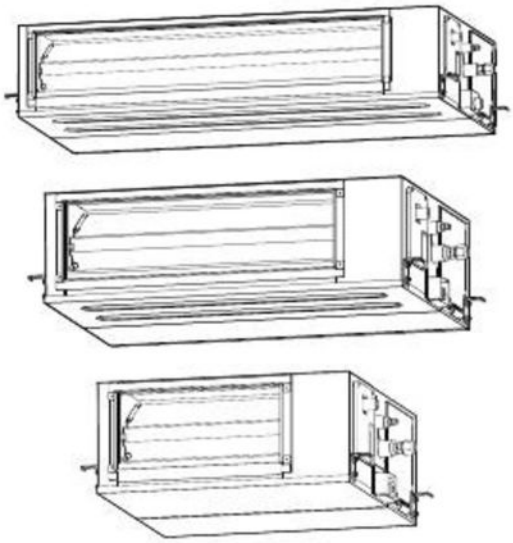
atlantic

EN

Servicehandleiding

# SHOGUN INBOUW UNITS
# KLL serie

| Binnenunit: | Buitenunit: |
|---|---|
| ARXG 09 KLLAP | AOYG 09 KBTB |
| ARXG 12 KLLAP | AOYG 12 KBTB |
| ARXG 14 KLLAP | AOYG 14 KBTB |
| ARXG 18 KLLAP | AOYG 18 KBTB |



Voor gebruik door de professional.
Te bewaren door de gebruiker voor toekomstig gebruik.

SPLIT TYPE
ROOM AIR CONDITIONER

**DUCT** type
INVERTER

# SERVICE INSTRUCTION

| Models | Indoor unit | Outdoor unit |
|---|---|---|
| | ARXG09KLLAP | AO*G09KBTB |
| | ARXG12KLLAP | AO*G12KBTB |
| | ARXG14KLLAP | AO*G14KBTB |
| | ARXG18KLLAP | AO*G18KBTB |

Refrigerant
R32

FUJITSU GENERAL LIMITED

# Error codes

If you use a wireless remote controller, the lamp on the photo detector unit will output error codes by way of blinking patterns. If you use a wired remote controller, error codes will appear on the remote control display. Refer to the lamp blinking patterns and error codes in the table. An error display is displayed only during operation.

| Error display | | | Error code | Description |
|---|---|---|---|---|
| OPERATION lamp (green) | TIMER lamp (orange) | ECONOMY lamp (green) | | |
| ●(1) | ●(1) | ◇ | 11 | Serial communication error |
| ●(1) | ●(2) | ◇ | 12 | • Wired remote controller communication error<br>• Server room control communication error |
| ●(1) | ●(5) | ◇ | 15 | Check run unfinished<br>Automatic airflow adjustment error |
| ●(1) | ●(6) | ◇ | 16 | Peripheral unit transmission PCB connection error |
| ●(1) | ●(8) | ◇ | 18 | External communication error |
| ●(2) | ●(1) | ◇ | 21 | Unit number or Refrigerant circuit address setting error [Simultaneous Multi] |
| ●(2) | ●(2) | ◇ | 22 | Indoor unit capacity error |
| ●(2) | ●(3) | ◇ | 23 | Combination error |
| ●(2) | ●(4) | ◇ | 24 | • Connection unit number error (indoor secondary unit) [Simultaneous Multi]<br>• Connection unit number error (indoor unit or branch unit) [Flexible Multi] |
| ●(2) | ●(6) | ◇ | 26 | Indoor unit address setting error |
| ●(2) | ●(7) | ◇ | 27 | Primary unit, secondary unit setup error [Simultaneous Multi] |
| ●(2) | ●(9) | ◇ | 29 | Connection unit number error in wired remote controller system |
| ●(3) | ●(1) | ◇ | 31 | Power supply interruption error |
| ●(3) | ●(2) | ◇ | 32 | Indoor unit PCB model information error |
| ●(3) | ●(3) | ◇ | 33 | Indoor unit motor electricity consumption detection error |
| ●(3) | ●(5) | ◇ | 35 | Manual auto switch error |
| ●(3) | ●(9) | ◇ | 39 | Indoor unit power supply error for fan motor |
| ●(3) | ●(10) | ◇ | 3A | Indoor unit communication circuit (wired remote controller) error |
| ●(4) | ●(1) | ◇ | 41 | Room temp. sensor error |
| ●(4) | ●(2) | ◇ | 42 | Indoor unit heat ex. middle temp. sensor error |
| ●(4) | ●(4) | ◇ | 44 | Human sensor error |
| ●(5) | ●(1) | ◇ | 51 | Indoor unit fan motor error |
| ●(5) | ●(3) | ◇ | 53 | Drain pump error |
| ●(5) | ●(4) | ◇ | 54 | Electric air cleaner reverse VDD error |
| ●(5) | ●(5) | ◇ | 55 | Filter set error |
| ●(5) | ●(7) | ◇ | 57 | Damper error |
| ●(5) | ●(8) | ◇ | 58 | Intake grille error |
| ●(5) | ●(9) | ◇ | 59 | Indoor unit fan motor 2 error (Left side fan) |
| ●(5) | ●(10) | ◇ | 5A | Indoor unit fan motor 3 error (Right side fan) |
| ●(5) | ●(15) | ◇ | 5U | Indoor unit error |

| Error display | | | Error code | Description |
|---|---|---|---|---|
| OPERATION lamp (green) | TIMER lamp (orange) | ECONOMY lamp (green) | | |
| ●(6) | ●(1) | ◇ | 61 | Outdoor unit reverse/missing phase and wiring error |
| ●(6) | ●(2) | ◇ | 62 | Outdoor unit main PCB model information error or communication error |
| ●(6) | ●(3) | ◇ | 63 | Inverter error |
| ●(6) | ●(4) | ◇ | 64 | Active filter error, PFC circuit error |
| ●(6) | ●(5) | ◇ | 65 | Trip terminal L error |
| ●(6) | ●(8) | ◇ | 68 | Outdoor unit rush current limiting resister temp. rise error |
| ●(6) | ●(10) | ◇ | 6A | Display PCB microcomputers communication error |
| ●(7) | ●(1) | ◇ | 71 | Discharge temp. sensor error |
| ●(7) | ●(2) | ◇ | 72 | Compressor temp. sensor error |
| ●(7) | ●(3) | ◇ | 73 | Outdoor unit Heat Ex. liquid temp. sensor error |
| ●(7) | ●(4) | ◇ | 74 | Outdoor temp. sensor error |
| ●(7) | ●(5) | ◇ | 75 | Suction Gas temp. sensor error |
| ●(7) | ●(6) | ◇ | 76 | • 2-way valve temp. sensor error<br>• 3-way valve temp. sensor error |
| ●(7) | ●(7) | ◇ | 77 | Heat sink temp. sensor error |
| ●(8) | ●(2) | ◇ | 82 | • Sub-cool Heat Ex. gas inlet temp. sensor error<br>• Sub-cool Heat Ex. gas outlet temp. sensor error |
| ●(8) | ●(3) | ◇ | 83 | Liquid pipe temp. sensor error |
| ●(8) | ●(4) | ◇ | 84 | Current sensor error |
| ●(8) | ●(6) | ◇ | 86 | • Discharge pressure sensor error<br>• Suction pressure sensor error<br>• High pressure switch error |
| ●(9) | ●(4) | ◇ | 94 | Trip detection |
| ●(9) | ●(5) | ◇ | 95 | Compressor rotor position detection error (permanent stop) |
| ●(9) | ●(7) | ◇ | 97 | Outdoor unit fan motor 1 error |
| ●(9) | ●(8) | ◇ | 98 | Outdoor unit fan motor 2 error |
| ●(9) | ●(9) | ◇ | 99 | 4-way valve error |
| ●(9) | ●(10) | ◇ | 9A | Coil (expansion valve) error |
| ●(10) | ●(1) | ◇ | A1 | Discharge temp. error |
| ●(10) | ●(3) | ◇ | A3 | Compressor temp. error |
| ●(10) | ●(4) | ◇ | A4 | High pressure error |
| ●(10) | ●(5) | ◇ | A5 | Low pressure error |
| ●(13) | ●(2) | ◇ | J2 | Branch boxes error [Flexible Multi] |

