3. Maintenance

3.1 Failure code

Code	Reason	Key points
E0	IDU & ODU Communication failure	The IDU & ODU wiring connection correct?
E1	IDU Room Temperature sensor failure.（IDU RT failure）	IDU sensor and PCB.
E2	IDU Coil temperature sensor failure.（IDU IPT failure）	IDU sensor and PCB.
E3	ODU Coil temperature sensor failure. (OPT)	ODU coil sensor and ODU PCB
E4	AC Cooling system abnormal	Gas leakage? 2-way or 3-way valve blocked etc.
E5	IDU/ODU mismatched failure (specially performance test on the production line)	/
E6	IDU PG Fan motor / DC fan motor works abnormal （IDU failure）	Fan motor, fan blade and PCB.
E7	ODU Ambient Temperature sensor failure	ODU ambient sensor and ODU PCB.
E8	ODU Discharge Temperature sensor failure.	ODU discharge sensor and ODU PCB.
E9	IPM / Compressor driving control abnormal.	ODU PCB , compressor, etc.
EA	ODU Current Test circuit failure	ODU PCB broken?
Eb	The Communication abnormal of Main PCB and Display board（IDU failure）	Display board and main PCB.
EE	ODU EEPROM failure.	1. ODU PCB broken? 2. Try to re-power on AC unit.
EF	ODU DC fan motor failure.	Fan motor, ODU PCB.
EU	ODU Voltage test circuit abnormal.	ODU PCB.
P0	IPM module protection.	ODU PCB
P1	Over / under voltage protection.	1. ODU PCB broken? 2. Power supply abnormal?
P2	Over current protection.	1. ODU PCB broken? 2. Power supply abnormal?
P4	ODU Discharge pipe Over temperature protection.	Please check the troubleshooting for detail.
P5	Sub-cooling protection on Cooling mode.	Please check the troubleshooting for detail.
P6	Overheating protection on Cooling mode.	Please check the troubleshooting for detail.
P7	Overheating protection on Heating mode.	Please check the troubleshooting for detail.
P8	Outdoor Over temperature/Under temperature protection.	Please check the troubleshooting for detail.
P9	Compressor driving protection (Load abnormal).	Please check the troubleshooting for detail.
F0	Infrared Customer feeling test sensor failure. （IDU failure）	Querying by press remote controller.
F1	Electric Power test module failure. （IDU failure）	Querying by press remote controller.
F2	Discharge temperature sensor failure PROTECTION.	Please refer to troubleshooting E8.
F3	ODU coil temperature failure PROTECTION..	Please refer to troubleshooting E3.
F4	Cooling system gas flow abnormal PROTECTION..	Please check the troubleshooting for detail.

F5	PFC overcurrent PROTECTION	Please check the troubleshooting for detail.
F6	The Compressor lack of phase / Anti-phase PROTECTION.	Please check the troubleshooting for detail.
F7	IPM Module temperature PROTECTION	Please check the troubleshooting for detail.
F8	4-Way Value reversing abnormal..	Please check the troubleshooting for detail.
F9	The module temperature test circuit failure.	ODU PCB
FA	The compressor Phase-current test circuit failure.	ODU PCB
Fb	Limiting/Reducing frequency for Over load protection on Cooling/Heating mode.	Querying by press remote controller
FC	Limiting/Reducing frequency for High power consumption protection.	Querying by press remote controller
FE	Limiting/Reducing frequency for Module current protection (phase current of compressor).	Querying by press remote controller
FF	Limiting/Reducing frequency for Module temperature protection.	Querying by press remote controller
FH	Limiting/Reducing frequency for Compressor driving protection.	Querying by press remote controller
FP	Limiting/Reducing frequency for anti-condensation protection..	Querying by press remote controller
FU	Limiting/Reducing frequency for anti-frost protection.	Querying by press remote controller
Fj	Limiting/Reducing frequency for Discharge over temperature protection.	Querying by press remote controller
Fn	Limiting/Reducing frequency for ODU AC Current protection.	Querying by press remote controller
Fy	Gas leakage protection	Please check the troubleshooting for detail.
bf	TVOC sensor failure（IDU failure, optional）	Querying by press remote controller
bc	PM2.5 sensor failure（IDU failure, optional）	Querying by press remote controller
bj	Humidity sensor failure. （IDU failure）	Querying by press remote controller

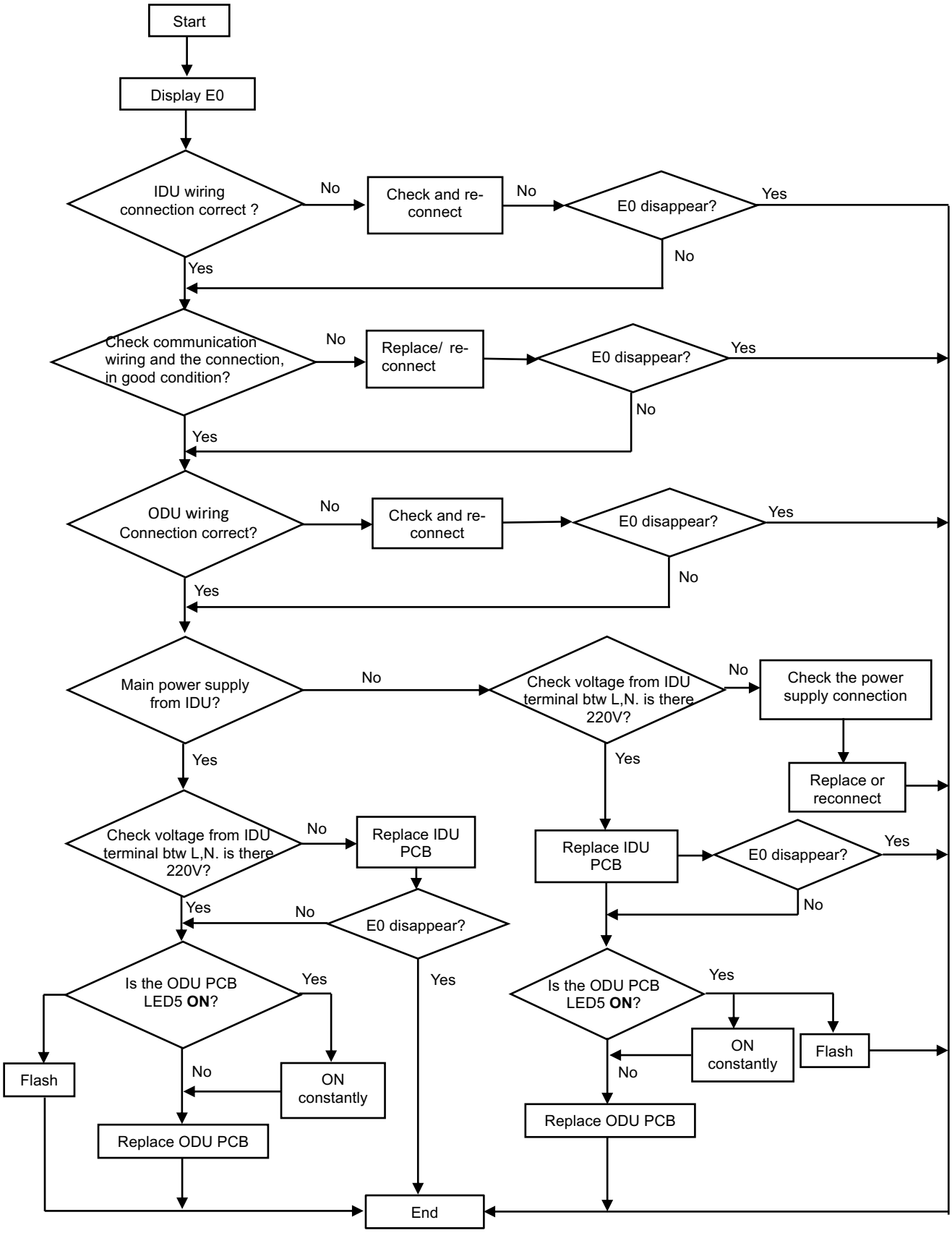
Note: Remote controller FAILURE CODE Querying function

As shown in the failure codes, some of the codes (Fb~bj) need to press remote control for inspection.

While unit on operation, press the ECO button 8 times with 8 seconds, the buzzer BIBI 2 times, you can inspect the special failure code as Fb ~Fn, bj etc.

