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

Revision A:
- MSZ-HM09/12/15/18NA-U1 have been added.

Revision B:
- 3-1. OPERATING RANGE has been modified.

1 TECHNICAL CHANGES

MSZ-HM24NA
1. New model

MSZ-HM09NA
MSZ-HM12NA
MSZ-HM15NA
MSZ-HM18NA

1. New model
2 PART NAMES AND FUNCTIONS

MSZ-HM09NA MSZ-HM12NA MSZ-HM15NA

ACCESSORIES

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Installation plate</td>
<td>1</td>
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<tr>
<td>2</td>
<td>Attachment screws for the installation plate 4 x 25 mm</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Battery (AAA) for remote controller</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Wireless remote controller</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Felt tape (For left or left-rear piping)</td>
<td>1</td>
</tr>
</tbody>
</table>
MSZ-HM18NA  MSZ-HM24NA

ACCESSORIES

<p>| | | |</p>
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<td></td>
<td></td>
</tr>
<tr>
<td>1 Installation plate</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 Attachment screws for the installation plate 4 × 25 mm</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3 Wireless remote controller</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4 Felt tape (For left or left-rear piping)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5 Battery (AAA) for remote controller</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
## 3 Specifications

### Indoor Model

<table>
<thead>
<tr>
<th>Power supply</th>
<th>V, phase, Hz</th>
<th>MSZ-HM09NA</th>
<th>MSZ-HM12NA</th>
<th>MSZ-HM15NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. fuse size (time delay)/ Disconnect switch A</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. circuit ampacity A</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fan motor F.L.A</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture removal</td>
<td>1.5</td>
<td>2.5</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heating dB(A)</td>
<td>43 - 37 - 30 - 22</td>
<td>46 - 40 - 35 - 30</td>
<td></td>
</tr>
<tr>
<td>Fan speed Super High - High - Med. - Low</td>
<td>Cooling rpm</td>
<td>1,020 - 860 - 670 - 530</td>
<td>1,280 - 1,060 - 880 - 740</td>
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<tr>
<td></td>
<td>Heating rpm</td>
<td>1,040 - 860 - 670 - 530</td>
<td>1,140 - 950 - 810 - 690</td>
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<tr>
<td>Cond. drain connection O.D.</td>
<td>in. 5/8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions W</td>
<td>31-7/16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>9-1/8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>11-5/8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight lb.</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External finish</td>
<td>Munsell 1.0Y 9.2/0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control voltage (by built-in transformer)</td>
<td>12 - 24 VDC</td>
<td></td>
<td></td>
<td></td>
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</table>

**NOTE:** Test conditions are based on AHRI 210/240.

### Indoor Model

<table>
<thead>
<tr>
<th>Power supply</th>
<th>V, phase, Hz</th>
<th>MSZ-HM18NA</th>
<th>MSZ-HM24NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. fuse size (time delay)/ Disconnect switch A</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Min. circuit ampacity A</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fan motor F.L.A</td>
<td>0.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEAT Dry CFM</td>
<td>625 - 530 - 431 - 307</td>
<td>702 - 579 - 448 - 346</td>
</tr>
<tr>
<td>Moisture removal</td>
<td>2.1</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Sound level Super High - High - Med. - Low</td>
<td>Cooling dB(A)</td>
<td>47 - 42 - 37 - 30</td>
<td>50 - 44 - 38 - 33</td>
</tr>
<tr>
<td></td>
<td>Heating dB(A)</td>
<td>47 - 42 - 37 - 30</td>
<td>50 - 44 - 38 - 32</td>
</tr>
<tr>
<td>Fan speed Super High - High - Med. - Low</td>
<td>Cooling rpm</td>
<td>1,140 - 1,000 - 850 - 690</td>
<td>1,250 - 1,000 - 850 - 730</td>
</tr>
<tr>
<td></td>
<td>Heating rpm</td>
<td>1,140 - 1,000 - 850 - 660</td>
<td>1,250 - 1,070 - 880 - 720</td>
</tr>
<tr>
<td>Cond. drain connection O.D.</td>
<td>in. 5/8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions W</td>
<td>36-5/16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>9-13/16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>12</td>
<td></td>
<td></td>
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<tr>
<td>Weight lb.</td>
<td>28</td>
<td></td>
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</tr>
<tr>
<td>External finish</td>
<td>Munsell 1.0Y 9.2/0.2</td>
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<tr>
<td>Control voltage (by built-in transformer)</td>
<td>12 - 24 VDC</td>
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<td></td>
</tr>
</tbody>
</table>

**NOTE:** Test conditions are based on AHRI 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>208/230 V</td>
<td>Min. 187</td>
<td>208 230 Max. 253</td>
</tr>
</tbody>
</table>

