

**SPLIT TYPE
ROOM AIR CONDITIONER
WALL MOUNTED type
INVERTER**

SERVICE INSTRUCTION

Models	Indoor unit	Outdoor unit
	AS*G18KMTA	AO*G18KMTA
	AS*G24KMTA	AO*G24KMTA
	RSG18KMTA	ROG18KMTA
	RSG24KMTA	ROG24KMTA





WALL MOUNTED type INVERTER

2 . TROUBLE SHOOTING

2.TROUBLESHOOTING

2-1 ERROR DISPLAY

2-1-1 INDOOR UNIT AND WIRED REMOTE CONTROLLER DISPLAY

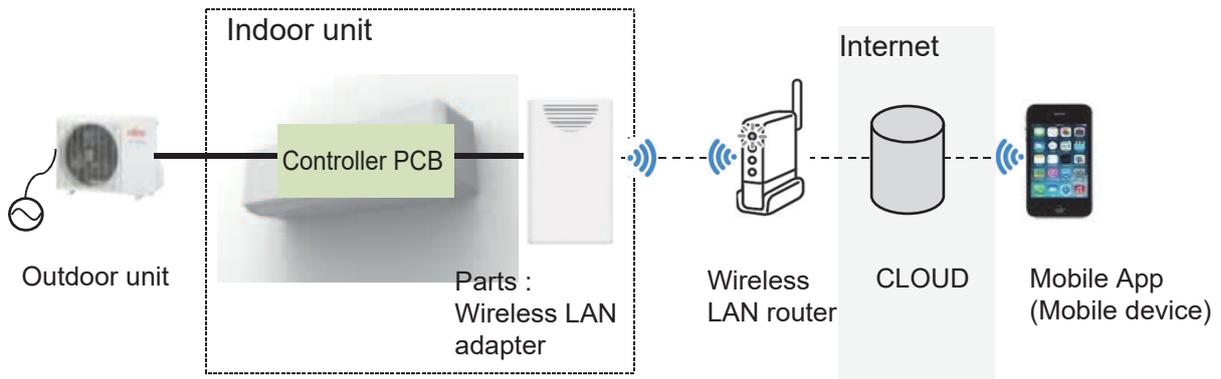
Please refer the flashing pattern as follows.

The OPERATION, TIMER and ECONOMY lamps operate as follows according to the error contents.

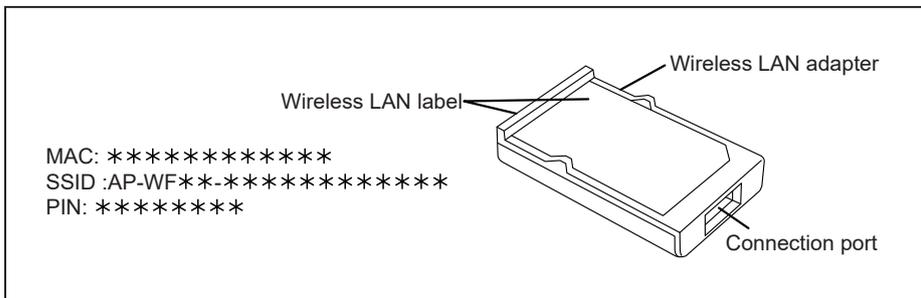
Error Contents	Indoor Unit Display			Wired Remote Controller Display	Trouble shooting
	OPERATION[I] (Green)	TIMER [⏰] (Orange)	ECONOMY [⚡] (Green)		
Serial communication error	1 time	1 time	Continuous	11	1, 2
Wired remote controller communication error	1 time	2 times	Continuous	12	3
Combination error	2 times	3 times	Continuous	23	4
Indoor unit PCB model information error	3 times	2 times	Continuous	32	5
Manual auto switch error	3 times	5 times	Continuous	35	6
Room temp. sensor error	4 times	1 time	Continuous	41	7
Indoor unit Heat Ex. Middle temp. sensor error	4 times	2 times	Continuous	42	8
Indoor unit fan motor error	5 times	1 time	Continuous	51	9
Outdoor unit main PCB model information error	6 times	2 times	Continuous	62	10
Inverter error	6 times	3 times	Continuous	63	11
PFC circuit error	6 times	4 times	Continuous	64	12
Trip terminal L error	6 times	5 times	Continuous	65	13
Discharge temp. sensor error	7 times	1 time	Continuous	71	14
Compressor temp. sensor error	7 times	2 times	Continuous	72	15
Outdoor unit Heat Ex. liquid temp. sensor error	7 times	3 times	Continuous	73	16
Outdoor temp. sensor error	7 times	4 times	Continuous	74	17
Current sensor error	8 times	4 times	Continuous	84	18
High pressure switch error	8 times	6 times	Continuous	86	19
Trip detection	9 times	4 times	Continuous	94	20
Compressor rotor position detection error	9 times	5 times	Continuous	95	21
Outdoor unit fan motor error	9 times	7 times	Continuous	97	22
4-way valve error	9 times	9 times	Continuous	99	23
Discharge temp. error	10 times	1 time	Continuous	A1	24
Compressor temp. error	10 times	3 times	Continuous	A3	25

2-1-2 WIRELESS LAN INDICATOR DISPLAY

1. WIRELESS LAN CONTROL system layout



2. NAME OF PARTS



3. WIRELESS LAN ADAPTER INDICATOR

Please refer the flashing pattern as follows.

W-LAN LED (orange) operate as follow according to the error contents.

Error Contents	Wireless LAN adapter Indicator	Error Code	Trouble shooting
	LED (Orange)		
External Communication Error (Communication Error of between IndoorUnit to Wireless LAN adapter)	On or Off *	18	32
Network Communication Error (Communication Error of between Wireless LAN Router to Wireless LAN adapter)	Flashing slow On/Off=7sec/2sec	No Error	33
Network Communication Error (Communication Error of between Wireless LAN Router to CLOUD)	On	No Error	34
Communication Error ("Trou. 29" and "Trou. 32" are simultaneous Error)	Flashing slow On/Off=7sec/2sec	18	35
Wireless LAN adapter Non-Energized	On or Off *	18	36

*: On; Connection information with router is available, Off; Connection information with router is unavailable.

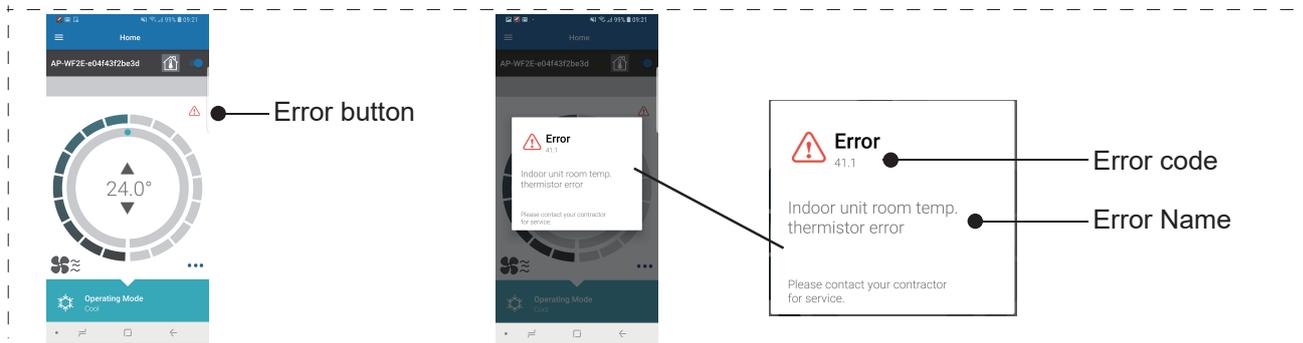
2-1-3 MOBILE APP DISPLAY (For AIR CONDITIONER)

1.ERROR DISPLAY

If there is an abnormality on the air conditioning, you will see ⚠ as follows.

When you tap the "Error button" ⚠ on the home screen, Error Code and Error Name is displayed.

For Android



For iOS



2.ERROR CODE

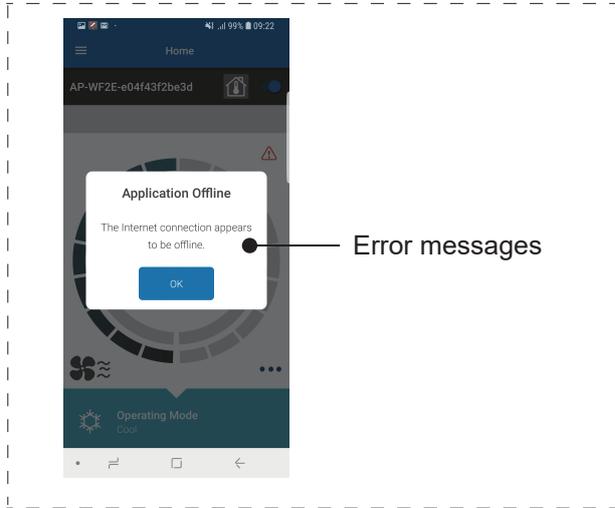
Error message	Error Code	Trouble shooting
Serial communication error (Serial Reverse Transfer Error)	11.1/ 11.2	1-1
Serial communication error (Serial Forward Transfer Error)	11.3/11.4	1-2
Wired remote controller communication error	12.1	2
Combination error	18.1	3
Indoor unit PCB model information error	32.1	4
Manual auto switch error	35.1	5
Room temp. sensor error	41.1	6
Indoor unit Heat Ex. Middle temp. sensor error	42.2	7
Indoor unit fan motor error	51.1/ 51.2	8
Outdoor unit main PCB model information error	62.1/ 62.2	9
Inverter error	63.1/ 63.2	10
PFC circuit error	64.1/ 64.3	11
	64.4/ 64.8	
Trip terminal L error	65.3	12
Discharge temp. sensor error	71.1	13
Outdoor unit Heat Ex. liquid temp. sensor error	73.3	14
Outdoor temp. sensor error	74.1	15
Current sensor error	84.1	16
High Pressure Switch Error	86.4	17
Trip detection	94.1	18
Compressor rotor position detection error	95.1/ 95.3	19
Outdoor unit fan motor error	97.3	20
4-way valve error	99.1	21
Discharge temp. error	A1.1	22

2-1-4 MOBILE APP DISPLAY (In Wireless LAN Control system)

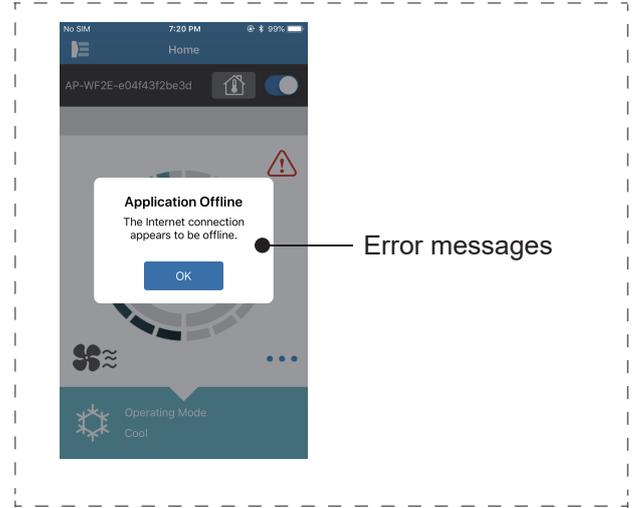
1.ERROR DISPLAY

If there is an abnormality on the Wireless LAN control system, you will see is as follows.
Error messages will disappear at 5 seconds. Then return to normal display.

For Android



For iOS



2.ERROR MESSAGES LIST

■ Mobile app errors

Registration Errors (For Android)

Error messages	Causes	Solutions
Wi-Fi must be enabled to set up new device	The user has disabled Wi-Fi on their mobile device.	Enable Wi-Fi from the Android setting.
We weren't able to sign you onto null. Please go to the Wi-Fi settings and join the network from there. Return to the app when you're done.	The mobile device and air conditioner are connected to different Wi-Fi networks when attempting to register.	Connect the mobile device to the same network as the air conditioner, then retry the registration.
Could not connect to the device at this time. Please reset the device and try again.	The air conditioner is not connected to Wi-Fi.	Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet.
	Mobile device is not connected to the same network as the air conditioner.	Connect the mobile device to the same network as the air conditioner, then retry the registration.
The device failed to connect with service.	Your internet access may be down or blocking requests to the service.	Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet, then retry the registration.

Error messages	Causes	Solutions
<p>Could not register the device. Make sure the device is ready for registration.</p>	<p>The air conditioner is not connected to the router.</p>	<p>Enter the Wi-Fi setting on the mobile device, then check if the SSID of the air conditioner (AP-WF** - *****) is connected. If the air conditioner is connected, retry the registration.</p>
	<p>The router the air conditioner is connected to, has no internet access.</p>	<p>Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then open the website.) If there is no access, connect the router to the internet, then retry the registration.</p>
	<p>The air conditioner is already registered.</p>	<p>If there is a mobile device that has already been registered to the air conditioner, unregister by using the registered mobile device. Retry the registration with the mobile device you wish to register. If you do not own the mobile device registered to the air conditioner (lost, property of previous owner, etc.), please ask your maker service to unregister the mobile device. Please notify the MAC address of the WLAN adapter as written on the Wireless LAN label.</p>
	<p>* If the problem persists even if the all of the above is conducted, please contact your dealer or authorized service personnel. When asking for advice, please notify the MAC address of the WLAN adapter as written on the Wireless LAN label.</p>	
<p>Please ensure your air conditioner is ready to pair, and that you have entered its SSID and password correctly.</p>	<p>Occurs when pairing is executed, when the user erroneously enter the SSID of the adapter.</p>	<p>Enter the SSID literally. (Uppercase and lowercase letters also match)</p>

Registration Errors (For iOS)

Error messages	Causes	Solutions
You need an internet connection to add new devices.	The user has disabled Wi-Fi on their mobile device.	Enable Wi-Fi from the iOS setting.
Could not register same LAN device. Make sure both devices are in the same LAN and try again to register.	The mobile device and air conditioner are connected to different Wi-Fi networks when attempting to register.	Connect the mobile device to the same network as the air conditioner, then retry the registration.
No registrable device was found. Make sure Wi-Fi setup was successful. This method only works if the Wi-Fi was recently performed.	The air conditioner is not connected to Wi-Fi.	Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet.
	Mobile device is not connected to the same network as the air conditioner.	Connect the mobile device to the same network as the air conditioner, then tap register button.
Could not register the device. Make sure the device is ready for registration.	The air conditioner is not connected to the router.	Enter the Wi-Fi setting on the mobile device, then check if the SSID of the air conditioner (AP-WF**-*****)) is connected. If the air conditioner is connected, retry the registration.

