INDOOR UNIT
SERVICE MANUAL

No. OBH600
REVISED EDITION-B

Models

MSZ-SF25VE - E1  MSZ-SF35VE - E1
MSZ-SF25VE - E2  MSZ-SF35VE - E2
MSZ-SF42VE - E1  MSZ-SF50VE - E1
MSZ-SF42VE - E2  MSZ-SF50VE - E2
MSZ-SF25VE - EN1  MSZ-SF35VE - EN1
MSZ-SF25VE - EN2  MSZ-SF35VE - EN2
MSZ-SF42VE - EN1  MSZ-SF50VE - EN1
MSZ-SF42VE - EN2  MSZ-SF50VE - EN2

Outdoor unit service manual
MUZ-SF-VE(H) Series (OBH629)
MXZ-C-VA Series (OB584)
MXZ-D-VA Series (OBH626)
MXZ-8B Series (OCH480)

Revision B:
- "How to check miswiring and serial signal error" for MUZ type has been added.
- The description about "Low standby power control" has been added to "TECHNICAL CHANGES".

Please void OBH600 REVISED EDITION-A.

Contents

1. TECHNICAL CHANGES .................................. 3
2. PART NAMES AND FUNCTIONS ...................... 4
3. SPECIFICATION ......................................... 5
4. NOISE CRITERIA CURVES ............................. 6
5. OUTLINES AND DIMENSIONS .......................... 7
6. WIRING DIAGRAM ...................................... 8
7. REFRIGERANT SYSTEM DIAGRAM .................... 9
8. SERVICE FUNCTIONS ................................... 10
9. MICROPROCESSOR CONTROL .......................... 12
10. TROUBLESHOOTING ................................... 18
11. DISASSEMBLY INSTRUCTIONS ........................ 31

PARTS CATALOG (OBB600)

NOTE:
RoHS compliant products have <G> mark on the spec name plate.

Revision B:
- “How to check miswiring and serial signal error” for MUZ type has been added.
- The description about “Low standby power control” has been added to “TECHNICAL CHANGES”.

Please void OBH600 REVISED EDITION-A.
Use the specified refrigerant only

Never use any refrigerant other than that specified.
Doing so may cause a burst, an 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-SF25/35/42/50VE- and MSZ-SF25/35/42/50VE- have been added.

Revision B:
- "How to check miswiring and serial signal error" for MUZ type has been added.
- The description about "Low standby power control" has been added to "TECHNICAL CHANGES".
1. New model

**MSZ-SF25VE-**<sub>E1</sub> → **MSZ-SF25VE-**<sub>E2</sub>  **MSZ-SF25VE-**<sub>EN1</sub> → **MSZ-SF25VE-**<sub>EN2</sub>

**MSZ-SF35VE-**<sub>E1</sub> → **MSZ-SF35VE-**<sub>E2</sub>  **MSZ-SF35VE-**<sub>EN1</sub> → **MSZ-SF35VE-**<sub>EN2</sub>

**MSZ-SF42VE-**<sub>E1</sub> → **MSZ-SF42VE-**<sub>E2</sub>  **MSZ-SF42VE-**<sub>EN1</sub> → **MSZ-SF42VE-**<sub>EN2</sub>

**MSZ-SF50VE-**<sub>E1</sub> → **MSZ-SF50VE-**<sub>E2</sub>  **MSZ-SF50VE-**<sub>EN1</sub> → **MSZ-SF50VE-**<sub>EN2</sub>

1. Indoor electronic control P.C. board has been changed.

**E2** and **EN2** models are compatible with the outdoor units with low standby power control.

Connecting these models to the MUZ-SF-VE(H)-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-SF-VE(H) series after once connected to the MXZ series and operated, for example because of relocation. In that case, the MUZ-SF-VE(H) 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

MSZ-SF25VE MSZ-SF35VE MSZ-SF42VE MSZ-SF50VE

ACCESSORIES

<table>
<thead>
<tr>
<th>Model</th>
<th>MSZ-SF25VE</th>
<th>MSZ-SF35VE</th>
<th>MSZ-SF42VE</th>
<th>MSZ-SF50VE</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Installation plate</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>② Installation plate fixing screw 4 × 25 mm</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>③ Remote controller holder</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>④ Fixing screw for ③ 3.5 × 16 mm (Black)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑤ Battery (AAA) for remote controller</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑥ Wireless remote controller</td>
<td>1</td>
<td></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>
<td></td>
</tr>
</tbody>
</table>
### 3 SPECIFICATION

