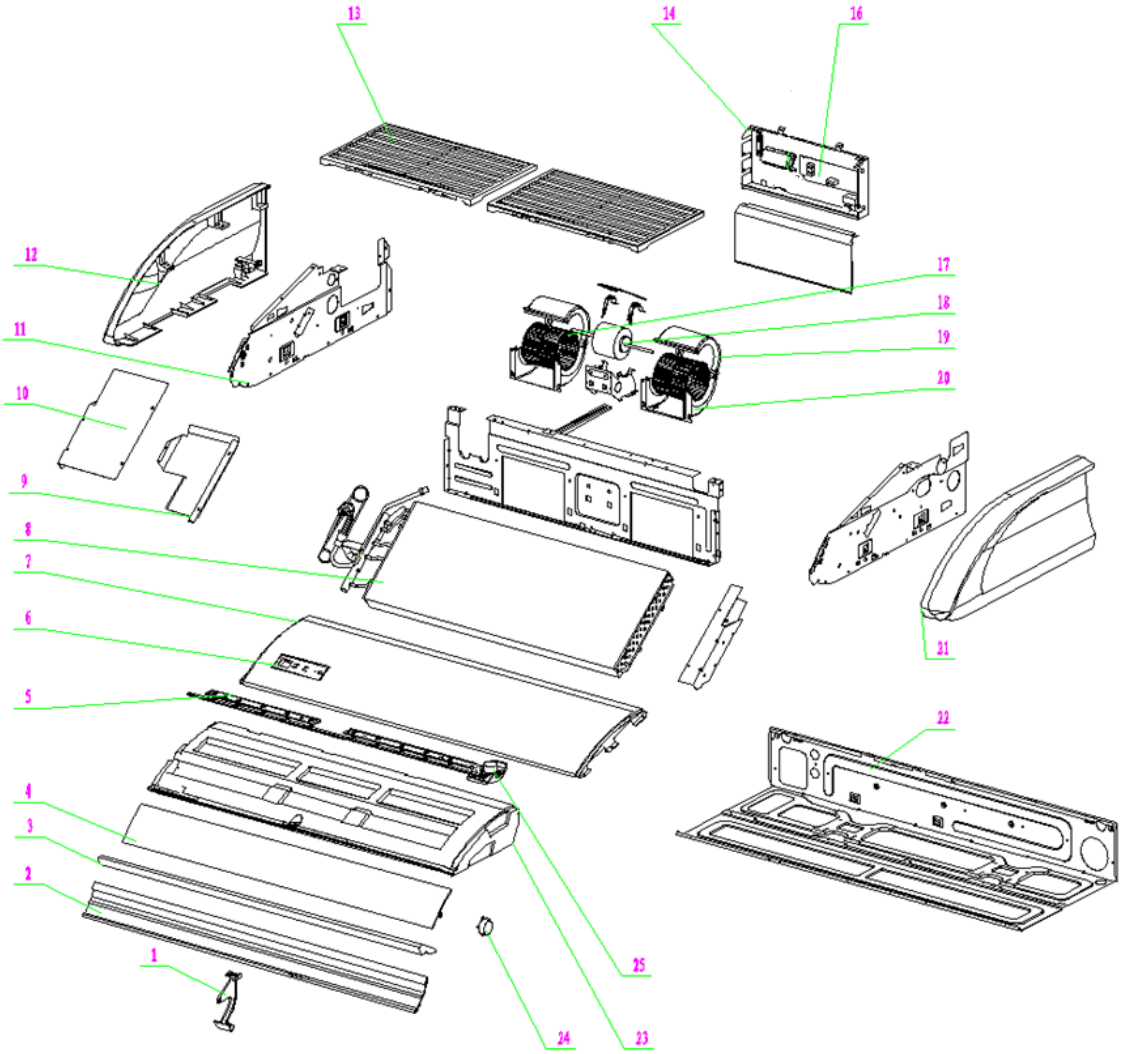
No.	Material Name	Finished Product Code	Quantity
1	Right panel assembly	45003-000319	1
2	Hook	46101-000263	4
3	Electrical control box cover	45006-001303	1
4	Electrical control box components	35004-001931	1
5	Upper shell	46101-000330	2
6	lower shell	46101-000331	2
7	Filter assembly	45014-005396	1
8	Filter Frame Assemblies	45002-000325	1
9	Top Plate Assembly	46101-000457	1
10	support strip	46101-000329	1
11	centrifugal fan	45009-000105	2
12	DC motor	25001-000470	1
13	Motor Bracket	45005-000638	1
14	Base assembly1	45004-000536	1
15	Partition Assembly	45014-005672	1
16	Left panel assembly	45003-000318	1
17	Evaporator assembly	95003-004764	1
18	Water pan assembly	45011-000020	1
19	Pump partition assembly	46101-000308	1
20	Pump partition assembly	45014-004811	1
21	Seal plate assembly	45014-004810	1

TCC-18ZHRH/DVI(02) (Product Code: Z2U30302000523)



