INDOOR UNIT
SERVICE MANUAL
No. OBH548

Models
MSZ-GE06NA
MSZ-GE09NA
MSZ-GE12NA
MSZ-GE15NA
MSZ-GE18NA
MSY-GE09NA
MSY-GE12NA
MSY-GE15NA
MSY-GE18NA

Outdoor unit service manual
MUZ-GE-NA MUY-GE-NA Series (OBH549)
MXZ-A-NA Series (OB444)

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PARTS CATALOG (OBB548)

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

MSZ-GE06NA  MSZ-GE09NA  MSZ-GE12NA  MSZ-GE15NA  MSZ-GE18NA
MSY-GE09NA  MSY-GE12NA  MSY-GE15NA  MSY-GE18NA

1. New model

2 PART NAMES AND FUNCTIONS

MSZ-GE06NA  MSZ-GE09NA  MSZ-GE12NA  MSZ-GE15NA  MSZ-GE18NA
MSY-GE09NA  MSY-GE12NA  MSY-GE15NA  MSY-GE18NA

ACCESSORIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation plate</td>
<td>1</td>
</tr>
<tr>
<td>Installation plate fixing screw 4 × 25 mm</td>
<td>5</td>
</tr>
<tr>
<td>Remote controller holder</td>
<td>1</td>
</tr>
<tr>
<td>Fixing screw for 3.5 × 1.6 mm (Black)</td>
<td>2</td>
</tr>
<tr>
<td>Battery (AAA) for remote controller</td>
<td>2</td>
</tr>
<tr>
<td>Wireless remote controller</td>
<td>1</td>
</tr>
<tr>
<td>Felt tape (Used for left or left-rear piping)</td>
<td>1</td>
</tr>
</tbody>
</table>
### 3 SPECIFICATION

<table>
<thead>
<tr>
<th>Indoor model</th>
<th>MSZ-GE06NA</th>
<th>MSZ-GE09NA</th>
<th>MSZ-GE12NA</th>
<th>MSY-GE09NA</th>
<th>MSY-GE12NA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>V, phase, Hz</td>
<td>208/230, 1, 60</td>
<td>208/230, 1, 60</td>
<td>208/230, 1, 60</td>
<td>208/230, 1, 60</td>
</tr>
<tr>
<td>Max. fuse size (time delay)/ Disconnect switch</td>
<td>A</td>
<td>15</td>
<td>15</td>
<td>A</td>
<td>15</td>
</tr>
<tr>
<td>Min. circuit ampacity</td>
<td>A</td>
<td>1.0</td>
<td>1.0</td>
<td>A</td>
<td>1.0</td>
</tr>
<tr>
<td>Fan motor</td>
<td>F.L.A</td>
<td>0.76</td>
<td>0.76</td>
<td>F.L.A</td>
<td>0.76</td>
</tr>
<tr>
<td><strong>Airflow</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Moisture removal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pl./h</td>
<td>–</td>
<td>1.5</td>
<td>2.5</td>
<td>–</td>
</tr>
<tr>
<td><strong>Sound level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cond. drain connection O.D.</strong></td>
<td>in.</td>
<td>5/8</td>
<td>5/8</td>
<td>5/8</td>
<td>5/8</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W in.</td>
<td></td>
<td>31-7/16</td>
<td>31-7/16</td>
<td>31-7/16</td>
<td>31-7/16</td>
</tr>
<tr>
<td>D in.</td>
<td></td>
<td>9-1/8</td>
<td>9-1/8</td>
<td>9-1/8</td>
<td>9-1/8</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Ib.</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td><strong>External finish</strong></td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td></td>
</tr>
<tr>
<td><strong>Control voltage (by built-in transformer)</strong></td>
<td>VDC</td>
<td>12 - 24 VDC</td>
<td>12 - 24 VDC</td>
<td>12 - 24 VDC</td>
<td>12 - 24 VDC</td>
</tr>
</tbody>
</table>

### Indoor model

<table>
<thead>
<tr>
<th>Indoor model</th>
<th>MSZ-GE15NA</th>
<th>MSZ-GE18NA</th>
<th>MSY-GE15NA</th>
<th>MSY-GE18NA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>V, phase, Hz</td>
<td>208/230, 1, 60</td>
<td>208/230, 1, 60</td>
<td>208/230, 1, 60</td>
</tr>
<tr>
<td>Max. fuse size (time delay)/ Disconnect switch</td>
<td>A</td>
<td>15</td>
<td>15</td>
<td>A</td>
</tr>
<tr>
<td>Min. circuit ampacity</td>
<td>A</td>
<td>1.0</td>
<td>1.0</td>
<td>A</td>
</tr>
<tr>
<td>Fan motor</td>
<td>F.L.A</td>
<td>0.76</td>
<td>0.76</td>
<td>F.L.A</td>
</tr>
<tr>
<td><strong>Airflow</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Moisture removal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pl./h</td>
<td>2.7</td>
<td>4.6</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>Sound level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cond. drain connection O.D.</strong></td>
<td>in.</td>
<td>5/8</td>
<td>5/8</td>
<td>5/8</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W in.</td>
<td></td>
<td>31-7/16</td>
<td>31-7/16</td>
<td>31-7/16</td>
</tr>
<tr>
<td>D in.</td>
<td></td>
<td>9-1/8</td>
<td>9-1/8</td>
<td>9-1/8</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Ib.</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td><strong>External finish</strong></td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td>Munsell 1.0Y 9.2/0.2</td>
</tr>
<tr>
<td><strong>Control voltage (by built-in transformer)</strong></td>
<td>VDC</td>
<td>12 - 24 VDC</td>
<td>12 - 24 VDC</td>
<td>12 - 24 VDC</td>
</tr>
</tbody>
</table>