#### Indoor model

<table>
<thead>
<tr>
<th></th>
<th>MSZ-SF25VE</th>
<th>MSZ-SF35VE</th>
<th>MSZ-SF42VE</th>
<th>MSZ-SF50VE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>Single phase 230 V, 50 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power input</strong></td>
<td>Cooling W</td>
<td>18</td>
<td>22</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Heating W</td>
<td>24</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td><strong>Running current</strong></td>
<td>Cooling A</td>
<td>0.16</td>
<td>0.16</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>Heating A</td>
<td>0.20</td>
<td>0.20</td>
<td>0.22</td>
</tr>
<tr>
<td><strong>Fan motor</strong></td>
<td>Cooling</td>
<td>0.16</td>
<td>0.16</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>Heating</td>
<td>0.20</td>
<td>0.20</td>
<td>0.22</td>
</tr>
<tr>
<td><strong>Dimensions W × H × D</strong></td>
<td>mm</td>
<td>798 × 299 × 195</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>kg</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Special remarks

- **Air flow**
  - **Cooling**
    - Super High: 546 m³/h
    - High: 432 m³/h
    - Med.: 336 m³/h
    - Low: 246 m³/h
    - Silent: 210 m³/h
  - **Heating**
    - Super High: 618 m³/h
    - High: 492 m³/h
    - Med.: 402 m³/h
    - Low: 246 m³/h
    - Silent: 210 m³/h

- **Sound level**
  - **Cooling**
    - Super High: 45 dB(A)
    - High: 39 dB(A)
    - Med.: 34 dB(A)
    - Low: 24 dB(A)
    - Silent: 21 dB(A)
  - **Heating**
    - Super High: 46 dB(A)
    - High: 38 dB(A)
    - Med.: 34 dB(A)
    - Low: 31 dB(A)
    - Silent: 28 dB(A)

- **Fan speed**
  - **Cooling**
    - Super High: 1,200 rpm
    - High: 1,000 rpm
    - Med.: 820 rpm
    - Low: 660 rpm
    - Silent: 590 rpm
  - **Heating**
    - Super High: 1,330 rpm
    - High: 1,100 rpm
    - Med.: 940 rpm
    - Low: 660 rpm
    - Silent: 590 rpm

- **Fan speed regulator** | 5 |
- **Remote controller model** | SG11D |

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

- **Cooling:** Indoor Dry-bulb temperature 27°C  Wet-bulb temperature 19°C
- **Heating:** Indoor Dry-bulb temperature 20°C  Wet-bulb temperature 15°C
  - Outdoor Dry-bulb temperature 7°C  Wet-bulb temperature 6°C

*1 Measured under rated operating frequency.

#### Specifications and rated conditions of main electric parts

<table>
<thead>
<tr>
<th></th>
<th>(F11)</th>
<th>T3.15AL250V</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>(MV)</td>
<td>12 VDC</td>
</tr>
<tr>
<td><strong>Varistor</strong></td>
<td>(NR11)</td>
<td>S10K300E2K1 (ERZV10D471)</td>
</tr>
<tr>
<td><strong>Terminal block</strong></td>
<td>(TB)</td>
<td>3P</td>
</tr>
</tbody>
</table>

**OBH600B**
NOISE CRITERIA CURVES

Test conditions
Cooling: Dry-bulb temperature 27 °C
   Wet-bulb temperature 19 °C
Heating: Dry-bulb temperature 20 °C
   Wet-bulb temperature 15 °C

MSZ-SF25VE

<table>
<thead>
<tr>
<th>FAN SPEED</th>
<th>FUNCTION</th>
<th>SPL(dB(A))</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super High</td>
<td>COOLING</td>
<td>42</td>
<td>● ●</td>
</tr>
<tr>
<td></td>
<td>HEATING</td>
<td>45</td>
<td>○ ○</td>
</tr>
</tbody>
</table>