Display mode ● : 0.5s ON / 0.5s OFF
◇ : 0.1s ON / 0.1s OFF
( ) : Number of flashing

Refrigerant R32

# DUCT type INVERTER

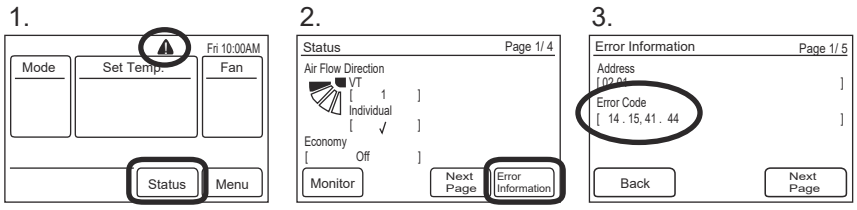
## 2 . TROUBLE SHOOTING

# 2 ERROR DISPLAY

## 2-1 WIRED REMOTE CONTROLLER DISPLAY (OPTION)

1. Check the error

   1. If an error occurs, an error icon appears on the “Monitor mode screen”.
      Touch the [Status] on the “Monitor mode screen”.The “Status” screen is displayed.
   2. Touch the [Error Information] on the “Status”screen. The “Error Information”screen is displayed.
      (If there are no errors, the [Error Information] will not be displayed.)
   3. 2-digit numbers correspond to the error code in the table below. Touch the [Next page]
      (or [Previous page]) to switch to other connected indoor units.




For the details of the indoor unit or outdoor unit error , refer to the error codes in each installation manual

| Error Contents | Error Code | Trouble shooting |
|---|---|---|
| Serial Communication Error | 11 | 1,2 |
| Wired Remote Controller Communication Error | 12 | 3 |
| Automatic Air flow Adjustment Error | 15 | 4 |
| External communication Error | 18 | 5 |
| Combination Error | 23 | 6 |
| Indoor unit address setting Error | 26 | 7 |
| Connection unit number Error (Indoor unit Wired remote controller Error) | 29 | 8 |
| Indoor unit PCB model information Error | 32 | 9 |
| Indoor unit motor electricity consumption detection Error | 33 | 10 |
| Indoor unit power supply Error for fan motor | 39 | 11 |
| Indoor unit Communication circuit (wired remote controller) Error | 3A | 12 |
| Indoor Room Thermistor Error | 41 | 13 |
| Indoor Heat Ex. Thermistor Error | 42 | 14 |
| Indoor Unit Fan Motor Error | 51 | 15 |
| Drain pump Error | 53 | 16 |
| Outdoor unit main PCB model information error | 62 | 17 |
| Inverter Error | 63 | 18 |

| Error Contents | Error Code | Trouble shooting |
|---|---|---|
| PFC circuit Error | 64 | 19 |
| Trip terminal L Error | 65 | 20 |
| Discharge Thermistor Error | 71 | 21 |
| Heat Ex. Outlet / Middle Thermistor Error | 73 | 23 |
| Outdoor Thermistor Error | 74 | 24 |
| Current sensor Error | 84 | 26 |
| Trip detection | 94 | 28 |
| Compressor rotor position detection Error | 95 | 29 |
| Outdoor Unit Fan Motor Error | 97 | 30 |
| 4-way Valve Error | 99 | 31 |
| Discharge Temp. Error | A1 | 32 |

# 2-2 TROUBLE SHOOTING WITH ERROR CODE

| Trouble shooting 1<br>**OUTDOOR UNIT Error Method:**<br>**Serial communication error (Serial Reverse Transfer Error)** | **Indicate or Display:**<br>Error code : 11 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Outdoor unit fan motor | 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** → **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).

**YES** ↓

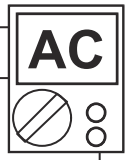
**Check Point 2 : Check Connection**

- 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.**

**OK** ↓

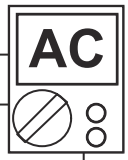
**Check Point 3 : Check the voltage of power supply**

- Check the voltage of power supply
  >> **Check if AC198V (AC220V -10%) - 264V (AC240V +10%) appears at Outdoor Unit Terminal L - N.**

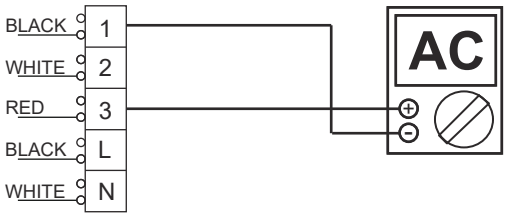



**OK** ↓

**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<br>**INDOOR UNIT Error Method:**<br>**Serial communication error (Serial Forward Transfer Error)** | **Indicate or Display:**<br>Error code : 11 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB | When the outdoor unit cannot properly receive the serial signal from indoor unit for 10 seconds or more. |

**Forecast of Cause:**

1. Connection failure 2. External cause 3. Controller PCB failure

**Check Point 1-1 : Reset the power and operate**

- Does Error indication show again?

**NO** → **Check Point 1-2: Check external cause such as noise**

- Check if the ground connection is proper.
- 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).

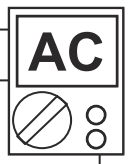
**YES** ↓

**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 connection condition in control unit. (If there is loose connector, open cable or mis-wiring)

**OK** ↓

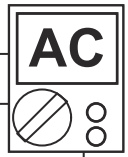
**Check Point 3 : Check the voltage of power supply**



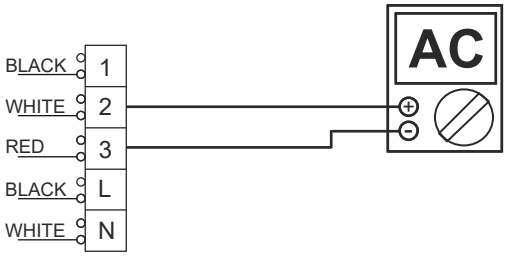

- Check the voltage of power supply
  >> **Check if AC198V (AC220V -10%) - 264V (AC240V +10%) appears at Outdoor Unit Terminal L - N.**

**OK** ↓

**Check Point 4 : Check Serial Signal (Forward Transfer Signal)**




- Check Serial Signal (Forward Transfer Signal)
  >> **Check if indicated value swings berween AC30v and AC130V at outdoor unit terminal 2 - 3.**
  >> **If it is abnormal, replace Controller PCB.**



| Trouble shooting 3<br>**INDOOR UNIT Error Method:**<br>**Wired Remote Controller Communication Error** | **Indicate or Display:**<br>Error code : 12 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Wired Remote Controller | When the outdoor unit cannot properly receive the serial signal from indoor unit for 10 seconds or more. |

**Forecast of Cause:**

1. Connection failure 2. Wired Remote Controller failure 3. Controller PCB failure

Check Point 1 : Check the connection of terminal

After turning off the power.

