

# DAIKIN ROOM AIR CONDITIONER INSTALLATION MANUAL

3P412209-23L M19N023

FTXV20UVM/A FTXV50UVM/A  
FTXV25UVM/A FTXV60UVM/A  
FTXV35UVM/A FTXV71UVM/A  
FTXV46UVM/A



## SAFETY PRECAUTIONS (1)

Read the precautions in this manual carefully before operating the unit.



This appliance is filled with R32.

The precautions described herein are classified as WARNING and CAUTION. They both contain important information regarding safety. Be sure to observe all precautions without fail.

Meaning of WARNING and CAUTION notices

- WARNING** Failure to follow these instructions properly may result in personal injury or loss of life.
- CAUTION** Failure to follow these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

The safety marks shown in this manual have the following meanings:

- Be sure to follow the instructions.
- Be sure to establish an earth connection.
- Never attempt.

After completing installation, conduct a trial operation to check for faults and explain to the user how to operate the air conditioner and take care of it with the aid of the operation manual.

## WARNING

- Ask your dealer or qualified personnel to carry out installation work.
- Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shock or fire.
- Install the air conditioner in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shock or fire.
- Be sure to use only the specified accessories and parts for installation work. Failure to use the specified parts may result in the unit falling, water leakage, electric shock or fire.
- Install the air conditioner on a foundation strong enough to hold the weight of the unit.

A foundation of insufficient strength may result in the equipment falling and causing injury.

Electrical work must be performed in accordance with relevant local and national regulations and with the instructions in this installation manual. Be sure to use a dedicated power supply circuit only. Insufficient power supply and improper workmanship may result in electric shock or fire.

Use a cable of suitable length. Do not use tinned wires or an extension lead, as this may cause overheating, electric shock or fire.

Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires. Improper connections or securing of wires may result in abnormal heat build-up or fire.

When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the electrical wiring box cover can be securely fastened. Improper positioning of the electrical wiring box cover may result in electric shock, fire or overheating terminals.

If refrigerant gas leaks during installation, ventilate the area immediately. Toxic gas may be produced if the refrigerant comes into contact with fire.

After completing installation, check for refrigerant gas leakage. Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

When installing or relocating the air conditioner, do not let any other substances besides R32, such as air, enter the refrigerant circuit. The presence of air or foreign matter in the refrigerant circuit causes an abnormal pressure rise in the refrigeration cycle, which may result in equipment damage and even injury.

During installation, attach the refrigerant piping securely before operating the compressor. If the refrigerant pipes are not attached and the stop valve is open when the compressor is operated, air will be sucked in, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.

During pump down, stop the compressor before removing the refrigerant piping. If the compressor is still operating and the stop valve is open during pump down, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.

Be sure to earth the air conditioner.

Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shock.

Be sure to install an earth leakage circuit breaker. Failure to install an earth leakage circuit breaker may result in electric shock or fire.

Do not use means to accelerate the defrosting process (if possible) or to clean, other than those recommended by the manufacturer.

The appliance must be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn.

Be aware that refrigerants may not contain an odour.

The appliance must be installed, operated and stored in a room with floor area larger than -m<sup>2</sup> for 20/25/35 class, 2.5m<sup>2</sup> for 46 class, 3.5m<sup>2</sup> for 50/60 class, 3.3m<sup>2</sup> for 71 class.

\* Since the maximum refrigerant charge of the models is below 1.22kg, it does not have any limitation for the minimum floor area. Maintain an installation height of 1.8m or more from the floor surface to the bottom of the appliance. If the size of the room where the appliance is to be installed is less than the indicated minimum floor area, install it in a well ventilated room.

For details refer to the WARNING list in the "Safety Precautions" section of the installation manual for the outdoor unit.

Comply with national gas regulations.

Do not pump down when the refrigerant has leaked, otherwise the compressor may be damaged.

## SAFETY PRECAUTIONS (2)

### CAUTION

- Do not install the air conditioner at any place where there is a danger of flammable gas leakage. In the event of a gas leakage, build-up of gas near the air conditioner may cause a fire to break out.
- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate the piping to prevent condensation. Improper drain piping may result in indoor water leakage and property damage.
- Tighten the flare nut as specified, such as with a torque wrench. If the flare nut is too tight, it may crack after prolonged use, causing refrigerant leakage.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- Make sure to provide for adequate measure in order to prevent that the outdoor unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire.
- Please instruct the user to keep the air conditioner clean.
- The temperature of refrigerant circuit will be high, please keep the inter-unit wiring away from copper pipes that are not thermally insulated.

## ACCESSORIES

(A) Mounting plate	1	(B) Mounting plate fixing screw M4 × 25L	7	(C) Wireless remote controller	1
(D) Remote controller holder	1	(E) Remote controller holder fixing screw M3 × 20L	2	(F) Dry battery AAA LR03 (alkaline)	2
(G) Indoor unit fixing screw M4 × 12L	2	(H) Insulation tape	1	(I) Titanium apatite deodorizing filter	2
(K) Operation manual	1	(L) Installation manual	1		

## CHOOSING AN INSTALLATION SITE

Before choosing the installation site, obtain user approval.

