



DUCTLESS ERROR CODES AND TROUBLESHOOTING

MINGLEDORFFS TECHNICAL SERVICES

LAST UPDATED: 5/8/2026 REV 1.1

older units

Two digit error codes

Four digit error codes

Light commercail error codes

Wired controler error codes

Spot Check

Compressor Stop Codes

Gen 1 24v interface error code

Operational codes

operational code 38-40 mu

Service Tool RG10 remote

Outdoor board display

Multi Zone outdoor check codes

Parameter Cecking codes

Error code troubleshooting tips

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Compressor Stop Codes

Number	Stop Condition	Resolutions
1	Frequency limit caused by current	
2	Frequency limit caused by T2 in cooling	
3	Frequency limit caused by T2 in heating	
4	Set temprature reached	
5	Frequency limit caused by T4	
6	Defrosting	
7	Mode switching	
8	N/A	
9	High discharge temprature protection	
10	High evaporator coil temprature protection (T2)	
11	Evaporator low temprature protection (T2)	
12	Condenser high temprature protection (T3)	
13	Low indoor room temprature in dry mode (T1)	
14	Low ambient temprature protection (T4)	
15	Refrigerant leak protection (EC Error code)	
16	Communication between indoor and outdoor units (E1 Error code)	
17	Communication between Main board and IPM (P40 Error code)	
18	Input AC Voltage protection	
19	Compressor top temprature protection by TP/T5 (P2 Error code)	
20	ODU EEPROM Malfuntion (F4 Error Code)	
21	Indoor fan speed malfuntion (E3 Error code)	
22	Temprature sensor openor shorted (E4/E5/F1/F2/F3 Erro codes)	
23	Overcurrent protection (F0 Error code)	
24	IPM Overcurrent protection (P0 Error code)	
25	Compressor phase loss (P43 Error code)	
26	Compressor Malfuntion	
27	Low Voltage protection of compressor drive chip	
28	DC Fan current protection (F5 Error code)	
29	DC Fan phase loss (F5 Error code)	
30	DC Fan zero speed protection (F5 Error code)	
31	PFC module Protection	
32	High Volotage protection compressor drive chip	
33	Compressor zero speed malfuntion (P44 Error code)	
34	Compressor PWM malfuntion (P45 Error Code)	
35	Compressor MCE malfuntion (P12 Error code)	
36	Compressor Overcurrent protection (P49 Error code)	
37	Compressor EEPROM malfuntion	
38	Compressor start up malfuntion (P42 Error code)	
39	Compressor speed out of control (P46 Error code)	
40	Low pressure protection	
41	High pressure protection	
42	PFC module malfuntion	
43	N/A	
44	N/A	
45	N/A	
46	N/A	
47	N/A	
48	N/A	
49	Shutdown Stop	
50	Electrical disconnect	
51	DR stop	

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E0	EH00	EHb1	PC46
E1	EH0A	EHb2	PC49
E2	EL01	EHb3	PC4A
E3	EL11	EHb4	PC4b
E4	EH12	EHb5	PC4C
E5	EH02	EHb6	PC04
E6	EH31	ELOC	PC06
E8	EH32	EH0E	PC08
E9	EH33	EH0F	PH09
EC	EH34	EH0b	PH0A
F0	EH35	EHP1	PHA1
F1	EH36	EHP2	PC0b
F2	EH37	EH0H	PC0F
F3	EH03	EH0L	PC30
F4	EH3C	FH0P	PC31
F5	EC50	FH07	PC32
F6	EC51	FL09	PC03
P0	EC52	FH0E	PC0L
P1	EC53	FH0b	PH90
P2	EC54	FH0d	PH91
P3	EC55	FH0A	PC0A
P4	EC56	FL14	PCA1
p5	EC57	PC00	FH0C
P6	EC05	PC10	LH00
Eb	EC0d	PC11	LC01
EE	EH60	PC12	LC02
LP	EH61	PC01	LC05
	EH62	PH13	LC03
	EC71	PC02	LC06
	EC75	PC40	LC30
	EC72	PC41	LC31
	EC74	PC42	LH07
	EC73	PC43	EL16
	EC07	PC44	
	EH06	PC45	

[Compressor check](#)

[IPM check](#)

[4-Way valve check](#)

[EXV check](#)

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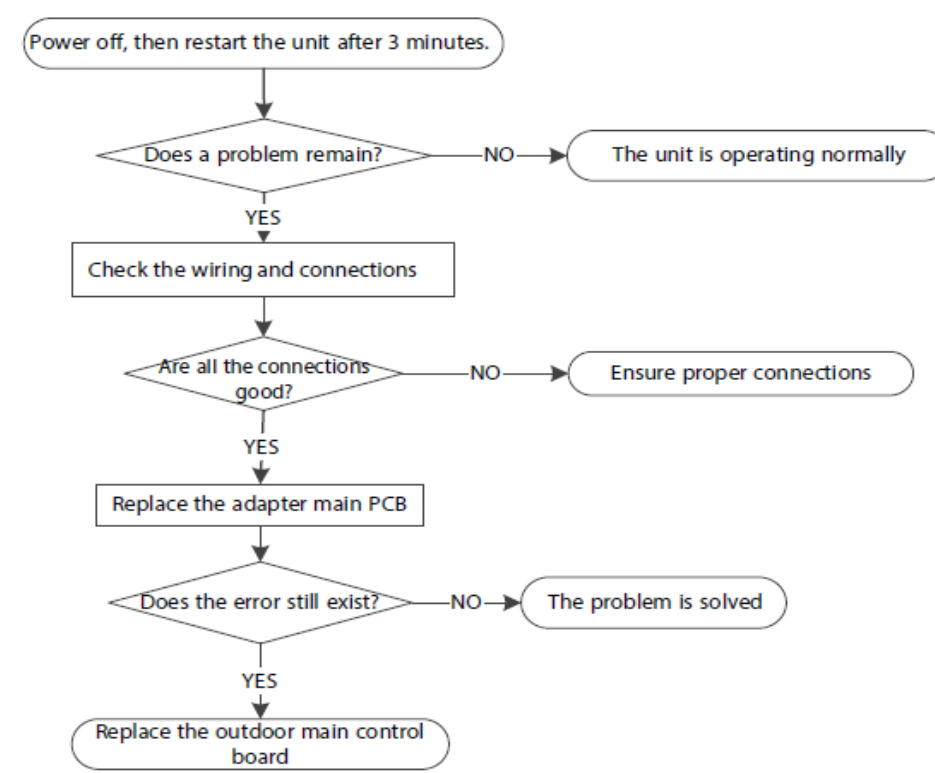
FL 09 Indoor and outdoor mismatch malfunction Diagnosis and Solution

Description: Indoor and outdoor units are mismatched, the LED displays the code. Replace the matching indoor or outdoor unit.

EL 16 (Communication malfunction between adapter board and outdoor main board Diagnosis and Solution)
Description: The adapter PCB cannot detect the main control board.

Recommended parts to repair:

- Connection wires
 - Adapter board
 - Outdoor main PCB
- Troubleshooting



TECHNICAL INFORMATION COMMUNICATION



Quality and Continuous Improvement

Number: TIC 2022-0021

Date: 10/11/2022

Title: FL09 Error Code

Product Category: Ductless (DLS)

Products Affected:

40MBABQ18XB3 prior to 3522V10662
40MBABQ24XB3 prior to 3522V10372
40MBABQ30XB3 prior to 3522V10680
40MBABQ36XA3 prior to 3322V24527
40MBABQ48XA3 prior to 3322V24635
40MBABQ60XA3 prior to 4122V10286

Serial range: All equipment manufactured prior to the above serial is affected. All equipment manufactured beginning with the above serial number have been corrected during manufacturing.

Situation:

Compatibility errors have been reported by the field as it pertains to connecting the above listed models to previous version ODU's. This includes the 38MGR(H), 38MBRB and 38MA*R chassis. This issue is now understood and corrective actions are in place. Updated software versions were implemented in production to make the 40MBAB models compatible with older version ODU's. Replacement PCB's are in transit to Replacement Components and will be used to update current field inventory as necessary.

Technical Information:

The FL09 error code is caused by incompatibility of platforms. This error only occurs when using a 24V Thermostat configuration with outdoor units 38MAQ, 38MBRB and 38MGR offerings. Corrective PCB's will be available in a timely manner. Current and future installs of the 40MBAB that require a 24V thermostat **may be temporarily installed with the KSACN1001AAA Wired Controller**. This can be accomplished by running an additional 2 core stranded/shielded cable **ALONG WITH** the standard thermostat cable. This will allow the system to operate with the onboard controls using the KSACN1001AAA that ships with the equipment. **Refer to the Installation Manual for dip switch settings when using the Wired Controller.**

References:

Please refer to compatibility chart on HVACPartners.com **(CAR-DLSS-12CC)**

Only trained and qualified personnel should design, install, repair and service HVAC systems and equipment. All national standards and safety codes must be followed when designing, installing, repairing and servicing HVAC systems and equipment. It is the responsibility of the Dealer to ensure local codes, standards, and ordinances are met.

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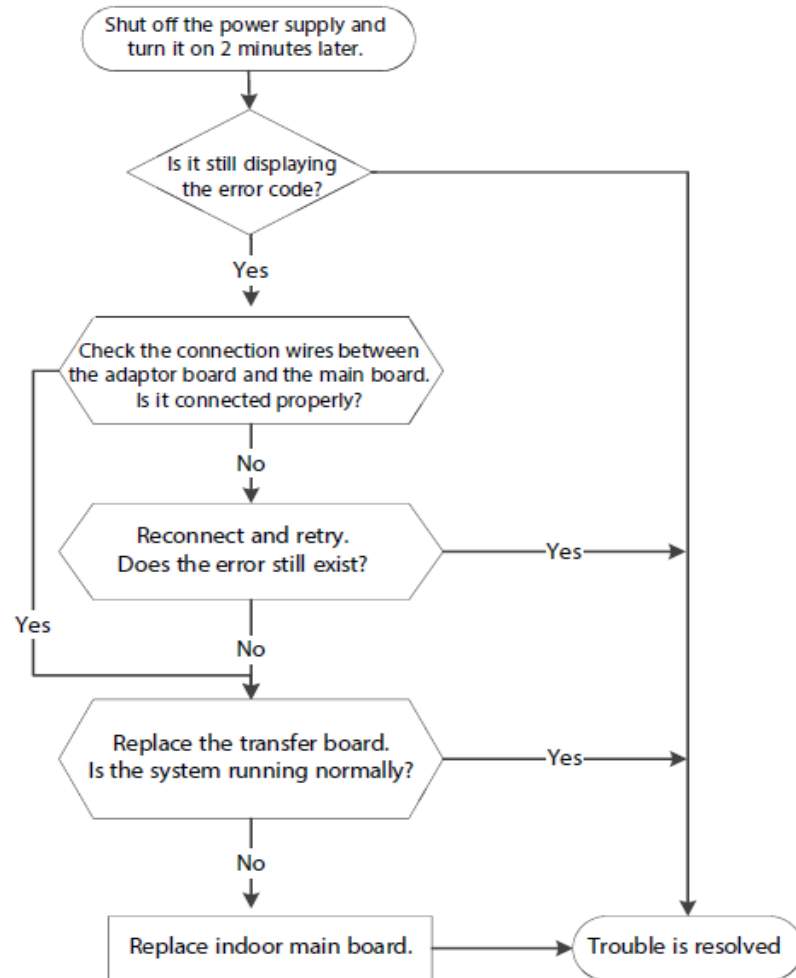
EH 0b (Communication error between indoor two chips Diagnosis and Solution)

Description: The indoor PCB main chip does not receive feedback from another chip.

Recommended parts to repair:

- Indoor main board
- Adapter board

Troubleshooting



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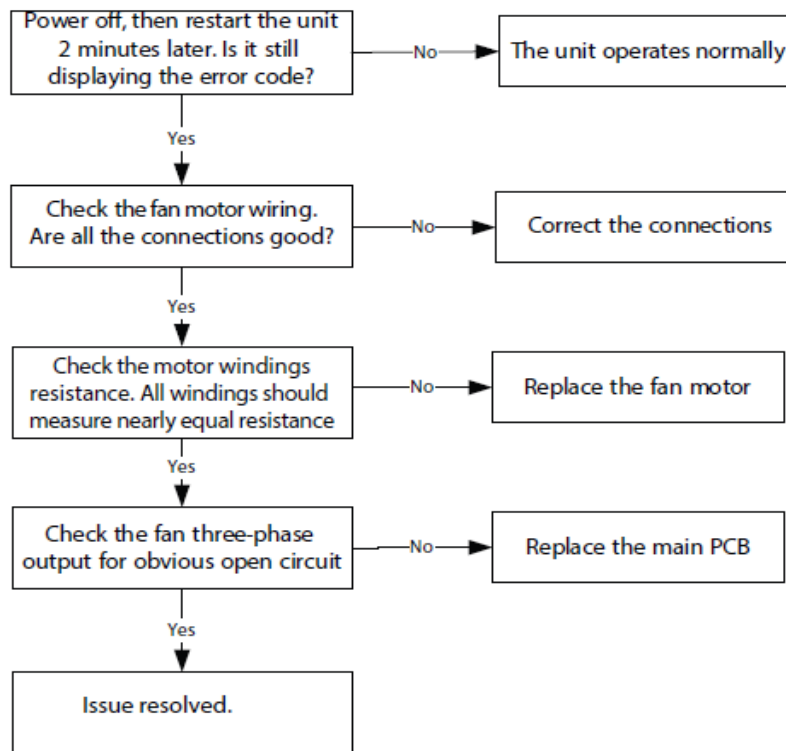
EC 72 (Missing phase failure of outdoor DC fan motor Diagnosis and Solution)

Description: When the three-phase sampling current of the DC motor is abnormal, especially when the current of one or more phases is always small and almost 0, the LED displays the failure code.

Recommended parts to repair:

- Connection wire
- Fan motor
- Outdoor PCB

Troubleshooting



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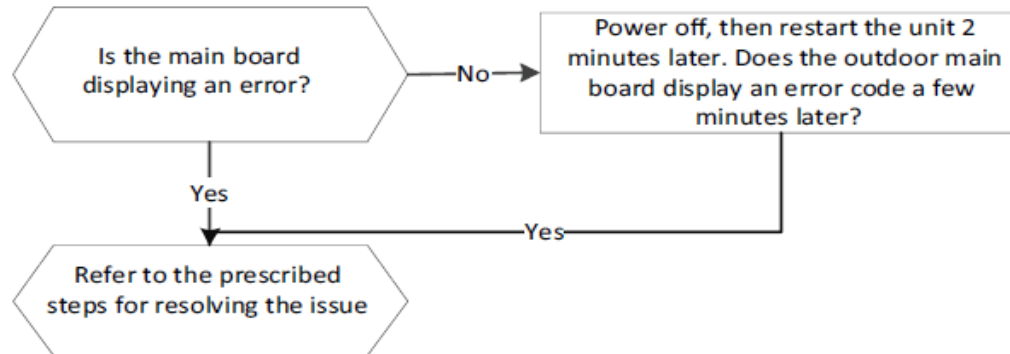
EC 0d (Outdoor unit malfunction Diagnosis and Solution)

Description: The indoor unit detect the outdoor unit is error.

Recommended parts to repair:

- Outdoor unit

Troubleshooting



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PC 0F (PFC module protection Diagnosis and Solution)

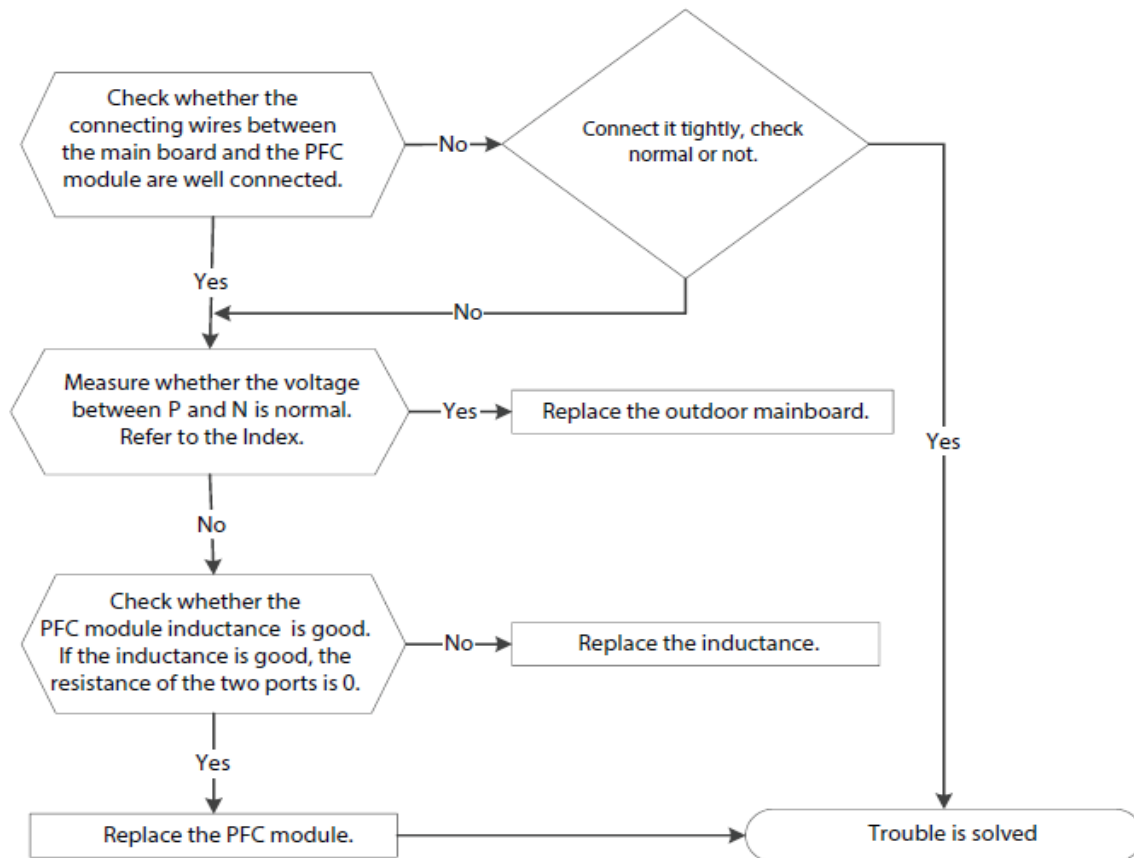
Description: When the voltage signal that IPM send to compressor drive chip is abnormal, the LED displays the failu code and the AC turns off.

Recommended parts to repair:

- Connection wires
- Inductance
- Outdoor main PCB
- PFC module

Troubleshooting

At first test the resistance between every two ports of U, V, W of IPM and P, N. If any result of them is 0 or close to 0, ti defective. Otherwise, follow the procedure in the flowchart.



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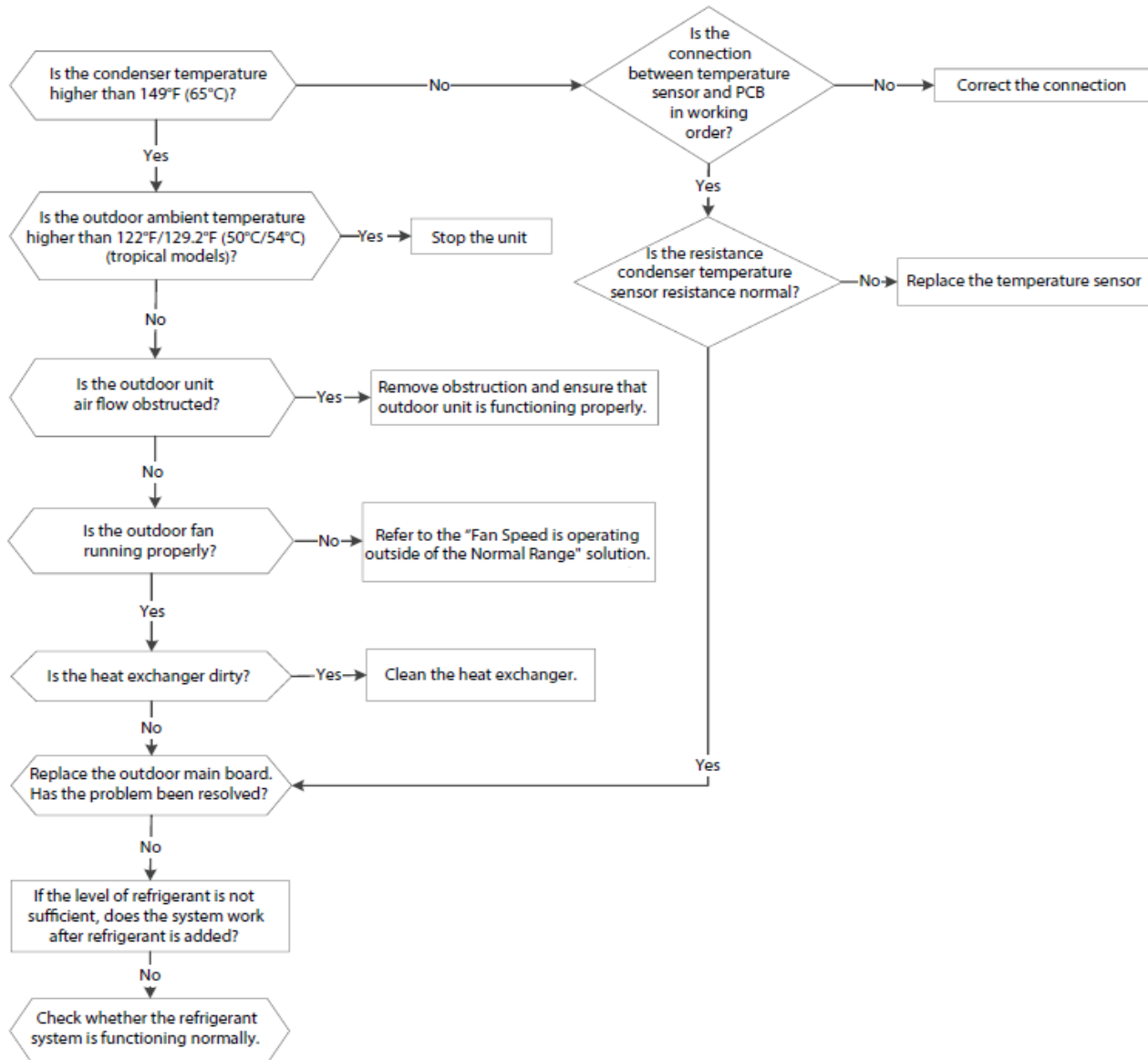
PC 0A (High temperature protection of condenser Diagnosis and Solution)

Description: When the outdoor pipe temperature is more than 149°F(65°C), the unit stops. It starts again only when the outdoor pipe temperature is less than 125.6°F (52°C).

Recommended parts to repair:

- Connection wires
- Condenser temperature sensor
- Outdoor fan
- Outdoor main PCB
- Refrigerant

Troubleshooting



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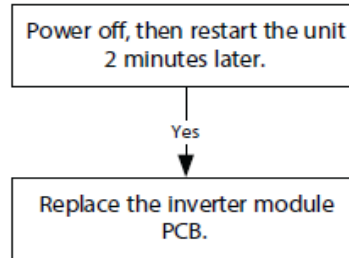
PC 45 (Outdoor unit IR chip drive failure Diagnosis and Solution)

Description: When the IR chip detects its own parameter error, the LED displays the failure code when power on.

Recommended parts to repair:

- Inverter module PCB

Troubleshooting



A230110

PC 0L (Low Ambient Temperature Protection)

Description: It is a protection function. When the compressor is off, the outdoor ambient temperature (T4) is lower than -63°F(-35°C). (-31°F) for 10 seconds, the air conditioner stops operation and displays the failure code. When the compressor is on, the outdoor ambient temperature (T4) is lower than -72°F (-40°C) for 10 seconds, the air conditioner stops and displays the failure code.

When the outdoor ambient temperature (T4) is no lower than -57.6°F (-32°C) for 10 seconds, the unit exits the protection mode.

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PC 43 (Outdoor compressor missing phase protection Diagnosis and Solution)

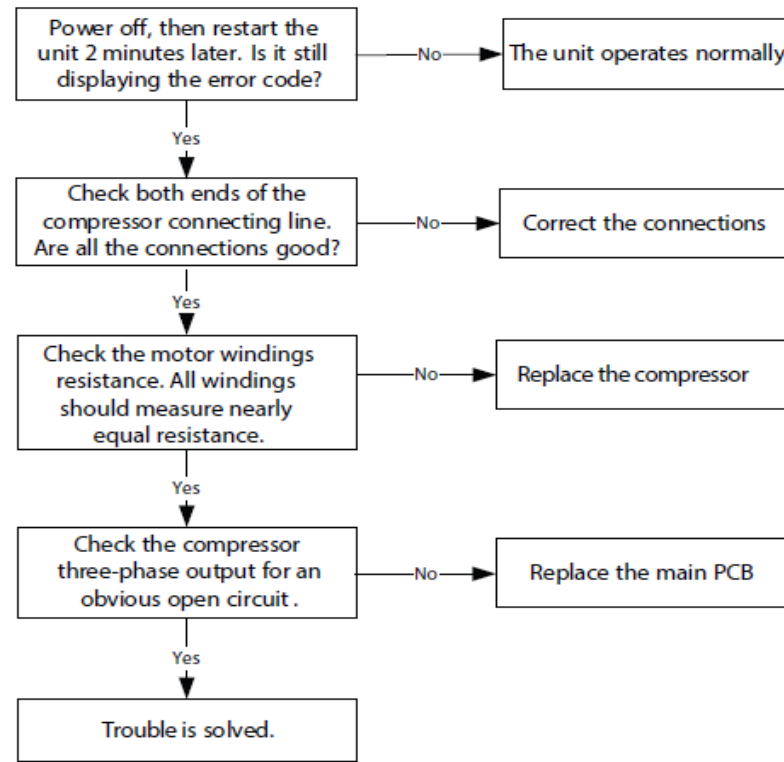
Description: When the three-phase sampling current of the compressor is abnormal, especially when the current of one or more phases is always small and almost 0, the LED displays the failure code.

pc42 Compressor start failure of the outdoor unit

Recommended parts to repair:

- Connection wire
- Compressor
- Outdoor PCB

Troubleshooting



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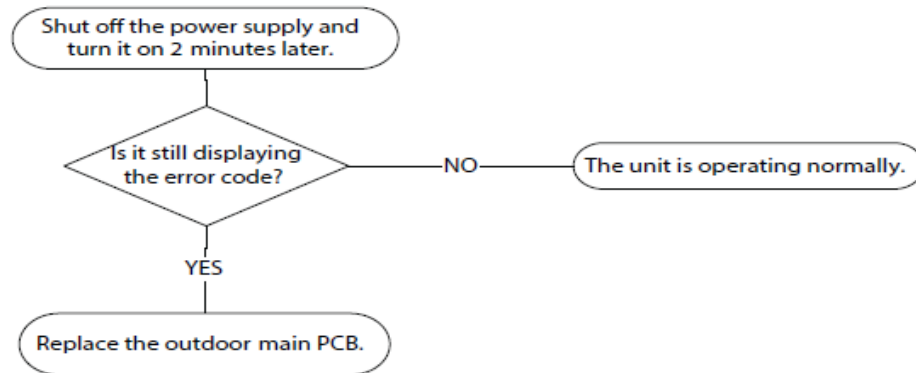
PC 41 (Outdoor compressor current sampling circuit failure Diagnosis and Solution)

Description: Three-phase sampling offset voltage error, the static bias voltage is normally 2.5V.

Recommended parts to repair:

- Outdoor main PCB

Troubleshooting



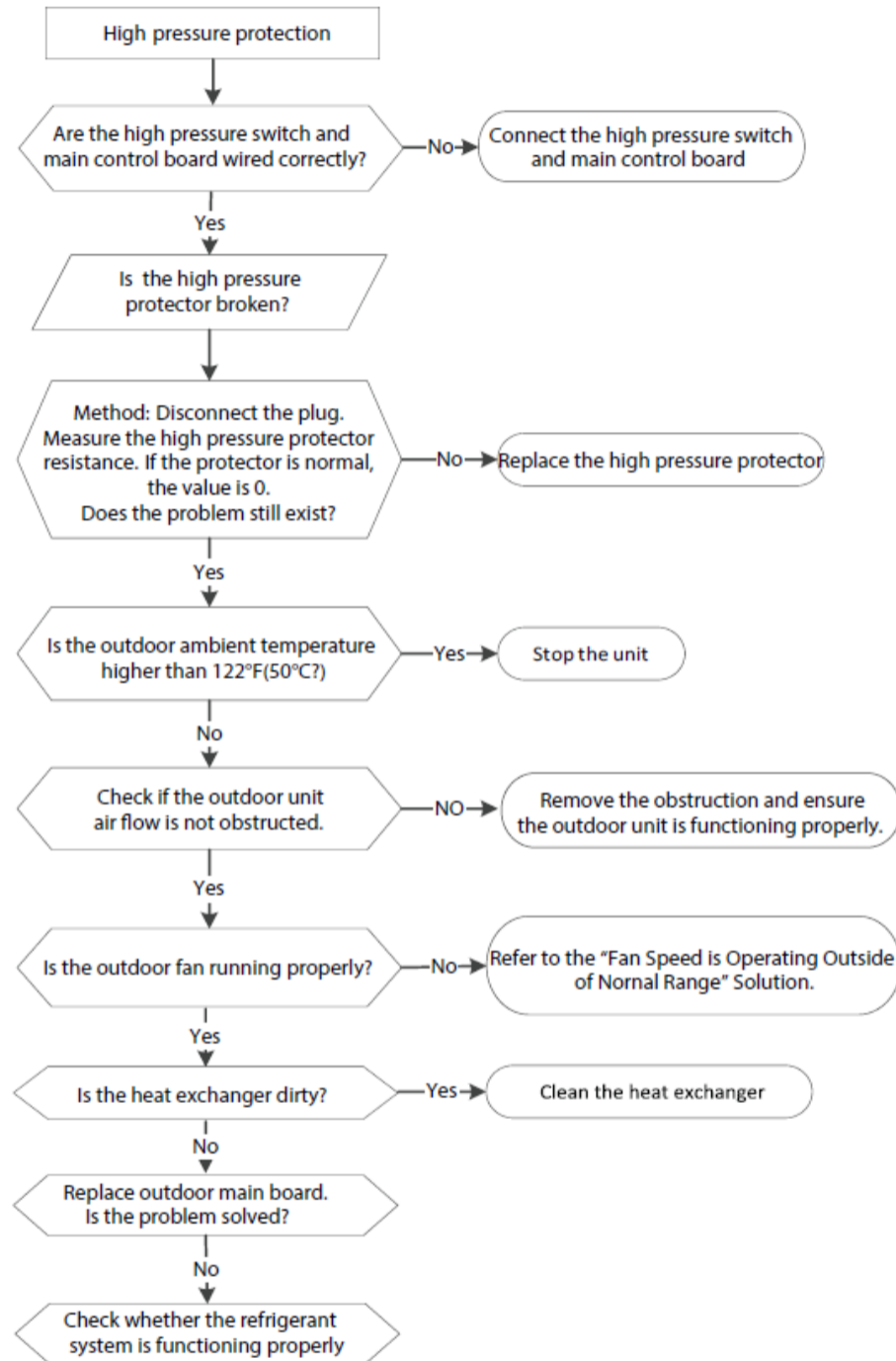
PC 30 (High pressure protection Diagnosis and Solution)

Description: Outdoor pressure switch cut off the system because high pressure is higher than 4.4 MPa.

Recommended parts to repair:

- Connection wires
- Pressure switch
- Outdoor fan
- Outdoor main PCB

Troubleshooting



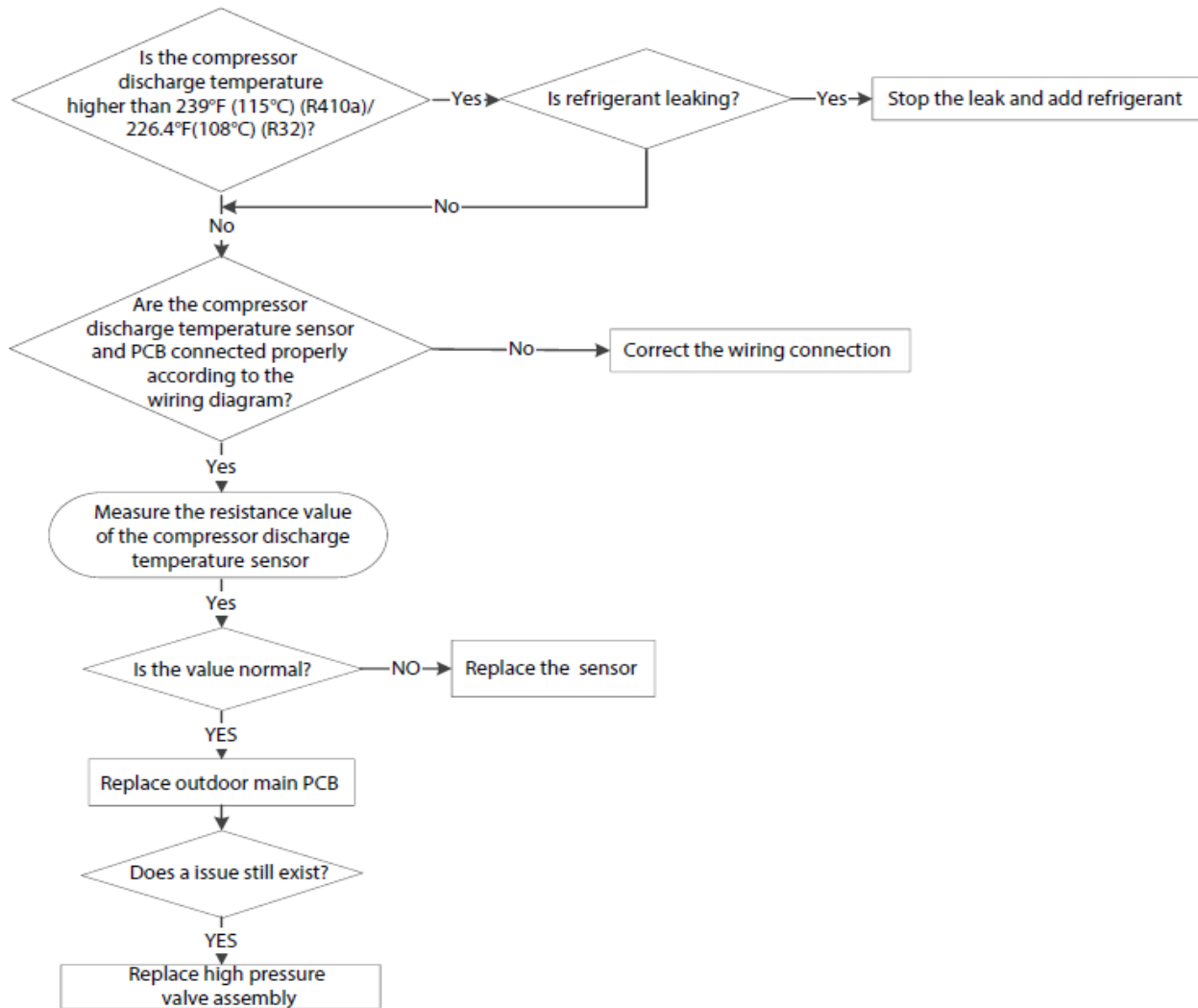
PC 06 (Discharge temperature protection of compressor Diagnosis and Solution)

Description: If the compressor discharge temperature exceeds a certain level for nine seconds, the compressor ceases operation, and the LED displays a failure code.

