9. Maintenance

9.1 Error Code List

Malfunction Name	Display Method of Indoor Unit (Error Code)	A/C Status	Possible Causes(For specific maintenance method, please refer to the following procedure of troubleshooting)
Indoor ambient temperature sensor is open/ short- circuited	F1	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except indoor fan operates, other loads(such as compressor, outdoor fan, 4-way valve) stop operation; During heating operation, the complete unit stops operation.	1. The wiring terminal between indoor ambient temperature sensor and controller is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on controller; 3.Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken.
Indoor evaporator temperature sensor is open/ short-circuited	F2	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except indoor fan operates, other loads stop operation; During heating operation, the complete unit stops operation.	1. The wiring terminal between indoor evaporator temperature sensor and controller is loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3.Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken.
Blocked protection of IDU fan motor	H6	IDU fan, ODU fan, compressor and electric heat tube stop operation. Horizontal louver stops at the current position.	1. The feedback terminal of PG motor is not connected tightly. 2. The control terminal of PG motor is not connected tightly. 3. Fan blade rotates unsmoothly. 4. Malfunction of motor 5. Main board is broken.
Malfunction protection of jumper cap	C5	Operation of remote controller or control panel is available, but the unit won't act.	1. There's not jumper cap on the main board. 2. Jumper cap is not inserted properly and tightly. 3. Jumper cap is damaged. 4. Controller is damaged.
Zero-crossing inspection circuit malfunction of the IDU fan motor	U8	Operation of remote controller or control panel is available, but the unit won't act.	1. Quick de-energization and energization. Wrong judgement by the controller because the electricdischarging of capacitor is slow. 2. Zero-crossing inspection circuit of main board for controller is abnormal.
High pressure protection	E1	During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, if it is inverter unit, the complete unit stops; if it is floor standing unit, the complete unit stops and operation of remote controller or controller is unavailable.	1. The main board and the display panel are not connected well. 2. The OVC terminal on main board is not connected well with the high pressure switch on the complete unit. 3. The wiring of high pressure switch is loosened. 4. Refrigerant is superabundant; 5. Poor heat exchange (including blocked heat exchanger and bad radiating environment); 6. Ambient temperature is too high; (if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason) 7. The supply voltage is abnormal (if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason) 8. The air intake and air discharge at indoor / outdoor heat exchanger are not smooth. The air cycle is short circuited. 9. Filter and heat exchange fins of indoor/outdoor units are blocked. 10. The system pipeline is blocked. 11. The gas valve and liquid valve for outdoor unit are not completely opened. 12. The OVC input is at high level.
Communication malfunction	E6	During cooling operation, compressor stops while indoor fan motor operates. During heating operation , the complete unit stops.	1. The communication line is not connected tightly or poorly contacted. Poor contact of any line may cause communication malfunction. 2. The match between main board and display panel is incorrect. Indoor and outdoor unit boards are matched incorrectly. 3. Incorrect wire connection. 4. Controller is damaged.

Overcurrent protection	E5	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. Unstable supply voltage. Normal fluctuation shall be within 10% of the rated voltage on the nameplate. 2. Supply voltage is too low and load is too high. 3. Measure the current of live wire on main board. If the current isn't higher than the overcurrent protection value, please check the controller. 4. The indoor and outdoor heat exchangers are too dirty, or the air inlet and air outlet are blocked. 5. The fan motor is not running. Abnormal fan speed: fan speed is too low or the fan doesn't run 6. The compressor is not running normally. There is abnormal sound, oil leakage or the temperature of the shell is too high, etc. 7. There's blockage in the system (filth blockage, ice plug, greasy blockage, Y-valve hasn't been opened completely)
Overload malfunction	E8	The entire unit stops.	1. Indoor and outdoor heat exchanger is too dirty? Or air inlet/outlet is blocked? 2. Fan motor doesn't work at a normal fan speed; fan speed is toolow or the fan doesn't run. 3. Compressor operates normally or not? Is there any abnormal noise or oil leak? Casing is too hot? 4. System is blocked inside? (Dirt blockage? Ice blockage? Oil blockage? Y-valve is not fully open?) 5. Main board temperature sensor detects wrongly.
Overload protection for compressor	H3	The entire unit stops.	1. Outdoor and indoor heat exchangers are too dirty or the air inlet/ outlet is blocked. 2. Fan motor doesn't work at a normal fan speed; fan speed is too low or the fan doesn't run. 3. Compressor doesn't work normally. Strange noise or leakage occurs. Temperature of the shell is too high. 4. System is blocked inside(dirt block, ice block, oil block, Y-valve not fully open). 5. High pressure switch is abnormal 6. The refrigerant is leaking and cause overheating protection to compressor
Insufficient fluorine protection	F0	Indoor fan runs according to set fan and other loads will stop.	1.Refrigerant leakage; 2.Indoor evaporator temperature sensor works abnormally; 3.The unit has been plugged up somewhere; 4.The compressor can't be started up normally. Because the power voltage for the complete unit is too low, and the outdoor working condition is too high.
Outdoor condenser temperature sensor is open/shortcircuited	F4	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, compressor stops and indoor fan operates; During eating operation , the complete unit stops operation.	1. The wiring terminal between outdoor condenser temperature sensor and controller is loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3.Outdoor condenser temperature sensor is damaged; (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken.
Malfunction of detecting plate(WIFI)	JF	Loads operate normally, while the unit can't be normally controlled by APP.	1. Main board of indoor unit is damaged; 2. Detection board is damaged; 3. The connection between indoor unit and detection board is not good;
Anti-freezing protection for evaporator	E2		Not the error code. It's the status code for the operation.
Cold air prevention protection	H1		Not the error code. It's the status code for the operation.
Refrigerant recovery mode	Fo		Refrigerant recovery. The Serviceman operates it for maintenance.

Defrosting	Heating indicator off for 0.5s and then blinks for 10s		Not the error code. It's the status code for the operation.
Undefined outdoor unit error	oE	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stop operation.	1. Outdoor ambient temperature exceeds the operation range of unit (eg: less than-20°C or more than 60°C for cooling; more than 30°C for heating); 2. Failure startup of compressor? 3. Are wires of compressor not connected tightly? 4. Is compressor damaged? 5. Is main board damaged?
Cold air prevention protection	E9		Not the error code. It's the status code for the operation.

9.2 Procedure of Troubleshooting

●Indoor unit:

1. Malfunction of Temperature Sensor F1, F2

Main detection points:

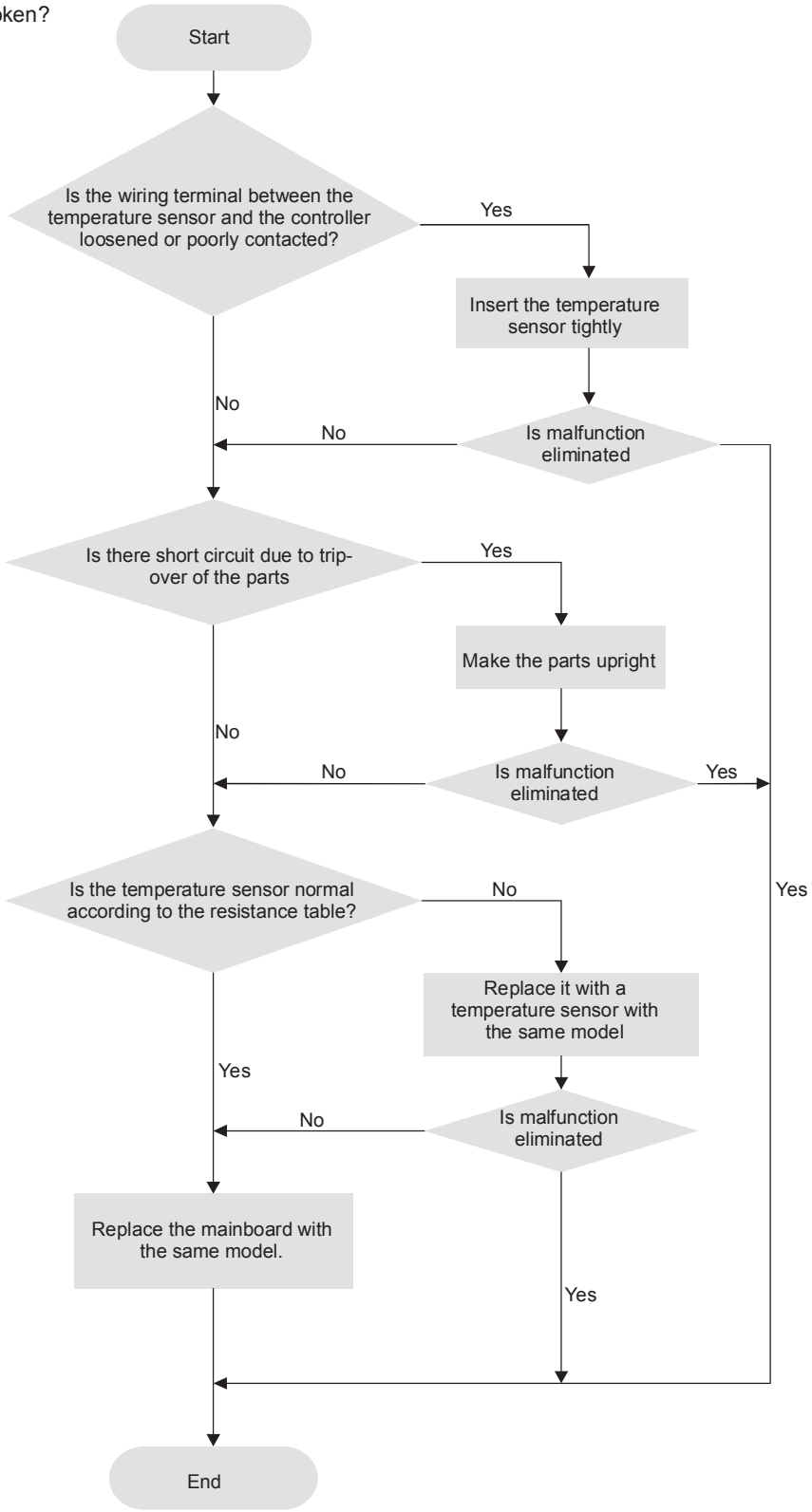
● Is the wiring terminal between the temperature sensor and the controller loosened or poorly contacted?

● Is there short circuit due to trip-over of the parts?

● Is the temperature sensor broken?

● Is mainboard broken?

Malfunction diagnosis process:

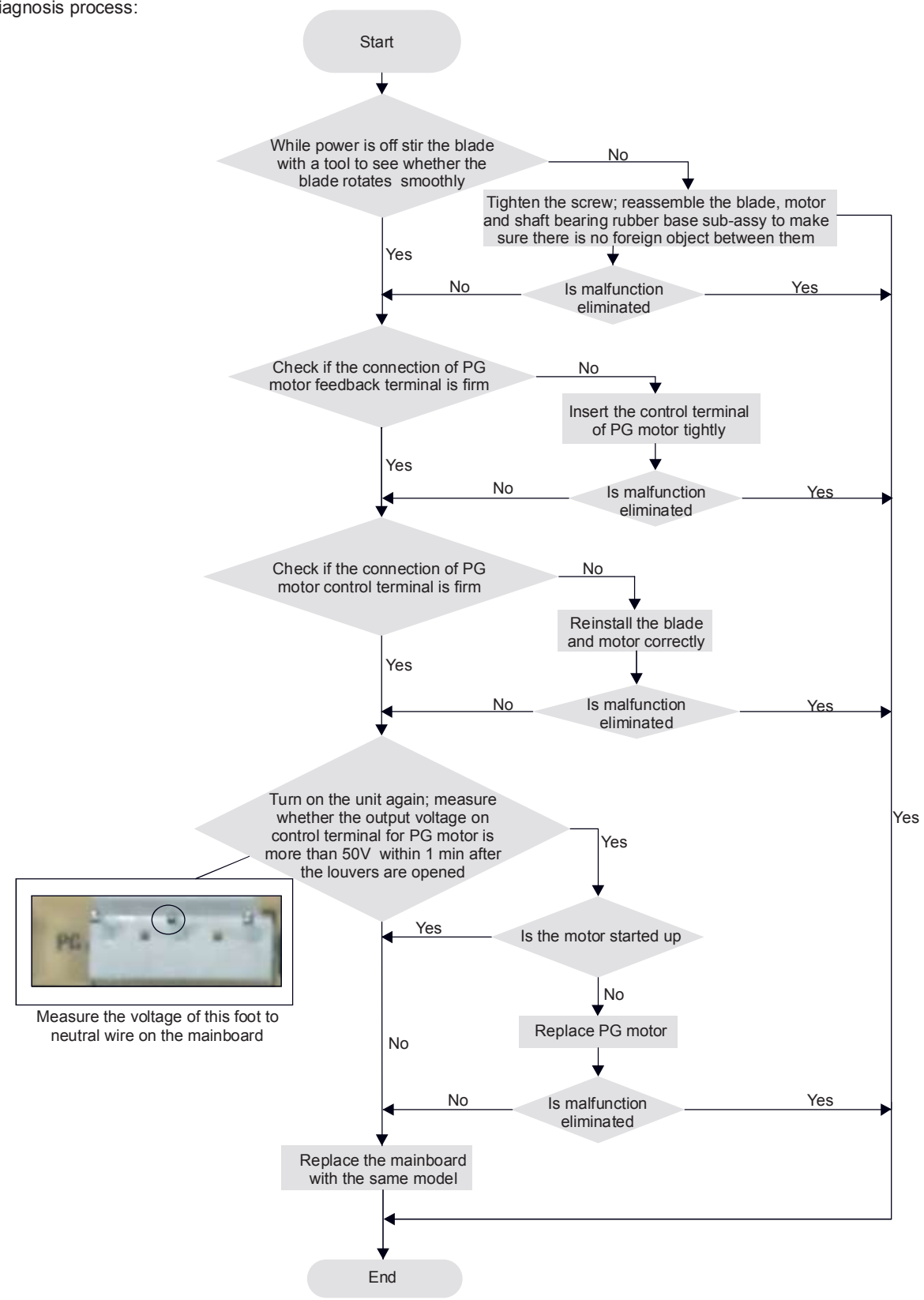


2. Malfunction of Blocked Protection of IDU Fan Motor H6

Main detection points:

- Smoothlyls the control terminal of PG motor connected tightly?
- Smoothlyls the feedback interface of PG motor connected tightly?
- The fan motor can't operate?
- The motor is broken?
- Detectioncircuit of the mainboard is defined abnormal?

Malfunction diagnosis process:

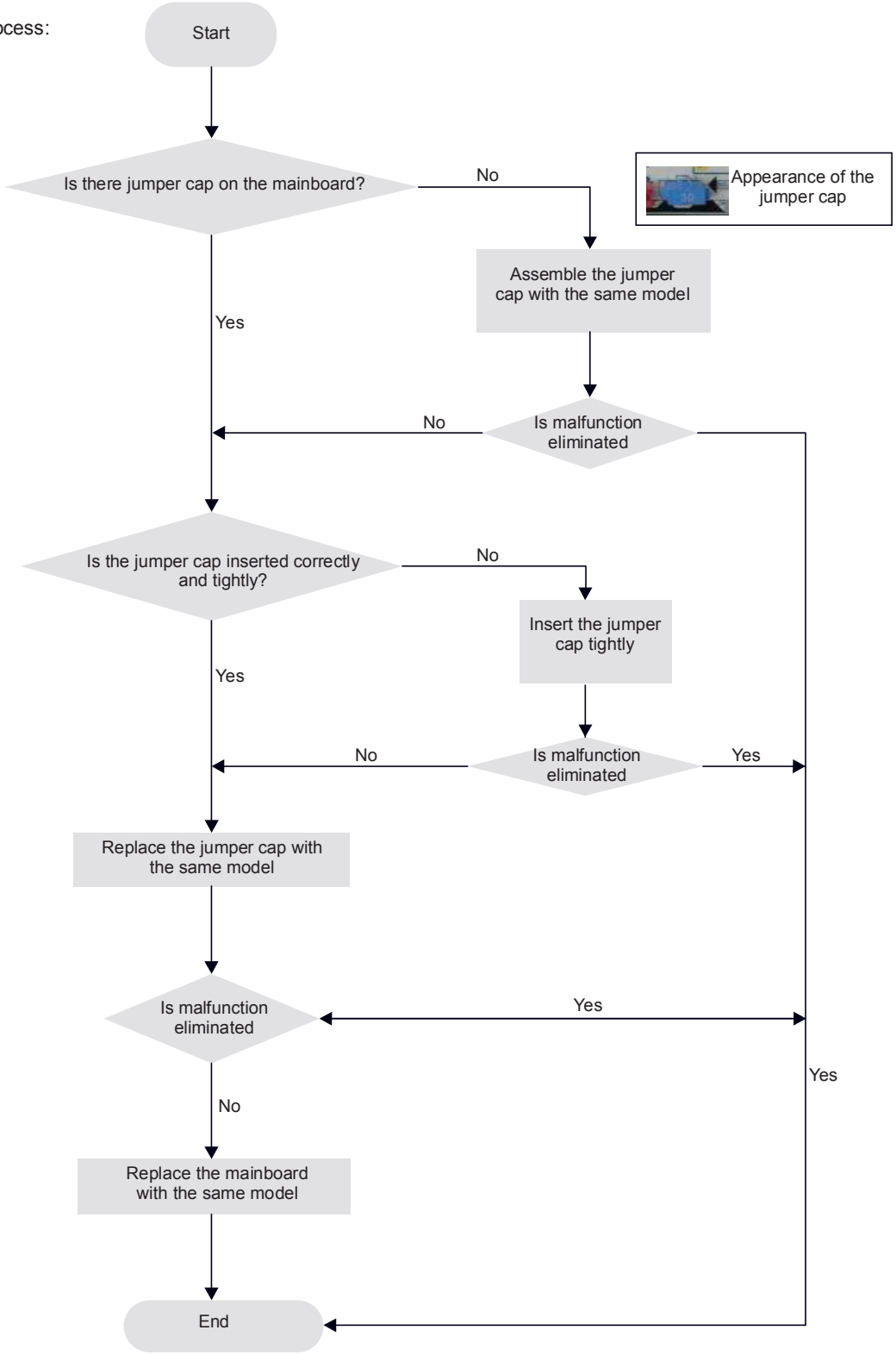


3. Malfunction of Protection of Jumper Cap C5

Main detection points:

- Is there jumper cap on the mainboard?
- Is the jumper cap inserted correctly and tightly?
- The jumper is broken?
- The motor is broken?
- Detection circuit of the mainboard is defined abnormal?

Malfunction diagnosis process:



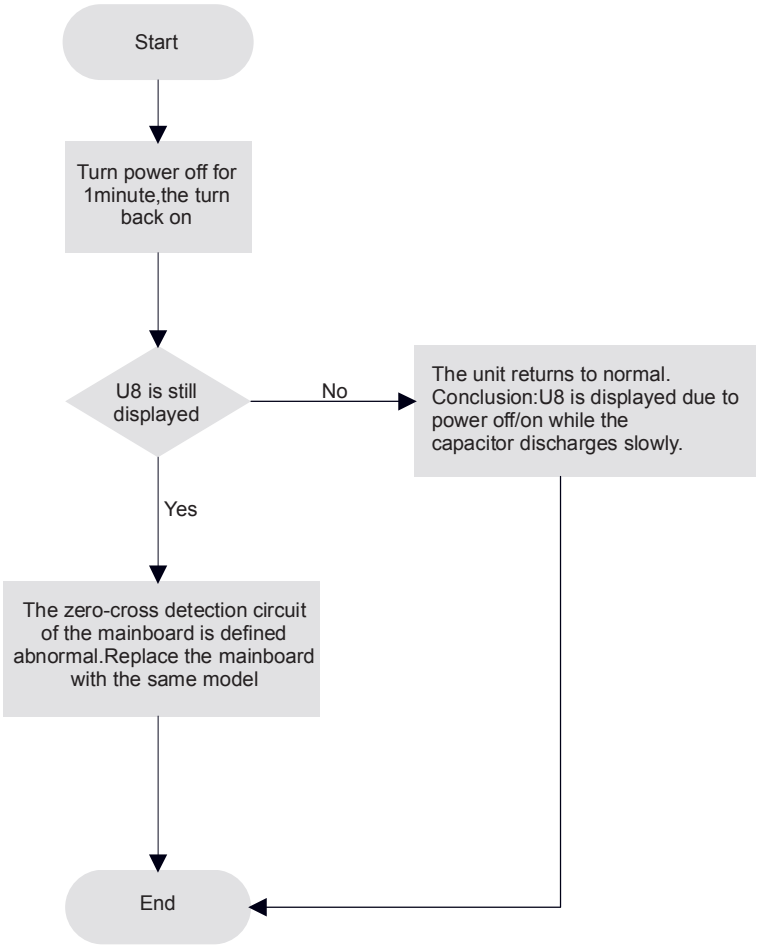
4. Malfunction of Zero-crossing Inspection Circuit Malfunction of the IDU Fan Motor U8

Main detection points:

● Instant energization afte de-energization while the capacitordischarges slowly?

