

# DAIKIN AIR CONDITIONER INSTALLATION MANUAL

## Safety Precautions

- Read these Safety Precautions carefully to ensure correct installation.
- This manual classifies the precautions into WARNINGS and CAUTIONS. Be sure to follow all the precautions below; they are all important for ensuring safety.

<b>⚠ WARNINGS</b>	Failure to follow any of WARNING is likely to result in such grave consequences as death or serious injury.
<b>⚠ CAUTIONS</b>	Failure to follow any of CAUTION may in some cases result in grave consequences.

- The following safety symbols are used throughout this manual:

<b>⚠</b>	Be sure to observe this instruction.	<b>⚠</b>	Be sure to establish a proper earth grounding connection.	<b>⚠</b>	Never attempt.
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- After completing installation, test the unit to check for installation errors. Give the user adequate instructions concerning the use and cleaning of the unit according to the Operation Manual.

### WARNINGS

- Installation should be left to the authorized dealer or another trained professional. Improper installation may cause water leakage, electrical shock, fire, or equipment damage.
- Install the air conditioner according to the instructions given in this manual. Incomplete installation may cause water leakage, electrical shock, fire or equipment damage.
- Be sure to use the supplied or exact specified installation parts. Use of other parts may cause the unit to come to lose, water leakage, electrical shock, fire or equipment damage.
- Install the air conditioner on a solid base that is level and can support the unit's weight. An inadequate base or incomplete installation may cause injury or equipment damage in the event the unit falls off the base or comes loose.
- Electrical work should be carried out in accordance with the installation manual and the national, state and local electrical wiring codes. Insufficient capacity or incomplete electrical work may cause electrical shock, fire or equipment damage.
- Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance. Follow all appropriate electrical codes.
- For wiring, use a wire or cable long enough to cover the entire distance with no splices if possible. Do not use an extension cord. Do not put other loads on the power supply. Use a separate dedicated power circuit. Failure to do so may cause abnormal heat, electric shock, fire or equipment damage.
- Use the specified types of wires for electrical connections between the indoor and outdoor units. Follow all state and local electrical codes. Firmly clamp the interconnecting wires so their terminals receive no external stresses. Incomplete connections or clamping may cause terminal overheating, fire or equipment damage.
- After connecting all wiring be sure to shape the cables so that they do not put undue stress on the electrical covers, panels or terminals. Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shock, fire or equipment damage.
- When installing or relocating the system, be sure to keep the refrigerant circuit free from all substances other than the specified refrigerant (R410A), such as air. (Any presence of air or other foreign substance in the refrigerant circuit causes an abnormal pressure rise which may result in rupture, resulting in injury.)
- If any refrigerant has leaked out during the installation work, ventilate the room. (The refrigerant produces a toxic gas if exposed to flames.)
- After all installation is complete, check to make sure that no refrigerant is leaking. (The refrigerant produces a toxic gas if exposed to flames.)
- During pump-down, stop the compressor before removing the refrigerant piping. If the compressor is still running and the shut-off valve is open during pump-down, air will be sucked in when the refrigerant piping is removed, causing abnormally high pressure which could lead to equipment damage and/or personal injury.
- During installation, attach the refrigerant piping securely before running the compressor. If the compressor is not attached and the shut-off valve is open during pump-down, air will be sucked in when the compressor is run, causing abnormally high pressure which could lead to equipment damage and/or personal injury.
- Install an leak circuit breaker, as required. If an leak circuit breaker is not installed, electric shock may result.
- Be sure to establish a ground. Do not ground the unit to a utility pipe, arrester, or telephone ground. Incomplete or inadequate grounding may cause equipment damage, or electrical shock and personal injury. A high surge current from lightning or other sources may cause damage to the air conditioner.
- Be sure to install a ground fault circuit interrupter breaker. Failure to install a ground fault circuit interrupter breaker may result in electrically shocks or personal injury.

### CAUTIONS

- Do not install the air conditioner where gas leakage would be exposed to open flames. If the gas leaks and builds up around the unit, it may catch fire.
- Establish drain piping according to the instructions of this manual. Inadequate piping may cause water damage.
- Note for installing the outdoor unit. (For heat pump model only.) In regions of the country where the outside temperature is at or below the freezing point, the drain may freeze. If so, it is recommended that an electric heater be installed in order to protect the drain from freezing.
- Tighten the flare nut according to the specified torque. A torque wrench should be used. If the flare nut is tightened too much, the flare nut may crack over time and cause refrigerant leakage.
- Do not touch the heat exchanger fins. Improper handling may result in injury.
- Be very careful about product transportation. Some products use PP bands for packaging. Do not use any PP bands for a means of transportation. It is dangerous.

