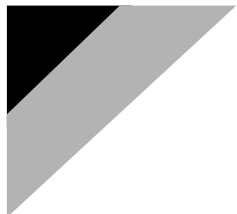


DAIKIN



DAIKIN ROOM AIR CONDITIONER

INSTALLATION MANUAL

R410A Split Series

INVERTER



MODELS

FTXG20LV1BW FTXG20LV1BS

FTXG25LV1BW FTXG25LV1BS

FTXG35LV1BW FTXG35LV1BS

FTXG50LV1BW FTXG50LV1BS




Safety Precautions

- 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 observe 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.
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- After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual.
- The English text is the original instruction. Other languages are translations of the original instructions.

 WARNING	
<ul style="list-style-type: none"> • 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 shocks or fire. 	
<ul style="list-style-type: none"> • Install the air conditioner in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shocks or fire. 	
<ul style="list-style-type: none"> • 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 shocks or fire. 	
<ul style="list-style-type: none"> • Install the air conditioner on a foundation strong enough to withstand the weight of the unit. A foundation of insufficient strength may result in the equipment falling and causing injury. 	
<ul style="list-style-type: none"> • Electrical work must be performed in accordance with relevant local and national regulations and with instructions in this installation manual. Be sure to use a dedicated power supply circuit only. Insufficiency of power circuit capacity and improper workmanship may result in electric shocks or fire. 	
<ul style="list-style-type: none"> • Use a cable of suitable length. Do not use tapped wires or an extension lead, as this may cause overheating, electric shocks or fire. 	
<ul style="list-style-type: none"> • 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. 	
<ul style="list-style-type: none"> • When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the control box lid can be securely fastened. Improper positioning of the control box lid may result in electric shocks, fire or over heating terminals. 	
<ul style="list-style-type: none"> • If refrigerant gas leaks during installation, ventilate the area immediately. Toxic gas may be produced if the refrigerant comes into contact with fire. 	
<ul style="list-style-type: none"> • 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. 	
<ul style="list-style-type: none"> • When installing or relocating the air conditioner, be sure to bleed the refrigerant circuit to ensure it is free of air, and use only the specified refrigerant (R410A). The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury. 	
<ul style="list-style-type: none"> • During installation, attach the refrigerant piping securely before running the compressor. If the refrigerant pipes are not attached and the stop valve is open when the compressor is run, air will be sucked in, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury. 	
<ul style="list-style-type: none"> • During pump-down, stop the compressor before removing the refrigerant piping. If the compressor is still running 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. 	
<ul style="list-style-type: none"> • 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 shocks. 	
<ul style="list-style-type: none"> • Be sure to install an earth leakage circuit breaker. Failure to install an earth leakage circuit breaker may result in electric shocks or fire. 	

Safety Precautions

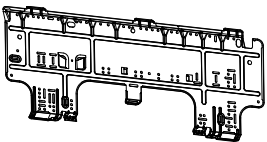
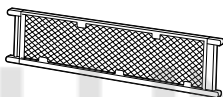
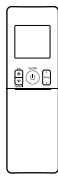

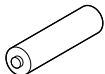

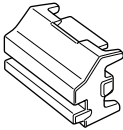
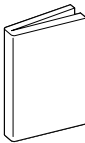
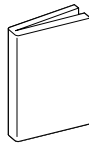
⚠ CAUTION

- 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 piping to prevent condensation. Improper drain piping may result in indoor water leakage and property damage.
- Tighten the flare nut according to the specified method such as with a torque wrench. If the flare nut is too tight, it may crack after prolonged use, causing refrigerant leakage.
- This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial and household use by lay persons.
- Sound pressure level is less than 70 dB (A).

N002

Accessories

Indoor unit (A) – (J)

<p>(A) Mounting plate</p>  <p>1</p>	<p>(B) Titanium apatite photocatalytic air-purifying filter</p>  <p>2</p>	<p>(C) Wireless remote controller</p>  <p>1</p>
<p>(D) Remote controller holder</p>  <p>1</p>	<p>(E) Dry battery AAA. LR03 (alkaline)</p>  <p>2</p>	<p>(F) Indoor unit fixing screw (M4 × 12L)</p>  <p>2</p>
<p>(G) Screw cover</p>  <p>2</p>	<p>(H) Operation manual</p>  <p>1</p>	<p>(J) Installation manual</p>  <p>1</p>

Choosing an Installation Site

Before choosing the installation site, obtain user approval.

