

11.4 Error codes and description

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11.4.1 Thermistor or Related Abnormality

Indoor Display	E1: Room temperature sensor failure E2: Heat-exchange sensor failure
Outdoor display	LED1 flash 10 times: Defrost temperature sensor failure LED1 flash 11 times: Suction temperature sensor failure LED1 flash 12 times: Ambient temperature sensor failure LED1 flash 13 times: Discharge temperature sensor failure

Method of malfunction detection

The temperatures are detected by the thermistor which are used to determine the errors

Malfunction detection conditions

When the thermistor input voltage is more than 4.92V or less than 0.08V during compressor operation

●Note: The values vary slightly in some models

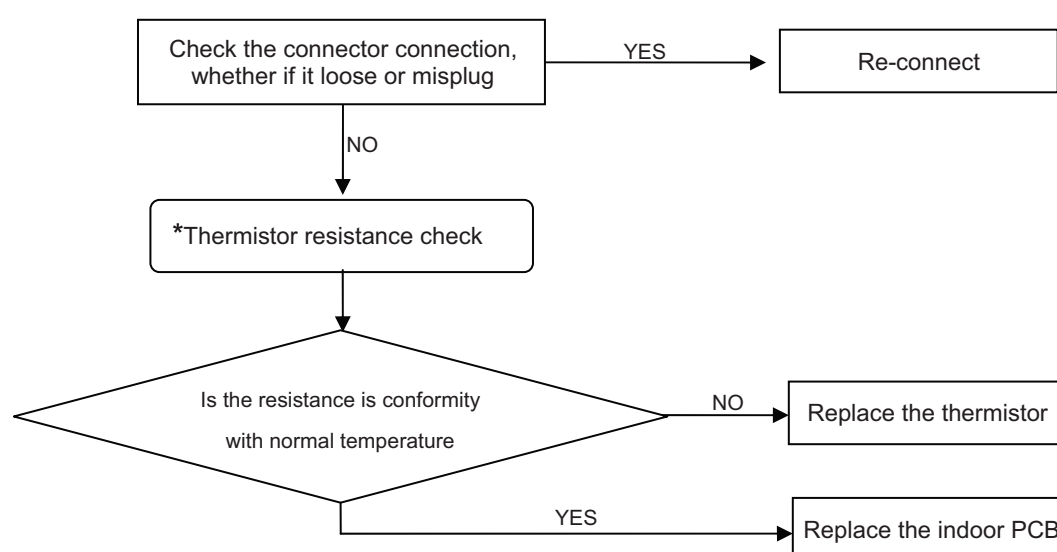
Supposed causes

- Faulty connector connection
- Faulty thermistor
- Faulty PCB

Troubleshooting

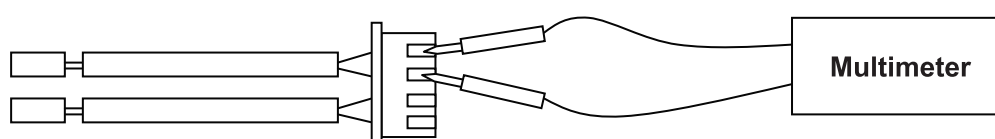
* Caution

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



*Thermistor resistance check method:

Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.



11.4.2 Indoor AC fan motor malfunction

Indoor Display

E14

Method of
malfunction
detection

The fan speed detected by the Hall IC during fan motor running which is used to determine the fan motor operating

Malfunction
detection
conditions

When there is no fan speed feedback signal within 2 minutes

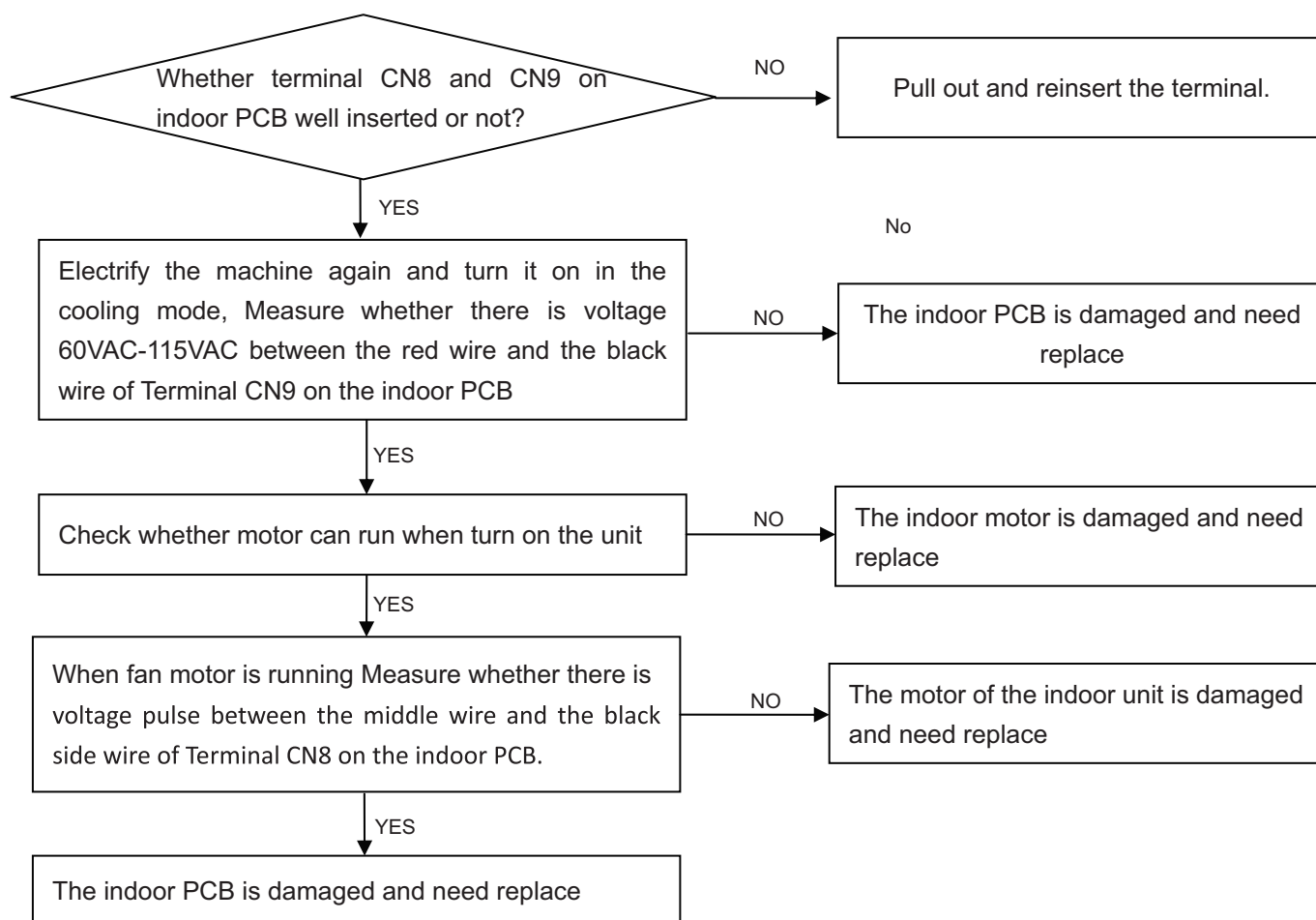
Supposed
causes

- Operation stops due to fan motor wiring disconnection
- Operation stops due to wiring disconnection between PCB and indoor motor
- Detection error due to faulty indoor PCB