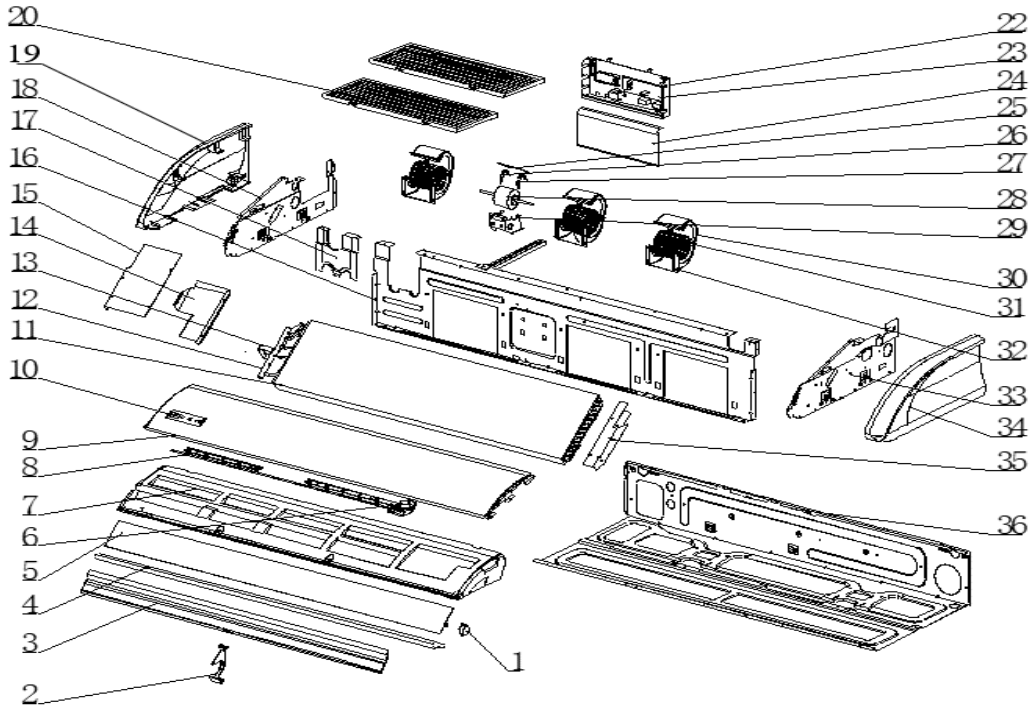
No.	Material Name	Finished Product Code	Quantity
1	Wind deflector bracket	45008-000217	1
2	Air outlet base plate	45008-000178	1
3	Oulet foam	45008-000282	1
4	vane	45008-000234	1
5	Vane Assembly	45801-000076	1
6	Display box	45801-000019	1
7	front panel	45013-000078	1
8	Evaporator assembly	95003-004394	1
9	Evaporator lower right seal assembly	45801-000039	1
10	Evaporator right upper seal assembly	45801-000105	1
11	Right panel assembly A	45003-000202	1
12	Right Side Block	45014-002001	1
13	Fan guard assembly	45014-002551	1
14	Electrical box assembly	45006-001743	1
16	Main pcb	35004-001949	1
17	centrifugal fan	45009-000015	2
18	Dual Axis Motor	25001-000477	1
19	Upper fan shell	45008-000120	2
20	Lower fan shell	45008-000153	2
21	Left Side Block	45003-000044	1
22	Base assembly	45004-000021	1
23	Water pan assembly	45011-000088	1
24	step motor	25001-000123	1
25	step motor	25001-000240	1

TCC-24ZHRH/DVI(02) (Product Code: Z2U30302000518)



No.	Material Name	Finished Product Code	Quantity
1	Wind deflector bracket	45008-000217	1
2	Air outlet base plate	45008-000178	1
3	Oulet foam	45008-000282	1
4	vane	45008-000234	1
5	Vane Assembly	45801-000076	1
6	Display box	45801-000019	1
7	front panel	45013-000078	1
8	Evaporator assembly	95003-004602	1
9	Evaporator lower right seal assembly	45801-000039	1
10	Evaporator right upper seal assembly	45801-000105	1
11	Right panel assembly A	45003-000202	1
12	Right Side Block	45014-002001	1
13	Fan guard assembly	45014-002551	1
14	Electrical box assembly	45006-001743	1
16	Main pcb	35004-001949	1
17	centrifugal fan	45009-000015	2
18	Dual Axis Motor	25001-000477	1
19	Upper fan shell	45008-000120	2
20	Lower fan shell	45008-000153	2
21	Left Side Block	45003-000044	1
22	Base assembly	45004-000021	1
23	Water pan assembly	45011-000088	1
24	step motor	25001-000123	1
25	step motor	25001-000240	1

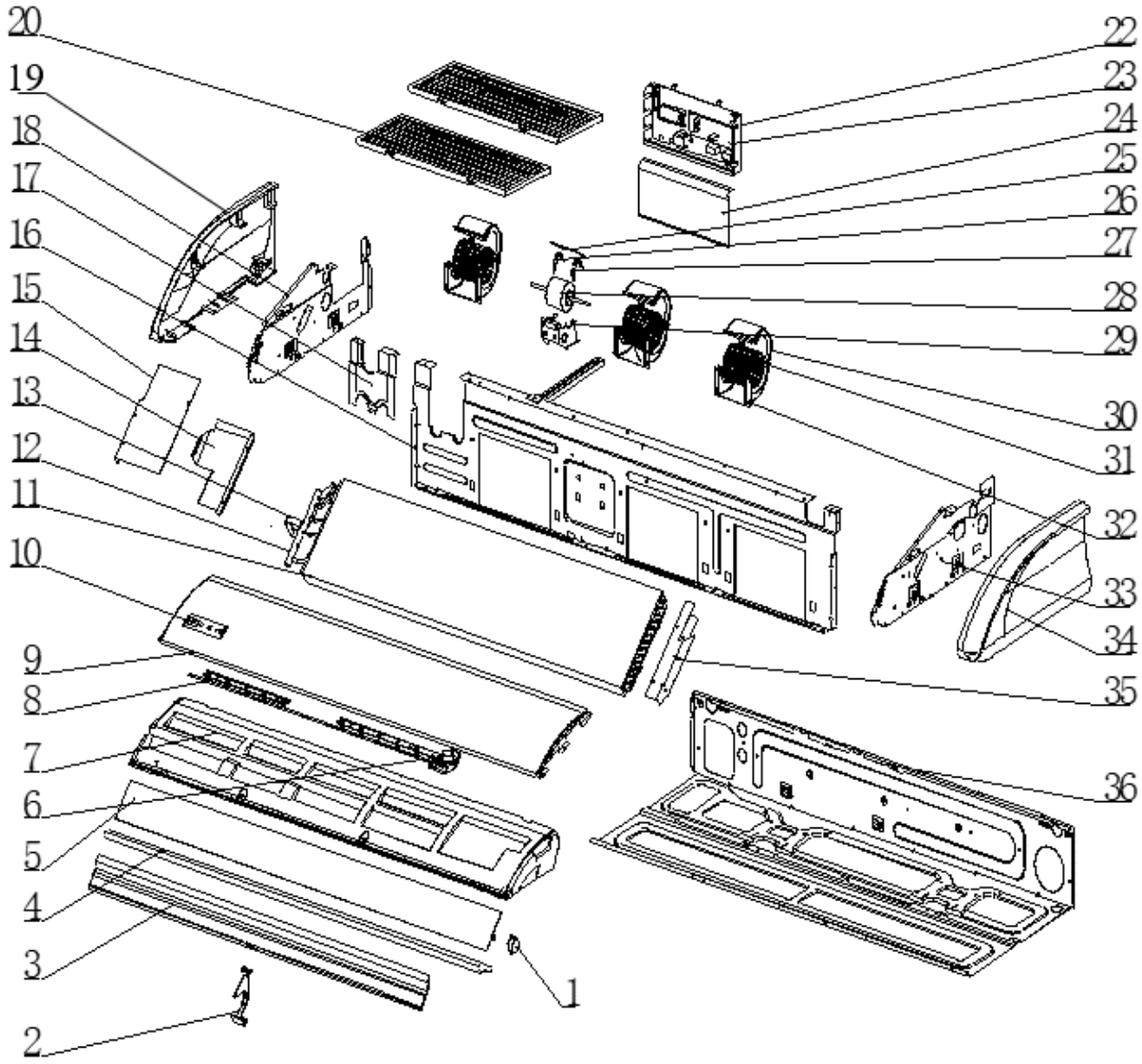
TCC-30ZHRH/DVI(02) (Product Code: Z2U30302000524)