**NOTE:** Test conditions are based on ARI 210/240.
3-1. OPERATING RANGE
(1) POWER SUPPLY

<table>
<thead>
<tr>
<th>Indoor unit</th>
<th>Rated voltage</th>
<th>Guaranteed voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208/230 V</td>
<td>Min. 187 208 230 Max. 253</td>
</tr>
<tr>
<td></td>
<td>1 phase 60 Hz</td>
<td></td>
</tr>
</tbody>
</table>

(2) OPERATION

<table>
<thead>
<tr>
<th>Mode</th>
<th>Condition</th>
<th>Intake air temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DB</td>
<td>WB</td>
</tr>
<tr>
<td>Cooling</td>
<td>Standard temperature</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Maximum temperature</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Minimum temperature</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Maximum humidity</td>
<td>78%</td>
</tr>
<tr>
<td>Heating</td>
<td>Standard temperature</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Maximum temperature</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Minimum temperature</td>
<td>70</td>
</tr>
</tbody>
</table>

3-2. OUTLET AIR SPEED AND COVERAGE

<table>
<thead>
<tr>
<th>Model</th>
<th>Mode</th>
<th>Function</th>
<th>Airflow (CFM)</th>
<th>Air speed (ft./s.)</th>
<th>Coverage (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSZ-GE06NA</td>
<td>HEAT</td>
<td>Dry</td>
<td>406</td>
<td>20.6</td>
<td>29.5</td>
</tr>
<tr>
<td></td>
<td>COOL</td>
<td>Dry</td>
<td>321</td>
<td>16.3</td>
<td>23.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>286</td>
<td>14.5</td>
<td>21.0</td>
</tr>
<tr>
<td>MSZ-GE09NA</td>
<td>HEAT</td>
<td>Dry</td>
<td>406</td>
<td>20.6</td>
<td>29.5</td>
</tr>
<tr>
<td>MSY-GE09NA</td>
<td></td>
<td>Cool</td>
<td>321</td>
<td>16.3</td>
<td>23.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>286</td>
<td>14.5</td>
<td>21.0</td>
</tr>
<tr>
<td>MSZ-GE12NA</td>
<td>HEAT</td>
<td>Dry</td>
<td>406</td>
<td>20.6</td>
<td>29.5</td>
</tr>
<tr>
<td>MSY-GE12NA</td>
<td></td>
<td>Cool</td>
<td>321</td>
<td>16.3</td>
<td>23.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>286</td>
<td>14.5</td>
<td>21.0</td>
</tr>
<tr>
<td>MSZ-GE15NA</td>
<td>HEAT</td>
<td>Dry</td>
<td>463</td>
<td>23.4</td>
<td>33.5</td>
</tr>
<tr>
<td>MSY-GE15NA</td>
<td></td>
<td>Cool</td>
<td>420</td>
<td>21.3</td>
<td>30.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>385</td>
<td>19.5</td>
<td>28.0</td>
</tr>
<tr>
<td>MSZ-GE18NA</td>
<td>HEAT</td>
<td>Dry</td>
<td>512</td>
<td>25.9</td>
<td>36.9</td>
</tr>
<tr>
<td>MSY-GE18NA</td>
<td></td>
<td>Cool</td>
<td>420</td>
<td>21.3</td>
<td>30.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet</td>
<td>385</td>
<td>19.5</td>
<td>28.0</td>
</tr>
</tbody>
</table>

The air coverage is the figure up to the position where the air speed is 1 ft./s., when air is blown out horizontally from the unit properly at the High speed position. The coverage should be used only as a general guideline since it varies according to the size of the room and furniture arranged inside the room.
4 OUTLINES AND DIMENSIONS

MSZ-GE06NA  MSZ-GE09NA  MSZ-GE12NA  MSZ-GE15NA  MSZ-GE18NA  Unit: inch
MSY-GE09NA  MSY-GE12NA  MSY-GE15NA  MSY-GE18NA

Installation plate
Indoor unit Wall hole ø2-9/16
Air in
Installation plate
Air out
Drain hose
Piping
Insulation ø1 - 3/8 O.D
Connected part ø5/8 O.D
Pipe:
Liquid line ø1/4 19 - 11/16 (Flared connection ø1/4)
Gas line ø3/8 16 - 15/16
(Flared connection: ø3/8 (GE06/09/12NA), ø1/2 (GE15/18NA))
Drain hose: Insulation ø1/8 0.2 Connected part ø5/8 0.2
WIRING DIAGRAM

MSZ-GE06NA  MSZ-GE09NA  MSZ-GE12NA  MSZ-GE15NA  MSZ-GE18NA
MSY-GE09NA  MSY-GE12NA  MSY-GE15NA  MSY-GE18NA

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
   - A disconnect should be required by local code.