1. Indoor unit

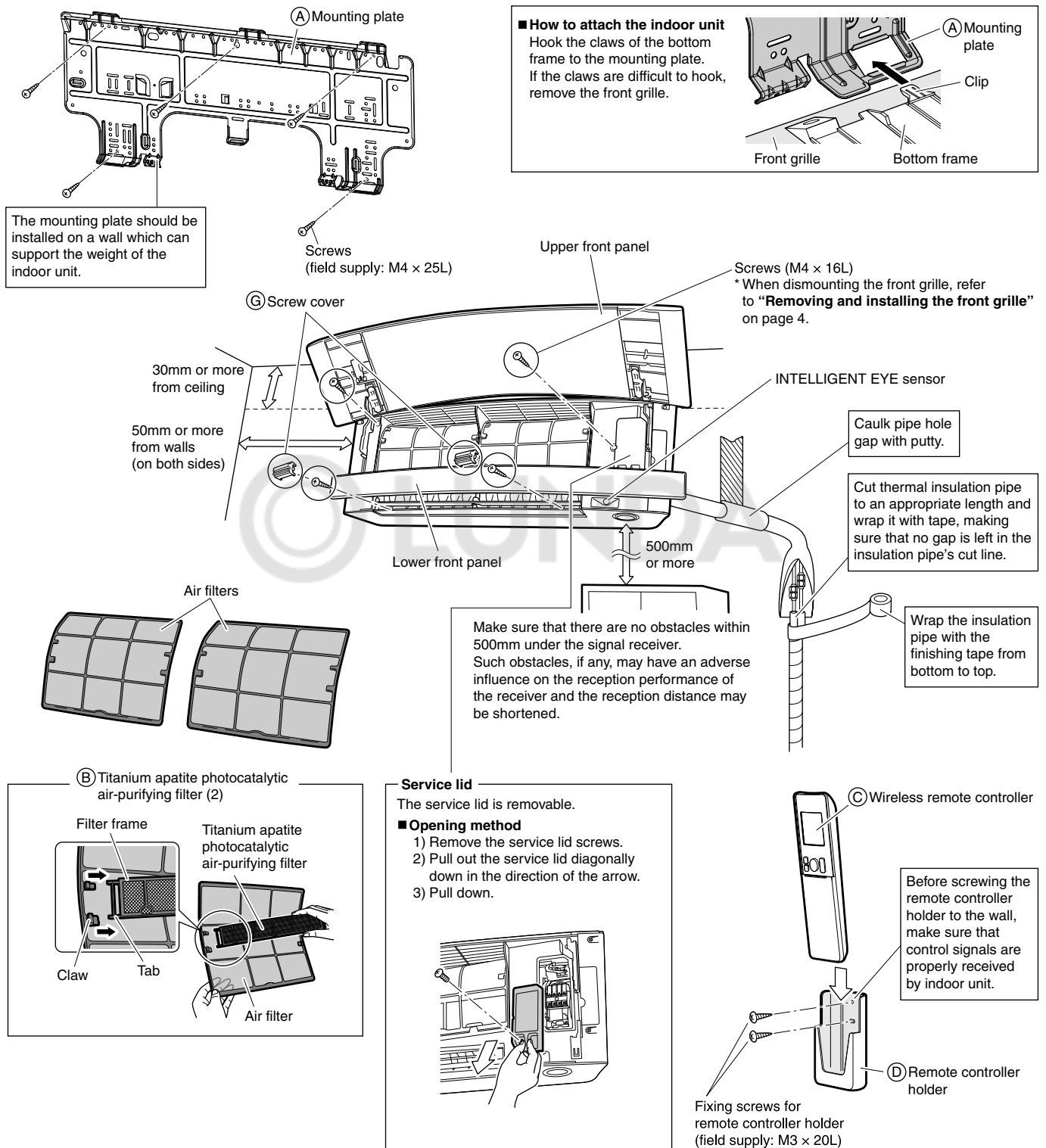
The indoor unit should be sited in a place where:

- 1) the restrictions on installation specified in the indoor unit installation drawings are met,
- 2) both air inlet and air outlet 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 (warm) 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 controller range,
- 8) the unit is at least 1m away from any television or radio set (unit may cause interference with the picture or sound),
- 9) no laundry equipment is located.

2. Wireless remote controller

Turn on all the fluorescent lamps in the room, if any, and find the site where remote controller signals are properly received by the indoor unit (within 6m).

Indoor Unit Installation Drawings



INTELLIGENT EYE sensor

⚠ CAUTION

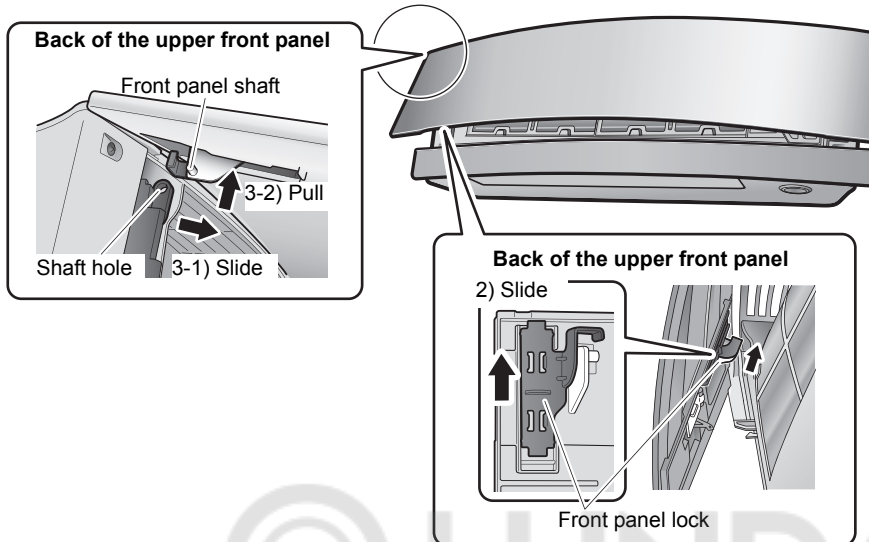
- Do not hit or violently push the INTELLIGENT EYE sensor. This can lead to damage and malfunction.
- Do not place large objects near the sensor. Also keep heating units or humidifiers outside the sensor's detection area.

Installation Tips

1. Removing and installing the upper front panel

■ Removal method

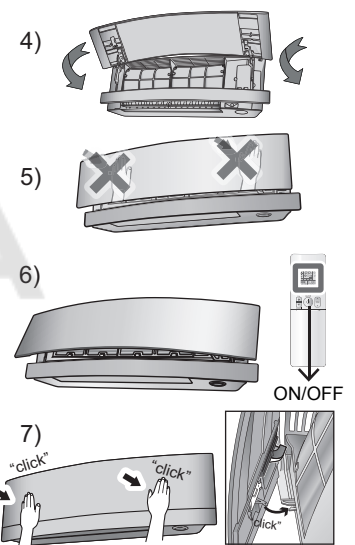
- 1) Open the upper front panel.
- 2) Slide the front panel locks on the back of the front panel upward to release the locks (left and right sides).
- 3) Remove the panel shafts on both sides from the shaft holes, and dismount the upper front panel.