Error messages	Causes	Solutions
<p>Could not register the device. Make sure the device is ready for registration.</p>	<p>The router the air conditioner is connected to, has no internet access.</p>	<p>Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet, then retry the registration.</p>
	<p>The air conditioner is already registered.</p>	<p>If there is a mobile device that has already been registered to the air conditioner, unregister by using the registered mobile device. Retry the registration with the mobile device you wish to register. If you do not own the mobile device registered to the air conditioner (lost, property of previous owner, etc.), please ask your maker service to unregister the mobile device. Please notify the MAC address of the WLAN adapter as written on the Wireless LAN label.</p>
	<p>* If the problem persists even if the all of the above is conducted, please contact your dealer or authorized service personnel. When asking for advice, please notify the MAC address of the WLAN adapter as written on the Wireless LAN label.</p>	
<p>Please ensure your air conditioner is ready to pair, and that you have entered its SSID and password correctly.</p>	<p>Occurs when pairing is executed, when the user erroneously enter the SSID of the adapter.</p>	<p>Enter the SSID literally. (Uppercase and lowercase letters also match)</p>

General Errors (For Android)

Error messages	Causes	Solutions
No connectivity to Wi-Fi or the cloud. Please check your network connection.	The mobile device has no internet access.	Connect the mobile device to the internet.
An error occurred while trying to update your profile. Please try again later.		
Device is offline and cannot be modified.	The router the air conditioner is connected to, has no internet access.	Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet.
	The air conditioner is not connected to the router.	Check the W-LAN LED indicators on the air conditioner. If the W-LAN LED lamp is flashing or off, please check the TROUBLESHOOTING "State of the Wireless LAN indicators".

General Errors (For iOS)

Error messages	Causes	Solutions
Failed to change password.	The mobile device has no internet access.	Connect the mobile device to the internet.
Cloud not determine service reachability.		
Failed to update property.		
Could not retrieve schedules.		
The operation couldn't be completed. Operation timed out.		
"Device name" is offline. (Device name varies depending on the air conditioner)	The router the air conditioner is connected to has no internet access.	Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website to check access.) If there is no access, connect the router to the internet.
	The air conditioner is not connected to the router.	Check the W-LAN LED indicators on the air conditioner. If the W-LAN LED lamp is flashing or off, please check the TROUBLESHOOTING "State of the Wireless LAN indicators".

Sign-in Errors (For Android/ iOS)

Error messages	Causes	Solutions
Could not reach service.	The mobile device has no internet access.	Connect the mobile device to the internet.

2-2 TROUBLESHOOTING WITH ERROR CODE

Trouble shooting 1
OUTDOOR UNIT Error Method:
Serial communication error
(Serial Reverse Transfer Error)

Indicate or Display:

Outdoor Unit : No indication
 Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 1 time Flash
 Economy lamp: Continuous flash.
ERROR CODE : [E : 11]

Detective Actuators:

Outdoor unit Main PCB
 Outdoor unit fan motor

Detective details:

When the indoor unit cannot receive the serial signal from Outdoor unit more than 2minutes after power ON, or the indoor unit cannot receive the serial signal more than 15seconds during normal operation.

Forecast of Cause:

1.Connection failure 2. External cause 3. Main PCB failure 4. Outdoor unit fan motor failure

Check Point 1-1 : Reset the power and operate

· Does Error indication show again?

NO

YES

Check Point 2 : Check Connection

· Check any loose or removed connection line of Indoor unit and Outdoor unit.

>>If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.

Check Point 1-2: Check external cause such as noise

· Check the complete insulation of the grounding.
 · Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

OK

Check Point 3 : Check the voltage of power supply

· Check the voltage of power supply

>>Check if AC198V (AC220V -10%) - 264V (AC240V +10%) appears at Outdoor Unit Terminal L - N.



OK

Check Point 4 : Check Serial Signal (Reverse Transfer Signal)

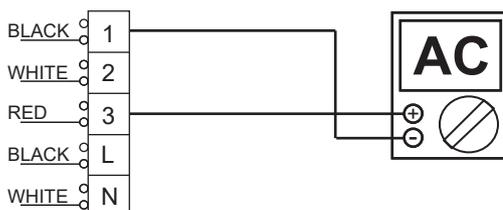
· Check Serial Signal (Reverse Transfer Signal)

>>Check if Indicated value swings between AC90V and AC270V at Outdoor Unit Terminal 1 - 3.

>>If it is abnormal, Check Outdoor unit fan motor (PARTS INFORMATION 5)

>>If Outdoor fan motor is abnormal, replace Outdoor unit fan motor and Main PCB.

>>If Outdoor fan motor is normal, replace Main PCB.

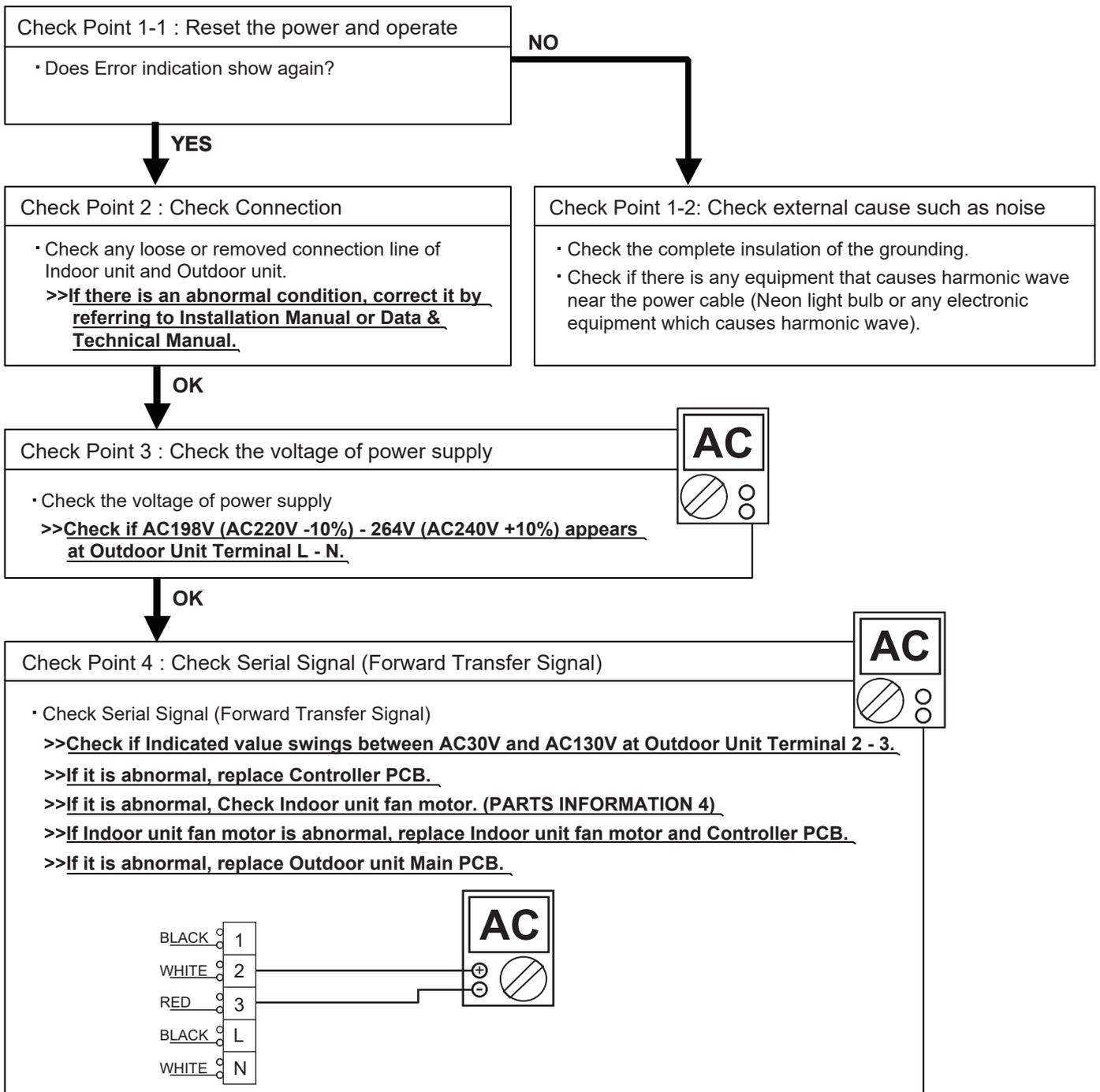


Trouble shooting 2 INDOOR UNIT Error Method: Serial communication error (Serial Forward Transfer Error)	Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 11]
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Detective Actuators: Indoor unit Controller PCB Indoor unit fan motor Outdoor unit Main PCB	Detective details: When the outdoor unit cannot receive the serial signal from Indoor unit more than 10seconds.
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Forecast of Cause:

1.Connection failure 2. External cause 3. Controller PCB failure 4. Indoor unit fan motor failure
 5.Outdoor unit Main PCB



<p>Trouble shooting 3 <u>INDOOR UNIT Error Method:</u> Wired remote controller communication error</p>	<p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 2 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 12]</p>
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<p><u>Detective Actuators:</u> Indoor unit Controller PCB Wired remote control</p>	<p><u>Detective details:</u> Upon receiving the signal more than 1 time from Wired Remote, but the same signal has not been received more than 1 minute (3 Wire type), 2.5 minute (2 Wire type)</p>
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<p><u>Forecast of Cause:</u> 1. Terminal connection abnormal 2. Wired remote control failure 3. Controller PCB failure</p>
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<p>Check Point 1 : Check the connection of terminal</p>
<p><u>After turning off the power, check & correct the followings.</u> • Check the connection of terminal between remote control and Indoor unit, and check if there is a disconnection of the cable.</p>



<p>Check Point 2 : Check Remote control and Controller PCB</p>	
<p>• Check Voltage at CN300 (Terminal 1-2) of UTY-TWRXZ2 (Communication kit). (Power supply to Remote control)</p> <p>>> If it is DC12V, Remote control is failure. (Controller PCB is normal) >> Replace Remote control >> If it is DC 0V, Controller PCB is failure. (Check Remote control once again) >> Replace Controller PCB</p> <p>► <u>Upon correcting the removed connector or mis-wiring, reset the power.</u></p>	

<p>Trouble shooting 4 <u>INDOOR UNIT Error Method:</u> Combination error</p>	<p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 2 time Flash, Timer lamp: 3 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 23]</p>
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<p><u>Detective Actuators:</u> Indoor unit</p>	<p><u>Detective details:</u> 1. The outdoor unit receives the serial signal of applied refrigerant information from Indoor unit. When the refrigerant is R410a. 2. When the outdoor unit type is multi.</p>
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<p><u>Forecast of Cause:</u> 1. The selection of indoor units is incorrect</p>
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<p>Check Point 1 : Check the type of indoor unit</p>
<p>· Check the type of the connected indoor unit. <u>>> If abnormal condition is found, correct it.</u></p>

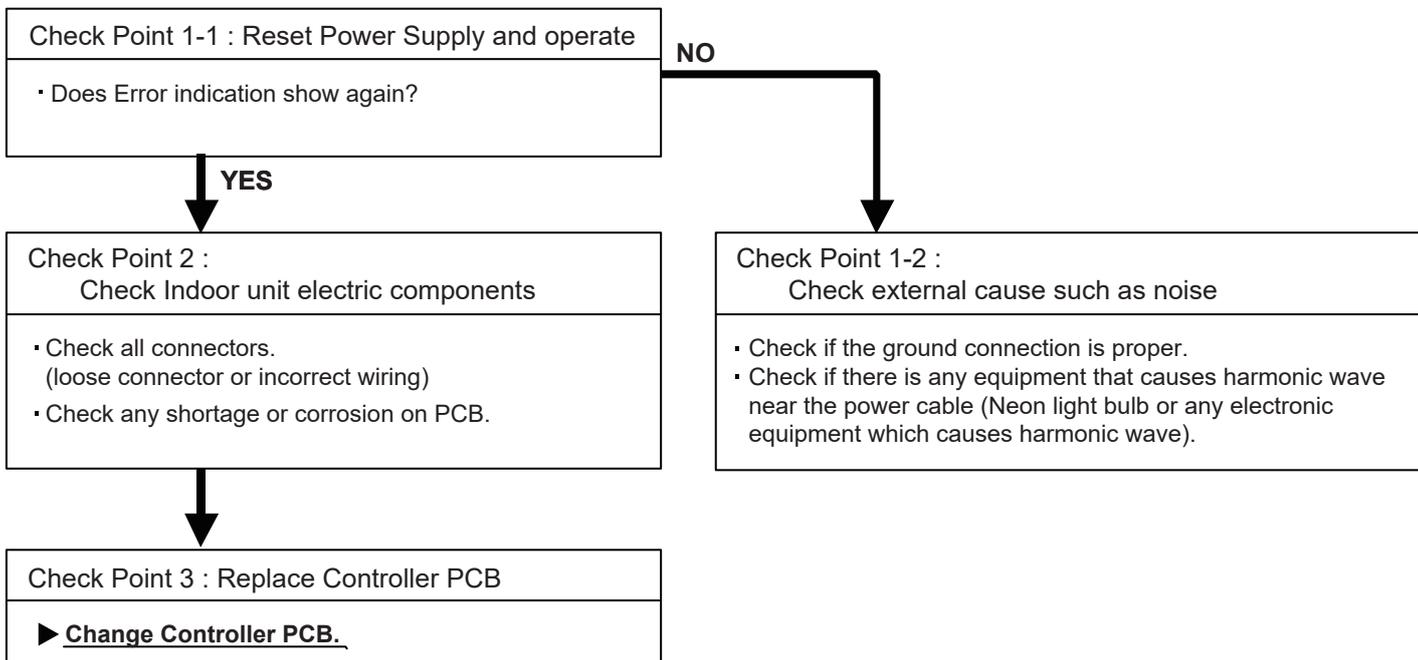


<p>Check Point 2 : Replace Main PCB</p>
<p>▶ <u>If Check Point 1 do not improve the symptom, replace Main PCB of Outdoor unit.</u></p>

<p>Trouble shooting 5 <u>INDOOR UNIT Error Method:</u> Indoor unit PCB model information error</p>	<p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 3 times Flash, Timer lamp: 2 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 32]</p>
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<p><u>Detective Actuators:</u> Indoor unit Controller PCB</p>	<p><u>Detective details:</u> When power is on and there is some below case. 1. When model information of EEPROM is incorrect. 2. When the access to EEPROM failed.</p>
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<p><u>Forecast of Cause:</u> 1. External cause 2. Defective connection of electric components 3. Controller PCB failure</p>



Note : EEPROM
EEPROM(Electronically Erasable and Programmable Read Only Memory) is a non-volatile memory which keeps memorized information even if power is turned off. It can change the contents electronically.
To change the contents, it uses higher voltage than normal, and it can not change a partial contents. (Rewriting shall be done upon erasing the all contents.)
There is a limit in a number of rewriting.

