Energy Recovery Ventilator

[Applied Models]
VAM 300GVJU
VAM 470GVJU
VAM 600GVJU
VAM1200GVJU
Energy Recovery Ventilator

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

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<th>ED No.</th>
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<td>P. 2</td>
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1. Introduction

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into “⚠️ Warning” and “⚠️ Caution”. ⚠️ 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. Be sure to observe all the safety caution items described below.

About the pictograms

- This symbol indicates the item for which caution must be exercised.
- The pictogram shows the item to which attention must be paid.
- This symbol indicates the prohibited action.
- The prohibited item or action is shown in the illustration or near the symbol.
- This symbol indicates the action that must be taken, or the instruction.
- The instruction is shown in the illustration or near the symbol.

- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer.

### 1.1.1 Cautions Regarding Safety of Workers

<table>
<thead>
<tr>
<th>⚠️ Warning</th>
</tr>
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<tbody>
<tr>
<td>Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for repair. Working on the equipment that is connected to the power supply may cause an electrical shock. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.</td>
</tr>
</tbody>
</table>

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

When disconnecting the suction or discharge pipe of the compressor at the welded section, evacuate the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it may cause injury.

If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas may generate toxic gases when it contacts flames.

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

Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment may cause an electrical shock or fire.
### Warning

Be sure to wear a safety helmet, gloves, and a safety belt when working at a high place (more than 6.56 ft.). Insufficient safety measures may cause a falling accident.

In case of R-410A refrigerant models, be sure to use pipes, flare nuts and tools for the exclusive use of the R-410A refrigerant. The use of materials for R-22 refrigerant models may cause a serious accident such as a damage of refrigerant cycle as well as an equipment failure.

### Caution

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. Washing the unit with water may cause an electrical shock.

Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.

Be sure to turn OFF the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.

Be sure to conduct repair work with appropriate tools. The use of inappropriate tools may cause injury.

Be sure to check that the refrigerating cycle section has cooled down enough before conducting repair work. Working on the unit when the refrigerating cycle section is hot may cause burns.

Use the welder in a well-ventilated place. Using the welder in an enclosed room may cause oxygen deficiency.
### 1.1.2 Cautions Regarding Safety of Users

<table>
<thead>
<tr>
<th>Warning</th>
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<tbody>
<tr>
<td>Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools may cause an electrical shock, excessive heat generation or fire.</td>
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| If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires may cause an electrical shock, excessive heat generation or fire. |

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| Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it may cause an electrical shock, excessive heat generation or fire. |

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| Be sure to use an exclusive power circuit for the equipment, and follow the local technical standards related to the electrical equipment, the internal wiring regulations, and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work may cause an electrical shock or fire. |

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| Be sure to use the specified cable for wiring between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections may cause excessive heat generation or fire. |

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| When wiring between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section may cause an electrical shock, excessive heat generation or fire. |

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

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| Do not mix air or gas other than the specified refrigerant (R-410A / R-22) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury. |

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| If the refrigerant gas leaks, be sure to locate the leaking point and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leaking point cannot be located and the repair work must be stopped, be sure to perform 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 when it contacts flames, such as fan and other heaters, stoves and ranges. |

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### Warning

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<tbody>
<tr>
<td>When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment may fall and cause injury.</td>
</tr>
<tr>
<td>Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet securely. If the plug has dust or loose connection, it may cause an electrical shock or fire.</td>
</tr>
<tr>
<td>Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation may cause the equipment to fall, resulting in injury.</td>
</tr>
<tr>
<td>Be sure to install the product securely in the installation frame mounted on the window frame. If the unit is not securely mounted, it may fall and cause injury.</td>
</tr>
<tr>
<td>When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.</td>
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</table>

### Caution

<table>
<thead>
<tr>
<th>Caution</th>
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<tbody>
<tr>
<td>Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.</td>
</tr>
<tr>
<td>Do not install the equipment in a place where there is a possibility of combustible gas leaks. If the combustible gas leaks and remains around the unit, it may cause a fire.</td>
</tr>
<tr>
<td>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 an electrical shock.</td>
</tr>
<tr>
<td>If the installation platform or frame has corroded, replace it. Corroded installation platform or frame may cause the unit to fall, resulting in injury.</td>
</tr>
<tr>
<td>Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding may cause an electrical shock.</td>
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</table>
1.2 Safety Symbols

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Type of Information</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Note" /></td>
<td>Note</td>
<td>Indicates situations that may result in equipment or property-damage accidents only.</td>
</tr>
<tr>
<td><img src="image" alt="Caution" /></td>
<td>Caution</td>
<td>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.</td>
</tr>
<tr>
<td><img src="image" alt="Warning" /></td>
<td>Warning</td>
<td>Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</td>
</tr>
<tr>
<td><img src="image" alt="Reference" /></td>
<td>Reference</td>
<td>A reference guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.</td>
</tr>
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</table>
Part 1
General Information

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1. Model Names

<table>
<thead>
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<th>Type</th>
<th>300</th>
<th>470</th>
<th>600</th>
<th>1200</th>
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<tbody>
<tr>
<td>Model name</td>
<td>VAM300GVJU</td>
<td>VAM470GVJU</td>
<td>VAM600GVJU</td>
<td>VAM1200GVJU</td>
</tr>
</tbody>
</table>

2. External Appearance

VAM300GVJU
VAM470GVJU
VAM600GVJU
VAM1200GVJU
3. Constructions

VAM300GVJU
VAM470GVJU
VAM600GVJU

It exchanges heat (temperature and humidity) from indoors with the air taken in from outdoors, changes the outside air to the same condition as indoors and then brings it indoors.

Important
Sometimes when first using the unit, the odor of the heat exchanger core may be noticeable, but it is not harmful. The odor will gradually go away as the unit is used.
VAM1200GVJU

(1) Hanger bracket
(2) Duct connecting
(3) Exhaust fan
(4) Air filter
(5) Damper
(6) Control box
(7) Service cover
(8) Heat exchanger cores
(9) Nameplate
(10) Supply air fan
(11) Remote controller
(Optional accessory)
(12) Damper motor
(13) EA (Exhaust air)
[Exhaust air to outside]
(14) OA (Outdoor air)
[Fresh air from outside]
(15) Service space for the air filter, the heat exchanger core and control box
(16) RA (Return air)
[Return air from inside]
(17) SA (Supply air)
[Supply air to inside]

It exchanges heat (temperature and humidity) from indoors with the air taken in from outdoors, changes the outside air to the same condition as indoors and then brings it indoors.

