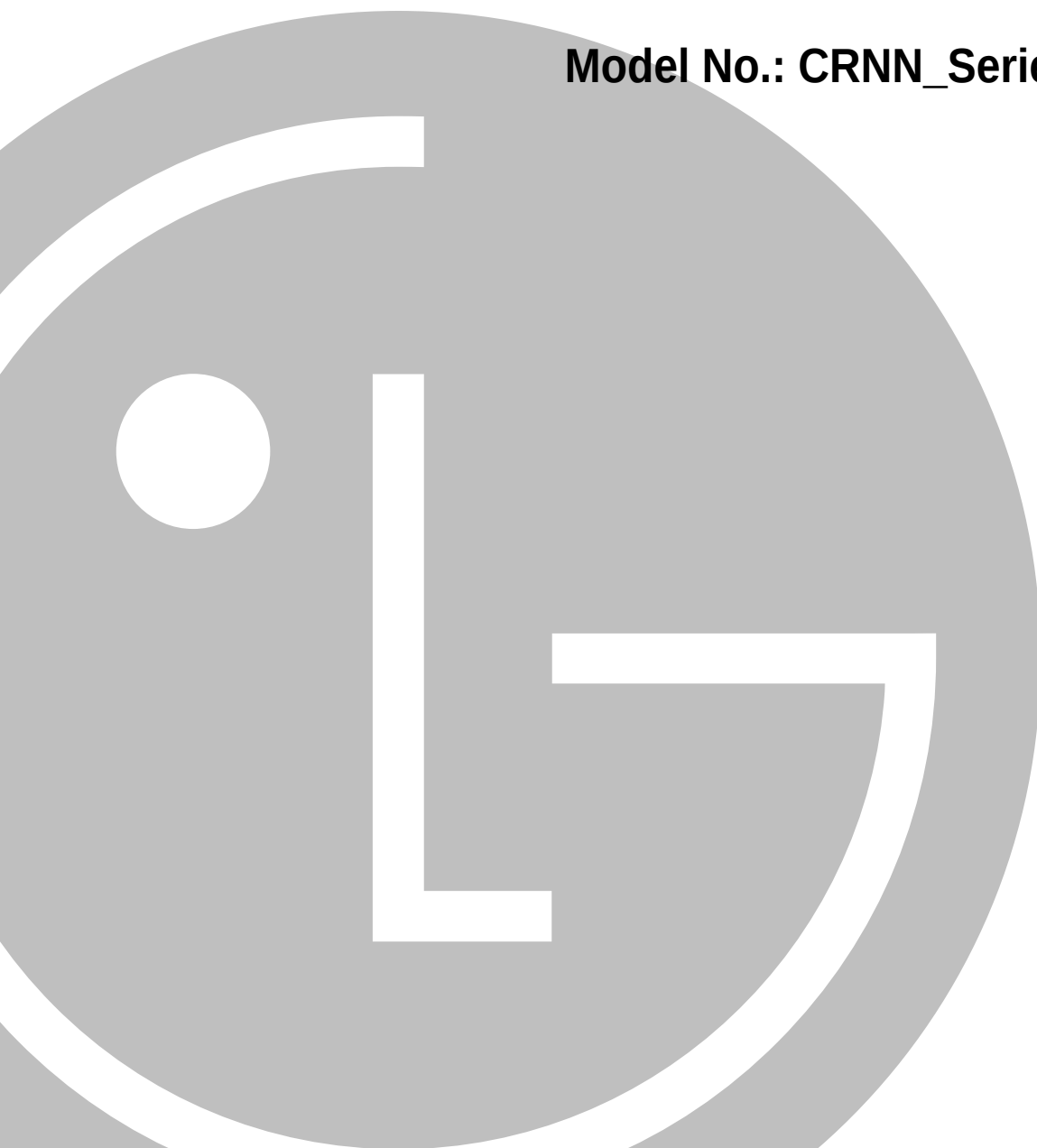




Multi V Air Conditioner INSTALLATION MANUAL

INDOOR UNIT

Model No.: CRNN_Series





The following should be always observed for safety

- Please report to or take consent by the supply authority before connecting to the system.
- Be sure to read "THE FOLLOWING SHOULD BE ALWAYS OBSERVED FOR SAFETY" before installing the air conditioner.
- Be sure to observe the cautions specified here as they include important items related to safety.
- The indications and meanings are as follows.