<p>Trouble shooting 6 <u>INDOOR UNIT Error Method:</u> Manual auto switch error</p>	<p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 3 times Flash, Timer lamp: 5 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 35]</p>
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<p><u>Detective Actuators:</u> Indoor unit Controller PCB Indicator PCB Manual auto switch</p>	<p><u>Detective details:</u> When the Manual Auto Switch becomes ON for consecutive 60 or more seconds.</p>
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<p><u>Forecast of Cause :</u> 1.Manual auto switch failure 2.Controller PCB and Indicator PCB failure</p>
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<p>Check Point 1 : Check the Manual auto switch</p> <ul style="list-style-type: none"> • Check if Manual auto switch is kept pressed. • Check ON/OFF switching operation by using a meter. <p>>><u>If Manual Auto Switch is disabled (on/off switching), replace it.</u></p>	
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<p>Check Point 2 : Replace Controller PCB</p>
<p>▶ <u>If Check Point 1 do not improve the symptom, change Controller PCB and Indicator PCB.</u></p>

Trouble shooting 7 INDOOR UNIT Error Method: Room temp. sensor error	Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 4 times Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 41]
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Detective Actuators: Indoor unit Controller PCB Room temperature thermistor	Detective details: When Room Temperature Thermistor open or short-circuit is detected.
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Forecast of Cause : 1.Connector connection failure 2.Thermistor failure 3. Controller PCB failure

Check Point 1 : Check connection of Connector • Check if connector is removed. • Check erroneous connection. • Check if thermistor cable is open. >>Upon correcting the removed connector or mis-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value									
Thermistor Characteristics (Approx. value)									
Temperature	-10°C	-5°C	0°C	5°C	10°C	15°C	20°C	25°C	
Resistance Value (kΩ)	58.2	44.0	33.6	25.9	20.2	15.8	12.5	10.0	
Temperature	30°C	35°C	40°C	45°C					
Resistance Value (kΩ)	8.0	6.5	5.3	4.4					
► If Thermistor is either open or shorted, replace it and reset the power.									



Check Point 3 : Check voltage of Controller PCB (DC5.0V)	
Make sure circuit diagram of indoor unit and check terminal voltage at Thermistor (DC5.0V)	
► If the voltage does not appear, replace Controller PCB.	

Trouble shooting 8 INDOOR UNIT Error Method: Indoor unit Heat Ex. Middle temp. sensor error	<u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 4 times Flash, Timer lamp: 2 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 42]
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<u>Detective Actuators:</u> Indoor unit Controller PCB Heat Ex. temperature thermistor	<u>Detective details:</u> When Heat Ex. Temperature Thermistor open or short-circuit is detected.
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<u>Forecast of Cause :</u> 1.Connector connection failure 2.Thermistor failure 3. Controller PCB failure

Check Point 1 : Check connection of Connector
<ul style="list-style-type: none"> • Check if connector is removed. • Check erroneous connection. • Check if thermistor cable is open. <p>>>Upon correcting the removed connector or mis-wiring, reset the power.</p>



Check Point 2 : Remove connector and check Thermistor resistance value									
Thermistor Characteristics (Approx. value)									
Temperature	-30°C	-20°C	-10°C	-5°C	0°C	5°C	10°C	20°C	
Resistance Value (kΩ)	1131.9	579.6	312.3	233.2	176.0	134.2	103.3	62.9	
Temperature	30°C	40°C	50°C	60°C	63°C				
Resistance Value (kΩ)	39.6	25.6	17.1	11.6	10.4				
<p>► If Thermistor is either open or shorted, replace it and reset the power.</p>									



Check Point 3 : Check voltage of Controller PCB (DC5.0V)	
Make sure circuit diagram of indoor unit and check terminal voltage at Thermistor (DC5.0V)	
<p>► If the voltage does not appear, replace Controller PCB.</p>	

<p>Trouble shooting 9 <u>INDOOR UNIT Error Method:</u> Indoor unit fan motor error</p>	<p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 5 times Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 51]</p>
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<p><u>Detective Actuators:</u> Indoor unit Controller PCB Indoor unit fan motor</p>	<p><u>Detective details:</u> When the condition that actual frequency of Indoor Fan is below 1/3 of target frequency is continued more than 56 seconds.</p>
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<p><u>Forecast of Cause:</u> 1.Fan rotation failure 2. Fan motor winding open 3. Motor protection by surrounding temperature rise 4.Control PCB failure 5. Indoor unit fan motor failure</p>
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<p>Check Point 1 : Check rotation of Fan</p>
<ul style="list-style-type: none"> • Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor) >><u>If Fan or Bearing is abnormal, replace it.</u>



<p>Check Point 2 : Check ambient temp. around motor</p>
<ul style="list-style-type: none"> • Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat) >><u>Upon the temperature coming down, restart operation.</u>



<p>Check Point 3 : Check Indoor unit fan motor</p>
<ul style="list-style-type: none"> • Check Indoor unit fan Motor. (PARTS INFORMATION 4) >><u>If Indoor unit fan motor is abnormal, replace Indoor unit fan motor and Controller PCB.</u>

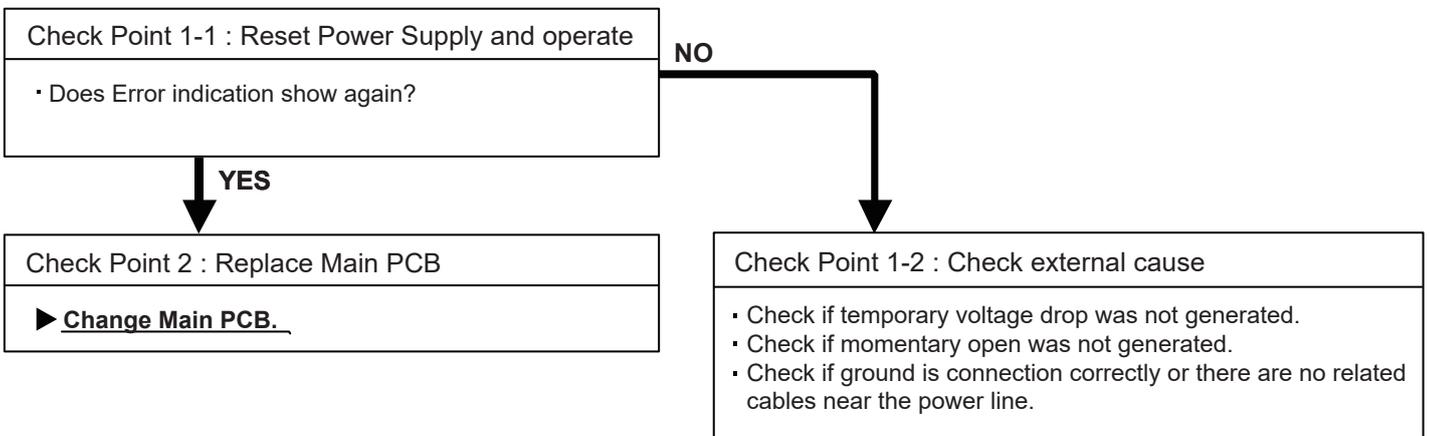


<p>Check Point 4 : Replace Controller PCB</p>
<p>▶ <u>If Check Point 1- 3 do not improve the symptom, replace Controller PCB.</u></p>

<p>Trouble shooting 10 <u>OUTDOOR UNIT Error Method:</u> Outdoor unit main PCB model information error</p>	<p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 6 times Flash, Timer lamp: 2 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 62]</p>
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<p><u>Detective Actuators:</u> Outdoor unit Main PCB</p>	<p><u>Detective details:</u> Access to EEPROM failed due to some cause after outdoor unit started.</p>
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<p><u>Forecast of Cause:</u> 1.External cause (Noise, temporary open, voltage drop) 2. Main PCB failure</p>



Trouble shooting 12 <u>OUTDOOR UNIT Error Method:</u> PFC circuit error	<u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 6 times Flash, Timer lamp: 4 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 64]
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<u>Detective Actuators:</u> Outdoor unit Main PCB	<u>Detective details:</u> When inverter output DC voltage is higher than 420V for over 3 seconds, the compressor stops. If the same operation is repeated 5 times, the compressor stops permanently.
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<u>Forecast of Cause :</u> 1.External cause 2. Connector connection failure 3. Main PCB failure

Check Point 1 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)
<ul style="list-style-type: none"> • Instant drop : Check if there is a large load electric apparatus in the same circuit. • Momentary power failure : Check if there is a defective contact or leak current in the power supply circuit. • Noise : Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding.



Check Point 2 : Check connection of Connector
<ul style="list-style-type: none"> • Check if connector is removed. • Check erroneous connection. • Check if cable is open. <p>>>Upon correcting the removed connector or mis-wiring, reset the power.</p>



Check Point 3 : Replace Main PCB
<p>▶ <u>If Check Point 1, 2 do not improve the symptom, change Main PCB.</u></p>

<p>Trouble shooting 13 <u>OUTDOOR UNIT Error Method:</u> Trip terminal L error</p>	<p><u>Indicate or Display:</u> Outdoor Unit : No indication Indoor Unit : Operation lamp: 6 times Flash, Timer lamp: 5 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 65]</p>
---	---

<p><u>Detective Actuators:</u> Outdoor unit Main PCB</p>	<p><u>Detective details:</u> When the signal from FO terminal of IPM is "L"(=0V) while the compressor stops.</p>
--	---

<p><u>Forecast of Cause:</u> 1.Outdoor unit Main PCB failure</p>
--

<p>Check Point 1 : Replace Main PCB</p>
<p>▶ <u>Replace Outdoor unit Main PCB.</u></p>

Trouble shooting 14 OUTDOOR UNIT Error Method: Discharge temp. sensor error	Indicate or Display: Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : 71]
--	--

Detective Actuators: Outdoor unit Main PCB Discharge pipe temperature thermistor	Detective details: When Discharge pipe temperature thermistor open or short-circuit is detected at power ON or while running the compressor.
---	--

Forecast of Cause :
 1.Connector connection failure 2.Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or mis-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)

Temperature	-30°C	-20°C	-10°C	-5°C	0°C	5°C	10°C	20°C	30°C
Resistance Value (kΩ)	1013.1	531.6	292.9	221.1	168.6	134.2	100.9	62.6	40.0

Temperature	40°C	50°C	60°C	70°C	80°C	90°C	100°C	110°C	120°C
Resistance Value (kΩ)	26.3	17.8	12.3	8.7	6.3	4.6	3.4	2.6	2.0



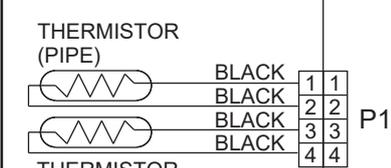
► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)

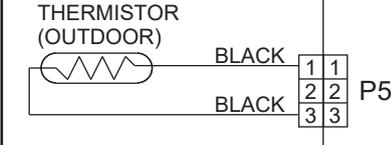
Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

THERMISTOR (PIPE)



THERMISTOR (DISCHARGE)

THERMISTOR (OUTDOOR)





► If the voltage does not appear, replace Main PCB.

For 24 type

<p>Trouble shooting 15 OUTDOOR UNIT Error Method: Compressor temp. sensor error</p>	<p>Indicate or Display: Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 2 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 72]</p>
--	--

<p>Detective Actuators: Outdoor unit Main PCB Compressor temperature thermistor</p>	<p>Detective details: When Compressor temperature thermistor open or short-circuit is detected at power ON or while running the compressor.</p>
--	---

<p>Forecast of Cause : 1.Connector connection failure 2.Thermistor failure 3. Main PCB failure</p>
--

<p>Check Point 1 : Check connection of Connector</p> <ul style="list-style-type: none"> • Check if connector is removed. • Check erroneous connection. • Check if thermistor cable is open. <p>>>Upon correcting the removed connector or mis-wiring, reset the power.</p>



<p>Check Point 2 : Remove connector and check Thermistor resistance value</p>										
<p>Thermistor Characteristics (Approx. value)</p>										
Temperature	-30°C	-20°C	-10°C	-5°C	0°C	5°C	10°C	20°C	30°C	
Resistance Value (kΩ)	1013.1	531.6	292.9	221.1	168.6	134.2	100.9	62.6	40.0	
Temperature	40°C	50°C	60°C	70°C	80°C	90°C	100°C	110°C	120°C	
Resistance Value (kΩ)	26.3	17.8	12.3	8.7	6.3	4.6	3.4	2.6	2.0	
<p>► If Thermistor is either open or shorted, replace it and reset the power.</p>										



<p>Check Point 3 : Check voltage of Main PCB (DC5.0V)</p>	
<p>Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)</p>	
<p>THERMISTOR (COMPRESSOR)</p> <p>BLACK 1 1</p> <p>BLACK 2 2 P15</p> <p>3 3</p>	
<p>► If the voltage does not appear, replace Main PCB.</p>	

Trouble shooting 16 OUTDOOR UNIT Error Method: Outdoor unit Heat Ex. liquid temp. sensor error	Indicate or Display: Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 3 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 73]
---	---

Detective Actuators: Outdoor unit Main PCB Heat exchanger temperature thermistor	Detective details: When Heat exchanger temperature thermistor open or short-circuit is detected at power ON or while running the compressor.
---	--

Forecast of Cause :
 1.Connector connection failure 2.Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or mis-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)

Temperature	-30°C	-20°C	-10°C	-5°C	0°C	5°C	10°C	20°C	30°C
Resistance Value (kΩ)	95.6	50.3	27.8	21.0	16.1	12.4	9.6	6.0	3.8

Temperature	40°C	50°C	60°C	70°C	80°C
Resistance Value (kΩ)	2.5	1.7	1.2	0.8	0.6

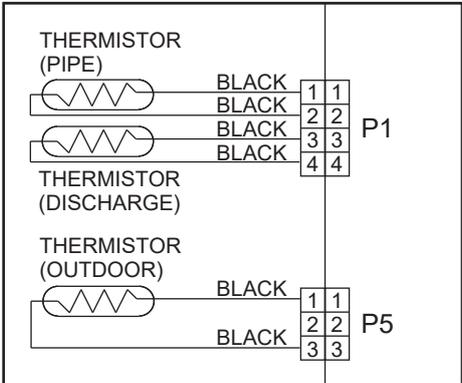


► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)




► If the voltage does not appear, replace Main PCB.