Check & correct the followings.

・Check the connection of terminal berween Wired Remote Controller and indoor unit, and check if there is a disconnection of the cable.

**OK**

Check Point 1-2 : Check Wired Remote Controller and Controller PCB

・Check Voltage at CN14 of Controller PCB. (Terminal 1-3, Terminal 1-2) (Power supply for the Remote Control)

**>> If it is DC13V, 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**

Check Point 2 : Wire installation Wrong RCgroup setting

- ◻ Wrong wire connection in RCgroup (Please refer to the installation manual)
- ◻ The number of connecting indoor unit and Remote controller in one RCgroup were less than 32 units.

Check Point 2-1 : Check Indoor unit controller PCB

- ◻ Check if controller PCB damage.
- ◻ Change controller PCB and check the Error after setting remote controller address.

| Trouble shooting 4<br>**INDOOR UNIT Error Method:**<br>**Automatic Air flow Adjustment Error** | **Indicate or Display:**<br>Error code : 15 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit controller PCB | ● On automatic airflow adjustment operation, when the fan speed other than 0rpm is detected at the 0rpm operation.<br>● On automatic airflow adjustment operation, when the fan speed is not reach the target speed, after 2 minutes from the fan started.<br>● On automatic airflow adjustment operation operation, when the 750W of input power is detected. |

**Forecast of Cause:**

1. Fan rotation failure 2. Fan motor winding open 3. Indoor unit controller PCB

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 Indoor unit fan motor

・Checl Indoor unit fan motor. (PARTS INFORMATION 4)
**>>if Indoor unit fan motor is abnormal, replace Indoor unit fan motor.**

**OK**

Check Point 4 : Replace Controller PCB

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

| Trouble shooting 5<br>**INDOOR UNIT Error Method:**<br>**External communication error** | **Indicate or Display:**<br>Error code : 18 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| External communication error | After receiving a signal from the external I/O PCB,<br>the same a signal has not been received for 15sec |

**Forecast of Cause :**

1. Connection failure 2.External I/O PCB failure 3.Controller PCB failure

Check Point 1 : Check the connection

- Check any loose or removed connection of between the controller PCB to the external I/OPCB
  **>>If there is an abnormal condition, correct it by refer to installation manual or the technical manual.**
- Check the condition condtion on the external I/O PCB and the controller PCB
  (If there is loose connector, open cable or mis-wiring)

**OK**

Check Point 2: Replace external I/O PCB

▶ **If Check Point 1 do not improve the symptom, change External I/O PCB.**

**OK**

Check Point 3: Replace Controller PCB

▶ **If Check Point 2 do not improve the symptom, change Controller PCB.**

| Trouble shooting 6<br>**INDOOR UNIT Error Method:**<br><br>**Combination error** | **Indicate or Display:**<br><br>Error code : 23 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit | 1. The outdoor unit receives the serial signal of applied refrigerant information from Indoor unit. When the refrigerant is R410a.<br>2. When the outdoor unit type is multi. |

**Forecast of Cause:**

1. The selection of indoor units is incorrect

Check Point 1 : Check the type of indoor unit

- Check the type of the connected indoor unit.
  **>> If abnormal condition is found, correct it.**

**OK**

Check Point 2 : Replace Main PCB

▶ **If Check Point 1 do not improve the symptom, replace Main PCB of Outdoor unit.**

| **Trouble shooting 7**<br>**INDOOR UNIT Error Method:**<br><br>Indoor unit address setting error | **Indicate or Display:**<br><br>Error code : 26 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Wired remote controller ( 2-Wire )<br>Indoor unit Controller PCB circuit | When the address number set by auto setting and manual setting are mixed in one RC group.<br>When the duplicated address number exists in one RC group. |

**Forecast of Cause :**

1. Wrong wiring of RCgroup 2. Wrong remote address setting 3. Indoor unit controller PCB failure
4. Remote controller failure

Check Point 1 : Wire installation

- ☐ Wrong wire connection in RCgroup (Please refer to the installation manual)

**OK**

Check Point 2 : Wrong RCgroup setting

- ☐ The given address number by auto setting (00) and the manual set number (Except 00) were not existing in one RCG.
- ☐ The remote controller address setting by U.I. were not existing same address.
- ☐ The duplicated address number is not existing in one RCgroup

**OK**

Check Point 3 : Check Indoor unit controller PCB

- ☐ Check if controller PCB damage
- ☐ Change controller PCB and check the Error after setting remote controller address

| **Trouble shooting 8**<br>**INDOOR UNIT Error Method:**<br><br>**Connection unit number error (Indoor unit in Wired remote controller system)** | **Indicate or Display:**<br><br>Error code : 29 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Wired remote controller ( 2-Wire )<br>Indoor unit Controller PCB circuit | When the number of connecting indoor units are out of specified rule. |

**Forecast of Cause :**

1. Wrong wiring / Number of I.U, RC in RCgroup 2. Indoor unit controller PCB defective

Check Point 1 : Wire installation

- ☐ Wrong number of connecting indoor unit

**OK**

Check Point 2 : Check Indoor unit controller PCB

- ☐ Check if controller PCB damage
- ☐ Check if controller PCB and check the Error after setting remote controller address

| Trouble shooting 9<br>**INDOOR UNIT Error Method:**<br>**Indoor unit PCB model information error** | **Indicate or Display:**<br>Error code : 32 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB | When power is on and there is some below case.<br>1. When model information of EEPROM is incorrect.<br>2. When the access to EEPROM failed. |

**Forecast of Cause:**

1. External cause 2. Defective connection of electric components 3. Controller PCB failure

**Check Point 1-1 : Reset Power Supply and operate**

・Does Error indication show again?

**NO** → **Check Point 1-2 : Check external cause such as noise**

・Check if the ground connection is proper.
・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).

**YES** → **Check Point 2 : Check Indoor unit electric components**

・Check all connectors. (loose connector or incorrect wiring)
・Check any shortage or corrosion on PCB.