Important
Sometimes when first using the unit, the odor of the heat exchanger core may be noticeable, but it is not harmful. The odor will gradually go away as the unit is used.
Part 2
Operation

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   1.2   Operating the Energy Recovery Ventilator Using the Remote Controller of
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1. Operation

1.1 Explanation for Systems

This product is operated differently depending on the system configuration.
For the operation of the remote controller for indoor unit and centralized control equipment, refer to
the instruction manual provided with each unit.

1.1.1 Independent System

Interlocking System with VRV or SkyAir System

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>Standard method</th>
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</table>
| Independent system | • Up to 16 units can be controlled with the remote controller. (A system with 2 remote controls can be created in the main/sub setting.)
  • All ERV operations can be used and indicated.
  • Operation monitor output and humidifier operation are possible using the Adaptor PCB.
  • Remote control cord should be field supply. (Maximum cord length: 1640 ft.) |

Interlocking system with VRV or SkyAir system

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>Standard method</th>
</tr>
</thead>
</table>
| 1-group linked operation system | • A combined total of up to 16 air conditioners and the ERV can be controlled.
  • The ERV mode can be operated independently when air conditioners are not being used.
  • Using the field setting of the remote controller for air conditioners, various settings such as pre-cool/pre-heat reservation ON/OFF, ventilation rate, ventilation mode, etc. |

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>Standard method</th>
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</table>
| Multi-group (2 or more) linked operation system | • Since all VRV units are connected to a single line in view of installation, all VRV units are subjects for operation.
  • If there are problems operating all VRV units, do not use this system. |

**Note:**
1. Adaptor PCB: KPR50-2; Installation box for adaptor PCB: KRP50-2A90
2. Operation of 2 or more group is not possible with a direct duct connection as below.
3. The direct duct connection can also be selected for 1-group linked operation system.
### 1.1.2 Centralized Control System (VRV System)

<table>
<thead>
<tr>
<th>CENTRALIZED CONTROL SYSTEM</th>
<th>STANDARD METHOD</th>
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</table>
| **“All”/individual control system** | • Use of the ON/OFF controller, Adaptor PCB for remote control or Schedule timer enables centralized control of the entire system. (maximum of 64 groups)  
• The ON/OFF controller can turn ON or OFF the individual units.  
• The schedule timer and ON/OFF controller can be used together. However, the Adaptor PCB for remote control cannot be used with another centralized control equipment. |
| **Zone control system** | • Use of the centralized control equipment enables zone control via the centralized control line. (maximum of 64 zones)  
• The centralized control equipment displays the “Filter” indication and abnormality warnings, and enables resetting.  
• The centralized control equipment allows ventilation operation for each zone independently. |

**Caution**  (1) Adaptor PCB: KRP50-2, Schedule timer: DST301BA61, ON/OFF controller: DCS301C71, Central remote controller: DCS302C71
1.2 Operating the Energy Recovery Ventilator Using the Remote Controller of the VRV-System Air Conditioner

Remote Controller for VRV
BRC1E71

![Remote Controller Diagram]

1. Operation mode selector button
2. Fan speed control button
3. Menu/OK button
4. Up button ▲
5. Down button ▼
6. Right button ►
7. Left button ◄
8. On/Off button
9. Operation lamp
10. Cancel button
11. LCD (with backlight)

Functions other than basic operation items (i.e., On/Off, Operation mode selector, Fan speed control, and temperature set point) 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 wire, 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.
     For details, refer to the operation manual attached to the remote controller.
   - Used to enter the selected item.

4. **Up button ▲**
   - Used to raise the set point.
   - 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 set point.
   - 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.
Part 3
Maintenance

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1. Maintenance (for a qualified service person only)

⚠️ Warning
- ONLY A QUALIFIED SERVICE PERSON IS ALLOWED TO PERFORM MAINTENANCE.
- BEFORE SERVICING TURN OFF ALL POWER SUPPLY.
- To clean or do maintenance on the ERV, be sure to stop operation and turn the power switch OFF. It may cause electric shock or injury.
- Do not wash the ERV with water.
  Doing so may result in an electric shock.
- Use gloves when cleaning.
  Cleaning without gloves may cause injury.
- Watch your step.
  Use caution, as this requires working in high places.
- Do not use benzene or thinner to clean the outside surfaces of the unit.
  This may cause cracks, discoloration or machine trouble.

⚠️ Caution
- Use gloves when cleaning.
  Cleaning without gloves may cause injury.
- Watch your step.
  Use caution, as this requires working in high places.
- Do not use benzene or thinner to clean the outside surfaces of the unit.
  This may cause cracks, discoloration or machine trouble.

1.1 How to Clean the Air Filter

Clean the air filter when the display shows the message “Time to clean filter” at the bottom.
It will display that it will operate for a set amount of time.

清洁频率
- CLEANING FREQUENCY
  AT LEAST ONCE EVERY YEAR
  (FOR GENERAL OFFICE USE)
  (CLEAN THE FILTER MORE FREQUENTLY IF NECESSARY.)
- Increase the frequency of cleaning if the unit is installed in a room where the air is extremely contaminated.
- If the dirt becomes impossible to clean, change the air filter (The replacement air filter is optional).

1. Remove the service cover.
   Go into ceiling through the inspection hatch, remove a fixture of service cover and take it off.

VAM300GVJU ~ 600GVJU

![Diagram of VAM300GVJU ~ 600GVJU service cover, fixture, and hanger]

VAM1200GVJU

![Diagram of VAM1200GVJU service cover, fixture, and hanger]
2. Remove the air filter.
   Take out from the heat exchanger cores.

   **VAM300GVJU ~ 600GVJU**

   - (1) Heat exchanger core (2 pcs.)
   - (2) Handle
   - (3) Rail
   - (4) Air filter

   **VAM1200GVJU**

   - (1) Heat exchanger core (4 pcs.)
   - (2) Handle
   - (3) Rail
   - (4) Air filter

3. Clean the air filter.

   Use a vacuum cleaner A) or wash the air filter with water B).
   A) Using a vacuum cleaner
   B) Washing with water

   When the air filter is very dirty, use a soft brush and neutral detergent.
   After cleaning, remove water and dry in the shade.

