9. TROUBLESHOOTING

9.1 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

   - Hardware malfunction: it will be displayed immediately, please refer to "Malfunction status sheet";
   - Operation status: it will be displayed immediately, please refer to "Malfunction status sheet";
   - Other malfunction: It will be displayedafter the compressor has been stopped for 200s, please refer to "Malfunction status sheet".

3. Malfunction display control

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

4. Viewing malfunction code through remote controller

   Enter viewing malfunction code: pressing light button for 6 times within 3S to view malfunction code;

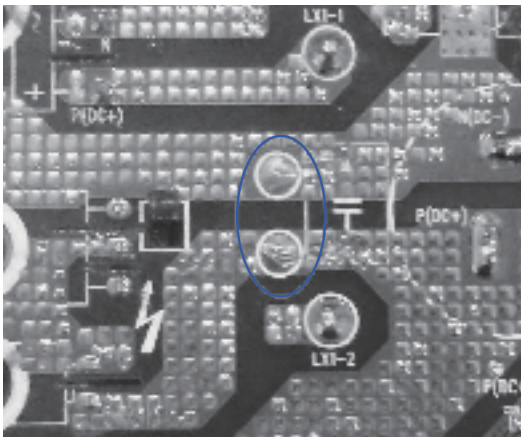
   Exit viewing malfunction code: pressing light button for 6 times within 3S or after the malfunction code is displayed for 5min.

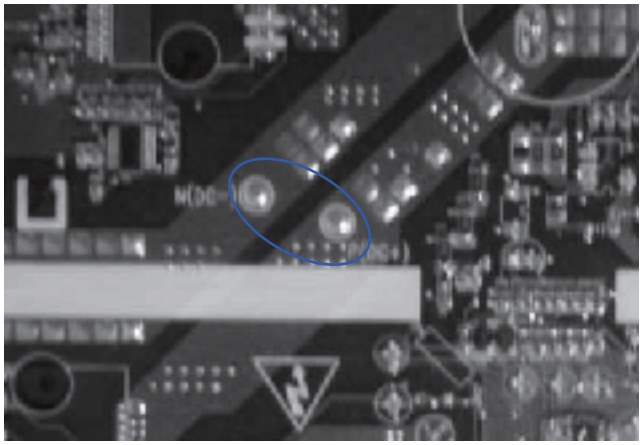
Malfunction status sheet		
Malfunction name	Malfunction type	Nixie tube
Zero cross detection circuit malfunction(for indoor unit)	Hardware malfunction	U8
Malfunction protection of jumper cap(for indoor unit)	Hardware malfunction	C5
Feedback of without IDU motor(for indoor unit)	Hardware malfunction	H6
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	7P
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
Module high temperature protection	Hardware malfunction	P8
Refrigerant lacking or blockage protection of system (not available for residential ODU)	Viewing malfunction code through remote controller within 200s; displayed directly on nixietube after 200s	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

Malfunction status sheet		
Malfunction name	Malfunction type	Nixie tube
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 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

9.2 MALFUNCTION CHECKING AND ELIMINATION

Note: discharge the position in below pictures with discharge resistance after open the top cover and check if the voltage is below 20V with universal meter, then begin to check.