MSZ-SF35VE

<table>
<thead>
<tr>
<th>FAN SPEED</th>
<th>FUNCTION</th>
<th>SPL(dB(A))</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super High</td>
<td>COOLING</td>
<td>42</td>
<td>● ●</td>
</tr>
<tr>
<td></td>
<td>HEATING</td>
<td>45</td>
<td>○ ○</td>
</tr>
</tbody>
</table>

MSZ-SF42VE

<table>
<thead>
<tr>
<th>FAN SPEED</th>
<th>FUNCTION</th>
<th>SPL(dB(A))</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super High</td>
<td>COOLING</td>
<td>42</td>
<td>● ●</td>
</tr>
<tr>
<td></td>
<td>HEATING</td>
<td>47</td>
<td>○ ○</td>
</tr>
</tbody>
</table>

MSZ-SF50VE

<table>
<thead>
<tr>
<th>FAN SPEED</th>
<th>FUNCTION</th>
<th>SPL(dB(A))</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super High</td>
<td>COOLING</td>
<td>45</td>
<td>● ●</td>
</tr>
<tr>
<td></td>
<td>HEATING</td>
<td>49</td>
<td>○ ○</td>
</tr>
</tbody>
</table>

INDOOR UNIT

WALL

MICROPHONE

0.8m

1m

OBH600B
OUTLINES AND DIMENSIONS

MSZ-SF25VE  MSZ-SF35VE  MSZ-SF42VE  MSZ-SF50VE

Unit: mm

(MSZ-SF25/35/42/50VE- E1, E2)

<table>
<thead>
<tr>
<th>Pipe</th>
<th>Insulation</th>
<th>Liquid line</th>
<th>Gas line</th>
<th>Drain hose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation</td>
<td>Φ37 O.D</td>
<td>Φ6.35 - 0.39m (Flared connection Φ6.35)</td>
<td>Φ9.52 - 0.34m (Flared connection Φ9.52 (MSZ-SF25/35/42VE), Φ12.7 (MSZ-SF50VE))</td>
<td>Insulation Φ28 Connected part Φ16 O.D</td>
</tr>
</tbody>
</table>

(MSZ-SF25/35/42/50VE- EN1, EN2)

<table>
<thead>
<tr>
<th>Pipe</th>
<th>Insulation</th>
<th>Liquid line</th>
<th>Gas line</th>
<th>Drain hose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation</td>
<td>Φ37 O.D</td>
<td>Φ6.35 - 0.5m (Flared connection Φ6.35)</td>
<td>Φ9.52 - 0.43m (Flared connection Φ9.52 (MSZ-SF25/35/42VE), Φ12.7 (MSZ-SF50VE))</td>
<td>Insulation Φ28 Connected part Φ16 O.D</td>
</tr>
</tbody>
</table>
Indoor heat exchanger

Flared connection

Room temperature thermistor RT11

Indoor coil thermistor RT12 (main)

Indoor coil thermistor RT13 (sub)

Refrigerant pipe ø9.52 (MSZ-SF25/35/42VE)
ø12.7 (MSZ-SF50VE)
(with heat insulator)

Refrigerant pipe ø6.35 (with heat insulator)

Refrigerant flow in cooling

Refrigerant flow in heating

Unit: mm

OBH600B
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. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION
A maximum of 4 indoor units with wireless remote controllers can be used in a room.
In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board
Remove batteries before modification.
The board has a print as shown below:

NOTE: For modification, take out the batteries and press the OPERATE/STOP (ON/OFF) button 2 or 3 times at first.
After modification, put back the batteries then press the RESET button.

Table 1

<table>
<thead>
<tr>
<th>No. 1 unit</th>
<th>No modification</th>
<th>2 units operation</th>
<th>3 units operation</th>
<th>4 units operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 2 unit</td>
<td>—</td>
<td>Solder J1</td>
<td>Same as at left</td>
<td>Same as at left</td>
</tr>
<tr>
<td>No. 3 unit</td>
<td>—</td>
<td>—</td>
<td>Solder J2</td>
<td>Same as at left</td>
</tr>
<tr>
<td>No. 4 unit</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Solder both J1 and J2</td>
</tr>
</tbody>
</table>