Recommended parts to repair:

- Connection wires
- Discharge temperature sensor
- Additional refrigerant
- Outdoor main PCB

Troubleshooting



A230104

NOTE: For certain models, the outdoor unit uses combination sensor, T3,T4 and TP are the same of sensor. The images within this document and the values are for reference only. The actual appearance and values may vary.

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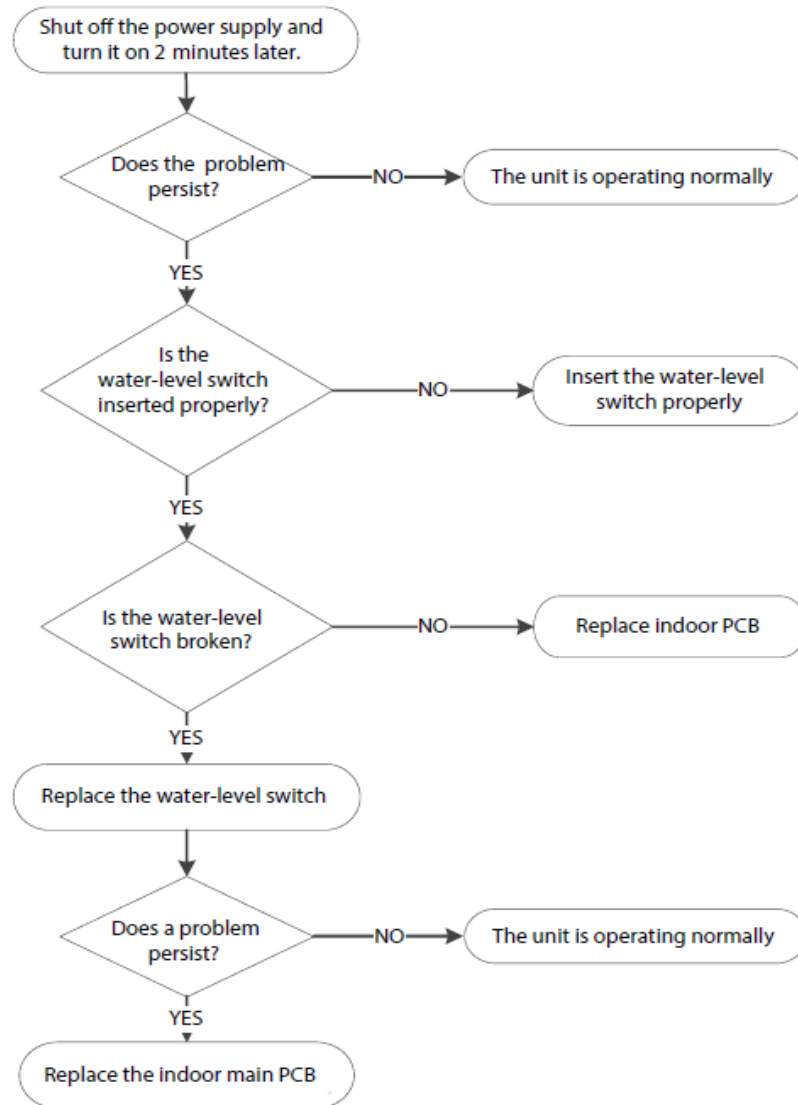
EH 0E (Water-Level Malfunction Diagnosis and Solution)

Description: If the sampling voltage is not 5V, the LED displays the failure code.

Recommended parts to repair:

- Connection wires
- Water-level switch
- Water pump
- Indoor PCB

Troubleshooting



EXV Check

⚠ WARNING

ELECTRICAL SHOCK HAZARD
Electricity remains in the capacitors even when the power is off.
Ensure the capacitors are fully discharged before troubleshooting.

1. Disconnect the connector from the outdoor PCB.
2. Measure the resistance value of each winding using a multi-meter.
3. Check the resistance value of each winding in Table 15.

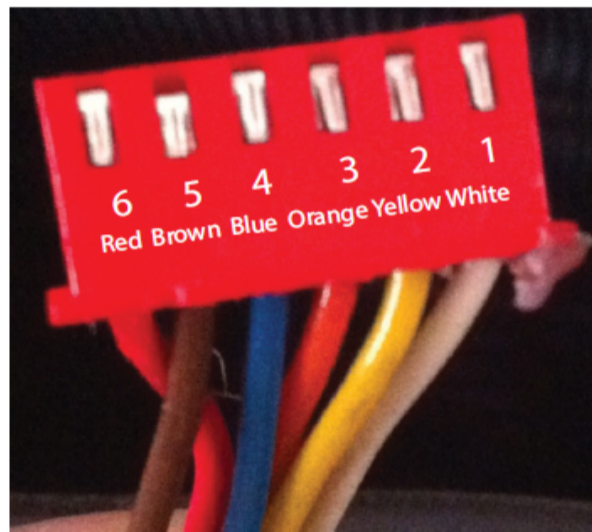


Fig. 41 — EXV Check

Table 15 — Winding Colors

LEAD WINDING COLOR	NORMAL VALUE
Red-Blue	About 50W
Red-Yellow	
Brown-Orange	
Brown-White	

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4 - Way Valve Check

1. Power on, use a digital tester to measure the voltage; when the unit operates in the **COOLING** mode, the voltage is 0V. If the voltage value is not in range, the PCB is faulty and needs to be replaced.

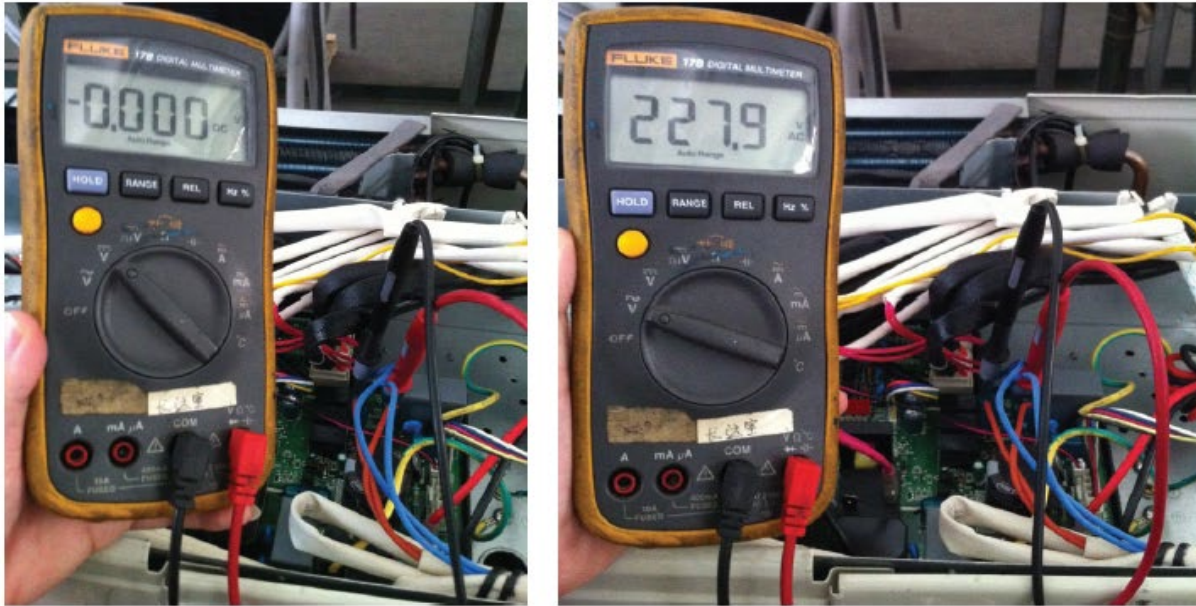


Fig. 39 — Measure the voltage

2. Turn off the power, use a digital tester to measure the resistance. The value should be 1.8~2.5 KW.

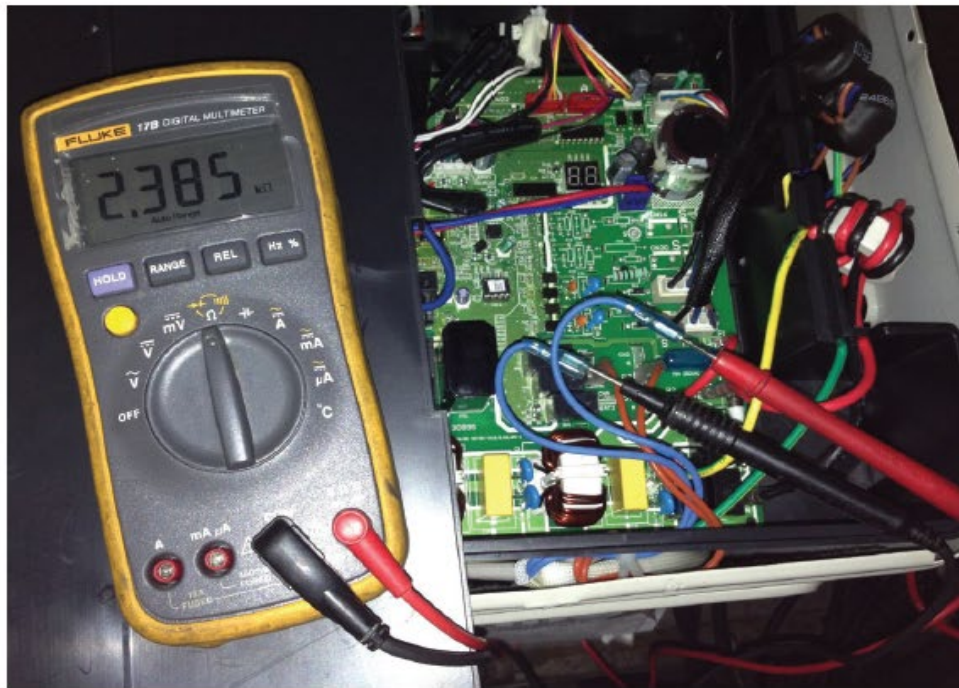



Fig. 40 — Use a digital tester to measure resistance

IPM Continuity Check

 WARNING
ELECTRICAL SHOCK HAZARD Electricity remains in the capacitors even when the power is off. Ensure the capacitors are fully discharged before troubleshooting.

1. Turn off the outdoor unit and disconnect the power supply.
2. Discharge the electrolytic capacitors and ensure all energy has been discharged.
3. Disassemble the outdoor PCB or disassemble the IPM board.
4. Measure the resistance valve between P and U(V,W,N); U(V,W) and N.

Digital Tester		Resistance Valve	Digital Tester		Resistance Valve
(+) Red	(-) Black		(+) Red	(-) Black	
P	N	∞ (Several MW)	U	N	∞ (Several MW)
	U		V		
	V		W		
	W		-		

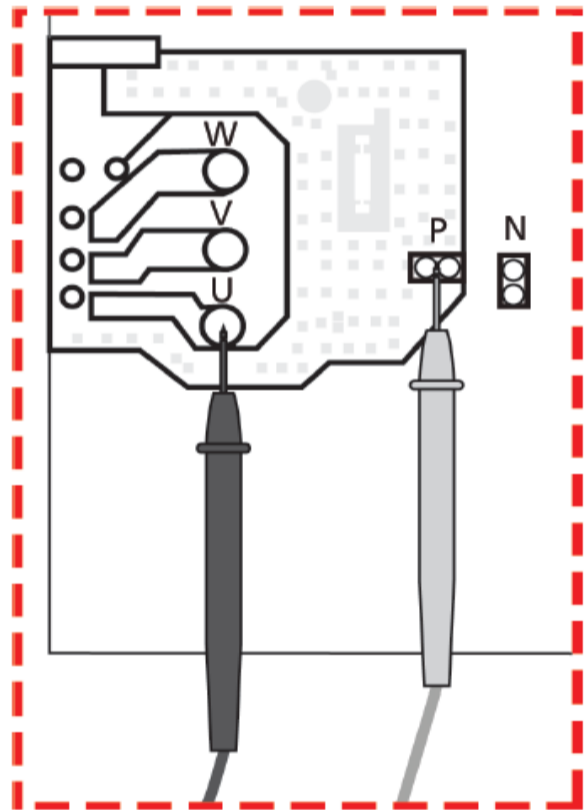


Fig. 38 — Testing

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DIAGNOSIS AND SOLUTION (CONT)

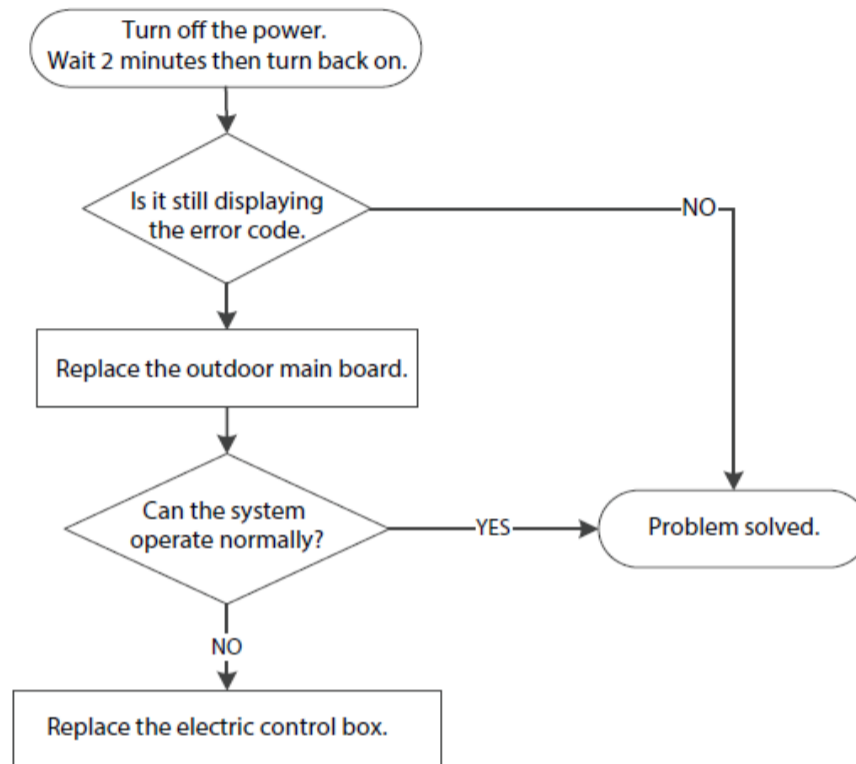
Communication Error Between Outdoor Main Chip and Compressor Driven Chip (PC40)

Description: The main chip cannot detect the compressor driven chip.

Recommended parts to repair:

- Outdoor PCB
- Electric control box

Troubleshooting



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Compressor Check

1. Disconnect the compressor power cord from the outdoor PCB.
2. Measure the resistance value of each winding using a multi-meter.
3. Check the resistance value of each winding in Table 14.

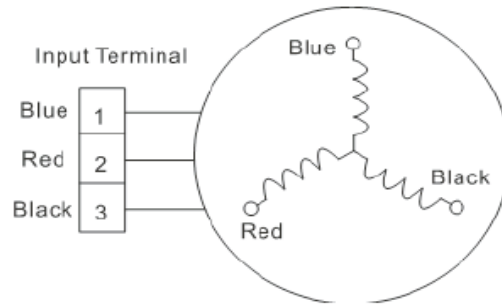


Table 14 — Resistance Value

Resistance Value	KSK103D33UEZ3(YJ)	KTM240D43UKT	KTN110D42UFZ	KTF250D22UMT
Blue-Red	2.13W	1.03W	1.82W	0.75W
Blue-Black				
Red-Black				

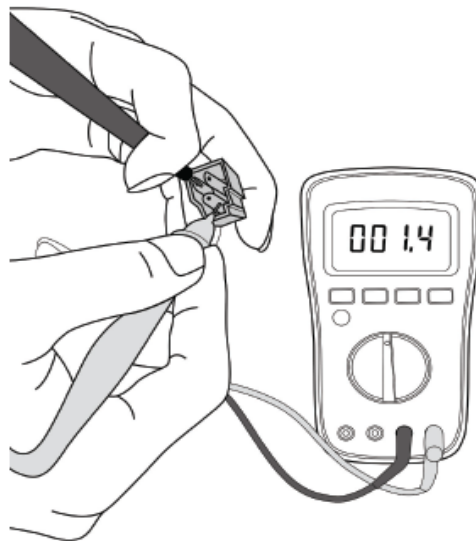


Fig. 37 — Testing

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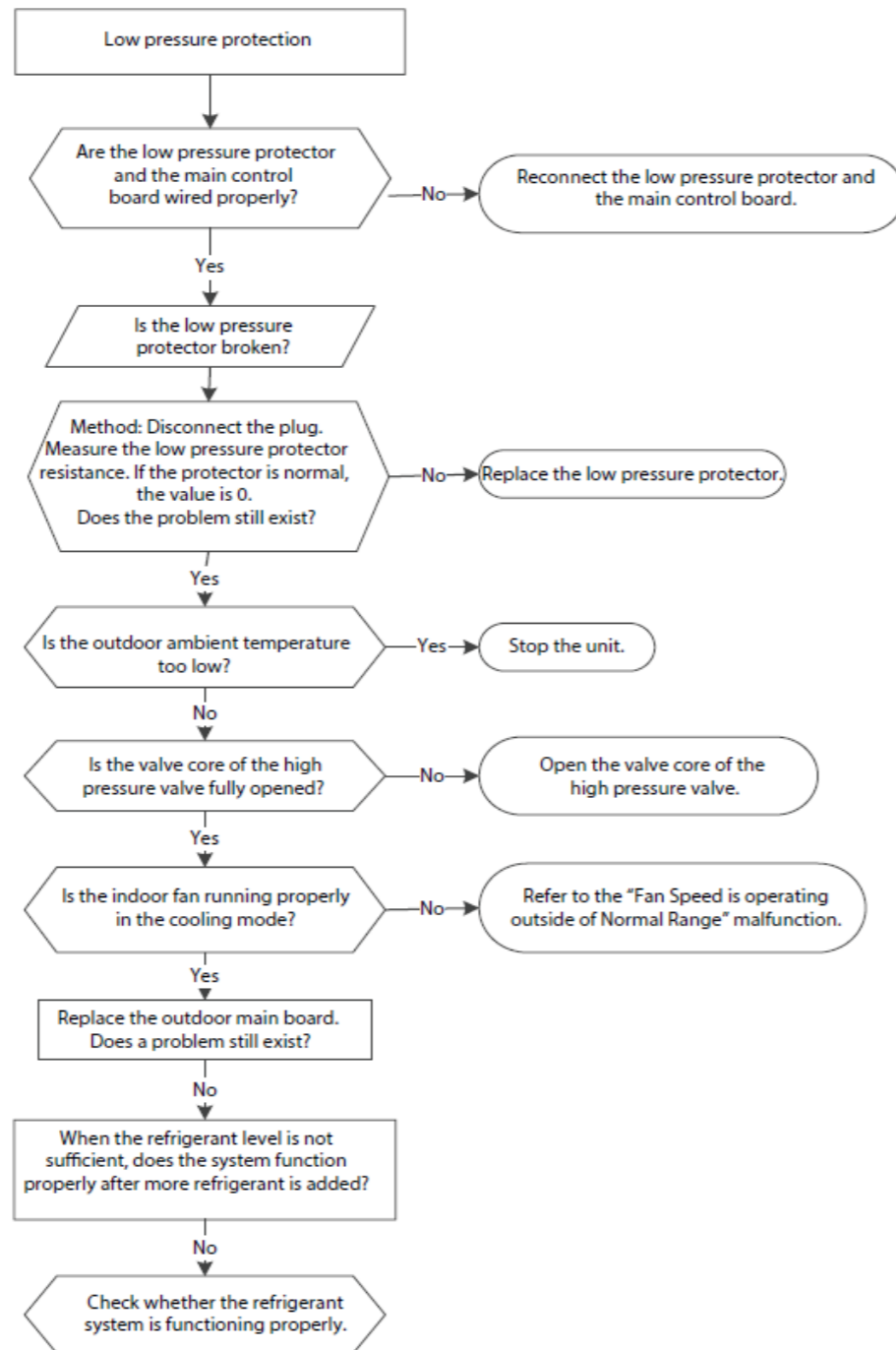
Low Pressure Protection (PC03)

Description: The outdoor pressure switch shuts the unit down because the low pressure is lower than 0.13 MPa and the LED displays the failure code.

Recommended parts to repair:

- Connection wires
- Outdoor PCB
- Low pressure protector
- Refrigerant

Troubleshooting



PC 03 / PC 31 (Low Pressure Protection Diagnosis and Solution)

Description: If the sampling voltage is not 5V, the LED displays a failure code.

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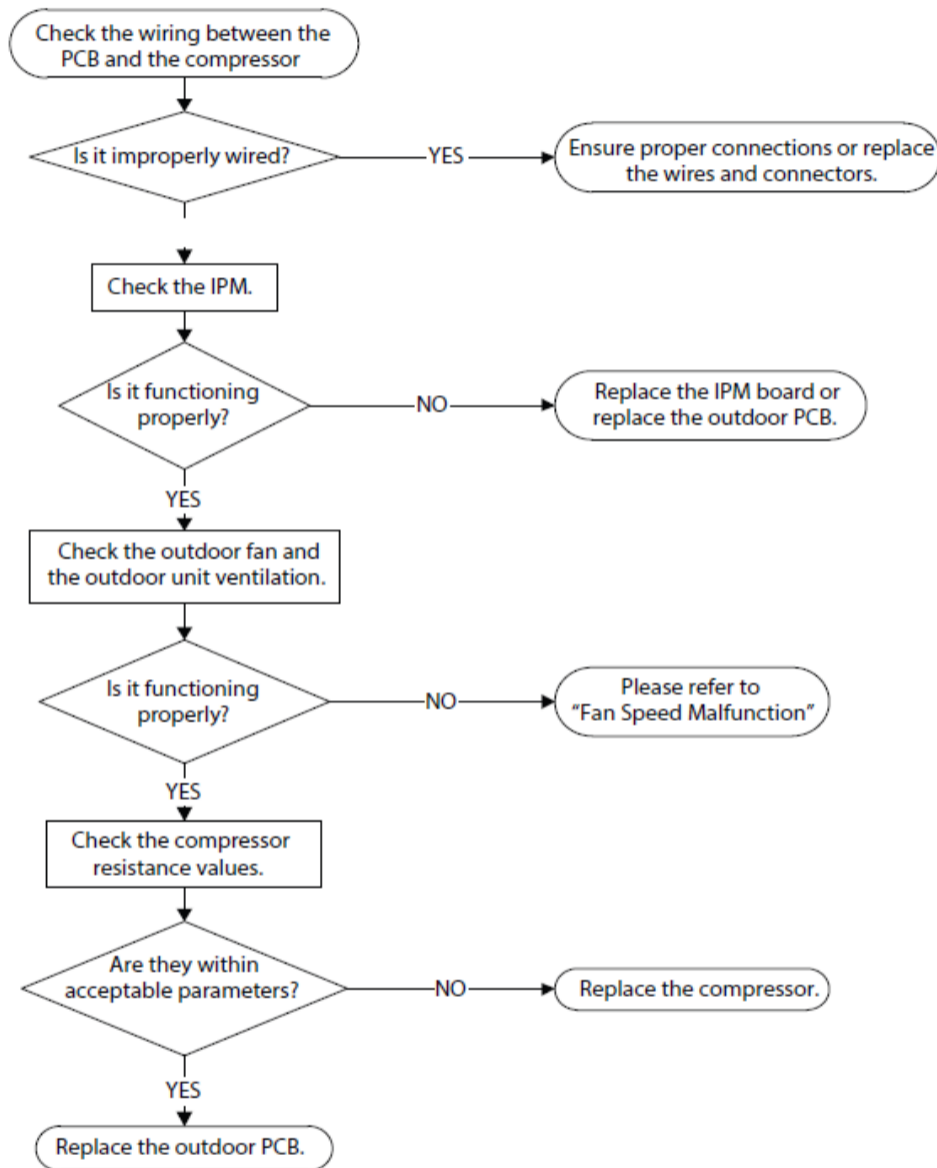
Inverter compressor Drive Error (PC04)

Description: An abnormal inverter compressor drive is detected by a special detection circuit, including communication signal detection, voltage detection, compressor rotation and speed signal detection.

Recommended parts to repair:

- Connection wires
- IPM module board
- Outdoor fan assembly
- Compressor
- Outdoor PCB

Troubleshooting



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PC 02 / LC 06 (Top temperature protection of compressor or High temperature protection of IPM module Diagnosis and Solution)

Description: For some models with overload protection, if the sampling voltage is not 5V, the LED displays the failure. If the temperature of IPM module is higher than a certain value, the LED displays the failure code.

Recommended parts to repair:

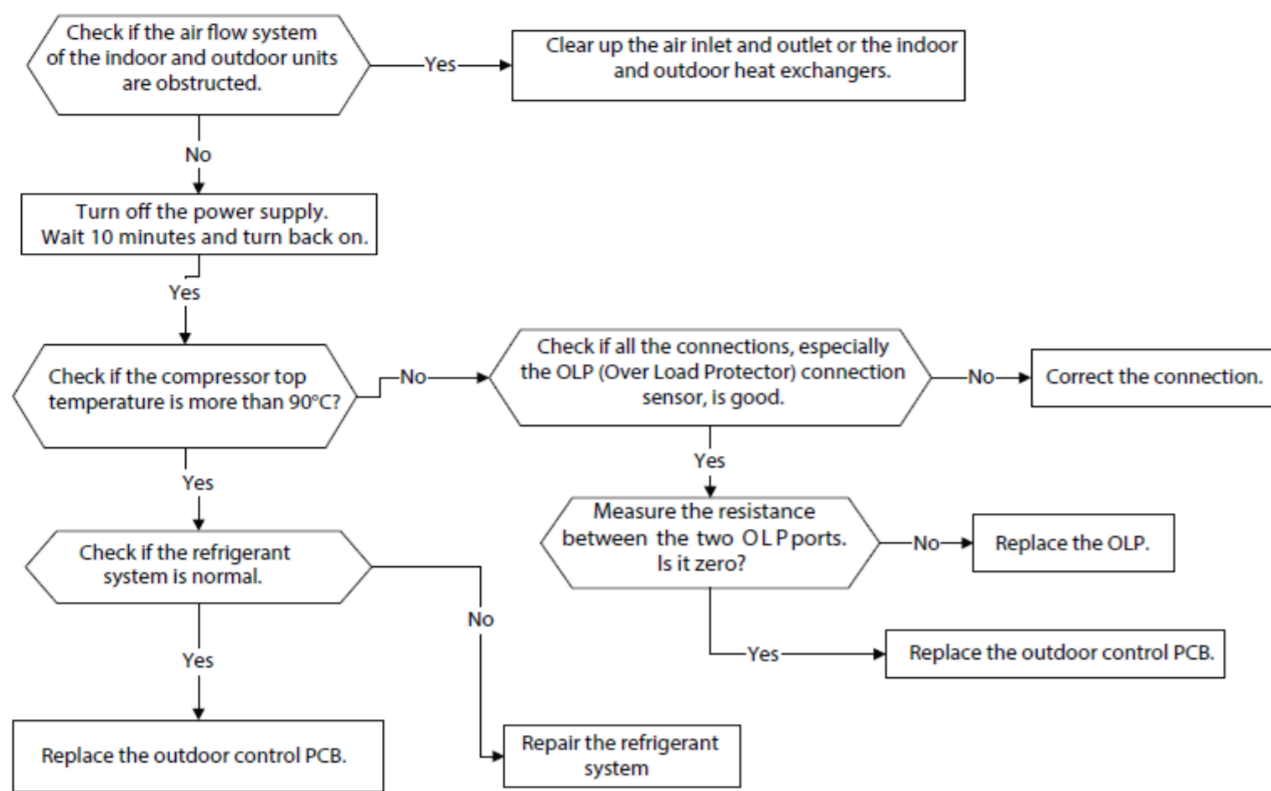
Top temperature protection for compressor or High temperature or High pressure protection of IPM module (PC02)

Description: For some models with overload protection, if the sampling voltage is not 5V, the LED displays the failure. If the IPM module temperature is higher than a certain value, the LED displays the failure code. For some models with a high pressure switch, the outdoor pressure switch cuts off the system when the pressure is higher than 4.4 MPa and the LED displays the failure code.

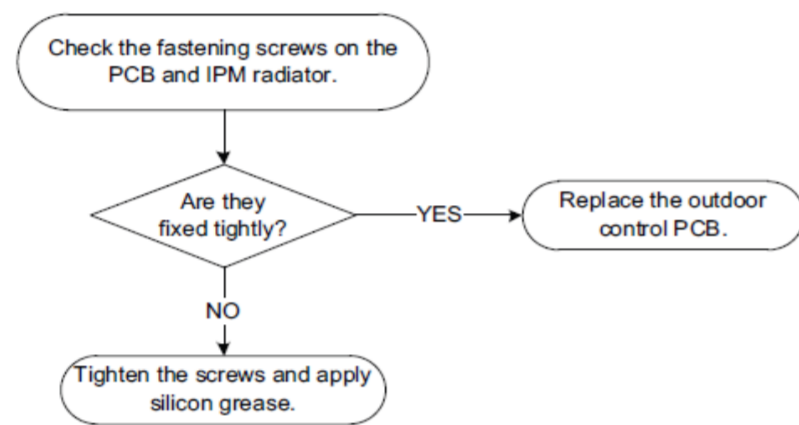
Recommended parts to repair:

- Connection wires
- Outdoor PCB
- IPM module board
- High pressure protector
- System blockages

Troubleshooting

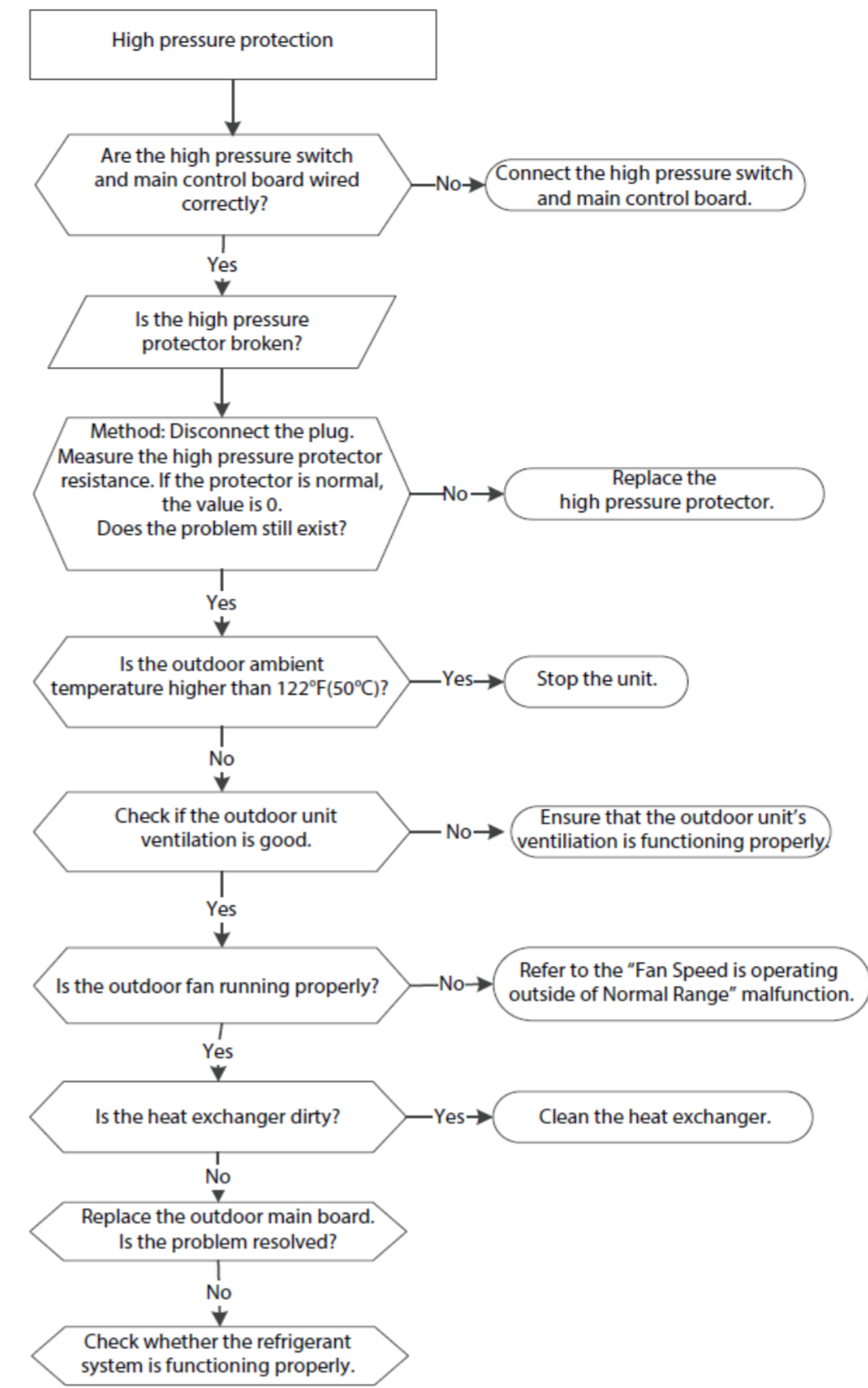


NOTE: For certain models, the outdoor PCB can not be removed separately. In this case, the outdoor electric control box should be replaced as a whole.



DIAGNOSIS AND SOLUTION (CONT)

Top temperature protection for compressor or High temperature or High pressure protection of IPM module (PC02) (cont.)