Troubleshooting

*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused

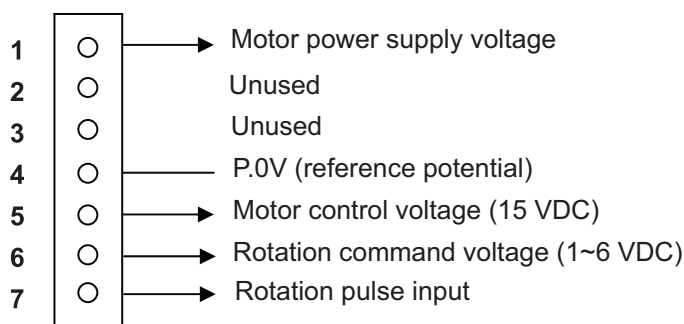


11.4.3 Indoor DC fan motor malfunction

Indoor Display	E14
Method of malfunction detection	The fan speed detected by the Hall IC during fan motor running which is used to determine the fan motor operating
Malfunction detection conditions	When there is no fan speed feedback signal within 2 minutes
Supposed causes	<ul style="list-style-type: none"> ■ Operation halt due to breaking of wire inside the fan motor ■ Fan motor overheat protection ■ Operation halt due to breaking of the fan motor lead wires ■ Detection error due to faulty indoor PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused</p>

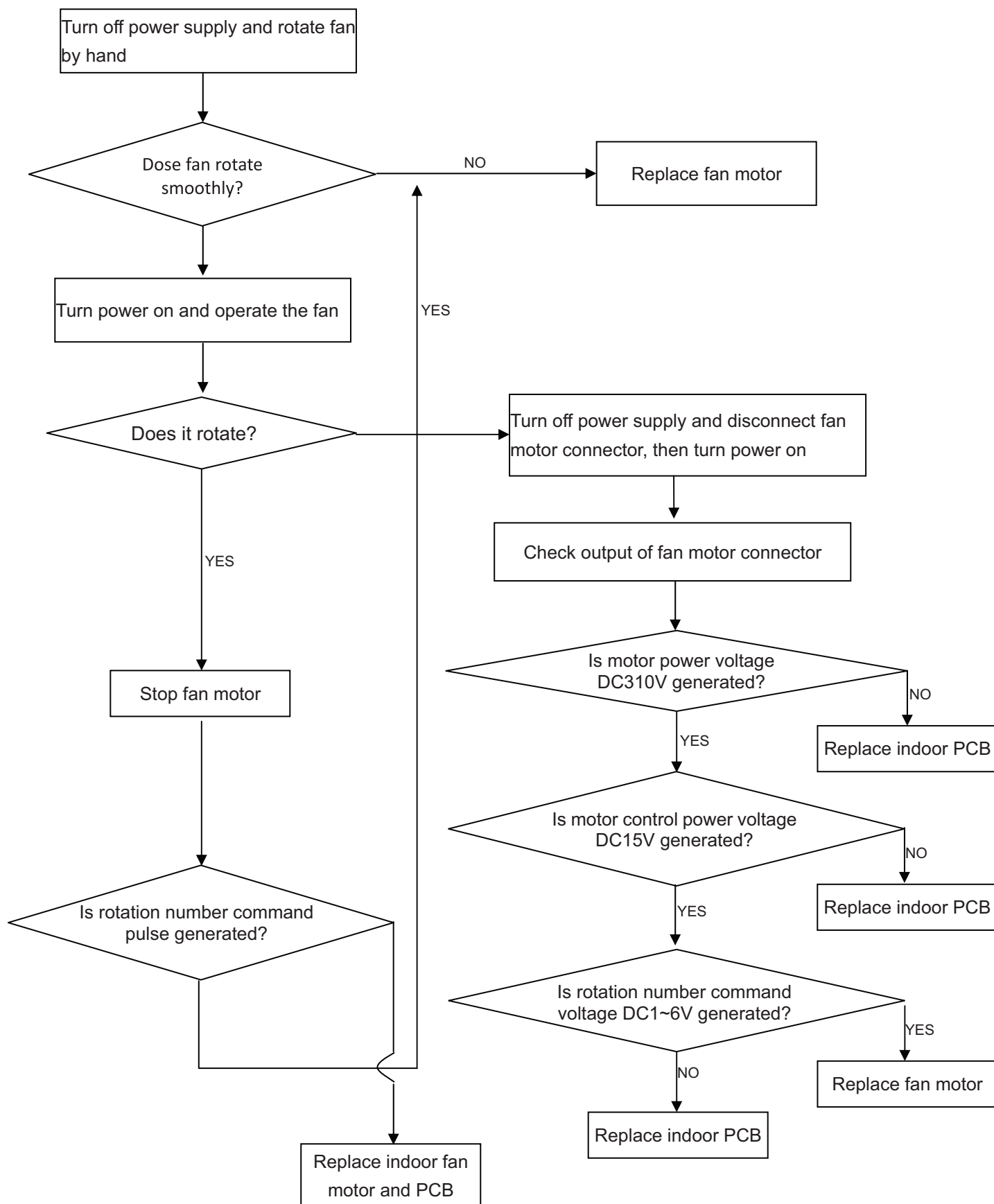
How to check Fan Motor (DC)

1. Check connector connection.
2. Check motor power supply voltage output (pins 1-4).
3. Check motor control voltage (pins 4-5).
4. Check rotation command voltage output (pins 4-6).
5. Check rotation pulse input (pins 4-7).



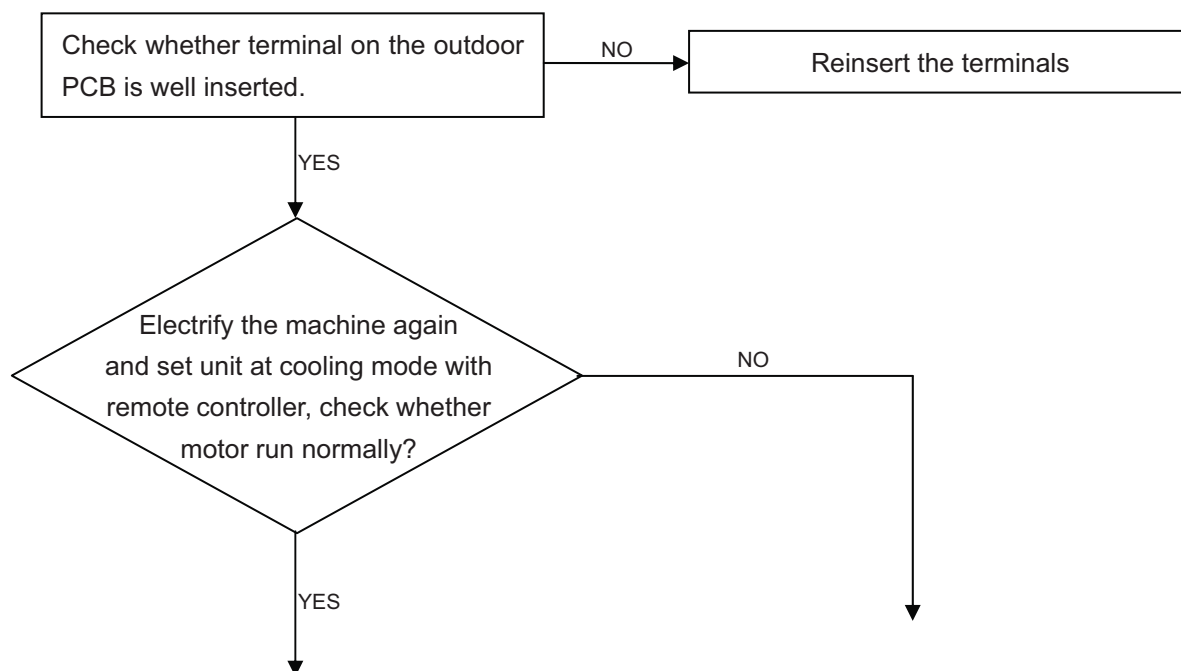
Notes: the a/c is electrifying, don't pull out or insert the terminals of the motor, or else the motor would be Damaged.