- Indoor unit**
  - The indoor unit should be positioned in a place where:
    - the restrictions on the installation requirements specified in "INDOOR UNIT INSTALLATION DIAGRAM" are met,
    - both the air inlet and air outlet are unobstructed,
    - the unit is not exposed to direct sunlight,
    - the unit is away from sources of heat or steam,
    - there is no source of machine oil vapour (this may shorten the indoor unit service life),
    - cool or warm air is circulated throughout the room,
    - the unit is away from electronic ignition type fluorescent lamps (inverter or rapid start type) as they may affect the remote controller range,
    - the unit is at least 1m away from any television or radio set (the unit may cause interference with the picture or sound),
    - install at the recommended height (not less than 1.8 m),
    - no laundry equipment is nearby.

- Wireless remote controller**
  - Turn on all the fluorescent lamps in the room, if any, and find a location where the remote controller signals are properly received by the indoor unit (within 7 m).

## INSTALLATION TIPS (1)

- Removing and installing the front panel**
  - Removal method**
    - Place your fingers in the indentations on the main unit (one each on the left and right sides), and open the front panel until it stops.
    - While pushing the left side front panel shaft outward, push up the front panel and remove it. (Remove the right side front panel shaft in the same manner.)
    - After removing both front panel shafts, pull the front panel toward yourself and remove it.
  - Installation method**

Align the tabs of the front panel with the grooves, and push all the way in, then close slowly. Push the centre of the lower panel surface firmly to engage the tabs.

When there is insufficient work space because the unit is close to ceiling

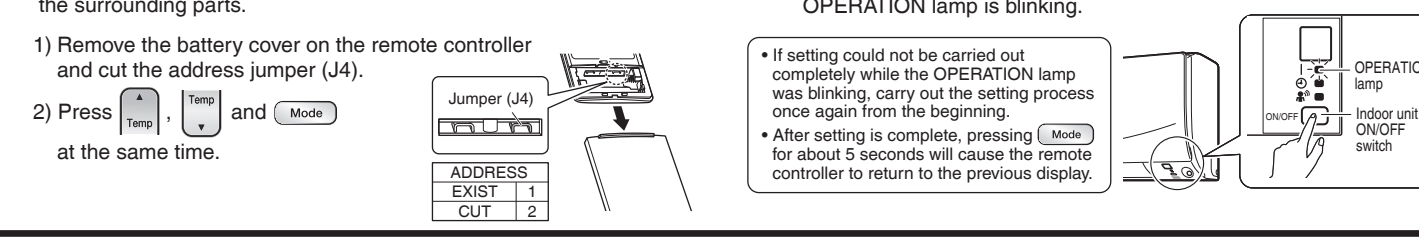
- Be sure to wear protection gloves.

Place both hands under the centre of the front grille, and while pushing up, pull it forward.

- Removing and installing the front grille**
  - Removal method**
    - Remove the front panel and air filters.
    - Remove the 2 screws from the front grille.
    - Install the air filters and then mount the front panel. (The 50/60/71 class model have 3 screws.)
  - Installation method**
    - Install the front grille and firmly engage the upper hooks (3 locations).
    - Install 2 screws of the front grille.
    - Install the air filters and then mount the front panel.

## INSTALLATION TIPS (2)

**3. How to set the different addresses**  
When 2 indoor units are installed in one room, the 2 wireless remote controllers can be set for different addresses. Change the address setting of one of the two units.