No.	Material Name	Finished Product Code	Quantity
1	step motor	25001-000240	1
2	Wind deflector bracket	45008-000217	1
3	outlet base plate	45008-000179	1
4	Outlet Foam Assembly	45008-000156	1
5	Vertical Vane	45008-000146	1
6	step motor	25001-000123	1
7	Water pan assembly	45011-000053	1
8	vane assembly	45801-000022	1
9	front panel	45013-000162	1
10	Display box	45801-000019	1
11	Evaporator assembly	95003-000814	1
12	Evaporator output tube assembly	95016-000525	1
13	Evaporator input tube assembly	95016-000737	1
14	Evaporator lower right seal assembly	45801-000046	1
15	Evaporator right upper seal assembly	45801-000074	1
16	Partition Assembly	45014-003318	1
17	valve supporter	45014-003522	1

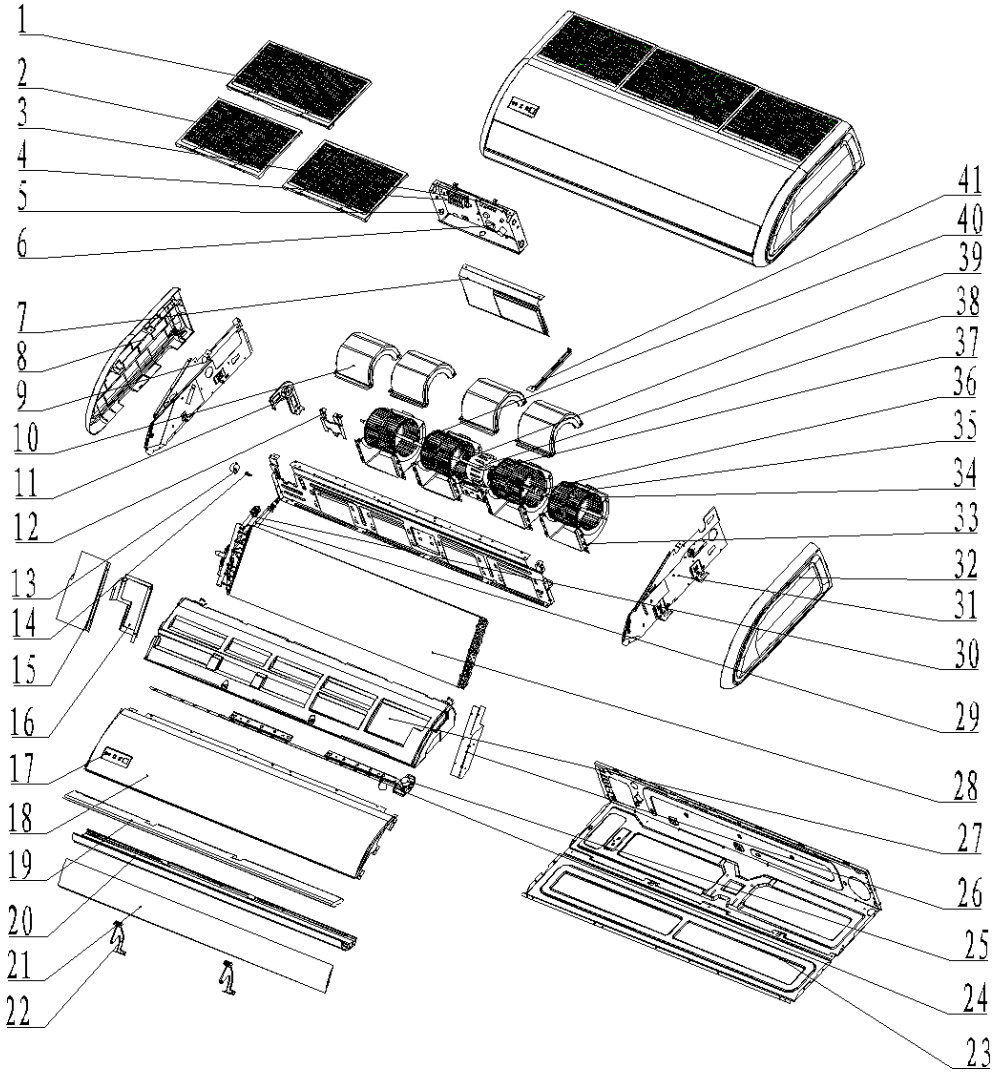
No.	Material Name	Finished Product Code	Quantity
18	Right panel assembly A	45003-000202	1
19	right- side block	45014-002001	1
20	Fan guard assembly	45014-003013	2
22	Electrical control box assembly	35001-000889	1
23	Main PCB	35004-001949	1
24	Electric box cover	45006-000354	1
25	Motor Limit Clip	45005-000255	1
26	Motor bearing right clamp	45005-000196	1
27	DC motor	25001-000430	1
28	Motor bearing left clamp	45005-000232	1
29	Motor supporter	45005-000609	1
30	Upper fan shell assembly	45008-000195	3
31	centrifugal fan	45009-000015	3
32	Lower fan shell	45008-000153	3
33	Left panel assembly A	45003-000092	1
34	left side block	45003-000044	1
35	Evaporator left seal cover plate assembly	45801-000033	1
36	Base assembly	45004-000206	1

TCC-36ZHRH/DVI(02) (Product Code: Z2U30302000519)