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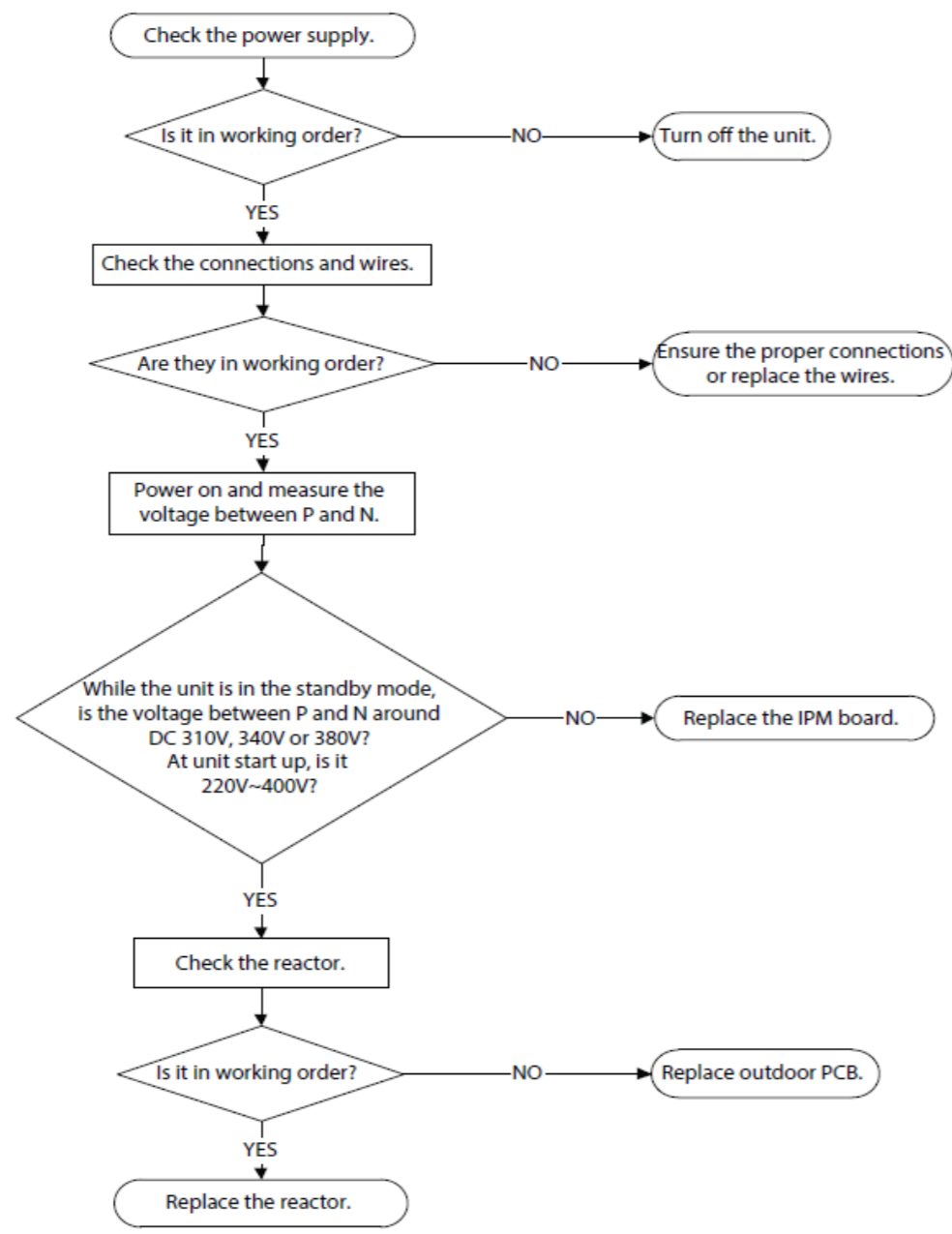
Over voltage or low voltage protection (PC01)

Description: Abnormal increases or decreases in voltage are detected by checking the specified voltage detection circuit.

Recommended parts to repair:

- Power supply wires
- IPM module board
- PCB
- Reactor

Troubleshooting



PC 01 (Over voltage or too low voltage protection) / PC 10 (Outdoor unit low AC voltage protection) / PC 11 (Outdoor unit main control board DC bus high voltage protection) / PC 12 (Outdoor unit main control board DC bus high voltage protection/341 MCE error) Diagnosis and Solution

Description: Abnormal increases or decreases in voltage are detected by checking the specified voltage detection circuit.

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DIAGNOSIS AND SOLUTION (CONT)

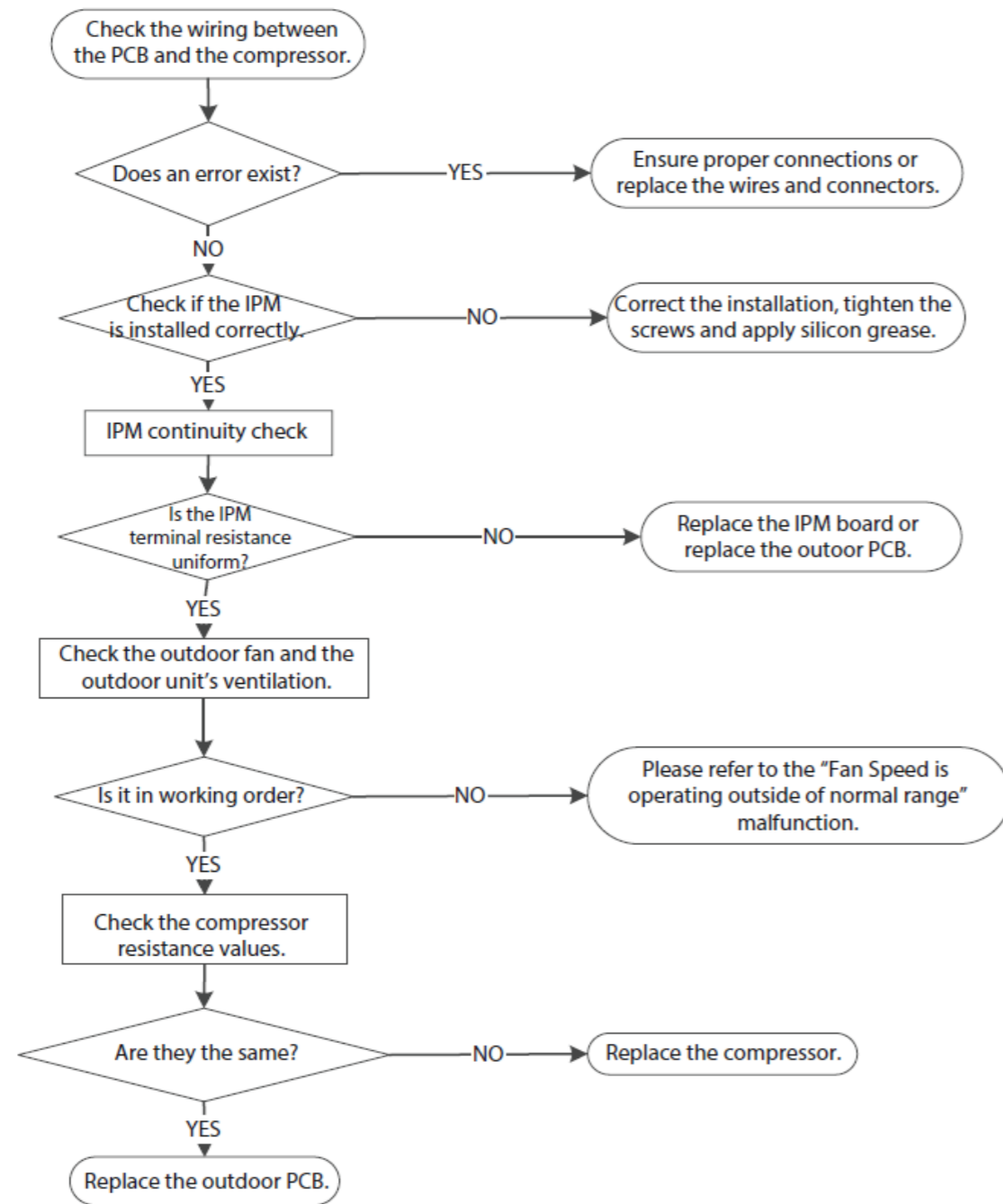
IPM Malfunction or IGBT over-strong current protection (PC00)

Description: If the IPM sends an abnormal voltage signal to the compressor drive chip, the LED displays the failure code and the unit turns off.

Recommended parts to repair:

- Communication wires
- IPM module board
- Outdoor fan assembly
- Compressor
- Outdoor PCB

Troubleshooting



Compressor Check

Disconnect the compressor and check the resistance between U-V, V-W and U-W, and all 3 values should be equal. If not, the compressor is faulty and needs to be replaced.

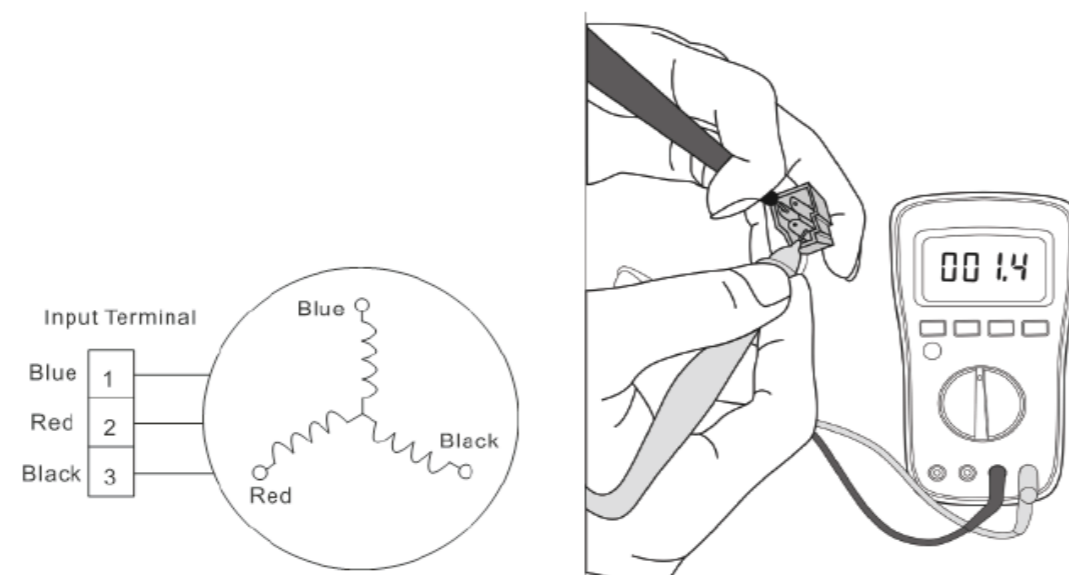


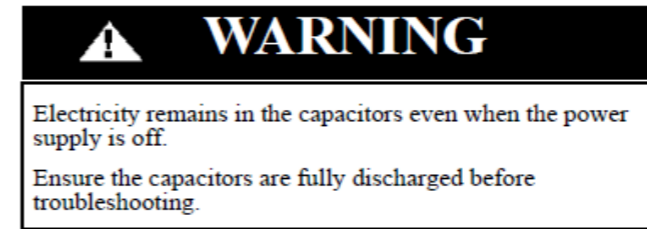
Fig. 35 — Compressor Checks

NOTE: Figure 35 is for reference only.

DIAGNOSIS AND SOLUTION (CONT)

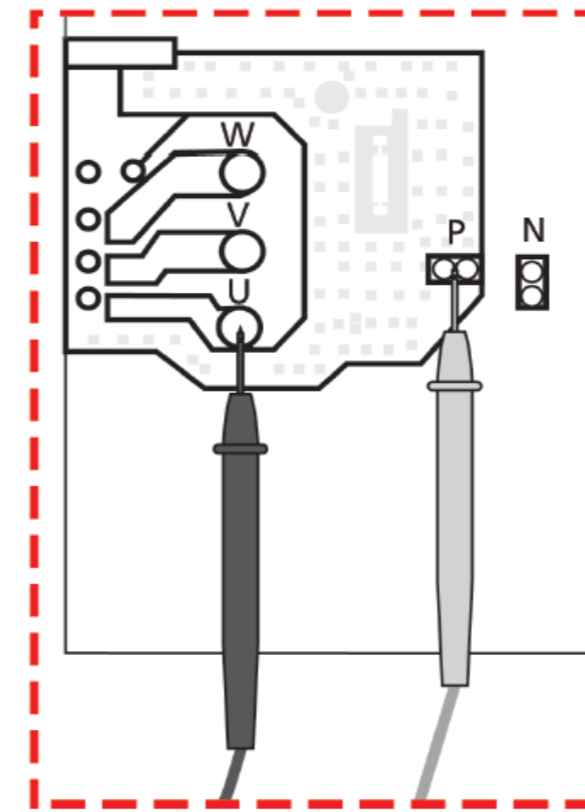
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IPM Continuity Check



1. Turn off the outdoor unit and disconnect the power supply.
2. Discharge the electrolytic capacitors and ensure all the energy storage has been discharge.
3. Disassemble the outdoor PCB or disassemble the IPM board.
4. Measure the resistance value between P and U(V,W,N), U (V,W) and N.

DIGITAL TESTER		RESISTANCE VALUE	DIGITAL TESTER		RESISTANCE VALUE
(+) Red	(-) Black		(+) Red	(-) Black	
P	U	∞ (Several MW)	U	N	∞ (Several MW)
	V		V		
	W		W		
	-		-		



OUTDOOR UNIT DISPLAY (CONT)

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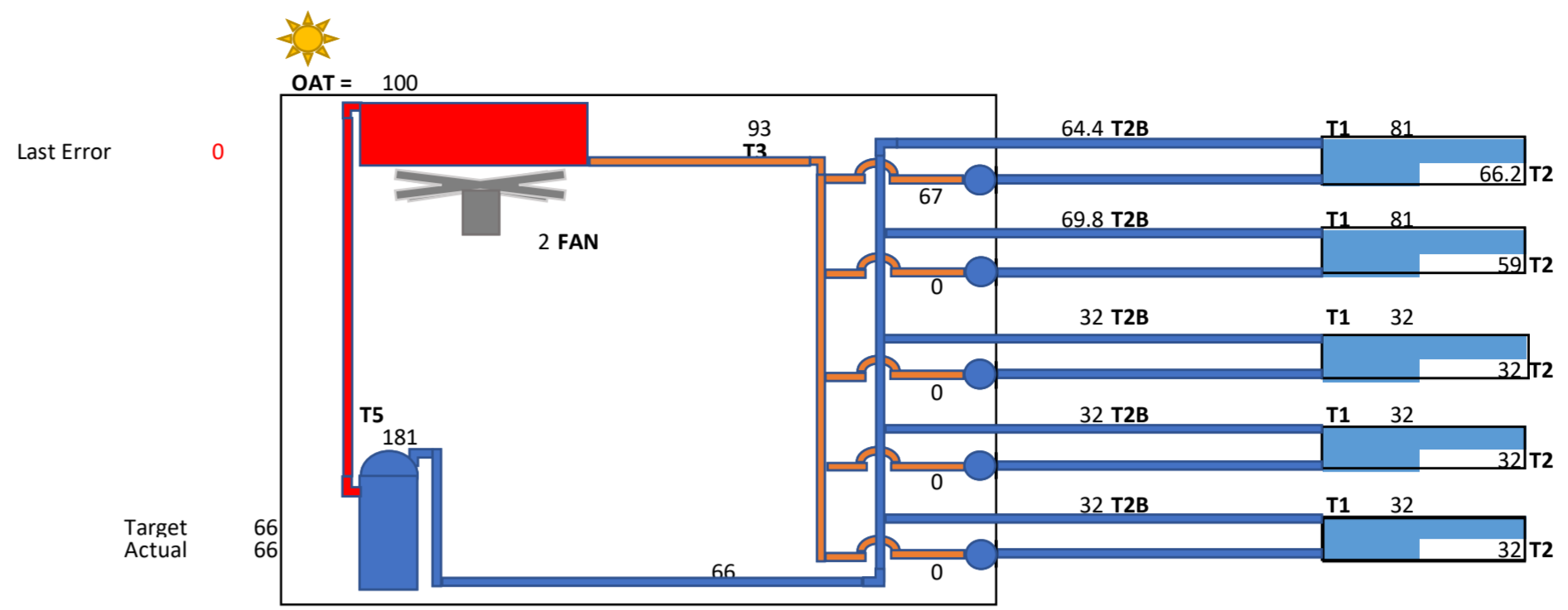
[error code trouble](#)

Table 32 — Outdoor PCB

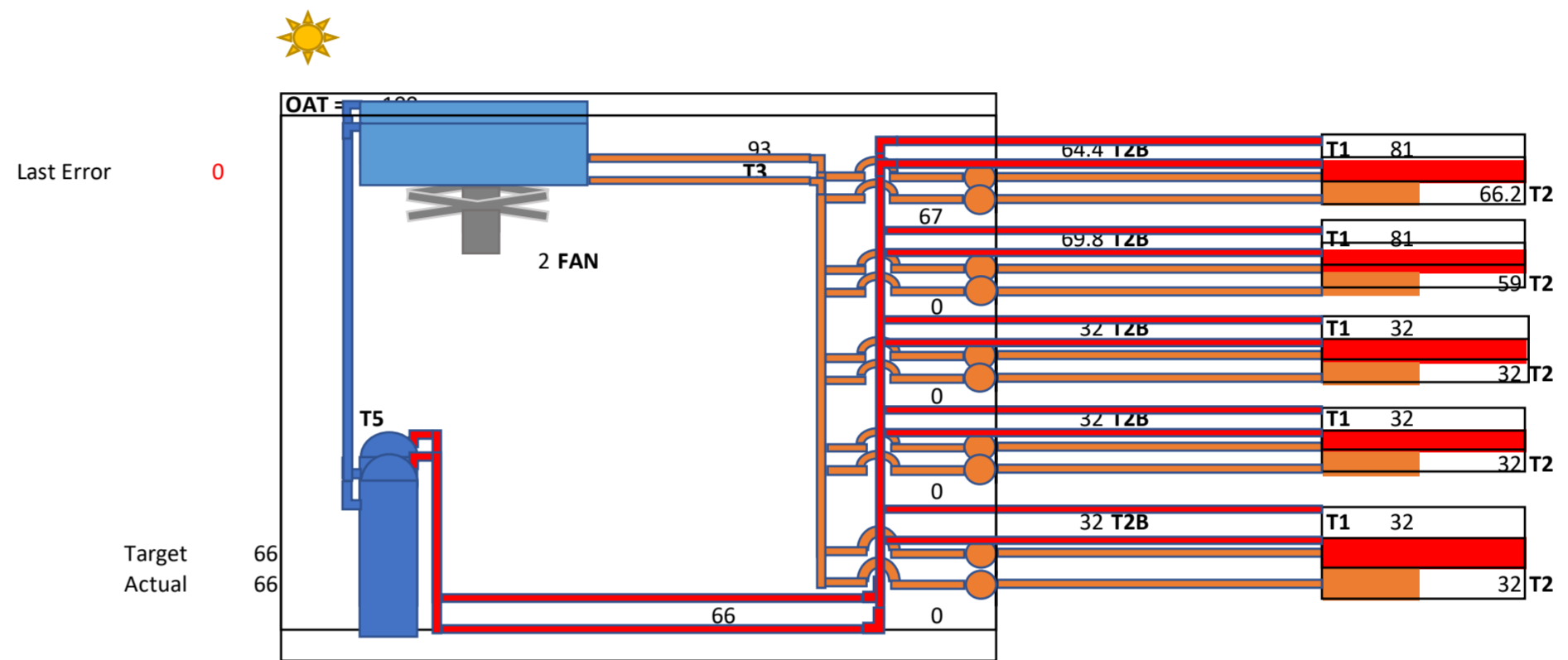
No. of Presses	Display	Remark
0	Normal Display	Displays running frequency, running state, or malfunction code
		Actual Data
	Display	Number of Indoor Units
1	Quantity of indoor units with working connection	8
		1
		2
		3
		4
2	Outdoor unit running mode code	2 Off: 0, Fan only; 1, Cooling; 2, Heating; 3, Forced cooling; 4, Forced defrost; A
3	Indoor unit A capacity	1.5
4	Indoor unit B capacity	2.5
5	Indoor unit C capacity	
6	Indoor unit D capacity	
7	Indoor unit E capacity	
8	Indoor unit A capacity demand code	4.5
9	Indoor unit B capacity demand code	7.5
10	Indoor unit C capacity demand code	0
11	Indoor unit D capacity demand code	0
12	Indoor unit E capacity demand code	0
13	Outdoor unit amendatory capacity demand code	14
14	The frequency corresponding to the total indoor units' amendatory capacity demand	66
15	The frequency after the frequency limit	66
16	The frequency sending to compressor control chip	66
17	Indoor unit A evaporator outlet temperature (T2BA)	18
18	Indoor unit B evaporator outlet temperature (T2BB)	21
19	Indoor unit C evaporator outlet temperature (T2BC)	
20	Indoor unit D evaporator outlet temperature (T2BD)	
21	Indoor unit E evaporator outlet temperature (T2BE)	
22	Indoor unit A room temperature (T1A)	27
23	Indoor unit B room temperature (T1B)	27
24	Indoor unit C room temperature (T1C)	
25	Indoor unit D room temperature (T1D)	
26	Indoor unit E room temperature (T1E)	
27	Indoor unit A evaporator temperature (T2A)	19
28	Indoor unit B evaporator temperature (T2B)	15
29	Indoor unit C evaporator temperature (T2C)	
30	Indoor unit D evaporator temperature (T2D)	
31	Indoor unit E evaporator temperature (T2E)	
32	Condenser pipe temperature (T3)	34
33	Outdoor ambient temperature (T4)	38
34	Compressor discharge temperature (TP)	83
35	AD value of current	57
36	AD value of voltage	66
37	EXV open angle for A indoor unit	67
38	EXV open angle for B indoor unit	0
39	EXV open angle for C indoor unit	0
40	EXV open angle for D indoor unit	0
41	EXV open angle for E indoor unit	0
		42 Data Field
	0	Bit7 Frequency limit caused by IGBT radiator
	0	Bit6 Frequency limit caused by PFC
	1	Bit5 Frequency limit caused by T4
	0	Bit4 Frequency limit caused by T2
	1	Bit3 Frequency limit caused by T3
	0	Bit2 Frequency limit caused by T5
	1	Bit1 Frequency limit caused by current
	0	Bit0 Frequency limit caused by voltage
43	Average value of T2	19
44	Outdoor unit fan motor state	2 Off: 0, High speed; 1, Med speed; 2, Low speed; 3, Breeze; 4, Super breeze; 5
45	The last error or protection code	0 00 means No Malfunction and Protection
46	F indoor unit capacity	
47	F indoor unit capacity demand code	
48	F indoor unit evaporator outlet temperature (T2BF)	
49	F indoor unit room temperature (T1F)	
50	F indoor unit evaporator temperature (T2F)	
51	EXV open angle for F indoor unit	

38MGR-04SM Specifications subject to change without notice. 33

COOLING = 2
FORCED COOLING = 4
DEFROST = A



HEATING = 3



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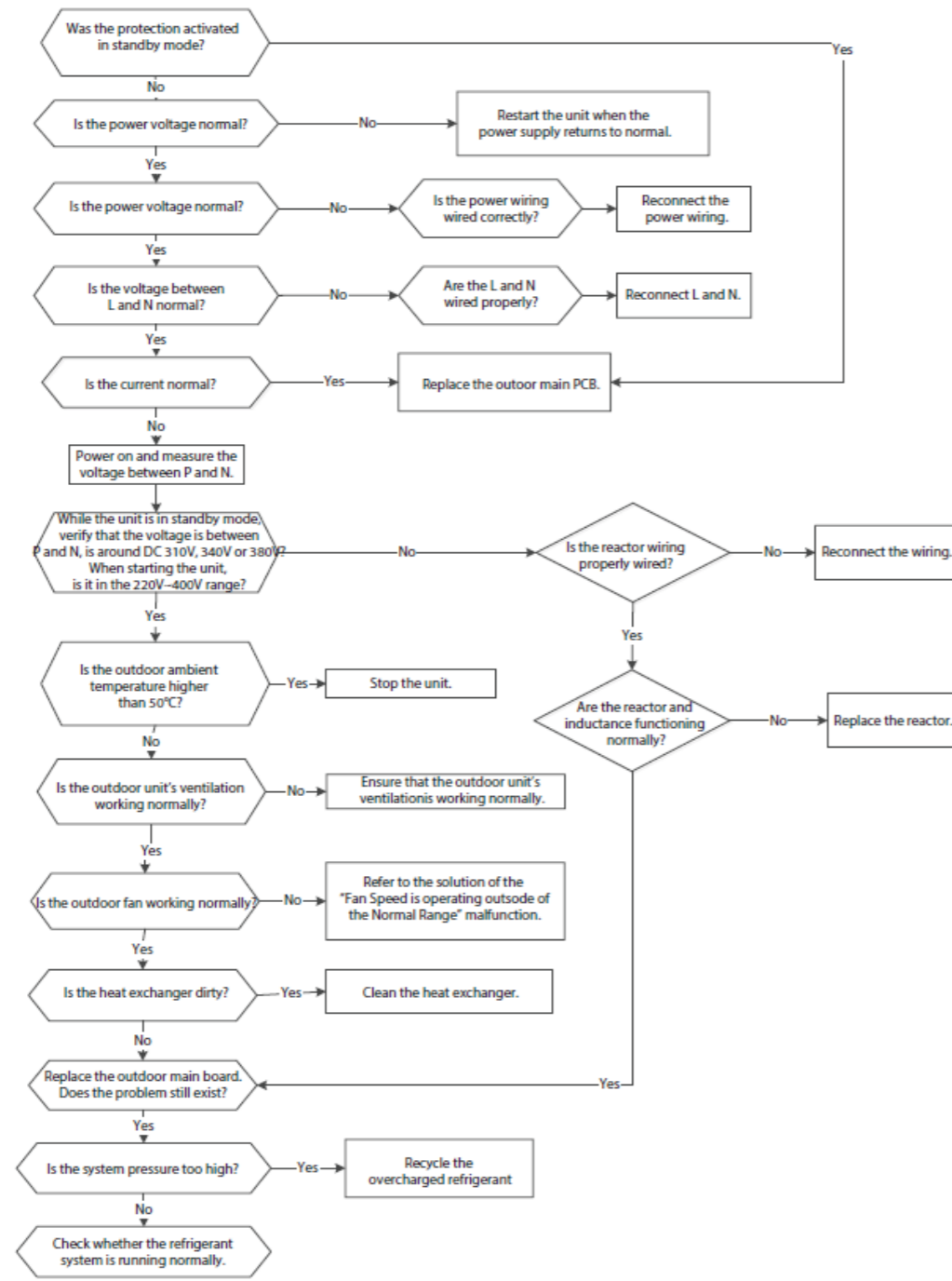
Current Overload Protection (PC08)

Description: An abnormal current rise is detected by checking the specified detection circuit.

Recommended parts to repair:

- Communication wires
- Reactor
- Outdoor fan
- Outdoor PCB

Troubleshooting



NOTE: For certain models, the outdoor PCB can not be removed separately. In the case, the outdoor electric control box should be replaced as a whole.

PC 08 (Current overload protection) / PC 44 (Outdoor unit zero speed protection) / PC 46 (Compressor speed has been out of control) / PC 49 (Compressor overcurrent failure) Diagnosis and Solution

Description: An abnormal current rise is detected by checking the specified current detection circuit.

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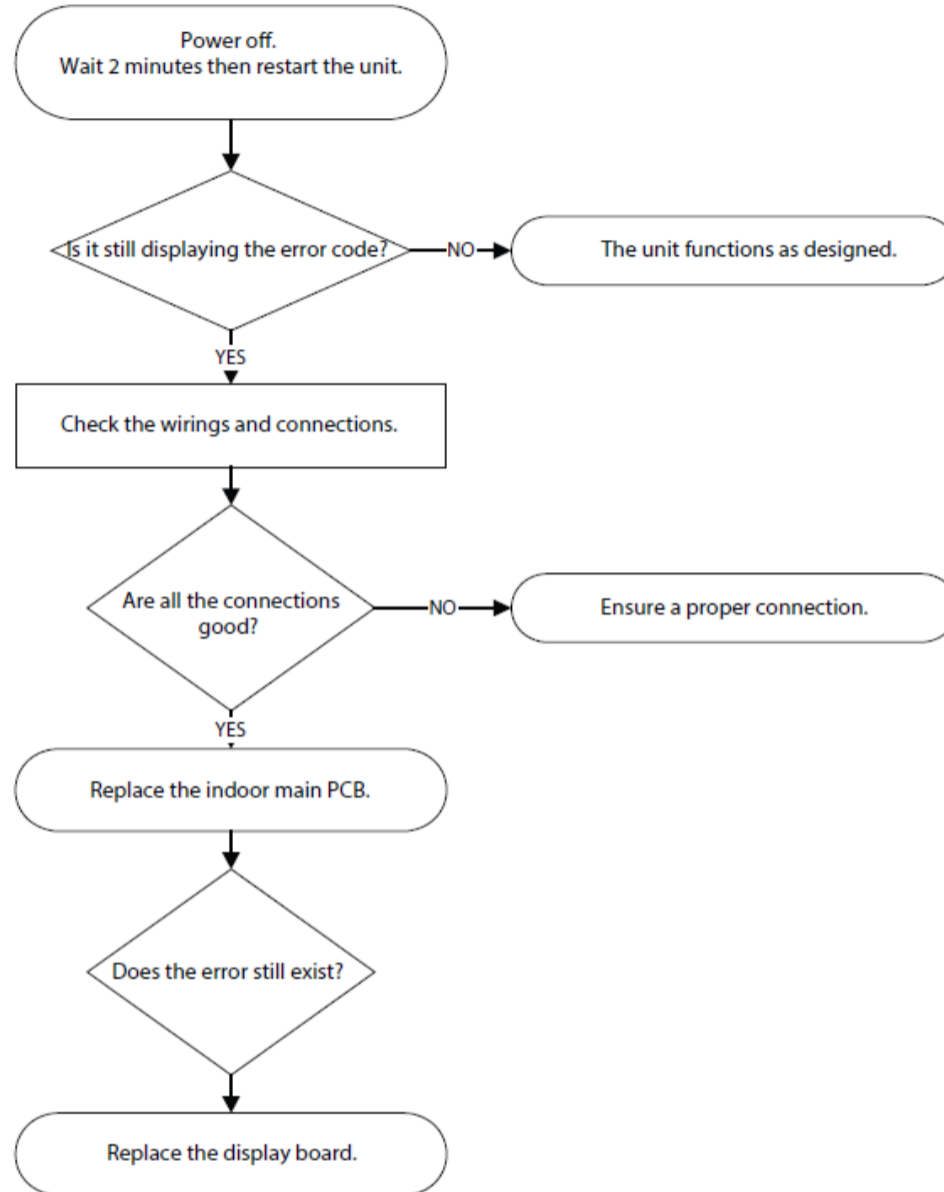
Indoor PCB/Display Board Communication Error (EH06)

Description: The indoor PCB does not receive feedback from the display board.

Recommended parts to repair:

- Communication wire
- Indoor PCB
- Display board

Troubleshooting



Refrigerant Leakage Detection (EL0C)

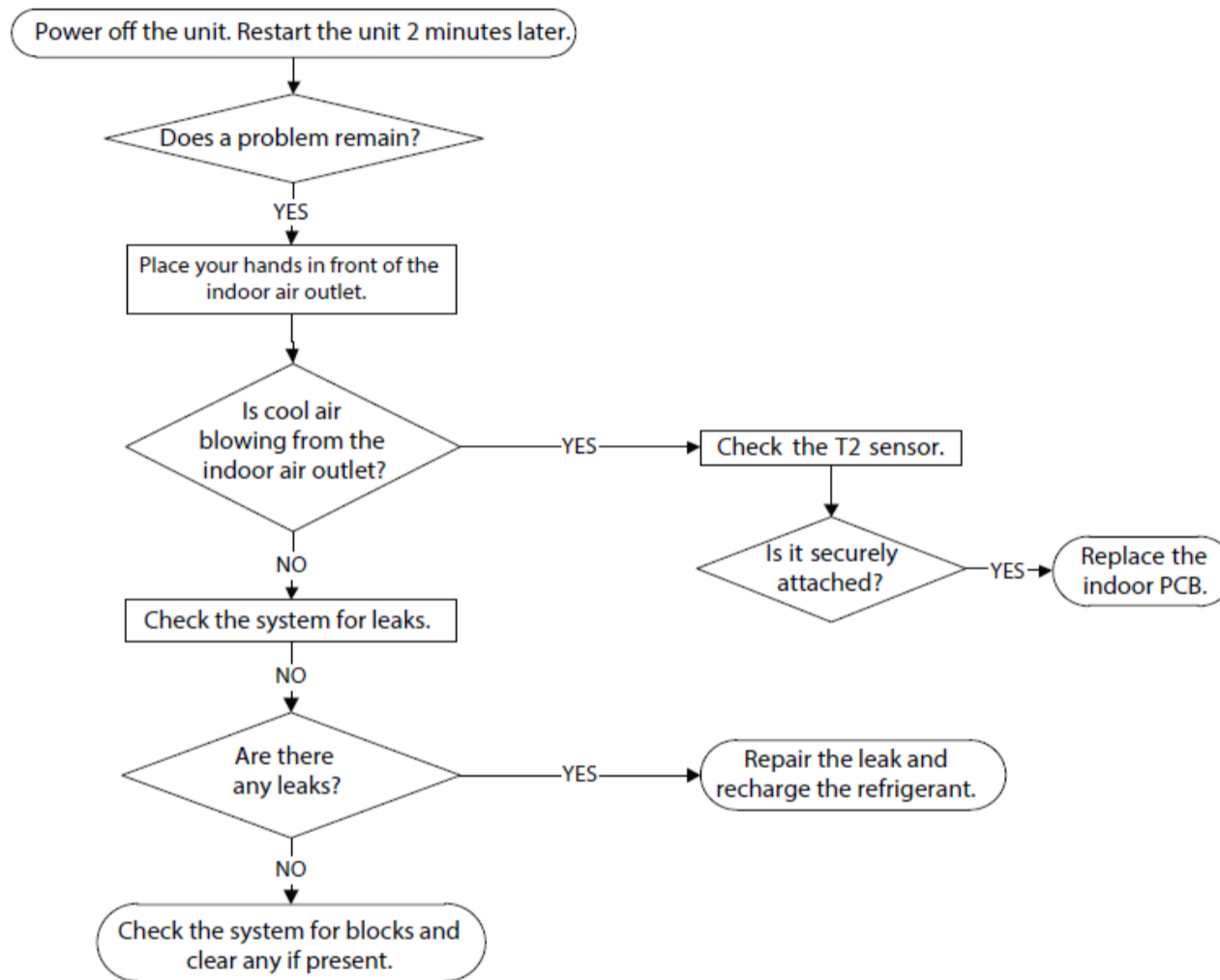
Description: Define the compressor's evaporator coil temperature (T2) starts running as Tcool.

In the initial 5 minutes after the compressor starts, if $T2 < T_{cool} - 1.8^{\circ}\text{F}$ (1°C) is not maintained for 4 seconds and the compressor runs at a frequency higher than 50Hz however it does not maintain for a minimum of three minutes and this issue occurs 3 times, the LED displays the failure code and the unit turns off.

Recommended parts to repair:

- T2 Sensor
- Indoor PCB
- Additional refrigerant

Troubleshooting



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Outdoor Temperature Sensor Is an Open Circuit or Short Circuited (T3, T4, TP, T2B, TH) (EC53)

Description: If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED displays the failure code.

