

**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.

Model names are indicated in 1-3.

When installing multi units, refer to

the installation manual of the multi

unit for outdoor unit installation

- 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 (Could lead to death, serious injury, etc.)

#### Do not install the unit by yourself (user).

- Incomplete 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 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. Install the unit securely in a place which can beau
- the weight of the unit. If the installation location cannot bear the weight of the unit, the unit could fall causing injury.
- Init, the unit could fail 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 appliances to the circuit. If the capacity of the power circuit is insufficient or there is incomplete electrical work, it could result in a fire or an electric shock an electric shock
- Earth the unit correctly. Do not connect the earth to a gas pipe, water pipe, light-ning rod or telephone earth. Defective earthing could cause electric shock.
- Cause electric shock.
  Do not damage the wires by applying excessive pressure with parts or screws.
  Damaged wires could cause fire or electric shock.
  Be sure to cut off the main power in case of setting up the indoor P.C. board or wiring works.
  Failure to do so could cause electric shock.
- Use the specified wires to connect the indoor and outdoor units 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

Install an earth leakage breaker depending on the

installation place. If an earth leakage breaker is not installed, it could

Perform the drainage/piping work securely accord-ing to the installation manual.

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

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- 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 permis-
- sible 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 due to a fire, an electric shock, the unit falling, etc.
- When plugging the power supply plug into the outlet, make sure that there is no dust, clogging, or loose parts in both the outlet and the plug. Make sure that the power supply plug is pushed completely into the outlet. If there is dust, clogging, or loose parts on the power sup-ply plug or the outlet, it could cause electric shock or fire. If loose parts are found on the power supply plug, replace it. Attach the electrical cover to the indoor unit and the
- service panel to the outdoor unit securely. If the electrical cover of the indoor unit and/or the service panel of the outdoor unit are not attached securely, it could
- result in a fire or an electric shock due to dust, water, etc. When installing or relocating the unit, make sure that no substance other than the specified refriger-ant (R410A) enters the refrigerant circuit.
- Any presence of foreign substance such as air can cause abnormal pressure rise and may result in explosion or injury.

- **Required Tools for Installation**
- Phillips screwdriver Level Scale Utility knife or scissors 75 mm hole saw Torque wrench Wrench (or spanner)

4 mm hexagonal wrench Flare tool for R410A Gauge manifold for R410A Vacuum pump for R410A Charge hose for R410A Pipe cutter with reamer

- refrigerant leaks during installation, ventilate the room. If refrigerant comes in contact with a fire, harmful gas could be generated. Do not discharge the refrigerant into the atmosphere. If
- 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 fan heater, space heater, stove, etc.,
- When 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 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 refrigeration cycle could become abnormally high. This could cause the pipes to burst or injury. When installing the unit, securely connect the refrigerant pipes are connected and when the stop valve is open, air could be drawn in and the pressure in the refrigerant pipes are connected and when the stop valve is open, air could be drawn in and the pressure in the refrigerant pipes are cound be drawn in and the pressure in the refrigerant pipes are to burst or injury.
- the pipes to burst or injury
- Fasten a flare nut with a torque wrench as specified in this manual.
- In this manual. If fastened too tight, a flare nut may break after a long period and cause refrigerant leakage. The unit shall be installed in accordance with na-tional wiring regulations.

# A CAUTION (Could lead to serious injury in particular environments when operated incorrectly.)

- If there is defect in the drainage/piping work, water could drop from the unit, soaking and damaging household goods.
- Do not touch the air inlet or the aluminum fins of the outdoor unit. 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, it 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 sunshine.

cause electric shock.

- Where easily drained. At a distance 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.
- fected 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 air filter can be removed and replaced easily.
- REMOTE CONTROLLER
- Where it is easy to operate and easily visible Where children cannot touch it.

**1-3. SPECIFICATIONS** 

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 beep' receiving tone sounds). After that, attach re-mote controller holder to a pillar or wall and install wireless remote controller

In rooms where inverter type fluorescent lamps are used, the signal from the wireless remote controller may not be received

#### OUTDOOR UNIT

Note:

- Where it is not exposed to strong wind. Where airflow is good and dustless.
- Where neighbours are not annoyed by operation sound or het oils.
- 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
- Where it is at least 3 m away from the antenna 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.