No.	Material Name	Finished Product Code	Quantity
1	step motor	25001-000240	1
2	Wind deflector bracket	45008-000217	1
3	outlet base plate	45008-000179	1
4	Outlet Foam Assembly	45008-000156	1
5	Vertical Vane	45008-000146	1
6	step motor	25001-000123	1
7	Water pan assembly	45011-000053	1
8	vane assembly	45801-000022	1
9	front panel	45013-000162	1
10	Display box	45801-000019	1
11	Evaporator assembly	95003-000814	1
12	Evaporator output tube assembly	95016-000525	1
13	Evaporator input tube assembly	95016-000737	1
14	Evaporator lower right seal assembly	45801-000046	1
15	Evaporator right upper seal assembly	45801-000074	1
16	Partition Assembly	45014-003318	1
17	valve supporter	45014-003522	1
18	Right panel assembly A	45003-000202	1
19	right- side block	45014-002001	1
20	Fan guard assembly	45014-003013	2
22	Electrical control box assembly	35001-000890	1
23	Main PCB	35004-001950	1
24	Electric box cover	45006-000354	1
25	Motor Limit Clip	45005-000255	1
26	Motor bearing right clamp	45005-000196	1
27	DC motor	25001-000430	1
28	Motor bearing left clamp	45005-000232	1
29	Motor supporter	45005-000609	1
30	Upper fan shell assembly	45008-000195	3
31	centrifugal fan	45009-000015	3
32	Lower fan shell	45008-000153	3
33	Left panel assembly A	45003-000092	1
34	left side block	45003-000044	1
35	Evaporator left seal cover plate assembly	45801-000033	1
36	Base assembly	45004-000206	1

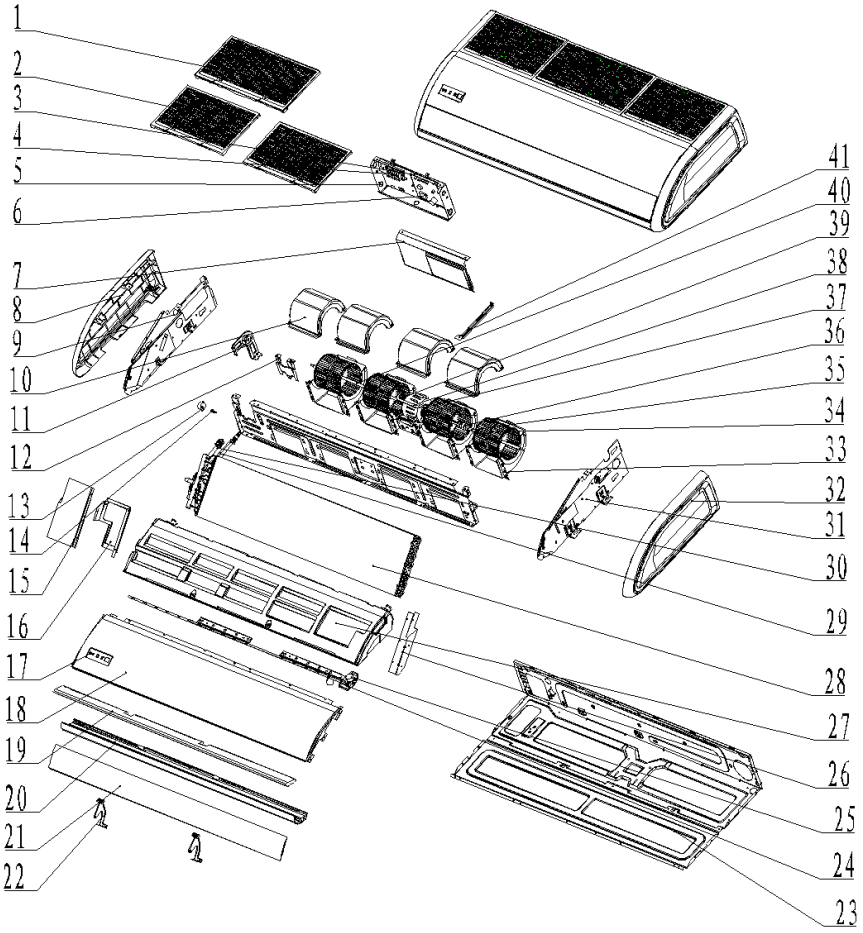
TCC-42ZHRH/DVI(02) (Product Code: Z2U30302000522),



No.	Material Name	Finished Product Code	Remarks
1	Inlet grille assembly	45014-003013	1
2	Inlet grille assembly	45014-002551	2
3	PCB mounting box	45014-005425	1
4	terminal	35005-000130	1
5	Electric control box assembly	45006-001743	1
6	IDU main PCB assembly	35004-001971	1
7	Electric control box cover	45006-000354	1
8	right side panel	45014-002001	1
9	Right side panel assembly	45003-000449	1
10	Fan Upper Worm Shell Assembly	45008-000195	4
11	Bearing support assembly	45002-000337	1
12	valve plate	45014-003522	1
13	Stepper motor (vane)	25001-000240	1

No.	Material Name	Finished Product Code	Remarks
14	sleeve	45002-000066	2
15	Evaporator upper right seal assembly	45801-000074	1
16	Evaporator lower right seal assembly	45801-000046	1
17	display component	35010-000074	1
18	front panel	45013-000127	1
19	outlet foam assembly	45008-000125	1
20	outlet base plate	45008-000229	1
21	vane	45008-000284	1
22	Wind deflector support	45008-000217	2
23	Base assembly	45004-000583	1
24	vane assembly	45801-000062	1
25	Stepper motor (left and right wind sweep)	25001-000123	1
26	Evaporator left seal cover assembly	45801-000033	1
27	Water pan assembly	45011-000206	1
28	Evaporator assembly	95003-000808	1
29	Evaporator input tube assembly	95016-001208	1
30	Evaporator output tube assembly	95016-001278	1
31	Left side panel assembly	45003-000448	1
32	left side panel	45003-000044	1
33	Fan Lower Worm Shell	45008-000153	4
34	centrifugal fan	45009-000015	4
35	coupling	35008-000016	2
36	connection shaft	46101-000373	1
37	Brushless DC motor	25001-000462	1
38	Motor Limit Clip	45005-000583	1
39	Motor bearing left snap	45005-000232	1
39	Motor bearing right snap	45005-000196	1
40	connection shaft	46101-000415	1
41	Support Strip	45801-000103	1
42	remote controller	22013-006433	1
43	thermistor	25004-000308	1
44	Pipeline Thermistors	25004-000026	1
45	Motor Mount	45005-000641	1

