

Self-diagnosis Function

■ Error Indicator

- The function is to self-diagnosis air conditioner and express the troubles identification if there is any trouble.
- Error mark is ON/OFF for the operation LED of evaporator body in the same manner as the following table.
- If more than two troubles occur simultaneously, primarily the highest trouble for error code is expressed.
- After error occurrence, if error is released, error LED is also released simultaneously.
- To operate again on the occurrence of error code, be sure to turn off the power and then turn on.
- Having or not of error code is different from Model.

Indoor Error

Error code	Description	INV TPS	LED 1 (Red)	LED 2 (Green)	Indoor Status
00	No Error	●			ON
01	Indoor Room themistor error	●		1time ●	OFF
02	Indoor in-piping sensor error	●		2times ●	OFF
03	Remote controller error	●		3times ●	OFF
04	Drain Pump error	●		4times ●	OFF
05	Communcation error between in and out	●		5times ●	OFF
06	Indoor Out-Piping sensor error	●		6times ●	OFF
07	Differnt mode operation	●		7times ●	OFF

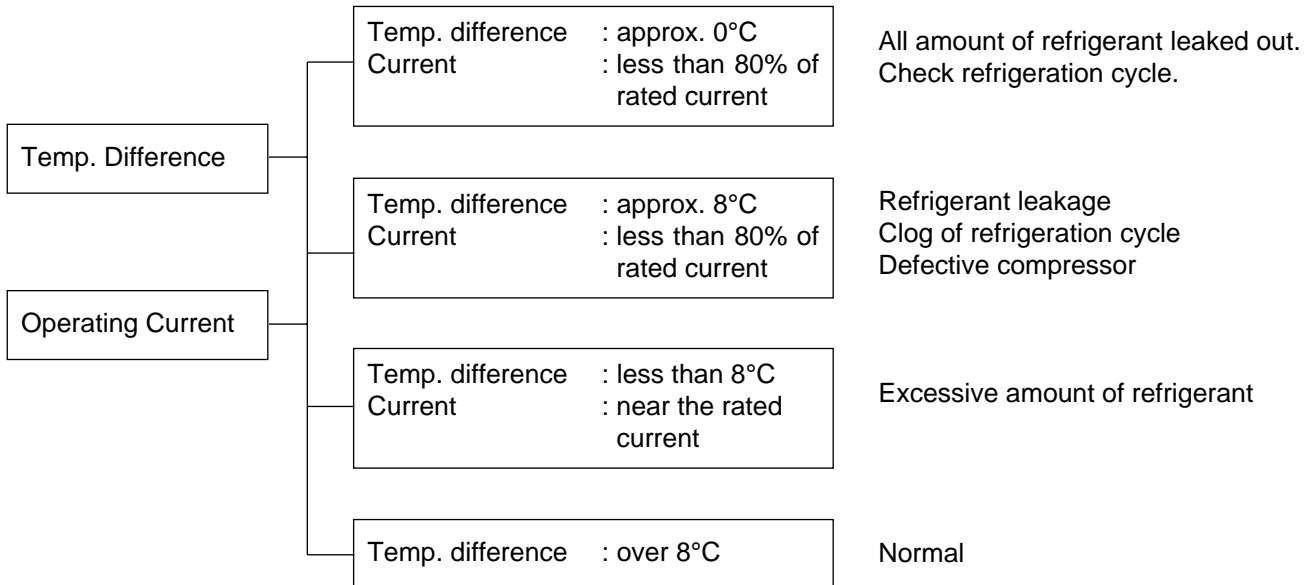
Outdoor Error

Error Code	Description	INV TPS	LED 1 (Red)	LED 2 (Green)	Indoor Status
21	DC Peak (IPM Fault)	●	2times ●	1times ●	Off
22	CT 2(Max CT)	●	2times ●	2times ●	Off
23	DC Link Low Volt.	●	2times ●	3times ●	Off
24	L/H press SW	●	2times ●	4times ●	Off
25	Low voltage / Over voltage	●	2times ●	5times ●	Off
26	DC Comp Position Error	●	2times ●	6times ●	Off
32	D-Pipe High (INV)	●	3times ●	2times ●	Off
33	D-Pipe High (Normal)	●	3times ●	3times ●	Off
40	CT Sensor (Open / Short)	●	4times ●	○	Off
41	INV. D-PipeTh Error (Open / Short)	●	4times ●	1times ●	Off
44	Outdoor Air Th Error (Open / Short)	●	4times ●	4times ●	Off
45	Cond. Pipe Error (Open / Short)	●	4times ●	5times ●	Off
46	Suction Pipe Error (Open / Short)	●	4times ●	6times ●	Off
47	Const D-PipeTh Error (Open / Short)	●	4times ●	7times ●	Off
51	Over Capacity	●	5times ●	1times ●	Off
52	Comm. Error(Main micon <-> Sub micom)	●	5times ●	2times ●	Off
53	Comm. Error(Indoor <-> Outdoor)	●	5times ●	3times ●	Off
54	Outdoor 3 phase power supply Reverse phase / phase omission	●	5times ●	4times ●	Off
60	EEPROM Check Sum Error	●	6times ●	○	Off
61	Cond. Pipe High	●	6times ●	1times ●	Off
62	Heatsink High	●	6times ●	2times ●	Off
63	Cond. Pipe Low	●	6times ●	3times ●	Off
65	Heatsink Th Error (Open/Short)	●	6times ●	5times ●	Off
67	Outdoor BLDC Fan Lock	●	6times ●	7times ●	Off
105	Comm. Error(Main board <->Fan board)	●	10times ●	5times ●	Off

Cycle Troubleshooting Guide

Trouble analysis

1. Check temperature difference between intake and discharge air, and operating current.



Notice:

Temperature difference between intake and discharge air depends on room air humidity. When the room air humidity is relatively higher, temperature difference is smaller. When the room air humidity is relatively lower temperature difference is larger.

2. Check temperature and pressure of refrigeration cycle.

Suction pressure (Compared with the normal value)	Temperature (Compared with the normal value)	Cause of Trouble	Description
Higher	High	Defective compressor	Current is low.
	Normal	Excessive amount of refrigerant	High pressure does not quickly rise at the beginning of operation.
Lower	Higher	Insufficient amount of refrigerant(Leakage) Clogging	Current is low.

Notice:

1. The suction pressure is usually 4.5~6.0 kg/cm²G at normal condition.
2. The temperature can be measured by attaching the thermometer to the low pressure tubing and wrap it with putty.

Electronic Parts Troubleshooting Guide

* Refer to electronic control device drawing & schematic diagram.

Trouble 1 The Product doesn't operate at all.

Turn off the main power and wait until LED on outdoor PCB is off.



Turn on the main power again.



Does "Beeping" sound is made from the indoor unit?



Check the voltage of power(AC220V/AC240V, 50Hz).

- The voltage of main power.
- The voltage applied to the unit.
- The connecting method of Indoor/Outdoor connecting cable (each color)
- The P.W.B. Ass'y
(Fuse, Noise Filter, Power Transformer, IC01D, IC02D, etc.)



- Primarily, the operating condition of Micom is O.K.

