

Trouble Shooting Guide

Error Indicator

- The function is to self-diagnosis airconditioner and express the troubles identifiably if there is any trouble.
- If more than two troubles occur simultaneously, primarily the highest trouble fo 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.

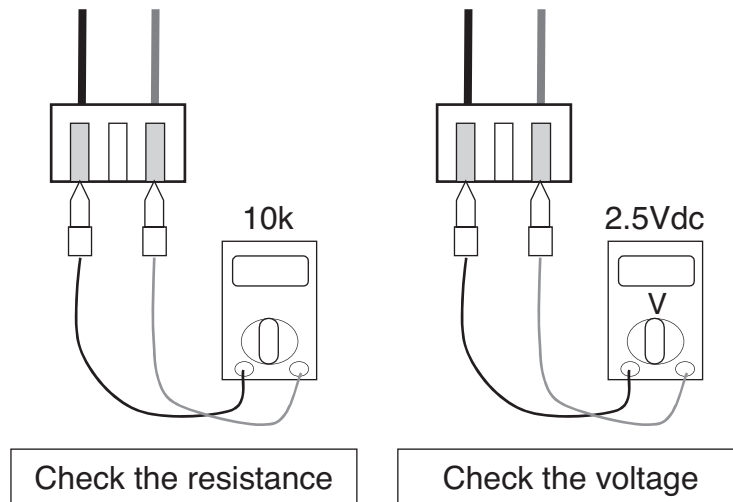
Indoor Error

Error Code	Contents	Case of Error
01	Indoor Room sensor error	Indoor Room Temperature Sensor Open/short
02	Indoor in-piping sensor error	Indoor Inlet Pipe Sensor open/short
03	Remote controller error	Between Indoor and Remote controller communication poorly
04	Drain Pump error	Malfunction of drain pump
05	Communcation error between in and out	Between Indoor and Outdoor communication poorly
06	Indoor Out-Piping sensor error	Indoor Outlet Pipe Sensor open/short
07	Differnt mode operation	Different operation mode
09	EEPROM Check Sum Error	Checksum mismatching
10	Indoor BLDC Fan Lock	Indoor Fan is not operating

Outdoor Error

Error Code	Contents	case of Error
21	DC Peak (IPM Fault)	Over Rated Current
22	CT 2 (Max CT)	Input Over Current
23	DC Link Low Volt.	DC Link Volt is below 140Vdc
	DC Link High Volt.	DC Link Volt is above 420Vdc
24	Pressure Switch Error	Low/High Pressure switch open
25	Low Voltage/Over Voltage	Abnormal AC Volt Input
26	DC Compressor Position Error	Compressor Starting Fall Error
27	PSC/PFC Fault Error	Over Inverter PCB input current
29	COMP Over Current	Over Inverter Compressor Current
32	D-Pipe High	D-Pipe Temp. High
35	Low Pressure Error	Excessive decrease of Low Pressure
39	Communication Error	Communication Error Between PFC Micom and INV Micom
40	CT Sensor (Open/Short)	CT Circuit Malfunction
41	INV. D-Pipe Sensor Error	Open/Short
43	High Pressure Sensor Error	Open/Short
44	Outdoor Air Sensor Error	Open/Short
45	Cond. Mid-Pipe Sensor Error	Open/Short
46	Suction Pipe Sensor Error	Open/Short
48	Cond. Out-Pipe Sensor Error	Open/Short
51	Capacity Over	Over combination
52	Signal Error (Inverter PCB <-> Main PCB)	Communication Poorly
53	Signal Error (Indoor <-> Outdoor)	Communication Poorly
54	3-Phase Wrong wiring	3-Phase Wrong Wring of Outdoor Unit (Reverse Phase/Omission of Phase)
60	EEPROM Check Sum Error	Check Sum Mismatching
61	Cond. Pipe Sensor High	Cond. Temp. High
62	Heaksink Sensor High	Heatsink Temp. High
65	Heaksink Sensor Error	Open/Short
67	Outdoor BLDC Fan Lock	Outdoor Fan is not operation
73	PFC Fault Error(S/W)	Over Current of Outdoor Unit PFC

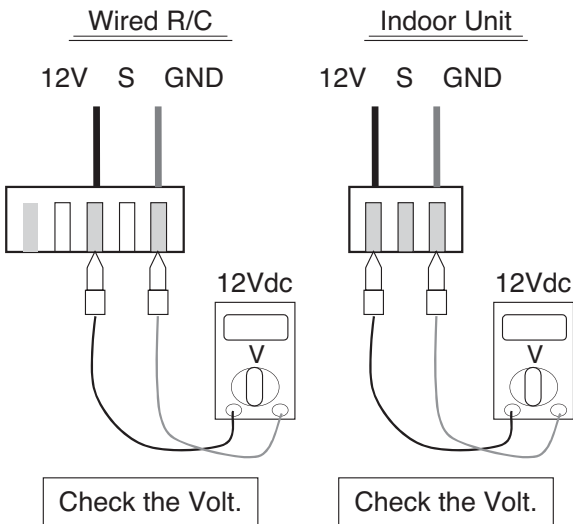
Display code	Title	Cause of error	Check point & Normal condition
01	Indoor air sensor	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	Normal resistor : 10K Ω / at 25°C (Unplugged) Normal voltage : DC 2.5V / at 25°C (plugged)
02	Indoor inlet pipe sensor	<ul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

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

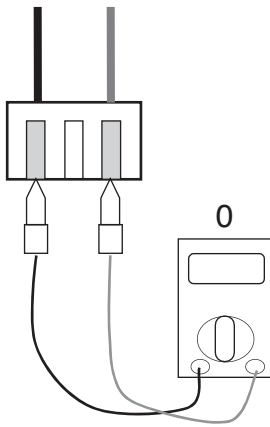


Check Point

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) → Repair or Change the main PCB.
4. Check the installation of wired remote controller. (Noise interference) → Adjust the state of installation

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. (230V) • 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.

Display code	Title	Cause of error	Check point & Normal condition
07	Different Operation Mode	<ul style="list-style-type: none"> • One of Indoor Unit operate cooling Another Unit operate heating 	<ul style="list-style-type: none"> • At the same time, this model cannot use cool and heating mode

Check Point

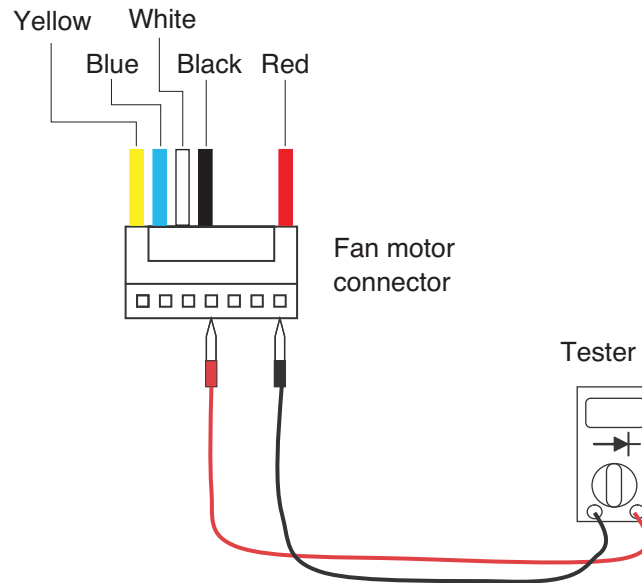
1. Check another indoor model operation mode
2. Operating the same mode with the first operated indoor unit
3. Clearing the "CH07"
 - Press the on/off button or mode change button and matching the indoor unit mode same as the first operated indoor unit

Display code	Title	Cause of error	Check point & Normal condition
09	Indoor EEPROM Check Sum Error	• Check sum error	1. Check the poor soldering 2. Check the insertion condition of the EEPROM 3. Check the PCB Connection

Check Point

1. Check the EEPROM Direction
2. If the EEPROM value & the Program value are not matched, the Code is Displayed
3. After Checking the connection and Insertion, replace the PCB or Option PCB

Display code	Title	Cause of error	Check point & Normal condition
10	Indoor BLDC Fan Motor Lock	The Fan is not operated properly	Check the Indoor fan locking



Check Point

Check the PCB during the Power on

1. Check the Voltage Red line to Black line
 - The Voltage is about [input voltage x 1.414]
 - if the Voltage does not come with the above Voltage,
 - Check the power input
 - Replace the PCB & Motor
2. Check the Voltage Black line to White
 - the Voltage is DC 15V
 - Check the Power input
 - Replace the motor

Check the Motor

1. Check the shaft
 - if the shaft is not turn smoothly, the Motor Power IC is defected
 - replace the motor
2. Check the motor resistance(if the shaft is turn smoothly, check the resistance)
 - Check Red line to Black line, Blue line to Black line
 - The resistance should infinite
 - replace the motor