#### (2) OPERATION

<table>
<thead>
<tr>
<th>Mode</th>
<th>Condition</th>
<th>Intake air temperature (°F)</th>
<th>DB</th>
<th>WB</th>
<th>DB</th>
<th>WB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Indoor</td>
<td></td>
<td></td>
<td>Outdoor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard temperature</td>
<td>80</td>
<td>67</td>
<td>95</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum temperature</td>
<td>90</td>
<td>73</td>
<td>115</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Minimum temperature</td>
<td>67</td>
<td>57</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum humidity</td>
<td>78%</td>
<td></td>
<td></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Heating</td>
<td>Standard temperature</td>
<td>70</td>
<td>60</td>
<td>47</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum temperature</td>
<td>80</td>
<td>67</td>
<td>75</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum temperature</td>
<td>70</td>
<td>60</td>
<td>—</td>
<td>—</td>
<td>—</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-HM09NA</td>
<td>HEAT Dry</td>
<td>406</td>
<td>20.6</td>
<td>29.5</td>
<td></td>
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<tr>
<td></td>
<td>COOL Dry</td>
<td>321</td>
<td>16.3</td>
<td>23.5</td>
<td></td>
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<tr>
<td></td>
<td>COOL Wet</td>
<td>286</td>
<td>14.5</td>
<td>21.0</td>
<td></td>
</tr>
<tr>
<td>MSZ-HM12NA</td>
<td>HEAT Dry</td>
<td>406</td>
<td>20.6</td>
<td>29.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COOL Dry</td>
<td>321</td>
<td>16.3</td>
<td>23.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COOL Wet</td>
<td>286</td>
<td>14.5</td>
<td>21.0</td>
<td></td>
</tr>
<tr>
<td>MSZ-HM15NA</td>
<td>HEAT Dry</td>
<td>463</td>
<td>23.4</td>
<td>33.5</td>
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<tr>
<td></td>
<td>COOL Dry</td>
<td>420</td>
<td>21.3</td>
<td>30.5</td>
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<tr>
<td></td>
<td>COOL Wet</td>
<td>385</td>
<td>19.5</td>
<td>28.0</td>
<td></td>
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<tr>
<td>MSZ-HM18NA</td>
<td>HEAT Dry</td>
<td>625</td>
<td>28.5</td>
<td>42.6</td>
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</tr>
<tr>
<td></td>
<td>COOL Dry</td>
<td>625</td>
<td>28.5</td>
<td>42.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COOL Wet</td>
<td>562</td>
<td>25.6</td>
<td>38.4</td>
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<tr>
<td>MSZ-HM24NA</td>
<td>HEAT Dry</td>
<td>702</td>
<td>32.0</td>
<td>47.7</td>
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<tr>
<td></td>
<td>COOL Dry</td>
<td>702</td>
<td>32.0</td>
<td>47.7</td>
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</tr>
<tr>
<td></td>
<td>COOL Wet</td>
<td>632</td>
<td>28.8</td>
<td>43.1</td>
<td></td>
</tr>
</tbody>
</table>

*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-HM09NA MSZ-HM12NA MSZ-HM15NA

Unit: inch

Piping

Insulation

MSZ-HM24NA

Ø2 O.D

Liquid line Ø5/16 15-3/8 (Flared connection Ø3/8)

Gas line Ø15/32 13-3/8 (Flared connection Ø5/8)

Drain hose Insulation Ø1-1/8 Connected part Ø5/8 O.D

MSZ-HM18NA MSZ-HM24NA

Installation plate

36-5/16

36-13/16

1/4

3-15/16

7/16

3/16

5-7/16

8-5/16

8-3/8

8-7/8

2-11/16

2-13/16

2-1/4

2-1/4

2-3/4

2-3/4

2-3/4

8-3/4

2-1/8

2-1/8

2-5/16

2-5/16

2-9/16

2-9/16

2-11/16

2-11/16

2-13/16

2-13/16

2-3/4

2-3/4

2-3/4

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2-3/4
5 WIRING DIAGRAM

MSZ-HM09NA MSZ-HM12NA MSZ-HM15NA

MSZ-HM18NA MSZ-HM24NA

OBH746B
6 REFRIGERANT SYSTEM DIAGRAM

MSZ-HM09NA MSZ-HM12NA MSZ-HM15NA

Unit: inch (mm)

- Refrigerant pipe ø3/8 (ø9.52) (MSZ-HM09/12NA) (with heat insulator)
- ø1/2 (ø12.7) (MSZ-HM15NA)
- Flared connection
- Flared connection
- Refrigerant pipe ø1/4 (ø6.35) (with heat insulator)

- Refrigerant flow in cooling
- Refrigerant flow in heating

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

Room temperature thermistor RT11

MSZ-HM18NA MSZ-HM24NA

- Refrigerant pipe ø1/2 (ø12.7) (MSZ-HM18NA) (with heat insulator)
- ø5/8 (ø15.88) (MSZ-HM24NA)
- Flared connection
- Flared connection
- Refrigerant pipe ø1/4 (ø6.35) (MSZ-HM18NA) (with heat insulator)
- ø3/8 (ø9.52) (MSZ-HM24NA) (with heat insulator)