   **Note:**
   - Do not wash the air filter with hot water of more than 122°F, as doing so may result in discoloration and/or deformation.
   - Do not expose the air filter to fire, as doing so may result in burning.
   - Do not use gasoline, thinner or other organic solvents.
     This may cause discoloration or deformation.
4. Fix the air filter. 
If the air filter is washed, remove water completely and allow to dry for 20 to 30 minutes in the shade. When dried completely, install the air filter back in place.

**Note:** 
- Be sure to install the air filter after servicing.  
(Missing air filter causes clogged heat exchanger core.)  
The air filter is an optional item and the replacement is available.

5. Put the service cover back securely in place.

To reset the filter indicator on the remote controller, press Menu/OK button and select “Reset Filter Indicator” on the main menu screen.

*Consult your dealer if you want to change the time setting for when the filter sign goes on.

**Note:** 
- Do not remove the air filter except when cleaning.  
Breakdown may occur.
1.2 How to Clean the Heat Exchanger Core

**CLEANING FREQUENCY**

AT LEAST ONCE EVERY 2 YEARS

(FOR GENERAL OFFICE USE)

(CLEAN THE CORE MORE FREQUENTLY IF NECESSARY.)

**Warning**

- Replace the heat exchanger core if you find that the knob of the heat exchanger core is damaged or is deteriorated when cleaning.
  There is falling danger.

1. Remove the service cover.
2. Remove the air filter.
3. Take out the heat exchanger cores.
   - Pull out the air filter and then pull out the 2 heat exchanger cores.
4. Use a vacuum cleaner to remove dust and foreign objects on the surface of the heat exchanger core.
   - Use the vacuum cleaner equipped with a brush on the tip of the suction nozzle.
   - Lightly contact the brush on the surface of the heat exchanger core when cleaning.
     (Do not crush the heat exchanger core while cleaning.)

**Caution**

- Do not clean touching strongly with a vacuum cleaner. This may crush the mesh of the heat exchanger core.
- Never wash the heat exchanger core with water.
- Have your dealer professionally clean the filter if it is very dirty.

5. Put the heat exchanger core on the rail and insert it securely in place.
6. Install the air filter securely in place.
7. Install the service cover securely in place.

**Caution**

- Always use the air filter.
  If the air filter is not used, the heat exchanger core will be clogged, possibly causing poor performance and subsequent failure.
Part 4
Control Functions

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   1.2 Explanation of Individual Functions .............................................................................. 17
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## 1. Control Functions

### 1.1 List of Control Functions

<table>
<thead>
<tr>
<th>Classification</th>
<th>Function name</th>
<th>Outline of function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic functions (functions related to basic performance)</td>
<td>1.1 Ventilation operation control function</td>
<td>Controls supply air fan motor, exhaust air fan motor and damper motor.</td>
</tr>
<tr>
<td></td>
<td>1.2 Abnormality control function</td>
<td>Detects abnormalities in thermistor, damper motor and data transmission to prevent errors.</td>
</tr>
<tr>
<td>2. Additional functions</td>
<td>2.1 Ventilation mode changeover function</td>
<td>Operates equipment in selected ventilation mode (total heat exchange, normal, automatic).</td>
</tr>
<tr>
<td></td>
<td>2.2 Automatic ventilation operation function</td>
<td>Selects the most suitable ventilation mode by controlling damper motor according to temperature controller mode, temperature setting and thermistor data.</td>
</tr>
<tr>
<td></td>
<td>2.3 Ventilation capacity changeover function</td>
<td>Operates equipment at set airflow rate.</td>
</tr>
<tr>
<td></td>
<td>2.4 Humidifier operation control function</td>
<td>Controls humidifier output based on temperature controller judgement. <strong>Note 1</strong></td>
</tr>
<tr>
<td></td>
<td>2.5 Pre-cool/pre-heat function</td>
<td>Prevents equipment operation for a preset time (set time) after air conditioner is turned ON.</td>
</tr>
<tr>
<td></td>
<td>2.6 Fresh-up function</td>
<td>Sets motor tap so that supply air fan airflow rate is larger than exhaust air fan airflow rate.</td>
</tr>
<tr>
<td></td>
<td>2.7 Filter sign function</td>
<td>Stores cumulative operation hour data and turns ON air filter cleaning indicator.</td>
</tr>
<tr>
<td>3. System control functions</td>
<td>3.1 Remote controller function</td>
<td>Operates equipment according to instructions from remote controller.</td>
</tr>
<tr>
<td></td>
<td>3.2 Group function</td>
<td>Operates 2 or more units based on instructions from single remote controller.</td>
</tr>
<tr>
<td></td>
<td>3.3 Air conditioner link function</td>
<td>Follows air conditioner ON/OFF instructions.</td>
</tr>
<tr>
<td></td>
<td>3.4 Power ON operation function</td>
<td>Operates equipment when power is turned ON.</td>
</tr>
<tr>
<td></td>
<td>3.5 External link operation function</td>
<td>Turns equipment ON and OFF according to external link terminal signal (no-voltage contact a).</td>
</tr>
<tr>
<td></td>
<td>3.6 Centralized control function</td>
<td>Allows remote control operation by centralized control equipment.</td>
</tr>
<tr>
<td></td>
<td>3.7 Timer function</td>
<td>Turns equipment ON and OFF at set time.</td>
</tr>
<tr>
<td>4. Other support functions</td>
<td>4.1 Troubleshooting function</td>
<td>Displays error codes to indicate locations of error.</td>
</tr>
<tr>
<td></td>
<td>4.2 Field setting function</td>
<td>Allows initial setting from LCD remote controller.</td>
</tr>
</tbody>
</table>

**Note:** **Note 1**
Requires optional humidifier and optional printed circuit board (KRP50-2: Wiring adaptor for remote contact).
1.2 Explanation of Individual Functions

1.2.1 Ventilation Operation Control

Controls ventilation fan motors (supply and exhaust air fans) and damper motor.