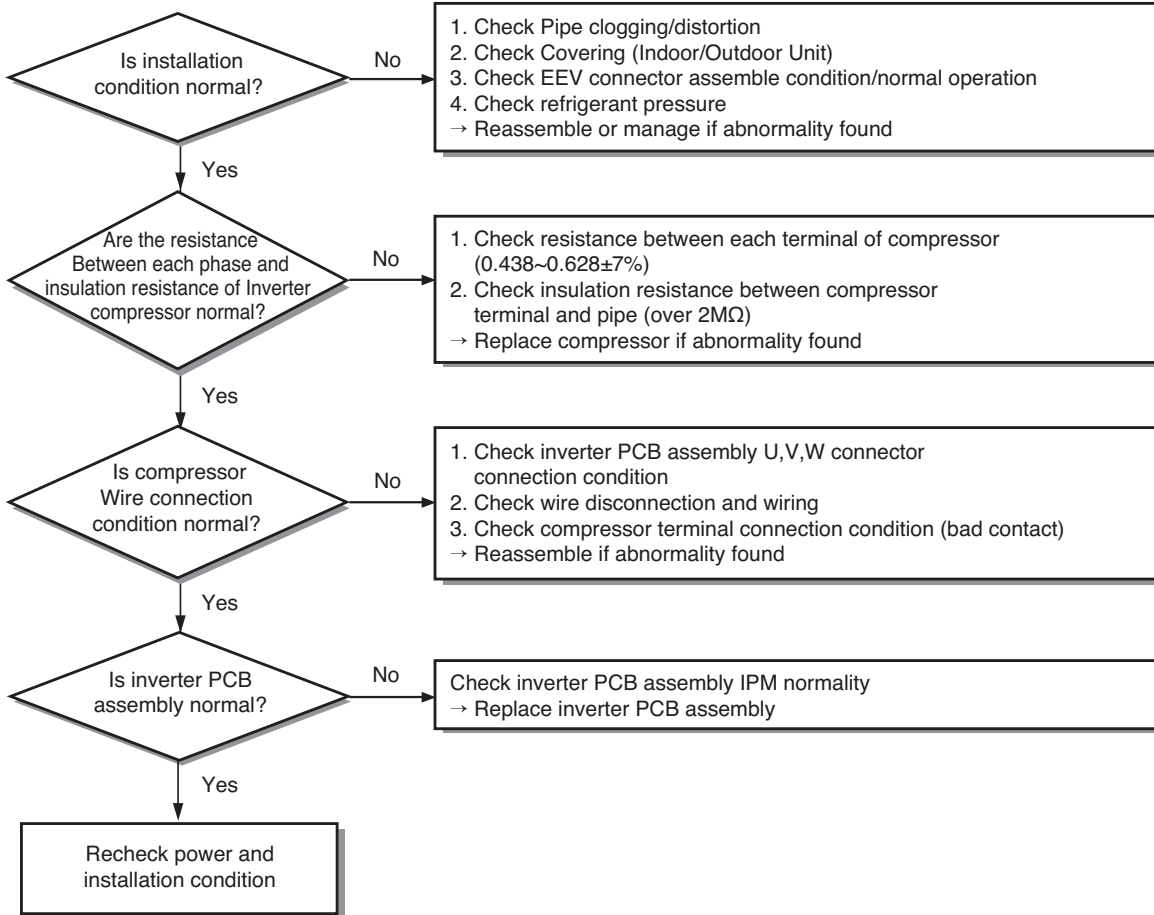
Display code	Title	Cause of error	Check point & Normal condition
21	DC Peak (IPM Fault)	<ul style="list-style-type: none"> Compressor blocked Disconnection/shortcircuit inside compressor Over load operation (Outdoor fan constraint, screened, blocked) Burned parts inside PCB 	<ul style="list-style-type: none"> Check compressor constraint Check compressor wire open/short Check compressor insulation damage Check outdoor fan constraint / screened / flow structure Check if IPM burned



WARNING

Before checking PCB or each outdoor electric parts, wait for 3 minutes after the power is off. When measuring at standby state of power supply, after checking the measurement mode of the meter, be careful of the short-circuits with other parts.

SINGLE / MULTI

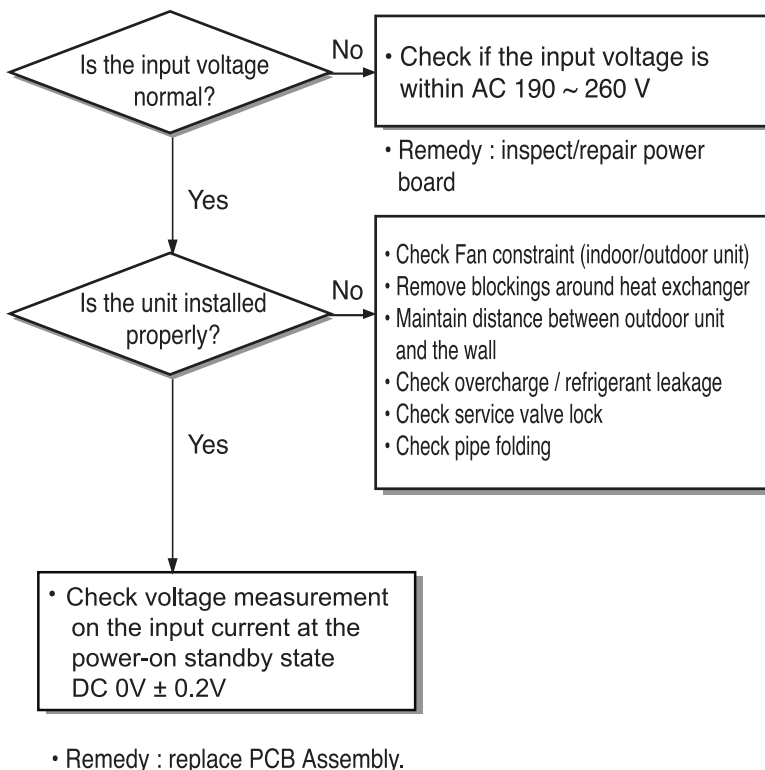


Display code	Title	Cause of error	Check point & Normal condition
22	CT 2 (Max CT)	<ul style="list-style-type: none"> • Input voltage error(low voltage) • Over load operation (Outdoor fan constraint, screened, blocked) • Burned parts inside PCB 	<ul style="list-style-type: none"> • Check input voltage • Check outdoor fan constraint / screened / flow structure • Check PCB current sensor parts



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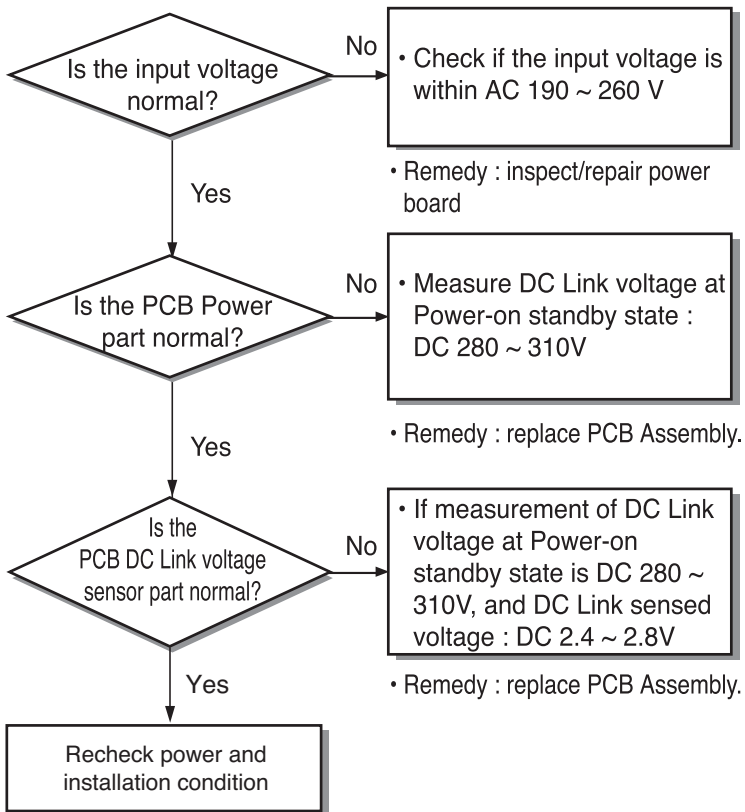


Display code	Title	Cause of error	Check point & Normal condition
23	DC Link High / Low Volt	<ul style="list-style-type: none"> • DC Link Voltage is above 420Vdc • DC Link Voltage is below 140Vdc 	<ul style="list-style-type: none"> • Check Input Voltage • Check PCB DC Link voltage sensor parts

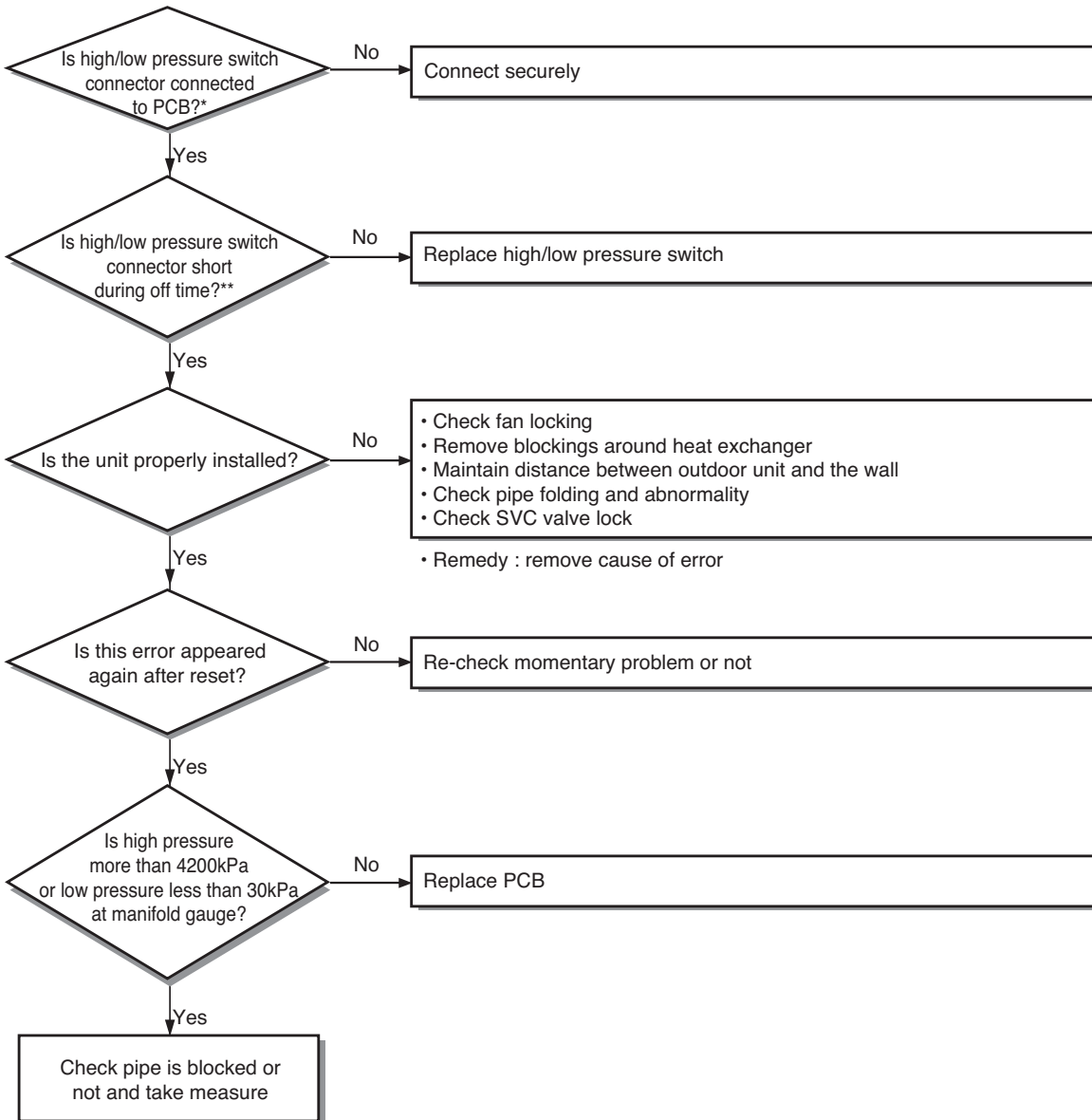


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Display code	Title	Cause of error	Check point & Normal condition
24	Pressure Switch Error	<ul style="list-style-type: none"> • Low / High press S/W open. 	<ul style="list-style-type: none"> • Check the connection CN_L/PRESS,H/PRESS • Check the components.