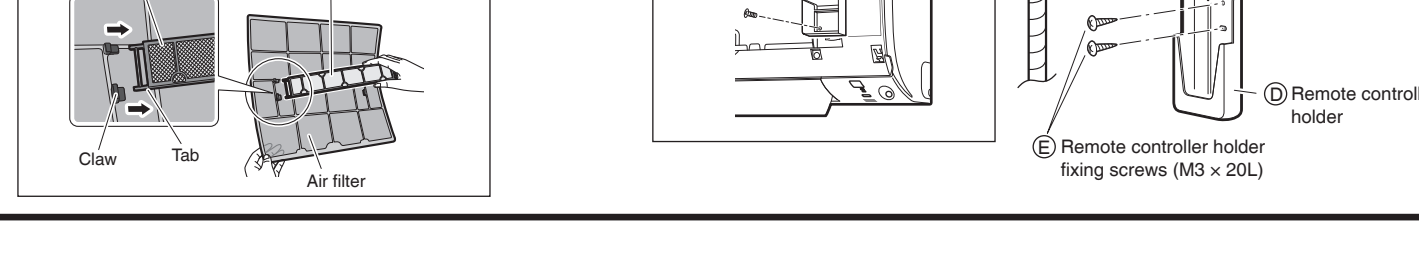
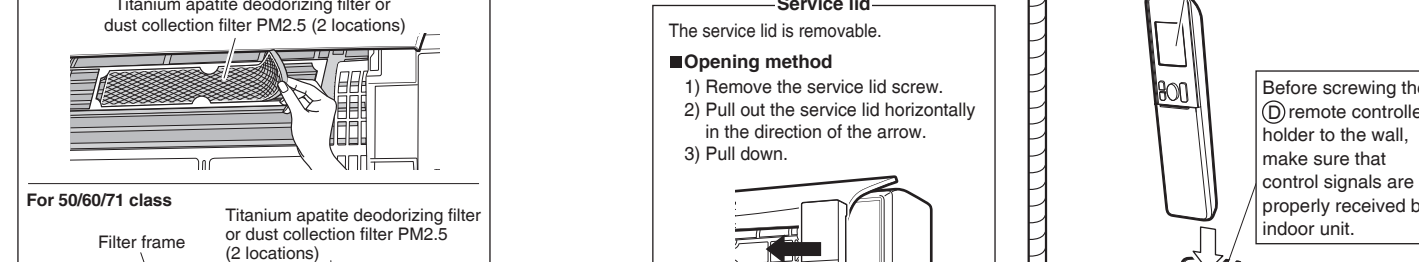
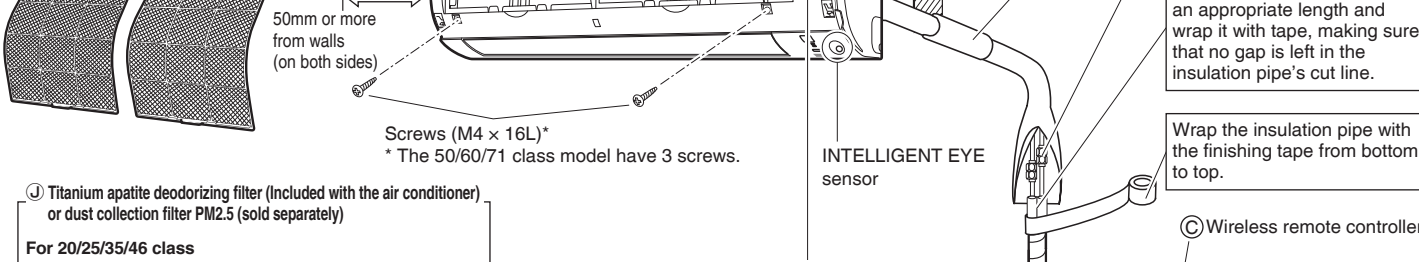
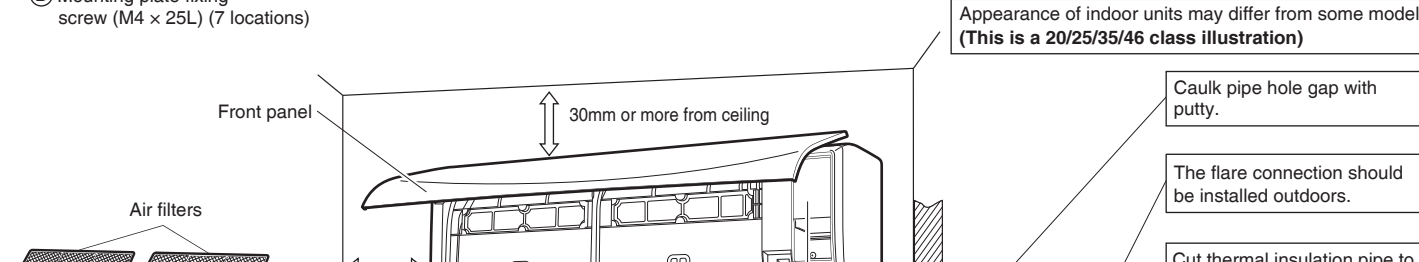
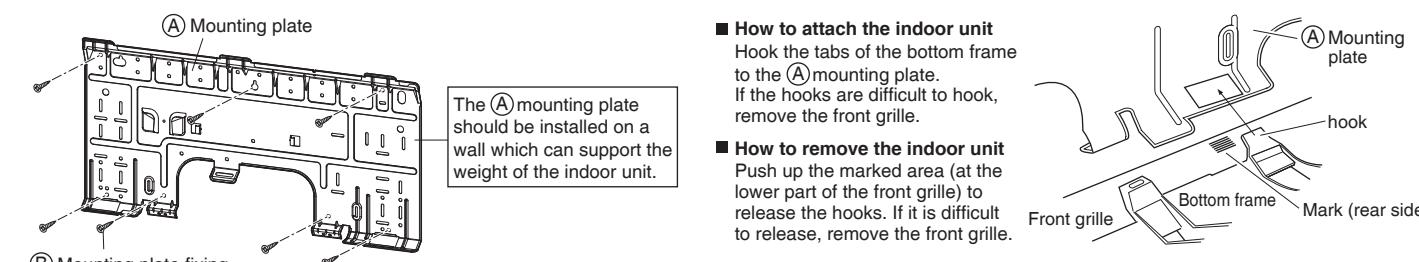


## INDOOR UNIT INSTALLATION DIAGRAM

NOTE  
When flaring the pipe end and installing the unit, refer to INDOOR UNIT INSTALLATION (3) [4] FLARING THE PIPE END.

### INTELLIGENT EYE SENSOR

- Do not hit or violently push the INTELLIGENT EYE sensor. This can lead to damage and malfunction.
- Do not place large objects near the INTELLIGENT EYE sensor. Also keep heating units or humidifiers outside the sensor's detection area.