- Refrigerant flow in cooling
- Refrigerant flow in heating
7 SERVICE FUNCTIONS

MSZ-HM09NA  MSZ-HM12NA  MSZ-HM15NA  MSZ-HM18NA  MSZ-HM24NA

7-1. TIMER SHORT MODE
For service, the set time can be shortened by bridging of the timer short point on the indoor electronic control P.C. board.
The time will be shortened as follows. (Refer to 9-7.)
• The set time for the ON/OFF timer can be reduced to 1 second for each minute.
• After the breaker is turned on, the time for starting the compressor, which normally takes 3 minutes, can be reduced to 3 seconds. Restarting the compressor, which takes 3 minutes, cannot be reduced.

7-2. REMOTE CONTROLLER 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, the remote controller P.C. boards 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:

```
   J1  J2
```

The remote controller 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>Indoor Unit Number</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>No. 1 unit</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>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 been 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 disable “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. (HM09/12/15NA)
   - Cut the Jumper wire JR77 on the indoor electronic control P.C. board. (HM18/24NA) (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 turned 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 the breaker from tripping 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-HM09NA MSZ-HM12NA MSZ-HM15NA MSZ-HM18NA MSZ-HM24NA

WIRELESS REMOTE CONTROLLER

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>Lighted</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>Blinking</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>Not lighted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8-1. COOL (C) OPERATION
(1) Press STOP/OPERATE (OFF/ON) 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.
8-2. DRY ($) OPERATION
(1) Press STOP/OPERATE (OFF/ON) 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 works the same way as that in COOL mode. (8-1.1.)

8-3. HEAT ($) OPERATION
(1) Press STOP/OPERATE (OFF/ON) 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 tem-
   perature 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 con-
   densing 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. 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.

   (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.
      Confirmation of standard position is performed in the following cases:
      (a) When the operation starts or finishes (including timer operation).
      (b) When the test run starts.
      (c) When standby mode (only during multi system operation) starts or finishes.
(4) VANE AUTO (⊗) mode
In VANE AUTO mode, the microprocessor automatically determines the vane angle to make the optimum room temperature distribution.

**MSZ-HM09/12/15NA**
- In COOL and DRY operation
  - Vane angle is fixed to Horizontal position.
- In HEAT operation
  - Vane angle is fixed to Angle 5.

**MSZ-HM18/24NA**
- 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 STOP/OPERATE (OFF/ON) 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 0.5 - 1 hour, the vane angle automatically changes to Angle 2 for dew prevention.

(7) SWING (/rand) mode
By selecting SWING mode with VANE CONTROL button, the horizontal vane swings vertically.

(8) Cold air prevention in HEAT operation.
The horizontal vane position is set to Upward.

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

(9) ECONO COOL (⊗) 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 change to other operation mode.

8-5. TIMER OPERATION (ON/OFF TIMER)

1. How to set the timer
(1) Press STOP/OPERATE (OFF/ON) button to start the air conditioner.
(2) Select the timer mode by pressing the button during operation.
   - Each time this button is pressed, the timer mode is changed in sequence:
     - Ø → Ø → I
   - TIMER RELEASE
(3) Set the time of the timer using the button.
   - Each time this button is pressed, the set time increase or decrease by 1 hour to 12 hours.

2. To release the timer
   - Press the button until Ø → (OFF TIMER) and Ø → I (ON TIMER) are not displayed.

**NOTE:**
- The OFF TIMER and the ON TIMER cannot be set at the same time.
- The displayed time is the time remaining and will decrease in 1-hour increments as time passes.

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8-6. EMERGENCY/TEST OPERATION
In the 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 or has failed, or when the batteries in the remote controller are running down. The unit will start and OPERATION INDICATOR lamp will light up. The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan runs at High speed and the temperature control does not work. After 30 minutes of test run operation, the system shifts to EMERGENCY COOL/HEAT MODE with a set temperature of 75°F (24°C). The fan speed shifts to Med. The coil frost prevention works even in the test run or the emergency operation. In the test run or emergency operation, the horizontal vane operates in VANE AUTO (p) mode. Emergency operation continues until EMERGENCY OPERATION switch is pressed once or twice or the unit receives any signal from the remote controller. In the latter case, normal operation will start.

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

8-7. 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.

8-8. 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 while the TEMPERATURE buttons are pressed.

Press RESET button gently using a thin instrument.
9 TROUBLESHOOTING

MSZ-HM09NA MSZ-HM12NA MSZ-HM15NA MSZ-HM18NA MSZ-HM24NA

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 connector housing. 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 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 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 back lid and insert batteries. Then reattach the back 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.
   3. Do not use the leaking batteries.
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**

- Turn ON the power supply.
- Preparation of the remote controller:
  1. While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
  2. Hold down the other 2 buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed.
  3. Then release the buttons.