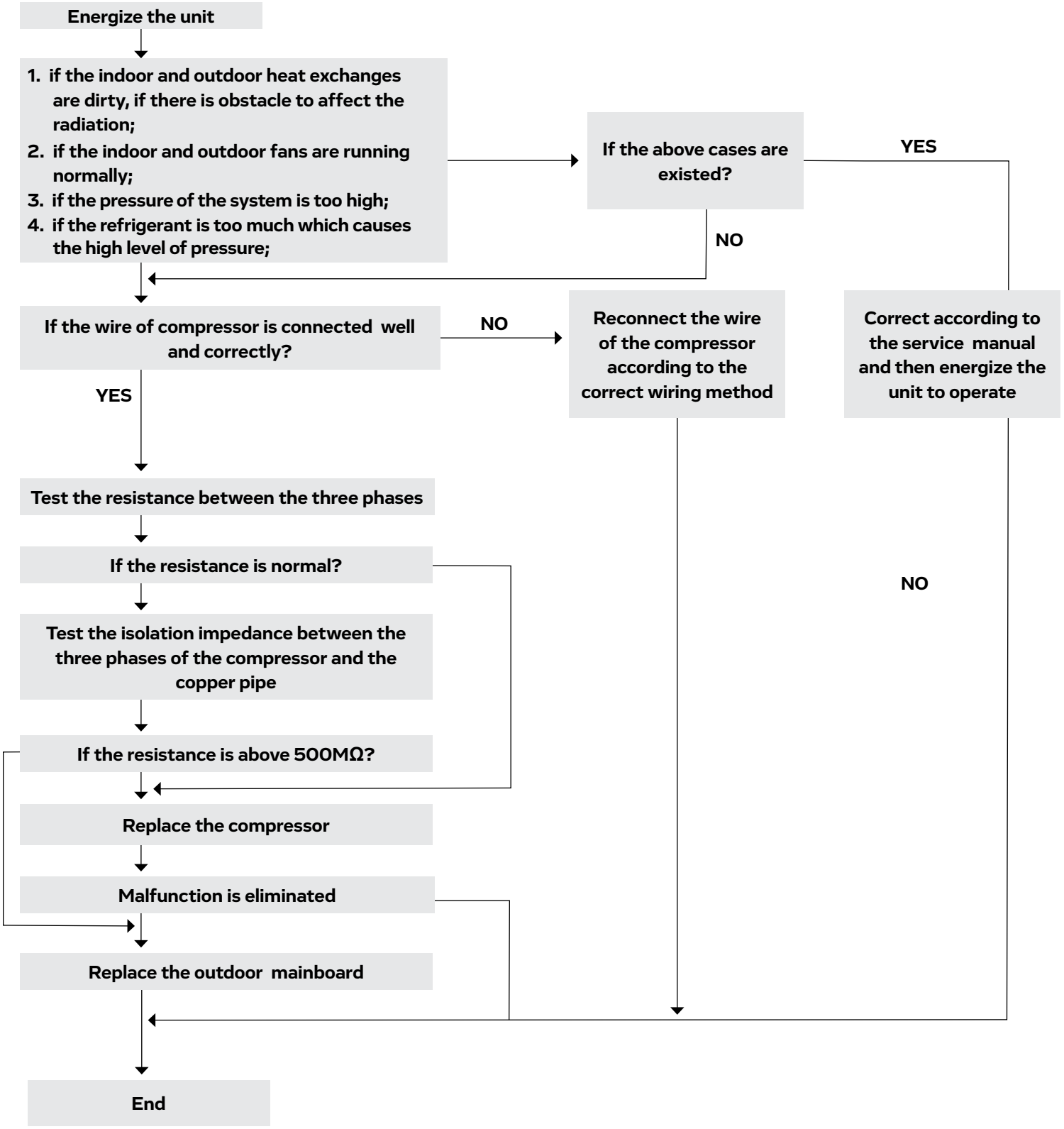


1 IPM protection malfunction: Main checking point:

- 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?

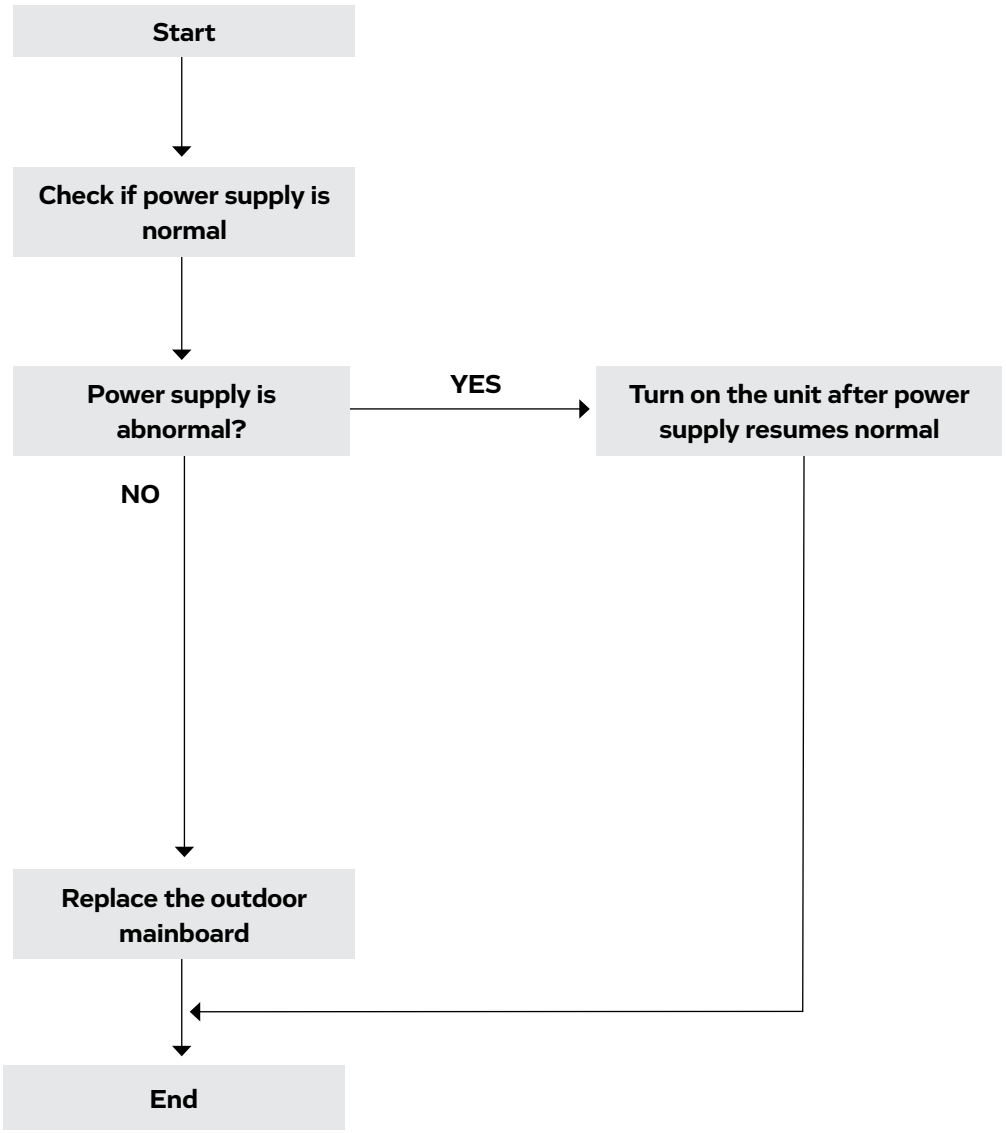
Flow chart:

- 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?