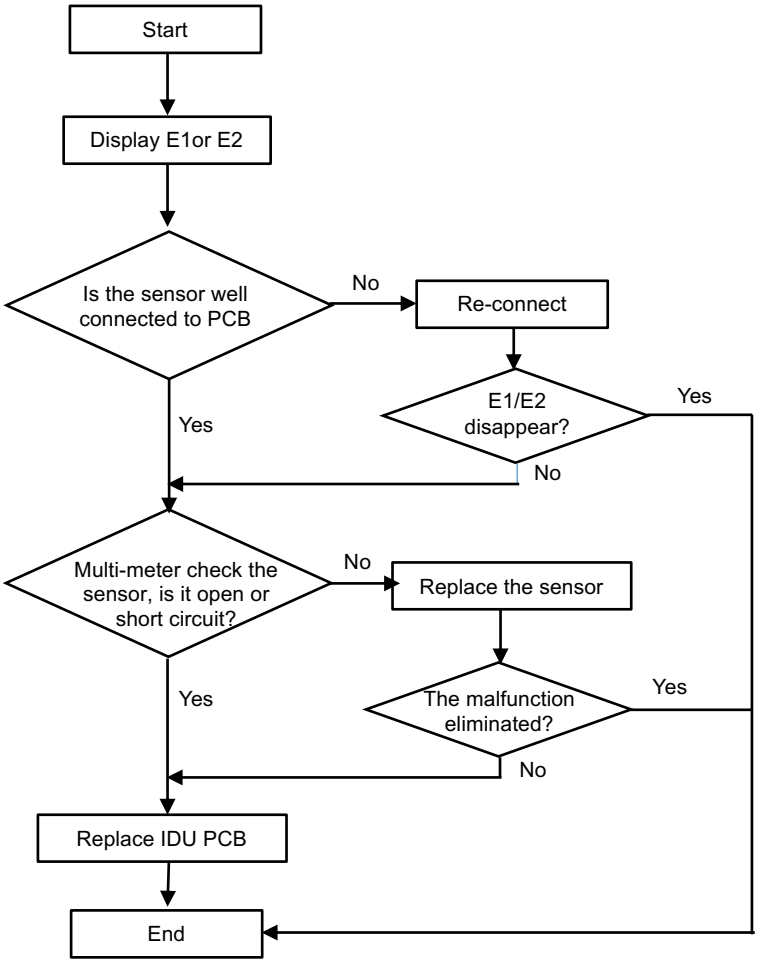
3.2 Trouble shooting

3.2.1 E0 ---IDU & ODU communication failure

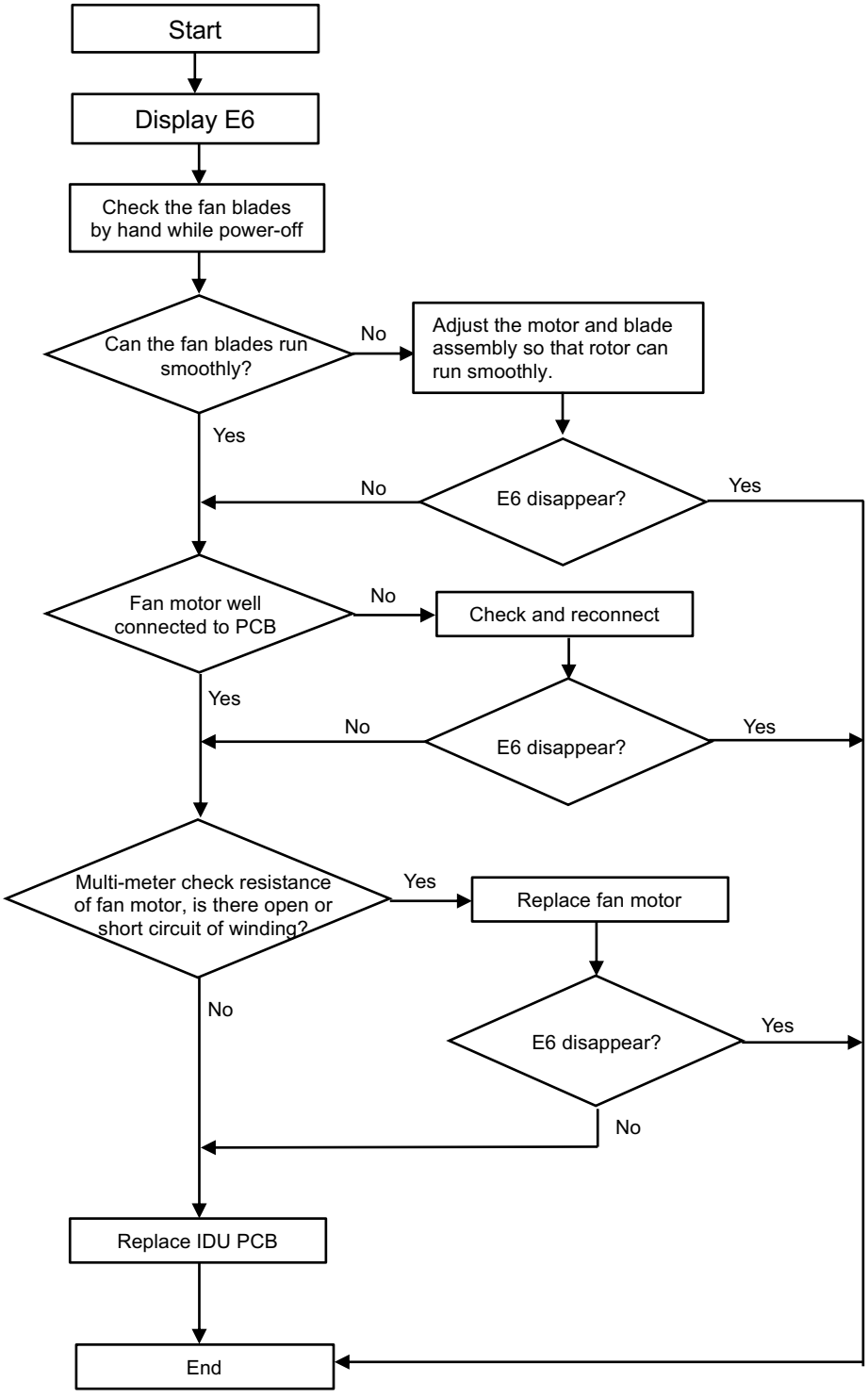


Remark: if the communication wiring **1(S)** is not well connected, the ODU LED5 will light **ON** always.

3.2.2 E1, E2 ---IDU Room temperature sensor and/or coil temperature sensor failure.

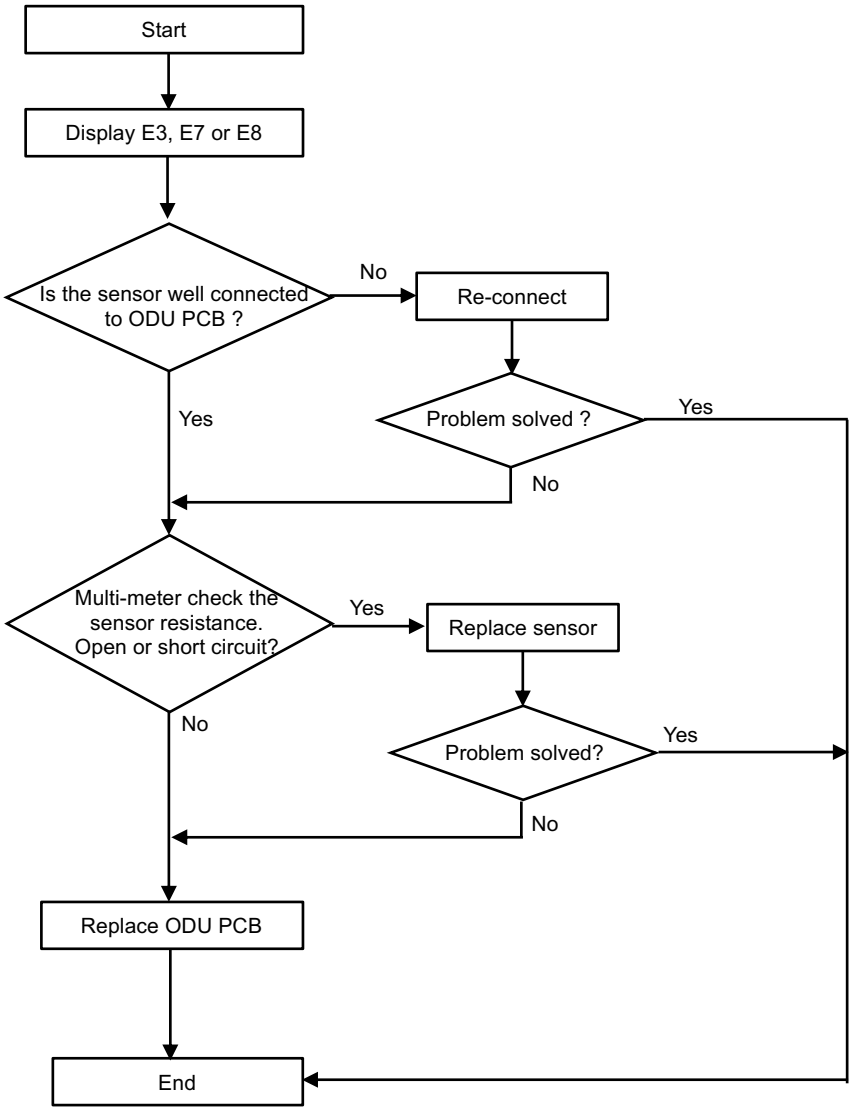


3.2.3 E6----IDU ventilation failure (PG and DC fan motor only)



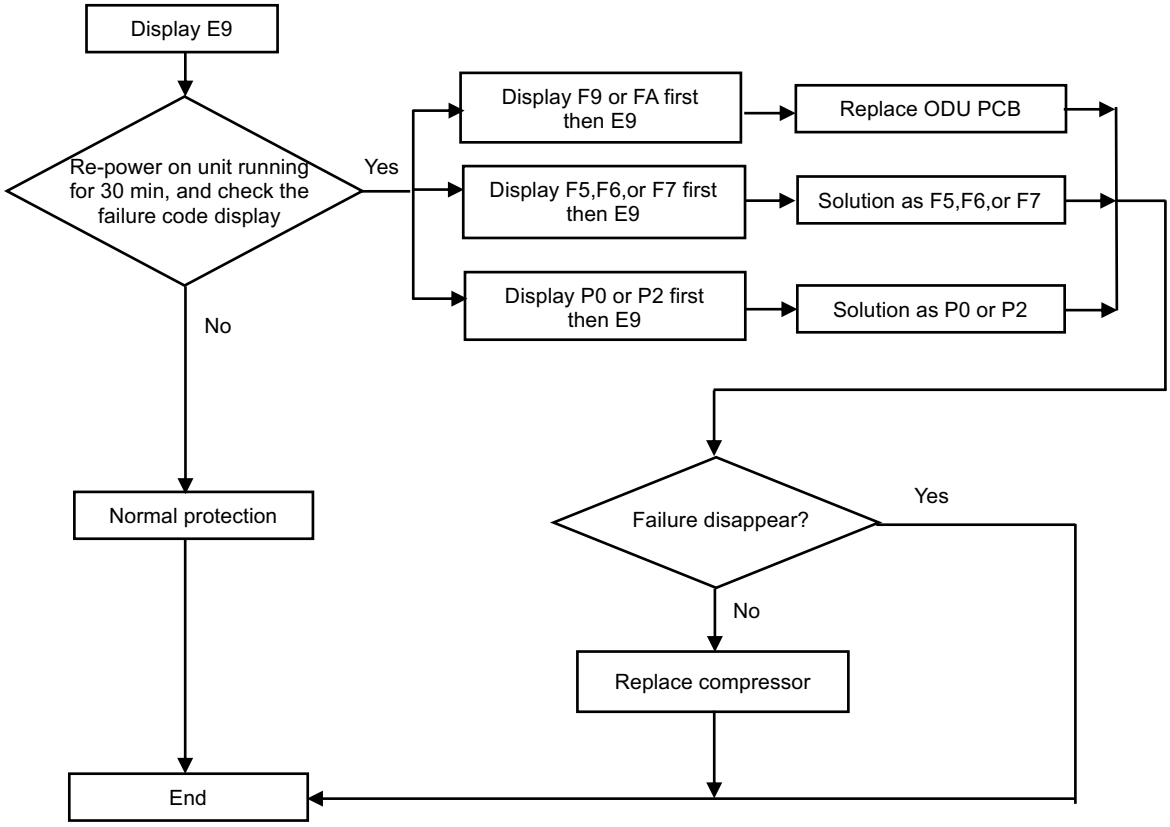
3.2.4 E3, E7 or E8----ODU Coil temperature sensor, Ambient temperature sensor or Discharge temperature sensor failure.