Recommended parts to repair:

- Connection wires
- Sensors
- outdoor main PCB

Troubleshooting

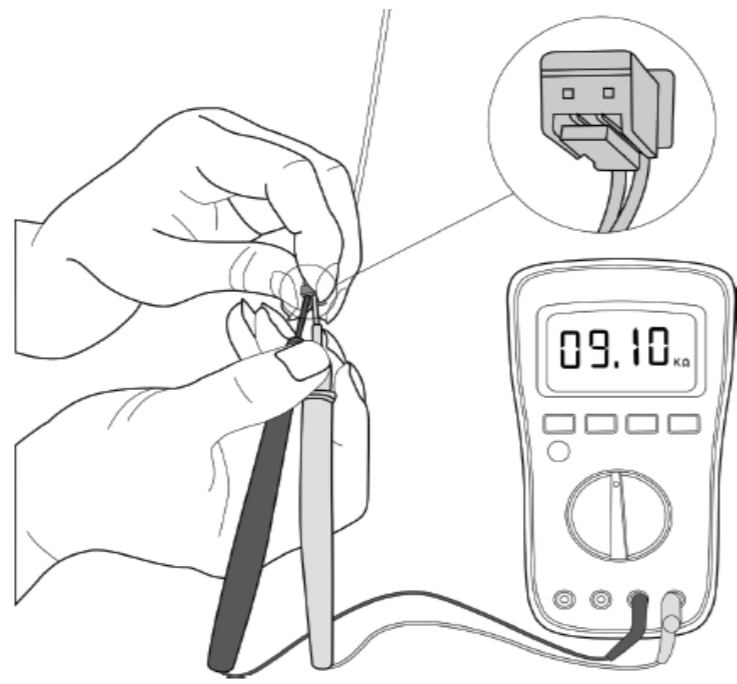
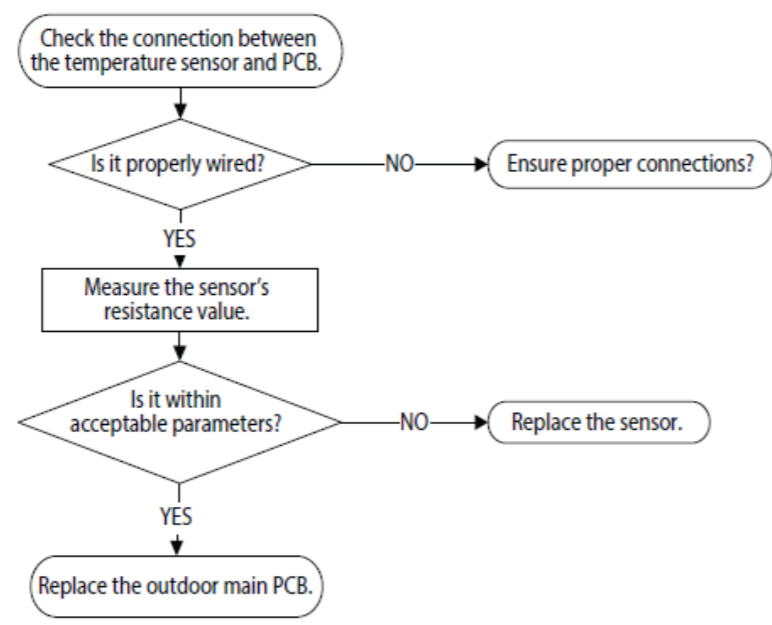


Fig. 34 —Test

NOTE: For certain models, the outdoor PCB can not be removed separately. In this case, the outdoor electric control box should be replaced as a whole. For certain models, the outdoor unit uses a combination sensor. T3, T4 and TP are the same sensor. Figure 34 and the value within are for reference only.

EC 53 / EC 52 / EC 54 / EC 56 / EC 57 / EC 50 / EC 5C (Open Circuit or Short Circuit of Temperature Sensor Diagnosis and Solution)

Description: If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED displays the failure.

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Outdoor IPM module temperature sensor malfunction

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Indoor Temperature Sensor Is an Open Circuit or a Short Circuit (T1, T2) (EH60)

Description: If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED displays the failure code.

Recommended parts to repair:

- Connection wires
- Sensors
- Indoor main PCB

Troubleshooting

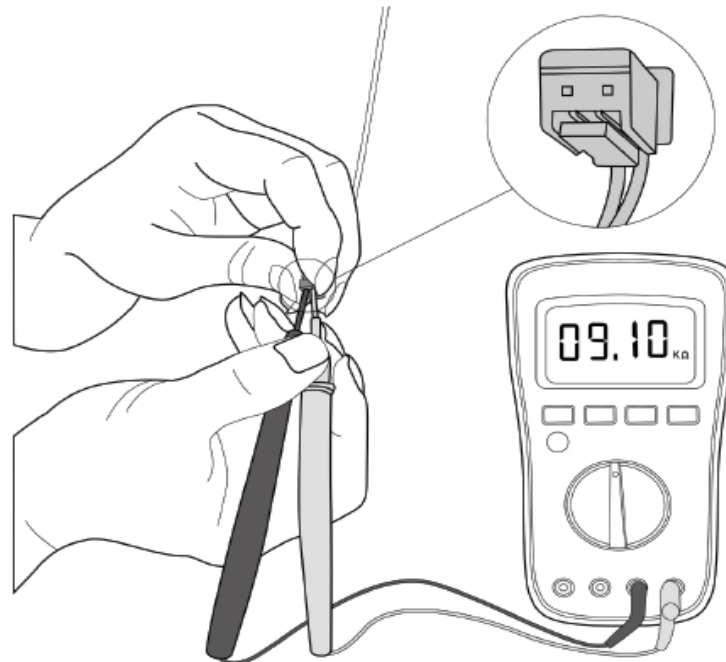
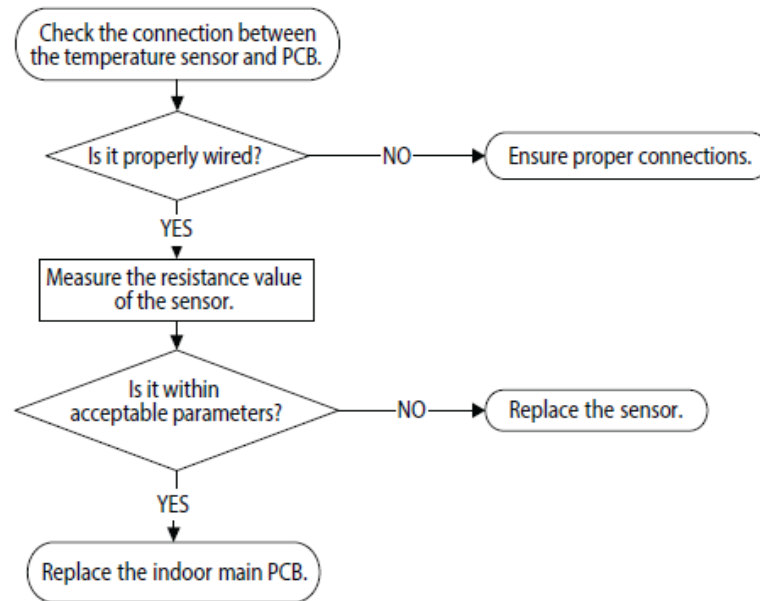


Fig. 33 — Test

NOTE: Figure 33 and the value shown within are for reference only.

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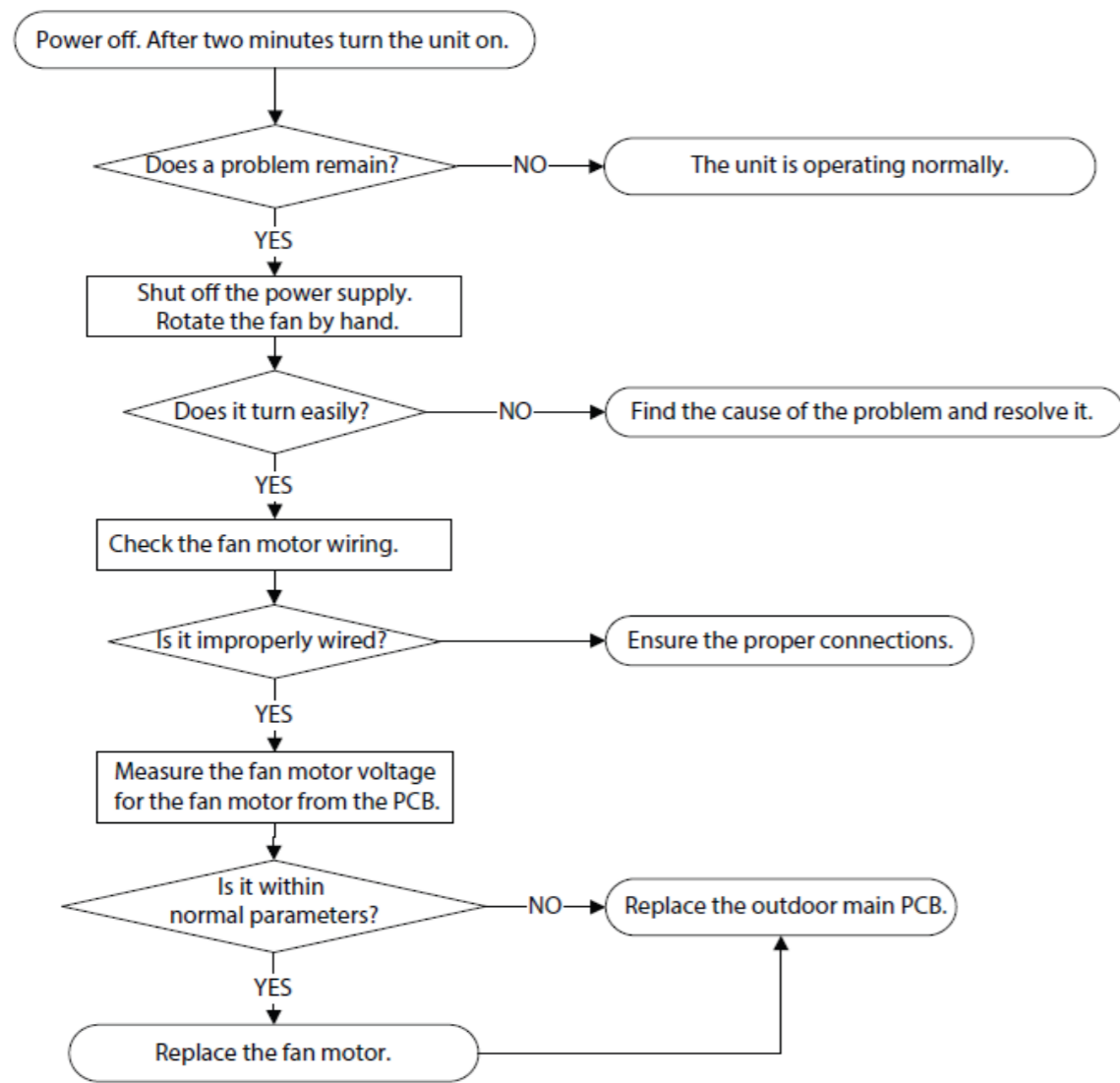
The Outdoor Fan Speed is Operating Outside of Normal Range (EC07)

Description: When the outdoor fan speed remains too slow or too fast for a certain time, the LED displays the failure code and the AC turns off.

Recommended parts to repair:

- Connection wires
- Fan assembly
- Fan motor
- Outdoor main PCB

Troubleshooting



NOTE: For certain models, outdoor PCB could not be removed separately. In this case, the outdoor electric control box should be replaced in its entirety.

Outdoor DC Fan Motor (DC motor that controls the chip on the PCB)

1. Release the UVW connector. Measure the resistance of U-V, U-W, V-W. If the resistance is not equal to each other, the fan motor is faulty and must be replaced. Otherwise, proceed to step 2.
2. Power on the unit and when the unit is in standby, measure the pin4-5 voltage in the feedback signal connector. If the value is not 5V, change the PCB. Otherwise, proceed to step 3.
3. Rotate the fan by hand, measure the pin1-5, pin 2-5 and pin 3-5 voltage levels in the feedback signal connector. If any voltage is not in the positive voltage fluctuation, the fan motor is faulty and must be replaced.

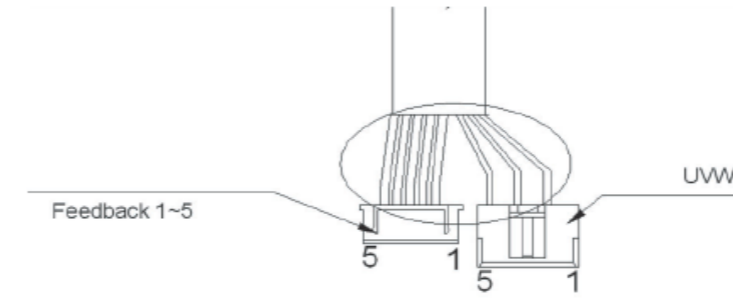


Fig. 32 — Outdoor DC Fan Motor (DC motor that controls the chip on the PCB)

NO.	1	2	3	4	5
Color	Orange	Grey	White	Pink	Black
Signal	Hu	Hv	Hw	Vcc	GND

Color	Red	Blue	Yellow
Signal	W	V	U

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The indoor fan speed is operating outside of the normal range (EH03)

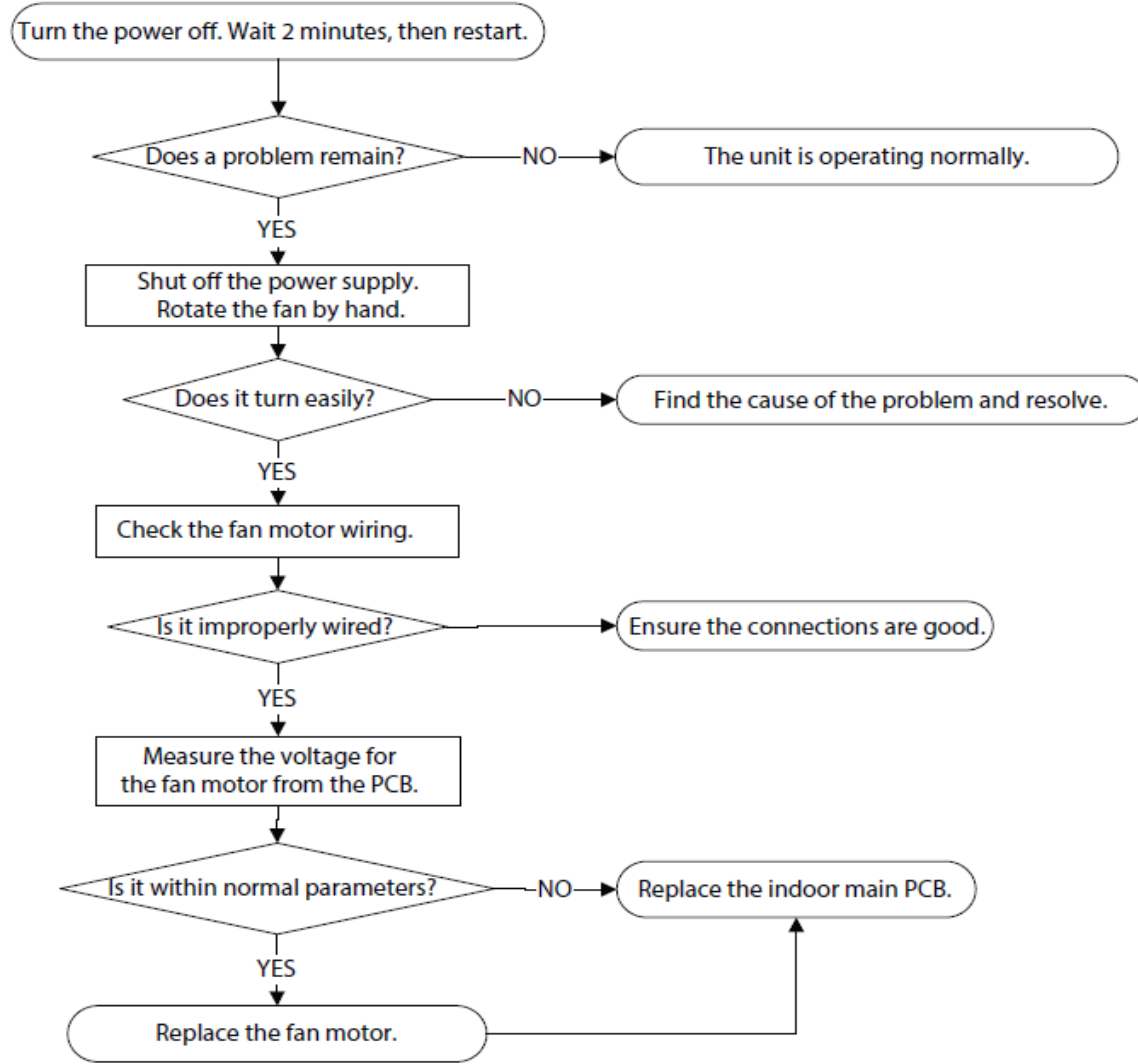
Description: When the indoor fan speed remains too slow or too fast for an extended period of time, the LED displays a failure code and the unit turns off.

Recommended parts to repair:

- Connection wires
- Indoor main PCB
- Fan assembly
- Indoor main PCB

trouble shooting for EC71 and EC73

Troubleshooting



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DIAGNOSIS AND SOLUTION (CONT)

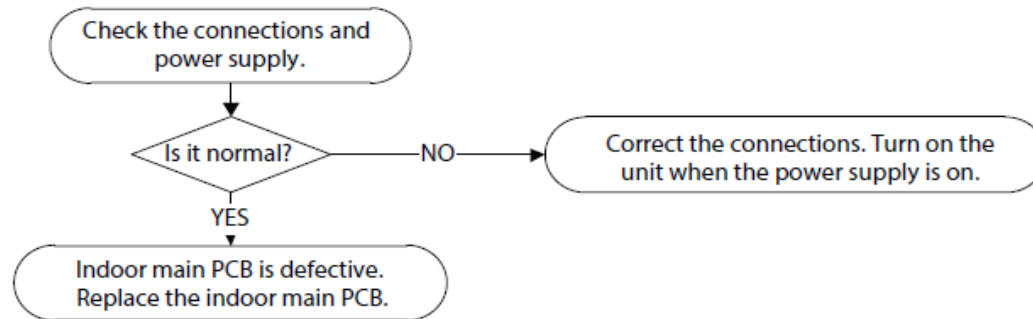
Zero Crossing Detection Error Diagnosis and Solution (EH02)

Description: When the PCB does not receive a zero crossing signal feedback for 4 minutes or the zero crossing signal time interval is abnormal.

Recommended parts to repair:

- Connection wires
- Indoor main PCB

Troubleshooting



Note: A zero crossing detection error is only valid for a unit with an AC fan motor. For other models, this error does not apply.

DIAGNOSIS AND SOLUTION (CONT)

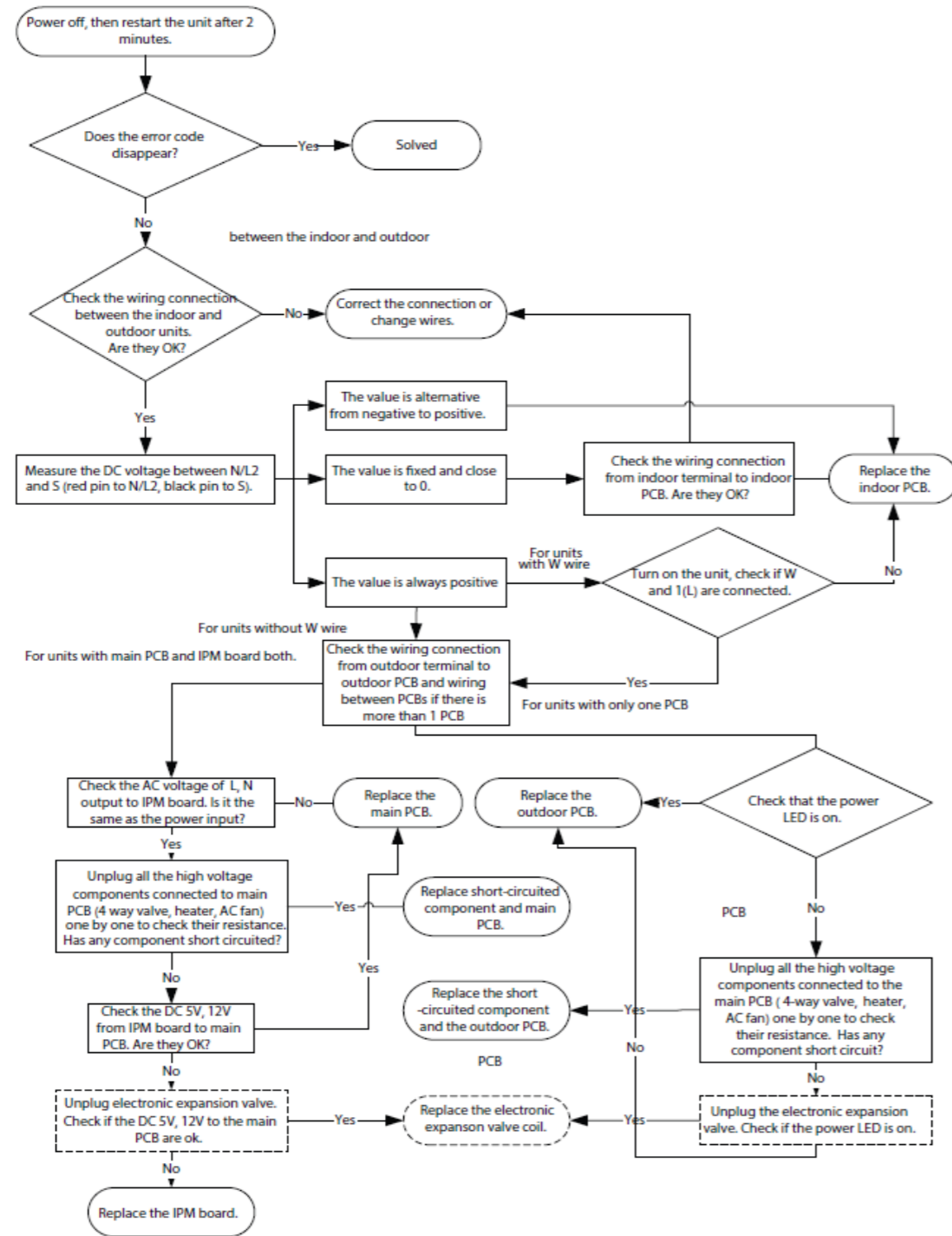
Indoor and Outdoor Unit Communication Error (EL01)

Description: The indoor unit cannot communicate with the outdoor unit

Recommended parts to repair:

- Indoor PCB
- Outdoor PCB
- Short-circuited component

Troubleshooting

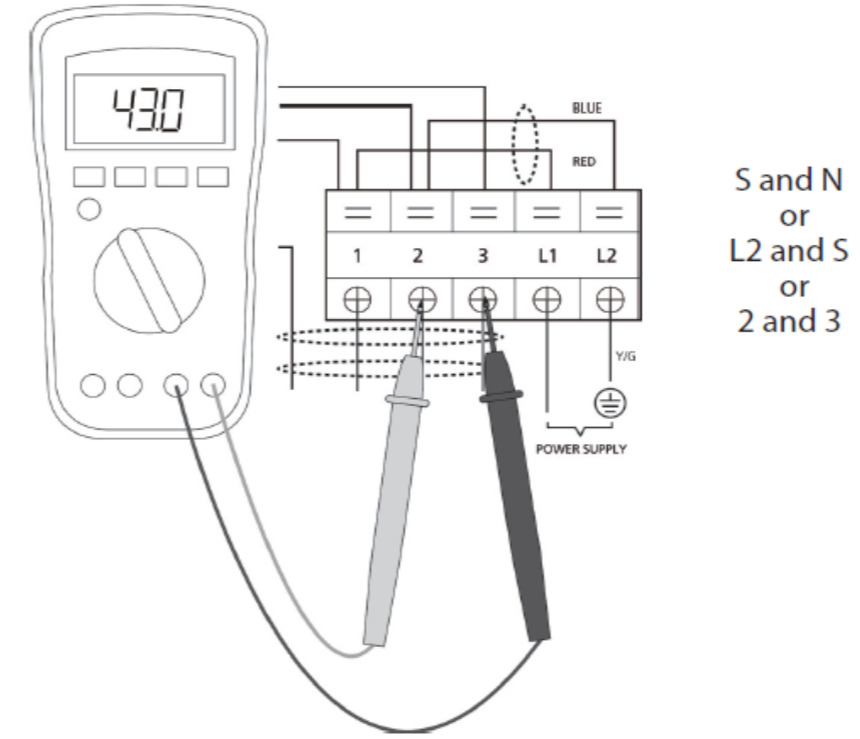


For certain models, outdoor PCB could not be removed separately. In this case, the outdoor electric control box should be replaced as a whole.

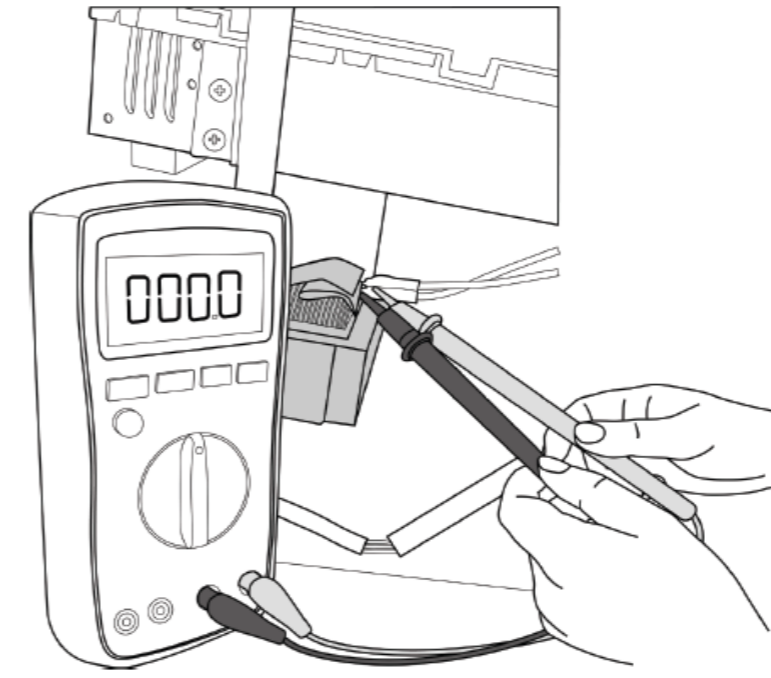
DIAGNOSIS AND SOLUTION (CONT)

Remarks:

- Use a multimeter to test the DC voltage between the 2 port (or S or L2 port) and 3 port (or N or S port) of the outdoor unit.
- The multimeter's red pin connects with the 2 port (or S or L2 port) while the black pin is for the 3 port (or N or S port). If the unit is running normally, the voltage moves alternately as positive values and negative values.
- If the outdoor unit malfunctions, the voltage remains a narrow positive value.
- If the indoor unit malfunctions, the voltage value will be fixed.



- Use a multimeter to test the reactor's resistance which does not connect with the capacitor.
- The normal value should be around zero ohm. Otherwise, the reactor has malfunctioned. Check the reactor to ensure it is not shorted to ground.



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DIAGNOSIS AND SOLUTION (CONT)

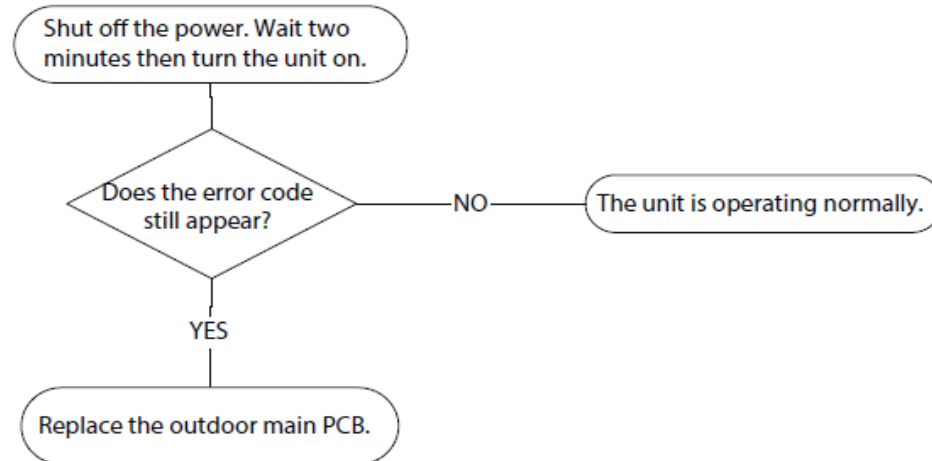
Outdoor EEPROM Parameter Error or Compressor Driven Chip EEPROM Parameter Error (EC51)

Description: The outdoor PCB main chip does not receive feedback from the EEPROM chip or the compressor driven chip.

Recommended parts to repair:

- Outdoor PCB

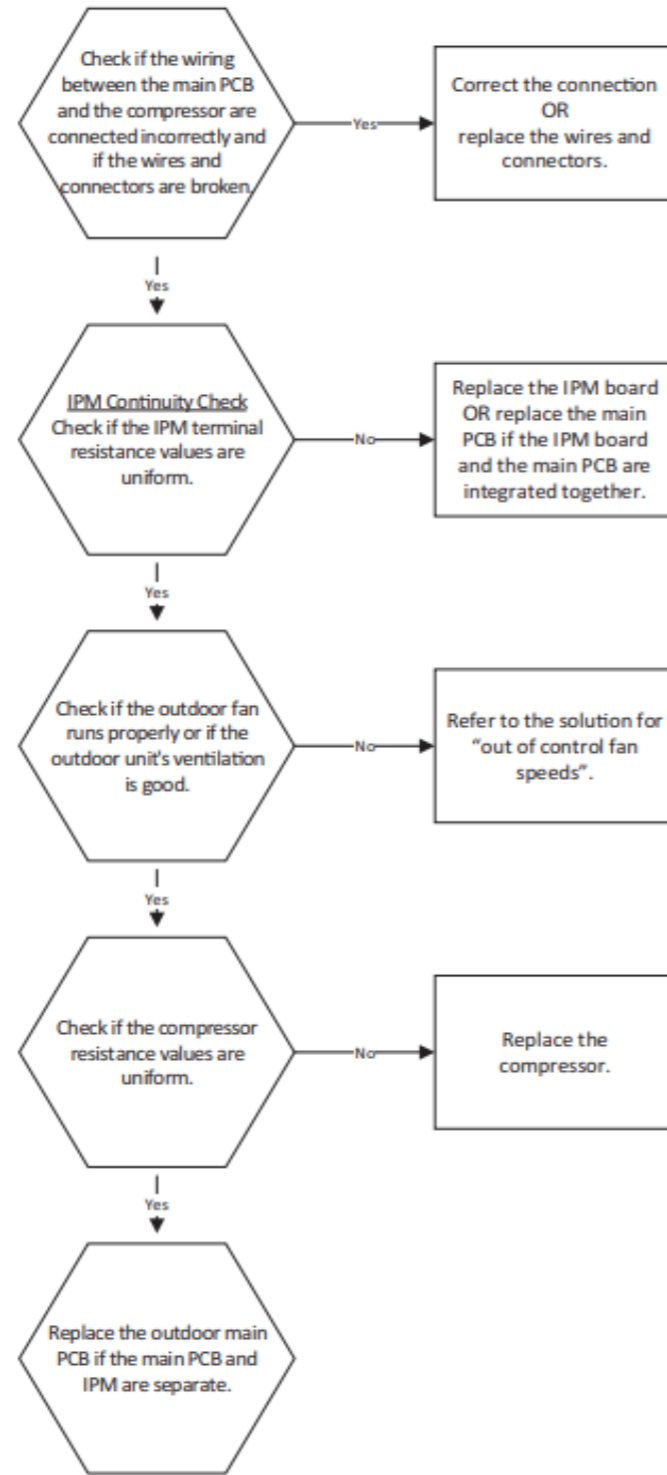
Troubleshooting



IPM Malfunction or IGBT Over-strong Current Protection Diagnosis and Solution (PO)

Error Code	PO
Malfunction decision conditions	When the voltage signal that IPM sends to the compressor drive chip is abnormal, the LED display displays "PO" and the air conditioner turns off.
Supposed Causes	<ul style="list-style-type: none"> • Wiring mistake • IPM malfunction • Outdoor fan assembly faulty • Compressor malfunction • Outdoor PCB faulty

Troubleshooting:



NOTE: Figures 35-42 display the following:

- U, V, W references compressor connection point
- P references input voltage
- N references output voltage

