Service Manual

SkyAir

RZR-P, RZQ-P(9) Series
Cooling Only / Heat Pump
R-410A 60Hz


**SkyAir**

RZR-P, RZQ-P(9) Series
Cooling Only / Heat Pump
R-410A 60Hz

**ED Reference**
For items below, please refer to Engineering Data.
For except FTQ

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>ED No.</th>
<th>Page</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specification - Cooling Only</td>
<td>EDUS281120</td>
<td>p. 7-13</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Option List</td>
<td>EDUS281120</td>
<td>p. 100-102</td>
<td></td>
</tr>
</tbody>
</table>

For FTQ

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>ED No.</th>
<th>Page</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specification - Heat Pump</td>
<td>EDUS281008</td>
<td>p. 4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Option List</td>
<td>EDUS281008</td>
<td>p. 60</td>
<td></td>
</tr>
</tbody>
</table>

1. Safety Considerations .......................................................................................... v
   1.1 Safety Considerations for Repair .......................................................................... v
   1.2 Safety Considerations for Users ........................................................................ vi

**Part 1 General Information** ..................................................................................... 1

1. Model Names and Power Supply ................................................................................. 2
   1.1 Cooling Only ........................................................................................................ 2
   1.2 Heat Pump ............................................................................................................ 2
2. External Appearance .................................................................................................. 3
   2.1 Indoor Units ......................................................................................................... 3
   2.2 Remote Controller .............................................................................................. 4
   2.3 Outdoor Units ..................................................................................................... 4

**Part 2 Refrigerant Circuit** ........................................................................................ 5

1. Refrigerant Circuit ....................................................................................................... 6
   1.1 RZR18 / 24 / 30PVJU
   RZQ18 / 24PVJU9
   RZQ30PVJU ............................................................................................................ 6
   1.2 RZR36 / 42PVJU
   RZQ36 / 42PVJU(9) ............................................................................................... 8
## Part 3 Remote Controller ................................................................. 11

1. Wired Remote Controller ................................................................. 12
   1.1 Applicable Models .................................................................... 12
   1.2 Names and Functions ............................................................... 13
   1.3 MAIN/SUB Setting when Using 2 Remote Controllers .............. 17
   1.4 Centralized Control Group No. Setting ...................................... 19

2. Wireless Remote Controller ............................................................. 22
   2.1 Applicable Models .................................................................... 22
   2.2 Names and Functions ............................................................... 22
   2.3 Address and MAIN/SUB Setting ............................................... 24

3. Service Mode .................................................................................. 25
   3.1 BRC1D71 ................................................................................. 25
   3.2 BRC1E71 ................................................................................. 28

4. Inspection Mode ................................................................................ 30

## Part 4 Function and Control ................................................................. 31

1. Function General .............................................................................. 32
   1.1 Operation Mode ....................................................................... 32

2. Basic Control ................................................................................... 33
   2.1 Normal Operation ..................................................................... 33
   2.2 Compressor PI Control .............................................................. 34
   2.3 Electronic Expansion Valve PI Control ...................................... 35
   2.4 Cooling Operation Fan Control .................................................. 36

3. Special Control .................................................................................. 37
   3.1 Startup Control ........................................................................ 37
   3.2 Oil Return Operation ................................................................. 38
   3.3 Defrosting Operation ................................................................. 40
   3.4 Pump Down Residual Operation .............................................. 41
   3.5 Restart Standby ......................................................................... 42
   3.6 Stopping Operation ................................................................... 42
   3.7 Pressure Equalization Prior to Startup .................................... 43

4. Protection Control ............................................................................ 44
   4.1 High Pressure Protection Control ............................................. 44
   4.2 Low Pressure Protection Control .............................................. 45
   4.3 Discharge Pipe Protection Control ........................................... 46
   4.4 Inverter Protection Control ....................................................... 47

5. Other Control .................................................................................... 48
   5.1 Heating Operation Prohibition ................................................ 48

6. Outline of Control (Indoor Unit) ....................................................... 49
   6.1 Drain Pump Control ................................................................. 49
   6.2 Louver Control for Preventing Ceiling Dirt ............................... 51
6.3 Room Temperature Thermistor in Remote Controller............................52
6.4 Thermostat Control with Operation Mode Set to "AUTO" .................... 54
6.5 Freeze-up Prevention ...................................................................... 55
6.6 View of Operations of Swing Flaps ................................................. 56
6.7 Hot Start Control (In Heating Operation Only) ................................. 57
6.8 Heater Control (FTQ) ..................................................................... 59
6.9 4 Step Thermostat Processing (FTQ) .............................................. 62
6.10 Interlocked with External Equipment (FTQ) .................................. 63

Part 5 Field Setting................................................................................. 65

1. Test Operation .............................................................................. 66
   1.1 Procedure and Outline .............................................................. 66
   1.2 Operation when Power is Turned ON ..................................... 69
2. Field Setting from Remote Controller ........................................... 70
   2.1 Wired Remote Controller ....................................................... 70
   2.2 Wireless Remote Controller .................................................. 73
   2.3 Setting Contents and Code No. for Indoor Units ...................... 74
3. Field Setting from Outdoor Unit .................................................... 80
   3.1 Location of DIP Switch and BS Button .................................. 80
   3.2 Setting by DIP Switches ....................................................... 81
   3.3 Setting by BS Buttons .......................................................... 81
   3.4 Setting Mode 1 ..................................................................... 83
   3.5 Setting Mode 2 ..................................................................... 84
   3.6 Monitor Mode ....................................................................... 86
   3.7 Detailed Explanation of Setting Modes .................................... 87

Part 6 Service Diagnosis ....................................................................... 94

1. Symptom-based Troubleshooting .................................................... 96
2. Troubleshooting by Remote Controller ........................................ 99
   2.1 Mode ChangeOver ............................................................... 99
   2.2 Procedure of Self-diagnosis by Remote Controller ............... 100
   2.3 Error Codes and Description ............................................... 103
   2.4 Error Codes - Sub Codes ...................................................... 104
   2.5 Error Code Indication by Outdoor Unit PCB ....................... 107
   2.6 Error of External Protection Device .................................... 109
   2.7 Indoor Unit PCB Abnormality ............................................. 110
   2.8 Drain Water Level System Abnormality ............................... 111
   2.9 Indoor Unit Fan Motor Abnormality .................................. 113
   2.10 Swing Flap Motor Abnormality / Lock ............................... 115
   2.11 Abnormal Power Supply Voltage .................................... 117
   2.12 Electronic Expansion Valve Coil Abnormality .................... 118
   2.13 Drain System Abnormality ............................................... 120
   2.14 Capacity Setting Abnormality ............................................ 121
   2.15 Transmission Error between Indoor Unit PCB and Fan PCB ... 122
   2.16 Heat Exchanger (Liquid pipe) Thermistor Abnormality ....... 124
   2.17 Heat Exchanger (Gas Pipe) Thermistor Abnormality ........ 125
   2.18 Combination Error between Indoor Unit PCB and Fan PCB . 126
Part 7 Appendix ................................................................. 182

1. Piping Diagrams................................................................. 183
   1.1 Indoor Unit + Outdoor Unit ............................................ 183
   1.2 Indoor Unit .................................................................. 185

2. Wiring Diagrams ............................................................... 187
   2.1 Outdoor Unit ............................................................. 187
   2.2 Indoor Unit ............................................................. 189
1. Safety Considerations

Read these SAFETY CONSIDERATIONS carefully before performing any repair work. Comply with these safety symbols without fail. Meanings of DANGER, WARNING, CAUTION, and NOTE Symbols:

⚠️ DANGER ................. Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ WARNING ............... Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ CAUTION ................ Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

⚠️ NOTE ..................... Indicates situations that may result in equipment or property-damage accidents only.

1.1 Safety Considerations for Repair

• If refrigerant gas leaks during repair or service, ventilate the area immediately. Refrigerant gas may produce toxic gas if it comes into contact with flames. Refrigerant gas is heavier than air and replaces oxygen. In the event of an accident, a massive leak could lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur leading to serious injury or death.

• Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug if a plug is used. Plugging or unplugging the power cable plug to operate the equipment may cause an electrical shock or fire.

• Use parts listed in the service parts list and appropriate tools to conduct repair work. The use of inappropriate parts or tools may cause an electrical shock or fire.

• Disconnect power before disassembling the equipment for repairs. Working on the equipment that is connected to the power supply may cause an electric shock. If it is necessary to supply power to the equipment to conduct repairs or to inspect the circuits, do not touch any electrically charged sections of the equipment.

• The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Discharge the capacitor completely before conducting repair work. A charged capacitor may cause an electrical shock.

• If refrigerant gas is discharged during repair work, do not touch the discharged refrigerant gas. The refrigerant gas may cause frostbite.

• Use only pipes, flare nuts, tools, and other materials designed specifically for R410A refrigerant systems.

Never use tools or materials designed for R22 refrigerant systems on an R410A refrigerant system. Doing so can cause a serious accident or an equipment failure.

• Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections may cause excessive heat generation, fire, or electrical shock.

• Prior to disconnecting the suction or discharge pipe from the compressor at the welded section, pump-down the refrigerant gas completely in a well-ventilated place first. If there is refrigerant gas or oil remaining inside the compressor, the refrigerant gas or oil can discharge when the pipe is being disconnected and it may cause an injury.

• Wear a safety helmet, gloves, and a safety belt when working at an elevated height of more than 6.5 ft (2 m). Insufficient safety measures may cause a fall resulting in injury.

• Do not mix air or gas other than the specified refrigerant R410A to the refrigerant system. If air enters the refrigerant systems, it can cause an excessive high pressure resulting in equipment damage and injury.

• When relocating the equipment, check if the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and the equipment is not properly secured, the equipment may fall and cause injury.

• Securely fasten the outside unit terminal cover (panel). If the terminal cover/panel is not fastened properly, dust or water may enter the outside unit causing fire or electric shock.

• When relocating the system, keep the refrigerant circuit free from substances other than the specified refrigerant (R-410A) such as air. Any presence of air or other foreign substance in the refrigerant circuit can cause an abnormal pressure rise or rupture, resulting in injury.

• If refrigerant gas leaks, locate the leaking point and repair it before charging refrigerant. After charging refrigerant, check for refrigerant leaks. If the leaking point cannot be located and the repair work must be stopped, perform a pump-down and close the service valve to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it may generate toxic gases if it comes into contact with flames.

• Do not repair the electrical components with wet hands. Working on the equipment with wet hands may cause an electrical shock.
Do not clean the air conditioner by splashing water on it. Washing the unit with water may cause an electrical shock.

Ground the unit when repairing equipment in a humid or wet place to avoid electrical shocks.

Turn off the power when cleaning the equipment to prevent internal fans that rotate at high speed from starting suddenly as they can cause injury.

Let the refrigerant lines cool down before performing any repair work. Working on the unit when the refrigerant lines are hot may cause burns.

All welding and cutting operations must be done in a well-ventilated place to prevent the accumulation of toxic fumes or possibly oxygen deficiency to occur.

1.2 Safety Considerations for Users

Never attempt to modify the equipment. Doing so can cause electrical shock, excessive heat generation, or fire.

If the power cable and lead wires have scratches or have become deteriorated, have them replaced. Damaged cable and wires may cause an electrical shock or fire.

Do not use a joined power cable or an extension cord, or share the same power outlet with other electrical appliances as it may cause an electrical shock or fire.

Use an exclusive power circuit for the equipment. Insufficient circuit amperage capacity may cause an electrical shock or fire.

Do not damage or modify the power cable. Damaged or modified power cables may cause an electrical shock or fire. Placing heavy items on the power cable or pulling the power cable may damage the cable.

Check the unit foundation for damage on a continual basis, especially if it has been in use for a long time. If left in a damaged condition, the unit may fall and cause injury. If the installation platform or frame has corroded, have it replaced. A corroded platform or frame may cause the unit to fall resulting in injury.

If the unit has a power cable plug and it is dirty, clean the plug before securely inserting it into a power outlet. If the plug has a loose connection, tighten it or it may cause electrical shock or fire.

After replacing the battery in the remote controller, dispose of the old battery to prevent children from swallowing it. If a child swallows the battery, see a doctor immediately.

Check the grounding and repair it if the equipment is not properly grounded. Improper grounding may cause an electrical shock.

Measure the insulation resistance after the repair. The resistance must be 1MΩ or higher. Faulty insulation may cause an electrical shock.

Check the drainage of the indoor unit after finishing repair work. Faulty drainage may cause water to enter the room resulting in wet floors and furniture.

Do not tilt the unit when removing it. The water inside the unit may spill resulting in wet floors and furniture.

Dismantling of the unit, disposal of the refrigerant, oil, and additional parts, should be done in accordance with the relevant local, state, and national regulations.

Never remove the fan guard of the unit. A fan rotating at high speed without the fan guard is very dangerous.

Before cleaning the unit, stop the operation of the unit by turning the power off or by pulling the power cable plug out from its receptacle. Otherwise an electrical shock or injury may result.

Do not wipe the controller operation panel with benzene, thinner, chemical dust cloth, etc. The panel may get discolored or the coating can peel off. If it is extremely dirty, soak a cloth in a water-diluted neutral detergent, squeeze it well, and wipe the panel clean. Then wipe it with another dry cloth.
Part 1

General Information

1. Model Names and Power Supply ............................................................ 2
   1.1 Cooling Only .................................................................................... 2
   1.2 Heat Pump ...................................................................................... 2
2. External Appearance ............................................................................ 3
   2.1 Indoor Units .................................................................................... 3
   2.2 Remote Controller .......................................................................... 4
   2.3 Outdoor Units ................................................................................. 4
Part 2
Refrigerant Circuit

1. Refrigerant Circuit ........................................................................6
   1.1 RZR18 / 24 / 30PVJU
       RZQ18 / 24PVJU9
       RZQ30PVJU ........................................................................6
   1.2 RZR36 / 42PVJU
       RZQ36 / 42PVJU(9)...................................................................8
2. Functional Parts Layout .................................................................10
   2.1 RZR18 / 24 / 30PVJU
       RZQ18 / 24PVJU9
       RZQ30PVJU ........................................................................10
# 1. Model Names and Power Supply

## 1.1 Cooling Only

<table>
<thead>
<tr>
<th>Indoor unit</th>
<th>Outdoor unit</th>
<th>Power supply, Compatibility symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling mounted cassette type (Round flow)</td>
<td>FCQ18PAVJU*</td>
<td>RZR18PVJU</td>
</tr>
<tr>
<td></td>
<td>FCQ24PAVJU*</td>
<td>RZR24PVJU</td>
</tr>
<tr>
<td></td>
<td>FCQ30PAVJU*</td>
<td>RZR30PVJU</td>
</tr>
<tr>
<td></td>
<td>FCQ36PAVJU*</td>
<td>RZR36PVJU</td>
</tr>
<tr>
<td></td>
<td>FCQ42PAVJU*</td>
<td>RZR42PVJU</td>
</tr>
<tr>
<td>Ceiling suspended type</td>
<td>FHQ18PVJU</td>
<td>RZR18PVJU</td>
</tr>
<tr>
<td></td>
<td>FHQ24PVJU</td>
<td>RZR24PVJU</td>
</tr>
<tr>
<td></td>
<td>FHQ30PVJU</td>
<td>RZR30PVJU</td>
</tr>
<tr>
<td></td>
<td>FHQ36MVJU</td>
<td>RZR36PVJU</td>
</tr>
<tr>
<td></td>
<td>FHQ42MVJU</td>
<td>RZR42PVJU</td>
</tr>
<tr>
<td>Wall mounted type</td>
<td>FAQ18PVJU</td>
<td>RZR18PVJU</td>
</tr>
<tr>
<td></td>
<td>FAQ24PVJU</td>
<td>RZR24PVJU</td>
</tr>
<tr>
<td>Ceiling mounted duct type</td>
<td>FBQ18PVJU*</td>
<td>RZR18PVJU</td>
</tr>
<tr>
<td></td>
<td>FBQ24PVJU*</td>
<td>RZR24PVJU</td>
</tr>
<tr>
<td></td>
<td>FBQ30PVJU*</td>
<td>RZR30PVJU</td>
</tr>
<tr>
<td></td>
<td>FBQ36PVJU*</td>
<td>RZR36PVJU</td>
</tr>
<tr>
<td></td>
<td>FBQ42PVJU*</td>
<td>RZR42PVJU</td>
</tr>
</tbody>
</table>

**Note:**
1. *: New model or changed model
2. Power supply intake: outdoor unit
3. VJ: 1 phase, 208/230V, 60Hz
   U (VJU, TJU): Standard Compatibility Symbol

## 1.2 Heat Pump

<table>
<thead>
<tr>
<th>Indoor unit</th>
<th>Outdoor unit</th>
<th>Power supply, Compatibility symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling mounted cassette type (Round flow)</td>
<td>FCQ18PAVJU*</td>
<td>RZQ18PVJU9</td>
</tr>
<tr>
<td></td>
<td>FCQ24PAVJU*</td>
<td>RZQ24PVJU9</td>
</tr>
<tr>
<td></td>
<td>FCQ30PAVJU*</td>
<td>RZQ30PVJU9</td>
</tr>
<tr>
<td></td>
<td>FCQ36PAVJU*</td>
<td>RZQ36PVJU9</td>
</tr>
<tr>
<td></td>
<td>FCQ42PAVJU*</td>
<td>RZQ42PVJU9</td>
</tr>
<tr>
<td>Ceiling suspended type</td>
<td>FHQ18PVJU</td>
<td>RZQ18PVJU9</td>
</tr>
<tr>
<td></td>
<td>FHQ24PVJU</td>
<td>RZQ24PVJU9</td>
</tr>
<tr>
<td></td>
<td>FHQ30PVJU</td>
<td>RZQ30PVJU9</td>
</tr>
<tr>
<td></td>
<td>FHQ36MVJU</td>
<td>RZQ36PVJU9</td>
</tr>
<tr>
<td></td>
<td>FHQ42MVJU</td>
<td>RZQ42PVJU9</td>
</tr>
<tr>
<td>Wall mounted type</td>
<td>FAQ18PVJU</td>
<td>RZQ18PVJU9</td>
</tr>
<tr>
<td></td>
<td>FAQ24PVJU</td>
<td>RZQ24PVJU9</td>
</tr>
<tr>
<td>Ceiling mounted duct type</td>
<td>FBQ18PVJU+</td>
<td>RZQ18PVJU9</td>
</tr>
<tr>
<td></td>
<td>FBQ24PVJU+</td>
<td>RZQ24PVJU9</td>
</tr>
<tr>
<td></td>
<td>FBQ30PVJU+</td>
<td>RZQ30PVJU9</td>
</tr>
<tr>
<td></td>
<td>FBQ36PVJU+</td>
<td>RZQ36PVJU9</td>
</tr>
<tr>
<td></td>
<td>FBQ42PVJU+</td>
<td>RZQ42PVJU9</td>
</tr>
<tr>
<td>Air handling unit</td>
<td>FTQ18PAVJU</td>
<td>RZQ18PVJU</td>
</tr>
<tr>
<td></td>
<td>FTQ24PAVJU</td>
<td>RZQ24PVJU</td>
</tr>
</tbody>
</table>

**Note:**
1. *: New model or changed model
2. Power supply intake: outdoor unit
3. VJ: 1 phase, 208/230V, 60Hz
   U (VJU, TJU): Standard Compatibility Symbol
2. External Appearance

2.1 Indoor Units

Ceiling Mounted Cassette Type (Round Flow)

- FCQ18PAVJU
- FCQ24PAVJU
- FCQ30PAVJU
- FCQ36PAVJU
- FCQ42PAVJU

Ceiling Suspended Type

- FHQ18PVJU
- FHQ24PVJU
- FHQ30PVJU
- FHQ36MVJU
- FHQ42MVJU

Wall Mounted Type

- FAQ18PVJU
- FAQ24PVJU

Ceiling Mounted Duct Type

- FBQ18PVJU
- FBQ24PVJU
- FBQ30PVJU
- FBQ36PVJU
- FBQ42PVJU

Air Handling Unit

- FTQ18PAVJU
- FTQ24PAVJU
2.2 Remote Controller

Wired Type

2.3 Outdoor Units

RZR18PVJU
RZR24PVJU
RZR30PVJU
RZQ18PVJU9
RZQ24PVJU9
RZQ30PVJU

RZR36PVJU
RZR42PVJU
RZQ36PVJU9
RZQ42PVJU9
1. Refrigerant Circuit

1.1 RZR18 / 24 / 30PVJU
   RZQ18 / 24PVJU9
   RZQ30PVJU

<table>
<thead>
<tr>
<th>No. in refrigerant system diagram</th>
<th>Electric Symbol</th>
<th>Name</th>
<th>Major Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>M1C</td>
<td>Inverter compressor (INV.)</td>
<td>Inverter compressor is operated on frequencies between 52 Hz and 177 Hz by using the inverter. 17 steps</td>
</tr>
<tr>
<td>D</td>
<td>M1F</td>
<td>Inverter fan</td>
<td>Because the system is an air heat exchange type, the fan is operated at 8-step rotation speed by using the inverter.</td>
</tr>
<tr>
<td>E</td>
<td>Y1E</td>
<td>Electronic expansion valve (Main: EV1)</td>
<td>While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant.</td>
</tr>
<tr>
<td>G</td>
<td>Y2S</td>
<td>Solenoid valve (Hot gas: SVP)</td>
<td>Prevents the low pressure from transient falling.</td>
</tr>
<tr>
<td>J</td>
<td>Y3S</td>
<td>Solenoid valve (Receiver gas discharging: SVG)</td>
<td>Collects refrigerant to receiver.</td>
</tr>
<tr>
<td>M</td>
<td>Y1S</td>
<td>Four-way valve</td>
<td>Switches the operation mode between cooling and heating.</td>
</tr>
<tr>
<td>N</td>
<td>S1NPH</td>
<td>High pressure sensor</td>
<td>Detects high pressure.</td>
</tr>
<tr>
<td>O</td>
<td>S1NPL</td>
<td>Low pressure sensor</td>
<td>Detects low pressure.</td>
</tr>
<tr>
<td>P</td>
<td>S1PH</td>
<td>High pressure switch (For INV. compressor)</td>
<td>In order to prevent the increase of high pressure when an error occurs, this switch is activated at high pressure of 580 psi or more to stop the compressor operation.</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td>Fusible plug</td>
<td>In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 158 to 167°F to release the pressure into the atmosphere.</td>
</tr>
<tr>
<td>T</td>
<td></td>
<td>Pressure regulating valve 1 (Receiver to discharge pipe)</td>
<td>This valve opens at a pressure of 580 psi for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.</td>
</tr>
<tr>
<td>1</td>
<td>R1T</td>
<td>Thermistor (Outdoor air: Ta)</td>
<td>Detects outdoor air temperature, correct discharge pipe temperature, and others.</td>
</tr>
<tr>
<td>2</td>
<td>R2T</td>
<td>Thermistor (Discharge pipe: Tdi)</td>
<td>Detects discharge pipe temperature, make the temperature protection control of compressor, and others.</td>
</tr>
<tr>
<td>3</td>
<td>R3T</td>
<td>Thermistor (Suction pipe 1: Ts1)</td>
<td>Detects suction pipe temperature, keep the suction superheated degree constant in heating operation, and others.</td>
</tr>
<tr>
<td>4</td>
<td>R4T</td>
<td>Thermistor (Heat exchanger deicer: Tb)</td>
<td>Detects liquid pipe temperature of air heat exchanger, determine defrosting operation, and others.</td>
</tr>
<tr>
<td>5</td>
<td>R5T</td>
<td>Thermistor (Suction pipe 2: Ts2)</td>
<td>Calculates internal temperature of compressor.</td>
</tr>
<tr>
<td>10</td>
<td>R10T</td>
<td>Thermistor (Radiation fin)</td>
<td>• Outdoor unit fan speed control.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Inverter radiation fin temperature control.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Pressure difference control.</td>
</tr>
</tbody>
</table>
Refrigerant Circuit
### 1.2 RZR36 / 42PVJU

#### RZQ36 / 42PVJU(9)

<table>
<thead>
<tr>
<th>No. in refrigerant system diagram</th>
<th>Electric Symbol</th>
<th>Name</th>
<th>Major Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>M1C</td>
<td>Inverter compressor (INV.)</td>
<td>Inverter compressor is operated on frequencies between 36 Hz and 195 Hz by using the inverter. 31 steps</td>
</tr>
<tr>
<td>D</td>
<td>M1F, M2F</td>
<td>Inverter fan</td>
<td>Because the system is of an air heat exchange type, the fan is operated at 8-step rotation speed by using the inverter.</td>
</tr>
<tr>
<td>E</td>
<td>Y1E</td>
<td>Electronic expansion valve (Main: EV1)</td>
<td>While in heating operation, PI control is applied to keep the outlet superheated degree of heat exchanger constant.</td>
</tr>
<tr>
<td>F</td>
<td>Y3E</td>
<td>Electronic expansion valve (Subcooling: EV3)</td>
<td>PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant.</td>
</tr>
<tr>
<td>G</td>
<td>Y2S</td>
<td>Solenoid valve (Hot gas: SVP)</td>
<td>Prevents the low pressure from transient falling.</td>
</tr>
<tr>
<td>H</td>
<td>Y3S</td>
<td>Solenoid valve (Unload circuit: SVUL)</td>
<td>Unloading operation of compressor.</td>
</tr>
<tr>
<td>M</td>
<td>Y1S</td>
<td>Four-way valve</td>
<td>Enables the operation mode between cooling and heating.</td>
</tr>
<tr>
<td>N</td>
<td>S1NPH</td>
<td>High pressure sensor</td>
<td>Detects high pressure.</td>
</tr>
<tr>
<td>O</td>
<td>S1NPL</td>
<td>Low pressure sensor</td>
<td>Detects low pressure.</td>
</tr>
<tr>
<td>P</td>
<td>S1PH</td>
<td>High pressure switch (For INV. compressor)</td>
<td>In order to prevent the increase of high pressure when an error occurs, this switch is activated at high pressure of 580 PSI or more to stop the compressor operation.</td>
</tr>
<tr>
<td>S</td>
<td>—</td>
<td>Fusible plug</td>
<td>In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 158 to 167°F to release the pressure into the atmosphere.</td>
</tr>
<tr>
<td>T</td>
<td>—</td>
<td>Pressure regulating valve 1 (Receiver to discharge pipe)</td>
<td>This valve opens at a pressure of 580 PSI for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage.</td>
</tr>
<tr>
<td>1</td>
<td>R1T</td>
<td>Thermistor (Outdoor air: Ta)</td>
<td>Detects outdoor air temperature, correct discharge pipe temperature, and others.</td>
</tr>
<tr>
<td>2</td>
<td>R2T</td>
<td>Thermistor (INV. discharge pipe: Tdi)</td>
<td>Detects discharge pipe temperature, make the temperature protection control of compressor, and others.</td>
</tr>
<tr>
<td>3</td>
<td>R3T</td>
<td>Thermistor (Suction pipe1: Ts1)</td>
<td>Detects suction pipe temperature, keep the suction superheated degree constant in heating operation, and others.</td>
</tr>
<tr>
<td>4</td>
<td>R4T</td>
<td>Thermistor (Subcooling heat exchanger gas pipe: Tsh)</td>
<td>Controls of subcooling electronic expansion valve.</td>
</tr>
<tr>
<td>5</td>
<td>R5T</td>
<td>Thermistor (Suction pipe2: Ts2)</td>
<td>Calculates internal temperature of compressor.</td>
</tr>
<tr>
<td>6</td>
<td>R6T</td>
<td>Thermistor (Heat exchanger deicer: Tb)</td>
<td>Detects liquid pipe temperature of air heat exchanger, determine defrosting operation, and others.</td>
</tr>
<tr>
<td>7</td>
<td>R7T</td>
<td>Thermistor (Liquid pipe: Tl)</td>
<td>Detects refrigerant overcharge in check operation, and others.</td>
</tr>
</tbody>
</table>
| 8                                | FIN TH         | Thermistor (Radiation fin)                                         | • Outdoor unit fan speed control.  
  • Inverter radiation fin temperature control.  
  • Pressure difference control.                                                                 |
Electronic expansion valve

Double pipe heat exchanger

Pressure regulating valve

Electronic expansion valve

Filter

Outdoor unit heat exchanger

Fan

Service port

Four way valve

High pressure sensor

Low pressure sensor

Capillary

Solenoid

Filter

Capillary

Solenoid

Compressor

Accumulator

Stop valve (With service port on field piping side 5/16" flare connection)

* This thermistor is near the electrical components box.
2. Functional Parts Layout

2.1 RZR18 / 24 / 30PVJU
RZQ18 / 24PVJU9
RZQ30PVJU
Part 3
Remote Controller

1. Wired Remote Controller .................................................................12
   1.1 Applicable Models...........................................................................12
   1.2 Names and Functions ....................................................................13
   1.3 MAIN/SUB Setting when Using 2 Remote Controllers...................17
   1.4 Centralized Control Group No. Setting .........................................19
2. Wireless Remote Controller ...............................................................22
   2.1 Applicable Models.........................................................................22
   2.2 Names and Functions ....................................................................22
   2.3 Address and MAIN/SUB Setting ...................................................24
3. Service Mode ..................................................................................25
   3.1 BRC1D71 ...................................................................................25
   3.2 BRC1E71 ...................................................................................28
4. Inspection Mode .............................................................................30
1. Wired Remote Controller

1.1 Applicable Models

<table>
<thead>
<tr>
<th>Model Series</th>
<th>FCQ-PA</th>
<th>FHQ-P</th>
<th>FAQ-P</th>
<th>FBQ-P</th>
<th>FTQ-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wired Remote Controller with Weekly Schedule Timer</td>
<td></td>
<td></td>
<td></td>
<td>BRC1D71</td>
<td></td>
</tr>
<tr>
<td>Navigation Remote Controller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BRC1E71</td>
</tr>
</tbody>
</table>
1.2 Names and Functions

1.2.1 BRC1D71

1. ON/OFF BUTTON
   Press the ON/OFF button to start or stop the system.

2. OPERATION LAMP
   The operation lamp lights up during operation or blinks if an error occurs.

3. OPERATION MODE ICON
   These icons indicate the current operation mode (FAN, DRY, AUTOMATIC, COOLING, HEATING).

4. VENTILATION MODE ICON
   These icons indicate the current ventilation mode (Heat Reclaim Ventilator only) (AUTOMATIC, HEAT EXCHANGE, BYPASS).

5. VENTILATION ICON
   The ventilation icon appears when the ventilation is adjusted with the ventilation amount button (Heat Reclaim Ventilator only). Simultaneously, the ventilation amount is indicated by the fan speed icon (see 22).

6. AIR CLEANING ICON
   This icon indicates that the air cleaning unit (option) is operational.

7. AWAY ICON
   The away icon shows the status of the away function.

   | ON      | AWAY is enabled |
   | OFF     | AWAY is disabled |

8. EXTERNAL CONTROL ICON
   This icon indicates that another controller with higher priority is controlling or disabling your installation.

9. CHANGE-OVER UNDER CENTRALIZED CONTROL ICON
   This icon indicates that the change-over of the installation is under centralized control assigned to another indoor unit or optional cool/heat selector connected to the outdoor unit (= main remote controller).

10. DAY OF THE WEEK INDICATOR
    The day of the week indicator shows the current week day (or the set day when reading or programming the schedule timer).

11. CLOCK DISPLAY
    The clock display indicates the current time (or the action time when reading or programming the schedule timer).