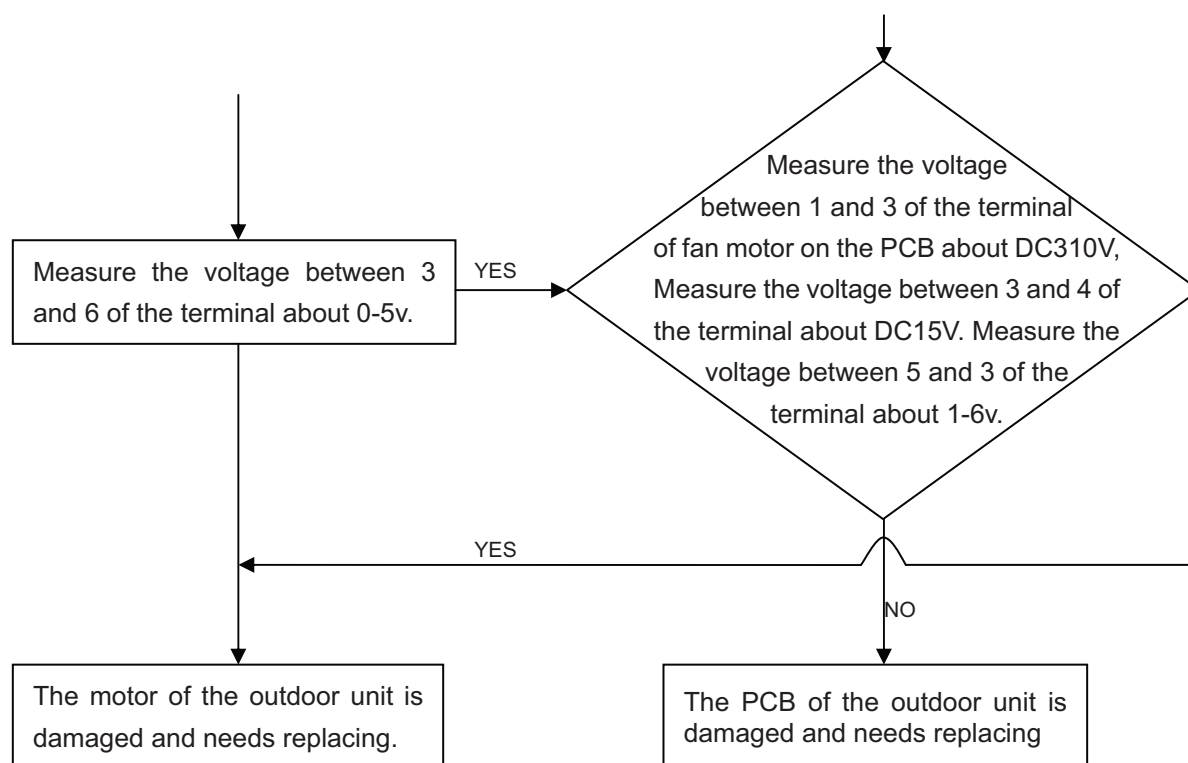
We strongly suggest that technicians replace DC motor and PCB together when handling DC motor related complaints no matter it's indoor fault or outdoor fault.



11.4.4 Outdoor DC fan motor fault

Indoor Display	F8
Outdoor display	Outdoor LED1 flash 9 times
Method of malfunction detection	The fan speed detected by the Hall IC during fan motor running which is used to determine the fan motor operating
Malfunction detection conditions	When there is no fan speed feedback signal within 2 minutes
Supposed causes	<ul style="list-style-type: none"> ■ Operation stops due to fan motor wiring disconnection ■ Operation stops due to wiring disconnection between PCB and indoor motor ■ Detection error due to faulty indoor PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused</p>





We strongly suggest that technicians replace DC motor and PCB together when handling DC motor related complaints no matter it's indoor fault or outdoor fault.

11.4.5 IPM protection

Indoor display

F1

Outdoor display:

LED1 flash 2 time

Method of
malfunction
detection

IPM protection is detected by checking the compressor running condition.

Malfunction
detection
conditions

- The system problem cause IPM over-current protection
- The compressor faulty leads to IPM protection
- Circuit component of IPM is broken and lead to IPM protection

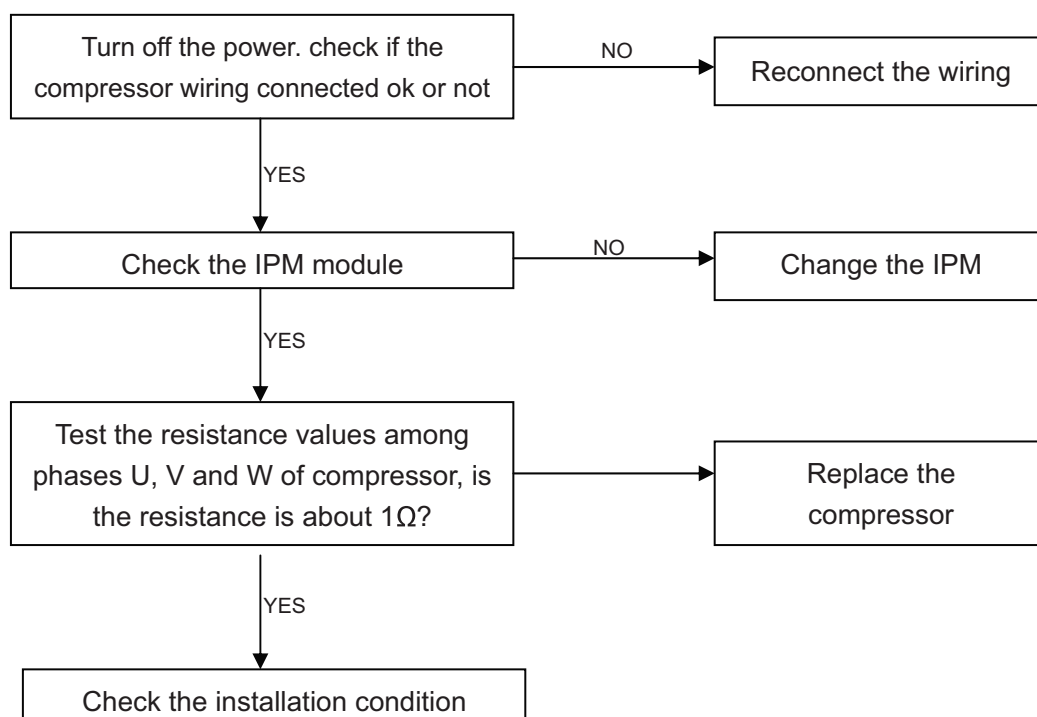
Supposed
causes

- The system problem cause IPM over-current protection
- The compressor faulty leads to IPM protection
- Circuit component of IPM is broken and lead to IPM protection

Troubleshooting

*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



Check the IPM module method:

Disconnect the compressor harness connector from the outdoor unit PCB.