How to set the remote controller exclusively for particular indoor unit
After you turn the breaker ON, the first remote controller that sends the signal to the indoor unit will be regarded as the remote controller for the indoor unit.
The indoor unit will only accept the signal from the remote controller that has been assigned to the indoor unit once they are set.
The setting will be cancelled if the breaker is turned OFF, or the power supply is shut down.
Please conduct the above setting once again after the power has restored.
8-3. 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 shutdown 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 JR77 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 receives 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>☀ ☀ ☀</td>
<td>The unit is operating to reach the set temperature</td>
<td>About 2°C or more away from set temperature</td>
</tr>
<tr>
<td>☀ ☀ ☀</td>
<td>The room temperature is approaching the set temperature</td>
<td>About 1 to 2°C from set temperature</td>
</tr>
<tr>
<td>☀ ☀ ☀</td>
<td>Standby mode (Only during multi system operation)</td>
<td>—</td>
</tr>
</tbody>
</table>

9-1. COOL (c) OPERATION
(1) Press OPERATE/STOP (ON/OFF) button.
   OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(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
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

Lighted
Blinking
Not lighted

• 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 motor for the horizontal vane. 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.

AUTO → 1 → 2 → 3 → 4 → 5 → SWING

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

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 1 for dew prevention.
(7) SWING (SWING) 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.
15

(9) ECONO COOL (§) operation (ECONOmical operation)
When ECONO COOL button is pressed in COOL mode, set temperature is automatically set 2°C higher by the microprocessor. (However, the temperature on the LCD screen on the remote controller is not changed.) 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, or VANE CONTROL button.

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 SET button.

How to set the current time
(a) Press the CLOCK set 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 ( ) during operation.
(b) Set the time of the timer using TIME SET buttons (and ).
OFF timer setting
(a) Press OFF TIMER button ( ) 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 ( ).
To release OFF timer, press OFF TIMER button ( ).
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 “O” 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.

**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.

1. How to set the weekly timer

   * Make sure that the current time and day are set correctly.
   1. Press **SET** button to enter the weekly timer setting mode.
   2. Press **DAY** and **1~4** buttons to select setting day and number.
   3. Press **ON**, **OFF**, **TIME**, and **TEMP** buttons to set ON/OFF, time, and temperature. E.g.: [ON], [6:00] and [24°C] are selected.
   4. Press **SET** button to complete and transmit the weekly timer setting.

**NOTE:**
- Press **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, **SET** button does not have to be pressed per each setting. Press **SET** button once after all the settings are complete. All the weekly timer settings will be saved.
- Press **SET** button to enter the weekly timer setting mode, and press and hold **DELETE** button for 5 seconds to erase all weekly timer settings. Point the remote controller toward the indoor unit.
(5) Press \[\text{weekly\ timer}\] button to turn the weekly timer ON. (\[\text{lights}\] lights.)

• When the weekly timer is ON, the day of the week whose timer setting is complete, will light.

Press \[\text{weekly\ timer}\] button again to turn the weekly timer OFF. (\[\text{lights}\] goes out.)

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

2. Checking weekly timer setting
(1) Press \[\text{button}\] to enter the weekly timer setting mode.
* \[\text{blinks}\].
(2) Press \[\text{day}\] or \[\text{buttons}\] to view the setting of the particular day or number.
(3) Press \[\text{button}\] to exit the weekly timer setting.

9-9. i-save (ii) OPERATION
1. How to set i-save operation
   (1) Press \[\text{operate/stop (on/off) button}\].
   (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)

2. How to cancel operation
   • Press i-save button again.
   • i-save operation can also be cancelled by pressing \text{operation select} button to change the operation mode.

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

9-10. EMERGENCY/TEST OPERATION
In case of test run operation or emergency operation, use \text{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 \text{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 \text{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 \text{vane auto (\(\text{x}\)) mode}.
Emergency operation continues until \text{emergency operation switch} is pressed once or twice or the unit receives any signal from the remote controller. In case of latter, normal operation will start.

NOTE: Do not press \text{emergency operation switch} during normal operation.

9-11. 3-MINUTE TIME DELAY OPERATION
When the system turns OFF, compressor will not restart for 3 minutes as \text{3-minute time delay function} operates to protect compressor from overload.
10 TROUBLESHOOTING

MSZ-SF25VE  MSZ-SF35VE  MSZ-SF42VE  MSZ-SF50VE

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 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

Turn ON the power supply.

