Revision A:
• MSZ-FH50VE - E1 has been added.
Please void OBH623.

Models

MSZ-FH25VE - E1
MSZ-FH35VE - E1
MSZ-FH50VE - E1

Outdoor unit service manual
MUZ-FH-VEHZ Series (OBH625)
MUZ-FH-VE Series (OBH624)
MXZ-D-VA Series (OBH626)
Use the specified refrigerant only

Never use any refrigerant other than that specified.
Doing so may cause a burst, explosion, or fire when the unit is being used, serviced, or disposed of. Correct refrigerant is specified in the manuals and on the spec labels provided with our products. We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

<Preparation before the repair service>
- Prepare the proper tools.
- Prepare the proper protectors.
- Provide adequate ventilation.
- After stopping the operation of the air conditioner, turn off the power-supply breaker and remove the power plug.
- Discharge the capacitor before the work involving the electric parts.

<Precautions during the repair service>
- Do not perform the work involving the electric parts with wet hands.
- Do not pour water into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold areas in the refrigeration cycle.
- When the repair or the inspection of the circuit needs to be done without turning off the power, exercise great caution not to touch the live parts.

Revision A:
- MSZ-FH50VE has been added.
MSZ-FH25VE - E1
MSZ-FH35VE - E1
MSZ-FH50VE - E1

1. New model

These models are compatible with the outdoor units with low standby power control. Connecting these models to the MUZ-FH·VE(HZ)-series outdoor units enables the low standby power control. Refer to the technical guide (OBT17) about the low standby power control.

These models may be connected to the MUZ-FH·VE(HZ) series after once connected to the MXZ series and operated, for example because of relocation. In that case, the MUZ-FH·VE(HZ) series outdoor units will not operate without taking a step. Follow the procedure "Deleting the memorized abnormal condition" described in 10-2.1.
2 PART NAMES AND FUNCTIONS

ACCESSORIES

<table>
<thead>
<tr>
<th>Model</th>
<th>MSZ-FH25VE</th>
<th>MSZ-FH35VE</th>
<th>MSZ-FH50VE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Installation plate</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Installation plate fixing screw 4 x 25 mm</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Remote controller holder</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Fixing screw for 3.5 x 16 mm (Black)</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Battery (AAA) for remote controller</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Wireless remote controller</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Felt tape (For left or left-rear piping)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Air cleaning filter</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Electrostatic anti-allergy enzyme filter)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Air cleaning filter (Deodorizing filter)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Air purifying device</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SPECIFICATION

<table>
<thead>
<tr>
<th>Indoor model</th>
<th>MSZ-FH25VE</th>
<th>MSZ-FH35VE</th>
<th>MSZ-FH50VE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>Single phase 230 V, 50 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electrical data</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power input</strong></td>
<td>Cooling W</td>
<td>29</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Heating</td>
<td>29</td>
<td>31</td>
</tr>
<tr>
<td><strong>Running current</strong></td>
<td>Cooling A</td>
<td>0.28</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>Heating</td>
<td>0.28</td>
<td>0.29</td>
</tr>
<tr>
<td><strong>Model</strong></td>
<td>RC0J 30-MD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current</strong></td>
<td>Cooling A</td>
<td>0.28</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>Heating</td>
<td>0.28</td>
<td>0.29</td>
</tr>
<tr>
<td><strong>Dimensions W × H × D mm</strong></td>
<td>925 × 305(+17) × 234</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight kg</strong></td>
<td>13.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air direction</strong></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Airflow</strong></td>
<td>Super High Cooling m³/h</td>
<td>696</td>
<td>744</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>516</td>
<td>606</td>
</tr>
<tr>
<td></td>
<td>Med.</td>
<td>378</td>
<td>516</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>282</td>
<td>444</td>
</tr>
<tr>
<td></td>
<td>Silent</td>
<td>234</td>
<td>384</td>
</tr>
<tr>
<td></td>
<td>Super High Heating m³/h</td>
<td>792</td>
<td>876</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>552</td>
<td>672</td>
</tr>
<tr>
<td></td>
<td>Med.</td>
<td>384</td>
<td>540</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>282</td>
<td>432</td>
</tr>
<tr>
<td></td>
<td>Silent</td>
<td>240</td>
<td>342</td>
</tr>
<tr>
<td><strong>Sound level</strong></td>
<td>Super High Cooling dB(A)</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>36</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Med.</td>
<td>29</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Silent</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Super High Heating dB(A)</td>
<td>44</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>36</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Med.</td>
<td>29</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>24</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Silent</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td><strong>Fan speed</strong></td>
<td>Super High Cooling rpm</td>
<td>1,220</td>
<td>1,280</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>970</td>
<td>1,090</td>
</tr>
<tr>
<td></td>
<td>Med.</td>
<td>770</td>
<td>970</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>630</td>
<td>870</td>
</tr>
<tr>
<td></td>
<td>Silent</td>
<td>550</td>
<td>780</td>
</tr>
<tr>
<td></td>
<td>Super High Heating rpm</td>
<td>1,350</td>
<td>1,460</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>1,020</td>
<td>1,180</td>
</tr>
<tr>
<td></td>
<td>Med.</td>
<td>780</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>630</td>
<td>850</td>
</tr>
<tr>
<td></td>
<td>Silent</td>
<td>560</td>
<td>720</td>
</tr>
<tr>
<td><strong>Fan speed regulator</strong></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Remote controller model</strong></td>
<td>SG13A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Test conditions are based on ISO 5151.

- **Cooling:** Indoor Dry-bulb temperature 27°C, Wet-bulb temperature 19°C
- **Outdoor** Dry-bulb temperature 35°C

- **Heating:** Indoor Dry-bulb temperature 20°C
- **Outdoor** Dry-bulb temperature 7°C, Wet-bulb temperature 6°C

*1 Measured under rated operating frequency.

### Specifications and rating conditions of main electric parts

<table>
<thead>
<tr>
<th>Part</th>
<th>Model</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuse</strong></td>
<td>(F11)</td>
<td>T3.15AL250V</td>
</tr>
<tr>
<td><strong>Horizontal vane motor</strong></td>
<td>(MV1)</td>
<td>12 VDC</td>
</tr>
<tr>
<td><strong>Vertical vane motor</strong></td>
<td>(MV2)</td>
<td>12 VDC</td>
</tr>
<tr>
<td><strong>i-see SENSOR MOTOR</strong></td>
<td>(MT)</td>
<td>12 VDC</td>
</tr>
<tr>
<td><strong>Varistor</strong></td>
<td>(NR11)</td>
<td>S10K300E2K1</td>
</tr>
<tr>
<td><strong>Terminal block</strong></td>
<td>(TB)</td>
<td>3P</td>
</tr>
</tbody>
</table>

OBB623A
NOISE CRITERIA CURVE

MSZ-FH25VE  MSZ-FH35VE

MSZ-FH50VE

Test conditions
Cooling: Dry-bulb temperature 27 °C
Wet-bulb temperature 19 °C
Heating: Dry-bulb temperature 20 °C
MSZ-FH25VE MSZ-FH35VE MSZ-FH50VE

<table>
<thead>
<tr>
<th>Piping</th>
<th>Insulation ø37 O.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid line</td>
<td>ø6.35 - 0.39 m (Flared connection ø6.35)</td>
</tr>
<tr>
<td>Gas line</td>
<td>ø9.52 - 0.34 m (Flared connection ø9.52)</td>
</tr>
<tr>
<td>Drain hose</td>
<td>Insulation ø28 O.D Connected part ø16 O.D</td>
</tr>
</tbody>
</table>

MSZ-FH50VE

<table>
<thead>
<tr>
<th>Piping</th>
<th>Insulation ø37 O.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid line</td>
<td>ø6.35 - 0.39 m (Flared connection ø6.35)</td>
</tr>
<tr>
<td>Gas line</td>
<td>ø9.52 - 0.34 m (Flared connection ø12.7)</td>
</tr>
<tr>
<td>Drain hose</td>
<td>Insulation ø28 O.D Connected part ø16 O.D</td>
</tr>
</tbody>
</table>
NOTES: 1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only.
   (For field wiring)
3. Symbols indicate, ● : Terminal block
   ● : Connector

SYMBOL | NAME
-------|------------------------
F11    | FUSE
MF     | FAN MOTOR
MV1    | VANE MOTOR (HORIZONTAL)
MV2    | VANE MOTOR (VERTICAL)
MT     | I-*** SENSOR MOTOR
NR11   | VARIATOR
R111   | RESISTOR
RT11   | ROOM TEMP. THERMOSTAT
RT12   | COIL TEMP. THERMOSTAT(MAIN)
RT13   | COIL TEMP. THERMOSTAT(SUB)
T111   | TRANSFORMER
TB     | TERMINAL BLOCK
X1     | RELAY
MSZ-FH25VE  MSZ-FH35VE

Indoor heat exchanger Flared connection

Room temperature thermistor RT11

Indoor coil thermistor RT13 (sub)

Refrigerant pipe ø9.52 (with heat insulator)

Flared connection

Refrigerant pipe ø6.35 (with heat insulator)

Refrigerant flow in cooling

Refrigerant flow in heating

MSZ-FH50VE

Indoor heat exchanger

Indoor coil thermistor RT12 (main)

Flared connection

Refrigerant pipe ø12.7 (with heat insulator)

Flared connection

Refrigerant pipe ø6.35 (with heat insulator)

Refrigerant flow in cooling

Refrigerant flow in heating
8 SERVICE FUNCTIONS

MSZ-FH25VE  MSZ-FH35VE  MSZ-FH50VE

8-1. TIMER SHORT MODE
For service, the following set time can be shortened by short circuit of JPG and JPS on the electronic control P.C. board. (Refer to 10-7.)
Set time: 3 minutes → 3 seconds (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by short circuit of JPG and JPS.)

