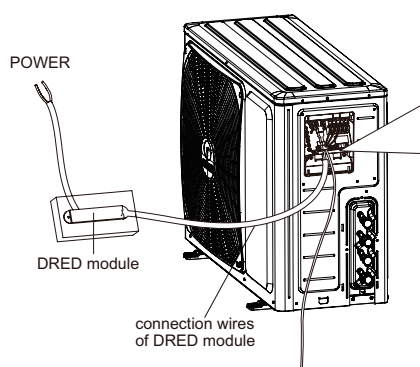


# 8. Installation

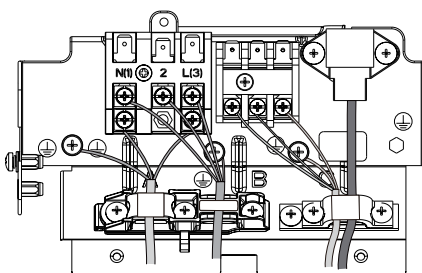
## 8.2 Installation connection wires of DRED module

- For the connection wire and power cord of DRED module, it's suggested to use rubber cord that is pursuant to IEC 57 of IEC 60245. If the power cord and connection wire use H05VV-F or other conducting wires that are unsuitable for outdoors, we suggest user should install the power cord and connection wire in wire-leading ducts that are separated from rain and violet ray.
- DRED module should be installed indoors or inside an enclosed space that can prevent rain and violet ray.
- The connection wires for DRED module, indoor unit and outdoor unit should use the same wire clamp. Other clamp wires are used for power cord and connection wires of other indoor unit and outdoor unit. (as picture shows).

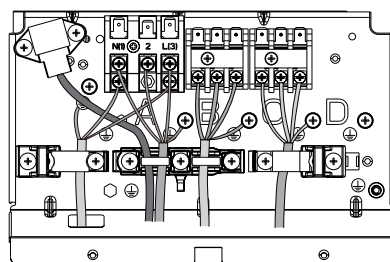
NOTE: Below picture is for reference. Please refer to actual products.



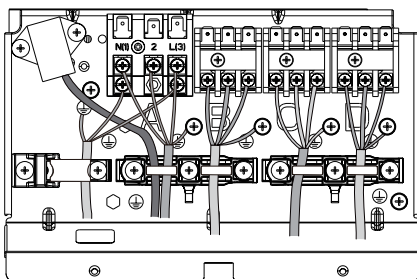
GWHD(18)NK6PO



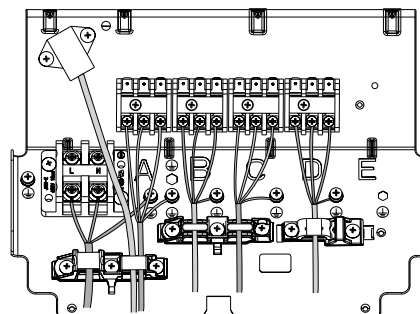
GWHD(24)NK6PO



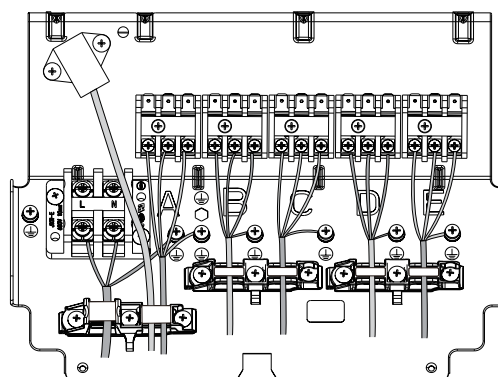
GWHD(28)NK6PO



GWHD(36)NK6PO



GWHD(42)NK6PO



NOTE:

The above figures are only intended to a simple diagram of the appliance and may not correspond to the appearance of the units that have been purchased.

# 8. Installation

## 8.3 Installing the Outdoor Unit

▲ Use bolts to secure the unit to a flat, solid floor.

When mounting the unit on a wall or the roof, make sure the support is firmly secured so that it cannot move in the event of intense vibrations or a strong wind.

▲ Do not install the outdoor unit in pits or air vents.

### Installing the pipes

▲ Use suitable connecting pipes and equipment for the refrigerant R32.

Models(m)	18Kx2	24Kx3	28Kx4	36Kx4	42Kx5
Max. connection pipe length	50	60	70	80	100
Max. connection pipe length (Simple one indoor unit)	30	30	30	30	30

The sum of the capacity codes of the indoor units should be among 50%-150% of that of the outdoor unit.

▲ The refrigerant pipes must not exceed the maximum heights 15m (18K~28K) or 25m (36K~42K).

▲ Wrap all the refrigerant pipes and joints.

▲ Tighten the connections using two wrenches working in opposite directions.

Humid air left inside the refrigerant circuit can cause compressor malfunction. After having connected the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit using a vacuum pump.

(1) Unscrew and remove the caps from the 2-way and 3-way valves.

(2) Unscrew and remove the cap from the service valve.

(3) Connect the vacuum pump hose to the service valve.

(4) Operate the vacuum pump for 10-15 minutes until an absolute vacuum of 10 mm Hg has been reached.

(5) With the vacuum pump still in operation, close the low-pressure knob on the vacuum pump coupling. Stop the vacuum pump.

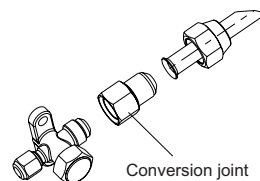
(6) Open the 2-way valve by 1/4" turn and then close it after 10 seconds. Check all the joints for leaks using liquid soap or an electronic leak device.

(7) Turn the body of the 2-way and 3-way valves. Disconnect the vacuum pump hose.

(8) Replace and tighten all the caps on the valves.

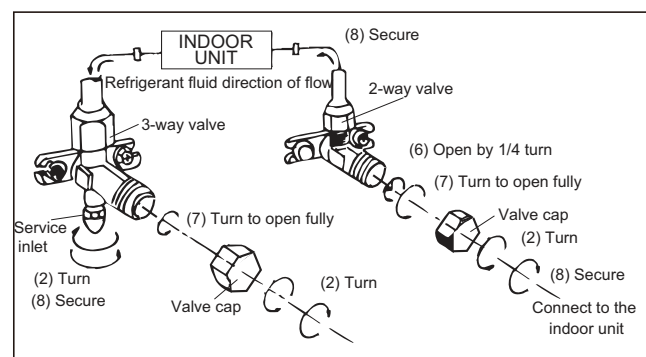
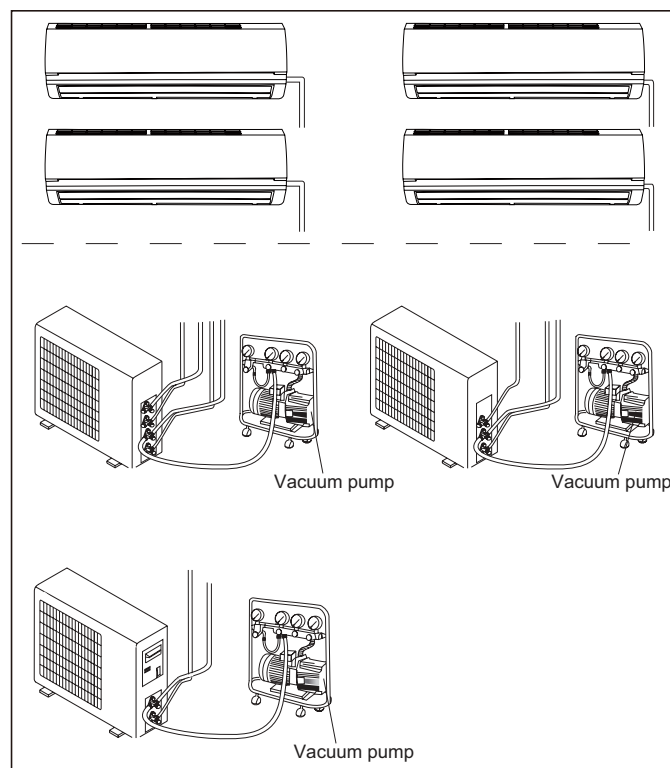
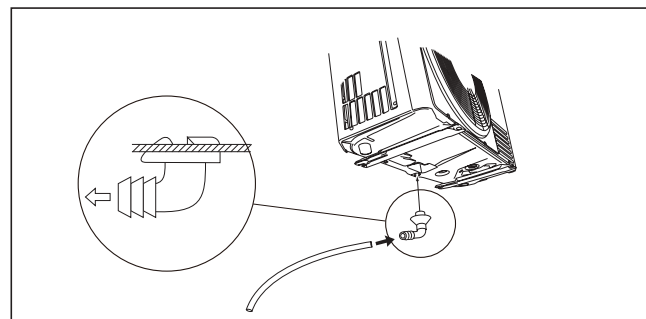
Piping size (inch)	Twisting moment (N·m)
Φ1/4	15-20
Φ3/8	35-40
Φ1/2	60-65
Φ5/8	45-50
Φ3/4	70-75

(9) If the specification of the outdoor unit's valve is unsuitable for the specification of the indoor unit, a conversion joint is needed to match the outdoor unit's valve and connection pipe, as shown in the following.



### Install the drain fitting and the drain hose(for model with heat pump only)

Condensation is produced and flows from the outdoor unit when the appliance is operating in the heating mode. In order not to disturb neighbours and to respect the environment, install a drain fitting and a drain hose to channel the condensate water. Install the drain fitting and rubber washer on the outdoor unit chassis and connect a drain hose to it as shown in the figure.