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



3.2.5 E9---ODU IPM /Compressor driving fault

If unit have 6 times stopping works for IPM protection (P0) continuously, it will display E9 error, and unit can't be recovered to operation, except press ON/OFF button.



Remark:

1. F9 code

Reason: The IPM module temperature test circuit failure.

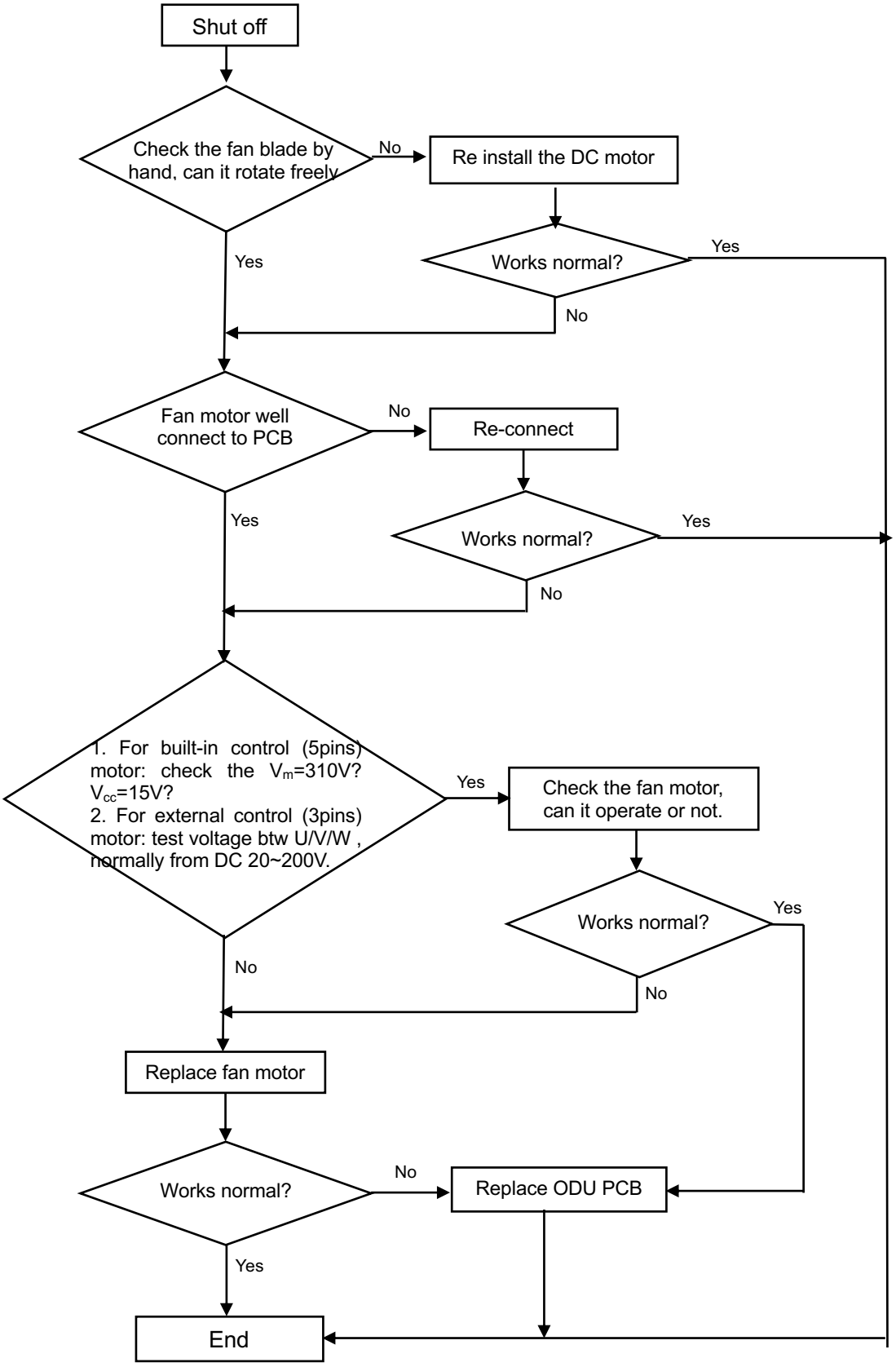
Solution: Replace the ODU PCB.

2. FA code

Reason: The compressor phase-current test circuit failure.

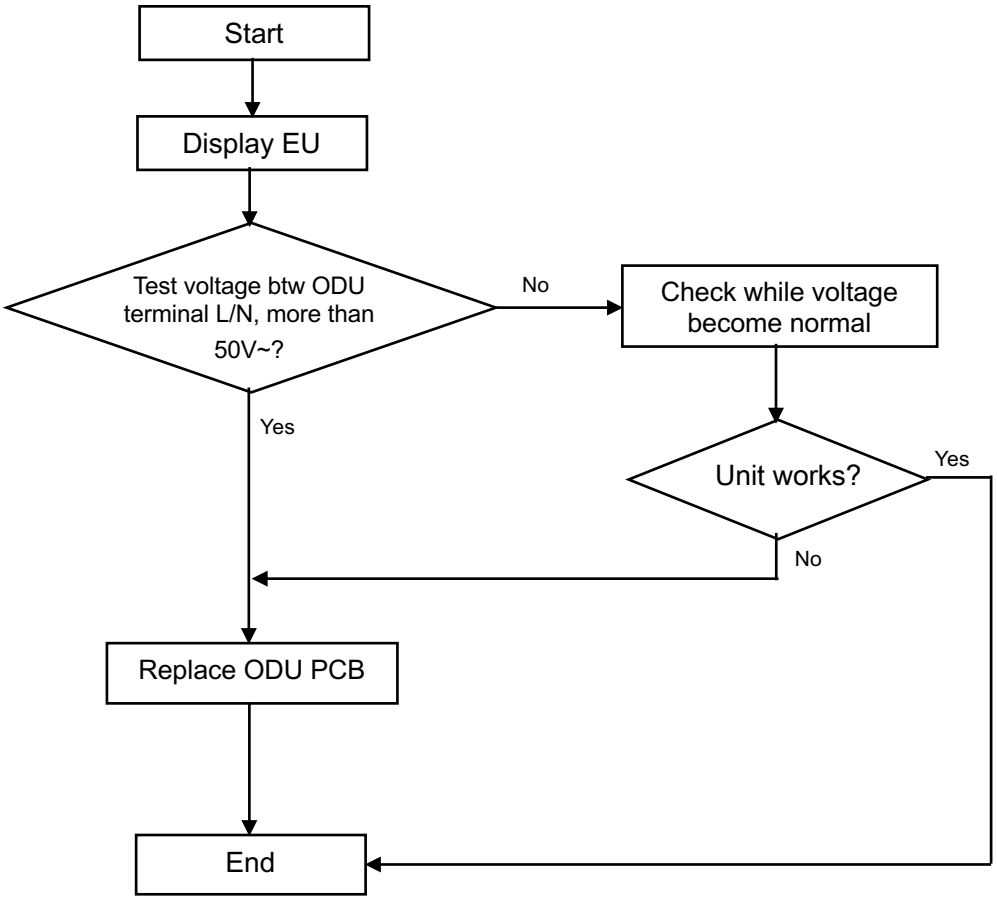
Solution: Replace the ODU PCB.