Trouble shooting 17 OUTDOOR UNIT Error Method: Outdoor temp. sensor error	Indicate or Display: Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 4 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 74]
--	---

Detective Actuators: Outdoor unit Main PCB Outdoor temperature thermistor	Detective details: When Outdoor temperature thermistor open or short-circuit is detected at power ON or while running the compressor.
--	---

Forecast of Cause :
 1. Connector connection failure 2. Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

>>Upon correcting the removed connector or mis-wiring, reset the power.



Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)

Temperature	-30°C	-25°C	-20°C	-15°C	-10°C	-5°C	0°C	5°C	10°C
Resistance Value (kΩ)	224.3	159.7	115.2	84.2	62.3	46.6	35.2	26.9	20.7

Temperature	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C
Resistance Value (kΩ)	16.1	12.6	10.0	8.0	6.4	5.2	4.2	3.5	2.8



► If Thermistor is either open or shorted, replace it and reset the power.



Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)

THERMISTOR (PIPE)

BLACK	1	1
BLACK	2	2
BLACK	3	3
BLACK	4	4

P1

THERMISTOR (DISCHARGE)

THERMISTOR (OUTDOOR)

BLACK	1	1
BLACK	2	2
BLACK	3	3

P5

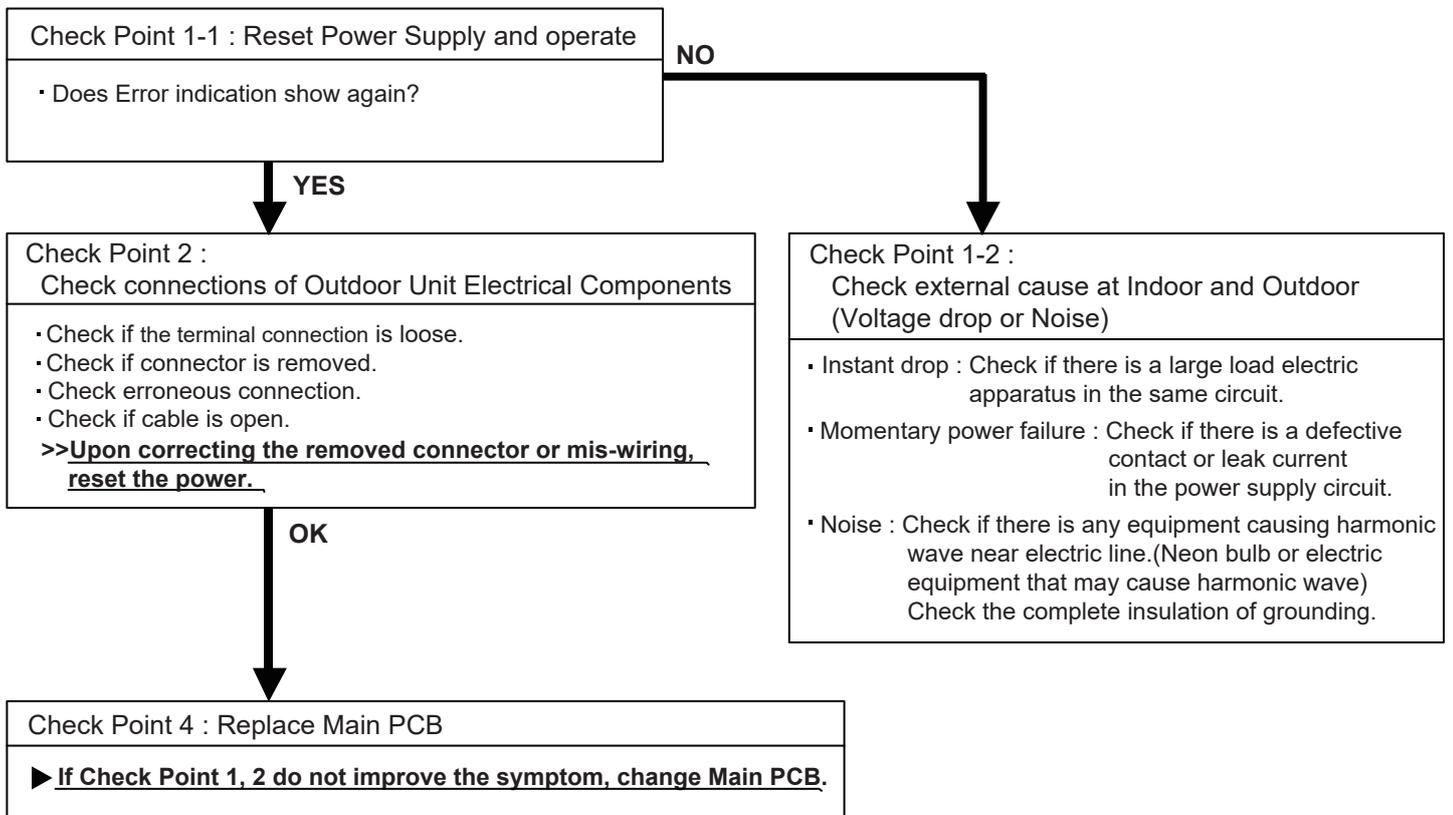


► If the voltage does not appear, replace Main PCB.

Trouble shooting 18 OUTDOOR UNIT Error Method: Current sensor error	Indicate or Display: Outdoor Unit : LED 2sec ON/ 2sec OFF Indoor Unit : Operation lamp: 8 times Flash, Timer lamp: 4 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 84]
--	---

Detective Actuators: Outdoor unit Main PCB	Detective details: When Input Current Sensor has detected 0A, while Inverter Compressor is operating at higher than 56rps, after 1minute upon starting the Compressor. (Except during the defrost operation)
--	--

Forecast of Cause : 1.Defective connection of electric components 2.External cause 3.Main PCB failure		
---	--	--



For 24 type

<p>Trouble shooting 19 OUTDOOR UNIT Error Method: High Pressure Switch Error</p>	<p>Indicate or Display: Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF Indoor Unit : Operation lamp: 8 times Flash, Timer lamp: 6 times Flash Economy lamp : Continuous flash. ERROR CODE : [E : 86]</p>
---	--

<p>Detective Actuators: Outdoor unit Main PCB High Pressure Switch</p>	<p>Detective details: When pressure switch open is detected in 10 seconds after the power is turned on.</p>
---	---

<p>Forecast of Cause :</p> <ol style="list-style-type: none"> 1.High pressure switch connector disconnection, open 2.High pressure switch characteristics failure 3.Main PCB failure
--

<p>Check Point 1 : Check the high pressure switch connection state</p>
<ul style="list-style-type: none"> ▪ Connector and wiring connection state check ▪ Cable open check

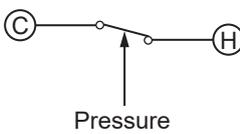


<p>Check Point 2 : Check the high pressure switch characteristics</p>
<ul style="list-style-type: none"> ▪ Switch characteristics check *For the characteristics of high pressure switch, refer to below.



<p>Check Point 3 : Replace Main PCB</p>
<ul style="list-style-type: none"> ▪ Change Main PCB, and execute the check operation again.

▪ Type of contact



▪ Characteristics of high pressure switch (P20)

	high pressure switch
Contact : Short ⇒ Open	4.2±0.1MPa
Contact : Open ⇒ Short	3.2±0.15MPa

<p>Trouble shooting 20 <u>OUTDOOR UNIT Error Method:</u> Trip detection</p>	<p><u>Indicate or Display:</u> Outdoor Unit : LED 0.5sec ON/ 0.5sec OFF Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 4 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 94]</p>
--	---

<p><u>Detective Actuators:</u> Outdoor unit Main PCB Compressor</p>	<p><u>Detective details:</u> ▪ "Protection stop by overcurrent generation after inverter compressor start processing completed" generated consecutively 10 times. *The number of generations is reset if the start-up of the compressor succeeds.</p>
--	---

<p><u>Forecast of Cause :</u> 1.Outdoor unit fan operation defective, foreign matter on hear exchanger, excessive rise of ambient temperature 2.Main PCB 3.Inverter compressor failure (lock, winding short)</p>

<p>Check Point 1 : Check the outdoor unit fan operation, heat exchanger, ambient temperature</p>
<ul style="list-style-type: none"> • No obstructions in air passages? • Heat exchange fins clogged • Outdoor unit fan motor check • Ambient temperature not raised by the effect of other heat sources? • Discharged air not sucked in?

↓ **OK**

<p>Check Point 2: Replace Main PCB</p>
<p>▶ <u>If Check Point 1 do not improve the symptom, change Main PCB.</u></p>

↓ **OK**

<p>Check Point 3: Replace Compressor</p>
<p>▶ <u>If Check Point 2 do not improve the symptom, change Compressor.</u></p>

Trouble shooting 21 <u>OUTDOOR UNIT Error Method:</u> Compressor rotor position detection error	<u>Indicate or Display:</u> Outdoor Unit : LED 0.1sec ON/ 2sec OFF Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 5 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 95]
--	--

<u>Detective Actuators:</u> Outdoor unit Main PCB Compressor	<u>Detective details:</u> ① While running the compressor, if the detected rotor location is out of phase with actual rotor location more than 105°, the compressor stops. ② After the compressor restarts, if the same operation is repeated within 40sec, the compressor stops again. ③ If ① and ② repeats 5 times, the compressor stops permanently.
---	--

<u>Forecast of Cause :</u> 1. Defective connection of electric components 2. Main PCB failure 3. Compressor failure

Check Point 1 : Check Noise from Compressor
• Turn on Power and check operation noise. ▶ <u>If an abnormal noise show, replace Compressor.</u>



Check Point 2 : Check connection of around the Compressor components
For Compressor Terminal, Main PCB • Check if connector is removed. • Check erroneous connection. • Check if cable is open. (Refer to PARTS INFORMATION 2) >><u>Upon correcting the removed connector or mis-wiring, reset the power.</u>



Check Point 3: Replace Main PCB
▶ <u>If Check Point 1,2 do not improve the symptom, change Main PCB.</u>



Check Point 4: Replace Compressor
▶ <u>If Check Point 3 do not improve the symptom, change Compressor.</u>

Trouble shooting 22 OUTDOOR UNIT Error Method: Outdoor unit fan motor error	Indicate or Display: Outdoor Unit : LED 5sec ON/ 5sec OFF Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 7 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 97]
--	---

Detective Actuators: Outdoor unit Main PCB Outdoor unit fan motor	Detective details: ① When outdoor fan rotation speed is less than 100rpm in 20 seconds after fan motor starts, fan motor stops. ② After fan motor restarts, if the same operation within 60sec is repeated 3 times in a row, compressor and fan motor stops. ③ If ① and ② repeats 5 times in a row, compressor and fan motor stops permanently.
--	---

Forecast of Cause: 1.Fan rotation failure 2. Motor protection by surrounding temperature rise 3. Main PCB failure 4.Outdoor unit fan motor failure

Check Point 1 : Check rotation of Fan
• Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor) >>If Fan or Bearing is abnormal, replace it.

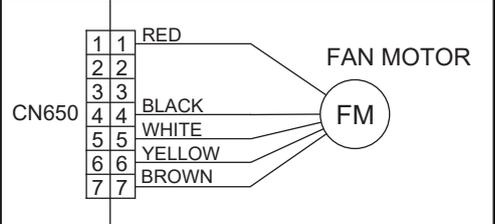
↓
OK

Check Point 2 : Check ambient temp. around motor
• Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat) >>Upon the temperature coming down, restart operation.

↓
OK

Check Point 3 : Check Outdoor unit fan motor
• Check Outdoor unit fan motor. (PARTS INFORMATION 5) >>If Outdoor Fan Motor is abnormal, replace Outdoor fan motor and Main PCB.

↓
OK

Check Point 4 : Check Output Voltage of Main PCB	<div style="border: 1px solid black; padding: 2px; display: inline-block;">DC</div> 						
• Check outdoor unit circuit diagram and the voltage. (Measure at Main PCB side connector)							
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Lead wire</th> <th>DC voltage</th> </tr> </thead> <tbody> <tr> <td>Red - Black</td> <td>280V (AC220V-10%) ~ 373V (AC240+10%)</td> </tr> <tr> <td>White - Black</td> <td>15±1.5V</td> </tr> </tbody> </table>	Lead wire	DC voltage	Red - Black	280V (AC220V-10%) ~ 373V (AC240+10%)	White - Black	15±1.5V
Lead wire	DC voltage						
Red - Black	280V (AC220V-10%) ~ 373V (AC240+10%)						
White - Black	15±1.5V						
▶ If the voltage is not correct, replace Main PCB.							

Trouble shooting 23 OUTDOOR UNIT Error Method: 4-way valve error	Indicate or Display: Outdoor Unit : No indication Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 9 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : 99]
---	---

Detective Actuators: Indoor unit Controller PCB Heat Ex. temperature thermistor Room temperature thermistor 4-way valve	Detective details: When the indoor heat exchanger temperature is compared with the room temperature, and either following condition is detected continuously 2 times, the compressor stops. <ul style="list-style-type: none"> ▪ Cooling or Dry operation [Indoor heat exchanger temp.] - [Room temp.] > 10degC ▪ Heating operation [Indoor heat exchanger temp.] - [room temp.] < -10degC If the same operation is repeated 5 times, the compressor stops permanently.
--	---

Forecast of Cause : 1.Connector connection failure 2. Thermistor failure 3. Coil failure 4. 4-way valve failure 5.Controller PCB failure
--

Check Point 1 : Check connection of Connector
<ul style="list-style-type: none"> ▪ Check if connector is removed. ▪ Check erroneous connection. ▪ Check if thermistor cable is open. >>Upon correcting the removed connector or mis-wiring, reset the power.



Check Point 2 : Check each thermistor
<ul style="list-style-type: none"> ▪ Isn't it fallen off the holder? ▪ Is there a cable pinched? >>Check characteristics of thermistor (Refer to Trouble shooting 7, 8), If defective, replace the thermistor



Check Point 3 : Check the solenoid coil and 4-way valve
<p>[Solenoid coil]</p> <ul style="list-style-type: none"> ▪ Remove P60 from PCB and check the resistance value of coil. Resistance value is 2780Ω >>If it is Open or abnormal resistance value, replace Solenoid Coil. <p>[4-way valve]</p> <ul style="list-style-type: none"> ▪ Check each piping temperature, and the location of the valve by the temperature difference. >>If the value location is not proper, replace 4-way valve.