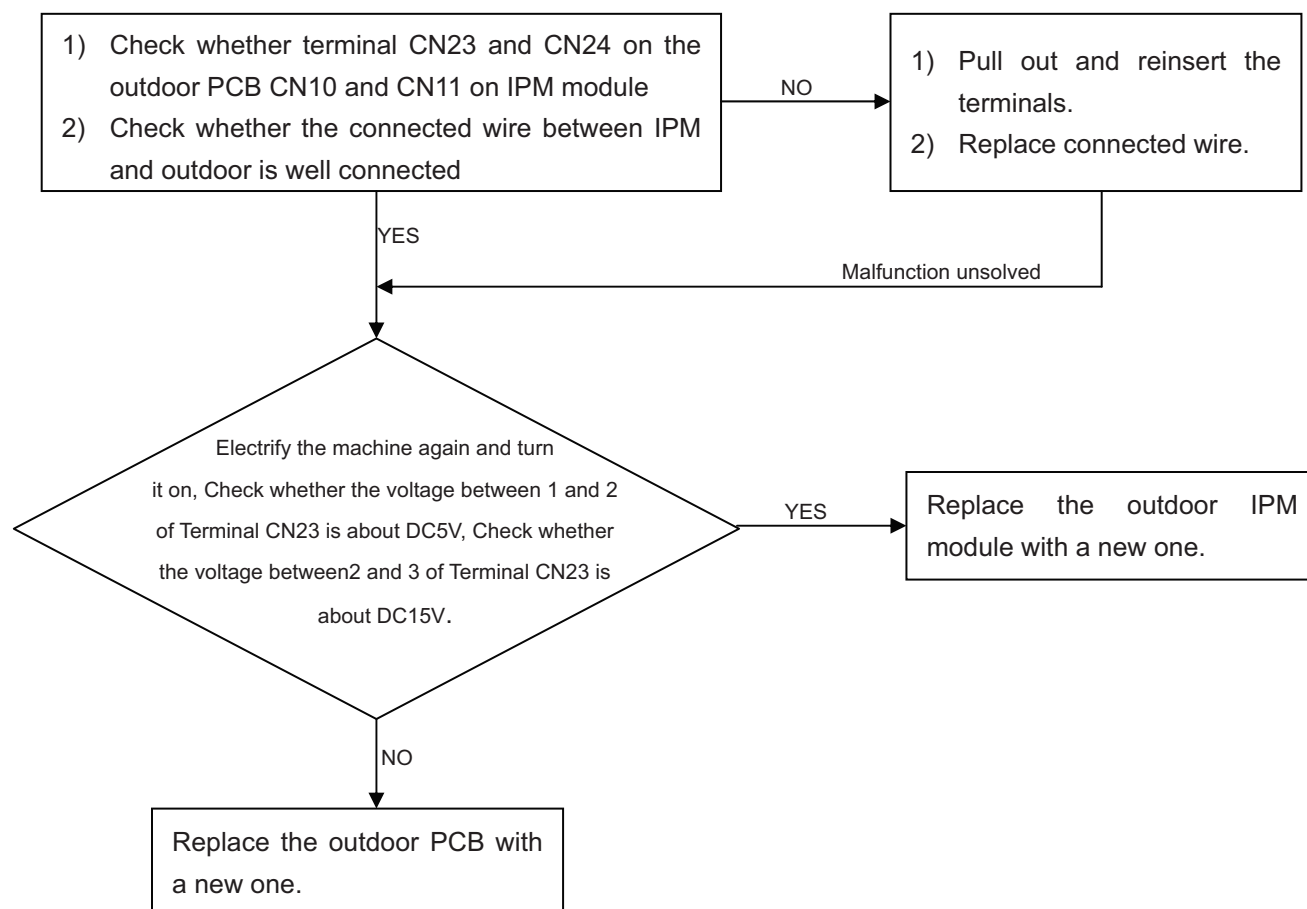
To disengage the connector, press the protrusion on the connector.

Then, measure resistance between P (+) and N (-) and the U, V and W terminals of the compressor connector with a multi-tester. Evaluate the measurement results for a pass/fail judgment.

N(-)terminal of tester(P(+)for digital tester)	P(+)	UVW	P(-)	UVW
P(+)terminal of tester(N(-)for digital tester)	UVW	P(+)	UVW	P(-)
Normal resistance	Several kΩ to several MΩ (□)			
Unacceptable resistance	Short (0 Ω) or open			

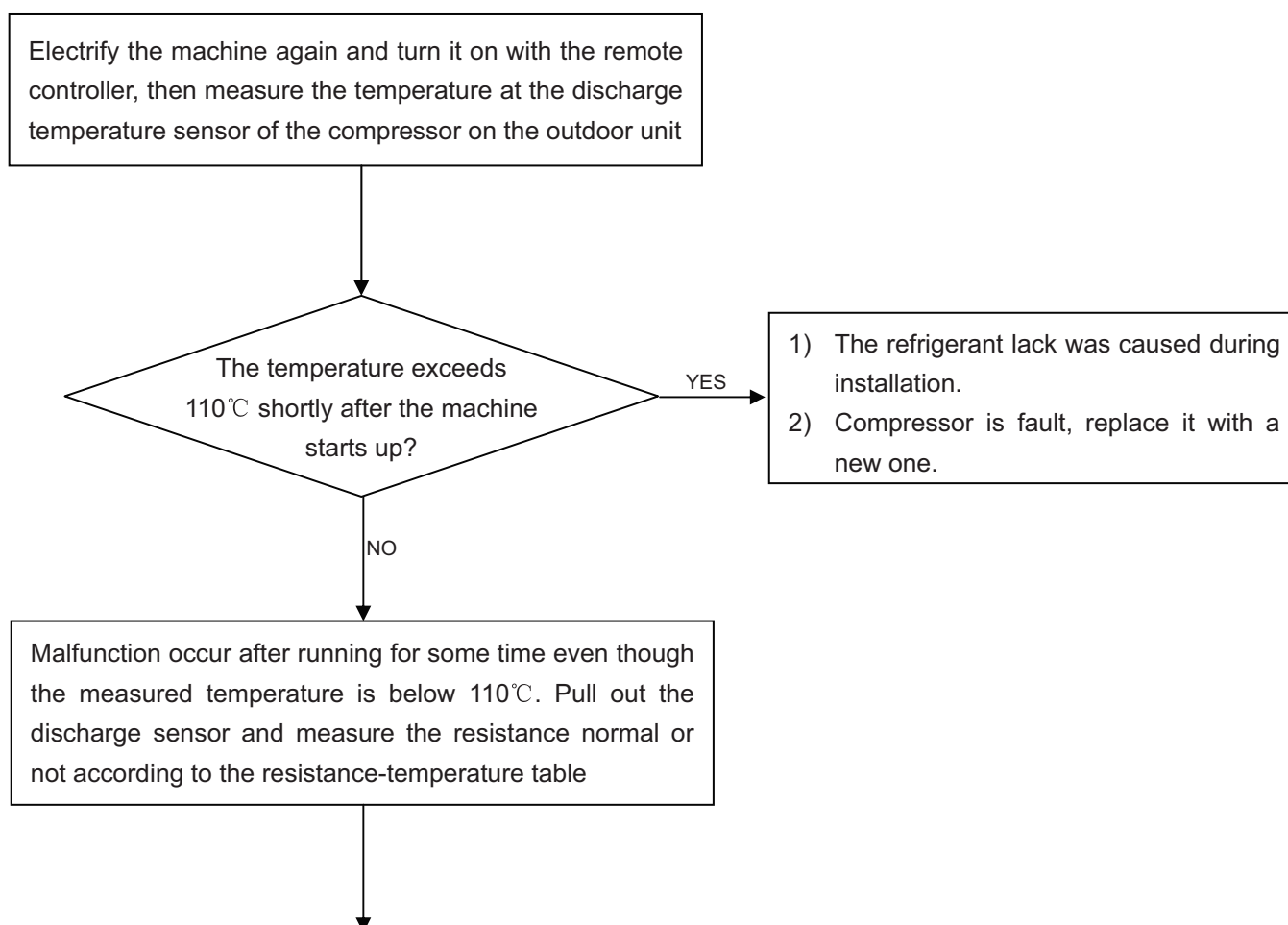
11.4.6 The communication fault between IPM and outdoor PCB