12. MAXIMUM SET TEMPERATURE
    The maximum set temperature indicates the maximum set temperature when in limit operation.

13. MINIMUM SET TEMPERATURE
    The minimum set temperature indicates the minimum set temperature when in limit operation.

14. SCHEDULE TIMER ICON
    This icon indicates that the schedule timer is enabled.
15 ACTION ICONS 1 2 3 4 5
These icons indicate the actions for each day of the schedule timer.

16 OFF ICON OFF
This icon indicates that the OFF action is selected when programming the schedule timer.

17 INSPECTION REQUIRED 🛠 and 🚰
These icons indicate that inspection is required. Consult your installer.

18 SET TEMPERATURE DISPLAY ℉
This indicates the current set temperature of the installation (not shown in LIMIT operation or in FAN or DRY mode).

19 SETTING SETTINGS
Not used, for service purposes only.

20 AIRFLOW DIRECTION ICON 🚰
This icon indicates the airflow direction (only for installations with motorized airflow flaps).

21 NOT AVAILABLE 🚸
This icon is displayed whenever a non-installed option is addressed or a function is not available.

22 FAN SPEED ICON ⌬
This icon indicates the set fan speed.

23 DEFROST/HOTSTART MODE ICON 🚸
This icon indicates that the defrost/hotstart mode is active.

24 AIR FILTER CLEANING TIME ICON 🚸
This icon indicates the air filter must be cleaned. Refer to the manual of the indoor unit.

25 ELEMENT CLEANING TIME ICON 🚸
This icon indicates the element must be cleaned (Heat Reclaim Ventilator only).

26 VENTILATION MODE BUTTON 🚸
The ventilation mode button operates the Heat Reclaim Ventilator; refer to the Heat Reclaim Ventilator manual for more details.

27 VENTILATION AMOUNT BUTTON 🚸
This button sets the ventilation amount; refer to the Heat Reclaim Ventilator manual for more details.

28 INSPECTION/TEST OPERATION BUTTON 🚸
Not used, for service purposes only.

29 PROGRAMMING BUTTON FUNCTION
This button is a multi-purpose button. Depending on the previous manipulations of the user, the programming button can have various functions.

30 SCHEDULE TIMER BUTTON
This button enables or disables the schedule timer.

31 TIME ADJUST BUTTON
These buttons are used to adjust the clock or, when in programming mode, to adjust the programmed action time. Both buttons have an auto-repeat function.

32 TEMPERATURE ADJUST BUTTONS
These buttons are used to adjust the setpoint or, when in programming mode, to adjust the programmed setpoint temperature (step = 1 °F). Both buttons are also used to adjust the day of the week.

33 OPERATION CHANGE/MIN-MAX BUTTON
This button is a multi-purpose button. Depending on the previous manipulations of the user, it can have following functions:
1. select the operation mode of the installation (FAN, DRY, AUTOMATIC, COOLING, HEATING)
2. toggle between minimum temperature and maximum temperature when in limit operation

34 SETPOINT/LIMIT BUTTON
This button toggles between setpoint, limit operation or OFF (programming mode only).

35 FAN SPEED BUTTON
This button toggles between L (Low), H (High), HH (very High), AUTO (Automatic).

36 AIRFLOW DIRECTION ADJUST BUTTON
This button enables to adjust the airflow direction.

37 AIR FILTER CLEANING TIME ICON RESET BUTTON 🚸
This button is used to reset the air filter cleaning time icon.
1.2.2 BRC1E71

Functions other than basic operation items (i.e., On/Off, Operation mode selector, Fan speed control, and temperature settings) are set from the menu screen.

**Note:**
- Do not install the remote controller in places exposed to direct sunlight, otherwise the LCD will be damaged.
- Do not pull or twist the remote controller cord, otherwise the remote controller may be damaged.
- Do not use objects with sharp ends to press the buttons on the remote controller otherwise damage may result.

1. **Operation mode selector button**
   - Press this button to select the operation mode of your preference.
   - *Available modes vary with the indoor unit model.*

2. **Fan speed control button**
   - Press this button to select the fan speed of your preference.
   - *Available fan speeds vary with the indoor unit model.*

3. **Menu/OK button**
   - Used to indicate the main menu.
   - Used to enter the selected item.

4. **Up button ▲**
   - Used to raise the setpoint.
   - The item above the current selection will be highlighted.
   - *(The highlighted items will be scrolled continuously when the button is continuously pressed.)*
   - Used to change the selected item.

5. **Down button ▼**
   - Used to lower the setpoint.
   - The item below the current selection will be highlighted.
   - *(The highlighted items will be scrolled continuously when the button is continuously pressed.)*
   - Used to change the selected item.
6. **Right button** ➤
- Used to highlight the next items on the right-hand side.
- Each screen is scrolled in the right-hand direction.

7. **Left button** ◀
- Used to highlight the next items on the left-hand side.
- Each screen is scrolled in the left-hand direction.

8. **On/Off button**
- Press this button and system will start.
- Press this button again to stop the system.

9. **Operation lamp (Green)**
- This lamp illuminates solid during normal operation.
- This lamp blinks if an error occurs.

10. **Cancel button**
- Used to return to the previous screen.

11. **LCD (with backlight)**
- The backlight will be illuminated for approximately 30 seconds by pressing any button.
- If 2 remote controllers are used to control a single indoor unit, only the controller to be accessed first will have backlight functionality.
1.3 MAIN/SUB Setting when Using 2 Remote Controllers

Situation

The MAIN/SUB setting is necessary when 1 indoor unit is controlled by 2 remote controllers. When you use 2 remote controllers (control panel and separate remote controller), set one to MAIN and the other to SUB.

Setting

The remote controllers are factory setting to MAIN, so you only have to change one remote controller from MAIN to SUB. To change a remote controller from MAIN to SUB, proceed as follows:

1.3.1 BRC1D71

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Insert a flat-head screwdriver into the recess between the upper and lower part of the remote controller, as shown in the illustration below. Gently pry off the upper part of the controller, working from the 2 possible positions.</td>
</tr>
<tr>
<td>2</td>
<td>Turn the MAIN/SUB changeover switch on the PCB to “S”. The switch is set to MAIN (factory setting). Set the switch to SUB.</td>
</tr>
</tbody>
</table>
1.3.2 BRC1E71

The designation of the main and sub remote controllers can be swapped. Note that this change requires turning the power OFF and then ON again.

The service settings menu is displayed.

Press Cancel button once.

Press and hold Cancel button for 4 seconds or more.

Select "Switch Main Sub Controller" and press Menu/OK button.

Press Menu/OK button.

Select "Main RC" or "Sub RC" using the ▲/▼ (Up/Down) buttons, and then press Menu/OK button.

Press Cancel button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.

Select "Switch Main Sub Controller" and press Menu/OK button.

Item 2 is displayed.

Press Menu/OK button.
1.4 Centralized Control Group No. Setting

1.4.1 BRC1D71

In order to conduct the centralized remote control using the centralized remote controller and the unified ON/OFF controller, Group No. settings should be made by group using the operating remote controller.

Make Group No. settings for centralized remote control using the operating remote controller.

1. While in normal mode, press and hold the “ ” switch for a period of 4 seconds or more to set the system to “Field Setting Mode”.

2. Select the MODE No. “00” with the “ ” button.

3. Use the “ ” button to select the group No. for each group.
   (Group numbers increase in the order of 1-00, 1-01, ... 1-15, 2-00, ... 4-15.)

4. Press “ ” or “ ” to set the selected group No.

5. Press “ ” to return to the NORMAL MODE.

![Diagram of BRC1D71]

---

**Notice:**
- For setting group No. of Heat Reclaim Ventilator and wiring adaptor for other air conditioners, etc., refer to the instruction manual attached.

**Notice**
Enter the group No. and installation place of the indoor unit into the attached installation table. Be sure to keep the installation table with the operation manual for maintenance.
1.4.2 BRC1E71

In order to conduct the centralized remote control using the centralized remote controller and the unified ON/OFF controller, Group No. settings should be made by group using the operating remote controller.

Make Group No. settings for centralized remote control using the operating remote controller.

<Group Address (Unit)>

**Note:**
- For setting group No. of Heat Reclaim Ventilator and wiring adaptor for other air conditioners, etc., refer to the installation manual attached.

**NOTICE**

Enter the group No. and installation place of the indoor unit into the attached installation table. Be sure to keep the installation table with the operation manual for maintenance.
<Group Address (Group)>

Press Cancel button once.

Select “Group Address” and then press Menu/OK button.

Press Cancel button once.

Select the desired Group Address using the ▲▼ (Up/Down) buttons, and then press Menu/OK button.

Press Menu/OK button.

Press Cancel button once.

Press Cancel button once.

Basic screen is displayed.

Item 2 is displayed.

Item 2 is displayed.

Service settings menu is displayed.

Group Address
Group Address (Group)
Group Address (Unit)

Setting

Gr Addr. Set

Release

Gr Addr. Release

Change

Basic screen is displayed.

Group Address

Group Address (Group)

Item 2 is displayed.

Press Cancel button once.

Select “Group Address (Group)” and then press Menu/OK button.

Press Cancel button once.

Select the desired Group Address using the ▲▼ (Up/Down) buttons, and then press Menu/OK button.

Press Menu/OK button.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.

Press Cancel button once.
# 2. Wireless Remote Controller

## 2.1 Applicable Models

<table>
<thead>
<tr>
<th>Model Series</th>
<th>FCQ-PA</th>
<th>FHQ-P</th>
<th>FAQ-P</th>
<th>FBQ-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote controller</td>
<td>—</td>
<td>BRC7E83</td>
<td>BRC7EA818</td>
<td>BRC4C82</td>
</tr>
</tbody>
</table>

## 2.2 Names and Functions

### Receiver

**FHQ**

**FAQ**

**FBQ (separate type)**
### Wireless Remote Controller SiUS281117

#### Remote Controller 23

<table>
<thead>
<tr>
<th>1</th>
<th>DISPLAY “▲” (SIGNAL TRANSMISSION)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This lights up when a signal is being transmitted.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>DISPLAY “ 관한” “관” “관” “관” “관” “관” (OPERATION MODE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This display shows the current OPERATION MODE. For Cooling Only type, “관” (Auto) and “관” (Heating) are not installed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>DISPLAY “관” (SET TEMPERATURE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This display shows the set temperature.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>DISPLAY “관” (PROGRAMMED TIME)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This display shows PROGRAMMED TIME of the system start or stop.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>DISPLAY “관” (AIRFLOW FLAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The display shows the set fan speed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>DISPLAY “관” “관” “관” (FAN SPEED)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Press this button to select the fan speed, HIGH or LOW, of your choice.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>DISPLAY “관” (INSPECTION/TEST OPERATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When the INSPECTION/TEST OPERATION BUTTON is pressed, the display shows the system mode is in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8</th>
<th>ON/OFF BUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Press the button and the system will start. Press the button again and the system will stop.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9</th>
<th>FAN SPEED CONTROL BUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use this button to SETTING TEMPERATURE (Operates with the front cover of the remote controller closed.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10</th>
<th>TEMPERATURE SETTING BUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use this button for programming “START and/or STOP” time. (Operates with the front cover of the remote controller opened.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11</th>
<th>PROGRAMMING TIMER BUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Press this button to select OPERATION MODE.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14</th>
<th>FILTER SIGN RESET BUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refer to the section of MAINTENANCE in the operation manual attached to the indoor unit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15</th>
<th>INSPECTION/TEST OPERATION BUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This button is used only by qualified service persons for maintenance purposes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16</th>
<th>EMERGENCY OPERATION SWITCH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This switch is readily used if the remote controller does not work.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>17</th>
<th>RECEIVER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This receives the signals from the remote controller.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18</th>
<th>OPERATING INDICATOR LAMP (Red)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This lamp stays lit while the air conditioner runs. It blinks when the unit is in trouble.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>19</th>
<th>TIMER INDICATOR LAMP (Green)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This lamp stays lit while the timer is set.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20</th>
<th>AIR FILTER CLEANING TIME INDICATOR LAMP (Red)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lights up when it is time to clean the air filter.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21</th>
<th>DEFROST LAMP (Orange)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lights up when the defrosting operation has started. (For Cooling Only type this lamp does not turn ON.)</td>
</tr>
</tbody>
</table>

### NOTES
- For the sake of explanation, all indications are shown on the display in Figure 1 contrary to actual running situations.
- Fig. 1-2 shows the remote controller with the front cover opened.
- If the air filter cleaning time indicator lamp lights up, clean the air filter as explained in the operation manual provided with the indoor unit. After cleaning and reinstalling the air filter, press the filter sign reset button on the remote controller. The air filter cleaning time indicator lamp on the receiver will go out.
- The Defrost Lamp will blink when the power is turned ON. This is not an error.
2.3 Address and MAIN/SUB Setting

Introduction
To set the wireless remote controller, you have to set the address for:
- The receiver of the wireless remote controller
- The wireless remote controller.

Setting the Address for the Receiver
The address for the receiver of the wireless remote controller is factory setting to 1. To change this setting, proceed as follows:
Set the wireless address switch (SS2) on the PCB according to the table below.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless address switch (SS2)</td>
<td>![Switch Positions]</td>
<td>![Switch Positions]</td>
<td>![Switch Positions]</td>
</tr>
</tbody>
</table>

When using both a wired and a wireless remote controller for 1 indoor unit, the wired controller should be set to MAIN. Therefore, set the MAIN/SUB switch (SS1) of the receiver to SUB.

<table>
<thead>
<tr>
<th>MAIN/SUB switch (SS1)</th>
<th>MAIN</th>
<th>SUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>

Setting the Address for the Wireless Remote Controller
The address for the wireless remote controller is factory setting to 1. To change this setting, proceed as follows:

1. Hold down the “ ” button and the “ ” button for at least 4 seconds to get the Field setting mode. (Indicated in the display area in the figure at right.)
2. Press the “ ” button and select a multiple setting (A/b). Each time the button is pressed the display switches between “A” and “b”.
3. Press the “ ” button or “ ” button to set the address.
4. Press the “ ” button to enter the setting.
5. Hold down the “ ” button for at least 1 second to quit the Field setting mode and return to the normal display.
3. Service Mode

3.1 BRC1D71

3.1.1 Display Service Data

1. Enter the field setting mode.
   Press the INSPECTION / TEST operation button for 4 seconds or more.

2. Enter the service mode.
   After having entered the field setting mode, press the INSPECTION / TEST operation button for 4 seconds or more.

3. Select the mode No.
   Set the desired mode No. with the up/down temperature setting button.

4. Select the unit No.
   Select the indoor unit No. set with the time mode ON/OFF button.

5. Select the desired error history No. or sensor data No. with “ ” or “ ” button.

6. Each data displays (Refer to the table below display)

7. Return to the normal operation mode.
   Press the INSPECTION / TEST operation button once.

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>Function</th>
<th>Content and Operation Method</th>
<th>Example of Remote Controller Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Error History</td>
<td>You can change the history with the programming time up-down button.</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Sensor Data Display</td>
<td>Select the display thermistor with the programming time up-down button</td>
<td></td>
</tr>
</tbody>
</table>

- Thermistor type
- Display thermistor
  0: Remote controller thermistor
  1: Suction air thermistor
  2: Heat exchanger thermistor
3.1.2 Service Setting

1. Enter the field setting mode.
   Continue to press the INSPECTION / TEST operation button for a minimum of 4 seconds.

2. Enter the maintenance mode.
   After having entered the field setting mode, continue to press the INSPECTION / TEST
   operation button for a minimum of 4 seconds.

3. Select the mode No.
   Set the desired mode No. with the up/down temperature setting button.

4. Select the unit No.
   Select the indoor unit No. set with the time mode ON/OFF button.

5. Carry out the necessary settings for each mode. (Mode 43 only possible for wireless remote
   controller)
   • In case of Mode 43
     Press timer ON/OFF button to decide the forced Fan ON.
   • In case of Mode 44
     Set “Fan speed” with fan speed control button and “Airflow direction” with airflow direction
     adjusting button, then press timer ON/OFF button to decide.
   • In case of Mode 45
     Select the changed unit No. with “ conducive” or “ conducive” button, then press timer ON/OFF button to
decide.

6. Return to the normal operation mode.
   Press the INSPECTION / TEST operation button 1 time.
<table>
<thead>
<tr>
<th>Mode No.</th>
<th>Function</th>
<th>Content and Operation Method</th>
<th>Example of Remote Controller Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>Forced Fan ON</td>
<td>Turns the fan ON for each unit individually.</td>
<td>UNIT No.: 43 SETTING</td>
</tr>
<tr>
<td>44</td>
<td>Individual Setting</td>
<td>Sets fan speed and airflow direction for each unit individually when using group control. Settings are made using the “airflow direction adjust” and “fan speed adjust” buttons.</td>
<td>UNIT No.: 44 SETTING</td>
</tr>
<tr>
<td>45</td>
<td>Unit No. Change</td>
<td>Changes unit No. Set the unit No. after changing with the programming time up-down button.</td>
<td>UNIT No.: 45 SETTING</td>
</tr>
</tbody>
</table>
# 3.2 BRC1E71

Operating the remote controller allows service data to be acquired and various services to be set.

![Diagram](image)

<table>
<thead>
<tr>
<th>Maintenance Menu</th>
<th>Item 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.1. Model Name</strong></td>
<td>1. Unit No.</td>
<td>Select the Unit No. you want to check.</td>
</tr>
<tr>
<td></td>
<td>2. Indoor unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Outdoor unit</td>
<td></td>
</tr>
<tr>
<td><strong>2.2. Operating Hours</strong></td>
<td>1. Unit No.</td>
<td>Select the Unit No. you want to check.</td>
</tr>
<tr>
<td></td>
<td>2. Indoor unit operating time</td>
<td>All of these are displayed in hours.</td>
</tr>
<tr>
<td></td>
<td>3. Indoor unit fan operation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Indoor unit energized time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Outdoor operating time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Outdoor unit fan 1 operation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Outdoor unit fan 2 operation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Outdoor comp. 1 operation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Outdoor comp. 2 operation</td>
<td></td>
</tr>
<tr>
<td><strong>2.3. Indoor Unit Status</strong></td>
<td>1. Unit No.</td>
<td>Select the Unit No. you want to check.</td>
</tr>
<tr>
<td></td>
<td>2. FAN</td>
<td>Fan tap</td>
</tr>
<tr>
<td></td>
<td>3. FLAP</td>
<td>Swing, fixed</td>
</tr>
<tr>
<td></td>
<td>4. Speed</td>
<td>Fan speed (rpm)</td>
</tr>
<tr>
<td></td>
<td>5. EV</td>
<td>Degree that electronic expansion valve is open (pls)</td>
</tr>
<tr>
<td></td>
<td>6. MP</td>
<td>Drain pump ON/OFF</td>
</tr>
<tr>
<td></td>
<td>7. EH</td>
<td>Electric heater ON/OFF</td>
</tr>
<tr>
<td></td>
<td>8. Hu</td>
<td>Humidifier ON/OFF</td>
</tr>
<tr>
<td></td>
<td>9. TBF</td>
<td>Anti-freezing control ON/OFF</td>
</tr>
</tbody>
</table>
### 2.3. Indoor Unit Status

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. FLOAT</td>
<td></td>
</tr>
<tr>
<td>11. T1/T2</td>
<td></td>
</tr>
<tr>
<td>12. Unit No.</td>
<td>Select the Unit No. you want to check.</td>
</tr>
<tr>
<td>13. Th1</td>
<td>Suction air thermistor</td>
</tr>
<tr>
<td>14. Th2</td>
<td>Heat exchanger thermistor</td>
</tr>
<tr>
<td>15. Th3</td>
<td>—</td>
</tr>
<tr>
<td>16. Th4</td>
<td>Discharge air thermistor</td>
</tr>
<tr>
<td>17. Th5</td>
<td>—</td>
</tr>
<tr>
<td>18. Th6</td>
<td>—</td>
</tr>
</tbody>
</table>

### 2.4. Outdoor Unit Status

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unit No.</td>
<td>Select the Unit No. you want to check.</td>
</tr>
<tr>
<td>2. FAN step</td>
<td>Fan tap</td>
</tr>
<tr>
<td>3. COMP</td>
<td>Compressor power supply frequency (Hz)</td>
</tr>
<tr>
<td>4. EV1</td>
<td>Degree that electronic expansion valve is open (pls)</td>
</tr>
<tr>
<td>5. SV1</td>
<td>Solenoid valve ON/OFF</td>
</tr>
<tr>
<td>6. Th1</td>
<td>Outdoor air thermistor</td>
</tr>
<tr>
<td>7. Th2</td>
<td>Heat exchanger thermistor</td>
</tr>
<tr>
<td>8. Th3</td>
<td>Discharge pipe thermistor</td>
</tr>
<tr>
<td>9. Th4</td>
<td>Heat exchanger deicer thermistor</td>
</tr>
<tr>
<td>10. Th5</td>
<td>Heat exchanger gas pipe thermistor</td>
</tr>
<tr>
<td>11. Th6</td>
<td>Liquid pipe thermistor</td>
</tr>
</tbody>
</table>

### 2.5. Forced Defrost

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Forced defrost ON</td>
<td>Enables the forced defrost operation.</td>
</tr>
<tr>
<td>2. Forced defrost OFF</td>
<td>Disables the forced defrost operation.</td>
</tr>
</tbody>
</table>

### 2.6. Error Display

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Display Warning ON</td>
<td>Displays a warning on the screen if an error occurs.</td>
</tr>
<tr>
<td>2. Display Warning OFF</td>
<td>No warning is displayed.</td>
</tr>
<tr>
<td>3. Display Error ON</td>
<td>Displays the error on the screen.</td>
</tr>
<tr>
<td>4. Display Error OFF</td>
<td>Displays neither errors nor warnings.</td>
</tr>
</tbody>
</table>

### 2.7. Swap Unit No.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Current Unit No.</td>
<td>A unit No. can be transferred to another.</td>
</tr>
<tr>
<td>2. Transfer Unit No.</td>
<td></td>
</tr>
</tbody>
</table>

### 2.8. Addressed Sensor Value

<table>
<thead>
<tr>
<th>Item No.: 0 - 15</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Code</td>
<td>Select the Unit No. you want to check.</td>
</tr>
<tr>
<td>○ Data</td>
<td>The corresponding data will be displayed, based on the Unit No. and Code selected.</td>
</tr>
</tbody>
</table>

- ○ Code:
  - 00: Remote controller thermistor (°F)
  - 01: Suction air thermistor (°F)
  - 02: Heat exchanger liquid pipe thermistor (°F)
  - 03: Heat exchanger gas pipe thermistor (°F)
  - 04: Indoor unit address No.
  - 05: Outdoor unit address No.
  - 06: BS unit address No.
  - 07: Zone control address No.
  - 08: Cooling/Heating batch address No.
  - 09: Demand/low-noise address No.

- ○ Data
4. Inspection Mode

### Normal display (No display)

**Unit** 0  
**Error code** L 0  
**Inspection**

Error code blinks when an error occurs.

### INSPECTION/TEST operation

Press the button.

**Unit** 0  
**Error code** L 0  
**Inspection**

### INSPECTION/TEST operation

**0 7 1...Capacity code**

F...Indoor unit system code  
C...Indoor unit type code  
J...Progression code

### Example of capacity code display

<table>
<thead>
<tr>
<th>Model</th>
<th>Display</th>
<th>Model</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCQ18</td>
<td>056</td>
<td>FHQ18/FAQ18</td>
<td>056</td>
</tr>
<tr>
<td>FCQ24</td>
<td>071</td>
<td>FHQ24/FAQ24</td>
<td>071</td>
</tr>
<tr>
<td>FHQ30</td>
<td>090</td>
<td>FHQ30</td>
<td>090</td>
</tr>
<tr>
<td>FBQ36</td>
<td>112</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Indoor unit system code

<table>
<thead>
<tr>
<th>Display</th>
<th>System classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(VAV indoor unit)</td>
</tr>
<tr>
<td>2</td>
<td>Outdoor air processing unit</td>
</tr>
<tr>
<td>F</td>
<td>Standard indoor unit</td>
</tr>
<tr>
<td>H</td>
<td>Ceiling suspended cassette</td>
</tr>
</tbody>
</table>

### Indoor unit type code

<table>
<thead>
<tr>
<th>Display</th>
<th>Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Wall mounted</td>
<td>FAQ</td>
</tr>
<tr>
<td>C</td>
<td>Multi flow</td>
<td>FCQ</td>
</tr>
<tr>
<td>H</td>
<td>Ceiling suspended</td>
<td>FHQ</td>
</tr>
<tr>
<td>J</td>
<td>Built-in</td>
<td>FBQ</td>
</tr>
</tbody>
</table>

For FTQ

<table>
<thead>
<tr>
<th>Indoor unit system code</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor unit type code</td>
<td>9</td>
</tr>
<tr>
<td>Progression code</td>
<td>1</td>
</tr>
</tbody>
</table>

### Outdoor model code

<table>
<thead>
<tr>
<th>Display</th>
<th>Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 8 F</td>
<td>Split system</td>
<td>RZQ-P, RZR-P</td>
</tr>
</tbody>
</table>

---

**Note:** Inspection mode is not available for BRC1E71.
Part 4

Function and Control

1. Function General ..................................................................................32
   1.1 Operation Mode ...............................................................................32

2. Basic Control ......................................................................................33
   2.1 Normal Operation ..........................................................................33
   2.2 Compressor PI Control ..................................................................34
   2.3 Electronic Expansion Valve PI Control .........................................35
   2.4 Cooling Operation Fan Control ......................................................36

3. Special Control ....................................................................................37
   3.1 Startup Control .............................................................................37
   3.2 Oil Return Operation .....................................................................38
   3.3 Defrosting Operation .....................................................................40
   3.4 Pump Down Residual Operation ..................................................41
   3.5 Restart Standby ...............................................................................42
   3.6 Stopping Operation ........................................................................42
   3.7 Pressure Equalization Prior to Startup ........................................43

4. Protection Control ................................................................................44
   4.1 High Pressure Protection Control ................................................44
   4.2 Low Pressure Protection Control ................................................45
   4.3 Discharge Pipe Protection Control ...............................................46
   4.4 Inverter Protection Control ..........................................................47

5. Other Control ......................................................................................48
   5.1 Heating Operation Prohibition .....................................................48

6. Outline of Control (Indoor Unit) .......................................................49
   6.1 Drain Pump Control .......................................................................49
   6.2 Louver Control for Preventing Ceiling Dirt .................................51
   6.3 Room Temperature Thermistor in Remote Controller ..................52
   6.4 Thermostat Control with Operation Mode Set to "AUTO" .............54
   6.5 Freeze-up Prevention ...................................................................55
   6.6 View of Operations of Swing Flaps ..............................................56
   6.7 Hot Start Control (In Heating Operation Only) .............................57
   6.8 Heater Control (FTQ) ..................................................................59
   6.9 4 Step Thermostat Processing (FTQ) ...........................................62
   6.10 Interlocked with External Equipment (FTQ) ..............................63
1. Function General

1.1 Operation Mode

- **Operation in stop mode**
  - Indoor unit stop or thermostat OFF

- **Pressure equalization prior to startup**
  - Indoor unit thermostat ON

- **Startup control**
  - Cooling startup control
  - Heating startup control

- **Normal operation**
  - Compressor PI control
  - Electronic expansion valve PI control
  - Protection control

- **Cooling operation**

- **Oil return starting conditions are met**
  - Yes
  - No

- **Defrost starting conditions are met**
  - Yes
  - No

- **Operation mode change**
  - Yes
  - No

- **Restart standby (Compressor stop)**

- **Pump down residual operation**

- **Error/Standby**

- **Normal operation**

- **Cooling startup control**

- **Heating startup control**

- **Compressor PI control**

- **Electronic expansion valve PI control**

- **Protection control**

**Note:**
In the event indoor unit stops or the thermostat turns OFF while in oil return operation or defrosting operation, pump down residual operation is performed on completion of the oil return operation or defrosting operation.
## 2. Basic Control

### 2.1 Normal Operation

#### Cooling

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>Compressor PI control</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F</td>
<td>Cooling fan control</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>OFF</td>
</tr>
<tr>
<td>Electronic expansion valve</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>1400 pls 480 pls</td>
</tr>
<tr>
<td>Electronic expansion valve</td>
<td>EV3</td>
<td>—</td>
<td>Y3E</td>
<td>PI control</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>OFF</td>
</tr>
<tr>
<td>Solenoid valve (Receiver</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>gas discharging)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Heating

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>Compressor PI control</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F</td>
<td>STEP 8</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>ON</td>
</tr>
<tr>
<td>Electronic expansion valve</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>Pl control</td>
</tr>
<tr>
<td>Electronic expansion valve</td>
<td>EV3</td>
<td>—</td>
<td>Y3E</td>
<td>PI control</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>OFF</td>
</tr>
<tr>
<td>Solenoid valve (Receiver</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>gas discharging)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Heating operation is not functional at an outdoor air temperature of 82°FDB or more.
2.2 Compressor PI Control

Compressor PI Control

**Te:** Low pressure equivalent saturation temperature (°F)

**TeS:** Target Te value

(Varies depending on Te setting, operating frequency, etc.)

**Tc:** High pressure equivalent saturation temperature (°F)

**TcS:** Target Tc value

(Varies depending on Tc setting, operating frequency, etc.)

Carries out the compressor capacity PI control to maintain Te at constant during cooling operation and Tc at constant during heating operation to ensure stable unit performance.

**[Cooling]**

 Controls compressor capacity to adjust Te to achieve target value (TeS).

**Te setting (Set in Set-up mode 2)**

<table>
<thead>
<tr>
<th>L</th>
<th>M (Normal) (factory setting)</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.5</td>
<td>43</td>
<td>48</td>
</tr>
</tbody>
</table>

**[Heating]**

 Controls compressor capacity to adjust Tc to achieve target value (TcS).

**Tc setting**

<table>
<thead>
<tr>
<th>L</th>
<th>M (Normal) (factory setting)</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>109.5</td>
<td>115</td>
<td>120</td>
</tr>
</tbody>
</table>

**RZR18/24/30P, RZQ18/24/30P**

<table>
<thead>
<tr>
<th>STEP</th>
<th>Inverter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>52Hz</td>
</tr>
<tr>
<td>2</td>
<td>57Hz</td>
</tr>
<tr>
<td>3</td>
<td>62Hz</td>
</tr>
<tr>
<td>4</td>
<td>68Hz</td>
</tr>
<tr>
<td>5</td>
<td>74Hz</td>
</tr>
<tr>
<td>6</td>
<td>81Hz</td>
</tr>
<tr>
<td>7</td>
<td>88Hz</td>
</tr>
<tr>
<td>8</td>
<td>96Hz</td>
</tr>
<tr>
<td>9</td>
<td>104Hz</td>
</tr>
<tr>
<td>10</td>
<td>110Hz</td>
</tr>
<tr>
<td>11</td>
<td>116Hz</td>
</tr>
<tr>
<td>12</td>
<td>124Hz</td>
</tr>
<tr>
<td>13</td>
<td>133Hz</td>
</tr>
<tr>
<td>14</td>
<td>143Hz</td>
</tr>
<tr>
<td>15</td>
<td>156Hz</td>
</tr>
<tr>
<td>16</td>
<td>165Hz</td>
</tr>
<tr>
<td>17</td>
<td>177Hz</td>
</tr>
</tbody>
</table>

* Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions.
### 2.3 Electronic Expansion Valve PI Control

#### Main Electronic Expansion Valve EV1 Control

Carries out the electronic expansion valve (Y1E) PI control to maintain the evaporator outlet superheated degree (SH) at constant during heating operation to make maximum use of the outdoor unit heat exchanger (evaporator).

\[
SH = Ts_1 - Te
\]

- **SH**: Evaporator outlet superheated degree
- **Ts_1**: Suction pipe temperature detected by thermistor
- **Te**: Low pressure equivalent saturation temperature

The optimum initial value of the evaporator outlet superheated degree is 9°F, but varies depending on the discharge pipe superheated degree of inverter compressor.