8-2. HOW TO SET REMOTE CONTROLLER EXCLUSIVELY FOR A PARTICULAR INDOOR UNIT
A maximum of 4 indoor units with wireless remote controllers can be used in a room.
To operate the indoor units individually with each remote controller, assign a number to each remote controller according to the number of the indoor unit.

This setting can be set only when all the following conditions are met:
• The remote controller is powered OFF.
• Weekly timer is not set.
• Weekly timer is not being edited.

(1) Hold down button on the remote controller for 2 seconds to enter the pairing mode.
(2) Press button again and assign a number to each remote controller.
   Each press of button advances the number in the following order: 1 → 2 → 3 → 4.
(3) Press button to complete the pairing setting.

After you turn the breaker ON, the remote controller that first sends a signal to an indoor unit will be regarded as the remote controller for the indoor unit.
Once they are set, the indoor unit will only receive the signal from the assigned remote controller afterwards.

8-3. SETTING THE INSTALLATION POSITION
Be sure to set the remote controller according to the installed position of the indoor unit.
Installation position:
Left: Distance to objects (wall, cabinet, etc.) is less than 50 cm to the left
Center: Distance to objects (wall, cabinet, etc.) is more than 50 cm to the left and right
Right: Distance to objects (wall, cabinet, etc.) is less than 50 cm to the right

The installation position can be set only when all the following conditions are met:
• The remote controller is powered OFF.
• Weekly timer is not set.
• Weekly timer is not being edited.

(1) Hold down button on the remote controller for 2 seconds to enter the position setting mode.
(2) Select the target installation position by pressing button. (Each press of the button displays the positions in order: center → right → left.)
(3) Press button to complete the position setting.

<table>
<thead>
<tr>
<th>Installation position</th>
<th>Left</th>
<th>Center</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote controller display</td>
<td>![Left display]</td>
<td>![Center display]</td>
<td>![Right display]</td>
</tr>
</tbody>
</table>
8-4. AUTO RESTART FUNCTION

When the indoor unit is controlled with the remote controller, the operation mode, the set temperature, and the fan speed are memorized by the indoor electronic control P.C. board. “AUTO RESTART FUNCTION” automatically starts operation in the same mode just before the shutoff of the main power.

Operation

1. If the main power has been cut, the operation settings remain.
2. After the power is restored, the unit restarts automatically according to the memory. (However, it takes at least 3 minutes for the compressor to start running.)

How to disable “AUTO RESTART FUNCTION”

1. Turn off the main power for the unit.
2. Cut the jumper wire to J R77 on the indoor electronic control P.C. board. (Refer to 10-7.)

NOTE:

• The operation settings are memorized when 10 seconds have passed after the indoor unit was operated with the remote controller.
• If main power is turned OFF or a power failure occurs while AUTO START/STOP timer is active, the timer setting is cancelled.
• If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is OFF.
• To prevent breaker OFF due to the rush of starting current, systematize other home appliance not to turn ON at the same time.
• When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart. Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding to the system that allows the units to start one by one.
NOTE: Last setting will be stored after the unit is turned OFF with the remote controller. Indoor unit receive the signal of the remote controller with beeps.

**INDOOR UNIT DISPLAY SECTION**

Operation Indicator lamp
The operation indicator at the right side of the indoor unit indicates the operation state.
- The following indication applies regardless of shape of the indication.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Operation state</th>
<th>Room temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighted</td>
<td>Standby mode (Only during multi system operation)</td>
<td>—</td>
</tr>
<tr>
<td>Blinking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not lighted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9-1. COOL (Cool) OPERATION

1. Press OPERATE/STOP (ON/OFF) button.
2. Select COOL mode with OPERATION SELECT button.
3. Press TEMPERATURE buttons TEMP or button to select the desired temperature. The setting range is 16 - 31°C.

1. **Coil frost prevention**
   - The compressor operational frequency is controlled by the temperature of the indoor heat exchanger to prevent the coil from frosting.
   - When the temperature of indoor heat exchanger becomes too low, the coil frost prevention mode works.
   - The indoor fan operates at the set speed and the compressor stops. This mode continues until the temperature of indoor heat exchanger rises.

2. **Low outside temperature operation**
   - When the outside temperature is lower, low outside temperature operation starts, and the outdoor fan slows or stops.

3. **Indoor fan speed control**
   - When the thermostat turns OFF, the indoor fan operates very Low to reduce power consumption.
   - When the room temperature rises and the thermostat is ON, the indoor fan operates according to the settings on the remote controller.
9-2. DRY (△) OPERATION

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select DRY mode with OPERATION SELECT button.
(3) The set temperature is determined from the initial room temperature.

1. Coil frost prevention
   Coil frost prevention is as same as COOL mode. (9-1.1.)

2. Low outside temperature operation
   Low outside temperature operation is as same as COOL mode. (9-1.2.)

3. Indoor fan speed control
   Indoor fan speed control is as same as COOL mode. (9-1.3.)

9-3. FAN (☆) OPERATION

(1) OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select FAN mode with OPERATION SELECT button.
(3) Select the desired fan speed. When AUTO, it becomes Low.
   Only indoor fan operates.
   Outdoor unit does not operate.

9-4. HEAT (○) OPERATION

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select HEAT mode with OPERATION SELECT button.
(3) Press TEMPERATURE buttons TEMP or button to select the desired temperature. The setting range is 16 - 31°C.

1. Cold air prevention control
   When the compressor is not operating or is starting, and the temperature of indoor heat exchanger and/or the room temperature is low or when defrosting is being done, the indoor fan will stop or rotate in Very Low speed.

2. High pressure protection
   The compressor operational frequency is controlled by the temperature of the indoor heat exchanger to prevent the condensing pressure from increasing excessively.
   When the temperature of indoor heat exchanger becomes too high, the high pressure protection works.
   The indoor fan operates following the cold air prevention control. This mode continues until the temperature of indoor heat exchanger falls.

3. Defrosting
   Defrosting starts when the temperature of outdoor heat exchanger becomes too low.
   The compressor stops once, the indoor/outdoor fans stop, the 4-way valve reverses, and the compressor re-starts.
   This mode continues until the temperature of outdoor heat exchanger rises or the fixed time passes.

9-5. AUTO CHANGE OVER — AUTO MODE OPERATION

Once desired temperature is set, unit operation is switched automatically between COOL and HEAT operation.

Mode selection

(1) Initial mode
   When unit starts the operation with AUTO operation from OFF:
   - If the room temperature is higher than the set temperature, operation starts in COOL mode.
   - If the room temperature is equal to or lower than the set temperature, operation starts in HEAT mode.

(2) Mode change
   COOL mode changes to HEAT mode when about 15 minutes have passed with the room temperature 1°C below the set temperature.
   HEAT mode changes to COOL mode when about 15 minutes have passed with the room temperature 1°C above the set temperature.

NOTE 1
If two or more indoor units are operating in multi system, there might be a case that the indoor unit, which is operating in ☐ (AUTO), cannot change over to the other operating mode (COOL ↔ HEAT) and becomes a state of standby.
Refer to NOTE 2 “FOR MULTI SYSTEM AIR CONDITIONER”.

NOTE 2
For multi system air conditioner
NOTE 2
FOR MULTI SYSTEM AIR CONDITIONER
OUTDOOR UNIT: MXZ series

Multi system air conditioner can connect two or more indoor units with one outdoor unit.

- When you try to operate two or more indoor units with one outdoor unit simultaneously, one for the cooling and the others for heating, the operation mode of the indoor unit that operates first is selected. Other indoor units cannot operate, and operation indicator lamp flashes as shown in the figure below. In this case, please set all the indoor units to the same operation mode.

![Operation Indicator]

- When indoor unit starts the operation while the defrosting of outdoor unit is being done, it takes a few minutes (max. 10 minutes) to blow out the warm air.
- In the heating operation, though indoor unit that does not operate may get warm or the sound of refrigerant flowing may be heard, they are not malfunction. The reason is that the refrigerant continuously flows into it.

9-6. AUTO VANE OPERATION

1. Horizontal vane
   (1) Vane motor drive
   These models are equipped with a stepping motors for the horizontal vanes. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approximately 12 V) transmitted from indoor microprocessor.

   (2) The horizontal vane angle and mode change as follows by pressing VANE CONTROL ( ) button.

   ![Horizontal Vane Angles]

   **NOTE:** The right and left horizontal vanes set to the same level may not align perfectly.

   (3) Positioning
   To confirm the standard position, the vane move until it touches the vane stopper. Then the vane is set to the selected angle.

   Confirming of standard position is performed in the following cases:
   (a) When the operation starts or finishes (including timer operation).
   (b) When the test run starts.
   (c) When standby mode (only during multi system operation) starts or finishes.

   (4) VANE AUTO ( ) mode
   In VANE AUTO ( ) mode, the microprocessor automatically determines the vane angle to make the optimum room temperature distribution.

   ![Horizontal Position]

   In COOL and DRY operation
   Vane angle is fixed to Horizontal position.

   In HEAT operation
   Vane angle is fixed to Angle 4.

   (5) STOP (operation OFF) and ON TIMER standby
   In the following cases, the horizontal vane returns to the closed position.
   (a) When OPERATE/STOP (ON/OFF) button is pressed (POWER OFF).
   (b) When the operation is stopped by the emergency operation.
   (c) When ON TIMER is ON standby.