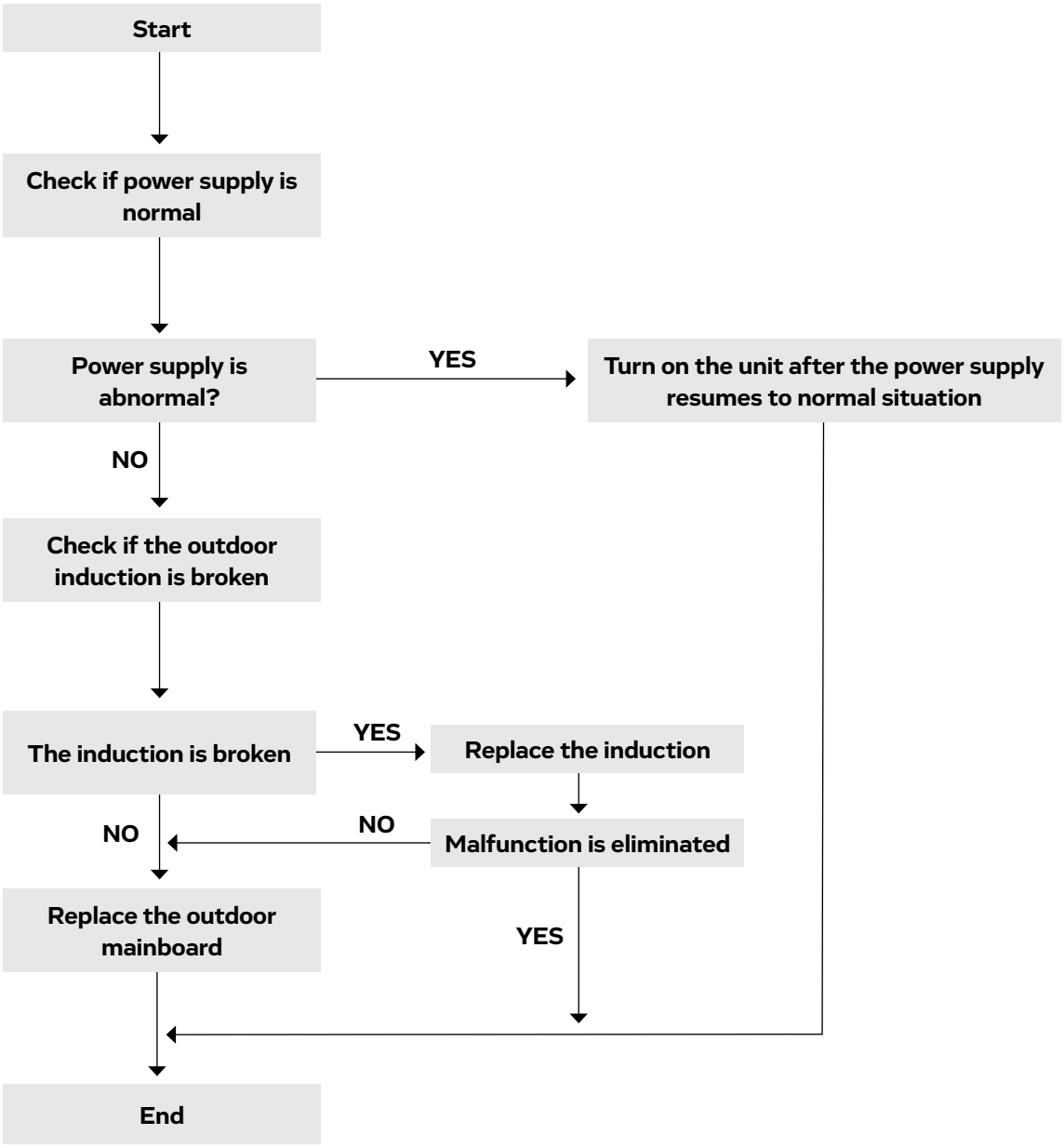


2. PFC protection malfunction, capacity charging malfunction
Main checking points:
- If the wiring of the induction is connected well and if the induction is broken;
- If the mainboard is broken;