	WARNING	Could lead to death, serious injury, etc.
	CAUTION	Could lead to serious injury in particular environments when operated incorrectly.

- After reading this manual, be sure to keep it together with the instruction manual in a handy place .



WARNING

Do not install it yourself (customer).

- Incomplete installation could cause injury due to fire, electric shock, the unit falling or a leakage of water. Consult the dealer from whom you purchased the unit or special installer.

Perform the installation securely referring to the installation manual.

- Incomplete installation could cause a personal injury due to fire, electric shock, the unit falling or a leakage of water.

Install the unit securely in a place which can bear the weight of the unit.

- When installed in an insufficient strong place, the unit could fall causing injured.

Perform electrical work according to the installation manual and be sure to use an exclusive circuit.

- If the capacity of the power circuit is insufficient or there is incomplete electrical work, it could result in a fire or an electric shock.

Use the specified wires to connect the indoor and the outdoor units securely and attach the wires firmly to the terminal board connecting sections so the stress of the wires is not applied to the sections.

- Incomplete connecting and fixing could cause fire.

Attach the electrical part cover to the indoor unit and the service panel to the outdoor unit securely.

- If the electrical part cover if the indoor unit and/or the service panel if the outdoor unit are not attached securely, it could result in a fire or electric shock due to dust, water, etc.

Check that the refrigerant gas do not leak after installation is completed.

Be sure to use the part provided or specified parts for the installation work.

- The use of defective parts could cause an injury or leakage of water due to a fire, electric shock, the unit falling, etc.



CAUTION

Perform grounding

- Do not connect the ground wire to a gas pipe, water pipe arrester or telephone ground wire. Defective grounding could cause an electric shock.

Perform the drainage/piping work securely according to the installation manual.

- If there is a defect in the drainage/piping work, water could drop from the unit and household goods could be wet and damaged.

Do not install the unit in a place where an inflammable gas leaks.

- If gas leaks and accumulates in the area surrounding the unit, it could cause an explosion.

- ✳ The installation parts which are not provided should be purchased.

Contents

Installation of Wall Mounted Type Indoor Unit	4
Installation of wall mounted type indoor unit	4
Selection of the best location	6
Connection of pipings.....	7
Checking the drainage	11
Connect the cable to the indoor unit	12
Installation of Art Cool Type Indoor Unit	15
Selection of the best location	17
Preparing work for Installation.....	18
Sticking the installation guide map and fixing Indoor unit	19
Preparing work for installation.....	19
Front panel assembly	22
Connect the cable to the Indoor unit.	23
Installation of Ceiling Cassette Type(1 way) Indoor Unit	25
Selection of the best location	27
Ceiling opening dimensions and hanging bolt location	28
The indoor unit installation	29
Wiring connection.....	30
Installation of decorative panel.....	31
Indoor unit drain piping.....	32
Installation of Ceiling Cassette Type(4 way) Indoor Unit	35
Selection of the best location	37
Ceiling opening dimensions and hanging bolt location	38
Wiring connection.....	40
Installation of decorative panel.....	41
Indoor unit drain piping.....	42
Installation of Convertible Type Indoor Unit	45
Selection of the best location	47
Installation.....	48
Piping and drainage	55
Wiring connection.....	58
Installation of Ceiling Concealed Duct Type Indoor Unit	61
Selection of the best location	63
Ceiling dimension and hanging	64
The indoor unit installation	65
Connecting cables between indoor unit and outdoor unit	66
Checking the drainage	68
Common installation process	71
Installation of remote controller.....	71
Preparation of piping.....	74
Indoor unit drain pipe work.....	77
Installation of drain pump	79
Optional operation.....	83



Installation of Wall Mounted Type Indoor Unit

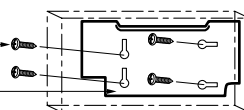
Installation of Wall Mounted Type Indoor Unit

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.

Installation Parts Provided

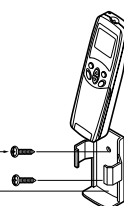
1. Type "A" screw

2. Installation Plate



3. Type "B" screw

4. Holder Remote Control



Cooling & Heating Model has included Drain Elbow.