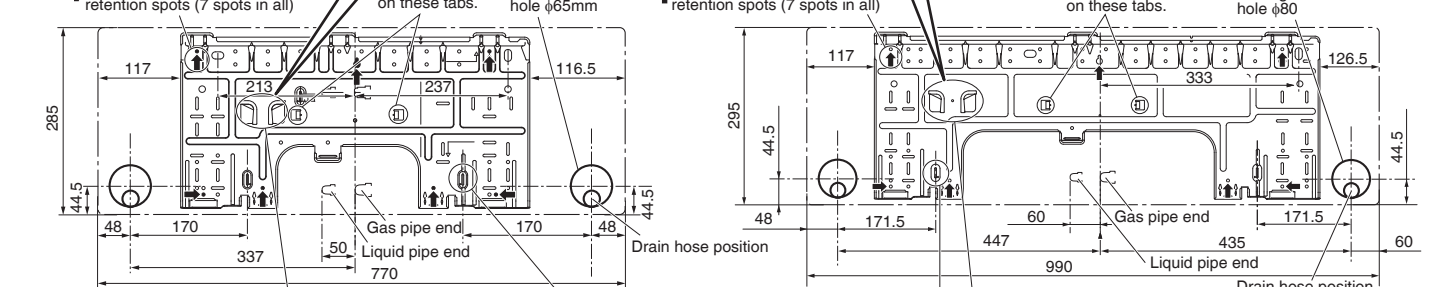
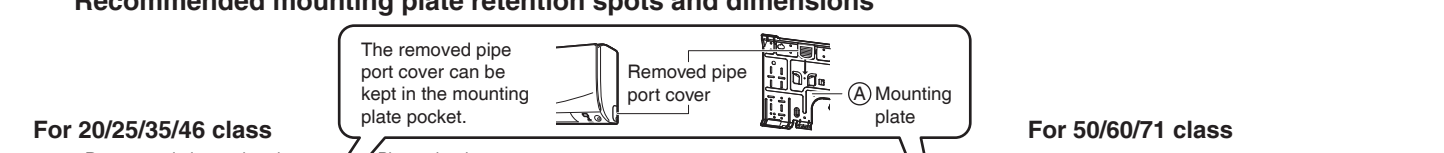


## INDOOR UNIT INSTALLATION (1)

### 1 INSTALLING THE MOUNTING PLATE

The mounting plate should be installed on a wall which can support the weight of the indoor unit.

- Temporarily secure the mounting plate to the wall, make sure that the plate is completely level, and mark the drilling points on the wall.
- Secure the mounting plate to the wall with screws.



### 2 DRILLING A WALL HOLE AND INSTALLING WALL EMBEDDED PIPE

#### WARNING

For metal frame or metal board walls, be sure to use a wall embedded pipe and wall hole cover in the feed-through hole to prevent possible heat, electrical shock, or fire.

- Drill a feed-through hole with a 65mm for 20/25/35/46 class or 80mm for 50/60/71 class diameter through the wall at a downward angle toward the outside.
- Insert a wall embedded pipe into the hole.
- Insert a wall hole cover into wall pipe.
- After completing refrigerant piping, wiring, and drain piping, caulk the pipe hole gap with putty.

### 3 INSTALLING THE INDOOR UNIT

In the case of bending or curving refrigerant pipes, keep the following precautions in mind. Abnormal sound may be generated if improper work is conducted.

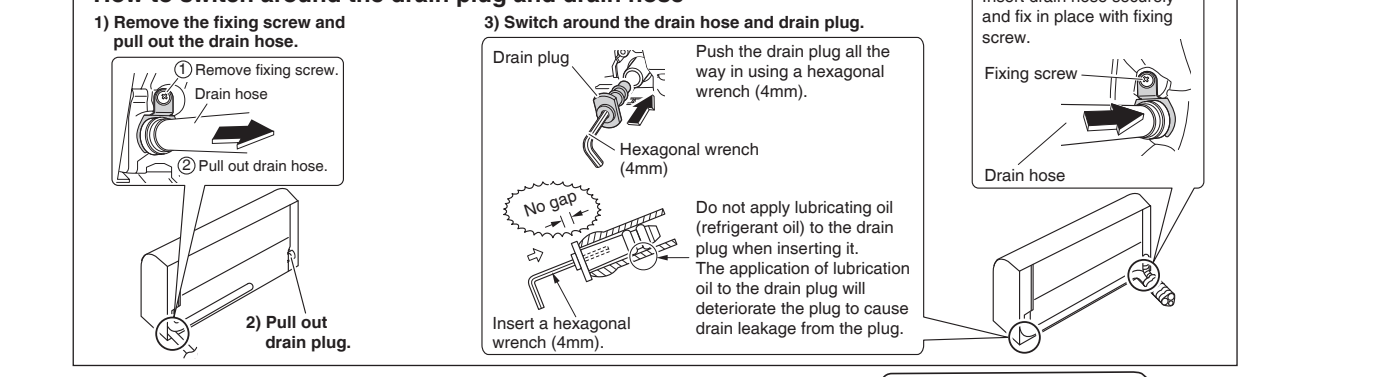
- Do not strongly press the refrigerant pipes onto the bottom frame.
- Do not strongly press the refrigerant pipes on the front grille, either.

#### 3-1. Right-side, right-back, or right-bottom piping

- Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- Wrap the refrigerant pipes and drain hose together with (3) insulation tape.
- Pass the drain hose and refrigerant pipes through the wall hole, then position the indoor unit on the (2) mounting plate hooks, using the (4) markings at the top of the indoor unit as a guide.
- Open the front panel, then open the service lid. (Refer to "INSTALLATION TIPS (1)".)
- Pass the inter-unit wire from the outdoor unit through the feed-through wall hole and then through the back of the indoor unit. Pull them through the front side. Bend the ends of cable tie wires upward for easier work in advance. (If the inter-unit wire ends are to be stripped first, bundle wire ends with adhesive tape.)
- Press the bottom frame of the indoor unit with both hands until it is firmly caught by the (2) mounting plate hooks. Make sure that the wires do not catch on the edge of the indoor unit.