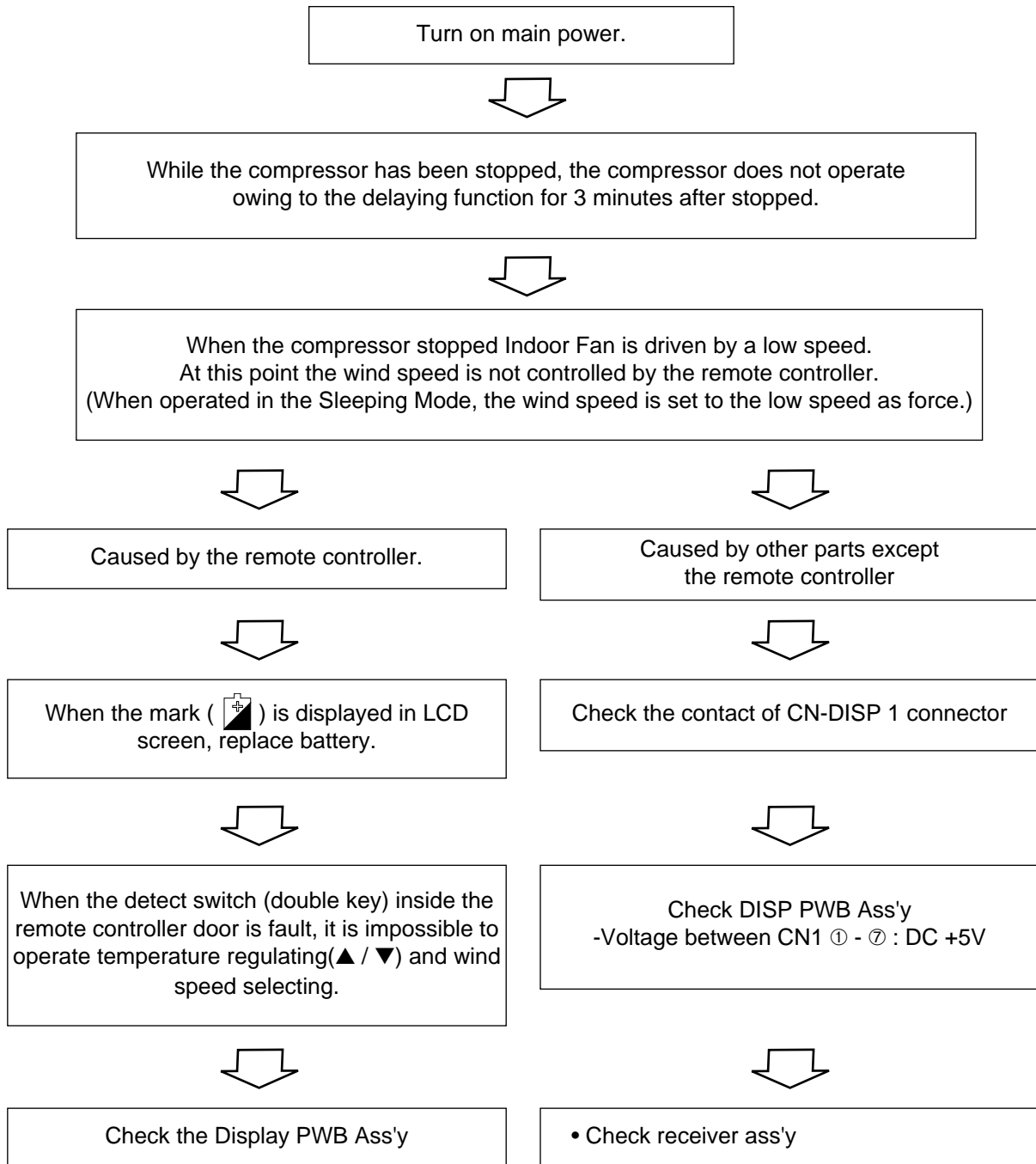


- Check CN-DISP1

The operation check of the P.C.B. Ass'y

Procedure	Specification	Remedy
1) The input voltage of power transformer.	1) AC230V ± 30V : Check the rated voltage	1) Replace power transformer.
2) The output voltage of power transformer.	2) 14V ± 3V	2) Replace power transformer.
3) IC01D(7812)	3) DC12V	3) Replace IC01D.
4) IC02D(7805)	4) DC5V	4) Replace IC02D.
5) IC01A(KIA7036)	5) The voltage of micom pin 29 : DC4.5V↑	5) Replace IC01A.

Trouble 2 Product doesn't operate with the remote controller.



Trouble 3 The Compressor/Outdoor Fan are don't operate

Turn on the main power.



Operate Cooling Mode by setting the disired temperature of the remote controller is less than one of the Indoor temperature by 1°C at least.



When in air circulation mode, compressor/outdoor fan is stopped.



Check the sensor for Indoor temperature is attached as close as to be effected by the temperature of Heat Exchange (EVA.)



When the sensor circuit for Indoor temperature and connector are in bad Connection or are not engaged, Compressor/Outdoor fan is stopped.

- Check the related circuit of R02H(12.1K), R01H(1K), R04H(6.2K), R03H(1K), C01H(102), C02H(102), Micom(pin No. ,).
- Check the Indoor temperature sensor is disconnected or not (about 10K at 25°C).



Check the Relay(RY-PWR, RY-START) for driving Compressor.

- Check the voltage between CN-CP(L) and CN-CP(N) of terminal to connect the Outdoor (About AC220V / 240V).
- Check the related circuit of relay in Outdoor PCB Ass'y.

Check Point	Comp. ON	Comp. OFF
Between Micom(No. 71) and GND	DC 5V	DC 0V
Between IC01M(No. 11) and GND	DC 1V↓	DC 12V