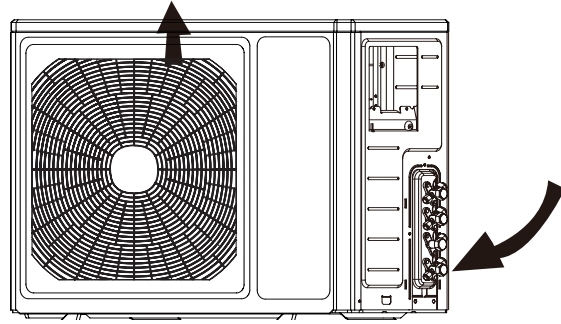
# 8. Installation

## 8.4 Installation Dimension Diagram

⚠ Use suitable instruments for the refrigerant R32.

⚠ Do not use any other refrigerant than R32.

⚠ Do not use mineral oils to clean the unit.

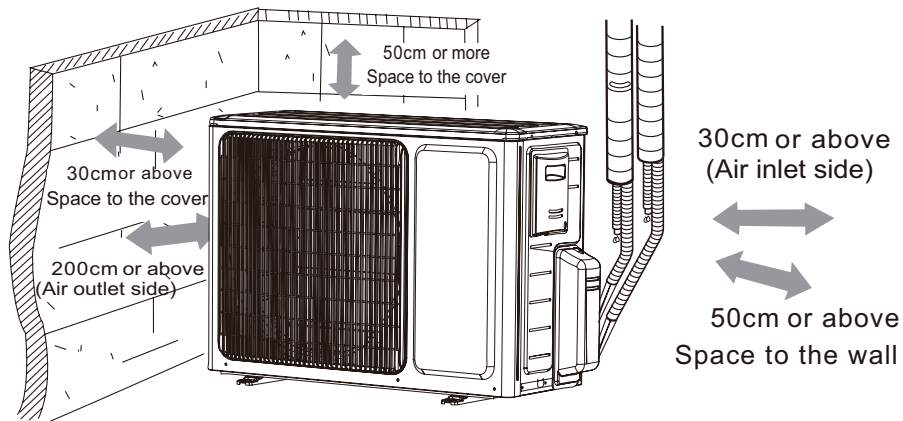


⚠ The installation must be done by trained and qualified service personnel with reliability according to this manual.

⚠ Contact service center before installation to avoid the malfunction due to unprofessional installation.

⚠ When picking up and moving the units, you must be guided by trained and qualified person.

⚠ Ensure that the recommended space is left around the appliance.



# 8. Installation

## 8.5 Check after Installation

Check Items	Problems Owing to Improper Installation
Is the installation reliable?	The unit may drop, vibrate or make noises
Has the gas leakage been checked?	May cause unsatisfactory cooling (heating) effect
Is the thermal insulation of the unit sufficient?	May cause condensation and water dropping
Is the drainage smooth?	May cause condensation and water dropping
Does the power supply voltage accord with the rated voltage specified on the nameplate?	The unit may bread down or the components may be burned out
Are the lines and pipelines correctly installed?	The unit may bread down or the components may be burned out
Has the unit been safely grounded?	Risk of electrical leakage
Are the models of lines in conformity with requirements?	The unit may bread down or the components may be burned out
Are there any obstacles near the air inlet and outlet of the indoor and outdoor units?	The unit may bread down or the components may be burned out
Have the length of refrigerating pipe and refrigerant charge amount been recorded?	It is not easy to decide the charge amount of refrigerant.



# 9. Maintenance

## 9.1 Precautions before Performing Inspection or Repair

There are high-capacity electrolytic capacitors on the outdoor mainboard. Thus, even the power is cut off, there is high voltage inside the capacitors and it needs more than 20min to reduce the voltage to safety value. Touching the electrolytic capacitor within 20min after cutting the power will cause electric shock. If maintenance is needed, follow the steps below to discharge electricity of electrolytic capacitor after power off.

(1) Open the top cover of outdoor unit and then remove the cover of electric box cover.

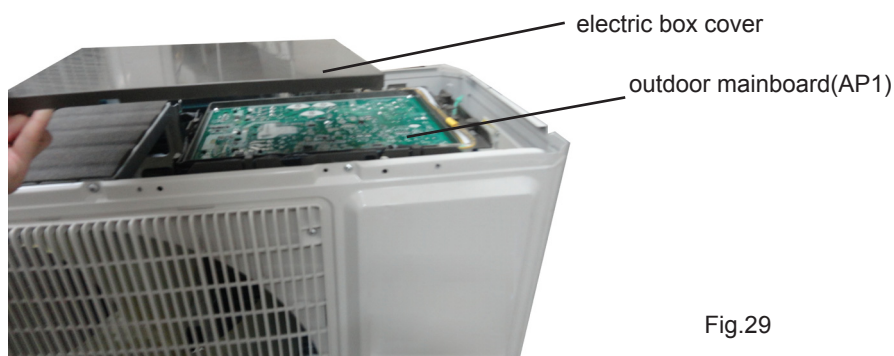


Fig.29

(2) As shown in the fig below, connect the plug of discharge resistance (about 100ohm, 20W) (if there is no discharge resistance, you can use the plug of soldering iron) to point A and B of electrolytic capacitor. There will be sparks when touching them. Press them forcibly for 30s to discharge electricity of electrolytic capacitor.

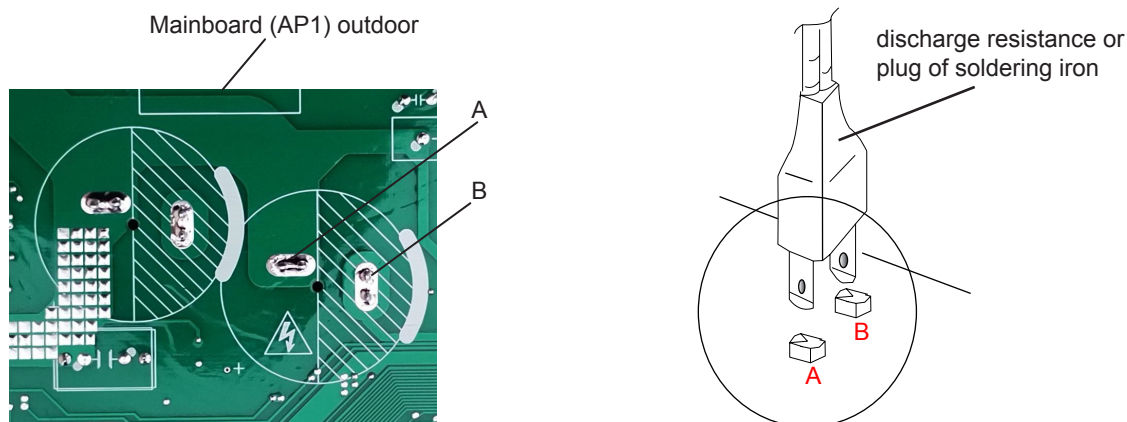


Fig.30

(3) After finish discharging electricity, measure the voltage between point A and B with universal meter to make sure if electricity discharging is completed, in order to prevent electric shock. If the voltage between the two points is below 20V, you can perform maintenance safely.

# 9. Maintenance

## 9.2 Flashing LED of Indoor/Outdoor Unit and Primary Judgement

### 1. Requirement of malfunction display

When several malfunctions happen at the same time, malfunction codes will be displayed circularly.

### 2. Malfunction display method

(1) Hardware malfunction: it will be displayed immediately, please refer to “Malfunction status sheet”;

(2) Operation status: it will be displayed immediately, please refer to “Malfunction status sheet”;

(3) Other malfunction: It will be displayed after the compressor has been stopped for 200s, please refer to “Malfunction status sheet”.

(Note: when the compressor starts up again, malfunction display waiting time (200s) will be cleared.)

### 3. Malfunction display control

Indoor unit displays malfunction code as shown in the sheet below. ODU communication light will be off for 1s and then blink for 1s circularly.

Malfunction status sheet		
Malfunction name	Malfunction type	Nixie tube
Zero cross detection circuit malfunction	Hardware malfunction	U8
Malfunction protection of jumper cap	Hardware malfunction	C5
Feedback of without IDU motor	Hardware malfunction	H6
Indoor ambient temperature sensor is open/short circuited	Hardware malfunction	F1
Indoor evaporator temperature sensor is open/short circuited	Hardware malfunction	F2
Liquid valve temperature sensor is open/short circuited	Hardware malfunction	b5
Gas valve temperature sensor is open/short circuited	Hardware malfunction	b7
Modular temperature sensor is open/short circuited	Hardware malfunction	P7
Outdoor ambient temperature sensor is open/short circuited	Hardware malfunction	F3
Outdoor condenser middle pipe temperature sensor is open/short circuited	Hardware malfunction	F4
Outdoor discharge temperature sensor is open/short circuited	Hardware malfunction	F5
Communication malfunction	Hardware malfunction	E6
Malfunction of phase current detection circuit for compressor	Hardware malfunction	U1
Compressor demagnetization protection	Viewing malfunction code through remote controller within 200s; displayed directly on nixietube after 200s	HE
Malfunction of voltage dropping for DC bus-bar		U3
Module high temperature protection		P8
Refrigerant lacking or blockage protection of system (not available for residential ODU)		F0
Charging malfunction of capacitor	Hardware malfunction	PU
High pressure protection of system	Hardware malfunction	E1
Low pressure protection of system (reserved)	Hardware malfunction	E3