#### Subcooling Electronic Expansion Valve EV3 Control

Makes PI control of the electronic expansion valve (Y3E) to keep the superheated degree (SH) of the outlet gas pipe on the evaporator side for the full use of the subcooling heat exchanger.

\[
SH = Tsh - Te
\]

- **SH**: Evaporator outlet superheated degree
- **Tsh**: Suction pipe temperature detected by thermistor
- **Te**: Low pressure equivalent saturation temperature

---

Note:

- Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions. Selection of full load operation to/from unload operation is made with the unload circuit solenoid valve (Y3S = SVUL). The full load operation is performed with the SVUL set to OFF, while the unload operation is performed with the SVUL set to ON.

---

<table>
<thead>
<tr>
<th>STn</th>
<th>INV. (Full-load)</th>
<th>INV. (Unload)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>36.0Hz</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>39.0Hz</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>43.0Hz</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>47.0Hz</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>52.0Hz</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>52.0Hz</td>
<td>57.0Hz</td>
</tr>
<tr>
<td>7</td>
<td>57.0Hz</td>
<td>64.0Hz</td>
</tr>
<tr>
<td>8</td>
<td>62.0Hz</td>
<td>71.0Hz</td>
</tr>
<tr>
<td>9</td>
<td>68.0Hz</td>
<td>78.0Hz</td>
</tr>
<tr>
<td>10</td>
<td>74.0Hz</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STn</th>
<th>INV. (Full-load)</th>
<th>INV. (Unload)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>80.0Hz</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>86.0Hz</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>92.0Hz</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>98.0Hz</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>104.0Hz</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>110.0Hz</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>116.0Hz</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>122.0Hz</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>128.0Hz</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>134.0Hz</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>140.0Hz</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>146.0Hz</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>152.0Hz</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>158.0Hz</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>164.0Hz</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>170.0Hz</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>175.0Hz</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>180.0Hz</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>185.0Hz</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>190.0Hz</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>195.0Hz</td>
<td></td>
</tr>
</tbody>
</table>
2.4 Cooling Operation Fan Control

In cooling operation with low outdoor air temperature, this control is used to provide the adequate amount of circulation air with liquid pressure secured by high pressure control using outdoor unit fan.

<table>
<thead>
<tr>
<th>Fan Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling</td>
</tr>
<tr>
<td>STEP 0</td>
</tr>
<tr>
<td>STEP 1</td>
</tr>
<tr>
<td>STEP 2</td>
</tr>
<tr>
<td>STEP 3</td>
</tr>
<tr>
<td>STEP 4</td>
</tr>
<tr>
<td>STEP 5</td>
</tr>
<tr>
<td>STEP 6</td>
</tr>
<tr>
<td>STEP 7</td>
</tr>
<tr>
<td>STEP 8</td>
</tr>
</tbody>
</table>

Pc: High pressure sensor detection value

STEP 8

Pc > 450 psi

STEP 7

Pc < 261 psi

STEP 6

Pc > 348 psi

STEP 5

Pc < 261 psi

STEP 4

Pc > 348 psi

STEP 3

Pc < 261 psi

STEP 2

Pc > 334 psi

STEP 1

Pc < 261 psi

STEP 0

Pc > 276 psi

Pc < 261 psi

Pc < 261 psi

Pc < 261 psi
3. Special Control

3.1 Startup Control

On activation, following control is performed to lighten load of the compressor by back liquid and the like. Also, the position of the four-way valve is defined.

- \(P_{c}\): High-pressure sensor detection value
- \(P_{e}\): Low-pressure sensor detection value

### 3.1.1 Startup Control in Cooling

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>Differential pressure control</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F</td>
<td>High pressure control</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>OFF</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>1400 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>ON</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>OFF</td>
</tr>
</tbody>
</table>

- Ending conditions

### 3.1.2 Startup Control in Heating

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>Differential pressure control</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F M2F</td>
<td>STEP 8</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>ON</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>180 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>ON</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>OFF</td>
</tr>
</tbody>
</table>

- Ending conditions

### OR &

- \(\bullet 230\) seconds
- \(\bullet P_{c} – P_{e} > 58\) psi
- \(\bullet 145\) seconds
- \(\bullet P_{c} – P_{e} > 58\) psi
- \(\bullet 15\) seconds
3.2 Oil Return Operation

Oil flown from the compressor to the side of system is collected by oil return operation, in case of that oil in the compressor runs down.

3.2.1 Oil Return Operation in Cooling

Tc: High pressure equivalent saturation temperature
Te: Low pressure equivalent saturation temperature
Ts: Suction pipe temperature detected by thermistor

[Conditions to start]

The cooling oil return operation is started referring following conditions.

- Integrated amount of displaced oil
- Timer

(After the power is turned ON, integrated operating-time is 2 hours and subsequently every 8 hours.)

In addition, integrated amount of displaced oil is derived from Tc, Te, and the compressor load.

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Oil return preparation operation</th>
<th>Oil return operation</th>
<th>Post-oil-return operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>Upper limit control</td>
<td>124 Hz</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F</td>
<td>Fan control</td>
<td>Fan control</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>1400 pls</td>
<td>1400 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td></td>
<td></td>
<td>20 seconds</td>
<td>OR</td>
<td>• 6 minutes</td>
</tr>
</tbody>
</table>

Indoor unit actuator

<table>
<thead>
<tr>
<th>Fan</th>
<th>Thermostat ON unit</th>
<th>Set air volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stopping unit</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>Thermostat OFF unit</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Electronic expansion valve

<table>
<thead>
<tr>
<th>Thermostat ON unit</th>
<th>Normal opening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stopping unit</td>
<td>200 pls</td>
</tr>
<tr>
<td>Thermostat OFF unit</td>
<td>200 pls</td>
</tr>
</tbody>
</table>
3.2.2 Oil Return Operation in Heating

Pc: High-pressure sensor detection value
Pe: Low-pressure sensor detection value
Tc: High-pressure equivalent saturation temperature
Te: Low-pressure equivalent saturation temperature
Ts: Suction pipe temperature detected by thermistor

[Conditions to start]
The heating oil return operation is started referring following conditions.

- Integrated amount of displaced oil
- Timer
  (After the power is turned ON, integrated operating-time is 2 hours and subsequently every 8 hours.)

In addition, integrated amount of displaced oil is derived from Tc, Te, and the compressor load.

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Oil return preparation operation</th>
<th>Oil return operation</th>
<th>Post-oil-return operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>Upper limit control</td>
<td>124 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2-step increase from</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>52 Hz to (Pc – Pe &gt; 58 psi) time</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F, M2F</td>
<td>STEP 8</td>
<td>OFF</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>SH control</td>
<td>1400 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Ending conditions</td>
<td></td>
<td></td>
<td>130 seconds</td>
<td>OR 6 minutes</td>
<td>OR 160 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tu – Te &lt; 9°F</td>
<td>Tu – Te &gt; 58 psi</td>
</tr>
</tbody>
</table>

* From the preparing oil return operation to the oil return operation, and from the oil return operation to the operation after oil return, the compressor stops for 1 minute to reduce noise on changing of the four-way valve.

<table>
<thead>
<tr>
<th>Indoor unit actuator</th>
<th>Heating oil return operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan</td>
<td></td>
</tr>
<tr>
<td>Thermostat ON unit</td>
<td>OFF</td>
</tr>
<tr>
<td>Stopping unit</td>
<td>OFF</td>
</tr>
<tr>
<td>Thermostat OFF unit</td>
<td>OFF</td>
</tr>
<tr>
<td>Electronic expansion valve</td>
<td>Thermostat ON unit</td>
</tr>
<tr>
<td>Stopping unit</td>
<td>500 pls</td>
</tr>
<tr>
<td>Thermostat OFF unit</td>
<td>500 pls</td>
</tr>
</tbody>
</table>
### 3.3 Defrosting Operation

Pc: High-pressure sensor detection value  
Pe: Low-pressure sensor detection value  
Tc: High-pressure equivalent saturation temperature  
Te: Suction pipe equivalent saturation temperature  
The defrost operation is performed to solve frost on the outdoor unit heat exchanger when heating, and the heating capacity is recovered.  

**[Conditions to start]**  
The defrost operation is started referring following conditions.  
- Outdoor unit heat exchanger heat transfer co-efficiency  
- Temperature of heat exchanger (Tb)  
- Timer (2 hours at the minimum)  

In addition, outdoor unit heat exchanger co-efficiency is derived from Tc, Te, and the compressor load.

---

#### Parts Name | Symbol | Electric Symbol | Defrost preparation operation | Defrost operation | Post Defrost operation
---|---|---|---|---|---
Compressor (INV.) | — | M1C | — | 52 Hz | 177 Hz | 2-step increase from 52 Hz to (Pc – Pe > 58 psi) every 20 seconds
Outdoor unit fan | — | M1F | — | STEP 8 | OFF | STEP 8
Four-way valve | 20S1 | Y1S | Y1S | ON | OFF | ON
Electronic expansion valve (Main) | EV1 | Y1E | Y1E | SH control | 1400 pls | 200~400 pls
Solenoid valve (Hot gas) | SVP | Y2S | Y2S | OFF | ON | ON
Solenoid valve (Receiver gas discharging) | SVG | Y3S | — | ON | ON | OFF
Ending conditions | | | | 130 seconds | OR | OR

* From the preparing operation to the defrost operation, and from the defrost operation to the operation after defrost, the compressor stops for 1 minute to reduce noise on changing of the four-way valve.

---

#### Indoor unit actuator

<table>
<thead>
<tr>
<th>Indoor unit actuator</th>
<th>During defrost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan</td>
<td>Thermostat ON unit OFF</td>
</tr>
<tr>
<td></td>
<td>Stopping unit OFF</td>
</tr>
<tr>
<td></td>
<td>Thermostat OFF unit OFF</td>
</tr>
<tr>
<td>Electronic expansion valve</td>
<td>Thermostat ON unit 500 pls</td>
</tr>
<tr>
<td></td>
<td>Stopping unit 500 pls</td>
</tr>
<tr>
<td></td>
<td>Thermostat OFF unit 500 pls</td>
</tr>
</tbody>
</table>
3.4 **Pump Down Residual Operation**

Pe: Low pressure sensor detection value  
Td: Discharge pipe temperature

When activating compressor, if the liquid refrigerant remains in the heat-exchanger, the liquid enters into the compressor and dilutes oil therein resulting in decrease of lubricity. Therefore, the pump down residual operation is performed to collect the refrigerant in the heat-exchanger when the compressor is down.

### 3.4.1 Pump Down Residual Operation in Cooling

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Master unit operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C 124 Hz</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F M2F Fan control</td>
</tr>
<tr>
<td>Four way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S OFF</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E 2000 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S OFF</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>ON → OFF</td>
</tr>
</tbody>
</table>

Ending conditions

- OR
  - 30 seconds
  - Pe < 73 psi
  - Td > 230°F

### 3.4.2 Pump Down Residual Operation in Heating

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Master unit operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C 124 Hz</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F M2F STEP 8</td>
</tr>
<tr>
<td>Four way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S ON</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E 0 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S OFF</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>ON → OFF</td>
</tr>
</tbody>
</table>

Ending conditions

- OR
  - 3 minutes
  - Pe < 36 psi
  - Td > 230°F
3.5 Restart Standby

Ta: Outdoor air temperature
Restart is stood by force to prevent frequent power-ON/OFF and to equalize pressure in the refrigerant system.

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>OFF</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F</td>
<td>Ta &gt; 86°F: STEP 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M2F</td>
<td>Ta ≤ 86°F: OFF</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>Keep former condition.</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>0 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>ON</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td></td>
<td></td>
<td>5 minutes</td>
<td></td>
</tr>
</tbody>
</table>

3.6 Stopping Operation

Operation of the actuator when the system is down, is cleared up.

3.6.1 When System is in Stop Mode

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C</td>
<td>M1C</td>
<td>OFF</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F</td>
<td>M1F</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M2F</td>
<td></td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S</td>
<td>Y1S</td>
<td>Keep former condition.</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E</td>
<td>Y1E</td>
<td>0 pls</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S</td>
<td>Y2S</td>
<td>OFF</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S</td>
<td>—</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td></td>
<td></td>
<td></td>
<td>Indoor unit thermostat is turned ON.</td>
</tr>
</tbody>
</table>
3.7 Pressure Equalization Prior to Startup

Ta: Outdoor air temperature
Pc: High-pressure sensor detection value
Pe: Low-pressure sensor detection value

Before activating the compressor, the activation load is lightened by equalization across the compressor. In addition, inverters turn ON electricity and capacitors are charged.

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Symbol</th>
<th>Electric Symbol</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor (INV.)</td>
<td>—</td>
<td>M1C M1C</td>
<td>OFF</td>
<td>—</td>
</tr>
<tr>
<td>Outdoor unit fan</td>
<td>—</td>
<td>M1F M1F M2F</td>
<td>Cooling: OFF</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heating: Ta &gt; 78.8°F; STEP 8, Ta ≤ 78.8°F; OFF</td>
<td>—</td>
</tr>
<tr>
<td>Four-way valve</td>
<td>20S1</td>
<td>Y1S Y1S</td>
<td>Keep former condition.</td>
<td>—</td>
</tr>
<tr>
<td>Electronic expansion valve (Main)</td>
<td>EV1</td>
<td>Y1E Y1E</td>
<td>0 pls</td>
<td>—</td>
</tr>
<tr>
<td>Solenoid valve (Hot gas)</td>
<td>SVP</td>
<td>Y2S Y2S</td>
<td>ON</td>
<td>—</td>
</tr>
<tr>
<td>Solenoid valve (Receiver gas discharging)</td>
<td>SVG</td>
<td>Y3S —</td>
<td>OFF</td>
<td>—</td>
</tr>
</tbody>
</table>

Ending conditions

OR

- 3 minutes
- Pc – Pe < 29 psi
4. Protection Control

4.1 High Pressure Protection Control

Pc: High-pressure sensor detection value

This high pressure protection control is used to prevent the activation of protection devices due to abnormal increase of high pressure and to protect compressors against the transient increase of high pressure.

[Cooling]

Pc > 505 psi

High pressure not limited

&

• Inverter upper limit frequency

• Pc ≤ 483 psi

High pressure limited

INV. upper limit frequency: 1-step up from current compressor frequency

Every 10 sec. Pc > 512 psi

Keeping the current step

Pc < 490 psi

Every 60 sec. 490 psi ≤ Pc ≤ 505 psi

INV. upper limit frequency: 1-step up from current error frequency

Every 5 min.

Pc > 547 psi

High pressure standby

When occurring 3 times within 30 minutes, S1PH (High pressure switch) is activated without high pressure standby, thus outputting the error code "E3".

[Heating]

High pressure drop

High pressure not limited

Pc > 469 psi

57Hz

Pc < 441 psi

High pressure limited

Pc > 527 psi

High pressure standby

When S1PH (High pressure switch) is activated, the error code "E3" is output.
4.2 Low Pressure Protection Control

Pe: Low pressure sensor detection value

This low pressure protection control is used to protect compressors against the transient decrease of low pressure.

[Cooling]

Low pressure not limited

Pe < 36 psi

Pe > 57 psi

57Hz

Low pressure limited

Pe < 10 psi

When occurring 3 times within 60 min., the error code "E4" is output.

[Heating]

Low pressure not limited

Pe < 23 psi

SVP: Solenoid valve (Hot gas)

&

• Pe > 36 psi
• Inverter upper limit frequency

Upper limit: 145.5Hz

Pe < 19 psi

Upper limit: 57Hz

Pe < 9 psi

Pe > 28 psi

Upper limit: 1-step up from current compressor frequency

Pe > 28 psi (every 20 sec.)

SVP = OFF

Pe > 25 psi

SVP = ON

Pe < 15 psi

Pe < 10 psi

Low pressure standby

When occurring 3 times within 60 min., the error code "E4" is output.
4.3 Discharge Pipe Protection Control

HTdi: Value of INV. compressor discharge pipe temperature (Tdi) compensated with outdoor air temperature

Tp: Value of compressor port temperature calculated by Tc and Te, and suction superheated degree.

This discharge pipe protection control is used to protect the compressor internal temperature against an error or transient increase of discharge pipe temperature.

[INV. compressor]

Discharge pipe protection control not limited

- HTdi > 221°F
- Tp > 266°F

OR

- Not during defrost operation (preparation – post operation)
- Not during oil return operation in heating (preparation – post operation)
- Not during oil return operation in cooling (without preparation and post operation)

OR

- HTdi < 203°F
- Tp < 212°F

Inverter upper limit frequency: 1-step up from current compressor frequency

- HTdi < 212°F
- Tp < 239°F

Exclusion of the right conditions

- HTdi > 221°F
- HTdi > 239°F for 90 sec. or more
- Tp > 248°F

Fix Inverter frequency 57Hz

Discharge pipe temp. control standby

- HTdi > 275°F
- HTdi > 248°F for 10 min. or more.

When occurring 3 times within 100 min., the error code F3 is output.
4.4 **Inverter Protection Control**

Tb: Outdoor unit heat exchanger temperature  
Tfin: Radiation fin temperature  
Inverter current protection control and radiation fin temperature control are performed to prevent tripping due to an error, or transient inverter overcurrent, and radiation fin temperature increase.

**[Inverter overcurrent protection control]**

- Inverter current > X A
- Tb ≥ 77°F: 13.7  
  Tb < 77°F: 12.7

**[Inverter radiation fin temperature control]**

- Tfin ≥ 179.6°F
- Tfin ≥ 180°F
- Tfin < 174.2°F

*When occurring 3 times within 60 min., the error code "L8" is output.*  
*When occurring 4 times within 60 min., the error code "L9" is output.*
5. Other Control

5.1 Heating Operation Prohibition

Heating operation is prohibited above 82°FDB outdoor air temperature.
6. Outline of Control (Indoor Unit)

6.1 Drain Pump Control

The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

6.1.1 When the Float Switch is Tripped while the Cooling Thermostat is ON:

![Diagram showing drain pump control逻辑图]

**Note:**

1. **(Normal operation):**
   The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes OFF during cooling operation.

2. **(Error residual):**
   The remote controller will display "A3" and the air conditioner will come to an abnormal stop if the float switch is turned OFF while the cooling thermostat is ON.

6.1.2 When the Float Switch is Tripped while the Cooling Thermostat is OFF:

![Diagram showing drain pump control逻辑图]

**Note:**

3. **(Error residual):**
   The remote controller will display "A3" and the air conditioner will come to an abnormal stop if the float switch is turned OFF and not turned ON again within 5 minutes while the cooling thermostat is OFF.
6.1.3 When the Float Switch is Tripped during Heating Operation:

Note: During heating operation, if the float switch is not reset even after the 5 minutes operation, 5 seconds stop, 5 minutes operation cycle ends, operation continues until the switch is reset.

6.1.4 When the Float Switch is Tripped and "RF" is Displayed on the Remote Controller:

Note:  
*5. (Error residual):  
If the float switch is tripped 5 times in succession, a drain error is determined to have occurred. "RF" is then displayed as operation continues.  
*6. (Error residual):  
The remote controller will display "R3" and the air conditioner will come to an abnormal stop if the float switch is OFF for more than 5 minutes in the case of *5.
6.2 Louver Control for Preventing Ceiling Dirt

We have added a control feature that allows you to select the range of in which air direction can be adjusted in order to prevent the ceiling surrounding the air discharge outlet of ceiling mounted cassette type units from being soiled.

![Diagram of Louver Control](image)

<table>
<thead>
<tr>
<th>Draft prevention position</th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>Same as existing position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard position</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Range of direction adjustment</td>
</tr>
<tr>
<td>Prohibited</td>
<td>P0'</td>
<td>P1'</td>
<td>P2'</td>
<td>P3'</td>
<td>P4'</td>
<td>Separated into 5 positions (P1 - 4)</td>
</tr>
<tr>
<td>Dirt prevention position</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Range of direction adjustment</td>
</tr>
<tr>
<td>Prohibited</td>
<td>P0''</td>
<td>P1''</td>
<td>P2''</td>
<td>P3''</td>
<td>P4''</td>
<td>Separated into 5 positions (P2 - 4)</td>
</tr>
</tbody>
</table>

The factory setting position is standard position.
6.3 Room Temperature Thermistor in Remote Controller

Temperature is controlled by both the room temperature thermistor in remote controller and suction air thermistor (+) in the indoor unit. (This is however limited to when the field setting for the room temperature thermistor in remote controller is set to “Use.”)

**Note:**

When outdoor air is introduced to the air conditioner with mixed into indoor air, the room temperature may fail to be set temperature, since TS and TH1 do not enter the area of “use range of remote control thermistor.” In such a case, put the remote sensor (optional accessory) in your room, and use it with setting “do not use remote control thermostat.”

* For FTQ: Remote sensor (Optional accessory)

**Cooling**

If there is a significant difference in the set temperature and the suction air temperature, fine adjustment control is carried out using suction air thermistor (+) in the indoor unit, or using the room temperature thermistor in the remote controller near the position of the user when the suction air temperature is near the set temperature.

**Ex: When cooling**

Assuming the set temperature in the figure above is 75°F, and the suction air temperature has changed from 64°F to 86°F (A → F):

(This example also assumes there are several other air conditioners, the system is OFF, and that temperature changes even when the thermostat is OFF.)

- Suction air thermistor (+) is used for temperatures from 64°F to 73°F (A → C).
- Room temperature thermistor in remote controller is used for temperatures from 73°F to 81°F (C → E).
- Suction air thermistor (+) is used for temperatures from 81°F to 86°F (E → F).

And, assuming suction air temperature has changed from 86°F to 64°F (F → A):

- Suction air thermistor (+) is used for temperatures from 86°F to 77°F (F → D).
- Room temperature thermistor in remote controller is used for temperatures from 77°F to 70°F (D → B).
- Suction air thermistor (+) is used for temperatures from 70°F to 64°F (B → A).

**Note:**

* For FTQ: Remote sensor (Optional accessory)
Heating

When heating, the hot air rises to the top of the room, resulting in the temperature being lower near the floor where the occupants are. When controlling by suction air thermistor (**) only, the unit may therefore be turned OFF by the thermostat before the lower part of the room reaches the set temperature. The temperature can be controlled so the lower part of the room where the occupants are does not become cold by widening the range in which room temperature thermistor in remote controller can be used so that suction air temperature is higher than the set temperature.

Ex: When heating

Assuming the set temperature in the figure above is 75°F, and the suction air temperature has changed from 64°F to 82°F (A → D):

(This example also assumes there are several other air conditioners, the system is OFF, and that temperature changes even when the thermostat is OFF.)

Suction air thermistor (**) is used for temperatures from 64°F to 77°F (A → C).

Room temperature thermistor in remote controller is used for temperatures from 77°F to 82°F (C → D).

And, assuming suction air temperature has changed from 82°F to 64°F (D → A):

Room temperature thermistor in remote controller is used for temperatures from 82°F to 73°F (D → B).

Suction air thermistor (**) is used for temperatures from 73°F to 64°F (B → A).

Note: * For FTQ: Remote sensor (Optional accessory)
### 6.4 Thermostat Control with Operation Mode Set to "AUTO"

When the operation mode is set to "AUTO" on the remote controller, the system will conduct the temperature control shown below.

Furthermore, setting changes of the differential value (D°F) can be made according to information in the "Field settings from remote controller (P.70 and later)" section.

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First code No.</th>
<th>Contents of setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>4</td>
<td>Differential value while in &quot;AUTO&quot; operation mode</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second code No.</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential value set to 0°F</td>
<td>0°F</td>
<td>1.8°F</td>
<td>3.6°F</td>
<td>5.4°F</td>
<td>7.2°F</td>
<td>0°F</td>
<td>1.8°F</td>
<td>3.6°F</td>
</tr>
<tr>
<td>Differential value set to 1.8°F</td>
<td>73.4°F</td>
<td>80.6°F</td>
<td>78.8°F</td>
<td>76.1°F</td>
<td>84.2°F</td>
<td>73.4°F</td>
<td>80.6°F</td>
<td>78.8°F</td>
</tr>
<tr>
<td>Differential value set to 3.6°F</td>
<td>71.6°F</td>
<td>75.2°F</td>
<td>78.8°F</td>
<td>80.6°F</td>
<td>82.4°F</td>
<td>71.6°F</td>
<td>75.2°F</td>
<td>78.8°F</td>
</tr>
<tr>
<td>Differential value set to 5.4°F</td>
<td>70.7°F</td>
<td>73.4°F</td>
<td>80.6°F</td>
<td>68°F</td>
<td>75.2°F</td>
<td>74.3°F</td>
<td>70.7°F</td>
<td>73.4°F</td>
</tr>
</tbody>
</table>

(Ex.) When automatic cooling temperature is set to 80.6°F:

- Differential value = 0°F
- Differential value set to 7.2°F

Other settings can be adjusted similarly within the given ranges.
6.5 Freeze-up Prevention

Freeze-up Prevention by Off Cycle (Indoor Unit)

When the temperature detected by liquid pipe temperature thermistor (R2T) of the indoor unit heat exchanger drops too low, the unit enters freeze-up prevention operation in accordance with the following conditions, and is also set in accordance with the conditions given below.

When freeze-up prevention is activated, the electronic expansion valve is closed, the drain pump turns ON and the fan tap is fixed to L airflow. When the following conditions for stopping are satisfied, it returns.

Conditions for starting freeze-up prevention: Temperature is 30.2°F or less for total of 40 min., or temperature is 23°F or less for total of 10 min.

Conditions for stopping freeze-up prevention: Temperature is 44.6°F or more for 10 min. continuously.

[Conditions for starting when airflow direction is 2-way or 3-way]

Conditions for starting: Temperature is 33.8°F or less for a total of 15 minutes or 32°F or less for 1 minute continuously.
### 6.6 View of Operations of Swing Flaps

Swing flaps work as following.

<table>
<thead>
<tr>
<th></th>
<th>Fan</th>
<th>Flap Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FCQ</td>
</tr>
<tr>
<td><strong>Heating</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot-start from defrosting</td>
<td>Swinging</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>OFF</td>
</tr>
<tr>
<td>Defrosting</td>
<td>Swinging</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>OFF</td>
</tr>
<tr>
<td>Thermostat is OFF</td>
<td>Swinging</td>
<td>LL</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>LL</td>
</tr>
<tr>
<td>Hot-start from the state that the thermostat is OFF</td>
<td>Swinging</td>
<td>LL</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>LL</td>
</tr>
<tr>
<td>Halt</td>
<td>Swinging</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>OFF</td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermostat of program dry is ON</td>
<td>Swinging</td>
<td>L&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>L&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Thermostat of program dry is OFF</td>
<td>Swinging</td>
<td>OFF or L</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>Set up</td>
</tr>
<tr>
<td>Cooling thermostat is OFF</td>
<td>Swinging</td>
<td>Set up</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>Set up</td>
</tr>
<tr>
<td>Halt</td>
<td>Swinging</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>OFF</td>
</tr>
<tr>
<td>Micro-computer is controlled (including the cooling state)</td>
<td>Swinging</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>Setting the airflow direction</td>
<td>L</td>
</tr>
</tbody>
</table>

* 1. Only in FCQ case, L or LL.
6.7 Hot Start Control (In Heating Operation Only)

At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor unit fan is controlled to prevent cold air from blasting out and ensure startup capacity. [Detail of operation]

When either the start condition 1 or the start condition 2 is established, the operations shown below will be conducted.

![Control Diagram]

- **Defrost ending or oil return ending** or Thermostat ON
- **Hot start ending conditions**
  - lapse of 3 minutes
  - \( [TH_2] > 93.2^\circ F \)
  - \( "TC" > 125.6^\circ F \)

- **Hot start control**
  - Hot start ending conditions
  - Normal control

- **Fan**
  - H/L remote controller setting
    - LL
    - OFF
  - The fan is not OFF before initiating the hot start: LL
  - The fan is OFF before initiating the hot start: OFF

- **Louvre**
  - Remote controller setting
    - Normal control
  - Po (Horizontal)

TH\(_2\): Temperature detected with the gas thermistor

TC: High pressure equivalent saturated temperature
- **FTQ**
  At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor unit fan is controlled to prevent cold air from blasting out and ensure startup capacity.

[**Detail of operation**]
When either the **start condition 1** or the **start condition 2** is established, the operations shown below will be conducted.

<table>
<thead>
<tr>
<th>Hot start control</th>
<th>Hot start in progress</th>
<th>Hot start delay</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H/L remote controller setting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LL</td>
<td>Normal control</td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heater</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Humidifier</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>Normal control</td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The fan is ON: ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The fan is OFF: OFF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| TH2: Temperature detected with the gas thermistor
TC: High pressure equivalent saturated temperature
6.8 Heater Control (FTQ)
6.8.1 Auxiliary Heater Control

If heating is insufficient in heat pump system alone, an electrical heater is to be used as the auxiliary heater. The following shows the ON/OFF conditions for the electric heater.

---

**Diagram of Auxiliary Heater Control**

- Thermostat OFF/Stop operation
  - Fan H tap 120 seconds
  - Timer clear

- Thermostat OFF
  - Thermostat OFF
  - Stop operation

- Thermostat step 1
  - Heat Pump: Fan normal operation
  - Condition A
  - Continues for 5 minutes

- Electrical heater step setting 01
  - Heater 1 ON
  - Heater 2 OFF
  - Fan H tap +1
  - Elimination of Condition A

- Thermostat step 3 = "ON"
  - Continues for 5 minutes
  - Timer clear

- Thermostat step 4 = "ON"
  - Continues for 5 minutes
  - Timer clear

- Thermostat step 3 = "OFF"
  - Heater 1 ON
  - Heater 2 ON
  - Fan H tap +1
  - Elimination of Condition A

- Thermostat step 4 = "OFF"
  - Heater 1 ON
  - Heater 2 ON
  - Fan H tap +1
  - Elimination of Condition A
Condition A

- Thermostat step 2 = "ON"
- Heating mode
- Not during test operation
- Not during control operation
- High pressure condition = "ON" *3
- Liquid pipe temperature condition = "ON" *4
- Electrical heater setting = "3"

**Note:**

*1: Fixing of the fan H tap
*2: The operation should continue for a certain period of time after the heater turns OFF.
*3: High pressure condition

**4: Liquid pipe temperature condition**
6.8.2 Heat Pump Lockout Mode
During heating operation, users can select an electrical heater for heating. For this, signals are sent using ABC terminal of outdoor unit PCB. When the hot-water heating signal is received from the outdoor unit PCB, heating operation is performed only with the heater as manual backup operation. The ON/OFF conditions for this electrical heater are shown below.
Condition A

- Heating mode
- Thermostat step 1 = "ON"
- Not during fan residual operation

&

- OR
  - [Electrical heater setting] = "01"
  - [Electrical heater setting] = "03"
  - Hot-water heater = "1" (ON)

Condition B

- Elimination of Condition A
- Indoor unit error [Stop due to error]
- Indoor unit error [Abnormal stop]
- Indoor unit error [Remote control thermistor error]
- Indoor unit error [Suction air thermistor error]
- During defrosting or oil return operation

Heater backup prohibiting conditions *2

Note:
*1: Fixing of the fan H tap.
*2: The heater backup prohibiting conditions are prioritized. Even when the heater ON conditions are met, the heater is turned OFF when the prohibiting conditions are met.
*3: The operation must continue for a certain period of time after the heater turns OFF.
*4: The thermostat steps for this control comply with the "6.9 4 Step Thermostat Processing (FTQ)".