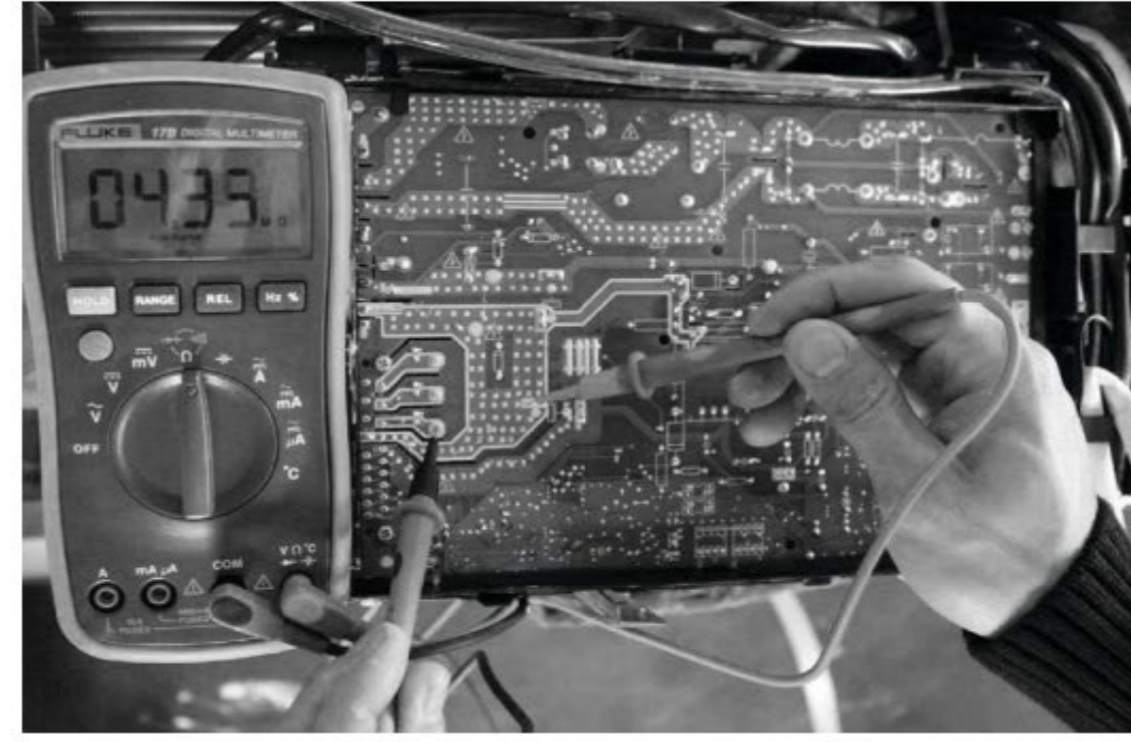


Fig. 37 —P-U

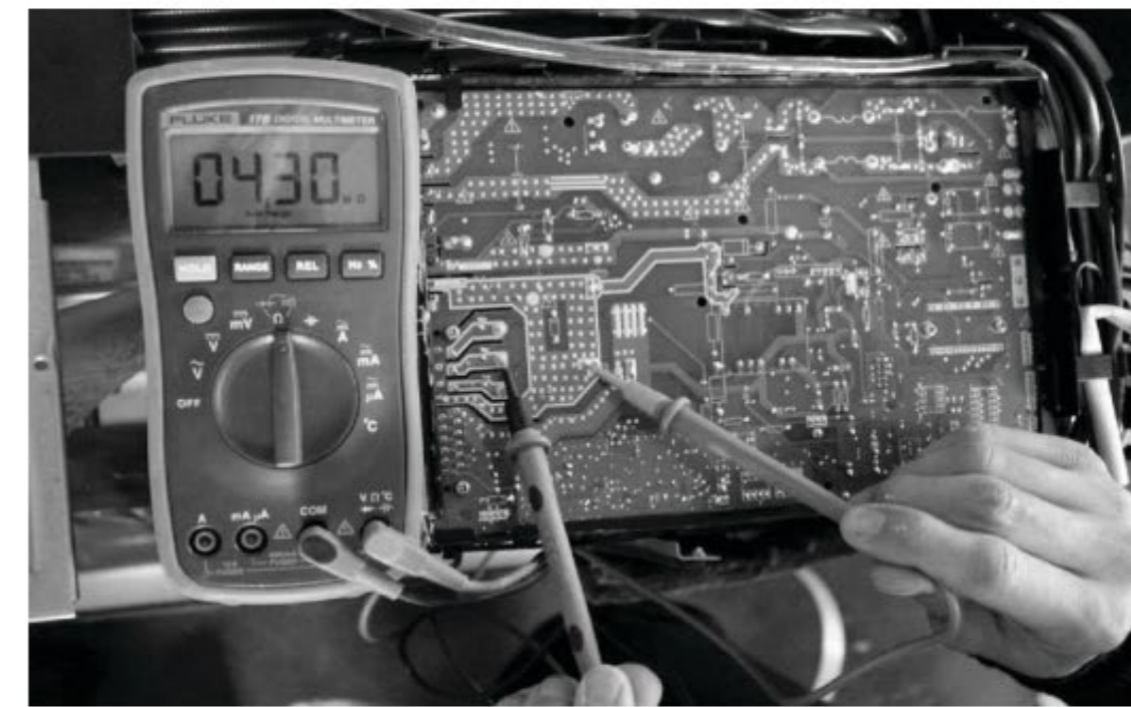


Fig. 38 —P-V

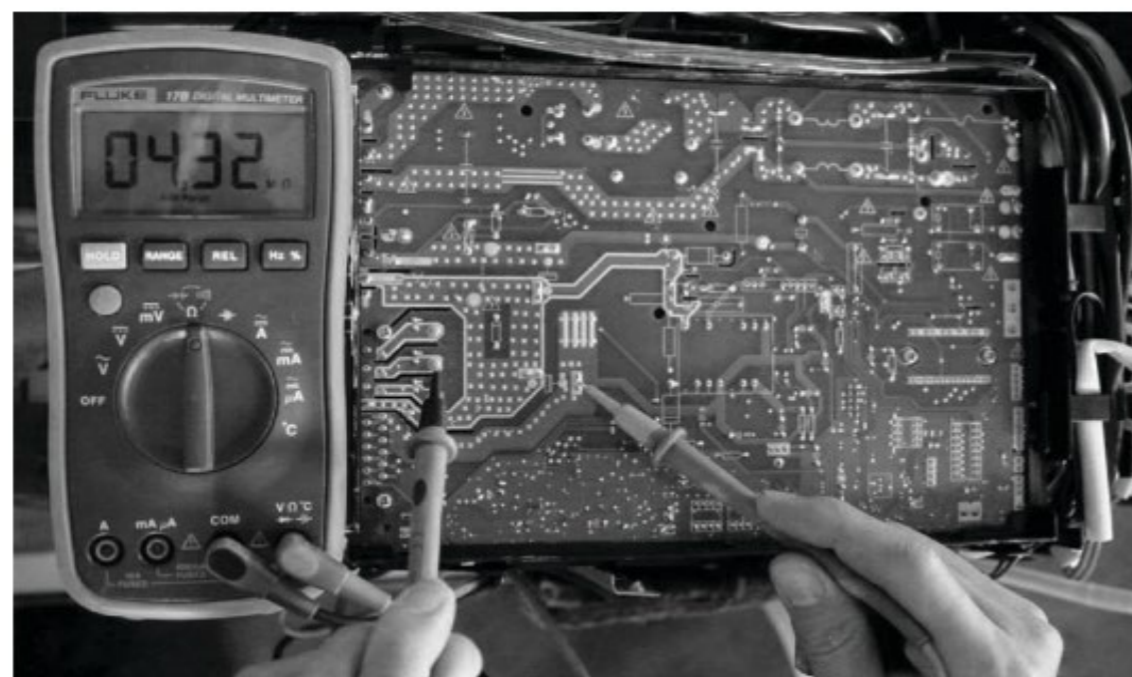


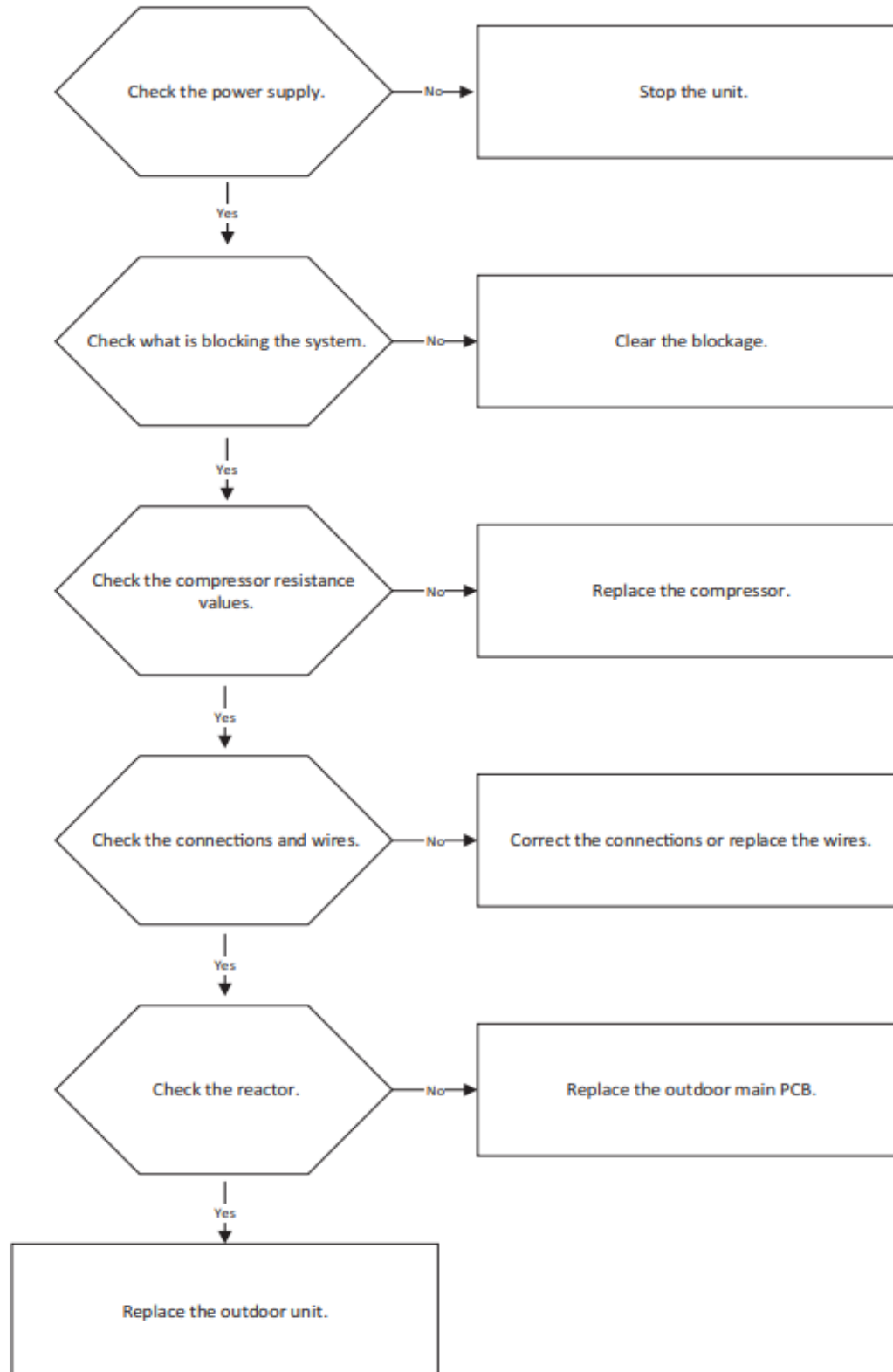
Fig. 41 —N-V



Fig. 42 —N-W

Overload Current Protection Diagnosis and Solution (F0)

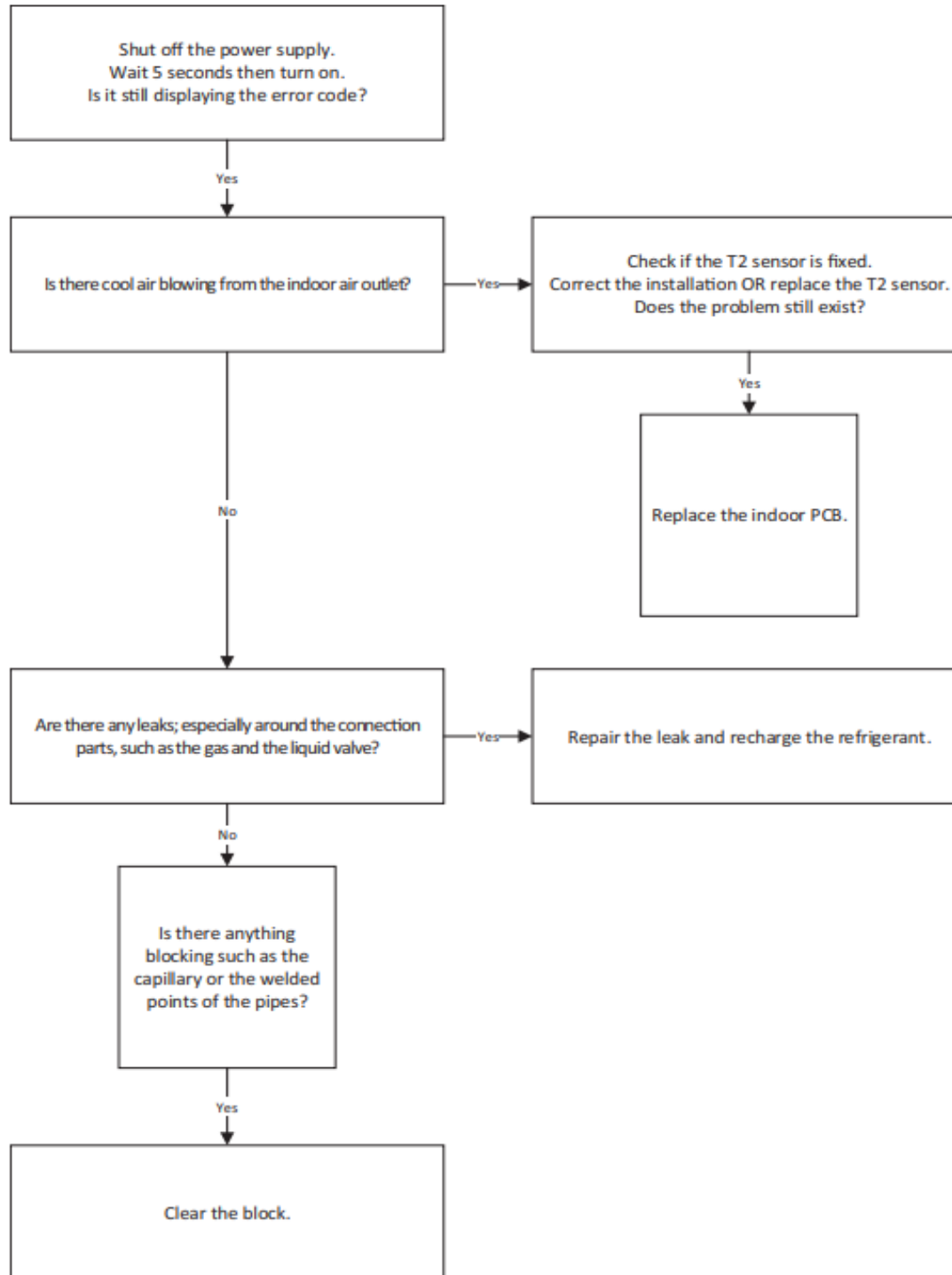
Error Code	F0
Malfunction decision conditions	An abnormal current rise is detected by checking the specified current detection circuit.
Supposed Causes	<ul style="list-style-type: none">• Power supply problems• System blockage• PCB faulty• Wiring mistake• Compressor malfunction



Refrigerant Leakage Detection Diagnosis and Solution (EC)

Error Code	EC
Malfunction decision conditions	Define the evaporator coil temp.T2 of the compressor just starts running as Tcool. At the start, 5 minutes after the compressor starts up, if $T2 < T_{cool}-35.6^{\circ}\text{F}(T_{cool}-2^{\circ}\text{C})$ is not consistent for 4 seconds and this issue occurs 3 times, the display area displays "EC" and air conditioner turns off.
Supposed Causes	<ul style="list-style-type: none">• T2 sensor faulty• Indoor PCB faulty• System problems, such as leakage or blocking

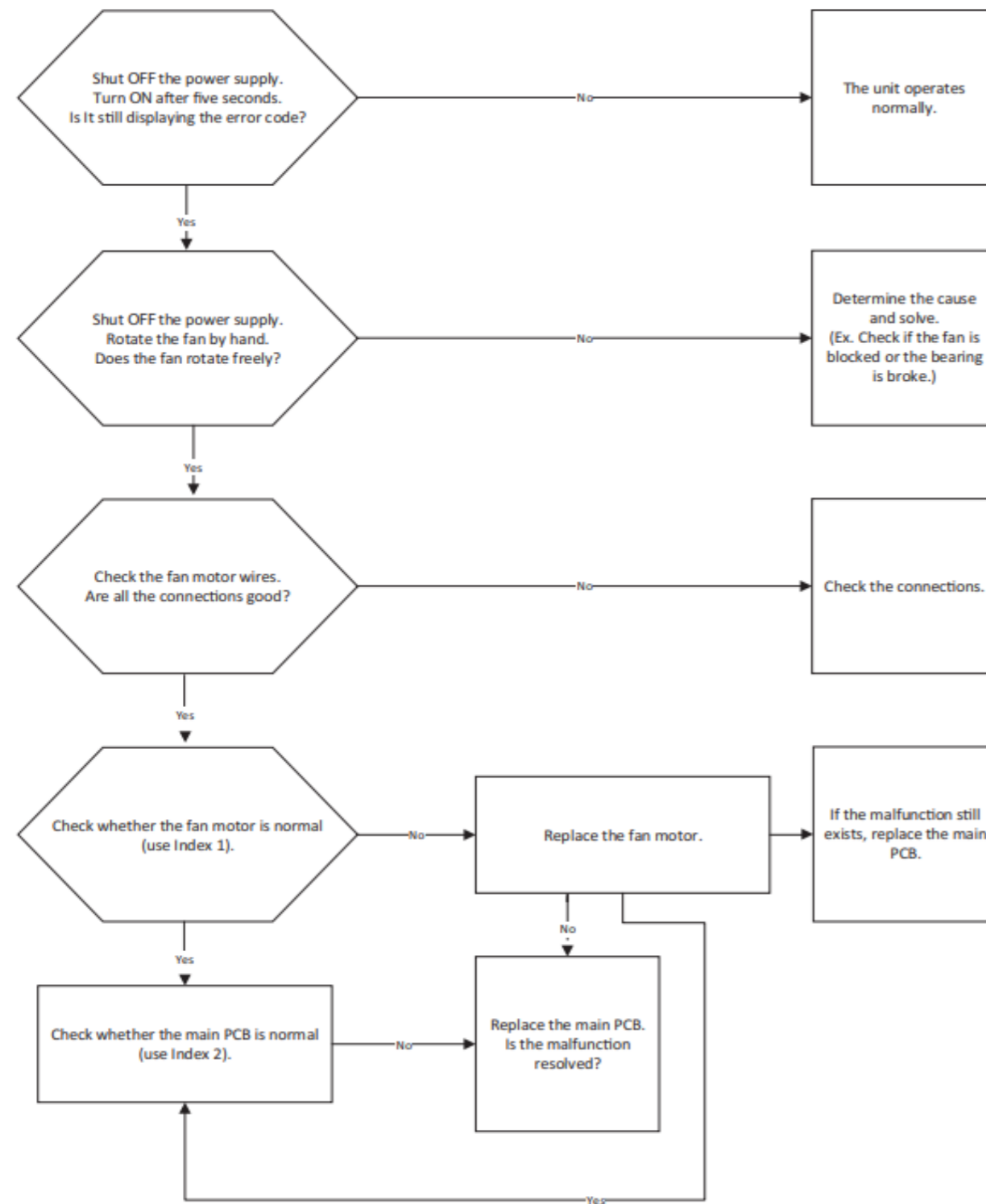
Troubleshooting:



Fan Speed has been out of Control Diagnosis and Solution (E3/F5)

Error Code	E3/F5
Malfunction decision conditions	When the indoor fan speed is too slow (300 RPM) for a certain time, the unit stops and the LED displays the failure.
Supposed Causes	<ul style="list-style-type: none"> • Wiring mistake • Fan assembly faulty • Fan motor faulty • PCB faulty

Troubleshooting:



Index 2:

Indoor or outdoor DC fan motor (control chip is in fan motor)
Measure the resistance value of each winding by using the tester. If any resistance value is zero, the fan motor must have problems and needs to be replaced.

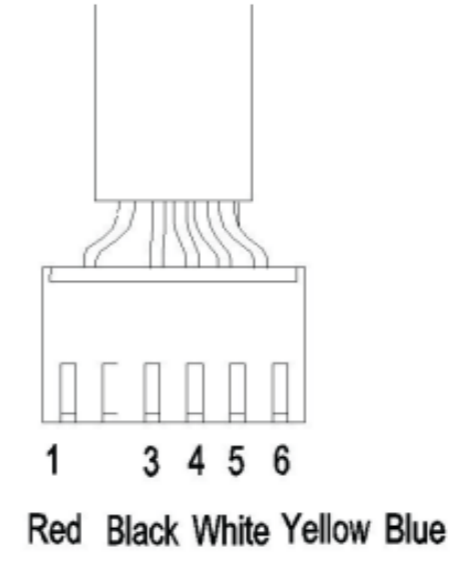


Fig. 33 —Fan motor

Index 3:

1. Indoor or Outdoor DC Fan Motor (control chip is in the fan motor). Power on and when the unit is in standby, measure the voltage of pin-1 - pin3, pin4-pin3 in the fan motor connector. If the value of the voltage is not in the range showing in table 18, the PCB has an issue and needs to be replaced.

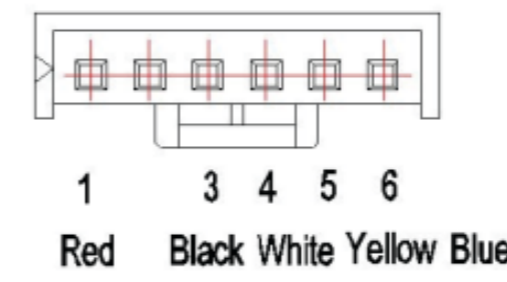


Fig. 34 —Control chip

Table 18 — DC motor voltage input and output

NO.	COLOR	SIGNAL	VOLTAGE
1	Red	Vs/Vm	280V - 380V
2	---	---	---
3	Black	GND	OV
4	White	Vcc	14 - 14.5V
5	Yellow	Vsp	0~ 5.6V
6	Blue	FG	14 - 17.5V

2. Outdoor DC Fan Motor (control chip is in the outdoor PCB)

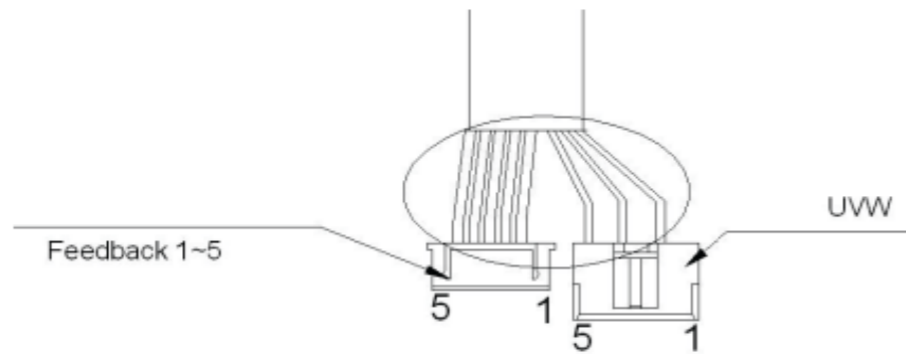


Fig. 35 —Outdoor DC Fan Motor

Table 19 — Outdoor DC Fan Motor

NO.	1	2	3	4	5
Color	Orange	Grey	White	Pink	Black
Signal	Hu	Hv	Hw	Vcc	GND

Table 20 — Outdoor DC Fan Motor

COLOR	RED	BLUE	YELLOW
Signal	W	V	U

1. Release the UVW connector. Measure the resistance of U-V, U-W, V-W. If the resistance is not equal to each other, the fan motor has an issue and needs to be replaced. Otherwise, proceed to step 2.
2. Power on and when the unit is in standby, measure the voltage of pin 4-5 in the feedback signal connector. If the value is not 5V, change the PCB. Otherwise proceed to step 3.
3. Rotate the fan by hand, measure the voltage of pin 1-5, pin 2-5, and pin 3-5 in the feedback signal connector. If any voltage is not positive voltage fluctuation, the fan motor has an issue and must be replaced.

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Open Circuit or Short Circuit of Temperature Sensor Diagnosis and Solution (E4/E5/F1/F2/F3)

Error Code	E4/E5/F1/F2/F3
Malfunction decision conditions	If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED displays the failure.
Supposed Causes	<ul style="list-style-type: none">• Wrong wiring• Sensor faulty• Faulty PCB

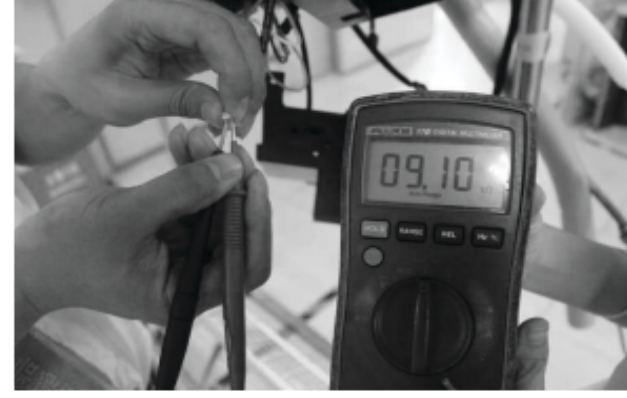
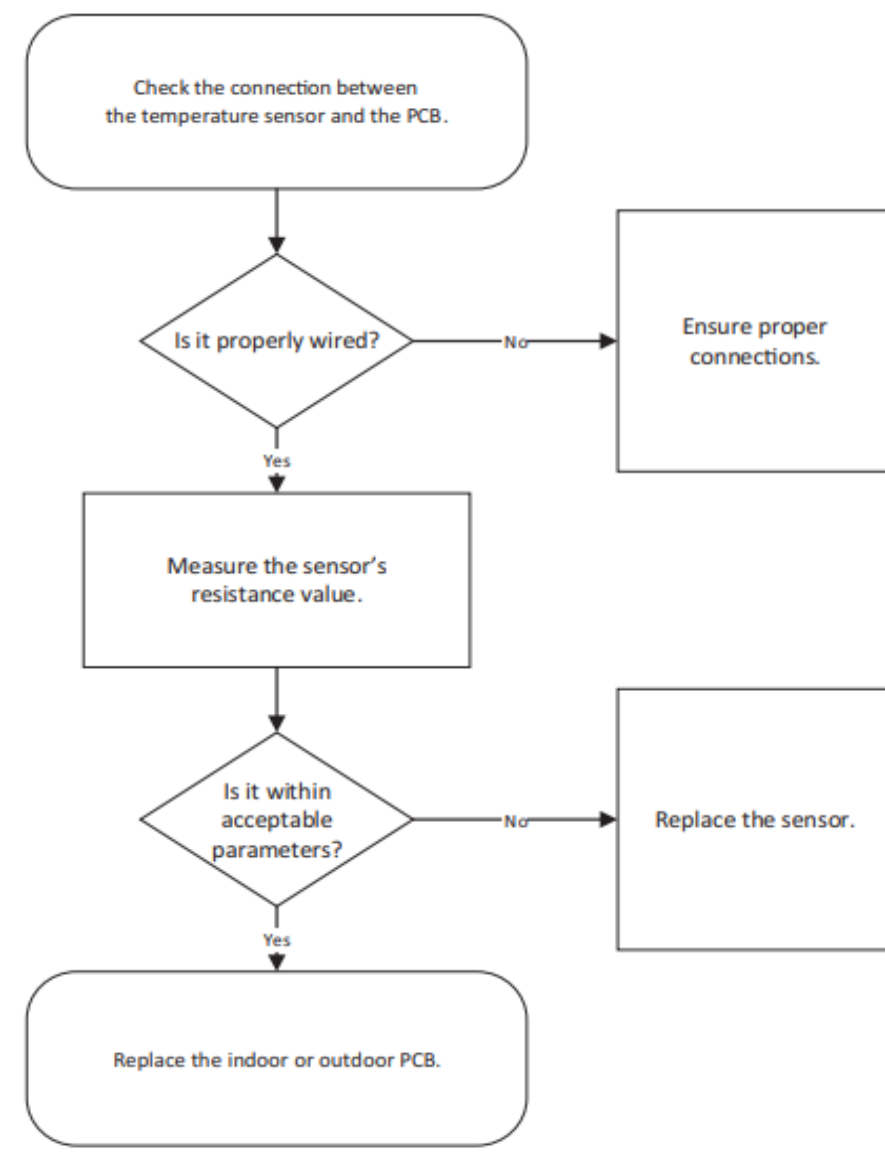


Fig. 36 —Test

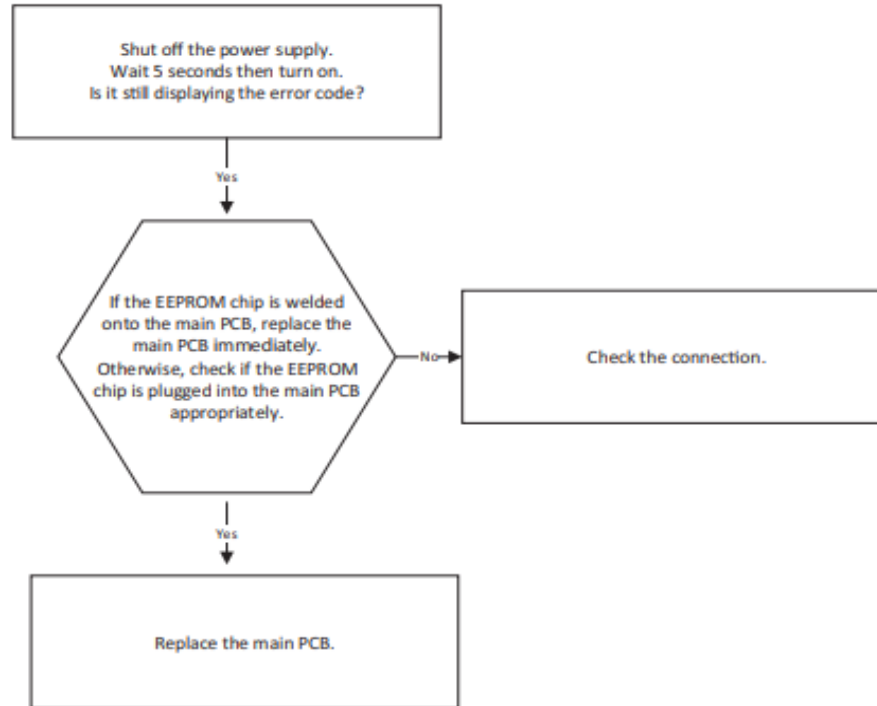
F1 No A Indoor unit coil outlet temp. sensor or connector of sensor is defective —
F2 No B Indoor unit coil outlet temp. sensor or connector of sensor is defective —
F3 No C Indoor unit coil outlet temp. sensor or connector of sensor is defective — — F4 No D Indoor unit coil outlet temp. sensor or connector of sensor is defective — — F5 No E Indoor unit coil outlet temp. sensor or connector of sensor is defective — — F6 No F Indoor unit coil outlet temp. sensor or connector of sensor is defective —
F4 No D Indoor unit coil outlet temp. sensor or connector of sensor is defective —
F5 No E Indoor unit coil outlet temp. sensor or connector of sensor is defective — — sensor is defective
F6 No F Indoor unit coil outlet temp. sensor or connector of

EC56 Outdoor T2B sensor error
EC57 Refrigerant pipe temperature sensor error

EEPROM Parameter Error - Diagnosis and Solution (E0/F4)

Error Code	E0/F4
Malfunction decision conditions	Indoor or outdoor PCB main chip does not receive feedback from EEPROM chip.
Supposed Causes	<ul style="list-style-type: none">• Installation mistake• PCB faulty

Troubleshooting:



EEPROM: A read-only memory whose contents can be erased and reprogrammed using a pulsed voltage. For the location of EEPROM chip, refer to the following images.



Fig. 28 —Indoor PCB



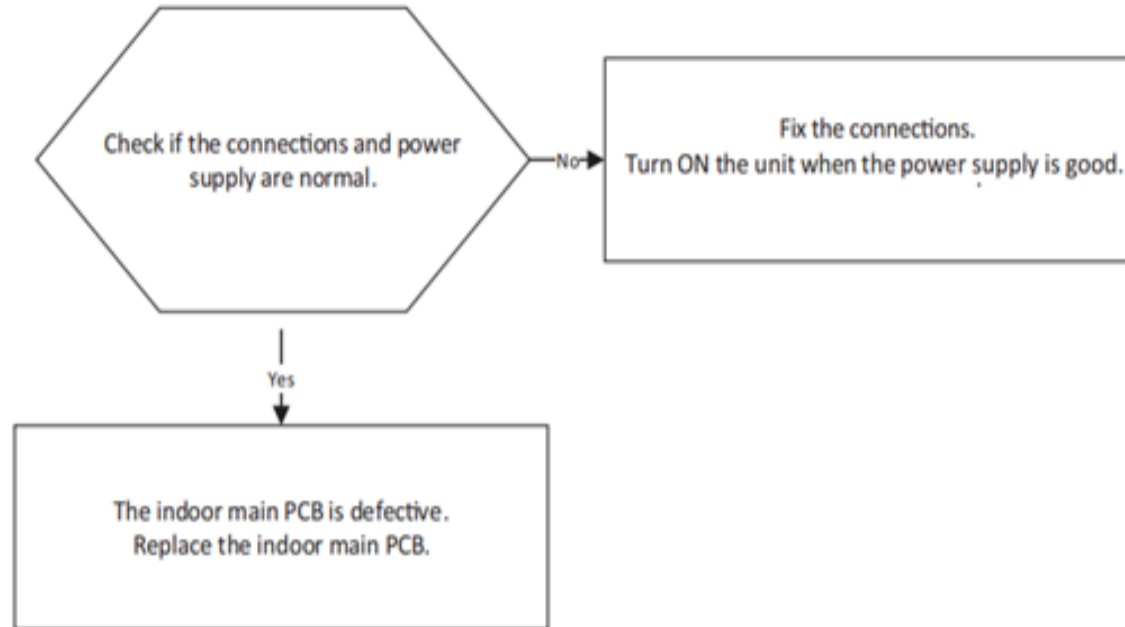
Fig. 29 —Outdoor (18K model) PCB

Figures 28 and 29 are for illustration purposes only and may differ from your actual unit.

Zero Crossing Detection Error Diagnosis and Solution (E2)

Error Code	E2
Malfunction decision conditions	When the PCB does not receive any zero crossing signal feedback for 4 minutes or the zero crossing signal interval is abnormal
Supposed Causes	<ul style="list-style-type: none">• Connection mistake• PCB faulty

Troubleshooting:



ERROR DIAGNOSIS

E1

Code: E1

Error E1:

Indoor unit does not receive feedback from outdoor unit in 110 seconds four times continuously.

Possible Causes:

- Wiring
- External Components
- Internal Components
- IDU Fan Motor Shorted to Ground

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ERROR DIAGNOSIS

E1

Wiring:

- Verify Wiring Gauge
- Verify Wire Type
- Verify to breaks, wire nuts, butt connectors, etc.