→ **Check Point 3 : Replace Controller PCB**

▶ **Change Controller PCB.**

**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.

| Trouble shooting 10<br>**INDOOR UNIT Error Method:**<br>**Indoor unit motor electricity consumption detection error** | **Indicate or Display:**<br>Error code : 33 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit fan motor<br>Indoor unit Controller PCB circuit | When the voltage value or the current value of the motor go beyond the limits. |

**Forecast of Cause:**

1. Fan motor failure 2. Controller PCB 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 Indoor unit fan motor**

・Check Indoor unit fan motor. (PARTS INFORMATION 4)
**>>if Indoor unit fan motor is abnormal, replace Indoor unit fan motor.**

**OK**

**Check Point 4 : Replace Controller PCB**

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

| Trouble shooting 11<br>**INDOOR UNIT Error Method:**<br>**Indoor unit power supply error for fan motor** | **Indicate or Display:**<br>Error code : 39 **Outdoor unit : No indication** |
|---|---|
| **Detective Actuators:**<br>Indoor unit Power Supply PCB | **Detective details:**<br>When a momentary power cut off.<br>When do not start fan motor. |

**Forecast of Cause :**

1. External cause 2. Connection of connector failure 3. Power Supply PCB failure

Check Point 1 : 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 2 : Check connection of Connector

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

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

**OK**

Check Point 3 : Replace Power supply PCB

▶ **If Check Point 1, 2 do not improve the symptom, replace Power supply PCB.**

| **Trouble shooting 12**<br>**INDOOR UNIT Error Method:**<br>**Indoor unit Communication circuit (wired remote controller) error** | **Indicate or Display:**<br>Error code : 3A **Outdoor unit : No indication** |
|---|---|
| **Detective Actuators:**<br>Indoor unit Controller PCB circuit | **Detective details:**<br>Detect the communication error of microcomputer and communication PCB. |

**Forecast of Cause :**

1.Communication PCB defective 2. Indoor unit controller PCB defective

| Check Point 1 : Check the connection of terminal |
|---|
| After turning off the power supply, check & correct the followings<br>□ Indoor unit - Check the connection the communication PCB and the controller PCB |

**OK**

| Check Point 2 : Replace the communication PCB |
|---|
| If the Check point 1 is ok, replace the communication PCB |

**OK**

| Check Point 3 : Replace the controller PCB |
|---|
| If condition is doesn't change, replace the controller PCB |

| Trouble shooting 13<br>**INDOOR UNIT Error Method:**<br>**Indoor Room Thermistor Error** | **Indicate or Display:**<br>Error code : 41 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB Circuit<br>Indoor Temperature Thermistor | Indoor unit thermistor is open or short is detected always. |

**Forecast of Cause :**

1. Connector failure connection 2. Thermistor failure 3. Controller PCB failure

## Check Point 1 : Check connection of Connector

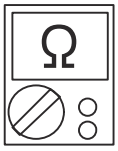
- ☐ Check if connector is loose or removed
- ☐ Check erroneous connection
- ☐ Check if thermistor cable is open

**>>Reset Power when reinstalling due to removed connector or incorrect wiring.**

**OK**

## Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics(Rough value)




| Temperature (°C ) | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|
| Resistance value (kΩ ) | 58.2 | 44.0 | 33.6 | 25.9 | 20.2 | 15.8 | 12.5 | 10.0 |

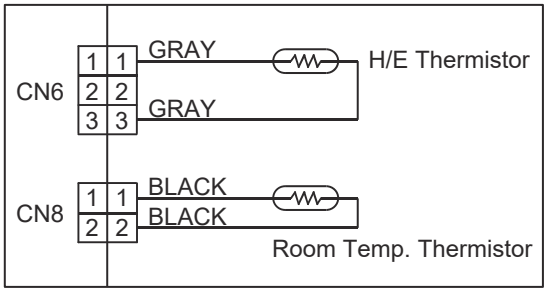
| Temperature (°C ) | 30 | 35 | 40 | 45 |
|---|---|---|---|---|
| Resistance value (kΩ ) | 8.0 | 6.5 | 5.3 | 4.3 |

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

**OK**

## Check Point 3 : Check Voltage of Controller PCB (DC 5.0V)

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




▶ **If the voltage does not appear, replace Controller PCB and execute the check operation again.**

| Trouble shooting 14<br>**INDOOR UNIT Error Method:**<br>**Indoor Heat Ex. Thermistor Error** | **Indicate or Display:**<br>Error code : 42 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB Circuit<br>Heat Exchanger (MID) Thermistor | Indoor unit thermistor is open or short is detected always. |

**Forecast of Cause :**

1. Connector failure connection 2. Thermistor failure 3. Controller PCB failure

## Check Point 1 : Check connection of Connector

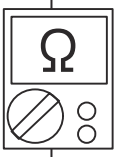
- ☐ Check if connector is loose or removed
- ☐ Check erroneous connection
- ☐ Check if thermistor cable is open

**>>Reset Power when reinstalling due to removed connector or incorrect wiring.**

**OK**

## Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics(Rough value)




| Temperature (°C ) | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|
| Resistance value (kΩ ) | 1013.1 | 729.1 | 531.5 | 392.3 | 292.9 | 221.1 | 168.6 | 129.8 | 100.9 | 79.1 |

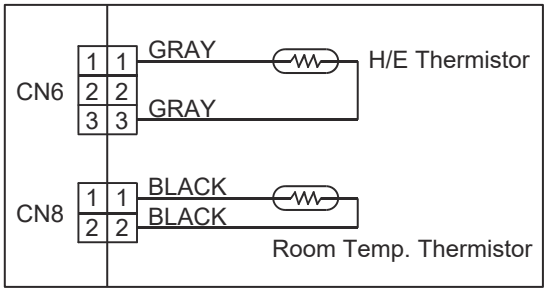
| Temperature (°C ) | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 |
|---|---|---|---|---|---|---|---|---|---|---|
| Resistance value (kΩ ) | 62.5 | 49.8 | 40.0 | 32.4 | 26.3 | 21.6 | 17.8 | 14.8 | 12.3 | 10.3 |

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

**OK**

## Check Point 3 : Check Voltage of Controller PCB (DC 5.0V)

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




▶ **If the voltage does not appear, replace Controller PCB and execute the check operation again.**

| Trouble shooting 15<br>**INDOOR UNIT Error Method:**<br>**Indoor Unit Fan Motor Error** | **Indicate or Display:**<br>Error code : 51 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Power Supply PCB<br>Indoor unit fan motor | When the fan motor speed is less than 1/3 of the target fan speed for 56 seconds.<br>When detect the 0 rpm for 56 seconds after fan motor started. |

**Forecast of Cause:**

1. Fan rotation failure 2. Fan motor winding open 3. Motor protection by surrounding temperature rise
4. Power Supply PCB failure 5. Indoor 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 Indoor unit fan motor

・Check Indoor unit fan motor. (PARTS INFORMATION 4)
**>>if Indoor unit fan motor is abnormal, replace Indoor unit fan motor.**

**OK**

Check Point 4 : Replace Power Supply PCB

▶ **If Check Point 1- 3 do not improve the symptom, replace Power Supply PCB.**

| Trouble shooting 16<br>**INDOOR UNIT Error Method:**<br>**Drain Pump Error** | **Indicate or Display:**<br>Error code : 53 **Outdoor unit : No indication** |
|---|---|
| **Detective Actuators:**<br>Indoor unit Controller PCB Circuit<br>Float switch | **Detective details:**<br>When Float switch is ON for more than 3 minutes. |

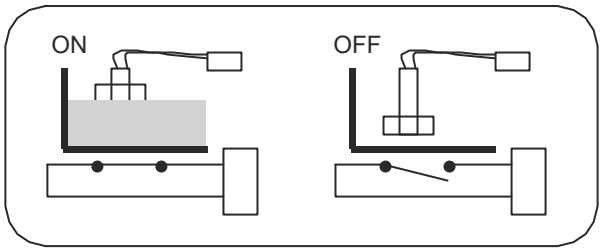
**Forecast of Cause :**

1. Float switch failure 2. Shorted connector/wire 3. Controller PCB failure
4. Drain pump failure 5. Hose clogging

### Check Point 1 : Check Float switch

- Check operation of float switch. (any blocking by dust, etc.)
- Remove Float switch and check ON/OFF switching operation by using a meter.