The upper front panel does not open any more than as shown in the figure. Do not force it open any further than that.

■ Installation method

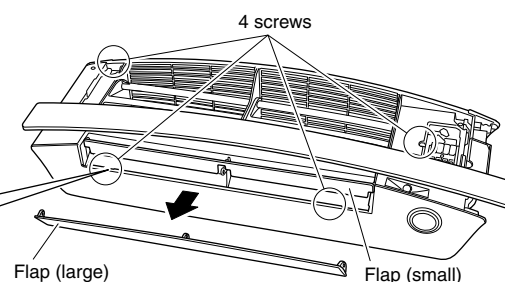
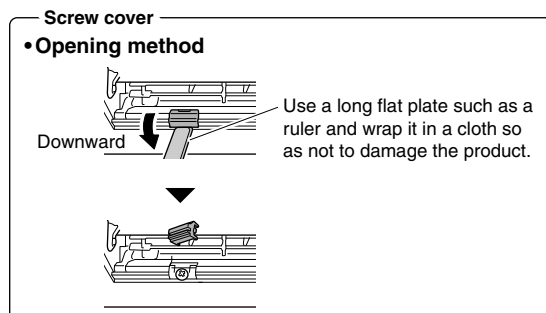
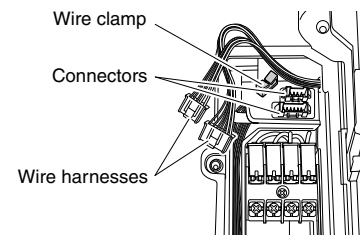
- 1) Slide the front panel locks on the back of the front panel upward to release the locks (left and right sides).
- 2) Insert the panel shafts on both sides of the upper front panel into the shaft holes.
- 3) Slide the front panel locks on each side downward to lock them.
- 4) Close the upper panel.
- 5) Do NOT push on the front panel to close it.
- 6) Turn ON the unit by remote. Wait till the panels are completely open. Then, turn OFF the unit by remote again.
- 7) Once the front panels close completely, gently push the upper front panel to hook it into position.



2. Removing and installing the front grille

• Removal method

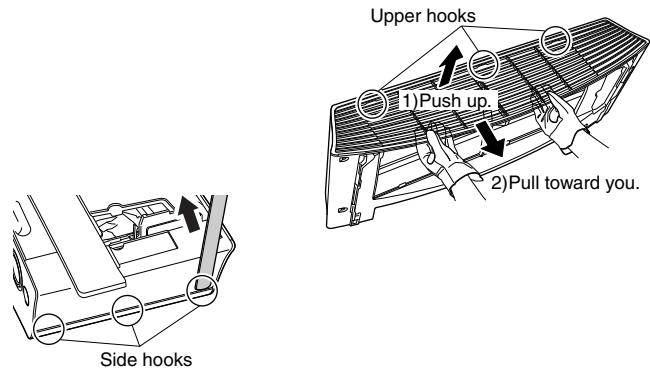
- 1) Remove the upper front panel and air filters.
- 2) Remove the service lid. (Refer to the opening method on page 3.)
- 3) Disconnect the wire harnesses from the wire clamp, and remove the wire harnesses from the connectors.
- 4) Push the lower front panel up until it stops.
- 5) Dismount the flap (large).
- 6) Open the 2 screw covers, and remove 4 screws from the front grille. (The screw covers are not factory-mounted.)



Installation Tips

- 7) Wear protection gloves and insert both hands under the front grille as shown in the figure.
- 8) Remove the front grille from the 3 upper hooks by pushing up the top side of the front grille, pull the front grille toward you by holding both ends of the front grille, and dismount the front grille.
 - If the grille is hard to remove, insert a long flat plate* through the gap in the side cover as shown in the figure, and turn the plate inwards to disengage the hooks (3 hooks each on the right and left sides) so that you can remove the grille easily.

* Such as a ruler wrapped in a cloth



⚠ CAUTION

Be sure to wear protection gloves.

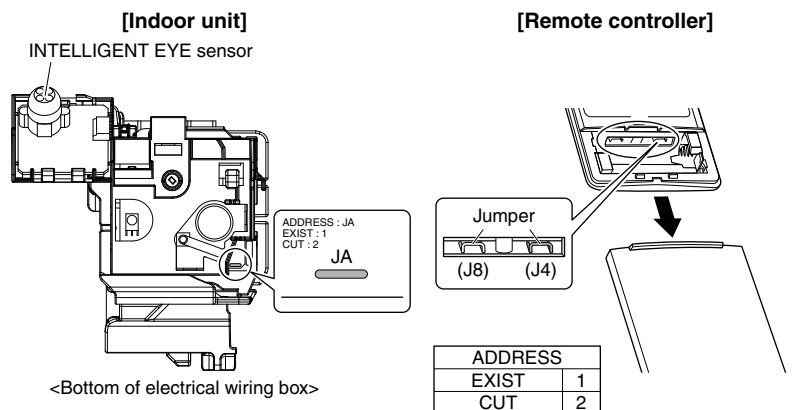
• Installation method

- 1) Install the front grille and firmly engage the upper hooks (3 locations), right and left sides hooks (each 3 locations).
- 2) Install 4 screws of the front grille, and close the 2 screw covers.
- 3) Mount the flap (large).
- 4) Lower the lower front panel to the original position.
- 5) Attach the wire harnesses to the 2 connectors and secure the wire harnesses with the wire clamp.
- 6) Install the air filter and then mount the upper front panel.