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>D081-0104</td>
<td>D010F</td>
</tr>
<tr>
<td>F13</td>
<td>FUS. 115V/250V</td>
</tr>
<tr>
<td>HF</td>
<td>FAN MOTOR</td>
</tr>
<tr>
<td>MV</td>
<td>VANE MOTOR (HORIZONTAL)</td>
</tr>
<tr>
<td>NR11</td>
<td>RESISTOR</td>
</tr>
<tr>
<td>R111</td>
<td>RESISTOR</td>
</tr>
<tr>
<td>RT11</td>
<td>RESISTOR</td>
</tr>
<tr>
<td>RT12</td>
<td>Cal Temp. Thermostat (Main)</td>
</tr>
<tr>
<td>RT13</td>
<td>Cal Temp. Thermostat (Com)</td>
</tr>
<tr>
<td>F112</td>
<td>TRANSFORMER</td>
</tr>
<tr>
<td>TR</td>
<td>TERMINAL BLOCK</td>
</tr>
</tbody>
</table>
MSZ-GE06NA  MSZ-GE09NA  MSZ-GE12NA  MSZ-GE15NA  MSZ-GE18NA
MSY-GE09NA  MSY-GE12NA  MSY-GE15NA  MSY-GE18NA

Unit: inch

Indoor heat exchanger
Flared connection

Room temperature thermistor RT11

Indoor coil thermistor RT12 (main)
Indoor coil thermistor RT13 (sub)

Refrigerant pipe ø3/8 (MSZ-GE06/09/12NA, MSY-GE09/12NA)
(Refrigerant flow in cooling)
Flared connection
Refrigerant pipe ø1/2 (MSZ-GE15/18NA, MSY-GE15/18NA)
(Refrigerant flow in heating)
(with heat insulator)

Refrigerant pipe ø1/4
(with heat insulator)
7 SERVICE FUNCTIONS

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA

7-1. TIMER SHORT MODE
For service, set time can be shortened by short circuit of JPG and JPS the indoor electronic control P.C. board.
The time will be shortened as follows. (Refer to 9-7.)
Set time: 1-minute → 1-second
Set time: 3-minute → 3-second (It takes 3 minutes for the compressor to start operation. However, the starting time is
shortened by short circuit of JPG and JPS.)

7-2. 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
twice or 3 times at first.
After finish modification, put back the batteries
then press the RESET button.

The P.C. board has the print “J1” and “J2”. Solder “J1” and “J2” according to the number of indoor unit as shown in Table 1.
After modification, press the RESET button.

Table 1

<table>
<thead>
<tr>
<th>No.</th>
<th>1 unit operation</th>
<th>2 units operation</th>
<th>3 units operation</th>
<th>4 units operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No modification</td>
<td>Same as at left</td>
<td>Same as at left</td>
<td>Same as at left</td>
</tr>
<tr>
<td>2</td>
<td>Solder J1</td>
<td>Same as at left</td>
<td>Same as at left</td>
<td>Same as at left</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Solder J2</td>
<td>Same as at left</td>
<td>Same as at left</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Solder both J1 and J2</td>
<td>Same as at left</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 has turned OFF, or the power supply has shut down.
Please conduct the above setting once again after the power has restored.
7-3. 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 shut-off 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 release “AUTO RESTART FUNCTION”

① Turn OFF the main power of the unit.
② Solder the Jumper wire JR07 on the indoor electronic control P.C. board. (Refer to 9-7.)

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.
8 MICROPROCESSOR CONTROL

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA

WIRELESS REMOTE CONTROLLER

E.g.: MSZ type

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 4°F(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 2 to 4°F(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>

Lighted
Blinking
Not lighted
8-1. COOL (Cool) 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 (TOO WARM or TOO COOL button) to select the desired temperature.
The setting range is 61 ~ 88°F (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.

8-2. DRY (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. (8-1.1.)

2. Low outside temperature operation
Low outside temperature operation is as same as COOL mode. (8-1.2.)

8-3. HEAT (Heat) OPERATION (MSZ)
(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 (TOO WARM or TOO COOL button) to select the desired temperature.
The setting range is 61 ~ 88°F (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.

8-4. FAN (Fan) OPERATION (MSY)
(1) Press OPERATE/STOP (ON/OFF) button.
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.