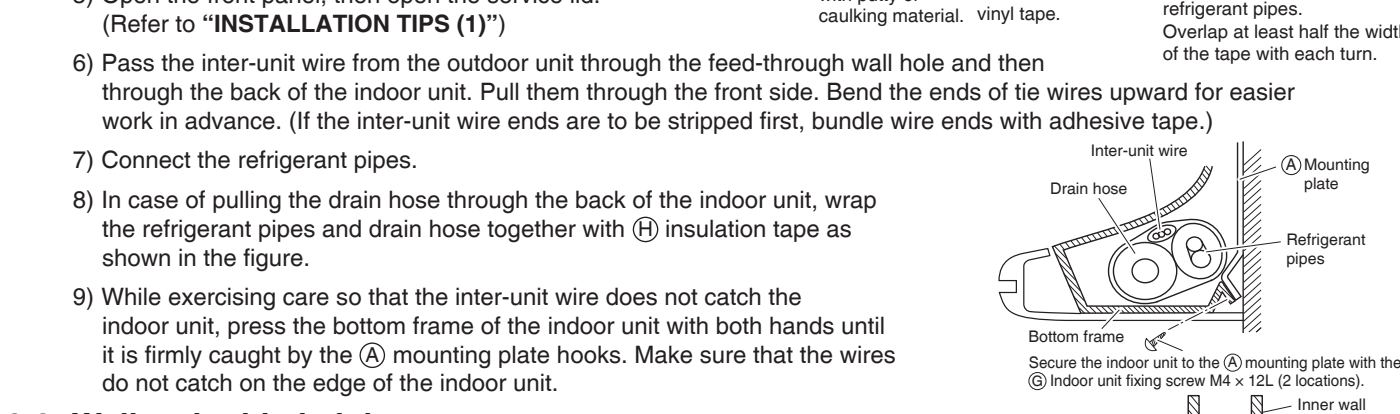
## INDOOR UNIT INSTALLATION (2)

### 3-2. Left-side, left-back, or left-bottom piping



- Switch around the drain plug and drain hose.
- Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.

- Shape the refrigerant pipes along the pipe path marking on the (2) mounting plate.
- Pass the drain hose and refrigerant pipes through the wall hole, then position the indoor unit on the (2) mounting plate hooks, using the (4) markings at the top of the indoor unit as a guide.
- Open the front panel, then open the service lid. (Refer to "INSTALLATION TIPS (1)".)
- Pass the inter-unit wire from the outdoor unit through the feed-through wall hole and then through the back of the indoor unit. Pull them through the front side. Bend the ends of tie wires upward for easier work in advance. (If the inter-unit wire ends are to be stripped first, bundle wire ends with adhesive tape.)
- Connect the refrigerant pipes.
- In case of pulling the drain hose through the back of the indoor unit, wrap the refrigerant pipes and drain hose together with (3) insulation tape as shown in the figure.



- When excising care so that the inter-unit wire does not catch the indoor unit, press the bottom frame of the indoor unit with both hands until it is firmly caught by the (2) mounting plate hooks. Make sure that the wires do not catch on the edge of the indoor unit.

### 3-3. Wall embedded piping

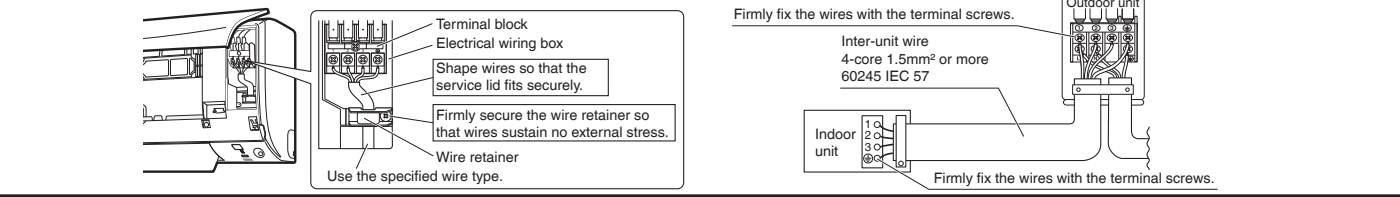
Follow the instructions given under left-side, left-back, or left-bottom piping.

- Insert the drain hose to a depth of 50mm or more so it will not be pulled out of the drain pipe.

## 4 WIRING

Do not use taped wires, extension cords, or starburst connections, as they may cause overheating, electrical shock, or fire. Do not use locally purchased electrical parts inside the product. Do not branch the power for the drain pump, etc., from the terminal block. Do not connect the power wire to the indoor unit. Doing so may cause electric shock or fire.

- Strip wire ends (20mm).
- Match wire colours with terminal numbers on the indoor and outdoor unit terminal blocks and firmly secure the wires in the corresponding terminals with the screws.
- Connect the earth wire to the corresponding terminals.
- Pull the wires lightly to make sure they are securely connected. Then secure them with the wire retainer.
- In case of connecting to an adapter system, run the remote control cable and attach the S21. (Refer to [5] WHEN CONNECTING AN HA SYSTEM)
- Shape the wires so that the service lid fits securely, then close the service lid.