● The zero-cross detectioncircuit of the mainboard is defined abnormal?

Malfunction diagnosis process:



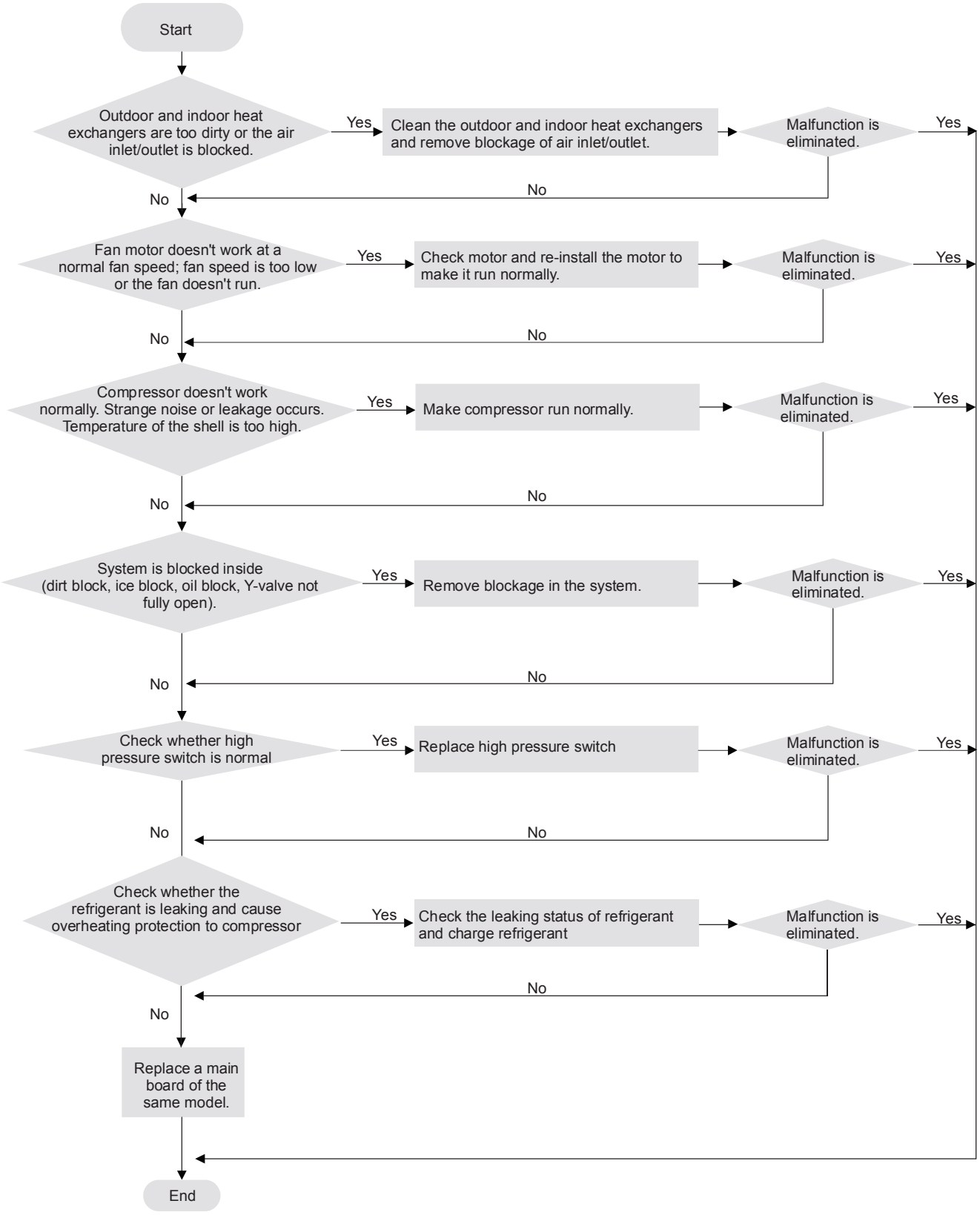
5. High pressure protection (E1)

6. Overload Protection Compressor H3

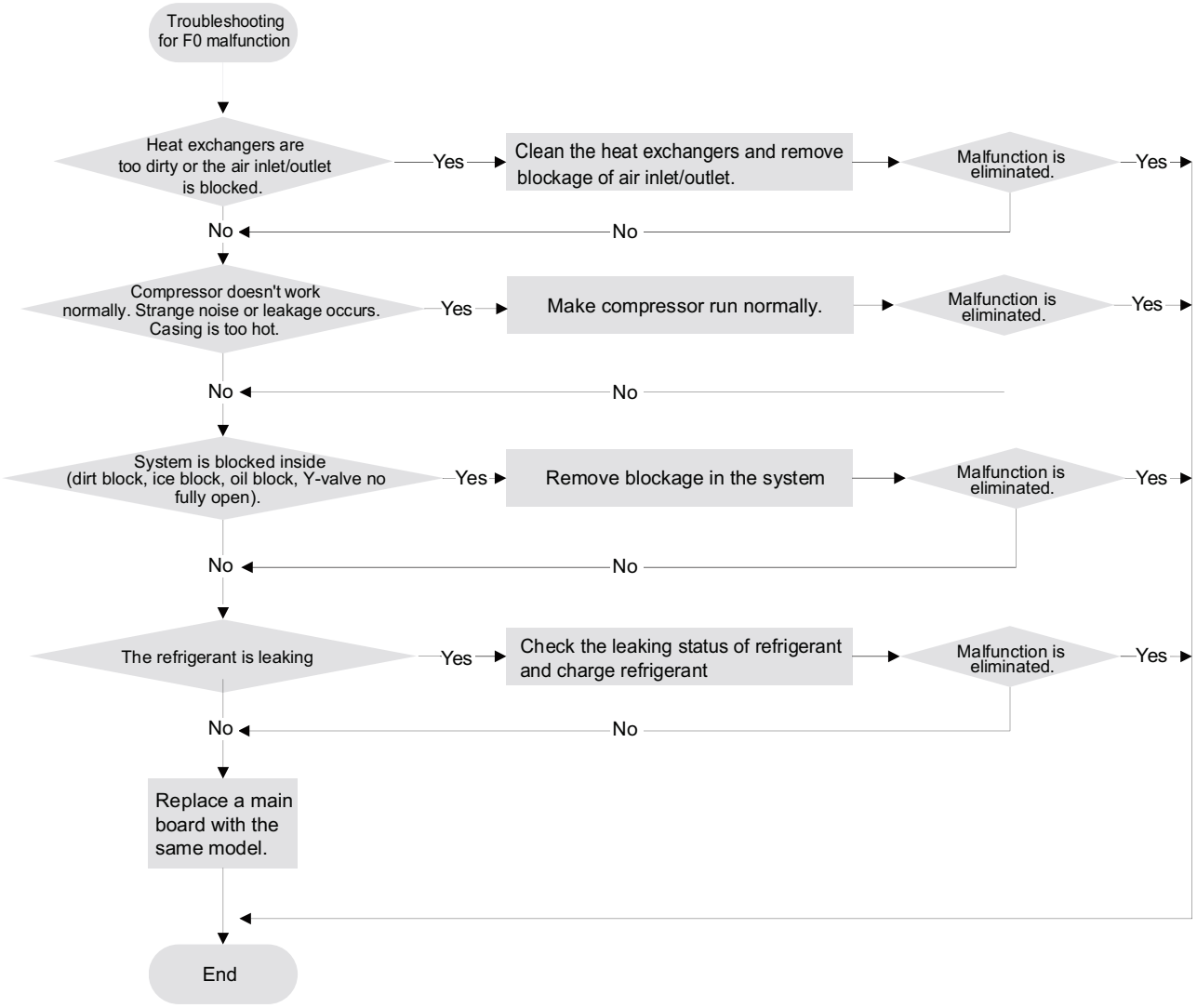
Main detection points:

- Heat exchange of unit is not good? (heat exchanger is dirty and unit radiating environment is bad)
- Fan motor is not working?
- Too much load of the system causes high temperature of compressor after working for a long time?
- Whether high pressure switch is normal?
- If the refrigerant is leaked?

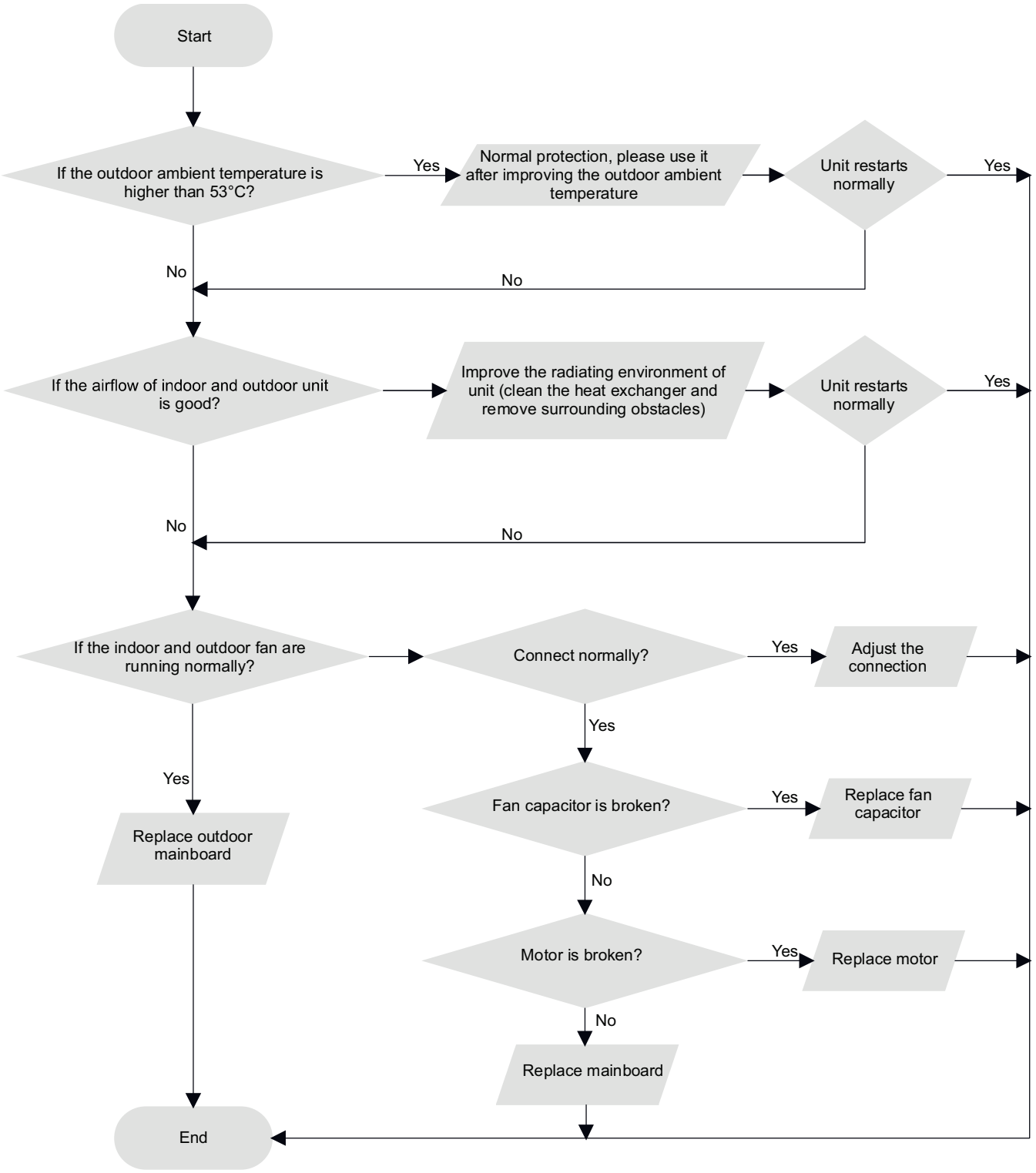
Malfunction diagnosis process:



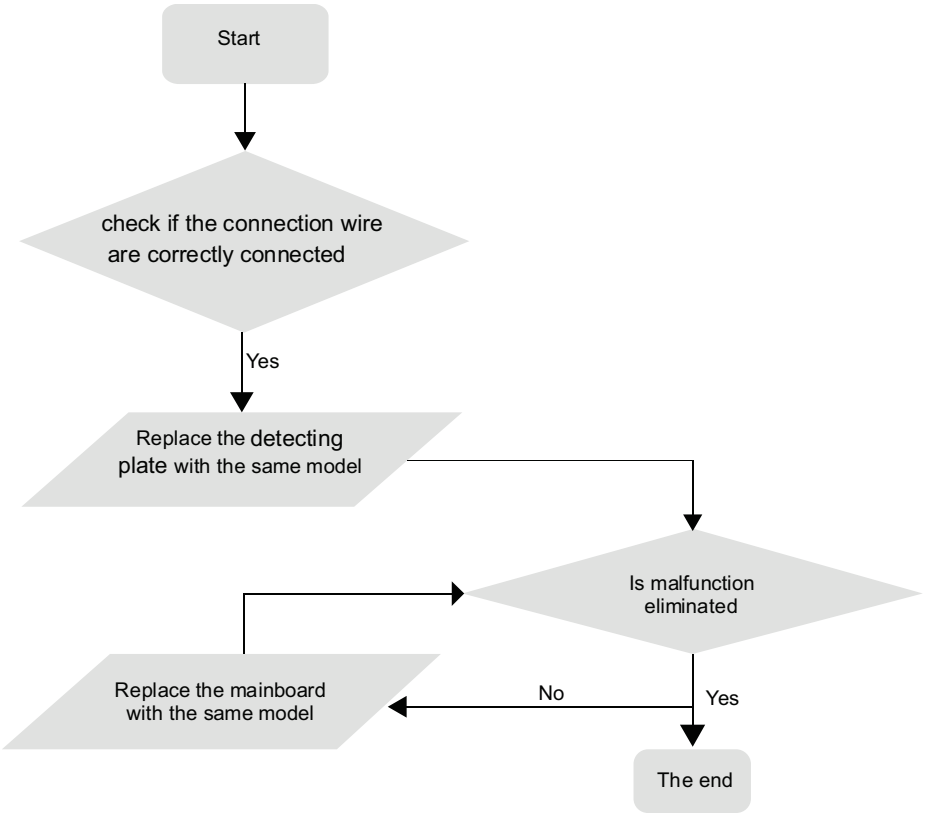
7. Malfunction of Insufficient fluorine protection F0



8. High Temperature and Overload Protection (AP1 below means control board of outdoor unit) E8



9. Malfunction of detecting plate(WIFI) JF



9. Maintenance

●Outdoor unit:

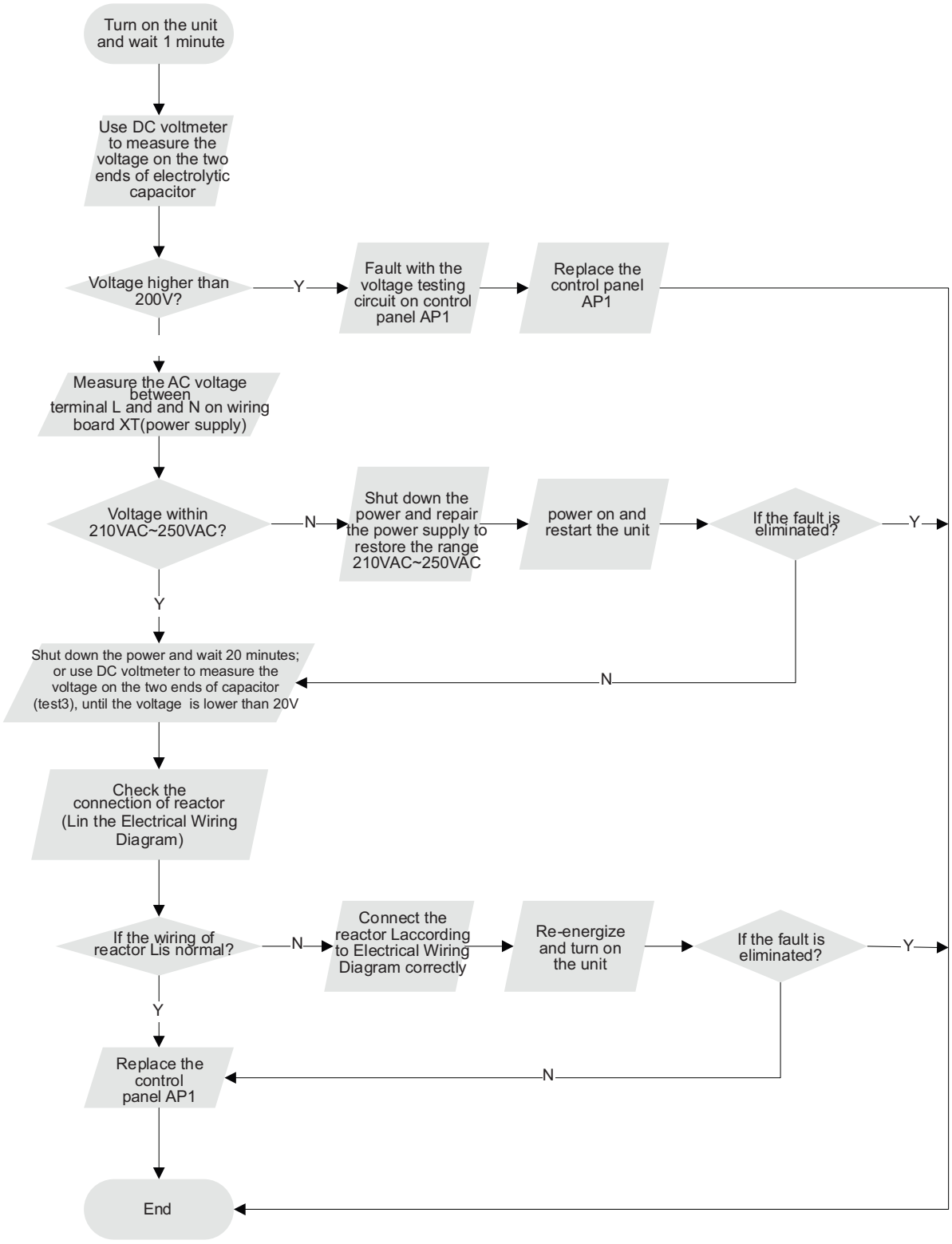
1.Capacity charging malfunction (outdoor unit malfunction) (AP1 below is control board of outdoor unit)

Main detection point:

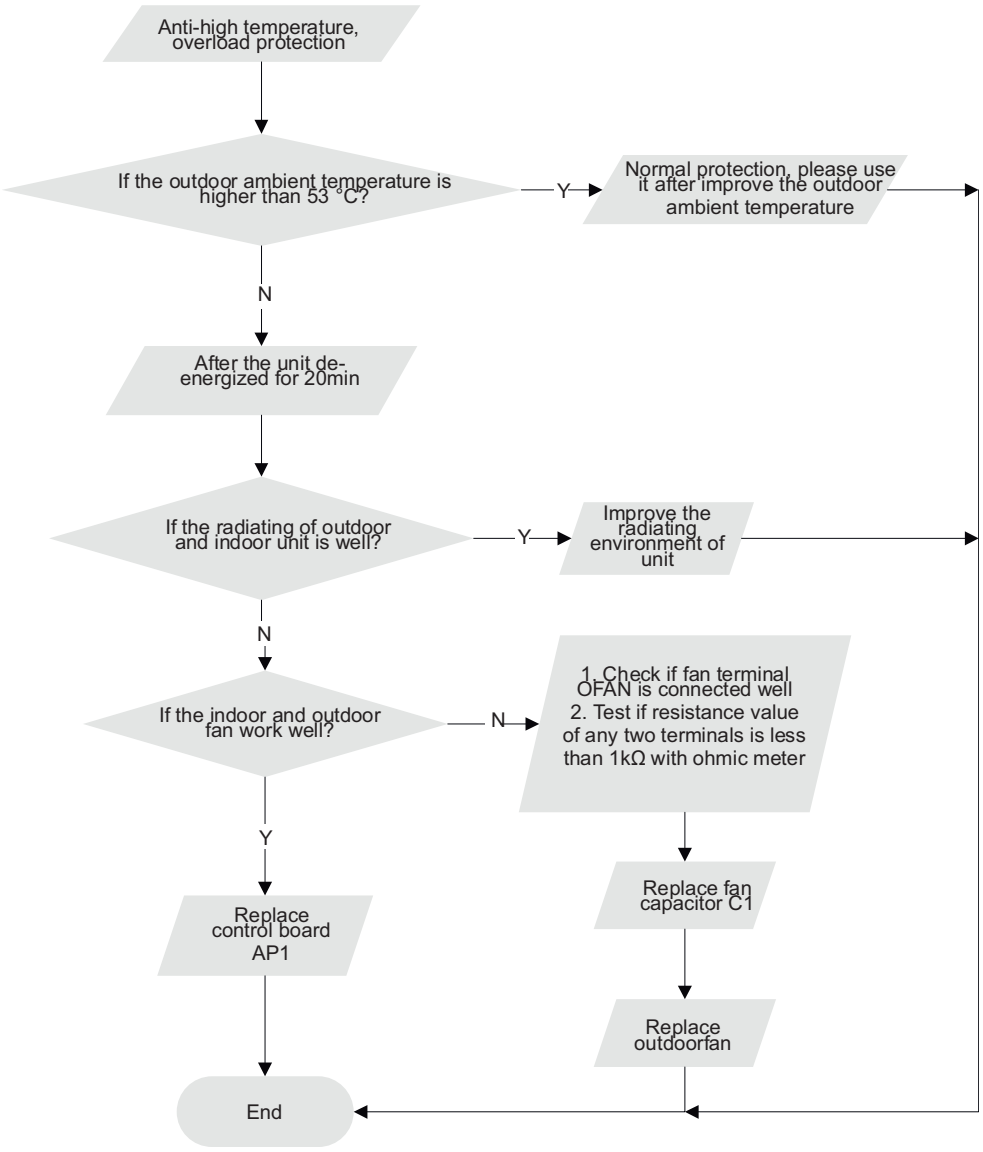
● Detect if the voltage of L and N terminal of wiring board is between 210AC-240AC by alternating voltage meter;

● Is reactor (L) well connected? Is connection wire loosened or pull-out? Is reactor (L) damaged?