**>>If Float switch is abnormal, replace it.**




**OK**

### Check Point 2 : Check Connector and Wire

- Check loose contact of CN9 /shorted wire (pinched wire).

**>>Replace Float switch if the wire is abnormal**

**OK**

### Check Point 3 : Check Drain hose

- Check Drain hose .

**>>If there is Hose clogging. Please clear the clog.**

**OK**

### Check Point 4 : Replace Drain pump

▶ **If Check Point 1- 3 do not improve the symptom, replace Drain pump.**

**OK**

### Check Point 5 : Replace Controller PCB

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

| Trouble shooting 17<br>**OUTDOOR UNIT Error Method:**<br>**Outdoor unit main PCB model information error** | **Indicate or Display:**<br>Error code : 62 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | Access to EEPROM failed due to some cause after outdoor unit started. |

**Forecast of Cause:**

1. External cause (Noise, temporary open, voltage drop) 2. Main PCB failure

Check Point 1-1 : Reset Power Supply and operate

・Does Error indication show again?

**NO** → Check Point 1-2 : Check external cause

- Check if temporary voltage drop was not generated.
- Check if momentary open was not generated.
- Check if ground is connection correctly or there are no related cables near the power line.

**YES** → Check Point 2 : Replace Main PCB

▶ **Change Main PCB.**

| Trouble shooting 18<br>**OUTDOOR UNIT Error Method:**<br><br>**Inverter error** | **Indicate or Display:**<br><br>Error code : 63 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | ・Error information received from Outdoor unit Main PCB |

**Forecast of Cause :**

1. External cause.
2. Power supply to Main PCB wiring disconnection, open
3. Outdoor unit Main PCB failure

**Check Point 1-1 : Turn the power on again?**

・Error displayed again?

**NO** → **Check Point 1-2: External cause**

・Check if temporary voltage drop was not generated.
・Check if temporary open was not generated.
・Check if ground is connected correctly or there are no related cables near the power line.

**YES** ↓

**Check Point 2 : Check the wiring**

・Connector and wiring connection state check
・Cable open check

**OK** ↓

**Check Point 3 : Replace Main PCB**

・Replace Outdoor unit Main PCB.

| Trouble shooting 19<br>**OUTDOOR UNIT Error Method:**<br>**PFC circuit error** | **Indicate or Display:**<br>Error code : 64 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | When inverter output DC voltage is higher than 420V for over 3 seconds, the compressor stops.<br>If the same operation is repeated 5 times, the compressor stops permanently. |

**Forecast of Cause :**

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)

- 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 2 : Check connection of Connector

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

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

**OK**

Check Point 3 : Replace Main PCB

▶ **If Check Point 1, 2 do not improve the symptom, change Main PCB.**

| Trouble shooting 20<br>**OUTDOOR UNIT Error Method:**<br>**Trip terminal L error** | **Indicate or Display:**<br>Error code : 65 **Outdoor unit : No indication** |
|---|---|

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

**Forecast of Cause:**

1. Outdoor unit Main PCB failure

| Check Point 1 : Replace Main PCB |
|---|
| ▶ **Replace Outdoor unit Main PCB.** |

| Trouble shooting 21<br>**OUTDOOR UNIT Error Method:**<br>**Discharge Thermistor Error** | **Indicate or Display:**<br>Error code : 71 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Discharge temperature thermistor | ・Discharge temperature thermistor short or open detected |

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

**Check Point 1 : Check the connector connection and cable open**

- ☐ Connector connection state check
- ☐ Cable open check

**OK**

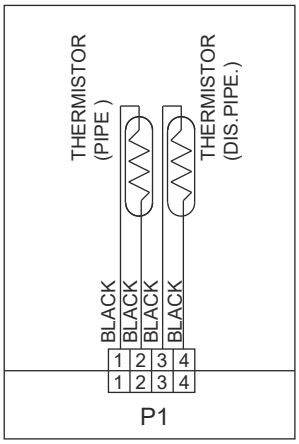
**Check Point 2 : Check the thermistor**

- ☐ Thermistor characteristics check
  (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 8".

**OK**

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

- ☐ Main PCB P1:3-4 voltage value =5V
  Remove the thermistor from Main PCB, check the voltage.




►**If the voltage does not appear, replace Main PCB, and execute the check operation again.**

| Trouble shooting 23<br>**OUTDOOR UNIT Error Method:**<br>**Heat Ex. Outlet / Middle Temp. Thermistor Error** | **Indicate or Display:**<br>Error code : 73 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Heat exchanger Outlet / Middle temperature thermistor | ・Heat exchanger outlet temperature thermistor short or open detected<br>・Heat exchanger middle temperature thermistor short or open detected |

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

**Check Point 1 : Check the connector connection and cable open**

- ☐ Connector connection state check
- ☐ Cable open check

↓ **OK**

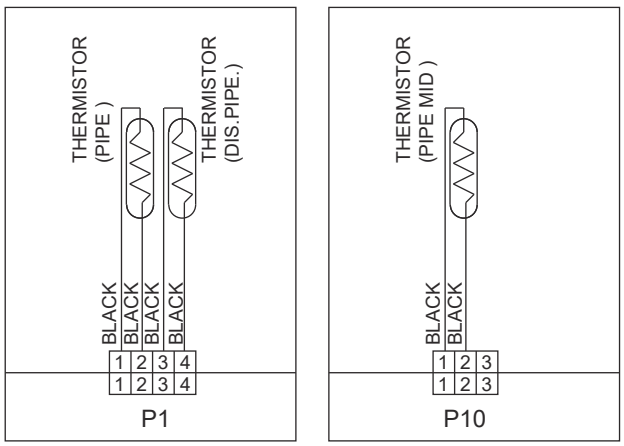
**Check Point 2 : Check the thermistor**

- ☐ Thermistor characteristics check
  (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 8".

↓ **OK**

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

- ☐ Main PCB P1 :1-2 voltage value =5V
  Main PCB P10:1-2 voltage value =5V
  Remove the thermistor from Main PCB, check the voltage.




►**If the voltage does not appear, replace Main PCB, and execute the check operation again.**

| Trouble shooting 24<br>**OUTDOOR UNIT Error Method:**<br>**Outdoor Thermistor Error** | **Indicate or Display:**<br>Error code : 74 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor temperature thermistor | ・Outdoor temperature thermistor short or open detected |

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

**Check Point 1 : Check the connector connection and cable open**

- ☐ Connector connection state check
- ☐ Cable open check

**OK**

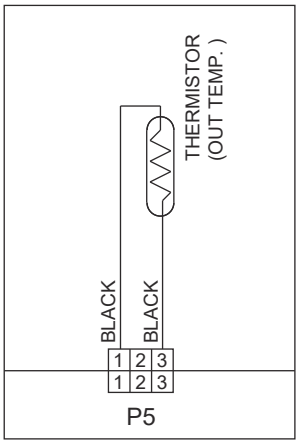
**Check Point 2 : Check the thermistor**

- ☐ Thermistor characteristics check
  (Disconnect the thermistor from the PCB and check.)
  * For the thermistor characteristics, refer to the "Service Parts Information 8".

**OK**

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

- ☐ Main PCB P5:1-3 voltage value =5V
  Remove the thermistor from Main PCB, check the voltage.