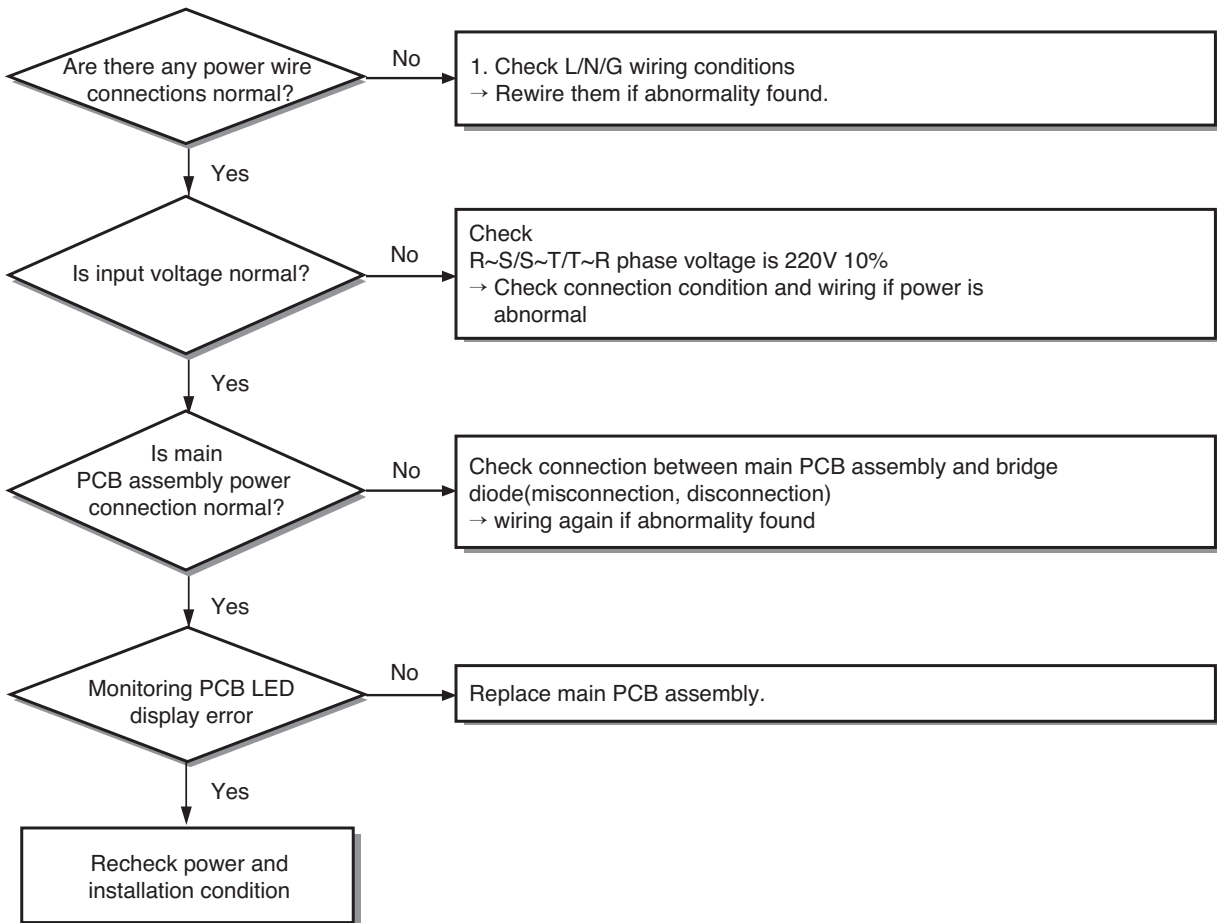
Display code	Title	Cause of error	Check point & Normal condition
25	Low Voltage/Over Voltage	Input voltage is over limited value of the product (140V or less, 300V or more)	1. Input voltage abnormal (R-S-T) 2. Outdoor unit main PCB assembly damage (input voltage sensing part)



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SINGLE/MULTI

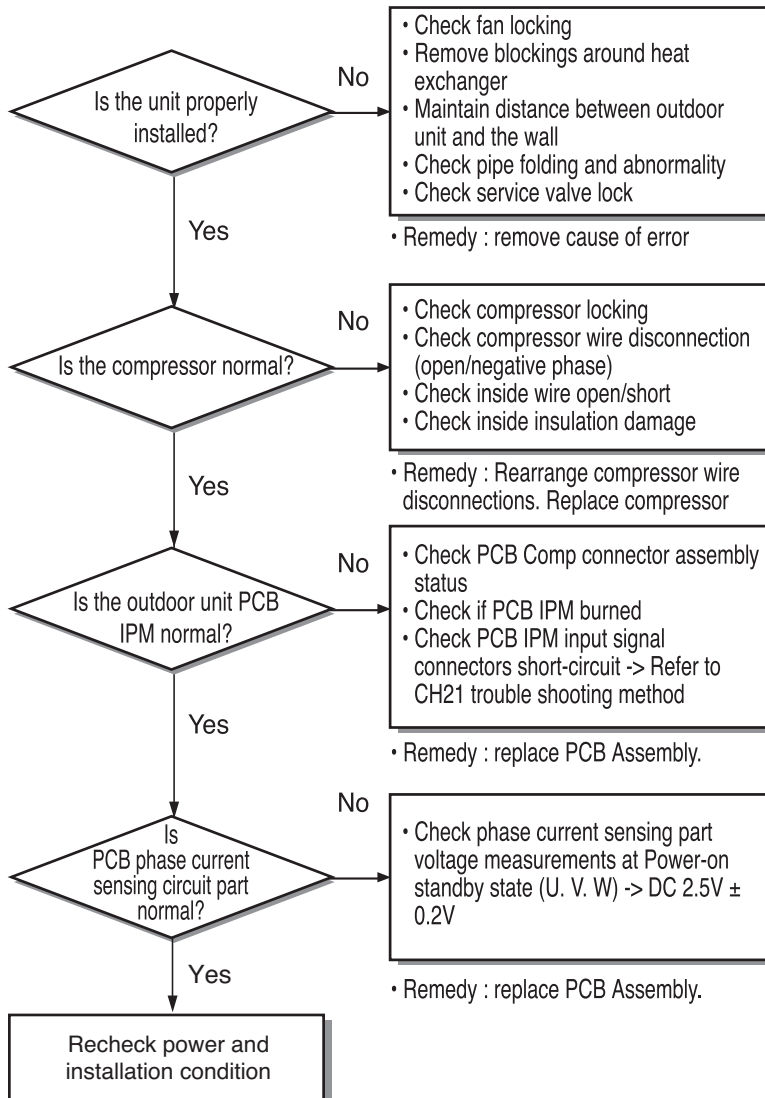


Display code	Title	Cause of error	Check point & Normal condition
26	DC Compressor Position Error	<ul style="list-style-type: none"> Compressor Locking Overload operation (Outdoor fan constraint, screened, blocked) Burned parts inside PCB(IPM) Burned PCB phase current sensing circuit parts 	<ul style="list-style-type: none"> Check compressor locking Compressor wire open/short Check compressor insulation damage Check outdoor fan constraint / screened / flow structure Check if IMP burned (refer to CH21) Check on-PCB current sensing circuit parts



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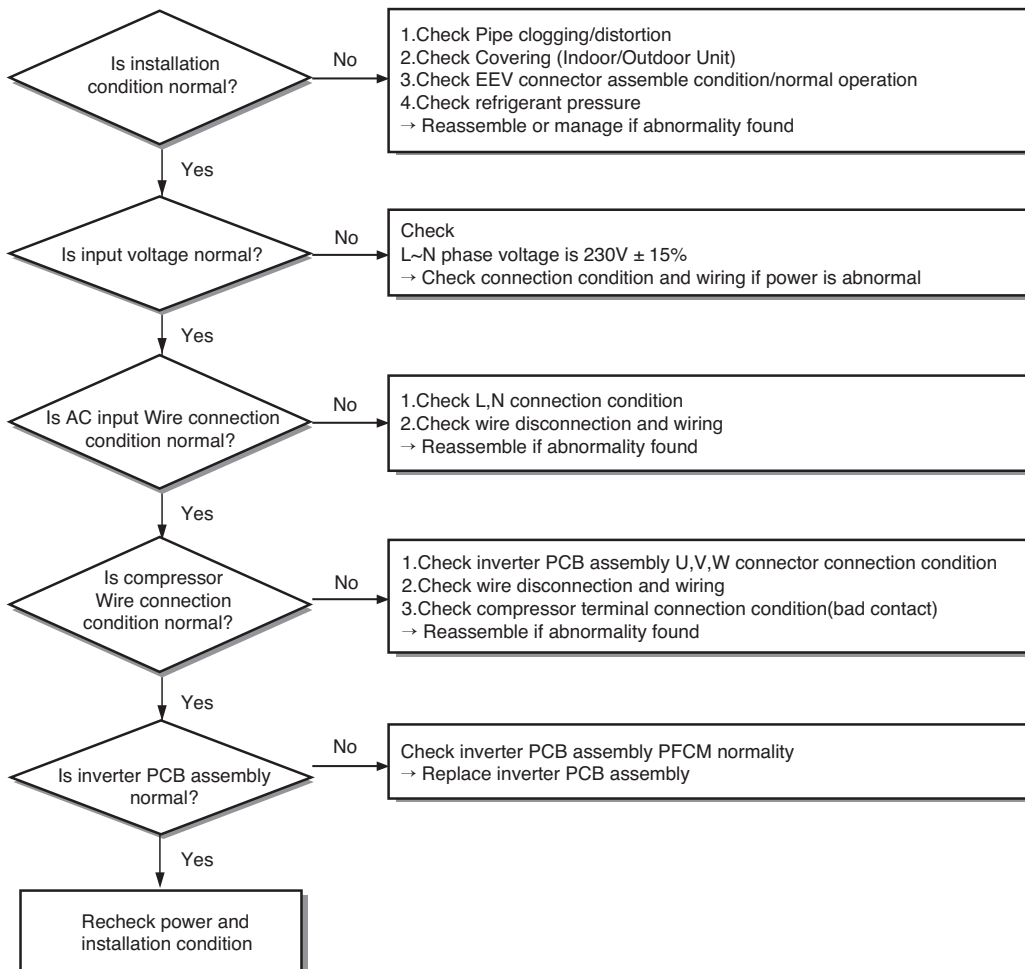