3. 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.

- 1) Remove the upper front panel and front grille. (4 screws)
- 2) Cut the address jumper (JA) on the printed circuit board.
- 3) Cut the address jumper (J4) in the remote controller.
 - Be careful not to cut jumper (J8).

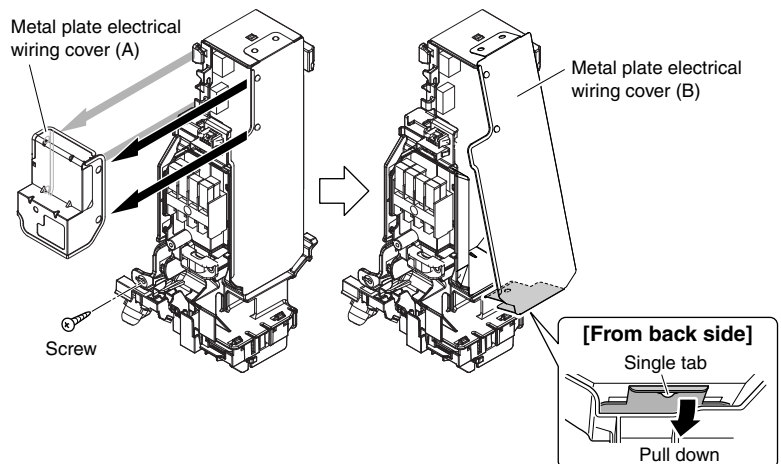


4. When connecting to an HA system

(wired remote controller, central remote controller etc.)

• Removal methods of metal plate electrical wiring covers

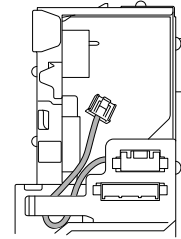
- 1) Remove the upper front panel and front grille. (4 screws)
- 2) Remove the electrical wiring box. (1 screw)
- 3) Remove the 4 tabs and dismount the metal plate electrical wiring cover (A).
- 4) Pull down the hook on the metal plate electrical wiring cover (B), and remove a single tab.
- 5) Remove the 2 tabs on the top part and dismount the metal plate electrical wiring cover (B).



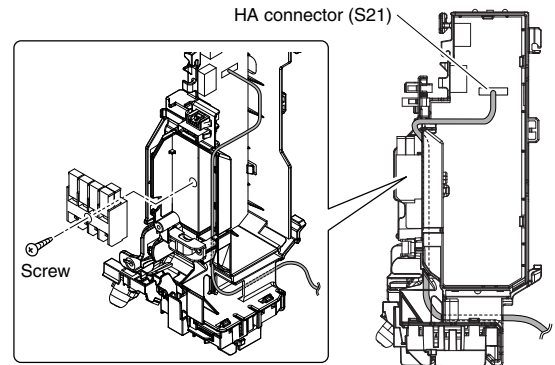
Installation Tips

• Attachment methods of connection cord

- 1) Remove the factory-mounted connector from S21.
- 2) Tie the harnesses in a bundle as shown in the figure so that the removed connector does not interfere with the printed circuit board.

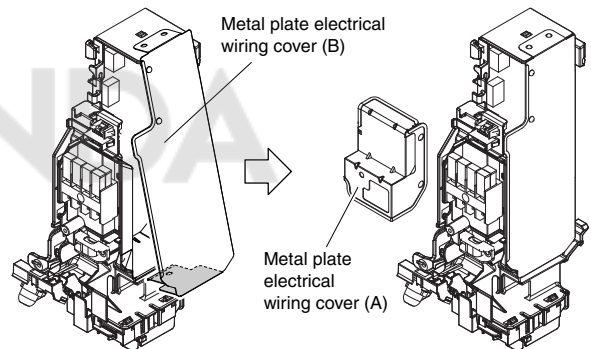


- 3) Attach the connection cord to the S21 connector and pull the harness out through the notched part in the figure.
- 4) Pull the harness around, as shown in the figure.



• Attachment methods of metal plate electrical wiring covers

- 1) Hook the top part of the metal plate electrical wiring cover (B) on the 2 tabs.
- 2) Press in the hook on the bottom to catch a single tab, and mount the metal plate electrical wiring cover (B).
- 3) Insert the connector into the hole, and hook and mount the metal plate electrical wiring cover (A) onto the 4 tabs.

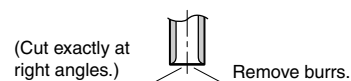


Refrigerant Piping Work

With a multi indoor unit, install as described in the installation manual supplied with the multi outdoor unit.

1. Flaring the pipe end

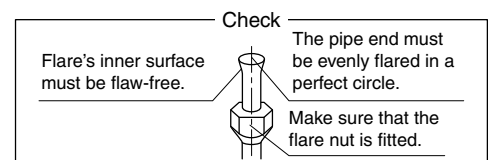
- 1) Cut the pipe end with a pipe cutter.
- 2) Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
- 3) Put the flare nut on the pipe.
- 4) Flare the pipe.
- 5) Check that the flaring is properly made.



Flaring

Set exactly at the position shown below.