►**If the voltage does not appear, replace Main PCB, and execute the check operation again.**

| Trouble shooting 26<br>**OUTDOOR UNIT Error Method:**<br>**Current sensor error** | **Indicate or Display:**<br>Error code : 84 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | 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

Check Point 1-1 : Reset Power Supply and operate

- Does Error indication show again?

**NO** → Check Point 1-2 :

**YES** ↓

Check Point 2 :
Check connections of Outdoor Unit Electrical Components

- Check if the terminal connection is loose.
- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

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

**OK** ↓

Check Point 3 : Replace Main PCB

▶ **If Check Point 1, 2 do not improve the symptom, change Main PCB.**

Check Point 1-2 :
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.

| Trouble shooting 28<br>**OUTDOOR UNIT Error Method:**<br><br>**Trip detection** | **Indicate or Display:**<br><br>Error code : 94 **Outdoor unit : No indication** |
|---|---|

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

**Forecast of Cause :**
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)

Check Point 1 : Check the outdoor unit fan operation, heat exchanger, ambient temperature

・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**

Check Point 2: Replace Main PCB

▶ **If Check Point 1 do not improve the symptom, change Main PCB.**

↓ **OK**

Check Point 3: Replace Compressor

▶ **If Check Point 2 do not improve the symptom, change Compressor.**

| Trouble shooting 29<br>**OUTDOOR UNIT Error Method:**<br>**Compressor rotor position detection error** | **Indicate or Display:**<br>Error code : 95 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Compressor | "Protection stop by "overcurrent generation at inverter compressor starting" restart" generated consecutively 50 times x 3 sets (total 150 times) |

**Forecast of Cause :**

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.

▶ **If an abnormal noise show, replace Compressor.**

**OK**

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)

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

**OK**

Check Point 3: Replace Main PCB

▶ **If Check Point 1,2 do not improve the symptom, change Main PCB.**

**OK**

Check Point 4: Replace Compressor

▶ **If Check Point 3 do not improve the symptom, change Compressor.**

| Trouble shooting 30<br>**OUTDOOR UNIT Error Method:**<br>**Outdoor Unit Fan Motor Error** | **Indicate or Display:**<br>Error code : 97 **Outdoor unit : No indication** |
|---|---|

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

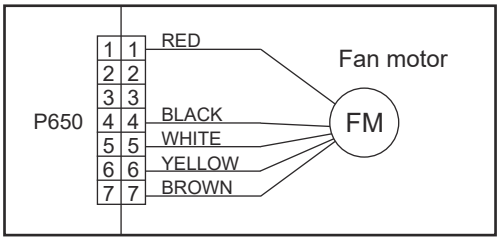
**Check Point 3 : Check Outdoor unit fan motor**

・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**

・Check outdoor unit circuit diagram and the voltage. (Measure at Main PCB side connector)




| Read wire | DC voltage |
|---|---|
| Red - Black | 280V (AC220V-10%)<br>~ 373V (AC240+10%) |
| White - Black | 15±1.5V |

▶ **If the voltage is not correct, replace Main PCB.**

| Trouble shooting 31<br>**OUTDOOR UNIT Error Method:**<br><br>**4-Way Valve Error** | **Indicate or Display:**<br><br>Error code : 99 **Outdoor unit : No indication** |
|---|---|
| **Detective Actuators:**<br>Indoor Unit Controller PCB Circuit<br>Heat Exchanger Temperature Thermistor<br>Room Temperature Thermistor<br>4-way valve | **Detective details:**<br>When the indoor heat exchanger temperature is compared with the room temperature, and either following condition is detected continuously two times, the compressor stops.<br>▪ Cooling or Dry operation<br>[Indoor heat exchanger temp.] - [Room temp.] > 10°C<br>▪ Heating operation<br>[indoor heat exchanger temp.] - [Room temp.] < -10°C<br>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. 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.**

**OK**

**Check Point 2 : Check thermistor of Indoor unit**

- Isn't it fallen off the holder?
- Is there a cable pinched?

**>> Check characteristics of thermistor, (Refer to Trouble shooting 13,14), If defective, replace the thermistor.**

**OK**

**Check Point 3 : Check the solenoid coil and 4-way valve**

[ Solenoid coil ]

- Remove P60 from PCB and check the resistance value of coil.
  Resistance value is about 2.78 kΩ
  **>> If it is Open or abnormal resistance value, replace Solenoid Coil.**

[ 4-way valve ]