## Accessories

(A) Mounting plate	1	(E) Remote controller holder	1	(K) Operation manual	1
(B) Mounting plate fixing screws M3/16" X 1"L	10	(F) Fixing screws for remote controller holder M1/8" X 13/16"L	2	(L) Installation manual	1
(C) Air-purifying filter with photocatalytic deodorizing function	2	(G) AAA dry-cell batteries	2		
(D) Wireless remote controller	1	(H) Indoor unit fixing screws M3/16" X 1/2"L	2		

## Choosing a Site

- Before choosing the installation site, obtain user approval.

### 1. Indoor unit

- The indoor unit should be sited in a place where:
  - the restrictions on installation specified in the indoor unit installation drawings are met,
  - both air intake and exhaust have clear paths met,
  - the unit is not in the path of direct sunlight,
  - the unit is away from the source of heat or steam,
  - there is no source of machine oil vapour (this may shorten indoor unit life),
  - cool air is circulated throughout the room,
  - the unit is away from electronic ignition type fluorescent lamps (inverter or rapid start type) as they may shorten the remote control range,
  - the unit is at least 3.5ft away from any television or radio set (unit may cause interference with the picture or sound).

### 2. Wireless Remote Controller

- Turn on all the fluorescent lamps in the room, if any, and find the site where remote control signals are properly received by the indoor unit (within 23ft).

## Installation Tips

### 1. How to remove the front grille.

- Hold the grille by the tabs on the two sides and lift it until it stops with a click.
- Supporting the front grille with one hand, release the lock by sliding down the knob with the other hand.
- To remove the front grille, pull it toward yourself with both hands.

### 2. How to attach the front grille.

- Set the 3 keys of the front grille into the slots and push them in all the way.
- Supporting the front grille with one hand, fit the lock by sliding up the knob with the other hand.
- Close the front grille slowly in this state. (Push the grille at the 3 points, two at both sides and in the middle.)

### 3. How to remove the front panel.

- Open the front grille.
- Remove the screws (2 pcs) on the front panel.
- Put the lower part of the front panel toward you, then remove the front panel completely. (There are 2 hooks on the upper part.) If it is difficult to remove, open the front grille and raise the top grid, using a screwdriver, to unlock the hooks.

### 4. How to attach the front panel.

- Attach the front panel to the front grille, and lock the upper hooks (2 points) securely.
- Tighten the screws (2) on the front panel.
- Close the front grille.

### 5. How to set the different addresses.

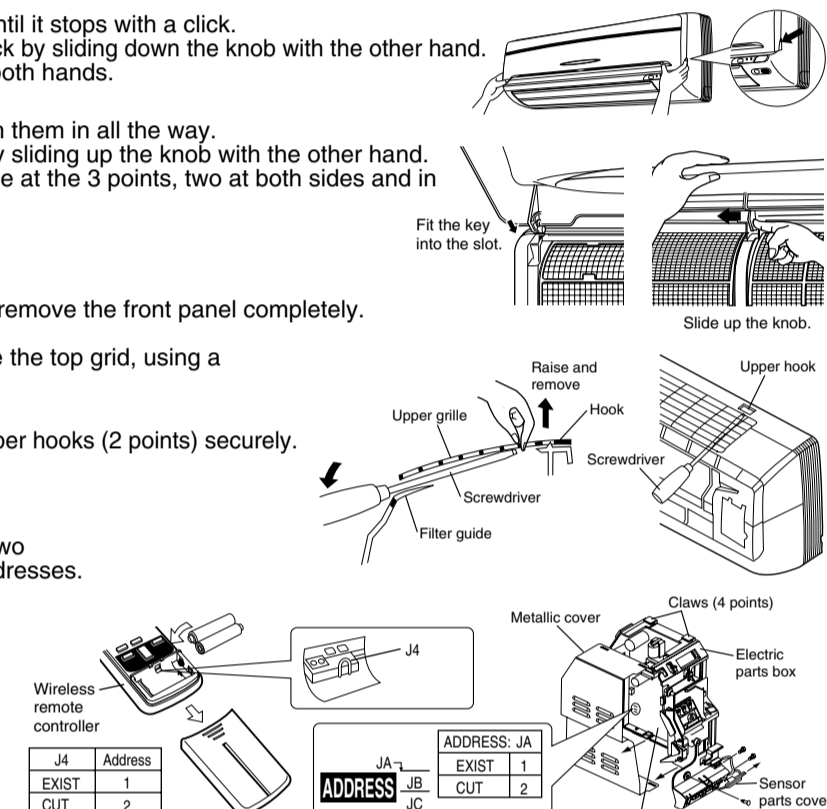
- When two indoor units are installed in one room, the two wireless remote controllers can be set for different addresses.