Required Parts

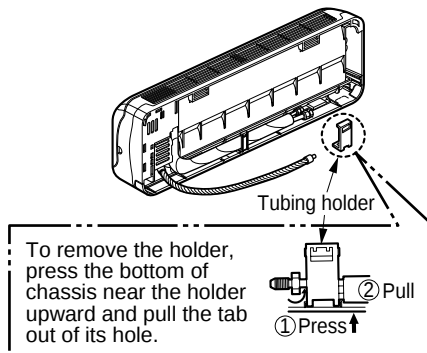
- ☐ Installation plate
- ☐ Four type "A" screws
- ☐ Connecting cable
- ☐ Pipes: Gas sideØ12.7, Ø9.53
Liquid side.....Ø6.35
(Refer to page 4)
- ☐ Insulation materials
- ☐ Additional drain pipe
(Outer Diameter.....15.5mm)
- ☐ Two type "B" screws

Required Tools

- ☐ Level gauge
- ☐ Screw driver
- ☐ Electric drill
- ☐ Hole core drill(Ø70mm)
- ☐ Flaring tool set
- ☐ Specified torque wrenches
1.8kg.m, 4.2kg.m, 5.5kg.m, 6.6kg.m
(different depending on model No.)
- ☐ SpannerHalf union
- ☐ A glass of water
- ☐ Screw driver
- ☐ Owner's manual
- ☐ Thermometer
- ☐ Holder Remote Control

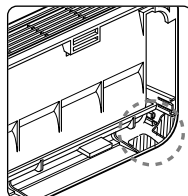
Installation of Wall Mounted Type Indoor Unit

- Preparing the indoor unit's piping and drain hose for installation through the wall.
- Remove the plastic tubing retainer(see illustration below) and pull the tubing and drain hose away from chassis.
- Replace the plastic tubing holder in the original position.



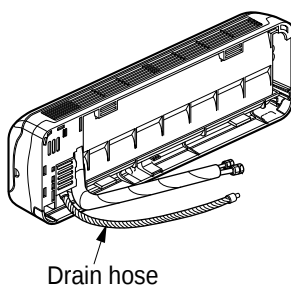
CAUTION

When install, make sure that the remaining parts must be removed clearly so as not to damage the piping and drain hose, especially power cord and connecting cable.



For left rear piping

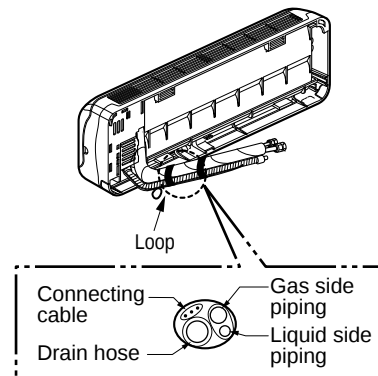
1. Route the indoor tubing and the drain hose in the direction of rear left.



2. Insert the connecting cable into the indoor unit from the outdoor unit through the piping hole.

- Do not connect the cable to the indoor unit.
- Make a small loop with the cable for easy connection later.

3. Tape the tubing, drain hose and the connecting cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.

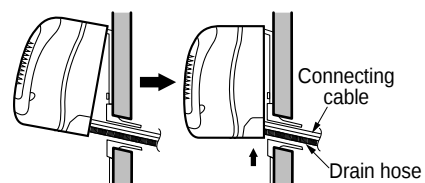


NOTE: If the drain hose is routed inside the room, insulate the hose with an insulation material* so that dripping from "sweating"(condensation) will not damage furniture or floors.

*Foamed polyethylene or equivalent is recommended.

4. Indoor unit installation

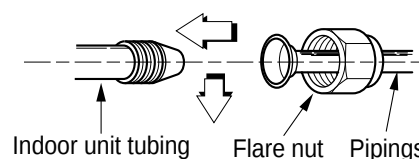
- Hook the indoor unit onto the upper portion of the installation plate.(Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.) Ensure that the hooks are properly seated on the installation plate by moving it left and right.



Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots(clicking sound).

5. Connecting the pipings to the indoor unit and drain hose to drain pipe.

- Align the center of the pipings and sufficiently tighten the flare nut by hand.