   (6) Dew prevention
   During COOL or DRY operation with the vane angle at Angle 4 or 5 when the compressor cumulative operation time exceeds 1 hour, the vane angle automatically changes to Angle 3 for dew prevention.
(7) SWING (>Type) mode

By selecting SWING mode with VANE CONTROL button, the horizontal vanes swing vertically.
When COOL, DRY or FAN mode is selected, only the upper vane swings.

(8) Cold air prevention in HEAT operation

The horizontal vane position is set to Upward.

NOTE: When 2 or more indoor units are operated with multi outdoor unit, even if any indoor unit turns thermostat off, this control does not work in the indoor unit.

(9) ECONO COOL (Type) operation (ECONOMical operation)

When ECONO COOL button is pressed in COOL mode, set temperature is automatically set 2°C higher.
Also the horizontal vane swings in various cycle.
SWING operation makes you feel cooler than set temperature. So, even though the set temperature is higher, the air conditioner can keep comfort. As a result, energy can be saved.
To cancel this operation, select a different mode or press one of the following buttons in ECONO COOL operation: ECONO COOL, VANE CONTROL, POWERFUL or NATURAL FLOW button.

(10) POWERFUL (Type) operation

The air conditioner automatically adjusts the fan speed and the set temperature, and operates the POWERFUL mode.
The POWERFUL mode is cancelled automatically 15 minutes after operation starts, or when POWERFUL button is pressed once again within 15 minutes after operation starts. The operation mode returns to the mode prior to POWERFUL operation. POWERFUL mode also is cancelled, when the OPERATE/STOP (ON/OFF), ECONO COOL, FAN SPEED CONTROL, NATURAL FLOW or i-save button is pressed within 15 minutes after operation starts, or operation mode is changed.

2. Vertical vane

(1) Vane motor drive

These models are equipped with a stepping motor for the vertical vane. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approximately 12 V) transmitted from microprocessor.

(2) The vertical vane angle and mode change as follows by pressing WIDE VANE CONTROL button.

(3) Positioning

To confirm the standard position, the vane moves until it touches the vane stopper. Then the vane is set to the selected angle.

Confirming of standard position is performed in the following cases:
(a) OPERATE/STOP (ON/OFF) button is pressed (POWER ON).

(4) SWING (Type) MODE

By selecting SWING mode with WIDE VANE CONTROL button, the vertical vane swings horizontally. The remote controller displays “SWING”. Swing mode is cancelled when WIDE MODE CONTROL button is pressed once again.
9-7. TIMER OPERATION

1. How to set the time
   (1) Check that the current time is set correctly.
      **NOTE:** Timer operation will not work without setting the current time. Initially “0:00” blinks at the current time display of TIME MONITOR, so set the current time correctly with CLOCK button.

      **How to set the current time**
      (a) Press the CLOCK button.
      (b) Press the TIME SET buttons (▲ and ▼) to set the current time.
         • Each time FORWARD button (▲) is pressed, the set time increases by 1 minute, and each time BACKWARD button (▼) is pressed, the set time decreases by 1 minute.
         • Pressing those buttons longer, the set time increases/decreases by 10 minutes.
      (c) Press the CLOCK set button.
   (2) Press OPERATE/STOP (ON/OFF) button to start the air conditioner.
   (3) Set the time of timer.

      **ON timer setting**
      (a) Press ON TIMER button(ON) during operation.
      (b) Set the time of the timer using TIME SET buttons (▲ and ▼).

      **OFF timer setting**
      (a) Press OFF TIMER button(OFF) during operation.
      (b) Set the time of the timer using TIME SET buttons (▲ and ▼).

      * Each time FORWARD button (▲) is pressed, the set time increases by 10 minutes: each time BACKWARD button (▼) is pressed, the set time decreases by 10 minutes.

2. To release the timer
   To release ON timer, press ON TIMER button (ON).
   To release OFF timer, press OFF TIMER button (OFF).
   TIMER is cancelled and the display of set time disappears.

**PROGRAM TIMER**

* OFF timer and ON timer can be used in combination. The timer of the set time that is reached first will operate first.
* “▼” and “▲” display shows the order of OFF timer and ON timer operation.

(Example 1) The current time is 8:00 PM.
   The unit turns off at 11:00 PM, and on at 6:00 AM.
(Example 2) The current time is 11:00 AM.
   The unit turns on at 5:00 PM, and off at 9:00 PM.

**NOTE:** If the main power is turned OFF or a power failure occurs while ON/OFF timer is active, the timer setting is cancelled. As these models are equipped with an auto restart function, the air conditioner starts operating with timer cancelled when power is restored.
9-8. WEEKLY TIMER OPERATION

• A maximum of 4 ON or OFF timers can be set for individual days of the week.
• A maximum of 28 ON or OFF timers can be set for a week.

* Make sure that the current time and day are set correctly.

1. How to set the weekly timer
   * Make sure that the current time and day are set correctly.

   (1) Press \[ \text{button to enter the weekly timer setting mode.} \]

   (2) Press \[ \text{ and \[ \text{ buttons to select setting day and number.} \]

   (3) Press \[ \text{, \[ \text{, and \[ \text{ buttons to set ON/OFF, time, and temperature.} \]

NOTE:

* The simple ON/OFF timer setting is available while the weekly timer is on. In this case, the ON/OFF timer has priority over the weekly timer; the weekly timer operation will start again after the simple ON/OFF timer is complete.
* When the weekly timer is set, temperature can not be set to 10°C.
* The weekly timer operation and i-save operation cannot be used together.

1. How to set the weekly timer

   (1) Press \[ \text{ button to enter the weekly timer setting mode.} \]

   (2) Press \[ \text{ and \[ \text{ buttons to select setting day and number.} \]

   (3) Press \[ \text{, \[ \text{, and \[ \text{ buttons to set ON/OFF, time, and temperature.} \]

* Hold down the button to change the time quickly.
18

(4) Press \[\text{SET}\] button to complete and transmit the weekly timer setting.

NOTE:

- Press \[\text{SET}\] button to transmit the setting information of weekly timer to the indoor unit. Point the remote controller toward the indoor unit for 3 seconds.
- When setting the timer for more than one day of the week or one number, \[\text{SET}\] button does not have to be pressed per each setting. Press \[\text{SET}\] button once after all the settings are complete. All the weekly timer settings will be saved.
- Press \[\text{SET}\] button to enter the weekly timer setting mode, and press and hold \[\text{DELETE}\] button for 5 seconds to erase all weekly timer settings. Point the remote controller toward the indoor unit.

(5) Press \[\text{SET}\] button to turn the weekly timer ON. ( \[\text{SET}\] lights.)

- When the weekly timer is ON, the day of the week whose timer setting is complete, will light.
- Press \[\text{SET}\] button again to turn the weekly timer OFF. ( \[\text{SET}\] goes out.)

NOTE:
The saved settings will not be cleared when the weekly timer is turned OFF.

2. Checking weekly timer setting

(1) Press \[\text{SET}\] button to enter the weekly timer setting mode.

* \[\text{SET}\] blinks.

(2) Press \[\text{DAY}\] or \[\text{1-4}\] buttons to view the setting of the particular day or number.

(3) Press \[\text{CANCEL}\] button to exit the weekly timer setting.

NOTE:
When all days of the week are selected to view the settings and a different setting is included among them, \[\text{SET}\] will be displayed.

9-9. i-see CONTROL ( \[\text{SET}\] ) MODE

In the i-see control mode, the room temperature is controlled based on the sensible temperature.
(1) Press SENSOR button with a thin instrument during COOL, DRY, HEAT and AUTO mode to activate i-see control mode ( \[\text{SET}\] ).

The default setting is “active”.
(2) Press SENSOR button again to activate ABSENCE DETECTION ( \[\text{SET}\] ).
(3) Press SENSOR button again to release i-see control mode.

ABSENCE DETECTION ( \[\text{SET}\] )
This function automatically changes the operation to energy-saving operation when nobody is in the room.
(1) To activate this function, press SENSOR button until \[\text{SET}\] appears on the operation display of the remote controller during the i-see control mode.
(2) Press SENSOR button again to release ABSENCE DETECTION.

9-10. INDIRECT/DIRECT mode

The INDIRECT/DIRECT mode offers finely-tuned operation by locating where an occupant is in the room.
(1) Press INDIRECT/DIRECT button during COOL, DRY, HEAT or AUTO mode to activate INDIRECT/DIRECT mode.

This mode is only available when the i-see control mode is effective.
(2) Each press of INDIRECT/DIRECT button changes INDIRECT/DIRECT in the following order:

\[\text{INDIRECT} \rightarrow \text{DIRECT} \rightarrow \text{OFF}\]

\[\text{INDIRECT}\] (DIRECT) : An occupant will be less exposed to direct airflow.
\[\text{DIRECT}\] : Mainly the vicinity of an occupant will be air-conditioned.

NOTE:
- Horizontal and vertical airflow directions will be automatically selected.
- If you still feel uncomfortable with the air direction determined by the INDIRECT mode, adjust the air direction manually.
- Cancelling the i-see control mode automatically cancels the INDIRECT/DIRECT mode.
- INDIRECT/DIRECT mode is also cancelled when the VANE or WIDE VANE buttons is pressed.
- Do not touch the i-see SENSOR. This may cause malfunction of the i-see SENSOR.
9-11. NATURAL FLOW (≡4) OPERATION

In NATURAL FLOW operation, air flow will become more like natural wind. An occupant will not be directly exposed to the air flow and feel more comfortable.

(1) Press NATURAL FLOW button during COOL or FAN mode to start NATURAL FLOW operation.
(2) Press NATURAL FLOW button again to cancel NATURAL FLOW operation.

• NATURAL FLOW operation is also cancelled when the POWERFUL or ECONO COOL button is pressed.

NOTE: As the fan speed changes constantly during NATURAL FLOW operation, the sound of air flow, wind velocity and air flow temperature also change. This is not a malfunction.