3.2.6 EF---ODU DC fan motor failure



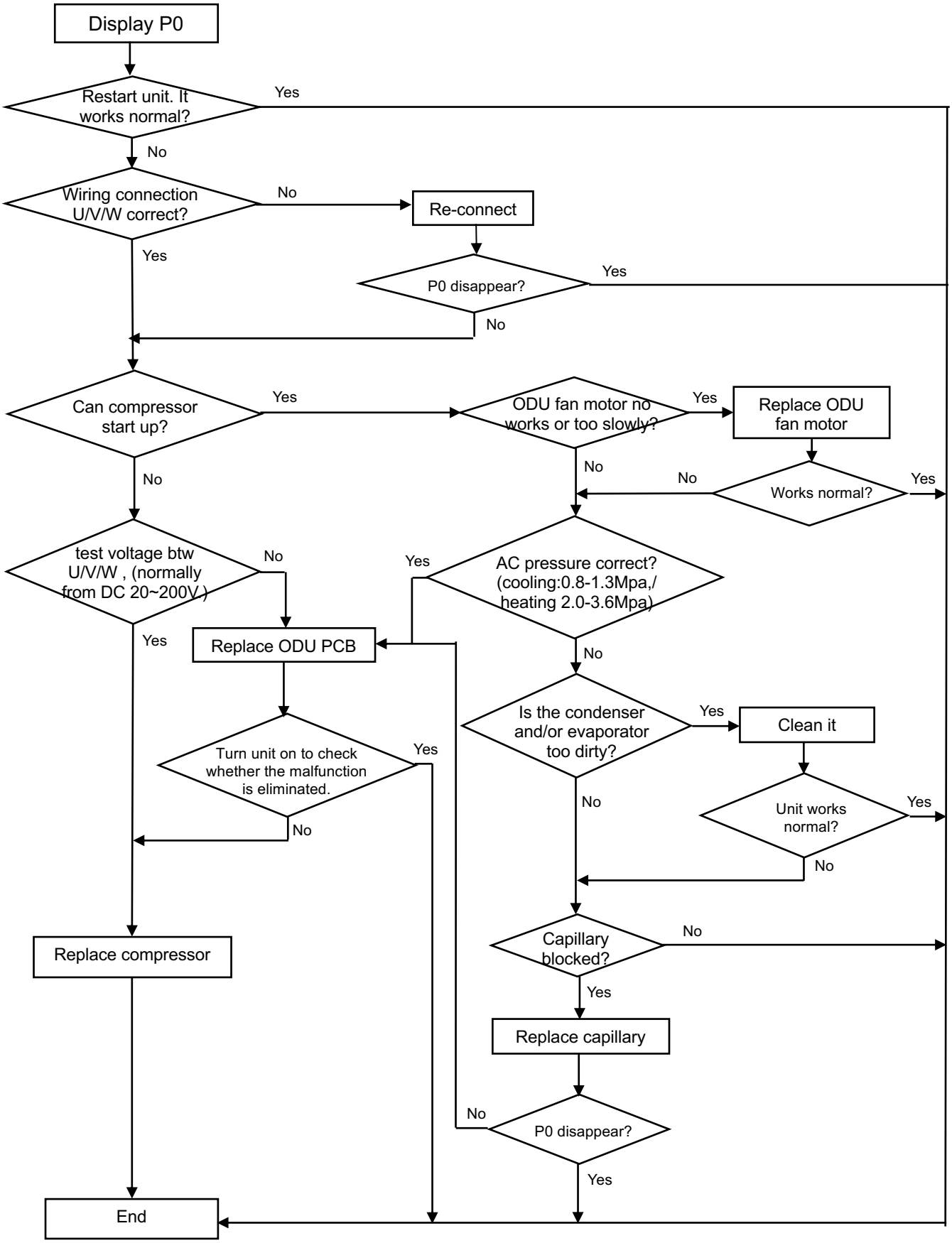
3.2.7 EU---ODU voltage test sensor failure

After power relay works, while tested voltage effective value less than 50V for 3s continuously, unit will display EU.



3.2.8 P0---IPM protection

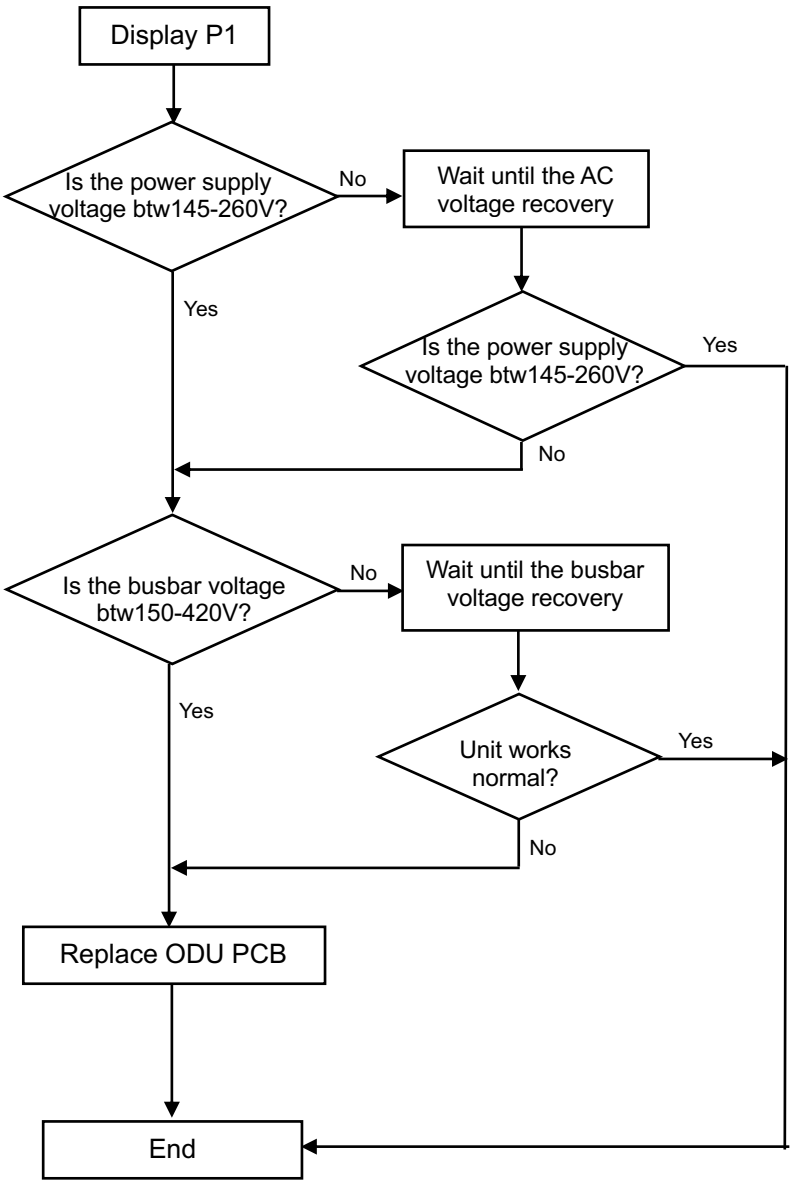
When overheat or overcurrent for IPM, AC unit will display P0 protection.



3.2.9 P1--- Over / under voltage protection

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

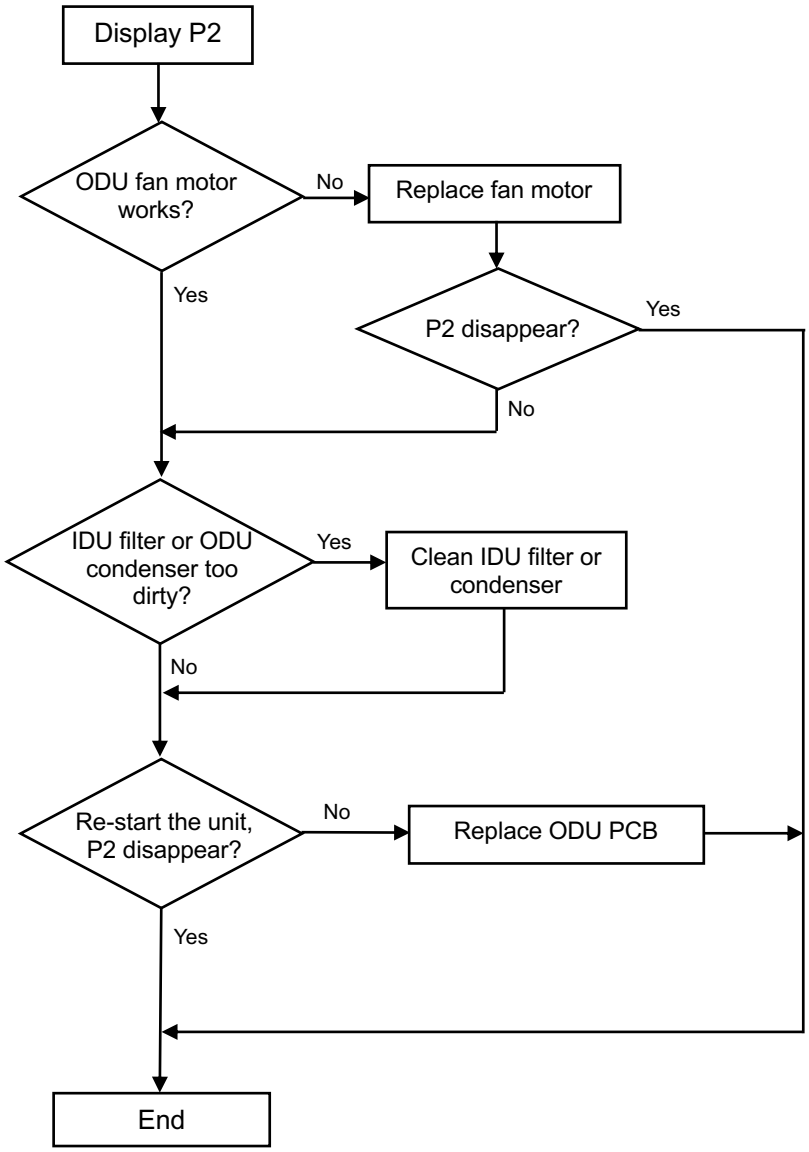
2. Test voltage on the big size electrolytic capacitor of ODU PCB, When DC busbar voltage V＞DC420V or V＜DC150V, IDU display P1 protection. unit will recover back to previous status while DC190V＜V＜DC410V