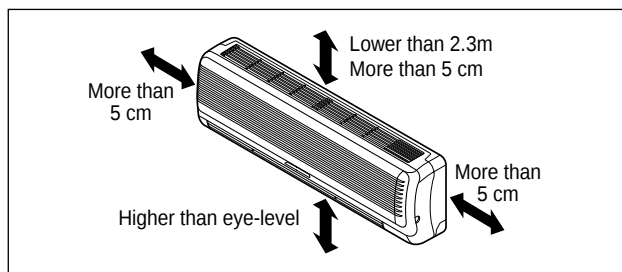
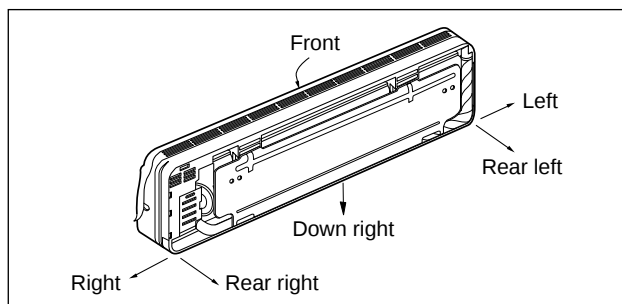


Installation of Wall Mounted Type Indoor Unit

1. Selection of the best location

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to prevent the air circulation.
- A place where air circulation in the room will be good.
- A place where drainage can be easily obtained.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence, or other obstacles.

The mounting wall should be strong and solid enough to protect it from the vibration.



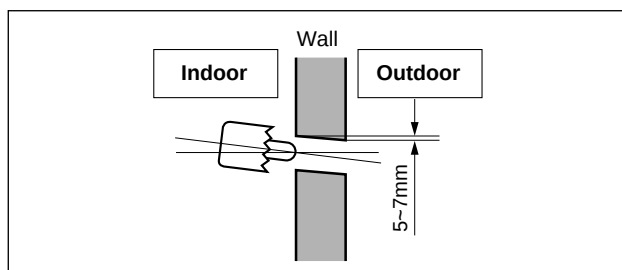
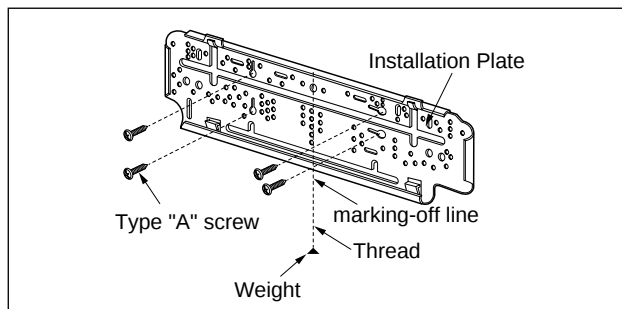
1) Mount the installation plate on the wall with four Type "A" screws.

(If mounting the unit on the concrete wall, consider using anchor bolts.)

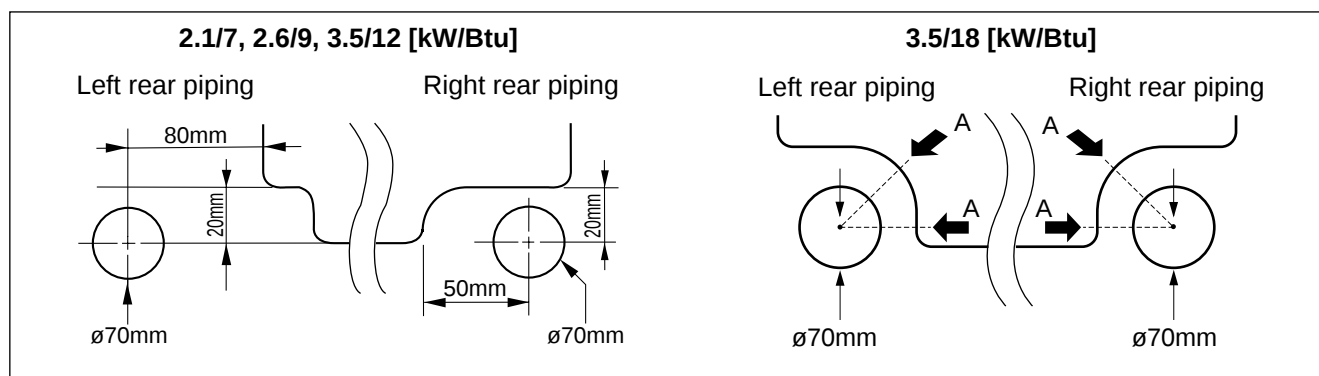
- Always mount the Installation plate horizontally by aligning the marking-off line by means of the thread and a level.