9-12. AIR PURIFYING (►) OPERATION

In the AIR PURIFYING operation, the indoor unit built-in device reduces airborne fungi, viruses, mold, and allergens.

(1) Press PURIFIER button to start AIR PURIFYING operation.

• AIR PURIFYING lamp turns on. (Display section)
(2) Press PURIFIER button again to cancel AIR PURIFYING operation.

• AIR PURIFYING lamp turns off. (Display section)

NOTE:
• Never touch the air purifying device during operation. Although the air purifying device is safety-conscious design, touching this device could be the cause of trouble as this device discharge high voltage electricity.
• A "hissing" sound may be heard during the air purifying operation. This sound is produced when plasma is being discharged. This is not a malfunction.
• AIR PURIFYING lamp does not turn on if the front panel is not closed completely.

9-13. i-save (≡) OPERATION

1. How to set i-save operation
(1) Press OPERATE/STOP (ON/OFF) button.
(2) Select COOL, HEAT or ECONO COOL mode.
(3) Press i-save button.
(4) Set the temperature, fan speed, and airflow direction for i-save operation.

NOTE:
• i-save operation cannot be selected during DRY or AUTO mode operation.
• The setting range of HEAT mode i-save operation is 10°C and 16 - 31°C.
• 2 groups of setting can be saved. (One for COOL/ECONO COOL, one for HEAT)
• i-save operation and the weekly timer operation cannot be used together.

2. How to cancel operation
• Press i-save button again.
• i-save operation can also be cancelled by pressing POWERFUL button or OPERATION SELECT button to change the operation mode.

The same setting is select from the next time by simply pressing i-save button.

9-14. EMERGENCY/TEST OPERATION

In case of test run operation or emergency operation, use EMERGENCY OPERATION switch on the right side of the indoor unit. Emergency operation is available when the remote controller is missing, has failed or the batteries of the remote controller run down. The unit will start and OPERATION INDICATOR lamp will light.
The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan runs at High speed and the temperature control does not work.

After 30 minutes of test run operation, the system shifts to EMERGENCY COOL/HEAT MODE with a set temperature of 24°C. The fan speed shifts to Med.
The coil frost prevention works even in the test run or the emergency operation.

In the test run or emergency operation, the horizontal vane operates in VANE AUTO (≡) mode.
Emergency operation continues until EMERGENCY OPERATION switch is pressed once or twice or the unit receive any signal from the remote controller. In case of latter, normal operation will start.

NOTE: Do not press EMERGENCY OPERATION switch during normal operation.

9-15. 3-MINUTE TIME DELAY OPERATION

When the system turns OFF, compressor will not restart for 3 minutes as 3-minute time delay function operates to protect compressor from overload.
10-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following
   1) Check the power supply voltage.
   2) Check the indoor/outdoor connecting wire for miswiring.

2. Take care of the following during servicing
   1) Before servicing the air conditioner, be sure to turn OFF the main unit first with the remote controller, and then after confirming the horizontal vane is closed, turn OFF the breaker and/or disconnect the power plug.
   2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the P.C. board.
   3) When removing the P.C. board, hold the edge of the board with care NOT to apply stress on the components.
   4) When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.

3. Troubleshooting procedure
   1) Check if the OPERATION INDICATOR lamp on the indoor unit is flashing ON and OFF to indicate an abnormality. To make sure, check how many times the OPERATION INDICATOR lamp is flashing ON and OFF before starting service work.
   2) Before servicing, check that the connector and terminal are connected properly.
   3) When the electronic control P.C. board seems to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
   4) When troubleshooting, Refer to 10-2, 10-3 and 10-4.

4. How to replace batteries
   Weak batteries may cause the remote controller malfunction.
   In this case, replace the batteries to operate the remote controller normally.
   ① Remove the front lid and insert batteries. Then reattach the front lid.
   ② Press RESET button with a thin instrument, and then use the remote controller.

   Insert the negative pole of the batteries first. Check if the polarity of the batteries is correct.

   NOTE: 1. If RESET button is not pressed, the remote controller may not operate correctly.
   2. This remote controller has a circuit to automatically reset the microcomputer when batteries are replaced. This function is equipped to prevent the microcomputer from malfunctioning due to the voltage drop caused by the battery replacement.
   3. Do not use the leaking batteries.
10-2. FAILURE MODE RECALL FUNCTION

Outline of the function
This air conditioner can memorize the abnormal condition which has occurred once. Even though LED indication listed on the troubleshooting check table (10-4.) disappears, the memorized failure details can be recalled.

1. Flow chart of failure mode recall function for the indoor/outdoor unit

**Operational procedure**

1. Turn ON the power supply.
2. Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
3. Press RESET button of the remote controller.
4. Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
5. Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

**Setting up the failure mode recall function**

1. While pressing both OPERATION SELECT button and TEMP button on the remote controller at the same time, press RESET button.
2. Hold down the other two buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

**Judgment of indoor/outdoor abnormality**

1. Before blinking, does POWER lamp stay ON for 3 seconds?
   - Stays ON for 3 seconds (without beep): The outdoor unit is abnormal.
   - Stays ON for 3 seconds (with beep): The outdoor unit is abnormal.
   - The indoor unit is abnormal.

2. Check the blinking pattern, and identify the abnormal point with the indoor unit failure mode table. (Refer to 10-2.4)
3. Make sure to check at least two consecutive blinking cycles.
4. Release the failure mode recall function by the following procedures.
   - Turn OFF the power supply and turn it ON again.
   - Press RESET button of the remote controller.

**Deleting the memorized abnormal condition**

1. After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
2. Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
3. Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
4. Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

**NOTE:**
1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.
3. The information regarding whether the connected outdoor unit is a low-standby-power model or a non-low-standby-power model will also be initialized. (Default= compatible with a low-standby-power model)

**Blinking pattern when the indoor unit is abnormal:**

- Blanking at 0.5-second interval
- 2.5-second OFF
- Repeated cycle

**Blinking pattern when the outdoor unit is abnormal:**

- Blanking at 0.5-second interval
- 2.5-second OFF
- 3-second ON
- Repeated cycle

**NOTE:**
- It takes up to 1 minute to indicate the outdoor unit abnormality.
- Even if the OPERATION INDICATOR lamp is not lighting, keep checking at least 1 minute or longer.
2. Flow chart of AIR PURIFYING power failure mode recall function

Operational procedure

The air purifying device might be abnormal. Confirm if the air purifying device is abnormal according to the following procedures.

Make sure that the remote controller is in the failure mode recall function.

With the remote controller headed towards the indoor unit, press TOO COOL or TOO WARM button to adjust the set temperature to 23 °C.  ■1

Does POWER lamp on the indoor unit blink at the interval of 0.5 seconds?

Blinks: The air purifying device is abnormal. Beep is emitted at the same timing as the blinking of POWER lamp.  ■2

No (OFF)

The air purifying device is normal.

Releasing the failure mode recall function

Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

Repair the failure parts.

Deleting the memorized abnormal condition

① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.  
② Press OPERATE/STOP(ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.  
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.  
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

Note1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.  
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

2.5-second OFF
Blinking at 0.5-second interval
Beeps
Repeated cycle
Repeated cycle
Repeated cycle

3. AIR PURIFYING power operation check

AIR PURIFYING power goes ON when PURIFIER button on the remote controller is pressed with any set temperature displayed during failure mode recall function.
Check the operation display section of the remote controller to confirm that AIR PURIFYING power is activated. 
While AIR PURIFYING lamp stays OFF, it means normal. 
Flashing AIR PURIFYING lamp means abnormal, the AIR PURIFYING power is not conducted.

<table>
<thead>
<tr>
<th>AIR PURIFYING lamp</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuously blinking</td>
<td>Follow &quot;Check of AIR PURIFYING power&quot; to identify the error. (Refer to 10-6.②.)</td>
</tr>
<tr>
<td>2-time flash</td>
<td>AIR PURIFYING power control circuit on the indoor electronic control P.C. board is out of order. (Refer to 10-6.②.)</td>
</tr>
</tbody>
</table>

NOTE: Perform the above mentioned check with the front panel closed. The interlock switch (Air purifying device) works by opening front panel and the AIR PURIFYING power is cut.

OBH623A
### 4. Indoor unit failure mode table

<table>
<thead>
<tr>
<th>POWER lamp</th>
<th>Abnormal point (Failure mode)</th>
<th>Condition</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not lighted</td>
<td>Normal</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1-time flash every 0.5-second</td>
<td>Room temperature thermistor</td>
<td>The room temperature thermistor short or open circuit is detected every 8 seconds during operation.</td>
<td>Refer to the characteristics of the room temperature thermistor (10-7.).</td>
</tr>
<tr>
<td>2-time flash 2.5-second OFF</td>
<td>Indoor coil thermistor</td>
<td>The indoor coil thermistor short or open circuit is detected every 8 seconds during operation.</td>
<td>Refer to the characteristics of the main indoor coil thermistor (10-7.).</td>
</tr>
<tr>
<td>3-time flash 2.5-second OFF</td>
<td>Serial signal</td>
<td>The serial signal from outdoor unit is not received for a maximum of 6 minutes.</td>
<td>Refer to 10-6. &quot;How to check miswiring and serial signal error&quot;.</td>
</tr>
<tr>
<td>11-time flash 2.5-second OFF</td>
<td>Indoor fan motor</td>
<td>The rotational frequency feedback signal is not emitted during the 12 seconds the indoor fan operation.</td>
<td>Refer to 10-6. &quot;Check of indoor fan motor&quot;.</td>
</tr>
<tr>
<td>12-time flash 2.5-second OFF</td>
<td>Indoor control system</td>
<td>It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.</td>
<td>Replace the indoor electronic control P.C. board.</td>
</tr>
</tbody>
</table>