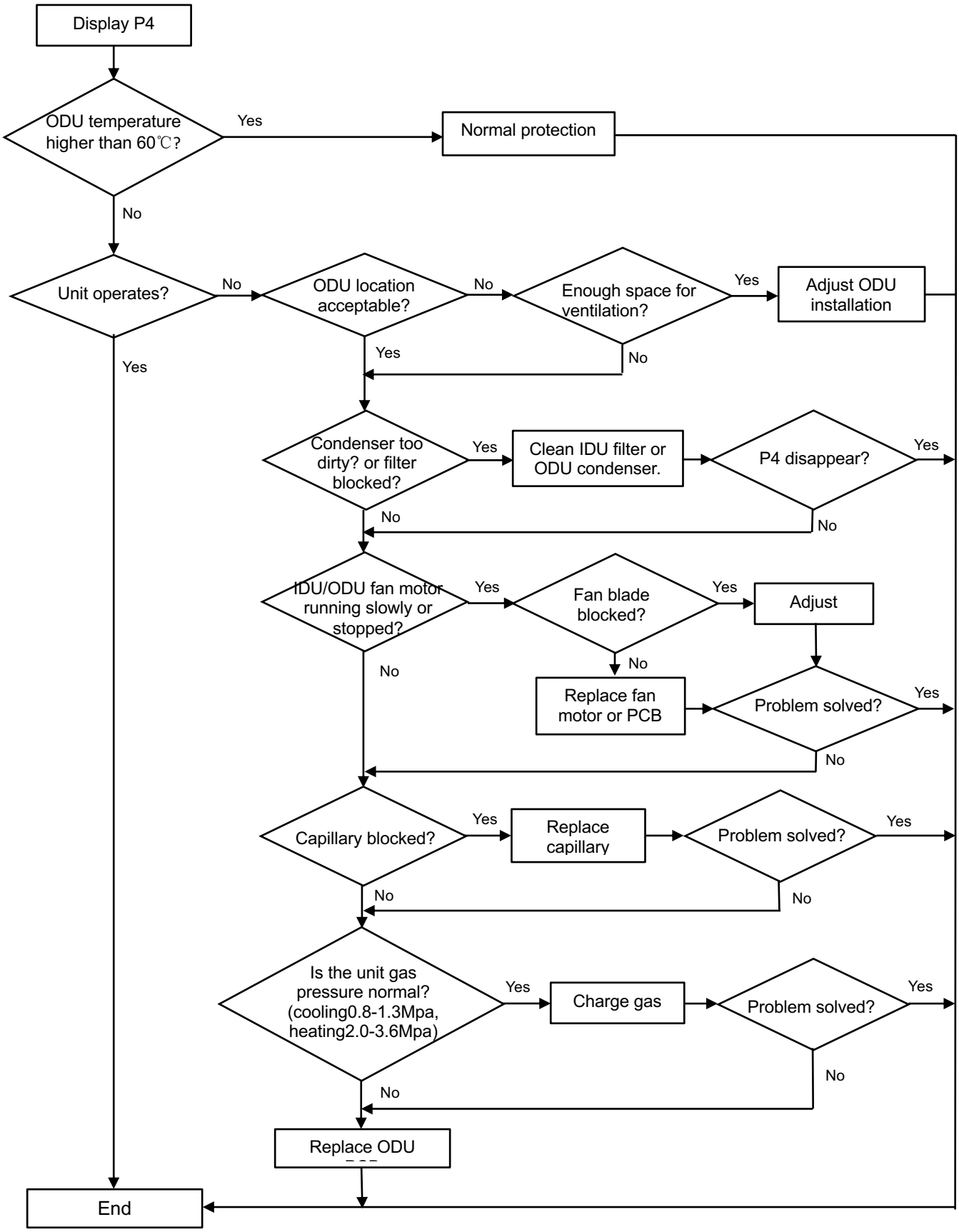
3.2.10 P2---Over Current protection

When the AC unit running current more than I_{max}, it will stop and display P2 protection.

Note: for different AC model, I_{max} has a difference valve.

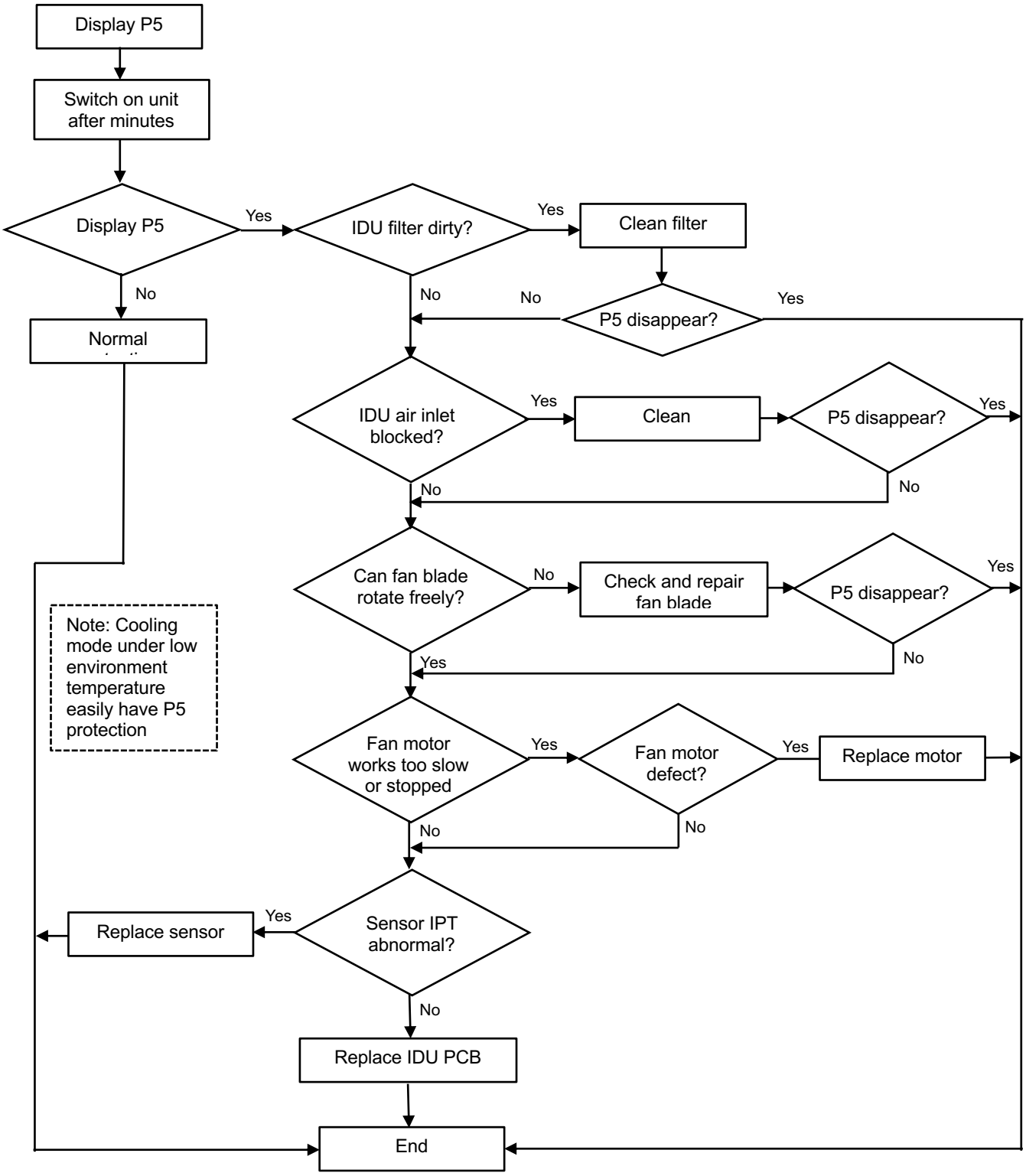


3.2.11 P4 ---ODU Discharge temperature overheating protection



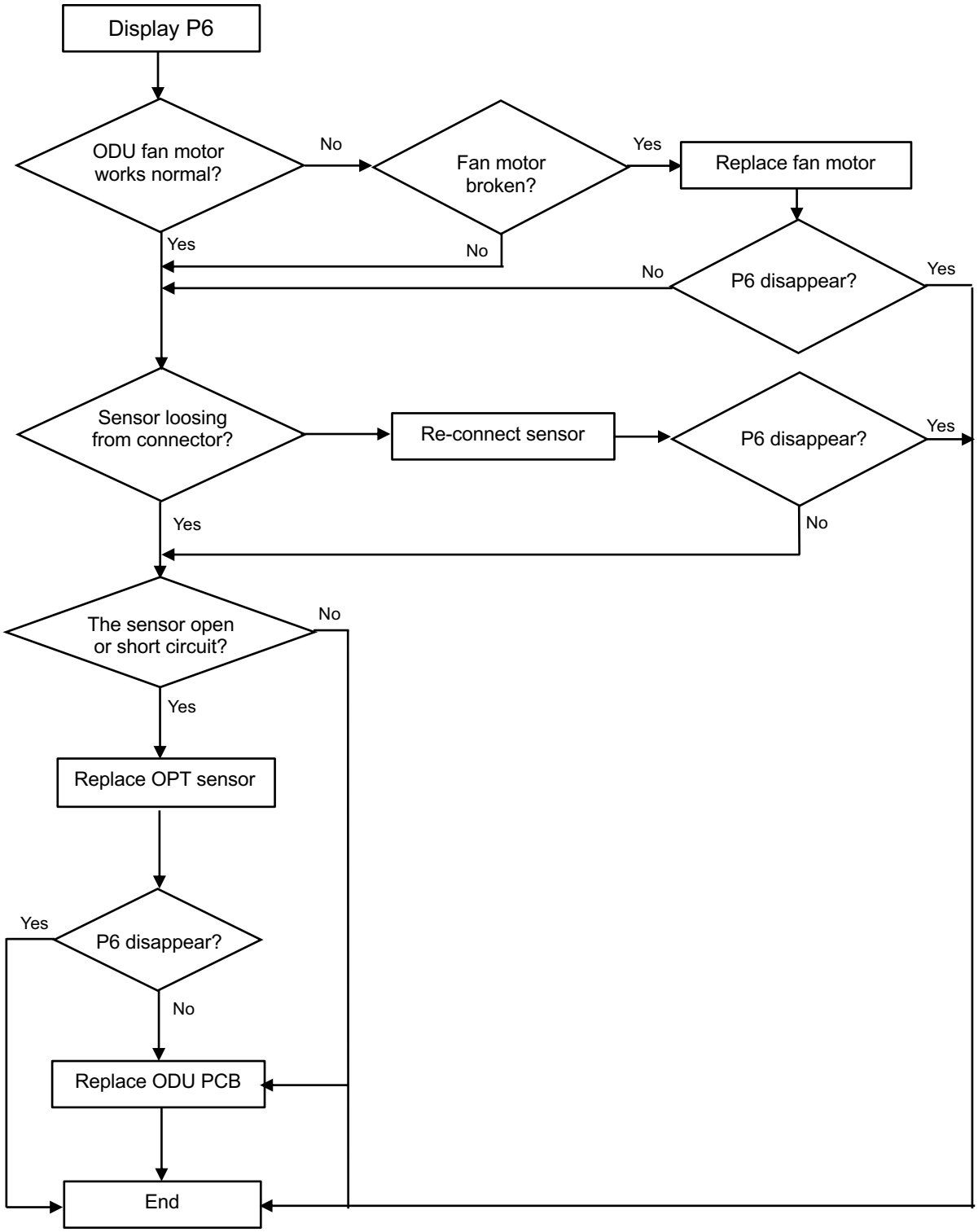
3.2.12 P5---Sub-cooling protection on Cooling/Dry mode