6.9 4 Step Thermostat Processing (FTQ)

[Outline]
The thermostat ON/OFF for the indoor unit is controlled in accordance with [Thermostat Step 1].
The heater ON/OFF operation during heating is controlled in accordance with [Thermostat Step 2, 3, or 4] or [Thermostat Step 1, 2, or 3].
For more details of the heater, see 6.8 Heater control.

[Detail]
- Drain pump abnormal output = OFF
- Thermostat OFF error has not occurred.
- Forced thermostat OFF = "0" (OFF)
- Normal operation = ON
- Remote control operation mode = "Heating"
- Not during anti-freeze operation

Perform the processing in the following chart.

Elimination conditions of the above

(1) Cooling

*1: This value varies according to the field setting

(2) Heating

*1: This value varies according to the field setting
6.10 Interlocked with External Equipment (FTQ)
6.10.1 Humidifier

When a humidifier is connected onsite, the fan operates with the airflow rate set of the remote controller or with the H tap.

- Remote control operation = ON (including thermostat OFF)
- External input = ON  →  Fan X tap operation
  (Same operation as with the airflow rate selected with the remote controller)

- Remote control operation = ON (including thermostat OFF)
- When the external input changes from ON to OFF.  →  Fan residual operation for Y seconds
  (The fan airflow rate is set with the X tap.)

**Note:**

1. This control is different from connection of humidifier and it is used for humidifiers locally connected in North America.
2. External input ON is an input signal to the “X12A” terminal on the PCB for additional I/O.
6.10.2 Economizer

When indoor and outdoor air temperatures are reversed, the compressor is stopped to let in the outdoor air to save energy. This operation is called economizer operation, and the equipment to detect indoor and outdoor air temperatures and open and close the damper to perform this operation is called an economizer.

The economizer detects indoor and outdoor air temperatures, informs the air conditioner that the economizer operation is ready, and opens and closes the damper.

The indoor unit stops the outdoor unit when it receives a signal from the economizer and performs air supply operation.

When the indoor air temperature is cooled down sufficiently by the economizer operation, and it is no longer necessary (thermostat OFF), the indoor unit outputs a signal to the economizer to close the damper.

---

**Note:**

- **1** Thermostat ON signal: A signal to turn ON the indoor unit thermostat and allow the economizer to open the damper.
  
  It turns ON the relay on the “X8A side of X23A” on the PCB for additional I/O.

- **2** External input ON is an input signal to the “X11A” terminal on the PCB for additional I/O.

- **3** To stop the compressor while the economizer is in operation to save energy.

- **4** Remote control ON signal: Contact output which shows the operating status of the indoor unit. This signal turns ON the relay “on the opposite side of X8A of X23A” on the PCB for additional I/O.

---

6.10.3 Air Purifier

When an air purifier is connected onsite, the fan is operated with the airflow rate set of the remote controller or with the H tap.

---

**Note:**

- **1** External input ON is an input signal to the “X25A” terminal on the PCB for additional I/O.
Part 5
Field Setting

1. Test Operation ........................................................................................................66
   1.1 Procedure and Outline .......................................................................................66
   1.2 Operation when Power is Turned ON ..............................................................69
2. Field Setting from Remote Controller .................................................................70
   2.1 Wired Remote Controller ..................................................................................70
   2.2 Wireless Remote Controller .............................................................................73
   2.3 Setting Contents and Code No. for Indoor Units ..............................................74
3. Field Setting from Outdoor Unit ...........................................................................80
   3.1 Location of DIP Switch and BS Button ..............................................................80
   3.2 Setting by DIP Switches ....................................................................................81
   3.3 Setting by BS Buttons .......................................................................................81
   3.4 Setting Mode 1 ....................................................................................................83
   3.5 Setting Mode 2 ....................................................................................................84
   3.6 Monitor Mode .....................................................................................................86
   3.7 Detailed Explanation of Setting Modes .............................................................87
1. Test Operation

1.1 Procedure and Outline

Follow the following procedure to conduct the initial test operation after installation.

1.1.1 Check Work Prior to Turn Power Supply ON

<table>
<thead>
<tr>
<th>Check the below items.</th>
<th>○ Is the power supply single-phase 208-230V / 60Hz?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Power wiring</td>
<td>○ Have you finished a ductwork to drain?</td>
</tr>
<tr>
<td>• Control transmission wiring between units</td>
<td>○ Have you detach transport fitting?</td>
</tr>
<tr>
<td>• Ground wire</td>
<td>○ Is the wiring performed as specified?</td>
</tr>
<tr>
<td></td>
<td>○ Are the designated wires used?</td>
</tr>
<tr>
<td></td>
<td>○ Is the grounding work completed?</td>
</tr>
<tr>
<td></td>
<td>• Use a 500V megger tester to measure the insulation.</td>
</tr>
<tr>
<td></td>
<td>• Do not use a megger tester for other circuits than 200-230V circuit.</td>
</tr>
<tr>
<td></td>
<td>○ Are the setscrews of wiring not loose?</td>
</tr>
<tr>
<td></td>
<td>○ Is the electrical component box covered with an insulation cover completely?</td>
</tr>
<tr>
<td>Check on refrigerant piping</td>
<td>○ Is pipe size proper? (The design pressure of this product is 478 psi.)</td>
</tr>
<tr>
<td></td>
<td>○ Are pipe insulation materials installed securely?</td>
</tr>
<tr>
<td></td>
<td>• Liquid and gas pipes need to be insulated. (Otherwise causes water leak.)</td>
</tr>
<tr>
<td></td>
<td>○ Are respective stop valves on liquid and gas line securely open?</td>
</tr>
<tr>
<td>Check on amount of refrigerant charge</td>
<td>○ Is refrigerant charged up to the specified amount?</td>
</tr>
<tr>
<td></td>
<td>• If insufficient, charge the refrigerant from the service port of stop valve on the liquid side with outdoor unit in stop mode after turning power ON.</td>
</tr>
<tr>
<td></td>
<td>○ Has the amount of refrigerant charge been recorded on “Record Chart of Additional Refrigerant Charge Amount”?</td>
</tr>
</tbody>
</table>

1.1.2 Turn Power ON

| Turn outdoor unit power ON. | ○ Be sure to turn the power ON 6 hours before starting operation to protect compressors. |
| --- | ○ Close outside panels of the outdoor unit. |
| Turn indoor unit power ON. | |
| Carry out field setting on outdoor unit PCB | |
1.1.3 Check Operation

* During check operation, mount front panel to avoid the misjudging.
* Check operation is mandatory for normal unit operation.

(When the check operation is not executed, alarm code “U3” will be displayed.)

Press and hold the TEST button (BS4) on outdoor unit PCB for 5 seconds.

○ The test operation is started automatically.
The following judgements are conducted within 15 minutes (about 30 minutes at the maximum).
- “Check for wrong wiring”
- “Check stop valve for not open”
- “Check for refrigerant charge”
- “Pipe length automatic judgement”
The following indications are conducted while in test operation.
- LED lamp on outdoor unit PCB — H2P blinks (test operation)
- Remote controller Indicates “Under Centralized Control” on upper right.
Indicates “Test Operation” on lower left

On completion of test operation, LED on outdoor unit PCB displays the following.
H3P ON: Normal completion
H2P and H3P ON: Abnormal completion → Check the indoor unit remote controller for abnormal display and correct it.

(For normal completion) H1PH2PH3PH4PH5PH6PH7P
(For abnormal completion) H1PH2PH3PH4PH5PH6PH7P

Error code
In case of an error code displayed on remote controller:

<table>
<thead>
<tr>
<th>Error code</th>
<th>Nonconformity during installation</th>
<th>Remedial action</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>The stop valve of outdoor unit is not opened.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>Refrigerant overcharge.</td>
<td>Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge amount by recovering any excessive refrigerant with a refrigerant recovery machine.</td>
</tr>
<tr>
<td>E4</td>
<td>The stop valve of outdoor unit is not opened.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>Insufficient refrigerant.</td>
<td>Check if the additional refrigerant charge has been finished correctly.</td>
</tr>
<tr>
<td></td>
<td>Refrigerant overcharge.</td>
<td>Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.</td>
</tr>
<tr>
<td>F3</td>
<td>The stop valve of outdoor unit is not opened.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>Insufficient refrigerant.</td>
<td>Check if the additional refrigerant charge has been finished correctly.</td>
</tr>
<tr>
<td></td>
<td>Refrigerant overcharge.</td>
<td>Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge amount by recovering any excessive refrigerant with a refrigerant recovery machine.</td>
</tr>
<tr>
<td>U2</td>
<td>Insufficient supply voltage</td>
<td>Check to see if the supply voltage is supplied properly.</td>
</tr>
<tr>
<td>U3</td>
<td>If a check operation has not been performed.</td>
<td>Perform a check operation.</td>
</tr>
<tr>
<td>U4</td>
<td>No power is supplied to outdoor unit.</td>
<td>Turn the power ON for the outdoor unit.</td>
</tr>
<tr>
<td>U5</td>
<td>The stop valve of outdoor unit is not opened.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>If the right indoor unit piping and wiring are not properly connected to the outdoor unit.</td>
<td>Make sure that the right indoor unit piping and wiring are properly connected to the outdoor unit.</td>
</tr>
<tr>
<td>U6</td>
<td>If the interunit wiring has not been connected or it has shorted.</td>
<td>Make sure the interunit wiring is correctly attached to terminals (X2M) F1/F2 (TO IN/D UNIT) on the outdoor unit PCB.</td>
</tr>
</tbody>
</table>
1.1.4 Confirmation on Normal Operation

- Conduct normal unit operation after the check operation has been completed. (When outdoor air temperature is 82°FDB or higher, the unit cannot be operated with heating mode. See the installation manual attached.)
- Confirm that the indoor/outdoor units can be operated normally. (When an abnormal noise due to liquid compression by the compressor can be heard, stop the unit immediately, and then on the crankcase heater to heat up it sufficiently, then start operation again.)
- Operate indoor unit one by one to check that the corresponding outdoor unit operates.
- Confirm that the indoor unit discharges cold air (or warm air).
- Operate the air direction control button and airflow rate control button to check the function of the devices.
1.2  Operation when Power is Turned ON

1.2.1  When Turning ON Power First Time

The unit cannot be run for up to 12 minutes to automatically set the main power and address (indoor-outdoor address, etc.).

<table>
<thead>
<tr>
<th>Status</th>
<th>Test lamp H2P .... Blinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor unit</td>
<td>Can also be set during operation described above.</td>
</tr>
<tr>
<td>Indoor unit</td>
<td>If ON button is pressed during operation described above, the “UH” error indicator blinks. (Returns to normal when automatic setting is complete.)</td>
</tr>
</tbody>
</table>

1.2.2  When Turning ON Power the Second Time and Subsequent

Tap the RESET(BSS) button on the outdoor unit PCB. Operation becomes possible for about 2 minutes. If you do not press the RESET button, the unit cannot be run for up to 10 minutes to automatically set main power.

<table>
<thead>
<tr>
<th>Status</th>
<th>Test lamp H2P .... Blinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor unit</td>
<td>Can also be set during operation described above.</td>
</tr>
<tr>
<td>Indoor unit</td>
<td>If ON button is pressed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.)</td>
</tr>
</tbody>
</table>

1.2.3  When an Indoor Unit or Outdoor Unit has been Added, or Indoor or Outdoor Unit PCB has been Changed

Be sure to press and hold the RESET button for 5 seconds. If not, the addition cannot be recognized. In this case, the unit cannot be run for up to 12 minutes to automatically set the address (indoor-outdoor address, etc.)

<table>
<thead>
<tr>
<th>Status</th>
<th>Test lamp H2P .... ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor unit</td>
<td>Can also be set during operation described above.</td>
</tr>
<tr>
<td>Indoor unit</td>
<td>If ON button is pressed during operation described above, the “UH” or “U4” error indicator blinks. (Returns to normal when automatic setting is complete.)</td>
</tr>
</tbody>
</table>
2. Field Setting from Remote Controller

Individual function of indoor unit can be changed from the remote controller. At the time of installation or after service inspection / repair, make the local setting in accordance with the following description.
Wrong setting may cause error.
(When optional accessory is mounted on the indoor unit, setting for the indoor unit may be required to change. Refer to information in the option handbook.)

2.1 Wired Remote Controller

2.1.1 BRC1D71

- **Applicable Models**

<table>
<thead>
<tr>
<th>Model Series</th>
<th>FCQ</th>
<th>FHQ</th>
<th>FAQ</th>
<th>FBQ</th>
<th>FTQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wired Remote Controller with Weekly Schedule Timer</td>
<td>BRC1D71</td>
<td></td>
<td></td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>Navigation Remote Controller</td>
<td>BRC1E71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **BRC1D71**

If optional accessories are mounted on the indoor unit, the indoor unit setting may have to be changed. Refer to the instruction manual for each optional accessory.

1. When in the normal mode, press the “ ” button (1) for 4 seconds or more, and the FIELD SETTING MODE is entered.
2. Select the desired MODE NO. with the “ ” button (2).
3. During group control, when setting by each indoor unit (mode No. 20, 22 and 23 have been selected), press the “ ” button (3) and select the INDOOR UNIT NO. to be set. (This operation is unnecessary when setting by group.)
4. Press the “ ” upper button (4) and select FIRST CODE NO.
5. Press the “ ” lower button (5) and select the SECOND CODE NO.
6. Press the “ ” button (6) once and the present settings are SET.
7. Press the “ ” button (7) to return to the NORMAL MODE.

- **Example**

When setting the filter sign time to “Filter Contamination Heavy” in all group unit setting, set the Mode No. to “10”, first code No. to “0” and second code No. to “02”.

---

70 Field Setting
2.1.2 BRC1E71

1. Press and hold Cancel button for 4 seconds or more.
   Service settings menu is displayed.

2. Select **Field Settings** in the Service Settings menu, and press Menu/OK button.
   Field settings screen is displayed.

3. Highlight the mode, and select desired “Mode No.” by using ▲▼ (Up/Down) button.

4. In the case of setting per indoor unit during group control (When Mode No. such as 20, 21, 22, 23, 25 are selected),
   highlight the unit No. and select “Indoor unit No.” to be set by using ▲▼ (Up/Down) button.
   (In the case of group total setting, this operation is not needed.)

5. Highlight SECOND CODE NO. of the FIRST CODE NO. to be changed, and select desired “SECOND CODE NO.” by using ▲▼ (Up/Down) button.
   Multiple identical mode number settings are available.

In case of setting for all indoor units in the remote control group, available SECOND CODE NO. is displayed as “ * ”
which means it can be changed.
When SECOND CODE NO. is displayed as “ - ”, there is no function.
6 Press Menu/OK button. Setting confirmation screen is displayed.

7 Select Yes and press Menu/OK button. Setting details are determined and field settings screen returns.

8 In the case of multiple setting changes, repeat "3" to “7”.

9 After all setting changes are completed, press Cancel button twice.

10 Backlight goes out, and “Checking the connection. Please standby.” is displayed for initialization. After the initialization, the basic screen returns.

**NOTE**

- Installation of optional accessories on the indoor unit may require changes to field settings. See the manual of the optional accessory.
- For field setting details related to the indoor unit, see installation manual shipped with the indoor unit.
2.2 Wireless Remote Controller

1. When in the normal mode, press the " " button for 4 seconds or more, and operation then enters the "field setting mode."
2. Select the desired "mode No." with the " " button.
3. Pressing the " " button, select the first code No.
4. Pressing the " " button, select the second code No.
5. Press the timer " " button and check the settings.
6. Press the " " button to return to the normal mode.

(Example)
When setting the filter sign time to “Filter Dirtiness-High” in all group unit setting, set the Mode No. to “10”, Mode setting No. to “0” and second code No. to “02”.
### 2.3 Setting Contents and Code No. for Indoor Units

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Description of Setting</th>
<th>Second Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Filter cleaning sign time</td>
<td>Light Heavy</td>
</tr>
<tr>
<td>0 +5</td>
<td></td>
<td>Filter dirt</td>
<td>Light Heavy</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Filter type</td>
<td>Long life filter Ultra long life filter</td>
</tr>
<tr>
<td>1 +5</td>
<td></td>
<td>Filter cleaning sign time (Light/Heavy)</td>
<td>2,500/1,250 10,000/5,000</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Remote controller thermistor</td>
<td>Use Not use</td>
</tr>
<tr>
<td>2 +5</td>
<td></td>
<td>Remote sensor and remote controller thermistor</td>
<td>Both Remote controller thermistor</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Filter sign display</td>
<td>ON OFF</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>4-step thermostat processing</td>
<td>Symbol *6 01 02 03 04 05 06</td>
</tr>
<tr>
<td>10 (20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 (21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 (22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 (23)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 (24)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Note:
1. Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
2. The mode numbers inside parentheses cannot be used by wireless remote controllers, so they cannot be set individually. Setting changes also cannot be checked.
3. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
4. “08” may be displayed to indicate the remote controller is resetting when returning to the normal mode.
5. Only for FTQ
6. Thermostat ON
7. For FTQ: Factory setting is “02”.

![Thermostat diagram](image)
### 2.3.1 Applicable Range of Field Setting

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Description of Setting</th>
<th>FCQ</th>
<th>FHQ</th>
<th>FAQ</th>
<th>FBQ</th>
<th>FTQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (20)</td>
<td>0</td>
<td>Filter cleaning sign time</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Filter dirt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Filter type</td>
<td>O</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Filter cleaning sign time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Remote controller thermistor</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Remote sensor and remote controller thermistor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Filter sign display</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>4-step thermostat processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>11 (21)</td>
<td>3</td>
<td>Electric heater setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Electric heater step setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>12 (22)</td>
<td>0</td>
<td>Optional accessories output selection</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>ON/OFF Input from outside</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Thermostat differential changeover</td>
<td>O</td>
<td>—</td>
<td>—</td>
<td>O</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Set fan speed when thermostat OFF</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Power failure automatic reset (Auto Restart)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>13 (23)</td>
<td>0</td>
<td>Airflow adjustment ceiling height</td>
<td>O</td>
<td>O</td>
<td>—</td>
<td>O</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Airflow direction</td>
<td>O</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Field setting airflow position setting</td>
<td>O</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>14 (24)</td>
<td>4</td>
<td>Setting of humidifier / air purifier fan tap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Humidifier residual operation time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
</tbody>
</table>
2.3.2 Detailed Explanation of Setting Modes

Filter Sign Setting
If switching the filter sign ON time, set as given in the table below.

<table>
<thead>
<tr>
<th>Filter Specs.</th>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Second Code No.</th>
<th>Lighting interval of the filter sign (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contamination Light</td>
<td>10(20)</td>
<td>0</td>
<td>01</td>
<td>Standard: 200 hrs., Long Life: 2,500 hrs., Ultra Long Life Filter: 10,000 hrs.</td>
</tr>
<tr>
<td>Contamination Heavy</td>
<td></td>
<td></td>
<td>02</td>
<td>100 hrs., 1,250 hrs., 5,000 hrs.</td>
</tr>
</tbody>
</table>

Electrical Heater Setting
Selection of the heater
The capacity of the electrical heater should be selected locally.

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Second Code No.</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>11(21)</td>
<td>3</td>
<td>01</td>
<td>Heat Pump lockout mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03</td>
<td>Auxiliary electric heater + Heat Pump lockout mode</td>
</tr>
</tbody>
</table>

01: When the heating capacity of the heat pump is insufficient during heating, the heat pump is stopped and heating operation is performed with an electrical heater. (It is switched by a hot-water heating instruction from the outdoor unit.)

03: If heating is insufficient in heat pump system alone, an electrical heater is used as the auxiliary electric heater.

Electrical Heater Step Setting

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Second Code No.</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>11(21)</td>
<td>5</td>
<td>01</td>
<td>With heater</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03</td>
<td>Without heater</td>
</tr>
</tbody>
</table>

01: Controls ON/OFF of the heater in accordance with the thermostat step.
03: Without heater

Fan Speed Changeover when Thermostat is OFF
By setting to “Set Fan Speed,” you can switch the fan speed to the set fan speed when the heating thermostat is OFF.

* Since there is concern about draft if using “fan speed up when thermostat is OFF,” you should take the setup location into consideration.

On warming, the priority is given to this over "airflow OFF switch on thermostat OFF".

This is used to correspond with the improvement of the electrical collection capability.

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Second Code No.</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>12(22)</td>
<td>3</td>
<td>01</td>
<td>LL Fan Speed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>02</td>
<td>Set Fan Speed</td>
</tr>
</tbody>
</table>
Auto Restart after Power Failure Reset
For the air conditioners with no setting for the function, the units will be left in the stop condition when the power supply is reset automatically after power failure reset or the main power supply is turned ON again after once turned OFF. However, for the air conditioners with the setting (same as factory setting), the units may start automatically after power failure reset or the main power supply turned ON again (return to the same operation condition as that of before power failure).

For the above reasons, when the unit is set enabling to utilize "Auto restart function after power failure reset", utmost care should be paid for the occurrence of the following situation.

⚠️ Caution 1. The air conditioner starts operation suddenly after power failure reset or the main power supply is turned ON again. This could be unexpected to the user and cause concern.
2. For example, during service work, turning OFF the main power switch while the unit is operating, and turning ON the switch again after the work is completed, starts unit operation (the fan rotates).

Setting of Airflow Direction Adjustment Range
Make the following airflow direction setting according to the respective purpose.

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Second Code No.</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (23)</td>
<td>4</td>
<td>01</td>
<td>Upward (Draft prevention)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>02</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03</td>
<td>Downward (Ceiling soiling prevention)</td>
</tr>
</tbody>
</table>
2.3.3 Setting of Operation Control Mode from Remote Controller
(Local Setting)

The operation control mode is compatible with a variety of controls and operations by limiting
the functions of the operation remote controller. Furthermore, operations such as remote
controller ON/OFF can be limited in accordance with the combination conditions. (Refer to
information in the next page.)

The centralized controller is normally available for operations, except when the centralized
monitor is connected.

2.3.4 Contents of Control Modes

20 modes consisting of combinations of the following 5 operation modes with temperature and
operation mode setting by remote controller can be set and displayed by operation modes 0
through 19.

- **ON/OFF control impossible by remote controller**
  Used when you want to turn ON/OFF by centralized remote controller only.
  (Cannot be turned ON/OFF by remote controller.)

- **OFF control only possible by remote controller**
  Used when you want to turn ON by centralized remote controller only, and OFF by remote
  controller only.

- **Centralized**
  Used when you want to turn ON by centralized remote controller only, and turn ON/OFF
  freely by remote controller during set time.

- **Individual**
  Used when you want to turn ON/OFF by both centralized remote controller and remote
  controller.

- **Timer operation possible by remote controller**
  Used when you want to turn ON/OFF by remote controller during set time and you do not
  want to start operation by centralized remote controller when time of system start is
  programmed.
How to Select Operation Mode

Whether operation by remote controller will be possible or not for turning ON/OFF, controlling temperature or setting operation mode is selected and decided by the operation mode given on the right edge of the table below.

Example

<table>
<thead>
<tr>
<th>Control mode</th>
<th>Operation</th>
<th>ON by remote controller (Unified ON by centralized remote controller)</th>
<th>OFF by remote controller (Unified OFF by centralized remote controller)</th>
<th>Temperature control by remote controller</th>
<th>Operation mode setting by remote controller</th>
<th>Control mode</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON/OFF control impossible by remote controller</td>
<td></td>
<td></td>
<td>Uniform operation, individual operation by centralized remote controller, or operation controlled by timer</td>
<td>Uniform OFF, individual stop by centralized remote controller, or timer stop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF control only possible by remote controller</td>
<td>Rejection (Example)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centralized</td>
<td>Acceptance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>Acceptance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timer operation possible by remote controller</td>
<td>Acceptance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rejection (During timer at ON position only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rejection (During timer at OFF position)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do not select “timer operation possible by remote controller” if not using a remote controller. Operation by timer is impossible in this case.

*1. Factory setting

Centralized remote controller

When ON/OFF, temperature setting and operation mode setting by local remote controller is forbidden. "UNDER CENTRALIZED CONTROL" is displayed on the remote controller.
3. Field Setting from Outdoor Unit

3.1 Location of DIP Switch and BS Button

Outdoor Unit PCB

(1) Service monitor (LED Green)
This LED blinks while in normal operation, and turns ON or OFF when an error occurs.

(2) Set mode display (LED Orange)
LEDs display mode according to the setting.

(3) Mode setting switch
Used to change mode.

(4) DIP switch
Used to make field setting
3.2 Setting by DIP Switches

The following field settings are made by DIP switches on PCB.

<table>
<thead>
<tr>
<th>DIP switch</th>
<th>Setting</th>
<th>Setting item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1-1</td>
<td>ON</td>
<td>Cool/Heat changeover setting</td>
<td>Used to set cool/heat changeover setting by remote controller equipped with outdoor unit. (Note 1)</td>
</tr>
<tr>
<td></td>
<td>OFF (Factory setting)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS1-2</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF (Factory setting)</td>
<td>Not used</td>
<td>Do not change the factory settings.</td>
</tr>
</tbody>
</table>

![Cool/heat selector connection procedure](image)

- Set the remote controller only when changing over the operation mode between cooling and heating using the remote controller installed in the outdoor.
- Connect the cool/heat selector (optional accessory) to the terminals (A, B and C) on the outdoor X2M Terminal board (A, B and C).
- Set the cool/heat selector switch DS1-1 from “OFF” (which is selected at the factory before shipment) to “ON”.

3.3 Setting by BS Buttons

The following settings are made by BS buttons on PCB.

<table>
<thead>
<tr>
<th>LED display</th>
<th>H1P</th>
<th>H2P</th>
<th>H3P</th>
<th>H4P</th>
<th>H5P</th>
<th>H6P</th>
<th>H7P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

(Factory setting)

There are the following 3 setting modes.

1. Setting mode 1 (H1P OFF)
   - Initial status (when normal): Also indicates during “abnormal”.

2. Setting mode 2 (H1P ON)
   - Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

3. Monitor mode (H1P blinks)
   - Used to check the program made in Setting mode 2.
Mode changing procedure

Using the MODE button, the modes can be changed as follows.

- **Setting mode 1 (Initial condition)**
  - Press BS1 (MODE) for more than 5 sec.
  - Press BS1 (MODE) once.

- **Setting mode 2**
  - Press BS3 (RETURN) once.
  - Press BS3 (RETURN) once.
  - Press BS3 (RETURN) once.
  - Press BS3 (RETURN) once.
  - Press BS1 (MODE) once.

- **Monitor mode**
  - Check item selection (Set)
  - Press BS3 (RETURN) once.
  - Contents display
  - Press BS3 (RETURN) once.
  - Press BS1 (MODE) once.

(Set): Select mode with BS2 (SET) in each selection step.
3.4 Setting Mode 1

This mode is used to set and check the current operating conditions (Normal / Abnormal / In check operation)

Normally, “Setting mode 1” is set. In case of other status, press MODE button (BS1) once and set to “Setting mode 1”.

* The current state is displayed.

Display for error / preparing / test-run

<table>
<thead>
<tr>
<th>Setting (displaying) item</th>
<th>LED display example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>● ● ○ ● ● ● ● ● ●</td>
</tr>
<tr>
<td>Error</td>
<td>● ○ ○ ● ● ● ● ● ●</td>
</tr>
<tr>
<td>Preparing/Test-run</td>
<td>● ○ ○ ● ● ● ● ● ●</td>
</tr>
</tbody>
</table>

○: ON ●: OFF ◯: Blink

Current operating conditions
● Normal ○ Abnormal ◯ In preparation or in check operation
### 3.5 Setting Mode 2

Press and hold the MODE button (BS1) for 5 seconds and set to “Setting mode 2”.

**Selection of setting items**

Press the SET button (BS2) and set the LED display to a setting item shown in the table on the right.

Press the RETURN button (BS3) and decide the item. (The present setting condition is blinked.)

**Selection of setting conditions**

Press the SET button (BS2) and set to the setting condition you want.

Press the RETURN button (BS3) and decide the condition.

Press the RETURN button (BS3) and set to the initial status of “Setting mode 2”.

---

<table>
<thead>
<tr>
<th>No.</th>
<th>Setting item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Indoor unit forced fan H</td>
<td>Allows forced operation of indoor unit fan while unit is stopped. (H tap)</td>
</tr>
<tr>
<td>6</td>
<td>Indoor unit forced operation</td>
<td>Allows forced operation of indoor unit.</td>
</tr>
<tr>
<td>8</td>
<td>Te setting</td>
<td>Target evaporation temperature for cooling</td>
</tr>
<tr>
<td>9</td>
<td>Tc setting</td>
<td>Target condensation temperature for heating</td>
</tr>
<tr>
<td>10</td>
<td>Defrost changeover setting</td>
<td>Changes the temperature condition for defrost and sets to quick defrost or slow defrost.</td>
</tr>
<tr>
<td>12</td>
<td>External low noise setting / Demand setting</td>
<td>Reception of external low noise or demand signal</td>
</tr>
<tr>
<td>16</td>
<td>Setting of hot water heater</td>
<td>Make this setting to conduct heating operation with hot water heater.</td>
</tr>
<tr>
<td>21</td>
<td>Refrigerant recovery / vacuuming mode setting</td>
<td>Sets to refrigerant recovery / vacuuming mode.</td>
</tr>
<tr>
<td>22</td>
<td>Low night noise operation setting</td>
<td>Sets automatic low night noise operation in a simple way. The operating time is based on “Starting set” and “Ending set”.</td>
</tr>
<tr>
<td>26</td>
<td>Low night noise operation start setting</td>
<td>Sets starting time of low night noise operation. (Low night noise operation setting is also required.)</td>
</tr>
<tr>
<td>27</td>
<td>Low night noise operation end setting</td>
<td>Sets ending time of low night noise operation. (Low night noise setting is also required.)</td>
</tr>
<tr>
<td>29</td>
<td>Capacity priority setting</td>
<td>If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.</td>
</tr>
<tr>
<td>30</td>
<td>Demand setting 1</td>
<td>Changes target value of power consumption when demand control 1 is input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load.)</td>
</tr>
<tr>
<td>32</td>
<td>Normal demand setting</td>
<td>Normally enables demand control 1 without external input.</td>
</tr>
<tr>
<td>No.</td>
<td>Setting item display</td>
<td>Setting condition display</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>5</td>
<td>Indoor unit forced fan H</td>
<td>No.</td>
</tr>
<tr>
<td>6</td>
<td>Indoor unit forced operation</td>
<td>No.</td>
</tr>
<tr>
<td>8</td>
<td>Te setting</td>
<td>No.</td>
</tr>
<tr>
<td>9</td>
<td>Tc setting</td>
<td>No.</td>
</tr>
<tr>
<td>10</td>
<td>Defrost changeover setting</td>
<td>No.</td>
</tr>
<tr>
<td>12</td>
<td>External low noise setting / Demand setting</td>
<td>No.</td>
</tr>
<tr>
<td>16</td>
<td>Setting of hot water heater</td>
<td>No.</td>
</tr>
<tr>
<td>21</td>
<td>Refrigerant recovery / vacuuming mode setting</td>
<td>No.</td>
</tr>
<tr>
<td>22</td>
<td>Low night noise operation setting</td>
<td>No.</td>
</tr>
<tr>
<td>26</td>
<td>Low night noise operation start setting</td>
<td>No.</td>
</tr>
<tr>
<td>27</td>
<td>Low night noise operation end setting</td>
<td>No.</td>
</tr>
<tr>
<td>29</td>
<td>Capacity priority setting</td>
<td>No.</td>
</tr>
<tr>
<td>30</td>
<td>Demand setting 1</td>
<td>No.</td>
</tr>
<tr>
<td>32</td>
<td>Normal demand setting</td>
<td>No.</td>
</tr>
</tbody>
</table>

- **MODE**
  - H1P
  - H2P
  - H3P
  - H4P
  - H5P
  - H6P
  - H7P

- **C/H selection**
  - IND
  - HSP

- **Low noise**
  - H6P

- **Demand**
  - H7P

- **Setting**
  - Factory setting

- **ON**
- **OFF**
- **Blink**
### 3.6 Monitor Mode

To enter the monitor mode, press the MODE button (BS1) when in "Setting mode 1".