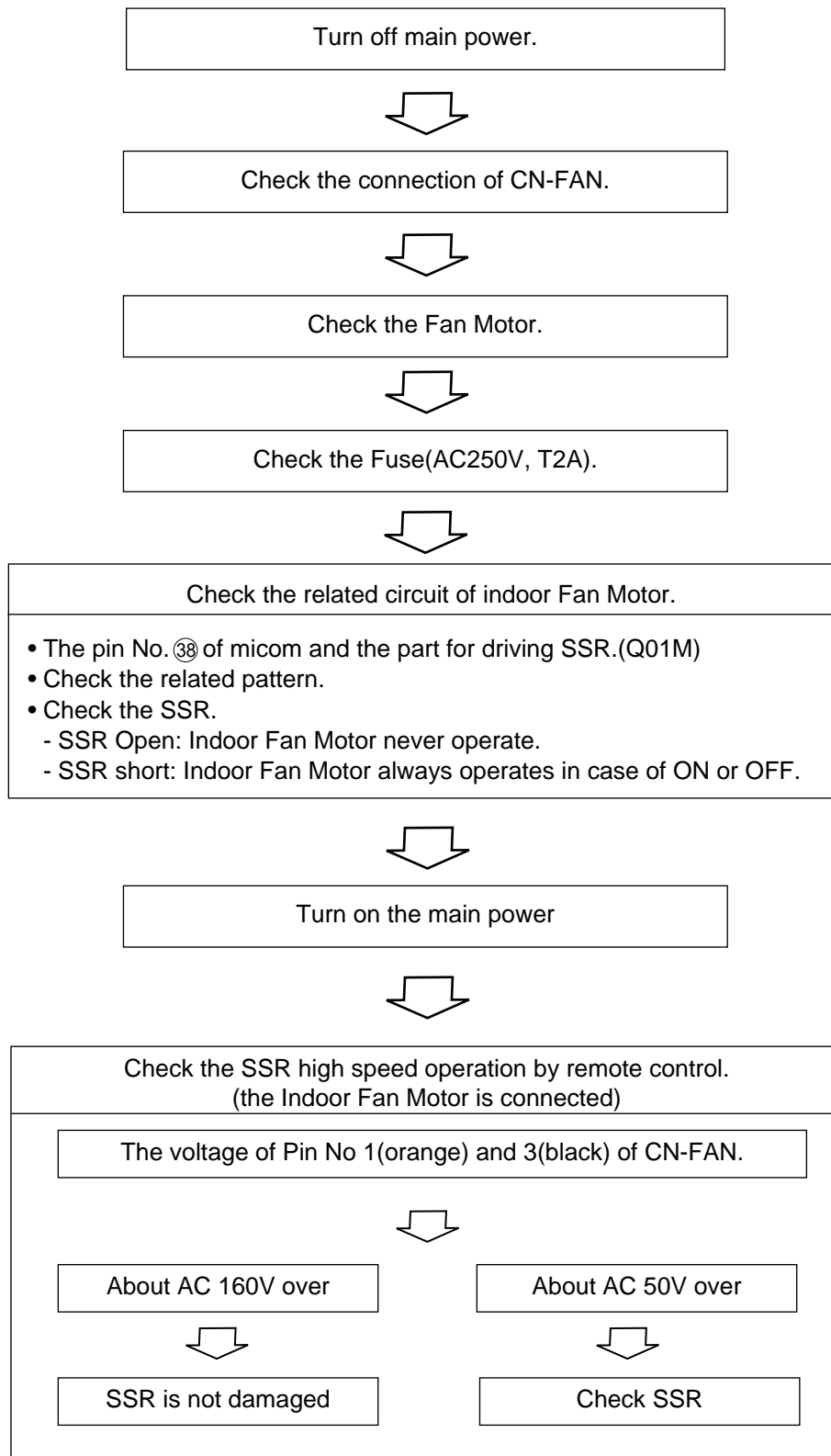


Turn off main power.



Check the electrical wiring diagram of Outdoor side.
Check the open or short of connecting wires between Indoor and Outdoor.

Trouble 4 When indoor Fan does not operate.



Trouble 5 When the louver does not operate.

- Confirm that the vertical louver is normally geared with the shaft of Stepping Motor.
- If the regular torque is detected when rotating the vertical louver with hands ⇒ Normal



- Check the connecting condition of CN-U/D or CN0L/R Connector
- Check the soldering condition(on PCB) of CN-U/D or CN0L/R Connector



Check the operating circuit of the vertical louver

- Confirm that there is DC +12V between pin ① of CN-U/D, CN0L/R and GND.
- Confirm that there is a soldering short at following terminals.
 - Between ①, ②, ③ and ④ of MICOM
 - Between ⑤, ⑥, ⑦ and ⑧ of IC01M
 - Between ⑱, ⑲, ⑳ and ㉑ of MICOM
 - Between ⑤, ⑥, ⑦ and ⑧ of IC01M



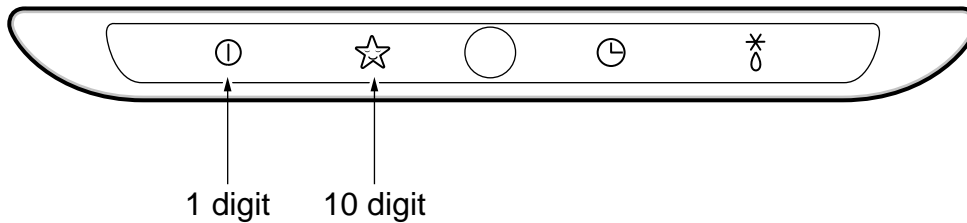
If there are no problems after above checks.

- Confirm the assembly condition that are catching and interfering parts in the link of the vertical louver

General Information

■ Error Indicator (Indoor)

- The function is to self-diagnosis air conditioner and express the troubles if there is any trouble.
- Error mark is displayed on display window of indoor units and wired-remote controller, and LED of outdoor unit control board.
- If more than two troubles occur simultaneously, lower number of error code is first displayed.
- After error occurs, if error is released, error LED is also released simultaneously.



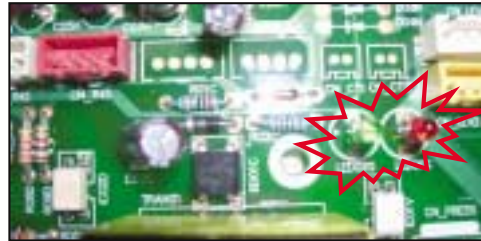
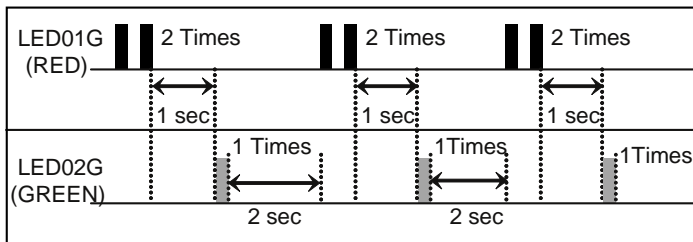
■ Indoor Error

Error code	Contents	Case of error	Indoor Status
01	Air sensor (open/short)	Open / Short	Off
02	Inlet pipe sensor	Open / Short	Off
03	Communication(Indoor ↔ Wired R/Control)	Communication Poorly	Off
04	Drain pump/ Float switch	Float switch Open	Off
05	Communication(Indoor ↔ Outdoor)	Communication Poorly	Off
06	Outlet pipe sensor	Open / Short	Off
07	Different operation mode	Different operation mode	Off

■ Error Indicator (Outdoor)

Outdoor Error

Ex) Error 21 (DC Peak)

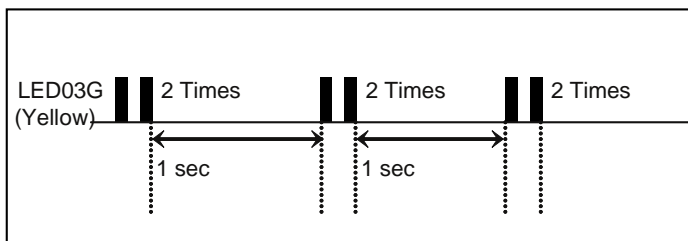


Error code	Description	LED01G (Red)	LED02G (Green)	Indoor Status
21	DC Peak (IPM Fault)	2 times ●	1 time ●	Off
22	CT 2(Max CT)	2 times ●	2 times ●	Off
23	DC Link Low Volt.	2 times ●	3 times ●	Off
24	L/H press SW	2 times ●	4 times ●	Off
25	Low voltage / Over voltage	2 times ●	5 times ●	Off