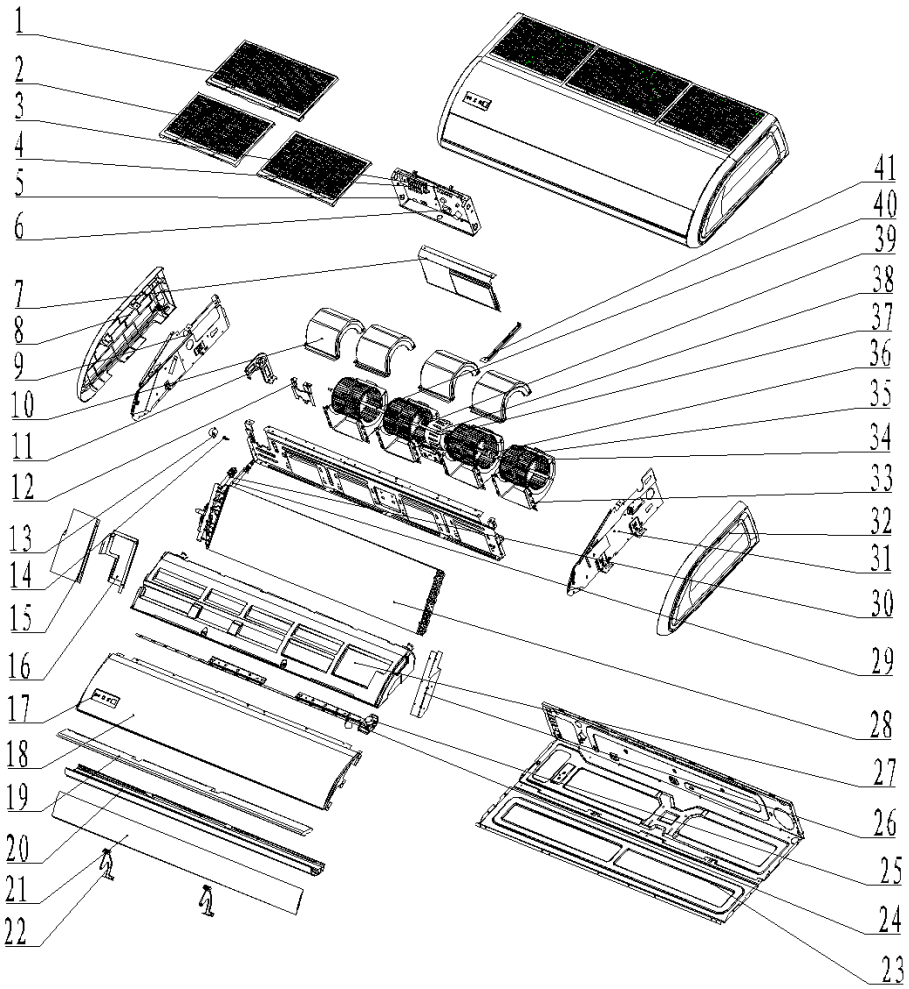
TCC-48CHRH/DVI(02) (Product Code: Z2U30303001106)，



No.	Material Name	Finished Product Code	Quantity
1	Inlet grille assembly	45014-003013	1
2	Inlet grille assembly	45014-002551	2
3	PCB mounting box	45014-005425	1
4	terminal	35005-000130	1
5	Electric control box assembly	45006-001743	1
6	IDU main PCB assembly	35004-001971	1
7	Electric control box cover	45006-000354	1
8	right side panel	45014-002001	1
9	Right side panel assembly	45003-000449	1
10	Fan Upper Worm Shell Assembly	45008-000195	4
11	Bearing support assembly	45002-000337	1
12	valve plate	45014-003522	1
13	Stepper motor (vane)	25001-000240	1

No.	Material Name	Finished Product Code	Quantity
14	sleeve	45002-000066	2
15	Evaporator upper right seal assembly	45801-000138	1
16	Evaporator lower right seal assembly	45801-000046	1
17	display component	35010-000074	1
18	front panel	45013-000127	1
19	outlet foam assembly	45008-000125	1
20	outlet base plate	45008-000229	1
21	vane	45008-000284	1
22	Wind deflector support	45008-000217	2
23	Base assembly	45004-000583	1
24	vane assembly	45801-000062	1
25	Stepper motor (left and right wind sweep)	25001-000123	1
26	Evaporator left seal cover assembly	45801-000136	1
27	Water pan assembly	45011-000206	1
28	Evaporator assembly	95003-004361	1
29	Evaporator input tube assembly	95016-001428	1
30	Evaporator output tube assembly	95016-001604	1
31	Left side panel assembly	45003-000448	1
32	left side panel	45003-000044	1
33	Fan Lower Worm Shell	45008-000153	4
34	centrifugal fan	45009-000015	4
35	coupling	35008-000016	2
36	connection shaft	46101-000373	1
37	Brushless DC motor	25001-000462	1
38	Motor Limit Clip	45005-000583	1
39	Motor bearing left snap	45005-000232	1
39	Motor bearing right snap	45005-000196	1
40	connection shaft	46101-000415	1
41	Support Strip	45801-000103	1
42	remote controller	22013-006433	1
43	thermistor	25004-000308	1
44	Pipeline Thermistors	25004-000026	1
45	Motor Mount	45005-000641	1

TCE-55ZCRH/DV2I(21) (Product Code: Z2U30302000479)，



No.	Material Name	Finished Product Code	Quantity
1	Inlet grille assembly	45014-003013	1
2	Inlet grille assembly	45014-002551	2
3	PCB mounting box	45014-005425	1
4	terminal	35005-000130	1
5	Electric control box assembly	45006-001743	1
6	IDU main PCB assembly	35004-001971	1
7	Electric control box cover	45006-000354	1
8	right side panel	45014-002001	1
9	Right side panel assembly	45003-000449	1
10	Fan Upper Worm Shell Assembly	45008-000195	4
11	Bearing support assembly	45002-000337	1
12	valve plate	45014-003522	1
13	Stepper motor (vane)	25001-000240	1

No.	Material Name	Finished Product Code	Quantity
14	sleeve	45002-000066	2
15	Evaporator upper right seal assembly	45801-000138	1
16	Evaporator lower right seal assembly	45801-000046	1
17	display component	35010-000074	1
18	front panel	45013-000127	1
19	outlet foam assembly	45008-000125	1
20	outlet base plate	45008-000229	1
21	vane	45008-000284	1
22	Wind deflector support	45008-000217	2
23	Base assembly	45004-000583	1
24	vane assembly	45801-000062	1
25	Stepper motor (left and right wind sweep)	25001-000123	1
26	Evaporator left seal cover assembly	45801-000136	1
27	Water pan assembly	45011-000206	1
28	Evaporator assembly	95003-000463	1
29	Evaporator input tube assembly	95016-000577	1
30	Evaporator output tube assembly	95016-001393	1
31	Left side panel assembly	45003-000448	1
32	left side panel	45003-000044	1
33	Fan Lower Worm Shell	45008-000153	4
34	centrifugal fan	45009-000015	4
35	coupling	35008-000016	2
36	connection shaft	46101-000373	1
37	Brushless DC motor	25001-000462	1
38	Motor Limit Clip	45005-000583	1
39	Motor bearing left snap	45005-000232	1
39	Motor bearing right snap	45005-000196	1
40	connection shaft	46101-000415	1
41	Support Strip	45801-000103	1
42	remote controller	22013-006433	1
43	thermistor	25004-000308	1
44	Pipeline Thermistors	25004-000026	1
45	Motor Mount	45005-000641	1