# 9. Maintenance

Compressor overload protection	Viewing malfunction code through remote controller within 200s; displayed directly on nixietube after 200s	H3
Indoor unit and outdoor unit do not match	Hardware malfunction	LP
Malfunction of memory chip	Hardware malfunction	EE
Wrong connection of communication wire or malfunction of electronic expansion valve	Hardware malfunction	dn
Malfunction of complete units current detection	Hardware malfunction	U5
Malfunction protection of outdoor fan 1	Hardware malfunction	L3
Detection status of wrong connection of communication wire or malfunction of electronic expansion valve	Operation status	dd
Mode conflict	Operation status	E7
Refrigerant recycling mode	Operation status	Fo
X-fan	Operation status	AL
Defrosting or oil return in heating mode	Operation status	H1
Start failure of compressor	Viewing malfunction code through remote controller within 200s; displayed directly on nixietube after 200s	Lc
High discharge temperature protection of compressor		E4
Overload protection		E8
Whole unit overcurrent protection		E5
Compressor phase current protection		P5
Compressor desynchronizing		H7
Compressor phase-lacking/phase-inverse protection		Ld
IPM modular protection		H5
DC bus-bar low voltage protection		PL
DC bus-bar high voltage protection		PH
PFC protection		HC
The four-way valve is abnormal		U7

## 9.3 Malfunction Checking and Elimination

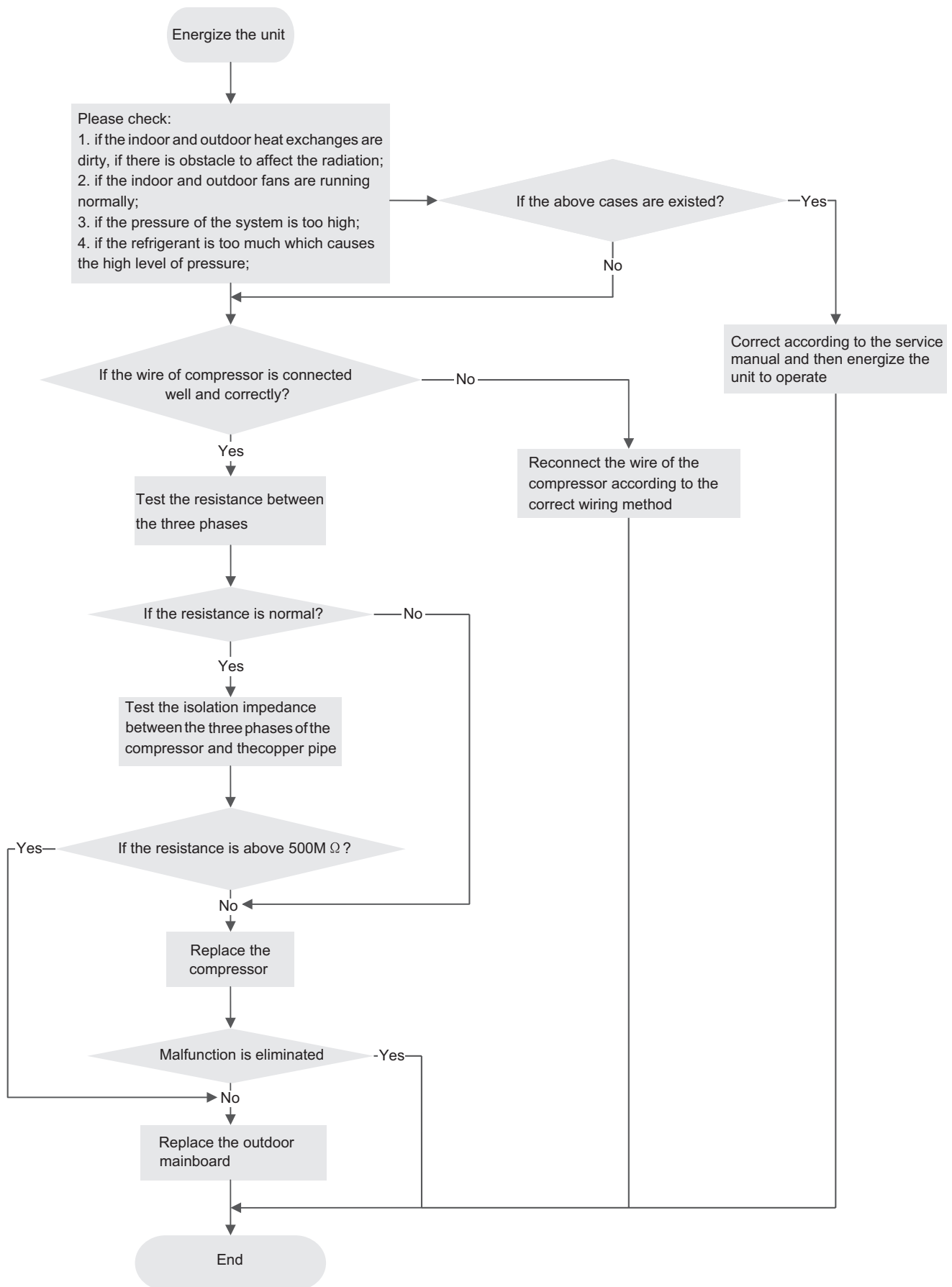
1 IPM protection malfunction:

Main checking point:

- If the input voltage of the unit is within normal range?
- If the connection wire of compressor is connected well? Is it loose? If the connection sequence is correct?
- If the resistance of compressor coil is normal? If the isolation of compressor coil with copper pipe is good?
- If the unit is overloaded? If the heat radiation of the unit is good?
- If the refrigerant charge is suitable?

Flow chart:

# 9. Maintenance



# 9. Maintenance

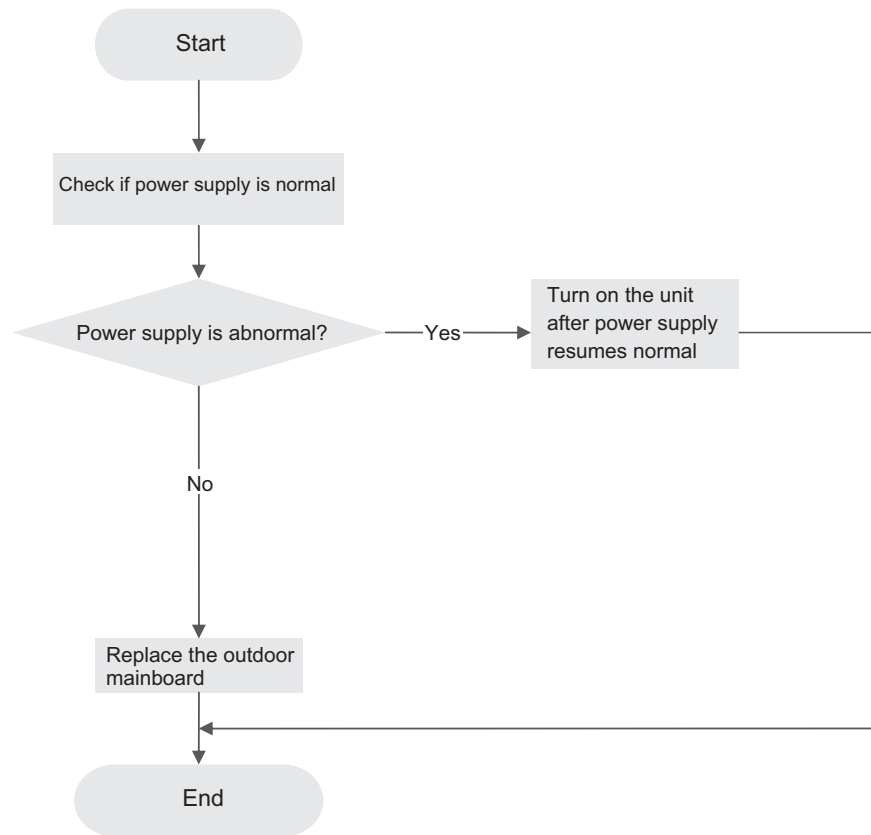
2. PFC protection malfunction, capacity charging malfunction

Main checking points:

- If the wiring of the induction is connected well and if the induction is broken;
- If the mainboard is broken;

Flow chart:

For some models



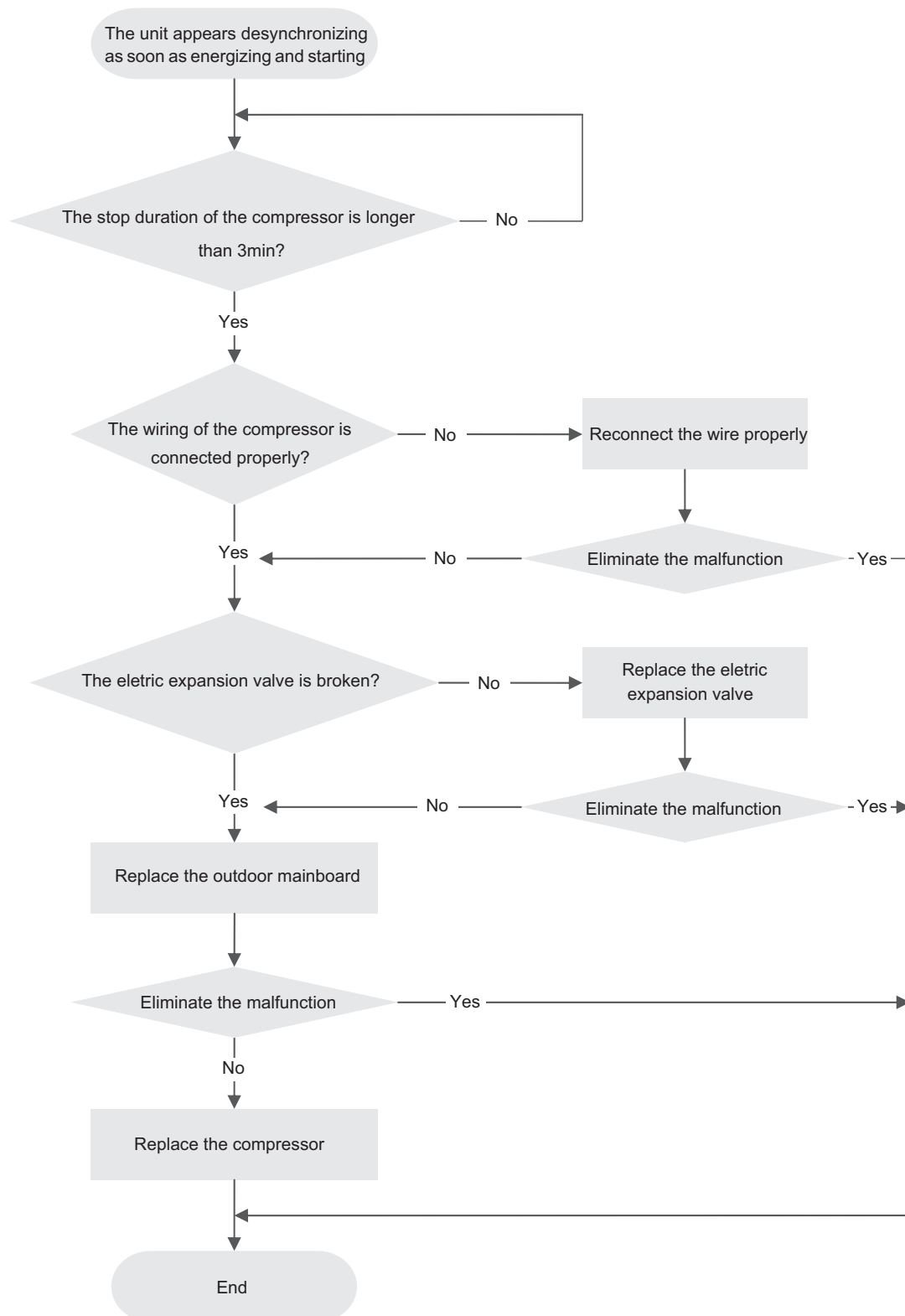
# 9. Maintenance

## 3. Compressor desynchronizing malfunction

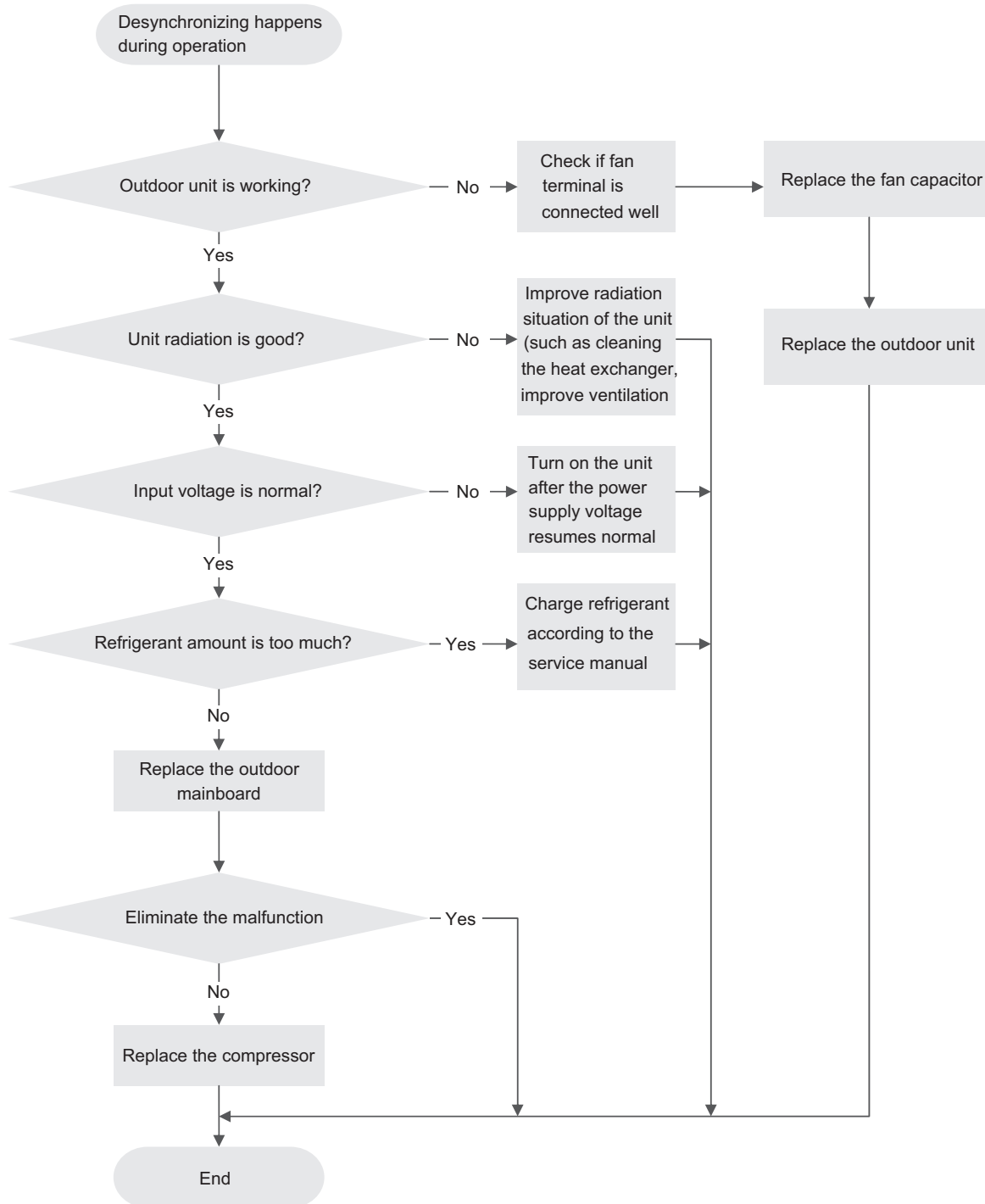
Main checking points:

- If the pressure of the system is too high;
- If the electric expansion valve is working normally or it is broken;
- If the radiation of the unit is good;

Flow chart:



# 9. Maintenance





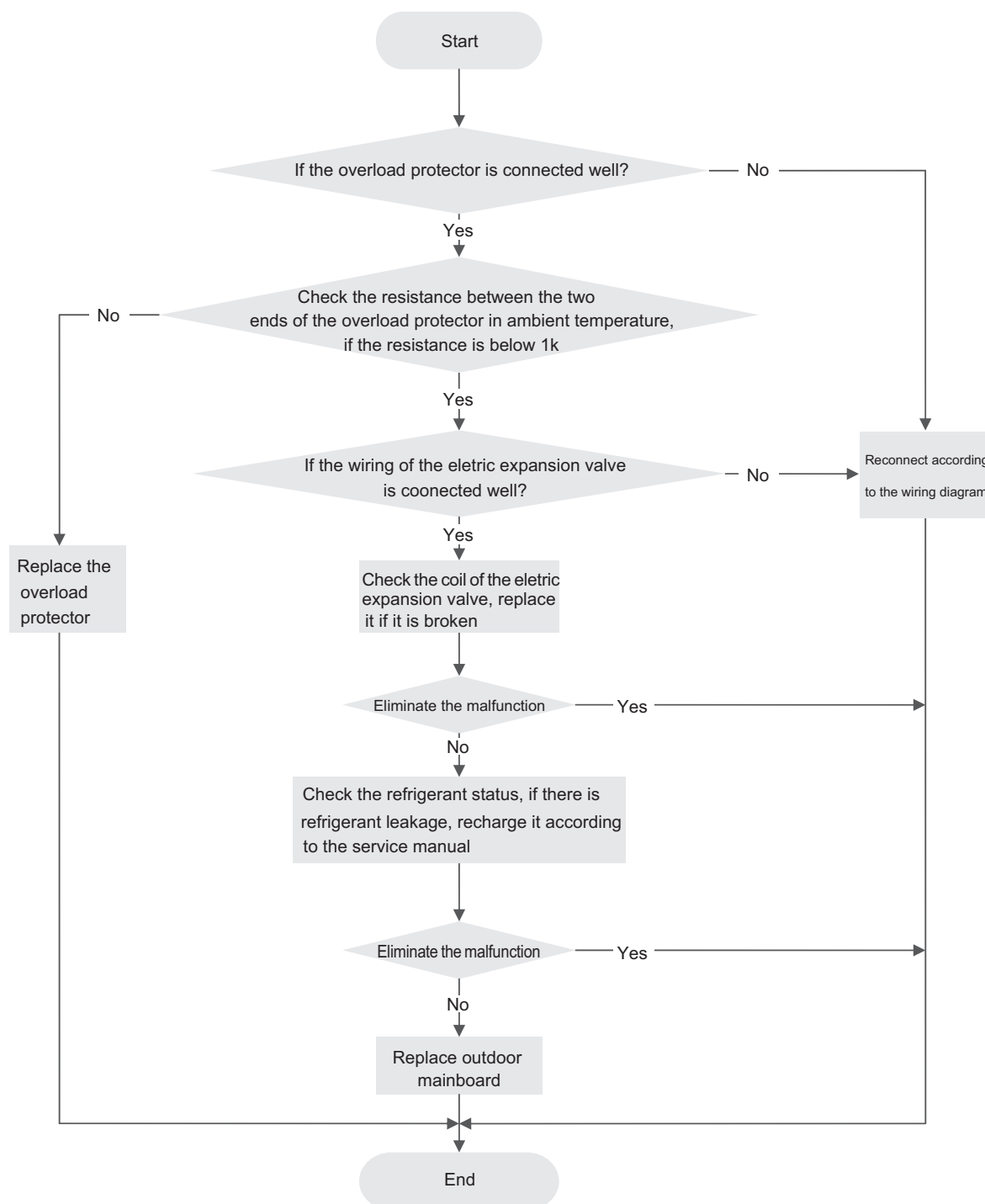
# 9. Maintenance

## 4. Compressor overload, discharge protectionmalfunction

Main checking points:

- If the eletric expansion valve is connected well or it is broken;
- If there is refrigerant leakage;
- If the overload protector is broken;

Flow chart:



Note: the detection method of the coil of the eletric expansion valve: there is five pieces of coil of the eletric expansion valve, the resistance of one of them (the leftmost or the rightmost one) is almost the same as the resistance of other terminal (within 100  $\Omega$  ). Judge the condition of the electronic expansion valve through detecting these resistance.