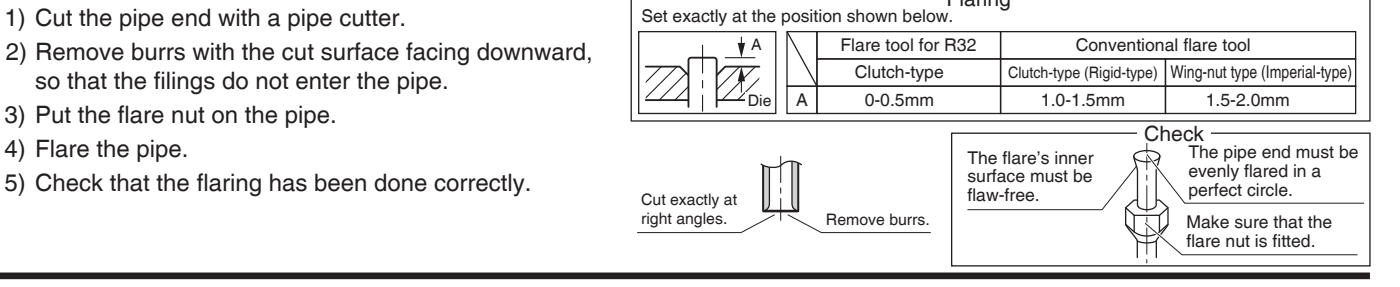
## INDOOR UNIT INSTALLATION (3)

### REFRIGERANT PIPING WORK

Refer to the installation manual for the outdoor unit also.

#### 1 FLARING THE PIPE END

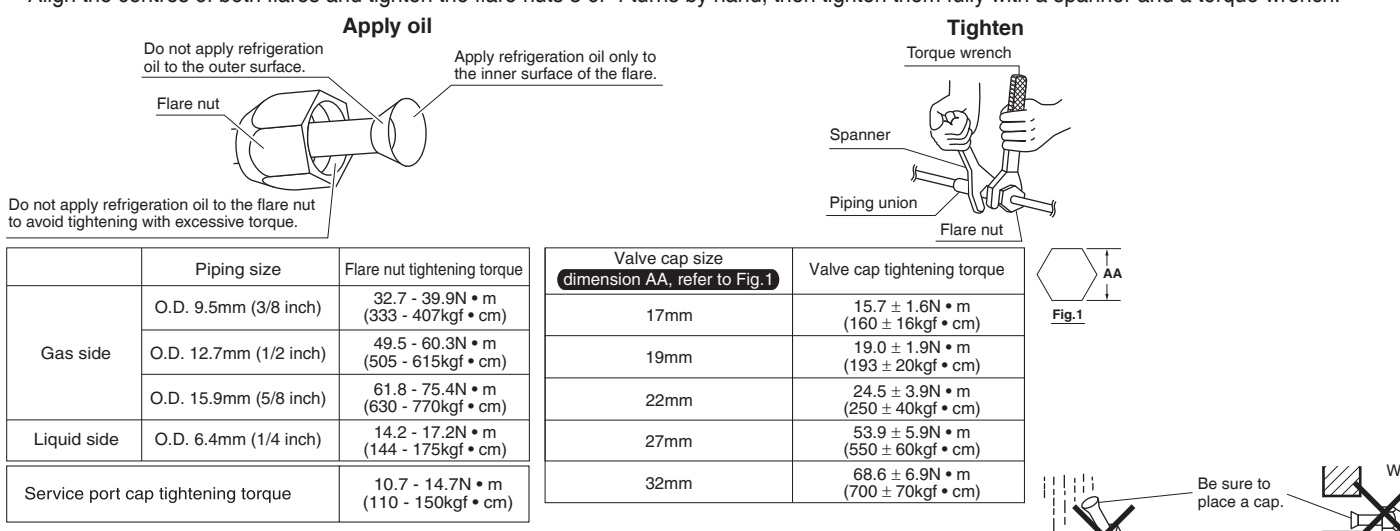
- Do not apply mineral oil to the flare.
- Prevent mineral oil from getting into the system as this would reduce the service life of the units.
- Never use piping which has been used for previous installations. Only use parts which are delivered with this unit.
- Never install a dryer to this R32 unit in order to guarantee its service life.
- The drying material may dissolve and damage the system.
- Incomplete flaring may result in refrigerant gas leakage.
- Do not reuse joints which have been used once already.



#### 2 REFRIGERANT PIPING

Use a flare nut fixed to the main unit. (This is to prevent the flare nut from cracking as a result of deterioration over time.) To prevent gas leakage, apply refrigeration oil only to the inner surface of the flare. (Use refrigeration oil for R32.) Use a torque wrench when tightening the flare nuts to prevent damage to the flare nuts and gas leakage.

- Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand, then tighten them fully with a spanner and a torque wrench.



#### 2-1. Caution on piping handling

- Protect the open end of the pipe against dust and moisture.
- All pipe bends should be as gentle as possible. Use a pipe bender for bending.