Flare tool for R410A	Conventional flare tool	
	Clutch-type	Wing-nut type (Imperial-type)
A	0-0.5mm	1.0-1.5mm



⚠ WARNING

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

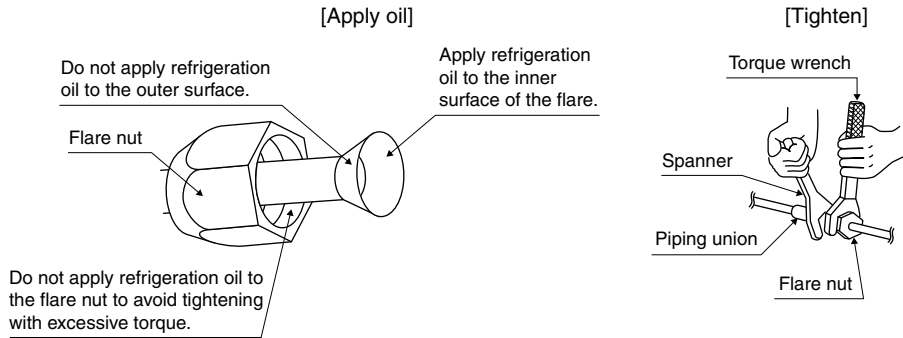
Refrigerant Piping Work

2. Refrigerant piping

⚠ CAUTION

- Use the flare nut fixed to the main unit. (To prevent cracking of the flare nut by aged deterioration.)
- To prevent gas leakage, apply refrigeration oil only to the inner surface of the flare. (Use refrigeration oil for R410A.)
- Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and gas leakage.

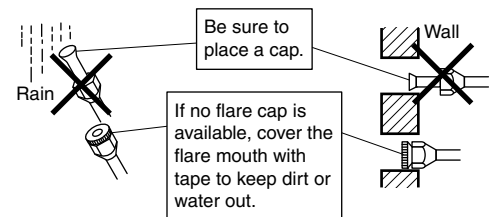
Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.



Flare nut tightening torque		
Gas side		Liquid side
3/8 inch	1/2 inch	1/4 inch
32.7-39.9N•m (330-407kgf•cm)	49.5-60.3N•m (505-615kgf•cm)	14.2-17.2N•m (144-175kgf•cm)

2-1. Caution on piping handling

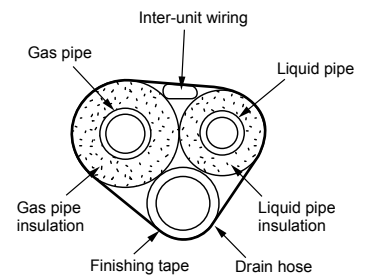
- 1) Protect the open end of the pipe against dust and moisture.
- 2) All pipe bends should be as gentle as possible. Use a pipe bender for bending.



2-2. Selection of copper and heat insulation materials

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

- 1) 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.



- 2) 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
25/35 class	50 class	O.D. 6.4mm	25/35 class	50 class	I.D. 8-10mm
O.D. 9.5mm	O.D. 12.7mm		I.D. 12-15mm	I.D. 14-16mm	
Minimum bend radius			Thickness 10mm Min.		
30mm or more	40mm or more	30mm or more			
Thickness 0.8mm (C1220T-O)					