8-5. “I FEEL CONTROL” (I Feel) OPERATION (MSY)
(1) Press OPERATE/STOP (ON/OFF) button on the remote controller. OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
(2) Select “I FEEL CONTROL” mode with OPERATION SELECT button.
(3) The operation mode is determined by the room temperature at start-up of the operation.
• Once the mode is fixed, the mode does not change by room temperature afterwards.
• Under the ON TIMER (On Timer) operation, mode is determined according to the room temperature at the start-up of operation.

11
(4) The initial set temperature is decided by the initial room temperature.

<table>
<thead>
<tr>
<th>Initial room temperature</th>
<th>Model</th>
<th>Initial set temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>79°F (26°C) or more</td>
<td>COOL mode of &quot;I FEEL CONTROL&quot;</td>
<td>75°F (24°C)</td>
</tr>
<tr>
<td>77 to 79°F (25 to 26°C)</td>
<td>Initial room temperature minus 4°F (2°C)</td>
<td></td>
</tr>
<tr>
<td>Less than 79°F (25°C)</td>
<td>DRY mode of &quot;I FEEL CONTROL&quot;</td>
<td>Initial room temperature minus 4°F (2°C)</td>
</tr>
</tbody>
</table>

(5) TEMPERATURE buttons
In "I FEEL CONTROL" ( ) mode, set temperature is decided by the microprocessor based on the room temperature. In addition, set temperature can be controlled by TOO WARM or TOO COOL buttons when you feel too cool or too warm.

Each time the TOO WARM or TOO COOL button is pressed, the indoor unit receives the signal and emits a beep tone.

* Fuzzy control
When the TOO COOL or TOO WARM button is pressed, the microprocessor changes the set temperature, considering the room temperature, the frequency of pressing TOO COOL or TOO WARM button and the user's preference to heat or cool. So this is called "Fuzzy control", and works only in "I FEEL CONTROL" mode.

In DRY mode of "I FEEL CONTROL", the set temperature does not change.

TOO WARM … To raise the set temperature 2~4°F (1~2°C)
TOO COOL … To lower the set temperature 2~4°F (1~2°C)

8-6. AUTO CHANGE OVER ••• AUTO MODE OPERATION (MSZ)
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 2°F (1°C) below the set temperature.
HEAT mode changes to COOL mode when about 15 minutes have passed with the room temperature 2°F (1°C) above the set temperature.

NOTE1
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 NOTE2 “FOR MULTI SYSTEM AIR CONDITIONER”.

NOTE2
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 lamp>

• 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.
8-7. 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 (approx. 12 V) transmitted from indoor microprocessor.
   (2) The horizontal vane angle and mode change as follows by pressing VANE CONTROL button.

   ![Diagram of vane angles]

   (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) The operation starts or finishes (including timer operation).
       (b) The test run operation starts.
       (c) Standby mode (only during multi system operation) starts or finishes.

   (4) VANE AUTO (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 5.

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

   (8) Cold air prevention in HEAT operation (MSZ)
       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) To change the airflow direction not to blow directly onto your body.

<table>
<thead>
<tr>
<th>To change the air flow direction</th>
<th>When to use this function?</th>
<th>COOL/DRY</th>
<th>HEAT (MSZ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressing and holding VANE CONTROL button for 2 seconds or more, the horizontal vane reverses and moves horizontal position.</td>
<td>Use this function if you do not want the air from the indoor unit to blow directly onto your body.</td>
<td>The air conditioner starts the cooling or drying operation approx. 3 minutes after the vane has moved to the horizontal position.</td>
<td>The air conditioner starts heating operation approx. 3 minutes after the vane has moved to the horizontal position.</td>
</tr>
<tr>
<td></td>
<td>Depending on the shape of the room, the air may blow directly onto your body.</td>
<td>• When VANE CONTROL button is pressed again, the vane returns to the previously-set position and the air conditioner starts the cool or dry operation in approx. 3 minutes.</td>
<td>• Sometimes the area around your feet may not get warm. To warm the area around the feet, set the horizontal vane to AUTO (AUTO) or the downward blowing position.</td>
</tr>
<tr>
<td></td>
<td>• Press VANE CONTROL button again to return the vane to the previously-set position.</td>
<td>• When VANE CONTROL button is pressed again, the vane returns to the previously-set position and the air conditioner starts the heat operation in approx. 3 minutes.</td>
<td>• When VANE CONTROL button is pressed again, the vane returns to the previously-set position and the air conditioner starts the heat operation in approx. 3 minutes.</td>
</tr>
</tbody>
</table>

NOTE: • If you make the airflow not to blow directly onto your body by pressing VANE CONTROL button, the compressor stops for 3 minutes even during the operation of the air conditioner.
• The air conditioner operates with Very Low speed until the compressor turns ON again.
(10) ECONO COOL (E) operation (ECONOmical operation)
When ECONO COOL button is pressed in COOL mode, set temperature is automatically set 4°F(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.
ECONO COOL operation is cancelled when ECONO COOL button is pressed once again or VANE CONTROL button is pressed or changed to other operation mode.