65	Heatsink Th Error (Open/Short)	6 times ●	5 times ●	Off
67	Outdoor BLDC Fan Lock	6 times ●	7 times ●	Off
105	Comm. Error (Main board <-> Fan board)	10 times ●	5 times ●	Off

Outdoor Error

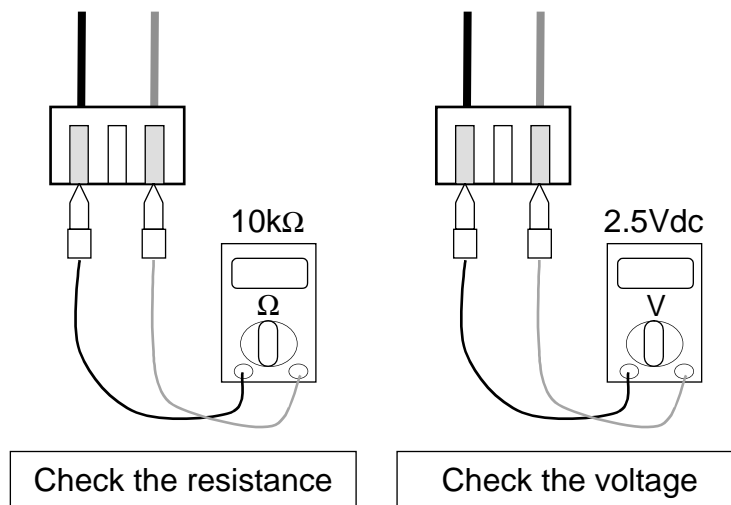
Ex) Error 26(DC Comp position Error)



Error code	Description	LED03G (Yellow)	Error Display Time
21	DC PEAK (IPM Fault)	1 times ●	25 sec
26	DC Comp position Error (No Position / Locking) Error	2 times ●	25 sec
52	Comm. Error (Main micon <-> Sub micon)	3 times ●	25 sec
23	DC Link Low voltage Error	5 times ●	25 sec
40	CT Sensor Open/Short Error	6 times ●	-
60	A/D Option Error	7 times ●	-
29	Comp over current Error	8 times ●	25 sec

1) Troubleshooting CH01, CH02, CH06

Display code	Title	Cause of error	Check point & Normal condition
01	Indoor air sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	Normal resistor : 10K Ω / at 25°C (Unplugged) Normal voltage : 2.5Vdc / at 25°C (plugged)
02	Indoor inlet pipe sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	Normal resistor : 5K Ω / at 25°C (Unplugged) Normal voltage : 2.5Vdc / at 25°C (plugged)
06	Indoor outlet pipe sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	Normal resistor : 5K Ω / at 25°C (Unplugged) Normal voltage : 2.5Vdc / at 25°C (plugged)

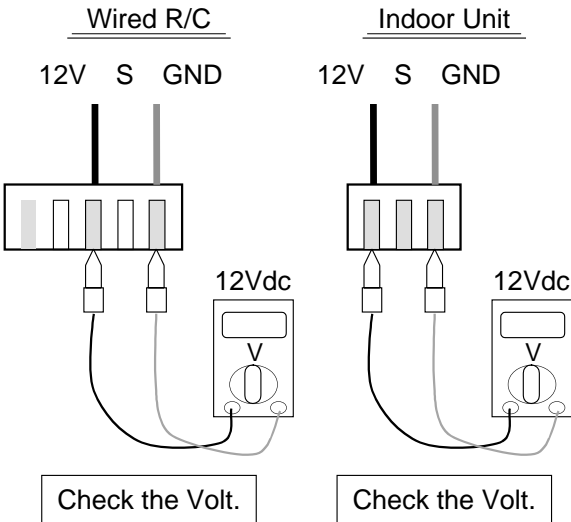


Check Point

1. Unplug the sensor on Indoor unit PCB.
2. Estimate the resistance of each sensor.
3. If the resistance of the sensor is 10K Ω / 5K Ω at 25°C, then sensor is normal.
4. If the resistance of the sensor is 0 K Ω or ∞ , then sensor is abnormal. → Change the sensor.
5. Plug the sensor on Indoor unit PCB and Power ON.
6. Estimate the voltage of each sensor.
7. If the voltage of the sensor is 2.5Vdc at 25°C, then sensor is normal.
8. If the resistance of the sensor is 0 or 5Vdc, then sensor is abnormal. → Repair or Change the PCB.

2) Troubleshooting CH03

Display code	Title	Cause of error	Check point & Normal condition
03	Communication Wired R/C	<ul style="list-style-type: none"> • Open / Short • Wrong connection 	<ul style="list-style-type: none"> • Connection of wire • Main PCB Volt. DC12V • Noise interference



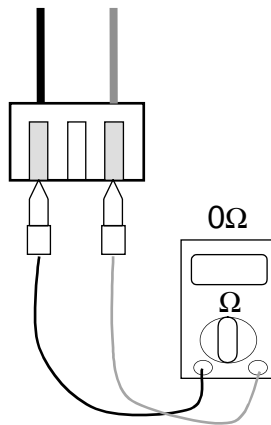
Check Point

1. Check the wire connection. (Open / Short) → Repair the connection
2. Check the soldering state of connector. (Soldered poorly) → Repair or Change the PCB.
3. Check the volt. Of main PCB power source. (DC 12V, DC 5V) → Repair or Change the main PCB.
4. Check the installation of wired remote controller. (Noise interference) → Adjust the state of installation

3) Troubleshooting CH04

Display code	Title	Cause of error	Check point & Normal condition
04	Drain pump / Float switch	• Float switch Open. (Normal : short)	<ul style="list-style-type: none"> • The connection of wire(Drain pump/ Float switch) • Drain pump power input. (220V) • Drain tube installation. • Indoor unit installation. (Inclination)

CN Float



Check the resistance



Check Point

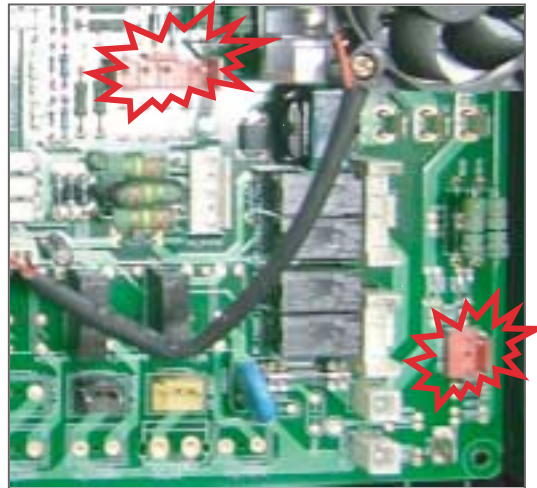
1. Check the wire connection. (Open, Soldered poorly) → Repair the connection or change the PCB.
2. Check the resistance of float switch (Abnormal : Open, Normal : short) → Check the float switch.
3. Check the level of water
4. Check the volt. Of Drain pump power supply. (AC 230V) → Repair or Change the main PCB.