1. While pressing both OPERATION SELECT button and TEMP button on the remote controller at the same time, press RESET button.
2. First, release RESET button.
3. 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 of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.

Does the left lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?

Blinks: Either indoor or outdoor unit is abnormal.
Beep is emitted at the same timing as the blinking of the left lamp of OPERATION INDICATOR lamp.

Indoor unit is normal.

Stays ON for 3 seconds (without beep):

The outdoor unit is abnormal.

Check the blinking pattern, and confirm the abnormal point with the indoor unit failure mode table. (Refer to 10-2.2)

Make sure to check at least two consecutive blinking cycles.

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.

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

The outdoor unit is normal.

Check the blinking pattern, and identify the abnormal point by referring to the outdoor unit failure mode table. (Refer to outdoor unit service manual.)

Make sure to check at least two consecutive blinking cycles.

Repair the failure parts.

Deleting the memorized abnormal condition

After repairing the unit, recall the failure mode again according to “Setting up the failure mode recall function” mentioned above.
Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
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.

2. Blinking pattern when the indoor unit is abnormal:

<table>
<thead>
<tr>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanking at 0.5-second interval</td>
<td>Blanking at 0.5-second interval</td>
</tr>
<tr>
<td>Repeated cycle</td>
<td>Repeated cycle</td>
</tr>
</tbody>
</table>

Beeps

3. Blinking pattern when the outdoor unit is abnormal:

<table>
<thead>
<tr>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanking at 0.5-second interval</td>
<td>Blanking at 0.5-second interval</td>
</tr>
<tr>
<td>Repeated cycle</td>
<td>Repeated cycle</td>
</tr>
</tbody>
</table>

Beeps

The cause of abnormality cannot be found because the abnormality does not recur.

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.

4. Blinking pattern when the indoor unit is abnormal:

<table>
<thead>
<tr>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanking at 0.5-second interval</td>
<td>Blanking at 0.5-second interval</td>
</tr>
<tr>
<td>Repeated cycle</td>
<td>Repeated cycle</td>
</tr>
</tbody>
</table>

Beeps

The outdoor unit is abnormal.

Check the blinking pattern, and identify the abnormal point by referring to the outdoor unit failure mode table. (Refer to outdoor unit service manual.)

Make sure to check at least two consecutive blinking cycles.

The cause of abnormality cannot be found because the abnormality does not recur.

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.
4. (Default: compatible with a low-standby-power model)
### 2. Indoor unit failure mode table

<table>
<thead>
<tr>
<th>The left lamp of OPERATION INDICATOR 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, the sub 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 feedback signal is not emitted for the 12 seconds after the indoor fan motor is operated.</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.).
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 does not receive the signal from remote controller.

OPERATION INDICATOR lamp on the indoor unit is flashing ON and OFF.

Outdoor unit operates only in Test Run operation. ※

Outdoor unit does not operate even in Test Run operation. ※

Unit does not operate normal operation in COOL or HEAT mode.

Indoor unit operates, when EMERGENCY OPERATION switch is pressed.

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

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

Refer to "How to check inverter/compressor".

Refer to 10-6.① “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 10-6.② ”Check of indoor P.C. board and indoor fan motor”.

Left lamp flash on and off at 0.5-second intervals. Cause: Indoor/Outdoor unit Miswiring or trouble of serial signal

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

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

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

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

Left lamp 6-time flash Cause: Outdoor unit • Trouble of outdoor control system

Left lamp 7-time flash Cause: Outdoor unit • Other abnormality

Left lamp 14-time flash or more Cause: Outdoor unit • Other abnormality

Refer to 10-6.⑤ “How to check miswiring and serial signal error”.

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.”

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

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

OBH600B
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.