### 6. PCB in the indoor unit

- Remove the front panel.
- Remove the screws (2 pcs) on the PCB cover, then remove the electric parts box (1-screw).
- Slide the metallic cover to remove it. (4-claws on the electric parts box.)
- Cut the jumper JA on PCB.

### 7. Wireless remote controller

- Cut the jumper JA.



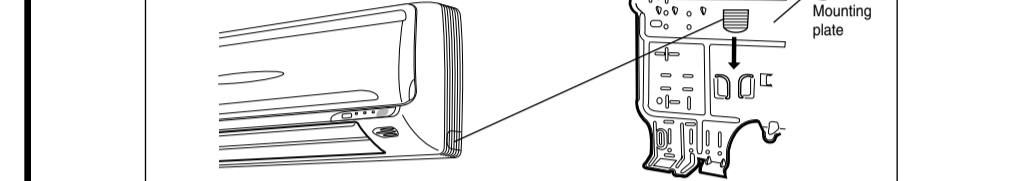
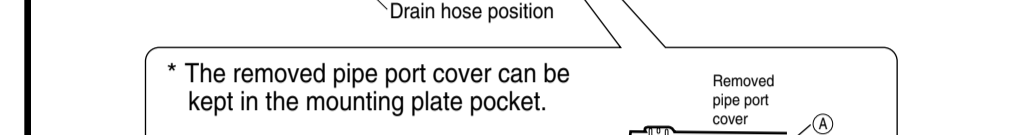
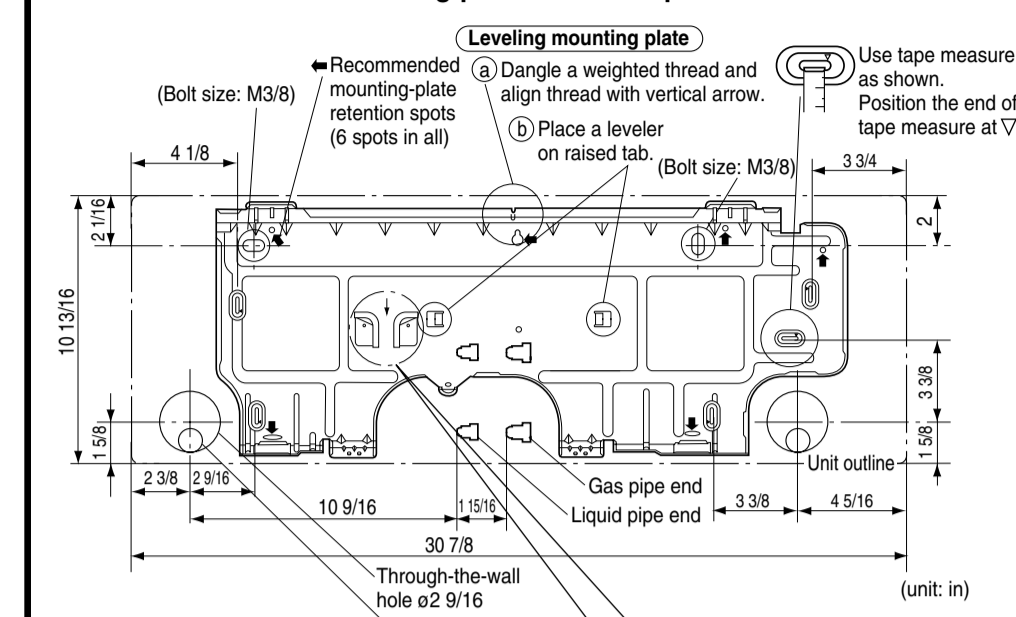
## Indoor Unit Installation

### 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 panel is completely level, and mark the boring points on the wall.
- Secure the mounting plate to the wall with screws.

### Recommended mounting-plate retention spots and Dimensions



### 2. Boring a wall hole and installing wall embedded pipe

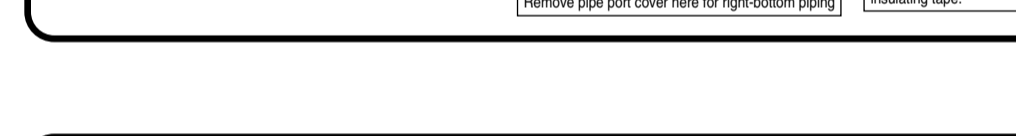
- For walls containing metal frame or metal board, be sure to use a wall embedded pipe and wall cover in the feed-through hole to prevent possible heat, electrical shock, or fire.
- Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.