Malfunction diagnosis process:



2.Diagnosis for anti-high temperature, overload protection (AP1 below is control board of outdoor unit)

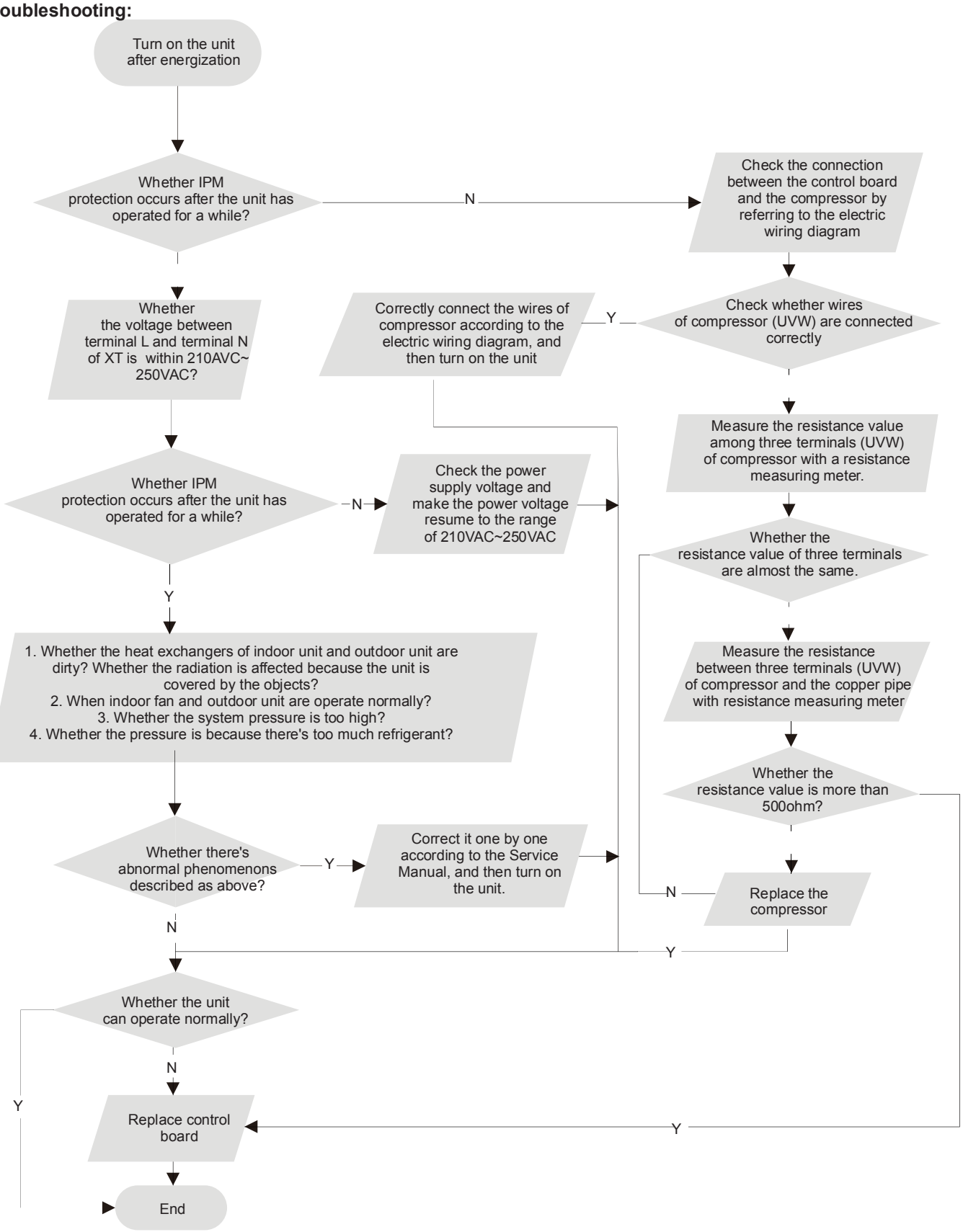


3.IPM protection, phase current overcurrent (the control board as below indicates the control board of outdoor unit) H5/P5

Mainly detect:

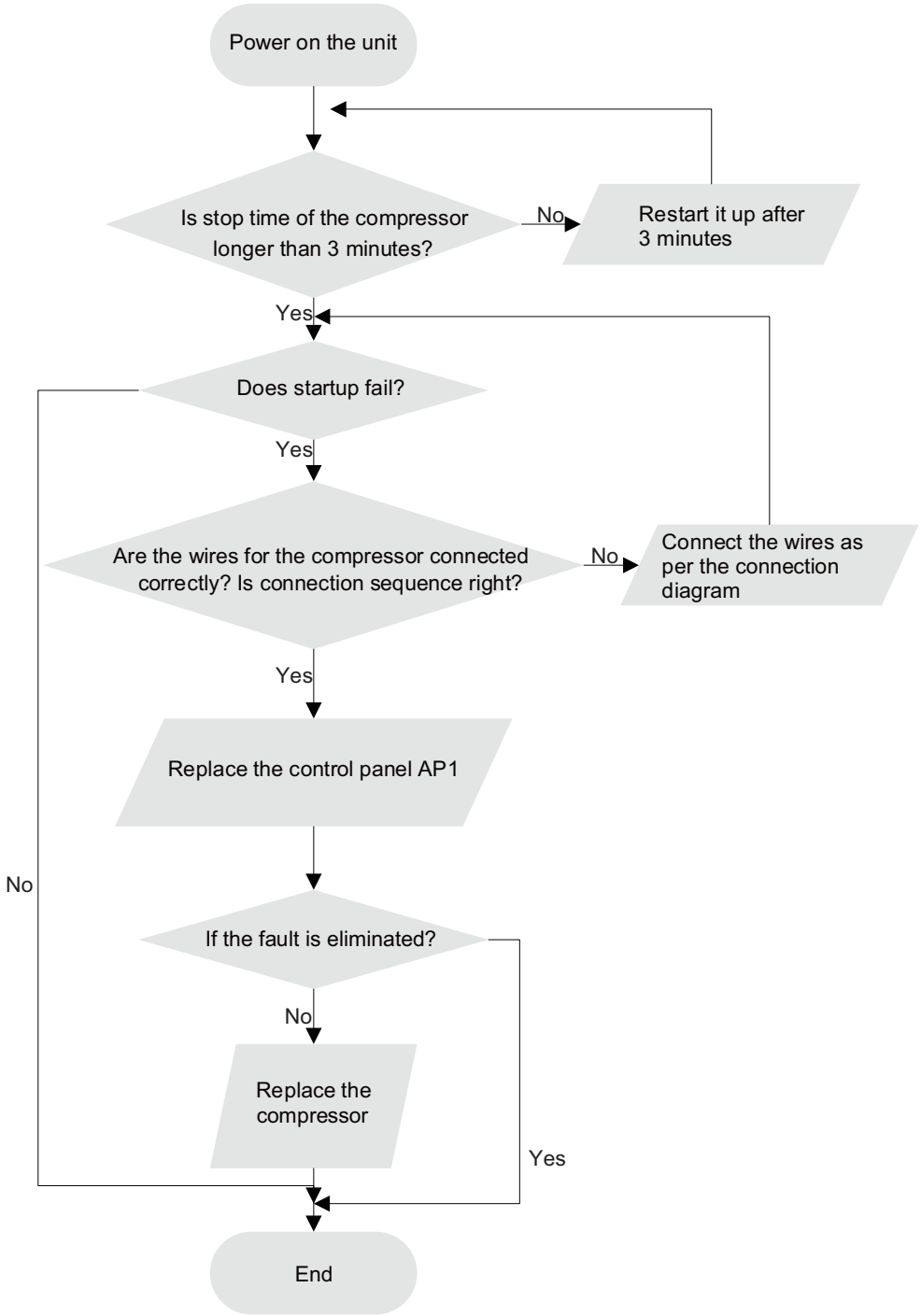
(1) Compressor COMP terminal (2) voltage of power supply (3) compressor
(4) Refrigerant-charging volume (5) air outlet and air inlet of outdoor/indoor unit

Troubleshooting:



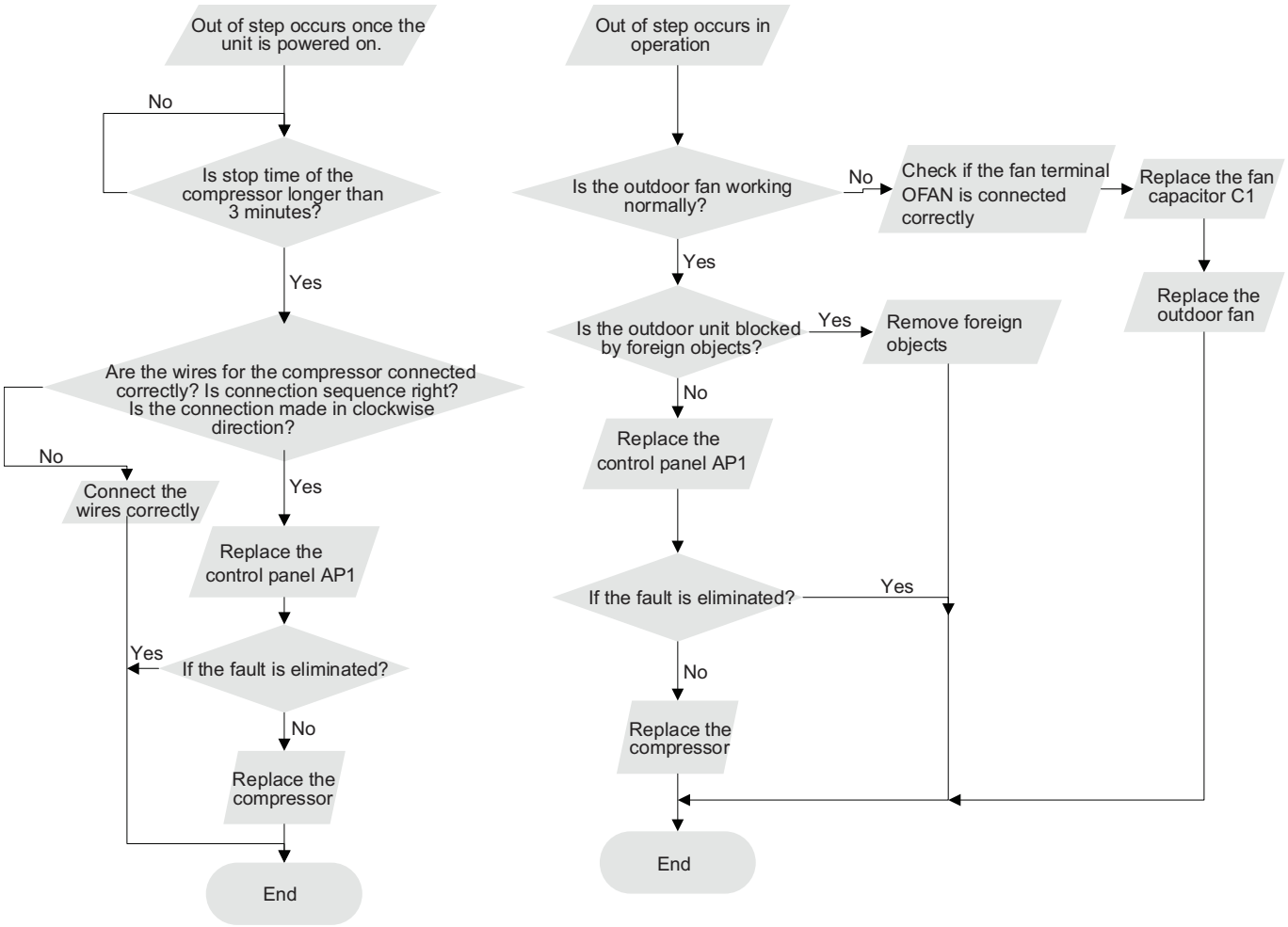
4. Start-up failure (following AP1 for outdoor unit control board)

Mainly detect:
●Whether the compressor wiring is connected correct?
●Is compressor broken?
●Is time for compressor stopping enough?
Fault diagnosis process:



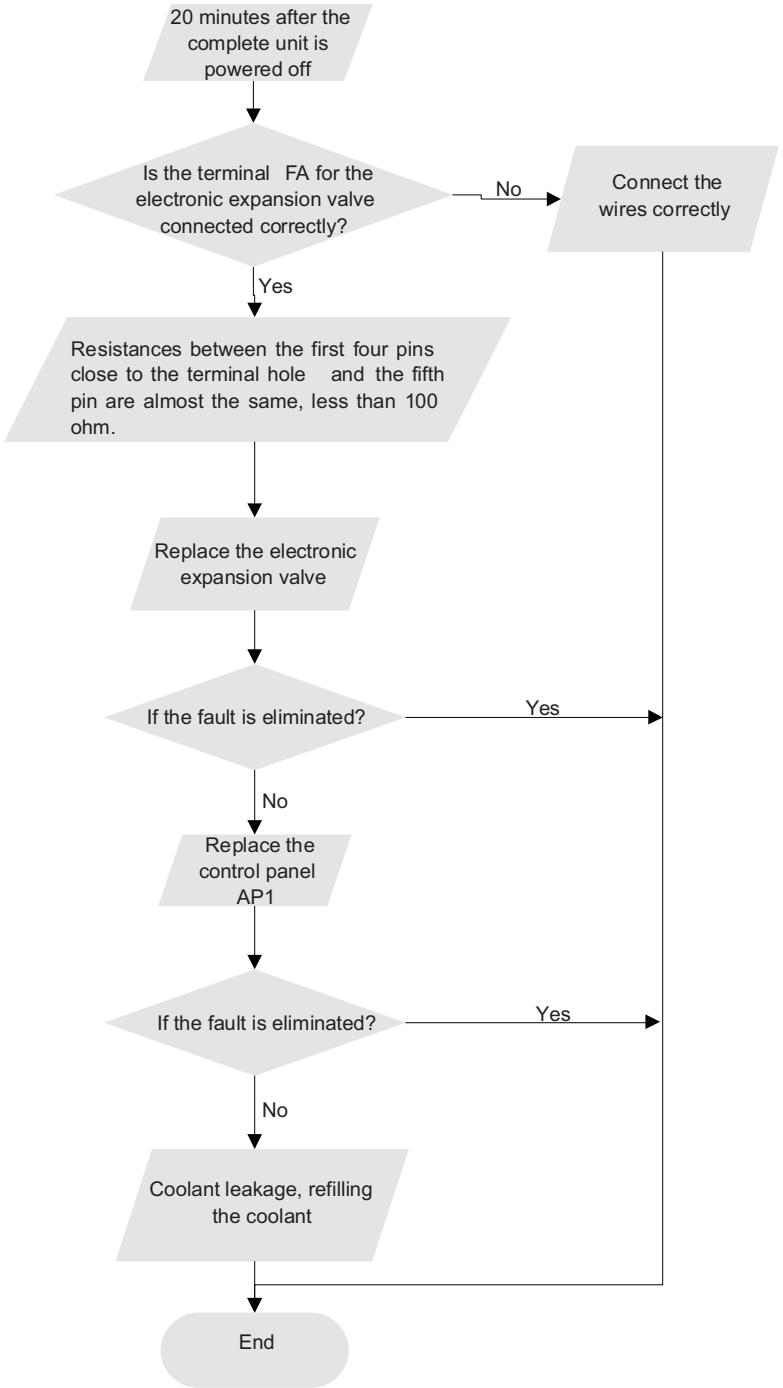
5. Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:
●Is the system pressure too high?
●Is the input voltage too low?
Fault diagnosis process:



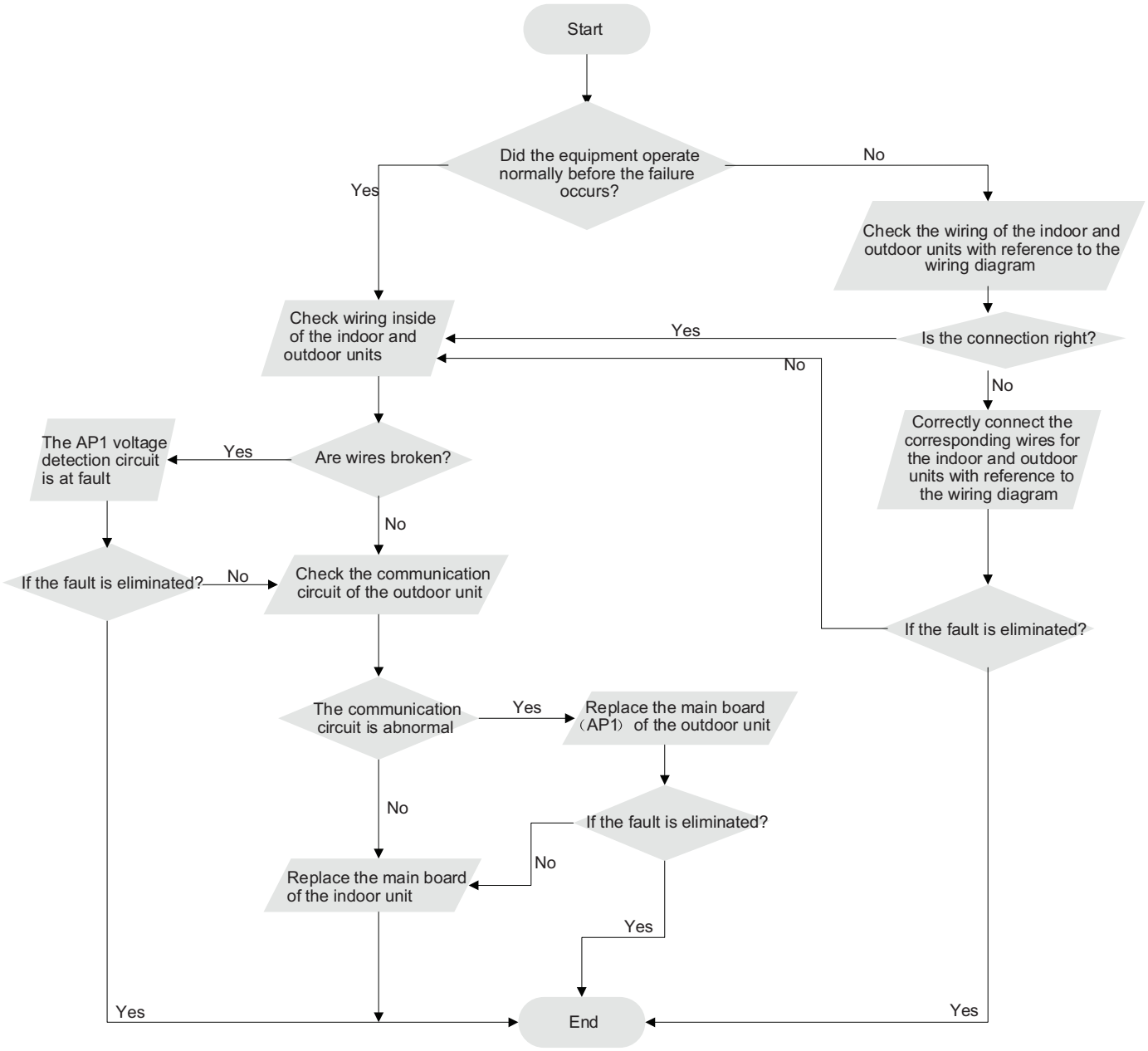
6. Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit control board)

Mainly detect:
●Is the PMV connected well or not? Is PMV damaged?
●Is refrigerant leaked?
Fault diagnosis process:



7. Communication malfunction: (following AP1 for outdoor unit control board)

Mainly detect:
●Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?
●Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, if is there any
damage?
Fault diagnosis process:

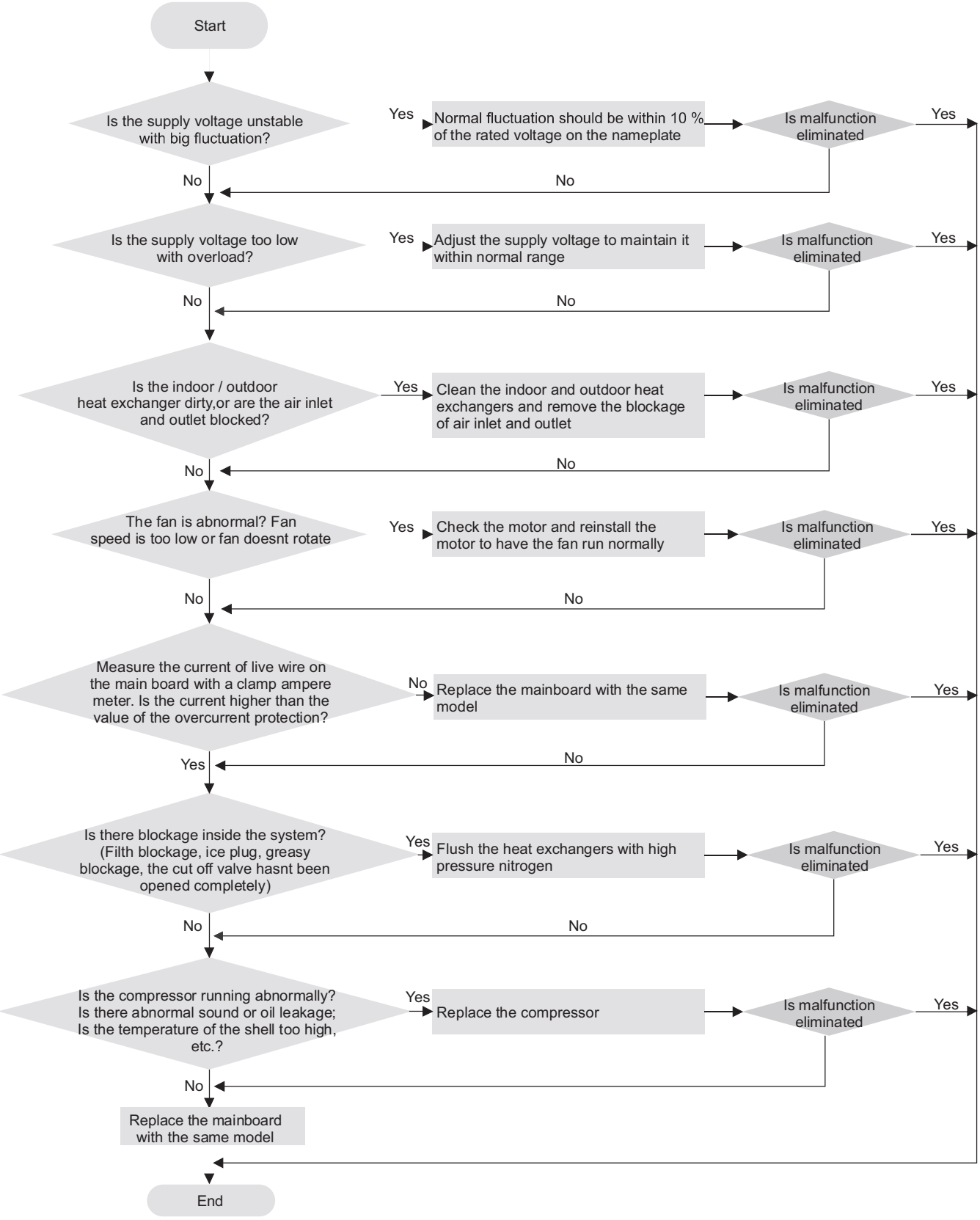


8. Malfunction of Overcurrent Protection

Main detection points:

- Is the supply voltage unstable with big fluctuation?
- Is the supply voltage too low with overload?
- Hardware trouble?

Malfunction diagnosis process:



9. Maintenance

9.3 Troubleshooting for Normal Malfunction

1. Air Conditioner Can't be Started Up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	Under normal power supply circumstances, operation indicator isn't bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord.
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action.	Replace batteries for remote controller Repair or replace remote controller

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see its blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Units pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unitt pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver Can't Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. ODU Fan Motor Can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of the ODU fan motor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the capacity of fan
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor Can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air Conditioner is Leaking

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe connection place of indoor unit	Wrap it again and bundle it tightly

7. Abnormal Sound and Vibration

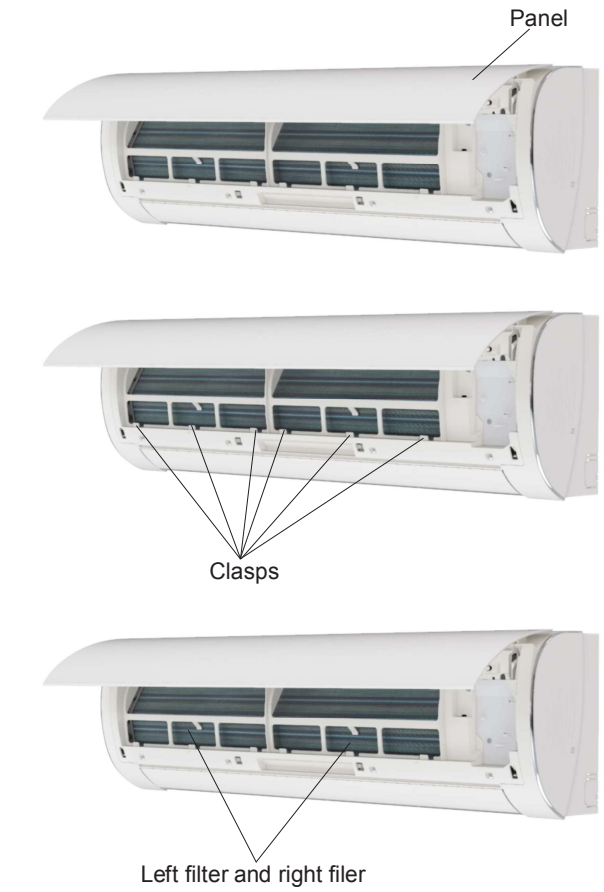
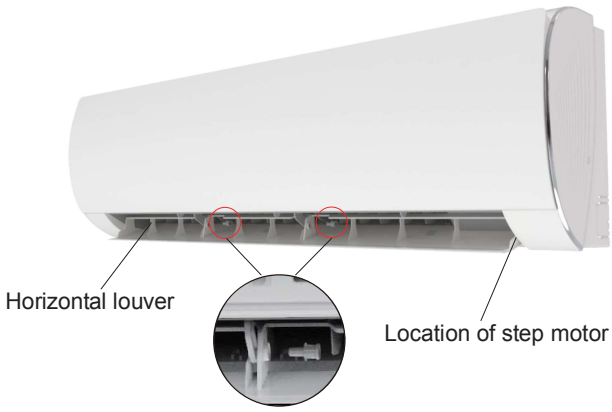
Possible causes	Discriminating method (air conditioner status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and theres abnormal sound	Theres the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, theres abnormal sound due to flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or therere parts touching together inside the indoor unit	Theres abnormal sound fro indoor unit	Remove foreign objects. Adjust all parts position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or therere parts touching together inside the outdoor unit	Theres abnormal sound fro outdoor unit	Remove foreign objects. Adjust all parts position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	During heating, the way valve has abnormal electromagnetic sound	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

11. Removal Procedure

11.1 Removal Procedure of Indoor Unit

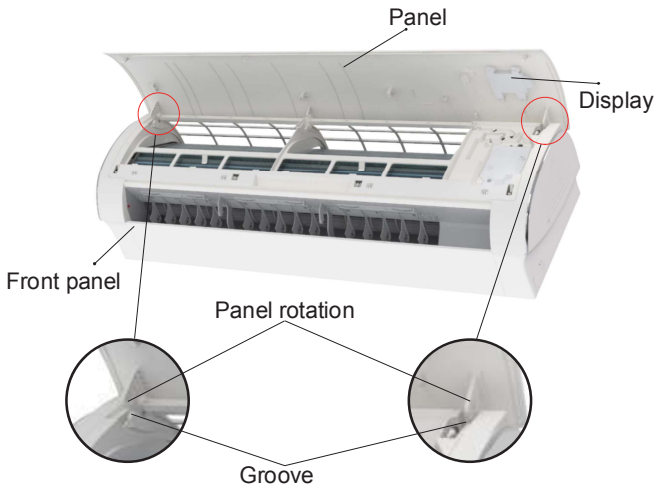
Caution: discharge the refrigerant completely before removal.

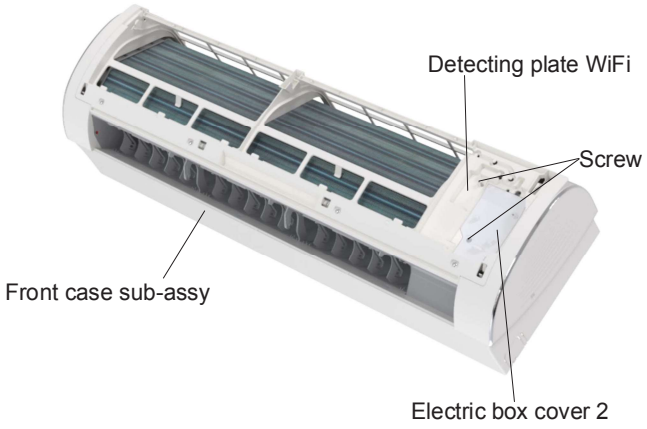
18/24/30K:

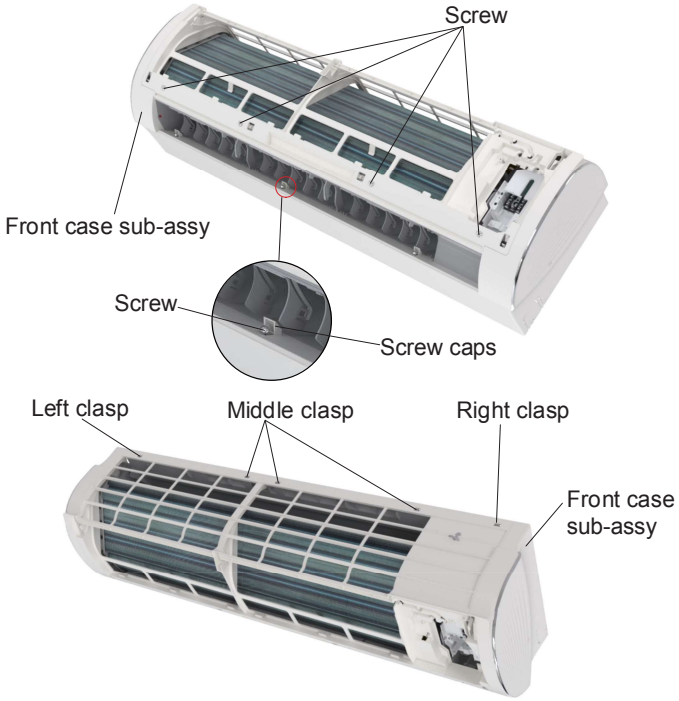
Step	Procedure
1.Remove filter	
a	Open the panel.
b	Loosen the clasp shown in the fig and then pull the left filter and right filer outwards to remove them.
2.Remove horizontal louver	
	Push out the axile bush on horizontal louver. Bend the horizontal louver with hand and then separate the horizontal louver from the crankshaft of step motor to remove it.

11. Removal Procedure

Step	Procedure
3.Remove panel	
	Open the front panel; separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel. Note: The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel.
4.Remove electric box cover 2 and detecting plate(WIFI)	
	Remove the screws on the electric box cover 2 and detecting plate(WIFI), to remove the electric box cover 2 and detecting plate(WIFI).
5.Remove front case sub-assy	
a	Remove the screws fixing front case. Note: (1) Open the screw caps before removing the screws around the air outlet. (2) The quantity of screws fixing the front case sub-assy is different for different models.
b	Loosen the clasps at left, middle and right sides of front case. Life the front case sub-assy upwards to remove it.

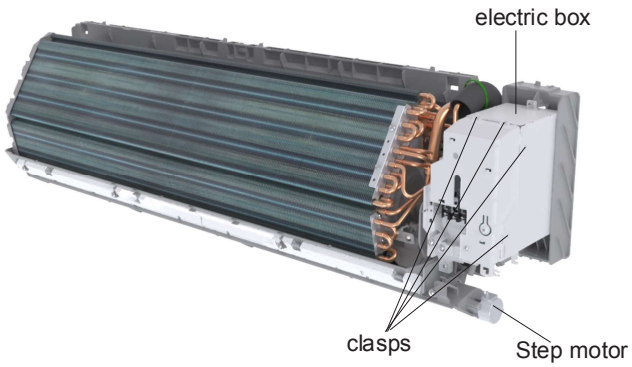


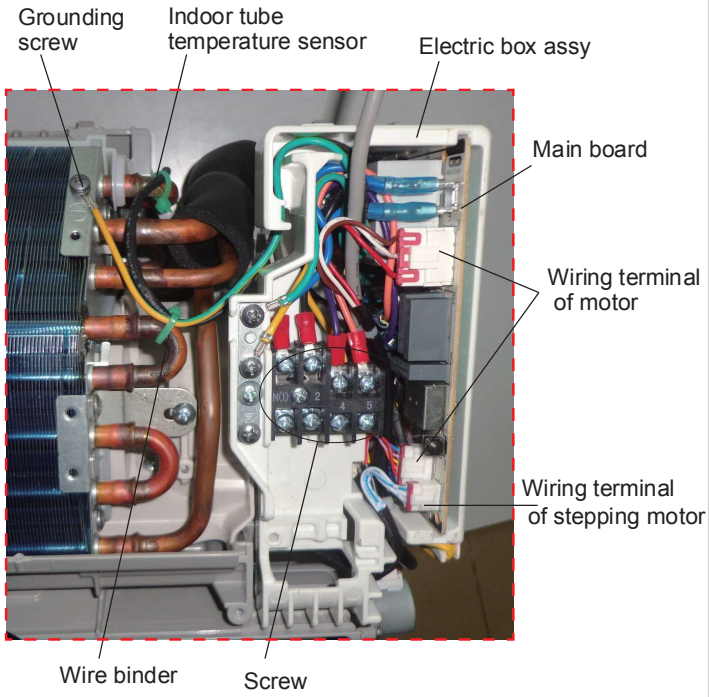


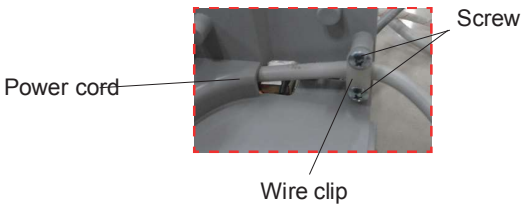


11. Removal Procedure

Step	Procedure
6.Remove electric box assy	
a	Remove the screw fixing electric box assy.
b	① Cut off the wire binder and pull out the indoor tube temperature sensor. ② Screw off one grounding screw. ③ Remove the wiring terminals of motor, cold plasma generator and stepping motor. ④ Remove the electric box assy. ⑤ Screw off the screws that are locking each.
C	Rotate the electric box assy. Twist off the screws that are locking the wire clip and loosen the power cord. Remove the wiring terminal of power cord. Lift up the main board and take it off.
	Instruction:Some wiring terminal of this products is with lock catch and other devices.The pulling method is as below: 1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals, 2.Pull out the holder for some terminals at first(holder is not available for some wiring terminal).hold the connector and then pull the terminal.

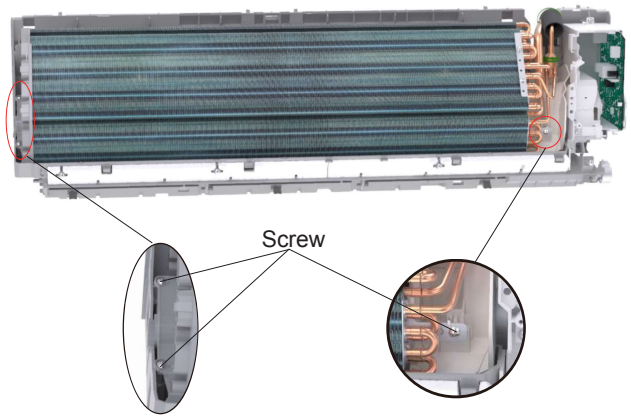


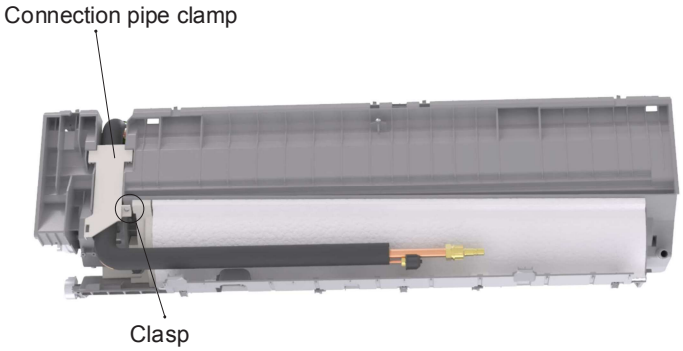


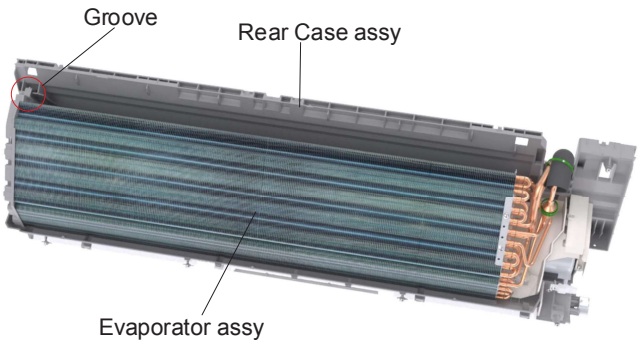


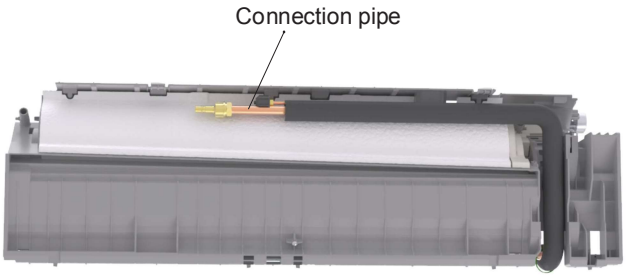
11. Removal Procedure

Step	Procedure
7.Remove evaporator assy	
a	Remove 3 screws fixing evaporator assy.
b	At the back of the unit, Loosen the clasp,connection pipe clamp and then remove the connection pipe clamp.
c	First remove the left side of evaporator from the groove of bottom shell and then remove the right side from the clasp on the bottom shell.
d	Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.



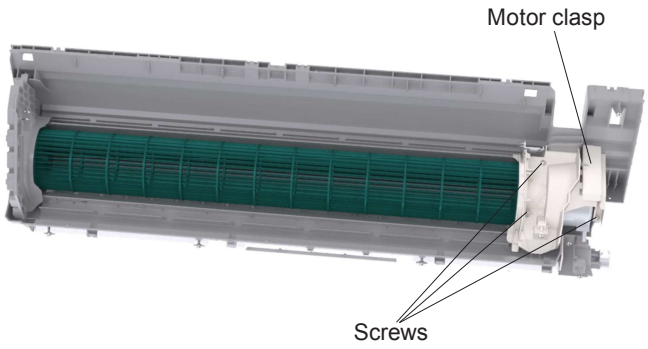


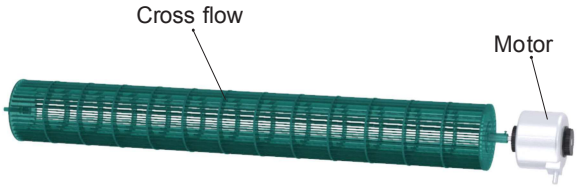


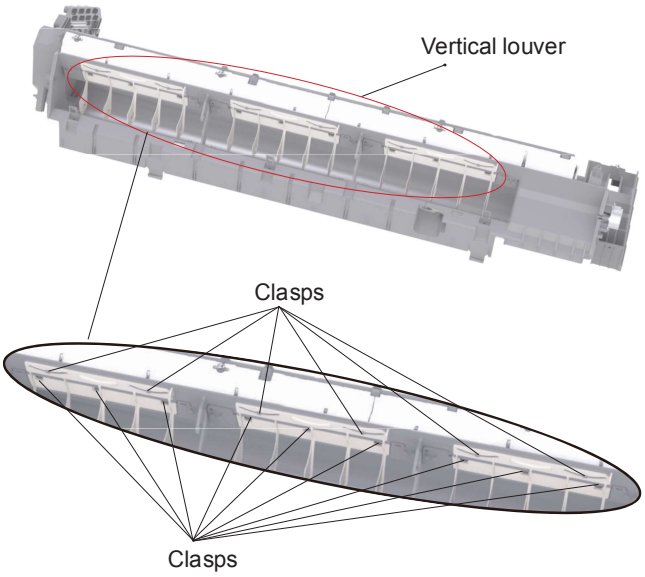


11. Removal Procedure

Step	Procedure
8.Remove motor and cross flow blade	
a	Remove 3 screws fixing motor clamp and then remove the motor clamp.
b	Remove the at the connection place of cross flow blade and motor; lift the motor and cross flow blade upwards to remove them.
9.Remove vertical louver	
	Loosen the connection clasps between vertical louver and bottom case to remove vertical louver.