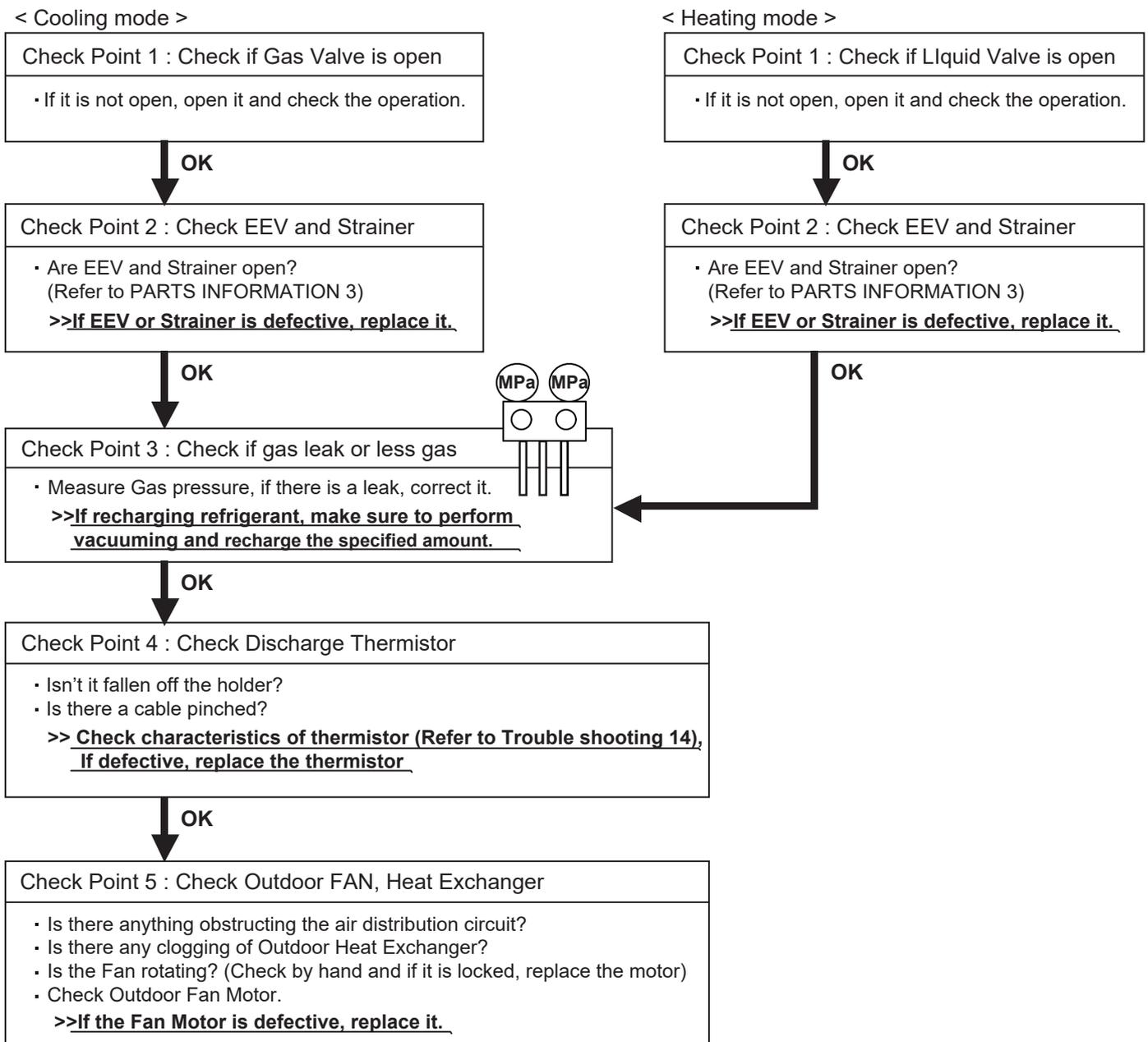


Check Point 4 : Replace Controller PCB
▶ If Check Point 1- 3 do not improve the symptom, replace Controller PCB.

Trouble shooting 24 OUTDOOR UNIT Error Method: Discharge temp. error	Indicate or Display: Outdoor Unit : Continuously lighting Indoor Unit : Operation lamp: 10 times Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash. ERROR CODE : [E : A1]
---	---

Detective Actuators: Outdoor unit Main PCB Discharge pipe temperature thermistor	Detective details: ① When the discharge temperature becomes higher than 110°C, the compressor stops. ② After the compressor restarts, if the same operation is repeated, the compressor stops permanently.
---	---

Forecast of Cause : 1. Valve is close 2. EEV failure 3. Gas Leak, less 4. Discharge Thermistor failure 5. Outdoor Fan Operation failure 6. Outdoor Heat Exchanger clogged
--

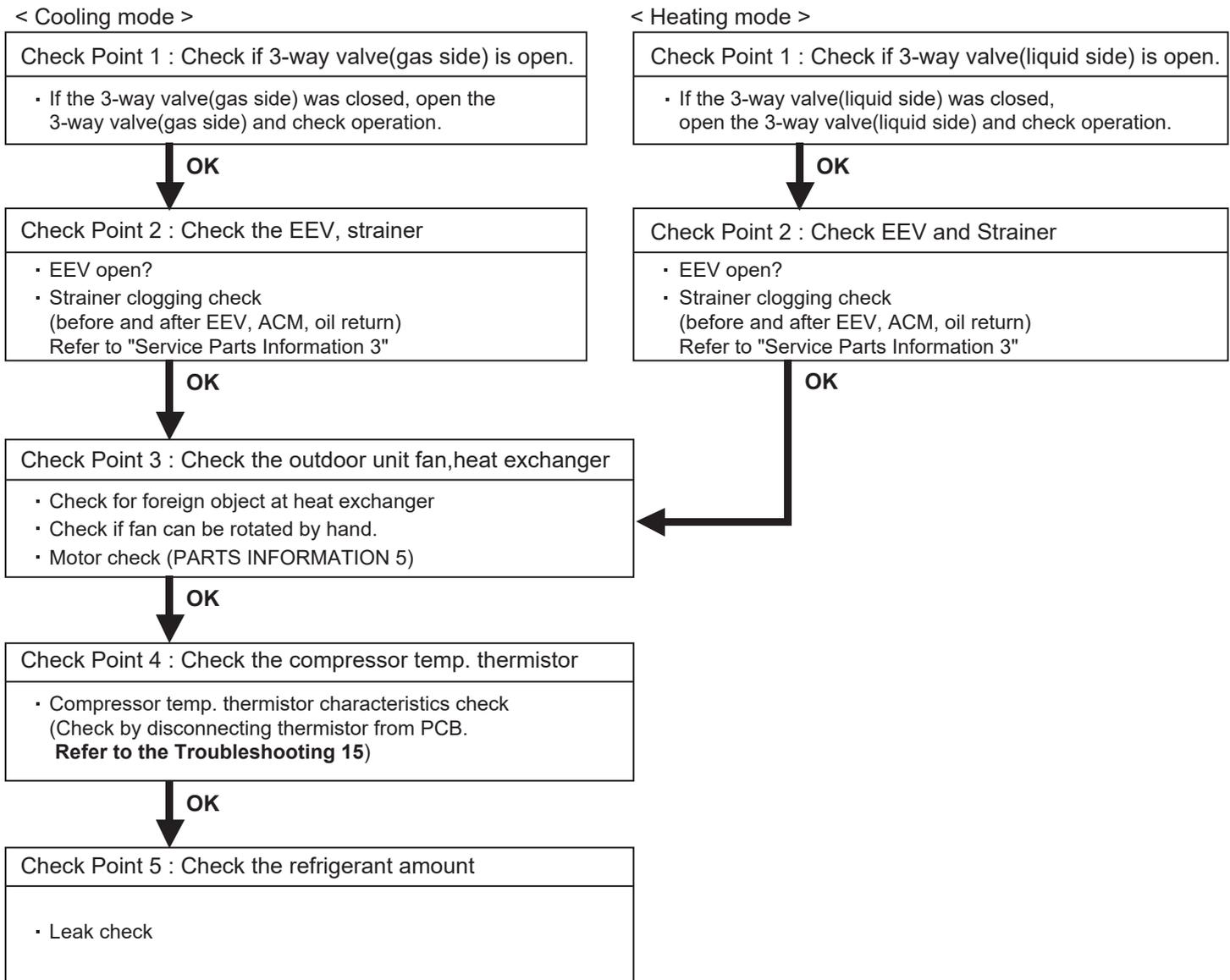


Trouble shooting 25 OUTDOOR UNIT Error Method: Compressor temp. error	Indicate or Display: Outdoor Unit : Continuously lighting Indoor Unit : Operation lamp: 10 times Flash, Timer lamp: 3 times Flash Economy lamp: Continuous flash. ERROR CODE : [E : A3]
--	--

Detective Actuators: Compressor temperature thermistor	Detective details: ▪ "Protection stop by "compressor temperature $\geq 108^{\circ}\text{C}$ during compressor operation"" generated 2 times within 24 hours.
--	--

Forecast of Cause :

1. 3-way valve not opened
 2. EEV defective, strainer clogged
 3. Outdoor unit operation failure, foreign matter on heat exchanger
 4. Compressor temperature thermistor failure
 5. Insufficient refrigerant



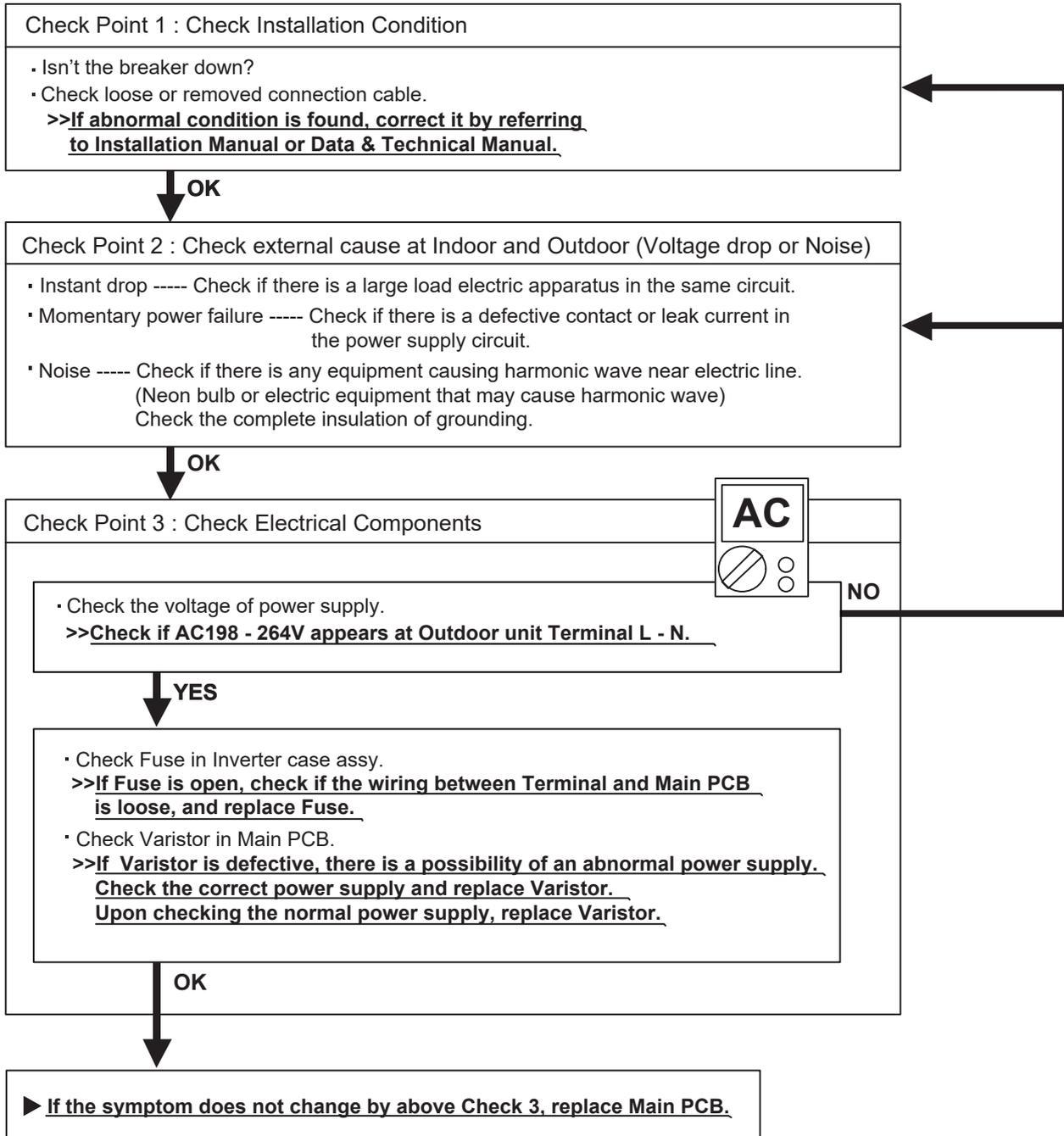
2-3 TROUBLESHOOTING WITH NO ERROR CODE

Trouble shooting 26

Indoor unit - No Power

Forecast of Cause:

1. Power Supply failure
2. External cause
3. Electrical Components defective

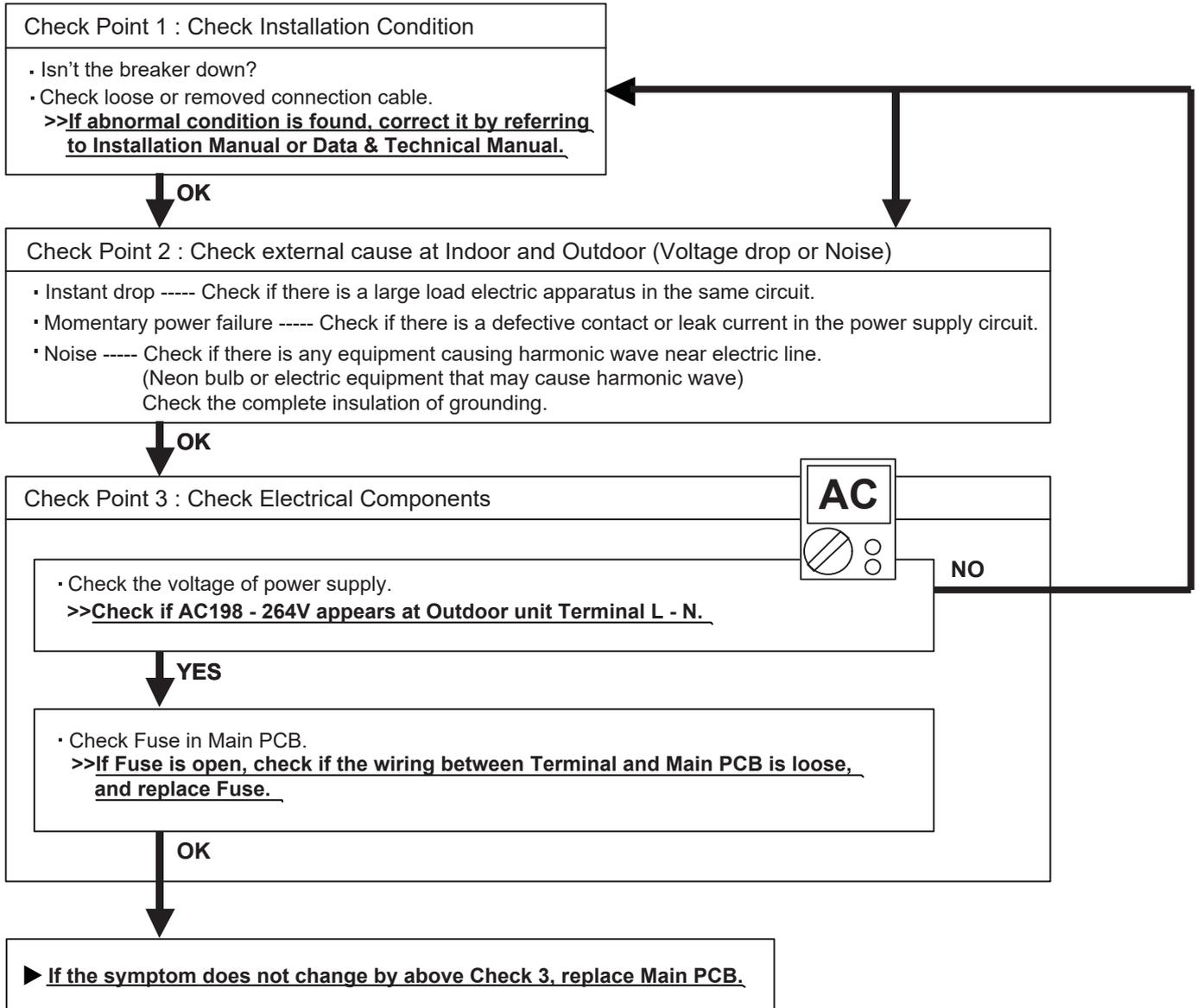


Trouble shooting 27

Outdoor unit - No Power

Forecast of Cause:

- 1. Power Supply failure
- 2. External cause
- 3. Electrical Components defective



Trouble shooting 28

No Operation (Power is ON)

Forecast of Cause:

1. Setting/ Connection failure
2. External cause
3. Electrical Component defective

Check Point 1 : Check indoor and outdoor installation condition

- Indoor unit - Check incorrect wiring between Indoor unit - Remote control.
Or, check if there is an open cable connection.
- Are these Indoor unit, Outdoor unit, and Remote control suitable model numbers to connect?
>>If there is some abnormal condition, correct it by referring to Installation manual and Data & Technical Manual.

OK

Turn off Power and check/ correct followings.

- Is there loose or removed communication line of Indoor unit and Outdoor unit?

OK

Check Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop ----- Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure ----- Check if there is a defective contact or leak current in the power supply circuit.
- Noise ----- Check if there is any equipment causing harmonic wave near electric line.
(Neon bulb or electric equipment that may cause harmonic wave)
Check the complete insulation of grounding.

OK

Check Point 3 : Check Electrical Components at Indoor and Outdoor

- Check Voltage at CN300 (Terminal 1-2) of UTY-TWRXZ2 (Communication kit).
(Power supply to Remote control)

- >> If it is DC12V, Remote control is failure. (Controller PCB is normal) >> Replace Remote control**
- >> If it is DC 0V, Controller PCB is failure. (Check Remote control once again) >> Replace Controller PCB**
- >>If the symptom does not change by above Check 1, 2, 3, replace Main PCB of Outdoor unit.**



Trouble shooting 29

No Cooling / No Heating

Forecast of Cause:

1. Indoor unit error
2. Outdoor unit error
3. Effect by Surrounding environment
4. Connection Pipe / Connection Wire failure
5. Refrigeration cycle failure

Check Point 1 : Check Indoor unit

- Does Indoor unit FAN run on HIGH FAN?
- Is Air Filter dirty?
- Is Heat Exchanger clogged?
- Check if Energy save function is operated.



Check Point 2 : Check Outdoor unit operation

- Check if Outdoor unit is operating
- Check any objects that obstruct the air flow route.
- Check clogged Heat Exchanger.
- Is the Valve open?



Check Point 3 : Check Site condition

- Is capacity of Indoor unit fitted to Room size?
- Any windows open? Or direct sunlight ?



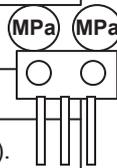
Check Point 4 : Check Indoor/ Outdoor Installation condition

- Check connection pipe (specified pipe length & Pipe diameter?)
- Check any loose or removed communication line.
- >> **If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**



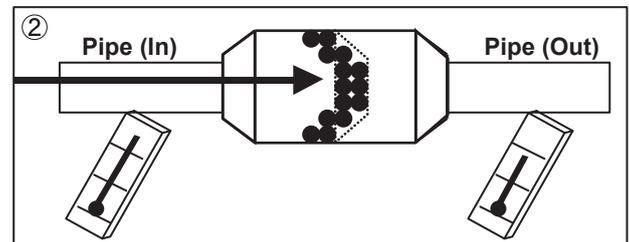
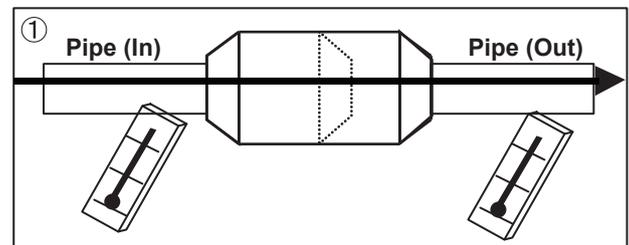
Check Point 5 : Check Refrigeration cycle

- Check if Strainer is clogged (Refer to the figure at right).
- Measure Gas Pressure and if there is a leakage, correct it.
- >> **When recharging the refrigerant, make sure to perform vacuuming, and recharge the specified amount.**
- Check EEV (PARTS INFORMATION 3)
- Check Compressor (PARTS INFORMATION 1,2)



Attention

Strainer normally does not have temperature difference between inlet and outlet as shown in ①, but if there is a difference like shown in ②, there is a possibility of inside clogged. In this case, replace Strainer.



Trouble shooting 30

Abnormal Noise

Forecast of Cause :

1. Abnormal installation (Indoor/ Outdoor)
2. Fan failure (Indoor/ Outdoor)
3. Compressor failure (Outdoor)

Diagnosis method when Abnormal Noise is occurred

▪ Abnormal noise is coming from Indoor Unit.
(Check and correct followings)

- Is Main unit installed in stable condition?
- Is the installation of air suction grille and front panel normal?

OK

- Is Fan broken or deformed?
- Is the screw of Fan loose?
- Is there any object which obstruct the Fan rotation?

▪ Abnormal noise is coming from Outdoor Unit.
(Check and correct followings)

- Is Main Unit installed in stable condition?
- Is Fan Guard installed normally?

OK

- Is Fan broken or deformed?
- Is the screw of Fan loose?
- Is there any object which obstruct the Fan rotation?

OK

- Check if vibration noise by loose bolt or contact noise of piping is happening.

OK

- Is Compressor locked?
>> Check Compressor (PARTS INFORMATION 1,2)

Trouble shooting 31

Water Leaking

Forecast of Cause:

1. Erroneous installation
2. Drain hose failure

Diagnosis method when water leak occurs

- Is Main Unit installed in stable condition?
- Is Main Unit broken or deformed at the time of transportation or maintenance?

OK

- Is Drain Hose connection loose?
- Is there a trap in Drain Hose?
- Is Drain Hose clogged?

OK

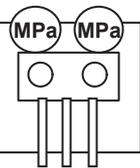
- Is Fan rotating?

Diagnosis method when water is spitting out.

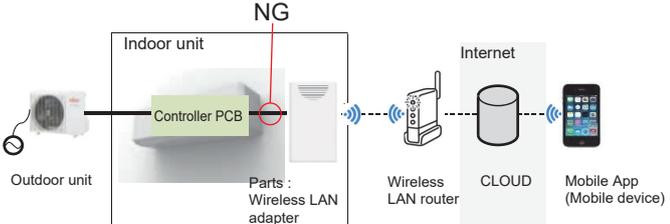
- Is the filter clogged?

OK

- Check Gas Pressure and correct it if there was a gas leak.



2-4 TROUBLESHOOTING WITH ERROR CODE (For WIRELESS LAN ADAPTER)

<p>Trouble shooting 32 INDOOR UNIT Error Method: External Communication Error (Communication Error of between IndoorUnit to WirelessLANadapter)</p>	<p>Indicate of Display: Indoor Unit : Operation lamp: 1 times Flash Timer lamp : 8 times Flash W-LAN lamp : On or Off ERROR CODE : [18]</p>
<p>Detective Actuators: Wireless LAN adapter PCB Controller PCB</p>	<p>Detective details: After receiving a signal from the wireless LAN adapter, the same a signal has not been received for 15sec.</p> 

Forecast of Cause:

1. Connection between A/C and Wireless LAN adapter failure
2. Wireless LAN adapter PCB failure
3. Controller PCB failure

Check Point 1 : Check the connection

- Check any loose or removed connection of between the Wireless LAN adapter PCB and Controller PCB
 >If there is abnormal condition, correct it.

Check the connection condition on the Controller PCB
 >If there is loose connector, open cable or miswiring, correct it.



Check Point 2 : Replace wireless LAN adapter

- ▶ If Check Point 1 do not improve the symptom, replace Wireless LAN adapter and
 Please cancel the air conditioner of the registration on the Mobile App.
 After the replace adapter, Please perform the pairing on the app.

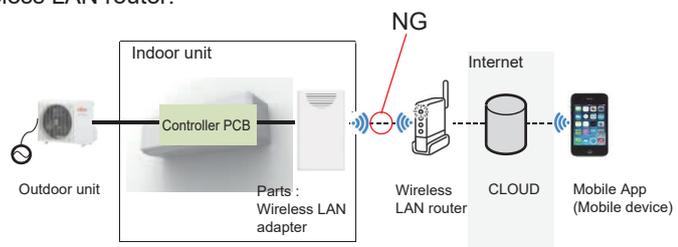
>Air conditioning de-registration method, refer to page "02 - 46"
 >Pairing method, refer to page "02 - 47--02-54"



Check Point 3 : Replace Controller PCB

- ▶ If Check Point 2 do not improve the symptom, replace controller PCB.

<p>Trouble shooting 33 INDOOR UNIT Error Method: Network Communication Error (Communication Error of between Wireless LAN Router to Wireless LAN adapter)</p>	<p>Indicate of Display: Indoor Unit : Operation lamp: – Any state Timer lamp : – Any state W-LAN lamp : Flashing slowly (On/Off=7sec/2sec) ERROR CODE : [No indication]</p>
---	--

<p>Detective Actuators: Wireless LAN router Wireless LAN adapter PCB</p>	<p>Detective details: When the Not connection between Wireless LAN adapter and Wireless LAN router.</p> 
---	---

<p>Forecast of Cause:</p> <ol style="list-style-type: none"> 1. Connection cable failure of Wireless LAN router. 2. Connection between Wireless LAN adapter and Wireless LAN router failure 3. Wireless LAN router failure 4. Wireless LAN adapter PCB failure

<p>Check Point 1 : Check the connection cable</p> <ul style="list-style-type: none"> • Check the connection cable on the Wireless LAN router. ><u>If there is loose connector, open cable or miswiring, correct it.</u>

↓ **OK**

<p>Check Point 2-1 : Check the connection status</p> <ul style="list-style-type: none"> • Check the connection status to the Internet and Wireless LAN router. >If the Wireless LAN Router is not connected to the Internet, <u>Please check the transmission between</u> <u>"Wi-Fi products of other than Air conditioner" and "Wireless LAN router".</u> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Ex.) Wi-Fi products</p> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">PC</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">GAME</div> </div> <div style="text-align: center;">    <p>Wireless LAN router</p> </div> </div>
--

↓ **OK**

↓ **NO**

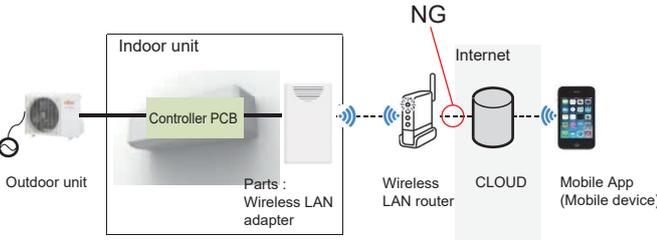
<p>Check Point 2-2 : Check the transmission state</p> <ul style="list-style-type: none"> • Check the Wireless transmission state of Wireless LAN router.(LED status) >If the wireless transmission from the Wireless LAN router has not been outgoing, <u>Please the inquiry to "Wireless LAN router maker".</u>

<p>Check Point 3 : Turn on power again of Air conditioner</p> <ul style="list-style-type: none"> ▶ If Check Point 1,2 do not improve the symptom, <u>turn on power again</u> of the Air conditioner, please wait 60 seconds.
--

↓ **OK**

<p>Check Point 4 : Replace Wireless LAN adapter</p> <ul style="list-style-type: none"> ▶ If Check Point 3 do not improve the symptom, replace Wireless LAN adapter and <u>Please cancel the air conditioner of the registration on the Mobile App.</u> <u>After the replace adapter, Please perform the pairing on the app.</u> >Air conditioning de-registration method, refer to page "02 - 46" >Pairing method, refer to page "02 - 47--02-54"

<p>Trouble shooting 34 INDOOR UNIT Error Method: Network Communication Error (Communication Error of between Wireless LAN Router to Wireless CLOUD)</p>	<p>Indicate of Display: Indoor Unit : Operation lamp: – Any state Timer lamp : – Any state W-LAN lamp : ON ERROR CODE : [No indication]</p>
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<p>Detective Actuators: Wireless LAN router</p>	<p>Detective details: When the Not connection between Wireless LAN adapter and Wireless LAN router.</p> 
---	--

<p>Forecast of Cause:</p> <ol style="list-style-type: none"> 1. Connection cable failure of Wireless LAN router. 2. Connection between CLOUD and Wireless LAN router failure 3. Wireless LAN router failure

<p>Check Point 1 : Check the connection cable</p> <ul style="list-style-type: none"> • Check the connection cable on the Wireless LAN router. >If there is loose connector, open cable or miswiring, correct it.
--



<p>Check Point 2-1 : Check the connection status</p> <ul style="list-style-type: none"> • Check the connection status to the Internet and Wireless LAN router. >If the Wireless LAN Router is not connected to the Internet, Please check the transmission between "Wi-Fi products of other than Air conditioner" and "Wireless LAN router". 	<p>Ex.) Wi-Fi products</p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">PC</div> <div style="margin-right: 10px;">⋄</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">GAME</div> <div style="margin-right: 10px;">⋄</div> <div style="text-align: center;">  Wireless LAN router </div> </div>
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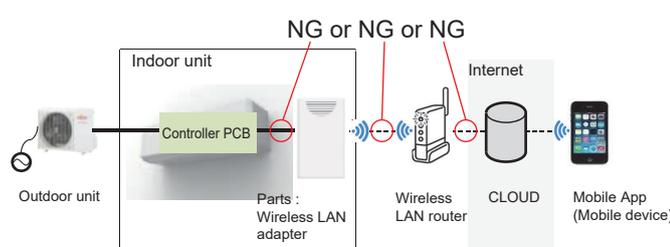
<p>Check Point 2-2 : Check the transmission state</p> <ul style="list-style-type: none"> • Check the Wireless transmission state of Wireless LAN router. (LED status) >If the wireless transmission from the Wireless LAN router has not been outgoing, Please the inquiry to "Wireless LAN router maker".