- It is advisable to make a piping loop near outdoor unit so as to reduce vibration transmitted from there. Note:
- When operating the air conditioner in low outside temperature, be sure to follow the instructions described below
- Never install the outdoor unit in a place where its air inlet/outlet side may be exposed directly to wind.
- To prevent exposure to wind, install the outdoor unit
- To prevent exposure to wind, it is recommended to install
- a baffle board on the air outlet side of the outdoor unit.
- tioner trouble is liable to occur.
- Where flammable gas could leak

	Model		Power supply *1		Wire specifications *2		Pipe size	(GE60/GE71)		
							(thickness *3, *4)	Pipe length and height difference		
	Indoor unit	Outdoor unit	Rated	Frequency 50 Hz	Breaker capacity 20 A	Power supply 3-core 2.5 mm <sup>2</sup>	Indoor/outdoor connecting wire 4-core 1.0 mm <sup>2</sup>	Gas / Liquid ø15.88 / 6.35 mm (1.0 / 0.8 mm) ø15.88 / 9.52 mm (1.0 / 0.8 mm)	Max. pipe length	30 m
			Voltage						Max. height difference	15 m
	MSZ-GE60VA	MUZ-GE60VA	230 V						Max. number of bends *5, *6	10
		MUZ-GE71VA							Refrigerant adjustment A *7	20/55 g/m
	MSZ-GE71VA								Insulation thickness *8, *9	8 mm

\*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.)

\*3 Never use pipes with thickness less than specified. The

2 Use wires in conformity with design 60245 IEC 57.

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 pipe 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.)

Additional refrigerant = A × (pipe length (m) -10)

- \*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 drippage.

Note:

- with its air inlet side facing the wall.
- Avoid the following places for installation where air condi-

- Salty places such as the seaside.
- Where sulfide gas is generated such as a hot spring.
  - Where there is high-frequency or wireless equipment.
    - m m 0
    - GE71)

- Where there is much machine oil.

### **1-4. INSTALLATION DIAGRAM**

fo

118 mm or more fo left and left back pip (using spacer)

ACCESSORIES

	ck the following parts before installat loor unit>	ion.	$\leq$		
(1)	Installation plate	1			
(2)	Installation plate fixing screw 4 × 25 mm	7			
(3)	Remote controller holder	1			
(4)	Fixing screw for (3) 3.5 × 16 mm (Black)	2			
(5)	Battery (AAA) for (6)	2	1		
(6)	Wireless remote controller	1			
(7)	Felt tape (For left or left-rear piping)	1			
<0u	tdoor unit>				
(8) Drain socket 1					

### PARTS TO BE PROVIDED

AT ۱	OUR SITE						
(A)	(A) Indoor/outdoor unit connecting wir						
(B)	Extension pipe						
(C)	Wall hole sleeve						
(D)	Wall hole cover						
(E)	Pipe fixing band						
(F)	Fixing screw for (E) 4 × 20 mm	2 to					
(G)	Piping tape	1					
(H)	Putty	1					
(I)	Drain hose (or soft PVC hose, 15 mm inner diameter or hard PVC pipe VP16)						
(J)	Refrigeration oil	1					
(K) Power supply cord*							

#### \* Note:

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

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

#### INDOOR UNIT INSTALLATION 2.

#### 2-1. FIXING OF INSTALLATION PLATE

Find a structural material (such as a stud) in the wall and fix installation plate (1) horizontally with fixing screws (2).

models

5-7 mm

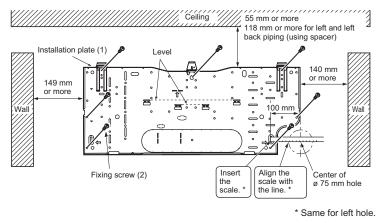
Outdoor side

5

- 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) using 11 × 20 · 11 × 26 oval hole (450 mm pitch).
- If the recessed bolt is too long, change it for a shorter one available in the market. Wall

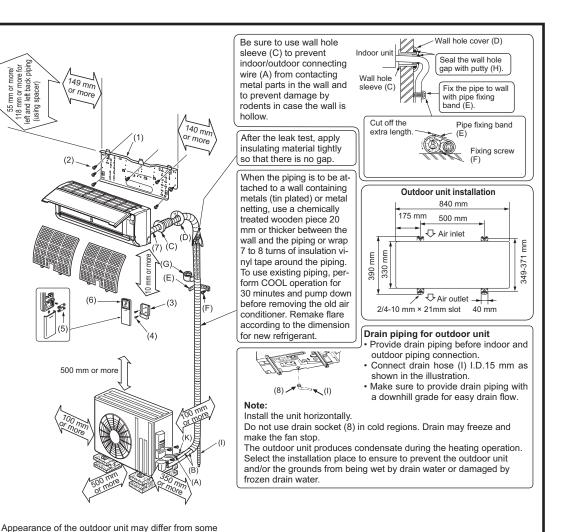
### 2-2. WALL HOLE DRILLING

1) Determine the wall hole position. ø 75 mm 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).