2) Drill the piping hole with 70mm dia. holecore drill.

- Line according to the arrows marked on lower the left and the right side of the Installation Plate. The meeting point of the extended line is the center of the hole.
- Drill the piping hole at either the right or the left and the hole should be slightly slant to the outdoor side.



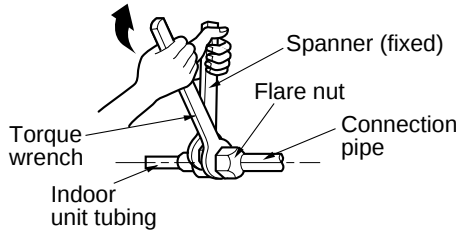
The lower left and the right side of Installation Plate





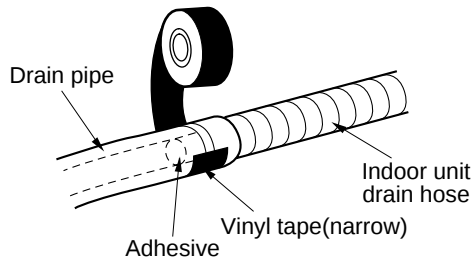
Installation of Wall Mounted Type Indoor Unit

- Tighten the flare nut with a wrench.



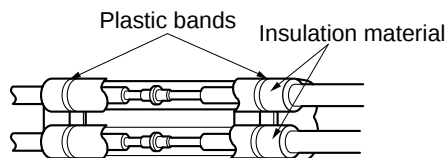
Pipe Size[Torque]	
GAS	LIQUID
Ø9.53[4.2kg·m]	Ø6.35[1.8kg·m]
Ø12.7[5.5kg·m]	Ø6.35[1.8kg·m]

- When extending the drain hose at the indoor unit, install the drain pipe.

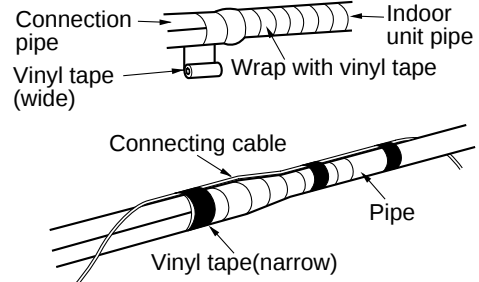


6. Wrap the insulation material around the connecting portion.

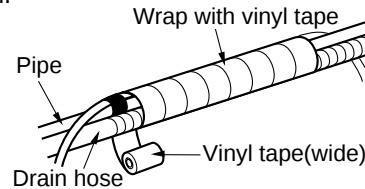
- Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap.



- Wrap the area which accommodates the rear piping housing section with vinyl tape.

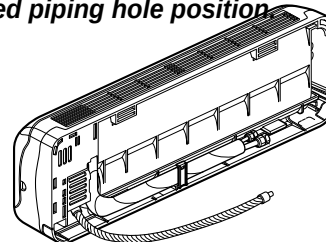


- Bundle the piping and drain hose together by wrapping them with vinyl tape over the range within which they fit into the rear piping housing section.

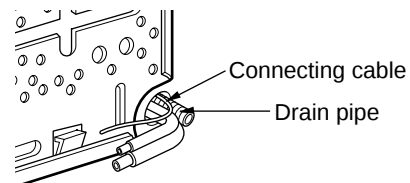


For right rear piping

1. Route the indoor tubing and the drain hose to the required piping hole position



2. Insert the piping, drain hose and the connecting cable into the piping hole.



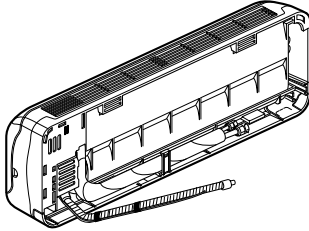
Installation of Wall Mounted Type Indoor Unit

3. Insert the connecting cable into the indoor unit.

- Don't connect the cable to the indoor unit.
- Make a small loop with the cable for easy connection later.

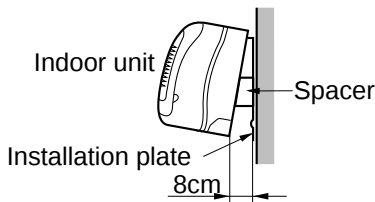
4. Tape the drain hose and the connecting cable.