Appendices

1. Resistance/Temperature Lists of Temperature Sensors

1.1 Voltage List of 15 KΩ Temperature Sensors (including ODU and IDO temperature sensors)

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
-20	144	0.311	71	2.523	2.825
-19	138.1	0.323	72	2.439	2.838
-18	128.6	0.345	73	2.358	2.852
-17	121.6	0.362	74	2.28	2.865
-16	115	0.381	75	2.205	2.877
-15	108.7	0.4	76	2.133	2.889
-14	102.9	0.42	77	2.064	2.901
-13	97.4	0.44	78	1.997	2.912
-12	92.22	0.462	79	1.933	2.923
-11	87.35	0.484	80	1.871	2.934
-10	82.75	0.506	81	1.811	2.945
-9	78.43	0.53	82	1.754	2.955
-8	74.35	0.554	83	1.699	2.964
-7	70.5	0.579	84	1.645	2.974
-6	66.88	0.605	85	1.594	2.983
-5	63.46	0.631	86	1.544	2.992
-4	60.23	0.658	87	1.497	3.001
-3	57.18	0.686	88	1.451	3.009
-2	54.31	0.714	89	1.408	3.017
-1	51.59	0.743	90	1.363	3.025
0	49.02	0.773	91	1.322	3.033
1	46.8	0.801	92	1.282	3.04
2	44.31	0.835	93	1.244	3.047
3	42.14	0.866	94	1.207	3.054
4	40.09	0.899	95	1.171	3.061
5	38.15	0.931	96	1.136	3.068
6	36.32	0.965	97	1.103	3.074
7	34.58	0.998	98	1.071	3.08
8	32.94	1.033	99	1.039	3.086
9	31.38	1.067	100	1.009	3.092
10	29.9	1.102	101	0.98	3.098
11	28.51	1.138	102	0.952	3.103

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
12	27.18	1.174	103	0.925	3.108
13	25.92	1.21	104	0.898	3.114
14	24.73	1.246	105	0.873	3.119
15	23.6	1.282	106	0.848	3.123
16	22.53	1.319	107	0.825	3.128
17	21.51	1.356	108	0.802	3.133
18	20.54	1.393	109	0.779	3.137
19	19.63	1.429	110	0.758	3.141
20	18.75	1.467	111	0.737	3.145
21	17.93	1.503	112	0.717	3.15
22	17.14	1.54	113	0.697	3.153
23	16.39	1.577	114	0.678	3.157
24	15.68	1.613	115	0.66	3.161
25	15	1.65	116	0.642	3.165
26	14.36	1.686	117	0.625	3.168
27	13.74	1.722	118	0.608	3.171
28	13.16	1.758	119	0.592	3.175
29	12.6	1.793	120	0.577	3.178
30	12.07	1.829	121	0.561	3.181
31	11.57	1.863	122	0.547	3.184
32	11.09	1.897	123	0.532	3.187
33	10.63	1.931	124	0.519	3.19
34	10.2	1.964	125	0.505	3.192
35	9.779	1.998	126	0.492	3.195
36	9.382	2.03	127	0.48	3.198
37	9.003	2.062	128	0.467	3.2
38	8.642	2.094	129	0.456	3.203
39	5.997	2.125	130	0.444	3.205
41	7.653	2.185	131	0.433	3.207
42	7.352	2.215	132	0.422	3.21
43	7.065	2.243	133	0.412	3.212
44	6.791	2.272	134	0.401	3.214
45	6.529	2.299	135	0.391	3.216
46	6.278	2.326	136	0.382	3.218
47	6.038	2.353	137	0.372	3.22
48	5.809	2.379	138	0.363	3.222
49	5.589	2.404	139	0.355	3.224
50	5.379	2.429	140	0.346	3.226
51	5.179	2.453	141	0.338	3.227
52	4.986	2.477	142	0.33	3.229
53	4.802	2.5	143	0.322	3.231
54	4.625	2.522	144	0.314	3.232
55	4.456	2.544	145	0.307	3.234
56	4.294	2.566	146	0.299	3.235

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
57	4.139	2.586	147	0.292	3.237
58	3.99	2.607	148	0.286	3.238
59	3.848	2.626	149	0.279	3.24
60	3.711	2.646	150	0.273	3.241
61	3.579	2.664	151	0.266	3.242
62	3.454	2.682	152	0.261	3.244
63	3.333	2.7	153	0.254	3.245
64	3.217	2.717	154	0.248	3.246
65	3.105	2.734	155	0.243	3.247
66	2.998	2.75	156	0.237	3.249
67	2.898	2.766	157	0.232	3.25
68	2.797	2.781	158	0.227	3.251
69	2.702	2.796	159	0.222	3.252
70	2.611	2.811	160	0.217	3.253

1.2 Voltage List of 20 KΩ Pipeline Temperature Sensors (including temperature sensors for defroster, IDU and ODU pipes)

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
-30	361.8	0.173	66	3.998	2.75
-29	339.8	0.183	67	3.861	2.766
-28	319.2	0.195	68	3.729	2.781
-27	300	0.206	69	3.603	2.796
-26	282.2	0.218	70	3.481	2.811
-25	265.5	0.231	71	3.364	2.825
-24	249.9	0.245	72	3.252	2.838
-23	235.3	0.259	73	3.144	2.852
-22	221.6	0.273	74	3.04	2.865
-21	208.9	0.288	75	2.94	2.877
-20	196.9	0.304	76	2.844	2.889
-19	181.4	0.328	77	2.752	2.901
-18	171.4	0.345	78	2.663	2.912
-17	162.1	0.362	79	2.577	2.923
-16	153.3	0.381	80	2.495	2.934
-15	145	0.4	81	2.415	2.944
-14	137.2	0.42	82	2.339	2.954
-13	129.9	0.44	83	2.265	2.964
-12	123	0.462	84	2.194	2.974
-11	116.5	0.484	85	2.125	2.983
-10	110.3	0.507	86	2.059	2.992
-9	104.6	0.53	87	1.996	3.001