Display code	Title	Cause of error	Check point & Normal condition
27	PSC/PFC Fault Error	<ul style="list-style-type: none"> • Overload operation (Outdoor fan constraint, screened, blocked) • Wrong application of Reactor Spec. • Burned PCB internal parts (PSC Module) 	<ol style="list-style-type: none"> 1. Overload operation (Pipe clogging/Covering/EEV defect/Ref. overcharge) 2. Compressor damage (Insulation damage/Motor damage) 3. Input voltage abnormal (L,N) 4. Power line assemble condition abnormal 5. Inverter PCB assembly Damage (input current sensing part)



WARNING

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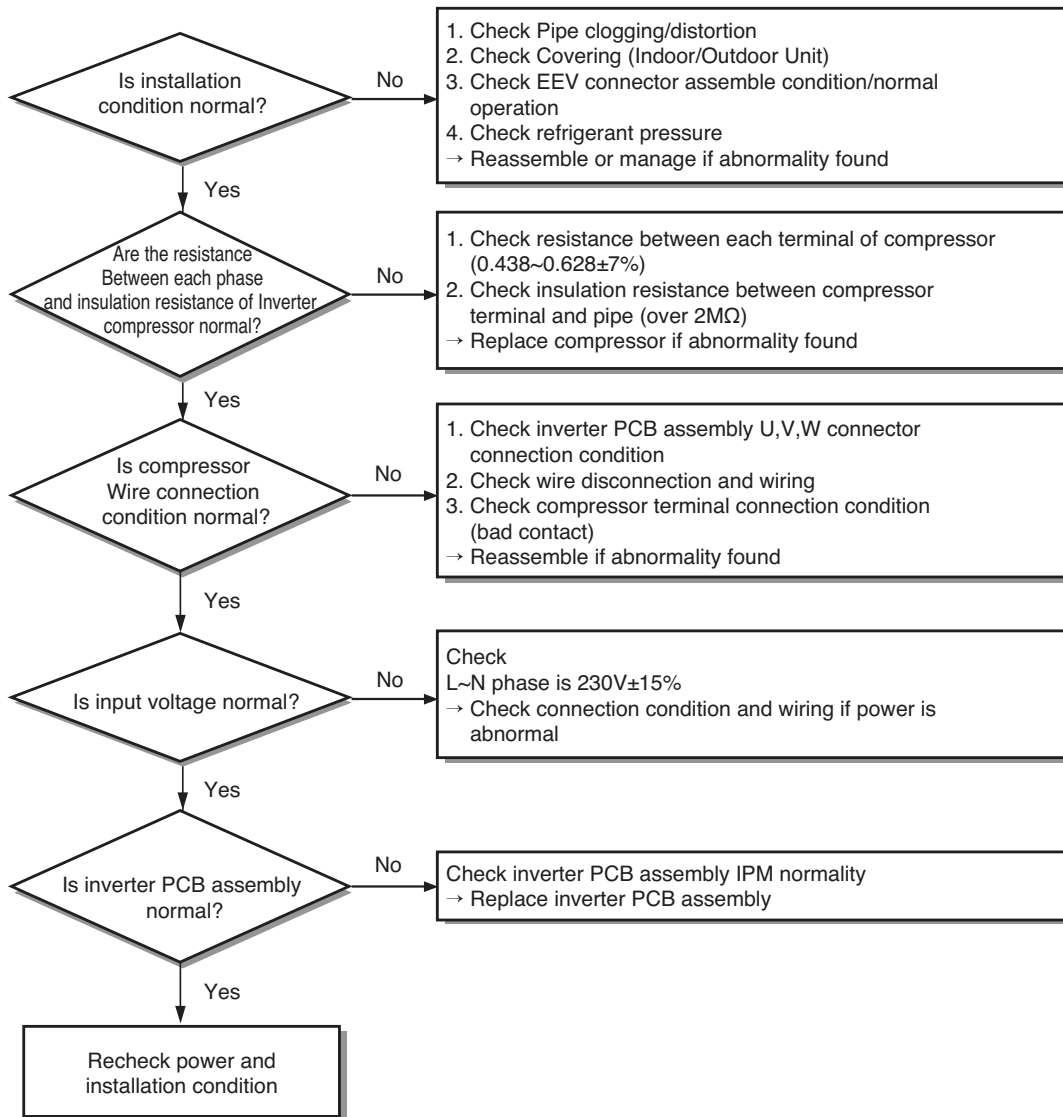


Display code	Title	Cause of error	Check point & Normal condition
29	Inverter compressor over current	Inverter compressor input current is over 30A	1. Overload operation (Pipe clogging/Covering/EEV defect/Ref. over-charge) 2. Compressor damage(Insulation damage/Motor damage) 3. Input voltage low 4. ODU inverter PCB assembly damage



WARNING

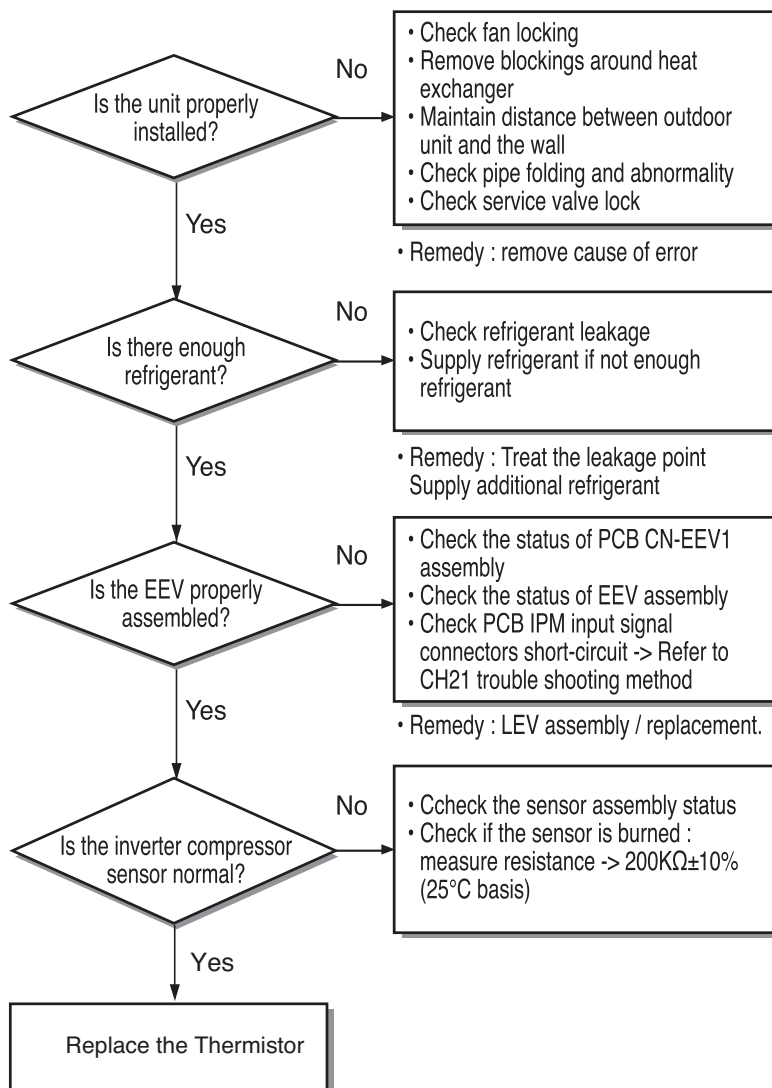
Before checking PCB or each outdoor electric parts, wait for 3 minutes after the power is off. When measuring at standby state of power supply, after checking the measurement mode of the meter, be careful of the short-circuits with other parts.