- Connecting cable



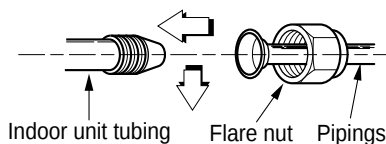
5. Indoor unit installation

- Hang the indoor unit from the hooks at the top of the installation plate.
- Insert the spacer etc. between the indoor unit and the installation plate and separate the bottom of the indoor unit from the wall.

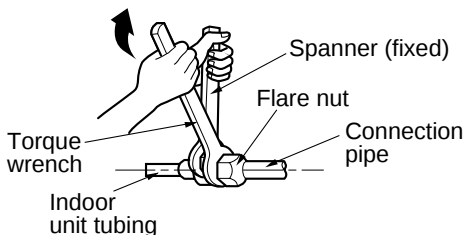


6. Connecting the pipings to the indoor unit and the drain hose to drain pipe.

- Align the center of the pipings and sufficiently tighten the flare nut by hand.

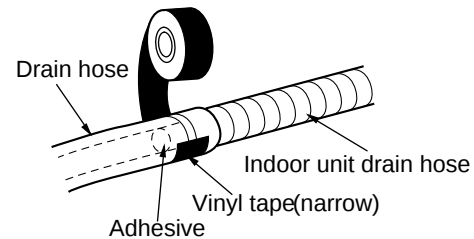


- Tighten the flare nut with a wrench.



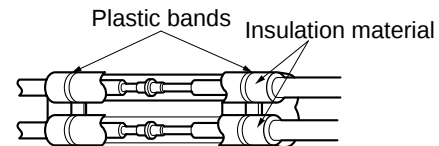
Pipe Size[Torque]	
GAS	LIQUID
Ø9.53[4.2kg·m]	Ø6.35[1.8kg·m]
Ø12.7[5.5kg·m]	Ø6.35[1.8kg·m]

- When extending the drain hose at the indoor unit, install the drain pipe.

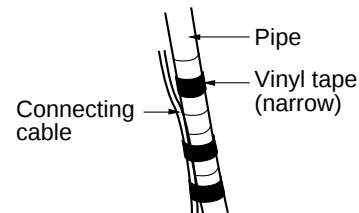
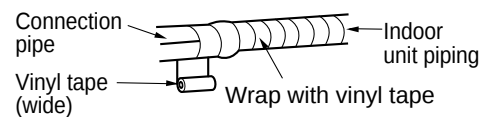


7. Wrap the insulation material around the connecting portion.

- Overlap the connection pipe heat insulation and the indoor unit pipe heat insulation material. Bind them together with vinyl tape so that there is no gap.



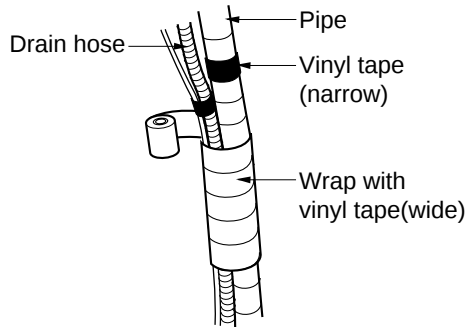
- Wrap the area which accommodates the rear piping housing section with vinyl tape.



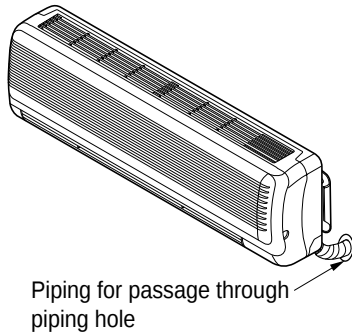


Installation of Wall Mounted Type Indoor Unit

- Bundle the piping and drain hose together by wrapping them with cloth tape over the range within which they fit into the rear piping housing section.