Press STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. 

**Judgment of indoor/outdoor abnormality**

1. Before blinking, does upper lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?
   
   When it stays ON for 3 seconds (without beep):
   
   - The outdoor unit is abnormal.
   
   Check the blinking pattern, and identify the abnormal point by referring to the outdoor unit failure mode recall function. (Refer to outdoor unit service manual.)
   
   Make sure to check at least 2 consecutive blinking cycles.

2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

**Releasing the failure mode recall function**

- Turn OFF the power supply and turn it ON again.
- 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 STOP/OPERATE (OFF/ON) button of the remote controller (the set temperature is displayed) 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 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.

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

1. If the abnormality cannot be found because the abnormality does not recur:
   
   Blinking pattern:
   
   - ON
   - OFF
   - Repeat

   2. Blinking pattern:
   
   - Blinking at 0.5-second interval
   - Beeps
   - Repeat

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

1. Blinking pattern:
   
   - ON
   - OFF
   - No beep
   - Repeat

2. Blinking pattern:
   
   - Blinking at 0.5-second interval
   - Beeps
   - Repeat
# 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>
</tr>
</thead>
<tbody>
<tr>
<td>Not lighted</td>
<td>Normal</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>
</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>
</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>
</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>
</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>
</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.

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 normally 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 9-7. "Test point diagram and voltage".

Refer to "Check of R.V. coil".

Refer to 9-6. @ "Check of remote controller and indoor electronic control P.C. board".

Refer to 9-6. "How to check inverter/compressor".

Replace the indoor electronic control P.C. board.

Refer to "Check of outdoor controller and outdoor electronic control P.C. board".

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."

Upper lamp Flash ON and OFF at 0.5-second intervals. Cause: Indoor/Outdoor unit • Miewing or trouble of serial signal.

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

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

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

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

Upper lamp 6-time flash. Cause: Outdoor unit • Trouble of outdoor fan system abnormality.

Upper lamp 7-time flash. Cause: Outdoor unit • Trouble of thermistor in outdoor unit.

Upper lamp 8-time flash or more. Cause: Outdoor unit • Other abnormality

Refer to 9-6. @ "How to check miswiring and serial signal error".

Check room temperature thermometer and indoor coil thermometer. Refer to 9-7. "Test point diagram and voltage".

Refer to 9-6. @ "Check of indoor fan motor".

Replace the indoor electronic controller P.C. board.

Refer to "Check of outdoor controllers".

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.

Refer to outdoor unit service manual.

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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&lt;br&gt;Upper lamp flashes. 0.5-second OFF</td>
<td>The serial signal from the outdoor unit is not received for 8 minutes.</td>
<td>- Refer to 9-6. &quot;How to check miswiring and serial signal error&quot;.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Indoor coil thermistor&lt;br&gt;Room temperature thermistor</td>
<td>Upper lamp flashes. 2-time flash&lt;br&gt;Upper lamp flashes. 2-time 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 (9-7).</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Indoor fan motor</td>
<td>Upper lamp flashes. 3-time flash&lt;br&gt;Upper lamp flashes. 3-time OFF</td>
<td>The rotational frequency feedback signal is not emitted during the indoor fan operation.</td>
<td>- Refer to 9-6. &quot;Check of indoor fan motor&quot;.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Indoor control system</td>
<td>Upper lamp flashes. 4-time flash&lt;br&gt;Upper lamp flashes. 4-time OFF</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&lt;br&gt;Upper lamp flashes. 5-time 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>Upper lamp flashes. 6-time flash&lt;br&gt;Upper lamp flashes. 6-time 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>Upper lamp flashes. 7-time flash&lt;br&gt;Upper lamp flashes. 7-time 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>Upper lamp flashes. 14-time flash or more&lt;br&gt;Upper lamp flashes. 14-time OFF</td>
<td>An abnormality other than above mentioned is detected.</td>
<td>- Check the stop valve. Check the 4-way valve. Check 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. X</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>
## 9-5. TROUBLE CRITERION OF MAIN PARTS

### MSZ-HM09NA MSZ-HM12NA MSZ-HM15NA MSZ-HM18NA MSZ-HM24NA

<table>
<thead>
<tr>
<th>Part name</th>
<th>Check method and criterion</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature thermistor (RT11)</td>
<td>Measure the resistance with a tester. Refer to 9-7. &quot;Test point diagram and voltage&quot;, 1 or 2. &quot;Indoor electronic control P.C. board&quot;, for the chart of thermistor.</td>
<td><img src="image" alt="Figure" /></td>
</tr>
<tr>
<td>Indoor coil thermistor (RT12, RT13)</td>
<td>Measure the resistance between the terminals with a tester. (Part temperature 50 - 86°F (10 - 30°C))</td>
<td><img src="image" alt="Figure" /></td>
</tr>
<tr>
<td>Indoor fan motor (MF)</td>
<td>Check 9-6.</td>
<td><img src="image" alt="Figure" /></td>
</tr>
<tr>
<td>Horizontal vane motor (MV)</td>
<td>Color of the lead wire</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>RED-BLK</td>
<td>223 - 268 Ω</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 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.