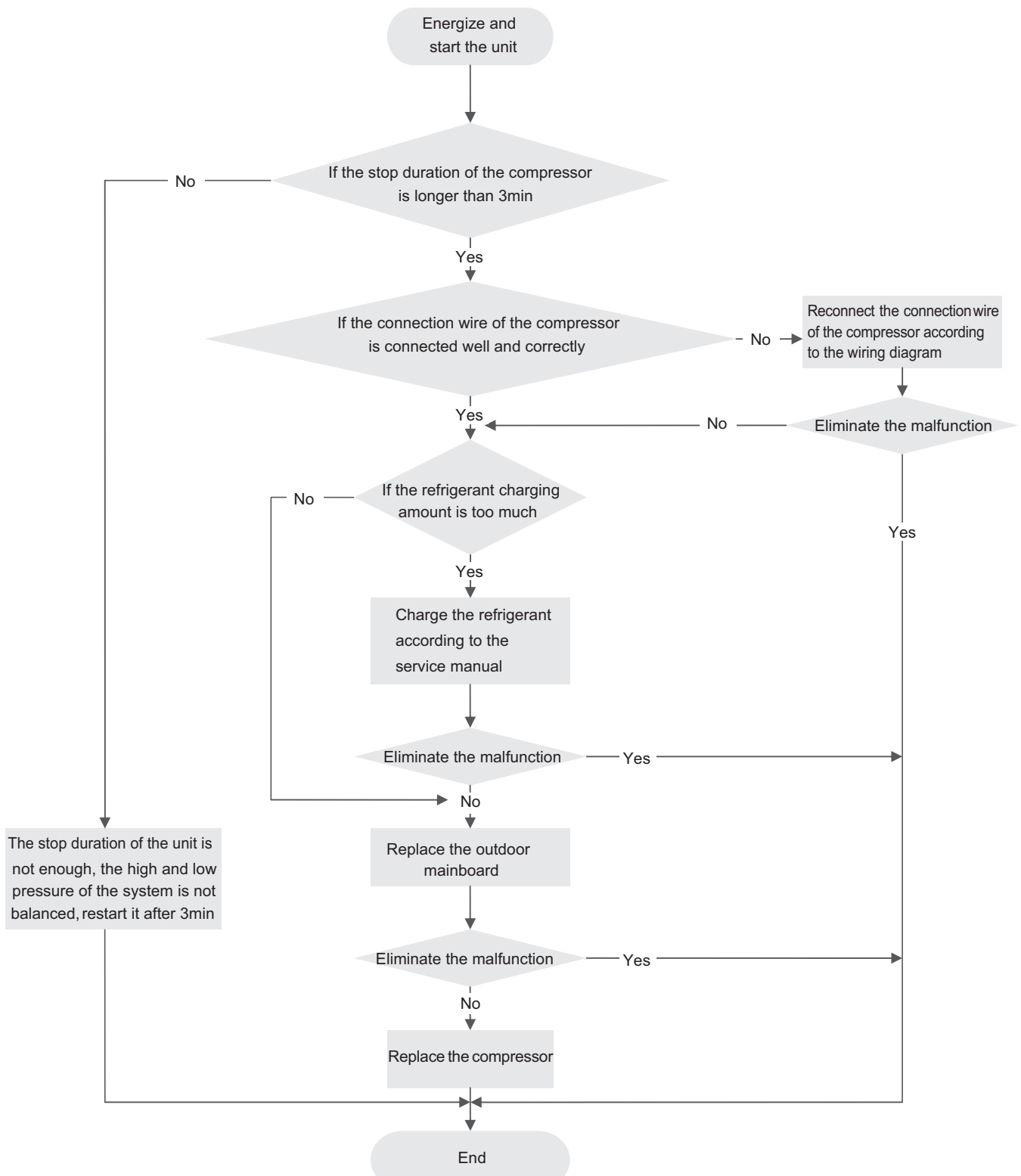
# 9. Maintenance

## 5. Start failure/malfunction

Main checking points:

- If the connection wire of the compressor is connected properly;
- If the stop duration of the compressor is sufficient;
- If the compressor is broken;
- If the refrigerant charging amount is too much;

Flow chart:



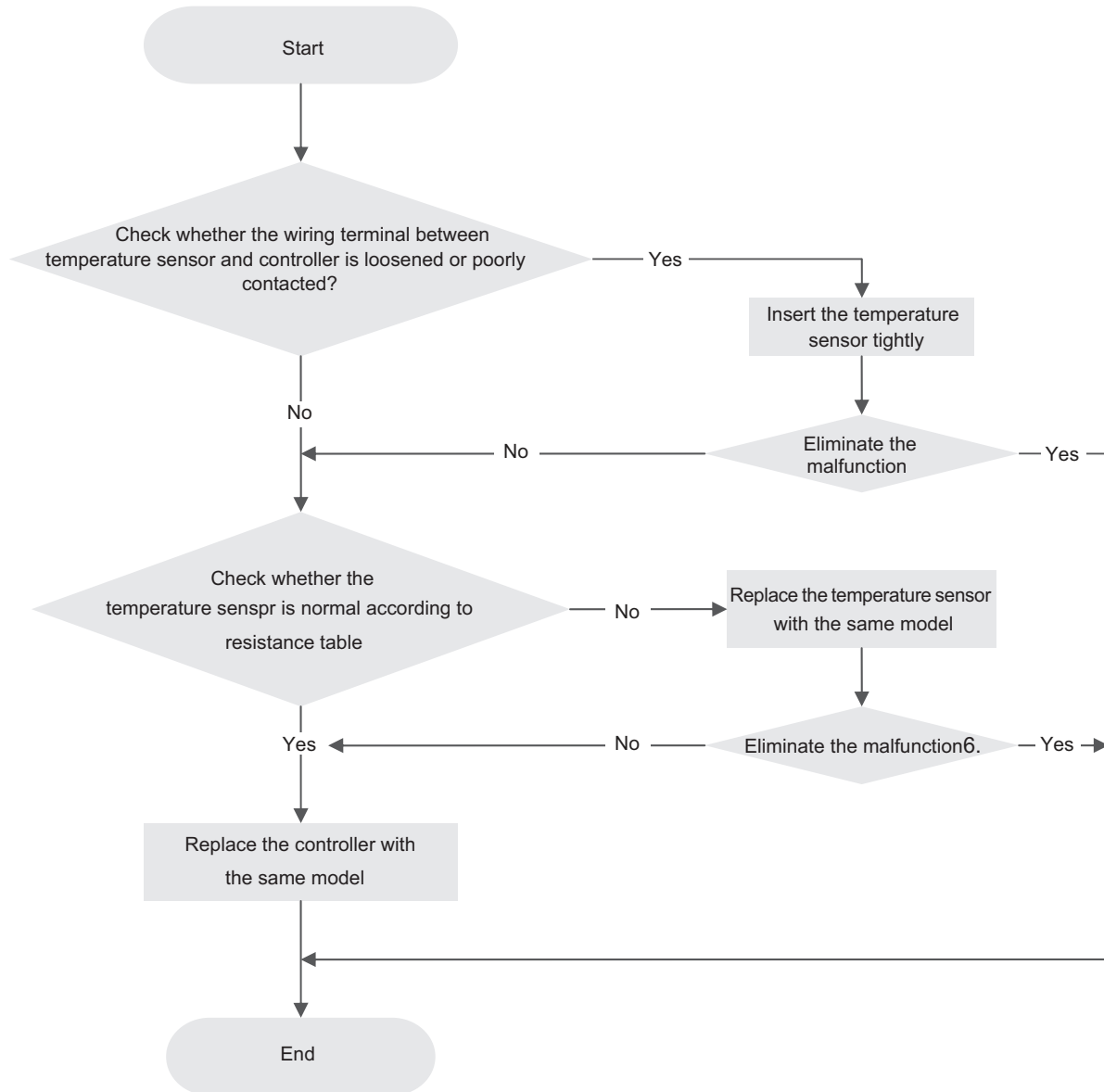
# 9. Maintenance

## 6. Temperature sensor malfunction

Main checking points:

- If the temperature sensor is damaged or broken
- If the terminal of the temperature sensor is loosened or not connected;
- If the mainboard is broken;

Flow chart:



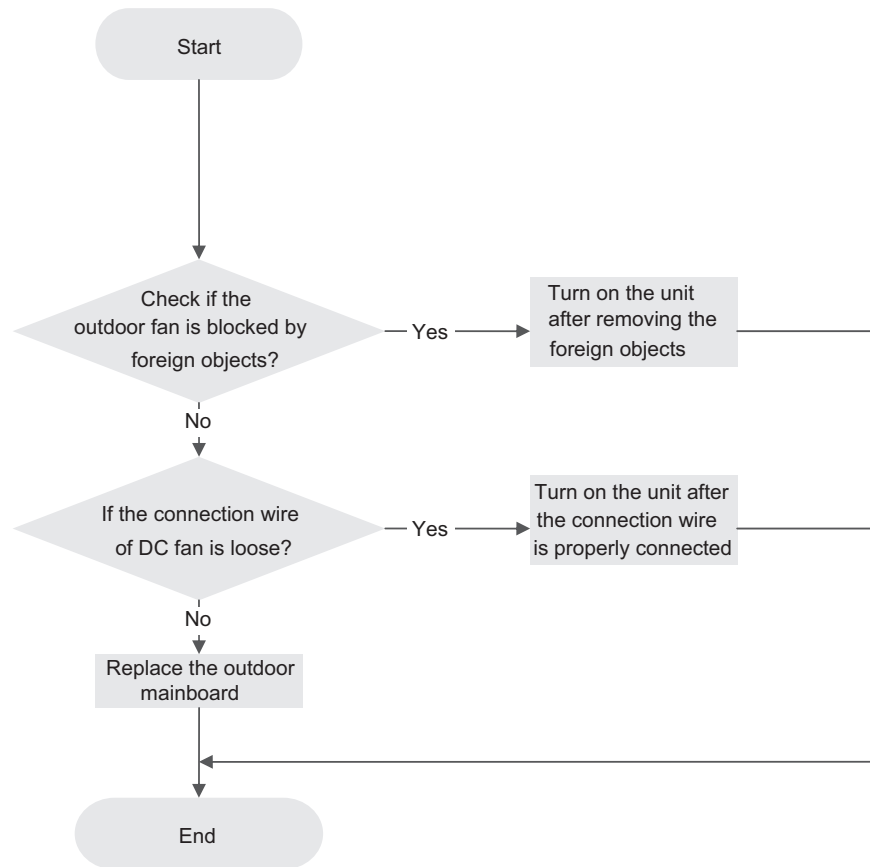
# 9. Maintenance

## 7. DC fan malfunction

Main checking points:

- If the outdoor fan is blocked by foreign objects;
- The connection wire of DC fan is connected reliably? If it is loose?

Flow chart:



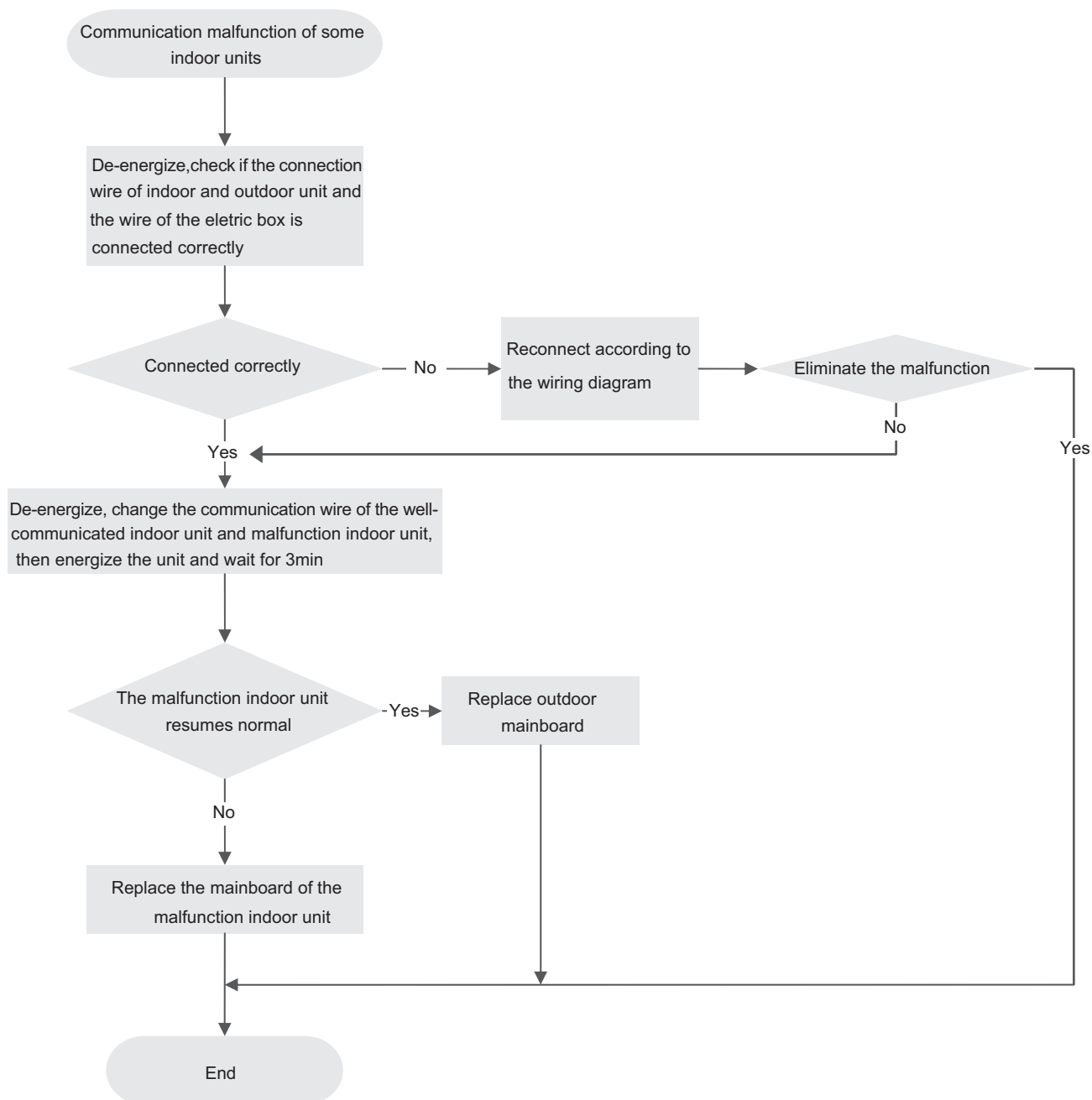
# 9. Maintenance

## 8. Communication malfunction

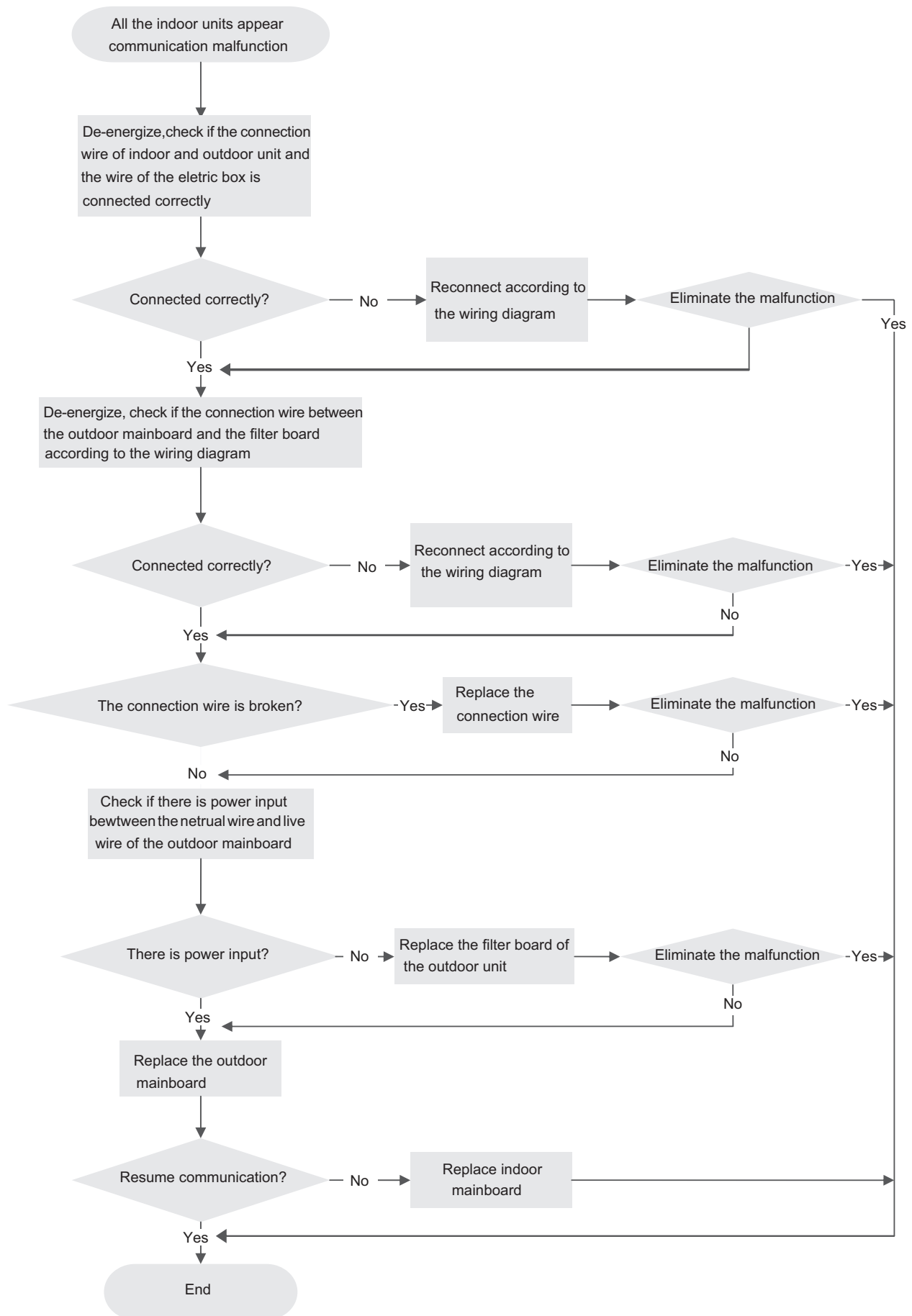
Main checking points:

- If the connection wire between the indoor unit and outdoor unit is connected well, if the wires inside the unit is connected well;
- If the indoor mainboard or outdoor main board is broken;

Flow chart:



# 9. Maintenance



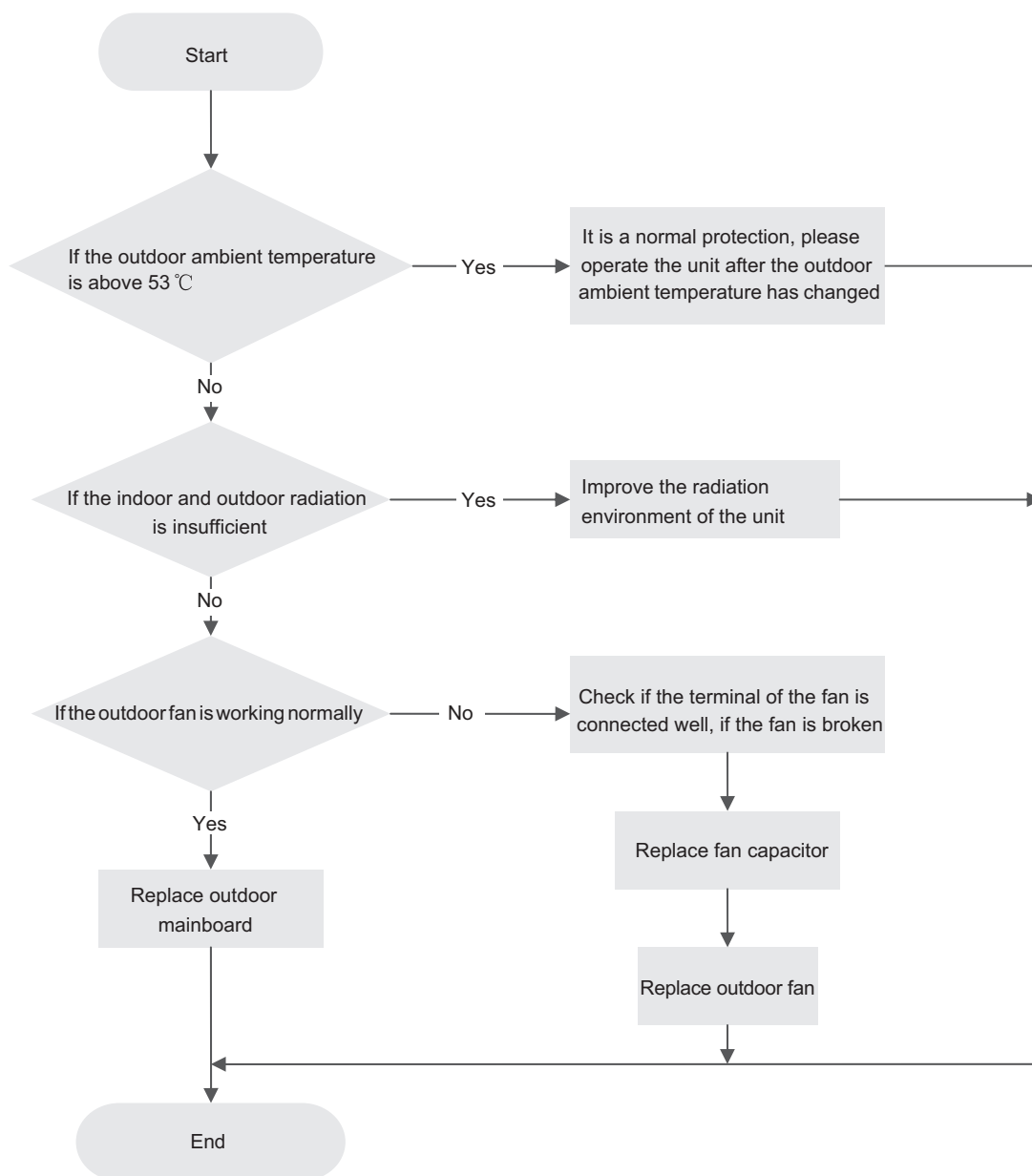
# 9. Maintenance

## 9. Anti-high temperature and overload malfunction

Main checking points:

- If the outdoor ambient temperature is within the normal range;
- If the indoor fan and outdoor fan are running normally;
- If the indoor and outdoor radiation environment is good;

Flow chart:





# Maintenance

## 9.4 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 its 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 position 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; Unit 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

# 9. Maintenance

## 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 its 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

## 6. Air Conditioner is Leaking

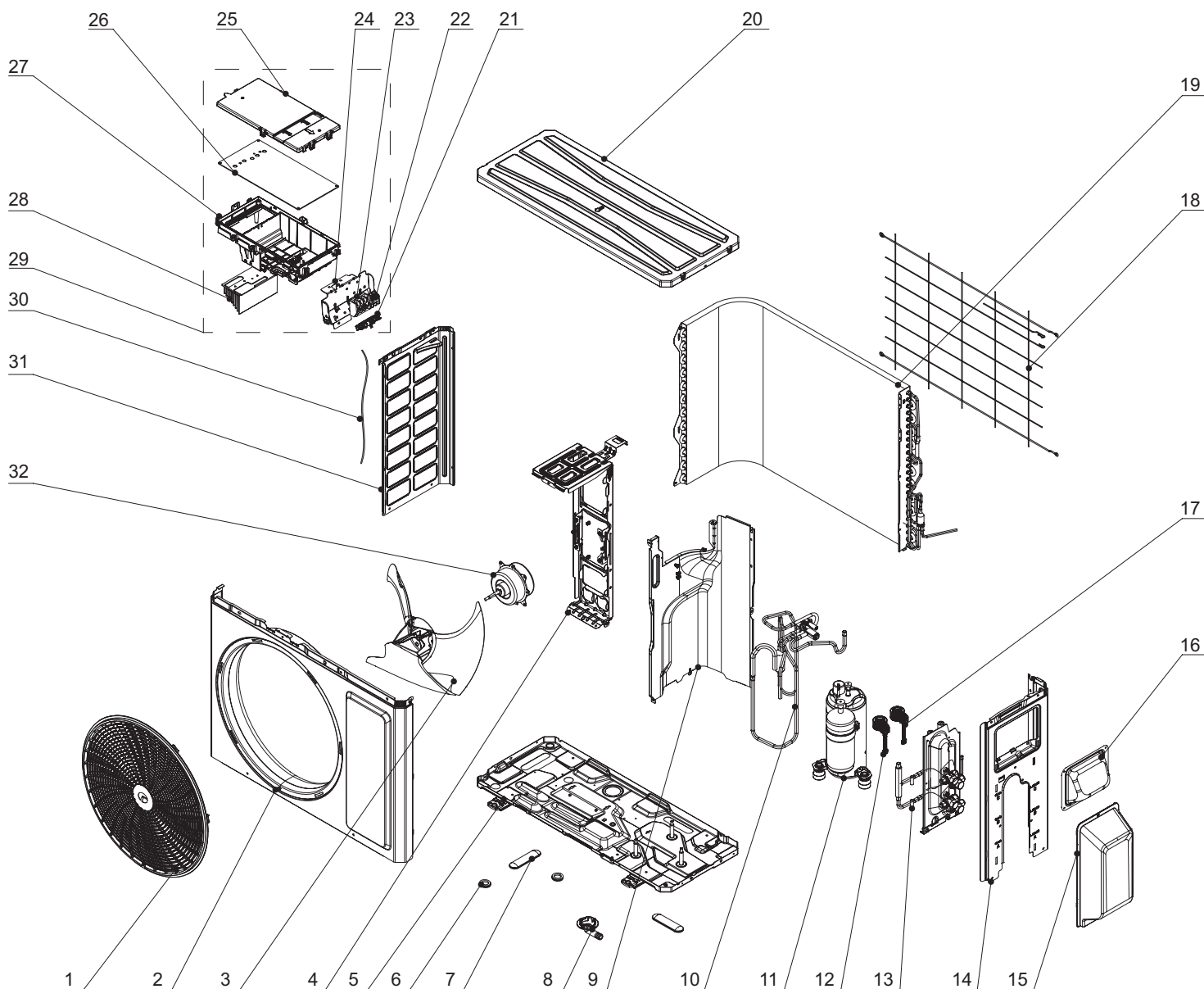
Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe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

## 7. Abnormal Sound and Vibration

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

# 10. Exploded View and Parts List

GWHD(18)NK6PO



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

NO.	Description
1	Front Grill
2	Cabinet Assy
3	Axial Flow Fan
4	Motor Support Sub-Assy
5	Chassis Sub-assy
6	Drainage hole Cap
7	Drainage hole Cap
8	Drainage Connector
9	Clapboard
10	4-Way Valve Assy
11	Compressor and Fittings