Display code	Title	Cause of error	Check point & Normal condition
32	D-Pipe High	<ul style="list-style-type: none"> • Overload operation (Outdoor fan constraint, screened, blocked) • Refrigerant leakage (insufficient) • Poor INV Comp Discharge sensor • LEV connector displaced / poor LEV assembly 	<ul style="list-style-type: none"> • Check outdoor fan constraint/ screened/ flow structure • Check refrigerant leakage • Check if the sensor is normal • Check the status of EEV assembly

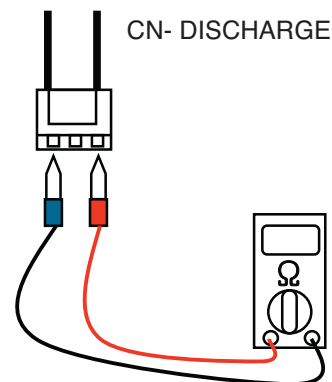
WARNING

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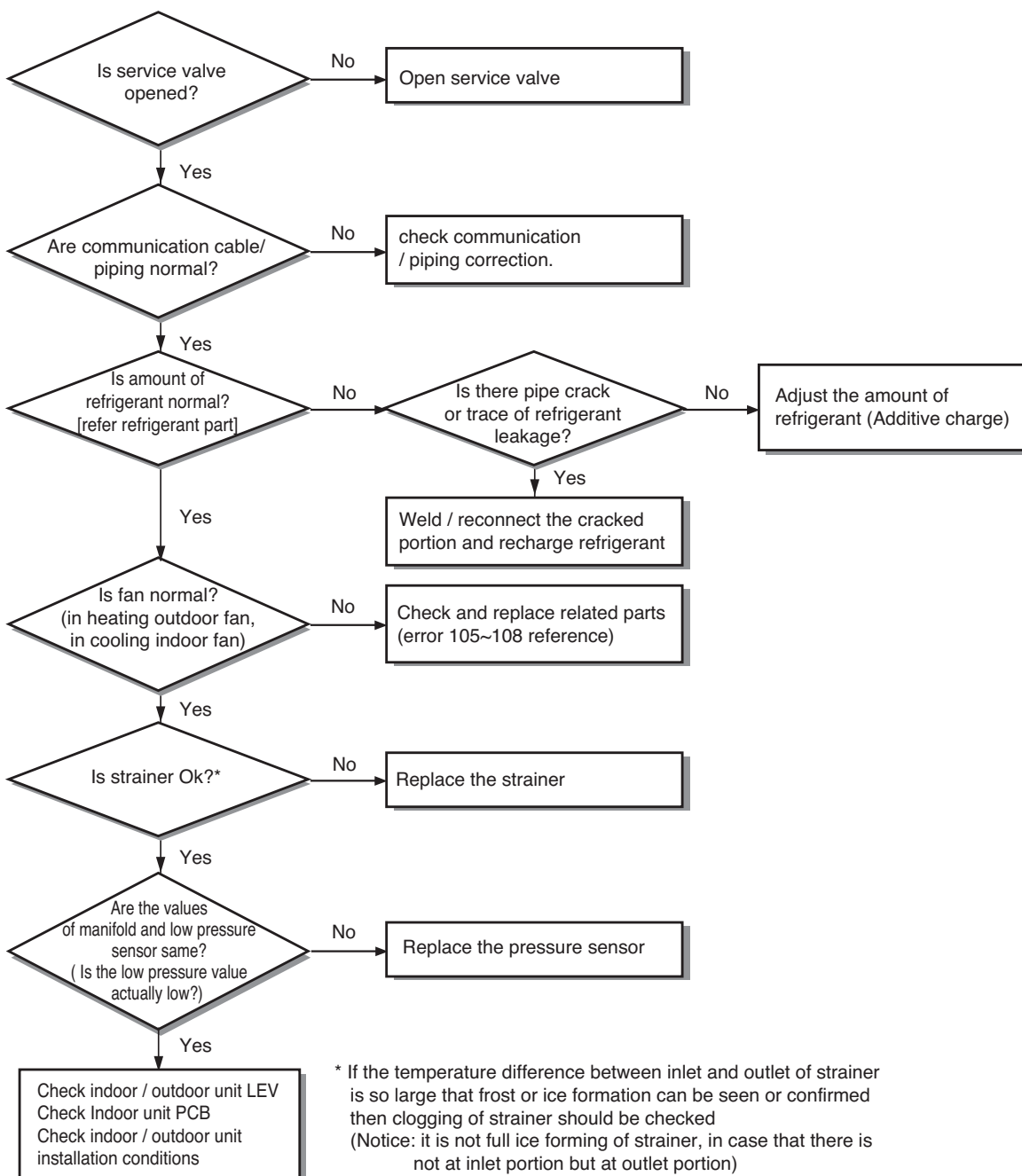


• Inspecting Inverter Compressor Discharge Sensor

1. Set Multi-tester as resistance measurement mode.
2. Measure the resistance between inverter discharge sensor connector pins.
3. Measure resistance value of $200\text{K}\Omega \pm 10\%$, 25°C basis
4. Check if the sensor insulation is damaged. -> measure the resistance between sensor connector pin and unit assembly pipe. ($1\text{M}\Omega$ or more)

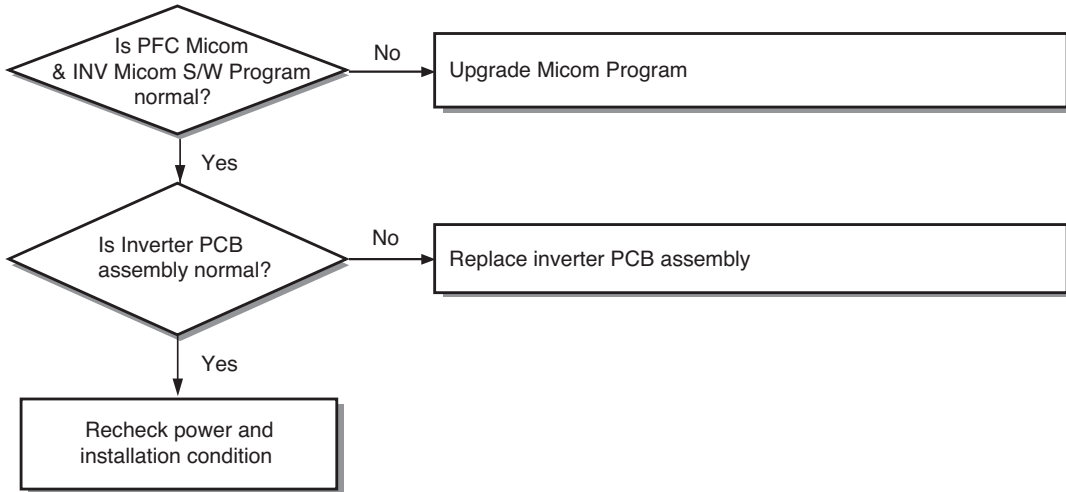


Display code	Title	Cause of error	Check point & Normal condition
35	Low Presser Error	Excessive decrease of low pressure	<ul style="list-style-type: none"> • Defective low pressure sensor • Defective outdoor/indoor unit fan • Refrigerant shortage/leakage • Deformation because of damage of refrigerant pipe • Defective indoor / outdoor unit EEV • Covering / clogging (outdoor unit covering during the cooling mode / indoor unit filter clogging during heating mode) • SVC valve clogging • Defective outdoor unit PCB • Defective indoor unit pipe sensor



Display code	Title	Cause of error	Check point & Normal condition
39	Communication Error	Communication Error Between PFC Micom and INV Micom.	1. Micom defect/Circuit defect 2. Different Micom S/W Version 3. ODU inverter PCB assembly damage

■ Error Diagnosis and Countermeasure Flow Chart



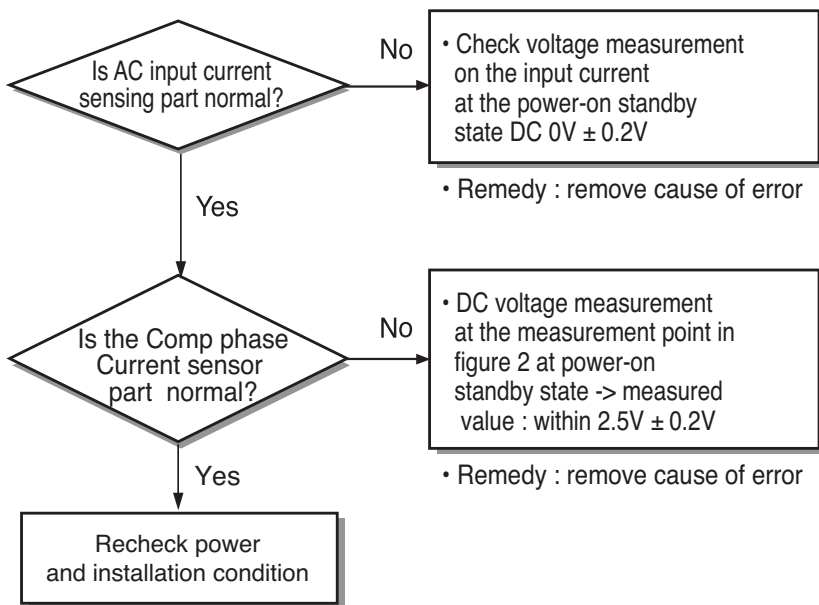
SINGLE/MULTI

Display code	Title	Cause of error	Check point & Normal condition
40	CT Sensor (Open/short)	<ul style="list-style-type: none"> PCB sensing circuit part burned 	<ul style="list-style-type: none"> Check power input connector, Comp output current sensing circuit