**NOTE**: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (10-4.).

### 5. AIR PURIFYING power failure mode table

<table>
<thead>
<tr>
<th>POWER lamp</th>
<th>Abnormal point (Failure mode)</th>
<th>Condition</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-time flash</td>
<td>AIR PURIFYING power control</td>
<td>When AIR PURIFYING power cannot be turned OFF even if the AIR PURIFYING operation is turned OFF with the remote controller.</td>
<td>Refer to 10-6. &quot;Check of AIR PURIFYING power&quot;.</td>
</tr>
<tr>
<td>2-time flash</td>
<td>Electrode (Spark discharge)</td>
<td>When the voltage between CN1T1(+)(+) and (GND) on the electronic P.C. board falls below 1.3V (spark discharge judgment voltage).</td>
<td>Refer to 10-6. &quot;Check of AIR PURIFYING power&quot;.</td>
</tr>
<tr>
<td>3-time flash</td>
<td>Electrode (Abnormal electric discharge error 1)</td>
<td>When the voltage between CN1T1(+)(+) and (GND) on the electronic P.C. board falls by 1.2V below the normal voltage value (2.5V).</td>
<td>Refer to 10-6. &quot;Check of AIR PURIFYING power&quot;.</td>
</tr>
<tr>
<td>4-time flash</td>
<td>Electrode (Abnormal electric discharge error 2)</td>
<td>When the voltage between CN1T1(+)(+) and (GND) on the electronic P.C. board falls significantly. (0.4V / 0.5ms)</td>
<td>Refer to 10-6. &quot;Check of AIR PURIFYING power&quot;.</td>
</tr>
<tr>
<td>5-time flash</td>
<td>AIR PURIFYING power</td>
<td>When the voltage between CN1T1(+)(+) and (GND) on the electronic P.C. board rises above 3V.</td>
<td>Refer to 10-6. &quot;Check of AIR PURIFYING power&quot;.</td>
</tr>
</tbody>
</table>

**NOTE1**: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (10-4.).

**NOTE2**: As soon as an abnormality is detected, AIR PURIFYING power goes OFF, therefore measuring instrument which records the voltage wave is required in order to perform the above mentioned voltage measurement.

### 6. Operation check on i-see SENSOR

While recalling the failure details, set the temperature to 19°C to perform the simple check on the i-see SENSOR. Place your hand over the i-see SENSOR, and the buzzer will beep at 1 second intervals. (Normal detection temperature range is 34 to 39°C.) If the buzzer does not beep, check for disconnection of the connectors. Set the temperature to 23°C to exit the simple check mode on the i-see SENSOR.

<table>
<thead>
<tr>
<th>POWER lamp</th>
<th>Abnormal point (Failure mode)</th>
<th>Condition</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-time flash</td>
<td>i-see SENSOR</td>
<td>Poor contact in i-see SENSOR wiring Failure in loading corrected data of i-see SENSOR</td>
<td>Check for disconnection of the connectors.</td>
</tr>
</tbody>
</table>
10-3. INSTRUCTION OF TROUBLESHOOTING

Start

Indoor unit operates. Outdoor unit does not operate.

Indoor unit operates. Outdoor unit does not operate normally.

Indoor unit operates. Outdoor unit does not receive the signal from remote controller.

POWER lamp on the indoor unit is flashing ON and OFF.

Indoor unit operates, when EMERGENCY OPERATION switch is pressed.

Indoor unit does not operate, when EMERGENCY OPERATION switch is pressed.

POWER lamp
Flash on and off at 0.5-second intervals
Cause: Indoor/Outdoor unit
• Miswiring or trouble of serial signal

POWER lamp
2-time flash
Cause: Indoor unit
• Trouble of room temperature / indoor coil thermometer

POWER lamp
3-time flash
Cause: Indoor unit
• Trouble of indoor fan motor

POWER lamp
4-time flash
Cause: Indoor unit
• Trouble of indoor unit control system

POWER lamp
5-time flash
Cause: Outdoor unit
• Trouble of outdoor unit power system abnormality

POWER lamp
6-time flash
Cause: Outdoor unit
• Trouble of outdoor unit inverter power control

POWER lamp
7-time flash
Cause: Outdoor unit
• Trouble of outdoor control system

POWER lamp
8-time flash
Cause: Outdoor unit
• Trouble of outdoor unit control system

POWER lamp
9-time flash
Cause: Outdoor unit
• Trouble of outdoor unit inverter control

POWER lamp
10-time flash
Cause: Outdoor unit
• Trouble of outdoor unit electronic control P.C. board

POWER lamp
11-time flash
Cause: Outdoor unit
• Trouble of outdoor control system

POWER lamp
12-time flash
Cause: Outdoor unit
• Trouble of outdoor unit inverter power control

POWER lamp
13-time flash
Cause: Outdoor unit
• Trouble of outdoor unit electronic control P.C. board

POWER lamp
14-time flash
Cause: Outdoor unit
• Trouble of outdoor control system

Check room temperature thermistor.
Refer to 10-7. "Test point diagram and voltage".

Refer to "How to check inverter/compressor".

Refer to 10-6. @ "Check of R.V. coil".

Refer to 10-6. @ "Check of remote controller and indoor electronic control P.C. board".

1. Check indoor/outdoor connecting wire.
(Check if the power is supplied to the indoor unit.)
2. Refer to 10-6. @ "Check of indoor P.C. board and indoor fan motor".

Refer to 10-6. @ "Check of AIR PURIFYING power".

Refer to outdoor unit service manual.

Check room temperature thermistor.
Refer to 10-7. "Test point diagram and voltage".

Check room temperature thermistor and indoor coil thermistor. Refer to 10-7. "Test point diagram and voltage".

Replace the indoor electronic control P.C. board.

Refer to "How to check inverter/compressor".

Replace the inverter P.C. board or the outdoor electronic control P.C. board.

Check "Flow chart of the detailed outdoor unit failure mode recall function."

If blinking of OPERATION INDICATOR lamp cannot be checked, it can be checked with failure mode recall function.

"Test Run operation" means the operation within 30 minutes after EMERGENCY OPERATION switch is pressed.

Refer to outdoor unit service manual.

POWER lamp 14-time flash
Cause: Outdoor unit
• Trouble of outdoor control system

POWER lamp 13-time flash
Cause: Outdoor unit
• Trouble of outdoor unit inverter power control

POWER lamp 12-time flash
Cause: Outdoor unit
• Trouble of outdoor unit electronic control P.C. board

POWER lamp 11-time flash
Cause: Outdoor unit
• Trouble of outdoor control system

POWER lamp 10-time flash
Cause: Outdoor unit
• Trouble of outdoor unit inverter power control

POWER lamp 9-time flash
Cause: Outdoor unit
• Trouble of outdoor unit electronic control P.C. board

POWER lamp 8-time flash
Cause: Outdoor unit
• Trouble of outdoor control system

POWER lamp 7-time flash
Cause: Outdoor unit
• Trouble of outdoor unit power system abnormality

POWER lamp 6-time flash
Cause: Outdoor unit
• Trouble of outdoor unit inverter power control

POWER lamp 5-time flash
Cause: Outdoor unit
• Trouble of outdoor unit control system

POWER lamp 4-time flash
Cause: Indoor unit
• Trouble of indoor fan motor

POWER lamp 3-time flash
Cause: Indoor unit
• Trouble of indoor unit control system

POWER lamp 2-time flash
Cause: Indoor unit
• Trouble of room temperature / indoor coil thermometer

POWER lamp 1-time flash
Cause: Indoor/Outdoor unit
• Miswiring or trouble of serial signal

POWER lamp 0-time flash
Cause: Indoor/Outdoor unit
• Miswiring or trouble of serial signal

Refer to 10-6. @ "How to check miswiring and serial signal error".

Refer to 10-6. @ "Check of AIR PURIFYING power".

Refer to 10-6. @ "Check of remote controller and indoor electronic control P.C. board".

Refer to 10-6. @ "Check of R.V. coil".

Refer to "How to check inverter/compressor".

Replace the inverter P.C. board or the outdoor electronic control P.C. board.

Check "Flow chart of the detailed outdoor unit failure mode recall function."
## 10-4. TROUBLESHOOTING CHECK TABLE

Before taking measures, make sure that the symptom reappears for accurate troubleshooting. When the indoor unit has started operation and detected an abnormality of the following condition (the first detection after the power ON), the indoor fan motor turns OFF and OPERATION INDICATOR lamp flashes.

- The following indicator applies regardless of shape of the indication.