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
-8	99.13	0.554	88	1.934	3.009
-7	94	0.579	89	1.875	3.017
-6	89.17	0.605	90	1.818	3.025
-5	84.61	0.631	91	1.763	3.033
-4	80.31	0.658	92	1.71	3.04
-3	76.24	0.686	93	1.658	3.047
-2	72.41	0.714	94	1.609	3.054
-1	68.79	0.743	95	1.561	3.061
0	65.37	0.773	96	1.515	3.068
1	62.13	0.804	97	1.47	3.074
2	59.08	0.835	98	1.427	3.08
3	56.19	0.866	99	1.386	3.086
4	53.46	0.898	100	1.346	3.092
5	50.87	0.931	101	1.307	3.098
6	48.42	0.965	102	1.269	3.103
7	46.11	0.998	103	1.233	3.108
8	43.92	1.033	104	1.198	3.114
9	41.84	1.067	105	1.164	3.119
10	39.87	1.102	106	1.131	3.123
11	38.01	1.138	107	1.099	3.128
12	36.24	1.174	108	1.069	3.133
13	34.57	1.209	109	1.039	3.137
14	32.98	1.246	110	1.01	3.141
15	31.47	1.282	111	0.9825	3.145
16	30.04	1.319	112	0.9556	3.15
17	28.68	1.356	113	0.9295	3.153
18	27.39	1.393	114	0.9043	3.157
19	26.17	1.429	115	0.8799	3.161
20	25.01	1.466	116	0.8562	3.165
21	23.9	1.503	117	0.8333	3.168
22	22.85	1.54	118	0.8111	3.171
23	21.85	1.577	119	0.7895	3.175
24	20.9	1.614	120	0.7687	3.178
25	20	1.65	121	0.7485	3.181
26	19.14	1.686	122	0.7289	3.184
27	18.32	1.722	123	0.7099	3.187
28	17.55	1.758	124	0.6915	3.19
29	16.8	1.793	125	0.6736	3.192
30	16.1	1.828	126	0.6563	3.195
31	15.43	1.863	127	0.6395	3.198
32	14.79	1.897	128	0.6232	3.2
33	14.18	1.931	129	0.6074	3.203
34	13.59	1.965	130	0.5921	3.205
35	13.04	1.998	131	0.5772	3.207

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
36	12.51	2.03	132	0.5627	3.21
37	12	2.063	133	0.5487	3.212
38	11.52	2.094	134	0.5351	3.214
39	11.06	2.125	135	0.5219	3.216
40	10.62	2.155	136	0.509	3.218
41	10.2	2.185	137	0.4966	3.22
42	9.803	2.215	138	0.4845	3.222
43	9.42	2.243	139	0.4727	3.224
44	9.054	2.272	140	0.4613	3.226
45	8.705	2.299	141	0.4502	3.227
46	8.37	2.326	142	0.4394	3.229
47	8.051	2.353	143	0.4289	3.231
48	7.745	2.379	144	0.4187	3.232
49	7.453	2.404	145	0.4088	3.234
50	7.173	2.429	146	0.3992	3.235
51	6.905	2.453	147	0.3899	3.237
52	6.648	2.477	148	0.3808	3.238
53	6.403	2.5	149	0.3719	3.24
54	6.167	2.522	150	0.3633	3.241
55	5.942	2.544	151	0.3549	3.242
56	5.726	2.565	152	0.3468	3.244
57	5.519	2.586	153	0.3389	3.245
58	5.32	2.607	154	0.3312	3.246
59	5.13	2.626	155	0.3237	3.247
60	4.948	2.646	156	0.3164	3.249
61	4.773	2.664	157	0.3093	3.25
62	4.605	2.682	158	0.3024	3.251
63	4.443	2.7	159	0.2956	3.252
64	4.289	2.717	160	0.2891	3.253
65	4.14	2.734			

1.3 Voltage List of 50 KΩ Discharge Temperature Sensors (including discharge air temperature sensor)

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
-30	911.56	0.036	61	11.736	1.518
-29	853.66	0.038	62	11.322	1.548
-28	799.98	0.041	63	10.925	1.577
-27	750.18	0.043	64	10.544	1.606
-26	703.92	0.046	65	10.178	1.635
-25	660.93	0.049	66	9.8269	1.664
-24	620.94	0.052	67	9.4896	1.693
-23	583.72	0.056	68	9.1655	1.722

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
-22	549.04	0.059	69	8.9542	1.741
-21	516.71	0.063	70	8.5551	1.778
-20	486.55	0.066	71	5.9676	1.806
-19	458.4	0.07	72	7.9913	1.834
-18	432.1	0.075	73	7.7257	1.862
-17	407.51	0.079	74	7.4702	1.889
-16	384.51	0.084	75	7.2245	1.916
-15	362.99	0.088	76	6.9882	1.943
-14	342.83	0.094	77	6.7608	1.969
-13	323.94	0.099	78	6.542	1.995
-12	306.23	0.104	79	6.3315	2.021
-11	289.61	0.11	80	6.1288	2.046
-10	274.02	0.116	81	5.9336	2.071
-9	259.37	0.123	82	5.7457	2.096
-8	245.61	0.129	83	5.5647	2.12
-7	232.67	0.136	84	5.3903	2.144
-6	220.5	0.143	85	5.2223	2.168
-5	209.05	0.151	86	5.0605	2.191
-4	195.97	0.158	87	4.9044	2.214
-3	188.12	0.167	88	4.7541	2.237
-2	178.65	0.175	89	4.6091	2.259
-1	169.68	0.184	90	4.4693	2.281
0	161.02	0.193	91	4.3345	2.302
1	153	0.202	92	4.2044	2.323
2	145.42	0.212	93	4.0789	2.344
3	135.96	0.223	94	3.9579	2.364
4	131.5	0.233	95	3.841	2.384
5	126.17	0.242	96	3.7283	2.404
6	119.08	0.256	97	3.6194	2.423
7	113.37	0.267	98	3.5143	2.442
8	107.96	0.28	99	3.4128	2.46
9	102.85	0.292	100	3.3147	2.478
10	98.006	0.306	101	3.22	2.496
11	93.42	0.319	102	3.1285	2.514
12	89.075	0.333	103	3.0401	2.531
13	84.956	0.348	104	2.9547	2.547
14	81.052	0.362	105	2.8721	2.564
15	77.349	0.378	106	2.7922	2.58
16	73.896	0.393	107	2.715	2.595
17	70.503	0.41	108	2.6404	2.611
18	67.338	0.427	109	2.5682	2.626
19	64.333	0.444	110	2.4983	2.64
20	61.478	0.462	111	2.4308	2.655
21	58.766	0.48	112	2.3654	2.669

