MITSUBISHI ELECTRIC

Split-type Air-Conditioner
MXZ-4A80VA
MXZ-5A100VA

INSTALLATION MANUAL

- Refer to the installation manual of each indoor unit for indoor unit installation.

IMPORTANT NOTES
TO COMPLY WITH THE REQUIREMENTS OF AUSTRALIAN STANDARD AS 3000 S.A.A. WIRING RULES, THE ELECTRICAL WIRING REQUIRED BETWEEN THE INDOOR AND OUTDOOR UNITS MUST BE INSTALLED BY A LICENCED ELECTRICAL CONTRACTOR.

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FOR INSTALLER
1. BEFORE INSTALLATION

1-1. THE FOLLOWING SHOULD ALWAYS BE OBSERVED FOR SAFETY

- Be sure to read "THE FOLLOWING SHOULD ALWAYS BE OBSERVED FOR SAFETY" before installing the air conditioner.
- Be sure to observe the warnings and cautions specified here as they include important items related to safety.
- After reading this manual, be sure to keep it together with the OPERATING INSTRUCTIONS for future reference.

**WARNING**
(Could lead to death, serious injury, etc.)

[Details of warnings are not provided in the image.]

**CAUTION**
(Could lead to serious injury in particular environments when operated incorrectly)

[Details of cautions are not provided in the image.]

1-2. REQUIRED TOOLS FOR INSTALLATION

- Phillips screwdriver
- Torque wrench
- Level
- Scale
- Utility knife or scissors
- Flare tool for R410A
- Gauge manifold for R410A
- Vacuum pump for R410A
- Charge hose for R410A
- Pipe cutter with reamer

1-3. SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Power supply *1</th>
<th>Wire specifications *2</th>
<th>Pipe length and height difference *4, *5, *6, *10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rated Voltage</td>
<td>Frequency</td>
<td>Power supply</td>
</tr>
<tr>
<td>MXZ-4AB0VA</td>
<td>220 V</td>
<td>60 Hz</td>
<td>25 A</td>
</tr>
<tr>
<td>MXZ-8AB0VA</td>
<td>220 V</td>
<td>60 Hz</td>
<td>25 A</td>
</tr>
</tbody>
</table>

*1 Connect to the power switch which has a gap of 3 mm or more when open to interrupt the source power phase. (When the power switch is shut off, it must interrupt all phases.)
*2 Use wires in conformity with design 00245 IEC 57.
*3 Never use pipes with thickness less than specified. The pressure resistance will be insufficient.
*4 Use a copper pipe or a copper-alloy seamless pipe.
*5 Be careful not to crush or bend the pipe during pipe bending.
*6 If refrigerant pipe bending radius must be 100 mm or more.
*7 If pipe length exceeds 40 m, additional refrigerant (R410A) charge is required.
*8 Insulation material: Heat-resistant foam plastic 0.045 specific gravity
*9 Be sure to use the insulation of specified thickness. Excessive thickness may cause incorrect installation of the indoor unit and insufficient thickness may cause dew dropage.
*10 If the outdoor unit is installed higher than the indoor unit, max. height difference is reduced to 10 m.
1-4. SELECTING PIPE SIZE AND OPTIONAL DIFFERENT-DIAMETER JOINTS

The diameter of connection pipes differs according to the type and capacity of indoor units. Match the diameters of connection pipes for indoor and outdoor units according to the following table.

- If the diameter of connection pipes does not match the diameter of pipe end connections, use optional different-diameter joints.

<table>
<thead>
<tr>
<th>Outdoor unit</th>
<th>22/25/35</th>
<th>50</th>
<th>60</th>
<th>71</th>
</tr>
</thead>
</table>

*MXZ-5A100V only

1-5. SELECTING THE INSTALLATION LOCATION

- Where it is not exposed to strong wind.
- Where airflow is good and dustless.
- Where rain or direct sunshine can be avoided as much as possible.
- Where neighbours are not annoyed by operation sound or hot air.
- Where rigid wall or support is available to prevent the increase of operation sound or vibration.
- Where there is no risk of combustible gas leakage.
- When installing the unit at a high level, be sure to secure the unit legs.
- Where it is at least 3 m away from the antennas of TV set or radio. Operation of the air conditioner may interfere with radio or TV reception in areas where reception is weak. An amplifier may be required for the affected device.
- Install the unit horizontally.
- Please install it in an area not affected by snowfall or blowing snow. In areas with heavy snow, please install a canopy, a pedestal and/or some baffle boards.

Note:
It is advisable to make a piping loop near outdoor unit so as to reduce vibration transmitted from there.

FREE SPACE REQUIRED AROUND OUTDOOR UNIT

1. Top side obstacles
When there is an obstacle behind the rear side only, it does not matter if there is an obstacle over the top side as shown in the figure below.

2. Front (blowing) side open
As long as space like the one shown in the figure below can be maintained, it does not matter if there are obstacles in three directions (but top side is open).

3. Obstacles on front (blowing) side only
In this case, the rear, both sides and top should be open.

4. Obstacles on front and rear side only
The unit can be used by attaching an optional outdoor blowing guide (MAC-8533SG) (but both sides and top are open).

5. Service space
Keep the service space as shown in the figure below for maintenance.

- When installing the unit in an area that is enclosed on four sides such as a verandah, be sure to leave more than 200 mm behind the unit as shown.
- When there is a lack of airflow or there is a possibility of becoming short cycle, install an outlet guide and make sure there is enough space behind the rear side of the air inlet.

Note:
Make sure not to install several outdoor units side by side next to each other.
1-6. INSTALLATION DIAGRAM

PARTS TO BE PROVIDED AT YOUR SITE

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply cord*</td>
<td>1</td>
</tr>
<tr>
<td>Indoor/outdoor unit connecting wire*</td>
<td>1</td>
</tr>
<tr>
<td>Extension pipe (Refer to 1-6.)</td>
<td>1</td>
</tr>
<tr>
<td>Wall hole cover</td>
<td>1</td>
</tr>
<tr>
<td>Piping tape</td>
<td>1</td>
</tr>
<tr>
<td>Extension drain hose</td>
<td>1</td>
</tr>
<tr>
<td>Soft PVC hose, 15 mm inner dia. or hard PVC pipe VP16</td>
<td>1</td>
</tr>
<tr>
<td>Refrigeration oil</td>
<td>Little amount</td>
</tr>
<tr>
<td>Putty</td>
<td>1</td>
</tr>
<tr>
<td>Pipe fixing band</td>
<td>2 to 7</td>
</tr>
<tr>
<td>Fixing screw for (I)</td>
<td>2 to 7</td>
</tr>
<tr>
<td>Wall hole sleeve</td>
<td>1</td>
</tr>
<tr>
<td>Soft PVC hose, 25 mm inner dia. or hard PVC pipe VP25</td>
<td>1</td>
</tr>
</tbody>
</table>

* Note:
Place indoor/outdoor unit connecting wire (B) and power supply cord (A) at least 1 m away from the TV antenna wire.
The "Qty" for (B) to (K) in the above table is quantity to be used per indoor unit.

Units should be installed by licensed contractor according to local code requirements.

Outdoor unit installation:
- 2-U-shape notched holes (Base bolt M10)
- 2 - 12 mm x 38 mm oval holes (Base bolt M10)

1-7. MOUNTING ARRANGEMENT OF DRAIN SOCKET

Please perform the drain piping work only when draining from one place.

1. Choose one hole to discharge drain and install the drain socket to the hole.
2. Close the rest of the holes with the drain caps.
3. Connect a vinyl hose of 25 mm in the inside diameter on the market with the drain socket and lead drain.

Note:
Do not use the drain socket and the drain cap in the cold region.
Drain may freeze and it makes the fan stop.
2. OUTDOOR UNIT INSTALLATION

2-1. INSTALLING THE UNIT
- Be sure to fix the unit's legs with bolts when installing it.
- Be sure to install the unit firmly to ensure that it does not fall by an earthquake or a gust.
- Refer to the figures in the right for concrete foundation.
- Do not use the drain socket end the drain cap in the cold region. Drain may freeze and it makes the fan stop.

2-2. CONNECTING WIRES FOR OUTDOOR UNIT
1) Remove the service panel.
2) Loosen terminal screw, and connect indoor/outdoor unit connecting wire (B) from the indoor unit correctly on the terminal block. Be careful not to make mis-wiring. Fix the wire to the terminal block securely so that no part of its core is appeared, and no external force is conveyed to the connecting section of the terminal block.
3) Firmly tighten the terminal screws to prevent them from loosening. After tightening, pull the wires lightly to confirm that they do not move.
4) Perform (2) and (3) for each outdoor unit.
5) Connect power supply cord (A).
6) Fix indoor/outdoor unit connecting wire (B) and power supply cord (A) with the cable clamps.
7) Close the service panel securely. Make sure that 3-2. PIPE CONNECTION is completed.
   • After making connections between both power supply cord (A) and indoor/outdoor unit connecting wire (B), be sure to fix both cable and wire with cable clamps.

Connecting order
• Connect the terminal block in order, from the A, B and C unit side.

* Make earth wire a little longer than others. (More than 35 mm)
* For future servicing, give extra length to the connecting wires.
3. FLARING WORK AND PIPE CONNECTION

3-1. FLARING WORK
1) Cut the copper pipe correctly with pipe cutter. (Fig. 1, 2)
2) Completely remove all burrs from the cut cross section of pipe. (Fig. 3)
   - Put the end of the copper pipe to downward direction as you remove burrs in order to avoid letting burrs drop in the piping.
3) Remove flare nuts attached to indoor and outdoor units, then put them on pipe having completed burr removal. (Not possible to put them on after flaring work.)
4) Flaring work (Fig. 4, 5). Firmly hold copper pipe in the dimension shown in the table. Select A mm from the table according to the tool you use.
5) Check
   - Compare the flared work with Fig. 6.
   - If flare is noted to be defective, cut off the flared section and do flaring work again.

<table>
<thead>
<tr>
<th>Pipe diameter (mm)</th>
<th>Nut (mm)</th>
<th>Clutch type tool for R410A</th>
<th>Clutch type tool for R22</th>
<th>Wing nut type tool for R22</th>
<th>Tightening torque</th>
<th>Nm</th>
<th>kgf·cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø6.35 (1/4&quot;)</td>
<td>17</td>
<td>0 to 0.5</td>
<td>1.0 to 1.5</td>
<td>1.5 to 2.0</td>
<td>13.7 to 17.7</td>
<td>140 to 160</td>
<td></td>
</tr>
<tr>
<td>ø8.52 (5/16&quot;)</td>
<td>22</td>
<td>2.0 to 2.5</td>
<td>49.0 to 56.4</td>
<td>50 to 575</td>
<td>73.5 to 78.4</td>
<td>730 to 820</td>
<td></td>
</tr>
<tr>
<td>ø12.77 (1/2&quot;)</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø15.88 (5/8&quot;)</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3-2. PIPE CONNECTION
- Fasten flare nut with a torque wrench as specified in the table.
- When fastened too tight, flare nut may bake after a long period and cause refrigerant leakage.

Outdoor unit connection
Connect pipes to stop valve pipe joint of the outdoor unit in the same manner applied for indoor unit.
- For tightening, use a torque wrench or spanner and use the same tightening torque applied for indoor unit.

3-3. INSULATION AND TAPING
1) Cover piping joints with pipe cover.
2) For outdoor unit side, securely insulate every piping including valves.
3) Using piping tape (E), apply taping starting from the entry of outdoor unit.
   - Stop the end of piping tape (E) with tape (with adhesive agent attached)
   - When piping have to be arranged through above ceiling, closed or where the temperature and humidity are high, wind additional commercially sold insulation to prevent condensation.

4. PURGING PROCEDURES, LEAK TEST, AND TEST RUN

4-1. PURGING PROCEDURES AND LEAK TEST
1) Remove service port cap of stop valve on the side of the outdoor unit gas pipe. (The stop valve will not work in its initial state fresh out of the factory. Loosely close with cap on.)
2) Connect gauge manifold valve and vacuum pump to service port of stop valve on the gas pipe side of the outdoor unit.
3) Run the vacuum pump. (Vacuumize for more than 15 minutes.)
4) Check the vacuum with gauge manifold valve, then close gauge manifold valve, and stop the vacuum pump.
5) Leave as it is for one or two minutes. Make sure pointer gauge manifold valve remains in the same position. Confirm that pressure gauge shows 0.101 Mpa (Gauge) (~780 mmHg).
6) Remove gauge manifold valve quickly from service port of stop valve.
7) After refrigerant pipes are connected and evacuated, fully open all stop valves on both sides of gas pipe and liquid pipe. Operating without fully opening lowers the performance and this causes trouble.
8) Refer to 4-4, and charge the prescribed amount of refrigerant if needed. Be sure to charge slowly with liquid refrigerant. Otherwise, composition of the refrigerant in the system may be changed and affect performance of the air conditioner.
9) Tighten cap of service port to obtain the initial status.
10) Leak test

4-2. LEAK TEST
1) Turn valve to Open (OPEN) and turn control valve to Open (OPEN).
2) Fully open service port cap (Torque 13.7 to 17.7 Nm, 140 to 190 kgf·cm).
3) Charge refrigerant for 4 minutes (~600 mmHg).
4) Charge refrigerant for 1 minute (~780 mmHg).
5) Turn valve to Close (CLOSE), and turn control valve to Close (CLOSE).
6) Vacume pump for 20 minutes.

4-3. TEST RUN
- When attaching the control valve to the service port, valve core may deform or loosen if excess pressure is applied. This may cause gas leak.
4-2. GAS CHARGE
Perform gas charge to unit.
1. Connect gas cylinder to the service port of stop valve.
2. Perform air purge of the pipe (or hose) coming from refrigerant gas cylinder.
3. Replenish specified amount of the refrigerant, while operating the air conditioner for cooling.

Note:
In case of adding refrigerant, comply with the quantity specified for the refrigerating cycle.

CAUTION:
When charging the refrigerant system with additional refrigerant, be sure to use liquid refrigerant. Adding gas refrigerant may change the composition of the refrigerant in the system and affect normal operation of the air conditioner. Also, charge the system slowly, otherwise the compressor will be locked.
To maintain the high pressure of the gas cylinder, warm the gas cylinder with warm water (under 40°C) during cold season. But never use naked fire or steam.

4-3. LOCKING THE OPERATION MODE OF THE AIR CONDITIONER (COOL, DRY, HEAT)

• Description of the function:
With this function, you can lock the operation mode of the outdoor unit. Once the operation mode is locked to either COOL/DRY mode or HEAT mode, the air conditioner operates in that mode only.
Initial setting is required to activate this function. Please explain about this function to your customers and ask them whether they want to use it.

[How to lock the operation mode]
1. Be sure to turn off the main power for the air conditioner before making the setting.
2. Set the 1st Dip Switch of SW1 on the outdoor controller board to ON to enable this function.
3. To lock the operation mode in COOL/DRY mode, set the 2nd Dip Switch of SW1 on the outdoor controller board to OFF. To lock the operation in HEAT mode, set the same switch to ON.
4. Turn on the main power for the air conditioner.

4-4. LOWERING THE OPERATION NOISE OF THE OUTDOOR UNIT

• Description of the function:
With this function, you can lower the operating noise of the outdoor unit when the operation load is small, for example, during nighttime in COOL mode. However, please note that the cooling and heating capacity can also be lowered if this function is activated.
Initial setting is required to activate this function. Please explain about this function to your customers and ask them whether they want to use it.

[How to lower the operating noise]
1. Be sure to turn off the main power for the air conditioner before making the setting.
2. Set the 3rd Dip Switch of SW1 on the outdoor controller board to ON to enable this function.
3. Turn on the main power for the air conditioner.
4-5. CHANGING THE AMPERE LIMIT
- Description of the function:
  With this function, you can change the current that flows in the outdoor unit.

Note:
Use this function only when the amount of current exceeds the allowed value.

[How to change the amper limit]
1. Be sure to turn off the main power for the air conditioner before making the setting.
2. Make the setting referring to the table below.
3. Turn on the main power for the air conditioner.

<table>
<thead>
<tr>
<th>SW2</th>
<th>MXZ-5A100VA</th>
<th>MXZ-4A80VA</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5 A</td>
<td>10.5 A</td>
<td></td>
</tr>
<tr>
<td>15.5 A</td>
<td>15.5 A</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>Factory setting</td>
<td>Full</td>
</tr>
</tbody>
</table>

4-6. TEST RUN
- Be sure to perform the test run for each unit. Make sure each indoor unit operates properly following the installation manual attached to the unit.
- If you perform the test run for all indoor units at once, you cannot detect any erroneous connection, if any, of the refrigerant pipes and the indoor/outdoor unit connecting wires.

About the restart protective mechanism
Once the compressor stops, the restart preventive device operates so the compressor will not operate for 3 minutes to protect the air conditioner.

Wiring/piping correction function
This unit has a wiring/piping correction function which corrects wiring and piping combination. When there is possibility of incorrect wiring and piping combination, and confirming the combination is difficult, use this function to detect and correct the combination by following the procedures below.

Make sure that the following is done.
- Power is supplied to the unit.
- Stop valves are open.

Note:
During detection, the operation of the indoor unit is controlled by the outdoor unit. During detection, the indoor unit automatically stops operation. This is not a malfunction.
Procedure
Press the piping/wiring correction switch (SW871) 1 minute or more after turning on the power supply.

- Correction completes in 10 to 15 minutes. When the correction is completed, its result is shown by LED indication. Details are described in the following table.
- To cancel this function during its operation, press the piping/wiring correction switch (SW871) again.
- When the correction completed without error, do not press the piping/wiring correction switch (SW871) again.

When the result was "cannot be corrected", press the piping/wiring correction switch (SW871) again to cancel this function. Then, confirm the wiring and piping combination in a conventional manner by operating the indoor units one by one.

- The operation is done while the power is supplied. Make sure not to contact parts other than the switch, including the P.C. board. This may cause electric shock or burn by hot parts and live parts around the switch. Contacting the live parts may cause P.C. board damage.
- To prevent electronic control P.C. board damage, make sure to perform static elimination before operating this function.

4-7. EXPLANATION TO THE USER
- Using the OPERATING INSTRUCTIONS, explain to the user how to use the air conditioner (how to use the remote controller, how to remove the air filters, how to remove or put the remote controller in the remote controller holder, how to clean, precautions for operation, etc.)
- Recommend the user to read the OPERATING INSTRUCTIONS carefully.

<table>
<thead>
<tr>
<th>LED Indication during detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Red)</td>
</tr>
<tr>
<td>Lighted</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result of piping/wiring correction function</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Lighted</td>
</tr>
<tr>
<td>Blinking</td>
</tr>
</tbody>
</table>

Other indications Refer to "SAFETY PRECAUTIONS WHEN LED FLASHES" located behind the service panel.