Flow chart: For 18k



Flow chart: For 24k

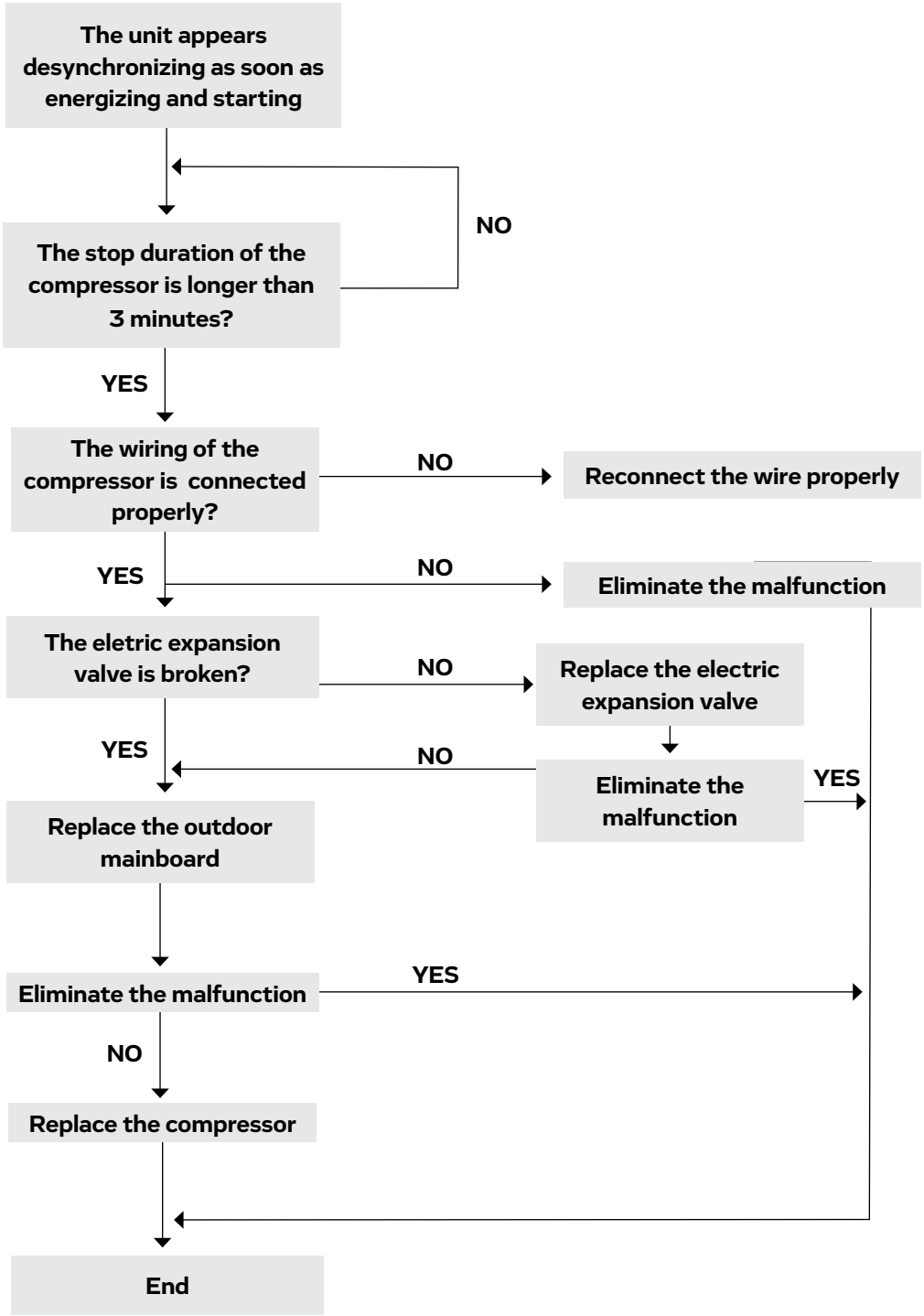


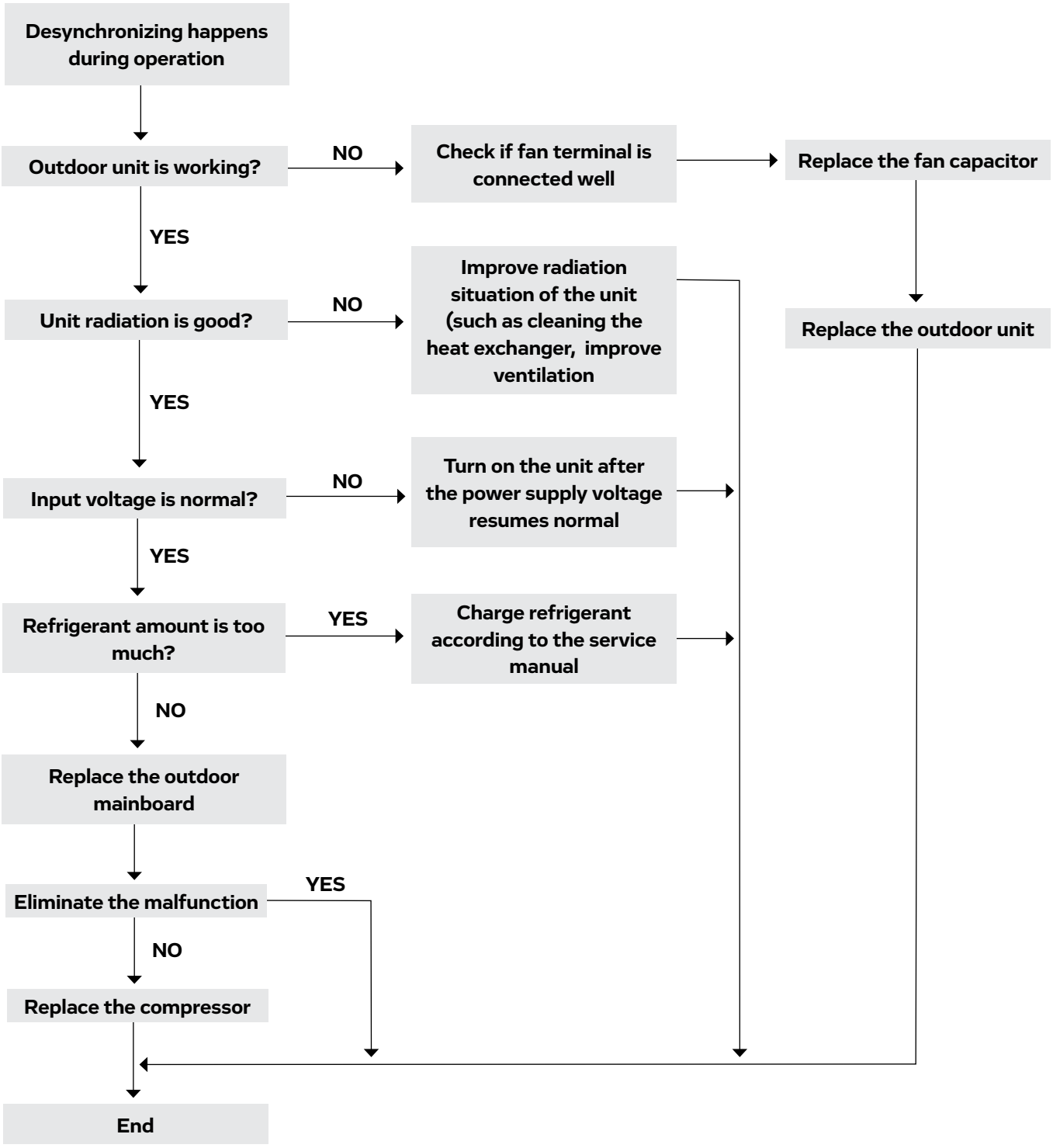
3. Compressor desynchronizing malfunction

Main checking points:

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

Flow chart:



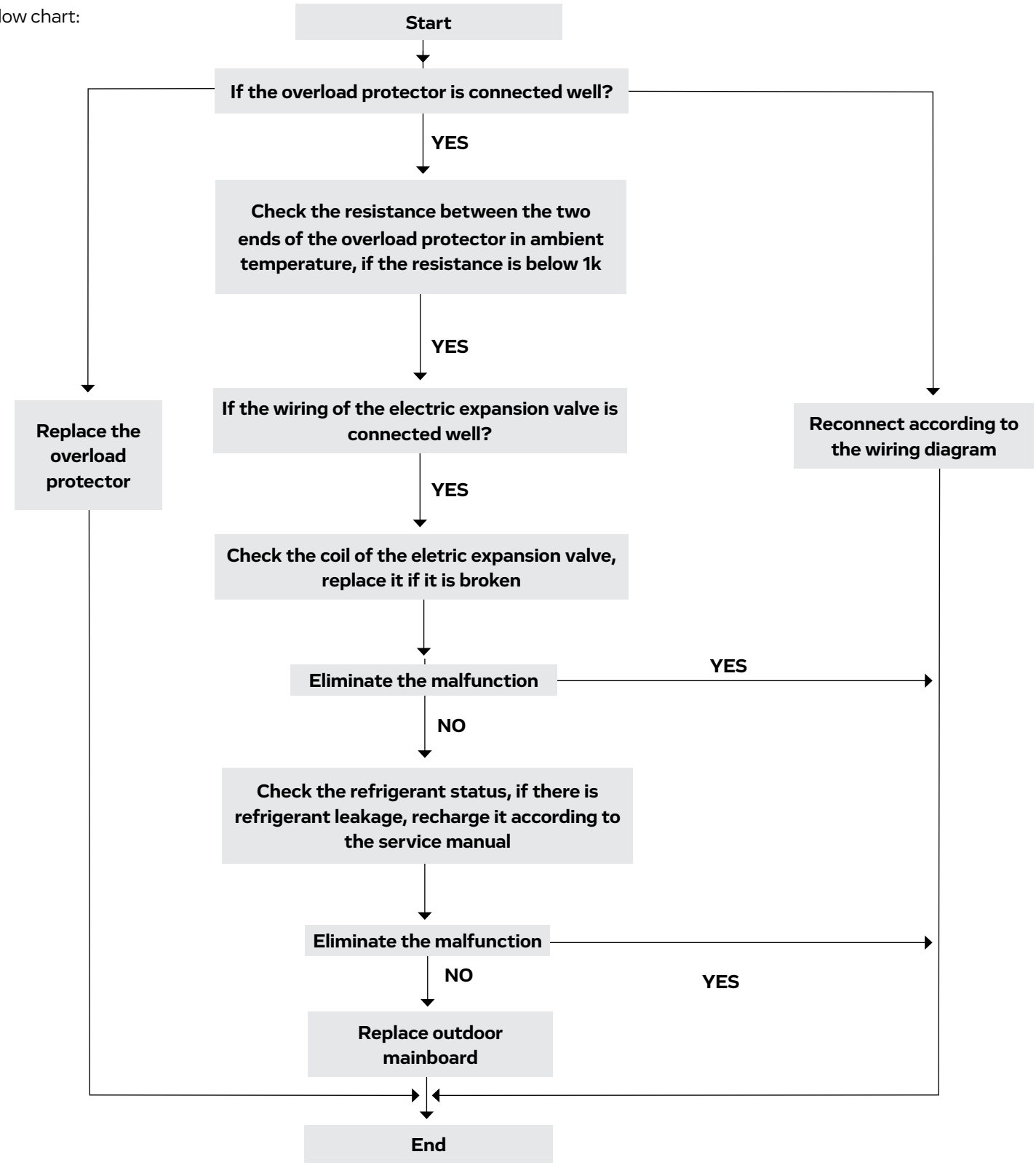

Desynchronizing happens during operation
Outdoor unit is working?
NO
Check if fan terminal is connected well
Replace the fan capacitor
YES
Unit radiation is good?
NO
Improve radiation situation of the unit (such as cleaning the heat exchanger, improve ventilation
Replace the outdoor unit
YES
Input voltage is normal?
NO
Turn on the unit after the power supply voltage resumes normal
YES
Refrigerant amount is too much?
YES
Charge refrigerant according to the service manual
NO
Replace the outdoor mainboard
Eliminate the malfunction
YES
NO
Replace the compressor
End

4. Compressor overload, discharge protection malfunction

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:



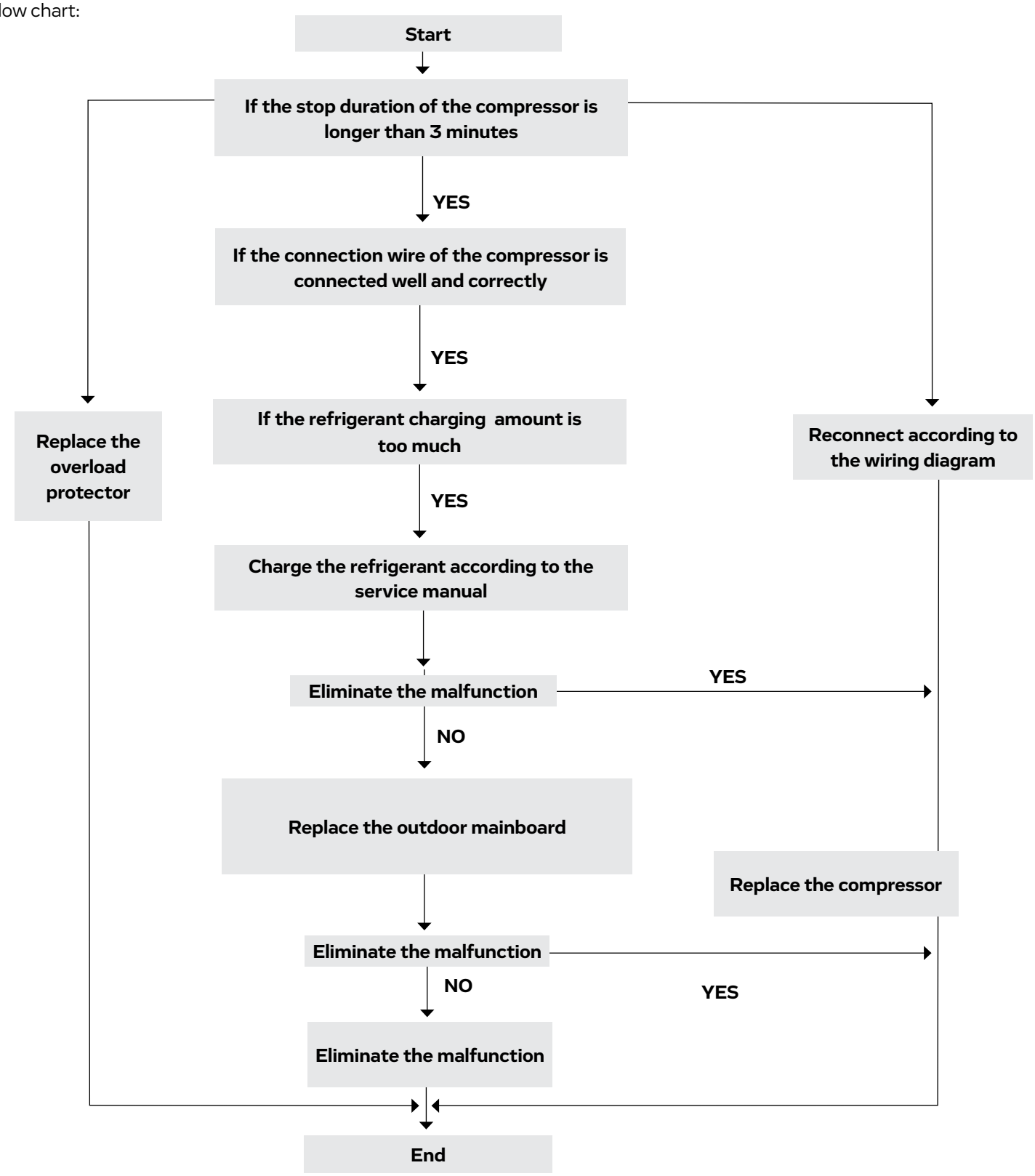
Note: the detection method of the coil of the eletric expansion valve: there is five pieces of coil of the eletric expansion valve, the resistance of one of them (the leftmost or the rightmost one) is almost the same as the resistance of other terminal (within 100Ω). Judge the condition of the electronic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