- Bore a feed-through hole of 2 9/16in in the wall so it has a down slope toward the outside.
- Insert a wall pipe into the hole.
- Insert a wall cover into wall pipe.
- After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.

### 3. Installing indoor unit

#### 3-1. Right-Side, Right-Back, or Right-Bottom Piping

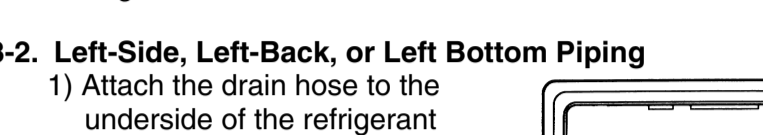
- Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- Wrap the refrigerant pipes and drain hose together with insulation tape.



### 3-2. Left-Side, Left-Back, or Left Bottom Piping

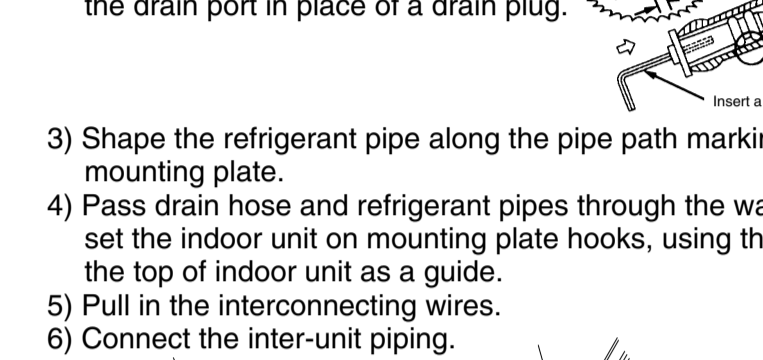
- Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.

- Be sure to connect the drain hose to the drain port in place of a drain plug.
- Shape the refrigerant pipe along the pipe path marking on the mounting plate.
- Pass drain hose and refrigerant pipes through the wall hole, then set the indoor unit on mounting plate hooks, using the  $\Delta$  markings at the top of indoor unit as a guide.
- Pull in the interconnecting wires.
- Connect the inter-unit piping.



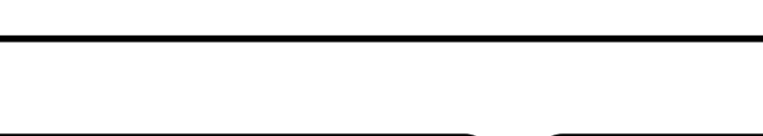
### 3-3. Wall Embedded Piping

- Follow the instructions given under **Left-Side, Left-Back, or Left Bottom Piping**



### 4. Wiring

- Strip wire ends (9/16in).
- Match wire colours with terminal numbers on indoor and outdoor units' terminal blocks and firmly screw wires to the corresponding terminals.
- Connect the earth wires to the corresponding terminals.
- Pull wires to make sure that they are securely latched up, then retain wires with wire retainer.
- Shape the wires so that the service lid fits securely, then close service lid.

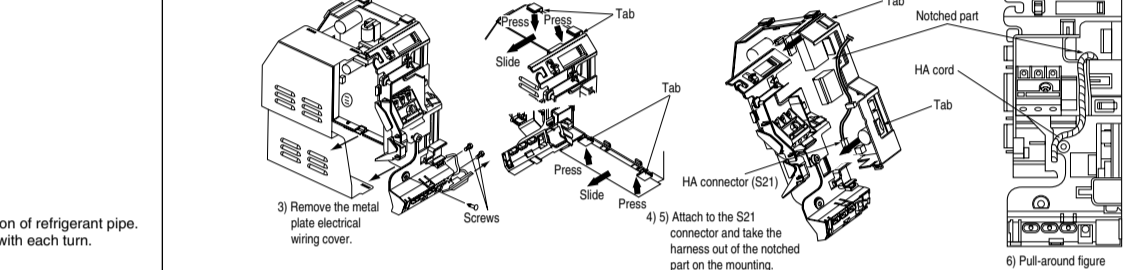


### 4. Wiring

- Do not use spliced wires, stand wires, extension cords, or starburst connections, as they may cause overheating, electrical shock, or fire. Follow all Local, and State electrical codes.
- Do not use locally purchased electrical parts inside the product. (Do not overload the circuit by adding drain pump or other electrical equipment to unit terminals.) Doing so may cause electric shock or fire.
- When carrying out wiring connection, take care not to pull at the conduit.