### OPERATION INDICATOR

- **Lighted**
- **Blinking**
- **Not lighted**

<table>
<thead>
<tr>
<th>No.</th>
<th>Abnormal point</th>
<th>Operation indicator lamp</th>
<th>Symptom</th>
<th>Condition</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Miswiring or serial signal</td>
<td>POWER lamp flashes. 0.5-second ON</td>
<td>The serial signal from the outdoor unit is not received for 6 minutes.</td>
<td>The indoor unit is connected to a low-standby-power model after once connected to a non-low-standby-power model.</td>
<td>• Refer to 10-6. ⑥ “How to check miswiring and serial signal error”. • Refer to NOTE.</td>
</tr>
<tr>
<td>2</td>
<td>Indoor coil thermistor</td>
<td>POWER lamp flashes. 2-time flash</td>
<td>The indoor coil or the room temperature thermistor is short or open circuit.</td>
<td>• Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor (10-7).</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Indoor fan motor</td>
<td>POWER lamp flashes. 3-time flash</td>
<td>The rotational frequency feedback signal is not emitted during the indoor fan operation.</td>
<td>• Refer to 10-6. ⑥ “Check of indoor fan motor”.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Indoor control system</td>
<td>POWER lamp flashes. 4-time flash</td>
<td>Indoor unit and outdoor unit do not operate.</td>
<td>It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.</td>
<td>• Replace the indoor electronic control P.C. board.</td>
</tr>
<tr>
<td>5</td>
<td>Outdoor power system</td>
<td>POWER lamp flashes. 5-time flash</td>
<td>It consecutively occurs 3 times that the compressor stops for overcurrent protection or start-up failure protection within 1 minute after start-up</td>
<td>• Refer to “How to check of inverter/compressor”. • Refer to outdoor unit service manual. • Check the stop valve.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Outdoor thermistors</td>
<td>POWER lamp flashes. 6-time flash</td>
<td>The outdoor thermistors short or open circuit during the compressor operation.</td>
<td>• Refer to “Check of outdoor thermistor”. • Refer to outdoor unit service manual.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Outdoor control system</td>
<td>POWER lamp flashes. 7-time flash</td>
<td>It cannot properly read data in the nonvolatile memory of the inverter P.C. board or the outdoor electronic control P.C. board.</td>
<td>• Replace the inverter P.C. board or the outdoor electronic control P.C. board. • Refer to outdoor unit service manual.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Other abnormality</td>
<td>POWER lamp flashes. 14-time flash</td>
<td>An abnormality other than above mentioned is detected.</td>
<td>• Check the stop valve. • Confirm the abnormality in detail using the failure mode recall function for outdoor unit.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Outdoor control system</td>
<td>POWER lamp lights up.</td>
<td>Outdoor unit does not operate.</td>
<td>It cannot properly read data in the nonvolatile memory of the inverter P.C. board or the outdoor electronic control P.C. board.</td>
<td>• Check the blinking pattern of the LED on the inverter P.C. board or the outdoor electronic control P.C. board.</td>
</tr>
</tbody>
</table>

**NOTE:** The indoor unit may have been connected to a non-low-standby-power model outdoor unit. To use a low-standby-power model, clear the error history by referring to "Deleting the memorized abnormal condition" described in 10-2.1. When the error history is being cleared, the connection information also will be initialized. The indoor unit will be compatible with a low-standby-power model after initialization. If the operation indicator lamp continues to flash as shown in No.1 after the procedure, refer to 10-6. ⑥ “How to check miswiring and serial error”.

**OBH623A**
### OPERATION INDICATOR

<table>
<thead>
<tr>
<th>No.</th>
<th>Abnormal point</th>
<th>Operation indicator lamp</th>
<th>Symptom</th>
<th>Condition</th>
<th>Remedy</th>
</tr>
</thead>
</table>
| 1   | MXZ type Operation mode setting | • AIR PURIFYING lamp flash.  
|     |                 | • POWER lamp is lighted. | Outdoor unit operates but indoor unit does not operate. | The operation mode of the each indoor unit is differently set to COOL (includes DRY, FAN) and HEAT at the same time, the operation mode of the indoor unit that has operated at first has the priority. | • Unify the operation mode. Refer to outdoor unit service manual. |

### OPERATION INDICATOR

<table>
<thead>
<tr>
<th>No.</th>
<th>Abnormal point</th>
<th>Operation indicator lamp</th>
<th>Symptom</th>
<th>Condition</th>
<th>Remedy</th>
</tr>
</thead>
</table>
| 1   | AIR PURIFYING power control | AIR PURIFYING lamp flashes.  
|     |                 | • POWER lamp is lighted. | Indoor unit and outdoor unit do not operate. | When AIR PURIFYING power cannot be turned OFF even if the AIR PURIFYING operation is turned OFF by remote controller. | • Refer to 10-6.②“Check of AIR PURIFYING power”. |

#### 10-5. TROUBLE CRITERION OF MAIN PARTS

<table>
<thead>
<tr>
<th>MSZ-FH25VE</th>
<th>MSZ-FH35VE</th>
<th>MSZ-FH50VE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Part name</th>
<th>Check method and criterion</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature thermistor (RT11)</td>
<td>Measure the resistance with a tester. Refer to 10-7. &quot;Test point diagram and voltage&quot;, &quot;Indoor electronic control P.C. board&quot;, for the chart of thermistor.</td>
<td><img src="image1" alt="Figure" /></td>
</tr>
<tr>
<td>Indoor coil thermistor (RT12, RT13)</td>
<td></td>
<td><img src="image2" alt="Figure" /></td>
</tr>
<tr>
<td>Indoor fan motor (MF)</td>
<td>Check 10-6.⑧&quot;Check of indoor fan motor&quot;.</td>
<td><img src="image3" alt="Figure" /></td>
</tr>
<tr>
<td>Vane motor (MV1) (HORIZONTAL)</td>
<td>Measure the resistance between the terminals with a tester. (Temperature: 10 - 30°C)</td>
<td><img src="image4" alt="Figure" /></td>
</tr>
<tr>
<td>Color of the lead wire</td>
<td>Normal</td>
<td><img src="image5" alt="Figure" /></td>
</tr>
<tr>
<td>RED - SKY</td>
<td>262 - 328 Ω</td>
<td></td>
</tr>
<tr>
<td>Vane motor (MV2) (VERTICAL)</td>
<td>Measure the resistance between the terminals with a tester. (Temperature: 10 - 30°C)</td>
<td><img src="image6" alt="Figure" /></td>
</tr>
<tr>
<td>Color of the lead wire</td>
<td>Normal</td>
<td><img src="image7" alt="Figure" /></td>
</tr>
<tr>
<td>RED - SKY</td>
<td>219 - 273 Ω</td>
<td></td>
</tr>
<tr>
<td>i-see SENSOR MOTOR (MT)</td>
<td>Measure the resistance between the terminals with a tester. (Temperature: 10 - 30°C)</td>
<td><img src="image8" alt="Figure" /></td>
</tr>
<tr>
<td>Color of the lead wire</td>
<td>Normal</td>
<td><img src="image9" alt="Figure" /></td>
</tr>
<tr>
<td>RED - BLK</td>
<td>262 - 328 Ω</td>
<td></td>
</tr>
<tr>
<td>AIR PURIFYING power</td>
<td>Check 10-6.⑨.</td>
<td><img src="image10" alt="Figure" /></td>
</tr>
</tbody>
</table>

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**OBH623A**

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26
10-6. TROUBLESHOOTING FLOW

A. Check of indoor fan motor

The indoor fan motor error has occurred, and the indoor fan does not operate.

Turn OFF the power supply.

Is there any foreign matter that interferes the rotation of the line flow fan?

Yes

Remove the foreign matter and adjust the line flow fan.

No

Pay enough attention to the high voltage on the fan motor connector CN211.

Turn ON the power supply, wait 5 seconds or more, and then press EMERGENCY OPERATION switch. Measure the supply voltage as follows within 12 seconds after EMERGENCY OPERATION switch is pressed.

If more than 12 seconds passes, turn OFF the power supply and turn it ON again, then measure the voltage.

1. Measure the voltage between CN211 \(+\) and \(-\).
2. Measure the voltage between CN211 \(+\) and \(-\).
3. Measure the voltage between CN102 \(+\) and JPG (GND)\(-\).

※ If more than 12 seconds passes after EMERGENCY OPERATION switch is pressed, the voltage measured at 2. above goes 0 VDC although the indoor P.C. board is normal.

Is there 325 VDC between CN211 \(+\) and \(-\) ?

Yes

Replace the indoor power P.C. board.

No

Does the voltage between CN211 \(+\) and \(-\) on the P.C. board rise to the range of 3 to 6 VDC within 12 seconds after EMERGENCY OPERATION switch is pressed?

Yes

Replace the indoor fan motor.

No

Replace the indoor power P.C. board.

Does the voltage between CN102 \(+\) and JPG (GND)\(-\) on the indoor electronic control P.C. board fall to 2 V or less within 12 seconds after EMERGENCY OPERATION switch is pressed?

Yes

Replace the indoor electronic control P.C. board.

No

Replace the indoor power P.C. board.

The indoor fan motor error has occurred, and the indoor fan repeats “12-second ON and 30-second OFF” 3 times, and then stops.

Measure the voltage between CN211 \(+\) and \(-\) while the fan motor is rotating.

Is it unchanged holding 0 or 15 VDC?

Yes (Unchanged)

Replace the indoor fan motor.

No (Changed)

Measure the voltage CN102 \(+\) and JPG (GND)\(-\) on the indoor electronic control P.C. board when the fan motor is rotating.

Is it unchanged holding 0 or 5 VDC?

Yes (Unchanged)

Replace the indoor electronic control P.C. board.

No (Changed)

Replace the indoor power P.C. board.
Check of remote controller and indoor electronic control P.C. board

※ Check if the remote controller is exclusive for this air conditioner.

Press OPERATE/STOP (ON/OFF) button on the remote controller.

Is LCD display on the remote controller visible?

Yes

Replace the batteries. (Refer to 10-1.4.)

No

(Not clear)

Remove the batteries, then set them back and press RESET button. (Refer to 10-1.4.) Check if the unit operates with the remote controller.

Does the unit operate with the remote controller?

Yes

No

Replace the remote controller.

OK

Assign a number of remote controller. (Refer to 8-2.) Check if the unit operates with the remote controller.

Does the unit operate with the remote controller?

Yes

No

Turn ON a radio to AM and press OPERATE/STOP (ON/OFF) button on the remote controller. #1

Is noise heard from radio?

Yes

Replace the remote controller.

No

Are there any fluorescent lights of inverter or rapid-start type within the range of 1 m? #2

Yes

Reinstall the unit away from lights. Attach a filter on receiving part.