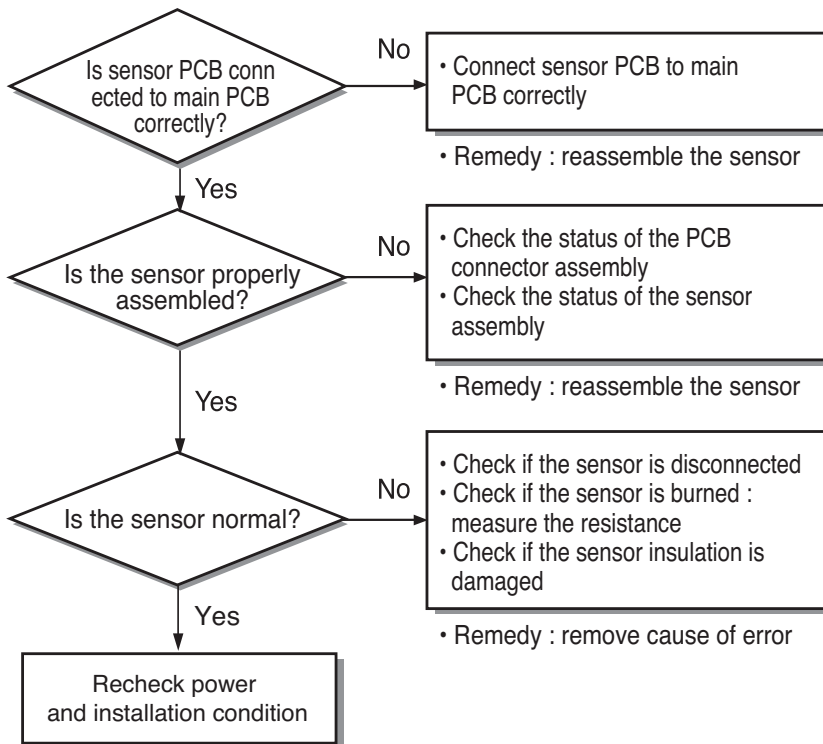


WARNING

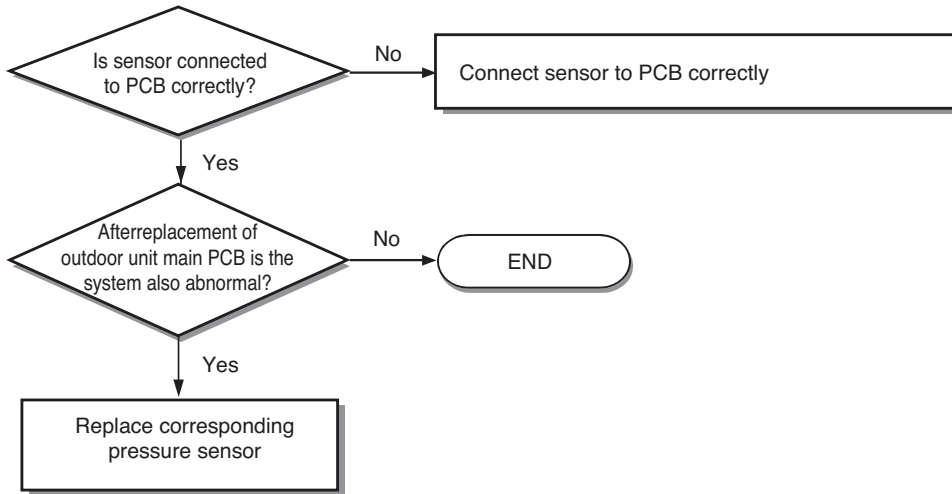
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Display code	Title	Cause of error	Check point & Normal condition
41	D-pipe sensor (Inverter)	<ul style="list-style-type: none"> • Open / Short • Soldered poorly • Internal circuit error 	<ul style="list-style-type: none"> • Normal resistor : 200KΩ / at 25°C (Unplugged)
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)
45	Condenser Mid-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)
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)
48	Condenser Out-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)



Display code	Title	Cause of error	Check point & Normal condition
43	High Pressure Sensor Error	Abnormal value of sensor (Open/Short)	<ul style="list-style-type: none"> • Bad connection of connector PCB • Bad connection high pressure connector • Defect of high pressure connector (Open/Short) • Defect of connector PCB (Open/Short) • Defect of outdoor main PCB.



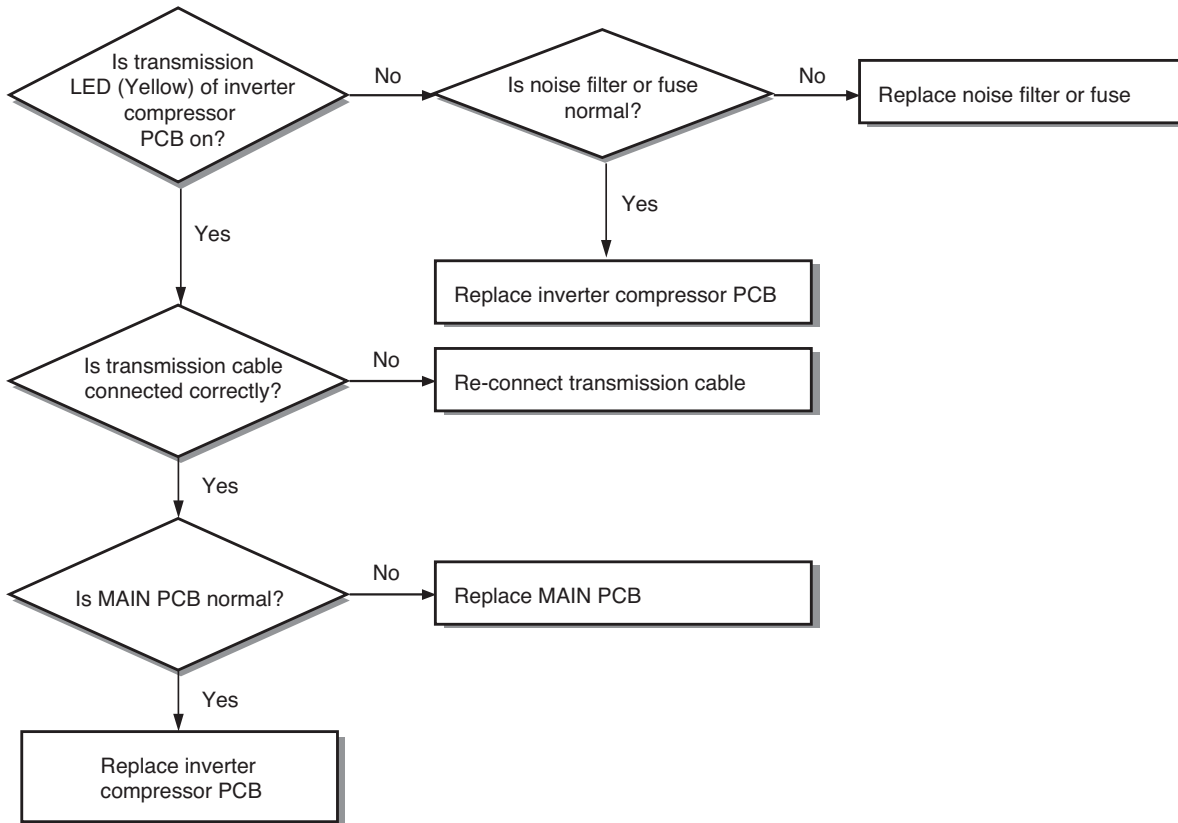
Display code	Title	Cause of error	Check point & Normal condition
51	Capacitor Over	• Over capacity Combination	• Check the indoor unit capacity. • Check the combination table.

Check Point

• CH 51

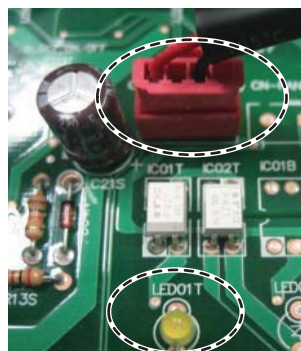
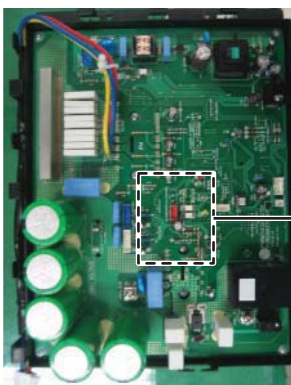
1. Check the indoor unit capacity.
2. Check the combination table.

Display code	Title	Cause of error	Check point & Normal condition
52	Signal Error (Inverter PCB <-> Main PCB)	Main controller of Master unit of Master unit can't receive signal from inverter controller	<ol style="list-style-type: none"> 1. Power cable or transmission cable is not connected 2. Defect of outdoor Main fuse/Noise Filter 3. Defect of outdoor Main / inverter PCB

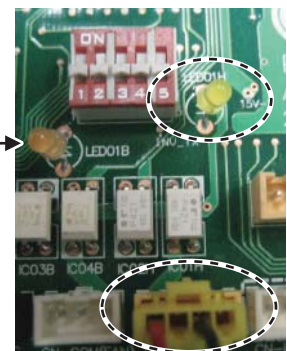


Check Point

- Check the Transmission connector and LED (Main & Inverter)



<Inverter PCB>



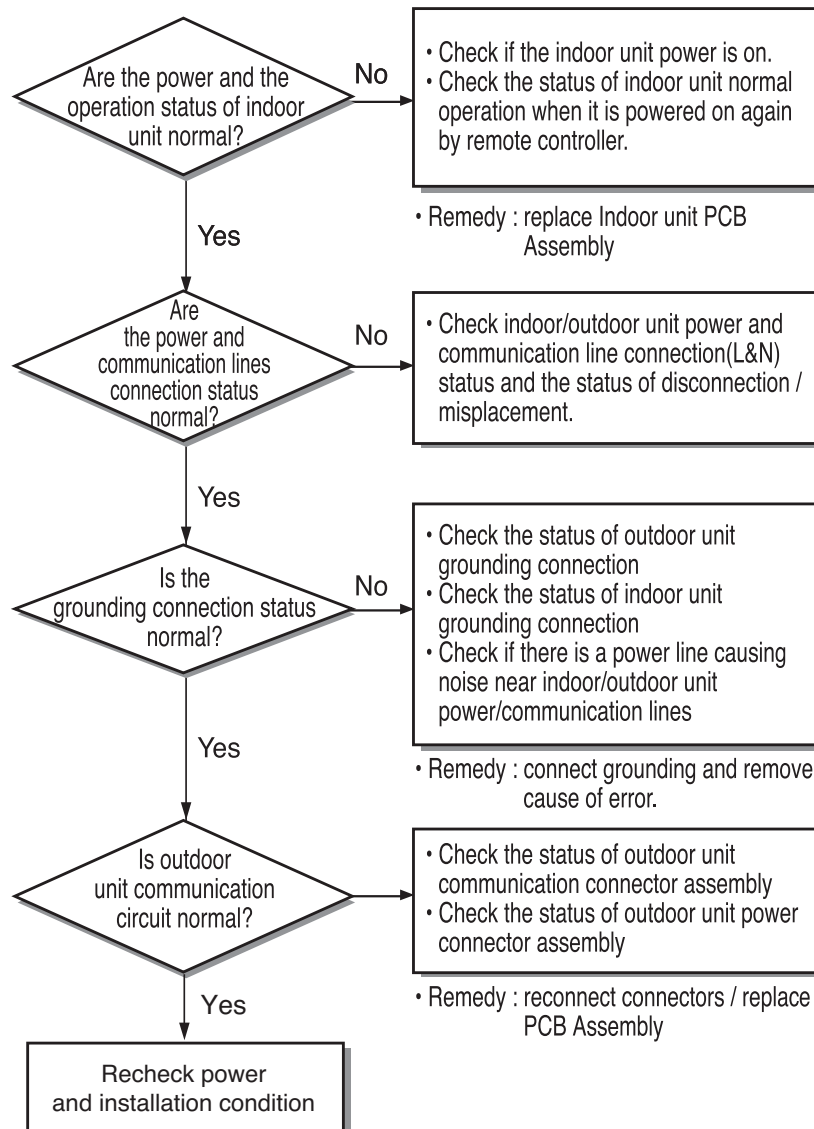
<MAIN PCB>

Display code	Title	Cause of error	Check point & Normal condition
5 / 53	Signal Error (Indoor ↔ Outdoor)	<ul style="list-style-type: none"> No power on indoor unit Indoor/outdoor unit Power connection error/communication error caused by external noise Indoor/outdoor unit communication circuit parts burned 	<ul style="list-style-type: none"> Check indoor unit power status Check indoor/outdoor unit power/communication line disconnection Check the status of indoor/outdoor unit ground connections Check if outdoor unit communication parts are burned



