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.)

- Do not install the unit by yourself (user). Incorrect installation could cause fire or electric shock, injury due to the unit falling, or leakage of water. Consult the dealer from whom you purchased the unit.
- Perform the installation securely referring to the installation manual. Incorrect installation could cause fire or electric shock, injury due to the unit falling, or leakage of water.
- 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 fail causing injury.
- Electrical work should be performed by a qualified, experienced electrician, according to the installation manual. Never use an exclusive circuit. Do not connect other electrical appliances to the circuit.
- If the power supply circuit is insufficient or there is incomplete electrical work, it could result in a fire or an electric shock.
- Always install the outdoor unit securely and attach the wires firmly to the terminal block connecting sections so the stress of the wires is not applied to the sections. Do not extend the wires, or use intermediate connection. Incomplete connecting and securing could cause fire.
- Do not install the unit where inflammable gas may leak. If gas leaks and accumulates in the area around the unit, it could cause an explosion.
- 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. The use of defective parts could cause an injury or leakage of water.
- Be sure to protect the earth terminal at the installation location. The use of defective parts could cause an injury or leakage of water.
- The pressure of R410A is 1.6 times more than R22. If refrigerant comes in contact with a fire, harmful gas could be generated. Check that the refrigerant gas does not leak after installation has been completed.
- If refrigerant gas leaks indoors, and comes into contact with the flame of a heater, space heater, stove, etc., harmful substances will be generated.
- Use appropriate tools and piping materials for installation. Not using appropriate tools or materials and incomplete installation could cause the pipes to burst or injury.
- 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 the pressure in the refrigerant cycle could become abnormally high. This could cause the pipes to burst or injury.
- When installing the unit, securely connect the refrigerant pipes before starting the compressor. If the compressor is started before the refrigerant pipes are connected and when the stop valve is open, air could be drawn in and the pressure in the refrigerant cycle could become abnormally high. This could cause the pipes to burst or injury.
- Fasten a flare nut with a torque wrench as specified in this manual. If fastened too light, a flare nut may break after a long period and cause refrigerant leakage.
- The unit shall be installed in accordance with national wiring regulations.

**CAUTION**

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

- Install an earth leakage breaker depending on the installation location.
- If an earth leakage breaker is not installed, it could cause electric shock.
- Perform the drainage/piping work securely according to the installation manual.
- If there is a drain in the drain pan (inlet side) of the indoor unit, be sure to drain water out. This could cause injury.
- Do not install the outdoor unit where small animals may live.
- If small animals enter and touch the electric parts inside the unit, the unit could cause a malfunction, smoke emission, or fire. Also, advise user to keep the area around the unit clean.

1-2. SELECTING THE INSTALLATION LOCATION

**INDOOR UNIT**

- Where airflow is not blocked.
- Where cool air spreads over the entire room.
- Rigid wall without vibration.
- Where it is not exposed to direct sunlight. Do not expose to direct sunlight also during the period following unpacking to before installation.
- Where it is not easily reached.
- At a point 1.2 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 unit normally).
- Where the air filter can be removed and replaced easily.

**OUTDOOR UNIT**

- Where it is not exposed to strong wind.
- Where airflow is good and odd/even rows are opposite.
- Where rain or direct sunlight can be avoided as much as possible. To protect from the rain and sun, a canopy or aluminum awning is required.
- 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 the area where the refrigerant is running and the stop valve is open, air could be drawn in.
- Where the pipe length and height difference are within the specified limits.
- Where sulfide gas is generated such as a hot spring.
- Where there is high-frequency or wireless equipment.

1-3. SPECIFICATIONS

<table>
<thead>
<tr>
<th>Indoor unit</th>
<th>Outdoor unit</th>
<th>Rated Voltage</th>
<th>Frequency</th>
<th>Power supply</th>
<th>Breaker capacity</th>
<th>Gas/Liquid</th>
<th>Pipe length and height difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSZ-GE22VAD</td>
<td>MZU-GE22VAD</td>
<td>200 V</td>
<td>50 Hz</td>
<td>1.0 mm</td>
<td>10 A</td>
<td>ø9.52 / 6.35 mm 30 / 20 g/m</td>
<td></td>
</tr>
<tr>
<td>MSZ-GE25VAD</td>
<td>MZU-GE25VAD</td>
<td>230 V</td>
<td>50 Hz</td>
<td>1.0 mm</td>
<td>10 A</td>
<td>ø12.7 / 6.35 mm 30 / 20 g/m</td>
<td></td>
</tr>
<tr>
<td>MSZ-GE42VAD</td>
<td>MZU-GE42VAD</td>
<td>230 V</td>
<td>50 Hz</td>
<td>1.0 mm</td>
<td>16 A</td>
<td>ø12.7 / 6.35 mm 89 / 8 g/m</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 a copper pipe or a copper-alloy seamless pipe.
3. Be careful not to crush or bend the pipe during pipe bending.
4. Refrigerant pipe bending radius must be 100 mm or more.
5. Be sure to use a charge hose for R410A (4 mm hexagonal wrench).
6. Use appropriate tools and piping materials for installation. Not using appropriate tools or materials and incomplete installation could cause the pipes to burst or injury.
7. Make sure that the refrigerant gas does not leak after installation has been completed.
8. Insulation material: Heat resisting 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 drip.
1.4. INSTALLATION DIAGRAM

**ACCESSORIES**
- Installation plate (1)
- Installation plate fixing screw 4 x 25 mm (5)
- Remote controller holder (1)
- Fixing screw for (3) 3.5 x 16 mm (Black) (2)
- Battery (AA) for (6) (2)
- Wireless remote controller (1)
- (7) For left or left-rear piping (1)
- (8) Air cleaning filter (2)