1) Normal operation

Operation chart

<table>
<thead>
<tr>
<th>Function</th>
<th>Normal Ventilation</th>
<th>Cleaning Time</th>
<th>Mode Selection</th>
<th>Filter Sign Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilation Fan Motor</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>Damper Motor (Ventilation)</td>
<td>ON</td>
<td>Total Heat Exchange</td>
<td>Normal Ventilation</td>
<td></td>
</tr>
<tr>
<td>Operation Lamp</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filter Sign Indicator</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2) Direct duct connection with air conditioner

Operation chart

<table>
<thead>
<tr>
<th>Function</th>
<th>Normal Ventilation</th>
<th>Mode Selection</th>
<th>Fan Motor</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan Motor</td>
<td>ON</td>
<td></td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Ventilation Fan Motor</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>10 sec</td>
</tr>
<tr>
<td>Damper Motor (Ventilation)</td>
<td>ON</td>
<td>Normal Ventilation</td>
<td>Total Heat Exchange</td>
<td>Normal Ventilation</td>
</tr>
<tr>
<td>Operation Lamp</td>
<td>Lamp ON</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Direct duct connection setting can be made in VRV system or using field setting mode of Energy recovery ventilator LCD remote controller.
1.2.2 Pre-cool/Pre-heat

Pre-cool/pre-heat operations require the following conditions.

1. System
   Pre-heat operation is possible only in air conditioner linked system (1 group, 2-group link).
   Check the system first.

2. Energy recovery ventilator setting
   Set Pre-heat ON/OFF to ON.
   Pre-cool/pre-heat On/OFF setting can be made in air conditioner or using field setting mode of
   LCD remote controller of Energy recovery ventilator. (Pre-cool time can be set between 30 and
   60 min., and pre-heat time can be set between 30 and 150 min.)

3. Others
   a) Energy recovery ventilator must be in non-operating condition for 2 consecutive hours or
      more prior to pre-cool/pre-heat operation.
   b) Temperature control mode of the air conditioner must be set to Cool, Heat or Dry.

![Operation Standby Indication Diagram]

**Note:** Operation standby indication is displayed only on LCD remote controller of Energy recovery
ventilator.
### 1.2.3 Cold Area Mode

Stops or lowers ventilation airflow during defrosting operation and compressor non-operating condition when equipment in heating mode, thus reducing heating load and cold air draft.

**Operation chart (in heating operation only)**

<table>
<thead>
<tr>
<th>Air conditioner</th>
<th>ON/OFF</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan motor</td>
<td></td>
<td>ON</td>
</tr>
<tr>
<td>Ventilation fan motor</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Energy recovery ventilator</td>
<td>Damper motor (ventilation mode)</td>
<td>Total heat exchange ventilation</td>
</tr>
<tr>
<td>Remote controller indication</td>
<td>Operation lamp</td>
<td>Lamp</td>
</tr>
</tbody>
</table>

**Note:** Cold area mode can set using remote controller for air conditioner or field setting mode of LCD remoter controller of Energy recovery ventilator.

**Protection Control**

**Operation Control in Cold Climates**

To operate the unit at low outdoor air temperatures, control the air supply fans and the exhaust fans as shown below for equipment protection.

- Models applicable to outdoor air temperatures of 5°F at minimum
- Normal operation
- Outdoor air temperature < 14°F
- Outdoor air temperature > 17.6°F
- Air supply fan ON for 45 min., OFF for 15 min.
- Outdoor air temperature < 5°F
- Outdoor air temperature > 8.6°F
- Air supply fan stop (-)
- Exhaust fan stop (+)

### 1.2.4 Air Conditioner Link Operation

Link system enables simultaneous ON/OFF operation of Energy recovery ventilator and air conditioner (VRV system, SkyAir).

1) 1 group link control
- Allows simultaneous ON/OFF from remote controller for air conditioner.
- Allows independent operation of Energy recovery ventilator from VRV system remote controller during interim periods (not possible when direct duct connection is used).
2) Link control of 2 or more groups (zone link)
- Energy recovery ventilator can be operated when 1 or more air conditioners are operating.
- Allows independent operation of Energy recovery ventilator from VRV-system remote controller during interim periods (direct duct connection is not allowed in this system).

![Diagram showing link control of 2 or more groups]

**Note:** With Super Wiring, units of different outdoor systems can be linked in operation.
1.2.5 **Field Setting, Service Mode**

1. **Field setting**
   - Used for initial setting of Energy recovery ventilator.

2. **Service mode**
   - Used for confirmation of unit Nos. in the group and reallocation of unit Nos.

### List of Settings

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>FIRST CODE NO.</th>
<th>Description of Setting</th>
<th>SECOND CODE NO. (NOTE 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>01</td>
</tr>
<tr>
<td>Group settings</td>
<td>Individual settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Filter cleaning time setting</td>
<td>Approx. 2500 hours</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Night-time free cooling operation start time (after other air conditioners operating together with the unit have been stopped)</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Pre-cool/pre-heat ON/OFF setting</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Pre-cool/pre-heat time setting</td>
<td>30 min.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Fan speed initial setting</td>
<td>Normal</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Yes/No setting for direct duct connection with VRV system</td>
<td>No duct (Airflow setting)</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Setting for cold areas (Fan operation selection for heater thermo. OFF)</td>
<td>–</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Centralized/individual setting</td>
<td>Centralized</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Centralized zone interlock setting</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Pre-heat time extension setting</td>
<td>0 min.</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>External signal JC/J2</td>
<td>Last command</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Setting for direct Power ON</td>
<td>OFF</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Auto restart setting</td>
<td>OFF</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>External damper operation</td>
<td>–</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Indication of ventilation mode/Not indication</td>
<td>Indication</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Fresh up air supply/exhaust setting</td>
<td>No Indication</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Supply</td>
<td>Exhaust</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>External input terminal function selection (between J1 and J2)</td>
<td>Fresh up</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>KRP50-2 output switching selection (between 1 and 3)</td>
<td>Fan ON/OFF</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>Electric heater setting</td>
<td>No delay</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>“Fresh up” ON/OFF setting</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**Note:**
1. The settings are applied to the entire group, but if the mode No. individual settings is selected, the settings can be applied to individual unit. However, it is only possible to check any changes made to individual setting in individual mode. (For group control, the changes are made but the display remains as it was when shipped from the factory.)
2. Do not set anything not shown above. If the applicable functions are not available, they will not be displayed.
3. Group number setting for centralized controller
   1. Mode No. 00: Group controller
   2. Mode No. 30: Individual controller

* Regarding the setting procedure, refer to the section “Group number setting for centralized control” in the operating manual of either the ON/OFF controller or the central controller.
1.2.6 External Damper Operation (FIELD SUPPLY)

Explanation of Functions

Intake of outdoor air can be prevented when ERV is switched OFF if this damper is incorporated in the system.