8-8. 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 AM" 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 "*" 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.
8-9. SMART SET (MSZ) OPERATION

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

   **NOTE:**
   - SMART SET operation cannot be selected during DRY or AUTO mode operation.
   - The setting range of HEAT mode in SMART SET operation is 50°F (10°C) and 61 - 87°F (16 - 31°C). (MSZ)
   - 2 groups of setting can be saved. (One for COOL/ECONO COOL, one for HEAT) (MSZ)
   - 1 group of setting can be saved. (MSY)

2. How to cancel operation
   - Press SMART SET button again.
   - SMART SET operation can also be cancelled by pressing OPERATION SELECT button to change the operation mode.
     The same setting is select from the next time by simply pressing SMART SET button.

8-10. 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 system in continuous operation (The thermostat does not work).

After 30 minutes of test run operation, the system shifts to EMERGENCY COOL/HEAT (MSZ) MODE with a set temperature of 75°F (24°C). The fan speed shifts to Med.

In the test run or emergency operation, the horizontal vane operates in VANE AUTO (MSZ) mode.

Emergency operation continues until 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 EMERGENCY OPERATION switch during normal operation.

8-11. 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.

8-12. Changing temperature indication (°F/°C)

   - The preset unit is °F.
   - °F → °C: Press RESET button while the temperature buttons are pressed.
   - °C → °F: Press RESET button or remove the batteries.

   ![Press RESET button gently using a thin instrument.](image)
9 TROUBLESHOOTING

MSZ-GE06NA  MSZ-GE09NA  MSZ-GE12NA  MSZ-GE15NA  MSZ-GE18NA
MSY-GE09NA  MSY-GE12NA  MSY-GE15NA  MSY-GE18NA

9-1. 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 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) First, 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 abnormality indication is flashing ON and OFF before starting service work.
   2) Before servicing check that the connector and terminal are connected properly.
   3) When the 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 9-2, 9-3 and 9-4.
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.

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.
9-2. 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 (9-4.) disappears, the memorized failure details can be recalled.

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

Operational procedure

**Setting up the failure mode recall function**

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 the other button after all LCD in operation display section of the remote controller is displayed after 3 seconds.

Judgment of indoor/outdoor abnormality

Before blinking, does upper lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?

- Stays ON for 3 seconds (without beep):
  - The outdoor unit is abnormal.

The indoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the indoor unit failure mode table. (Refer to 9-2.2)
Make sure to check at least two consecutive blinking cycles. [9]

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.

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 with the remote controller headed towards the indoor unit.
- Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
- 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 once 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.

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

- Blinking at 0.5-second interval
- Beep
- Repeated cycle

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

- Blinking at 0.5-second interval
- No beep
- Repeated cycle

Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.
E.g.: MSZ type
## 2. Indoor unit failure mode table

<table>
<thead>
<tr>
<th>Upper 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 (9-7.2.).</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 (9-7.2.).</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 9-6.6 &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 for 12 seconds after the indoor fan motor is operated.</td>
<td>Refer to 9-6.8 &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 (9-4.).
9-3. INSTRUCTION OF TROUBLESHOOTING

**Start**

- Indoor unit operates. Outdoor unit does not operate.
- Outdoor unit operates only in Test Run operation.
- Operation Indicator lamp on the indoor unit is flashing ON and OFF.

### Indoor unit operates. Outdoor unit does not operate.
- Refer to 9-6. "Check of inverter/compressor".
- Replace the indoor electronic control P.C. board.

### Outdoor unit does not operate even in Test Run operation.
- Upper lamp Flash ON and OFF at 0.5-second intervals: Cause - Outdoor unit - Trouble of room temperature/indoor coil thermistor.
- Upper lamp 2-time flash Cause - Indoor unit - Trouble of indoor fan motor.
- Upper lamp 3-time flash Cause - Indoor unit - Trouble of outdoor unit control system.
- Upper lamp 4-time flash Cause - Outdoor unit - Trouble of outdoor unit inverter/ compressor.

### Unit does not operate normally in COOL or Heat mode.
- Upper lamp 5-time flash Cause - Outdoor unit - Trouble of thermostat in outdoor unit.
- Upper lamp 6-time flash Cause - Indoor unit - Trouble of indoor fan motor.

### Indoor unit operates, when EMERGENCY OPERATION switch is pressed.
- Upper lamp 7-time flash Cause - Indoor unit - Trouble of indoor unit control system.
- Upper lamp 8-time flash Cause - Outdoor unit - Trouble of outdoor control system.

### Indoor unit does not operate, when EMERGENCY OPERATION switch is pressed.
- Upper lamp 9-time flash Cause - Outdoor unit - Other abnormality.

### Check room temperature thermistor. Refer to 9-7. "Test point diagram and voltage".
- Refer to 9-6. "Check of remote controller and outdoor electronic control P.C. board".
- Replace the inverter P.C. board or the outdoor electronic control P.C. board.

### Refer to indoor/outdoor connecting wire. (Check if the power is supplied to the indoor unit.)
- Refer to 9-6. "Check of indoor P.C. board and indoor fan motor".

### Upper lamp 14-time flash Cause - Outdoor unit - Other abnormality

**Start**

- Refer to outdoor unit service manual.