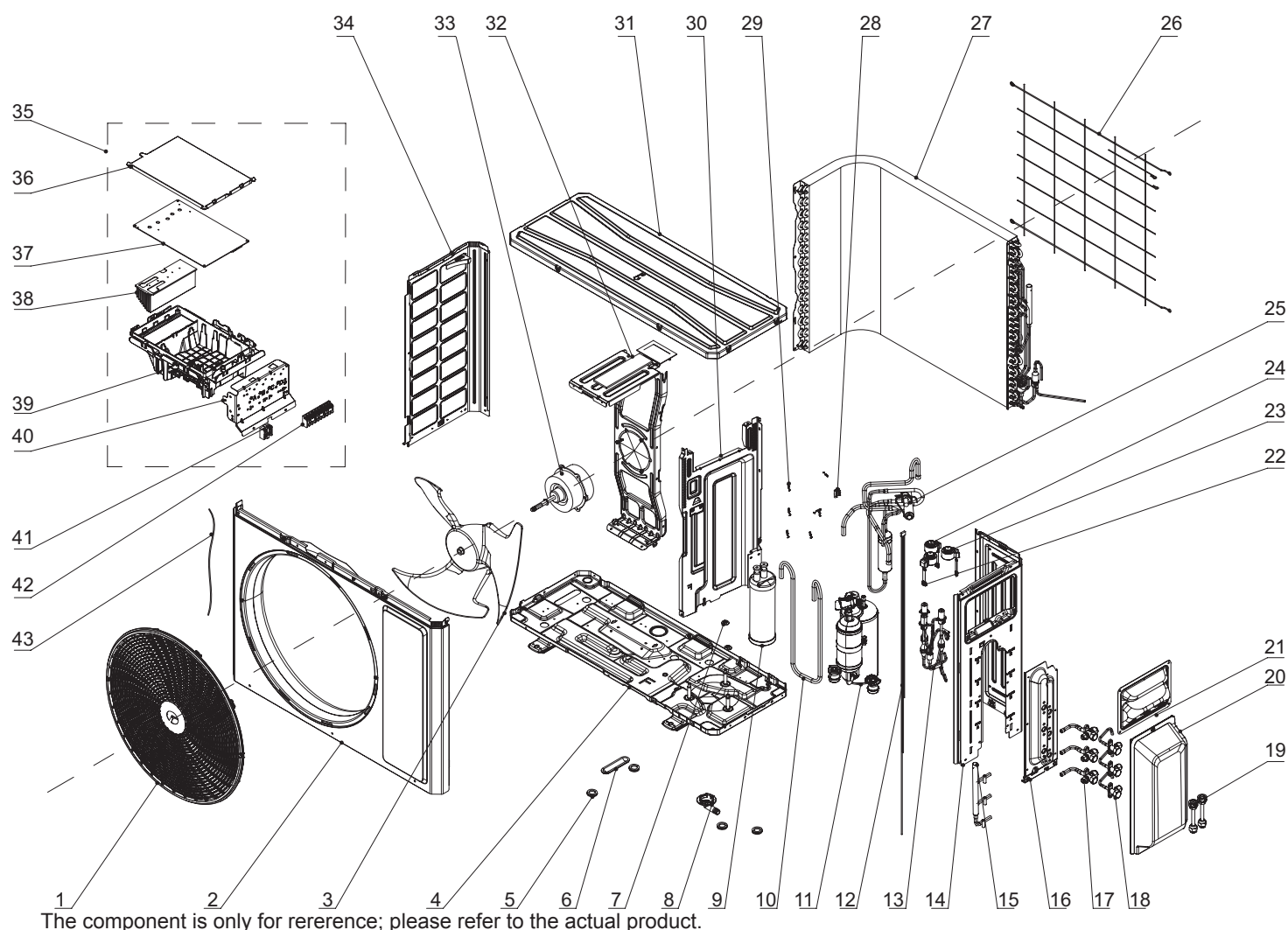
NO.	Description
12	Electric Expansion Valve Coil
13	Valve Support Assy
14	Right Side Plate
15	Valve Cover
16	Cable Cross Plate
17	Electric Expansion Valve Coil
18	Rear Grill
19	Condenser Assy
20	Top Cover Plate Assy
21	Wire Clamp
22	Terminal Board

NO.	Description
23	Terminal Board
24	Terminal Board Support Assy
25	Electric Box cover
26	Main Board
27	Electric Box
28	Radiator
29	Electric Box Assy
30	Connecting Cable
31	Left Side Plate
32	Fan Motor

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

# 10. Exploded View and Parts List

GWHD(24)NK6PO



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

NO.	Description
1	Front Grill
2	Front Panel
3	Axial Flow Fan
4	Chassis Sub-assy
5	Drainage hole Cap
6	Drainage hole Cap
7	Compressor Gasket
8	Drainage Joint
9	Gas-liquid Separator
10	Inhalation Tube
11	Compressor and Fittings
12	Temperature Sensor
13	Electronic Expansion Valve Assy
14	Right Side Plate
15	Gas Separator Sub-assy

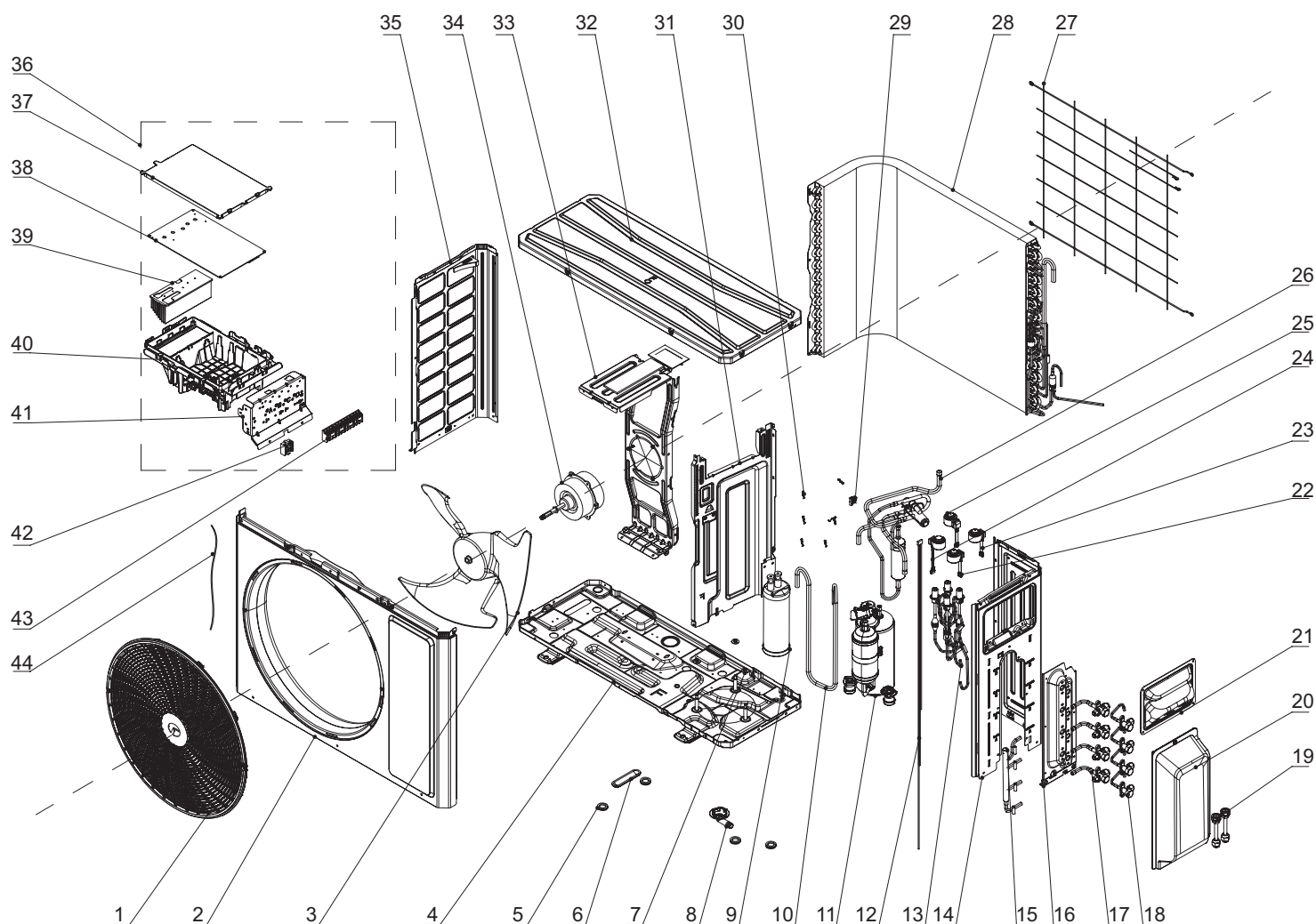
NO.	Description
16	Valve Support Assy
17	Cut-off valve Sub-assy
18	Cut-off valve Sub-assy
19	Tube Connector Sub-assy
20	Valve Cover
21	Cable Cross Plate
22	Electric Expansion Valve Coil
23	Electric Expansion Valve Coil
24	Electric Expansion Valve Coil
25	4-Way Valve Assy
26	Rear Grill
27	Condenser Assy
28	Sensor Clamp
29	Sensor Insert
30	Clapboard Sub-assy

NO.	Description
31	Top Cover Plate Assy
32	Motor Support Sub-Assy
33	Fan Motor
34	Left Side Plate
35	Electric Box Assy
36	Electric Box Cover
37	Main Board
38	Radiator
39	Electric Box
40	Terminal Board Support Assy
41	Terminal Board
42	Terminal Board
43	Connecting Cable

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

# 10. Exploded View and Parts List

GWHD(28)NK6PO



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

NO.	Description
1	Front Grill
2	Front Panel
3	Axial Flow Fan
4	Chassis Sub-assy
5	Drainage hole Cap
6	Drainage hole Cap
7	Compressor Gasket
8	Drainage Joint
9	Gas-liquid Separator
10	Inhalation Tube
11	Compressor and Fittings
12	Temperature Sensor
13	Electronic Expansion Valve Assy
14	Right Side Plate
15	Gas Separator Sub-assy

NO.	Description
16	Valve Support Assy
17	Cut-off valve Sub-assy
18	Cut-off valve Sub-assy
19	Tube Connector Sub-assy
20	Valve Cover
21	Cable Cross Plate
22	Electric Expansion Valve Coil
23	Electric Expansion Valve Coil
24	Electric Expansion Valve Coil
25	Electric Expansion Valve Coil
26	4-Way Valve Assy
27	Rear Grill
28	Condenser Assy
29	Sensor Clamp
30	Sensor Insert

NO.	Description
31	Clapboard Sub-assy
32	Top Cover Plate Assy
33	Motor Support Sub-Assy
34	Fan Motor
35	Left Side Plate
36	Electric Box Assy
37	Electric Box Cover
38	Main Board
39	Radiator
40	Electric Box
41	Terminal Board Support Assy
42	Terminal Board
43	Terminal Board
44	Connecting Cable

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