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.

- Indoor power P.C. board
  1. Measure the voltage between CN211 (+) and (-).
  2. Measure the voltage between CN211 (+) and (-).
  3. Measure the voltage between CN10A (+) (MSZ-HM09/12/15NA/2) (+) (MSZ-HM18/24NA) 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.

- Indoor electronic control P.C. board
  3. Measure the voltage between CN10A (+) (MSZ-HM09/12/15NA) (+) (MSZ-HM18/24NA) and JPG (GND) (-).

Replace the indoor fan motor.

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

- Measure the voltage between CN211 (+) and (-) while the fan motor is rotating.
- Is it unchanged holding 0 or 15 VDC?
  - Yes: Replace the indoor fan motor
  - No (Changed): Replace the indoor power P.C. board (MSZ-HM09/12/15NA).
  - No (Unchanged): Replace the indoor electronic control 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 STOP/OPERATE (OFF/ON) button on the remote controller.
- Is LCD display on the remote controller visible?
  - Yes
  - No (Not clear)
  - Replace the batteries. (Refer to 9-1.4.)
- 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.
  - Yes
  - No
  - Replace the indoor electronic control P.C. board. (Including the receiver)

- Turn ON a radio to AM and press STOP/OPERATE (OFF/ON) 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 (1 m)?
        - Yes
          - - Reinstall the unit away from lights.
          - - Attach a filter on receiving part.
        - No
          - Replace the remote controller.

1. Look at the image of the signal transmitting section of the remote controller through the monitor of a digital camera or a camera phone. It is normal if the LED of the signal transmitting section lights up when the STOP/OPERATE (OFF/ON) button on the remote controller is pressed. However, it may be difficult to see the illuminated LED of the signal transmitting section with a smartphone camera.

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

Turn OFF the power supply. Remove indoor fan motor connector CN211 from indoor power P.C. board and vane motor connector CN151 from the indoor electronic control P.C. board and turn ON the power supply.

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

No

Turn OFF the power supply. Check both ‘parts side’ and ‘pattern side’ of the indoor power P.C. board visually.

Yes

Replace the varistor (NR11) and fuse (F11). x3

Is the varistor (NR11) burnt and the fuse (F11) blown?

No

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

Yes

Measure the resistance between CN211 (+) and (-) of indoor fan motor connector. x3

1. The fan motor connector's (+) lead wire is red, whereas (-) is black.
2. Connect '+' of the tester to fan motor connector's (+) lead wire, and '-' to (-) lead wire, otherwise the resistance cannot be measured properly.
3. Please replace the fuse after removing the indoor power P.C. board from the electrical box.

Is the resistance 1MΩ or more?

No

Replace the fuse (F11) and the indoor fan motor. x3

Yes

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

Is there resistance of resistor (R111) approximately 4 Ω?

Yes

Replace the indoor power P.C. board and the indoor fan motor (and the indoor terminal P.C. board (MSZ-HM09/12/15NA)).

No

Is there approximately 5 VDC between 5 V (+) and GND (-) of the indoor electronic control P.C. board? Is there approximately 9 V to 13 VDC between 12 V (+) and GND (-) of the indoor electronic control P.C. board?

Yes

Is the connector CN10A on the indoor electronic control P.C. board or lead wires disconnected?

No

Connect the connector CN10A or repair disconnection.

Yes

Replace the indoor electronic control P.C. board.

No

Replace the indoor power P.C. board and the indoor fan motor. x3

Replace the indoor electronic control P.C. board.
**D How to check miswiring and serial signal error**