4) Troubleshooting CH05, CH53

Display code	Title	Cause of error	Check point & Normal condition
05 / 53	Title Communication (Indoor → Outdoor)	<ul style="list-style-type: none"> • Communication poorly 	<ul style="list-style-type: none"> • Power input AC 220V. (Outdoor, Indoor) • The connector for transmission is disconnected. • The connecting wires are misconnected. • The communication line is shorted at GND. • Transmission circuit of outdoor PCB is abnormal. • Transmission circuit of indoor PCB is abnormal.

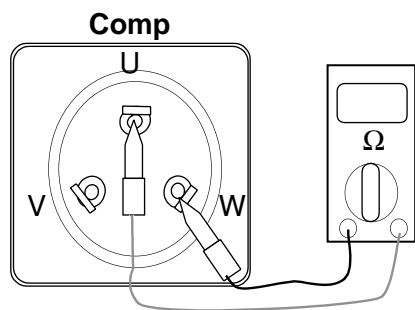
Check Point

1. Check the input power AC230V. (Outdoor, Indoor unit)
 2. Check the communication wires are correctly connected.
Adjust the connection of wire Confirm the wire of "Live", "Neutral"
 3. Check the resistance between communication line and GND.
(Normal : Over 2MΩ)
 4. Check the connector for communication is correctly connected.
 5. If one indoor unit is operated normally, outdoor PCB is no problem.
Check the another indoor unit.
- * CH05 is displayed at indoor unit, CH53 is displayed at outdoor unit.
6. If all indoor unit is displayed CH05 but outdoor PCB not display
CH53 : Check the CN_COM and CN_POWER is correctly connected.

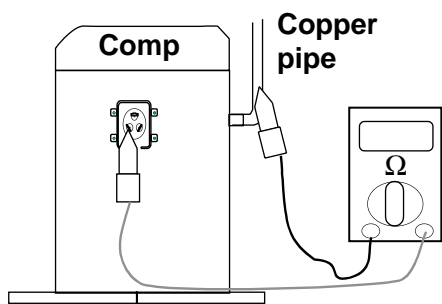


5) Troubleshooting CH21

Display code	Title	Cause of error	Check point & Normal condition
21	DC PEAK (IPM Fault)	<ul style="list-style-type: none"> Instant over current Over Rated current Poor insulation of IPM 	<ul style="list-style-type: none"> An instant over current in the U,V,W phase <ul style="list-style-type: none"> - Comp lock - The abnormal connection of U,V,W Over load condition <ul style="list-style-type: none"> - Overcharging of refrigerant Pipe length. Outdoor Fan is stop Poor insulation of compressor



Resistance(Ω) at 20°C		
Terminal	5KD240XBA	5JD420XBB
U-V	1.843	1.08
V-W	1.893	1.12
W-U	1.812	1.09



Resistance(Ω) at 20°C	
Terminal	Inverter Comp.
U-GND	2M Ω
V-GND	2M Ω
W-GND	2M Ω

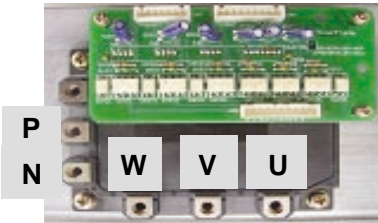
Check Point

1. Check the wire connection. (U,V,W)
2. Check the load condition. (Refrigerant, Pipe length, ...) Adjust the load condition
3. Check the electricity leakage of the compressor. Normal : Over 2M Ω .
4. Check the resistance of compressor.
5. Check the IPM circuit.(Continue next page)

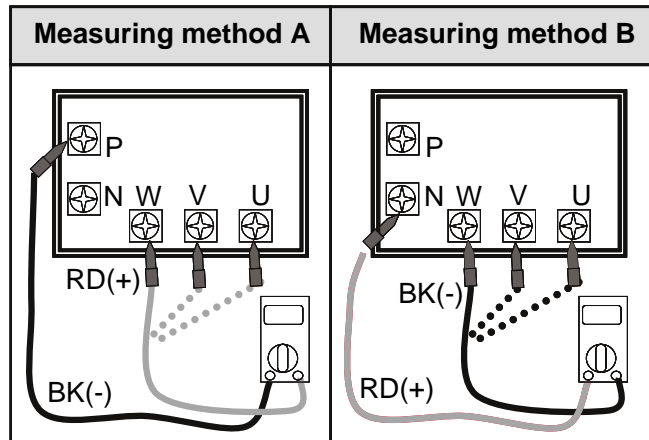
Troubleshooting CH21

Check the IPM (Measuring after Comp connector disconnect)

1) Test mode set diode mode ($\rightarrow|$)

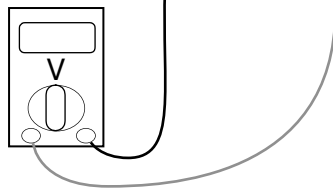
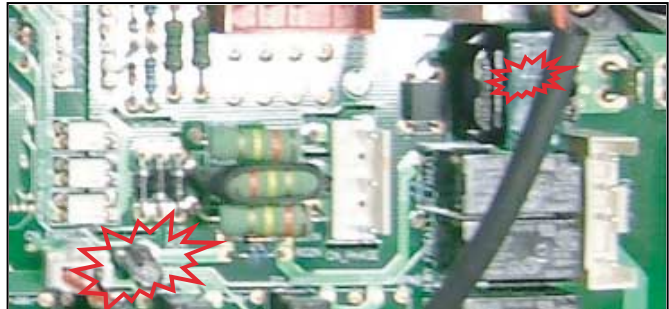
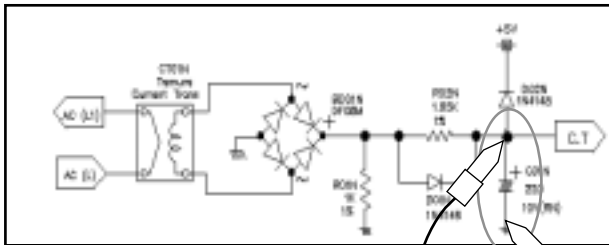


Terminal	Measuring method	
	A	B
U	0.4~0.6V	0.4~0.6V
V	0.4~0.6V	0.4~0.6V
W	0.4~0.6V	0.4~0.6V



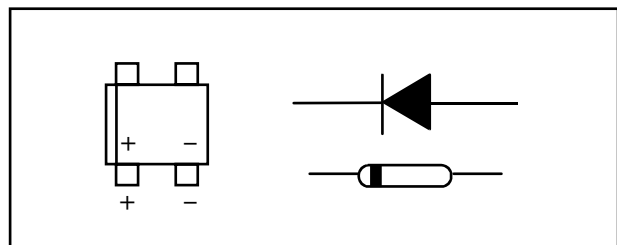
6) Troubleshooting CH22

Display code	Title	Cause of error	Check point & Normal condition
22	Max. C/T	Over current	Malfunction of compressor Blocking of pipe Low voltage input Refrigerant, pipe length, blocked, ...