**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>
<tbody>
<tr>
<td>1</td>
<td>Miswiring or serial signal</td>
<td>Left lamp flashes. 0.5-second ON&lt;br&gt;0.5-second OFF</td>
<td>The serial signal from the outdoor unit is not received for 6 minutes. The indoor unit is connected to a low-stand-by-power model after once connected to a non-low-stand-by-power model.</td>
<td>• Refer to 10-6. &quot;How to check miswiring and serial signal error&quot;. • Refer to NOTE.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Indoor coil thermistor</td>
<td>Left lamp flashes. 2-time flash&lt;br&gt;2.5-second OFF</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>Left lamp flashes. 3-time flash&lt;br&gt;2.5-second OFF</td>
<td>The rotational frequency feedback signal is not emitted during the indoor fan operation.</td>
<td>• Refer to 10-6. &quot;Check of indoor fan motor&quot;.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Indoor control system</td>
<td>Left lamp flashes. 4-time flash&lt;br&gt;2.5-second OFF&lt;br&gt;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>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Outdoor power system</td>
<td>Left lamp flashes. 5-time flash&lt;br&gt;2.5-second OFF</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 &quot;How to check of inverter/compressor&quot;. Refer to outdoor unit service manual • Check the stop valve.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Outdoor thermistors</td>
<td>Left lamp flashes. 6-time flash&lt;br&gt;2.5-second OFF</td>
<td>The outdoor thermistors short or open circuit during the compressor operation.</td>
<td>• Refer to &quot;Check of outdoor thermistor&quot;. Refer to outdoor unit service manual.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Outdoor control system</td>
<td>Left lamp flashes. 7-time flash&lt;br&gt;2.5-second OFF</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>Left lamp flashes. 14-time flash or more&lt;br&gt;2.5-second OFF</td>
<td>An abnormality other than above mentioned is detected.</td>
<td>• Check the stop valve. • Check the 4-way 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>Left lamp lights up&lt;br&gt;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>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** The indoor unit may have been connected to a non-low-stand-by-power model outdoor unit. To use a low-stand-by-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-stand-by-power model after initialization. If the operation indicator lamp continues to flash as shown in No.1 after the procedure, refer to 10-6. "How to check miswiring and serial error".
## 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>
<tbody>
<tr>
<td>1</td>
<td>MXZ type</td>
<td>Left lamp lights and lower lamp flashes.</td>
<td>Outdoor unit operates but indoor unit does not operate.</td>
<td>The operation mode of the each indoor unit is differently set to COOL (includes DRY) and HEAT at the same time, the operation mode of the indoor unit that has operated at first has the priority.</td>
<td>Unify the operation mode. Refer to outdoor unit service manual.</td>
</tr>
</tbody>
</table>

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

**MSZ-SF25VE  MSZ-SF35VE  MSZ-SF42VE  MSZ-SF50VE**

<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) Indoor coil thermistor (RT12, RT13)</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></td>
</tr>
<tr>
<td>Indoor fan motor (MF)</td>
<td>Check 10-6. &quot;Check of indoor fan motor&quot;.</td>
<td></td>
</tr>
<tr>
<td>Vane motor (MV)</td>
<td>Measure the resistance between the terminals with a tester. (Temperature: 10 - 30°C)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Color of the lead wire</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>RED - BLK</td>
<td>232 - 268 Ω</td>
</tr>
</tbody>
</table>
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 power 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 electronic control 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?

No (Changed)

Yes (Unchanged)

Replace the indoor fan motor.

Replace the indoor power P.C. board.

Is it unchanged holding 0 or 5 VDC?

No (Changed)

Yes (Unchanged)

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

Replace the indoor electronic control 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
  No (Not clear)
  Replace the batteries. (Refer to 10-1.4.)

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 batteries. (Refer to 10-1.4.)

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

Is noise heard from radio?
  Yes
  No
  Replace the remote controller.

Are there any fluorescent lights of inverter or rapid-start type within the range of 1 m.?
  Yes
  No
  Reinstall the unit away from lights.
  Attach a filter on receiving part.

Replace the indoor electronic control P.C. board. (Including the receiver)
C. 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. Measure the resistance of indoor fan motor. Refer to 10-5.

   - **Short circuit:** Replace the indoor fan motor.

3. 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.

4. Does the unit operate with the remote controller? Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?

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

   - No: Replace the varistor (NR11) and fuse (F11). Is the varistor (NR11) burnt and the fuse (F11) blown? Be sure to check both the fuse and the varistor in any case.

5. Is the fuse (F11) blown only?

   - Yes: Measure the resistance between CN211 (+) and (-) of indoor fan motor connector. Is the resistance 1MΩ or more? Replace the fuse (F11) and the indoor fan motor.

