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 read 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.

- Do not install the unit by yourself (user).
- Incomplete installation could cause fire, electric shock, injury due to the unit falling, or leakage of water. Consult the dealer from whom you purchased the unit or a qualified installer.
- Perform the installation securely referring to the installation manual. Incomplete installation could cause fire, electric shock, or injury due to the unit falling, or leakage of water.
- When installing the unit, use appropriate protective equipment and tools for safety.
- Install the unit securely in a place which can bear the weight of the unit. If the installation location cannot bear the weight of the unit, the unit could fall causing injury.
- Electrical work should be performed by a qualified, experienced electrician, according to the installation manual. Be sure to use an exclusive circuit. Do not connect other electrical appliance to the circuit.
- Where the air filter can be removed and replaced easily.
- Where it is easy to operate and easily visible.
- Where airflow is not blocked.
- Where rigid wall or support is available to prevent the indoor unit from falling.
- Be sure to cut off the main power in case of setting up the indoor P.C. board or wiring works.
- Do not damage the wires by applying excessive pressure. Damaged wires could cause fire or electric shock.
- Do not touch the air inlet or the aluminum fins of the outdoor unit. This could cause injury.

1-2. SELECTING THE INSTALLATION LOCATION

INDOOR UNIT
- Where airflow is not blocked.
- Where cool air spreads over the entire room.
- Where it is not exposed to direct sunlight. Do not expose to direct sunlight also during the period following unpacking to be installed. Where easily drained.
- At a place 1 m or more away from your TV and radio. Operation of the air conditioner may interfere with radio or TV reception. An amplifier may be required for the affected device.
- In a place as far away as possible from fluorescent and incandescent lights (so the infrared remote control can operate the air conditioner normally).
- Where the filter can be removed and replaced easily.

REMOTE CONTROLLER
- Where it is easy to operate and easily visible.
- Where children cannot touch it.
- Select a position about 1.2 m above the floor and check that signals from the remote controller are surely received by the indoor unit from that position (beep or "beep" receiving tone sounds). After that, attach remote controller holder to a pillar or wall and install wireless remote controller.

1-3. SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Indoor unit</th>
<th>Outdoor unit</th>
<th>Power supply *1</th>
<th>Wire specifications *2</th>
<th>Pipe size (thickness, **3, **4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSZ-GE60VAD</td>
<td>MZU-GE60VAD</td>
<td>230 V 50 Hz 20 A 3-core</td>
<td>M18 x 1.5</td>
<td>30 m</td>
<td></td>
</tr>
<tr>
<td>MSZ-GE71VAD</td>
<td>MZU-GE71VAD</td>
<td>8 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSZ-GE80VAD</td>
<td>MZU-GE80VAD</td>
<td>8 mm</td>
<td></td>
<td></td>
<td></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 60245 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 Refrigerant piping bending radius must be 100 mm or more.
**7 If pipe length exceeds 10 m, additional refrigerant (R410A) charge is required. (No additional charge is required for pipe length less than 10 m.)

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

- Incomplete connecting and securing could cause fire.
- Do not install the unit in a place where inflammable gas may leak.
- If gas leaks and accumulates in the area around the unit, it could cause fire or an electric shock.
- Do not use intermediate connection of the power cord or the extension cord and do not connect many devices to one AC outlet.
- It could cause a fire or an electric shock due to defective contact, defective insulation, exceeding the permissible current, etc.
- Be sure to use the parts provided or specified parts for the installation work.

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

- When installing the unit, securely connect the refrigerant pipes before disconnecting the compressor.
- If the refrigerant pipes are disconnected while the compressor is running and the stop valve is open, air could be drawn in and in the pressure the refrigeration cycle could become abnormally high. This could cause the pipes to burst or injure people.
- Be sure to observe the warnings and cautions specified here as they include important items related to safety.

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**Note:**

If there is a drainage/piping work, water could drop from the unit to the floor and damage household goods.

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**Warning:**

When operating the air conditioner in low outdoor temperature, be sure to follow the instructions described below.

- Never install the outdoor unit in a place where its air inlet/ outlet side will be exposed directly to wind.
- To prevent exposure to wind, install the outdoor unit with its air intake facing the wall.
- To prevent exposure to wind, it is recommended to install a baffle board on the air outlet side of the outdoor unit.
- The air supply places such as the area around the unit appear troublesome is likely to be occupied.
- Where flammable gas could leak.
- Where there is much machine oil.
- Where oil is splashed or where the area is filled with oily smoke (such as cooking area pump for R410A which the properties of plastic could be changed and damaged).
- Where there are clean places such as the area around the unit appears troublesome.
- Where sulfide gas is generated such as a hot spring.
- Where there is high-frequency or wireless equipment.
- Where there is high-degree of VDCs, including phthalate compounds, formaldehyde, etc., which may cause chemical cracking.

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**Note:**

If refrigerant comes in contact with fire, harmful gas could be generated.

**Check that the refrigerant gas does not leak after installation has been completed.**

If refrigerant gas leaks, it enters indoors, and comes into contact with the flame of a fan heater, space heater, stove, etc., harmful substances will be generated.

**Use appropriate tools and piping materials for installation.**

The pressure of R410A is 1.6 times more than R22. Not using appropriate tools or materials and incomplete installation could cause the pipes to burst or injure people.

**When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes.**

If the refrigerant pipes are disconnected while the compressor is running and the stop valve is open, air could be drawn in and in the pressure the refrigeration cycle could become abnormally high. This could cause the pipes to burst or injure people.

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**Note:**

If老家作成時にノズルが接続され、電気配線が適正に並びます。
2. INDOOR UNIT INSTALLATION

2-1. FIXING OF INSTALLATION PLATE

- Find a structural material (such as a stud) in the wall and fix installation plate (1) horizontally by tightening the fixing screws (2) firmly.
- To prevent installation plate (1) from vibrating, be sure to install the fixing screws in the holes indicated in the illustration. For added support, fixing screws may also be installed in other holes.
- When the knockout is removed, apply vinyl tape to the knockout edges to prevent damaging the wires.
- When bolts recessed in the concrete wall are to be utilized, secure installation plate (1) horizontally by tightening the fixing screws (2) firmly.
- Do not pull the hose when applying the tape.
- Make sure that the drain hose is not heaved or snaked.
- Place the drain hose below the refrigerant piping.
- Never fail to hook the left claw of the VA clamp. Attach the VA clamp securely.
- Do not fold the excess wire, or cram it into small connecting wires.

2-2. WALL HOLE DRILLING

1) Determine the wall hole position.
2) Drill a ø 75 mm hole. The outdoor side should be 5 to 7 mm lower than the indoor side.
3) Insert wall hole sleeve (C).

2-3. CONNECTING WIRES FOR INDOOR UNIT

You can connect indoor/outdoor lead wire without removing the front panel.
1) Open the front panel.
2) Remove VA clamp.
3) Pass indoor/outdoor unit connecting wire (A) from the back of the indoor unit and process the end of the wire.

4) Loosen terminal screw, and connect first the earth wire, then indoor/outdoor unit connecting wire (A) to 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.
5) Firmly tighten the terminal screws to prevent them from loosening. After tightening, pull the wires tightly to confirm that they do not move.
6) Secure indoor/outdoor unit connecting wire (A) and the earth wire with the VA clamp. Never fail to hook the left claw of the VA clamp. Attach the VA clamp securely.

2-4. PIPE FORMING AND DRAIN PIPING

Pipe Forming
- Place the drain hose below the refrigerant piping.
- Make sure that the drain hose is not heaved or snaked.
- Do not pull the hose when applying the tape.
- When the drain hose passes the room, be sure to wrap insulation material (obtainable at a store) around it.
3. OUTDOOR UNIT INSTALLATION

3-1. CONNECTING WIRES FOR OUTDOOR UNIT

1) Open the service panel.
2) Loosen terminal screw, and connect indoor/outdoor unit connecting wire (A) 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) Connect power supply cord (K).
5) Fix indoor/outdoor unit connecting wire (A) and power supply cord (K) with the cord clamp.
6) Close the service panel securely.

3-2. 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)
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. Selected A mm from the table according to the tool you use.
5) Check as follows. (Fig. 6)
6) If flare is noted to be defective, cut off the flared section and do flaring work again.

3-3. PIPE CONNECTION

3-3-1. Body piping

- A thin coat of refrigeration oil (J) on the flared ends of the pipes. Do not apply refrigerant oil on screw threads. Excessive tightening torque will result in damage on the screw.
- For connection, first align the center, then tighten the first 3 to 4 turns of flare nut.
- Use tightening torque table above as a guideline for indoor unit side union joint section, and tighten using two wrenches. Excessive tightening damages the flare section.

3-3-2. Refrigerant piping

- Be sure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- When fastened too tight, flare nut may break after a long period and cause refrigerant leakage.
- Stop the end of piping tape (G) with tape (with adhesive agent attached).

3-4. INSULATION AND TAPING

1) Cover piping joints with pipe cover.
2) For outdoor unit side, surely insulate every piping including valves.
3) Using piping tape (G), apply taping starting from the entry of outdoor unit.
   - Stop the end of piping tape (G) with tape (with adhesive agent attached).
   - When piping have to be arranged through above ceiling, closet or where the tempera-
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 valves are fully closed and covered in caps in initial state.)
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] (–760 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 the outdoor unit.

4-2. TEST RUN
1) Insert power supply plug into the power outlet and/or turn on the breaker. Check that all LED lamps are not lit. If they are blinking, check that the horizontal vane is installed correctly. Refer to operating instructions for details.
2) Press the E.O. SW once for COOL, and twice for HEAT operation. Test run will be performed for 30 minutes. If the upper lamp of the operation indicator blinks every 0.5 seconds, inspect the indoor/outdoor unit connecting wire (A) for mis-wiring. After the test run, emergency mode (set temperature 24°C) will start.
3) To stop operation, press the E.O. SW several times until all LED lamps turn off. Refer to operating instructions for details.

Checking the remote (infrared) signal reception
Press the ON/OFF button on the remote controller and check that an electronic sound is heard from the indoor unit. Press the ON/OFF button again to turn the air conditioner off.
- Once the compressor stops, the restart preventive device operates so the compressor will not operate for 3 minutes to protect the air conditioner.

4-3. AUTO RESTART FUNCTION
This product is equipped with an auto restart function. When the power supply is stopped during operation, such as during blackouts, the function automatically starts operation in the previous setting once the power supply is resumed. (Refer to the operating instructions for details.)

Caution:
- After test run or remote signal reception check, turn off the unit with the E.O. SW or the remote controller before turning off the power supply. Not doing so will cause the unit to start operation automatically when power supply is resumed.
To the user
- If installing the unit, make sure to explain the user about auto restart function.
- If auto restart function is unnecessary, it can be deactivated. Consult the service representative to deactivate the function. Refer to the service manual for details.

4-4. 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.

5. RELOCATION AND MAINTENANCE

5-1. REMOVING AND INSTALLING THE PANEL ASSEMBLY

Removal procedure
1) Remove the 3 screws which fix the panel assembly.
2) Remove the panel assembly. Be sure to remove its bottom end first.
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] (–760 mmHg).
6) Leave the 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 1–3, 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

Installation procedure
1) Install the panel assembly following the removal procedure in reverse.
2) Be sure to press the positions as indicated by the arrows in order to attach the assembly completely to the unit.

5-2. REMOVING THE INDOOR UNIT
Remove the bottom of the indoor unit from the installation plate.
When releasing the corner part, release both left and right bottom corner part of indoor unit and pull it downward and forward as shown in the figure on the right.
If the above method cannot be used
Remove the panel. Then, insert hexagonal wrenches into the square holes on the left and right sides of the unit and push them up as shown in the following figure. The bottom of the indoor unit lowers and releases the hook.

5-3. PUMPING DOWN
When relocating or disposing of the air conditioner, pump down the system following the procedure below so that no refrigerant is released into the atmosphere.
1) Connect the gauge manifold valve to the service port of the stop valve on the gas pipe side of the outdoor unit.
2) Fully close the stop valve on the liquid pipe side of the outdoor unit.
3) Close the stop valve on the gas pipe side of the outdoor unit almost completely so that it can be easily closed fully when the pressure gauge shows 0 MPa [Gauge] (0 kgf/cm²).
4) Start the emergency COOL operation.
To start the emergency operation in COOL mode, disconnect the power supply plug and/or turn off the breaker. After 15 seconds, connect the power supply plug and/or turn on the breaker, and then press the E.O. SW once. (The emergency COOL operation can be performed continuously for up to 30 minutes.)
5) Fully close the stop valve on the gas pipe side of the outdoor unit when the pressure gauge shows 0.05 to 0 MPa [Gauge] (approx. 0.5 to 0 kgf/cm²).
6) Stop the emergency COOL operation.
Press the E.O. SW several times until all LED lamps turn off. Refer to operating instructions for details.

WARNING
When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.