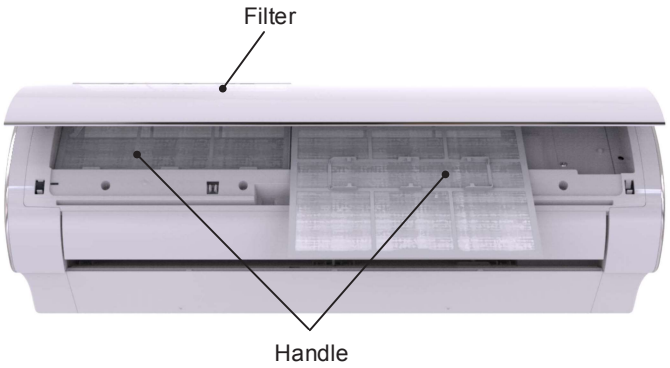
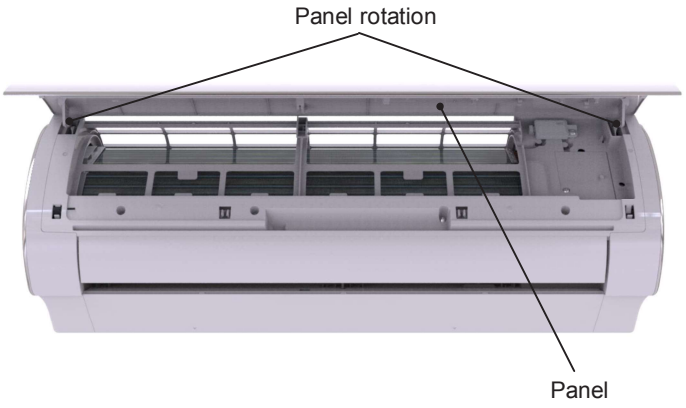


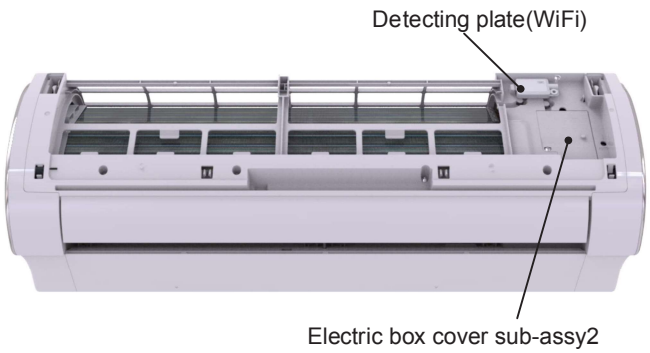
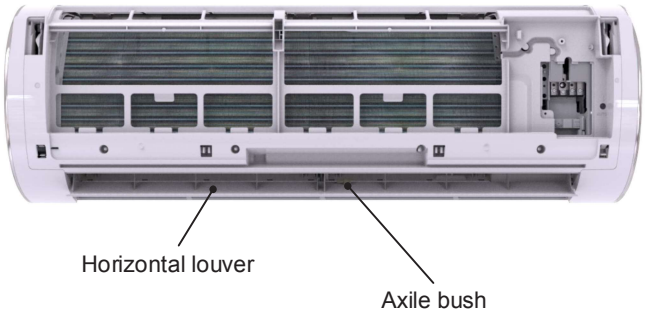
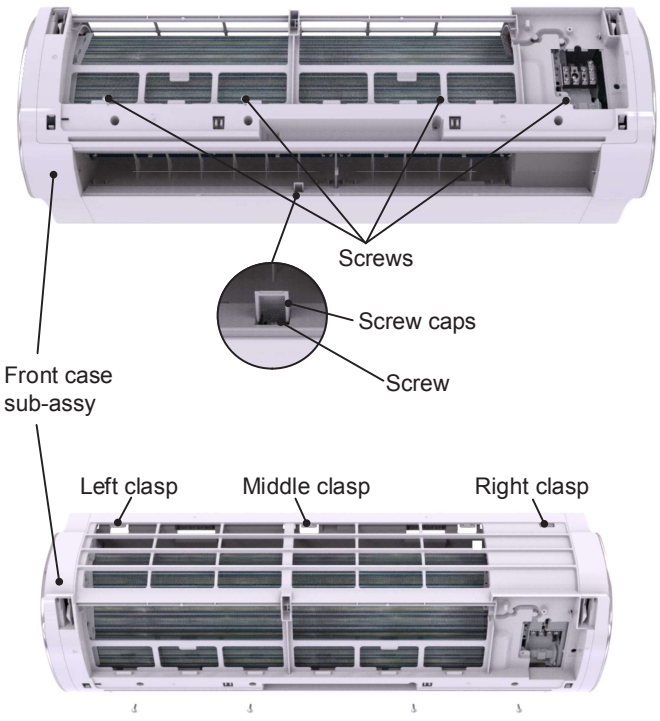


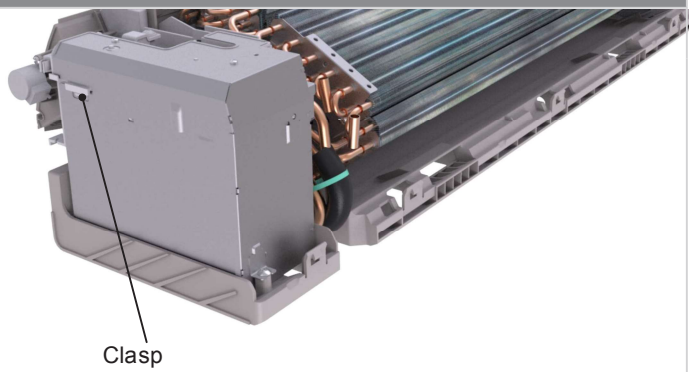
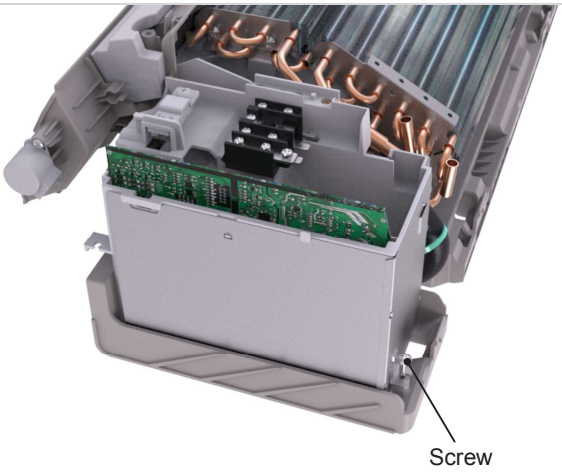
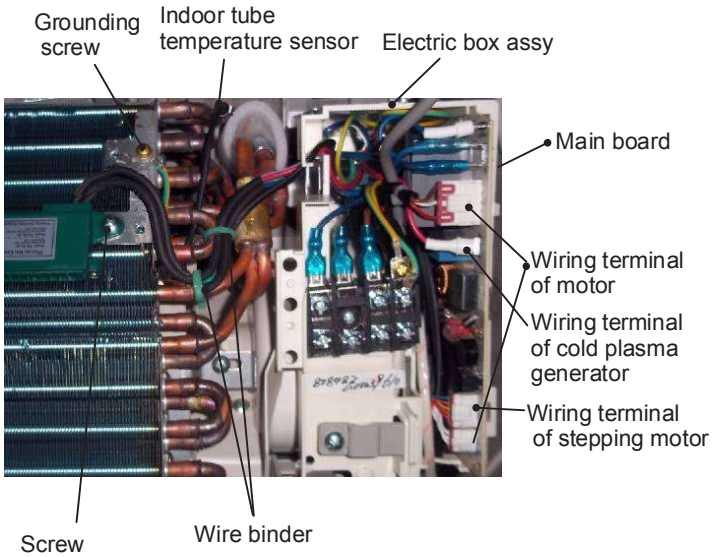
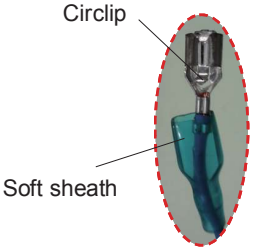
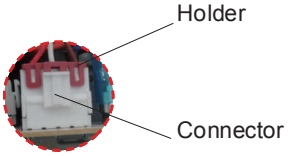


09/13K:

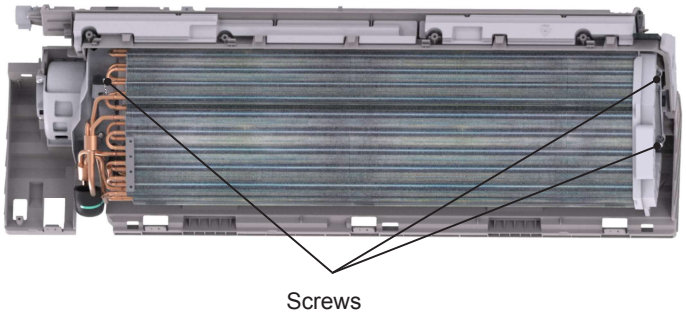
⚠ **Caution: discharge the refrigerant completely before removal.**

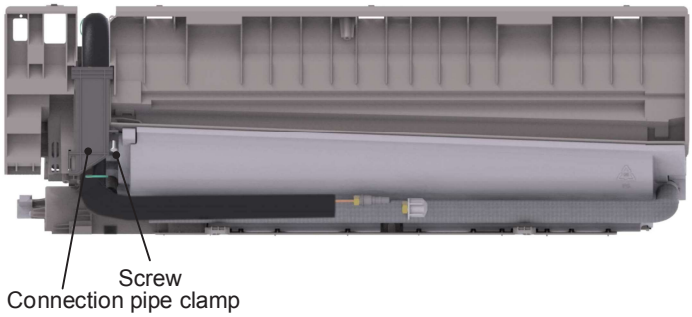
Step	Procedure
Before disassemble	
Turn off the air conditioner and disconnect the power before disassemble the air conditioner.	
1. Remove filter	
Open the front panel; Push the filter upwards to loosen the clasp and then pull the left filter and right filter outwards to remove them.	
2.Remove front panel	
Separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel. Note: The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel.	

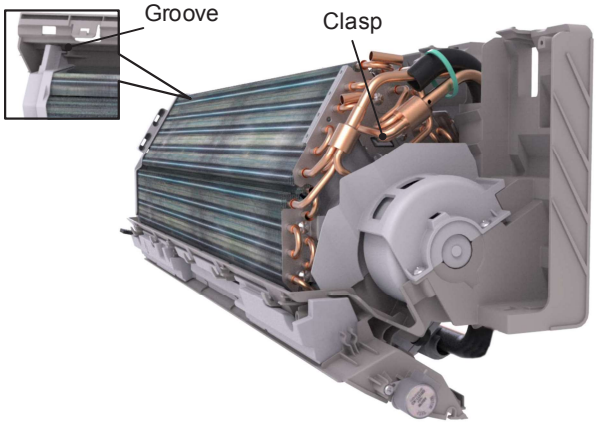
Step	Procedure	
3.Remove electric box cover sub-assy2 and detecting plate(wifi)		
	Remove the screws on the electric box cover sub-assy2 and detecting plate(WIFI), to remove the electric box cover 2 and detecting plate(WIFI).	
4.Remove horizontal louver		
	Push out the axile bush on horizontal louver. Bend the horizontal louver with hand and then separate the horizontal louver from the crankshaft of step motor to remove it.	
5.Remove front case sub-assy		
a	Remove the screws fixing front case. Note: (1) Open the screw caps before removing the screws around the air outlet. (2) The quantity of screws fixing the front case sub-assy is different for different models.	
b	Loosen the clasps at left, middle and right sides of front case. Life the front case sub-assy upwards to remove it.	

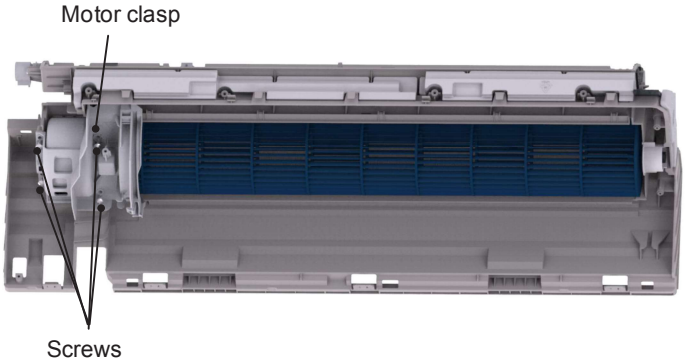
Step	Procedure
6.Remove electric box cover sub-assy	
Loosen the clasps and remove the electric box cover sub-assy.	
7.Remove electric box assy	
a Remove the screw fixing electric box assy.	
b ① Cut off the wire binder and pull out the indoor tube temperature sensor. ② Screw off one grounding screw. ③ Remove the wiring terminals of motor, cold plasma generator and stepping motor. ④ Remove the electric box assy. ⑤ Screw off the screws that are locking each.	
Remove the wiring terminal of power cord. Lift up the main board and take it off.	
C Instruction:Some wiring terminal of this products is with lock catch and other devices.The pulling method is as below: 1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals, 2.Pull out the holder for some terminals at first(holder is not available for some wiring terminal).hold the connector and then pull the terminal.	 

Step	Procedure
8.Remove evaporator assy	
a	Remove 3 screws fixing evaporator assy.
b	At the back of the unit, remove the screw of the connection pipe clamp and then remove the connection pipe clamp.
c	First remove the left side of evaporator from the groove of bottom shell and then remove the right side from the clasp on the bottom shell. Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.
9.Remove motor and cross flow blade	
a	Remove the screws fixing motor clamp and then remove the motor clamp.









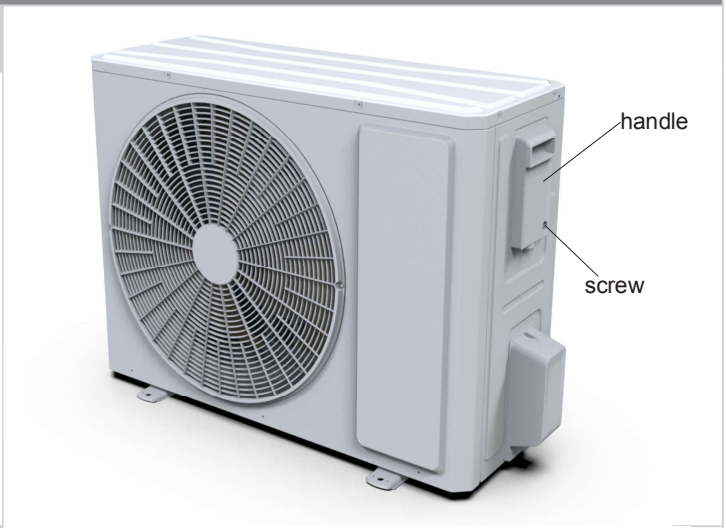
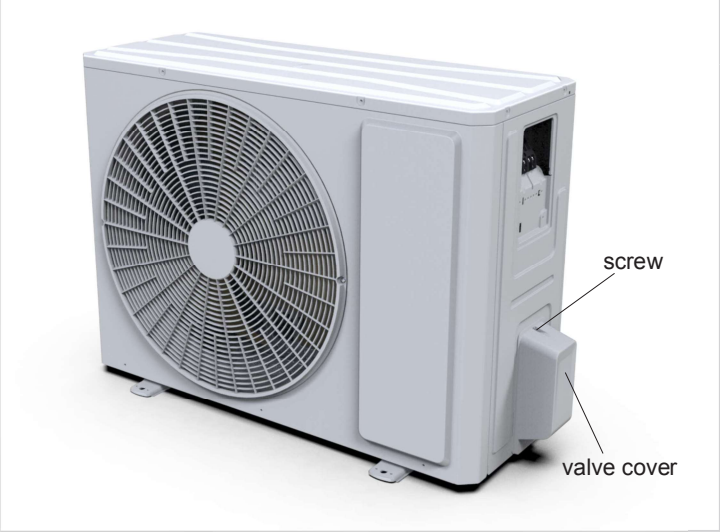
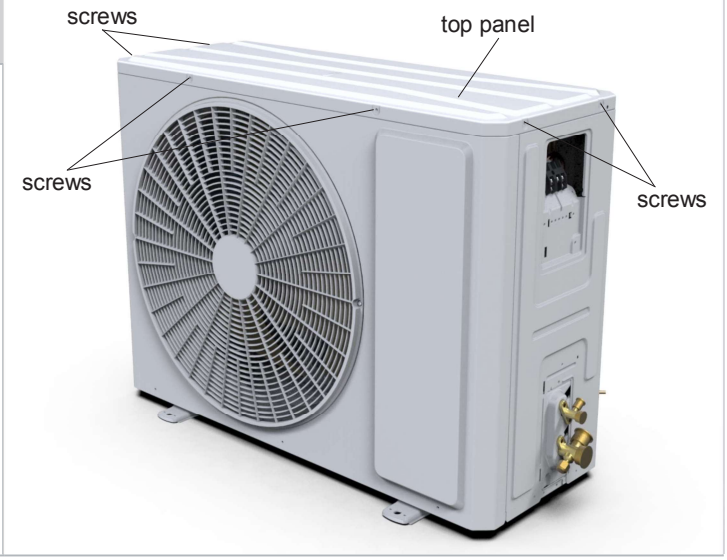
Step		Procedure
b	Loose the screws (2-3 circles) used for fixing the cross flow fan, pull right to pull out the motor.	

11. Removal Procedure

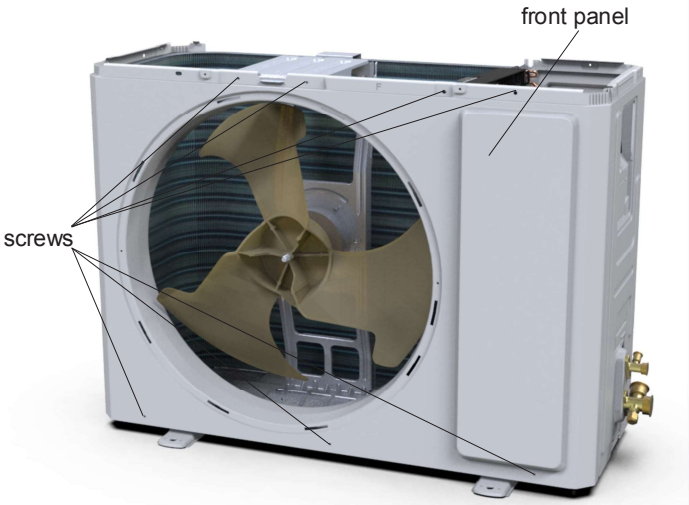
11.2 Removal Procedure of Outdoor Unit

Caution: discharge the refrigerant completely before removal.