   - No: Replace the fuse (F11). Measure the resistance of reactor (L111) [MSZ-SF25/42VE] and resistor (R111) [MSZ-SF35/50VE] on the indoor power P.C. board.

6. Is the resistance of reactor (L111) [MSZ-SF25/42VE] approximately 2.2 Ω? Is the resistance of resistor (R111) [MSZ-SF35/50VE] approximately 3.9 Ω?

   - Yes: Is the resistance of reactor (L111) [MSZ-SF25/42VE] approximately 5 VDC between 5 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board? Is there approximately 9 V to 13 VDC between 12 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?

   - No: Are connector CN10A on the indoor electronic control P.C. board or lead wires disconnected?

   - Yes: Connect the connector or repair disconnection.

   - No: Replace the indoor electronic control P.C. board.

7. Varistor (NR11)

   - CN211

   - Indoor power P.C. board

   - Fuse (F11)

   - L111

   - R111

   - Indoor electronic control P.C. board

   - CN10A

   - GND(JPG)
How to check miswiring and serial signal error

**MUZ Type**

1. **Turn the main power supply OFF.**
   - Is there rated voltage in the power supply?
     - **Yes** Check for incorrect indoor-outdoor connecting wiring.
     - **No** Check the power supply.

2. **Check for miswiring and serial signal error.**
   - **Yes** Reinstall either the unit or the light away from each other.
   - **No** Attach a filter on remote control receiving section of the indoor unit.

3. **Was the indoor unit ever connected to the Multi (MXZ) series and operated (turned on)?**
   - **Yes** 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.
   - **No** OK

4. **Is there rated voltage between outdoor terminal block S1 and S2?**
   - **Yes** Wait for 2 or more minutes after the main power supply is turned on. Touch S2 and S3 with tester probes and start the emergency operation.
   - **No** Check for miswiring, broken wires, and loose wire connection between the main power supply and outdoor terminal block S1 and between the main power supply and outdoor terminal block S2.

5. **When the emergency operation starts, does the rated voltage occur for 2 seconds between indoor terminal block S2 and S3?**
   - **Yes** Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?
     - **Yes** Does the outdoor LED light up?
       - **Yes** Confirm that the thermostat is OFF and wiring is not loose.
       - **No** Replace the outdoor inverter P.C. board. 1
     - **No** Replace the outdoor inverter P.C. board. 1
   - **No** Turn the main power supply OFF. Replace the indoor power P.C. board.

6. **Start the emergency operation.**
   - Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?
     - **Yes** Does DC (6V or more) occur between indoor terminal block S2 and S3?
       - **Yes** Replace the indoor electronic control P.C. board.
       - **No** Replace the outdoor inverter P.C. board. 1
     - **No** Repair completed.
   - **No** Repair completed.

7. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
   - **Yes** Replace the outdoor inverter P.C. board. 1
   - **No** Replace the indoor electronic control P.C. board.

8. **Is serial signal error indicated 6 minutes later?**
   - **Yes** Repair completed.
   - **No** Replace the indoor electronic control P.C. board.

9. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
   - **Yes** Repair completed.
   - **No** Repair completed.

10. **Turn the main power supply OFF.**
    - **Turn the main power supply ON.**

11. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

12. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

13. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

14. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

15. **Does DC (6V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

16. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

17. **Does DC (6V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

18. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

19. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

20. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

21. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

22. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

23. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

24. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

25. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

26. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

27. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

28. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

29. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

30. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

31. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

32. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

33. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

34. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

35. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

36. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

37. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

38. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

39. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

40. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

41. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

42. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

43. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

44. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

45. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

46. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.

47. **Does DC (20V or more) occur between indoor terminal block S2 and S3?**
    - **Yes** Replace the outdoor inverter P.C. board. 1
    - **No** Replace the indoor electronic control P.C. board.

48. **Is serial signal error indicated 6 minutes later?**
    - **Yes** Repair completed.
    - **No** Replace the indoor electronic control P.C. board.

49. **Does the indoor OPERATION INDICATOR lamp (left) blink continuously 6 minutes after the emergency operation starts?**
    - **Yes** Repair completed.
    - **No** Repair completed.
E Electromagnetic noise enters into TV sets or radios

- Is the unit earthed? Yes
  - 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
    - Extend the distance between the antennas and the indoor unit, or the antennas and the outdoor unit.