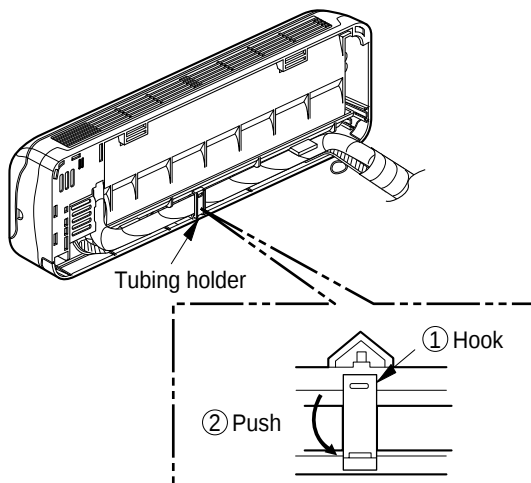


8. Reroute the pipings and the drain hose across the back of the chassis.



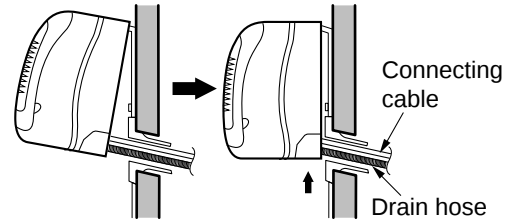
9. Set the pipings and the drain hose to the back of the chassis with the tubing holder.

- Hook the edge of tubing holder to tap on chassis and push the bottom of tubing holder to be engaged at the bottom of chassis.



10. Indoor unit installation

- Remove the spacer.
- Ensure that the hooks are properly seated on the installation plate by moving it left and right.



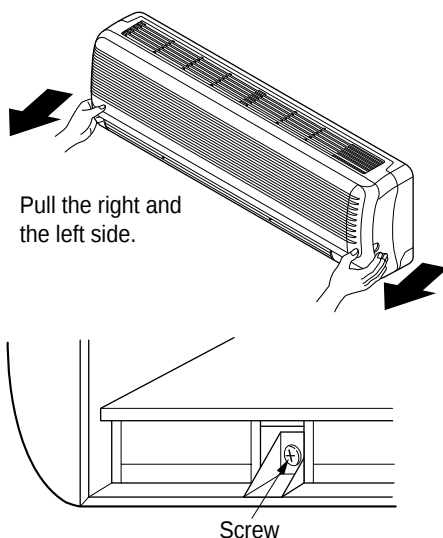
Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots (clicking sound).

Installation of Wall Mounted Type Indoor Unit

2. Connection of Pipings

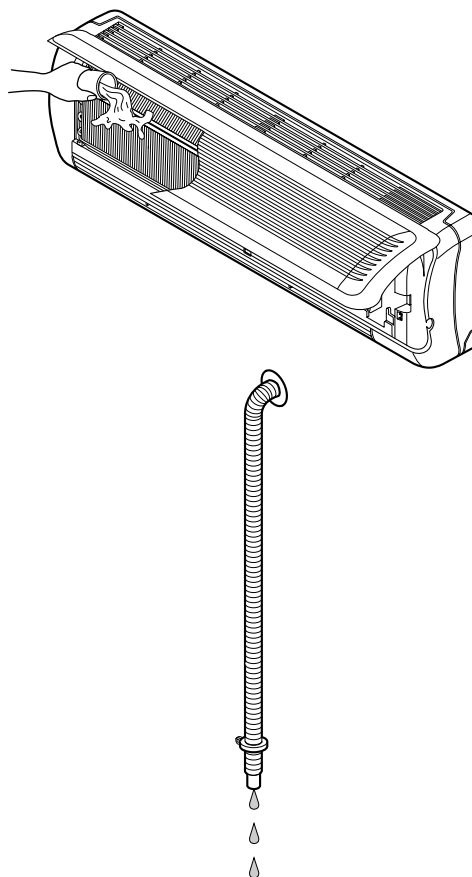
1. To remove the front panel from the indoor unit, remove the front panel from the indoor unit cabinet.

- Set the air direction louvers up-and-down to the position(horizontally) by hand.
- Remove the securing screws that retain the front panel. Pull the lower left and right sides of the grille toward you and lift it off.
(2.1/7, 2.6/9, 3.5/12 kW/Btu models: 2EA,
3.5/18 kW/Btu models: 3EA)



2. To check the drainage.

- Pour a glass of water on the evaporator.
- Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.