#### 2-2. Selection of copper and heat insulation materials

When using commercial copper pipes and fittings, observe the following:

- Insulation material: Polyethylene foam
- Heat transfer rate: 0.041 to 0.052W/mK (0.035 to 0.045kcal/mh°C)
- Refrigerant gas pipe's surface temperature reaches 110°C max.
- Choose heat insulation materials that will withstand this temperature.
- Be sure to insulate both the gas and liquid piping and observe the insulation dimensions as below.

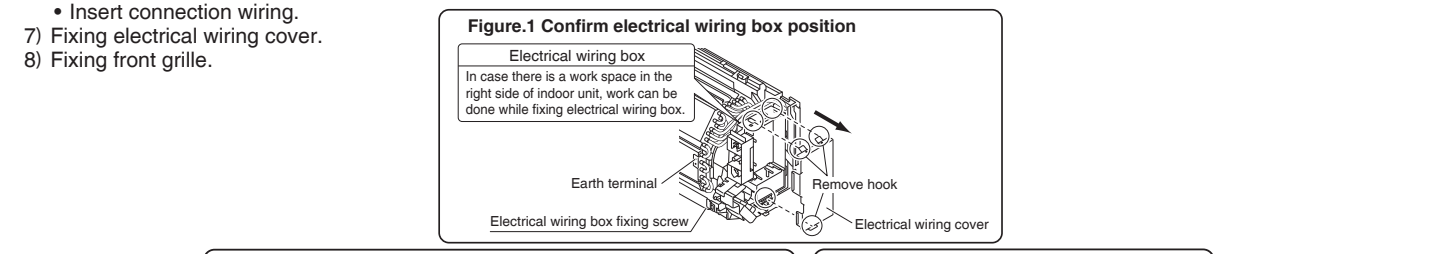
Piping size	Minimum bend radius	Piping thickness	Thermal insulation size	Thermal insulation thickness
Gas side	O.D. 9.5mm (3/8 inch)	32.7 - 39.9N × m (333 - 407kgf × cm)	17mm	10mm Min.
	O.D. 12.7mm (1/2 inch)	49.5 - 60.3N × m (505 - 616kgf × cm)	19mm	
	O.D. 15.8mm (5/8 inch)	61.8 - 75.4N × m (630 - 770kgf × cm)	22mm	
	O.D. 6.4mm (1/4 inch)	14.2 - 17.2N × m (144 - 175kgf × cm)	27mm	
Liquid side	O.D. 6.4mm (1/4 inch)	10.7 - 14.7N × m (110 - 150kgf × cm)	32mm	

Use separate thermal insulation pipes for gas and liquid refrigerant pipes.

## 5 WHEN CONNECTING AN HA SYSTEM

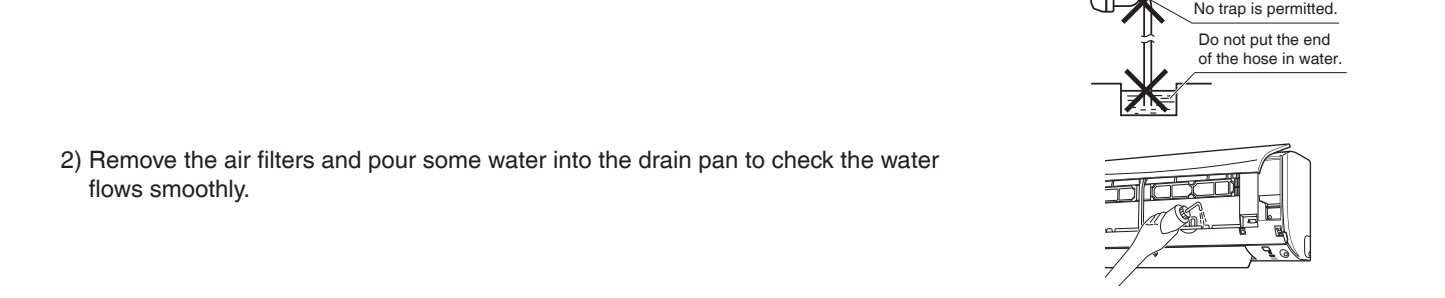
For this procedure, separately sold parts are needed.

- In case there is a work space in the right side of indoor unit, the procedure can be done while fixing electrical wiring box. (Skip to remove electrical wiring box if it is possible, in order to make effective work. (For details, refer fixing manual which attached in HA board))
- Remove front grille. (For 20/25/35/46 class: 2 screws, for 50/60/71 class: 3 screws)
- Remove electrical wiring cover. (Figure 1)
- Remove electrical wiring box.
- Remove inter-unit wire.
- Remove fan motor connector (S200), swing motor connector (S6).
- Remove thermostat, earth wire from heat exchanger unit. (1 screw)
- Remove electrical wiring box fixing screw. (1 screw)
- Fixing HA board (option part) at electrical wiring box. (Figure 2)
- Fixing HA board (option part) at electrical wiring box connector (S403).
- Insert HA connector code to HA connector S21 (white) of HA board (option part).
- Insert HA connection code to HA connector S16 that corresponded to JEM-A standard is blue color. (HA connector S16 that corresponded to JEM-A standard is blue color.)
- Wireing HA connection code as follows. (Figure 3)
- Fix electrical wiring.
- Fixing electrical wiring box fixing screw. (1 screw)
- Fixing thermostat, earth wire to heat exchanger unit.
- Fixing fan motor connector (S200), swing motor connector (S6).
- Fixing electrical wiring cover.
- Fixing front grille.