1. The PCB of the ERV unit supplies power for an external damper.

- Power supply is turned ON when the ERV unit starts operating.
- Power supply is turned OFF when the ERV unit is switched OFF.

<table>
<thead>
<tr>
<th>Power supply voltage</th>
<th>Connected load capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>208V</td>
<td>0.5A or less</td>
</tr>
<tr>
<td>230V</td>
<td></td>
</tr>
</tbody>
</table>

Required setting changes for switchover to X15A output (see below for details)
**Essential Wiring**

Connect one end of the harness to X15A on the PCB and the other end to the harness leading to the damper via a connector such as a closed connector.

With regard to a closed connector, select one that suits the wire size. Secure the harness with the other wires by using the clamp.

**Essential Setting Changes**

To make the X15A output available, change the field setting by the remote controller as below.

Mode No.: 18 (group control) or 28 (individual control)

FIRST CODE NO.: 3
SECOND CODE NO.: 03
1.3 Layout of switches on PCB

1.3.1 PCB

Layout of switches on PCB

1. Transformer
2. Secondary
3. Primary
4. Connector for supply air fan motor
5. Connector for exhaust fan motor
6. Connector for damper motor
7. Power supply
8. Terminal block
9. Connector for KPR50-2
10. Connector for limit switch
11. Connector for indoor air thermistor
12. Connector for outdoor air thermistor
13. Selector switch
14. Terminals for remote controller
15. Terminals for centralized control
16. Terminals for no-voltage external input
17. Factory setting

SS1 has already been set to “NOR” at factory. The unit will not run if the setting is changed.
## 1.3.2 Function of main connection terminal

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Contents of function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>Single phase 208 – 230 V 60Hz</td>
</tr>
<tr>
<td></td>
<td>Power supply and ground terminal</td>
</tr>
<tr>
<td>L N TeS1</td>
<td></td>
</tr>
<tr>
<td><strong>Remote controller</strong></td>
<td>Connection terminal for remote controller for Energy recovery ventilator. This terminal is used to receive information of the indoor unit for interlocked operation.</td>
</tr>
<tr>
<td>P1 P2</td>
<td></td>
</tr>
<tr>
<td><strong>Centralized remote controller</strong></td>
<td>This terminal is used to receive information when centralized controller is connected.</td>
</tr>
<tr>
<td>F1 F2</td>
<td></td>
</tr>
<tr>
<td><strong>Input from outside</strong></td>
<td>Between terminal no. (J1) – (JC)</td>
</tr>
<tr>
<td></td>
<td>Used for “fresh up operation” by external input.</td>
</tr>
<tr>
<td></td>
<td>Between terminal no. (J2) – (JC)</td>
</tr>
<tr>
<td>J1 J2 Jc</td>
<td>Used for Operation / Stop by external input.</td>
</tr>
</tbody>
</table>
Part 5
Service Diagnosis

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1. Troubleshooting

1.1 Error Code Display

**Operation**

1. If an error occurs, either one of the following items will blink in the basic screen.
   - “Error: Push Menu button”
   - The operation lamp will blink.
   - “Warning: Push Menu button”
   - The operation lamp will not blink.
   - Press Menu/OK button.

2. The error code will blink and the service contact and model name or code may appear.
   - Notify your Daikin dealer of the Error code and model name or code.

List of error codes of Remote controller of the ERV-system
(The error codes displayed on remote controller are with two digits and not with four digits.)

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>Overall alarm</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Overall error</td>
<td>30</td>
</tr>
<tr>
<td>64</td>
<td>Indoor air thermistor error</td>
<td>31</td>
</tr>
<tr>
<td>65</td>
<td>Outdoor air thermistor error</td>
<td>32</td>
</tr>
<tr>
<td>6A</td>
<td>Damper system error (Alarm)</td>
<td>33</td>
</tr>
<tr>
<td>6A</td>
<td>Damper system error (Alarm)</td>
<td>33</td>
</tr>
<tr>
<td>88</td>
<td>Dedicated LCD remote controller</td>
<td>36</td>
</tr>
<tr>
<td>U5</td>
<td>Transmission error between remote controller and main unit</td>
<td>38</td>
</tr>
<tr>
<td>U5</td>
<td>Transmission error (Remote controller)</td>
<td>40</td>
</tr>
<tr>
<td>U8</td>
<td>Transmission error between main remote controller and sub remote controller</td>
<td>41</td>
</tr>
<tr>
<td>UA</td>
<td>Field setting error</td>
<td>42</td>
</tr>
<tr>
<td>UC</td>
<td>Duplication of centralized remote controller</td>
<td>43</td>
</tr>
<tr>
<td>UE</td>
<td>Transmission error between the unit and centralized controller</td>
<td>—</td>
</tr>
</tbody>
</table>

In case of the error with the code in white letters on the black background in the unit still operates. However, be sure to have it inspected and repaired as soon as possible.

If other than the above error codes are displayed, there is a possibility that the problem in question has occurred with an interlocked air conditioner or outdoor unit. See the operation manuals included with the air conditioners or outdoor units for details.

**Note:**

If no code is shown on the remote controller display, there is a possibility of following errors.

- The power supply to the unit is off.
- The indoor unit and/or ERV have not been wired for power supply.
- Incorrect wiring for the remote controller, the transmission wiring and/or the FORCED OFF wiring.
- The remote controller wiring is disconnected.
- Incorrect setting the “SS1” switch of PCB.
Main Unit PCB

LED A
(Micro-computer Operation Monitor)
1.2 Overall Alarm

Remote Controller Display

Method of Error Detection
Abnormalities are detected based on external input terminals (J1-JC).

Error Decision Conditions
When external input terminal (J1-JC) short-circuit during operation ("Overall Alarm" must be set in field setting mode (+1)).

Supposed Causes
- Defective external device
- Broken wire
- Defective control PCB

Troubleshooting

![Flowchart for troubleshooting the Overall Alarm]

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

Is connected external device operating properly?

- NO: Remove the cause of error in connected external device.
- YES: Proceed to the next step.

Measure the resistance between external input terminals (J1-JC).

Is the resistance 200 Ω or lower?

- NO: Check wires for abnormalities (broken wire, defective contact, etc.).
- YES: Replace the control PCB.