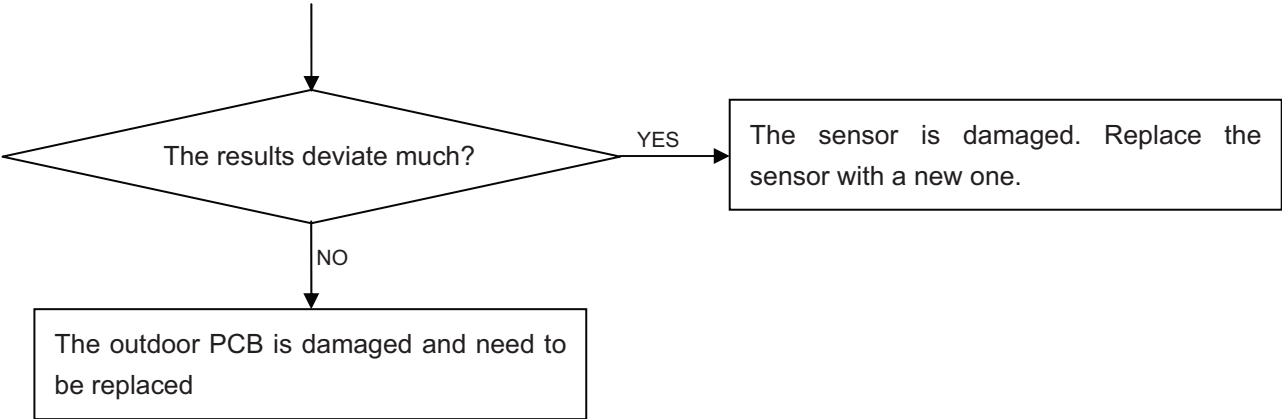
Indoor display	F3
Outdoor display:	LED1 flash 4 time
Method of malfunction detection	Communication is detected by checking the IPM module and the outdoor PCB.
Malfunction detection conditions	<ul style="list-style-type: none"> ■ The outdoor PCB broken leads to communication fault ■ The IPM module broken leads to communication fault
Supposed causes	<ul style="list-style-type: none"> ■ The outdoor PCB is broken ■ The IPM module is broken ■ Communication wiring disconnected
Troubleshooting	<p>* Caution Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused</p>



11.4.7 Overheat Protection For Discharge Temperature

Indoor display	F4
Outdoor display:	LED1 flash 8 time
Method of malfunction detection	The discharge temperature control is checked with the temperature being detected by the discharge pipe thermistor.
Malfunction detection conditions	When the compressor discharge temperature is above 117°C
Supposed causes	<ul style="list-style-type: none"> ■ Electronic expansion valve defective ■ Faulty thermistor. ■ Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused</p>





11.4.8 EEPROM abnormal

Indoor display	E4	Indoor EEPROM error
Indoor display	F12	Outdoor EEPROM error
Outdoor display:	LED1 flash 1 time	

Method of malfunction detection	The signal detected by the EEPROM are used to determine MCU
Malfunction detection conditions	When the signal of EEPROM is error or the EEPROM is damaged.
Supposed causes	<ul style="list-style-type: none">■ Faulty EEPROM data■ Faulty EEPROM.■ Faulty PCB
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused</p>

Check the EEPROM of the indoor or outdoor PCB, and be sure it is right.

11.4.9 Communication error between the indoor and outdoor units

Indoor display

E7

Outdoor display:

LED1 flash 15 time

Method of
malfunction
detection

Check whether the signal which is transmitted between indoor and outdoor unit is normal

Malfunction
detection
conditions

When the communication-signal cannot be received normally, or when the content of the signal abnormal.