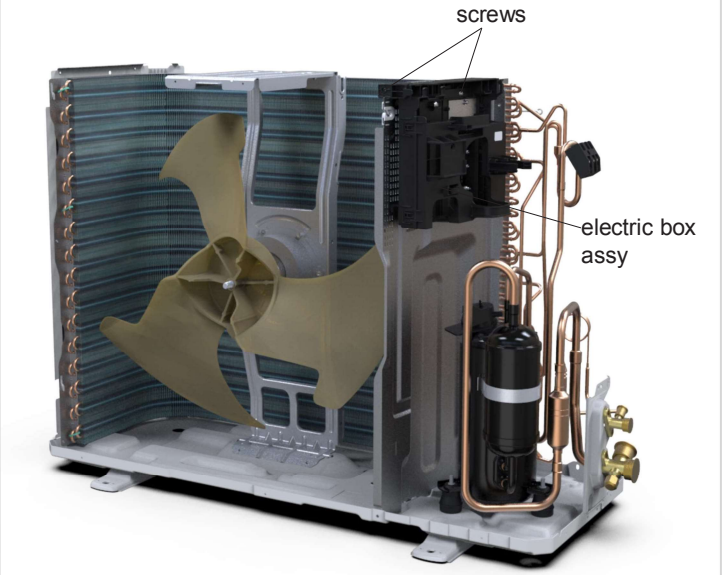
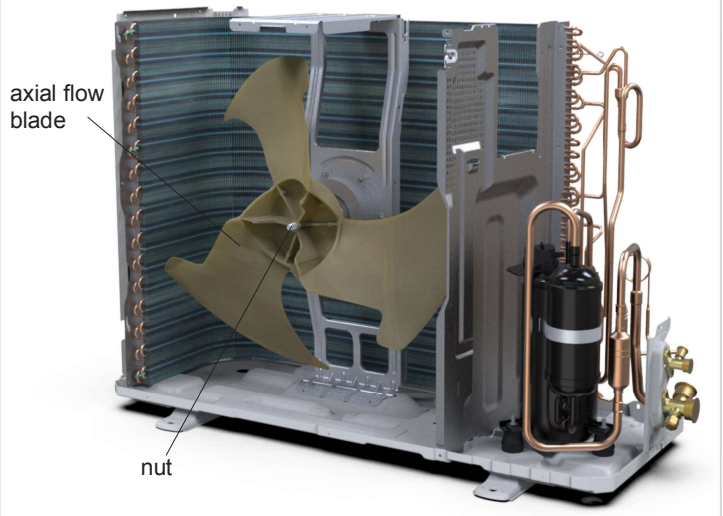
GWC24ACEXF-D6DNA1A/O GWC30AAEXF-D6DNA1A/O

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

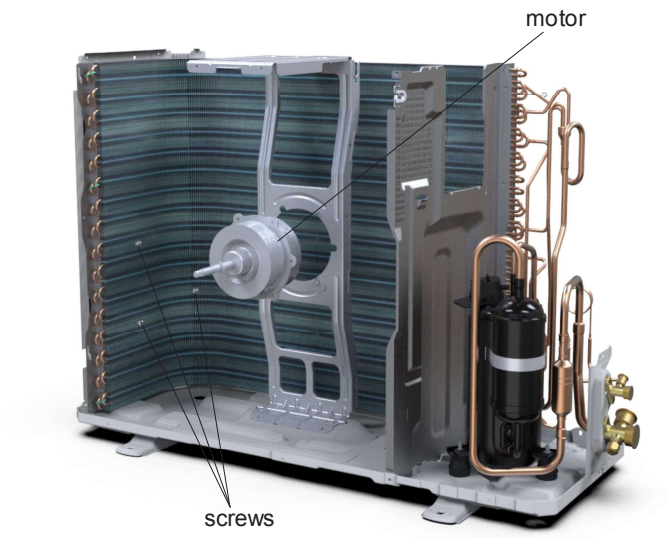
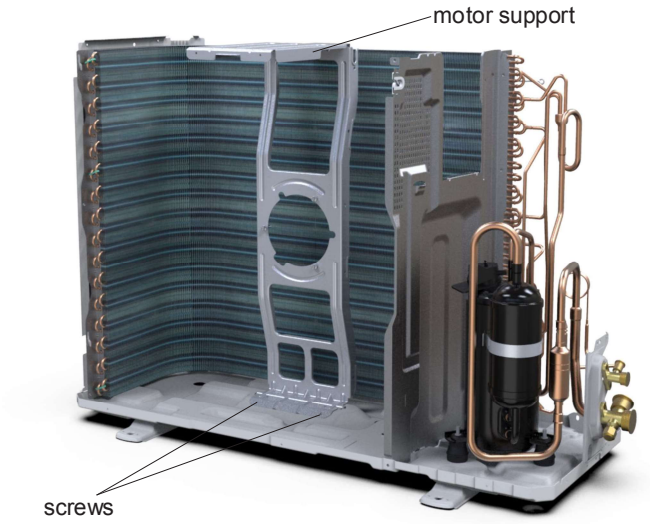
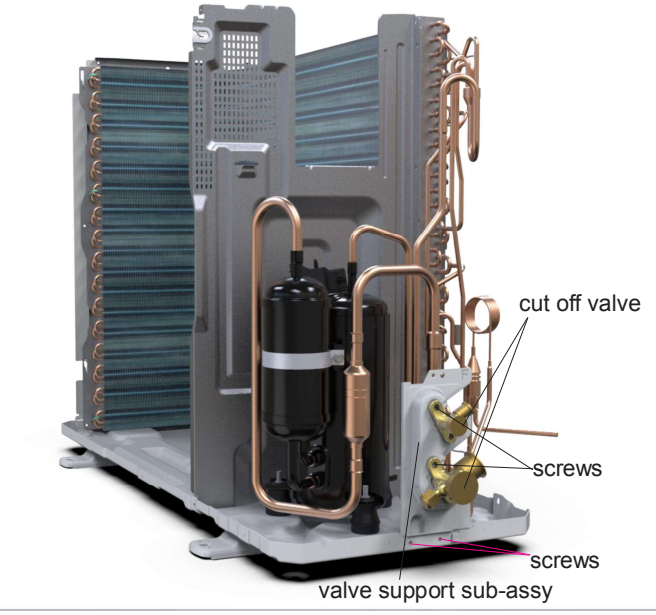
11. Removal Procedure

Step	Procedure
4. Remove grille	
Remove the screws fixing the grille and then remove the panel grille.	
5. Remove front panel	
Remove screws fixing the front panel and then remove the front panel.	
6. Remove Rear Grill	
Remove screws fixing the Rear Grill, and then remove the Rear Grill.	

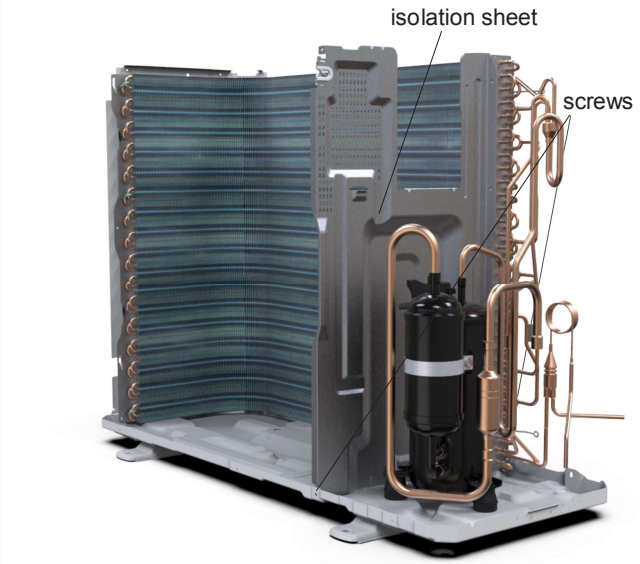
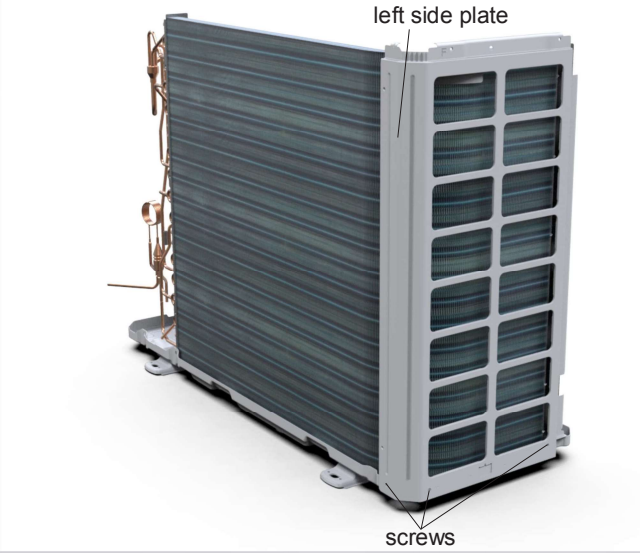
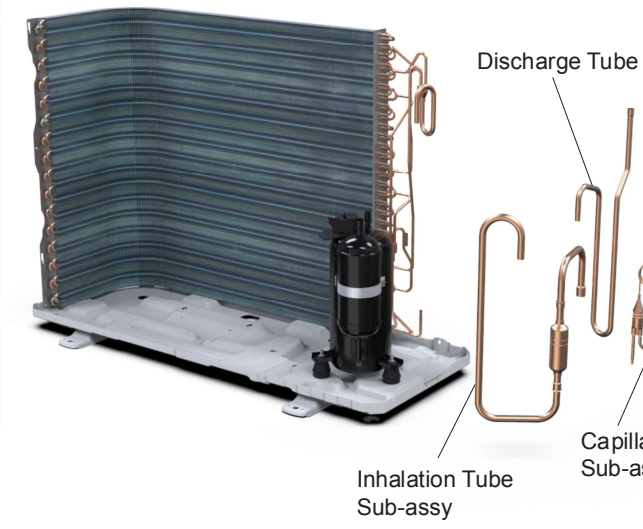
11. Removal Procedure

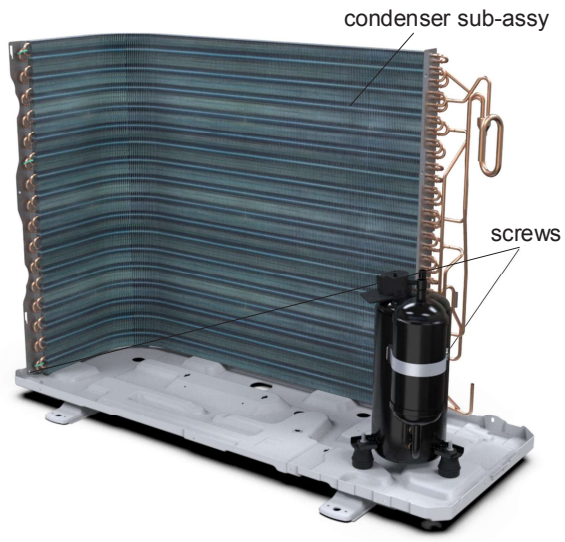
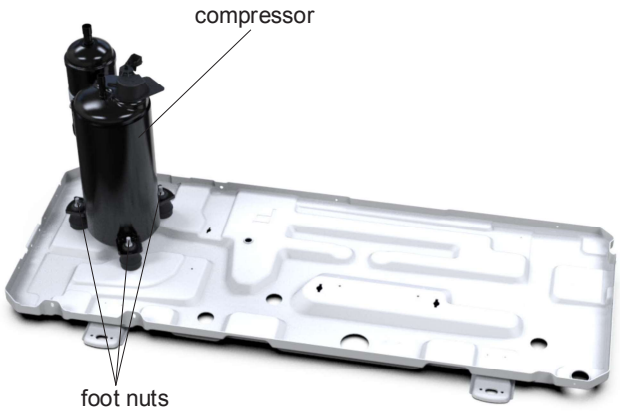
Step	Procedure
7. Remove right side plate	
Remove screws fixing connecting the front panel with the chassis and the motor support, and then remove the right side plate.	
8. Remove electric box assy	
Remove the screws fixing the electricbox; loosen the wire bundle; pull out the wiring terminals and then pull electric boxupwards to remove it.	
9. Remove axial flow blade	
Remove nut fixing the blade and then remove the blade.	

11. Removal Procedure

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

11. Removal Procedure

Step	Procedure
13. Remove isolation sheet	
Remove the screws fixing the isolation sheet and then remove the isolation sheet.	
14. Remove left side plate	
Remove the screws fixing the left side plate and the chassis, and then remove the left side plate.	
15. Remove Inhalation Tube Sub-assy,Discharge Tube and Capillary Sub-assy	
Unsolder the welding joints connecting Inhalation Tube Sub-assy, Discharge Tube and Capillary Sub-assy, then remove the Inhalation Tube Sub-assy, Discharge Tube and Capillary Sub-assy,. Note: Before unsoldering the welding joint, wrap the Inhalation Tube Sub-assy, Discharge Tube and Capillary Sub-assy, with a wet cloth completely to avoid damage to the valve caused by high temperature.	

Step	Procedure
16. Remove condenser sub-assy	
Remove the screws fixing the condenser and chassis, and then lift the condenser upwards to remove it.	
17. Remove compressor	
Remove the 3 foot nuts on the compressor and then remove the compressor.	

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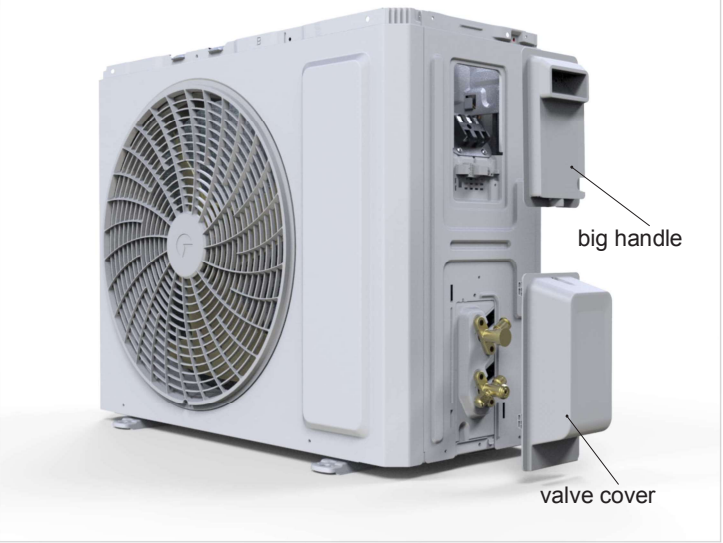
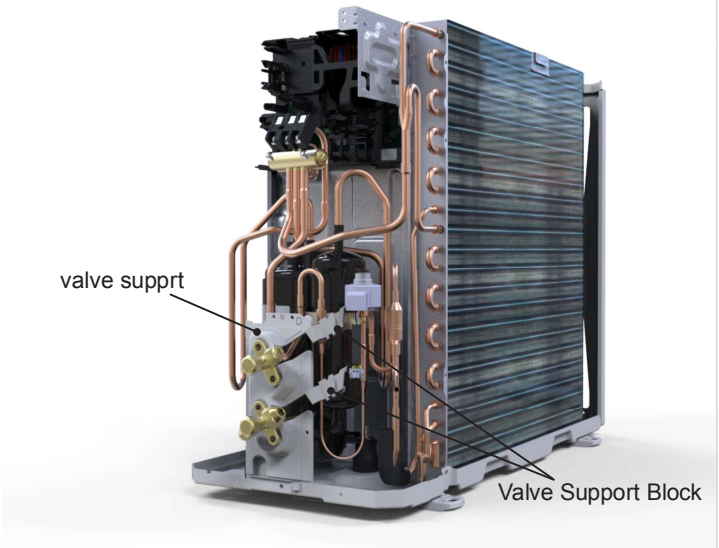
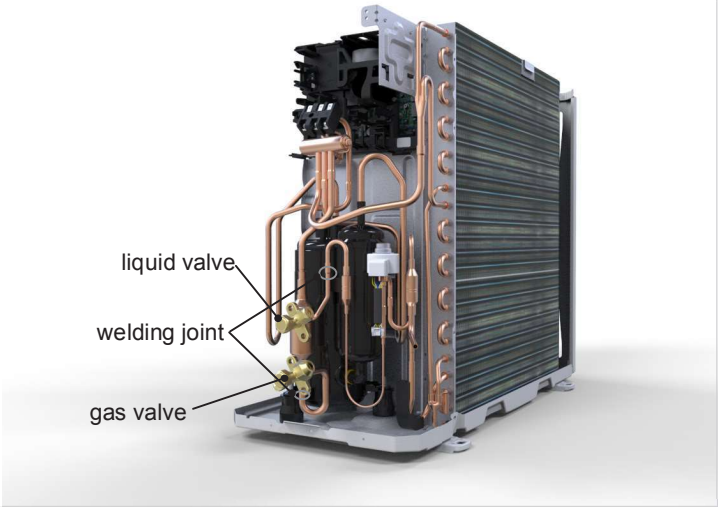
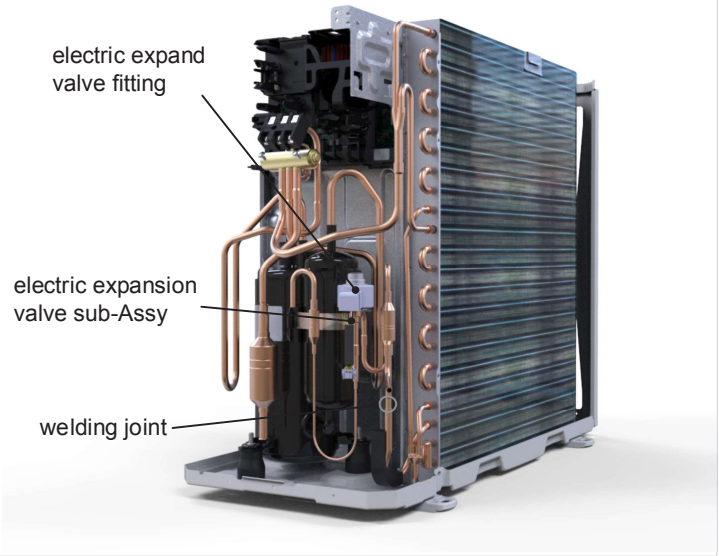
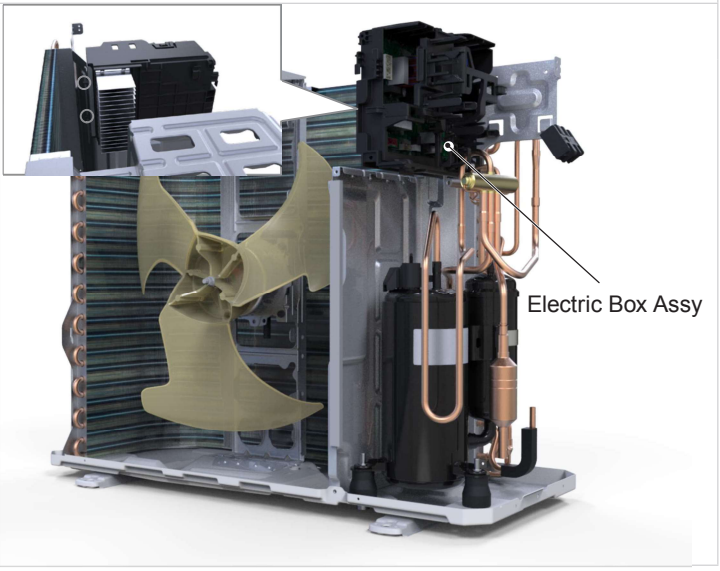
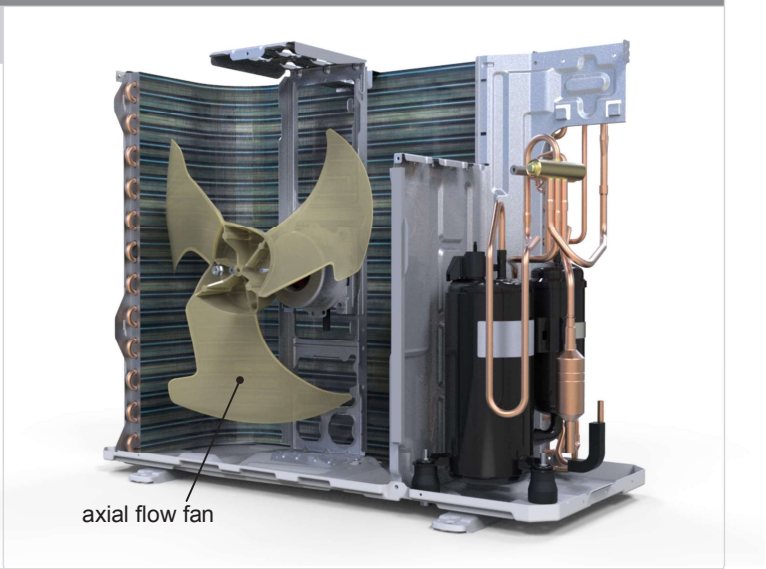
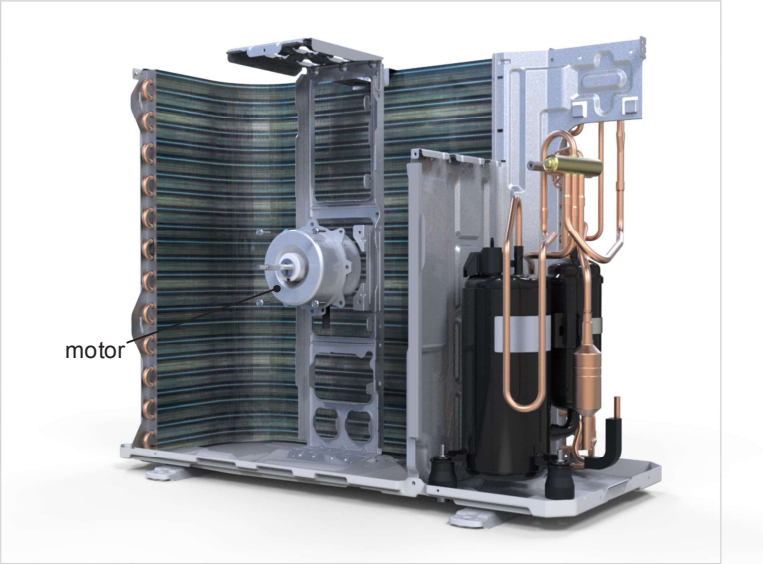
Caution: discharge the refrigerant completely before removal.