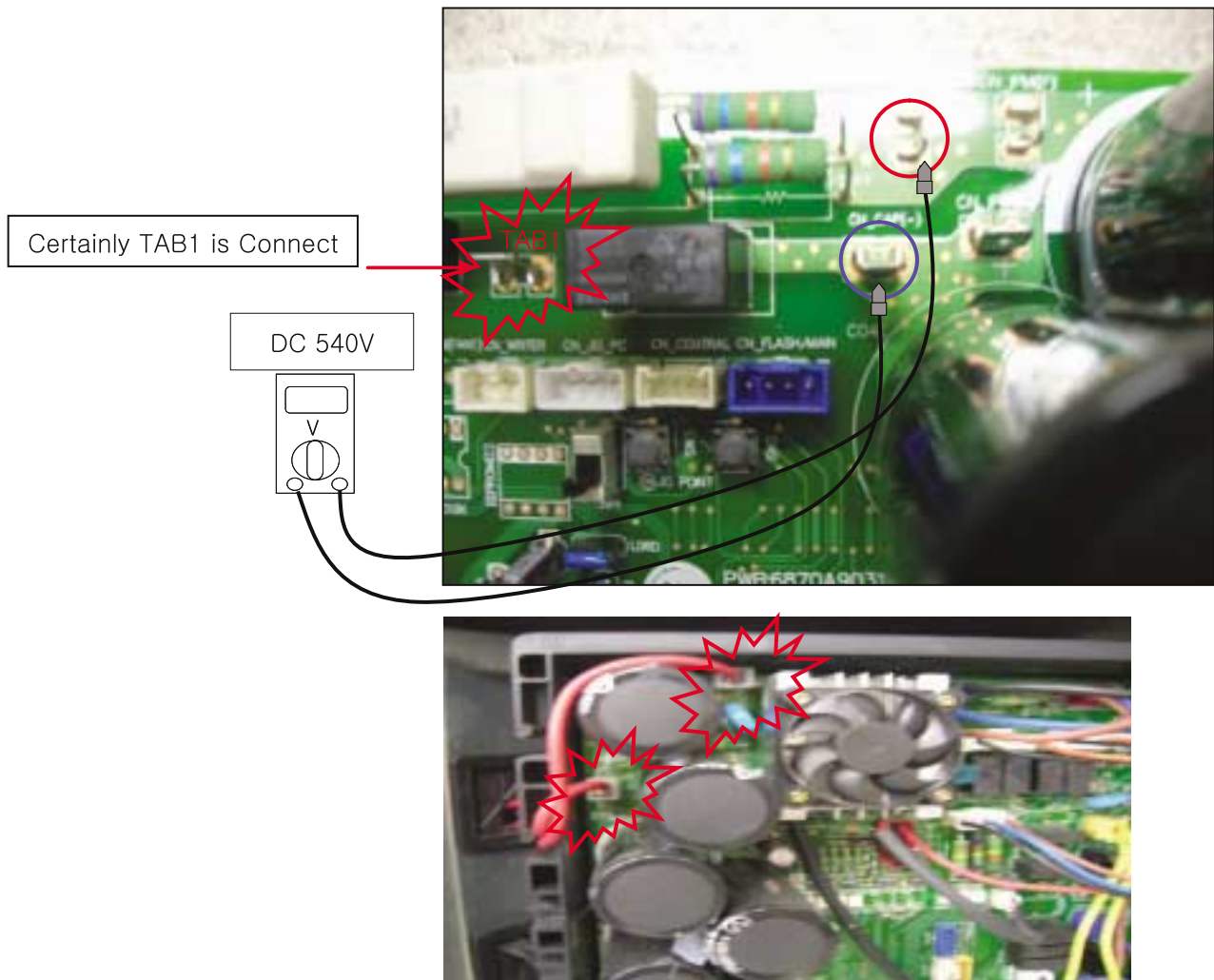
Check Point

1. Check the power source.(200~240V)
2. Check the fan operation is right.
3. Check the current.
4. Check the install condition.
5. Check the internal circuit. (C/T, Diode, Resistor)



7) Troubleshooting CH23

Display code	Title	Cause of error	Check point & Normal condition
23	DC Link Low voltage	<ul style="list-style-type: none"> DC Link volt is below 300V 	<ul style="list-style-type: none"> Check point & Normal condition Check the TAB1 is connect. At not operating : DC Link voltage(260V ↑) At Comp operating : DC Link voltage(500V ↑)

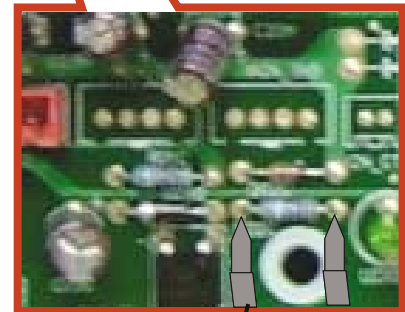
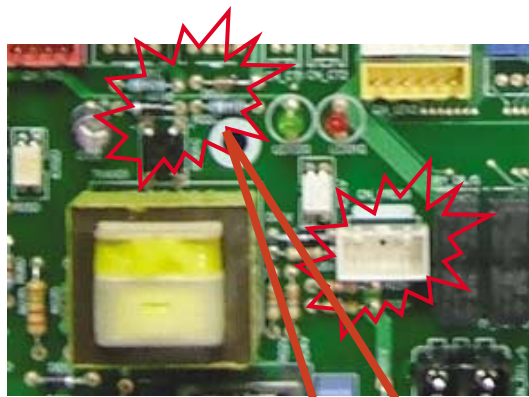
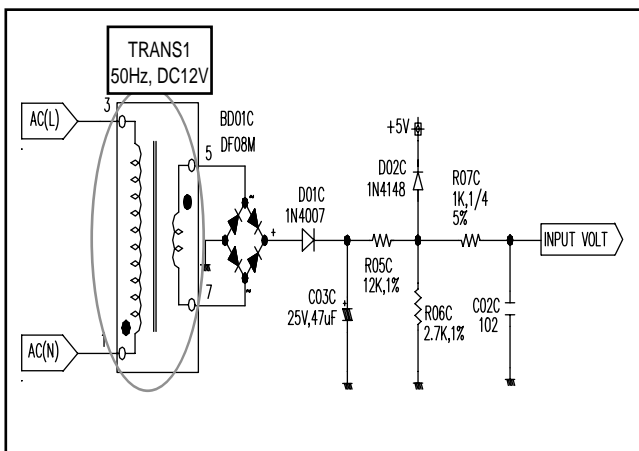


Check Point

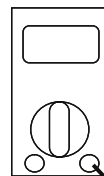
1. Check the Tab1 connection condition. (Refer to outdoor wiring diagram)
2. Check the CN_COIL(IN), CN_COIL(OUT) connection condition.
3. Check the DC Link voltage at not operating(260V ↑)
4. Check the DC Link voltage at Comp operating(500V ↑)

8) Troubleshooting CH24, CH25

Display code	Title	Cause of error	Check point & Normal condition
24	Press S/W Open	<ul style="list-style-type: none"> Low / High press S/W open. 	<ul style="list-style-type: none"> Check the connection of "CN_Press". Check the components.
25	Input voltage	<ul style="list-style-type: none"> Abnormal Input voltage (140Vac ↓, 300Vac ↑) 	<ul style="list-style-type: none"> Check the power source. Check the components.