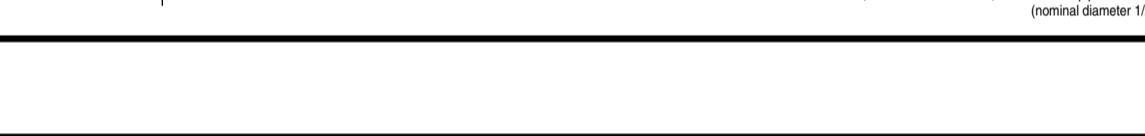
### 5. When connecting to an HA system

- Remove the front grille. (2 screws)
- Remove the electrical wiring box. (3 screws)
- Remove the metal plate electrical wiring cover. (4 tabs)
- Remove the resin plastic electrical wiring cover. (2 tabs)
- Attach the connection cord to the S21 connector and pull the harness out through the notched part in the figure.
- Replace the electrical wiring cover as it was, and pull the harness around, as shown in the figure.

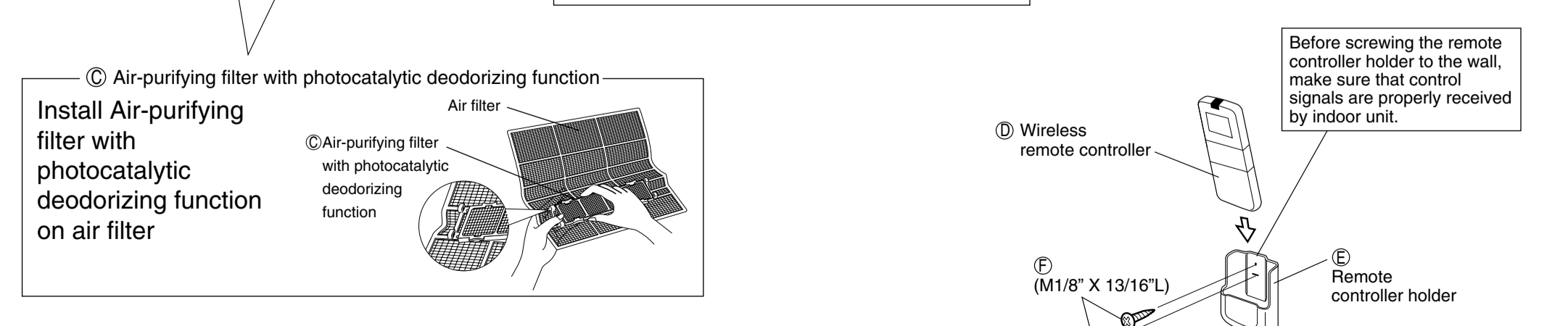
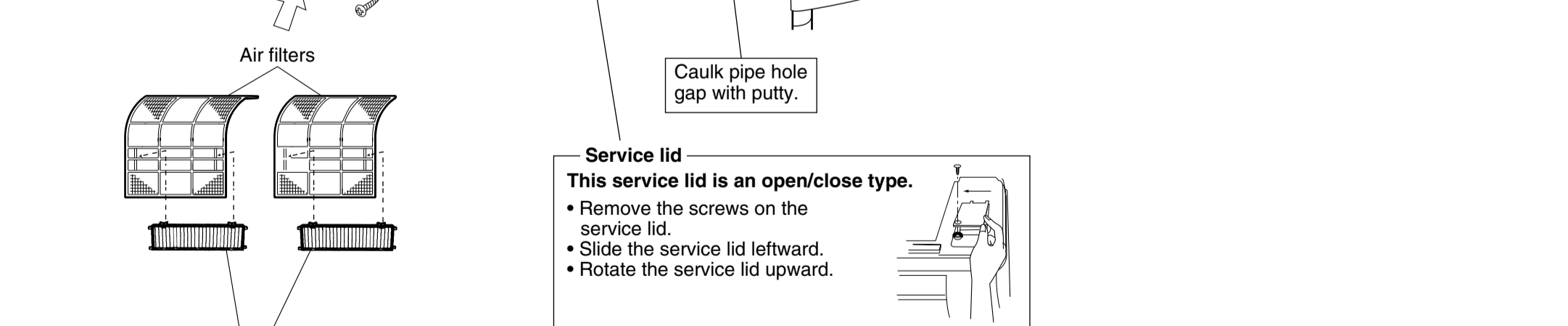
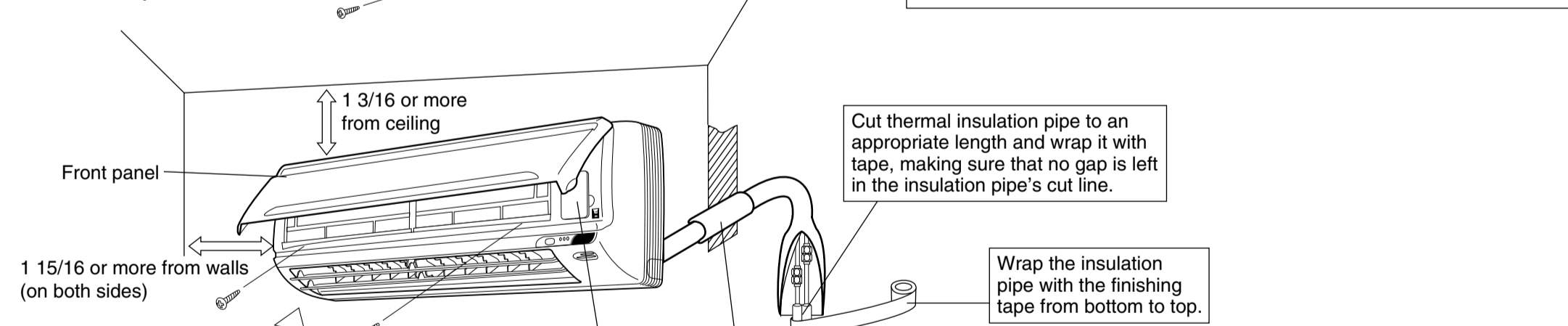
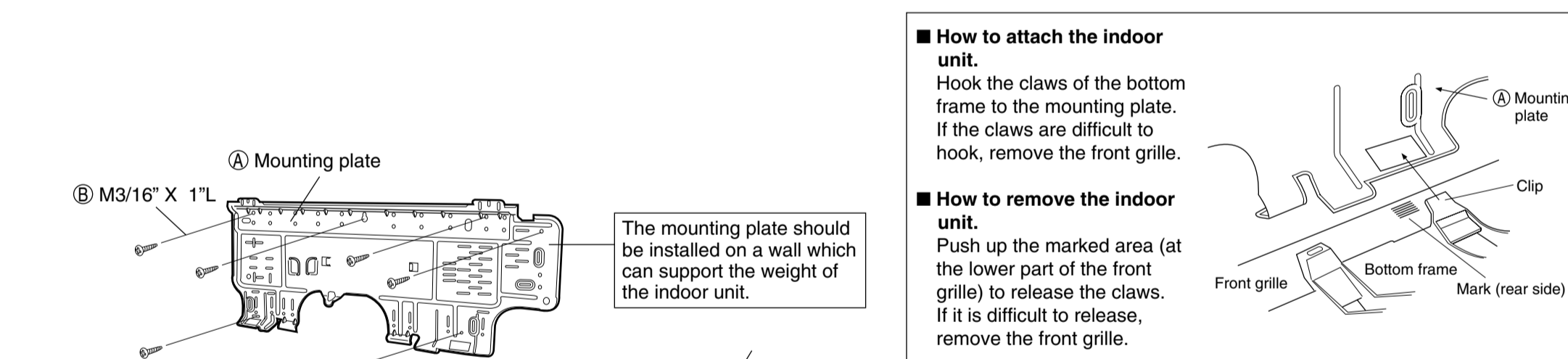


### 6. Drain piping.

- Connect the drain hose, as described below.
  - The drain hose should be without obstruction. No trap is permitted.
  - Do not put the end of the hose in water.
- Remove the air filters and pour some water into the drain pan to check the water flows smoothly.
- When drain hose requires extension, obtain an extension hose commercially available. Be sure to thermally insulate the indoor section of the extension hose.
- When connecting a rigid polyvinyl chloride pipe (nominal diameter 1/2in) directly to the drain hose attached to the indoor unit as with embedded piping work, use any commercially available drain socket (nominal diameter 1/2in) as a joint.
  - Commercially available drain socket (nominal diameter 1/2in)
  - Commercially available rigid polyvinyl chloride pipe (nominal diameter 1/2in)