<Selection of setting item>
Press the SET button (BS2) and set the LED display to a setting item.

<Confirmation on setting contents>
Press the RETURN button (BS3) to display different data of set items.

Press the RETURN button (BS3) and switches to the initial status of "Monitor mode".

* Press the MODE button (BS1) and returns to "Setting mode 1".

#### Setting item 0 Display contents of “Various settings”

<table>
<thead>
<tr>
<th>No.</th>
<th>Setting Item</th>
<th>LED display</th>
<th>Data display</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Various settings</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>See below</td>
</tr>
<tr>
<td>5</td>
<td>Number of connected indoor units</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>Lower 6 digits</td>
</tr>
<tr>
<td>14</td>
<td>Contents of error (the latest)</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>Error code table</td>
</tr>
<tr>
<td>15</td>
<td>Contents of error (1 cycle before)</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Contents of error (2 cycle before)</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Contents of retry (the latest)</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Contents of retry (1 cycle before)</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Contents of retry (2 cycle before)</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
</tbody>
</table>

#### Defrost select setting

<table>
<thead>
<tr>
<th>Short</th>
<th>Medium</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
</tr>
</tbody>
</table>

#### Te setting

<table>
<thead>
<tr>
<th>H</th>
<th>M</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
</tr>
</tbody>
</table>

#### Tc setting

<table>
<thead>
<tr>
<th>H</th>
<th>M</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ]</td>
</tr>
</tbody>
</table>

Press the SET button and match with the LEDs No. 1 - 15, press the RETURN button, and enter the data for each setting.

* Data such as addresses and number of units is expressed as binary numbers; the 2 ways of expressing are as follows:

The No. 5 cool/heat unified address is expressed as a binary number consisting of the lower 6 digits. (0 - 63)

In the address is 000110 (binary number), which translates to $4 + 2 = 6$ (base 10 number). In other words, the address is 6.
3.7 Detailed Explanation of Setting Modes

3.7.1 Cool / Heat Mode Switching

The Cool / Heat Mode switching is carried out by remote controller fitted to indoor unit. This setting is not required for normal operation. (Factory setting)

3.7.2 Setting of Low Noise Operation and Demand Operation

Setting of Low Noise Operation

By connecting the external contact input to the low noise input of the outdoor unit external control adaptor (optional), you can lower operating noise by 2-3 dB.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode 1</td>
<td>Set the outdoor unit fan to Step 6 or lower.</td>
</tr>
<tr>
<td>Mode 2</td>
<td>Set the outdoor unit fan to Step 5 or lower.</td>
</tr>
<tr>
<td>Mode 3</td>
<td>Set the outdoor unit fan to Step 4 or lower.</td>
</tr>
</tbody>
</table>

A. When the low noise operation is carried out by external contact (with the use of the external control adaptor for outdoor unit)

1. Connect external control adaptor for outdoor unit and short-circuit terminal of low noise (Refer below figure).

If carrying out demand or low noise input, connect the adaptor’s terminals as shown below.

2. While in "Setting mode 2", set the setting condition for set item No. 12 (Setting of external low noise/demand operation) to "YES".
3. If necessary, while in "Setting mode 2", select the setting condition (i.e., "Mode 1", "Mode 2", or "Mode 3") for set item No. 25 (Setting of external low noise level).
4. If necessary, while in "Setting mode 2", set the setting condition for the set item No. 29 (Setting of capacity precedence) to "ON".

   (If the condition is set to "ON", when the air conditioning load reaches a high level, the low noise operation command will be ignored to put the system into normal operation mode.)

B. When the low noise operation is carried out automatically at night (The external control adaptor for outdoor unit is not required)

1. While in "Setting mode 2", select the setting condition (i.e., "Mode 1", "Mode 2", or "Mode 3") for set item No. 22 (Setting of low night noise level).
2. If necessary, while in "Setting mode 2", select the setting condition (i.e., "20:00", "22:00", or "24:00") for set item No. 26 (Setting of start time of low night noise operation).

   (Use the start time as a guide since it is estimated according to outdoor air temperatures.)
3. If necessary, while in "Setting mode 2", select the setting condition (i.e., "06:00", "07:00", or "08:00") for set item No. 27 (Setting of end time of low night noise operation). (Use the end time as a guide since it is estimated according to outdoor air temperatures.)

4. If necessary, while in "Setting mode 2", set the setting condition for set item No. 29 (Setting of capacity precedence) to "ON". (If the condition is set to "ON", when the air conditioning load reaches a high level, the system will be put into normal operation mode even during nighttime.)

Image of operation in the case of A

If capacity priority is set in "Capacity priority setting", the fan speed will be increased according to the load of air conditioning when load is heavier.

Image of operation in the case of B

If capacity priority is set in "Capacity priority setting", the fan speed will be increased according to the load of air conditioning when load is heavier.

Image of operation in the case of A and B

If capacity priority is set in "Capacity priority setting", the fan speed will be increased according to the load of air conditioning when load is heavier.
3.7.3 Setting of Demand Operation

By connecting the external contact input to the demand input of the outdoor unit external control adaptor (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

<table>
<thead>
<tr>
<th>Set item</th>
<th>Condition</th>
<th>Content</th>
<th>Setting method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand 1</td>
<td>Mode 1</td>
<td>The compressor operates at approx. 60% or less of rating.</td>
<td>Short circuit “1” and “C” on the terminal strip (TeS1). Set item No. 32 to “Demand 1”, and item No. 30 to “Level 1”.</td>
</tr>
<tr>
<td></td>
<td>Mode 2</td>
<td>The compressor operates at approx. 70% or less of rating.</td>
<td>Set item No. 32 to “Demand 1”, and item No. 30 to “Level 2”.</td>
</tr>
<tr>
<td></td>
<td>Mode 3</td>
<td>The compressor operates at approx. 80% or less of rating.</td>
<td>Set item No. 32 to “Demand 1”, and item No. 30 to “Level 3”.</td>
</tr>
<tr>
<td>Demand 2</td>
<td>—</td>
<td>The compressor operates at approx. 40% or less of rating.</td>
<td>Short circuit “2” and “C”. Set item No. 32 to “Demand 2”.</td>
</tr>
<tr>
<td>Demand 3</td>
<td>—</td>
<td>Forced thermostat OFF.</td>
<td>Short circuit “3” and “C”.</td>
</tr>
</tbody>
</table>

*: However the demand operation does not occur in the following operation modes.
1. Startup control
2. Oil return operation
3. Defrosting operation
4. Pump down residual operation

If carrying out demand or low noise input, connect the adaptor’s terminals as shown below.

A. When the demand operation is carried out by external contact (with the use of the external control adaptor for outdoor unit).
1. Connect external control adaptor for outdoor unit and short-circuit terminals as required (Refer above figure).
2. While in “Setting mode 2”, set the setting condition for set item No. 12 (Setting of external low noise/demand operation) to “YES”.
3. If necessary, while in “Setting mode 2”, select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.

B. When the normal demand operation is carried out. (Use of the external control adaptor for outdoor unit is not required.)
1. While in “Setting mode 2”, make setting of the set item No. 32 (Setting of alternate demand) to “ON”.
2. While in “Setting mode 2”, select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.
Demand level 1 instructing
Power consumption set by "Demand 1 level setting".

Demand level 2 instructing
The power consumption during the demand level 1 instructing can be set with the "Demand 1 level setting". ("70 % of rated power consumption" has been set at factory.)

Demand level 3 instructing
The power consumption can be set with the "Demand 1 level setting". ("70 % of rated power consumption" has been set at factory.)

The power consumption can be set with the "Demand 1 level setting". ("70 % of rated power consumption" has been set at factory.)

When the "Normal demand setting" is set to ON ("OFF" has been set at factory), the power consumption can be set with the "Demand 1 level setting". ("70 % of rated power consumption" has been set at factory.)

During continuous demand operation, when the external demand instruction is received repeatedly, the instruction with higher demand level has the precedence.
Detailed Setting Procedure of Low Night Noise Operation and Demand Control

1. Setting mode 1 (H1P OFF)
   (1) In setting mode 2, press the BS1 (MODE button) once. → Setting mode 1 is entered and H1P OFF.
       During the setting mode 1 is displayed, “In low night noise operation” and “In demand control” are displayed.

2. Setting mode 2 (H1P ON)
   (1) In setting 1, press and hold the BS1 (MODE button) for more than 5 seconds. → Setting mode 2 is entered and H1P lights.
   (2) Press the BS2 (SET button) several times and match the LED display with the Setting No. you want.
   (3) Press the BS3 (RETURN button) several times and match the LED display with the setting content (as shown on next page) you want.
   (4) Press the BS3 (RETURN button) 2 times. → Returns to ①.
   (5) Press the BS1 (MODE button) once. → Returns to the setting mode 1 and turns H1P OFF.

<table>
<thead>
<tr>
<th>Setting No.</th>
<th>Setting contents</th>
<th>Setting No. indication</th>
<th>Setting No. indication</th>
<th>Setting contents indication (Initial setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>External low noise / Demand setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Low night noise operation setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Low night noise operation start setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Low night noise operation end setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Capacity priority setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Demand setting 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Normal demand setting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.7.4 Setting of Refrigerant Recovery Mode

When carrying out the refrigerant collection on site, fully open the respective electronic expansion valve of indoor and outdoor units.
Both the outdoor unit and the indoor unit are forbidden to operation.

[Operation procedure]
(1) In **setting mode 2** with units in stop mode, set “Refrigerant Recovery / Vacuuming mode” to ON. The respective electronic expansion valve of indoor and outdoor units are fully opened.
(H2P turns to display “TEST OPERATION” (blinks), “TEST OPERATION” and “UNDER CENTRALIZED CONTROL” are displayed on the remote controller, and the operation is prohibited.
(2) Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detail.)
(3) Press Mode button “BS1” once and reset “Setting Mode 2”.

3.7.5 Setting of Vacuuming Mode

In order to perform vacuuming operation at site, fully open the electronic expansion valves of indoor and outdoor units to turn on some solenoid valves.
Both the outdoor unit and the indoor unit are forbidden to operation.

[Operating procedure]
(1) With **Setting Mode 2** while the unit stops, set “Refrigerant recovery / Vacuuming mode” to ON. The electronic expansion valves of indoor and outdoor units fully open and some of solenoid valves open.
(H2P blinks to indicate the test operation, and the remote controller displays “TEST OPERATION” and “UNDER CENTRALIZED CONTROL”, thus prohibiting operation.)
After setting, do not cancel “Setting Mode 2” until completion of Vacuuming operation.
(2) Use the vacuum pump to perform vacuuming operation.
(3) Press Mode button “BS1” once and reset “Setting Mode 2”.
3.7.6 Check Operation

To prevent any trouble in the period of installation at site, the system is provided with a test operation mode enabling check for incorrect wiring, stop valve left in closed, and judgement of piping length.

CHECK OPERATION FUNCTION

- **Unit stopping**
  - Press the TEST button (BS4) for 5 seconds.
  - 10 seconds to 10 minutes

- **Pressure equalizing**
  - 20 seconds to 2 minutes

- **Cooling start control**
  - 10 minutes

- **Stability waiting operation**
  - 10 minutes

- **Judgement function**
  - Stop valve close check
  - Wrong wiring check
  - Piping length check
  - 3 minutes

- **Pump down residual operation**
  - To 30 seconds

- **Standby for restarting**
  - 5 minutes

- **Completion**

LED display (H1P–H7P) (●: ON ○: BLINK ●: OFF)

- Unit stopping
  - ○○○○○○

- Pressure equalizing
  - ○○○○○○

- Cooling start control
  - ○○○○○○

- Stability waiting operation
  - ○○○○○○

- Judgement function
  - ○○○○○○

- Pump down residual operation
  - ○○○○○○

- Standby for restarting
  - ○○○○○○

- Completion
  - ○○○○○○
# Part 6  
Service Diagnosis

1. Symptom-based Troubleshooting .................................................................96
2. Troubleshooting by Remote Controller .....................................................99
   2.1 Mode ChangeOver .............................................................................99
   2.2 Procedure of Self-diagnosis by Remote Controller .............................100
   2.3 Error Codes and Description .............................................................103
   2.4 Error Codes - Sub Codes ................................................................104
   2.5 Error Code Indication by Outdoor Unit PCB .......................................107
   2.6 Error of External Protection Device .....................................................109
   2.7 Indoor Unit PCB Abnormality .............................................................110
   2.8 Drain Water Level System Abnormality .............................................111
   2.9 Indoor Unit Fan Motor Abnormality ...................................................113
   2.10 Swing Flap Motor Abnormality / Lock ..............................................115
   2.11 Abnormal Power Supply Voltage .....................................................117
   2.12 Electronic Expansion Valve Coil Abnormality .....................................118
   2.13 Drain System Abnormality ...............................................................120
   2.14 Capacity Setting Abnormality ..........................................................121
   2.15 Transmission Error between Indoor Unit PCB and Fan PCB ...............122
   2.16 Heat Exchanger (Liquid pipe) Thermistor Abnormality ......................124
   2.17 Heat Exchanger (Gas Pipe) Thermistor Abnormality ..........................125
   2.18 Combination Error between Indoor Unit PCB and Fan PCB ...............126
   2.19 Suction Air Thermistor Abnormality ...............................................127
   2.20 Humidity Sensor System Abnormality ..............................................128
   2.21 Room Temperature Thermistor in Remote Controller Abnormality .......129
   2.22 Outdoor Unit PCB Abnormality .......................................................130
   2.23 High Pressure Abnormality .............................................................131
   2.24 Actuation of Low Pressure Sensor ....................................................133
   2.25 Inverter Compressor Motor Lock .....................................................135
   2.26 Outdoor Unit Fan Motor Abnormality ..............................................137
   2.27 Electronic Expansion Valve Coil Abnormality .....................................138
   2.28 Discharge Pipe Temperature Control Error .......................................141
   2.29 Refrigerant Overcharged ................................................................143
   2.30 High Pressure Switch System Abnormality .......................................144
   2.31 Outdoor Unit Fan Motor Signal Abnormality .....................................145
   2.32 Thermistor System Abnormality .......................................................146
   2.33 High Pressure Sensor Abnormality ...................................................147
   2.34 Low Pressure Sensor Abnormality ...................................................149
   2.35 Outdoor Unit PCB Abnormality .......................................................151
   2.36 Radiation Fin Temperature Rise .......................................................153
   2.37 Momentary Overcurrent of Inverter Compressor ...............................154
   2.38 Electronic Thermal (Time Lag) ........................................................155
   2.39 Inverter Startup Error ......................................................................157
   2.40 Transmission Error (between Control and Inverter PCB) ....................159
2.41 Radiation Fin Thermistor Abnormality ........................................... 160
2.42 Refrigerant Shortage ..................................................................... 161
2.43 Power Supply Voltage Abnormality .............................................. 162
2.44 Check Operation not Executed .................................................... 164
2.45 Transmission Error (between Indoor Units and Outdoor Units) ...... 165
2.46 Transmission Error (between Remote Controller and Indoor Unit) ... 168
2.47 Transmission Error (between Main and Sub Remote Controllers) .... 169
2.48 Transmission Error (between Centralized Remote Controller and Indoor Unit) .... 170
2.49 System is not Set yet .................................................................... 172
2.50 Check ......................................................................................... 173
### 1. Symptom-based Troubleshooting

<table>
<thead>
<tr>
<th></th>
<th>Symptom</th>
<th>Supposed Cause</th>
<th>Countermeasure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The system does not start operation at all.</td>
<td>Blowout of fuse(s)</td>
<td>Turn OFF the power supply and then replace the fuse(s).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cutout of breaker(s)</td>
<td>• If the knob of any breaker is in its OFF position, turn ON the power supply.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If the knob of any circuit breaker is in its tripped position, do not turn ON the power supply.</td>
</tr>
<tr>
<td>2</td>
<td>The system starts operation but makes an immediate stop.</td>
<td>Blocked air inlet or outlet of indoor or outdoor unit</td>
<td>Remove obstacle(s).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clogged air filter(s)</td>
<td>Clean the air filter(s).</td>
</tr>
<tr>
<td>3</td>
<td>The system does not cool or heat air well.</td>
<td>Blocked air inlet or outlet of indoor or outdoor unit</td>
<td>Remove obstacle(s).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clogged air filter(s)</td>
<td>Clean the air filter(s).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enclosed outdoor unit(s)</td>
<td>Remove the enclosure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improper set temperature</td>
<td>Set the temperature to a proper degree.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Airflow rate set to &quot;LOW&quot;</td>
<td>Set it to a proper airflow rate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improper direction of air diffusion</td>
<td>Set it to a proper direction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Open window(s) or door(s)</td>
<td>Shut it tightly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct sunlight received</td>
<td>Hang curtains or shades on windows.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too many persons staying in a room</td>
<td>The model must be selected to match the air conditioning load.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too many heat sources (e.g. OA equipment) located in a room</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The system does not operate.</td>
<td>The system stops and immediately restarts operation.</td>
<td>Normal operation. The system will automatically start operation after a lapse of 5 minutes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pressing the TEMP ADJUST button immediately resets the system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The remote controller displays &quot;UNDER CENTRALIZED CONTROL&quot;, which blinks for a period of several seconds when the OPERATION button is depressed.</td>
<td>操作系统未正常启动，操作后会立即重启。</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The system is controlled with centralized controller. Blinking display indicates that the system cannot be operated using the remote controller.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The system stops after turning ON the power supply.</td>
<td>Wait for a period of approximately 1 minute.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The system is in preparation mode of micro-computer operation.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>The system makes intermittent stops.</td>
<td>The remote controller displays error codes &quot;U4&quot; and &quot;U5&quot;, and the system stops but restarts after a lapse of several minutes.</td>
<td>Remove causes of electrical noises. If these causes are removed, the system will automatically restart operation.</td>
</tr>
<tr>
<td></td>
<td>Symptom</td>
<td>Supposed Cause</td>
<td>Countermeasure</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>COOL-HEAT selection is disabled.</td>
<td>The remote controller displays &quot;UNDER CENTRALIZED CONTROL&quot;.</td>
<td>Use a remote controller with option to select cooling operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The remote controller displays &quot;UNDER CENTRALIZED CONTROL&quot;, and the COOL-</td>
<td>Use the COOL-HEAT selection remote controller to select cool or heat.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HEAT selection remote controller is provided.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The system conducts fan operation but not cooling or heating operation.</td>
<td>This symptom occurs immediately after turning ON the power supply.</td>
<td>Wait for a period of approximately 10 minutes.</td>
</tr>
<tr>
<td>8</td>
<td>The airflow rate is not reproduced according to the setting.</td>
<td>Even pressing the AIRFLOW RATE SET button makes no changes in the airflow rate.</td>
<td>In heating operation, when the room temperature reaches the set degree, the outdoor unit will stop while the indoor unit is brought to fan LL operation so that no one gets cold air. (The fan LL operation is also enabled while in oil return mode in cooling operation.) Normal operation.</td>
</tr>
<tr>
<td>9</td>
<td>The airflow direction is not reproduced according to the setting.</td>
<td>The airflow direction is not corresponding to that displayed on the remote controller. The flap does not swing.</td>
<td>Automatic control Normal operation.</td>
</tr>
<tr>
<td>10</td>
<td>A white mist comes out from the system.</td>
<td>&lt;Indoor unit&gt; In cooling operation, the ambient humidity is high. (This indoor unit is installed in a place with much oil or dust.)</td>
<td>Uneven temperature distribution due to heavy stain of the inside of the indoor unit Clean the inside of the indoor unit, Normal operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Indoor unit&gt; Immediately after cooling operation stopping, the outdoor air temperature and humidity are low.</td>
<td>Hot gas (refrigerant) flown in the indoor unit results to be vapor from the unit. Normal operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Indoor and outdoor units&gt; After the completion of defrosting operation, the system is switched to heating operation.</td>
<td>Defrosted moisture turns to be vapor and comes out from the units. Normal operation.</td>
</tr>
<tr>
<td></td>
<td>Symptom</td>
<td>Supposed Cause</td>
<td>Countermeasure</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>11</td>
<td>The system produces sounds.</td>
<td><em>Indoor unit</em> Immediately after turning ON the power supply, indoor unit produces &quot;ringing&quot; sounds.</td>
<td>These are operating sounds of the electronic expansion valve of the indoor unit. Normal operation. This sound becomes low after a lapse of approximately 1 minute.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Indoor and outdoor units</em> &quot;Hissing&quot; sounds are continuously produced while in cooling or defrosting operation.</td>
<td>These sounds are produced from gas (refrigerant) flowing respectively through the indoor and outdoor units. Normal operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Indoor and outdoor units</em> &quot;Hissing&quot; sounds are produced immediately after the startup or stop of the system, or the startup or stop of defrosting operation.</td>
<td>These sounds are produced when the gas (refrigerant) stops or changes flowing. Normal operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Indoor unit</em> Faint sounds are continuously produced while in cooling operation or after stopping the operation.</td>
<td>These sounds are produced from the drain discharge device in operation. Normal operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Indoor unit</em> &quot;Creaking&quot; sounds are produced while in heating operation or after stopping the operation.</td>
<td>These sounds are produced from resin parts expanding and contracting with temperature changes. Normal operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Outdoor unit</em> Pitch of operating sounds changes.</td>
<td>The reason is that the compressor changes the operating frequency. Normal operation.</td>
</tr>
<tr>
<td>12</td>
<td>Dust comes out from the system.</td>
<td>Dust comes out from the system when it restarts after the stop for an extended period of time.</td>
<td>Dust, which has deposited on the inside of indoor unit, is blown out from the system. Normal operation.</td>
</tr>
<tr>
<td>13</td>
<td>Odors come out from the system.</td>
<td>In operation Odors of room, cigarettes or else adsorbed to the inside of indoor unit are blown out.</td>
<td>The inside of the indoor unit should be cleaned. Normal operation.</td>
</tr>
<tr>
<td>14</td>
<td>Outdoor unit fan does not rotate.</td>
<td>In operation The reason is that fan revolutions are controlled to put the operation to the optimum state.</td>
<td>Normal operation. Normal operation.</td>
</tr>
<tr>
<td>15</td>
<td>LCD display &quot;88&quot; appears on the remote controller.</td>
<td>Immediately after turning ON the power supply The reason is that the system is checking to be sure the remote controller is normal.</td>
<td>This code is displayed for a period of approximately 1 minute at maximum. Normal operation.</td>
</tr>
<tr>
<td>16</td>
<td>The outdoor unit compressor or the outdoor unit fan does not stop.</td>
<td>After stopping operation It stops in order to prevent oil or refrigerant from dwelling.</td>
<td>Normal operation. Normal operation. It stops after a lapse of approximately 5 to 10 minutes.</td>
</tr>
<tr>
<td>17</td>
<td>The outdoor unit gets hot.</td>
<td>While stopping operation The reason is that the compressor is warmed up to provide smooth startup of the system.</td>
<td>Normal operation. Normal operation.</td>
</tr>
<tr>
<td>18</td>
<td>The system does not cool air well.</td>
<td>The system is in dry operation. The reason is that the dry operation serves not to reduce the room temperature where possible.</td>
<td>Change the system to cooling operation. Normal operation.</td>
</tr>
</tbody>
</table>
2. Troubleshooting by Remote Controller

2.1 Mode ChangeOver

The following modes can be selected by using the [Inspection/Test Operation] button on the remote control.

- **Field setting mode**
  - Indoor unit settings can be made
    - Filter sign time
    - Airflow direction
    - Others

- **Service mode**
  - Service data can be obtained
    - Error code history
    - Temperature data of various sections
    - Forced fan ON
    - Airflow direction/volume setting

- **Normal mode**
  - Press the [Inspection/Test Operation] button once.

- **Test operation mode**
  - Thermostat is forcibly turned ON.

- **Inspection mode**
  - Following codes can be checked
    - Error codes
    - Indoor model code
    - Outdoor model code

- **Service setting**
  - Service settings can be made
    - Forced fan ON
    - Airflow direction/volume setting

- **Service data**
  - Service data can be obtained
    - Error code history
    - Temperature data of various sections

- **Normal mode**
  - After 10 seconds

- **Inspection mode**
  - Press the [Inspection/Test Operation] button once.

- **Service mode**
  - Service data can be obtained
    - Error code history
    - Temperature data of various sections
    - Forced fan ON
    - Airflow direction/volume setting

- **Field setting mode**
  - Depress the [Inspection/Test Operation] button for more than 4 seconds.

- **Service mode**
  - Service data can be obtained
    - Error code history
    - Temperature data of various sections
    - Forced fan ON
    - Airflow direction/volume setting

- **Test operation mode**
  - Thermostat is forcibly turned ON.

- **Inspection mode**
  - Following codes can be checked
    - Error codes
    - Indoor model code
    - Outdoor model code

- **Service mode**
  - Service data can be obtained
    - Error code history
    - Temperature data of various sections
    - Forced fan ON
    - Airflow direction/volume setting

- **Field setting mode**
  - Depress the [Inspection/Test Operation] button for more than 4 seconds.
2.2  Procedure of Self-diagnosis by Remote Controller

2.2.1 Wired Remote Controller — BRC1D71

If operation stops due to error, the remote controller’s operation LED blinks, and error code is displayed. (Even if stop operation is carried out, error contents are displayed when the inspection mode is entered.) The error code enables you to tell what kind of error caused operation to stop. Refer to P.103 for error code and error contents.

Note:
1. Pressing the INSPECTION/TEST button will blink the check indication.
2. While in check mode, pressing and holding the ON/OFF button for a period of 5 seconds or more will clear the failure history indication shown above. In this case, on the codes display, the error code will blink twice and then change to “00” (= Normal), the Unit No. will change to “0”, and the operation mode will automatically switch from check mode to normal mode (displaying the set temperature).
2.2.2 Wired Remote Controller — BRC1E71

The following will be displayed on the screen when an error (or a warning) occurs during operation. Check the error code and take the corrective action specified for the particular model.

![Diagram of remote controller]

(1) Checking an error or warning

<table>
<thead>
<tr>
<th>Operation Status</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal stop</td>
<td></td>
</tr>
<tr>
<td>The system stops operating.</td>
<td><img src="image" alt="Cool 68°F" /></td>
</tr>
<tr>
<td>The operation lamp (green) starts to blink. The message &quot;Error: Push Menu button&quot; will appear and blink at the bottom of the screen.</td>
<td></td>
</tr>
</tbody>
</table>

| Warning                  |         |
| The system continues its operation. | ![Cool 68°F](image) |
| The operation lamp (green) remains on. The message "Warning: Push Menu button" will appear and blink at the bottom of the screen. |

(2) Taking corrective action

- Press the Menu/OK button to check the error code.

- Take the corrective action specific to the model.
2.2.3 Wireless Remote Controller

If unit stops due to an error, the operation indicating LED on the signal receiving part of indoor unit blinks. The error code can be determined by following the procedure described below. (The error code is displayed when an operation error has occurred. In normal condition, the error code of the last problem is displayed.)

1. Press the INSPECTION/TEST button to select “inspection”. The equipment enters the inspection mode. The “Unit” indication is displayed and the Unit No. display shows blinking “0” indication.

2. Set the Unit No.
   Press the UP or DOWN button and change the Unit No. display until the buzzer (+1) is generated from the indoor unit.
   +1 Number of beeps
   3 short beeps: Conduct all of the following operations.
   1 short beep: Conduct steps 3 and 4.
   Continue the operation in step 4 until a buzzer remains ON. The continuous buzzer indicates that the error code is confirmed.
   Continuous beep: No abnormality.

3. Press the MODE selector button.
   The left “0” (upper digit) indication of the error code blinks.

4. Error code upper digit diagnosis
   Press the UP or DOWN button and change the error code upper digit until the error code matching buzzer (+2) is generated.
   The upper digit of the code changes as shown below when the UP and DOWN buttons are pressed.

   +2 Number of beeps
   Continuous beep: Both upper and lower digits matched. (Error code confirmed)
   2 short beeps: Upper digit matched.
   1 short beep: Lower digit matched.

5. Press the MODE selector button.
   The right “0” (lower digit) indication of the error code blinks.

6. Error code lower digit diagnosis
   Press the UP or DOWN button and change the error code lower digit until the continuous error code matching buzzer (+2) is generated.
   The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.