**MSZ-HM09/12/15NA**

1. **Turn OFF the power supply.**
2. **Is there rated voltage in the power supply?**
   - Yes
   - No **Check the power supply.**
3. **Turn ON the power supply.**
4. **Is there rated voltage between outdoor terminal block S1 and S2?**
   - Yes
   - No **Check the wiring.**
5. **Press EMERGENCY OPERATION switch once.**
6. **Does the OPERATION INDICATOR lamp light up?**
   - Yes
   - No **Check the wiring.**
7. **Is serial signal error indicated 6 minutes later?**
   - Yes
   - No **Correct them.**
8. **Turn OFF the power supply.**
9. **Check once more if the indoor/outdoor connecting wire is not miswiring.**
10. **Bridge the outdoor terminal block S2 and S3.**
11. **Does the LED on the inverter P.C. board or the outdoor electronic control P.C. board repeat “3.6-second-OFF and 0.8-second-ON quick blinking”?**
   - No **Lighted or not lighted**
   - Yes **Replace the inverter P.C. board or the outdoor electronic control P.C. board.**
12. **Is there rated voltage between indoor terminal block S1 and S2?**
    - Yes
    - No **Check the wiring.**
13. **Is there amplitude of 10 to 20 VDC between indoor terminal block S2 and S3?**
    - Yes
    - No **Check the wiring.**
14. **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.)**
    - Yes
    - No **Check of power supply.**
15. **Remove the bridge between outdoor terminal block S2 and S3.**
16. **Turn ON the power supply.**
17. **Is there rated voltage between indoor terminal block S1 and S2?**
    - Yes
    - No **Check the wiring.**
18. **Is there 2 VDC or less between CN10A(+) and JPG (GND)(-) on the indoor electronic control P.C. board?**
    - Yes
    - No **Replace the indoor electronic control P.C. board.**
19. **Is there 2 VDC or less between CN10A(+) and JPG (GND)(-) on the indoor electronic control P.C. board?**
    - Yes
    - No **Replace the indoor electronic control P.C. board.**
20. **Is there 2 VDC or less between CN10A(+) and JPG (GND)(-) on the indoor electronic control P.C. board?**
    - Yes
    - No **Replace the indoor electronic control P.C. board.**
21. **Is there 2 VDC or less between CN10A(+) and JPG (GND)(-) on the indoor electronic control P.C. board?**
    - Yes
    - No **Replace the indoor electronic control P.C. board.**
MSZ-HM18/24NA

Turn OFF the power supply.

Is there rated voltage in the power supply?  
No → Check the power supply.  

Turn ON the power supply.

Is there rated voltage between outdoor terminal block S1 and S2?  
No → Check the wiring.  

Press EMERGENCY OPERATION switch once.

Does the OPERATION INDICATOR lamp light up? <Confirmation of the power to the indoor unit>  
Yes → Turn OFF the power supply.  

Is serial signal error indicated 6 minutes later?  
Yes → Press EMERGENCY OPERATION switch once.  

Is there any miswiring, poor contact, or wire disconnection of the indoor/outdoor connecting wire?  
Yes → Correct them.  

No → Turn OFF the power supply.  

Is the bus-bar voltage of the inverter P.C. board normal? (Refer to "TEST POINT DIAGRAM AND VOLTAGE" in the outdoor service manual.)  
Yes → Does the LED on the inverter P.C. board repeat "3.6-second-OFF and 0.8-second-ON quick blinking"?  

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

No (Lighted or not lighted) → Replace the inverter P.C. board or the outdoor electronic control P.C. board.

2) Be careful of the residual voltage of smoothing capacitor.

Is the bus-bar voltage of the inverter P.C. board normal? (Refer to "TEST POINT DIAGRAM AND VOLTAGE" in the outdoor service manual.)  
No → Is there amplitude of 10 to 20 VDC between the indoor terminal block S2 and S3? <Confirmation of serial signal>  

Yes → Is there 2 VDC or less between CN10A (+) and GND (-) on the indoor electronic control P.C. board?  

Yes → Replace the indoor power P.C. board.  

No → Replace the indoor electronic control P.C. board.  

No → Is there 2 VDC or less between CN10A (+) and GND (-) on the indoor electronic control P.C. board?  

Yes → Replace the indoor power P.C. board.  

No → Replace the indoor electronic control P.C. board.
### Electromagnetic noise enters into TV sets or radios

1. **Is the unit grounded?**
   - Yes
   - No → Ground the unit.

2. **Is the distance between the antennas and the indoor unit within 9.91 ft. (3 m), or is the distance between the antennas and the outdoor unit within 9.91 ft. (3 m)?**
   - Yes
   - No → Extend the distance between the antennas and the indoor unit, and/or the antennas and the outdoor unit.

3. **Is the distance between the TV sets or radios and the indoor unit within 3.28 ft. (1 m), or is the distance between the TV sets or radios and the outdoor unit within 9.91 ft. (3 m)?**
   - Yes
   - No → Extend the distance between the TV sets and/or radios and the indoor unit, or the TV sets or radios and the outdoor unit.

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

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

6. **Is there any poor contact in the antenna wiring?**
   - Yes → Replace or repair the coaxial cable.
   - No

7. **Is the indoor/outdoor connecting wire of the air conditioner and the wiring of the antennas close?**
   - Yes → Extend the distance between the indoor/outdoor connecting wire of the air conditioner and the wiring of the antennas.
   - No

Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring). Check the 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 STOP/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 STOP/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
MSZ-HM09/12/15NA

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

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

MSZ-HM09/12/15NA

2. Indoor electronic control P.C. board

- To disable "Auto restart function", solder the Jumper wire to JR07. (Refer to 7-3.)
MSZ-HM18NA MSZ-HM24NA

1. Indoor power P.C. board

- 12V DC
- 5V DC
- Connector to Indoor electronic control P.C. board (CN20A)
- Connector to Indoor fan motor (CN211)
- 294/325 VDC
- (+) 0 or 15 VDC
- (-) GND (High voltage DC)
- Resistor (R111)
- Connector to Terminal block (CN201)
- Fuse (F11)
- T3.15AL250V
- Varistor (NR11)