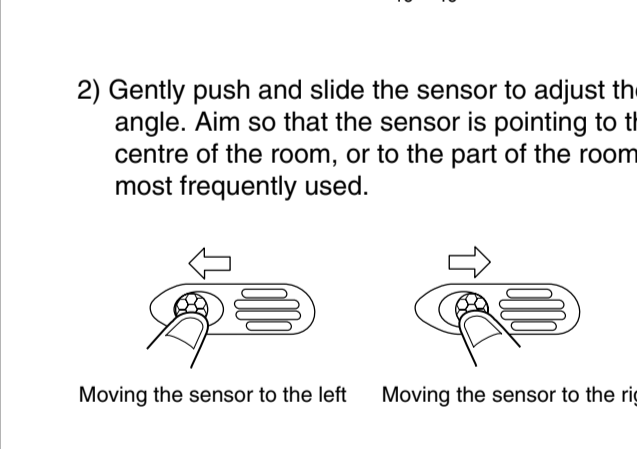
## Indoor Unit Installation Drawings



## Intelligent-Eye Sensor

### 1. Adjusting the angle

- Once installation of the indoor unit is complete, adjust the angle of the Intelligent-eye sensor to ensure the detection area properly covers the room. (Adjustable angle: 15° to right and left of centre)
- Gently push and slide the sensor to adjust the angle. Aim so that the sensor is pointing to the centre of the room, or to the part of the room that is most frequently used.



### Caution

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

## Refrigerant piping work

### 1. Flaring the pipe end

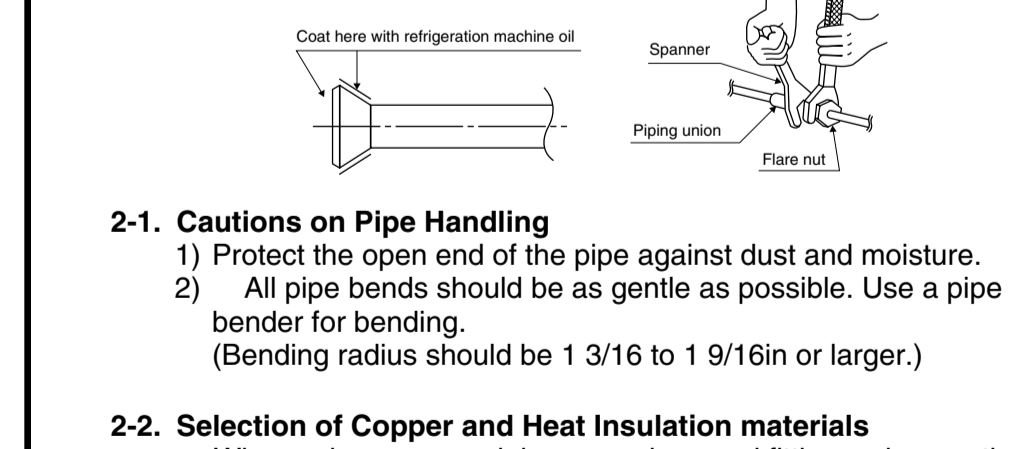
- Cut the pipe end with a pipe cutter.
- Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
- Put the flare nut on the pipe.
- Flare the pipe.
- Check that the flaring is properly made.

### Warning

- Do not use mineral oil on flared part.
- Prevent mineral oil from getting into the system as this would reduce the unit life.
- Never use piping which has been used for previous installations. Only use parts which are provided with the unit.
- Do never install a refrigerant drier to this unit.
- The drying material may dissolve and damage the system.
- Incomplete or improper flaring may cause refrigerant gas leakage.

### 2. Refrigerant piping

- Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.
  - Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.
- To prevent gas leakage, apply refrigeration machine oil on both inner and outer surfaces of the flare.



### 2-1. Cautions on Pipe 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. (Bending radius should be 1 3/16 to 1 9/16in or larger.)

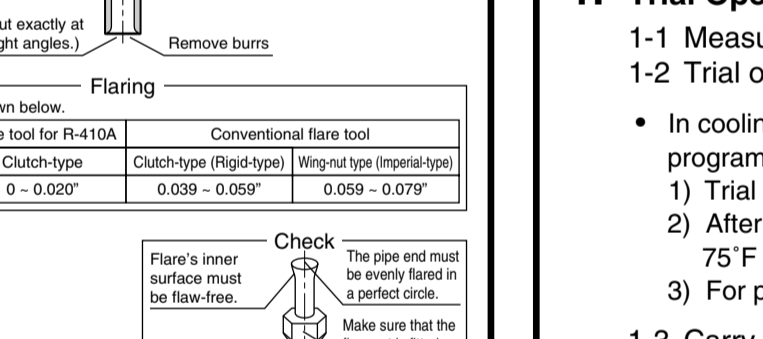
### 2-2. Selection of Copper and Heat Insulation materials

- When using commercial copper pipes and fittings, observe the following:
  - Insulation material: Polyethylene foam
  - Heat transfer rate: 0.041 to 0.052 kW/mK (0.024-0.030 Btu/ft<sup>2</sup>/h)
  - Refrigerant gas pipe's surface temperature reaches 230°F max. Choose heat insulation materials that will withstand this temperature.
  - Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

Gas side	Liquid side	Gas pipe thermal insulation	Liquid pipe thermal insulation
09/12 class	09/12 class	I.D. 0.472-0.590	I.D. 0.315-0.393
O.D. 3/8	O.D. 1/4	Thickness 0.031	Thickness 0.393 Min.