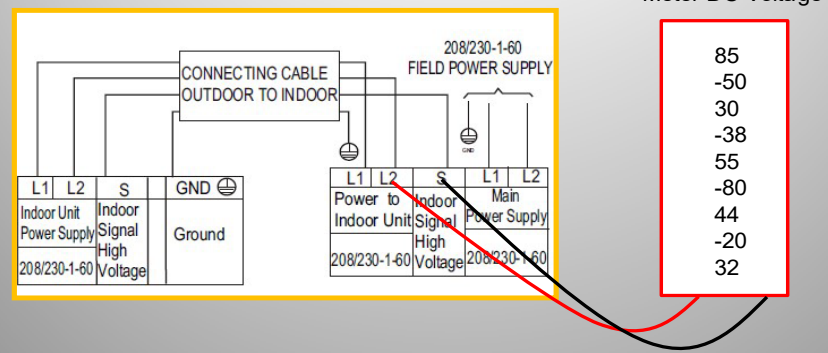
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ERROR DIAGNOSIS

E1

Internal Components:

- Communication Verification



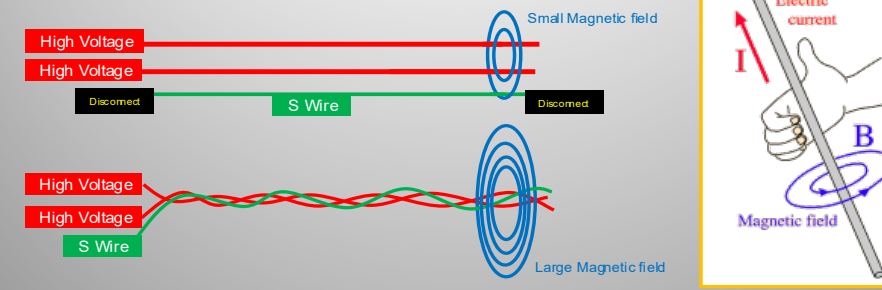
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ERROR DIAGNOSIS

E1

Wiring:

- Check for induced voltage on S
- Run separate temporary wires



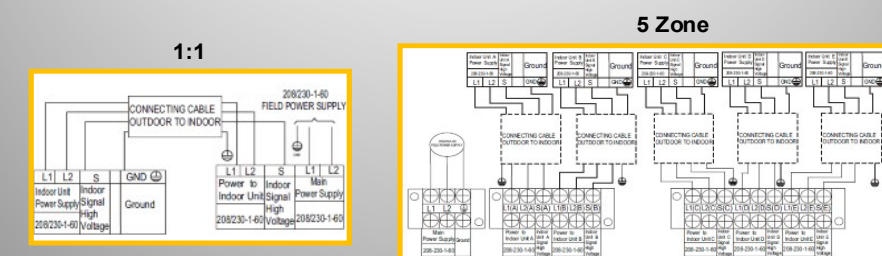
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ERROR DIAGNOSIS

E1

Wiring:

- Verify terminated ends
- Verify length
- Verify route (Not parallel to other high voltage wires)

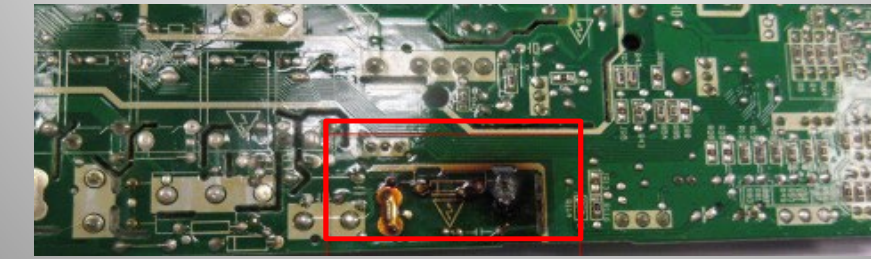


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ERROR DIAGNOSIS

E1

Communication Circuit Failure



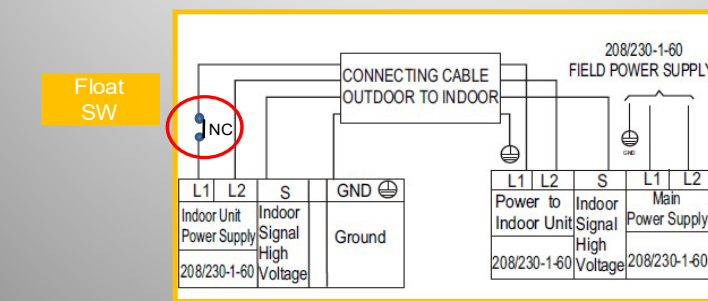
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ERROR DIAGNOSIS

E1

External Components:

- Verify IDU Disconnects
- Verify External Float Switches



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Series of High Wall Platform	11M	MB	AE	OP	MB(GA)	Remark
AP mode	AP	AP	AP	AP	AP	
Filter clean Remind	CL	CL	CL	CL	CL	
Filter replace Remind	nF	nF	nF	nF	nF	
46F heat mode	FP	FP	FP	FP	FP	
Force Cooling	FC	FC	FC	FC	FC	
Remote or Wire controller Lock	LL	LL	LL	LL	LL	
Defrost	dF	dF	dF	dF	dF	
Self Clean	SC	SC	SC	SC	SC	
Time On	On	On	On	On	On	
Time Off	Off	Off	Off	Off	Off	
Anti-cold Air Flow	cF	cF	cF	cF	cF	
Remote On/Off	CP	CP	CP	CP	CP	
Model Conflict	--	--	--	--	--	
ECO mode	E-C-O	E-C-O	E-C-O			
the WIFI module loose or lose signal	P7	P7 for 30K and 36K the other don't have				

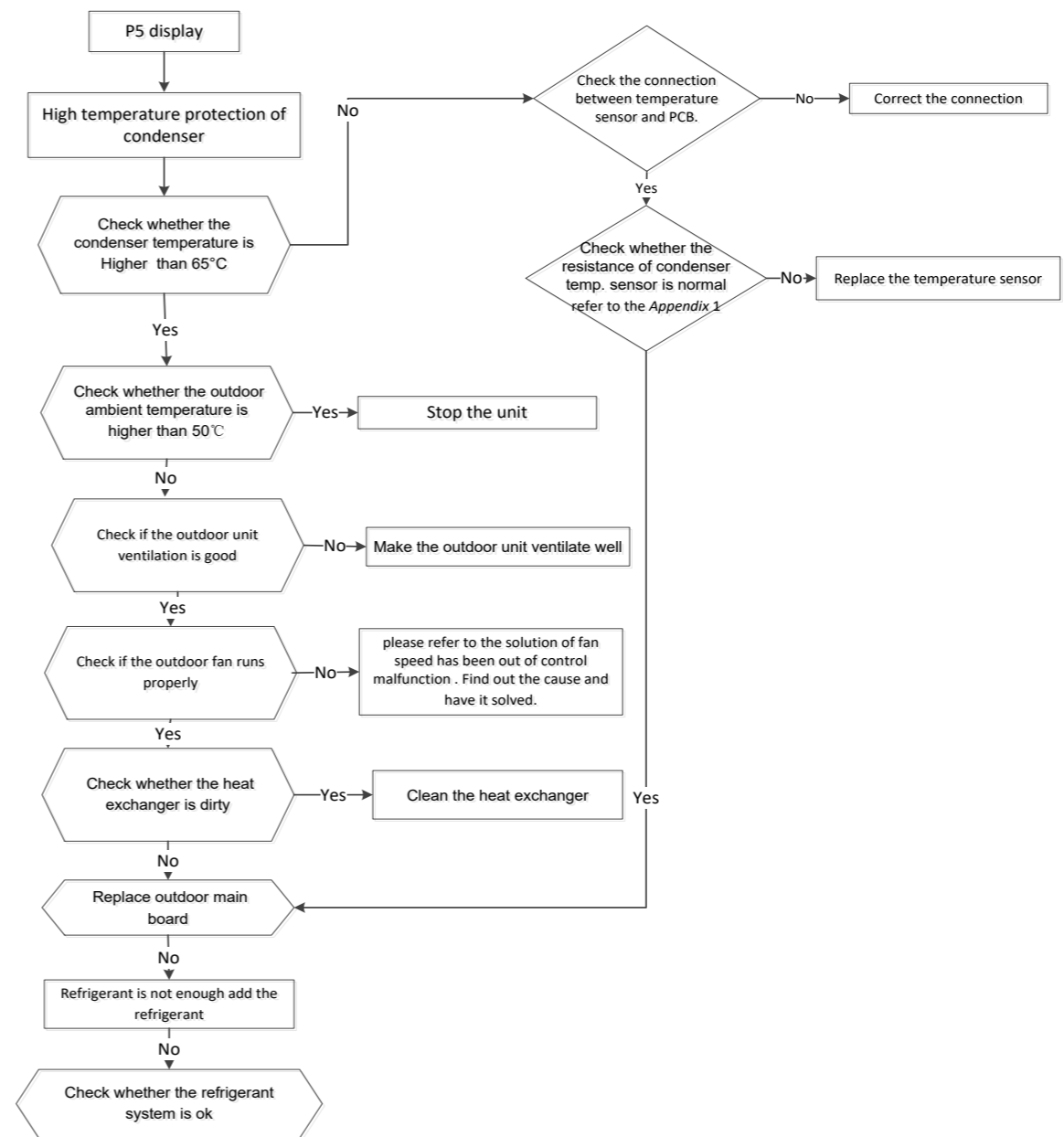
Light Commercial	Current Loop		485 Single Zone			Multizone Outdoor
	Indoor Unit 9~24K		Indoor unit 36K 48K		Outdoor 36K 48K 58K	18K ~48K
	Cassette/F&C/Console	A6 Duct/AHU	Cassette/F&C	A6 Duct/AHU	Universal	2 to 5 Zone
	SC	SC	SC	SC		
	FP	FP	FP	FP		
	LL	LL	LL	LL		
	CP	CP	CP	CP		
	FC	FC	FC	FC		
		AF		AF		
	--	--				

			Return Home	Shown in different mode?				
		Meaning of Error	Timer LED	Running LED	Normal Mode	Engineering Mode	OFF	
E	H	00	Indoor EEPROM error	X	1	Y	Y	Y
E	H	0A	Indoor unit EEPROM parameter error (Hardward is OK)	X	1	Y	Y	Y
E	L	01	Indoor / outdoor units communication error	X	2	Y	Y	N
E	L	11	Master / Slave units communication error (TWINS)	X	2	Y	Y	N
E	H	12	Another unit is faulty (TWINS)	X	2	Y	Y	N
E	H	02	Zero-crossing signal detection error (PG motor only)	X	3	Y	Y	N
E	H	31	DC voltage is too low of indoor DC fan motor (with DC fan driver board)	X	4	N	Y	N
E	H	32	DC voltage is too high of indoor DC fan motor (with DC fan driver board)	X	4	N	Y	N
E	H	33	Over-current protection of indoor DC fan motor (with DC fan driver board)	X	4	N	Y	N
E	H	34	IPM protection of indoor DC fan motor (with DC fan driver board)	X	4	N	Y	N
E	H	35	Phase lack protection of indoor DC fan motor (with DC fan driver board)	X	4	N	Y	N
E	H	36	Current checking circuit faulty of indoor DC fan motor (with DC fan driver board)	X	4	N	Y	N
E	H	37	Zero speed protection of indoor DC fan motor (with DC fan driver board)	X	4	N	Y	N
E	H	03	Indoor fan speed is out of control	X	4	Y	Y	N
E	H	3C	Fresh air motor is faulty (Domestic models)	X	4	Y	Y	N
E	C	50	Temperature sensor faulty of outdoor unit (old program)	X	5	/	/	/
E	C	51	Outdoor EEPROM error	X	5	Y	Y	N
E	C	52	Condenser coil temperature sensor T3 open circuit or short circuit	X	5	Y	Y	N
E	C	53	Outdoor ambient temperature sensor T4 open circuit or short circuit	X	5	Y	Y	N
E	C	54	Compressor discharge temperature sensor Tp open circuit or short circuit	X	5	Y	Y	N
E	C	55	IPM temperature sensor T4 open circuit or short circuit	X	5	N	Y	N
E	C	56	Evaporator outlet temperature sensor T2B (locates in outdoor unit) open circuit or short circuit (overseas multi)	X	5	Y	Y	N
E	C	57	Gas cooler temperature sensor open circuit or short circuit (Domestic mini VRF)	X	5	Y	Y	N
E	C	05	Outdoor temperature sensor fault or EEPROM fault	X	5	Y	Y	N
E	C	0d	Outdoor fault (LCAC old program)	X	14	Y	Y	N
E	H	60	Indoor room temperature sensor T1 open circuit or short circuit	X	6	Y	Y	N
E	H	61	Evaporator coil temperature sensor T2 open circuit or short circuit	X	6	Y	Y	N
E	H	66	Evaporator outlet temperature sensor T2B open circuit or short circuit (Domestic mini VRF)	X	6	Y	Y	N
E	C	71	Over-current protection of outdoor DC fan motor	X	12	N	Y	N
E	C	75	IPM protection of outdoor DC fan motor	X	12	N	Y	N
E	C	72	Phase lack protection of outdoor DC fan motor	X	12	N	Y	N
E	C	74	Current checking circuit faulty of outdoor DC fan motor	X	12	N	Y	N
E	C	73	Zero speed protection of outdoor DC fan motor	X	12	N	Y	N
E	C	07	Outdoor DC fan speed is out of control	X	12	Y	Y	N
E	H	0b	Communication error between indoor PCB and display PCB	X	9	Y	Y	Y
E	H	b1	Communication error between display PCB and multi-function board	X	9	Y	Y	Y
E	H	b2	Wrong wiring of 24V controller	X	9	Y	Y	Y
E	H	b3	Communication error between indoor PCB and wired controller	X	9	Y	Y	Y
E	H	b4	Communication error between indoor PCB and voice module	/	/	N	Y	N
E	H	b5	Communication error between indoor PCB and smart eye	X	10	N	Y	N
E	H	b6	Communication error between indoor PCB and camera module	/	/	N	Y	N
E	L	0C	Refrigerant leakage detection	X	8	Y	Y	N
E	H	0E	Water lever alarm	/	/	Y	Y	N
E	H	0F	Smart eye fault	X	10	N	Y	N
E	H	0P	No digital bar code written-in (Domestic models)	/	/	Y	Y	Y
E	H	P1	Wrong digital bar code checked by sanner of assembly line (Domestic models)	/	/	Y	Y	Y
E	H	P2	No digital bar code checked by debugger (Domestic models)	/	/	Y	Y	Y
E	H	0H	RF (Radio Frequency) module fault	/	/	N	Y	N
E	H	0L	Display EEPROM fault	/	/	N	Y	N
F	H	0P	WIFI module fault	/	/	Y	Y	Y

F	H	07	Communication error between indoor PCB and auto-lifting panel	X	15	Y	Y	Y
F	L	09	Wrong match with indoor and outdoor units	/	/	Y	Y	N
F	H	0E	Dust sensor fault (Domestic models)	/	/	N	Y	N
F	H	0b	Electrical meter module fault (Domestic models)	/	/	N	Y	N
F	H	0d	Fresh/ionizer module fault (Domestic models)	X	11	Y	Y	N
F	H	0A	Filter moving fault (models with filter auto-clean function)	X	7	Y	Y	N
F	L	14	Indoor and outdoor capacity are not compatible (Domestic mini VRF)	/	/	Y	Y	N
P	C	00	Compressor IPM protection	☆	7	Y	Y	N
P	C	10	Outdoor AC voltage is too low	☆	2	N	Y	N
P	C	11	Outdoor DC voltage is too high	☆	2	N	Y	N
P	C	12	Outdoor DC voltage is too low (MCE faulty of IR341 chip)	☆	2	N	Y	N
P	C	01	Outdoor AC voltage protection	☆	2	Y	N	N
P	H	13	Indoor power supply AC voltage protection (Japan models)	☆	2	Y	Y	N
P	C	02	High temperature protection of compressor top (or IPM)	☆	3	Y	Y	N
P	C	40	Communication error between outdoor chip and compressor drive chip	☆	6	N	Y	N
P	C	41	Current checking circuit faulty of inverter compressor	☆	5	N	Y	N
P	C	42	Inverter compressor start failure	☆	5	N	Y	N
P	C	43	Phase lack protection of inverter compressor	☆	5	N	Y	N
P	C	44	Zero speed protection of inverter compressor	☆	5	N	Y	N
P	C	45	Synchronization error between IR341 chip and PWM	☆	5	N	Y	N
P	C	46	Inverter compressor speed is out of control	☆	5	N	Y	N
P	C	49	Over current of inverter compressor	☆	5	N	Y	N
P	C	4A	L/N wrong wiring of outdoor unit	☆	8	Y	Y	N
P	C	4b	Phase error of outdoor unit	☆	8	Y	Y	N
P	C	4C	Phase lack protection of outdoor unit	☆	8	Y	Y	N
P	C	04	Feedback protection of compressor	☆	5	Y	N	N
P	C	06	High discharge temperature protection of compressor	/	/	N	Y	N
P	C	08	Over current of outdoor unit	☆	1	N	Y	N
P	H	09	Indoor fan stop because of anti-cold wind function	/	/	N	Y	N
P	H	0A	Water tank protection (Portable)	☆	5	Y	Y	N
P	H	A1	Water full protection (Portable)	/	/	N	Y	N
P	H	0b	Indoor grille or panel protection (Domestic units)	/	/	Y	Y	Y
P	C	0F	IGBT fault of PFC circuit	/	/	N	Y	N
P	C	30	Hi pressure protection	☆	7	Y	Y	N
P	C	31	Lo pressure protection	☆	7	Y	Y	N
P	C	32	Lo pressure protection (Domestic mini VRF)	☆	7	Y	Y	N
P	C	03	Pressure protection	☆	7	Y	Y	N
P	C	0L	Low ambient temperature protection	☆	4	Y	Y	N
P	H	90	Hi evaporator temperature protection in heating mode	/	/	N	Y	N
P	H	91	Lo evaporator temperature protection in cooling mode	/	/	N	Y	N
P	C	0A	Hi condenser temperature protection in cooling mode	/	/	N	Y	N
P	C	A1	Sweat protection of gas cooler (Domestic mini VRF)	/	/	N	Y	N
F	H	0C	Indoor humidity sensor fault	/	/	N	Y	N
L	H	00	Frequency limitation caused by high or low evaporator temperature (L0)	/	/	N	Y	N
L	C	01	Frequency limitation caused by high condenser temperature (L1)	/	/	N	Y	N
L	C	02	Frequency limitation caused by high discharge temperature (L2)	/	/	N	Y	N
L	C	05	Frequency limitation caused by high or low voltage (L5)	/	/	N	Y	N
L	C	03	Frequency limitation caused by high current (L3)	/	/	N	Y	N
L	C	06	Frequency limitation caused by high IPM temperature or faulty PFC	/	/	N	Y	N
L	C	30	Frequency limitation caused by high pressure	/	/	N	Y	N
L	C	31	Frequency limitation caused by low pressure	/	/	N	Y	N
L	H	07	Frequency limitation caused remote controller	/	/	N	Y	N
-	-	--	Mode conflict	o	1	Y	Y	N

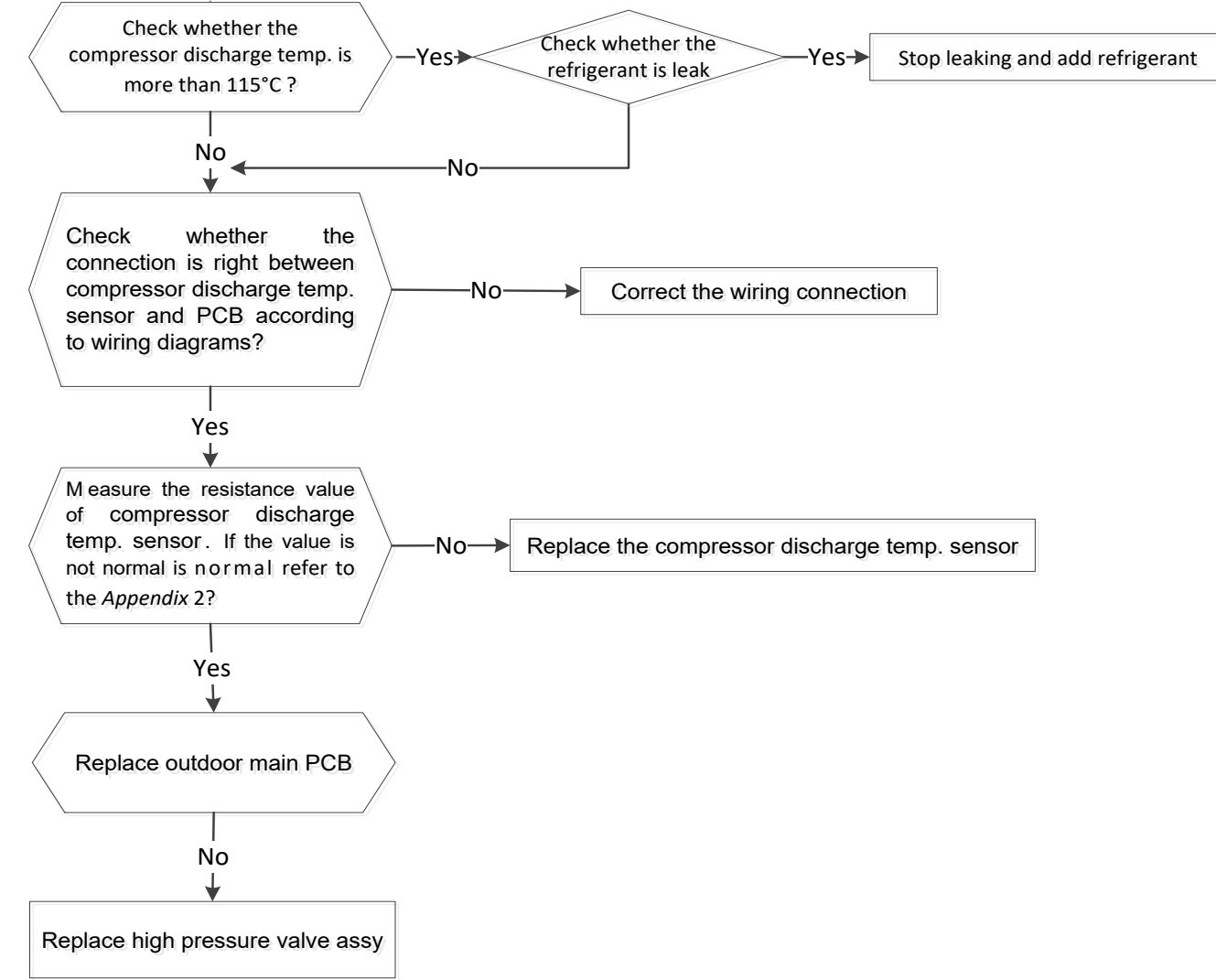
● *High temperature protection of outdoor coil*

Error Code	P5
Malfunction decision conditions	The unit will stop when condenser temperature is higher than 65° C, and runs again when it is less than 52° C
Possible causes	<ul style="list-style-type: none"> ● Faulty condenser pipe temperature sensor T3 ● Blocked refrigeration piping system ● Bad ventilation of outdoor coil ● Lack of refrigerant ● Faulty outdoor fan ● Faulty outdoor PCB



● High discharge temperature protection of compressor

Error Code	P4
Malfunction decision conditions	The unit will stop when discharge temperature is higher than 115° C and runs again when it is lower than 90° C
Possible causes	<ul style="list-style-type: none"> • Lack of refrigerant • Wiring problem • Faulty discharge temperature sensor Td/T5 • Faulty outdoor PCB



Error Code	P4
Malfunction decision conditions	The driven chip cannot detect the right rotor position of compressor
Possible causes	<ul style="list-style-type: none"> • Wiring mistake • Power supply problem • Faulty high-voltage components • Bad ventilation of outdoor coil • Faulty PFC circuit or broken reactor • Faulty IPM board • Faulty outdoor PCB • Faulty compressor

Error Diagnosis MAR - P6 / MGR P4

Code: P4/P6

Error P4/P6:

Compressor discharge temperature Protection (TP) (MA*R - P6)
Temperature protection of compressor discharge (MG*R - P4)

Possible Causes:

- Refrigerant charge
- No refrigerant flow
- Exceeded max line length
- Thermistor
- Compressor
- Board

Error Diagnosis MAR P4 / MGR P6

Code: P4 / P6

Error P6/P4:

Inverter Compressor Drive Error (MA*R - P4)
IPM Module protection (MG*R - P6)

Possible Causes:

- Communication between main and inverter PCB
- Voltage high, low, imbalance
- Compressor rotation (U,V,W Wiring)
- ODU Fan
- Compressor
- Reactor
- Faulty ODU PCB
- Liquid in oil

Error Diagnosis P4

Voltage



Voltage: + / - 10%
Phase imbalance: + / - 2%

Error Diagnosis P4

Compressor Wiring

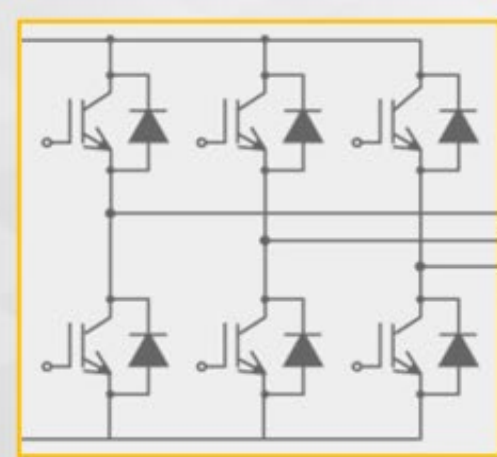


Labeling on cap

Error Diagnosis P4

Board Verification

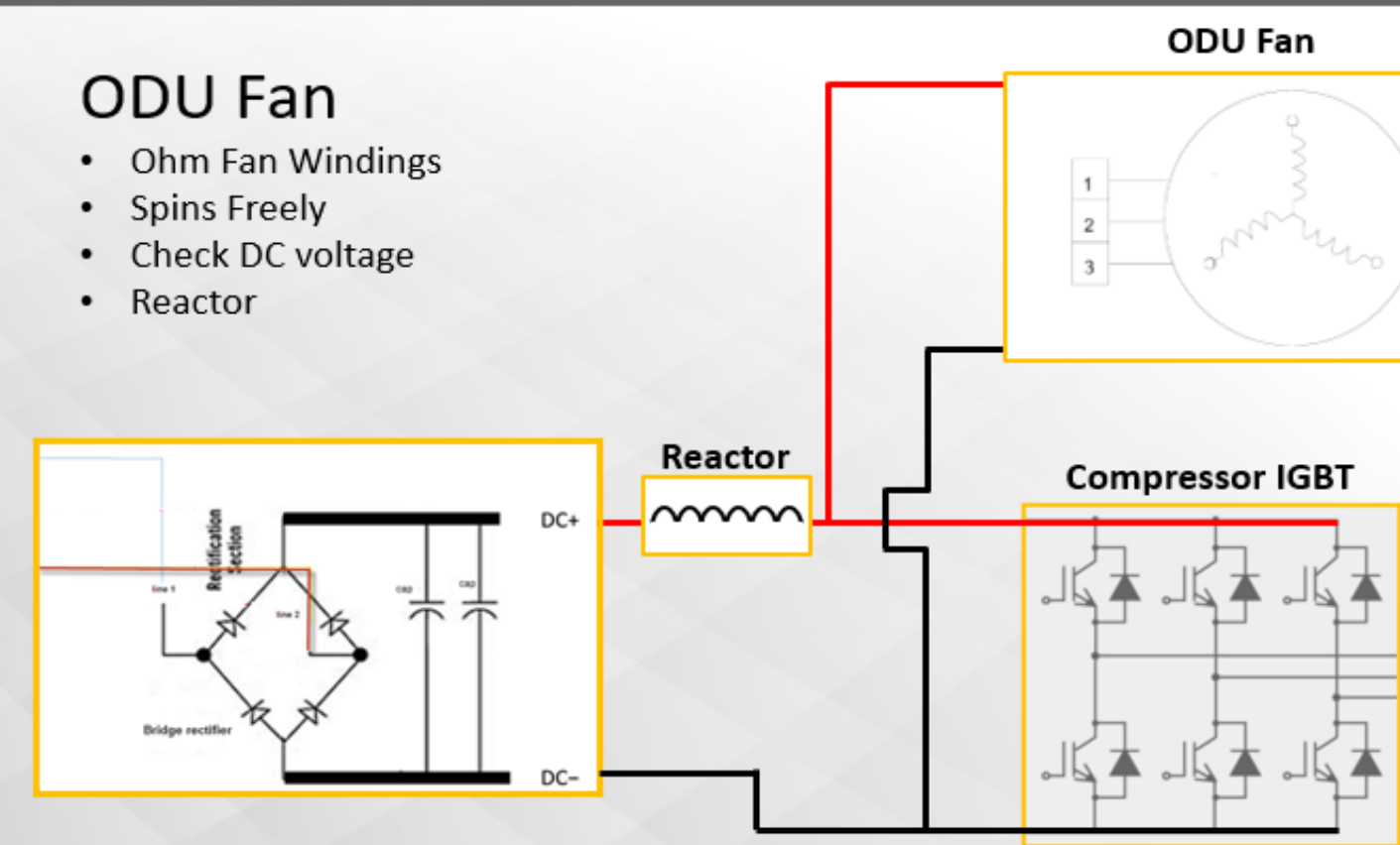
- Check IGBT



Error Diagnosis P4

ODU Fan

- Ohm Fan Windings
- Spins Freely
- Check DC voltage
- Reactor



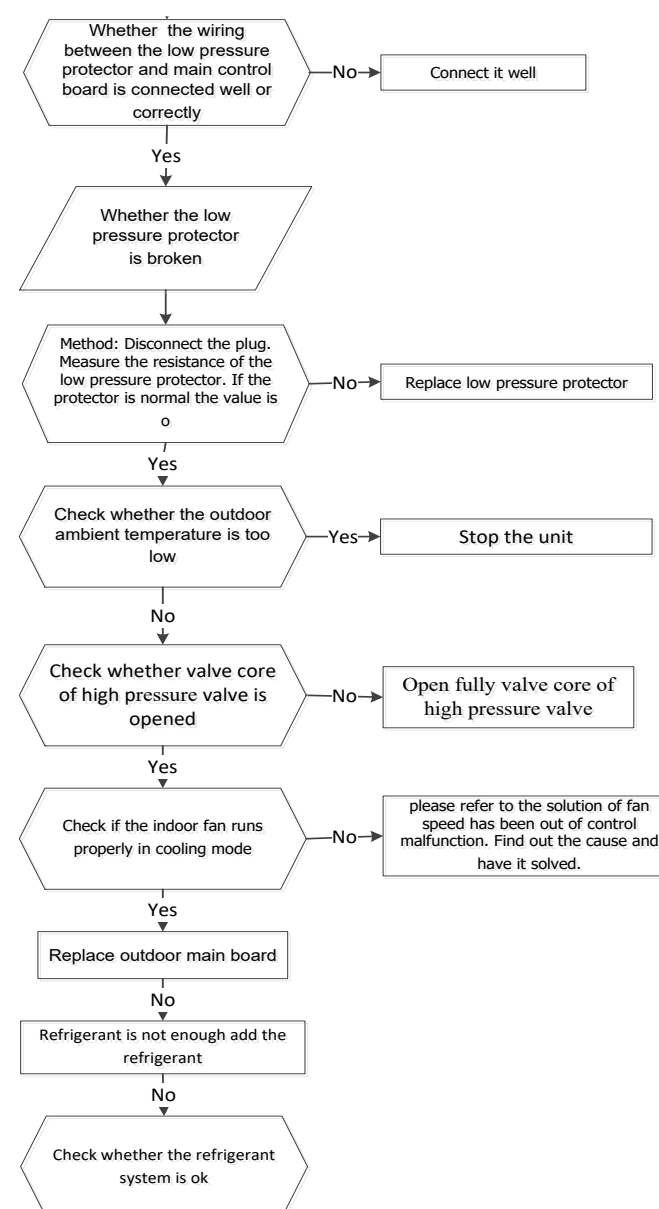
● **Over-current protection of compressor**

Error Code	P3
Malfunction decision conditions	The system finds the current of compressor is too high
Possible causes	<ul style="list-style-type: none"> ● Power supply problem ● Faulty rectifier ● Faulty PFC circuit or broken reactor ● Blocked refrigeration piping system ● Bad ventilation of outdoor coil ● Faulty pressure switch ● Faulty outdoor fan ● Faulty IPM ● Faulty outdoor PCB



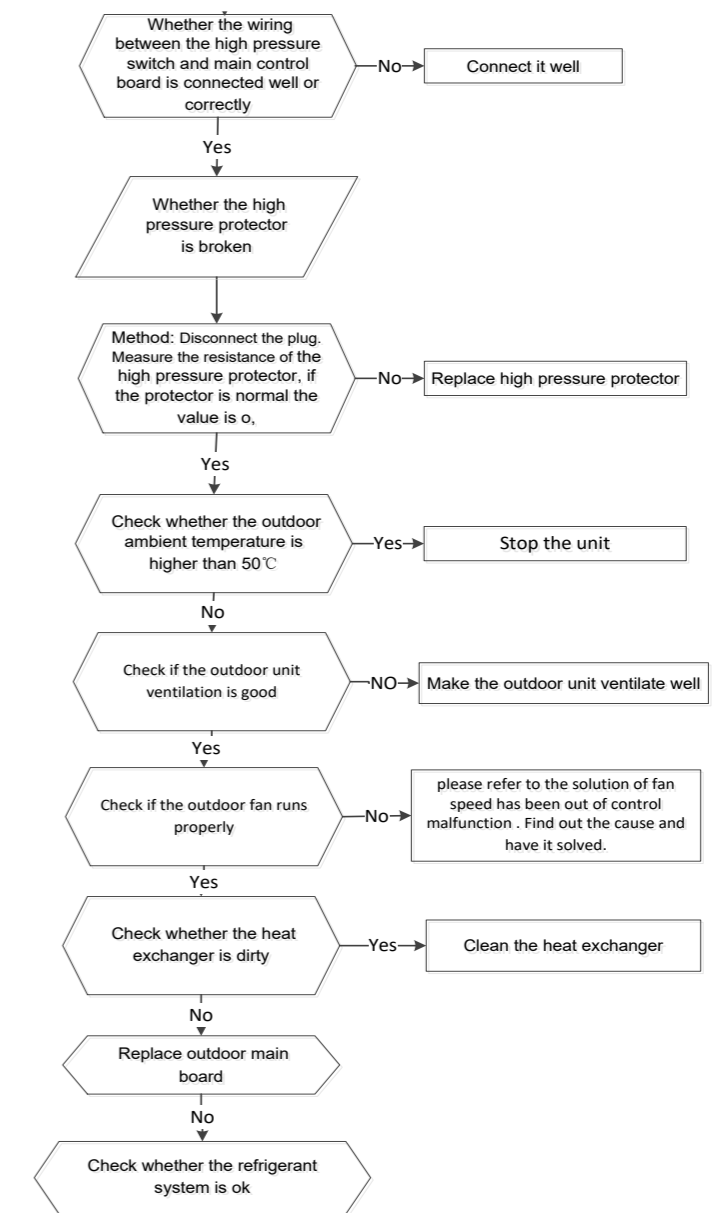
● *Low pressure protection*

Error Code	P2
Malfunction decision conditions	Outdoor pressure switch cut off the system because low pressure is lower than 0.13 MPa
Possible causes	<ul style="list-style-type: none"> • Wiring problem of pressure switch • Faulty pressure switch • Ambient temperature is too low in heating • Liquid valve or EXV is closed in cooling • Lack of refrigerant • Blocked refrigeration piping system • Faulty outdoor PCB



● **High pressure protection**

Error Code	P1
Malfunction decision conditions	Outdoor pressure switch cut off the system because high pressure is higher than 4.4 MPa
Possible causes	<ul style="list-style-type: none"> ● Wiring problem of pressure switch ● Blocked refrigeration piping system ● Bad ventilation of outdoor coil ● Faulty pressure switch ● Faulty outdoor fan ● Faulty outdoor PCB