   "UP" button ↔ "DOWN" button
## 2.3 Error Codes and Description

<table>
<thead>
<tr>
<th>Error code</th>
<th>Contents of Error</th>
<th>Page Referred</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indoor Unit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A0</td>
<td>Error of External Protection Device</td>
<td>109</td>
</tr>
<tr>
<td>A1</td>
<td>Indoor Unit PCB Abnormality</td>
<td>110</td>
</tr>
<tr>
<td>A3</td>
<td>Drain Water Level System Abnormality</td>
<td>111</td>
</tr>
<tr>
<td>A6</td>
<td>Indoor Unit Fan Motor Abnormality</td>
<td>113</td>
</tr>
<tr>
<td>A7</td>
<td>Swing Flap Motor Abnormality / Lock</td>
<td>115</td>
</tr>
<tr>
<td>A8</td>
<td>Abnormal Power Supply Voltage</td>
<td>117</td>
</tr>
<tr>
<td>A9</td>
<td>Electronic Expansion Valve Coil Abnormality</td>
<td>118</td>
</tr>
<tr>
<td>AF</td>
<td>Drain System Abnormality</td>
<td>120</td>
</tr>
<tr>
<td>AJ</td>
<td>Capacity Setting Abnormality</td>
<td>121</td>
</tr>
<tr>
<td>C1</td>
<td>Transmission Error between Indoor Unit PCB and Fan PCB</td>
<td>122</td>
</tr>
<tr>
<td>C4</td>
<td>Heat Exchanger (Liquid pipe) Thermistor Abnormality</td>
<td>124</td>
</tr>
<tr>
<td>C5</td>
<td>Heat Exchanger (Gas Pipe) Thermistor Abnormality</td>
<td>125</td>
</tr>
<tr>
<td>C6</td>
<td>Combination Error between Indoor Unit PCB and Fan PCB</td>
<td>126</td>
</tr>
<tr>
<td>C9</td>
<td>Suction Air Thermistor Abnormality</td>
<td>127</td>
</tr>
<tr>
<td>CC</td>
<td>Humidity Sensor System Abnormality</td>
<td>128</td>
</tr>
<tr>
<td>CJ</td>
<td>Room Temperature Thermistor in Remote Controller Abnormality</td>
<td>129</td>
</tr>
<tr>
<td><strong>Outdoor Unit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>Outdoor Unit PCB Abnormality</td>
<td>130</td>
</tr>
<tr>
<td>E3</td>
<td>High Pressure Abnormality</td>
<td>131</td>
</tr>
<tr>
<td>E4</td>
<td>Actuation of Low Pressure Sensor</td>
<td>133</td>
</tr>
<tr>
<td>E5</td>
<td>Inverter Compressor Motor Lock</td>
<td>135</td>
</tr>
<tr>
<td>E7</td>
<td>Outdoor Unit Fan Motor Abnormality</td>
<td>137</td>
</tr>
<tr>
<td>E9</td>
<td>Electronic Expansion Valve Coil Abnormality</td>
<td>138</td>
</tr>
<tr>
<td>F3</td>
<td>Discharge Pipe Temperature Control Error</td>
<td>141</td>
</tr>
<tr>
<td>F6</td>
<td>Refrigerant Overcharged</td>
<td>143</td>
</tr>
<tr>
<td>H3</td>
<td>High Pressure Switch Abnormality</td>
<td>144</td>
</tr>
<tr>
<td>H7</td>
<td>Outdoor Unit Fan Motor Signal Abnormality</td>
<td>145</td>
</tr>
<tr>
<td>H9</td>
<td>Outdoor Air Thermistor Abnormality</td>
<td>146</td>
</tr>
<tr>
<td>J3</td>
<td>Discharge Pipe Thermistor Abnormality</td>
<td>146</td>
</tr>
<tr>
<td>J5</td>
<td>Suction Pipe Thermistor Abnormality</td>
<td>146</td>
</tr>
<tr>
<td>J6</td>
<td>Outdoor Unit Heat Exchanger Thermistor Abnormality</td>
<td>146</td>
</tr>
<tr>
<td>JA</td>
<td>High Pressure Sensor Abnormality</td>
<td>147</td>
</tr>
<tr>
<td>JC</td>
<td>Low Pressure Sensor Abnormality</td>
<td>149</td>
</tr>
<tr>
<td>L1</td>
<td>Outdoor Unit PCB Abnormality</td>
<td>151</td>
</tr>
<tr>
<td>L4</td>
<td>Radiation Fin Temperature Rise</td>
<td>153</td>
</tr>
<tr>
<td>L5</td>
<td>Momentary Overcurrent of Inverter Compressor</td>
<td>154</td>
</tr>
<tr>
<td>L8</td>
<td>Electronic Thermal (Time Lag)</td>
<td>155</td>
</tr>
<tr>
<td>L9</td>
<td>Inverter Startup Error</td>
<td>157</td>
</tr>
<tr>
<td>LC</td>
<td>Transmission Error (between Control and Inverter PCB)</td>
<td>159</td>
</tr>
<tr>
<td>P4</td>
<td>Radiation Fin Thermostat Abnormality</td>
<td>160</td>
</tr>
<tr>
<td><strong>System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U0</td>
<td>Refrigerant Shortage</td>
<td>161</td>
</tr>
<tr>
<td>U2</td>
<td>Power Supply Voltage Abnormality</td>
<td>162</td>
</tr>
<tr>
<td>U3</td>
<td>Check Operation not Executed</td>
<td>164</td>
</tr>
<tr>
<td>U4</td>
<td>Transmission Error (between Indoor Units and Outdoor Units)</td>
<td>165</td>
</tr>
<tr>
<td>U5</td>
<td>Transmission Error (between Remote Controller and Indoor Unit)</td>
<td>168</td>
</tr>
<tr>
<td>U8</td>
<td>Transmission Error (between Main and Sub Remote Controllers)</td>
<td>169</td>
</tr>
<tr>
<td>UE</td>
<td>Transmission Error (between Centralized Remote Controller and Indoor Unit)</td>
<td>170</td>
</tr>
<tr>
<td>UF</td>
<td>System is not Set yet</td>
<td>172</td>
</tr>
</tbody>
</table>

The system operates for error codes indicated in black squares, however, be sure to check and repair.
## 2.4 Error Codes - Sub Codes

If an error code like the one shown below is displayed when the navigation remote controller (BRC1E71) is in use, make a detailed diagnosis or a diagnosis of the relevant unit referring to the attached list of detailed error codes.

### 2.4.1 Indoor Unit

<table>
<thead>
<tr>
<th>Error code</th>
<th>Description of error</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6 - 01</td>
<td>Fan motor locked</td>
<td>A locked fan motor current has been detected. Turn the fan by hand to check for the connection of connectors.</td>
</tr>
<tr>
<td>A6 - 10</td>
<td>Fan overcurrent error</td>
<td>A fan motor overcurrent has been detected. Check for the connection of the connector between the fan motor and the PCB for the fan. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the PCB for the fan.</td>
</tr>
<tr>
<td>A6 - 11</td>
<td>Fan position detection error</td>
<td>An error in the detection of position of the fan motor. Check for the connection of the connector between the fan motor and the PCB for the fan. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the PCB for the fan.</td>
</tr>
<tr>
<td>AH - 03</td>
<td>Transmission error (between the self-cleaning decoration panel and the indoor unit)</td>
<td>Check for the connection of the harness connector between the panel PCB and the indoor unit PCB.</td>
</tr>
<tr>
<td>AH - 04</td>
<td>Dust detection sensor error</td>
<td>Check for the connections of the connector X12A on the panel PCB and the connectors X18A and X19A on the sensor PCB.</td>
</tr>
<tr>
<td>AH - 05</td>
<td>Dust collection sign error</td>
<td>Check for clogging with dust at the dust collection port as well as in the brush unit, S-shaped pipe, and dust box. Furthermore, check for any stains of the light receiving and emitting parts of the infrared unit.</td>
</tr>
<tr>
<td>AH - 06</td>
<td>Air filter rotation error</td>
<td>Check for anything getting in the way of rotating the filter (e.g., the filter comes off or the drive gear is clogged with foreign matters).</td>
</tr>
<tr>
<td>AH - 07</td>
<td>Damper rotation error</td>
<td>The damper does not rotate normally. Check for any foreign matters around the damper and for the operation of the gear and limit switch.</td>
</tr>
<tr>
<td>AH - 08</td>
<td>Filter self-cleaning operation error</td>
<td>The unit has not yet completed the filter self-cleaning operation even after the lapse of specified period of time. Check for any external noise, etc.</td>
</tr>
<tr>
<td>C6 - 01</td>
<td>Faulty combination of indoor unit PCB and fan PCB</td>
<td>A combination of indoor unit PCB and fan PCB is faulty. Check whether the capacity setting adaptor is correct and the type of the fan PCB is correct.</td>
</tr>
</tbody>
</table>
## 2.4.2 Outdoor Unit

<table>
<thead>
<tr>
<th>Error code</th>
<th>Description of error</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E7 - 01</td>
<td>Fan motor lock</td>
<td>The fan motor has caused abnormal rotation. Check for the connection of the connector between the fan motor and the outdoor unit PCB. If the connection is normal, replace the fan motor. If this still cannot solve the error, replace the outdoor unit PCB.</td>
</tr>
<tr>
<td>L1 - 01</td>
<td>Instantaneous overcurrent error (while in startup operation)</td>
<td>Refer to the &quot;L1&quot; flow chart of each manual and make a diagnosis of the relevant unit based on the Error code shown to the left.</td>
</tr>
<tr>
<td>L1 - 02</td>
<td>Current sensor error in PCB</td>
<td></td>
</tr>
<tr>
<td>L1 - 03</td>
<td>Current offset error</td>
<td></td>
</tr>
<tr>
<td>L1 - 04</td>
<td>IGBT error</td>
<td></td>
</tr>
<tr>
<td>L1 - 05</td>
<td>Jumper setting error</td>
<td></td>
</tr>
<tr>
<td>L1 - 06</td>
<td>SP/MP-PAM overvoltage error</td>
<td></td>
</tr>
<tr>
<td>L8 - 01</td>
<td>Electronic thermal 1 error</td>
<td>Overload current continues for a period of 260 seconds or more. This error is supposed to have resulted from excessive charging of refrigerant, damage caused to the compressor bearing, too high-pressure, etc. Check and probe the cause.</td>
</tr>
<tr>
<td>L8 - 02</td>
<td>Electronic thermal 2 error</td>
<td>Overload current close to the locked current flowed in the thermal for a period of five seconds. This error is supposed to have resulted from closed stop valve, disconnected wire in the compressor motor, etc. Check and probe the cause.</td>
</tr>
<tr>
<td>L8 - 03</td>
<td>Drop in compressor revolutions</td>
<td>Compressor load has been increased after startup. This error is supposed to have resulted from instantaneous power failure, liquid back, etc. Check and probe the cause.</td>
</tr>
<tr>
<td>L8 - 04</td>
<td>Thunder detection error</td>
<td>Surges caused by thunder</td>
</tr>
<tr>
<td>L8 - 05</td>
<td>Inverter limiting current</td>
<td>Excessive limiting current is flowing in the inverter. This error is supposed to have resulted from failure to open the stop valve, excessive charging of refrigerant, clogging in the indoor unit filter stain in the indoor/outdoor unit heat exchanger etc. Check and probe the cause.</td>
</tr>
<tr>
<td>L9 - 01</td>
<td>Stall prevention (current increase)</td>
<td>Overload current has been applied to start up the compressor. This error is supposed to have resulted from high startup differential pressure, liquid back, excessive compressor oil, abnormal compressor coil, seizure of the compressor shaft, etc. Check and probe the cause.</td>
</tr>
<tr>
<td>L9 - 02</td>
<td>Stall prevention (startup error)</td>
<td>The compressor has not completed startup operation. This error is supposed to have resulted from high startup differential pressure, liquid back, excessive compressor oil, abnormal compressor coil, seizure of the compressor shaft, faulty position detection circuit, etc. Check and probe the cause.</td>
</tr>
<tr>
<td>LC - 01</td>
<td>Faulty wiring</td>
<td>Faulty transmission including that caused when the power supply turns ON. This error is supposed to have resulted from ① Defective wire connections around the PCB, ② faulty outdoor unit PCB, or ③ faulty fan motor. Check and probe the cause.</td>
</tr>
<tr>
<td>LC - 02</td>
<td>Faulty transmission between compressor and micro controller</td>
<td>There is an error in transmission between the compressor and the outdoor unit PCB. If the wire connections of the compressor are normal, check for the same of the outdoor unit PCB.</td>
</tr>
<tr>
<td>PJ - 01</td>
<td>Capacity setting not made</td>
<td>This is an outdoor unit PCB for repair, but has no capacity setting adaptor connected. Connect a correct capacity setting adaptor to the PCB.</td>
</tr>
<tr>
<td>PJ - 04</td>
<td>Faulty capacity setting</td>
<td>This error results from a mismatch of signals between the controller in the PCB and the inverter. Check whether the type of the PCB is correct and correct capacity setting adaptor is connected.</td>
</tr>
<tr>
<td>Error code</td>
<td>Description of error</td>
<td>Troubleshooting</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>U0  -  02</td>
<td>Gas shortage - Outdoor unit (Factor 0)</td>
<td>This error results from a shortage of refrigerant. Refer to the &quot;U0&quot; Troubleshooting flow chart and make a diagnosis, and then take countermeasures.</td>
</tr>
<tr>
<td>U0  -  03</td>
<td>Gas shortage - Outdoor unit (Factor 1)</td>
<td>This error results from a shortage of refrigerant caused by gas leakage. Charge refrigerant up to the normal refrigerant amount.</td>
</tr>
<tr>
<td>U0  -  04</td>
<td>Gas shortage - Outdoor unit (Factor 2)</td>
<td>This error results from clogging caused somewhere in the refrigerant piping system. Check for a failure to open the stop valve and clogging in the refrigerant system.</td>
</tr>
<tr>
<td>U2  -  01</td>
<td>Power supply voltage error</td>
<td>This error is supposed to have resulted from under- or over-voltage of the power supply, or faulty voltage sensor in the PCB.</td>
</tr>
<tr>
<td>U2  -  02</td>
<td>Open phase of power supply</td>
<td>Check for any open phase of the power supply.</td>
</tr>
<tr>
<td>U2  -  03</td>
<td>Main circuit capacitor charge error</td>
<td>There is abnormal circuit current flowing in the PCB. If wire connections related to the PCB are normal, replace the outdoor unit PCB.</td>
</tr>
<tr>
<td>U2  -  04</td>
<td>SP/MP - PAM overvoltage error</td>
<td>There is overvoltage between SP/MP and PAM (Single phase). If wire connections related to the PCB are normal, replace the outdoor unit PCB.</td>
</tr>
<tr>
<td>UA  -  01</td>
<td>Incorrect number of indoor units connected</td>
<td>This error will be displayed if the locally-set number of indoor units is different from the detected number of indoor unit.</td>
</tr>
<tr>
<td>UA  -  02</td>
<td>Multiple master units detected</td>
<td>There are a number of indoor units with a remote controller connected. Connect the remote controller to only one indoor unit.</td>
</tr>
<tr>
<td>UA  -  03</td>
<td>Excess indoor units connected</td>
<td>This error will be displayed if five or more indoor units are connected.</td>
</tr>
<tr>
<td>UA  -  05</td>
<td>Indoor-Outdoor transmission error between slave 1 and outdoor unit</td>
<td>There is an error in transmission between the outdoor unit and slave indoor unit 1. Check for the connection of the jumper between the slave indoor unit (with no remote controller connected) and the outdoor unit.</td>
</tr>
<tr>
<td>UA  -  07</td>
<td>Indoor-Outdoor transmission error between slave 2 and outdoor unit</td>
<td>There is an error in transmission between the outdoor unit and slave indoor unit 2. Check for the connection of the jumper between the slave indoor unit (with no remote controller connected) and the outdoor unit.</td>
</tr>
<tr>
<td>UA  -  09</td>
<td>Indoor-Outdoor transmission error between slave 3 and outdoor unit</td>
<td>There is an error in transmission between the outdoor unit and slave indoor unit 3. Check for the connection of the jumper between the slave indoor unit (with no remote controller connected) and the outdoor unit.</td>
</tr>
<tr>
<td>UF  -  01</td>
<td>Incorrect wiring</td>
<td>There is an error in wire connections for transmission between indoor and outdoor units (judged with the indoor unit). Check for the connections of jumpers 1, 2, and 3 between the indoor and outdoor units.</td>
</tr>
<tr>
<td>UF  -  02</td>
<td>Piping connected the other way round</td>
<td>There is an error in operation mode and refrigerant piping detection temperature. Check for any refrigerant piping connected the other way round, shortage of refrigerant, etc.</td>
</tr>
</tbody>
</table>
2.5 Error Code Indication by Outdoor Unit PCB

<Monitor mode>
To enter the monitor mode, press the MODE [BS1] button when in "Setting mode 1".

<Selection of setting item>
Press the SET [BS2] button and set the LED display to a setting item.

<Confirmation of error 1>
Press the RETURN [BS3] button once to display "First digit" of error code.

<Confirmation of error 2>
Press the SET [BS2] button once to display "Second digit" of error code.

<Confirmation of error 3>
Press the SET [BS2] button once to display "error location".

<Confirmation of error 4>
Press the SET [BS2] button once to display "master or slave 1 or slave 2" and "error location".

Press the RETURN [BS3] button and switches to the initial status of "Monitor mode".

* Press the MODE [BS1] button and returns to "Setting mode 1".

### Contents of Error

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Error Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>In-phase error of DIII-Net Detection of DIII-Net</td>
</tr>
<tr>
<td>E3</td>
<td>Discharge pressure Abnormality HPS activated</td>
</tr>
<tr>
<td>E4</td>
<td>Suction pressure Abnormality Pe abnormality</td>
</tr>
<tr>
<td>E5</td>
<td>Compressor lock Detection of INV. compressor lock</td>
</tr>
<tr>
<td>E7</td>
<td>Overload, overcurrent Detection of DC fan 1 motor lock</td>
</tr>
<tr>
<td>E9</td>
<td>Electronic expansion valve abnormality</td>
</tr>
<tr>
<td>H9</td>
<td>Defective sensor of outdoor air temperature Td sensor (short)</td>
</tr>
<tr>
<td>F3</td>
<td>Discharge pipe temperature abnormality</td>
</tr>
<tr>
<td>F6</td>
<td>Heat exchanger temperature abnormality Refrigerant overcharge</td>
</tr>
<tr>
<td>J3</td>
<td>Defective sensor of discharge pipe temperature</td>
</tr>
<tr>
<td>J5</td>
<td>Defective sensor of suction pipe temperature</td>
</tr>
<tr>
<td>J6</td>
<td>Defective sensor of heat exchanger temperature</td>
</tr>
<tr>
<td>JA</td>
<td>Defective sensor of discharge</td>
</tr>
<tr>
<td>JC</td>
<td>Defective sensor of suction pressure</td>
</tr>
<tr>
<td>L1</td>
<td>Defective Inverter PCB</td>
</tr>
<tr>
<td>L4</td>
<td>Inverter radiation fin temperature rising Over heating of inverter radiation fin temperature</td>
</tr>
<tr>
<td>L5</td>
<td>DC output overcurrent Inverter instantaneous overcurrent</td>
</tr>
<tr>
<td>L8</td>
<td>Electronic thermal</td>
</tr>
<tr>
<td>L9</td>
<td>Stall prevention (Limit time) Stall prevention (Current increasing)</td>
</tr>
<tr>
<td>L10</td>
<td>Stall prevention (Start up error) Wave form in startup abnormality</td>
</tr>
<tr>
<td>LC</td>
<td>Stall prevention (Out-of-step)</td>
</tr>
<tr>
<td>P4</td>
<td>Transmission error between inverter and outdoor unit</td>
</tr>
<tr>
<td>U0</td>
<td>Defective temperature sensor of inverter radiation fin</td>
</tr>
<tr>
<td>U1</td>
<td>Refrigerant shortage Refrigerant shortage alarm</td>
</tr>
<tr>
<td>U2</td>
<td>Power supply voltage abnormality Insufficient Inverter voltage</td>
</tr>
<tr>
<td>U3</td>
<td>No implementation of test-run</td>
</tr>
<tr>
<td>U4</td>
<td>Transmission error between indoor and outdoor unit I/O transmission error</td>
</tr>
<tr>
<td>UF</td>
<td>Conflict in wiring and piping, no setting for system</td>
</tr>
</tbody>
</table>

* Press the MODE [BS1] button and returns to "Setting mode 1".

Detail description on next page.
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Confirmation of Error 1</th>
<th>Confirmation of Error 2</th>
<th>Confirmation of Error 3</th>
<th>Confirmation of Error 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
</tr>
<tr>
<td>E1</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>E3</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>E4</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>E5</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>E7</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>E9</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>H1</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>F3</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>J3</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>J6</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>JA</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>LC</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>L1</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>L4</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>L5</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>L8</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>L9</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>LC</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>P4</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>U0</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>U2</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>U3</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>U4</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
<tr>
<td>UF</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
<td>ON ON ON ON ON ON ON</td>
</tr>
</tbody>
</table>

Display of contents of error (first digit)
Display of contents of error (second digit)
Display 1 of error in detail
Display 2 of error in detail

Master
Slave1
Slave2
System
2.6 Error of External Protection Device

Remote Controller Display

Applicable Models
All indoor models

Method of Error Detection
Detect open or short circuit between external input terminals in indoor unit.

Error Decision Conditions
When an open circuit occurs between external input terminals with the remote controller set to "external ON/OFF terminal".

Supposed Causes
- Actuation of external protection device
- Improper field setting
- Defective indoor unit PCB

Troubleshooting

Caution: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- External protection device is connected to terminals T1 and T2 of the indoor unit terminal block.
  - YES: Actuation of external protection device.
  - NO:
    - Check the setting state of the ON/OFF input from outside by remote controller.
      - YES: Change the second code No. to "01" or "02".
      - NO: Replace the indoor unit PCB.

2.7 Indoor Unit PCB Abnormality

Remote Controller Display

Applicable Models
All indoor models

Method of Error Detection
Check data from E²PROM.

Error Decision Conditions
The error is generated when the data from the E²PROM is not received correctly.

E²PROM (Electrically Erasable Programmable Read Only Memory): A memory chip that holds its content without power. It can be erased, either within the computer or externally and usually requires more voltage for erasure than the common +5 volts used in logic circuits. It functions like non-volatile RAM, but writing to E²PROM is slower than writing to RAM.

Supposed Causes
- Defective indoor unit PCB
- External factor (Noise, etc.)

Troubleshooting

⚠️ Caution
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Switch the power OFF and ON again to restart.

Normal reset?

- NO Replace the indoor unit PCB.
- YES

The error may be caused by an external factor, rather than damaged parts. Locate the cause and correct the situation.
## 2.8 Drain Water Level System Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>FCQ, FHQ (Option), FAQ (Option), FTQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>By float switch OFF detection</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>The error is generated when the water level reaches its upper limit and when the float switch turns OFF.</td>
</tr>
</tbody>
</table>
| Supposed Causes           | ▪ Defective drain pump  
                          | ▪ Improper drain piping work  
                          | ▪ Drain piping clogging  
                          | ▪ Defective float switch  
                          | ▪ Defective indoor unit PCB  
                          | ▪ Defective short circuit connector X15A on PCB |
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Note: If "R3" is detected by a PCB which is not mounted with X15A, the PCB is defective.
2.9 Indoor Unit Fan Motor Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>All indoor models</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>Detection of abnormal fan revolution by signal from the fan motor</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>The error is generated when the fan revolution do not increase while the output voltage to the fan is at its maximum.</td>
</tr>
</tbody>
</table>
| Supposed Causes           | - Disconnection, short circuit or disengagement of connector in fan motor harness
- Defective fan motor (disconnection, poor insulation)
- Abnormal signal from fan motor (defective circuit)
- Defective Indoor unit PCB
- Instantaneous fluctuation of power supply voltage
- Fan motor lock
  (Caused by motor or other external factors)
- Fan does not turn due to a tangle of foreign matters.
- Disconnection of the connector between the high-power PCB and the low-power PCB. |
Troubleshooting

Caution

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Turn OFF the power supply. Wait for 10 min.

Is there any foreign matter around the fan?

YES  Remove the foreign matter.

NO

Is the fan motor harness connected to indoor unit PCB (*1)

YES

With connector for fan motor (*) disconnected, can the fan be easily turned by hands?

NO  Replace the fan motor.

YES

CHECK 3
Check for the fan motor connector.

Is the resistance between each pin above judgement standard?

NO  Replace the fan motor.

YES

Replace the indoor unit PCB.

Note:

1. Connector and indoor unit PCB

<table>
<thead>
<tr>
<th>Connector for fan motor</th>
<th>PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCQ</td>
<td>X4A</td>
</tr>
<tr>
<td>FHQ</td>
<td>X4A</td>
</tr>
<tr>
<td>FAQ</td>
<td>X20A</td>
</tr>
<tr>
<td>FBQ</td>
<td>X8A or X1A and X2A</td>
</tr>
<tr>
<td>FTQ</td>
<td>X1A</td>
</tr>
</tbody>
</table>

CHECK 3 Refer to P.175.
2.10 Swing Flap Motor Abnormality / Lock

Remote Controller Display

<table>
<thead>
<tr>
<th>Applicable Models</th>
<th>FCQ, FHQ, FAQ</th>
</tr>
</thead>
</table>

Method of Error Detection

The error is detected by the limit switch when the motor turns.

Error Decision Conditions

When ON/OFF of the micro-switch for position detection cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds).

* Error code is displayed but the system operates continuously.

Supposed Causes

- Defective swing flap motor
- Defective micro-switch
- Defective connector connection
- Defective indoor unit PCB
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Connector and indoor unit PCB

<table>
<thead>
<tr>
<th>Model</th>
<th>Connector for swing flap motor</th>
<th>PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCQ</td>
<td>X36A, X36A, X36A</td>
<td>A1P</td>
</tr>
<tr>
<td>FHQ</td>
<td>X6A, X9A</td>
<td>A1P</td>
</tr>
<tr>
<td>FAQ</td>
<td>X36A, X36A</td>
<td>A1P</td>
</tr>
</tbody>
</table>
2.11 Abnormal Power Supply Voltage

Remote Controller Display

Applicable Models

Method of Error Detection

Error Decision Conditions

Supposed Causes

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the condition of the power supply.
1. Check if power supply voltage is 208V - 230V ± 10%.
2. Check if there is power open phase or defective wiring.
3. Check if power supply voltage side unbalance is within 6V.

There are problems on the condition of power supply described above.

Correct any fault.

Error is displayed again.

Check and correct each wiring.

It is possible to have external factor, such as brownout and instantaneous blackout.
2.12 Electronic Expansion Valve Coil Abnormality

Remote Controller Display

Applicable Models
All indoor models

Method of Error Detection
Check the coil condition of electronic expansion valve by using micro-computer.

Error Decision Conditions
Pin input for electronic expansion valve coil is abnormal when initializing micro-computer.

Supposed Causes
- Defective electronic expansion valve coil
- Defective indoor unit PCB
- Defective relay cable

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- The electronic expansion valve is connected to X7A of the indoor unit PCB.
  - YES
  - NO
  - After connecting, turn the power supply OFF and then back ON.

- Normal when coil check (+1) of the electronic expansion valve coil is checked.
  - YES
  - NO
  - Replace the electronic expansion valve coil.

- The relay cable is short-circuited or disconnected.
  - YES
  - NO
  - Replace the relay cable.

- If you turn the power supply OFF and turn ON again, and it still does not help, replace the indoor unit PCB.
**1: Coil check method for the electronic expansion valve coil**
Discount the electronic expansion valve from the PCB and check the continuity between the connector pins.

(Normal)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. White</td>
<td>×</td>
<td></td>
<td>×</td>
<td></td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Approx. 300Ω</td>
<td>×</td>
<td>○ Approx. 150Ω</td>
<td>×</td>
<td></td>
</tr>
<tr>
<td>2. Yellow</td>
<td></td>
<td>×</td>
<td></td>
<td>×</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>○ Approx. 300Ω</td>
<td>×</td>
<td>○ Approx. 150Ω</td>
<td></td>
</tr>
<tr>
<td>3. Orange</td>
<td></td>
<td></td>
<td>×</td>
<td></td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>○ Approx. 150Ω</td>
<td></td>
</tr>
<tr>
<td>4. Blue</td>
<td></td>
<td></td>
<td></td>
<td>×</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>○ Approx. 150Ω</td>
</tr>
<tr>
<td>5. Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>×</td>
</tr>
<tr>
<td>6. Brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

○: Continuity
×: No continuity
2.13 Drain System Abnormality

Remote Controller Display

Applicable Models
All indoor models

Method of Error Detection
Water leakage is detected based on float switch ON/OFF operation while the compressor is in non-operation.

Error Decision Conditions
The float switch changes from ON to OFF while the compressor is OFF.
* Error code is displayed but the system operates continuously.

Supposed Causes
- Error in the drain pipe installation
- Defective float switch
- Defective indoor unit PCB
- Defective connector connection
- Defective drain pump

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Are float switch and drain pipe normal? NO → Possible defective float switch.
  YES → Check to see if drain-up height and horizontal pipe length exceed specifications.

- Is the water drainage system normal? NO → Clogged drain water discharge system
  YES → Clogged drain pump.

Replace the indoor unit PCB.
Check to see if drain-up height and horizontal pipe length exceed specifications.
## 2.14 Capacity Setting Abnormality

### Remote Controller Display

<table>
<thead>
<tr>
<th>Applicable Models</th>
<th>All indoor models</th>
</tr>
</thead>
</table>

### Method of Error Detection

Capacity is determined according to resistance of the capacity setting adaptor and the memory inside the IC memory on the indoor unit PCB, and whether the value is normal or abnormal is determined.

### Error Decision Conditions

Operation and:  
When the capacity code is not contained in the PCB memory, and the capacity setting adaptor is not connected.

### Supposed Causes

- Defective capacity setting adaptor connection
- Defective indoor unit PCB

### Troubleshooting

**Caution**  
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Decision Tree](image)

- **NO**  
  - Replace the indoor unit PCB.
- **YES**  
  - **NO**  
    - Replace the indoor unit PCB.
  - **YES**  
    - Install a capacity setting adaptor.
## 2.15 Transmission Error between Indoor Unit PCB and Fan PCB

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FBQ</td>
<td>--</td>
</tr>
</tbody>
</table>

**Applicable Models**

**Method of Error Detection**

Check the condition of transmission between indoor unit PCB and fan PCB using computer.

**Error Decision Conditions**

When normal transmission is not conducted for certain duration.

**Supposed Causes**

- Connection error of the connector between indoor unit PCB and fan PCB.
- Defective indoor unit PCB
- Defective fan PCB
- External factor, such as instantaneous blackout.
Troubleshooting

⚠️ Caution
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Is the connector between indoor unit PCB (A1P) and fan PCB (A2P) accurately connected?

(+1)

YES → Connect the connector accurately.

NO

Confirm the condition of transmission on indoor unit PCB using field setting mode.

(+2)

Under above field setting mode, installation position is "01".

NO → Replace the indoor unit PCB (A1P).

YES

Connect the connector X70A and turn ON the power again.

Error is displayed again.

YES → Replace the fan PCB (A2P).

NO → Connect it and operate (It is possible to have a cause, such as instantaneous blackout)

Note:
*1. Pull out and insert the connector once and check it is absolutely connected.

*2. Method to check transmission part of indoor unit PCB.

(1) Turn OFF the power and remove the connector X70A of indoor unit PCB (A1P).

(2) Short circuit X70A.

(3) After turning ON the power, check below numbers under field setting of remote controller.

(Confirmation: second code No. at the condition of first code No. 21 on mode No. 41)

<table>
<thead>
<tr>
<th>Determination</th>
<th>01: Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other than 01</td>
<td>Transmission defect on indoor unit PCB</td>
</tr>
</tbody>
</table>

* After confirmation, turn OFF the power, take off the short circuit and connect X70A back to original condition.
2.16 Heat Exchanger (Liquid pipe) Thermistor Abnormality

Remote Controller Display

Applicable Models
All indoor models

Method of Error Detection
The error is detected by temperature detected by heat exchanger thermistor.

Error Decision Conditions
When the heat exchanger thermistor becomes disconnected or shorted while the unit is running

Supposed Causes
- Defective thermistor for heat exchanger (liquid pipe)
- Defective indoor unit PCB

Troubleshooting

Caution
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Troubleshooting Diagram]

CHECK 5


delete

Note:
* Connector and indoor unit PCB

<table>
<thead>
<tr>
<th>Model</th>
<th>Connector for the heat exchanger (liquid pipe) thermistor</th>
<th>Electric Symbol</th>
<th>PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCQ</td>
<td>X18A</td>
<td>R2T</td>
<td>A1P</td>
</tr>
<tr>
<td>FHQ</td>
<td>X12A</td>
<td>R2T</td>
<td>A1P</td>
</tr>
<tr>
<td>FAQ</td>
<td>X18A</td>
<td>R2T</td>
<td>A1P</td>
</tr>
<tr>
<td>FBQ</td>
<td>X18A</td>
<td>R2T</td>
<td>A1P</td>
</tr>
<tr>
<td>FTQ</td>
<td>X18A</td>
<td>R1T</td>
<td>A1P</td>
</tr>
</tbody>
</table>

CHECK 5 Refer to P.177, 178.
2.17 Heat Exchanger (Gas Pipe) Thermistor Abnormality

Remote Controller Display

Applicable Models
All indoor models

Method of Error Detection
The error is detected by temperature detected by gas pipe thermistor.