Note: *1: Refer to the field setting mode P.21
Mode No. 18
First Code No. 8
Second Code No. 02
# 1.3 Overall Error

**Remote Controller Display**

**Method of Error Detection**
Abnormalities are detected based on external input terminals (J1-JC).

**Error Decision Conditions**
When external input terminal (J1-JC) short-circuit during operation ("Overall Error" must be set in field setting mode (*1)).

**Supposed Causes**
- Defective external device
- Broken wire
- Defective control PCB

**Troubleshooting**

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

- Is the connected external device operating properly? NO → Remove the cause of error in connected external device.
  YES → Measure the resistance between external input terminals (J1-JC).

- Is the resistance 200 Ω or lower? NO → Check wires for abnormalities (broken wire, defective contact, etc.).
  YES → Replace the control PCB.

**Note:**
*1: Refer to the field setting mode P.21
Mode No. 18
First Code No. 8
Second Code No. 03
1.4 Indoor Air Thermistor Error

**Remote Controller Display**

**Method of Error Detection**
Temperature detected by indoor air thermistor is used to detect errors.

**Error Decision Conditions**
When value detected by indoor air thermistor is -40°C or below (open circuit) or 70°C or higher (short circuit).

**Supposed Causes**
- Defective thermistor
- Broken wire
- Defective control PCB
- Defective contact in connector

**Troubleshooting**

![Diagram]

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

Remove the thermistor (R1T) from X12A (3P) on control PCB, and measure the resistance.

Is the thermistor normal?  

- **YES**
  - If there is no defective contact, replace the control PCB.
- **NO**
  - Replace the indoor air thermistor.

**CHECK 4** Refer to P.52.
1.5 Outdoor Air Thermistor Error

Remote Controller Display

Method of Error Detection
Temperature detected by outdoor air thermistor is used to detect errors.

Error Decision Conditions
When value detected by outdoor air thermistor is -40°C or below (open circuit) or 70°C or higher (short circuit).

Supposed Causes
- Defective thermistor
- Broken wire
- Defective control PCB
- Defective contact in connector

Troubleshooting

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

Remove the thermistor (R2T) from X13A (2P) on control PCB, and measure the resistance.

Is the thermistor normal? [CHECK 4]

NO
Replace the outdoor air thermistor.

YES
If there is no defective contact, replace the control PCB.

CHECK 4 Refer to P.52.
1.6 Damper System Error (Alarm)

Remote Controller Display

Method of Error Detection
Measurement of damper motor limit ON/OFF time.

Error Decision Conditions
- When damper motor limit switch 1 (or 2) remains ON (or OFF) for more than a certain time duration after ventilation mode is changed.
- When damper motor limit switch 1 (or 2) repeats ON/OFF operations after damper motor 1 (or 2) stops.

Supposed Causes
- Defective damper motor or limit switch
- Broken wire in cable
- Defective contact in connector (including relay connector)
- Defective control PCB

Troubleshooting

Note:
- *1: Place tester probes on connectors of limit switch. Move switch by hand and check continuity. If tester indicates 0Ω when limit switch turns ON, and infinity when it turns OFF, limit switch is normal.
- Place tester probes on connectors of damper motor and check the resistance. If tester indicates approx. 17 kΩ in 200V model, damper motor is normal.
1.7 Damper System Error (Alarm)

Remote Controller Display

Method of Error Detection
Measurement of damper motor limit switch ON/OFF time and temperatures detected by outdoor and indoor air thermistor.

Error Decision Conditions
- When damper system error (alarm) and indoor (or outdoor) thermistor error are generated at the same time.
- When damper system error (alarm) occurs and values of indoor and outdoor air thermistor meet frost conditions.

Supposed Causes
- Defective damper motor or limit switch
- Defective indoor air thermistor
- Defective outdoor air thermistor
- Frosting
- Broken wire in cable
- Defective contact in connector (including relay connector)
- Defective control PCB

Troubleshooting

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

Check error record on error history display in service mode.

Are "6A" and "64" or "65" recorded?
- NO
- YES

Are "64" and "65" recorded?
- NO
- YES

Is "64" recorded?
- NO
- YES

Take corrective measures specified for damper system error (alarm). (Remove the cause of problem, and reset display.)

Take corrective measures specified for damper system error (alarm) and indoor and outdoor air thermistor errors.

Take corrective measures specified for damper system error (alarm) and outdoor air thermistor error.

Take corrective measures specified for damper system error (alarm) and indoor and outdoor air thermistor error.
1.8 Dedicated LCD Remote Controller

Remote Controller Display

Method of Error Detection
When "88" remains on remote controller display.

Error Decision Conditions

Supposed Causes
- Main-sub setting of remote controller abnormality
- Defective remote controller PCB
- Defective main unit PCB

Troubleshooting

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

1. Check to see if main-sub remote controller is used.
2. Is main-sub remote controller used?
   - YES: Change main-sub selection switch to set proper main-sub relation. One should be set to Main, and the other set to Sub.
   - NO: Check micro-computer operation monitor on main unit PCB.
3. Is it blinking?
   - YES: Replace the remote controller.
   - NO: Replace the main unit PCB.
Dedicated Remote Controller

*BRC1E71*

Main Unit PCB

- The settings of the BRC1E71 remote controller should be switched while referring to the manual supplied with the remote controller.
1.9 Transmission Error between Remote Controller and Main Unit

Remote Controller Display

Method of Error Detection
Micro-computer checks if data is transmitted properly between main unit and remote controller.

Error Decision Conditions
When data transmission is not performed correctly for a certain time period.

Supposed Causes
- Defective connection of remote controller cable
- Defective remote controller cable
- 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. Check the connection of remote controller cable to control PCB.

   Is the connection cable between main unit and remote controller properly wired?

   - NO: Correct the wiring.
   - YES: Proceed to the next step.

2. Is the remote controller cable normal? (*1)

   - NO: Replace the remote controller cable.
   - YES: Proceed to the next step.

   Possibility an external factor (instead of equipment error).