- 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.**

**OK**

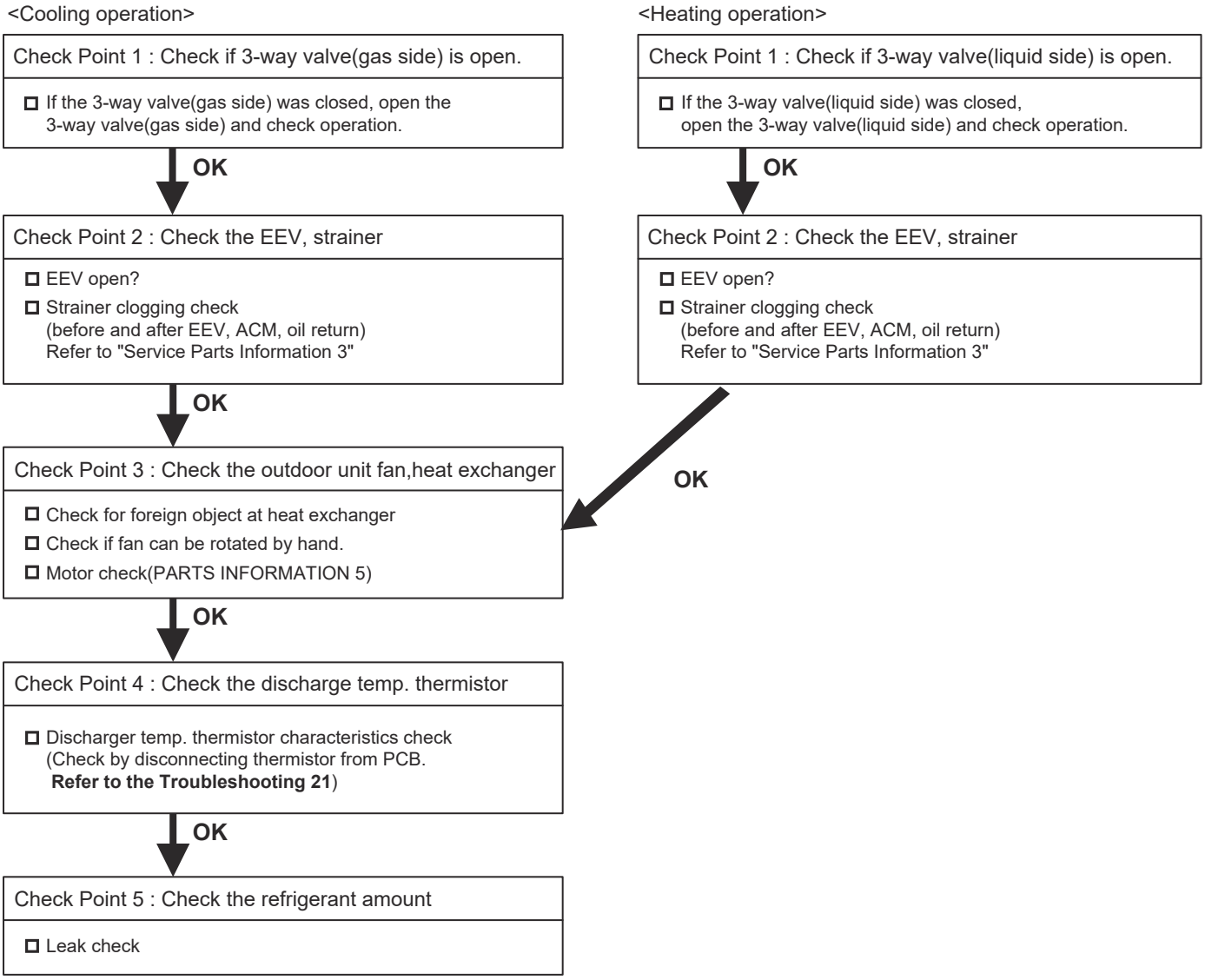
**Check Point 4 : Replace Main PCB**

▶ **If Check Point 1- 3 do not improve the symptom, replace Main PCB.**

| Trouble shooting 32<br>**OUTDOOR UNIT Error Method:**<br><br>**Discharge Temp. Error** | **Indicate or Display:**<br><br>Error code : A1 **Outdoor unit : No indication** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Discharge temperature thermistor | ▪ "Protection stop by "discharge temperature ≧ 110°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. Discharge temperature thermistor failure
5. Insufficient refrigerant



# 2-3 TROUBLESHOOTING WITH NO ERROR CODE

**Trouble shooting 34**

Indoor Unit - No Power

**Forecast of Cause:**

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

Check Point 1 : Check Installation Condition

- Isn't the breaker down?
- Check loose or removed connection cable.

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

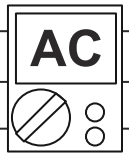
**OK**

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




- Check the voltage of power supply.

**>> Check if AC198 - 264V appears at Outdoor Unit Terminal L - N.**

**NO**

**YES**

- Check Fuse of between of Terminal and Power supply PCB (Indoor unit).

**>> If Fuse is open, check if the wiring between Terminal and Power supply PCB (Indoor unit) is loose, and replace Fuse.**

- Check Varistor in Power supply PCB (Indoor unit).

**>> If Varistor is defective, there is a possibility of an abnormal power supply. Check the correct power supply and replace Varistor. Upon checking the normal power supply, replace Varistor.**

**OK**

▶ **If the symptom does not change by above Check 3, replace Power supply PCB (Indoor unit).**

**Trouble shooting 35**

Outdoor unit - No Power

**Forecast of Cause:**

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

Check Point 1 : Check Installation Condition

- Isn't the breaker down?
- Check loose or removed connection cable.

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

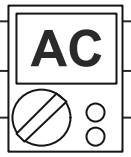
**OK**

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




- Check the voltage of power supply.

**>> Check if AC198 - 264V appears at Outdoor unit Terminal L - N.**

**NO**

**YES**

- Check Fuse in Main PCB.

**>> If Fuse is open, check if the wiring between Terminal and Main PCB is loose, and replace Fuse.**

**OK**

▶ **If the symptom does not change by above Check 3, replace Main PCB.**

**Trouble shooting 36**

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 Wired Remote Controller and Controller PCB

- Check Voltage at CN14 of Controller PCB. (terminal 1-3)
  (Power supply to Remote Control)

**>> If it is DC13V, 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 37**

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.

**OK**

### 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?

**OK**

### Check Point 3 : Check Site Condition

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

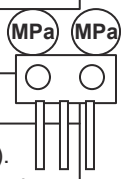
**OK**

### 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.**

**OK**




### Check Point 5 : Check Refrigeration cycle

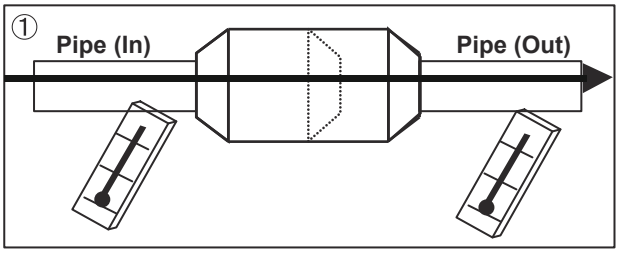
- Check if Strainer is clogged (Refer to the figure at right).
- Measure Gas Pressure and if there is a leakage, correct it.

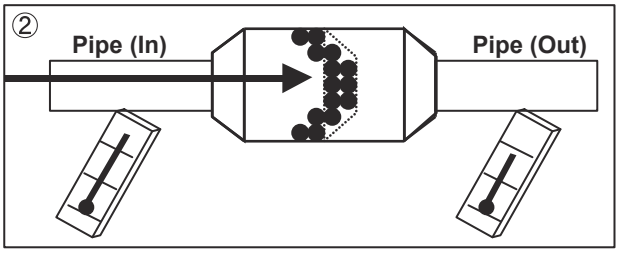
**>> When recharging the refrigerant, make sure to perform vacuuming, and recharge the specified amount.**

- 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 38**

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 39**

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**

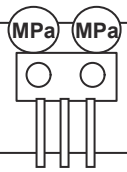
- Is Fan rotating?

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 SERVICE PARTS INFORMATION

**SERVICE PARTS INFORMATION 1**

Compressor

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

**Does not start up**

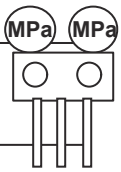
- Is there open or loose connection cable?
- Check Main PCB, connection of Compressor, and winding resistance. (Refer to the next page).

**>> If there is no failure, the defect of Compressor is considered (Locked compressor due to clogged dirt or less oil)**

Replace Compressor

**Stops soon after starting up**

- Is there open or loose connection cable?
- Is Gas pipe valve open? (Low pressure is too low)
- Check if Refrigerant is leaking. (Recharge Refrigerant)




- Check if capillary tube, strainer is clogged. (PARTS INFORMATION 3)
- Check Main PCB, connection of Compressor,and winding resistance. (Refer to the next page).

**>> If there is no failure, the defect of Compressor can be considered. (Compression part broken or valve defective.)**

Replace Compressor

**Abnormal noise**

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

**▶Defective Compressor can be considered. (due to inside dirt clogging or broken component)**

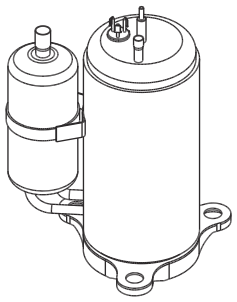
Replace Compressor

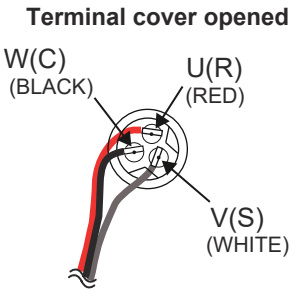
**SERVICE PARTS INFORMATION 2**

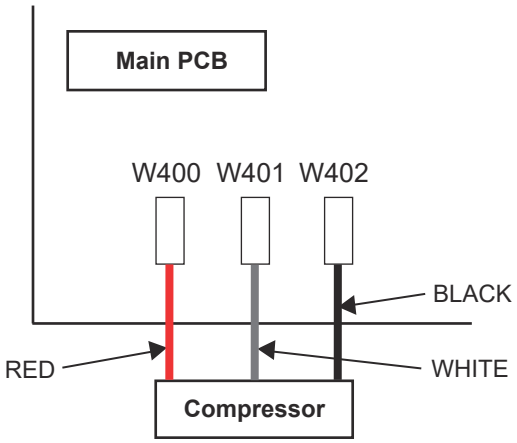
Inverter Compressor

## Check Point 1 : Check Connection

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

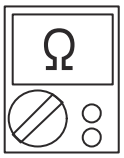


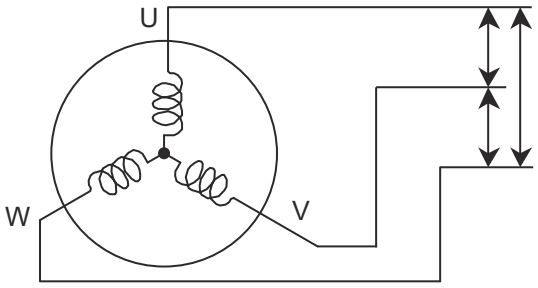



## Check Point 2 : Check Winding Resistance

・Check winding resistance of each terminal
▶**If the resistance value is 0Ω or infinite, replace Compressor.**