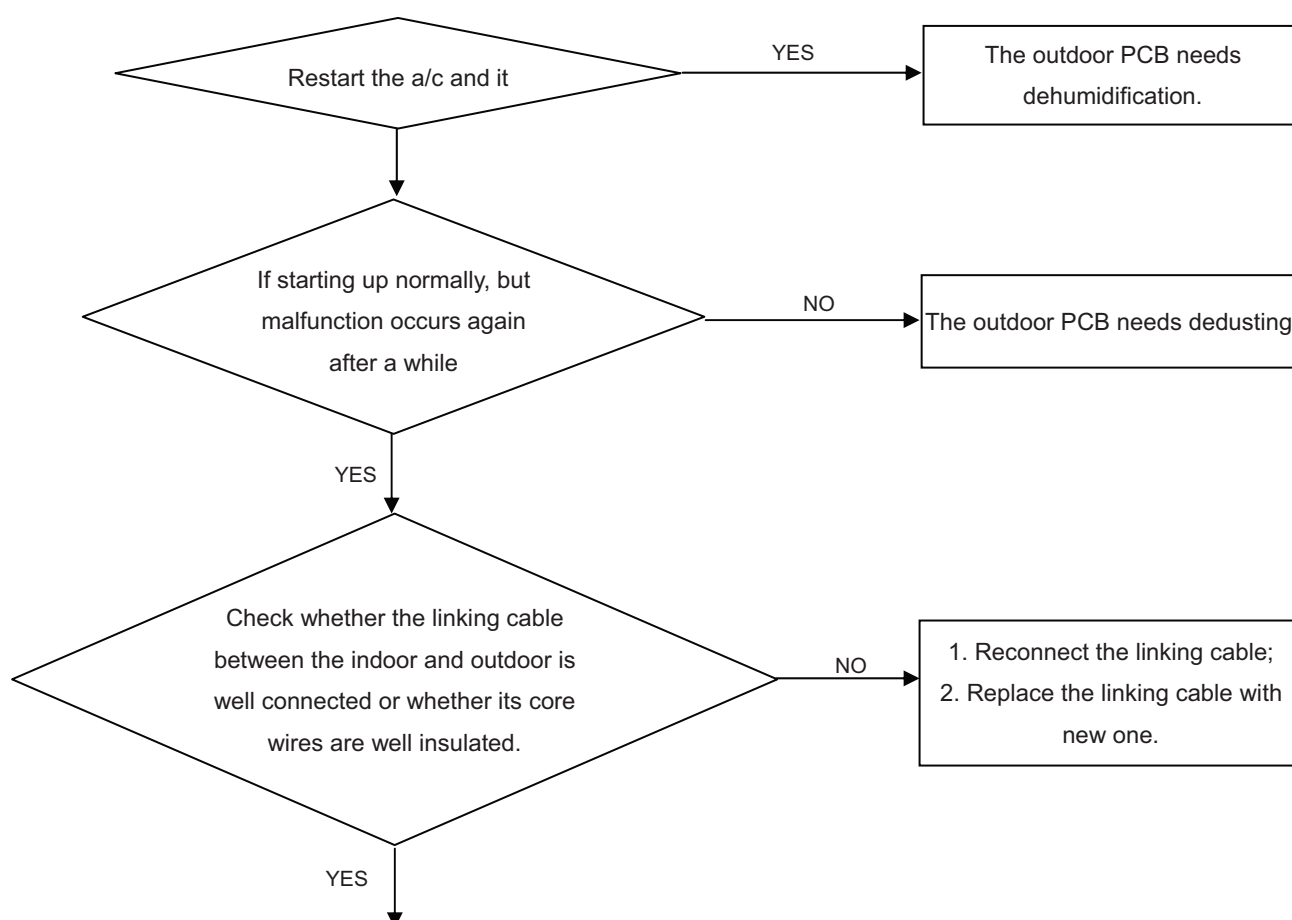
Supposed
causes

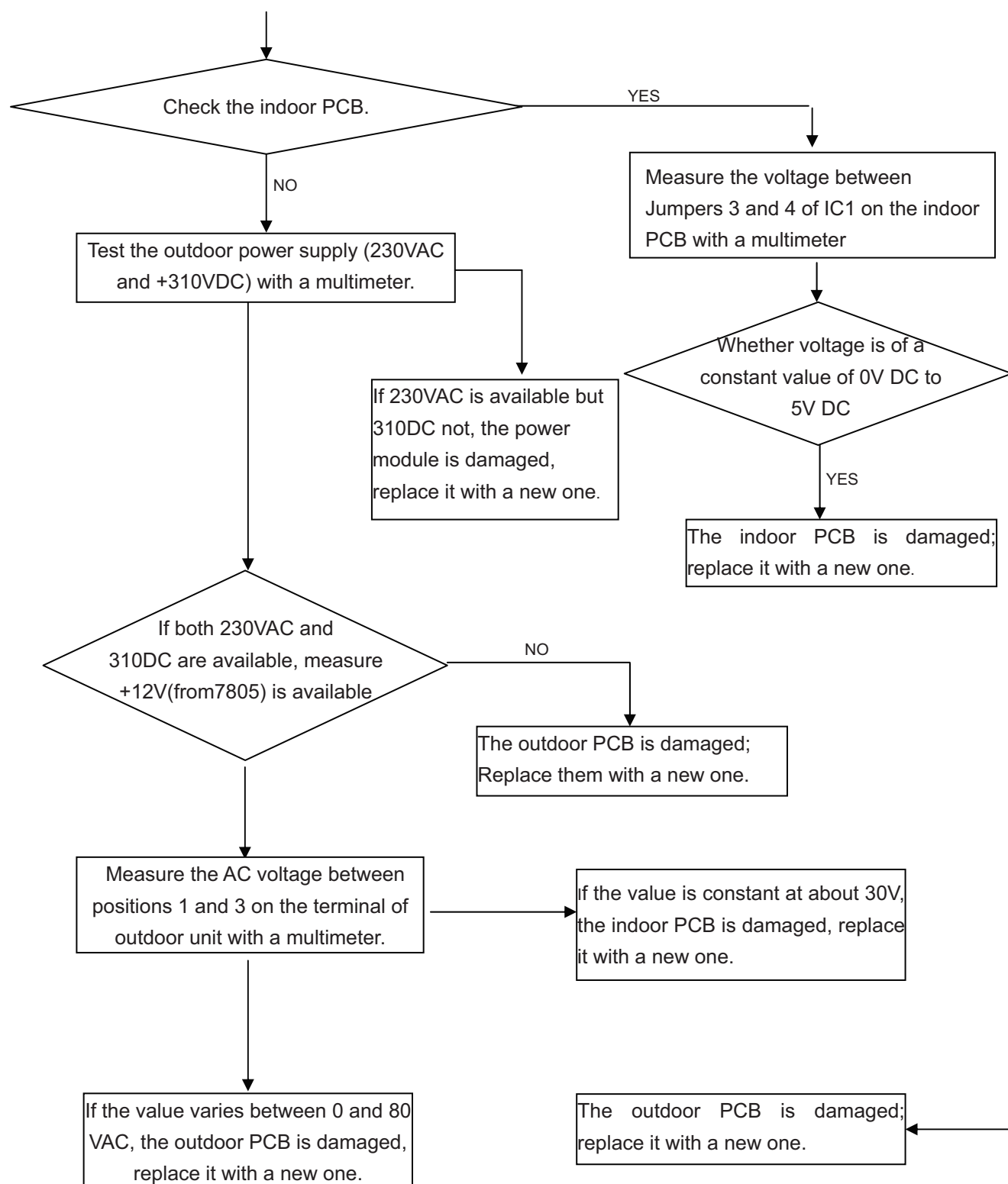
- Indoor unit- outdoor unit signal transmission error due to wiring error
- Faulty PCB

Troubleshooting

*** Caution**

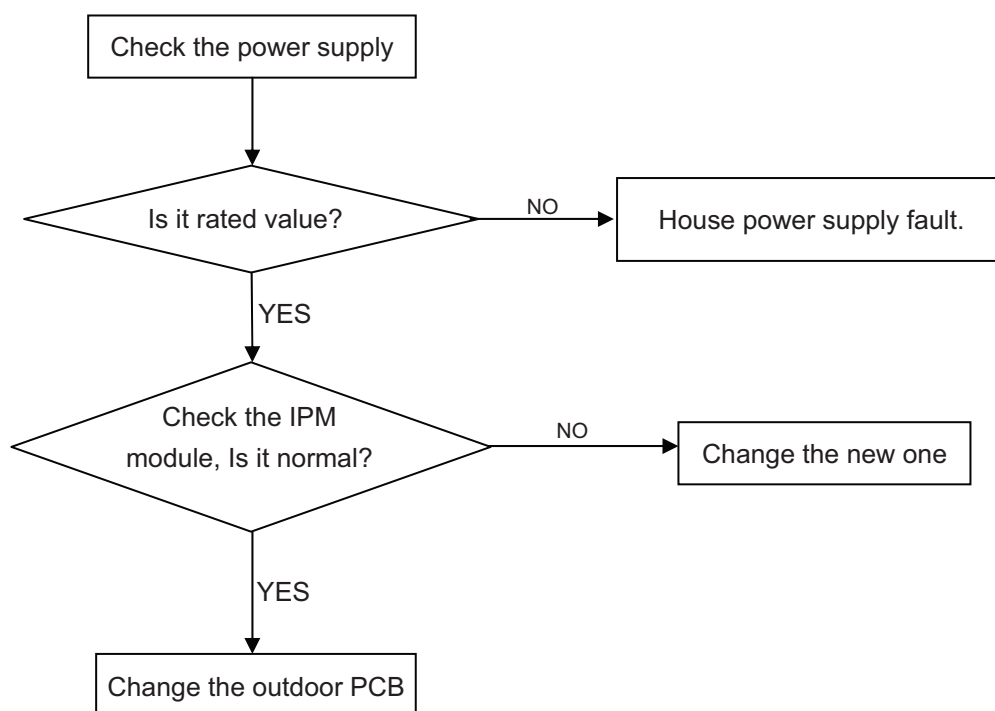
Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused





11.4.10 Power Supply over or under voltage fault

Indoor display	F19
Outdoor display:	LED1 flash 6 times
Method of malfunction detection	An abnormal voltage rise or fall is detected by specified voltage checking detection circuit
Malfunction detection conditions	An voltage signal is feedback from the voltage detection circuit to the microcomputer
Supposed causes	<ul style="list-style-type: none"> ■ Supply voltage not as specified ■ The IPM module is broken. ■ The outdoor PCB is broken.
Troubleshooting	<p>* Caution</p> <p>Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused</p>



About how to check the IPM module, please refer to IPM protection fault.