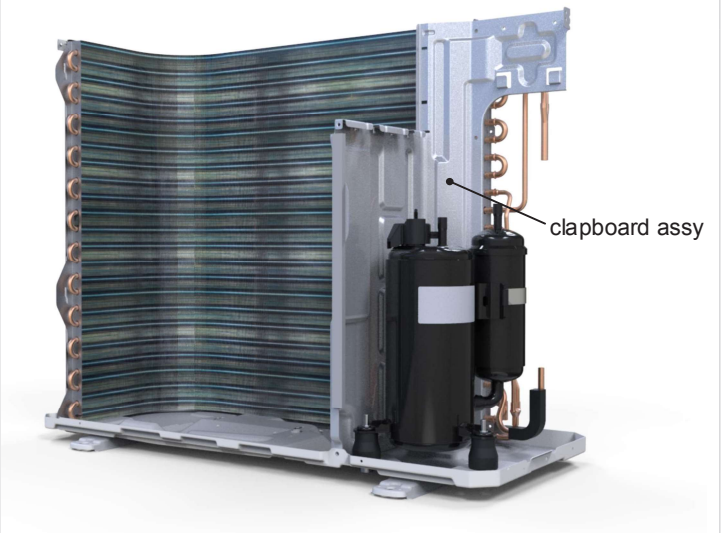
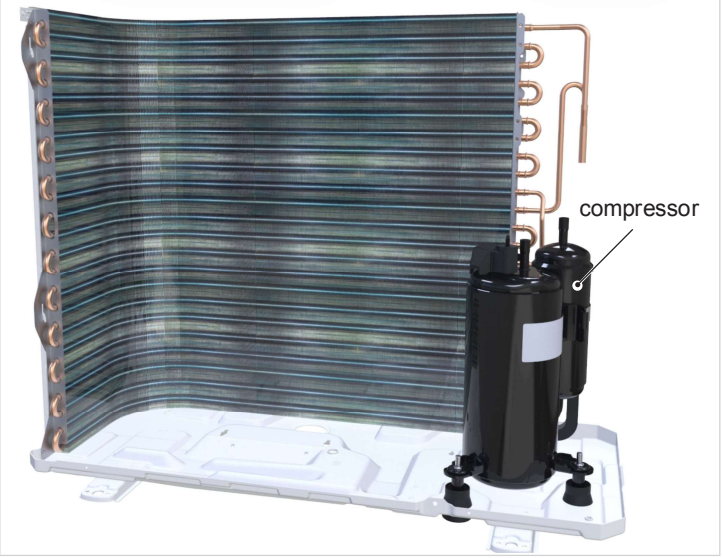
NOTE: Take heat pump unit for example.

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

Step	Procedure
4. Remove front panel assy	
	Remove connection screws connecting the front panel assy with the chassis and the motor support, and then remove the front panel assy.
	
5. Remove right side plate assy	
	Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right plate, and remove the right side plate assy.
	
6. Remove valve suppprt	
	Remove the valve support bolck, remove the screws fixing valve support, remove the screws fixing the liquid valve and gas valve then remove the valve support.
	

Step	Procedure
7. Remove gas valve and liquid valve	
	Unsolder the welding joint connecting the gas valve and the liquid valve, remove them. Note: Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.
	
8. Remove electronic expansion valve	
	Remove the terminals of the electric expand valve fitting and rotate to remove the electric expand valve fitting. Unsolder the welding joint connecting the electronic expansion Valve and then remove the electronic expansion valve.
	
9. Remove electric box assy	
	Unplug the terminals, unscrew 1 screw that secures the electrical box assy, release the two snaps on the electrical box assy (in the clapboard and condenser angle), pull outwards, and remove the electrical box assy.
	

Step	Procedure
10. Remove axial flow fan	
Remove the nut on the fan and then remove the axial flow fan.	
11. Remove motor	
Remove the screws fixing the motor and then remove the motor.	
12. Remove motor support	
Remove the screws fixing the motor support and lift the motor support to remove it.	

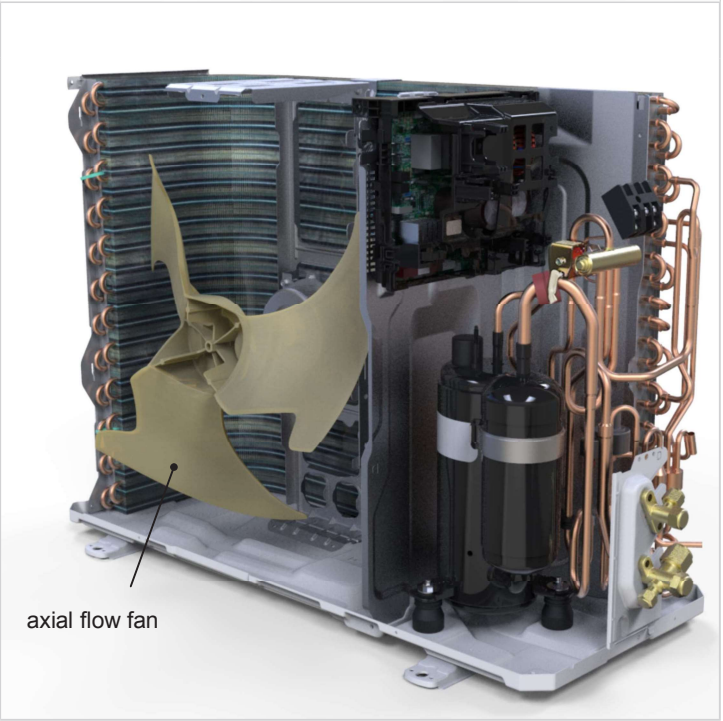
Step	Procedure
13. Remove 4-way valve assy	
	Unsolder the welding joints connecting the 4-way valve assy, remove the 4-way valve. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.
	
14. Remove clapboard assy	
	Remove the screws fixing the clapboard assy and then remove the clapboard assy.
	
15. Remove compressor	
	Remove the 3 foot nuts on the compressor and then remove the compressor.
	

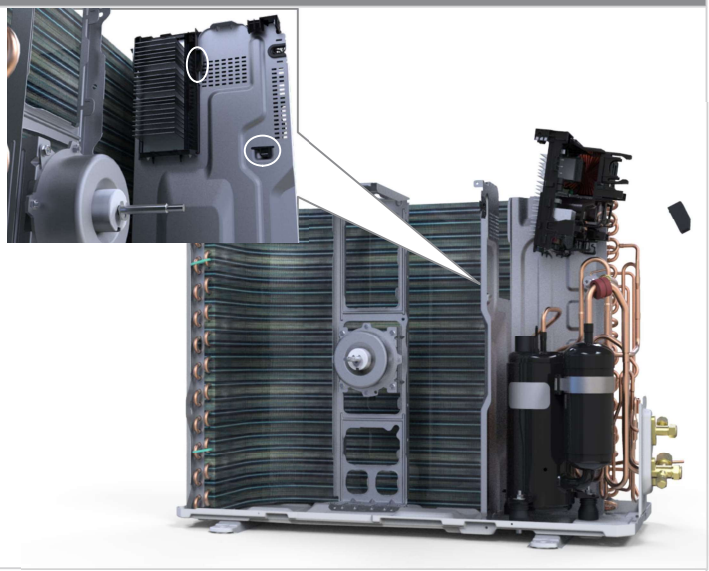
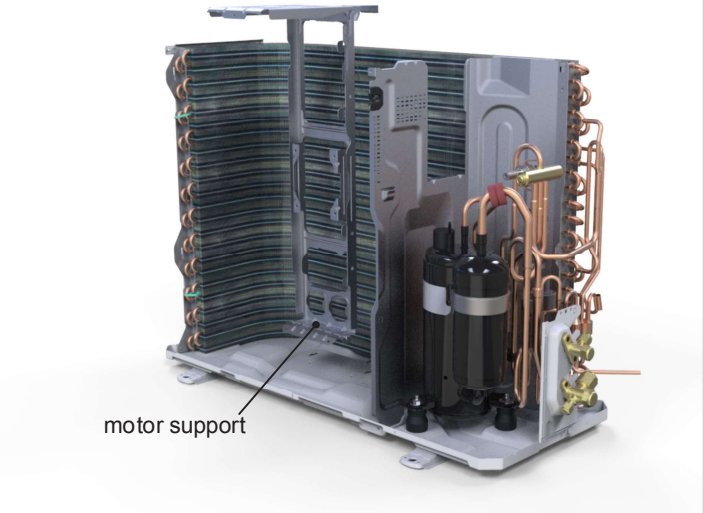
GWC13AGCXD-D6DNA1A/O

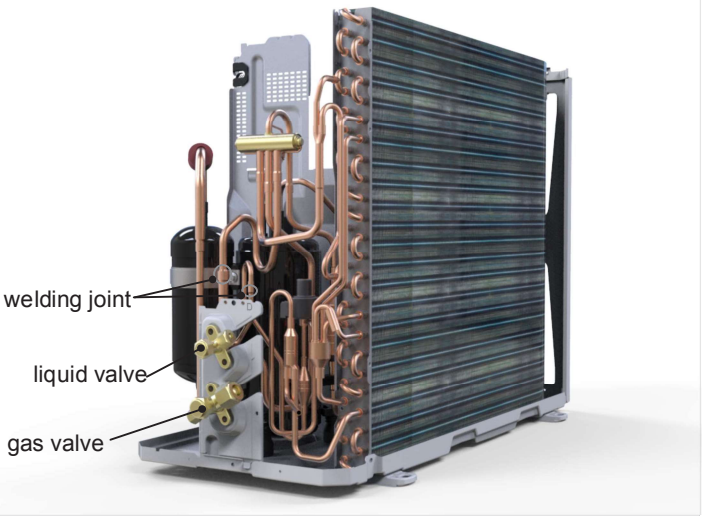
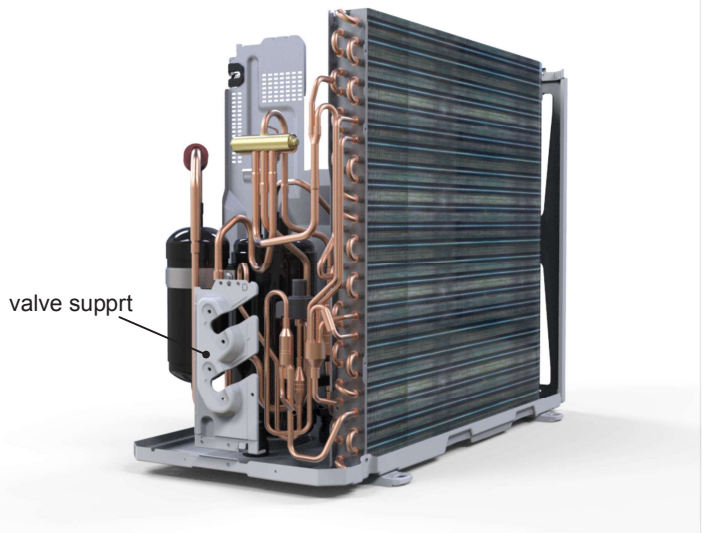
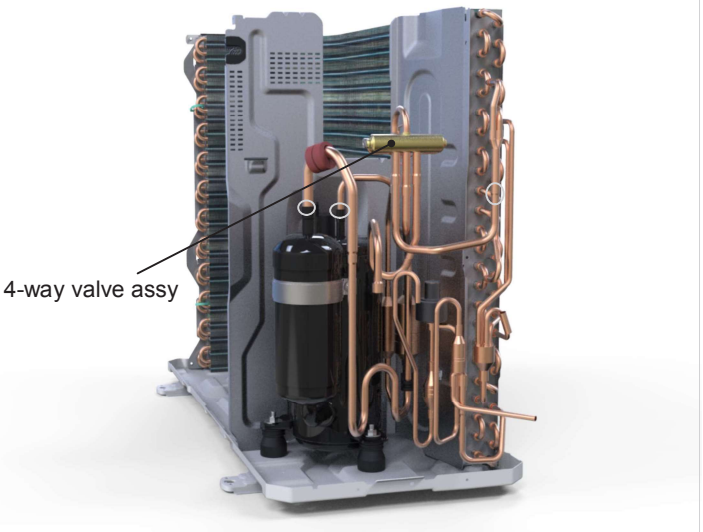
Caution: discharge the refrigerant completely before removal.

NOTE: Take heat pump unit for example.

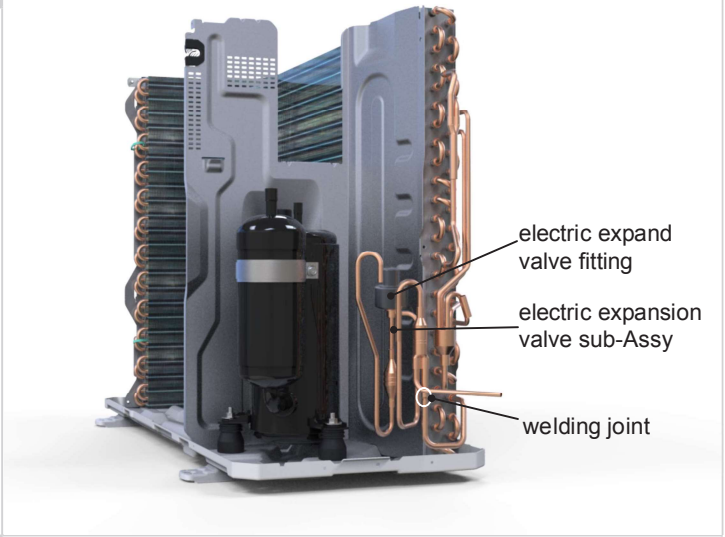
Step	Procedure
1. Before disassembly	
2. Remove big handle and valve cover Remove the screws fixing big handle, valve cover and then remove them.	
3. Remove top cover Remove the screws fixing top panel and then remove the top panel.	

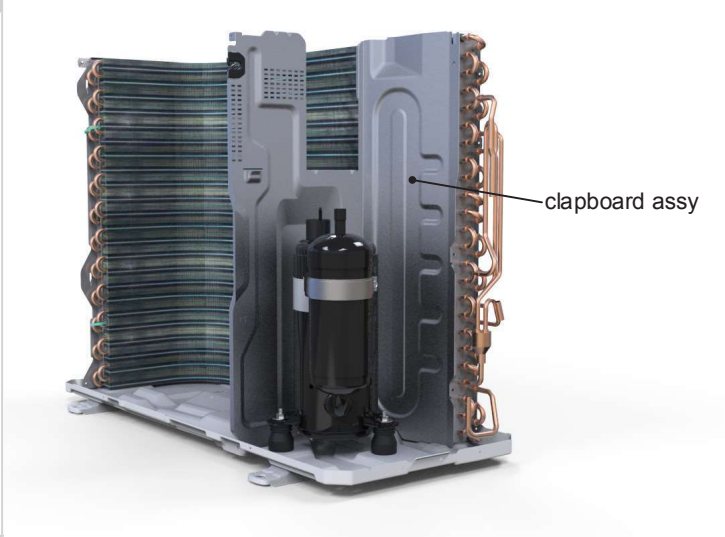
Step	Procedure
4. Remove front panel assy	
	Remove connection screws connecting the front panel assy with the chassis and the motor support, and then remove the front panel assy.
	
5. Remove right side plate assy	
	Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal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

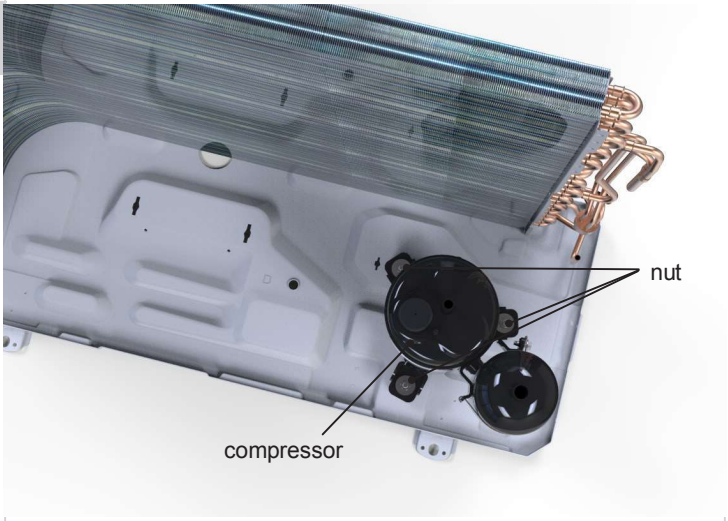
Step	Procedure
7. Remove electric box assy	
Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.	
8. Remove motor	
Remove the screws fixing the motor and then remove the motor.	
9. Remove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

Step	Procedure
10. Remove gas valve and liquid valve	
	Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them. Note: Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.
	
11. Remove valve suppprt	
	Remove the screws fixing valve support, then remove the valve support.
	
12. Remove 4-way valve assy	
	Unsolder the welding joints connecting the 4-way valve assy, remove the 4-way valve. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.
	

Step	Procedure
13. Remove isolation sheet	
	Remove the screws fixing the isolation sheet and then remove the isolation sheet.
14. Remove clapboard assy	
	Remove the screws fixing the clapboard assy and then remove the clapboard assy.
15. Remove compressor	
	Remove the 3 foot nuts on the compressor and then remove the compressor.



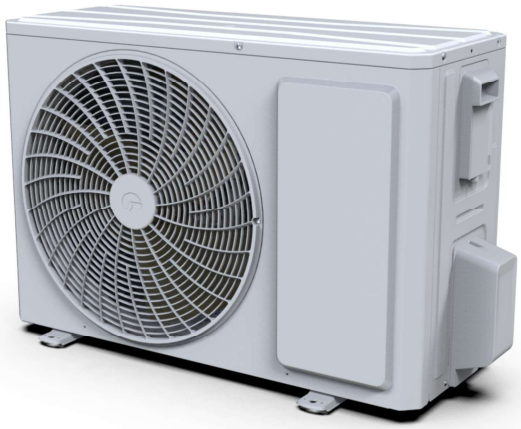
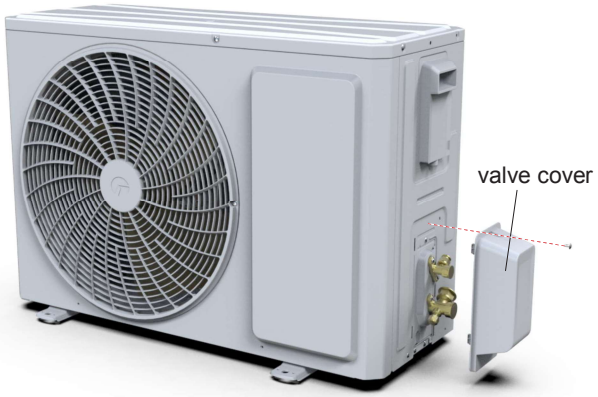


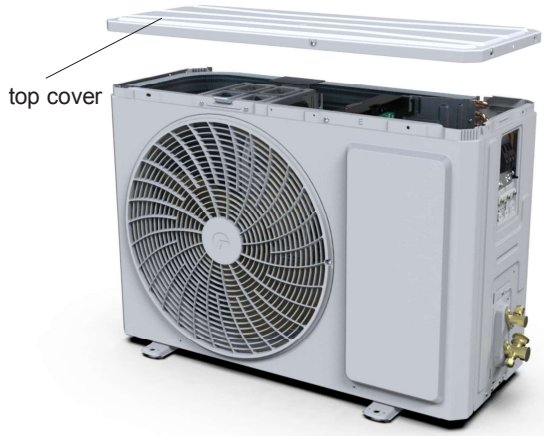
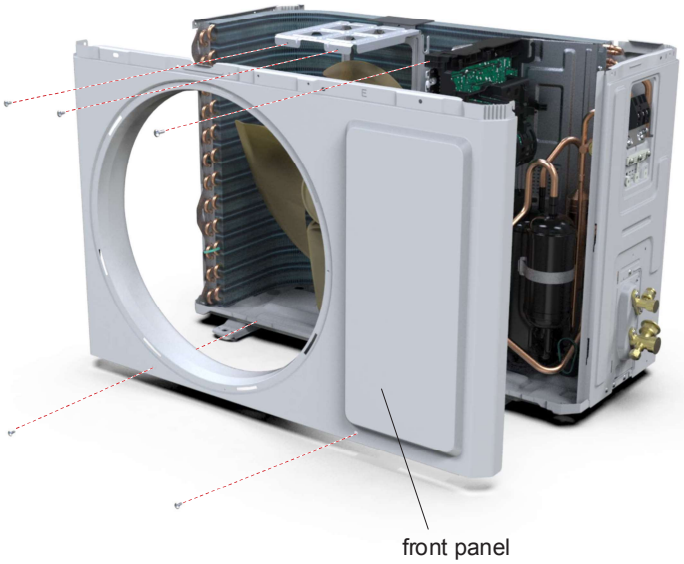


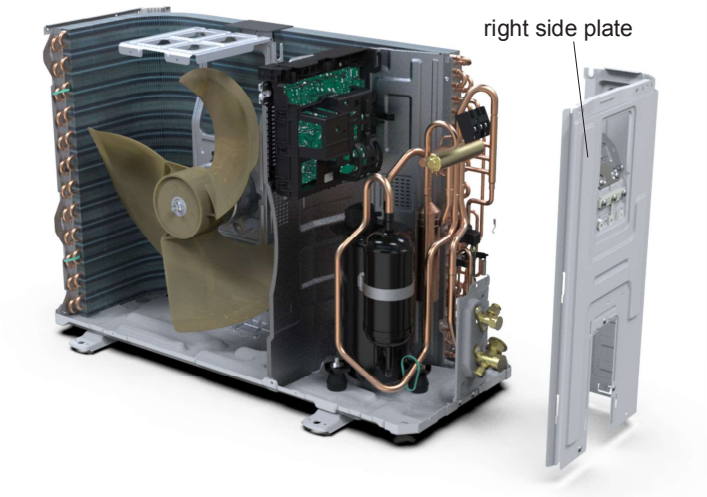
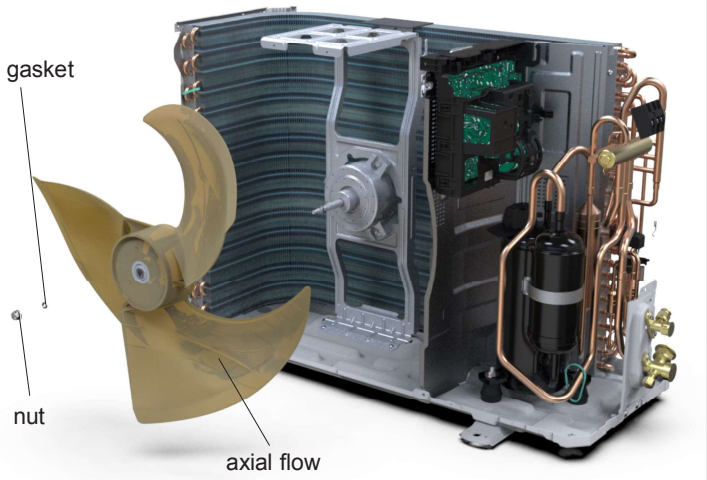
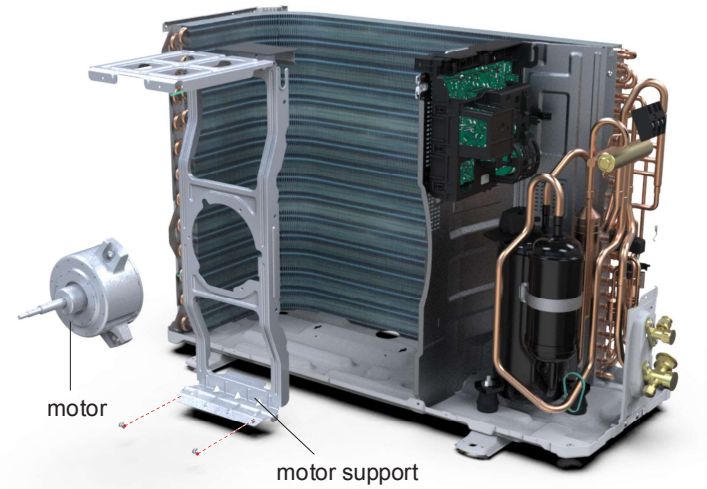
GWC18ACDXE-D6DNA1B/O

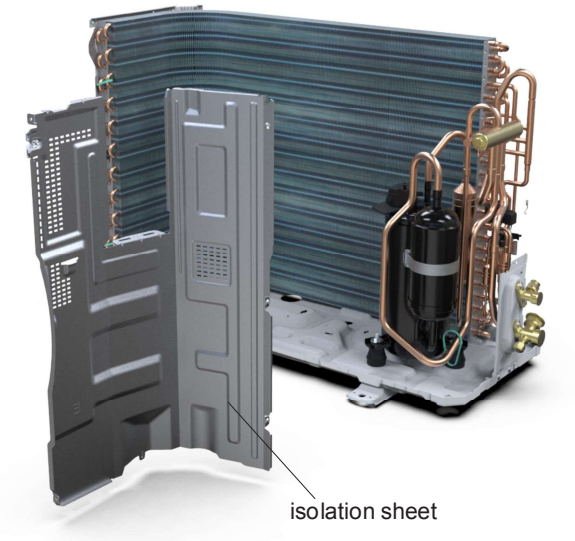
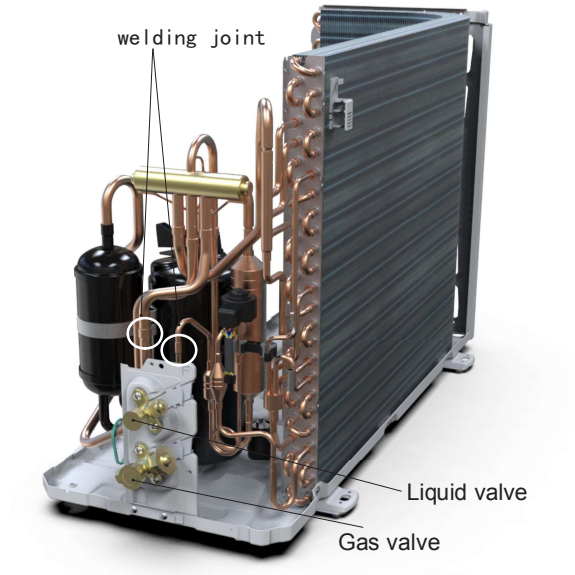
Caution: discharge the refrigerant completely before removal.

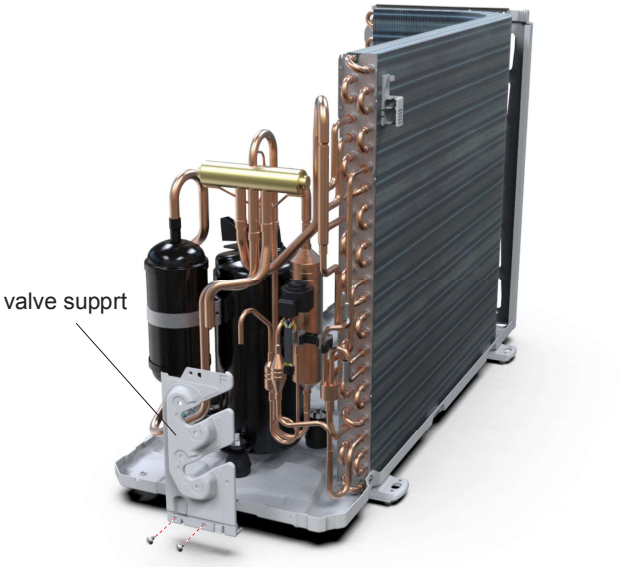
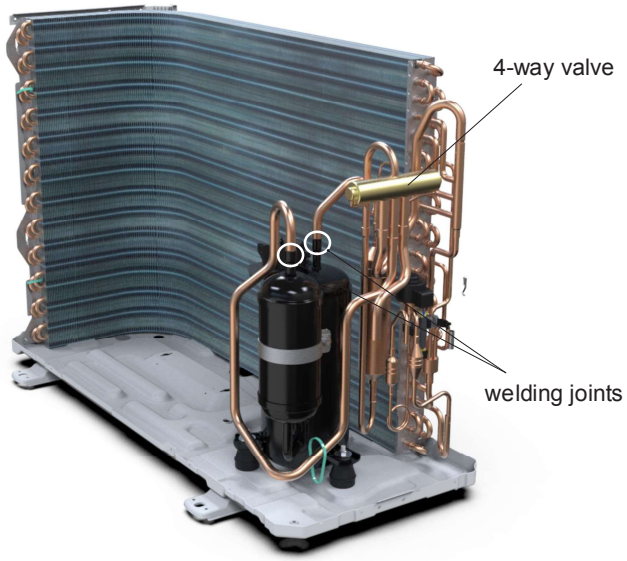
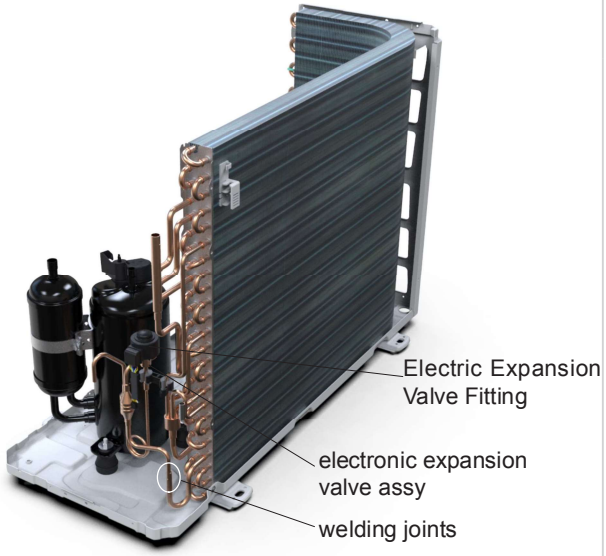
NOTE: Take heat pump unit for example.

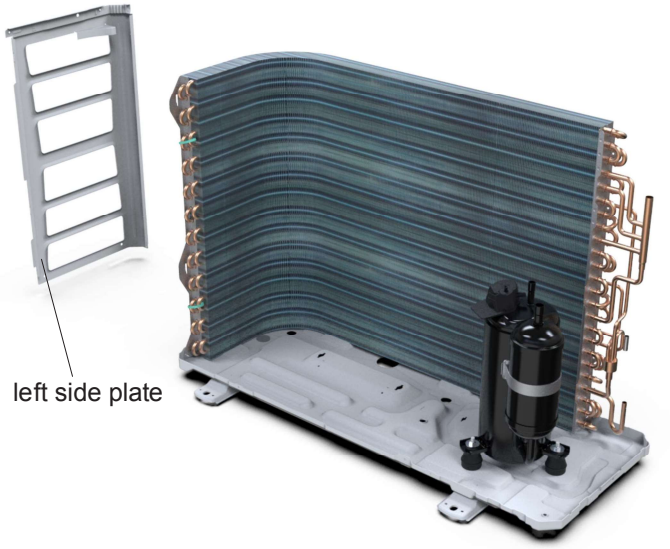
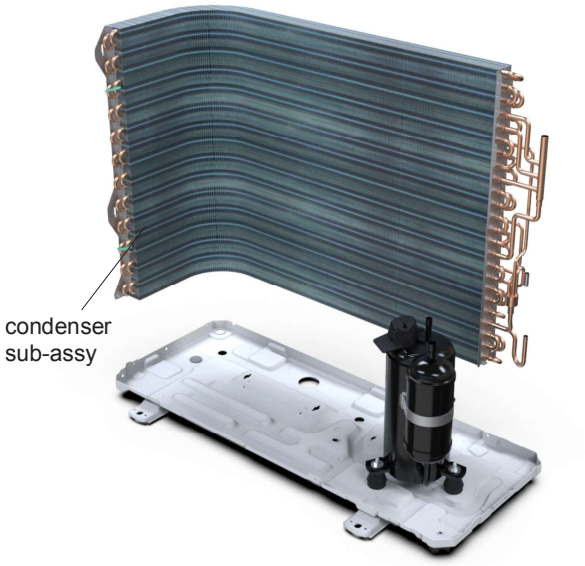
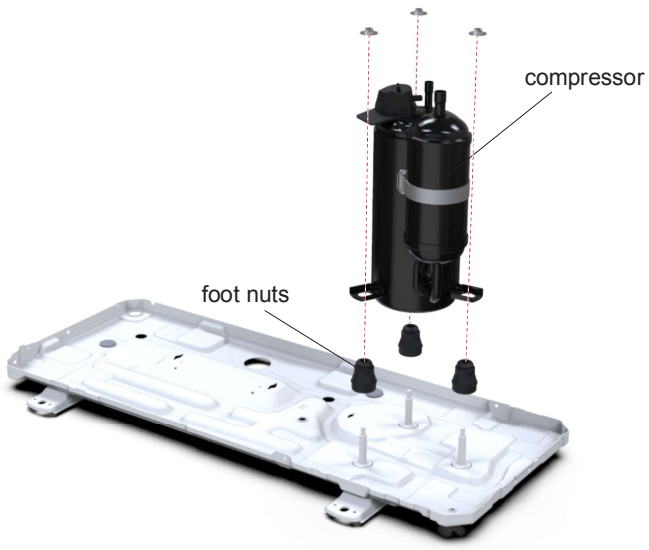
Step	Procedure
1. Before disassembly	
2. Remove valve cover Remove the connection screw and then remove the valve cover.	
3. Remove big handle Remove the connection screw and then remove the big handle.	

Step	Procedure
4. Remove top cover	
	Remove connection screws connecting the top panel with the front panel and the right side plate, and then remove the top panel.
	
5. Remove grille	
	Remove connection screws between the front grille and the front panel. Then remove the grille.
	
6. Remove front panel	
	Remove connection screws connecting the front panel with the chassis and the motor support and then remove the front panel.
	

Step	Procedure
7. Remove right side plate	
Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.	
8. Remove the nut and gasket on the blade and then remove the axial flow blade	
Remove the nut and gasket on the blade and then remove the axial flow blade.	
9. Remove motor and motor support	
Remove the tapping screws fixing the motor and disconnect the leading wire insert of the motor. Then remove the motor. Remove the tapping screws fixing the motor support and lift the motor support to remove it.	

Step	Procedure
10. Remove Electric Box Assy	
Remove screws fixing the electric box subassembly; loosen the wire bundle and unplug the wiring terminals. Then lift the electric box to remove it.	
11. Remove isolation sheet	
Remove the screws fixing the isolation sheet and then remove the isolation sheet.	
12. Remove liquid valve and gas valve	
Unsolder the welding joint connecting the valve with capillary and condenser; unsolder the welding joint connecting the gas valve and air-return pipe; remove the 2 screws fixing the gas valve to remove the gas valve. Unsolder the welding joint connecting the liquid valve and Y-shaped pipe; remove the 2 screws fixing the liquid valve to remove the liquid valve. Note: Before unsoldering the welding joint, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.	

Step	Procedure
13. Remove valve suppprt	
	Remove the screws fixing valve support, then remove the valve support.
	
14. Remove 4-way valve assy and cut-off valve	
	Unsolder the welding joints connecting the 4-way valve assy and cut-off valve, remove the 4-way valve and cutoff valve. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.
	
15. Remove electronic expansion valve assy	
	Unsolder the welding joints connecting electronic expansion valve assy then remove the electronic expansion valve assy and 4-way valve. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.
	

Step	Procedure
16. Remove left side plate	
	Remove connection screws connecting the left side plate. Then remove the right side plate.
	
17. Remove condenser sub-assy	
	擰 Remove the screws fixing the Remove condenser subassy and then remove the Remove condenser subassy.
	
18. Remove compressor	
	Remove the 3 foot nuts on the compressor and then remove the compressor.
	

Appendix

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: Tf=Tcx1.8+32

Set temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
61	60.8	16	69/70	69.8	21	78/79	78.8	26
62/63	62.6	17	71/72	71.6	22	80/81	80.6	27
64/65	64.4	18	73/74	73.4	23	82/83	82.4	28
66/67	66.2	19	75/76	75.2	24	84/85	84.2	29
68	68	20	77	77	25	86	86	30

Ambient temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
32/33	32	0	55/56	55.4	13	79/80	78.8	
34/35	33.8	1	57/58	57.2	14	81		
36	35.6	2	59/60	59	15	82/83	8	
37/38	37.4	3	61/62	60.8	16	84/85	84.2	2
39/40	39.2	4	63	62.6	17	86/87	86	
41/42	41	5	64/65	64.4	18	88/89	87.8	3
43/44	42.8	6	66/67	66.2	19	90		
45	44.6	7	68/69	68	20	91/92	91.4	33
46/47	46.4	8	70/71	69.8	21	93/94	93.2	34
48/49	48.2	9	72	71.6	22	95/96		
50/51	50	10	73/74	73.4	23	97/98	96.8	36
52/53	51.8	11	75/76	75.2	24	99	98.6	37
54	53.6	12	77/78	77	25			

Appendix 2: Configuration of Connection Pipe

1.Standard length of connection pipe(More details please refer to the specifications.)

2.Min length of connection pipe for the unit with standard connection pipe of 5m, there is no limitation for themin length of connection pipe. For the unit with standard connection pipe of 7.5m and 8m, the min length of connection pipe is 3m.

3.Max. length of connection pipe and max. high difference.(More details please refer to the specifications.)

4.The additional refrigerant oil and refrigerant charging required after prolonging connection pipe

● After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.

● The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

● Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

● Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R32				
Piping size		Indoor unit throttle	Outdoor unit throttle	
Liquid pipe	Gas pipe	Cooling only, cooling and heating (g / m)	Cooling only(g/m)	Cooling and heating(g/m)
1/4”	3/8” or 1/2”	16	12	16
1/4” or 3/8”	5/8” or 3/4”	40	12	40
1/2”	3/4” or 7/8”	80	24	96
5/8”	1" or 1 1/4”	136	48	96
3/4"	/	200	200	200
7/8"	/	280	280	28

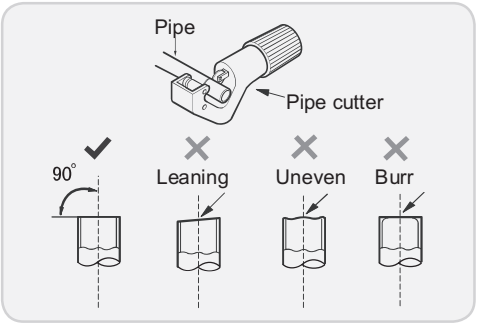
Appendix 3: Pipe Expanding Method

⚠ **Note:**

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

A:Cut the pip

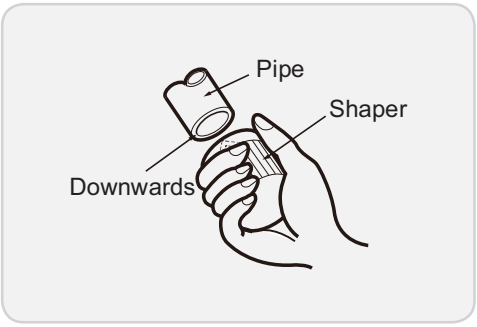
- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B:Remove the burrs

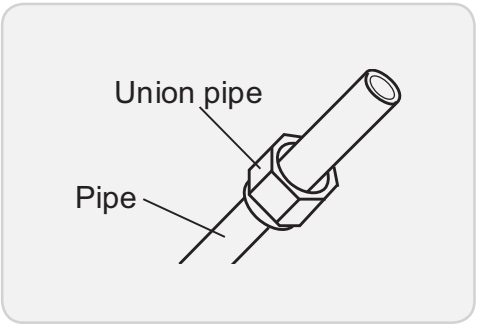
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.

C:Put on suitable insulating pipe.



D:Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



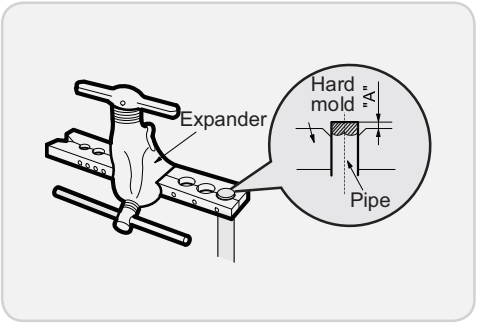
E:Expand the port

- Expand the port with expander.

⚠ **Note:**

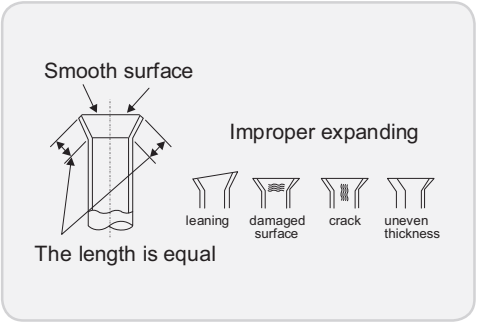
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9 - Φ9.52 (3/8")	1.6	1.0
Φ12 - 12.70 (1/2")	1.8	1.0
Φ16 - 15.88 (5/8")	2.4	2.2



F:Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Appendix 4: List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)

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

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	181.40	20	25.01	60	4.95	100	1.35
-15	145.00	25	20.00	65	4.14	105	1.16
-10	110.30	30	16.10	70	3.48	110	1.01
-5	84.61	35	13.04	75	2.94	115	0.88
0	65.37	40	10.62	80	2.50	120	0.77
5	50.87	45	8.71	85	2.13	12	
10	39.87	50	7.17	90	1.82	130	0.59
15	31.47	55	5.94	95	1.56	135	0.52

Resistance Table of Discharge Temperature Sensor for Outdoor(50K)

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