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



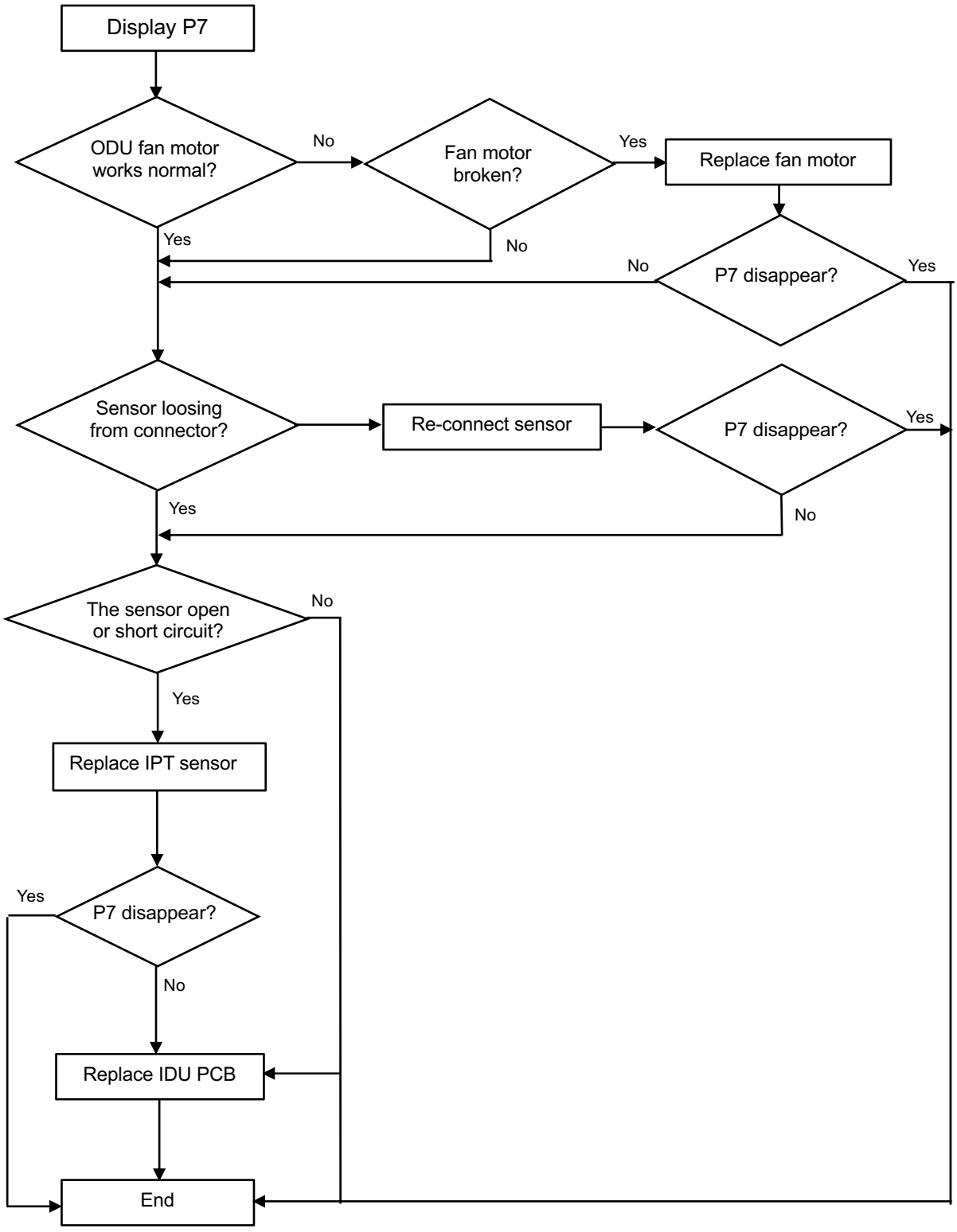
3.2.13 P6---Overheating protection on Cooling mode

On Cooling or Dry mode, when ODU condenser coil temperature OPT≥62℃ , MCU will switch off outdoor unit and show P6 failure code.



3.2.14 P7---Overheating protection on heating mode

On heating mode, when IDU evaporator coil temperature IPT≥62℃, ODU PCB will switch off outdoor unit and show P7 failure code.



3.2.15 P8---Outdoor Overtemperature/Under-temperature protection

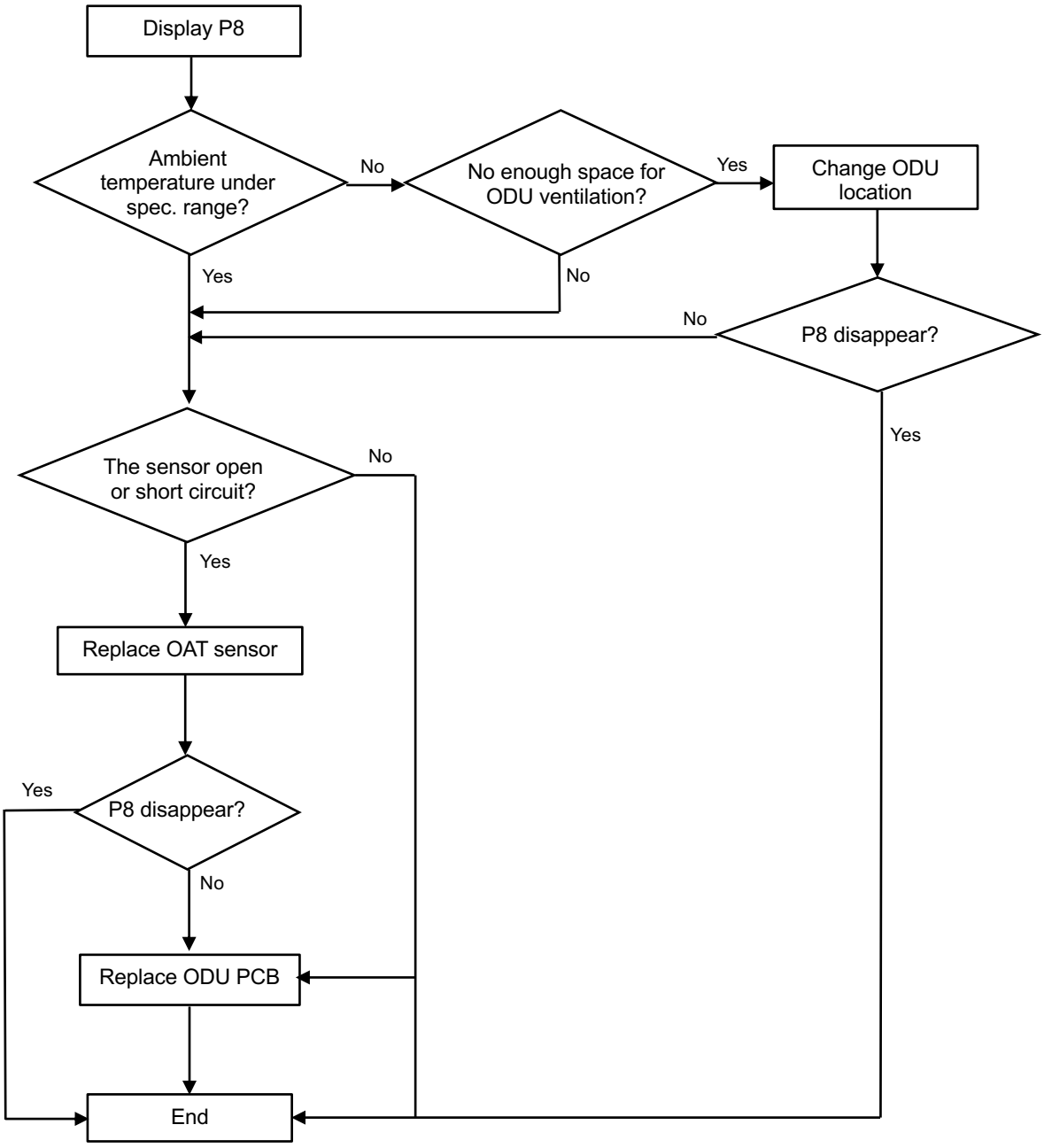
When environment temperature as below condition, the compressor will stop working, after 200s delay, the IDU will show P8 failure code.

(1). **On Cooling or Dry mode**: ODU ambient temperature: OAT＜-20℃ or OAT＞63℃;

(2). **On Heating mode**:

a. OAT≥40℃ or

b. 30℃＜OAT≤40℃ and RT＞35℃



3.2.16 P9---The compressor driving protection (the compressor load abnormal)

When compressor start up or in the process of operation, if:

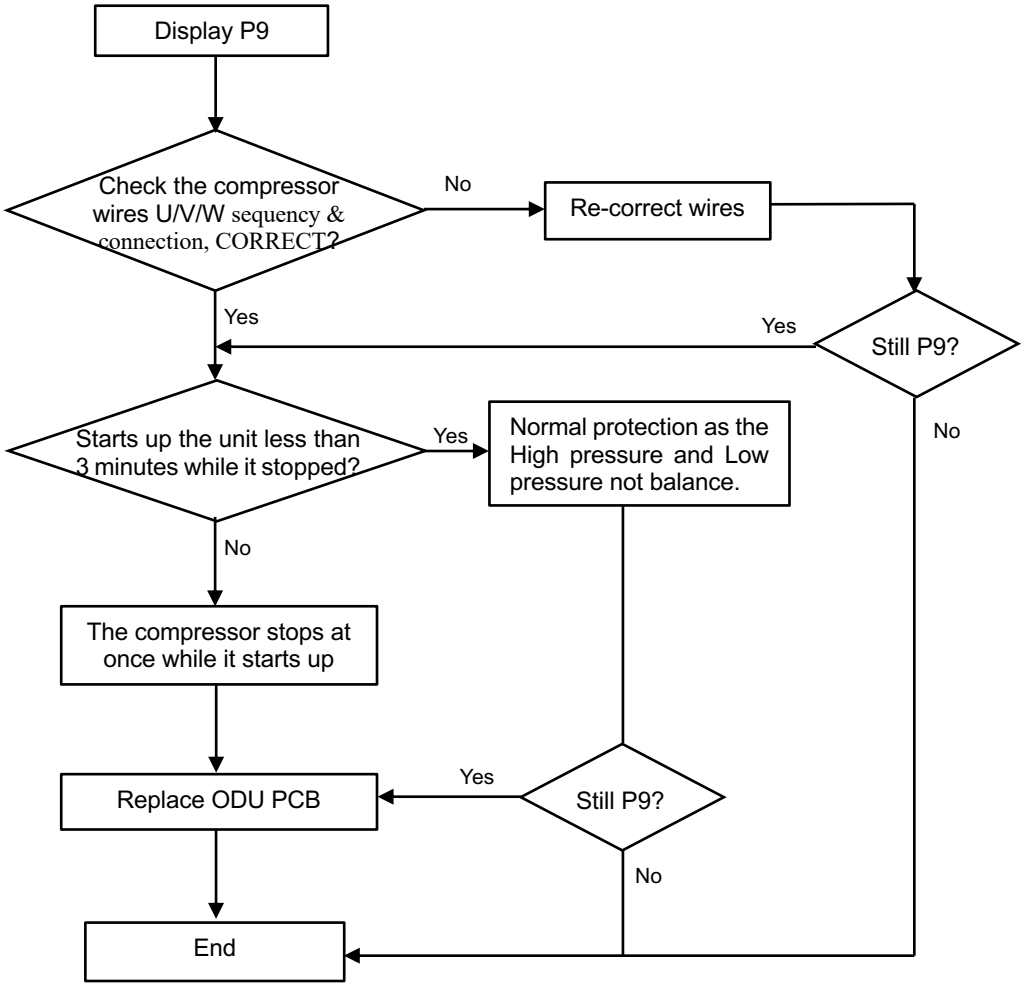
(1). MCU can't test the feedback signal from compressor, or

(2). Tested a abnormal signal from compressor, or

(3). The compressor startup abnormal.

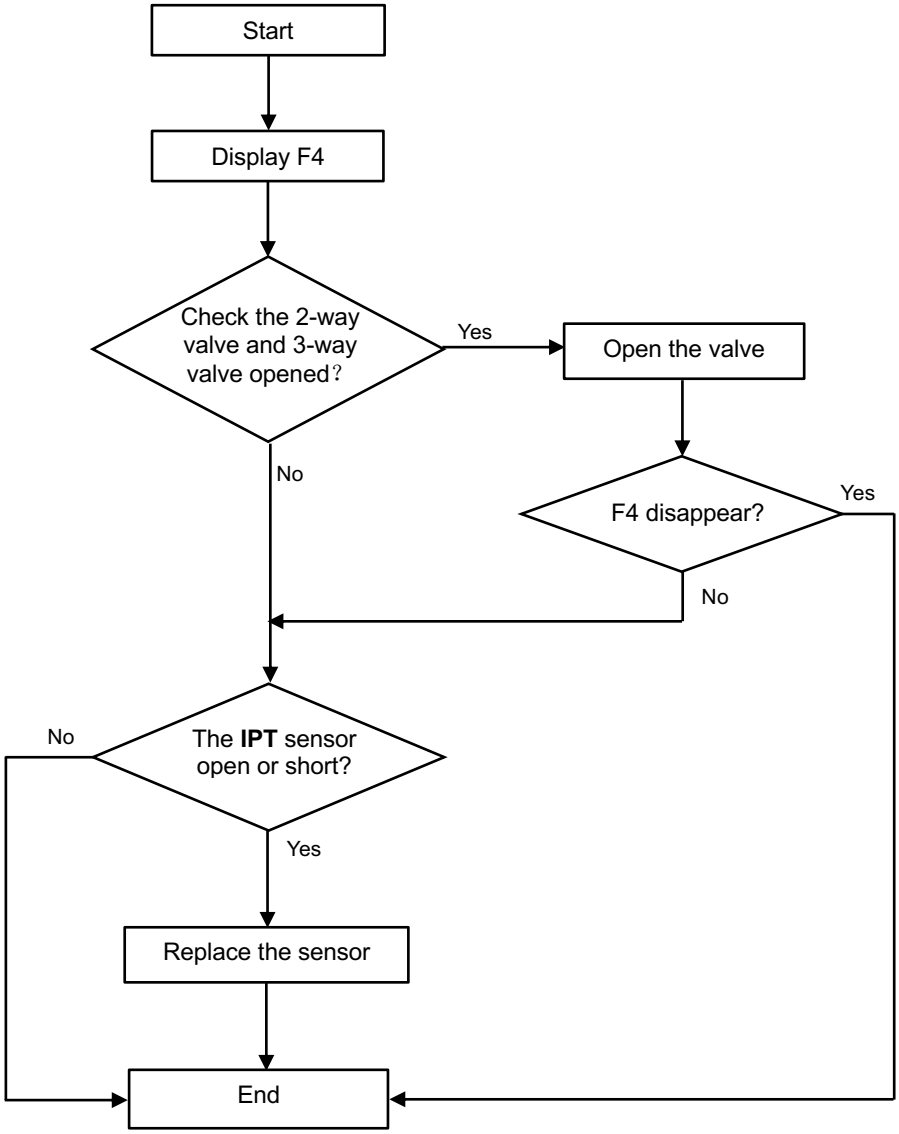
The outdoor unit will shut off, and show P9 protection.

(The unit will re-startup 5 times continuously, if it still can't work normal, then show P9 code)



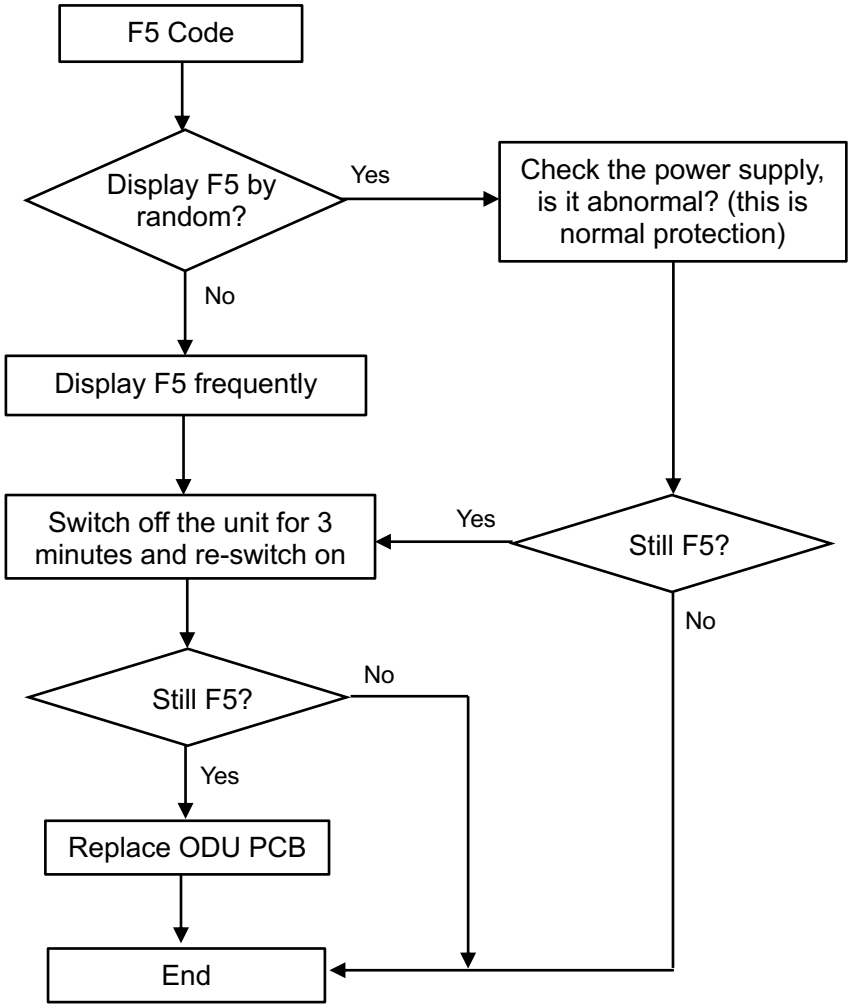
3.2.17 F4---Cooling system Gas flow abnormal protection

When compressor startup, unit will check the variation of IDU coil temperature. If there is mistake installer forgetting to open the 2-way or 3-way valve on ODU, the gas can't flow in the cooling system, it will show F4 protection.