2. Indoor electronic control P.C. board

- Room temperature thermistor RT11 (CN111)
- To disable "Auto restart function", cut the jumper wire to JR77. (Refer to 7-3.)
- Vane motor (CN151)
- 5V DC
- Emergency operation switch (E.O. SW) (SW1)
- 12V DC

- Connector to Indoor coil thermistor RT12, RT13 (CN112)
- Timer short mode point (Refer to 7-1.)
- Connector to indoor power P.C. board (CN10A)

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

OBH746B
### 10 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>
The terminal which has the locking mechanism can be detached as shown below.
There are 2 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. Slide the sleeve and check if there is a locking lever or not.
   2. The terminal with this connector has the locking mechanism.

   ![Sleeve Diagram]

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

![Terminal Diagram]

1.  Hold the sleeve, and pull out the terminal slowly.

#### 10-1. MSZ-HM09NA MSZ-HM12NA MSZ-HM15NA

**NOTE:** Turn OFF the power supply before disassembly.

<table>
<thead>
<tr>
<th>OPERATING PROCEDURE</th>
<th>PHOTOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Removing the panel</td>
<td>![Photo 1]</td>
</tr>
<tr>
<td>(1) Remove the horizontal vanes.</td>
<td>![Horizontal vanes]</td>
</tr>
<tr>
<td>(2) Remove the screw caps of the panel. Remove the screws of the panel.</td>
<td>![Front panel]</td>
</tr>
<tr>
<td>(3) Unhook the lower part of the panel.</td>
<td>![Screws of the panel]</td>
</tr>
<tr>
<td>(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.</td>
<td></td>
</tr>
</tbody>
</table>

OBH746B
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) Loosen the screw of the indoor/outdoor connecting wire and remove the indoor/outdoor connecting wire.
(4) Remove the screw of the electrical cover and the electrical cover.
(5) Open the indoor electronic control P.C. board holder (to right side)
(6) Disconnect the following connectors:
   - Indoor electronic control P.C. board
     CN112 (Indoor coil thermistor)
     CN151 (Vane motor)
     CN10A (To the indoor power P.C. board)
(7) Unhook the catches of the indoor electronic control P.C. board holder from the nozzle and the electrical box (right side).
(8) Remove the indoor electronic control P.C. board holder from the conduit cover.
(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. Removing 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 and the indoor electric control P.C. board holder. (Refer to 2 (2)-(6)).
(3) Remove the screw of the conduit cover and the conduit cover.
(4) Remove the screw of the conduit plate and the conduit plate.
(5) Remove the ground wire connected to the indoor heat exchanger from the electrical box.
(6) Remove the screw fixing the electrical box.
(7) Unhook first the lower, then the upper catches of the electrical box, and pull out the electrical box.
(8) Disconnect all the connectors on the indoor power P.C. board and unhook all lead wires.
(9) Remove the screw of terminal block on the indoor terminal P.C. board.
(10) Remove the indoor power P.C. board and the indoor terminal P.C. board.
**OPERATING PROCEDURE**

4. Removing the nozzle assembly
   (1) Remove the panel (Refer to 1.) and the corner box.
   (2) Remove the indoor/outdoor connecting wire (Refer to 2 (2)-(7)).
   (3) Remove the indoor electronic control P.C. board holder.
   (4) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.

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

**PHOTOS**

<table>
<thead>
<tr>
<th>Photo 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Screws_of_horizontal_vane_motor_unit" alt="Horizontal Vane Motor Unit" /></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 9)
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.

* When attaching the line flow fan, screw the line flow fan so 5/32 inch (4 mm) gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

<table>
<thead>
<tr>
<th>PHOTOGRAPHIC DATA</th>
<th>PHOTOS</th>
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</thead>
<tbody>
<tr>
<td>Photo 6</td>
<td>![Photo 6](Photo 6)</td>
</tr>
<tr>
<td>Photo 7</td>
<td>![Photo 7](Photo 7)</td>
</tr>
<tr>
<td>Photo 8</td>
<td>![Photo 8](Photo 8)</td>
</tr>
<tr>
<td>Photo 9</td>
<td>![Photo 9](Photo 9)</td>
</tr>
</tbody>
</table>

### Figure 1

[Diagram of 5/32 inch (4 mm) gap]

### Photo 9

[Diagram showing indoor coil thermistor (sub) RT13 and indoor coil thermistor (main) RT12]
## 10-2. MSZ-HM18NA MSZ-HM24NA

**NOTE:** Turn OFF the power supply before disassembly.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Removing the panel</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Remove the screw caps on the panel and remove the screws of the panel.</td>
<td></td>
</tr>
<tr>
<td>(2) Pull the panel slightly toward you, and then remove the panel by pushing it upward.</td>
<td>Photo 1</td>
</tr>
</tbody>
</table>