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

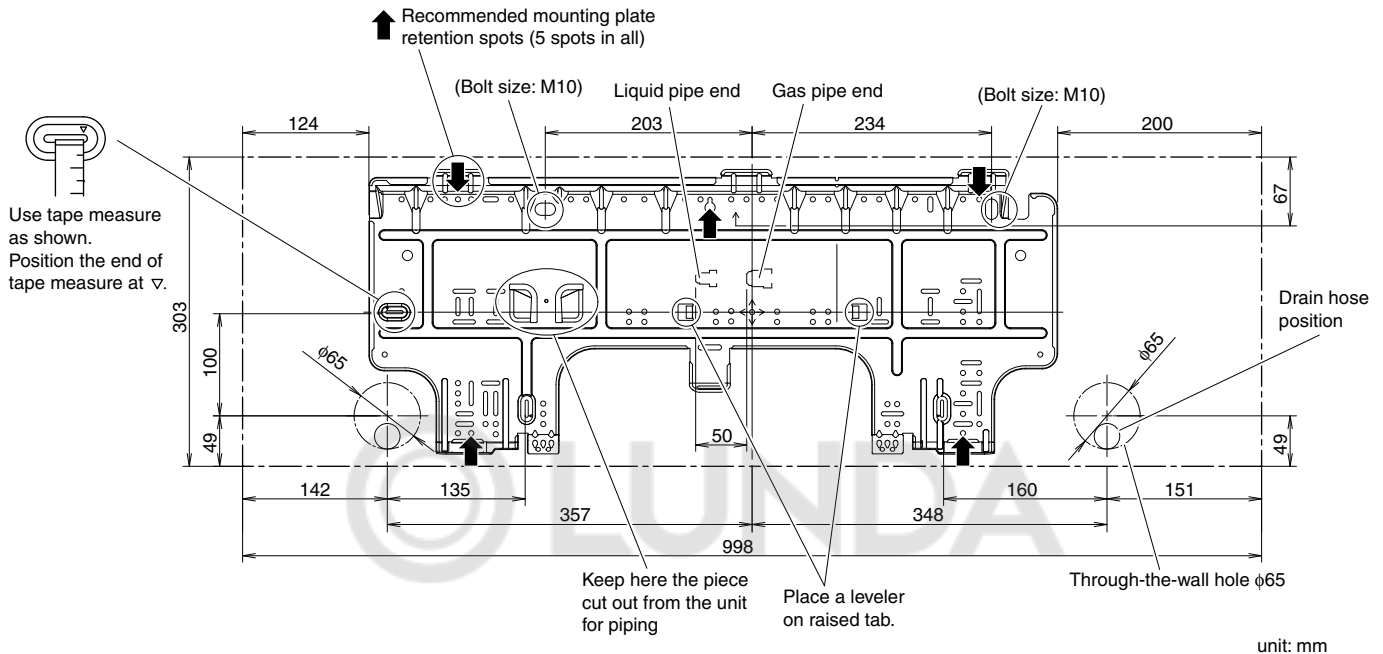
Indoor Unit Installation

1. Installing the mounting plate

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

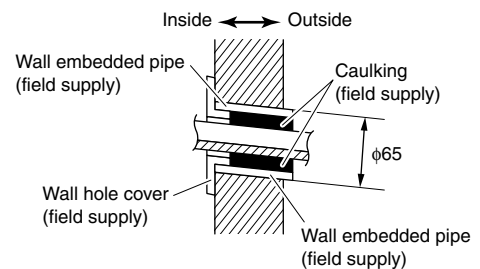
- 1) Temporarily secure the mounting plate to the wall, make sure that the unit is completely level, and mark the boring points on the wall.
- 2) Secure the mounting plate to the wall with screws.

Recommended mounting plate retention spots and dimensions



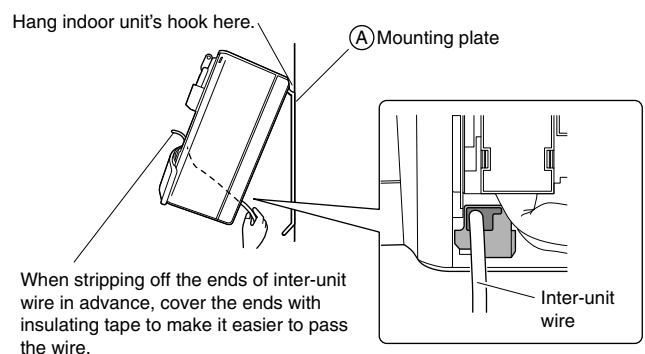
2. Boring a wall hole and installing wall embedded pipe

- For walls containing metal frame or metal board, be sure to use a wall embedded pipe and wall hole 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.
- 1) Bore a feed-through hole of 65mm in the wall so it has a down slope toward the outside.
 - 2) Insert a wall embedded pipe into the hole.
 - 3) Insert a wall hole cover into wall pipe.
 - 4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.



3. Inter-unit wiring

- 1) Remove the upper front panel, then remove the service lid.
- 2) 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.)
- 3) Press the bottom frame of the indoor unit with both hands to set it on the mounting plate hooks. Make sure the wires do not catch on the edge of the indoor unit.



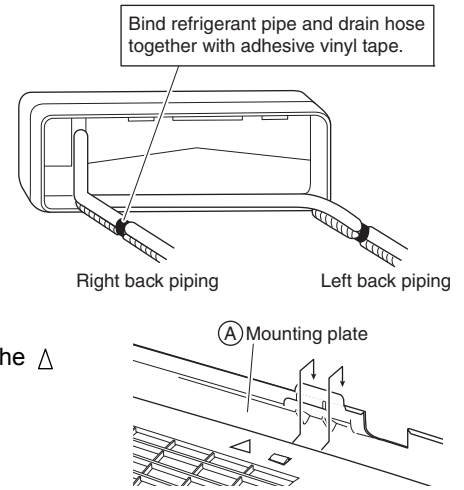
Indoor Unit Installation

4. Laying piping, hoses, and wiring

- The recommended installation method is back piping.
- **When performing bottom piping or side piping, refer to “5. Bottom or side piping” on page 10.**

4-1. Right-back piping

- 1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- 2) Wrap the inter-unit wire, refrigerant pipes and drain hose together with insulation tape.
- 3) Pass the inter-unit wire, drain hose and refrigerant pipes through the wall hole, then set the indoor unit on the mounting plate hooks by using the Δ markings at the top of the indoor unit as a guide.



4-2. Left-back piping

How to replace the drain plug and drain hose

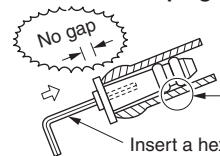
Replacing onto the left side

- 1) Remove the insulation fixing screw on the right and remove the drain hose.
- 2) Remove the drain plug on the left side and attach it to the right side.
- 3) Insert the drain hose and tighten with included insulation fixing screw. Forgetting to tighten this may cause water leakages.

Drain hose attachment position
The drain hose is on the back of the unit.

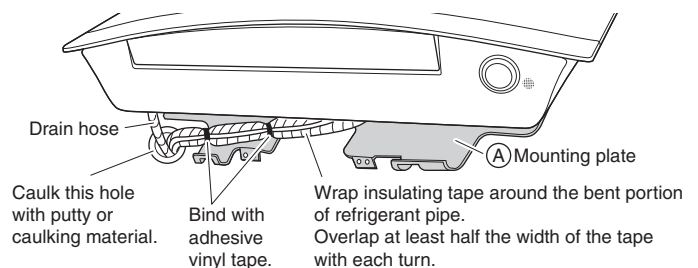
- 1) Replace the drain plug and drain hose.
- 2) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- 3) Be sure to connect the drain hose to the drain port in place of a drain plug.

How to set drain plug



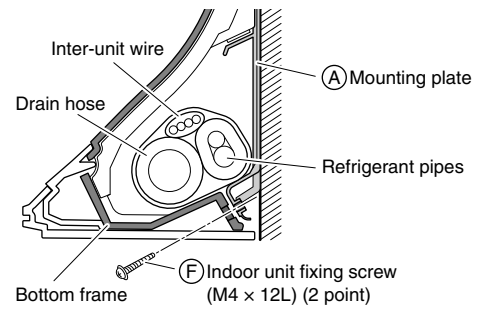
Do not apply lubricating oil (refrigerant oil) to the drain plug when inserting it. The application of lubrication oil to the drain plug will deteriorate the plug to cause drain leakage from the plug.