WARNING

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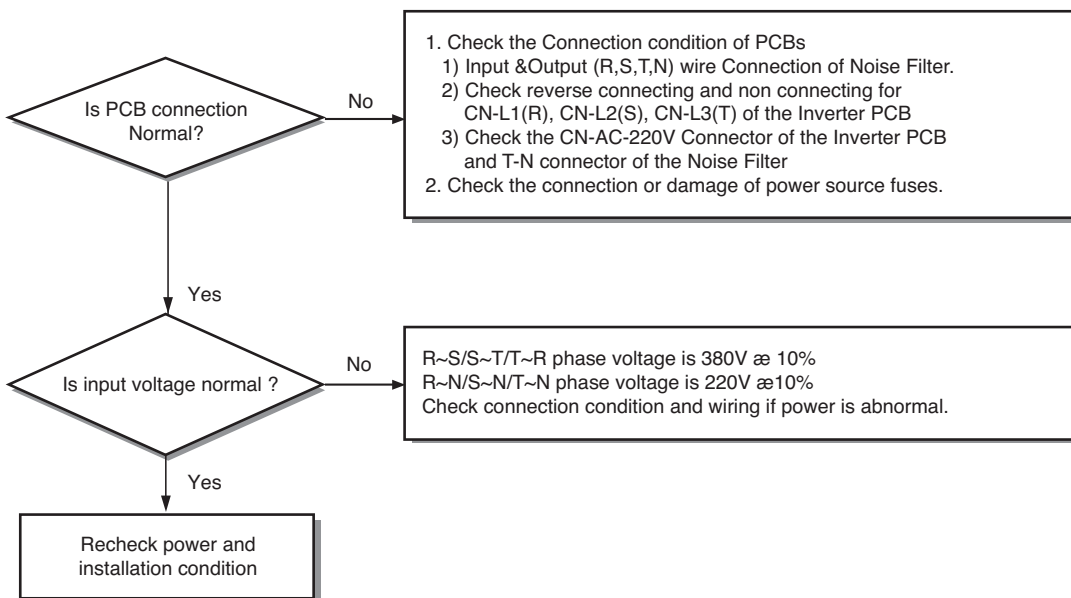


Display code	Title	Cause of error	Check point & Normal condition
54	3-Phase Wrong wiring	<ul style="list-style-type: none"> 3-phase wrong wiring of outdoor unit (Reverse Phase /omission of phase) 	<ul style="list-style-type: none"> Abnormal Main PCB No connection of CN_Phase Changed R, S, T connection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



WARNING

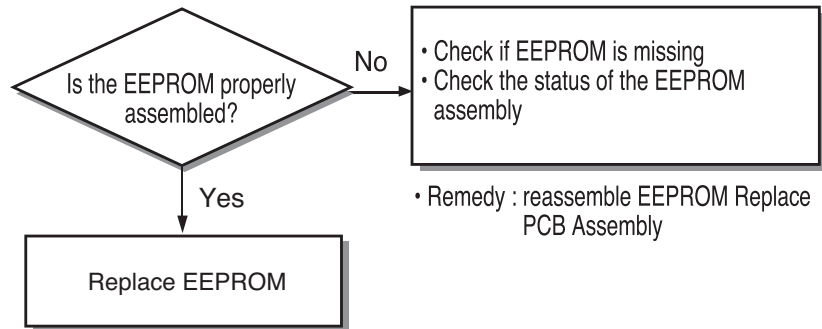
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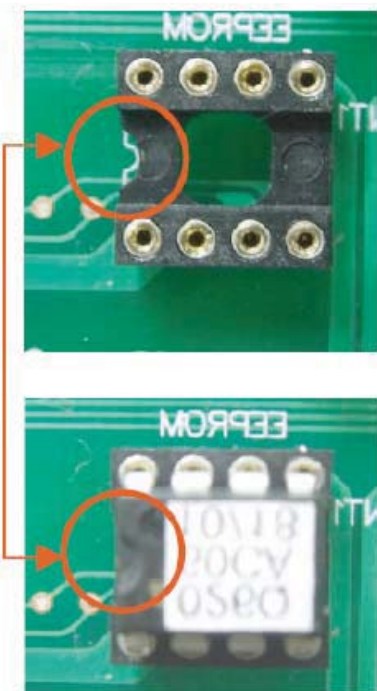
Display code	Title	Cause of error	Check point & Normal condition
60	EEPROM Check Sum Error	<ul style="list-style-type: none"> Outdoor unit PCB EEPROM misapplied Outdoor unit PCB EEPROM poor assembly 	EEPROM assembly

! WARNING

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- Inspecting Outdoor EEPROM Assembly Status
- 1. Check the consistency of the EEPROM's direction inserted in the PCB and the EEPROM marking.



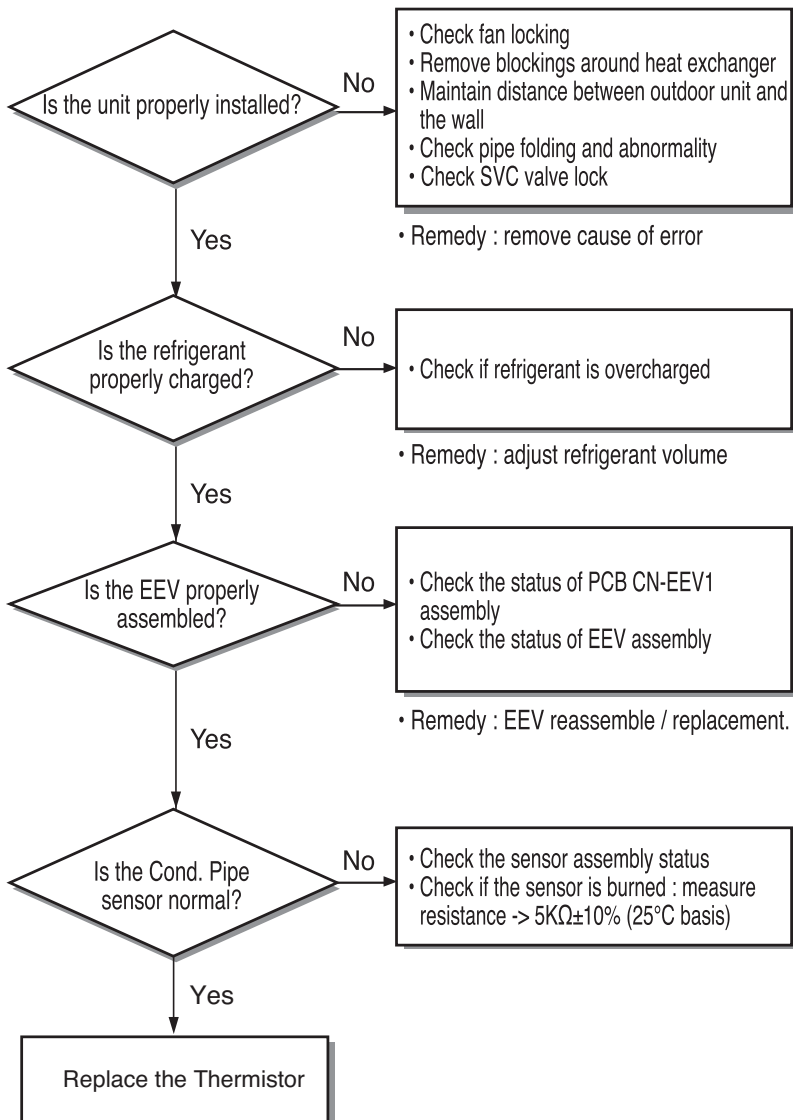
<EEPROM Direction Check Point>

Display code	Title	Cause of error	Check point & Normal condition
61	Cond. Pipe Sensor High	<ul style="list-style-type: none"> • Overload operation (Outdoor fan constraint, screened, blocked) • Outdoor unit heat exchanger contaminated • EEV connector displaced / poor EEV assembly • Poor Cond. Pipe sensor assembly / burned 	<ul style="list-style-type: none"> • Check outdoor fan constraint / screened / flow structure • Check if refrigerant overcharged • Check the status of EEV assembly • Check the status of sensor assembly / burn