**Note:**

1. Use tester to check continuity of remote controller cable.
   - Disconnect cable from main unit PCB and remote controller PCB. Measure the resistance between wires in cable. Resistance should be $\infty \, \text{M}\Omega$ (infinity).
2. Use tester to check voltage on PCB.
   - Check with power turned ON.
   - With remote controller cable disconnected, voltage between P1 and P2 on PCB should be approx. 16 VDC. If measured value is not approx. 16 VDC, PCB is defective.
- Connect remote controller cable and disconnect remote controller. Voltage at the end of remote controller cable should be approx. 16 VDC. If measured value is not 16 VDC, remote controller cable is defective.
- Connect remote controller cable and remote controller. Voltage between P1 and P2 on remote controller PCB should be approx. 16 VDC. If measured value is not 16 VDC, remote controller is defective.
1.10 Transmission Error (Remote Controller)

Remote Controller Display

Method of Error Detection
Micro-computer checks if data is transmitted properly between main unit and remote controller.

Error Decision Conditions
When data transmission is not performed correctly for a certain time period.

Supposed Causes
- Erroneous connection
- Defective remote controller setting
- Defective remote controller

Troubleshooting

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

1. Is remote controller other than dedicated remote controller connected to remote controller cable?
   - NO: Correct the wiring.
   - YES: Is main-sub remote control used?
     - NO: Replace the remote controller.
     - YES: Is main-sub selection switch properly set?
       - NO: Set one main-sub selection switch to Main, and set the other to Sub. Then turn OFF power, and restart operation.
       - YES: Replace either main or sub remote controller.
1.11 Transmission Error between Main Remote Controller and Sub Remote Controller

**Remote Controller Display**

**Method of Error Detection**
Micro-computer checks if data is transmitted properly between main-sub remote controller.

**Error Decision Conditions**
When data transmission is not performed correctly for a certain time period.

**Supposed Causes**
- Defective remote controller setting
- Defective remote controller

**Troubleshooting**

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

- Is main-sub remote control used?
  - YES
    - Is main-sub selection switch set to Main?
      - YES
        - Set one main-sub selection switch to Main, and set the other to Sub. Then turn OFF power, and restart operation.
      - NO
        - Set the main-sub selection switch to Main. Turn OFF power, then restart.
    - NO
      - Replace remote controller.
  - NO
    - Replace either main or sub remote controller.

- Is main-sub selection switch properly set?
  - YES
    - Set the main-sub selection switch to Main. Turn OFF power, then restart.
  - NO
    - Replace remote controller.
1.12 Field Setting Error

Remote Controller Display

Method of Error Detection

Error Decision Conditions

Supposed Causes
- Defective combination of remote controller
- More than 16 units connected to remote controller cable.
- Defective remote controller

Troubleshooting

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

Are 17 or more units connected to remote controller cable?

<table>
<thead>
<tr>
<th>Combination</th>
<th>Correct/Wrong</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main body</td>
<td>Remote controller</td>
</tr>
<tr>
<td>Energy recovery ventilator only</td>
<td>Energy recovery ventilator</td>
</tr>
<tr>
<td>Energy recovery ventilator only</td>
<td>Air conditioner</td>
</tr>
<tr>
<td>Energy recovery ventilator + air conditioner</td>
<td>Energy recovery ventilator</td>
</tr>
<tr>
<td>Energy recovery ventilator + air conditioner</td>
<td>Air conditioner</td>
</tr>
</tbody>
</table>
### 1.13 Duplication of Centralized Remote Controller

**Remote Controller Display**

Remote controller micro-computer checks for double-setting of addresses.

**Error Decision Conditions**

When same address is set to 2 or more units.

**Supposed Causes**

- Overlapping of centralized control address
- Defective remote control

**Troubleshooting**

![Diagram]

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

  - Change centralized address settings using remote controller. Then, turn OFF the power supply, and turn ON the power again.

  - Does equipment reset properly?  
    - **NO**  
      - Replace the remote controller.
    - **YES**  
      - End of correction procedure.
1.14 Main Unit PCB Abnormality

<table>
<thead>
<tr>
<th>Method of Error Detection</th>
<th>Check micro-computer operation monitor.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error Decision Conditions</td>
<td>When main unit PCB does not operate.</td>
</tr>
<tr>
<td></td>
<td>When communication circuit errors.</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td>- Defective fuse (10A or more)</td>
</tr>
<tr>
<td></td>
<td>- Defective power transformer (275°F or more)</td>
</tr>
<tr>
<td></td>
<td>- Noise</td>
</tr>
<tr>
<td></td>
<td>- Defective main 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.

Turn OFF the power supply and turn ON the power again.

Does the equipment reset properly?

YES: Noise may be causing erroneous operation. If power reset does not solve the problem, replace the main unit PCB.

NO: With remote controller disconnected, check the micro-computer operation monitor.

Is it blinking?

YES: There may be an error in main unit PCB fuse, main unit PCB or power transformer. Check the fuse and transformer. If they are normal, replace the PCB.

NO: Is monitor indicator OFF?

YES: Monitor indicator remains ON.

NO: Check the other possible causes

Normal: Replace the main unit PCB.

Abnormal: Replace the defective parts.
Main unit PCB

LED A
(Micro-computer Operation Monitor)
1.15 Dedicated LCD Remote Controller

When no indication is displayed on remote controller

Method of Error Detection
Check to see if remote controller displays indication.

Error Decision Conditions

Supposed Causes

Troubleshooting

Refer to P.47

Disconnect remote controller cable from both main unit PCB and remote controller PCB. Using tester, check continuity between 2 wires in cable.

Check 1

Is measured value  = ∞ (infinity)?

YES

With remote controller cable disconnected from main unit PCB, check voltage between P1 and P2 on main unit PCB.

NO

There may be short circuit in remote controller cable.

Check 2

Is measured value approx. 16 VDC?

YES

Connect remote controller cable to main unit PCB, and disconnect remote controller. Check voltage at the end of cable on remote controller side.

NO

Replace the main unit PCB.

Check 3

Is measured value approx. 16 VDC?

YES

There may be broken wiring in remote controller cable.

NO

Replace the remote controller PCB.

CHECK 1  CHECK 2  CHECK 3 Refer to P.47

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

**CHECK 1**
Dedicated remote controller (Option)

**CHECK 2**
Dedicated remote controller (Option)

**CHECK 3**
Dedicated remote controller (Option)
1.17 Thermistor

Method of Error Detection
Remove thermistor and check resistance with tester.

Error Decision Conditions

Supposed Causes
- Defective thermistor
- Broken wire
- Defective control PCB
- Defective contact in connector

Troubleshooting

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

Remove thermistor from main unit PCB (X12A, X13A), and check the resistance using tester.