11.4.11 Loop of the station detect error

Outdoor display	LED1 flash 18 times	Indoor Display F11
	LED1 flash 7 times	Indoor Display F27
	LED1 flash 19 times	Indoor Display F28

Method of malfunction detection

The position of the compressor rotor can't detected normally

Malfunction detection conditions

- When the wiring of compressor is wrong or the connection is poor;
- The compressor is damaged;

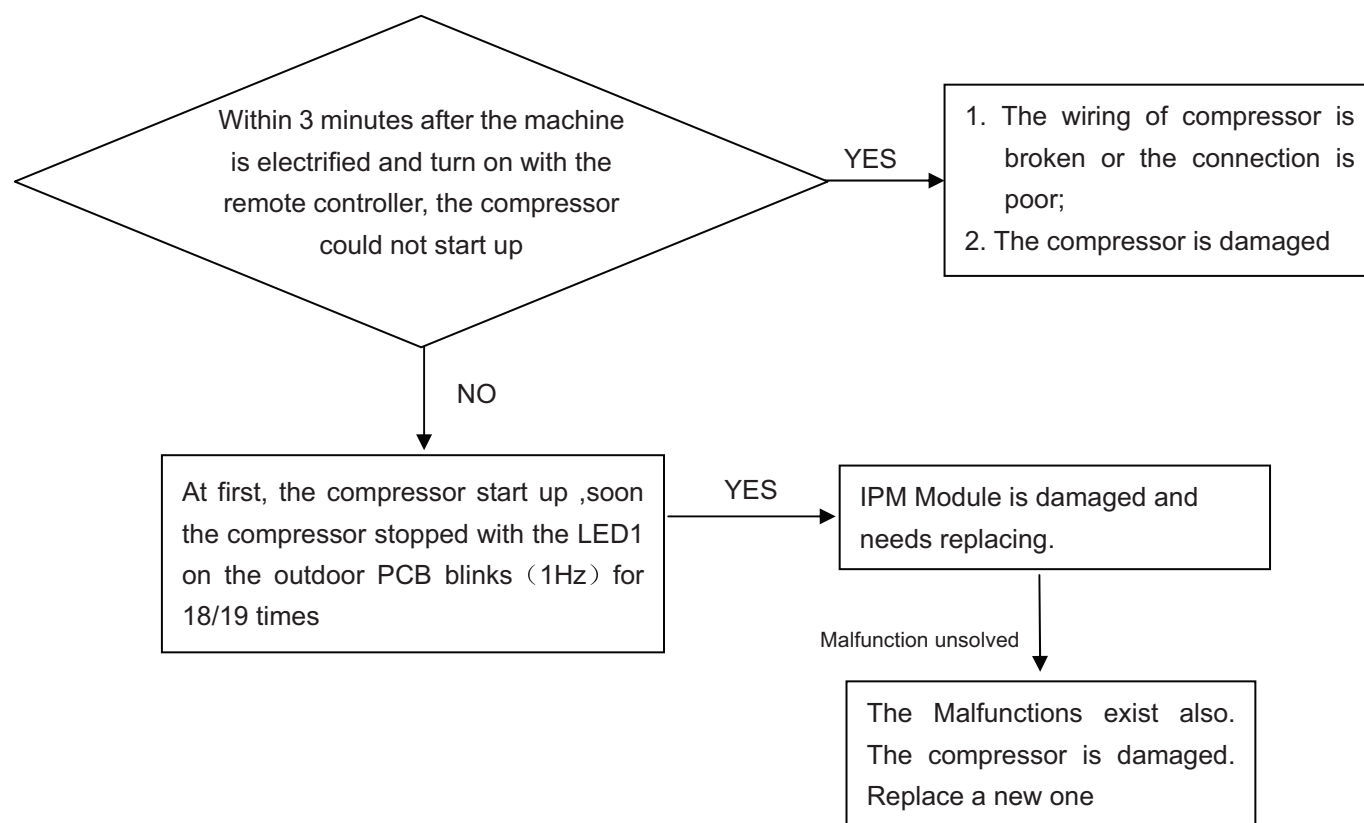
Supposed causes

- Faulty the wiring of compressor
- Faulty compressor
- Faulty PCB

Troubleshooting

* Caution

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



We strongly suggest that technicians visit e nd user with at least t wo good power modules when there are power module related complaints.

11.4.12 Over-current of the compressor

Outdoor display	LED1 flash 3 times	Indoor Display F22
	LED1 flash 24 times	Indoor Display F2
	LED1 flash 25times	Indoor Display F23

Method of
malfunction
detection

The current of the compressor is too high

Malfunction
detection
conditions

- The IPM Module is damaged;
- The compressor is damaged;
- Power supply voltage is too low or too high;