Error Decision Conditions
When the gas pipe thermistor becomes disconnected or shorted while the unit is running

Supposed Causes
- Defective indoor unit thermistor for heat exchanger (gas pipe)
- Defective indoor unit PCB

Troubleshooting

**Caution**
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

**CHECK 5**

<table>
<thead>
<tr>
<th>Model</th>
<th>Connector for the heat exchanger (gas pipe) thermistor</th>
<th>Electric Symbol</th>
<th>PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCQ</td>
<td>X17A</td>
<td>R3T</td>
<td>A1P</td>
</tr>
<tr>
<td>FHQ</td>
<td>X11A</td>
<td>R3T</td>
<td>A1P</td>
</tr>
<tr>
<td>FAQ</td>
<td>X14A</td>
<td>R3T</td>
<td>A1P</td>
</tr>
<tr>
<td>FBQ</td>
<td>X17A</td>
<td>R3T</td>
<td>A1P</td>
</tr>
<tr>
<td>FTQ</td>
<td>X17A</td>
<td>R2T</td>
<td>A1P</td>
</tr>
</tbody>
</table>

**CHECK 5** Refer to P.177, 178.
2.18 Combination Error between Indoor Unit PCB and Fan PCB

Remote Controller Display
Applicable Models FBQ
Method of Error Detection Conduct open line detection with fan PCB (A2P) using indoor unit PCB (A1P).
Error Decision Conditions When the communication data of fan PCB is determined as incorrect.
Supposed Causes
- Defective fan PCB
- Defective connection of capacity setting adaptor.
- Defective field setting
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

<table>
<thead>
<tr>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1. Type of fan PCB</td>
</tr>
<tr>
<td>Applicable model</td>
</tr>
<tr>
<td>FBQ18/24/30</td>
</tr>
<tr>
<td>FBQ36/42</td>
</tr>
</tbody>
</table>

Caution
2.19 Suction Air Thermistor Abnormality

**Remote Controller Display**

**Applicable Models**
FCQ, FHQ, FAQ, FBQ

**Method of Error Detection**
The error is detected by temperature detected by suction air thermistor.

**Error Decision Conditions**
When the suction air thermistor becomes disconnected or shorted while the unit is running

**Supposed Causes**
- Defective indoor unit thermistor for suction air
- Defective indoor unit PCB

**Troubleshooting**

![Diagram]

- Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

**Note:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Connector for the suction air thermistor</th>
<th>Symbol</th>
<th>PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCQ</td>
<td>X16A</td>
<td>R1T</td>
<td>A2P</td>
</tr>
<tr>
<td>FHQ</td>
<td>X13A</td>
<td>R1T</td>
<td>A1P</td>
</tr>
<tr>
<td>FAQ</td>
<td>X19A</td>
<td>R1T</td>
<td>A1P</td>
</tr>
<tr>
<td>FBQ</td>
<td>X16A</td>
<td>R1T</td>
<td>A1P</td>
</tr>
</tbody>
</table>

**CHECK 5** Refer to P.177, 178.
### 2.20 Humidity Sensor System Abnormality

#### Remote Controller Display

- CC

#### Applicable Models

- FCQ

#### Method of Error Detection

- The error is detected according to the humidity (output voltage) detected by humidity sensor.

#### Error Decision Conditions

- The error is generated when the humidity sensor becomes disconnected or shorted when the unit is running.

  * Error code is displayed but the system operates continuously.

#### Supposed Causes

- Defective sensor
- Broken wire
- External factor (Noise, etc.)

#### Troubleshooting

**Caution:** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Remove the humidity sensor from the indoor unit PCB and insert it again.

2. Does it function normally?
   - **YES**: It is normal. (Poor connector contact)
   - **NO**: Delete the error code record from the remote controller. (+1)

3. Error is displayed again (+2)
   - **YES**: Replace the humidity sensor PCB (A2P). (+3)
   - **NO**: It is believed that external factors (noise or else) other than failure caused the error.

**Note:**

*1. To delete the record, the **ON/OFF** button of the remote controller must be pressed and held for 5 seconds in the check mode.

*2. To display the code, the **Inspection/Test** button of the remote controller must be pressed and held in the normal mode.

*3. If "CC" is displayed even after replacing the humidity sensor PCB (A2P) and taking the steps +1 and 2, replace the indoor unit PCB (A1P).
### 2.21 Room Temperature Thermistor in Remote Controller Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>All indoor models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>Error detection is carried out by temperature detected by room temperature thermistor in remote controller. ((*1))</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>When the room temperature thermistor in remote controller becomes disconnected or shorted while the unit is running. * Error code is displayed but the system operates continuously.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>Supposed Causes</td>
</tr>
<tr>
<td></td>
<td>Defective room temperature thermistor in remote controller</td>
</tr>
<tr>
<td></td>
<td>Defective remote controller PCB</td>
</tr>
<tr>
<td></td>
<td>External factor (Noise, etc.)</td>
</tr>
</tbody>
</table>

#### Troubleshooting

**Caution:** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Clear the error code history. (While in inspection mode, press and hold the “ON/OFF” button for a period of 4 seconds or more.)
  - Error is displayed again.
    - YES: Replace the remote controller.
    - NO: External factor other than equipment error. (for example, noise etc.)

**Note:**

- *1. How to delete “the history of error codes”.
  Press the “ON/ OFF” button for 4 seconds and more while the error code is displayed in the inspection mode.
2.22 Outdoor Unit PCB Abnormality

Remote Controller Display

Applicable Models
RZR, RZQ

Method of Error Detection
Micro-computer checks whether E²PROM is normal.

Error Decision Conditions
When E²PROM error when turning the power supply ON

Supposed Causes
- Defective outdoor unit PCB
- Defective fan motor
- External factor (Noise, etc.)

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Turn the power supply OFF once and then back ON.

2. Does it return normally?
   - YES: External factor (Noise, etc.)
   - NO: Proceed to the next step.

3. Turn OFF the power supply, remove the fan motor connector and then turn ON the power supply again.

4. Error is displayed again?
   - YES: Replace the outdoor unit control PCB (A1P).
   - NO: Check the fan motor.
### 2.23 High Pressure Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
</tr>
<tr>
<td>Method of Error Detection</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Supposed Causes</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check for the points shown below.
1. Is the stop valve open?
2. Is the high pressure switch connector properly connected to the outdoor unit main PCB?
3. Is there continuity with the high pressure switch?

Are the three points above OK?

YES

Rectify the defective points, if any.

NO

1. Mount a pressure gauge on the high pressure service port.
2. Reset the operation using the remote controller, and then restart the operation.

Does the abnormal stop “E3” recur?

YES

Is the high pressure switch operating value normal (i.e., 580 psi)?

NO

Replace the high pressure switch.

NO

Are the characteristics of the high pressure sensor normal? (+1)

YES

Replace the high pressure sensor.

NO

Replace the outdoor unit main PCB (A1P).

- The high pressure sensor is normal, and the pressure detected with the PCB is also normal.
- The high pressure has really become high.

CHECK 1
Remove the causes by which the high pressure has become high.

CHECK 2

Note:

*1: Make a comparison between the voltage of the pressure sensor and that read by the pressure gauge.
(Measure the pressure-sensor voltage at the connector (+2), and then convert it to pressure. [CHECK 6])

*2: Measure the voltage of the pressure sensor.

Refer to P.173.

Refer to P.179.
## 2.24 Actuation of Low Pressure Sensor

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>$E4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>RZR, RZQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>Abnormality is detected by the pressure value with the low pressure sensor.</td>
</tr>
</tbody>
</table>
| Error Decision Conditions | Error is generated when the low pressure is dropped during compressor operating.  
Operating pressure: 10 psi |
| Supposed Causes           |  
- Abnormal drop of low pressure (Lower than 10 psi)  
- Defective low pressure sensor  
- Defective outdoor unit PCB  
- Stop valve is not opened.  
- Clogged filter |
**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

**Caution**

Is the stop valve open?

- **NO** → Open the stop valve.
- **YES** →
  1. Mount a pressure gauge on the low pressure service port.
  2. Reset the operation using the remote controller, and then restart the operation.

Are the characteristics of the low pressure sensor normal? (**†1**)

- **NO** → Replace the low pressure sensor.
- **YES** →
  - The low pressure sensor is normal, and the pressure detected with the PCB is also normal.
  - The low pressure has really become low.

---

**Service Checker**

Connect the service checker to compare the “low pressure” value checked with the Service Checker and the actual measurement value by pressure sensor (**†1**).

Check if the “low pressure” value and the actual measurement value by pressure sensor are the same.

- **NO** → Replace the outdoor unit main PCB (A1P).
- **YES** →
  - **CHECK 2** Remove the causes by which the low pressure has become low.

---

**Note:**

**†1:** Make a comparison between the voltage of the pressure sensor and that read by the pressure gauge.
(Measure the pressure-sensor voltage at the connector (**†2**), and then convert it to pressure.)

**†2:** Measure the voltage of the pressure sensor.

---

**CHECK 2** Refer to P.174

**CHECK 6** Refer to P.179.
### 2.25 Inverter Compressor Motor Lock

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>E5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>RZR, RZQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>Detect the motor lock when the compressor is energized.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>If the motor rotor does not rotate when the compressor is energized.</td>
</tr>
</tbody>
</table>
| Supposed Causes            | - Inverter Compressor lock  
                            | - High differential pressure (377 psi or more) starting  
                            | - Incorrect UVW wiring  
                            | - Defective inverter PCB  
                            | - Stop valve is not opened. |
Troubleshooting

**Caution** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the installation conditions.

- Is the stop valve open?
  - NO: Open the stop valve.
  - YES: Further check.

- Check and see whether compressor is short-circuited or ground.
  - YES: Replace the compressor.
  - NO: Further check.

- Is high pressure higher than 2.6 MPa at starting?
  - YES: Remedy the cause.
  - NO: Replace the compressor.

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
### 2.26 Outdoor Unit Fan Motor Abnormality

#### Method of Error Detection
The error is detected according to the revolution speed detected by hall IC when the fan motor runs.

#### Error Decision Conditions
- When the fan runs with revolution speed less than a specified one for 6 seconds or more when the fan motor running conditions are met
- When the error is generated 4 times, the system shuts down.

#### Supposed Causes
- Defective fan motor
- The harness connector between fan motor and PCB is left in disconnected, or defective connector.
- Fan does not run due to foreign matters tangled.
- Clearing condition: Operate for 5 minutes (normal)

#### Troubleshooting

**Caution**
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **YES** Connector of fan motor is disconnected.
- **NO** Is the fan rotatable easily by hand after disconnect the connector of fan motor?
  - **YES** CHECK 3
  - **NO** Replace the fan motor of outdoor unit.

**CHECK 3**
Check on connector of fan motor

- Are the resistances between pins above judgement?
  - **YES** Replace the outdoor unit PCB.
  - **NO** Replace the fan motor of outdoor unit.

**CHECK 3** Refer to P.175.
2.27 Electronic Expansion Valve Coil Abnormality

Remote Controller Display

Applicable Models

RZR, RZQ

Method of Error Detection

Detect errors based on check of continuity of the electronic expansion valve. Detect errors by suction pipe superheated degree, discharge pipe superheated degree and electronic expansion valve opening degree.

Error Decision Conditions

- No common power supply when the power is turned ON
- When the following conditions are established
  - Suction pipe superheated degree < 39.2°F
  - Discharge pipe superheated degree < 41°F
  - Electronic expansion valve opening degree < Minimum opening degree

Supposed Causes

- Defective electronic expansion valve
- Disconnection of electronic expansion valve harness
- Defective connection of electronic expansion valve connector
- Defective each thermistor
- Defective each thermistor mounting
- Defective pressure sensor
- Defective outdoor unit control PCB
- Wet operation
Troubleshooting

![Caution] Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

<table>
<thead>
<tr>
<th>Question</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the error code “E9” recur?</td>
<td>Yes: Connect properly.</td>
</tr>
<tr>
<td></td>
<td>No: Replace the coil of the electronic expansion valve (Y1E).</td>
</tr>
<tr>
<td>Is the electronic expansion valve connector X21A or X22A properly connected to the outdoor unit PCB?</td>
<td>Yes: Replace the coil of the electronic expansion valve (Y1E).</td>
</tr>
<tr>
<td></td>
<td>No: Connect properly.</td>
</tr>
<tr>
<td>Is the coil resistance of the electronic expansion valve normal?</td>
<td>Yes: Replace the coil of the electronic expansion valve (Y1E).</td>
</tr>
<tr>
<td></td>
<td>No: Mount properly.</td>
</tr>
<tr>
<td>Is there difference in temperature before and after electronic expansion valve (Y1E) during operation?</td>
<td>Yes: Replace the coil of the electronic expansion valve (Y1E).</td>
</tr>
<tr>
<td></td>
<td>No: Mount properly.</td>
</tr>
<tr>
<td>Is the temperature sensor of each thermistor (suction pipe, discharge pipe, intermediate heat exchanger and heat exchanger distributor pipe thermistors) mounted properly?</td>
<td>Yes: Mount properly.</td>
</tr>
<tr>
<td></td>
<td>No: Mount properly.</td>
</tr>
</tbody>
</table>
Refer to P.177, 178.

Are the characteristics of each thermistor normal? NO

CHECK 5

YES

Are the pressure sensor characteristics normal? NO

CHECK 6

YES

Actually, it is in wet operation.

Refer to CHECK 7 to eliminate the causes of wet operation.

Restart the operation.

Error is displayed again.

YES

Replace the outdoor unit PCB (A1P).

NO

External factor (Noise, etc.)

CHECK 5 Refer to P.177, 178.

CHECK 6 Refer to P.179.

CHECK 7 Refer to P.180.

Note: *1 Make measurement of resistance between the connector pins, and then make sure the resistance falls in the range of 43 to 49Ω.

### Measuring points

<table>
<thead>
<tr>
<th>Measuring points</th>
<th>1 - 6</th>
<th>2 - 6</th>
<th>3 - 6</th>
<th>4 - 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>(White) 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Yellow) 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Orange) 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Blue) 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Red) 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure points</th>
<th>1 - 5</th>
<th>3 - 5</th>
<th>2 - 6</th>
<th>4 - 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Orange) 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Red) 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Yellow) 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Black) 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Gray) 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(White) 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 2.28 Discharge Pipe Temperature Control Error

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>F3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>RZR, RZQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>Abnormality is detected according to the temperature detected by the discharge pipe thermistor.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When the discharge pipe temperature rises to an abnormally high level&lt;br&gt;When the discharge pipe temperature rises suddenly&lt;br&gt;When the discharge pipe temperature does not rise after operation start</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td>■ Refrigerant shortage&lt;br&gt;■ Defective compressor&lt;br&gt;■ Defective discharge pipe thermistor&lt;br&gt;■ Defective connection of discharge pipe thermistor&lt;br&gt;■ Disconnection of discharge pipe thermistor&lt;br&gt;■ Defective outdoor unit PCB</td>
</tr>
</tbody>
</table>
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. **Is the discharge pipe temperature high? (248°F)**
   - **YES**
     - Abnormality in refrigerant system such as refrigerant shortage, defective compressor, etc. Conduct inspection
   - **NO**

2. **Is the discharge pipe thermistor correctly connected to PCB (A1P)?**
   - **NO**
     - Connect correctly, and operate the unit again.
   - **YES**

3. **Is the discharge pipe thermistor correctly connected to the discharge pipe?**
   - **NO**
     - Attach the thermistor, and operate the unit again.
   - **YES**

4. **Is the discharge pipe thermistor characteristic normal?**
   - **NO**
     - Replace the discharge pipe thermistor.
   - **YES**
     - Replace the outdoor unit control PCB (A1P).

**CHECK 5** Refer to P.177, 178.
2.29 Refrigerant Overcharged

Remote Controller Display

Applicable Models

Method of Error Detection
Excessive charging of refrigerant is detected by using the outdoor air temperature and heat exchanger deicer temperature during check operation.

Error Decision Conditions
When the amount of refrigerant, which is calculated by using the outdoor air temperature and heat exchanging deicer temperature during check operation, exceeds the criteria.

Supposed Causes
- Refrigerant overcharge
- Disconnection of outdoor air thermistor
- Disconnection of heat exchanger deicer thermistor

Troubleshooting

Caution
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the mounting condition of the outdoor air temperature thermistor and heat exchanger deicer thermistor in the piping.

Are the above thermistor installed on pipes correctly?

NO
Install the thermistor correctly.

YES

Remove the outdoor air temperature thermistor and heat exchanger deicer thermistor from the outdoor unit PCB and measure resistance with a tester.

Is the characteristic of the above thermistor normal?

CHECK 5

NO
Replace the thermistor.

YES
Rectify the overcharge of refrigerant.

CHECK 5 Refer to P.177, 178.
2.30 High Pressure Switch System Abnormality

Remote Controller Display

Applicable Models

Method of Error Detection

Error Decision Conditions

Supposed Causes

Troubleshooting

Caution

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

| YES | Wait for 10 minutes after the unit stops operating, then check the following.
|-----|-----------------------------------------------------
| NO  | Is there continuity in protection high pressure switch?
|-----|-----------------------------------------------------
| YES | Is there continuity in lead wire?
|-----|-----------------------------------------------------
| NO  | Replace the high pressure switch with no continuity. Resistance in normal operation: 10Ω or less
|-----|-----------------------------------------------------
| YES | Replace the lead wire.
|-----|-----------------------------------------------------
| NO  | Replace the outdoor unit PCB (A1P).
|-----|-----------------------------------------------------
| YES | Replace the outdoor unit PCB (A1P).

Remote Controller Display

H3

Applicable Models

RZR, RZQ

The protection device circuit checks continuity in the high pressure switch.

When there is no continuity in the high pressure switch during compressor stops operating

Defective high pressure switch
Defective connection of high pressure switch connector
Defective outdoor unit PCB
Disconnected lead wire

Replaced the outdoor unit PCB (A1P).
2.31 Outdoor Unit Fan Motor Signal Abnormality

Remote Controller Display

Applicable Models

RZR, RZQ

Method of Error Detection

Detection of abnormal signal from fan motor

Error Decision Conditions

In case of detection of abnormal signal at starting fan motor

Supposed Causes

- Defective fan motor signal (circuit error)
- Broken, short or disconnection connector of fan motor connection cable
- Inverter PCB abnormality

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

*1: Disconnect connector and measure the following resistance.

<table>
<thead>
<tr>
<th>X106A (or X107A)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 White</td>
<td>PG</td>
</tr>
<tr>
<td>2 Orange</td>
<td>Vsp</td>
</tr>
<tr>
<td>3 Brown</td>
<td>Vcc</td>
</tr>
<tr>
<td>4 Blue</td>
<td>GND</td>
</tr>
<tr>
<td>5 Red</td>
<td>Vm</td>
</tr>
</tbody>
</table>

Check connector of fan motor. (+1)

The resistance of fan motor read wire connector pins between Vcc-UVW and GND-UVW balanced?

NO

Replace the fan motor.

YES

Replace the outdoor unit PCB (A1P).

NO

Connect correctly.

YES

Turn power OFF.
2.32 Thermistor System Abnormality

Remote Controller Display

Applicable Models
RZR, RZQ

Method of Error Detection
The error is detected from the temperature detected by each thermistor.

Error Decision Conditions
When thermistor is disconnected or short-circuited during operation

Supposed Causes
- Defective thermistor
- Defective connection of connector
- Defective outdoor unit PCB

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Electric symbol</th>
<th>Defective thermistor</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>H9</td>
<td>R1T</td>
<td>Outdoor air thermistor</td>
<td>X11A</td>
</tr>
<tr>
<td>J3</td>
<td>R2T</td>
<td>Discharge pipe thermistor</td>
<td>X12A</td>
</tr>
<tr>
<td>J5</td>
<td>R3T, R5T</td>
<td>Suction pipe thermistor</td>
<td>X12A</td>
</tr>
<tr>
<td>J6</td>
<td>R4T</td>
<td>Heat exchanger thermistor</td>
<td>X12A</td>
</tr>
</tbody>
</table>

CHECK 5 Refer to P.177, 178.
### 2.33 High Pressure Sensor Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>RZR, RZQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method of Error Detection</strong></td>
<td>The error is detected from the pressure detected by the high pressure sensor.</td>
</tr>
<tr>
<td><strong>Error Decision Conditions</strong></td>
<td>When the high pressure sensor is short-circuit or open circuit</td>
</tr>
<tr>
<td><strong>Supposed Causes</strong></td>
<td>- Defective high pressure sensor</td>
</tr>
<tr>
<td></td>
<td>- Connection of low pressure sensor with wrong connection</td>
</tr>
<tr>
<td></td>
<td>- Defective outdoor unit PCB</td>
</tr>
</tbody>
</table>
Troubleshooting by Remote Controller

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **Caution**

1. **Voltage measurement point**

   *1: Voltage measurement point

   ![Diagram](image)

   **CHECK 6** Refer to P.179.
2.34 Low Pressure Sensor Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>RZR, RZQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>The error is detected from the pressure detected by the low pressure sensor.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When the low pressure sensor is short circuit or open circuit</td>
</tr>
</tbody>
</table>
| Supposed Causes           | ■ Defective low pressure sensor  
                            | ■ Connection of high pressure sensor with wrong connection.  
                            | ■ Defective outdoor unit PCB |
Troubleshooting

**Caution** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. 
   - The low pressure sensor is connected to X18A of outdoor unit PCB (A1P).
     - NO: Connect the low pressure sensor property and turn ON again.
     - YES: The relationship between the VL and low pressure is normal (see *1) when voltage is measured between X18A pins (2) and (3) of outdoor unit PCB (A1P).
       - YES: Replace the outdoor unit PCB (A1P).
       - NO: Replace the low pressure sensor.

*1: Voltage measurement point

![Diagram of voltage measurement points](image)

CHECK 6: Measure DC voltage here.

CHECK 6 Refer to P.179.
## 2.35 Outdoor Unit PCB Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>RZQ</td>
</tr>
</tbody>
</table>

**Method of Error Detection**
- Detect error by current value during waveform output before compressor startup.
- Detect error by current sensor value during synchronized operation at the time of startup.
- Detect error using an SP-PAM series capacitor overvoltage sensor.

**Error Decision Conditions**
- When overcurrent is detected at the time of waveform output before operating the compressor
- When the current sensor error during synchronized operation
- When overvoltage occurs in SP-PAM
- In case of IGBT error

**Supposed Causes**
- Defective outdoor unit PCB (A1P)
  - IPM failure
  - Current sensor failure
  - SP-PAM failure
  - Defective of IGBT or drive circuit
- Defective connection of compressor connector
- Defective outdoor unit fan motor
- Broken fuse
- External factor (Noise, etc.)
**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **Is the power supply voltage between 180 and 220 VAC?**
  - NO: Request an improvement to make the power supply voltage fall within the standard range.
  - YES: Turn OFF the power supply.

- **Is the lead wire for compressor connected to PCB and compressor without becoming loose?**
  - NO: Connect tightly and correctly.
  - YES: Check the resistance value for the fan motor.

- **Is the resistance value of the fan motor normal?**
  - NO: Replace the fan motor.
  - YES: Does the fuse (F6U) have continuity?

- **Does the fuse (F6U) have continuity?**
  - NO: Replace the fuse. Use only specified fuses.
  - YES: Power ON again.

- **Error is displayed again.**
  - YES: Replace the outdoor unit PCB.
  - NO: External factor (Noise, etc.)
# 2.36 Radiation Fin Temperature Rise

**Remote Controller Display**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RZR, RZQ</td>
<td></td>
</tr>
</tbody>
</table>

**Method of Error Detection**

Radiation fin temperature is detected by radiation fin thermistor.

**Error Decision Conditions**

When the temperature of the inverter radiation fin rises abnormally due to defective heat dissipation.

**Supposed Causes**

- Defective radiation fin thermistor
- High outdoor air temperature
- Blocked suction opening
- Dirty radiation fin
- Defective outdoor unit inverter PCB
- Activation of fin thermal switch
- Insufficient cooling of inverter radiation fin
- Defective connection of connector

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. The radiation fin temperature is supposed to have risen to 180°F or more. (YES) Defective heat radiation of power unit
   - Air suction opening blocked
   - Dirty radiation fin
   - High outdoor air temperature

2. Is the connector X111A of the radiation fin thermistor properly connected to the outdoor unit PCB? (NO) Connect properly.

3. Turn ON the power supply, and then press the remote controller check button once. (YES) To "P4" troubleshooting

4. Is the error code "L4" displayed on the remote controller? (YES) Replace the outdoor unit PCB (A1P) as well.

5. Does the error code "L4" recur when the unit starts operation? (YES) Continue the operation.
# 2.37 Momentary Overcurrent of Inverter Compressor

## Remote Controller Display

L5

## Applicable Models

RZR, RZQ

## Method of Error Detection

The error is detected from current flowing in the power transistor.

## Error Decision Conditions

When overcurrent flows in the power transistor (Instantaneous overcurrent also causes activation)

## Supposed Causes

- Defective compressor coil (disconnected, defective insulation)
- Compressor startup error (mechanical lock)
- Defective inverter PCB

## Troubleshooting

**Caution**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Compressor inspection

- The compressor’s coil is disconnected or the insulation is defective.
  - YES: Replace the compressor.
  - NO: Disconnect the connection between the compressor and inverter. Make the power transistor check mode setting ON by service mode.

- Inverter output voltage check. Inverter output voltage is not balanced. (Normal if within ±5V) Must be measured when frequency is stable.
  - YES: Replace the inverter unit.
  - NO: There is instantaneous power drop.
    - YES: Correct power supply.
    - NO: Compressor inspection
      - Inspect according to the diagnosis procedure for odd noises, vibration and operating status of the compressor.

Higher voltage than actual is displayed when the inverter output voltage is checked by tester.
# 2.38 Electronic Thermal (Time Lag)

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>L8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>RZR, RZQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>The error is detected from the current flowing to power transistor into voltage with CT1 (DC current sensor).</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When compressor overload (except for when startup) is detected.</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compressor overload (during operation)</td>
</tr>
<tr>
<td></td>
<td>Disconnected compressor coil</td>
</tr>
<tr>
<td></td>
<td>Defective compressor (if bearing is scratched)</td>
</tr>
<tr>
<td></td>
<td>Defective outdoor unit PCB</td>
</tr>
</tbody>
</table>
Troubleshooting

⚠️ Caution: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Output current check

- The secondary current of the inverter is higher than A (∗1) for each phase.
  - YES → Compressor overload. Inspection of the compressor and refrigerant system is required.
  - NO → Compressor inspection. The compressor's coil is disconnected.
    - YES → Replace the compressor.
    - NO → Disconnect the connection between the compressor and inverter. Make the power transistor check mode setting ON by service mode.

- Inverter output voltage check. Inverter output voltage is not balanced (Normal if within ±5V). Must be measured when frequency is stable.
  - NO → Replace the outdoor unit PCB (A1P).
  - YES → After turning ON again, “L8” blinks again.
    - NO → Reset and restart.
    - YES → Compressor inspection. Inspect according to the diagnosis procedure for odd noises, vibration and operating status of the compressor.

Note: ∗1: A (Electronic thermal detection value)

<table>
<thead>
<tr>
<th>Model</th>
<th>Mode</th>
<th>Detection value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RZO18,24 P(9)</td>
<td>Cooling</td>
<td>A × seconds 14.8A × 260s or 17.0A × 5s</td>
</tr>
<tr>
<td>RZO30P</td>
<td>Cooling</td>
<td>A × seconds 24.9A × 260s or 31.0A × 5s</td>
</tr>
<tr>
<td>RZR18,24,30P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RZO36,42P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RZR36,48P</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 2.39 Inverter Startup Error

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>L9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable Models</strong></td>
<td>RZR, RZQ</td>
</tr>
<tr>
<td><strong>Method of Error Detection</strong></td>
<td>The error is detected from the current flowing to power transistor into voltage with CT1 (DC current sensor). Inverter PCB detects the disorder of position signal.</td>
</tr>
<tr>
<td><strong>Error Decision Conditions</strong></td>
<td>When compressor overload (when startup) is detected</td>
</tr>
</tbody>
</table>
| **Supposed Causes**       | - The stop valve is not opened.  
- Pressure differential startup  
- Defective outdoor unit inverter PCB  
- Defective compressor (lock) |
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the installation conditions.

Is the stop valve open?
- NO: Open the stop valve.
- YES: Proceed.

Is the difference between high and low pressure before startup not more than 0.2 MPa?
- NO: Insufficient pressure equalization. Check refrigerant system.
- YES: Proceed.

Turn the main power supply OFF, and then disconnect the connection between the compressor and inverter.

CHECK 4
Continuity check in the power transistor (IGBT). Is the continuity normal?
- NO: Replace the outdoor unit PCB.
- YES: Proceed.

The compressor is grounded and short circuited.
- YES: Replace the compressor.
- NO: Compressor inspection. Inspect according to the diagnosis procedure for abnormal noises, vibration, operating status, etc. of the compressor.

CHECK 4 Refer to P.176.
### 2.40 Transmission Error (between Control and Inverter PCB)

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>RZR, RZQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>Check the communication state between inverter PCB and control PCB by micro-computer.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When the correct communication is not carried out in certain period of time or longer</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td>Incorrect transmission wiring between control and inverter PCB/Insufficient contact in wiring</td>
</tr>
<tr>
<td></td>
<td>Defective outdoor unit PCB</td>
</tr>
<tr>
<td></td>
<td>Defective outdoor unit fan motor</td>
</tr>
<tr>
<td></td>
<td>External factor (Noise etc.)</td>
</tr>
<tr>
<td></td>
<td>Defective fan motor connector contact</td>
</tr>
</tbody>
</table>

#### Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. **Is the connector for the fan motor properly connected to the indoor unit PCB?**
   - **NO**: Connect correctly.
   - **YES**: Disconnect the connection for the fan motor, and turn ON again.

2. **Is "E7" displayed on the remote controller? (not "LC")**
   - **YES**: Replace the fan motor. (Transmission error of the inverter occurs due to the fan motor error.)
   - **NO**: Replace the outdoor unit PCB (A1P).
### 2.41 Radiation Fin Thermistor Abnormality

**Remote Controller Display**

**Applicable Models**

- RZR, RZQ

**Method of Error Detection**

Detection by open or short circuit of the radiation fin thermistor during the compressor stops operating.

**Error Decision Conditions**

When open or short circuit of the radiation fin thermistor is detected during the compressor stops operating.

**Supposed Causes**

- Defective radiation fin thermistor
- Defective outdoor unit PCB (A1P)
- External factor (Noise, etc.)

**Troubleshooting**

**Caution**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Diagram](image)

**CHECK 5**

Is it normal?

- **NO**
  - Replace the outdoor unit inverter PCB.

- **YES**
  - Error is displayed again?
    - **NO**
      - Replace the outdoor unit inverter PCB.
    - **YES**
      - Continue the operation.

**Note:**

1. Connector and indoor unit PCB

<table>
<thead>
<tr>
<th>Connector for radiation fin thermistor</th>
<th>PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>X111A A1P</td>
<td></td>
</tr>
</tbody>
</table>

**CHECK 5** Refer to P.177, 178.
2.42 Refrigerant Shortage

Remote Controller Display

Applicable Models

RZR, RZQ

Method of Error Detection

Refrigerant shortage is detected according to the electronic expansion valve opening degree and measured temperatures and pressures.

Error Decision Conditions

(In cooling operation)
When the electronic expansion valve opens fully and low pressure is below 14.5 psi continuously for 30 minutes.

(In heating operation)
When the electronic expansion valve opens fully and the suction superheat is large (more than 68°F) continuously for 30 minutes.

* Error code is displayed but the system operates continuously.