No

Measure the voltage between receiver P.C. board connector CN301 No.1(-) and No.3(+)

when the remote controller button is pressed.

Is the voltage approximately 4 VDC - 5 VDC?

Yes

Replace the indoor electronic control P.C. board.

No

Replace the receiver P.C. board.

#1 Look at the image of the signal transmitting section of the remote controller through the monitor of a digital camera. It is normal if LED of the signal transmitting section lights up when the OPERATE/STOP (ON/OFF) button on the remote controller is pressed.

#2 If the inverter fluorescent light is turned on when the room is cool, the unit may have difficulty receiving the signal from the remote controller or may not be able to operate with it; if the inverter fluorescent light is turned on when the room is warm, the unit may be able to operate with the remote controller.
**Check of indoor P.C. board and indoor fan motor**

1. **Turn OFF the power supply.** Remove indoor fan motor connector CN211 from indoor power P.C. board and turn ON the power supply.

2. **Does the unit operate with the remote controller?** Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?
   - **Yes**
   - **No**

3. **Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?**
   - **Yes**
   - **No**

4. **Measure the resistance of indoor fan motor. Refer to 10-5.**
   - **Short circuit:** Replace the indoor fan motor.

5. **Measure the resistance of the vane motor coil. Refer to 10-5.**
   - **Short circuit:** Replace the vane motor and the indoor electronic control P.C. board.

6. **Measure the resistance of the i-see SENSOR MOTOR coil. Refer 10-5.**
   - **Short circuit:** Replace the i-see SENSOR MOTOR and the indoor electronic P.C. board.

7. **Turn OFF the power supply.** Check both “parts side” and “pattern side” of the indoor power P.C. board visually.

8. **Replace the varistor (NR11) and fuse (F11).**
   - **Yes**
   - **No**

9. **Is the varistor (NR11) burnt and the fuse (F11) blown?**
   - **Yes**
   - **No**

10. **Be sure to check both the fuse and the varistor in any case.**

11. **Is the fuse (F11) blown only?**
    - **Yes**
    - **No**

12. **Measure the resistance between CN211 (+) and (-) of indoor fan motor connector.**
    - **Yes**
    - **No**

13. **Replace the fuse (F11) and the indoor fan motor.**

14. **Replace the fuse (F11).**

15. **Measure the resistance of resistor (R111) on the indoor power P.C. board.**

16. **Is the resistance of resistor (R111) approximately 3.9 Ω?**
    - **Yes**
    - **No**

17. **Replace the indoor power P.C. board and the indoor fan motor.**

18. **Is the approximately 5 VDC between 5 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?**
    - **Yes**
    - **No**

19. **Is there approximately 12 VDC between 12 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?**
    - **Yes**
    - **No**

20. **Are connector CN102 on the indoor electronic control P.C. board or lead wires disconnected?**
    - **Yes**
    - **No**

21. **Connect the connector or repair disconnection.**

22. **Replace the indoor electronic control P.C. board.**

---

Notes:
1. The fan motor connector’s + lead wire is red, whereas - is black.
2. Connect "+" of the tester to fan motor connector’s + lead wire, and "-" to - lead wire, otherwise the resistance cannot be measured properly.
3. Please replace the fuse after removing the indoor power P.C. board from the electrical box.
How to check miswiring and serial signal error

Turn the power supply OFF.

Is there rated voltage in the power supply?

Check for incorrect indoor-outdoor connecting wiring.

Was the indoor unit ever connected to the Multi (MXZ) series and operated (turned on)?

The connection information to the Multi series is stored in the indoor unit. Refer to “Deleting the memorized abnormal condition” described in 10-2.1 to clear the error history. When the error history is being cleared, the connection information also will be initialized. The indoor unit will be compatible with a low-standby-power model after initialization.

Check the power supply.

OK

A

B

Turn the power supply ON.

Is there rated voltage between outdoor terminal block S1 and S2?

Wait for 2 or more minutes after the power supply is turned on. Touch S2 and S3 with tester probes and start the emergency operation.

When the emergency operation starts, does the rated voltage occur for 2 seconds between indoor terminal block S2 and S3?

No

Does the indoor POWER lamp blink continuously 6 minutes after the emergency operation starts?

Yes

Does the outdoor LED light up?

No

Confirm that the thermostat is OFF and wiring is not loose.

Yes

Replace the outdoor inverter P.C. board. \(\text{\#1}\)

No

Replace the outdoor inverter P.C. board. \(\text{\#1}\)

Turn the power supply OFF.

Replace the indoor power P.C. board.

Turn the power supply ON.

Start the emergency operation.

Does the indoor POWER lamp blink continuously 6 minutes after the emergency operation starts?

Yes

Does DC (20V or more) occur between indoor terminal block S2 and S3?

No

Replace the outdoor inverter P.C. board. \(\text{\#1}\)

Yes

Replace the indoor electronic control P.C. board.

Repair completed.

OBH623A
MUZ-FH50

1. Turn the power supply OFF.

2. Is there rated voltage in the power supply?
   - Yes, check for incorrect indoor-outdoor connecting wiring.
   - No, check the power supply.

3. Was the indoor unit ever connected to the Multi (MXZ) series and operated (turned on)?
   - Yes, refer to the outdoor unit service manual.
   - No, proceed to step 4.

4. A. Is there rated voltage between outdoor terminal block S1 and S2?
   - Yes, wait for 2 or more minutes after the power supply is turned on.
   - Touch S2 and S3 with tester probes and start the emergency operation.
   - No, proceed to step 5.

5. B. Turn the power supply ON.
   - Is there rated voltage between outdoor terminal block S1 and S2?
     - Yes, proceed to step 6.
     - No, proceed to step 7.

6. A. When the emergency operation starts, does the rated voltage occur for 2 seconds between indoor terminal block S2 and S3?
   - Yes, Does the indoor POWER lamp blink continuously 6 minutes after the emergency operation starts?
     - Yes, replace the indoor electronic control P.C. board.
     - No, replace the relay P.C. board. \(\#1\).
   - No, Does the outdoor LED blink 6 times?
     - Yes, replace the inverter P.C. board and the relay P.C. board. \(\#1\).
     - No, replace the inverter P.C. board. \(\#1\).
   - Replace the inverter P.C. board and the relay P.C. board. \(\#1\).

7. B. Check for miswiring, broken wires, and loose wire connection between the power supply and outdoor terminal block S1 and between the power supply and outdoor terminal block S2.
   - Does serial signal error indicated 6 minutes later?
     - Yes, reinstall either the unit or the light away from each other.
     - No, proceed to step 8.

8. A. Does serial signal error indicated 6 minutes later?
   - Yes, replace the indoor electronic control P.C. board.
   - No, does DC (10 V or more) occur between L68A and L68B on the relay P.C. board?
     - Yes, Does the indoor POWER lamp blink continuously 6 minutes after the emergency operation starts?
       - Yes, replace the inverter P.C. board and the relay P.C. board. \(\#1\).
       - No, replacement has been completed.
     - No, replace the inverter P.C. board and the relay P.C. board. \(\#1\).
   - Does DC (more than 0 V) occur between indoor terminal block S2 and S3?
     - Yes, replace the inverter P.C. board and the relay P.C. board. \(\#1\).
     - No, replace the relay P.C. board. \(\#1\).
   - Replace the inverter P.C. board and the relay P.C. board. \(\#1\).

9. NOTE: Electric charge may remain immediately after the power supply is turned OFF. Perform the procedure after 3 minutes.
When AIR PURIFYING lamp flashes 2-time.
When POWER lamp flashes 1 to 5 times while AIR PURIFYING power failure mode is recalled.

**Check of AIR PURIFYING power**

After performing the check, make sure to release the failure mode recall function.

1. **Turn ON the power supply.**
2. **Does AIR PURIFYING lamp flash 2-time with unit stopping?**
   - **Yes**: Replace the indoor electronic control P.C. board.
   - **No**: Make sure that the front panel is firmly closed.

   - **While pressing both** *OPERATION SELECT* button and *TEMP +* button on the remote controller at the same time, press *RESET* button.
   - **First, release** *RESET* button, Hold down the other two buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.
   - **Press** *OPERATE/STOP* (ON/OFF) button (the set temperature is displayed).
   - **And press** PURIFIER button once with the remote controller headed towards the indoor unit. *AIR PURIFYING* operation is selected.
   - *The AIR PURIFYING power operation check mode is set.* (Refer to 10-2.5.)

3. **Does AIR PURIFYING lamp stay OFF, or continuously blink?**
   - **OFF**: Continuously blinking.
   - **CONTINUOUSLY BLINKING**: Remove the air purifying device, firmly close the front panel, and then perform AIR PURIFYING power operation check (step 2).
   - **CONTINUOUSLY BLINKING**: Turn OFF the power supply, and check the interlock switch (Air purifying device). Is it firmly fixed?

   - **Yes**: Work and Not-work the interlock switch (Air purifying device) using something like a screw driver, and measure the resistance between CN1R1 and (on the indoor electronic control P.C. board). Does the interlock switch (Air purifying device) function?
   - **No**: 12.5 V DC is generated.

   - **Yes**: Set the AIR PURIFYING power failure mode recall function. (Refer to 10-2.2)
   - **No**: Replace the indoor electronic control P.C. board.