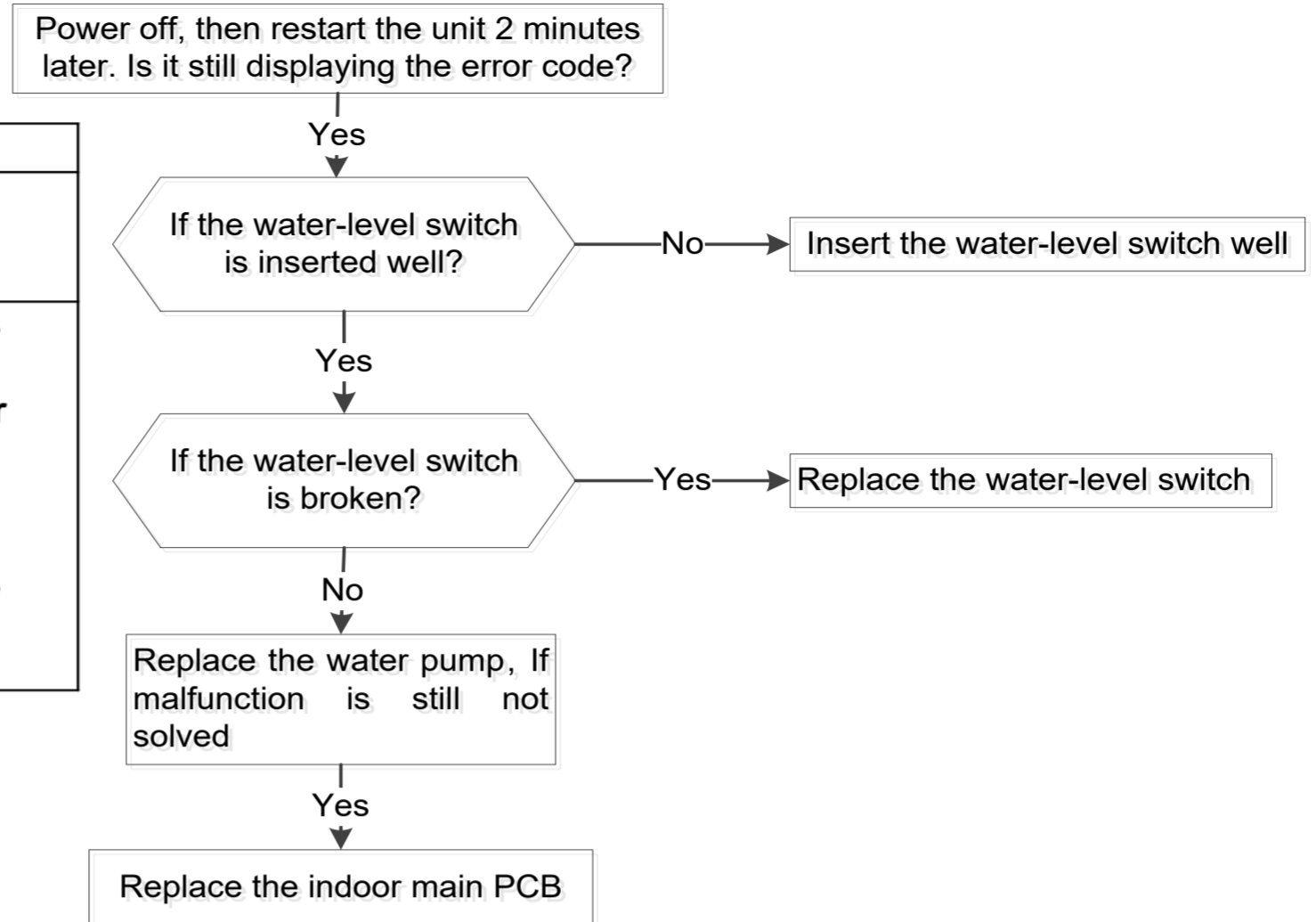


Error Code	P1
Malfunction decision conditions	Outdoor PCB detects the DC voltage is out of range
Possible causes	<ul style="list-style-type: none"> ● Power supply problem ● Faulty rectifier ● Faulty PFC circuit or broken reactor ● Faulty IPM ● Faulty outdoor PCB

● **Water Level Alarm**

[Return Home](#)

Error Code	EE
Malfunction decision conditions	The water level switch is at the max. position to shut down the unit.
Possible causes	<ul style="list-style-type: none"> • Faulty drain pump (for units with drain pump) • Installation mistake of water level switch (for units with drain pump) • Short-circuit jumper is missing or broken (for units without drain pump) • Faulty PCB



ERROR DIAGNOSIS


EE

Code: EE

Error EE:
Condensate float switch error

Possible Causes:

- Not draining properly (pan full)
- Float switch is stuck open
- Board output



Access Hole

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ERROR DIAGNOSIS


EE

Code: EE

Error EE:
Condensate float switch error

Possible Causes:

- Not draining properly (pan full)
- Float switch is stuck open
- Board output

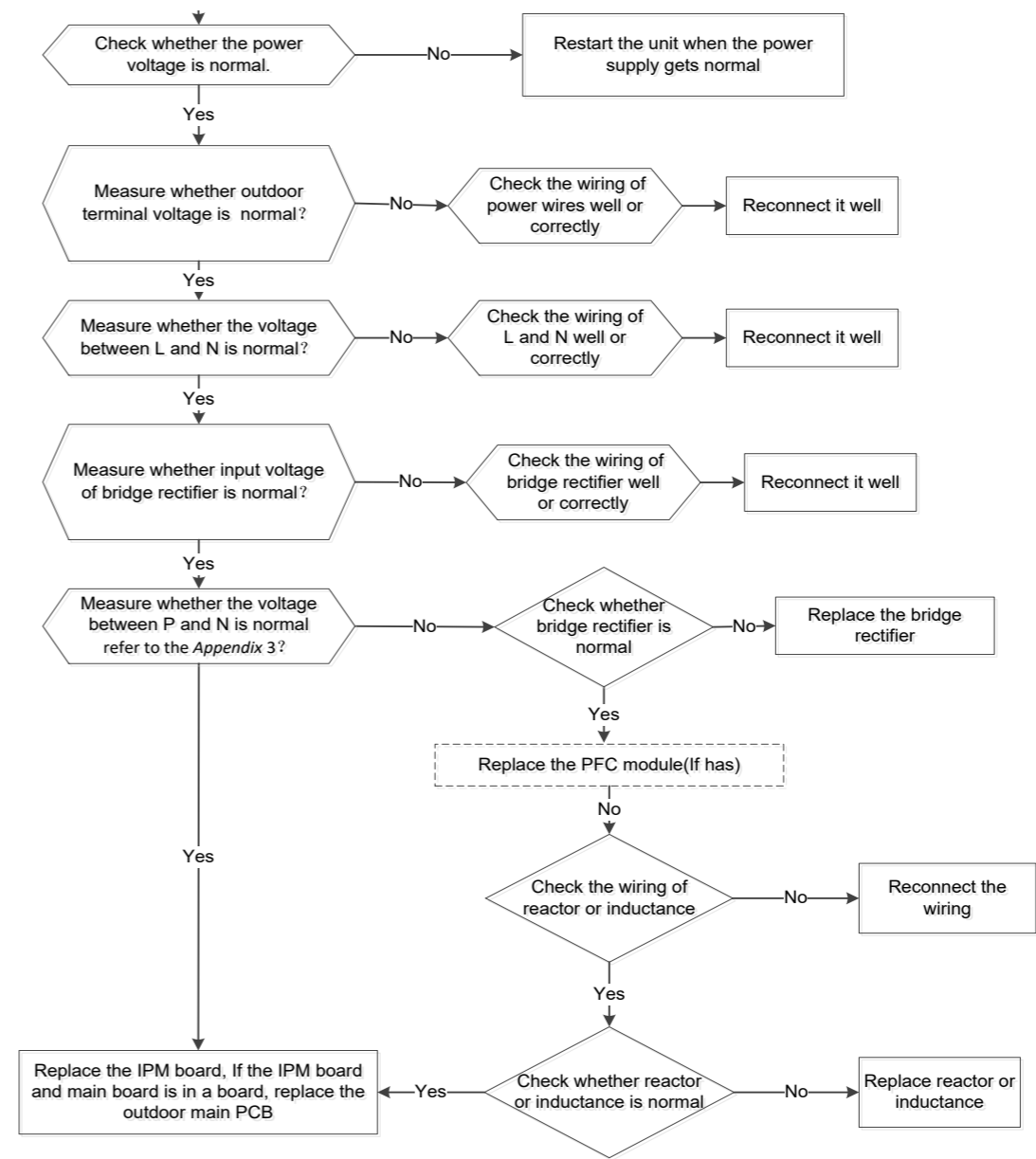


Access Hole

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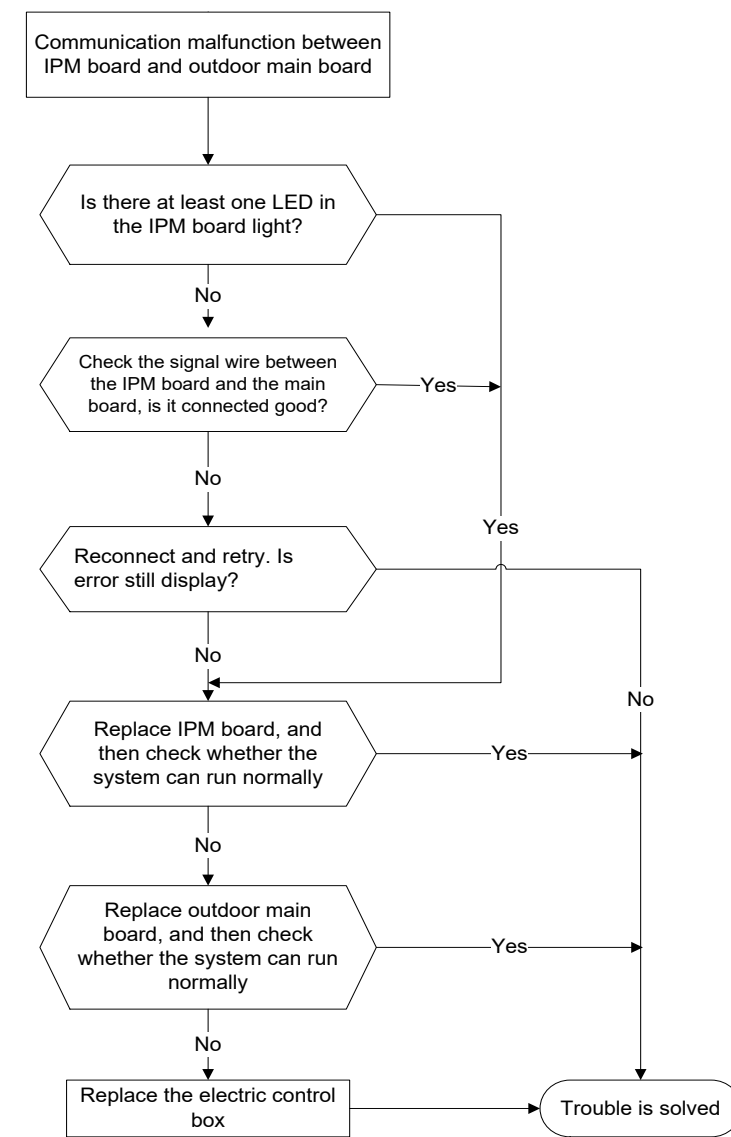
● Voltage protection of compressor

Error Code	E5
Malfunction decision conditions	Outdoor PCB detects the voltage for the compressor is out of range
Possible causes	<ul style="list-style-type: none"> ● Power supply problem ● Faulty rectifier ● Faulty PFC circuit or broken reactor ● Faulty IPM ● Faulty outdoor PCB



● *Communication error between IPM and main PCB*

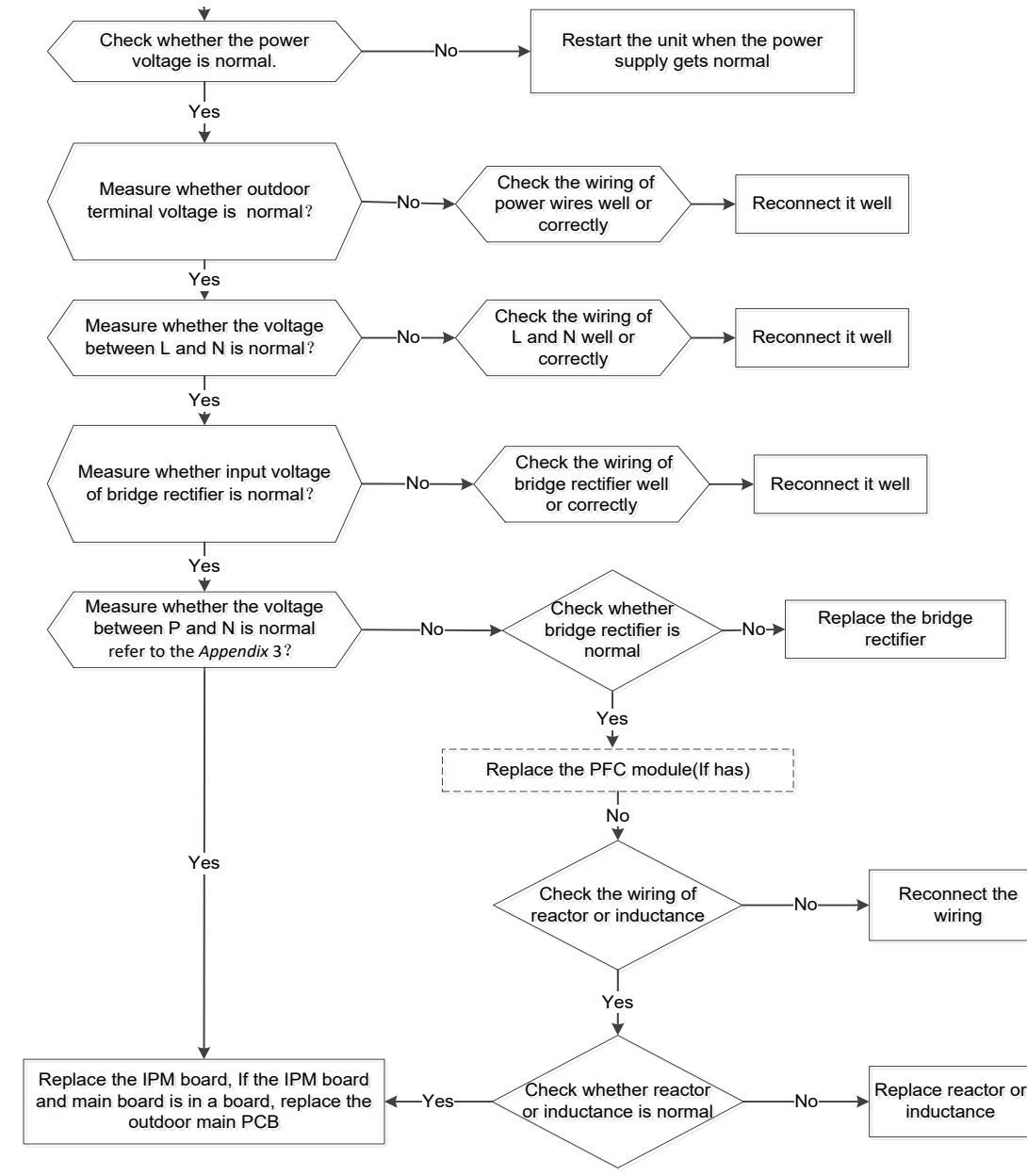
Error Code	E3
Malfunction decision conditions	The main PCB cannot detect the IPM board
Possible causes	<ul style="list-style-type: none">• Wiring mistake• IPM malfunction• Faulty outdoor PCB



● Voltage protection of compressor

[Return Home](#)

Error Code	P6
Malfunction decision conditions	Outdoor PCB detects the voltage for the compressor is out of range
Possible causes	<ul style="list-style-type: none"> • Power supply problem • Faulty rectifier • Faulty PFC circuit or broken reactor • Faulty IPM • Faulty outdoor PCB



Error Diagnosis
MAR - P6 / MGR P4

Code: P4/P6

Error P4/P6:

Compressor discharge temperature Protection (TP) (MA*R - P6)
Temperature protection of compressor discharge (MG*R - P4)

Possible Causes:

- Refrigerant charge
- No refrigerant flow
- Exceeded max line length
- Thermistor
- Compressor
- Board

Error Diagnosis
P6

Thermistor

- Not secured on pipe

Compressor

- Resistance Check
- Wiring
- Tight bearings



Error Diagnosis
P6



P6 Exception

P6 error on only the 36,000 MA*R means low pressure switch.

Error Diagnosis
MAR P4 / MGR P6

Code: P4 / P6

Error P6/P4:

Inverter Compressor Drive Error (MA*R - P4)
IPM Module protection (MG*R - P6)

Possible Causes:

- Communication between main and inverter PCB
- Voltage high, low, imbalance
- Compressor rotation (U,V,W Wiring)
- ODU Fan
- Compressor
- Reactor
- Faulty ODU PCB
- Liquid in oil

High Wall

[Return Home](#)

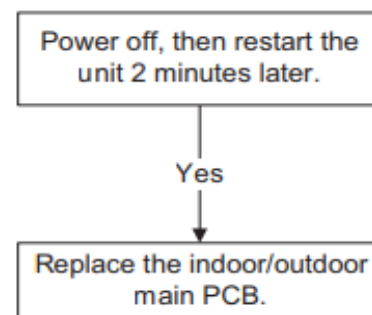
Smart Eye(move sensor) malfunction				EF		
Indoor EEPROM malfunction	E0	E0	E0	E0	E0	
Communication malfunction between indoor and outdoor unit	E1	E1	E1	E1	E1	
Zero-crossing signal detection error (Not available for DC indoor fan motor)	E2	E2	E2	E2	E2	
Indoor fan speed has been out of control	E3	E3	E3	E3	E3	
Indoor room temperature sensor T1 open circuit or short circuit	E4	E4	E4	E4	E4	
Evaporator coil temperature sensor T2 open circuit or short circuit	E5	E5	E5	E5	E5	
Single zone refrigerant leakage	EC	EC	EC	EC	EC	
Indoor display board and indoor main board communication malfunction(appear EH first time then Oh circuit)			EH0b			
-Current overload protection	F0	F0	F0	F0	F0	
(T4) Outdoor room temperature sensor open circuit or short circuit	F1	F1	F1	F1	F1	
(T3) Outdoor condenser pipe temperature sensor error	F2	F2	F2	F2	F2	
(TP) Discharging air temperature sensor error	F3	F3	F3	F3	F3	
Outdoor EEPROM malfunction	F4	F4	F4	F4	F4	
Outdoor fan speed malfunction (DC fan motor)	F5	F5	F5	F5	F5	
T2B) T2B Sensor error(Locate in Multizone ODU for the outlet of evaporator)	F6	F6	F6	F6	F6	
IPM malfunction or IGBT over-strong current protection	P0	P0	P0	P0	P0	
Voltage too high		P11		P11		
Voltage too low		P10		P10		
Voltage protection --DC voltage between P&N out of range	P1	P1	P1	P1	P1	
High temperature protection of IPM module or compressor top	P2	P2	P2	P2	P2	
Outdoor temp.too low protection	P3	P3	P3	P3	P3	
Inverter compressor drive error	P4	P4	P4	P4	P4	
High/Low Pressure protection	P6	P6	P6	P6	P6	
Error of communication between indoor PCB and display PCB	Eb (4 wire connection wire to main board)	Eb	Eb	Eb	Eb	
Temperature sensor error of indoor unit	E6	E6	E6			

DIAGNOSIS AND SOLUTION

EEPROM Parameter Error Diagnosis and Solution (E0/F4)

Error Code	E0/F4
Malfunction decision conditions	Indoor or outdoor PCB main chip does not receive feedback from the EEPROM chip.
Supposed causes	- Installation mistake - PCB faulty

Troubleshooting



EEPROM: A read-only memory whose contents can be erased and reprogrammed using a pulsed voltage. For the EEPROM chip location, please refer to Fig 21 and Fig. 22.

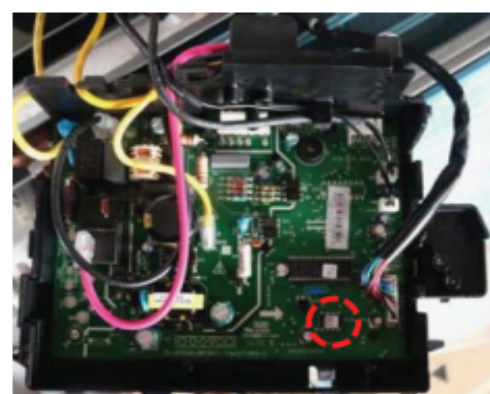
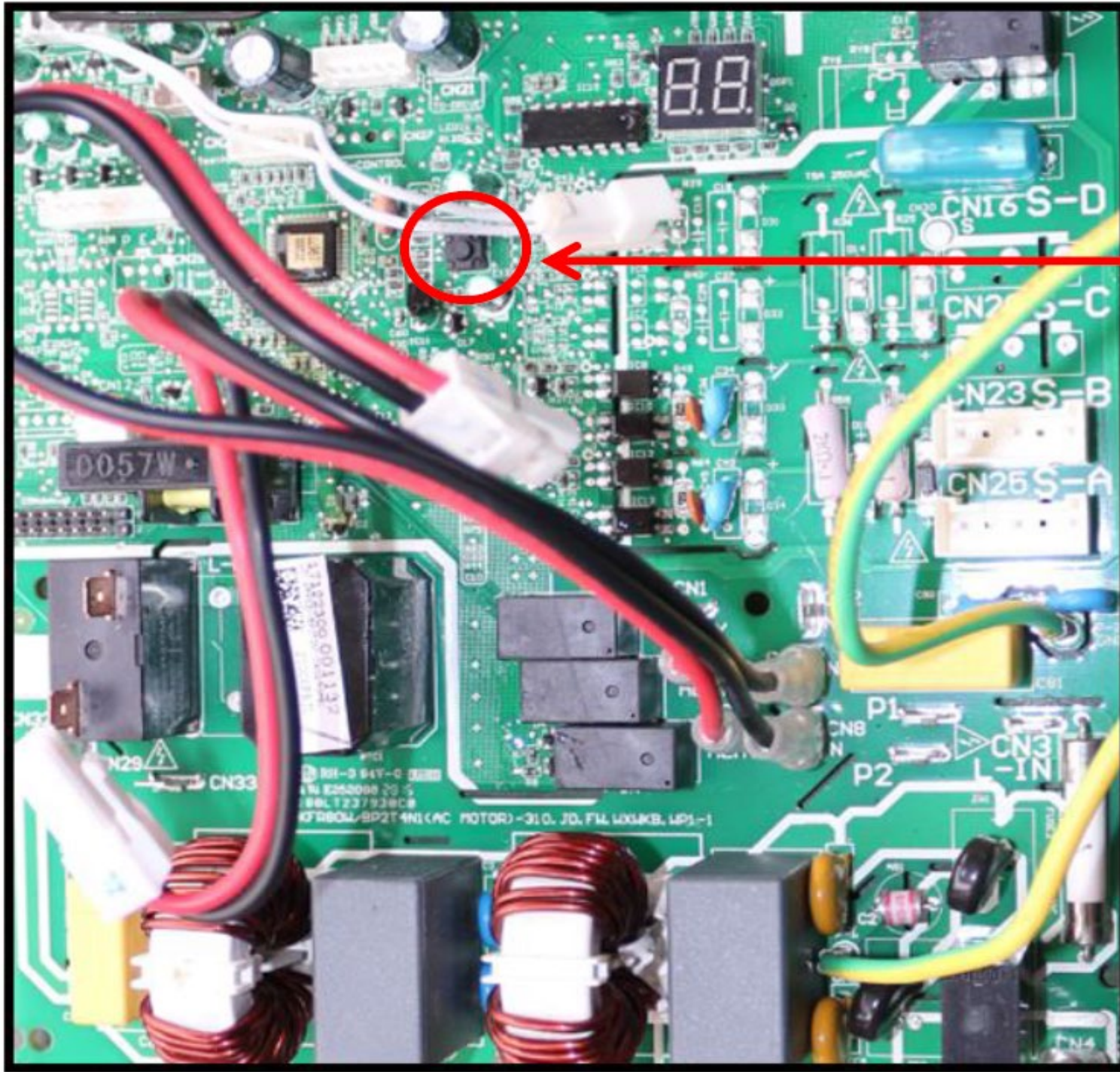


Fig. 21 – Indoor PCB



Fig. 22 – Outdoor PCB (18K Model)

NOTE: The two photos above are for reference only and they may differ from the actual unit.



Number of Presses	Display	Remark												
0	Normal display	Displays running frequency, running state, or malfunction code												
1	Quantity of indoor units with working connection	Actual data <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Display</th> <th>Number of indoor unit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>2</td> </tr> <tr> <td>3</td> <td>3</td> </tr> <tr> <td>4</td> <td>4</td> </tr> <tr> <td>5</td> <td>5</td> </tr> </tbody> </table>	Display	Number of indoor unit	1	1	2	2	3	3	4	4	5	5
Display	Number of indoor unit													
1	1													
2	2													
3	3													
4	4													
5	5													
2	Outdoor unit running mode code	Off: 0, Fan only: 1, Cooling: 2, Heating: 3, Forced cooling: 4. Forced defrost: A												
3	Indoor unit A capacity	The capacity unit is horse power. If the indoor unit is not connected, the digital display shows the following: "—" (9K: 1HP, 12K: 1.2HP, 18K: 1.5HP, 24K: 2.0HP)												
4	Indoor unit B capacity													
5	Indoor unit C capacity													
6	Indoor unit D capacity													
7	Indoor unit E capacity													
8	Indoor unit A capacity demand code	Norm code*HP (9K: 1HP, 12K: 1.2HP, 18K: 1.5HP, 24K: 2.0HP)												
9	Indoor unit B capacity demand code													
10	Indoor unit C capacity demand code													
11	Indoor unit D capacity demand code													
12	Indoor unit E capacity demand code													
13	Outdoor unit amendatory capacity demand code													
14	The frequency corresponding to the total indoor units' amendatory capacity demand													
15	The frequency after the frequency limit													
16	The frequency sending to compressor control chip													
17	Indoor unit A evaporator outlet temperature (T _{2B} A)	If the temperature is lower than -9 °C, the digital display shows "-9." If the temperature is higher than 70 °C, the digital display shows "70." If the												
18	Indoor unit B evaporator outlet temperature (T _{2B} B)													
19	Indoor unit C evaporator outlet temperature (T _{2B} C)													
20	Indoor unit D evaporator outlet temperature													

	(T _{2B} D)	indoor unit is not connected, the digital display shows: "——"		
21	Indoor unit E evaporator outlet temperature (T _{2B} E)			
22	Indoor unit A room temperature (T ₁ A)	If the temperature is lower than 0 °C, the digital display shows "0." If the temperature is higher than 50 °C, the digital display shows "50." If the indoor unit is not connected, the digital display shows: "——"		
23	Indoor unit B room temperature (T ₁ B)			
24	Indoor unit C room temperature (T ₁ C)			
25	Indoor unit D room temperature (T ₁ D)			
26	Indoor unit E room temperature (T ₁ E)			
27	Indoor unit A evaporator temperature (T ₂ A)	If the temperature is lower than -9 °C, the digital display shows "-9." If the temperature is higher than 70 °C, the digital display shows "70." If the indoor unit is not connected, the digital display shows: "——"		
28	Indoor unit B evaporator temperature (T ₂ B)			
29	Indoor unit C evaporator temperature (T ₂ C)			
30	Indoor unit D evaporator temperature (T ₂ D)			
31	Indoor unit E evaporator temperature (T ₂ E)			
32	Condenser pipe temperature (T ₃)			
33	Outdoor ambient temperature (T ₄)			
34	Compressor discharge temperature (TP)	The display value is between 30–129 °C. If the temperature is lower than 30 °C, the digital display shows "30." If the temperature is higher than 99 °C, the digital display shows single and double digits. For example, if the digital display shows "0.5", the compressor discharge temperature is 105 °C.		
35	AD value of current	The display value is a hex number. For example, the digital display tube shows "Cd", it means AD value is 205.		
36	AD value of voltage			
37	EXV open angle for A indoor unit	Actual data/4. If the value is higher than 99, the digital display shows single and double digits. For example, if the digital display shows "2.0", the EXV open angle is 120×4=480p.		
38	EXV open angle for B indoor unit			
39	EXV open angle for C indoor unit			
40	EXV open angle for D indoor unit			
41	EXV open angle for E indoor unit			
42	Frequency limit symbol	Bit7	Frequency limit caused by IGBT radiator	The display value is a hexadecimal number. For example, the digital display show 2A, then Bit5=1, Bit3=1, and Bit1=1. This means that a frequency limit may be caused by T4, T3, or the current.
		Bit6	Frequency limit caused by PFC	
		Bit5	Frequency limit caused by T4.	
		Bit4	Frequency limit caused by T2.	
		Bit3	Frequency limit caused by T3.	
		Bit2	Frequency limit caused by T5.	
		Bit1	Frequency limit caused by current	
		Bit0	Frequency limit caused by voltage	
43	Average value of T2	(Sum T2 value of all indoor units)/(number of indoor units in good connection)		
44	Outdoor unit fan motor state	Off: 0, Super high speed:1, High speed:2, Med speed: 3, Low speed: 4, Breeze:5, Super breeze: 6		
45	The last error or protection code	00 means no malfunction and protection		
46	F indoor unit capacity			
47	F indoor unit capacity demand code			
48	F indoor unit evaporator outlet temperature (T _{2B} F)			
49	F indoor unit room temperature (T ₁ F)			
50	F indoor unit evaporator temperature (T ₂ F)			
51	EXV open angle for F indoor unit			
52	Reason of stop			
53	EVI valve target angle(only for M5OG-48HFN1-M-[X]& M5OA-55HFN1-M-[X])	Actual data/4.		
54	EVI valve open angle(only for M5OG-48HFN1-M-[X]& M5OA-55HFN1-M-[X])	If the value is higher than 99, the digital display tube will show single digit and tens digit.		
55	MVI valve angle(only for M5OG-48HFN1-M-[X]& M5OA-55HFN1-M-[X])	For example, the digital display tube show "2.0",it means the EXV open angle is 120×4=480p.)		



Into Parameter Checking mode



- 1 Press "LED" (or "DO NOT DISTURB") 3 times
- 2 Press "AIR DIRECTION" (or "SWING") 3 times

Finish 1 and 2 within 10 seconds, the beep will keep beeping for 2 seconds, which means the unit goes into parameter checking mode. This operation can be carried out when unit is running, standing by or even faulty.



Parameter Checking operation



When in Parameter Checking mode,

Press "LED" (or "DO NOT DISTURB") for NEXT information

Press "AIR DIRECTION" (or "SWING") for PREVIOUS information



Parameter Checking operation



In "Parameter Checking" mode, the screen will display the code name for 2 seconds, and then the information for 25 seconds. The meaning of codes are as right table shows. If there is no any operation in this 27s or other button is pressed, the unit will quit this mode.

Displaying code	Meaning
T1	Room temperature
T2	Indoor coil temperature
T3	Outdoor coil temperature
T4	Ambient temperature
Tb	Outlet temperature of indoor coil
TP	Discharge temperature
TH	Suction temperature
FT	Targeted Frequency
Fr	Actual Frequency
IF	Indoor fan speed
OF	Outdoor fan speed
LA	EXV opening steps
CT	Compressor continuous running time
ST	Causes of compressor stop.
A0, A1, 0, 1, 2, 3, 4, 5, 6, L, A, UT	Reserved



Parameter Checking operation

Enquiry information	Display value	Meaning	Remark
T1, T2, T3, T4, T2b, TP, TH, Targeted Frequency, Actual Frequency	-1F, -1E, -1d, -1c, -1b, -1A -19-99 A0, A1, ...A9 00, 01, ...09 c0, c1, ...c9 d0, d1, ...d9 E0, E1, ...E9 F0, F1, ...F9	-25, -24, -23, -22, -21, -20 -19-99 100, 101, ...109 110, 111, ...119 120, 121, ...129 130, 131, ...139 140, 141, ...149 150, 151, ...159	1. All the displaying temperature is actual value. 2. All the temperature is °C no matter what kind of remote controller is used. 3. T1, T2, T3, T4, T2b display range: 25~70; TP display range: 20~130. 4. Frequency display range: 0~159HZ. 5. If the actual value exceeds the range, it will display the maximum value or minimum value.
Indoor fan speed /Outdoor fan speed	0 1, 2, 3, 4 14-FF	OFF Low speed, Medium speed, High speed, Turbo Actual fan speed=Display value turns to decimal value and then multiply by 10. The unit is RPM.	For some big capacity motors. For some small capacity motors, display value is from 14-FF(hexadecimal), the corresponding fan speed range is from 2002550RPM.
EXV opening steps	0-FF	Actual EXV opening value=Display value turns to decimal value and then multiply by 2.	
Compressor continuous running time	0-FF	0-255 minutes	If the actual value exceeds the range, it will display the maximum value or minimum value.
Causes of compressor stop.	0-99		For the detailed meaning, please consult with engineer
Reserve	0-FF		Decimal display



Cause of compressor stops

Code	Reasons of compressor stop	Code	Reasons of compressor stop
1	Frequency limit caused by current	24	IMP overcurrent protection
2	Frequency limit caused by T2 in cooling	25	Compressor lack of phase
3	Frequency limit caused by T2 in heating	26	Compressor malfunction
4	Preset temperature reached	27	Low voltage protection of 311
5	Frequency limit caused by T4	28	Fan current protection
6	Defrosting	29	Fan lack of phase
7	Mode switching	30	Fan zero speed protection
9	High discharge temperature protection	31	PFC module protection
10	High evaporator coil temperature T2 protection	32	High voltage protection of 311
11	Evaporator low temperature T2 protection	33	Zero speed malfunction
12	Condenser high temperature T3 protection	34	PWM malfunction
13	Low indoor room temperature protection in drying mode	35	MCE malfunction
14	Low ambient temperature protection	36	Compressor overcurrent protection
15	Refrigerant leakage detection	37	Compressor EE malfunction
16	Communication malfunction between indoor and outdoor units	38	Compressor start-up malfunction
17	Communication error between outdoor main chip and compressor driven chip IR341	39	311 fan speed has been malfunction
18	AC power input voltage protection	40	Low pressure protection
19	Top temperature protection of compressor	41	High pressure protection
20	Outdoor EE Malfunction	42	PFC module malfunction
21	Fan speed malfunction	49	Shutdown stop
22	Temperature sensor open or short circuit	50	Electrical disconnect
23	Overcurrent protection	51	DR stop

[return to home](#)

Old Floor Console

MFAU-12HRFN1-M

MFAU-12HRFN1-M(B)

Operation	Timer	De-frost	Failure
★	X	X	Indoor room temperature sensor (T1) malfunction
X	X	★	Evaporator coil temperature sensor (T2) malfunction
X	★	X	Communication malfunction between indoor and outdoor units
●	★	X	Low ambient temperature cut off in heating
★	★	X	Indoor unit EEPROM parameter error
X	★	●	Outdoor fan speed malfunction
★	X	★	Inverter module (IPM) malfunction
★	★	★	Outdoor temperature sensor(coil sensor T3 or ambient temperature sensor T4) malfunction or Outdoor unit EEPROM parameter error
★	●	X	Compressor top high temperature protection (OLP)
★	⊙	X	Compressor drive protection
★	X	●	Indoor units mode conflict
★	●	★	Indoor fan speed malfunction
⊙	X	X	In standby mode
●	⊙	⊙	In force cooling mode

★ flash at 5Hz, ● light, X extinguished, ⊙flash at 0.5Hz

Old Ducted / Cassette / Floor Ceiling

MTBU-12HRD1-M
MCA2U-12HRFN1-M(B)
MUE-24HRFN1-MW

MTBU-12HRDN1-M(B)
MCA2U-18HRFN1-M

MTBU-18HRDN1-M
MCD-24HRFN1-MW

MTB-24HRFN1-MW
MUBU-12HRFN1-M(B)

MCA2U-12HRFN1-M
MUBU-18HRFN1-M

Operation	Timer	De-frost	Alarm	Failure	Display	ODU Error code
★	X	X	X	Indoor room temperature sensor (T1) malfunction	E0	—
X	X	★	X	Evaporator coil temperature sensor (T2) malfunction	E1	—
X	★	X	X	Communication malfunction between indoor and outdoor units	E2	E2
X	X	X	★	Water-level alarm malfunction	E3	—
★	★	X	X	Indoor unit EEPROM parameter error	E4	—
★	X	X	●	Inverter module (IPM) malfunction	E5	P6
★	●	X	X	Outdoor temperature sensor(coil sensor T3 or ambient temperature sensor T4) malfunction or Outdoor unit EEPROM parameter error	E6	E0,E4
★	●	★	X	Outdoor fan speed malfunction	E7	E8
★	●	●	X	Indoor fan speed malfunction	F5	—
★	●	X	●	Over-voltage or under-voltage protection	P0	E5
★	★	★	X	Current overload protection	P2	P3
★	⊙	X	X	Compressor drive malfunction	P4	—
★	X	●	●	Indoor units mode conflict	P5	—

★ flash at 2.5Hz, ● light, X extinguished, , ◎flash at 0.5Hz

Old Vertu/Luna Series

MS9AI-07HRDN1-M
MSV1I-12HRDN1-M

MS9-09HRDN1-M(A)
MSV1L-18HRDN1-M

MS9AI-12HRDN1-M

MS9AI-18HRDN1-M

MSV1I-09HRDN1-M

De-frost	Timer	Auto	Operation	Failure	Display
●	●	●	●	Indoor unit EEPROM parameter error	E0
★	★	★	★	Communication malfunction between indoor and outdoor units error	E1
●	●	★	★	Zero-crossing signal detection error	E2
●	●	★	★	Indoor fan speed malfunction	E3
X	●	X	★	Outdoor temperature sensor(coil sensor T3 or ambient temperature sensor T4) malfunction or	E5
●	●	●	★	Outdoor unit EEPROM parameter error sensor	
●	●	●	★	Indoor room temperature sensor(room sensor T1 or coil sensor T2) malfunction	E6
★	●	★	★	Outdoor fan speed malfunction	E7
X	X	●	★	Inverter module (IPM) malfunction	P0
X	●	●	★	Over-voltage or under-voltage protection	P1
●	X	X	★	High temperature protection of compressor top	P2
●	X	●	★	Low ambient temperature cut off in heating	P3
●	X	★	★	Compressor drive malfunction	P4
X	●	★	★	Indoor units mode conflict	P5

All New Models New Highwall, New Ducted, Cassette, Floor, Ceiling.