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:

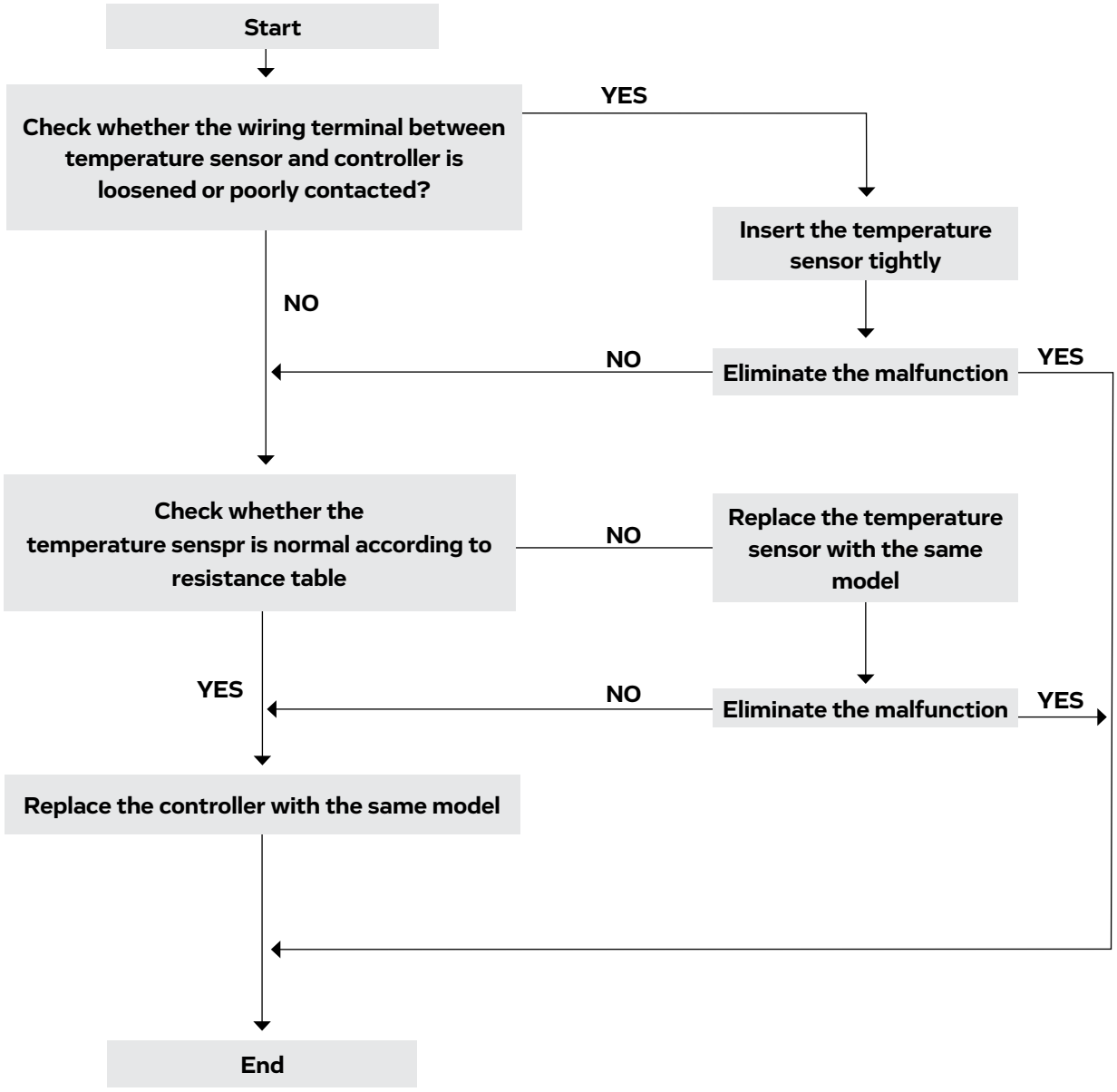


6. Temperature sensor malfunction

Main checking points:

- If the temperature sensor is damaged or broken
- If the terminal of the temperature sensor is loose and are not connected
- If the mainboard is broken

Flow chart:

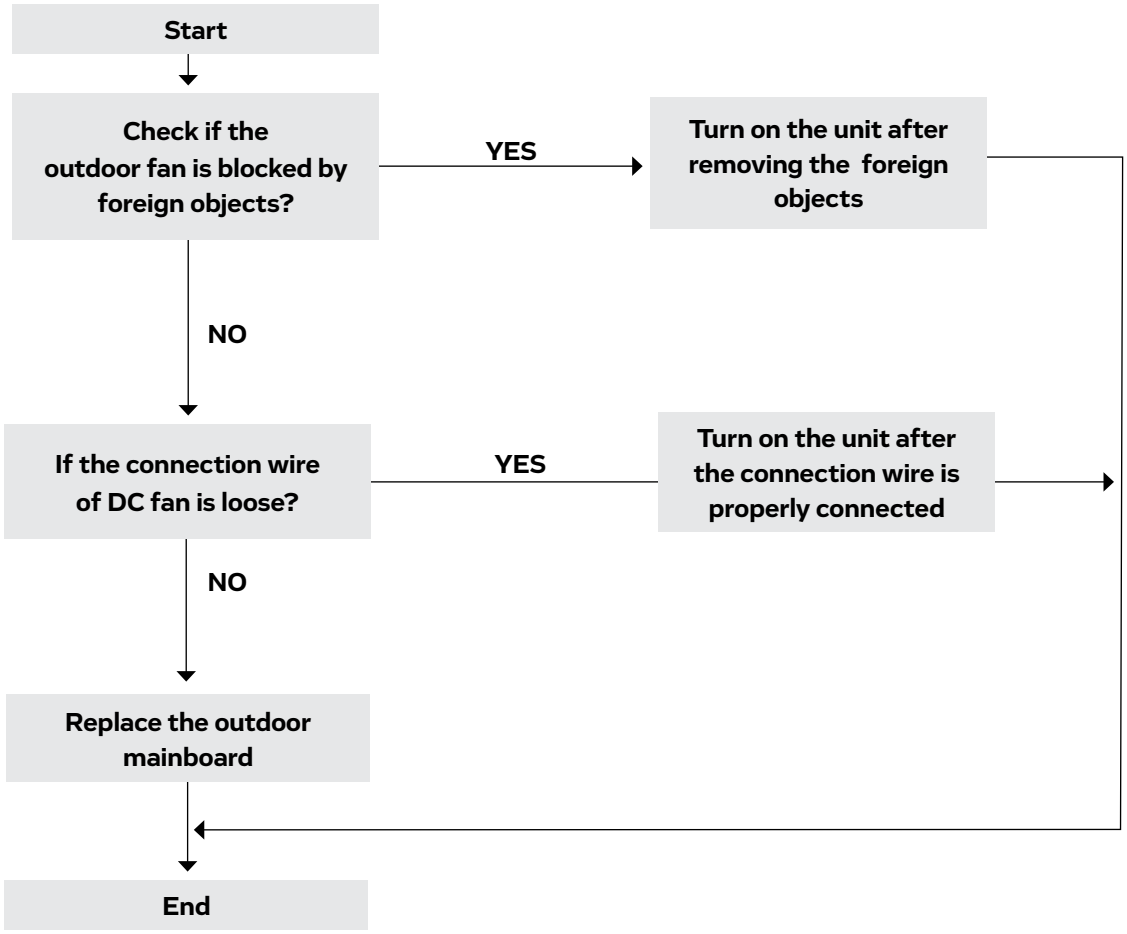


7. DC fan malfunction

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:

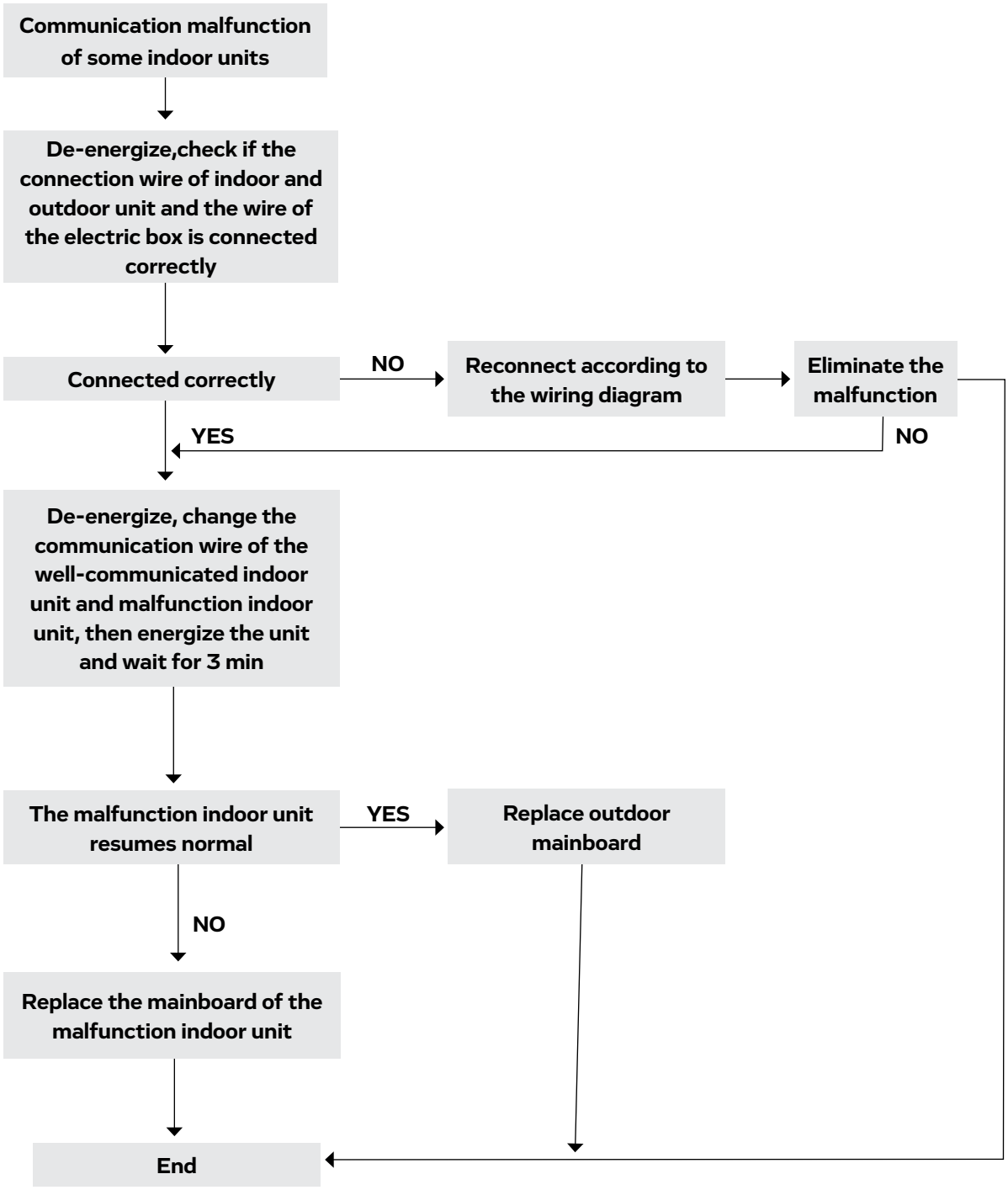


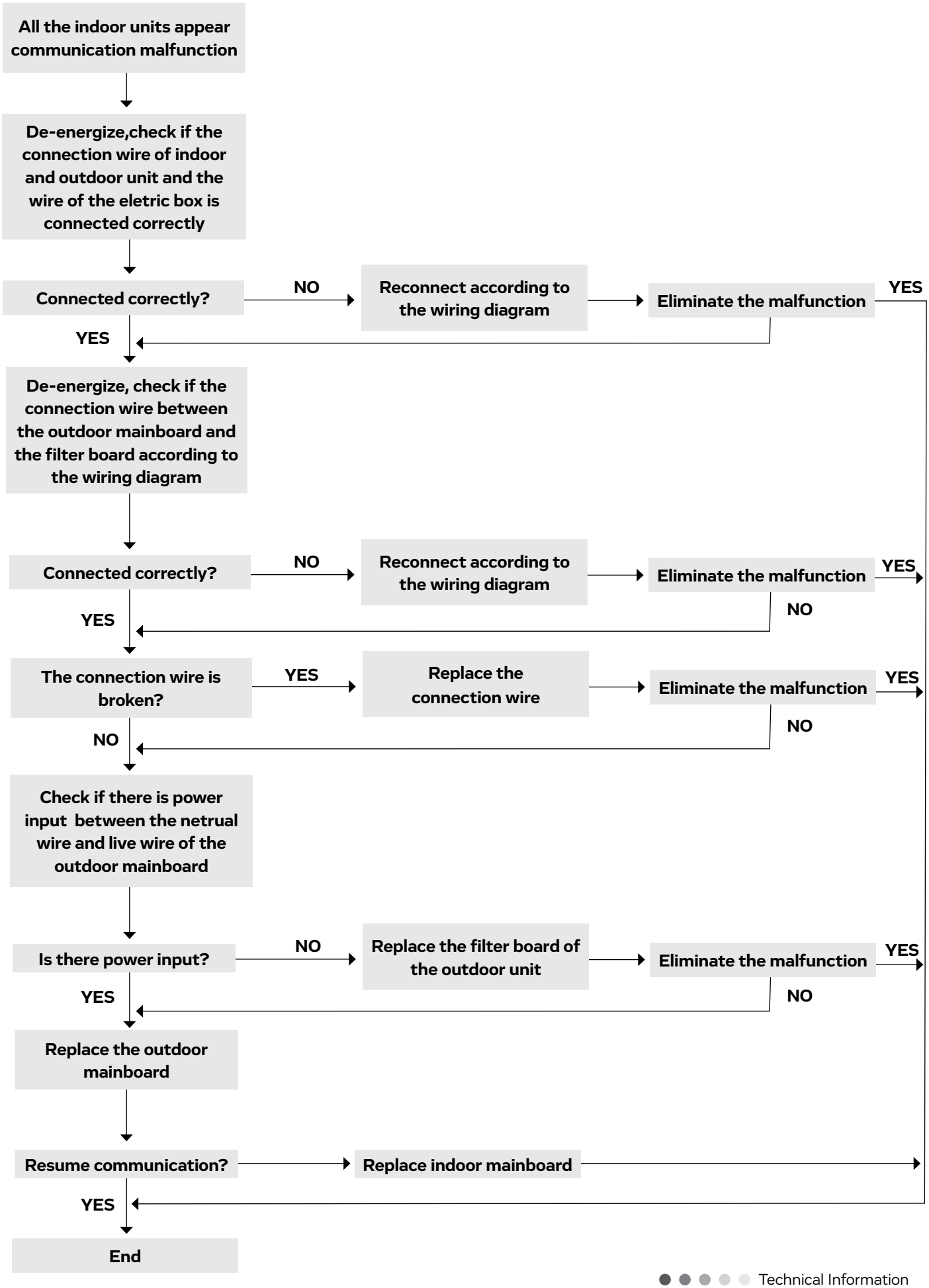
8. Communication malfunction

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:




All the indoor units appear communication malfunction
De-energize,check if the connection wire of indoor and outdoor unit and the wire of the eletric box is connected correctly
Connected correctly?
NO
Reconnect according to the wiring diagram
Eliminate the malfunction
YES
YES
De-energize, check if the connection wire between the outdoor mainboard and the filter board according to the wiring diagram
Connected correctly?
NO
Reconnect according to the wiring diagram
Eliminate the malfunction
YES
YES
NO
The connection wire is broken?
YES
Replace the connection wire
Eliminate the malfunction
YES
NO
NO
Check if there is power input between the netrual wire and live wire of the outdoor mainboard
Is there power input?
NO
Replace the filter board of the outdoor unit
Eliminate the malfunction
YES
YES
NO
Replace the outdoor mainboard
Resume communication?
Replace indoor mainboard
YES
End

9. Anti-high temperatureand 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: