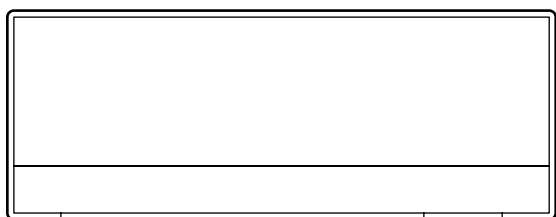




# INSTALLATION MANUAL

## R410A Split Series



### Models

**FTXG25EV1BW    FTXG25EV1BS**  
**FTXG35EV1BW    FTXG35EV1BS**  
**CTXG50EV1BW    CTXG50EV1BS**  
**ATXG25EV1B**  
**ATXG35EV1B**  
**ATXG50EV1B**

Installation manual  
R410A Split series

**English**

Installationsanleitung  
Split-Baureihe R410A

**Deutsch**

Manuel d'installation  
Série split R410A

**Français**

Montagehandleiding  
R410A Split-systeem

**Nederlands**

Manual de instalación  
Serie Split R410A

**Español**

Manuale d'installazione  
Serie Multiambienti R410A

**Italiano**

Εγχειρίδιο εγκατάστασης  
διαιρούμενης σειράς R410A

**Ελληνικά**

Manual de Instalação  
Série split R410A

**Portugues**

Руководство по монтажу  
Серия R410A с раздельной установкой

**Русский**

Montaj kılavuzları  
R410A Split serisi

**Türkçe**






# Safety Precautions

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

**⚠ WARNING**.....Failure to follow any of WARNING is likely to result in such grave consequences as death or serious injury.

**⚠ CAUTION**.....Failure to follow any of CAUTION may in some cases result in grave consequences.

- The following safety symbols are used throughout this manual:


 Be sure to observe this instruction.	 Be sure to establish an earth connection.	 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.

## WARNING

• Installation should be left to the dealer or another professional. Improper installation may cause water leakage, electrical shock, or fire.
• Install the air conditioner according to the instructions given in this manual. Incomplete installation may cause water leakage, electrical shock, or fire.
• Be sure to use the supplied or specified installation parts. Use of other parts may cause the unit to come to lose, water leakage, electrical shock, or fire.
• Install the air conditioner on a solid base that can support the unit's weight. An inadequate base or incomplete installation may cause injury in the event the unit falls off the base.
• Electrical work should be carried out in accordance with the installation manual and the national electrical wiring rules or code of practice. Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
• Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance.
• For wiring, use a cable long enough to cover the entire distance with no connection. Do not use an extension cord. Do not put other loads on the power supply, use a dedicated power circuit. (Failure to do so may cause abnormal heat, electric shock or fire.)
• Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the interconnecting wires so their terminals receive no external stresses. Incomplete connections or clamping may cause terminal overheating or fire.
• After connecting interconnecting and supply wiring be sure to shape the cables so that they do not put undue force on the electrical covers or panels. Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shock, or fire.
• 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 out. (The refrigerant produces a toxic gas if exposed to flames.) 
• When installing or relocating the system, be sure to keep the refrigerant circuit free from 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 or rupture, resulting in injury.)
• 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 abnormal pressure in the freezer cycle which will lead to breakage and even 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 abnormal pressure in the freezer cycle which will lead to breakage and even injury.
• Be sure to establish an earth. Do not earth the unit to a utility pipe, arrester, or telephone earth. Incomplete earth may cause electrical shock, or fire. A high surge current from lightning or other sources may cause damage to the air conditioner. 
• Be sure to install an earth leakage breaker. Failure to install an earth leakage breaker may result in electric shocks, or fire.

## CAUTION

• Do not install the air conditioner in a place where there is danger of exposure to inflammable gas leakage. 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 flooding.
• Note for installing the outdoor unit. (For heat pump model only.) In cold area where the outside air temperature keep below or around freezing-point for a few days, the outdoor unit's drain may freeze. If so, it is recommended to install an electric heater in order to protect drain from freezing.
• Tighten the flare nut according to the specified method such as with a torque wrench. If the flare nut is tightened too hard, the flare nut may crack after a long time and cause refrigerant leakage.

# Accessories

**Indoor unit** (A) – (H)

(A) Mounting plate	1	(D) Remote controller holder	1	(G) Operation manual	1
(B) Titanium Apatite Photocatalytic Air-Purifying Filter	2	(E) AAA dry-cell batteries	2	(H) Installation manual	1
(C) Wireless remote controller	1	(F) Indoor unit fixing screws (M4 × 12L)	1		

## Choosing a Site

- Before choosing the installation site, obtain user approval.

### 1. Indoor unit

- The indoor unit should be sited in a place where:
  - 1) the restrictions on installation specified in the indoor unit installation drawings are met,
  - 2) both air intake and exhaust have clear paths met,
  - 3) the unit is not in the path of direct sunlight,
  - 4) the unit is away from the source of heat or steam,
  - 5) there is no source of machine oil vapour (this may shorten indoor unit life),
  - 6) cool (heat) air is circulated throughout the room,
  - 7) the unit is away from electronic ignition type fluorescent lamps (inverter or rapid start type) as they may shorten the remote control range,
  - 8) the unit is at least 1 metre away from any television or radio set (unit may cause interference with the picture or sound).
  - 9) Install at the recommended height (1.8m).

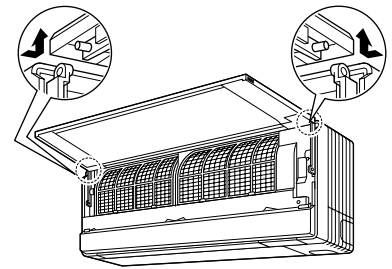
### 2. Wireless remote controller

- 1) 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 7 metres).

# Installation Tips

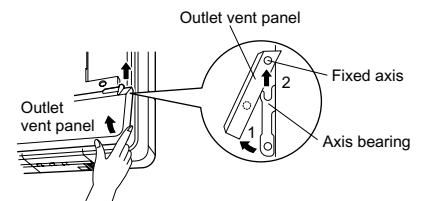
## 1. How to remove and attach the front panel

- Removing the panel
  - 1) Place one finger on the panel tab on either side of the front panel and open it until it is horizontal.
  - 2) Sliding the front panel to the left will cause the revolving axis on the right to come off. The left revolving axis comes off by sliding it to the right.
- Attaching the panel
  - 1) Place the revolving axis on either side of the front panel in the holes and close the front panel slowly. (Press both sides of the front panel.)



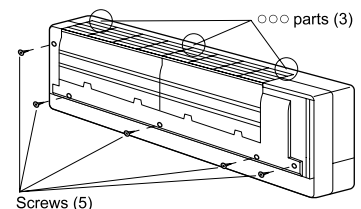
## 2. How to remove and attach the outlet vent panel

- Removing the outlet vent panel
  - 1) Slightly pull the outlet vent panel towards you.
  - 2) Pull it up and remove the fixed axis on either side.
- Attaching the outlet vent panel
  - 1) Insert the fixed axes located on either side of the outlet vent panel into the axle bearings in a hooking motion from above, and slowly close the panel.



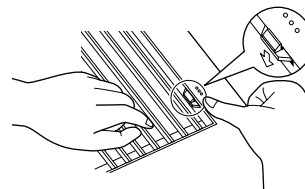
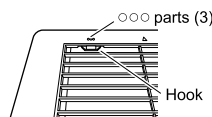
## 3. How to remove and attach the front grill

- Removing the front grill
  - 1) Remove the front panel and the outlet vent panel.
  - 2) Remove the 5 screws in the front grill.



- 3) Disengage the 3 hooks in the front grill.  
(Look for the ○○○ .)

- Attaching the front grill
  - 1) Attach the front grill horizontally and attach the 3 hooks firmly into place.
  - 2) Insert the 5 screws.
  - 3) Attach the outlet vent panel and the front panel.



Gently pull the front grill towards you and with your other hand push down on the hook. (Done in 3 places.)

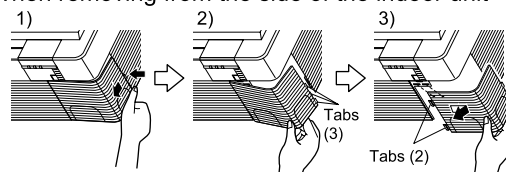
### ⚠ CAUTION

When removing or attaching the front grill, do not touch any electric parts.  
Any static electricity created through contact may cause malfunctions.

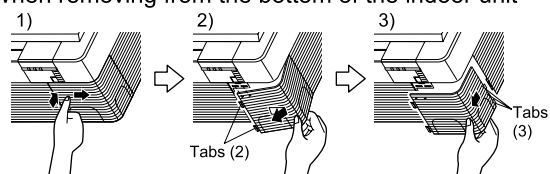
## 4. How to open the indoor unit service lid

- Opening the lid
  - 1) Push and slide the service lid in the direction of the arrow.
  - 2) Disengage the tabs.
  - 3) Slide the other tab in the direction of the arrow.

- When removing from the side of the indoor unit

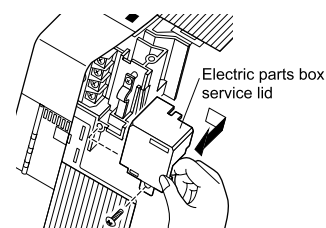


- When removing from the bottom of the indoor unit



- 4) Remove the screw from the bottom of the electric parts box and remove the electric parts box service lid.

- Attaching the lid
  - 1) Attach the electric parts box service lid.
  - 2) Set the tab of the service lid and install the lid.



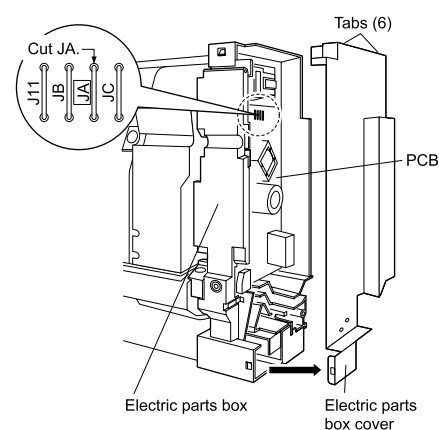
Slide the service lid to the right to remove it.

## 5. How to set the different addresses

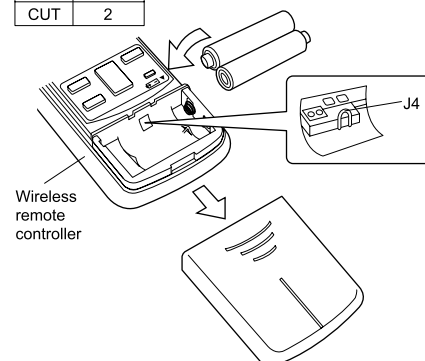
- 1) When two indoor units are installed in one room, the two wireless remote controllers can be set for different addresses.

## 6. PCB in the indoor unit

- 1) Remove the front panel.
- 2) Remove the front grill. (5 screws)
- 3) Remove the electric parts box cover. (6 tabs)
- 4) Cut the address jumper (JA) on the indoor unit circuit board.



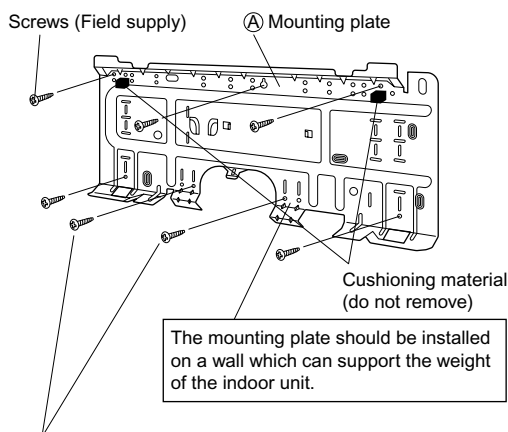
JA/J4	ADDRESS
EXIST	1
CUT	2



## 7. Wireless remote controller

- 1) Cut the jumper J4.

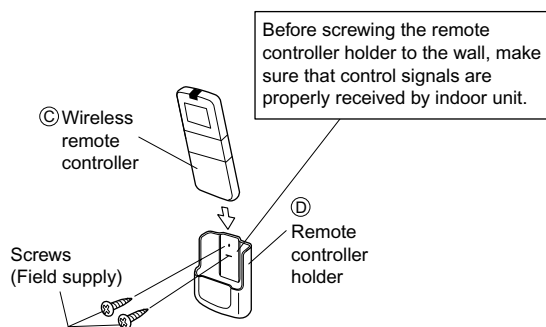
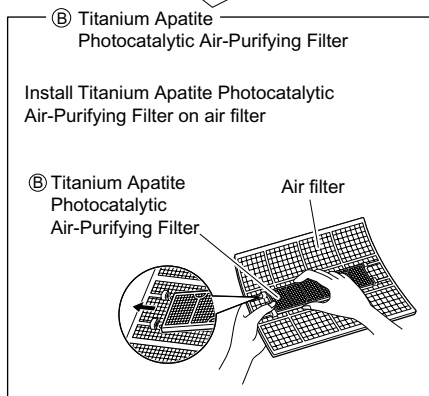
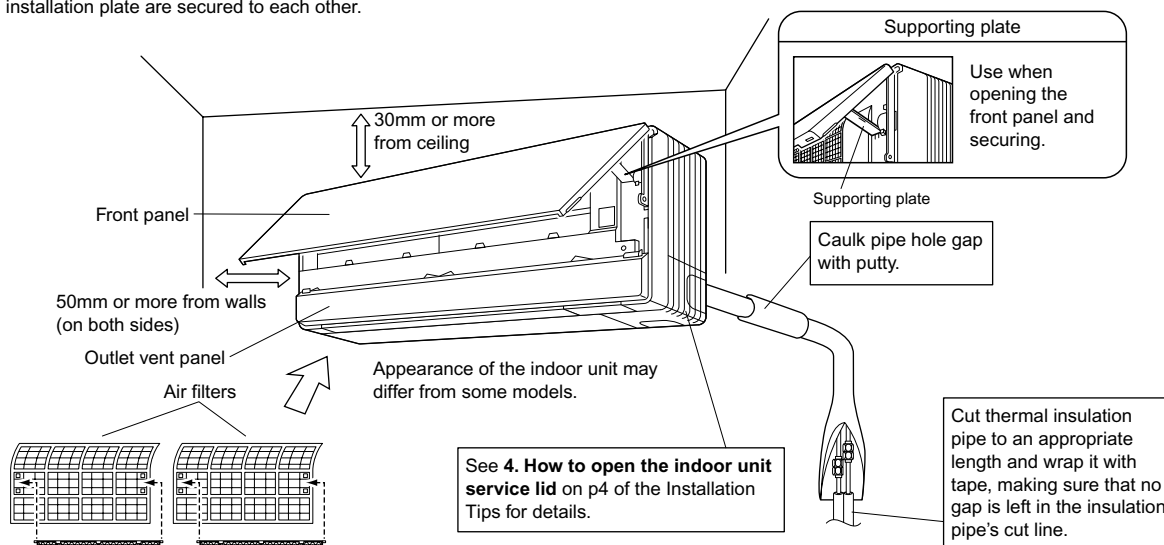
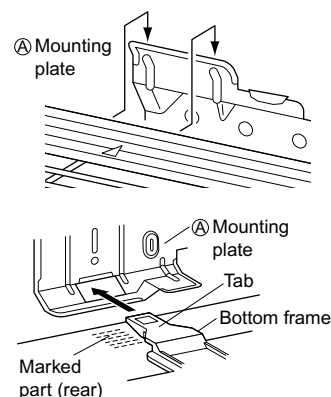
# Indoor Unit Installation Drawings



Secure the installation plate to the wall on the side where the bottom frame and the installation plate are secured to each other.

## Installing and removing the indoor unit

- Attaching the indoor unit
  - 1) Using the 2 △ marks on top of the indoor unit, attach the Ⓐ mounting plate hooks onto the indoor unit.
  - 2) Attach the tabs on the bottom frame firmly onto the Ⓐ mounting plate. (2 on either side)
- Removing the indoor unit
  - 1) Lift the marked parts on the bottom of the front grill, pull the front grill towards yourself and disengage the tabs on the bottom of the frame.
  - 2) Lift up the indoor unit and remove it from the top of the mounting plate.



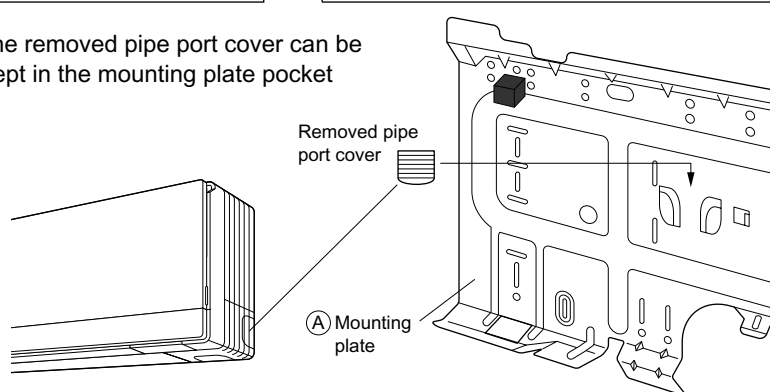
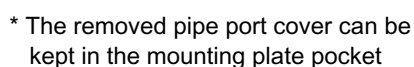
# Intelligent-Eye Sensor

## ⚠ CAUTION

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

## 1. Installing the mounting plate

- ### Recommended mounting plate retention spots and Dimensions



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

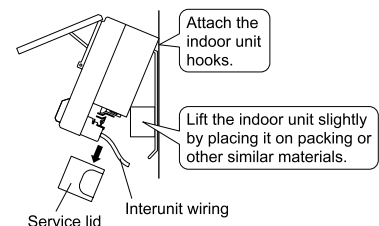
- 
- Inside ↔ Outside
- Wall embedded pipe (Field supply)
- Caulking
- φ65
- Wall hole cover (Field supply)
- Wall embedded pipe (Field supply)



# Indoor Unit Installation

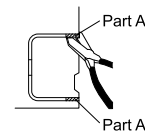
## 3. Installing interunit wiring

- 1) Remove the service lid from the front grill.
- 2) Take off the electric parts box service lid.
- 3) After attaching the mounting plate, connect the interunit wiring as shown in the figure at right.



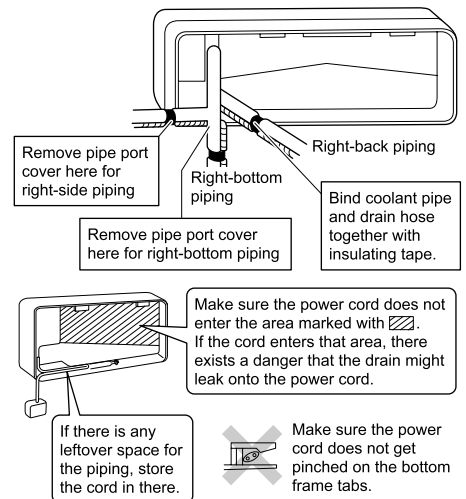
## 4. Laying piping, hoses, and wiring

- Lay the piping and drain hose according to the orientation of the piping coming out of the unit, as shown below.
- Make sure the drain hose is sloped downward.
- Wrap the piping and the drain hose using insulating tape.
- Bind and then shape the pipes, hoses, and wires so that they can fit through the piping through-hole.
- When cutting out the piping through-hole, cut out Part A using nippers along the cut-out groove as shown in the figure at right. Stopping the nippers part-way through Part A may cause it to break.



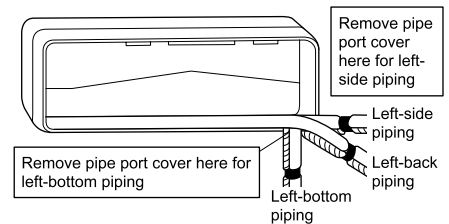
### 4-1. Right-Side, Right-Back, or Right-Bottom Piping

- 1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- 2) Wrap the refrigerant pipes and drain hose together with insulation tape.
- 3) Put all the pipes through the through-hole in the wall and attach the indoor unit to the mounting plate.  
(See p5 **Installing and removing the indoor unit**)
- 4) Connect the pipes.
- 5) Store any excess power cord behind the indoor unit.
- 6) Making sure not to pinch the interunit wiring and the power cord, push on the bottom of the indoor unit with both hands and attach the tabs. If the indoor unit won't attach to the mounting plate, fix the bottom panel to the mounting plate with screws. (In one place on the left side or the right side.)

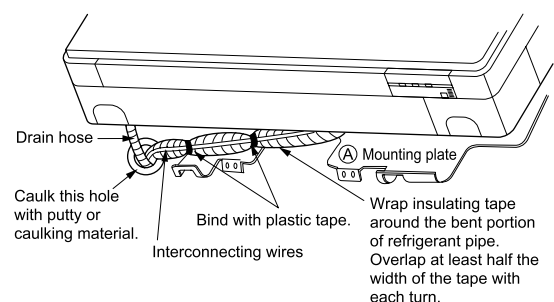
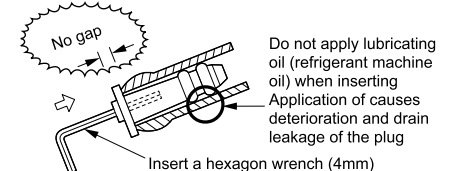


### 4-2. Left-Side, Left-Back, or Left-Bottom Piping

- 1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- 2) Be sure to connect the drain hose to the drain port in place of a drain plug.
  1. Pull out the drain plug.
  2. Pull out the drain hose and reattach it on the left side.
  3. Reattach the drain plug on the right side.
- 3) Pull in the refrigerant piping and lay it so that it matches the liquid and gas piping marked on the mounting plate.
- 4) Attach the indoor unit to the mounting plate.
- 5) Connect the pipes. If it is difficult to do, remove the front grill first.



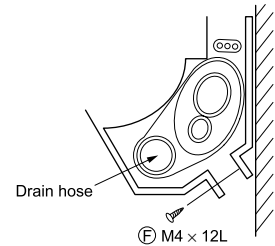
#### How to set drain plug



6) Wrap the insulation on the piping with insulating tape. If you are not replacing the drain hose, store it in the location shown below.

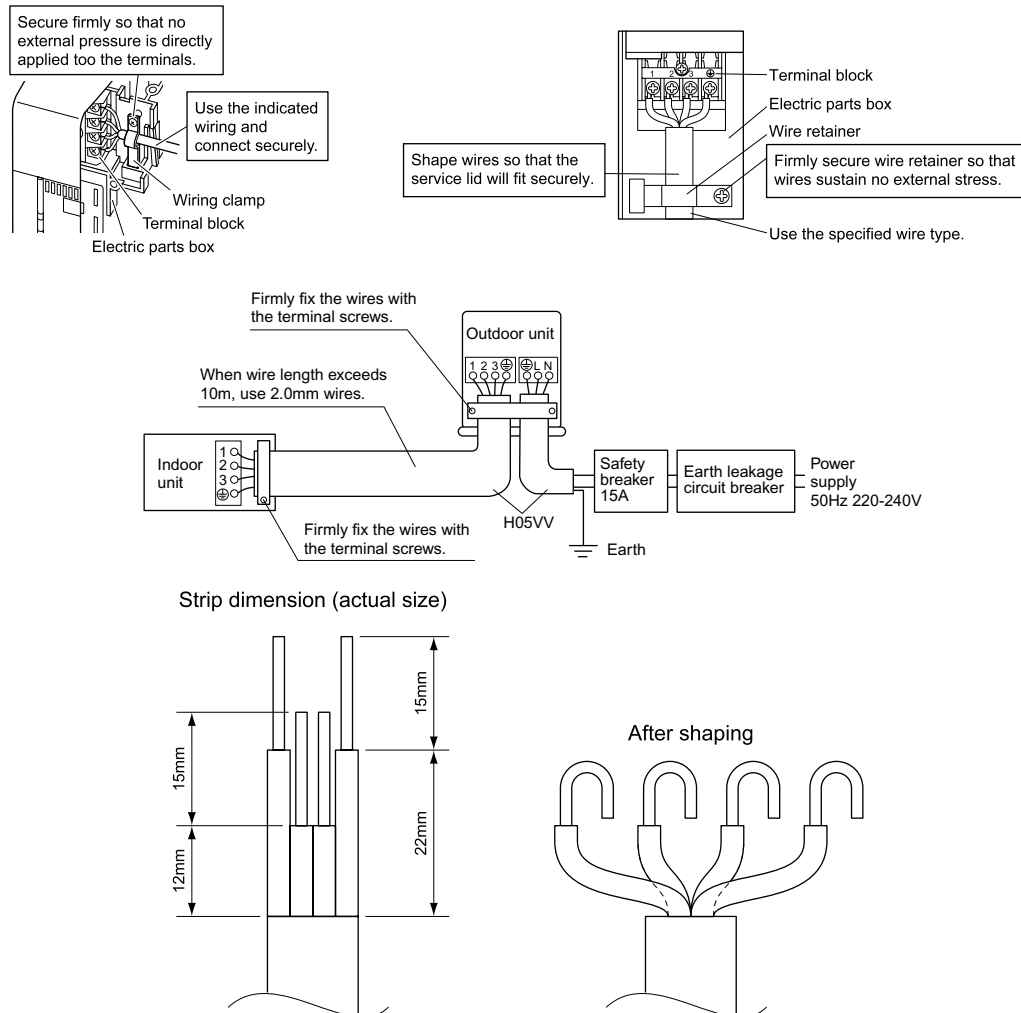
**NOTE:**

1. When fixing the indoor unit screws, use an ⑥ Indoor unit fixing screw (M4 × 12L). (In one place on the left side or the right side.)
- 7) Store any excess power cord behind the indoor unit. (See 4-1. 6))
- 8) Making sure not to pinch the interunit wiring and the power cord, push on the bottom of the indoor unit with both hands and attach the tabs. If the indoor unit won't attach to the mounting plate, fix the bottom panel to the mounting plate with screws. (In one place on the left side or the right side.)



## 5. Wiring

- 1) Strip wire ends (15mm).
- 2) Match wire colours with terminal numbers on indoor and outdoor unit's terminal blocks and firmly screw wires to the corresponding terminals.
- 3) Connect the earth wires to the corresponding terminals.
- 4) Pull wires to make sure that they are securely latched up, then retain wires with wire retainer.
- 5) Shape the wires so that the service lid fits securely, then close service lid.



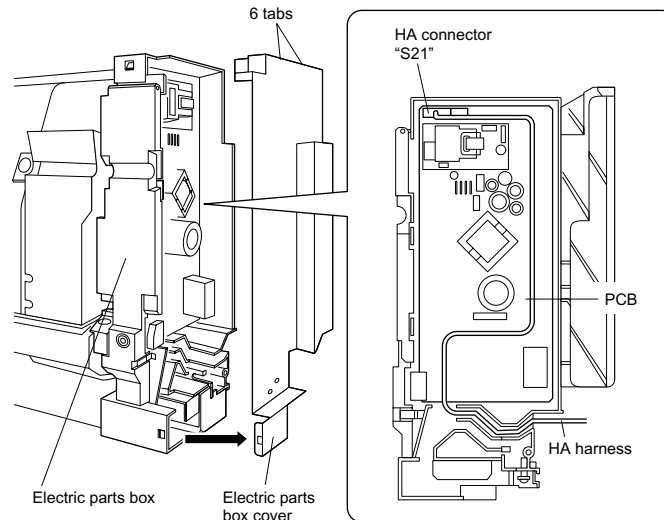
### **⚠ WARNING**

- 1) Do not use tapped wires, stand wires, extensioncords, or starbust connections, as they may cause overheating, electrical shock, or fire
- 2) Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc., from the terminal block.) Doing so may cause electric shock or fire.

# Indoor Unit Installation

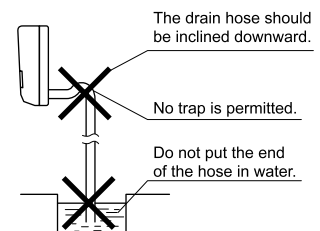
## 6. When connecting to an HA system

- 1) Remove the front grille. (5 screws)
- 2) Remove the metal plate electric parts box cover. (6 tabs)
- 3) Insert the connection cord to the HA connector "S21".
- 4) Lay the connecting cord as shown in the figure below.
- 5) Restore the electric parts box cover and the front grill.

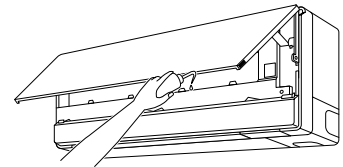


## 7. Drain piping

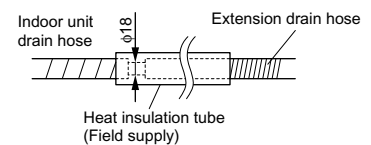
- 1) Connect the drain hose, as described right.



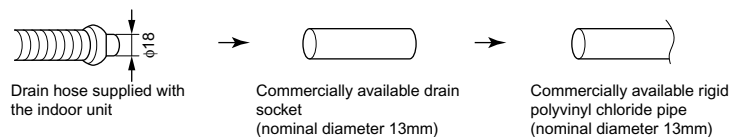
- 2) Remove the air filters and pour some water into the drain pan to check the water flows smoothly.



- 3) When drain hose requires extension, obtain an extension hose commercially available.  
Be sure to thermally insulate the indoor section of the extension hose.



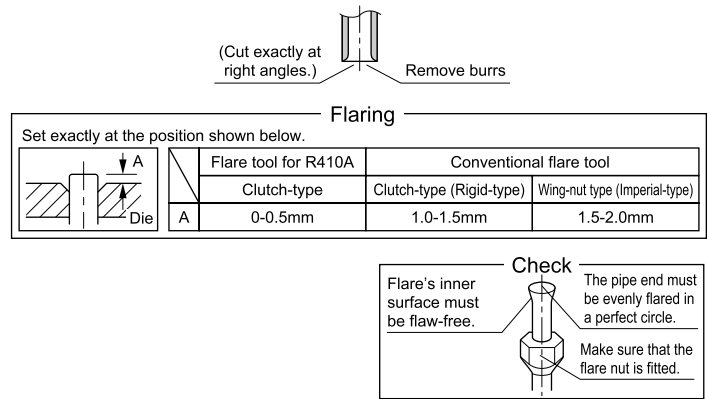
- 4) When connecting a rigid polyvinyl chloride pipe (nominal diameter 13mm) directly to the drain hose attached to the indoor unit as with embedded piping work, use any commercially available drain socket (nominal diameter 13mm) as a joint.



# Refrigerant Piping Work

## 1. Flaring the pipe end

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



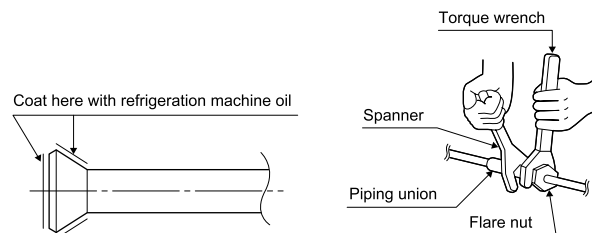
### ⚠ WARNING

- 1) Do not use mineral oil on flared part.
- 2) Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- 3) Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- 4) Do never install a drier to this R410A unit in order to guarantee its lifetime.
- 5) The drying material may dissolve and damage the system.
- 6) Incomplete flaring may cause refrigerant gas leakage.

## 2. Refrigerant piping

- 1) 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.

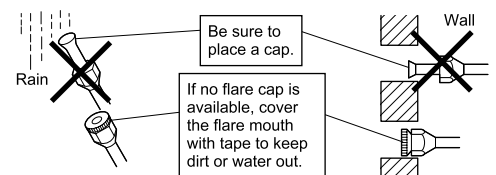
Flare nut tightening torque		
Gas side		Liquid side
3/8 inch	1/2 inch	1/4 inch
32.7-39.9N • m (333-407kgf • cm)	49.5-60.3N • m (505-615kgf • cm)	14.2-17.2N • m (144-175kgf • cm)



- 2) To prevent gas leakage, apply refrigeration machine oil on both inner and outer surfaces of the flare. (Use refrigeration oil for R410A.)

### 2-1. Caution on Piping Handling

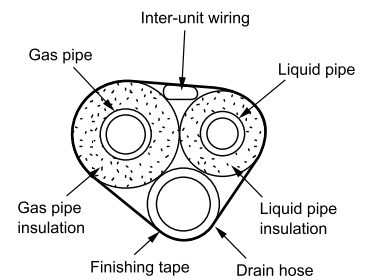
- 1) Protect the open end of the pipe against dust and moisture.
- 2) All pipe bends should be as gentle as possible. Use a pipe bender for bending.  
(Bending radius should be 30 to 40mm or larger.)



# Refrigerant Piping Work

## 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 to provide insulation dimensions as below.

Gas side		Liquid side
25/35 class	50 class	25/35/50 class
O.D. 9.5mm	O.D. 12.7mm	O.D. 6.4mm
Thickness 0.8mm		Thickness 0.8mm
Gas pipe thermal insulation		Liquid pipe thermal insulation
25/35 class	50 class	25/35/50 class
I.D. 12-15mm	I.D. 14-16mm	I.D. 8-10mm
Thickness 10mm Min.		

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

# 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 Make sure the front panel opens and closes smoothly using remote controller.  
(Do not do this using the indoor unit operation/stop button.)
- 1-3 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.
    - 1) Trial operation may be disabled in either mode depending on the room temperature.  
Use the remote control for trial operation as described below.
    - 2) After trial operation is complete, set the temperature to a normal level (26°C to 28°C in cooling mode, 20°C to 24°C in heating mode).
    - 3) For protection, the system disables restart operation for 3 minutes after it is turned off.
- 1-4 Carry out the test operation in accordance with the Operation Manual to ensure that all functions and parts, such as louver movement, 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

- 1) Press ON/OFF button to turn on the system.
- 2) Simultaneously press center of TEMP button and MODE button.
- 3) Press MODE button twice.  
("T" will appear on the display to indicate that Trial Operation mode is selected.)
- 4) 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 (diagnostic display on RC)	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	
Draining line is properly installed.	Water leakage	
System is properly earthed.	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	

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