### "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.

- Refer to 9-7. "Test point diagram and voltage".
- Refer to 9-6. "Check of remote controller and outdoor electronic control P.C. board".
- Replace the inverter P.C. board or the outdoor electronic control P.C. board.

### Other:
- Refer to outdoor unit service manual.
### 9-4. 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>Upper lamp flashes. 0.5-second ON</td>
<td>The serial signal from the outdoor unit is not received for 8 minutes.</td>
<td>• Refer to 9-6. “How to check miswiring and serial signal error”.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Indoor coil thermistor</td>
<td>Upper 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 (9-7.2).</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Indoor fan motor</td>
<td>Upper lamp flashes. 3-time flash</td>
<td>The rotational frequency feedback signal is not emitted during the indoor fan operation.</td>
<td>• Refer to 9-6. “Check of indoor fan motor”.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Indoor control system</td>
<td>Upper lamp flashes. 4-time flash</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>Upper 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 &quot;How to check 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>Upper lamp flashes. 6-time flash</td>
<td>The outdoor thermistors short or open circuit during the compressor operation.</td>
<td>• Refer to &quot;Check of outdoor thermistors”. Refer to outdoor unit service manual.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Outdoor control system</td>
<td>Upper 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>Upper 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>Upper 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>
## 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 Operation mode setting</td>
<td>Upper 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>

### 9-5. TROUBLE CRITERION OF MAIN PARTS

**MSZ-GE06NA** MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA

<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 9-7, &quot;Test point diagram and voltage&quot;, &quot;2. 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 9-6.⊙</td>
<td></td>
</tr>
<tr>
<td>Vane motor (MV)</td>
<td>Measure the resistance between the terminals with a tester. (Temperature: 50 - 86°F (10 - 30°C)) Color of the lead wire Normal RED - BLK 223 - 268 Ω</td>
<td></td>
</tr>
</tbody>
</table>
9-6. 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 CN10A (±) (±) 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.

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 JPG (GND) (–) 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 CN10A (±) (±) and JPG (GND) (–) on the indoor electronic control P.C. board when the fan motor is rotating.

Is it unchanged holding 0 or 15 VDC?

Yes (Unchanged)

Replace the indoor fan motor.

No (Changed)

Replace the indoor power P.C. board and the indoor terminal P.C. board.
B 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 9-1.4.)

No (Not clear)

Remove the batteries, then set them back and press RESET button. (Refer to 9-1.4.) Check if the unit operates with the remote controller.

Does the unit operate with the remote controller?

Yes

OK

No

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

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 3.28 ft. (1m)?

Yes

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

No

Replace the indoor electronic control P.C. board. (Including the receiver)
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.
   - Does the unit operate with the remote controller?
     - Yes: Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?
       - Yes: Replace the varistor (NR11) and fuse (F11).
       - No: Is the varistor (NR11) burnt and the fuse (F11) blown?
         - Yes: Replace the varistor (NR11) and fuse (F11).
         - No: Replace the varistor (NR11) and fuse (F11).
   - No: Turn OFF the power supply.
   - Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?
     - Yes: Replace the indoor fan motor.
     - No: Replace the indoor electronic control P.C. board.

2. Measure the resistance of indoor fan motor connector CN211 and (-) of indoor fan motor (Refer to 9-5.)
   - Short circuit: Replace the indoor fan motor.

3. Measure the resistance of the vane motor coil (Refer to 9-5.)
   - Short circuit: Replace the vane motor and the indoor electronic control P.C. board.

4. Measure the resistance of indoor fan motor. Is the resistance 1MΩ or more?
   - Yes: Replace the fuse (F11) and the indoor fan motor.
   - No: Replace the fuse (F11).

5. Measure the resistance of resistor (R111) on the indoor power P.C. board.
   - Is the resistance approx. 4Ω?
     - Yes: Replace the indoor fan motor.
     - No: Replace the indoor power P.C. board, the indoor terminal P.C. board and the indoor fan motor.

6. Is there approx. 9 to 13 VDC between 12 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?
   - Yes: Connect the connector or repair disconnection.
   - No: Are connector CN10A on the indoor electronic control P.C. board or lead wires disconnected?
     - Yes: Replace the indoor electronic control P.C. board.
     - No: Replace the indoor electronic control P.C. board.

---

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

1. **Turn OFF the power supply.**
   - Is there rated voltage in the power supply? **No** → Check the power supply.
   - **Yes** → Turn ON the power supply.

2. **Is there rated voltage between outdoor terminal block S1 and S2?** **No** → Check the wiring.
   - **Yes** → Press EMERGENCY OPERATION switch once.

3. **Does the OPERATION INDICATOR lamp light up?** **Yes** → Is serial signal error indicated 6 minutes later? **Yes** → Replace the indoor/outdoor connecting wire.

4. **Is there any miswiring, poor contact, or wire disconnection of the indoor/outdoor connecting wire?** **Yes** → Correct them.
   - **No** → Replace the indoor power P.C. board and the indoor terminal P.C. board.

5. **Short-circuit outdoor terminal block S2 and S3.**

6. **Is serial signal error indicated 6 minutes later?** **Yes** → Replace the indoor power P.C. board and the indoor terminal P.C. board.
   - **No** → Replace the indoor electronic control P.C. board.

7. **Is the bus-bar voltage of the inverter P.C. board or the outdoor electronic control P.C. board normal?** (Refer to "TEST POINT DIAGRAM AND VOLTAGE" in the outdoor service manual.) **No** → Check of power supply. (Refer to the outdoor service manual.)
   - **Yes** → Replace the inverter P.C. board or the outdoor electronic control P.C. board.

8. **Is there rated voltage between indoor terminal block S1 and S2?** **No** → Check the wiring.
   - **Yes** → **Is there amplitude of 10 to 20 VDC between indoor terminal block S2 and S3?** **Yes** → **Is there 2 VDC or less between CN10A(+) and JPG (GND)(-) on the indoor electronic control P.C. board?** **Yes** → Replace the indoor electronic control P.C. board.
   - **No** → **Is there 2 VDC or less between CN10A(+) and JPG (GND)(-) on the indoor electronic control P.C. board?** **Yes** → Replace the indoor electronic control P.C. board.

9. **Is there rated voltage between outdoor terminal block S1 and S2?**
   - **Yes** → **Is there amplitude of 10 to 20 VDC between indoor terminal block S2 and S3?** **Yes** → **Is serial signal error indicated 6 minutes later?** **Yes** → Replace the indoor power P.C. board and the indoor terminal P.C. board.
   - **No** → Replace the indoor electronic control P.C. board.

---

1. Miswiring may damage indoor electronic control P.C. board during the operation. Be sure to confirm the wiring is correct before the operation starts.
2. Be sure to check this within 3 minutes after turning ON. After 3 minutes, LED blinks 6 times. Even when the inverter P.C. board or the outdoor electronic control P.C. board is normal, LED blinks 6 times after 3 minutes. (Except for outdoor unit of multi system type)

---

**A.**

- Turn OFF inverter-controlled lighting equipment.
- Turn OFF the power supply and then turn ON again.
- Press EMERGENCY OPERATION switch.
- **Is serial signal error indicated 6 minutes later?** **Yes** → Reinstall either the unit or the light away from each other. Attach a filter on remote control receiving section of the indoor unit.
   - **No** → **Is there amplitude of 10 to 20 VDC between indoor terminal block S2 and S3?** **Yes** → Replace the indoor power P.C. board and the indoor terminal P.C. board.
   - **No** → Replace the indoor electronic control P.C. board.

---

**B.**

- Is serial signal error indicated 6 minutes later? **Yes** → Install either the unit or the light away from each other. Attach a filter on remote control receiving section of the indoor unit.
Electromagnetic noise enters into TV sets or radios

- Is the unit grounded?  
  - Yes  
  - No  
    - Ground the unit.

- Is the distance between the antennas and the indoor unit within 9.91 ft., or is the distance between the antennas and the outdoor unit within 9.91 ft.?  
  - Yes  
    - Extend the distance between the antennas and the indoor unit, and/or the antennas and the outdoor unit.
  - No  

- Is the distance between the TV sets or radios and the indoor unit within 3.28 ft., or is the distance between the TV sets or radios and the outdoor unit within 9.91 ft.?  
  - 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

- Are the antennas damaged?  
  - Yes  
    - Replace or repair the antenna.
  - No  

- Is the coaxial cable damaged?  
  - Yes  
    - Replace or repair the coaxial cable.
  - No

- Is there any poor contact in the antenna wiring?  
  - Yes
  - No

- 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 followings 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, grounding 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.
9-7. Test point diagram and voltage

1. Indoor power P.C. board, Indoor terminal P.C. board

- Indoor terminal P.C. board
  - Fuse (F11)(*)
  - Varistor (NR11)
  - Connector to indoor electronic control P.C. board (CN20A)

- Indoor power P.C. board
  - Resistor (R111)
  - Indoor fan motor (CN211)
    - 294/325 VDC
    - (-) GND (high-voltage DC)
    - 15 VDC
    - (+)-6 VDC
    - (+)-6 V

- Terminal block
  - 5 VDC
  - 12 VDC
  - GND

※ Please replace the fuse after removing the indoor terminal P.C. board from the electrical box.

2. Indoor electronic control P.C. board

- Timer short mode point JPG JPS
  - (Refer to 7-1.)

- Room temperature thermistor RT11 (CN111)
- Indoor coil thermistor RT12, RT13 (CN112)
- GND
- Vane motor (CN151)

- Connector to Indoor power P.C. board (CN10A)
  - 12 VDC
  - 5 VDC

- Emergency operation switch (E.O.SW) (SW1)
- Release of Auto restart function
  - Solder the Jumper wire to JR07
  - (Refer to 7-3.)