<p>Check Point 3 : Turn on power again of Air conditioner</p> <ul style="list-style-type: none"> ▶ If Check Point 1,2 do not improve the symptom, <u>turn on power again</u> of the Air conditioner, please wait 60 seconds.
--



<p>Check Point 4 : Replace Wireless LAN adapter</p> <ul style="list-style-type: none"> ▶ If Check Point 3 do not improve the symptom, replace Wireless LAN adapter and <u>Please cancel the air conditioner of the registration on the Mobile App.</u> <u>After the replace adapter, Please perform the pairing on the app.</u> >Air conditioning de-registration method, refer to page "02 - 46" >Pairing method, refer to page "02 - 47--02 - 54"

<p>Trouble shooting 35 INDOOR UNIT Error Method: Communication Error ("Trou. 32, 33" and "Trou. 34" are simultaneous Error)</p>	<p>Indicate of Display: Indoor Unit : Operation lamp: 1 time Flash Timer lamp : 8 time Flash W-LAN lamp : On or Flashing slowly (On/Off=7sec/2sec) ERROR CODE : [18]</p>
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<p>Detective Actuators: Wireless LAN adapter PCB Indoor unit Controller PCB Wireless LAN router</p>	<p>Detective details: When the "External Communication Error" and "Network Communication Error" has occurred at the same time.</p>  <p>The diagram illustrates the communication path. On the left, an outdoor unit is connected to an indoor unit. The indoor unit contains a Controller PCB and a Wireless LAN adapter. The Wireless LAN adapter is connected to a Wireless LAN router. The router is connected to the Internet, which is represented by a cloud icon. The cloud is connected to a Mobile App on a mobile device. Red circles with 'NG' (Not Good) are placed at the connections between the Controller PCB and the Wireless LAN adapter, and between the Wireless LAN router and the Internet cloud, indicating potential failure points.</p>
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<p>Forecast of Cause:</p> <ol style="list-style-type: none"> 1. Connection cable failure of Wireless LAN router, 2. Wireless LAN router failure 3. Connection between A/C and Wireless LAN adapter failure 4. Connection between Wireless LAN adapter and Wireless LAN router failure 5. Wireless LAN adapter PCB failure 6. Controller PCB failure
--

<p>Check Point 1 : Check the connection cable</p> <ul style="list-style-type: none"> • Check the connection cable on the Wireless LAN router. >If there is loose connector, open cable or miswiring, correct it.
--



<p>Check Point 2 : Check the connection status and transmission state</p> <ul style="list-style-type: none"> • Check the connection status to the Internet and Wireless LAN router. >If the Wireless LAN Router is not connected to the Internet, <u>Please check the transmission between "Wi-Fi products of other than Air conditioner" and "Wireless LAN router".</u> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;"> <p>Ex.) Wi-Fi products</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">PC</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">GAME</div> </div> <div style="text-align: center;">  <p>Wireless LAN router</p> </div> </div> <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> • Check the Wireless transmission state of Wireless LAN router.(LED status) >If the wireless transmission from the Wireless LAN Router has not been outgoing, <u>Please the inquiry to "Wireless LAN router maker".</u>



<p>Check Point 3-1 : Check the connection</p> <ul style="list-style-type: none"> • Check any loose or removed connection of between the Wireless LAN adapter PCB and Controller PCB >If there is abnormal condition, correct it. • Check the connection condition on the Controller PCB >If there is loose connector, open cable or miswiring, correct it.



To NEXT PAGE

CONTINUATION



Check Point 3-2 : Turn on power again of Air conditioner

• If Check Point 1,2 do not improve the symptom,
turn on power again of the Air conditioner, please wait 60 seconds.

>When the flashing pattern of the LED 2(Orange) is "Flashing Fast" >> Refer to "Check Point 4".



Check Point 4 : Replace Wireless LAN adapter

▶ If Check Point 2,3 do not improve the symptom, replace Wireless LAN adapter and
Please cancel the air conditioner of the registration on the Mobile App.
After the replace adapter, Please perform the pairing on the app.

> Air conditioning de-registration method, refer to page "02 - 46"
> Pairing method, refer to page "02 - 47--02 - 54"



Check Point 5 : Replace Controller PCB

▶ If Check Point 4 do not improve the symptom, replace controller PCB.

<p>Trouble shooting 36 <u>INDOOR UNIT Error Method:</u> Wireless LAN adapter Non-Energized</p>	<p><u>Indicate of Display:</u> Indoor Unit : Operation lamp: 1 time Flash Timer lamp : 8 time Flash W-LAN lamp : On or Off ERROR CODE : [18]</p>
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<p><u>Detective Actuators:</u> Indoor unit Controller PCB Wireless LAN adapter PCB</p>	<p><u>Detective details:</u> When the does not output the DC12 voltage from Controller PCB.</p>
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<p><u>Forecast of Cause:</u></p> <ol style="list-style-type: none"> 1. Indoor unit Controller PCB failure 2. Wireless LAN adapter PCB failure 3. Wiring connection failure
--

<p>Check Point 1 : Check the connection</p> <ul style="list-style-type: none"> · Check any loose or removed connection of between the Wireless LAN adapter PCB and Controller PCB <u>>If there is abnormal condition, correct it.</u> Check the connection condition on the Controller PCB <u>>If there is loose connector, open cable or miswiring, correct it.</u>



<p>Check Point 2 : Check the Wireless LAN adapter PCB and Controller PCB</p> <ul style="list-style-type: none"> · Check Voltage at CN6 (Pin #1=12V, Pin #4=GND) of Controller PCB. <u>>If it is DC 0V, Controller PCB is failure.</u> <u>▶ Replace Controller PCB.</u> >If it is DC12V, Wireless LAN adapter PCB failure. <u>▶ Replace Wireless LAN adapter and please cancel the air conditioner of the registration on the Mobile App.</u> <u>After the replace adapter, Please perform the pairing on the App.</u> > Air conditioning de-registration method, refer to page “02 - 46 > Pairing method, refer to page “02 - 47--02 - 54” 	
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Air Conditioning De-registration Method

If you replace the Wireless LAN adapter, you will need to de-register all of the conditioner information on the App. Unregister method is as follows.

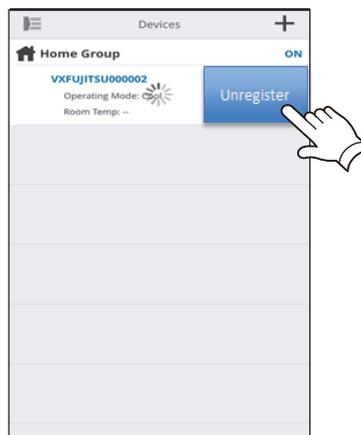
- 1 Launch the mobile app(FGL air).



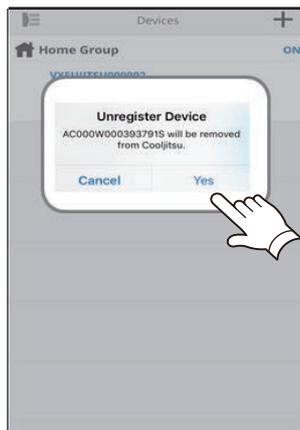
- 2 Please long-push the registered "Device name" of Air Conditioner.



- 3 Then will display the "Unregister" button. Please tap the "Unregister" button.



- 4 Please tap the "Yes" .



- 5 Air Conditioner Unregister is complete.

Air conditioner registration Pairing Method

Choose from the following modes to connect your Air conditioner to your Wireless LAN router.

Note:

- Before starting this setting, wait for 60 seconds or more after the power supply is connected to the air conditioner (via breaker or plug). Confirm that the LED 1 is not flashing.
- Check that the smartphone or tablet PC is linked to the wireless router you are connecting the air conditioner. The setting will not work if it is not connected to the same wireless router.
- To control 2 or more air conditioners with the same smartphone or tablet PC, repeat the setup of the chosen mode.
- The display contents are subject to change as a result of updates in the mobile app, and may not match the actual screen.

■ **Manual mode (For Android OS)**

*Lighting pattern: ○ Off ● On  Blinking — Any state

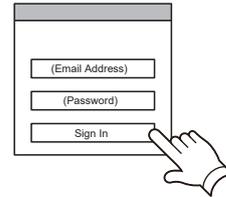
NOTES: If you do not press any buttons of the remote controller for 60 seconds, the remote controller display will return to the original display.

1 Press  on the remote controller until only the clock is displayed on the remote controller display.

2 Launch the mobile app.



3 Sign in with your Email address and password following the screen on the mobile app.



4 Press [+] to add a new air conditioner.



5 Press down  on the remote controller for more than 5 seconds.

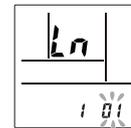
L n will be displayed on the remote controller display.



(Remote controller display)

6 Press .

7 Select  using  ( ).



(Remote controller display)

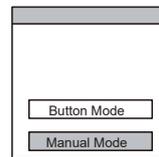
8 Press .

 on the indoor unit will blink.

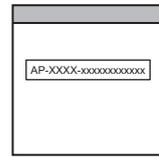


(Continued)

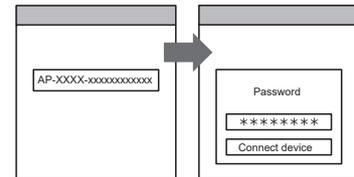
9 Select [Manual mode] on the screen on the mobile app.



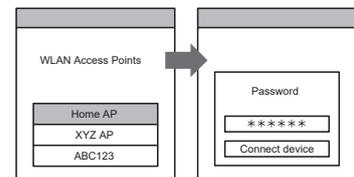
10 Select the SSID of the W-LAN adapter you are connecting to.



11 Input the PIN code written on the W-LAN adapter.



12 Select the WLAN Access Point you are connecting to. Input the WLAN Access Point password then press [Connect device].



 on the indoor unit will turn on.

The setting is complete.



■ Manual mode (For iOS 11 or later)

*Lighting pattern: ○ Off ● On ☼ Blinking — Any state

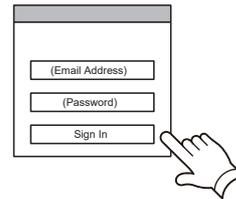
NOTES: If you do not press any buttons of the remote controller for 60 seconds, the remote controller display will return to the original display.

1 Press  on the remote controller until only the clock is displayed on the remote controller display.

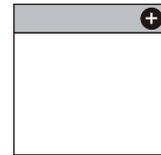
2 Launch the mobile app.



3 Sign in with your Email address and password following the screen on the mobile app.

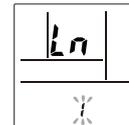


4 Press [+] to add a new air conditioner.



5 Press down  on the remote controller for more than 5 seconds.

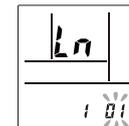
 will be displayed on the remote controller display.



(Remote controller display)

6 Press .

7 Select  using .



(Remote controller display)

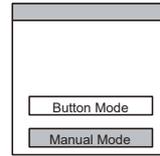
8 Press .

 on the indoor unit will blink.

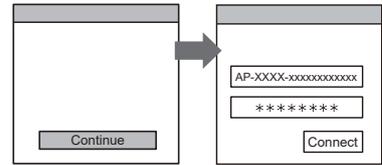


(Continued)

9 Select [Manual mode] on the screen on the mobile app.



10 Select [Continue].

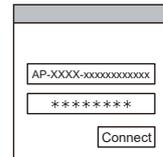
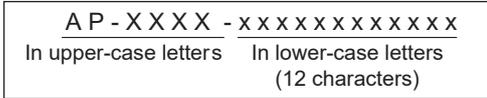


11 Input the SSID and PIN code of the air conditioner written on the WLAN label.

• SSID

Input "AP-XXXX-" in upper-case.

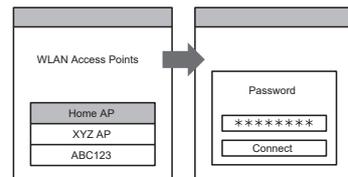
Lower-case the following 12 characters.



• PIN

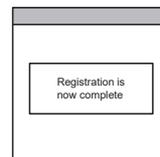
PIN code is not available for some models.

12 Select the WLAN Access Point you are connecting to. Input the WLAN Access Point password then press [Connect].



 on the indoor unit will turn on.

The setting is complete.



■ **Manual mode (For iOS 10 or earlier)**

*Lighting pattern: ○ Off ● On ☼ Blinking — Any state

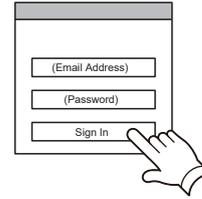
NOTES: If you do not press any buttons of the remote controller for 60 seconds, the remote controller display will return to the original display.

1 Press  on the remote controller until only the clock is displayed on the remote controller display.

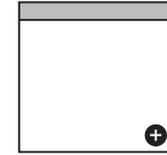
2 Launch the mobile app.



3 Sign in with your Email address and password following the screen on the mobile app.

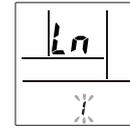


4 Press [+] to add a new air conditioner.



5 Press down  on the remote controller for more than 5 seconds.

Ln will be displayed on the remote controller display.



(Remote controller display)

6 Press .

7 Select  using  ( ).



(Remote controller display)

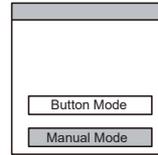
8 Press .

 on the indoor unit will blink.