Oasis

CS11M-09HRFN1-MX0W(A)
MS11M-12HRFN1-MV0W
MS11M-30HRFN1-MR0W,

CS11M-12HRFN1-MU5W
MS11M-09HRFN1-MX4W
MS11M-36HRFN1-MN10W

CS11M-18HRFN1-MT0W
MS11M-12HRFN1-MW0W

CS11M-23HRFN1-MT0W;
MS11M-18HRFN1-MU0W

MS11M-09HRFN1-MW0W
MS11M-24HRDN1-MT0W

Aroua

MSABB-09HRFN1-MT0W
MSABF-36HRFN1-MP0W

MSABB-12HRFN1-MT0W

MSABE-18HRFN1-MT0W

MSABE-24HRFN1-MT0W

MSABF-30HRFN1-MR0W

All - Easy

MSAEB-09HRFN1-MT0W

MSAEB-12HRFN1-MT0W

MSAED-18HRFN1-MT0W

MSAED-23HRFN1-MT0W

Vertu - Plus

MSVBP-09HRFN1-MW0W

MSVPC-12HRFN1-MU0W

MSVPD-18HRFN1-MT0W

MSVPD-22HRFN1-MT0W

Mission

MSMBB-09HRFN1-MW0W

MSMBB-12HRFN1-MU0W

MSMBD-18HRFN1-MT0W

MSMBD-23HRFN1-MT0W

Fairwind

MS12F-09HRFN1-MT0W(A)

MS12F-12HRFN1-MT0W

MS12F1-17HRFN1-MT0W

MS12F1-22HRFN1-MS0W

New Duct

CTBU-09HWFN1-M◎
MTIU-09HWFN1-M

CTBU-12HWFN1-M◎
MTIU-12HWFN1-M

CTBU-18HWFN1-M◎
MTIU-18HWFN1-M

CTBU-24HWFN1-M(C)
MTIU-24HWFN1-M

New Cassette

CCA3U-09HRFN1-M◎

CCA3U-12HRFN1-M◎

CCA3U-18HRFN1-M◎

MCDU-24HRFN1-M(C)

New Floor / Ceiling Console

CFAU-09HRFN1-M◎

CFAU-12HRFN1-M(C)

MUEU-18HRFN1-M◎

MUEU-24HRFN1-M(C)

Operation lamp	Timer lamp	Display	LED STATUS	ODU Error
★ 1 time	X	E0	Indoor unit EEPROM parameter error	—
★ 2 times	X	E1	Communication malfunction between indoor and outdoor units	E2
★ 4 times	X	E3	Indoor fan speed malfunction	—
★ 5 times	X	E4	Indoor room temperature sensor (T1) malfunction	—
★ 6 times	X	E5	Evaporator coil temperature sensor (T2) malfunction	—
★ 9 times	X	EH 0b/Eb	Indoor PCB/Display board communication error	—
★ 8 times	X	EE	Water-level alarm malfunction	—
★ 7 times	X	EC	Refrigerant leakage detection	—
★ 1 time	●	F0	Current overload protection	—
★ 2 times	●	F1	Outdoor ambient temperature sensor (T4) malfunction	E4
★ 3 times	●	F2	Condenser coil temperature sensor (T3) malfunction	E4
★ 4 times	●	F3	Compressor discharge temperature sensor (T5) malfunction	E4

★ 5 times	●	F4	Outdoor unit EEPROM parameter error	E0
★ 6 times	●	F5	Outdoor fan speed malfunction	E8
★ 7 times	●	F6	Indoor coil outlet pipe sensor(Located on outdoor unit low pressure valve)	—
★ 8 times	●	F7	Communication malfunction between Cassette optional lift panel and the unit.	—
★ 9 times	●	F8	Cassette optional lift panel malfunction	—
★ 10 times	●	F9	Cassette optional lift panel not closed	—
★ 11 times	●	FA	Communication error between indoor two chips(For A6 Duct)	—
★ 1 time	★	P0	Inverter module (IPM) malfunction	P6
★ 2 times	★	P1	Over-voltage or under-voltage protection	E5
★ 3 times	★	P2	High temperature protection of compressor top(OLP)/ High temperature protection of IPM board	—
★ 4 times	★	P3	Low ambient temperature protection	LP
★ 5 times	★	P4	Compressor drive malfunction	—
★ 6 times	★	P5 (—)	Indoor units mode conflict	—
★ 7 times	★	P6	Low pressure protection	P2
★ flash , ● light, X extinguished				

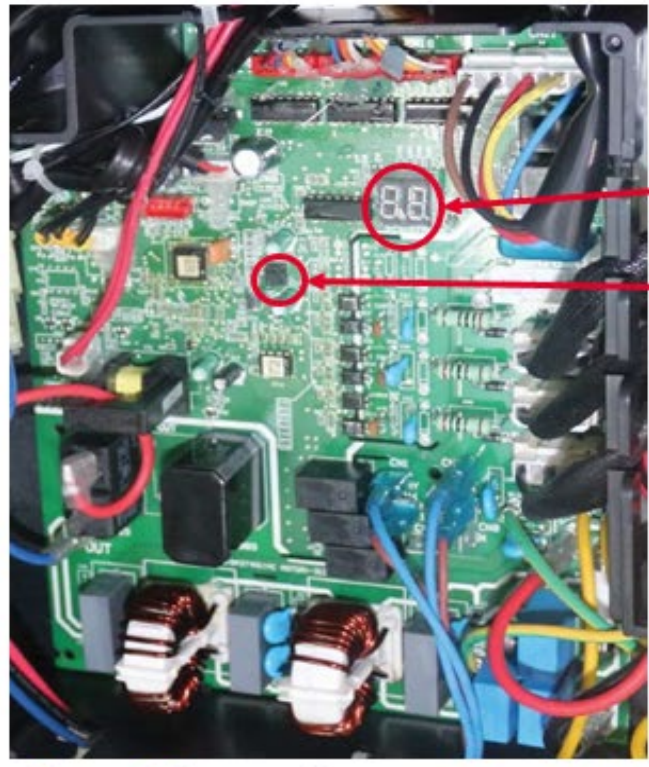
All Easy Pro, Infini type

Operation lamp	Timer lamp	Display	LED STATUS	ODU Error
★ 1 time	X	EH 00/EH 0A	Indoor unit EEPROM parameter error	—
★ 2 times	X	EL 01	Communication malfunction between indoor and outdoor units	E2
★ 4 times	X	EH 03	Indoor fan speed malfunction	—
★ 6 times	X	EH 60	Indoor room temperature sensor (T1) malfunction	—
★ 6 times	X	EH 61	Evaporator coil temperature sensor (T2) malfunction	—
★ 1 time	★	PC 08	Current overload protection	—
★ 5 times	X	EC 53	Outdoor ambient temperature sensor (T4) malfunction	E4
★ 5 times	X	EC 52	Condenser coil temperature sensor (T3) malfunction	E4
★ 5 times	X	EC 54	Compressor discharge temperature sensor (T5) malfunction	E4
★ 5 times	X	EC 51	Outdoor unit EEPROM parameter error	E0
★ 12 times	X	EC 07	Outdoor fan speed malfunction	E8
★ 5 times	X	EC 56	Indoor coil outlet pipe sensor(Located on outdoor unit low pressure valve)	—
★ 9 times	X	EH 0b	Indoor PCB/Display board communication error	—
★ 8 times	X	EL 0C	Refrigerant leakage detection	—
★ 7 times	★	PC 00	Inverter module (IPM) malfunction	P6
★ 2 times	★	PC 01	Over-voltage or under-voltage protection	E5
★ 3 times	★	PC 02	High temperature protection of compressor top(OLP)/ High temperature protection of IPM board	—
★ 4 times	★	PC 01	Low ambient temperature protection	LP

★4 times	★	PC 0L	Low ambient temperature protection	—
★ 5 times	★	PC 04	Compressor drive malfunction	—
★ 1 time	●	—	Indoor units mode conflict	—
★ 7 times	★	PC 03	Low pressure protection	P2

★ flash , ● light, X extinguished

SERVICE TOOLS OUTDOOR SPOT CHECK



LED Display
Push Button

Display will show operational Status or Compressor Frequency until button is pressed



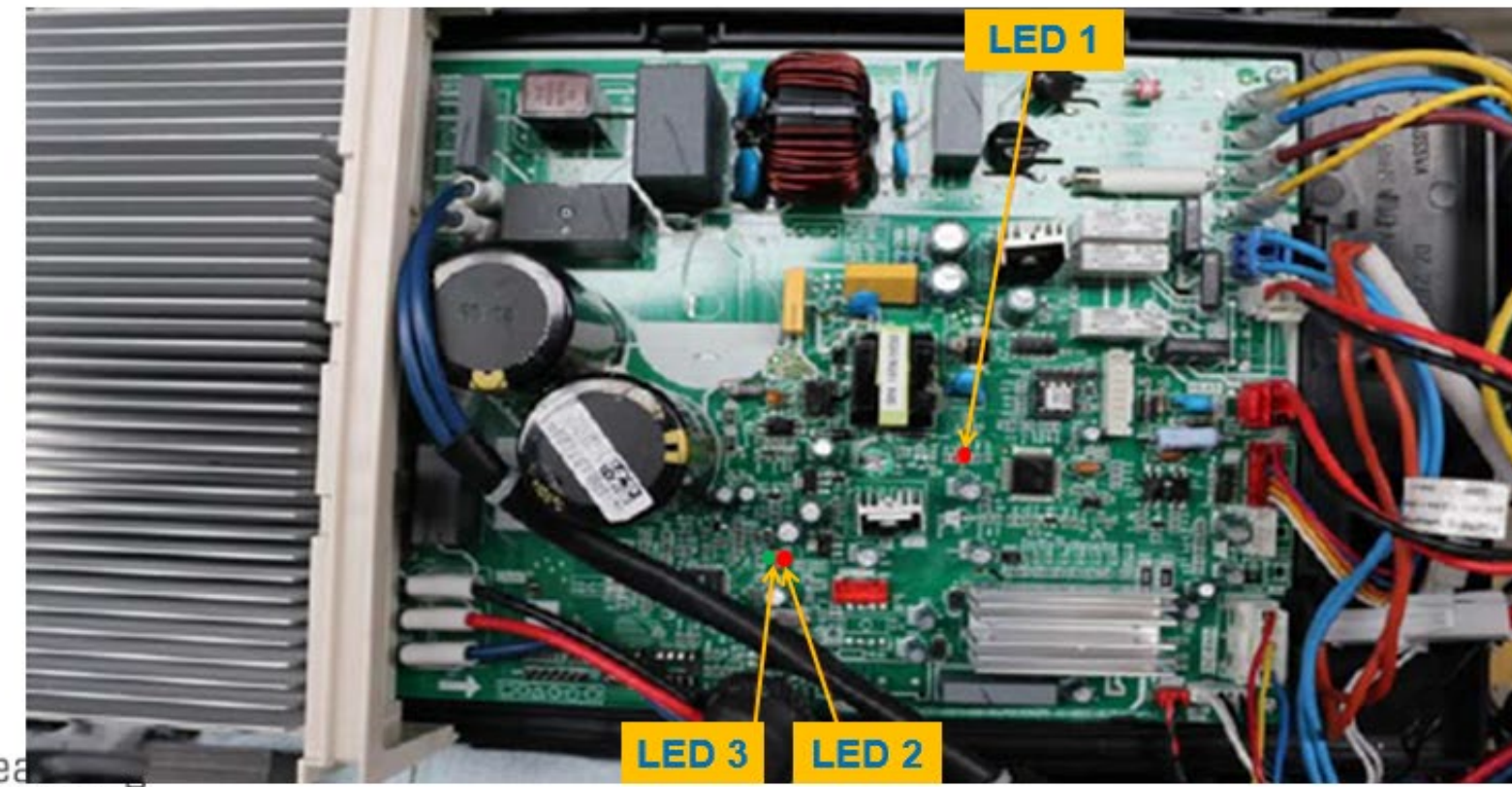
SERVICE TOOLS OUTDOOR SPOT CHECK

No. of Presets	Display	Remark										
0	Normal Display	Displays running frequency, running state, or malfunction code										
1	Quantity of indoor units with working connection	<table border="1"> <thead> <tr> <th>Display</th> <th>Number of Indoor Units</th> </tr> </thead> <tbody> <tr><td>1</td><td>1</td></tr> <tr><td>2</td><td>2</td></tr> <tr><td>3</td><td>3</td></tr> <tr><td>4</td><td>4</td></tr> </tbody> </table>	Display	Number of Indoor Units	1	1	2	2	3	3	4	4
Display	Number of Indoor Units											
1	1											
2	2											
3	3											
4	4											
2	Outdoor unit running mode code	CR: 0: Fan only; 1: Cooling; 2: Heating; 3: Forced cooling; 4: Forced defrost; A										
3	Indoor unit A capacity											
4	Indoor unit B capacity											
5	Indoor unit C capacity											
6	Indoor unit D capacity											
7	Indoor unit E capacity											
8	Indoor unit A capacity demand code											
9	Indoor unit B capacity demand code											
10	Indoor unit C capacity demand code											
11	Indoor unit D capacity demand code											
12	Indoor unit E capacity demand code											
13	Outdoor unit emergency capacity demand code											
14	The frequency corresponding to the total indoor unit's emergency capacity demand											
15	The frequency after the frequency limit											
16	The frequency sending to compressor control chip											
17	Indoor unit A evaporator outlet temperature (T2BA)											
18	Indoor unit B evaporator outlet temperature (T2BB)											
19	Indoor unit C evaporator outlet temperature (T2BC)											
20	Indoor unit D evaporator outlet temperature (T2BD)											
21	Indoor unit E evaporator outlet temperature (T2BE)											
22	Indoor unit A room temperature (T1A)											
23	Indoor unit B room temperature (T1B)											
24	Indoor unit C room temperature (T1C)											
25	Indoor unit D room temperature (T1D)											
26	Indoor unit E room temperature (T1E)											

SERVICE TOOLS OUTDOOR SPOT CHECK

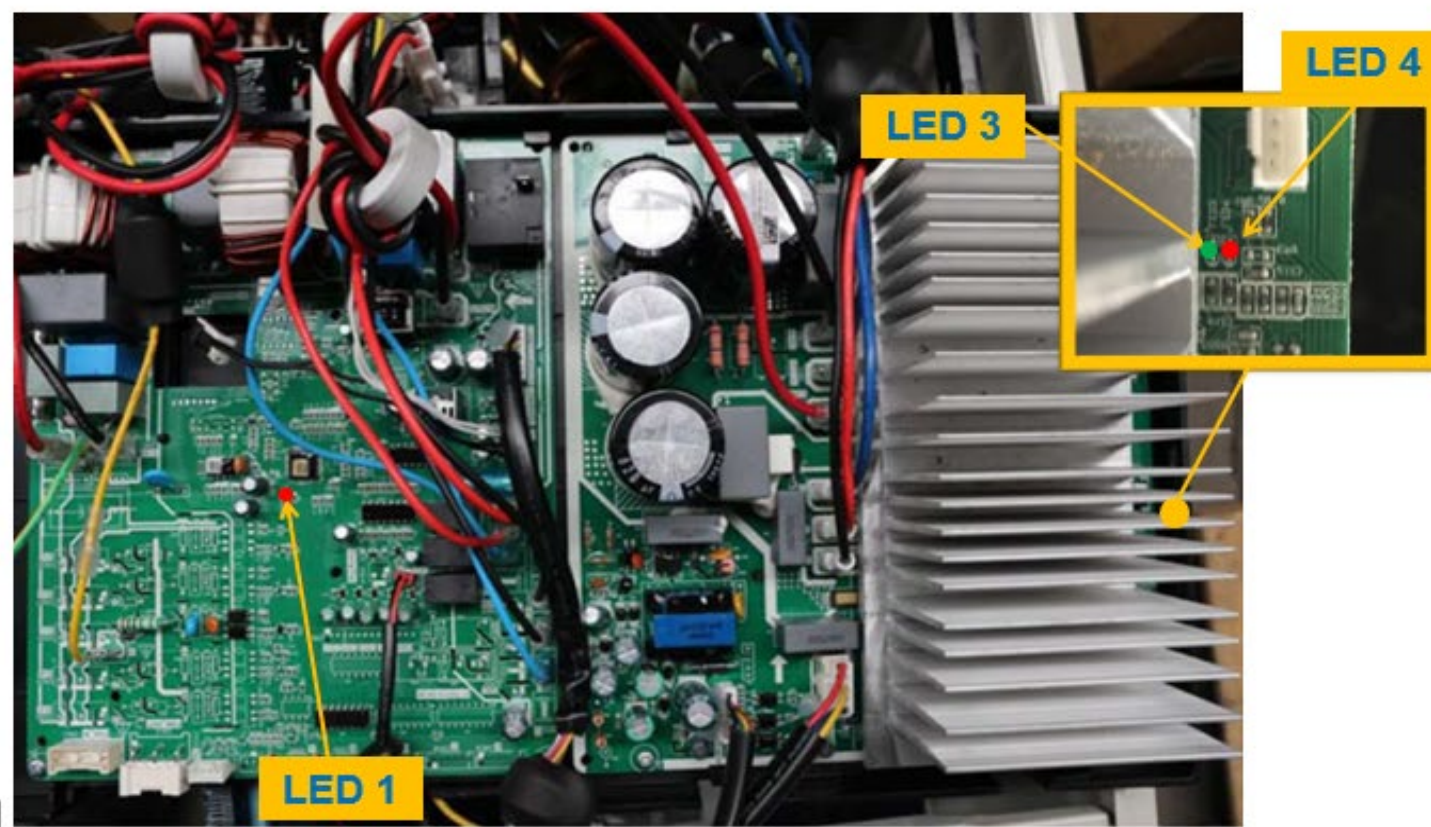
27	Indoor unit A evaporator temperature (T2A)																												
28	Indoor unit B evaporator temperature (T2B)																												
29	Indoor unit C evaporator temperature (T2C)																												
30	Indoor unit D evaporator temperature (T2D)																												
31	Indoor unit E evaporator temperature (T2E)																												
32	Condenser pipe temperature (T3)																												
33	Outdoor ambient temperature (T4)																												
34	Compressor discharge temperature (T5)																												
35	AD value of current																												
36	AD value of voltage																												
37	EXV open angle for A indoor unit																												
38	EXV open angle for B indoor unit																												
39	EXV open angle for C indoor unit																												
40	EXV open angle for D indoor unit																												
41	EXV open angle for E indoor unit																												
42	Frequency limit symbol	<table border="1"> <thead> <tr> <th>Symbol</th> <th>Frequency limit caused by</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>B67</td> <td>Frequency limit caused by IGBT radiator</td> <td></td> </tr> <tr> <td>B68</td> <td>Frequency limit caused by 2PC</td> <td></td> </tr> <tr> <td>B69</td> <td>Frequency limit caused by T4</td> <td></td> </tr> <tr> <td>B70</td> <td>Frequency limit caused by T2</td> <td></td> </tr> <tr> <td>B71</td> <td>Frequency limit caused by T3</td> <td></td> </tr> <tr> <td>B72</td> <td>Frequency limit caused by T5</td> <td></td> </tr> <tr> <td>B73</td> <td>Frequency limit caused by current</td> <td></td> </tr> <tr> <td>B74</td> <td>Frequency limit caused by voltage</td> <td></td> </tr> </tbody> </table> <p>The display value is a hexadecimal number. For example, the digital display shows "02", it means AD value is 205.</p> <p>Actual data 4: If the value is higher than 99, the digital display shows single and double digits. For example, if the digital display shows "7.0", the EXV open angle is 120.4°±0.0°.</p> <p>The display value is between 20-129 °C. If the temperature is lower than 20 °C, the digital display shows "20". If the temperature is higher than 99 °C, the digital display shows single and double digits. For example, if the digital display shows "0.5", the compressor discharge temperature is 105 °C.</p> <p>The display value is a hexadecimal number. For example, the digital display shows "2A", then B67=1, B68=1, and B69=1. This means that a frequency limit may be caused by T4, T5, or the current.</p> <p>(Sum T2 value of all indoor units/number of indoor units in good connection)</p> <p>CR: 0: High speed; 1: Med speed; 2: Low speed; 3: Breeze4; 4: Super breeze; 5: 00 means No Malfunction and Protection.</p>	Symbol	Frequency limit caused by	Remark	B67	Frequency limit caused by IGBT radiator		B68	Frequency limit caused by 2PC		B69	Frequency limit caused by T4		B70	Frequency limit caused by T2		B71	Frequency limit caused by T3		B72	Frequency limit caused by T5		B73	Frequency limit caused by current		B74	Frequency limit caused by voltage	
Symbol	Frequency limit caused by	Remark																											
B67	Frequency limit caused by IGBT radiator																												
B68	Frequency limit caused by 2PC																												
B69	Frequency limit caused by T4																												
B70	Frequency limit caused by T2																												
B71	Frequency limit caused by T3																												
B72	Frequency limit caused by T5																												
B73	Frequency limit caused by current																												
B74	Frequency limit caused by voltage																												
43	Average value of T2																												
44	Outdoor unit fan indoor state																												
45	The last error or protection code																												
46	F indoor unit capacity																												
47	F indoor unit capacity demand code																												
48	F indoor unit evaporator outlet temperature (T2BF)																												
49	F indoor unit room temperature (T1F)																												
50	F indoor unit evaporator temperature (T2F)																												
51	EXV open angle for F indoor unit																												

SERVICE TOOLS SIZES 9-18K (208-230V) OUTDOOR



SERVICE TOOLS SIZES 24-36 (208-230V) OUTDOOR

SERVICE TOOLS LED CODES



LED1 (RED): Slow 1Hz = Standby; Fast 3Hz Error

Contents	LED3 (Green)	LED2 (Red)
Normal standby	On	Off
Normal operation	Off	On
DC voltage too high/too low protection	On	On
Compressor driven chip EEPROM error	On	Flash
Compressor speed malfunction	Off	Flash
Zero speed protection of compressor/ outdoor fan or lack of phase of compressor or outdoor fan	Flash	On
IGBT strong current protection	Flash	Off
Communication error between outdoor main chip and compressor driven chip	Flash	Flash

SERVICE TOOLS

RG10 INQUIRY MODE

To Access Inquiry Mode:

1. Hold ON/OFF and FAN Buttons for 8 sec.



SERVICE TOOLS

RG10 INQUIRY MODE

2. Select item of inquiry



CODE	INQUIRY	INQUIRY DESCRIPTION	SERVICE MODE	FOR SERVICE PRESS SHIRT FOR 3 SECONDS TO	SELECTION GUIDELINES
0	Error Code Check	Press OK to view the current error code.	SERVICE AND INQUIRY	Press OK to view the current error code.	
1	Indoor Ambient Temperature	Change the power of indoor fan operation. This is not available for the outdoor unit. Press OK to return to the normal mode.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	Memory settings are off. Memory settings are on.
2	Indoor Fan Temperature	Change the option to control the indoor fan operation after reaching the set temperature.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	1. Fan On Speed 2. Fan On Delay 3. Fan On Time 4. Fan On Delay 5. Fan On Time 6. Fan On Delay 7. Fan On Time 8. Fan On Delay 9. Fan On Time 10. Fan On Delay 11. Fan On Time 12. Fan On Delay
3	Outdoor Ambient Temperature	Change the option to control the COOLING and HEATING modes available for use on the unit. Press UP or DOWN to cycle through the settings. Press OK to confirm the selection.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	COOLING, OFF, HEATING and FAN modes available. COOLING and HEATING modes available. COOLING and HEATING modes available.
4	Outdoor Ambient Temperature	Change the selection of the lowest set temperature.	SERVICE AND INQUIRY	NOTE: Temperature range is 8°F - 7°F (9°C - 8°C). Press UP or DOWN to select temperature setting. Press OK to confirm.	
5	Compressor Temperature	Change the selection of the highest set temperature.	SERVICE AND INQUIRY	NOTE: Temperature range is 7°F - 8°F (8°C - 9°C). Press UP or DOWN to select the temperature setting. Press OK to confirm.	
6	Compressor Temperature	Change the unit pressure selection.	INQUIRY ONLY		
7	Compressor Temperature	Change the unit pressure selection.	INQUIRY ONLY		
8	Unit Voltage	Change the unit voltage selection.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	Only available on ductless/MSA units. Make the appropriate voltage selection for Fan performance at varying unit pressures for unit settings.
9	Unit Voltage	Change the unit voltage selection.	INQUIRY ONLY		
10	Unit Voltage	Change the unit voltage selection.	INQUIRY ONLY		

SERVICE TOOLS

RG10 SERVICE FUNCTIONS



In order to make changes in service mode:

1. Turn off the indoor unit with the remote
2. Turn off the power to the outdoor unit for 2 minutes
3. Turn on the power and remove the batteries from the remote to clear the screen
4. Within 30 seconds of replacing the batteries, simultaneously press ON/OFF and FAN SPEED buttons to go into inquiry mode
5. Scroll with temperature buttons to the item to be changed
6. Press and hold down the Power button on the remote for 2 seconds-the system is now in Service Mode(Ch will be displayed)



SERVICE TOOLS

RG10 SERVICE FUNCTIONS

1. With Ch displayed press the ok button on the remote to initiate the change, then after the change is made hit ok again.
2. After change is made power cycle the outdoor unit for 2 minutes to save the change.

For example-changing the indoor fan speed during thermal off:

1. Select item 2 in inquiry mode;
2. Hold the power button down for 2 seconds to change to service mode;
3. Press ok to make the change-the indoor unit should beep;
4. Select option 1 with the up/down arrows for fan off during thermal off;
5. Select ok, then power cycle the outdoor unit for 2 minutes to save the change.



CODE	INQUIRY	INQUIRY DESCRIPTION	SERVICE MODE	FOR SERVICE PRESS SHIRT FOR 3 SECONDS TO	SELECTION GUIDELINES
0	Error Code Check	Press OK to view the current error code.	SERVICE AND INQUIRY	Press OK to view the current error code.	
1	Indoor Ambient Temperature	Change the power of indoor fan operation. This is not available for the outdoor unit. Press OK to return to the normal mode.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	Memory settings are off. Memory settings are on.
2	Indoor Fan Temperature	Change the option to control the indoor fan operation after reaching the set temperature.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	1. Fan On Speed 2. Fan On Delay 3. Fan On Time 4. Fan On Delay 5. Fan On Time 6. Fan On Delay 7. Fan On Time 8. Fan On Delay 9. Fan On Time 10. Fan On Delay 11. Fan On Time 12. Fan On Delay
3	Outdoor Ambient Temperature	Change the option to control the COOLING and HEATING modes available for use on the unit. Press UP or DOWN to cycle through the settings. Press OK to confirm the selection.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	COOLING, OFF, HEATING and FAN modes available. COOLING and HEATING modes available. COOLING and HEATING modes available.
4	Outdoor Ambient Temperature	Change the selection of the lowest set temperature.	SERVICE AND INQUIRY	NOTE: Temperature range is 8°F - 7°F (9°C - 8°C). Press UP or DOWN to select temperature setting. Press OK to confirm.	
5	Compressor Temperature	Change the selection of the highest set temperature.	SERVICE AND INQUIRY	NOTE: Temperature range is 7°F - 8°F (8°C - 9°C). Press UP or DOWN to select the temperature setting. Press OK to confirm.	
6	Compressor Temperature	Change the unit pressure selection.	INQUIRY ONLY		
7	Compressor Temperature	Change the unit pressure selection.	INQUIRY ONLY		
8	Unit Voltage	Change the unit voltage selection.	SERVICE AND INQUIRY	Display "Ch" Press OK to return the current setting. Press UP or DOWN to cycle through settings. Press OK to confirm the selection.	Only available on ductless/MSA units. Make the appropriate voltage selection for Fan performance at varying unit pressures for unit settings.
9	Unit Voltage	Change the unit voltage selection.	INQUIRY ONLY		
10	Unit Voltage	Change the unit voltage selection.	INQUIRY ONLY		

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Overload protection	F0	F0	F0	F0	F0	P3
(T4) Outdoor ambient temperature sensor T4 open circuit or short circuit	F1	F1	F1	F1	F1	E4
(T3) Condenser coil temperature sensor T3 open circuit or short circuit	F2	F2	F2	F2	F2	E4
(TP) Compressor discharge temperature sensor T5 open circuit or short circuit	F3	F3	F3	F3	F3	E4
Outdoor EEPROM parameter error	F4	F4	F4	F4	F4	E0
Outdoor fan speed has been out of control (DC fan motor)	F5	F5	F5	F5	F5	E8
(T2B) T2B Sensor(Locate in Multizone ODU for the outlet of evaporator) Multifunction	F6	F6				

Indoor unit EEPROM parameter error	E0	E0	E0	E0		
Indoor / outdoor units communication error	E1	E1	E1	E1	E1	E2
Indoor fan speed has been out of control	E3	E3	E3	E3		
Indoor room temperature sensor T1 open circuit or short circuit	E4	E4	E4	E4		
Evaporator coil temperature sensor T2 open circuit or short circuit	E5	E5	E5	E5		
PFC module protection					J3	E6
reserve						E7
24K Wrong connection						E9

Single zone refrigerant leakage	EC	EC	EC	EC		
Water level alarm	EE	EE	EE	EE		

IPM malfunction or IGBT over-strong current protection	P0	P0	P0	P0	P0	P6
DC voltage between P&N out of range	P1	P1	P1	P1	P1	E5
High temperature protection of IPM module or compressor top	P2	P2	P2	P2	P2	P0
Outdoor ambient temp too low protection	P3	P3	P3	P3	P3	LP
Inverter compressor drive error	P4	P4	P4	P4	P4	
High Pressure protection	P6	P6	P6	P6	J5	P1
Low Pressure protection	P6	P6	P6	P6	J6	P2
Outdoor IPM module temperature sensor malfunction	P7	P7	P7	P7	P7	

Compressor gas temperature protection					J2	P4
Cool model outdoor temp.too high protection					J1	P5
P7 Heat model indoor coil temp.too high protection					J0	
Power supply voltage protection					J8	
Communication malfunction between control board and IPM board					J4	
automatic wire/pipe correction function display with CE						CE
Indoor PCB main chip does not receive feedback from another chip		FA		FA		

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DISPLAY on Light Commercial IDU	DISPLAY on PROGRAMMABLE WIRED CONTROLLER	INDOOR UNIT ERROR CODE DEFINITION
N/A	F0	Communication error between wired controller and indoor unit
N/A	F1	The cassette pannel is abnormal
E0	E7	Indoor unit EEPROM error
E1	E1	Communication error between indoor unit and outdoor units
E3	E8	Indoor fan speed error
E4	E2	Indoor Return air temperature sensor error
E5	E3	Indoor coil temperature sensor error
EC	EF	Low refrigerant
EE	EE	High water level alarm
E8	EF	Communication error with Master and slaver unit
E9	EF	Communication error with Master and slaver unit
F1	E5	Outdoor ambient temperature sensor error
F2	E5	Outdoor coil temperature sensor error
F3	E5	Compressor discharge temperature sensor error
F4	ED	Outdoor unit EEPROM error
F5	ED	Outdoor unit fan speed error
F6	E4	Indoor coil outlet temperature sensor error
FA	EF	Communication error with Master and slaver unit
P0	EB	Inverter module IPM error
P7	EF	Outdoor IGBT temperature sensor error

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DISPLAY on Light Commercial IDU	DISPLAY on PROGRAMMABLE WIRED CONTROLLER	INDOOR UNIT ERROR CODE DEFINITION
N/A	F0	Communication error between wired controller and indoor unit
N/A	F1	The cassette pannel is abnormal
E0	E7	Indoor unit EEPROM error
E1	E1	Communication error between indoor unit and outdoor units
E3	E8	Indoor fan speed error
E4	E2	Indoor Return air temperature sensor error
E5	E3	Indoor coil temperature sensor error
EC	EF	Low refrigerant
EE	EE	High water level alarm
E8	EF	Communication error with Master and slaver unit
E9	EF	Communication error with Master and slaver unit
F1	E5	Outdoor ambient temperature sensor error
F2	E5	Outdoor coil temperature sensor error
F3	E5	Compressor discharge temperature sensor error
F4	ED	Outdoor unit EEPROM error
F5	ED	Outdoor unit fan speed error
F6	E4	Indoor coil outlet temperature sensor error
FA	EF	Communication error with Master and slaver unit
P0	EB	Inverter module IPM error
P7	EF	Outdoor IGBT temperature sensor error

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THE CROSSOVER 40MUAA DISPLAY MODES OF OPERATION

IDLE/STANDBY	00
CONSTANT FAN	01
COOLING Y1	02
COOLING Y2	03
COOL/DEHUM Y1	04
COOL/DEHUM Y2	05
HP HEATING Y1	06
HP HEATING Y2	07
W1 ELECTRIC HEAT	08
W2 ELECTRIC HEAT	09
Y1/Y2/W1 AUX HEAT	10
Y1/Y2/W2 AUX HEAT	11
EMERGENCY HEAT	12



THE CROSSOVER 40MUAA INFAMOUS DISPLAY MODE 13 ANY CALL FOR HEAT AND DEHUM



Possible causes:

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- Improper TSTAT setup
 - Improper dipswitch S4-2 setting
 - Shorted TSTAT wire

(voltage on W, W1, W2, Y1 & B, Y2 & B and DH)