- 4) Shape the refrigerant pipe along the pipe path marking on the mounting plate.
- 5) Pass drain hose and refrigerant pipes through the wall hole, then set the indoor unit on mounting plate hooks, using the Δ markings at the top of indoor unit as a guide.
- 6) Pull in the inter-unit wire.
- 7) Connect the inter-unit pipes.
- 8) Wrap the refrigerant pipes and drain hose together with insulation tape as shown in the figure on the right (in case of setting the drain hose through the back of the indoor unit).



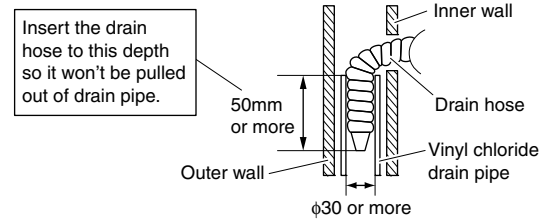
Indoor Unit Installation

9) While exercising care so that the inter-unit wire does not catch the indoor unit, press the bottom edge of indoor unit with both hands until it is firmly caught by the mounting plate hooks. Secure indoor unit to the mounting plate with indoor unit fixing screws (M4 × 12L).

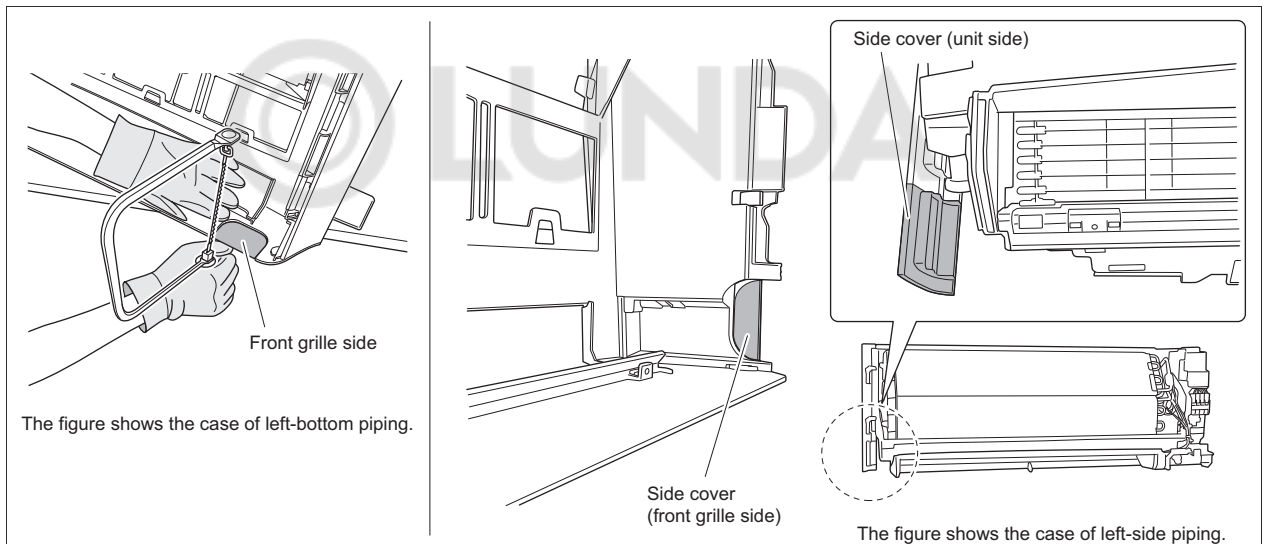


4-3. Wall embedded piping

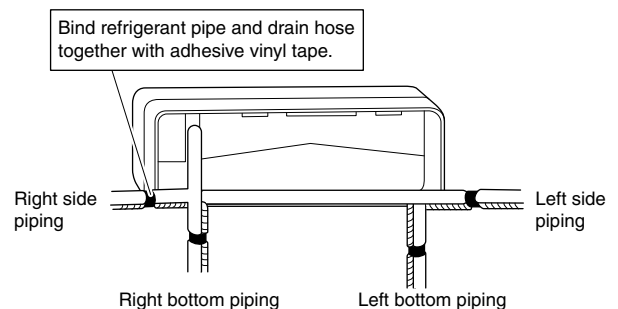
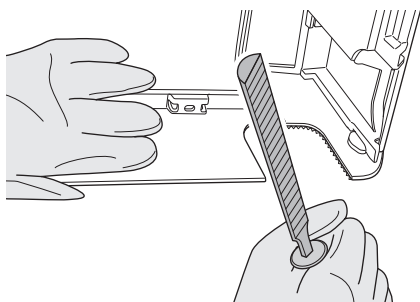
Follow the instructions given under left-back piping. Insert the drain hose to this depth so it won't be pulled out of the drain pipe.



5. Bottom or side piping



- 1) Cut off the pipe port cover with a coping saw.
 - **For bottom piping:** On the bottom of the front grille
 - **For side piping:** On the side cover (front grille side and unit side)
 Apply the blade of the coping saw to the notch, and cut off the pipe port cover along the uneven inner surface.
- 2) After cutting off the pipe port cover, perform filing. Remove the burrs along the cut section using a half round needle file.
- 3) Wrap the inter-unit wire, refrigerant pipes and drain hose together with insulation tape. Then, insert the drain hose and refrigerant pipes into the wall hole after inserting them into the cut out piping hole opened.