Temperature (℃)	Resistance (kΩ)	Voltage (V)	Temperature (℃)	Resistance (kΩ)	Voltage (V)
22	56.189	0.499	113	2.3021	2.682
23	53.738	0.518	114	2.2409	2.696
24	51.408	0.537	115	2.1816	2.709
25	49.191	0.558	116	2.1242	2.722
26	47.082	0.578	117	2.0686	2.734
27	45.074	0.599	118	2.0148	2.747
28	43.163	0.621	119	1.9626	2.759
29	41.313	0.643	120	1.9123	2.77
30	39.61	0.665	121	1.8652	2.781
31	37.958	0.688	122	1.8158	2.793
32	36.384	0.711	123	1.7698	2.804
33	34.883	0.735	124	1.7253	2.814
34	33.453	0.759	125	1.6821	2.825
35	32.088	0.784	126	1.6402	2.835
36	30.787	0.809	127	1.5996	2.845
37	29.544	0.835	128	1.5602	2.855
38	28.359	0.86	129	1.522	2.864
39	27.227	0.886	130	1.485	2.873
40	26.147	0.913	131	1.449	2.882
41	25.114	0.94	132	1.4141	2.891
42	24.128	0.967	133	1.3803	2.9
43	23.186	0.994	134	1.3474	2.908
44	22.286	1.022	135	1.3155	2.916
45	21.425	1.05	136	1.2846	2.924
46	20.601	1.078	137	1.2545	2.932
47	19.814	1.107	138	1.2233	2.94
48	19.061	1.136	139	1.1969	2.947
49	18.34	1.164	140	1.1694	2.955
50	17.651	1.193	141	1.1476	2.96
51	16.99	1.223	142	1.1166	2.969
52	16.358	1.252	143	1.0913	2.975
53	15.753	1.281	144	1.0667	2.982
54	15.173	1.311	145	1.0429	2.988
55	14.618	1.34	146	1.0197	2.995
56	14.085	1.37	147	0.9971	3.001
57	13.575	1.4	148	0.9752	3.007
58	13.086	1.429	149	0.9538	3.013
59	12.617	1.459	150	0.9331	3.018
60	12.368	1.475			

2. Temperature/Pressure List of Refrigerant

R32							
Pressure	Temperature		Pressure	Temperature		Pressure	Temperature
Kpa	℃		Kpa	℃		Kpa	℃
100	-51.909		1250	14.153		2400	38.688
150	-43.635		1300	15.52		2450	39.529
200	-37.323		1350	16.847		2500	40.358
250	-32.15		1400	18.138		2550	41.173
300	-27.731		1450	19.395		2600	41.977
350	-23.85		1500	20.619		2650	42.769
400	-20.378		1550	21.813		2700	43.55
450	-17.225		1600	22.978		2750	44.32
500	-14.331		1650	24.116		2800	45.079
550	-11.65		1700	25.229		2850	45.828
600	-9.1503		1750	26.317		2900	46.567
650	-6.8046		1800	27.382		2950	47.296
700	-4.5925		1850	28.425		3000	48.015
750	-2.4975		1900	29.447		3050	48.726
800	-0.50613		1950	30.448		3100	49.428
850	1.393		2000	31.431		3150	50.121
900	3.2092		2050	32.395		3200	50.806
950	4.9506		2100	33.341		3250	51.482
1000	6.624		2150	34.271		3300	52.15
1050	8.2352		2200	35.184		3350	52.811
1100	9.7896		2250	36.082		3400	53.464
1150	11.291		2300	36.965		3450	54.11
1200	12.745		2350	37.834		3500	54.748

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:

1.Refrigerant charging quantity for the entire system (ex-factory charging quantity + additional charging quantity);

2.Checking out in the applicable tables:

(1) For indoor unit, confirm the model of indoor unit and check the corresponding table.

(2) 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

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

Ceiling type		Wall mounted type		Floor standing type	
Weight (kg)	Area (m^2)	Weight (kg)	Area (m^2)	Weight (kg)	Area (m^2)
< 1.224	_	< 1.224	_	< 1.224	_
1.224	0.956	1.224	1.43	1.224	12.9
1.4	1.25	1.4	1.87	1.4	16.8
1.6	1.63	1.6	2.44	1.6	22.0
1.8	2.07	1.8	3.09	1.8	27.8
2.0	2.55	2.0	3.81	2.0	34.3
2.2	3.09	2.2	4.61	2.2	41.5
2.4	3.68	2.4	5.49	2.4	49.4
2.6	4.31	2.6	6.44	2.6	58.0
2.8	5.00	2.8	7.47	2.8	67.3
3.0	5.74	3.0	8.58	3.0	77.2
3.2	6.54	3.2	9.76	3.2	87.9
3.4	7.38	3.4	11.0	3.4	99.2
3.6	8.27	3.6	12.4	3.6	111
3.8	9.22	3.8	13.8	3.8	124
4.0	10.2	4.0	15.3	4.0	137
4.2	11.3	4.2	16.8	4.2	151
4.4	12.4	4.4	18.5	4.4	166
4.6	13.5	4.6	20.2	4.6	182
4.8	14.7	4.8	22.0	4.8	198
5.0	16.0	5.0	23.8	5.0	215
5.2	17.3	5.2	25.8	5.2	232
5.4	18.6	5.4	27.8	5.4	250
5.6	20.0	5.6	29.9	5.6	269
5.8	21.5	5.8	32.1	5.8	289
6.0	23.0	6.0	34.3	6.0	309
6.2	24.5	6.2	36.6	6.2	330
6.4	26.1	6.4	39.1	6.4	351
6.6	27.8	6.6	41.5	6.6	374
6.8	29.5	6.8	44.1	6.8	397
7.0	31.3	7.0	46.7	7.0	420
7.2	33.1	7.2	49.4	7.2	445
7.4	34.9	7.4	52.2	7.4	470
7.6	36.9	7.6	55.1	7.6	496
7.8	38.8	7.8	58.0	7.8	522
8.0	40.8	8.0	61.0	8.0	549

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.