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

### Flaring

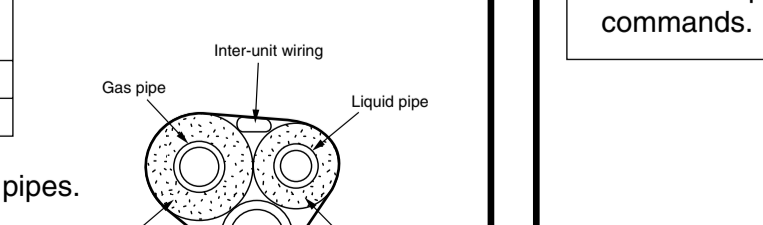
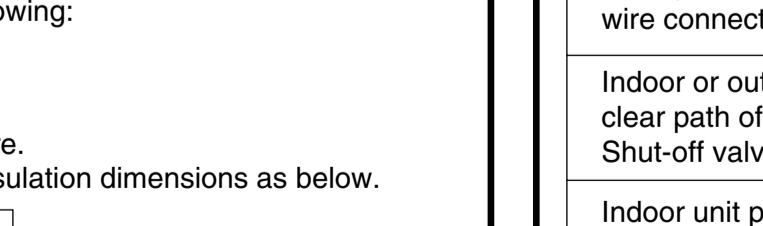
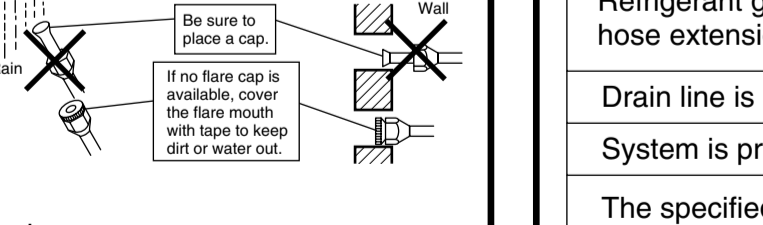


### Check

- The pipe end must be level/flared in a perfect circle.
- Make sure that the flare nut is fitted.

Flare nut tightening torque	
Gas side	Liquid side
3/8 inch	1/4 inch
24.1-29.4ft • lbf	10.4-12.7ft • lbf

Valve cap tightening torque	
Gas side	Liquid side
3/8 inch	1/4 inch
15.9-20.2ft • lbf	



## Trial Operation and Testing

### 1. Trial Operation and Testing.

- 1-1 Measure the supply voltage and make sure that it falls in the specified range.
- 1-2 Trial operation should be carried out in either cooling or heating mode.
  - In cooling mode, select the lowest programmable temperature; in heating mode, select the highest programmable temperature.
  - Trial operation may be disabled in either mode depending on the room temperature.
  - After trial operation is complete, set the temperature to a normal level (78°F to 82°F in cooling mode, 68°F to 75°F in heating mode).
  - For protection, the unit disables restart operation for 3 minutes after it is turned off.
- 1-3 Carry out the test operation in accordance with the Operation Manual to ensure that all functions and parts are working properly.
  - The air conditioner requires 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 opened again.

### Trial operation from Remote Controller

- Press ON/OFF button to turn on the system.
- Simultaneously press center of TEMP button and MODE button.
- Press MODE button twice. ("T" will appear on the display to indicate that Trial Operation mode is selected.)
- Trial run mode terminates in approx. 30 minutes and switches into normal mode. To quit a trial operation, press ON/OFF button.

### 2. Test Items.

Test Items	Symptom	Check
Indoor and outdoor units are installed properly on solid bases.	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	
Drain line is properly installed.	Water leakage	
System is properly ground to earth.	Electrical leakage	
The specified wires are used for interconnecting wire connections.	Inoperative or burn damage	
Indoor or outdoor unit's air intake or exhaust has clear path of air. Shut-off valves are opened.	Incomplete cooling/heating function	
Indoor unit properly receives remote control commands.	Inoperative	