- Room temperature thermistor (RT11)
- Indoor coil thermistor (RT12, RT13)

<table>
<thead>
<tr>
<th>Temperature (°F)</th>
<th>Resistance (kΩ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>68</td>
<td>20</td>
</tr>
<tr>
<td>86</td>
<td>10</td>
</tr>
<tr>
<td>104</td>
<td>10</td>
</tr>
<tr>
<td>122</td>
<td>10</td>
</tr>
<tr>
<td>140</td>
<td>10</td>
</tr>
</tbody>
</table>
10 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.

(1) Slide the sleeve, (2) Pull the terminal while pushing the locking lever.

Hold the sleeve, and pull out the terminal slowly.

NOTE: Turn OFF power supply before disassembling.

| MSZ-GE06NA | MSZ-GE09NA | MSZ-GE12NA | MSZ-GE15NA | MSZ-GE18NA |
| MSY-GE09NA | MSY-GE12NA | MSY-GE15NA | MSY-GE18NA |

OPERATING PROCEDURE

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 (A) of the panel.
   (4) Hold the lower part of both ends of the panel and pull it slightly toward you, and then remove the panel by pushing it upward.

PHOTOS

Photo 1

Horizontal vanes
Front panel

Screws of the panel
2. Removing the indoor electronic control P.C. board and the room temperature thermistor
(1) Remove the panel (Refer to 1.) and the corner box.
(2) Remove the screw of the V.A. clamp and the V.A. clamp.
(3) Remove the screw of the electrical cover and the electrical cover.
(4) Remove the screw of conduit cover and the conduit cover.
(5) Remove the screw of conduit plate, the conduit plate and the indoor/outdoor connecting wire.
(6) Open the indoor electronic control P.C. board holder (to right side)
(7) Disconnect the following connectors:
  - CN112 (Indoor coil thermistor)
  - CN151 (Vane motor)
  - CN10A (To the indoor power P.C. board)
(8) Unhook the catches of the indoor electronic control P.C. board holder from the nozzle and the electrical box (right side).
(9) Remove the room temperature thermistor from the hook of the indoor electronic control P.C. board holder.
(10) Open the back side of the indoor electronic control P.C. board holder, and remove the indoor electronic control P.C. board.
(11) Remove the room temperature thermistor from the indoor electronic control P.C. board.

3. Remove the indoor power P.C. board, the indoor terminal P.C. board, and the electrical box
(1) Remove the panel (Refer to 1.) and the corner box.
(2) Remove the indoor/outdoor connecting wire (Refer to 2 (2)-(5)).
(3) Remove the ground wire connected to the indoor heat exchanger from the electrical box.
(4) Unhook first the lower, then the upper catches of the electrical box, and pull out the electrical box.
(5) Disconnect all the connectors on the indoor power P.C. board and unhook all lead wires.
(6) Remove the screw of terminal block on the indoor terminal P.C. board.
(7) Remove the indoor power P.C. board and the indoor terminal P.C. board.
### OPERATING PROCEDURE

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>PHOTOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Removing the nozzle assembly</td>
<td>![Photo 4](Screws of horizontal vane motor unit)</td>
</tr>
<tr>
<td>(1) Remove the panel (Refer to 1.) and the corner box.</td>
<td></td>
</tr>
<tr>
<td>(2) Remove the indoor/outdoor connecting wire (Refer to 2 (2)-(5)).</td>
<td></td>
</tr>
<tr>
<td>(3) Remove the indoor electronic control P.C. board holder.</td>
<td></td>
</tr>
<tr>
<td>(4) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.</td>
<td></td>
</tr>
<tr>
<td>5. Removing the horizontal vane motor</td>
<td></td>
</tr>
<tr>
<td>(1) Remove the nozzle assembly. (Refer to 4.)</td>
<td></td>
</tr>
<tr>
<td>(2) Remove the screws of the horizontal vane motor unit.</td>
<td></td>
</tr>
<tr>
<td>(3) Disconnect the connector from the horizontal vane motor.</td>
<td></td>
</tr>
<tr>
<td>(4) Remove the screws of the horizontal vane motor.</td>
<td></td>
</tr>
<tr>
<td>(5) Remove the horizontal vane motor from the horizontal vane motor unit.</td>
<td></td>
</tr>
</tbody>
</table>
### 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.
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. Loosen the screw fixing the line flow fan.
5. Remove the motor bed together with fan motor and motor band.
7. Remove the indoor coil thermistor from the heat exchanger.
8. Install the indoor coil thermistor in its former position when assembling it. (Refer to Photo 8)
9. Remove the screws fixing the left side of the heat exchanger.
10. Lift the heat exchanger, and pull out the line flow fan to the lower-left.

### PHOTOS

<table>
<thead>
<tr>
<th>Photo 5</th>
<th>Indoor coil thermistor(sub) RT13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 6</td>
<td>Screws of the line flow fan</td>
</tr>
<tr>
<td>Photo 7</td>
<td>Motor band</td>
</tr>
<tr>
<td></td>
<td>Screws of the left side of the heat exchanger</td>
</tr>
</tbody>
</table>