<Outdoor unit>
- (9) Drain socket (VA type only) (1)
- (10) Drain cap φ 33 (GE50VA only) (2)

**PARTS TO BE PROVIDED AT YOUR SITE**
- (A) Indoor/outdoor unit connecting wire*1 (1)
- (B) Extension pipe (1)
- (C) Wall hole sleeve (1)
- (D) Wall hole cover (1)
- (E) Pipe fixing band (2 to 5)
- (F) Fixing screw for (E) 4 x 20 mm (2 to 5)
- (G) Piping tape (1)
- (H) Putty (1)
- (I) Drain hose (or soft PVC hose, 15 mm inner diameter or hard PVC pipe VP16) (1 or 2)
- (J) Refrigeration oil (1)
- (K) Power supply cord*1 (1)

*1 Place indoor/outdoor unit connecting wire (A) and the power supply cord (K) at least 1 m away from the TV antenna wire.

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

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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 wall according to local code requirements.
- Determine the wall hole position.
- To prevent installation plate (1) from vibrating, be sure to install the fixing screws in the wall and the piping or wrap 7 to 8 turns of insulation vinyl tape around the piping.
- To use existing piping, perform COOL operation for 30 minutes and pump down before removing the old air conditioner. Remake hair according to the dimension for new refrigerant.

When the piping is to be attached to a wall containing metals (tin plated) or metal netting, use a chemically treated wooden piece 20 mm or thicker between the wall and the piping or wrap 7 to 8 turns of insulation vinyl tape around the piping.

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2-2. WALL HOLE DRILLING

1) Determine the wall hole position.
2) Drill a ø 65 mm hole. The outdoor side should be 5 to 7 mm lower than the indoor side.
3) Insert wall hole sleeve (C).

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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.

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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.
- 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.

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IMPORTANT NOTES
To comply with the requirements of Australian standard AS/NZS 3000 electrical installations (wire rules), the electrical wiring required between the indoor and outdoor units must be installed by a licenced electrical contractor.
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 exposed, 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) Firmly hold copper pipe in the wall hole sleeve (C), and hook the upper part of the indoor unit on the installation plate (1).

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) Put the end of the copper pipe to downward direction as you remove burrs in order to avoid to let burrs drop in the piping.

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

   a) Compare the flared work with Fig. 6.
   b) If flare is noted to be defective, cut off the flared section and do flaring work again.

3-3. PIPE CONNECTION

1) Put the refrigerant piping and the drain hose together, then firmly apply piping tape (G) from the end.

2) Pull out the drain cap at the rear right of the indoor unit. (Fig. 1)

3) Pull out the drain hose at the rear left of the indoor unit. (Fig. 2)

4) Put the drain cap into the section to which the drain hose is to be attached at the rear of the indoor unit. (Fig. 3)

5) Insert not sharp-edged tools such as screwdrivers into the hole at the end of the cap and insert the cap fully into the drain pan.

6) Insert the drain hose fully into the drain pan at the rear right of the indoor unit. (Fig. 4)

7) Cut out a piece of cardboard from the shipping box, roll it up, hook it onto the back rib, and use it as a spacer to lift the indoor unit. (Fig. 5)

8) Connect the refrigerating piping with the extension pipe (B). (More than 60 mm)

9) Thrust the lower part of the indoor unit into the installation plate (1).

Piping tape (G) is used to prevent condensation.

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 tapping starting from the entry of outdoor unit.

4) Stop the end of piping tape (G) with tape (with adhesive agent attached).

5) When piping have to be arranged through above ceiling, closet or where the temperature and humidity are high, wind additional commercially sold insulation to prevent condensation.

6) When installing the unit, securely connect the refrigerant piping before starting the compressor.
### 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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control valve</td>
<td>To the service port, valve core may deform or loosen if excess pressure is applied. This may cause gas leak.</td>
</tr>
<tr>
<td>Gauge manifold valve for LIQUID</td>
<td>Handle Low</td>
</tr>
<tr>
<td>Gauge manifold valve for GAS</td>
<td>Handle High</td>
</tr>
<tr>
<td>Compound pressure gauge (for R410A)</td>
<td></td>
</tr>
<tr>
<td>Stop valve cap</td>
<td>(Torque 19.6 to 29.4 Nm, 200 to 300 kgf/cm)</td>
</tr>
<tr>
<td>Adapter for preventing the back flow</td>
<td></td>
</tr>
<tr>
<td>Stop valve for LIQUID</td>
<td></td>
</tr>
<tr>
<td>Charge hose</td>
<td>(for R410A)</td>
</tr>
<tr>
<td>Vacuum pump (or the vacuum pump with the function to prevent the back flow)</td>
<td></td>
</tr>
</tbody>
</table>
| Hexagonal wrench | *4 to 5 turns
*Close
*Open |
| Service port cap | (Torque 13.7 to 17.7 Nm, 140 to 180 kgf/cm) |

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 $\approx 0.101\,\text{MPa (Gauge)}$ ($\approx 760\,\text{mmHg}$).
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 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

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.

- **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.
  - After 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.

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#### 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 $24^\circ\text{C}$) 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 (6) 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 more than 3 minutes to protect the air conditioner.

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#### 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.
  - After 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.

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#### 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.

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#### 5. RELOCATION AND MAINTENANCE

##### 5-1. REMOVING AND INSTALLING THE PANEL ASSEMBLY

**Removal procedure**
1) Remove the 2 screws which fix the panel assembly.
2) Remove the panel assembly. Be sure to remove its bottom end first.

**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.

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##### 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 push 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 hooks.

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##### 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/cm$^2$).
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/cm$^2$).
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.

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**WARNING**

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