- 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
  - Replace or repair the antenna.

- Are the antennas damaged? No
  - Replace or repair the coaxial cable.

- 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.

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-SF25VE  MSZ-SF35VE  MSZ-SF42VE  MSZ-SF50VE

Emergency operation switch (E.O.SW) (SW1)

Vane motor (CN151, CN152)

Display board

Room temperature thermistor RT11 (CN111)

Receiver board

Connector Terminal Block (CN201)

Connector to indoor electronic control P.C. board (CN202)

Display board

Room temperature thermistor RT11 (CN111)

Indoor coil thermistor RT12, RT13 (CN112)

Timer short mode point

To disable "Auto restart function" cut the Jumper wire to JR77.
(Refer to 8-3.)

Display board

Receiver board

Connector to indoor electronic control P.C. board (CN102)

Room temperature thermistor (RT11)

Indoor coil thermistor (RT12, RT13)

Indoor fan motor (CN211)

1. 325 VDC
2. (-) GND (high-voltage DC)
3. 15 VDC
4. (+)3-6 VDC
5. (+)0 or 15 VDC

Fuse (F11)

Varistor (NR11)

Indoor electronic control P.C. board

Indoor power P.C. board

Connector Terminal Block (CN201)

Connector to indoor electronic control P.C. board (CN202)

Receiver board

Display board

Switch board

Room temperature thermistor (RT11)

Indoor coil thermistor (RT12, RT13)

Resistor (R111)

Reactor (L111)

MSZ-SF25VE MSZ-SF35VE MSZ-SF42VE MSZ-SF50VE

10-7. TEST POINT DIAGRAM AND VOLTAGE
**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. Removing the panel
   1. Remove the horizontal vanes.
   2. Remove the screw caps of the panel. Remove the screws of the panel.
   3. Unhook the lower part (②) of the panel.
   4. Pull the panel slightly toward you, and then remove the panel by pushing it upward.

### OPERATING PROCEDURE

<table>
<thead>
<tr>
<th>1. Removing the panel</th>
<th>PHOTOs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Removal procedure</strong></td>
<td><strong>Photo 1</strong></td>
</tr>
<tr>
<td>Unlock the upper and lower vanes as shown in ① using a thin instrument. Then, remove the horizontal vanes in the direction of ②.</td>
<td><img src="image_url" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

**NOTE:** Turn OFF power supply before disassembly.
2. Remove the indoor electrical box
   (1) Remove the panel (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)
       CN112 (Indoor coil thermistor)
       <Indoor power P.C. board>
       CN211 (Indoor fan motor)
   (6) Unhook the catch of the display P.C. board holder from the nozzle.
   (7) 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 @ 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 panel (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 indoor power P.C. board.
   (7) Disconnect the following connectors:
       <Indoor electronic control P.C. board>
       CN111 (Room temperature thermistor)
   (8) Unhook the catch of the display P.C. board holder from the electrical box (right side).
   (9) Open the rear cover of the display P.C. board holder and remove the switch board, the display board and the receiver board.
       Remove the indoor electronic control P.C. board.
### OPERATING PROCEDURE

#### 4. Removing the nozzle assembly
1. Remove the panel (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 P.C. board holder.
6. Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
7. Remove the vane motors (Refer to 5.).

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

### PHOTOS

**Photo 4**
- Screws of the vane motor unit cover
- Screws of the vane motor unit
### OPERATING PROCEDURE

6. Removing the indoor fan motor, the indoor coil thermistor and the line flow fan

1. Remove the panel (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.
   ※ Install the indoor coil thermistor in its former position when assembling it (Photo 5.).
9. Remove the screws fixing the left side and the upper right side of the heat exchanger (Photo 7, Photo 5).
10. Lift the heat exchanger, and pull out the line flow fan to the lower-left.

### PHOTOS

**Photo 5**
Lead wire of the indoor coil thermistor

**Photo 6**
Screws of the motor bed
Water cut
Screw of the upper side of the heat exchanger

**Photo 7**
Screws of the left side of the heat exchanger
Screw of the line flow fan