DC 3V ± 10%



Check Point

• CH 24

1. Check the connection of "CN_PRESS"
2. Check the component of press switch.
3. Check the install condition for over load.
4. Check the SVC V/V open.
5. Check the leakage of refrigerant.

• CH 25

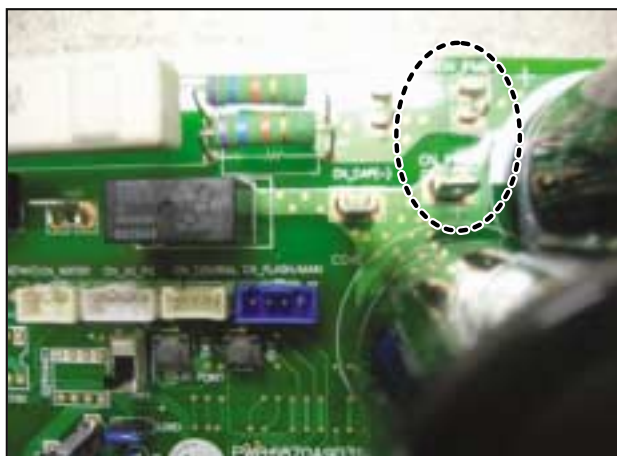
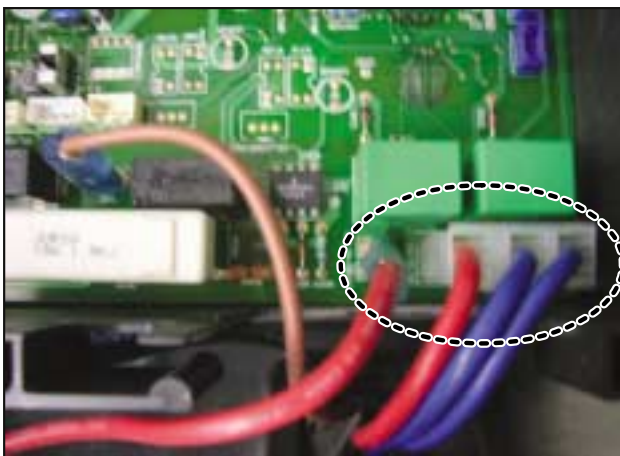
1. Check the power source.
2. Check the components

※ Trans1

- Primary resistance : 2.27kΩ ±10%
- Secondary resistance : 9Ω ±10%

9) Troubleshooting CH26

Display code	Title	Cause of error	Check point & Normal condition
26	DC Compressor Position	<ul style="list-style-type: none"> Compressor Starting fail error 	<ul style="list-style-type: none"> Check the connection of comp wire "U,V,W" Malfunction of compressor Check the component of "IPM", detection parts.

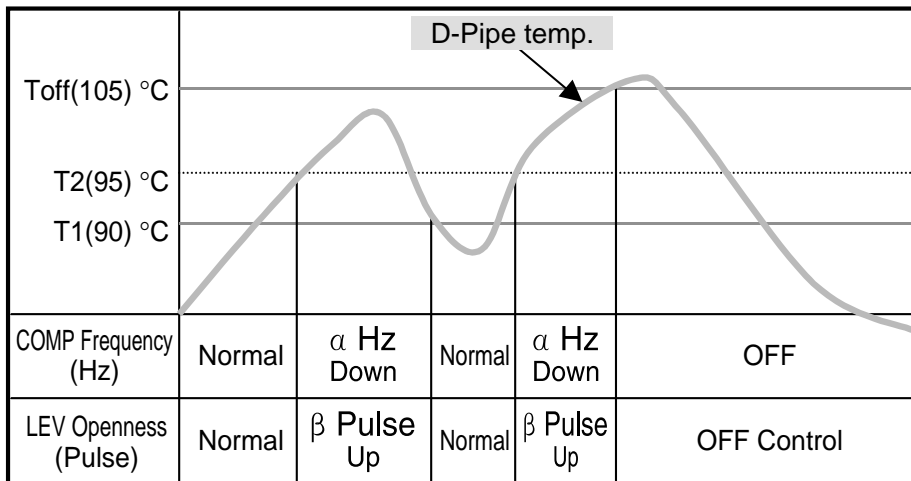


Check Point

1. Check the connection condition of PCB.
2. Check the connection condition of Comp. U,V,W wire.
3. Check the connection condition of CN_IPM(P), CN_IPM(N).
4. Check the comp resistor and insulation resistance .
5. Check the IPM.
6. Check the pressure of refrigerant.
7. Check the Service Valve Open.

10) Troubleshooting CH32

Display code	Title	Cause of error	Check point & Normal condition
32	D-pipe (Inverter) temp. high (105°C)	<ul style="list-style-type: none"> Discharge sensor (Inverter) temp. high 	<ul style="list-style-type: none"> Check the discharge pipe sensor for INV. Check the install condition for over load. Check the leakage of refrigerant. Check the Service Valve open. Check the outdoor fan.



Check Point

1. Check the install condition for over load.
2. Check the Service Valve open.
3. Check the outdoor fan operating condition
4. Check the leakage of refrigerant.

11) Troubleshooting CH40

Display code	Title	Cause of error	Check point & Normal condition
40	C/T Sensor Error	<ul style="list-style-type: none"> Initial current error 	<ul style="list-style-type: none"> Malfunction of current detection circuit. (Open / Short) The voltage of "C01N" Is 4.0Vdc(25A) .

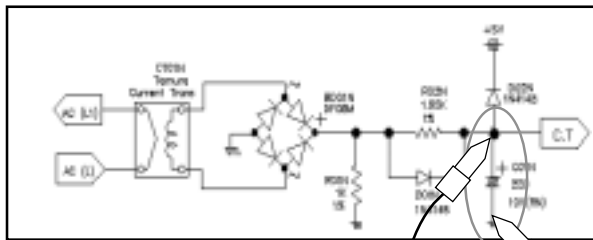
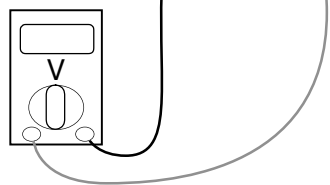
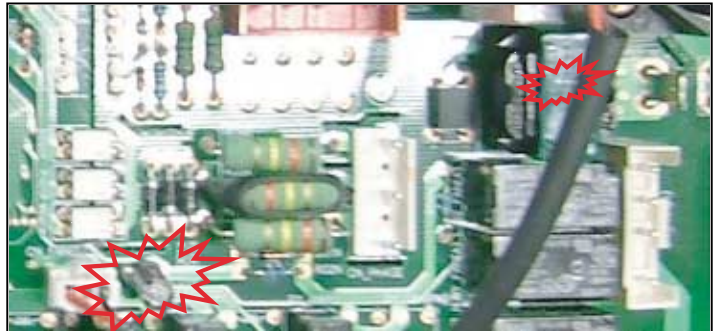


Figure 1.