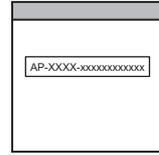


(Continued)

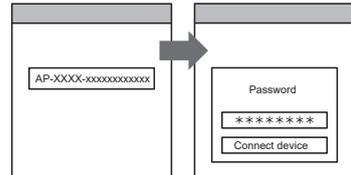
9 Select [Manual mode] on the screen on the mobile app.



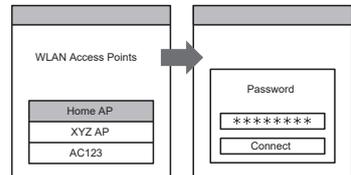
10 Open [Setting] -> [Wi-fi] by following the instructions on the mobile app.
Select the SSID of the air conditioner you are connecting to.



11 Input the PIN code written on the W-LAN adapter.

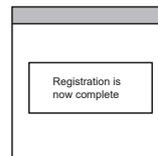


12 Select the WLAN Access Point you are connecting to.
Input the WLAN Access Point password then press [Connect].



 on the indoor unit will turn on.

The setting is complete.



■ Button mode (For Android OS, iOS)

*Lighting pattern: ○ Off ● On ☀ Blinking — Any state

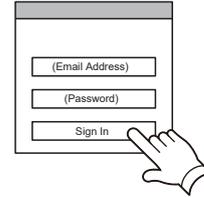
NOTES: If you do not press any buttons of the remote controller for 60 seconds, the remote controller display will return to the original display.

1 Press  on the remote controller until only the clock is displayed on the remote controller display.

2 Launch the mobile app.

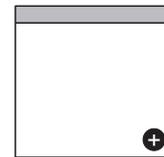


3 Sign in with your Email address and password following the screen on the mobile app.

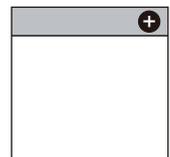


4 Press [+] to add a new air conditioner.

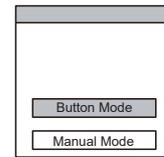
(Android)



(iOS)



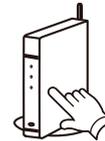
5 Select [Button mode] on the screen on the mobile app.



6 Press the WPS button on the wireless router that you are connecting to.

Refer to the operating manual of the wireless router for the location of the button and how to press it.

Wireless router



7 Press down  on the remote controller for more than 5 seconds.

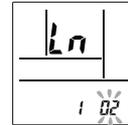
 will be displayed on the remote controller display.



(Remote controller display)

8 Press .

9 Select  using **TEMP** ( .



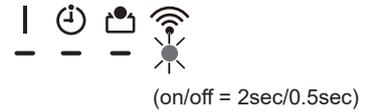
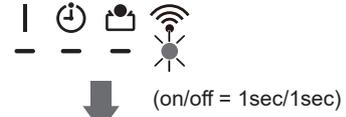
(Remote controller display)

10 Press .

 on the indoor unit will blink.

When the W-LAN adapter find a connectable W-LAN access point, the blinking will become slowly.

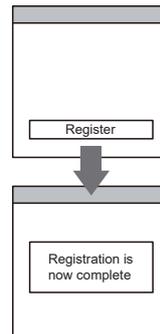
NOTES: Before proceeding to the next step, be sure to check that the blinking pattern has changed.



11 Press [Register] on the screen on the mobile app to start the connection with the wireless router.

 on the indoor unit will turn on.

The setting is complete.

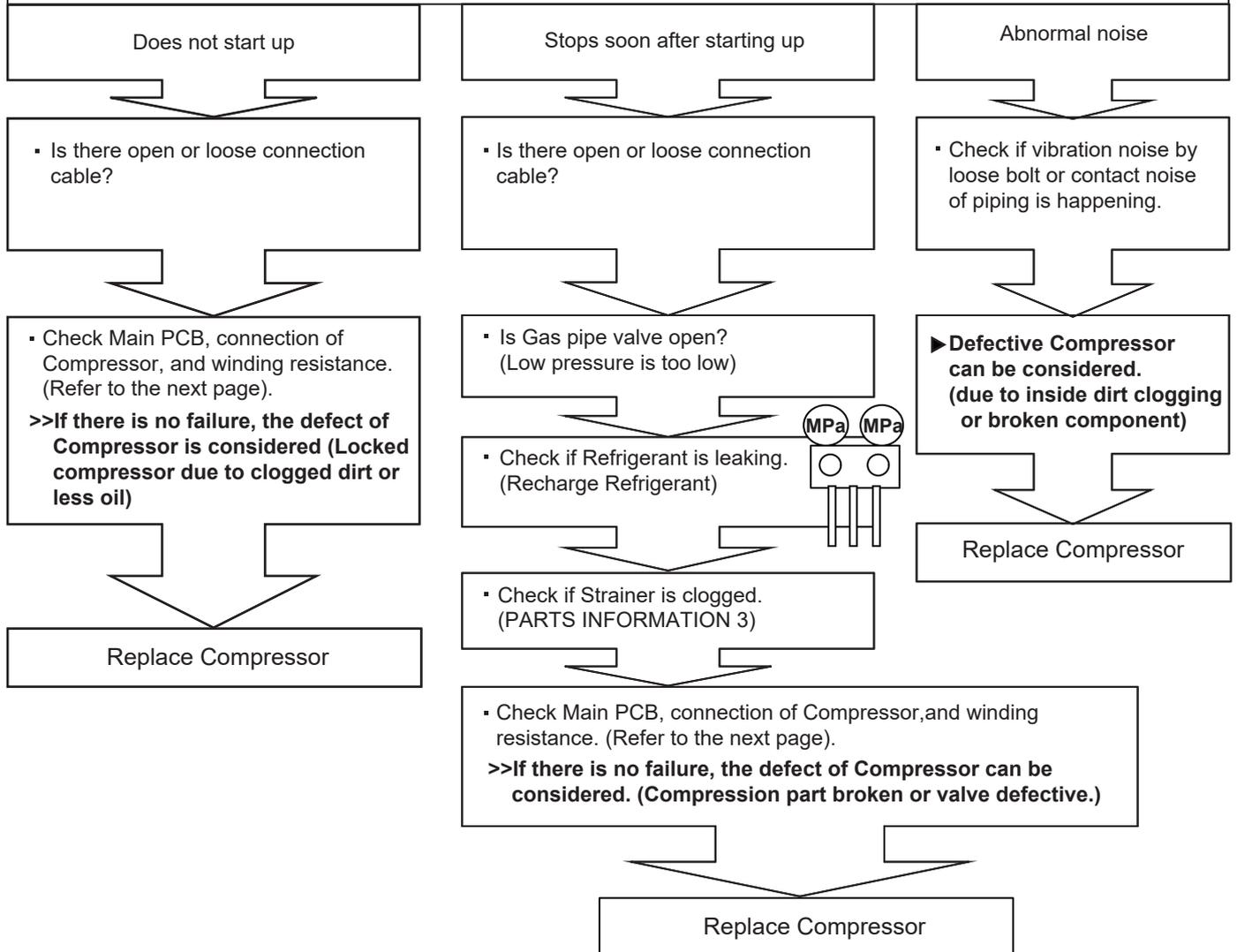


2-5 SERVICE PARTS INFORMATION

SERVICE PARTS INFORMATION 1

Compressor

Diagnosis method of Compressor (If Outdoor unit LED displays Error, refer to Trouble shooting)

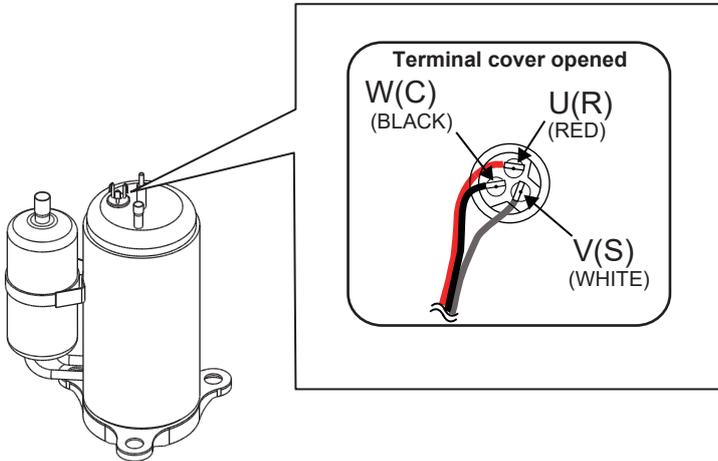


SERVICE PARTS INFORMATION 2

Inverter Compressor

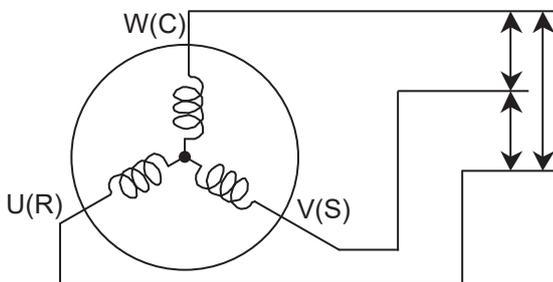
Check Point 1 : Check Connection

- Check terminal connection of Compressor (loose or incorrect wiring)



Check Point 2 : Check Winding Resistance

- Check winding resistance of each terminal
▶ **If the resistance value is $0\ \Omega$ or infinite, replace Compressor.**



- Resistance Value :
1.91 Ω at 20°C (18 type)
1.916 Ω at 20°C (24 type)

Check Point 3 : Replace Main PCB

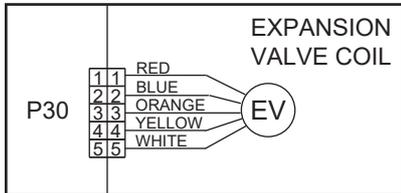
- ▶ **If the symptom does not change with above Check 1, 2, replace Main PCB.**

SERVICE PARTS INFORMATION 3

Outdoor unit Electronic Expansion Valve (EEV)

Check Point 1 : Check Connections

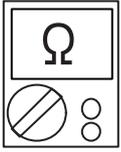
- Check connection of connector (Loose connector or open cable)



Check Point 2 : Check Coil of EEV

- Remove connector, check each winding resistance of Coil.

Read wire	Resistance value
White - Red	$46 \Omega \pm 3 \Omega$ at 20°C
Yellow - Red	
Orange - Red	
Blue - Red	



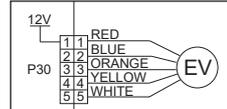
► **If Resistance value is abnormal, replace EEV.**

Check Point 3 : Check Noise at start up

- Turn on Power and check operation noise.
- **If an abnormal noise does not show, replace Main PCB.**

Check Point 4 : Check Voltage from Main PCB.

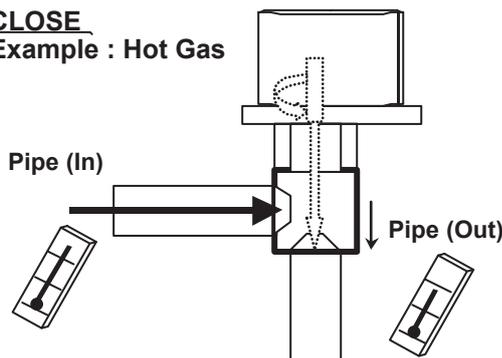
- Remove Connector and check Voltage (DC12V)
- **If it does not appear, replace Main PCB.**



Check Point 5 : Check Opening and Closing Operation of Valve

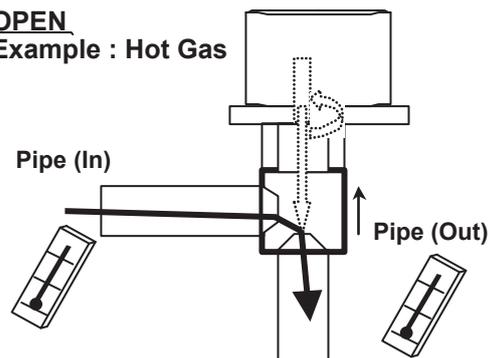
When Valve is closed, it has a temp. difference between Inlet and Outlet.

CLOSE
Example : Hot Gas



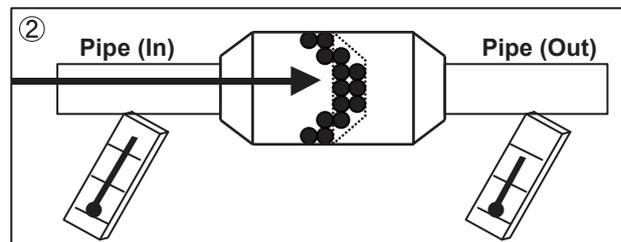
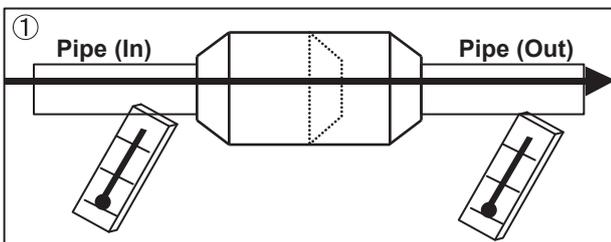
If it is open, it has no temp. difference between Inlet and Outlet.

OPEN
Example : Hot Gas



Check Point 6 : Check Strainer

Strainer normally does not have temperature difference between inlet and outlet as shown in ①, but if there is a difference as shown in ②, there is a possibility of inside clogged. In this case, replace Strainer.



SERVICE PARTS INFORMATION 4

Indoor unit fan motor

Check Point 1 : Check rotation of Fan

- Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
- >>If Fan or Bearing is abnormal, replace it.**

Check Point 2 : Check resistance of Indoor unit Fan Motor

- Refer to below. Circuit-test "Vm" and "GND" terminal.
(Vm: DC voltage, GND: Earth terminal)
- >>If they are short-circuited (below 300 kΩ), replace Indoor unit fan motor and Controller PCB.**

Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage(Vm)
2	No function
3	No function
4 (Black)	(GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Blue)	Feed back (FG)



SERVICE PARTS INFORMATION 5

Outdoor unit fan motor

Check Point 1 : Check rotation of Fan

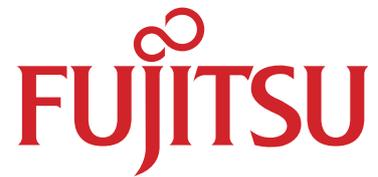
- Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
- >>If Fan or Bearing is abnormal, replace it.**

Check Point 2 : Check resistance of Outdoor Fan Motor

- Refer to below. Circuit-test "Vm" and "GND" terminal.
(Vm: DC voltage, GND: Earth terminal)
- >>If they are short-circuited (below 300 kΩ), replace Outdoor fan motor and Main PCB.**

Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage (Vm)
2	No function
3	No function
4 (Black)	Earth terminal (GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Brown)	Feed back (FG)





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