Is the resistance as shown below?

NO
If measured value deviates significantly from values in the table, thermistor is defective.

YES
Thermistor is normal.

CHECK 4 Refer to P.52.
1.18 Power Transformer

Method of Error Detection
Check the resistance and voltage with tester, and insulation resistance with megger.

Error Decision Conditions

Supposed Causes
- Defective power transformer (275°F or more)

Troubleshooting

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

Check the resistance of primary side of transformer.

Does the measured resistance deviate significantly from values shown below?

YES
Transformer is defective.

NO

Check the resistance of secondary side of transformer.

Does the measured resistance deviate significantly from values shown below?

YES
Transformer is defective.

NO
Apply rated voltage to primary side of transformer, and check the output voltage of secondary side of transformer.

Does the measured voltage deviate significantly from values shown below?

YES
Transformer is defective.

NO
Transformer is normal
- Resistance of primary side of transformer: approx. 140Ω
- Resistance of secondary side of transformer: approx. 1.9Ω
- Voltage at secondary side of transformer when rated voltage is applied to primary side: approx. 26 VAC
- Insulation resistance between primary side of transformer and case: 100 MΩ or higher
- Insulation resistance between secondary side of transformer and case: 100 MΩ or higher
- Insulation resistance between primary side and secondary side of transformer: 100 MΩ or higher

Check the resistance and voltage
1.19 Damper Motor

Method of Error Detection

Check the damper motor and limit switch when damper motor does not operate.

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.

Place tester probes at connectors of limit switch, and check continuity while moving switch by hand.

- **Is the measured value 0 Ω when limit switch turns ON, and infinity when it turns OFF?**
  - **NO** Limit switch is defective.
  - **YES**

Place tester probes on connectors of damper motor and check resistance.

- **Is the measured value of EJ type approx. 17 kΩ?**
  - **NO** Damper motor is defective.
  - **YES** Damper motor is normal.

Check the resistance and voltage — DAMPER MOTOR
## 1.20 Check

**CHECK 4 Thermistor temperature - resistance conversion table**

<table>
<thead>
<tr>
<th>Thermistor Temperature</th>
<th>Thermistor Resistance</th>
<th>Thermistor Temperature</th>
<th>Thermistor Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>14°F or more</td>
<td>108kΩ or more</td>
<td>72°F</td>
<td>Approx. 23kΩ</td>
</tr>
<tr>
<td>23°F</td>
<td>Approx. 85kΩ</td>
<td>75°F</td>
<td>Approx. 21kΩ</td>
</tr>
<tr>
<td>32°F</td>
<td>Approx. 66kΩ</td>
<td>79°F</td>
<td>Approx. 19kΩ</td>
</tr>
<tr>
<td>41°F</td>
<td>Approx. 51kΩ</td>
<td>82°F</td>
<td>Approx. 18kΩ</td>
</tr>
<tr>
<td>50°F</td>
<td>Approx. 40kΩ</td>
<td>86°F</td>
<td>Approx. 16kΩ</td>
</tr>
<tr>
<td>57°F</td>
<td>Approx. 33kΩ</td>
<td>95°F</td>
<td>Approx. 13kΩ</td>
</tr>
<tr>
<td>61°F</td>
<td>Approx. 30kΩ</td>
<td>122°F or more</td>
<td>7kΩ or less</td>
</tr>
<tr>
<td>64°F</td>
<td>Approx. 28kΩ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>68°F</td>
<td>Approx. 25kΩ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If measured value deviates significantly from above values, thermistor is defective.

Use the tester to check resistance.
Part 6
Supplementary Explanation

1. Service Mode ............................................................................................................. 54
1.1 BRC1E71 ............................................................................................................. 54
1. Service Mode

1.1 BRC1E71

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

### Maintenance Menu

<table>
<thead>
<tr>
<th>Maintenance Menu</th>
<th>Item 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1. Model Name</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>2.2. Operating Hours</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 unit 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>2.3. Indoor Unit Status</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 (pli)</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 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SkyAir</td>
<td>VRV</td>
</tr>
<tr>
<td>10.FLOT</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>Heat exchanger gas pipe thermistor</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 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SkyAir</td>
<td>VRV</td>
</tr>
<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 (pl)</td>
</tr>
<tr>
<td>5. SV1</td>
<td>Solenoid valve ON/OFF</td>
</tr>
</tbody>
</table>

### 2.5. Forced Defrost (SkyAir only)

<table>
<thead>
<tr>
<th>Item 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<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 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<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 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<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 2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Unit No.: 0 - 15</td>
<td>Select the Unit No. you want to check.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:</td>
<td>Remote controller thermistor (°F)</td>
</tr>
<tr>
<td>01:</td>
<td>Suction air thermistor (°F)</td>
</tr>
<tr>
<td>02:</td>
<td>Heat exchanger liquid pipe thermistor (°F)</td>
</tr>
<tr>
<td>03:</td>
<td>Heat exchanger gas pipe thermistor (°F)</td>
</tr>
<tr>
<td>04:</td>
<td>Indoor unit address No.</td>
</tr>
<tr>
<td>05:</td>
<td>Outdoor unit address No.</td>
</tr>
<tr>
<td>06:</td>
<td>Branch Selector unit address No.</td>
</tr>
<tr>
<td>07:</td>
<td>Zone control address No.</td>
</tr>
<tr>
<td>08:</td>
<td>Cooling/Heating batch address No.</td>
</tr>
<tr>
<td>09:</td>
<td>Demand/low-noise address No.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The corresponding data will be displayed, based on the Unit No. and Code selected.</td>
</tr>
</tbody>
</table>
Part 7
Appendix

1. Wiring Diagram ...........................................................................................................57
   1.1 VAM300GVJU / VAM470GVJU / VAM600GVJU ........................................ 57
   1.2 VAM1200GVJU ......................................................................................... 58
1. Wiring Diagram

1.1 VAM300GVJU / VAM470GVJU / VAM600GVJU

---

Please refer to the detailed wiring diagram for VAM300GVJU, VAM470GVJU, and VAM600GVJU. The diagram provides a clear visual representation of the electrical connections and components involved in these models. It is important to follow the instructions and symbols shown in the diagram to ensure proper installation and operation.
1.2 VAM1200GVJU
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.

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