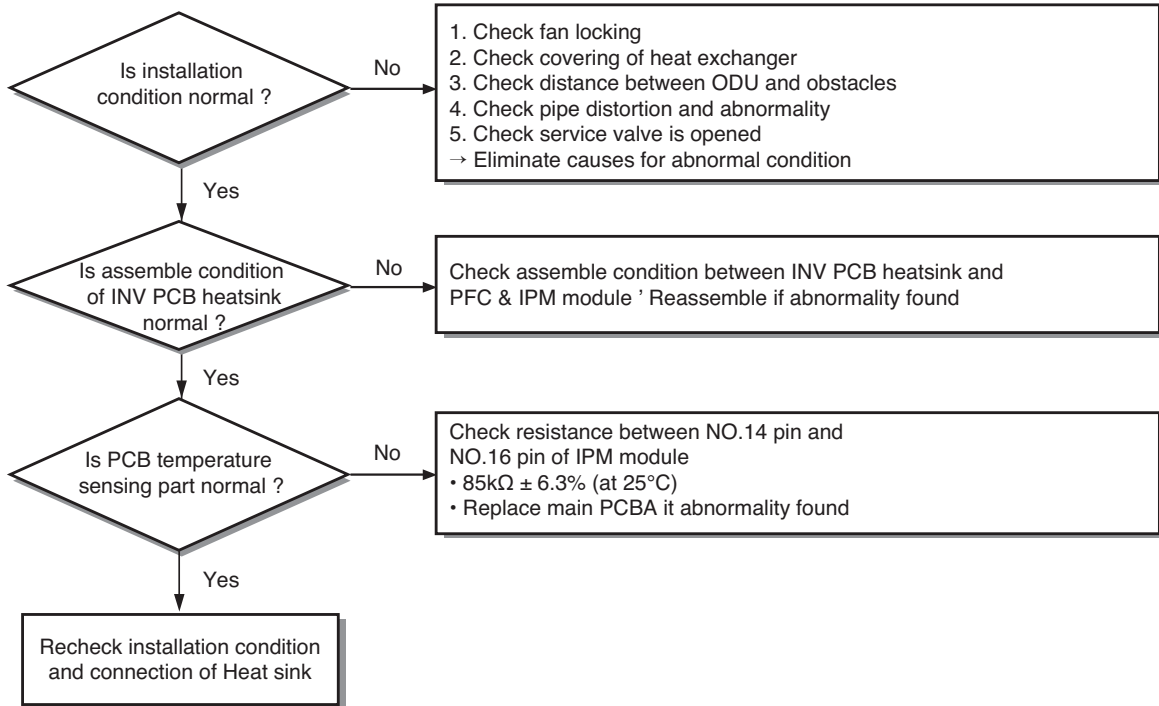


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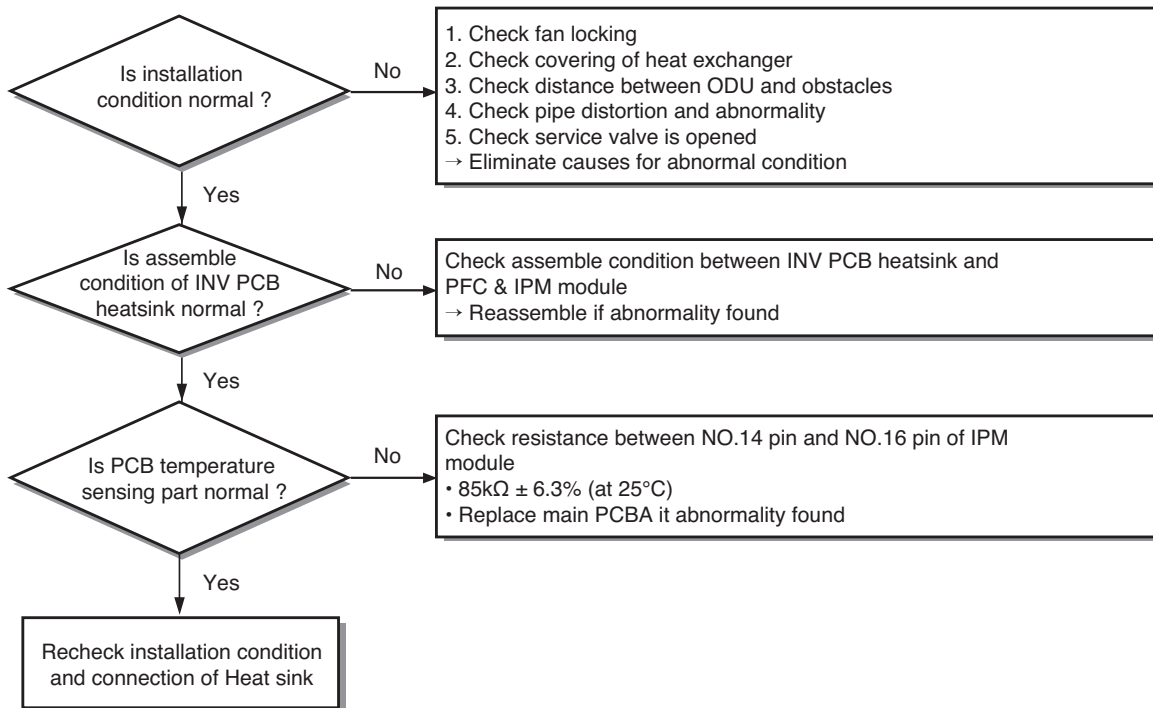
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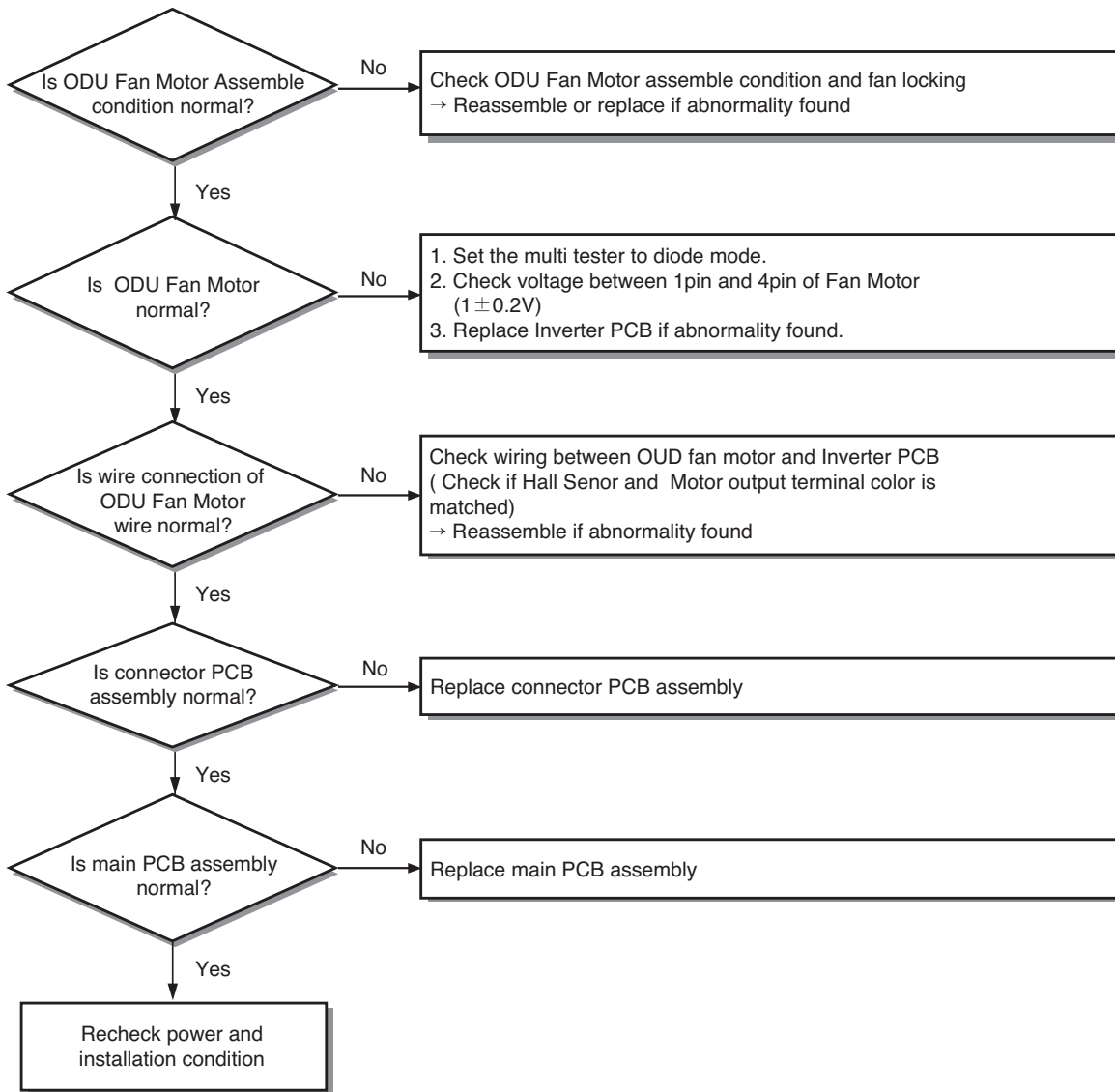
Display code	Title	Cause of error	Check point & Normal condition
62	Heatsink Sensor High	Inverter PCB heatsink temperature is over 85°C	<ul style="list-style-type: none"> • ODU fan locking • Heatsink assembly of INV PCB assemble condition abnormal • Defect of temperature sensing circuit part defect of INV PCB



Display code	Title	Cause of error	Check point & Normal condition
65	Heatsink Sensor Error	Inverter PCB heatsink sensor is open or short	<ul style="list-style-type: none"> • ODU fan locking • Heatsink assembly of INV PCB assemble condition abnormal • Defect of temperature sensing circuit part defect of INV PCB



Display code	Title	Cause of error	Check point & Normal condition
67	Outdoor BLDC Fan Lock	Fan RPM is 10RPM or less for 5 sec. when ODU fan starts or 40 RPM or less after fan starting.	<ul style="list-style-type: none"> • ODU fan locking • Heatsink assembly of INV PCB assemble condition abnormal • Defect of temperature sensing circuit part defect of INV PCB



Check Point

1. Check voltage between 1pin and 4pin of Fan Mortor connector (Tester diode mode)
2. Voltage value should be in $1V \pm 0.2V$.

Display code	Title	Cause of error	Check point & Normal condition
73	PFC Fault Error (S/W)	Inverter PCB input power current is over 48A(peak) for 2ms	<ol style="list-style-type: none"> 1. Overload operation (Pipe clogging/Covering/EEV defect/Ref.overcharge) 2. Compressor damage (Insulation damage/Motor damage) 3. Input voltage abnormal (L, N) 4. Power line assemble condition abnormal 5. Inverter PCB assembly damage (input current sensing part)