DC 2.5V

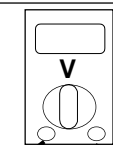
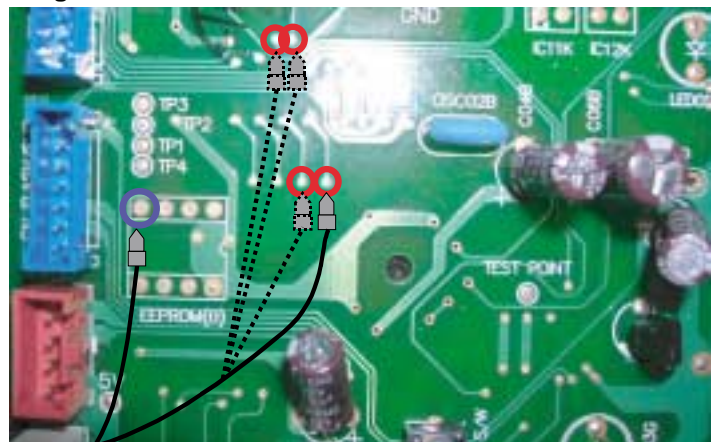


Figure 2.

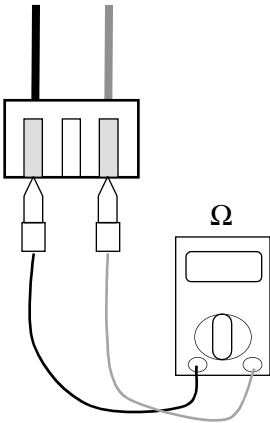


Check Point

1. Check the input voltage.(200~240V)
2. Check the voltage of C01N at not operating.(0V)
3. Check the voltage of Figure2. red point at not operating.(2.5V)

12) Troubleshooting CH41, CH44, CH45, CH46, CH47, CH65

Display code	Title	Cause of error	Check point & Normal condition
41	D-pipe sensor (Inverter)	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	<ul style="list-style-type: none"> • Normal resistor : 200KΩ / at 25°C (Unplugged) • Normal voltage : 4.5Vdc / at 25°C (plugged)
44	Air sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	<ul style="list-style-type: none"> • Normal resistor : 10KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)
45	Condenser Pipe sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	<ul style="list-style-type: none"> • Normal resistor : 5KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)
46	Suction Pipe sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	<ul style="list-style-type: none"> • Normal resistor : 5KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)
47	D-pipe sensor (Constant)	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	<ul style="list-style-type: none"> • Normal resistor : 200KΩ / at 25°C (Unplugged) • Normal voltage : 4.5Vdc / at 25°C (plugged)
65	Heat sink sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	<ul style="list-style-type: none"> • Normal resistor : 10KΩ / at 25°C (Unplugged) • Normal voltage : 2.5Vdc / at 25°C (plugged)



Check Point

1. Estimate the resistance of each sensor.(Unplugged)
2. Estimate the voltage of each sensor.(Plugged)
3. If the resistance of the sensor is 0 k Ω or ∞ , then sensor is abnormal.
If the voltage of the sensor is 0 V or 5Vdc, then sensor is abnormal.

13) Troubleshooting CH51, CH60

Display code	Title	Cause of error	Check point & Normal condition
51	Over capacity	<ul style="list-style-type: none"> Over capacity 	<ul style="list-style-type: none"> Check the indoor unit capacity. Check the combination table.
60	Over capacity	<ul style="list-style-type: none"> Check sum error 	<ul style="list-style-type: none"> Check the PCB ASM P/No. Check the poor soldering.

Model	Gross max. capacity	Max. single indoor unit capacity
A6UW368FA0	47	24
A7UW428FA0	58	24
A8UW488FA0	64	24
A9UW548FA0	73	24

Check Point

• CH 51

1. Check the indoor unit capacity.

• CH 60

1. Check the insertion condition of EEPROM.
2. Check the poor soldering

14) Troubleshooting CH54

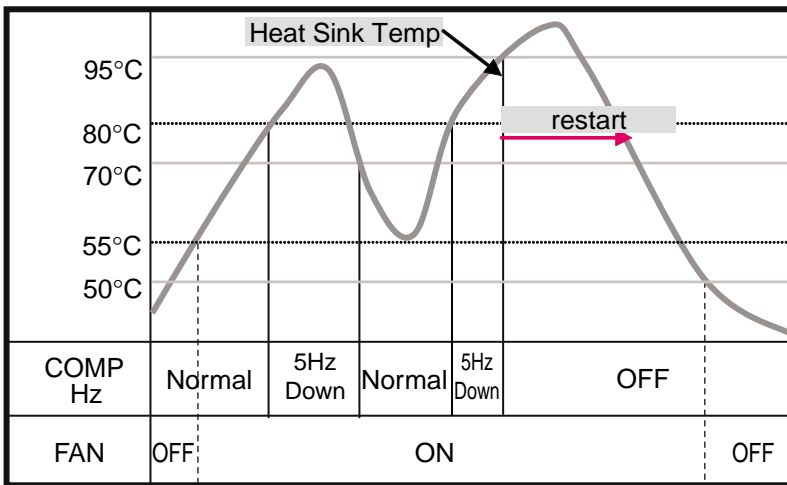
Display code	Title	Cause of error	Check point & Normal condition
54	3-phase wrong wiring of main outdoor unit	<ul style="list-style-type: none"> • 3-phase wrong wiring of outdoor unit (Reverse Phase /omission of phase) 	<ul style="list-style-type: none"> • Abnormal Main PCB • No connection of CN_Phase • Changed R, S, T connection order

Check Point

1. Check the connection condition of R,S,T wire.
2. Check the connection condition of CN_Phase.
3. Check the outdoor main fuse.

15) Troubleshooting CH61, CH62

Display code	Title	Cause of error	Check point & Normal condition
61	Condenser pipe sensor temp. high	<ul style="list-style-type: none"> Condenser pipe sensor detected high temp.(65°C) 	<ul style="list-style-type: none"> Check the load condition. Check the sensor of Condenser pipe sensor.
62	Heat sink sensor temp. high	<ul style="list-style-type: none"> Heat sink sensor detected high temp.(95°C) 	<ul style="list-style-type: none"> Check the fan is locked. Check the sensor of heat sink.



Check Point

• CH 61

1. Check the install condition for over load.
(Refrigerant, Pipe length, Blocked, ...)

• CH 62

1. Check the fan is locked.
2. Check the sensor of heat sink.

16) Troubleshooting CH67, CH105

Display code	Title	Cause of error	Check point & Normal condition
67	Outdoor fan lock	<ul style="list-style-type: none"> Outdoor fan is not operating 	<ul style="list-style-type: none"> Check the fan condition. Check the fan connector
105	Communication error between main PCB and fan PCB	<ul style="list-style-type: none"> Communication error between main PCB and fan PCB 	<ul style="list-style-type: none"> Short or fusing of communication line Poor outdoor unit PCB Power input when the DC link capacitor discharges

Check Point

• CH 67

1. Check the install condition for fan.

• CH 105

1. Is communication line between the main PCB and the fan PCB normal?
2. Is the communication LED on?