Resistance Value :
1.97Ω at 25°C (09 type)
1.91Ω at 20°C (12/14/18 type)

## Check Point 3 : Replace Main PCB

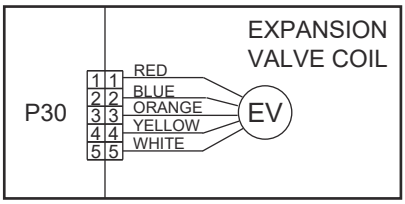
▶**If the symptom does not change with above Check 1, 2, replace Main PCB.**

## SERVICE PARTS INFORMATION 3

Outdoor unit Electronic Expansion Valve
( EEV )

### Check Point 1 : Check Connections

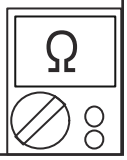
・Check connection of connector
( Loose connector or open cable )




### Check Point 2 : Check Coil of EEV

・Remove connector, check each winding resistance of Coil.

| Read wire | Resistance value |
|---|---|
| White - Red | **46**Ω ± **4**Ω 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.**

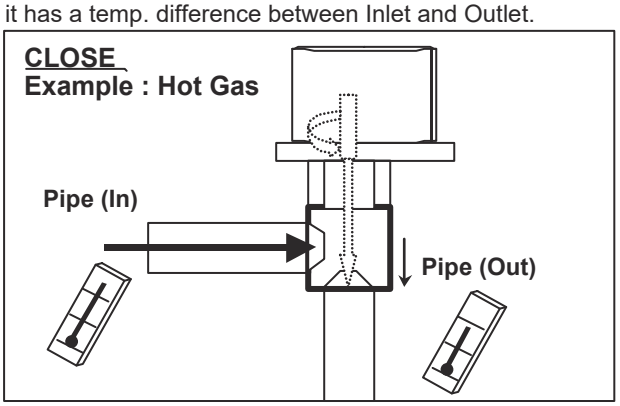
### Check Point 4 : Check Voltage from Main PCB.

▪ Remove Connector and check Voltage (DC12V)

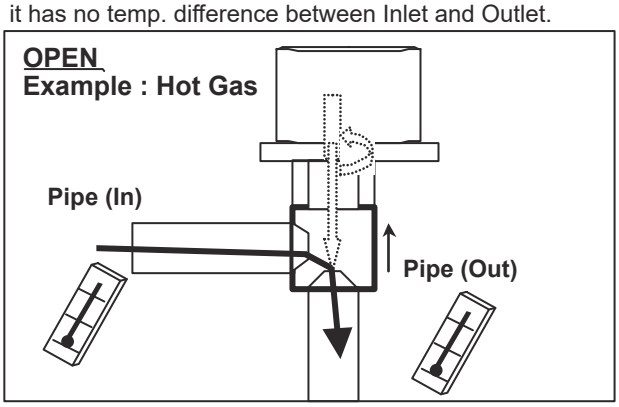
▶ **If it does not appear, replace Main PCB.**

### Check Point 5 : Check Opening and Closing Operation of Valve

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

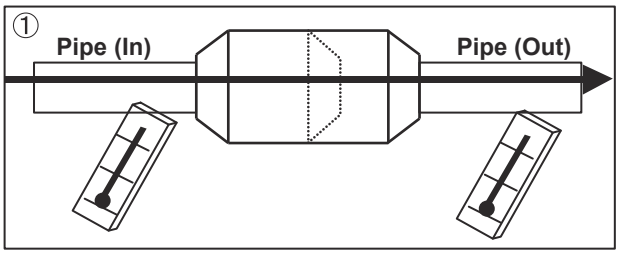


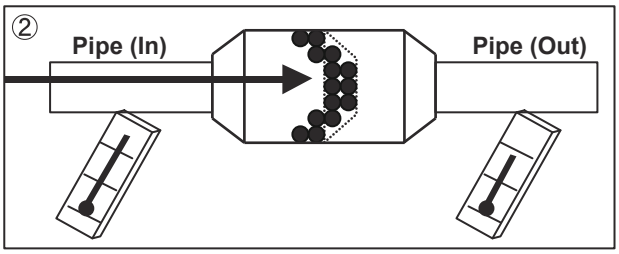

If it is open,
it has no temp. difference between Inlet and Outlet.




### 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 (Brown) | Feed back (FG) |

## SERVICE PARTS INFORMATION 5

Outdoor unit fan motor

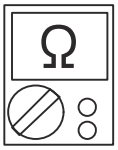
### Check Point 1 : Check rotation of Fan

・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

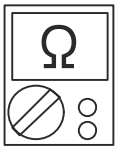
・Refer to below. Circuit-test "Vm" and "GND" terminal.
(Vm: DC voltage, GND: Earth terminal)
**>>If they are short-circuited (below 300 kΩ), replace Outdoor fan motor and Main PCB.**

| 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) |



## SERVICE PARTS INFORMATION 8

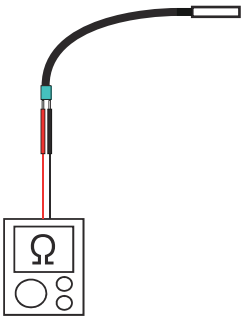
### Thermistor



Check Point : Check Thermistor resistance value

☐ Remove connector and check Thermistor resistance value.

| Temperature [°C] | Resistance Value [ kΩ ] | | |
|---|---|---|---|
| | Thermistor A | Thermistor B | Thermistor C |
| -30 | 1013.1 | 95.6 | 224.3 |
| -20 | 531.6 | 50.3 | 115.2 |
| -10 | 292.9 | 27.8 | 62.3 |
| 0 | 168.6 | 16.1 | 35.2 |
| 10 | 100.9 | 9.6 | 20.7 |
| 20 | 62.5 | 6.0 | 12.6 |
| 30 | 40.0 | 3.8 | 8.0 |
| 40 | 26.3 | 2.5 | 5.2 |
| 50 | 17.8 | 1.7 | 3.5 |
| 60 | 12.3 | 1.2 | 2.4 |
| 70 | 8.7 | 0.8 | --- |
| 80 | 6.3 | 0.6 | --- |
| 90 | 4.6 | --- | --- |
| 100 | 3.4 | --- | --- |
| 110 | 2.6 | --- | --- |
| 120 | 2.0 | --- | --- |
| Applicable Thermistors | Discharge temp. TH | Heat exchanger. TH | Outdoor temp. TH |



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