NOTE

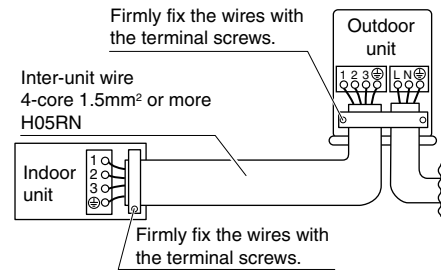
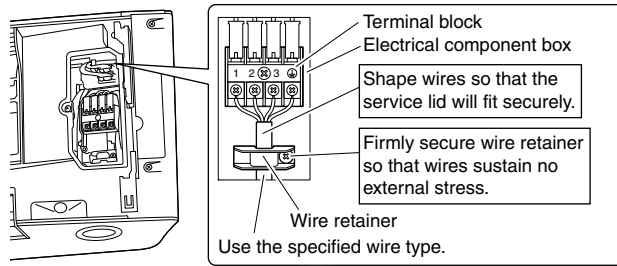
- Be careful not to let chips enter the driving section of the arm.
- Be careful not to put pressure on the lower front panel.

Indoor Unit Installation

6. Wiring

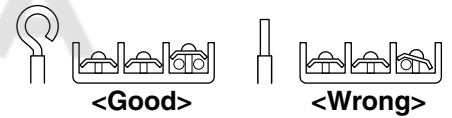
With a multi indoor unit , install as described in the installation manual supplied with the multi outdoor unit.

- 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) In case of connecting to an adapter system, run the remote controller cable and attach the S21.
- 6) Shape the wires so that the service lid fits securely, then close service lid.



⚠ CAUTION

When connecting the connection wires to the terminal block using a single core wire, be sure to perform curling. Problems with the installation may cause heat and fires.



⚠ WARNING

- Do not use tapped 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.) Doing so may cause electric shock or fire.
- Do not connect the indoor unit to the mains electricity. Connect it to the outdoor unit only or there may be danger of electric shock or fire.

Wiring diagram

□□□	: Terminal strip	●	: Connection
⊞	: Connector	▬▬▬▬▬▬	: Field wiring
BLK	: Black	ORG	: Orange
BLU	: Blue	RED	: Red
BRN	: Brown	WHT	: White
GRN	: Green	YLW	: Yellow
PNK	: Pink		

Notes	: Refer to the nameplate of the unit for power requirements.	
	: INDOOR	Indoor
	: OUTDOOR	Outdoor
	: TRANSMISSION CIRCUIT	Transmission circuit
	: INTELLIGENT EYE SENSOR	Intelligent eye sensor
	: WIRELESS REMOTE CONTROLLER	Wireless remote controller
	: SIGNAL RECEIVER	Signal receiver

Indoor Unit Installation

Wiring diagram parts table

A1P~A3P	Printed circuit board
BZ	Buzzer
FG	Frame ground
FU1,FU2	Fuse
H1P,H2P	Pilot lamp
M1F.....	Fan motor
M1S,M2S,M3S.....	Swing motor
M1	Stepping motor
R1T,R2T.....	Thermistor
S25~S200	Connector
S1C.....	Limit switch
S1W	Operation switch
X1M	Terminal strip
⊕	Protective earth

CAUTION

Note that operation will restart automatically if the main power supply is turned off and then back on again.

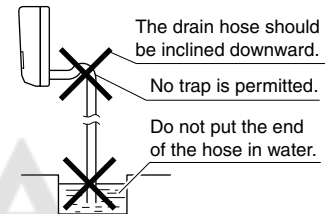
HIGH VOLTAGE – be sure to discharge the capacitor completely before repair work.

Risk of failure or water leakage!

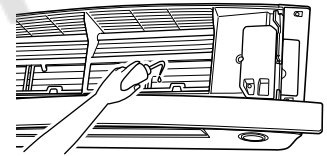
Do not wash the inside of the air conditioner by yourself.

7. Drain piping

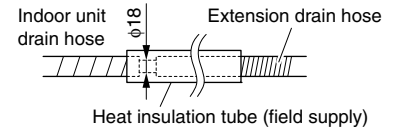
1) Connect the drain hose, as described right.



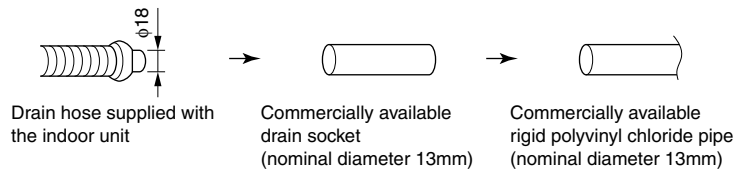
2) Remove the upper front panel and the air filters. (Refer to removal method on page 4.)
Pour some water into the drain pan to check the water flows smoothly.



3) When drain hose requires extension, obtain an extension hose with an inner diameter of 16mm.
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.



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.

- 1) Trial operation may be disabled in either mode depending on the room temperature.
Use the remote controller for trial operation as described below.

Trial operation from remote controller

- 1) Press "ON/OFF" button to turn on the system.
- 2) Press "TEMP" button and "MODE" button at the same time.
- 3) Press "TEMP" button and select "7".
- 4) Press "MODE" button.
- 5) Trial operation terminates in approx. 30 minutes and switches into normal mode. To quit a trial operation, press "ON/OFF" button.

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.

1-3 Carry out the test operation in accordance with the operation manual to ensure that all functions and parts, such as louvres 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.

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	
Draining line is properly installed.	Water leakage	
System is properly earthed.	Electrical leakage	
The specified wires are used for inter-unit wiring.	Inoperative or burn damage	
Indoor or outdoor unit's air inlet or air outlet has clear path of air. Stop valves are opened.	Incomplete cooling/heating function	
Indoor unit properly receives remote control commands.	Inoperative	