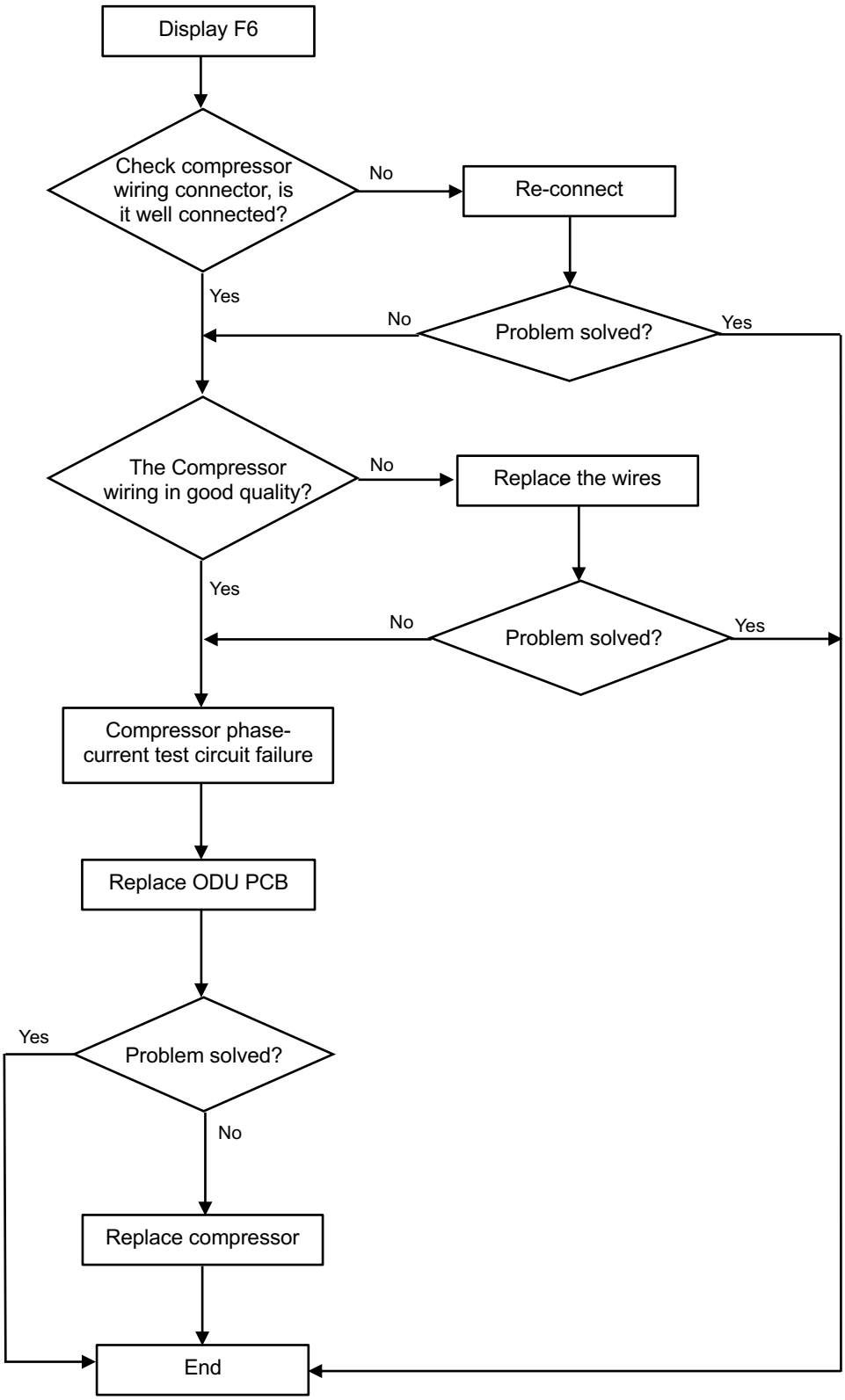
3.2.18 F5---PFC Protection

PFC Overcurrent protection



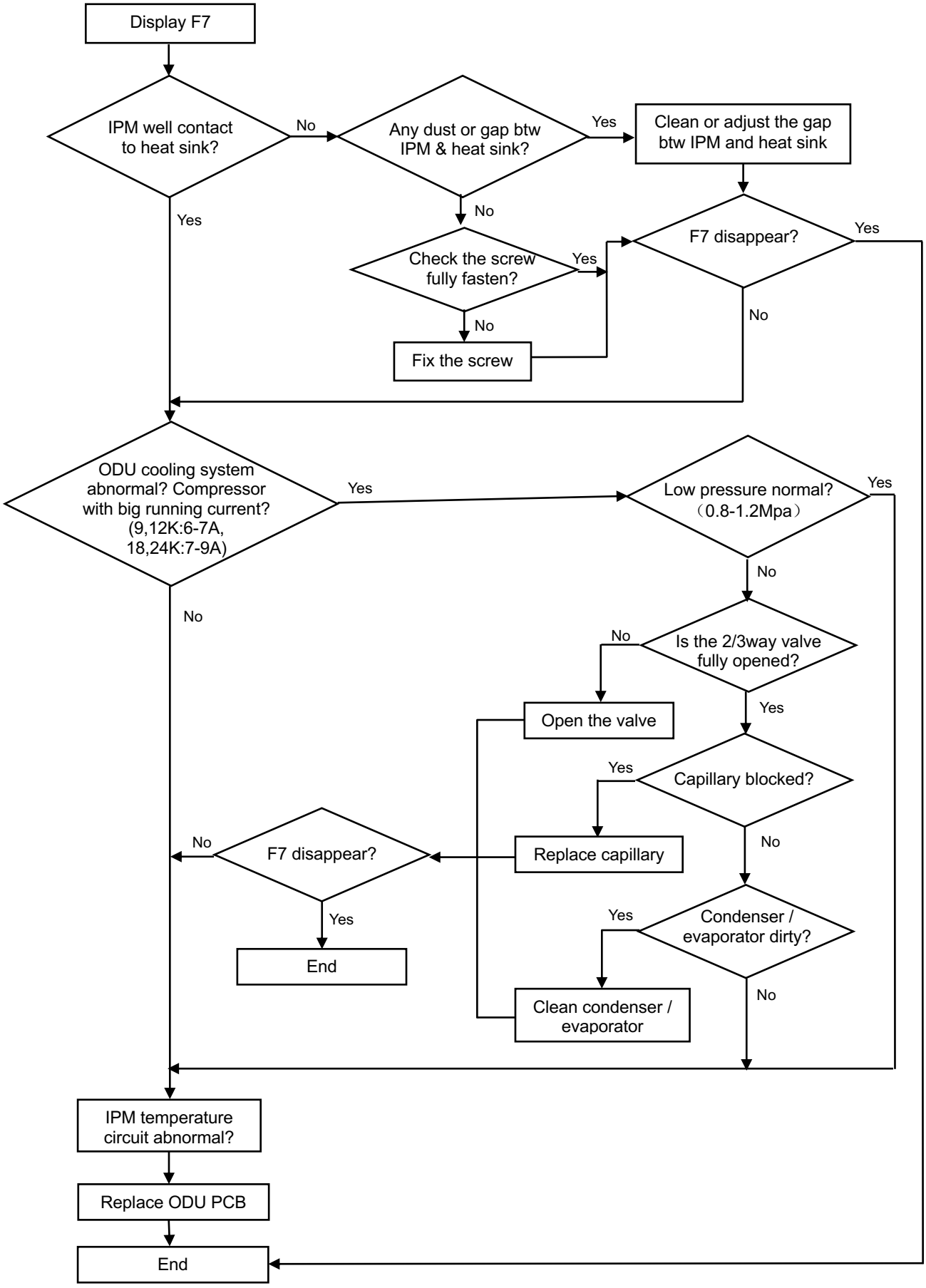
3.2.19 F6---The Compressor Lack of phase / Anti-phase protection.

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



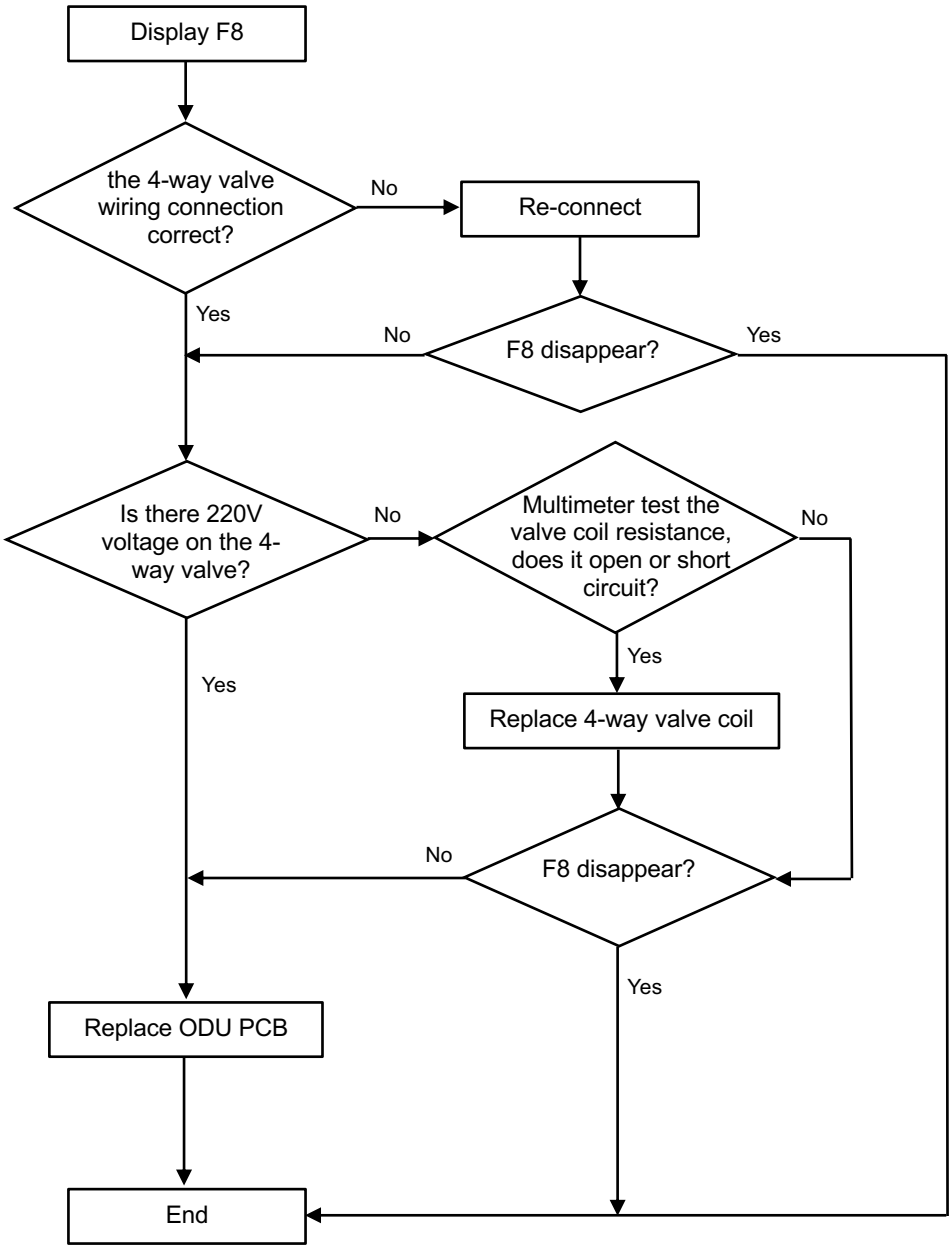
3.2.20 F7---Module temperature protection.

IPM overtemperature protection, when IPM temperature more than 95℃, it will show F7.



3.2.21 F8---4-Way Value Reversing abnormal

On heating mode, if IDU Coil temperature tested lower than Room temperature 5℃ or even more after compressor works for 8min, unit will show F8 code.



3.2.22 Fy--- Gas leakage protection

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