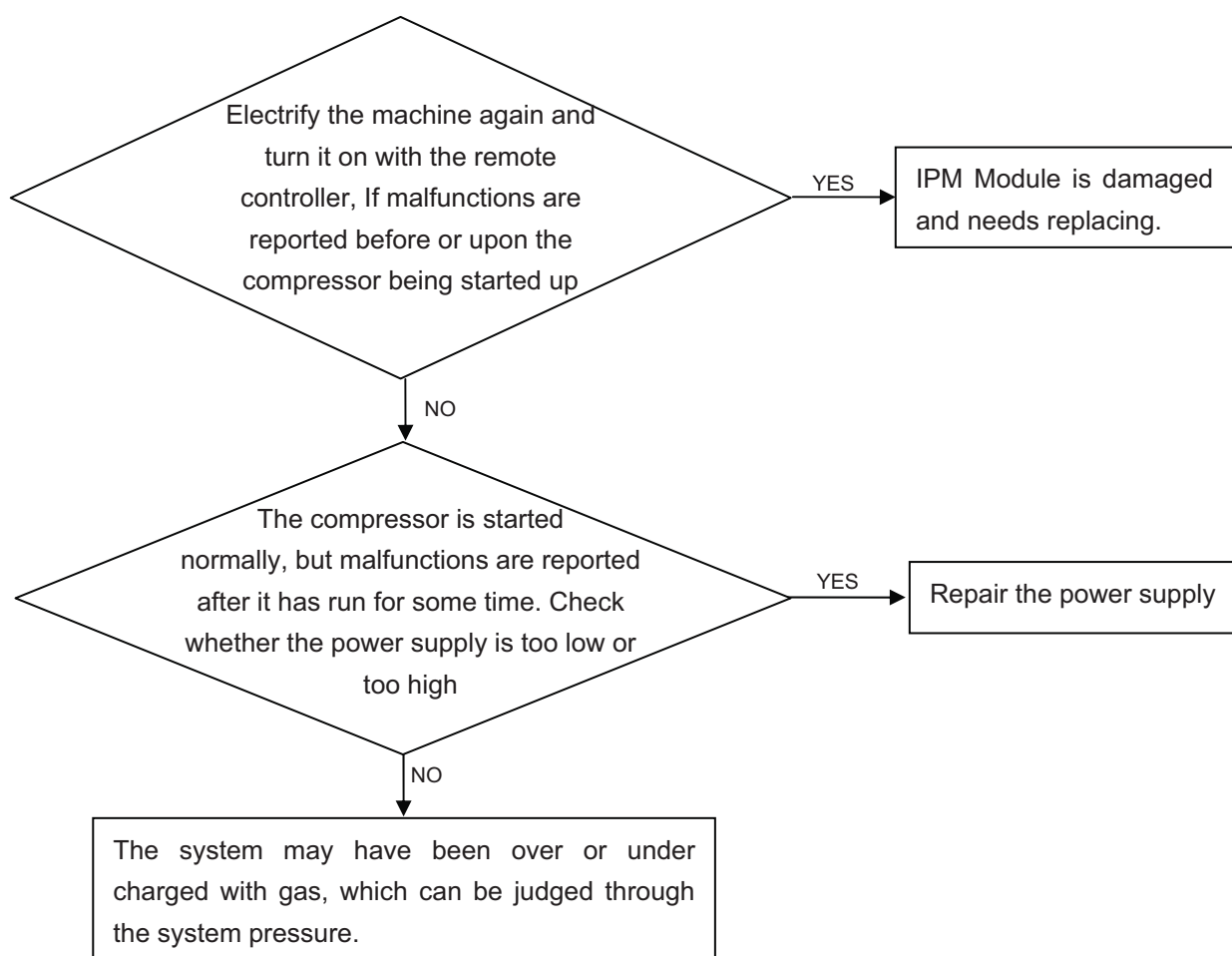
Supposed
causes

- Faulty IPM module;
- Faulty compressor;
- Faulty power supply;

Troubleshooting

*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



11.4.13 High work-intense protection

Outdoor display: LED1 flash 21 times

Method of
malfunction
detection

High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.

Malfunction
detection
conditions

Activated when the temperature being sensed by the heat exchanger exceeds 65°C twice in 30 minutes.

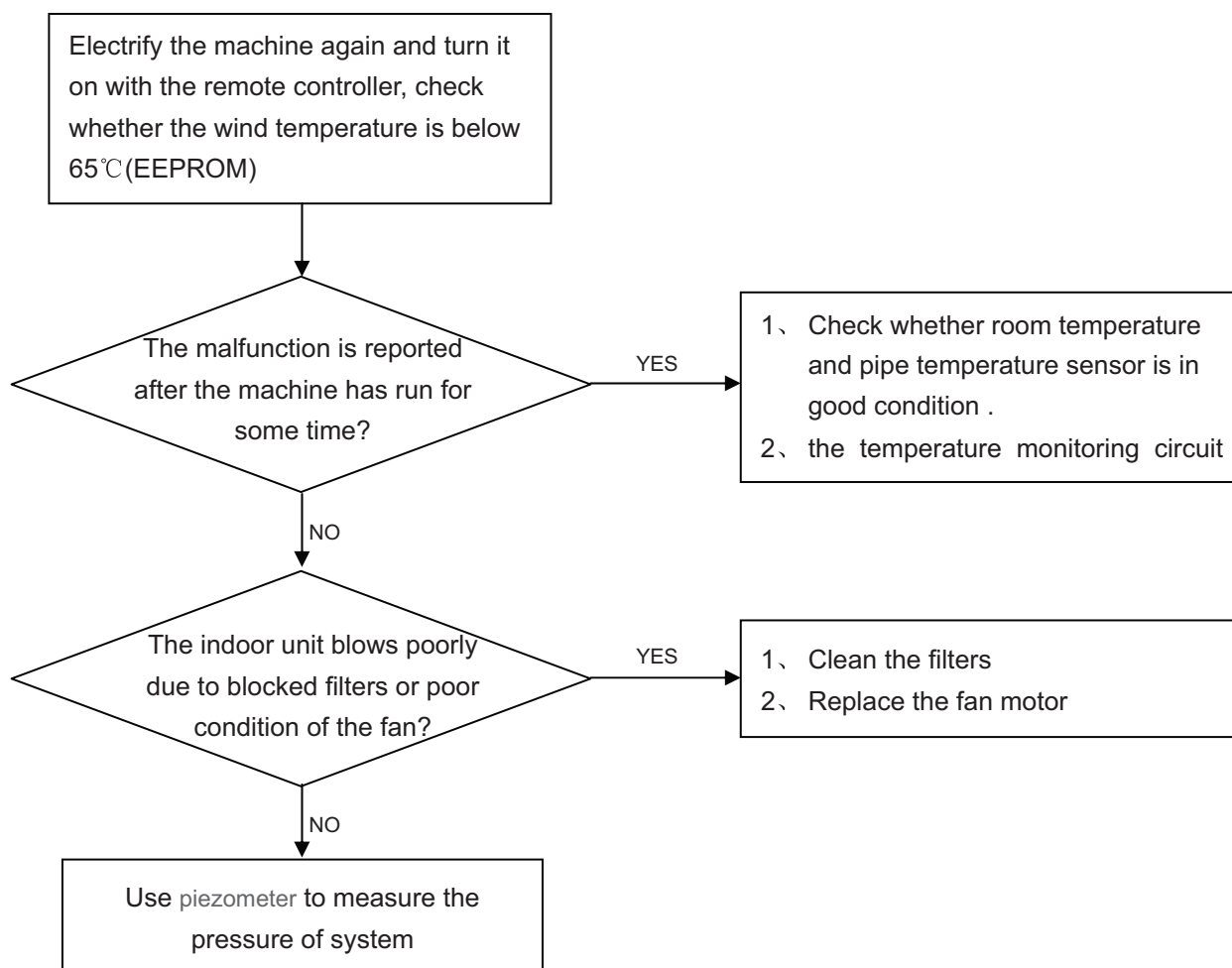
Supposed
causes

- Faulty electronic expansion valve;
- Dirty heat exchanger;
- Faulty heat-exchange sensor;
- Insufficient gas

Troubleshooting

*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused



11.4.14 Mismatching between indoor and outdoor units

Indoor display F43

Outdoor display: LED1 flash 46 times

Method of
malfunction
detection

The malfunction is determined by the communication protocol

Malfunction
detection
conditions

Indoor and outdoor units are mismatching.

Supposed
causes

■ Faulty module of indoor or outdoor unit;

Troubleshooting

*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused

Check the model of indoor or outdoor units or the type of PCB, and be sure they are right

11.4.15 Short of refrigerant

Indoor display F13

Outdoor display: LED1 flash 16 times

Method of
malfunction
detection

Air conditioner cooling and heating effect will be very poor

Malfunction
detection
conditions

Activated when the temp. which being sensed by the room temperature sensor, is 4°C lower than heat-exchanger temp. in cooling or dehumidifying mode, or heat-exchanger temp. is 5°C lower than room temp. in heating mode, twice in 30 minutes.

Supposed
causes

- Short of refrigerant

Troubleshooting

*** Caution**

Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be caused