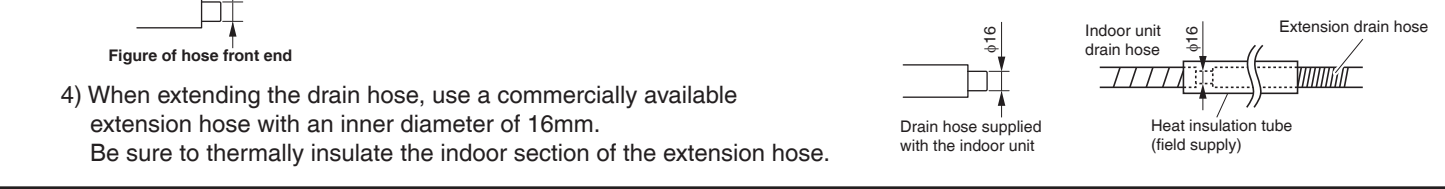


## 6 DRAIN PIPING

- Connect the drain hose, as described on the right.



- Remove the air filters and pour some water into the drain pan to check the water flows smoothly.
- If drain hose extension or embedded drain piping is required, use appropriate parts that match the hose front end.



- When extending the drain hose, use a commercially available extension hose with an inner diameter of 16mm. Be sure to thermally insulate the indoor section of the extension hose.

## TRIAL OPERATION AND TESTING

- Before starting the trial operation, measure the voltage at the primary side of the circuit breaker.
- Check that all liquid and gas stop valves are fully open.
- Check that piping and wiring all match.

■ Trial operation should be carried out in COOL or HEAT operation.

**1-1 Measure the supply voltage and make sure that it is within the specified range.**  
**1-2 In COOL operation, select the lowest programmable temperature; in HEAT operation, select the highest programmable temperature.**

**1-3 Carry out the trial operation following the instructions in the operation manual to ensure that all functions and parts, such as the movement of the flap, are working properly.**

- To protect the air conditioner, restart operation is disabled for 3 minutes after the system has been turned off.
- When trial operation is conducted in HEAT operation directly after the circuit breaker is turned on, in some cases no air will be output for about 10 minutes in order to protect the air conditioner.

**1-4 After trial operation is complete, set the temperature to a normal level (26°C to 28°C in COOL operation, 20°C to 24°C in HEAT operation).**

- When operating the air conditioner in COOL operation in winter, or HEAT operation in summer, set it to the trial operation mode using the following method.

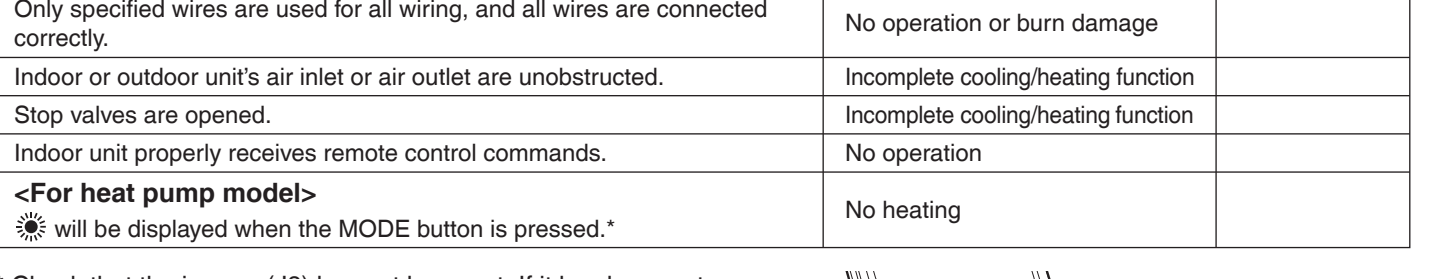
- Press **ON/OFF** to turn on the system.
- Press **MODE** and **MODE** at the same time.
- Press **MODE**, select "T", and press **MODE** for confirmation.

■ Trial operation will stop automatically after about 30 minutes. To stop the operation, press **ON/OFF**.

- Some of the functions cannot be used in the trial operation mode.
- The air conditioner draws a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
- If the circuit breaker trips to shut off the power to the air conditioner, the system will restore the original operation mode when the circuit breaker is turned on again.

Test items	Test Items	Symptom	Check
Indoor and outdoor units are installed securely.		Fall, vibration, noise	
No refrigerant gas leaks.		Incomplete cooling/heating function	
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.		Water leakage	
Drainage line is properly installed.		Water leakage	
System is properly earthed.		Electrical leakage	
Only specified wires are used for all wiring, and all wires are connected correctly.		No operation or burn damage	
Indoor or outdoor unit's air inlet or air outlet are unobstructed.		Incomplete cooling/heating function	
Stop valves are opened.		Incomplete cooling/heating function	
Indoor unit properly receives remote control commands.		No operation	
<For heat pump model> Jumper (J8) will be displayed when the MODE button is pressed.*		No heating	

\* Check that the jumper (J8) has not been cut. If it has been cut, contact the service shop.



#### ATTENTION

- Even when the air conditioner is not operating, it consumes some electric power. If the customer is not going to use the unit soon after it is installed, turn off the circuit breaker to avoid wasting electricity.