**Front panel**

**Screws of the panel**

---

**Photo 1**

---

**OBH746B**
2. Removing the indoor power P.C. board and the electrical box
   (1) Remove the panel. (Refer to 1.) Remove the right corner box.
   (2) Disconnect the following connectors:
       <Indoor electronic control P.C. board>
       CN151 (Vane motor)
       CN112 (Indoor coil thermistor)
       CN10A (To the indoor power P.C. board)
   (3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
   (4) Remove the screw of the V.A. clamp.
   (5) Remove the V.A. clamp and the indoor/outdoor connecting wire.
   (6) Remove the screw of the conduit cover and the conduit cover.
   (7) Remove the screw of the conduit plate and the conduit plate.
   (8) Remove the screw fixing the electrical box.
   (9) Remove the screws of the ground plate. (Photo 2)
   (10) Remove the indoor coil thermistor from the water cover.
   (11) Disengage the hooks of the water cover and remove the water cover.
   (12) Remove the screw of the electrical cover and remove the electrical cover.
   (13) Disconnect the CN211 (Indoor fan motor) from the indoor power P.C. board.
   (14) Remove the upper catch of the electrical box, and pull out the electrical box.
   * To attach the electrical box, pass the wires connecting the indoor power P.C. board and the indoor electronic control P.C. board through A. Pass the lead wires of the fan motor through B as shown in the Photo 3.
   (15) Disconnect the following connectors:
       <Indoor power P.C. board>
       CN201 (Terminal block)
       CN20A (To the indoor electronic control P.C. board)

Photo 2
- Screws of the ground plate
- Water cover
- Screw of the electrical cover
- Screw of the V.A. clamp
- Indoor coil thermistor
- Indoor coil thermistor connector CN112
- Connector CN10A (To indoor power P.C. board)
- Control P.C. board holder

Photo 3
- Terminal block connector CN201
- Connector CN20A (To indoor electronic P.C. board)
- Indoor fan motor connector CN211
- Electrical box
- Screw of the electrical box
- Screw of the conduit cover

Photo 4
- Screw of the conduit plate
### OPERATING PROCEDURE

#### 3. Removing the indoor electronic control P.C. board

1. Remove the panel. (Refer to 1.) Remove the right corner box.
2. Disconnect the following connectors:
   - CN151 (Vane motor)
   - CN112 (Indoor coil thermistor)
   - CN10A (To the indoor power P.C. board)
3. Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
4. Remove the room temperature thermistor from the back side of the control P.C. board holder.
5. Unhook the catches of the control P.C. board holder, and open the control P.C. board holder.
6. Remove the indoor electronic control P.C. board from the control P.C. board holder.

#### 4. Removing the vane motor

1. Remove the panel. (Refer to 1.) Remove the corner box.
2. Remove the control P.C. board holder, water cover and the electrical box. (Refer to 2.)
3. Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
4. Remove the screws of the vane motor and remove the vane motor.
5. Disconnect the connector from the vane motor.

### PHOTOS

**Photo 5**
- Control P.C. board holder (Inside)
- Control P.C. board holder (Back side)
- Room temperature thermistor

**Photo 6**
- Screws of the vane motor
5. Removing the indoor fan motor, the indoor coil thermistor and the line flow fan

(1) Remove the panel. (Refer to 1.) Remove the right corner box.
(2) Remove the control P.C. board holder, the water cover, the electrical box and the nozzle assembly. (Refer to 2.)
(3) Remove the screws fixing the motor bed.
(4) Loosen the screw fixing the line flow fan.
(5) Remove the motor bed together with the indoor fan motor and the motor band.
(6) Disconnect the lead wire of the fan motor from the motor band.
(7) Disengage 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.
(9) Remove the screws fixing the left side and upper right side of the heat exchanger.
(10) Lift the heat exchanger, and pull out the line flow fan to the lower-left.
* When attaching the line flow fan, screw the line flow fan so 5/32 inch (4 mm) gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

Figure 1

![Figure 1](image)

5/32 inch (4 mm)

Photo 10

Screws of the left side of the heat exchanger

PHOTOS

Photo 7

Screw of the line flow fan

Photo 8

Screws of the motor bed

Photo 9

Screw of the upper right side of the heat exchanger
Fixing the indoor coil thermistor

There are 2 forms of parts for fixing the indoor coil thermistor.

**Clip shape**

**Holder shape**

When fixing the indoor coil thermistor to the clip-shape/holder-shape part, the lead wire should point down.

**Position and procedure for mounting the clip-shape part**

1. Set the indoor coil thermistor in the center of the clip-shape part.
2. Check the (marked) mounting position.
3. Mount the clip-shape part.

**NOTE:**

- Take care to avoid loss and accidental falling of the clip-shape part inside the unit.
- Mount the clip-shape part on the marked position.
- Do not pull the lead wire when removing the indoor coil thermistor.