4. **When AIR PURIFYING power turns ON by pressing PURIFIER button once, is there 12.5V DC between CN1T1 (+) and (GND)?**
   - **Yes**: Replace the air purifying device.
   - **No**: Replace the indoor electronic control P.C. board, after check of the wiring of CN1T1 on the indoor electronic control P.C. board.
Electromagnetic noise enters into TV sets or radios

1. Is the unit earthed?
   - Yes
     - Earth the unit.
   - No
2. Is the distance between the antennas and the indoor unit within 3 m, or is the distance between the antennas and the outdoor unit within 3 m?
   - Yes
     - Extend the distance between the antennas and the indoor unit, and/or the antennas and the outdoor unit.
   - No
3. Is the distance between the TV sets or radios and the indoor unit within 1 m, or is the distance between the TV sets or radios and the outdoor unit within 3 m?
   - Yes
     - Extend the distance between the TV sets and/or radios and the indoor unit, or the TV sets or radios and the outdoor unit.
   - No
4. Are the antennas damaged?
   - Yes
     - Replace or repair the antenna.
   - No
5. Is the coaxial cable damaged?
   - Yes
     - Replace or repair the coaxial cable.
   - No
6. Is there any poor contact in the antenna wiring?
   - Yes
     - Replace or repair the antenna wiring.
   - No
7. Is the indoor/outdoor connecting wire of the air conditioner and the wiring of the antennas close?
   - Yes
     - Extend the distance between the indoor/outdoor connecting wire of the air conditioner and the wiring of the antennas.
   - No

Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring). Check the following before asking for service.

1. Devices affected by the electromagnetic noise
   - TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
   - indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, earth wire, antennas, wiring from antennas, receiver
5. Electric field intensity of the broadcast station affected by the electromagnetic noise
6. Presence or absence of amplifier such as booster
7. Operation condition of air conditioner when the electromagnetic noise enters in
   1) Turn OFF the power supply once, and then turn ON the power supply. In this situation, check for the electromagnetic noise.
   2) Within 3 minutes after turning ON the power supply, press OPERATE/STOP (ON/OFF) button on the remote controller for power ON, and check for the electromagnetic noise.
   3) After a short time (3 minutes later after turning ON), the outdoor unit starts running. During operation, check for the electromagnetic noise.
   4) Press OPERATE/STOP (ON/OFF) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation, check for the electromagnetic noise.
10-7. TEST POINT DIAGRAM AND VOLTAGE

Indoor power P.C. board, Indoor electronic control P.C. board, Receiver board, Display board, Switch board

MSZ-FH25VE MSZ-FH35VE MSZ-FH50VE

Indoor power P.C. board

- Connector Terminal Block (CN201)
- Fuse (F11)
- Varistor (NR11)
- Indoor fan motor (CN211)
  - (+) 0 or 15 VDC
  - (+) 3-6 VDC
  - 15 VDC
  - (−) GND (high-voltage DC)
  - 325 VDC
- Resistor (R111)

Indoor electronic control P.C. board

- Room temperature thermistor RT11 (CN111)
- Indoor coil thermistor RT12, RT13 (CN112)
- Interlock switch (CN1R1)
- Air purifying device (CN1T1)
- Display board CN110
  - 1-8 pin

Receiver board (CN301)

- i-see SENSOR MOTOR MT
- CN151
- Vane motor MV1 (horizontal)
- Vane motor MV2 (vertical)
- Switch board
  - Emergency operation switch (E.O.SW) (SW1)

To disable "Auto restart function" cut the jumper wire to JR77. (Refer to 8-4.)
11 DISASSEMBLY INSTRUCTIONS

"Terminal with locking mechanism" Detaching points>
The terminal which has the locking mechanism can be detached as shown below.
There are two types (Refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

(1) Slide the sleeve and check if there is a locking lever or not.
(2) The terminal with this connector has the locking mechanism.

11-1. MSZ-FH25VE MSZ-FH35VE MSZ-FH50VE

NOTE: Turn OFF power supply before disassembly.

OPERATING PROCEDURE

1. Removing the panel
(1) Remove the horizontal vanes.

Removal procedure
Unlock the upper and lower vanes as shown in ① using a thin instrument.
Then, remove the horizontal vanes in the direction of ②.

(2) Remove the front panel. Remove the screw caps of the under panel. Remove the screws of the under panel.
(3) Pull out the right top corner of the right panel and remove the right panel.
(4) Pull out the left bottom corner of the left panel and remove the left panel.
(5) Unhook the lower part ① of the under panel and remove the under panel.

PHOTOS

Photo 1
Front panel
Horizontal vanes
Horizontal vanes

Photo 2
Left panel
Screws of the panels
Right panel
Screws of the under panel
Under panel
## OPERATING PROCEDURE

### 2. Remove the indoor electrical box

1. Remove the panels (Refer to 1.) and the corner box right.
2. Remove the screw of the V.A. clamp. Remove the V.A. clamp and the indoor/outdoor connecting wire.
3. Remove the earth wire connected to the indoor heat exchanger from the electrical box.
4. Remove the screw of the electrical cover and remove the electrical cover.
5. Disconnect following connectors:
   - Indoor electronic control P.C. board
     - CN151 (Vane motor)
     - CN1T1 (Air purifying device)
     - CN1R1 [Interlock switch (Air purifying device)]
   - Indoor power P.C. board
     - CN211 (Indoor fan motor)
6. Remove the screw fixing the electrical box, then the upper catch of the electrical box, and pull out the electrical box.

*When installing the electrical box, pass the lead wire from the fan motor through Photo 9 and Photo 4 so that it will not be pinched under the electrical box.*

### 3. Removing the indoor power P.C. board, the switch board, the display board, the receiver board and the indoor electronic control P.C. board

1. Remove the panels (Refer to 1.) and the corner box right.
2. Remove the screw of the V.A. clamp. Remove the V.A. clamp and the indoor/outdoor connecting wire.
3. Remove the indoor electrical box (Refer to 2.).
4. Remove the earth wire connected to the electrical box from the indoor power P.C. board.
5. Disconnect the following connectors:
   - Indoor electronic power P.C. board
     - CN201 (Terminal block)
     - CN202 (To the indoor electronic control P.C. board)
6. Remove the lead wire holder.
7. Remove the indoor power P.C. board.
8. Disconnect the following connectors:
   - Indoor electronic control P.C. board
     - CN106 (Switch P.C. board)
     - CN110 (DISPLAY AND i-see SENSOR ASSEMBLY)
     - CN111 (Room temperature thermistor)
     - CN112 (Indoor coil thermistor)
9. Unhook the catches of the DISPLAY AND i-see SENSOR ASSEMBLY from the electrical box (right side).
10. Unhook the catch of the rear cover of the DISPLAY AND i-see SENSOR ASSEMBLY, and open the rear cover.
    Remove the display P.C. board and the receiver P.C. board.
11. Open the switch panel and remove the switch P.C. board.
## OPERATING PROCEDURE

### 4. Removing the nozzle assembly
1. Remove the panels (Refer to 1.) and the corner box right.
2. Remove the indoor/outdoor connecting wire (Refer to 2.).
3. Remove the electrical cover (Refer to 2.).
4. Disconnect the following connector:
   - Indoor electronic control P.C. board
   - CN151 (Vane motor)
5. Remove the DISPLAY AND i-see SENSOR ASSEMBLY.
6. Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
7. Remove the vane motors (Refer to 5, 6.).

### 5. Removing the vertical vane motor
1. Remove the nozzle assembly (Refer to 4.).
2. Remove the screw of the vertical vane motor unit, and pull out the vertical vane motor unit.
3. Remove the screws of the vertical vane motor unit cover.
4. Disconnect the connector from the vertical vane motor.
5. Remove the vertical vane motor from the vertical motor unit cover.

### 6. Removing the horizontal vane motor
1. Remove the nozzle assembly (Refer to 4.).
2. Remove the screws of the horizontal vane motor unit, and pull out the horizontal vane motor unit.
3. Remove the screws of the horizontal vane motor.
4. Disconnect the connector from the horizontal vane motor.
5. Remove the horizontal vane motor from the horizontal vane motor unit.

## PHOTOS

![Photo 7](image7.png)

**Photo 7**
- Screw of the vertical vane motor unit
- Screws of the vane motor unit cover

![Photo 8](image8.png)

**Photo 8**
- Screws of the horizontal vane motor unit
- Screws of the horizontal vane motor unit
- Screws of the horizontal vane motor
- Screws of the horizontal vane motor
### OPERATING PROCEDURE

#### 7. Removing the air purifying device
1. Remove the panels (Refer to 1.) and the corner box right.
2. Remove the air purifying device.
3. Remove the electrical box (Refer to 2.).
4. Remove the lead wire from the water cut.
5. Release the hooks of the water cut and remove the water cut.
6. Remove the screw of the air purifying device support.
7. Remove the air purifying device support.

#### 8. Removing the indoor fan motor, the indoor coil thermistor and the line flow fan
1. Remove the panels (Refer to 1.) and the corner box right.
2. Remove the indoor electronic control P.C. board holder, the electrical box and the nozzle assembly.
3. Remove the screws fixing the motor bed.
4. Release the hooks of the water cut and remove the water cut.
5. Loosen the screw fixing the line flow fan.
6. Remove the motor bed together with the indoor fan motor and the motor band.
7. Release the hooks of the motor band and remove the motor band. Pull out the indoor fan motor.
8. Remove the indoor coil thermistor from the heat exchanger.
9. Install the indoor coil thermistor in its former position when assembling it (Photo 9.).
10. Remove the screws fixing the left side and the upper right side of the heat exchanger.
11. Lift the heat exchanger, and pull out the line flow fan to the lower left.

### PHOTOS

- **Photo 9**: Lead wire of the indoor coil thermistor
- **Photo 10**: Air purifying device support
- **Photo 11**: Screw of the line flow fan
- **Photo 12**: Screws of the left side of the heat exchanger

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**Screw of the air purifying device support**

**Screws of the upper right side of the heat exchanger**

**Screw of the line flow fan**