Supposed Causes

- The stop valve is not opened.
- Insufficient refrigerant amount
- Clogged refrigerant piping system

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Is the stop valve open?

- NO: Open the stop valve.
- YES

Is the refrigerant amount appropriate?

- NO: Collect refrigerant. After vacuum drying is complete, charge an appropriate amount of refrigerant.
- YES: Check the refrigerant piping system for clogging.

Note:

* Refrigerant shortage alarm is indicated but the operation continues.

CHECK 8 Refer to P.181.
## 2.43 Power Supply Voltage Abnormality

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U2</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicable Models</th>
<th>RZR, RZQ</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Method of Error Detection</th>
<th>The error is detected according to the voltage of main circuit capacitor built in the inverter and power supply voltage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error Decision Conditions</td>
<td>When the abnormal voltage of main circuit capacitor built in the inverter and abnormal power supply voltage are detected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supposed Causes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop in power supply voltage</td>
<td></td>
</tr>
<tr>
<td>Instantaneous power failure</td>
<td></td>
</tr>
<tr>
<td>Defective outdoor unit fan motor</td>
<td></td>
</tr>
<tr>
<td>Defective outdoor control PCB (A1P)</td>
<td></td>
</tr>
<tr>
<td>Defective main circuit wiring</td>
<td></td>
</tr>
</tbody>
</table>
Troubleshooting

**Caution**  Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **CHECK 4**  Check the inverter power transistor.
  - **Is the power supply voltage 208~230V ±10%?**
    - NO  Correct power supply.
    - YES  Replace the inverter PCB.
  - **CHECK 3**  Is the resistance above standard value?
    - NO  Replace the fan motor.
    - YES  When the compressor is running, measure the voltage between + and - of electrolytic capacitor (C+, C–).
      - **Is the measured voltage 220 VDC or more?**
        - YES  Monitor the voltage. (Instantaneous voltage drop)
        - NO  Replace the inverter PCB (A1P).
  
- **CHECK 3**  Refer to P.175.
- **CHECK 4**  Refer to P.176.
2.44 Check Operation not Executed

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Applicable Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>RZQ</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method of Error Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check operation is executed or not.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Decision Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The error is decided when the unit starts operation without check operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supposed Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Check operation is not executed.</td>
</tr>
</tbody>
</table>

**Troubleshooting**

![Decision Tree Diagram]

- **Caution**: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **YES**: Replace the outdoor unit PCB.

- **NO**: Press the BS4 on the outdoor unit PCB for 5 seconds or more to execute check operation.
### 2.45 Transmission Error (between Indoor Units and Outdoor Units)

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>U4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>All indoor models RZR, RZQ</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>Micro-computer checks if transmission between indoor and outdoor units is normal.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When transmission is not carried out normally for a certain amount of time or longer</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wiring indoor-outdoor transmission wire is incorrect.</td>
</tr>
<tr>
<td></td>
<td>Defective power supply</td>
</tr>
<tr>
<td></td>
<td>Burning out fuse</td>
</tr>
<tr>
<td></td>
<td>Defective outdoor unit PCB</td>
</tr>
<tr>
<td></td>
<td>Defective indoor unit PCB</td>
</tr>
<tr>
<td></td>
<td>Defective outdoor unit fan motor</td>
</tr>
<tr>
<td></td>
<td>External factor (Noise, etc.)</td>
</tr>
</tbody>
</table>
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Is the power supply voltage 208-230V?
- YES: Request an improvement to make the power supply voltage fall within the standard range.
- NO: Wire correctly and securely fasten the terminal screws.

Is there a wrong wiring type, loose terminal or contact failure in the transmission wiring between the indoor and outdoor units?
- YES: Wire correctly.
- NO: Replace the outdoor unit fan motor.

Is any optional accessory (\*1) connected?
- YES: Wire correctly.
- NO: Replace the outdoor unit fan motor.

Turn OFF the power supply and disconnect the connector of the outdoor unit fan motor. Then power ON again.

Is HAP on the outdoor unit PCB blinking?
- YES: Replace the outdoor unit fan motor.
- NO: Replace the outdoor unit fan motor.

Caution

\*1 Optional accessories refer to adaptor for wiring, auto grill and other accessories.
A

Check the resistance value of the outdoor unit fan motor.

Is the resistance value of the outdoor unit fan motor normal?

NO → Replace the outdoor unit fan motor.

YES →

Does the fuse (F6U) have continuity?

NO → Replace the fuse.

YES →

Check the fan speed pulse.

Is the output voltage normal?

NO → Replace the outdoor unit inverter PCB.

YES →

After turning OFF the power supply, correctly insert the connector of the fan motor and then restore the power.

B

Does "U4" error reoccur?

YES → Replace the outdoor unit inverter PCB.

NO →

After turning OFF the power supply, correctly insert the connector of the fan motor and then restore the power.

Does error "U4" or "UF" reoccur?

YES → Replace the indoor unit PCB.

NO →

External factor (Noise, etc.)
2.46 Transmission Error (between Remote Controller and Indoor Unit)

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U5</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicable Models</th>
<th>All indoor models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>Micro-computer checks if transmission between indoor unit and remote controller is normal.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>The error is generated when the micro-processor detects that the transmission between the indoor unit and the remote controller is not normal over a certain amount of time.</td>
</tr>
</tbody>
</table>
| Supposed Causes           | - Connection of 2 main remote controllers (when using 2 remote controllers)  
                            - Defective indoor unit PCB  
                            - Defective remote controller PCB  
                            - External factor (Noise, etc.) |
| Troubleshooting           | |
|                           | **Caution** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged. |
|                           | Using 2-remote controllers control.  
                           | SS1 of both remote controllers is set to "MAIN."  
                           | Set one remote controller to "SUB"; turn the power supply OFF once and then back ON.  
                           | There is possibility of error caused by noise. Check the surrounding area and turn ON again.  
                           | Replace the indoor unit PCB.  
                           | Normal  
                           | Replace the remote controller  
                           | Normal  
                           | Replace the indoor unit PCB.  
                           | Normal  
                           | There is possibility of error caused by noise. Check the surrounding area and turn ON again.  
                           | Normal |
## 2.47 Transmission Error (between Main and Sub Remote Controllers)

<table>
<thead>
<tr>
<th>Remote Controller Display</th>
<th>U8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Models</td>
<td>All indoor models</td>
</tr>
<tr>
<td>Method of Error Detection</td>
<td>In case of controlling with 2-remote controller, check the system using micro-computer if signal transmission between indoor unit and remote controller (main and sub) is normal.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>The error is generated when, in case of controlling with 2 remote controllers, the microprocessor detects that the transmission between the indoor unit and the remote controllers (MAIN and SUB) is not normal over a certain amount of time.</td>
</tr>
</tbody>
</table>
| Supposed Causes            | - Transmission error between main and sub remote controller  
- Connection between sub remote controllers  
- Defective remote controller PCB |
| Troubleshooting            | |

![Flowchart](image)

**Caution**
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Turn the SS-1 switch of one remote controller to MAIN.
- Turn OFF the power supply, and restart operation.
- Replace the remote controller PCB if any error is generated.
- Replace the remote controller wiring.
- Turn the SS-1 switch of one remote controller to MAIN.
- Turn OFF the power supply, and restart operation.
2.48 Transmission Error (between Centralized Remote Controller and Indoor Unit)

Remote Controller Display

| UE |

Applicable Models

- All indoor models
- Centralized controller

Method of Error Detection

Micro-computer checks if transmission between indoor unit and centralized remote controller is normal.

Error Decision Conditions

When transmission is not carried out normally for a certain amount of time

Supposed Causes

- Transmission error between optional controllers for centralized control and indoor unit
- Connector for setting main controller is disconnected.
- Defective PCB for centralized remote controller
- Defective indoor unit PCB
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Has an indoor unit once connected been removed or its address changed?
- YES
  - Reset power supply simultaneously for all optional controllers for centralized control.
- NO

Is the power supply turned ON for indoor units displaying error?
- YES
  - Turn indoor unit's power supply.
- NO

Is transmission wiring disconnected or wired incorrectly?
- YES
  - Fix the wiring correctly.
- NO

Is transmission with all indoor units error?
- YES
  - Replace the indoor unit PCB.
- NO

Is the transmission wiring with the main controller disconnected or wired incorrectly?
- YES
  - Fix the wiring correctly.
- NO

Is the main controller's connector for setting main controller disconnected?
- YES
  - Replace the central PCB.
- NO

Set the group No. correctly.

Replace the indoor unit PCB.

Connect the connector correctly.

Fix the wiring correctly.
## 2.49 System is not Set yet

### Remote Controller Display

#### Applicable Models
- All indoor models
- RZR, RZQ

#### Method of Error Detection
On check operation, the capacity of indoor units in terms of transmission is not corresponding to that of indoor units that have made changes in temperature.

#### Error Decision Conditions
The error is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

#### Supposed Causes
- Improper connection of transmission wiring between indoor-outdoor units
- Failure to execute check operation
- Defective indoor unit PCB
- Stop valve is not opened.

### Troubleshooting

⚠️ **Caution:** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Are the stop valves opened?
   - NO → Open the stop valve.
   - YES →

2. Is the check operation carried out?
   - NO
     - Is indoor-outdoor unit transmission wiring normal?
       - NO → Replace the indoor unit PCB.
       - YES → After fixing incorrect wiring, press and hold the RESET button on the master outdoor unit PCB for 5 seconds. *
         - The unit will not run for up to 12 minutes.
     - YES →

3. Is indoor-outdoor unit transmission wiring normal?
   - NO →
   - YES →

---

**Note:** Wiring check operation may not be successful if carried out after the outdoor unit has been OFF for more than 12 hours, or if it is not carried out after running all connected indoor units in the fan mode for at least an hour.
2.50 Check

**CHECK 1** Check for causes of rise in high pressure

Referring to the Fault Tree Analysis (FTA) shown below, probe the error points.

**Note:**

*1: In cooling, it is normal if the outdoor unit electronic expansion valve (EV1) is fully open.

*2: In heating, the indoor unit electronic expansion valve is used for "subcooling degree control".
CHECK 2  Check for causes of drop in low pressure

Referring to the Fault Tree Analysis (FTA) shown below, probe the error points.

- Abnormally low low-pressure (Low evaporating temperature)

- In both cooling and heating (See *1).
- In cooling: If the indoor unit electronic expansion valve is throttled too much. (See *2.)
- In heating: If the outdoor unit electronic expansion valve excessively throttled. (See *3.)

- Low suction air temperature of the evaporator

- Less circulation quantity of refrigerant

- Degradation in condensing capacity

- Decreased fan airflow rate

- Decreased fan output

- High air passage resistance

- Moisture choke

- Inadequate refrigerant quantity

- Defective gas pipe thermistor of indoor unit

- Defective liquid pipe thermistor of indoor unit

- Defective service monitor PCB

- Defective suction pipe thermistor

- Defective low pressure sensor

- Defective control

- Defective valve coil

- Defective valve body

- Defective service monitor PCB

- Defective suction air thermistor of indoor unit

- Defective outdoor air temperature thermistor of outdoor unit

- Low suction air temperature of indoor unit

- Low suction air temperature of outdoor unit

- Defective outdoor temperature thermistor of outdoor unit

- High pipe resistance

- Abnormal piping length

- Bent or crashed pipe

- Clogging of foreign particles

- Stop valve closed

- Refer to troubleshooting "U0".

- Eliminate moisture by vacuum operation.

- Is the heat exchanger clogged?

- Is the heat exchanger clogged?

- Can the fan motor be rotated with hands?

- Are the motor coil resistance and insulation normal?

- If a spare PCB is mounted, is the capacity setting properly made?

- Is the air filter clogged?

- Is there any obstacle in the air passage?

Note:

*1: The “low pressure protection control” includes low pressure protection control and hot gas bypass control.

*2: In cooling, the indoor unit electronic expansion valve is used for “superheated degree control”.

*3: In heating, the outdoor unit electronic expansion valve (EV1) is used for “superheated degree control of outdoor unit heat exchanger".
**CHECK 3  Check for Fan Motor Connector**

Check on connector of fan motor (Power supply cable)

Turn OFF the power supply.

Measure the resistance between phases of U, V, W at the motor side connectors (three-core wire) to check that the values are balanced and there is no short circuiting, while connector or relay connector is disconnected.

**Note:** Check on connector of fan motor is not available for below models.

*FCQ18~42PAVJU, FAQ18 · 24PVJU*
### CHECK 4 Check for Power Transistor

Judgement is made through cable check with an analog tester.

1. Do not touch the energized part (high voltage part) for at least 10 minutes after the power is turned OFF.

2. Be sure to touch the ground terminal with a hand to release static electricity from the body (to prevent PCB from being damaged).

3. Also with a tester, take measurements at the following spots and confirm that residual electric charge of the power transistor is DC 50V or less.

4. After checking the residual electric charge, remove the connector of the outdoor unit fan motor. When the outdoor unit fan is rotated by strong headwind, remove the connector of the outdoor unit fan motor after confirming that the outdoor unit fan has stopped because electrical energy is stored in the capacitor and there may be a risk of electric shock.

5. Remove the wire connecting the power transistor and the compressor. Remove it from the compressor terminal side.

   During this work, be careful not to deform Faston terminal at the end of the relay wire.

6. Using an analog tester, measure resistance and fill in the blanks in the following table.

   In case of unbalanced resistance for one of the 3 phases in each table (when the resistance value is equal to 5 times or more than the other resistance values), the power transistor is broken.

   In normal cases, each phase shows a similar resistance value.

   ![Residual voltage measurement spot and connector diagram]

   ![Tester resistance table]

<table>
<thead>
<tr>
<th>Tester</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(+)</td>
<td>(-)</td>
</tr>
<tr>
<td>C+ U</td>
<td></td>
</tr>
<tr>
<td>C+ V</td>
<td></td>
</tr>
<tr>
<td>C+ W</td>
<td></td>
</tr>
<tr>
<td>U C+</td>
<td></td>
</tr>
<tr>
<td>V C+</td>
<td></td>
</tr>
<tr>
<td>W C+</td>
<td></td>
</tr>
</tbody>
</table>

   ![Tester resistance table]

<table>
<thead>
<tr>
<th>Tester</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(+)</td>
<td>(-)</td>
</tr>
<tr>
<td>C- U</td>
<td></td>
</tr>
<tr>
<td>C- V</td>
<td></td>
</tr>
<tr>
<td>C- W</td>
<td></td>
</tr>
<tr>
<td>U C-</td>
<td></td>
</tr>
<tr>
<td>V C-</td>
<td></td>
</tr>
<tr>
<td>W C-</td>
<td></td>
</tr>
</tbody>
</table>
**CHECK 5** Check the Thermistors

**Thermistors**

If the cause of the problem is related to the thermistors, then the thermistors should be checked prior to changing the PCB.

For more information about these thermistors, see:
- “Wiring Diagrams” on P.187

**Overview of Thermistors**

The table below contains an overview of the thermistors:

**Indoor**

<table>
<thead>
<tr>
<th>FCQ</th>
<th>FHQ</th>
<th>FAQ</th>
<th>FBQ</th>
<th>FTQ</th>
<th>Thermistor</th>
<th>Table (on following page)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1T</td>
<td>R1T</td>
<td>R1T</td>
<td>R1T</td>
<td>—</td>
<td>Suction air thermistor</td>
<td>2</td>
</tr>
<tr>
<td>R2T</td>
<td>R2T</td>
<td>R2T</td>
<td>R2T</td>
<td>R1T</td>
<td>Heat exchanger liquid pipe thermistor</td>
<td>2</td>
</tr>
<tr>
<td>R3T</td>
<td>R3T</td>
<td>R3T</td>
<td>R3T</td>
<td>R2T</td>
<td>Heat exchanger gas pipe thermistor</td>
<td>2</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>R4T</td>
<td>Discharge air thermistor</td>
<td>3</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>R5T</td>
<td>NTC thermistor</td>
<td>2</td>
</tr>
</tbody>
</table>

**Outdoor**

<table>
<thead>
<tr>
<th>RZR18-30</th>
<th>RZR36-42</th>
<th>Thermistor</th>
<th>Table (on following page)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1T</td>
<td>R1T</td>
<td>Outdoor air thermistor</td>
<td>2</td>
</tr>
<tr>
<td>R2T</td>
<td>R2T</td>
<td>Discharge pipe thermistor</td>
<td>3</td>
</tr>
<tr>
<td>R3T, R5T</td>
<td>R3T, R5T</td>
<td>Suction pipe thermistor</td>
<td>2</td>
</tr>
<tr>
<td>R4T</td>
<td>R4T</td>
<td>Heat exchanger thermistor</td>
<td>2</td>
</tr>
<tr>
<td>—</td>
<td>R6T</td>
<td>Subcooling heat exchanger thermistor</td>
<td>2</td>
</tr>
<tr>
<td>—</td>
<td>R7T</td>
<td>Liquid pipe thermistor</td>
<td>2</td>
</tr>
<tr>
<td>R10T</td>
<td>FINTH</td>
<td>Radiation fin thermistor</td>
<td>1</td>
</tr>
</tbody>
</table>

**Checking**

To check the thermistors, proceed as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disconnect the thermistor from the PCB</td>
</tr>
<tr>
<td>2</td>
<td>Read the temperature and the resistor value.</td>
</tr>
<tr>
<td>3</td>
<td>Check if the measured values correspond with the values in the table on the next pages.</td>
</tr>
</tbody>
</table>
## Thermistor Resistance / Temperature Characteristics

<table>
<thead>
<tr>
<th>Table 1</th>
<th>T°F</th>
<th>kΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>-22</td>
<td>354.1</td>
<td></td>
</tr>
<tr>
<td>-13</td>
<td>259.7</td>
<td></td>
</tr>
<tr>
<td>-4</td>
<td>192.6</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>144.2</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>109.1</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>83.25</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>64.10</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>49.70</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>38.85</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>30.61</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>24.29</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>19.41</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>15.61</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>12.64</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>10.30</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>8.439</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>6.954</td>
<td></td>
</tr>
<tr>
<td>131</td>
<td>5.761</td>
<td></td>
</tr>
<tr>
<td>140</td>
<td>4.797</td>
<td></td>
</tr>
<tr>
<td>149</td>
<td>4.014</td>
<td></td>
</tr>
<tr>
<td>158</td>
<td>3.375</td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>2.851</td>
<td></td>
</tr>
<tr>
<td>176</td>
<td>2.418</td>
<td></td>
</tr>
<tr>
<td>185</td>
<td>2.060</td>
<td></td>
</tr>
<tr>
<td>194</td>
<td>1.762</td>
<td></td>
</tr>
<tr>
<td>203</td>
<td>1.513</td>
<td></td>
</tr>
<tr>
<td>212</td>
<td>1.304</td>
<td></td>
</tr>
<tr>
<td>221</td>
<td>1.128</td>
<td></td>
</tr>
<tr>
<td>230</td>
<td>0.9790</td>
<td></td>
</tr>
<tr>
<td>239</td>
<td>0.8527</td>
<td></td>
</tr>
<tr>
<td>248</td>
<td>0.7450</td>
<td></td>
</tr>
<tr>
<td>257</td>
<td>0.6530</td>
<td></td>
</tr>
<tr>
<td>266</td>
<td>0.5741</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2</th>
<th>T°F</th>
<th>kΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>-22</td>
<td>361.7719</td>
<td></td>
</tr>
<tr>
<td>-13</td>
<td>265.4704</td>
<td></td>
</tr>
<tr>
<td>-4</td>
<td>196.9198</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>147.5687</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>111.6578</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>85.2610</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>65.6705</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>50.9947</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>39.9149</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>31.4796</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>25.0060</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>20.0000</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>16.1008</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>13.0426</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>10.6281</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>8.7097</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>7.1764</td>
<td></td>
</tr>
<tr>
<td>131</td>
<td>5.9407</td>
<td></td>
</tr>
<tr>
<td>140</td>
<td>4.9439</td>
<td></td>
</tr>
<tr>
<td>149</td>
<td>4.1352</td>
<td></td>
</tr>
<tr>
<td>158</td>
<td>3.4757</td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>2.9349</td>
<td></td>
</tr>
<tr>
<td>176</td>
<td>2.4894</td>
<td></td>
</tr>
<tr>
<td>185</td>
<td>2.1205</td>
<td></td>
</tr>
<tr>
<td>194</td>
<td>1.8138</td>
<td></td>
</tr>
<tr>
<td>203</td>
<td>1.5575</td>
<td></td>
</tr>
<tr>
<td>212</td>
<td>1.3425</td>
<td></td>
</tr>
<tr>
<td>221</td>
<td>1.1614</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3</th>
<th>T°F</th>
<th>kΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>-22</td>
<td>3257.371</td>
<td></td>
</tr>
<tr>
<td>-13</td>
<td>2429.222</td>
<td></td>
</tr>
<tr>
<td>-4</td>
<td>1827.883</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1387.099</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>1061.098</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>817.9329</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>635.0831</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>496.5712</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>391.0070</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>309.9511</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>247.2696</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>198.4674</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>160.2244</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>130.0697</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>106.1517</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>87.0725</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>71.7703</td>
<td></td>
</tr>
<tr>
<td>131</td>
<td>59.4735</td>
<td></td>
</tr>
<tr>
<td>140</td>
<td>49.5180</td>
<td></td>
</tr>
<tr>
<td>149</td>
<td>41.4168</td>
<td></td>
</tr>
<tr>
<td>158</td>
<td>34.7923</td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>29.3499</td>
<td></td>
</tr>
<tr>
<td>176</td>
<td>24.8586</td>
<td></td>
</tr>
<tr>
<td>185</td>
<td>21.1360</td>
<td></td>
</tr>
<tr>
<td>194</td>
<td>18.0377</td>
<td></td>
</tr>
<tr>
<td>203</td>
<td>15.4487</td>
<td></td>
</tr>
<tr>
<td>212</td>
<td>13.2768</td>
<td></td>
</tr>
<tr>
<td>221</td>
<td>11.4395</td>
<td></td>
</tr>
<tr>
<td>230</td>
<td>9.8902</td>
<td></td>
</tr>
<tr>
<td>239</td>
<td>8.5788</td>
<td></td>
</tr>
<tr>
<td>248</td>
<td>7.4650</td>
<td></td>
</tr>
<tr>
<td>257</td>
<td>6.5156</td>
<td></td>
</tr>
<tr>
<td>266</td>
<td>5.7038</td>
<td></td>
</tr>
<tr>
<td>275</td>
<td>5.0073</td>
<td></td>
</tr>
<tr>
<td>284</td>
<td>4.4080</td>
<td></td>
</tr>
<tr>
<td>293</td>
<td>3.8907</td>
<td></td>
</tr>
<tr>
<td>302</td>
<td>3.4429</td>
<td></td>
</tr>
</tbody>
</table>

3SA48006 (AD87A001J)
CHECK 6 Check Pressure Sensor

Measure the voltage (DC) between pins 1 and 3 of the connector.

Detected Pressure

\[ P_H = 1.38V_H - 0.69 \]

\( P_H \): Detected pressure (MPa)
\( V_H \): Output voltage (V)

This graph is available for both high pressure sensor and low pressure sensor.
**CHECK 7** Check for causes of wet operation.

Referring to the Fault Tree Analysis (FTA) shown below, identify defective points.

- Refrigerant accumulation
  - Defective crankcase heater
  - Frequent ON/OFF of compressor

- Overcharge of refrigerant
  - Defective control of superheated degree
    - [Cooling] Indoor unit electronic expansion valve opens too much. (∗1)
      - Defective indoor unit electronic expansion valve
        - Defective valve coil
        - Defective valve body
      - Defective control
        - Does the valve coil have normal resistance and insulation?
        - Is the connector correctly connected?
        - Are the thermistor resistance characteristics normal?
    - [Heating] Outdoor unit electronic expansion valve opens too much. (∗2)
      - Defective outdoor unit electronic expansion valve
        - Defective valve coil
        - Defective valve body
    - Defective control
      - Does the valve coil have normal resistance and insulation?
      - Are the voltage characteristics normal?
      - Is the connector correctly connected?
      - Does the heat exchanger get clogged?
      - Is the pressure reading of the service checker corresponding to the actual measurement of the sensor?

- Dirty evaporator
  - Degraded evaporating capacity
    - Reduced air quantity
      - Reduced fan output
        - Defective fan motor
          - Can the fan motor be rotated by hand?
          - Does the fan motor coil have normal resistance and insulation?
        - Defective service monitor PCB (including defective capacity setting)
      - Increased resistance in air passage
        - Dirty filter
          - Does the air filter get clogged?
        - Obstacles
          - Are there any obstacles in the air passage?

- Increased resistance in air passage
  - Defective service monitor PCB

---

*1: "Superheated degree control" in cooling operation is exercised with the indoor unit electronic expansion valve.

*2: "Superheated degree control" in heating operation is exercised with the outdoor unit electronic expansion valve (EV1).

*3: Guideline of superheated degree to judge as wet operation
  1. Suction gas superheated degree: Not more than 37.4°F;
  2. Discharge gas superheated degree: Not more than 59°F, except immediately after compressor starts up or is running under drooping control.

(Use the values shown above as a guideline. Even if the superheated degree falls in the range, the compressor may be normal depending on other conditions.)
## Clogged Points

Temperature differences must occur before or after the clogged points!

![Diagram of indoor and outdoor units with clogged points highlighted]

<table>
<thead>
<tr>
<th>Check points</th>
<th>Check factor</th>
<th>Causes</th>
<th>Remedies</th>
</tr>
</thead>
</table>
| 1            | Around expansion mechanism | Temperature difference | ● Dust  
● Choked moisture  
● Reduced effective pipe diameter due to adherent contamination, etc. | Replace the electronic expansion valve. |
| 2            | Accumulator           | Frosting                                              | ● Choked moisture                            | Blow a nitrogen gas, and then replace the refrigerant. |
| 3            | Distributor           | Temperature difference                               | ● Dust  
● Choked moisture  
● Reduced effective pipe diameter due to adherent contamination, etc. | Replace the heat exchanger or distributor. |
| 4            | Field piping          | Temperature difference                               | ● Collapsed pipe                             | Replace the pipe. |
| 5            | Stop valve            | Temperature difference                               | ● The stop valve is not fully open.          | Open the stop valve fully. |
Part 7
Appendix

1. Piping Diagrams ......................................................................................... 183
   1.1 Indoor Unit + Outdoor Unit ................................................................. 183
   1.2 Indoor Unit ....................................................................................... 185

2. Wiring Diagrams ...................................................................................... 187
   2.1 Outdoor Unit .................................................................................... 187
   2.2 Indoor Unit ....................................................................................... 189
1. Piping Diagrams

1.1 Indoor Unit + Outdoor Unit

FCQ18PAVJU / FHQ18PVJU / FAQ18PVJU / FBQ18PVJU + RZR18PVJU / RZQ18PVJU9
FCQ24PAVJU / FHQ24PVJU / FAQ24PVJU / FBQ24PVJU + RZR24PVJU / RZQ24PVJU9
FCQ30PAVJU / FHQ30PVJU / FBQ30PVJU + RZR30PVJU / RZQ30PVJU
RZQ36PVJU9 / RZR36PVJU
RZQ42PVJU9 / RZR42PVJU

Electronic expansion valve
Double pipe heat exchanger
Fusible plug
Electronic expansion valve
Pressure regulating valve
Filter
Heat exchanger
Service port
Four way valve

Service port
Capillary tube
Filter

Low pressure sensor
Solenoid valve
Capillary tube
Filter
Compressor
High pressure switch
Capillary tube
Solenoid valve

Accumulator
Stop valve (With service port on field piping side 5/16" flare connection)
1.2 Indoor Unit
FCQ36PAVJU / FCQ42PAVJU
FHQ36MVJU / FHQ42MVJU

FBQ36PVJU / FBQ42PVJU
2. Wiring Diagrams

2.1 Outdoor Unit

RZR18PVJU / RZR24PVJU / RZR30PVJU
RZQ18PVJU9 / RZQ24PVJU9 / RZQ30PVJU
2.2 Indoor Unit
FCQ18PAVJU / FCQ24PAVJU / FCQ30PAVJU
FCQ36PAVJU / FCQ42PAVJU

Wiring Diagrams

NOTES)
1. TERMINAL WIRING:
   • PROTECTIVE GROUND (SCREW): CONNECT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
   • NOISELESS GROUND (ADAPTOR FOR WIRING): CONNECT TO THE UNIT.
   • X33A AND X35A ARE CONNECTED WHEN THE OPTIONAL ACCESSORIES ARE USED.

2. IN CASE USING CENTRALIZED REMOTE CONTROL, AVAILABLE CONNECTORS ARE IN ACCORDANCE WITH THE INSTALLATION MANUAL FOR MORE DETAILS.

3. WHEN CONNECTING THE INPUT WIRING FROM OUTSIDE, FORCED OFF/ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE ON/OFF CONTROL. SEE INSTALLATION MANUAL FOR MORE DETAILS.

4. SYMBOLS SHOWN AS FOLLOWS:
   - RED: RED
   - BLK: BLACK
   - WHT: WHITE
   - YL: YELLOW
   - GRN: GREEN
   - ORG: ORANGE
   - BRN: BROWN
   - PINK: PINK
   - GRY: GRAY
   - BLU: BLUE

5. POWER SUPPLY: 208/240V, 60Hz

INDOOR UNIT
AJP CONNECTOR
AJP PRINTED CIRCUIT BOARD
FCQ PRINTED CIRCUIT BOARD
MTP MAGNETIC RELAY (MTR)
MTR MOTOR INDOOR FAN
WHS MOTOR SWING FAN
MF FAN VENTILATION
PS M Thermostat (AVR)
PS THERMOSTAT (AVR)
PS M MOTOR SWING FAN
PS THERMISTOR (AVR)
PS THERMISTOR (AVR)
MTP M MOTOR INDOOR FAN
X2A THERMISTOR (AIR)
X2A THERMISTOR (COIL LIQUID)
X2A THERMISTOR (COIL GAS)
X2A FLOAT SWITCH
X2A ECONOHYGRIPE
GND TERMINAL STRIP
AJP BI-WIRE FILTER
AJP ADAPTOR (GROUP CONTROL DABOTER)
AJP CONNECTOR (ADAPTOR FOR WIRING)
AJP WIRE REMOTE CONTROLLER
FHQ18PVJU / FHQ24PVJU / FHQ30PVJU
FHQ36MVJU / FHQ42MVJU

NOTES:
1. TERMINAL BLOCK CONNECTOR
2. SHORT CIRCUIT CONNECTOR
3. FIELD WIRING
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED THE UNIT.
5. Electric REMOTE CONTROLLER INSTALLATION MANUAL ATTACHED THE UNIT.
6. SYMBOLS SHOW AS FOLLOWS.
   - BLU: BLUE
   - BLK: BLACK
   - ORG: ORANGE
   - PNK: PINK
   - RED: RED
   - WHT: WHITE
   - YLW: YELLOW
7. USE COPPER CONDUCTORS ONLY.
5. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY REMOTE CONTROLLER. IN DETAILS, REFER TO THE INSTALLATION MANUAL ATTACHED TO THE UNIT.

6. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING DATA AND CATALOGS, ETC. BEFORE CONNECTING.

7. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH (SS1, SS2) OF WIRED REMOTE CONTROLLER AND WIRELESS REMOTE CONTROLLER BY INSTALLATION MANUAL AND ENGINEERING DATA, ETC.

8. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS USED.
Daikin products are manufactured for export to numerous countries throughout the world. Prior to purchase, please confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.

- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any inquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion
1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.