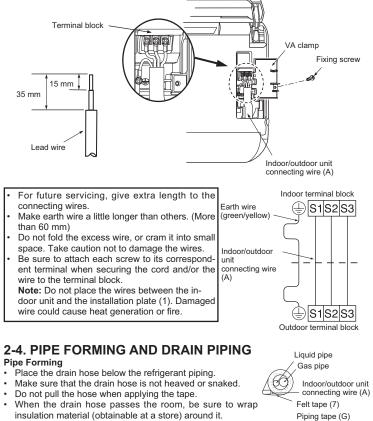


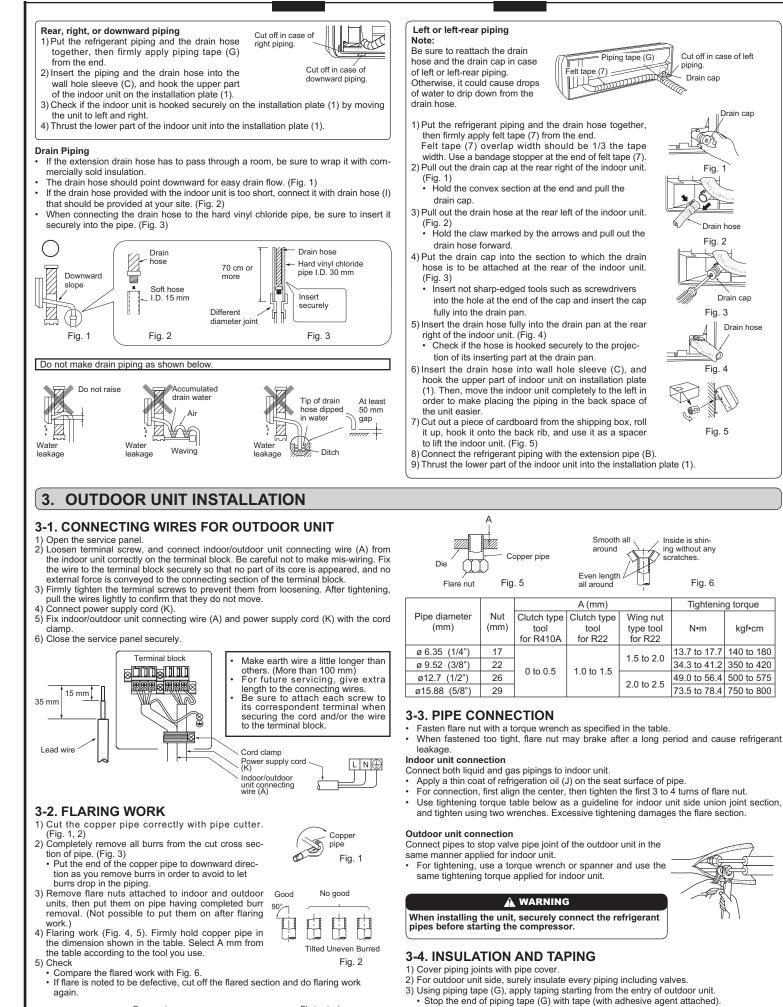
### 2-3. CONNECTING WIRES FOR INDOOR UNIT

- 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 lightly 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.





Cut off in case of left

Drain cap

piping.

Drain cap

10h

Fig. 1

Drain hose

Drain car

Drain hose

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Inside is shin-

ing without any scratches.

Fig. 6

N•m

13.7 to 17.7

When piping have to be arranged through above ceiling, closet or where the tempera-

ture and humidity are high, wind additional commercially sold insulation to prevent

Tightening torque

34.3 to 41.2 350 to 420

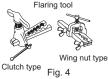
49.0 to 56.4 500 to 575

73.5 to 78.4 750 to 800

kqf•cm

140 to 180

Copper pipe Spare reame Pipe cutte Fig. 3

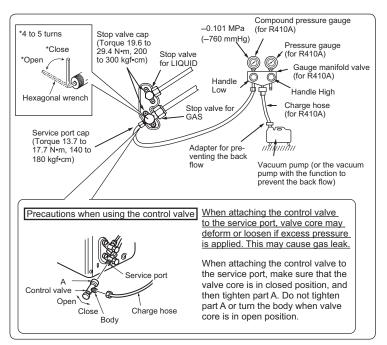


condensation.

## 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, totally closed 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.)
- 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 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

### 5. RELOCATION AND MAINTENANCE

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

#### Removal procedure

- 1) Remove the 3 screws which fix the panel assemblv. 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.

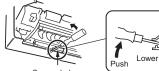
## 5-2. REMOVING THE INDOOR UNIT

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

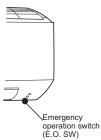
Remove the front panel. Then, insert hexagonal wrenches into the square holes on the left and right sides of the unit and push them up as shown in the following figure. The bottom of the indoor unit lowers and releases the hooks.



Square hole

### 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 in-
- stalled 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 (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 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
- 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.

#### 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.

### **5-3. 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.

- 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<sup>2</sup>)
- 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<sup>2</sup>).
  6) Stop the emergency COOL operation. Press the E.O. SW several times until all LED lamps turn off. Refer to operating in-
- structions 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.

This product is designed and intended for use in the residential, commercial and light-industrial environment.

The product at hand is based on • Low Voltage Directive 2006/95/EC the following EU regulations:

 Electromagnetic Compatibility Directive 2004/108/ FC

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