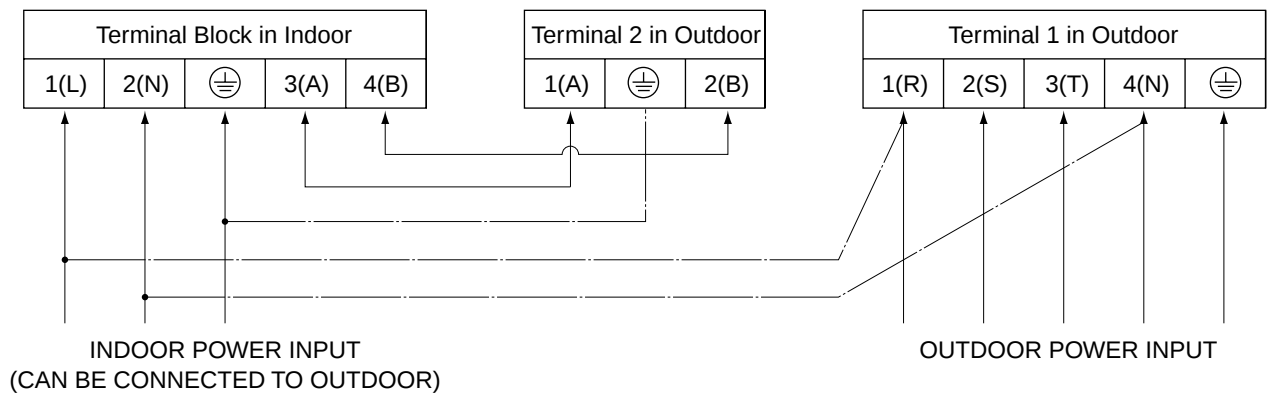
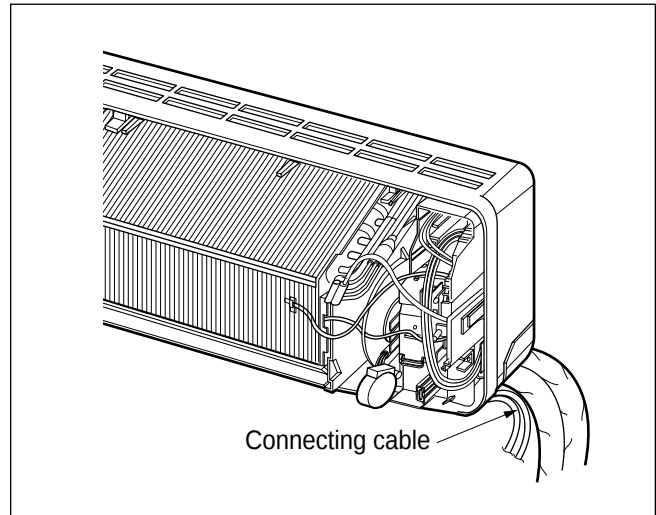


Installation of Wall Mounted Type Indoor Unit

4. Connect the cable to the indoor unit

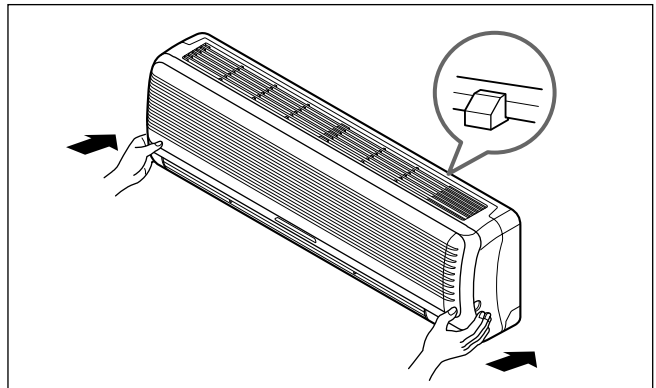
1) Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively.



2) Attach the Grille onto the cabinet.

- Grasp lower the left and right side of the Grille and engage four tabs on the top inside edge of the chassis.
- Press the Grille toward the chassis until it will be back into place.



Installation of Wall Mounted Type Indoor Unit

CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) **Never fail to have an individual power circuit specifically for the air conditioner. As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.**
- 2) **The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)**
- 3) **Specification of power source.**
- 4) **Confirm that electrical capacity is sufficient.**
- 5) **See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
- 6) **Confirm that the cable thickness is as specified in the power source specification. (Particularly note the relation between cable length and thickness.)**
- 7) **Always install an earth leakage circuit breaker in a wet or moist area.**
- 8) **The following would be caused by voltage drop.**
 - Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.
- 9) **The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.**



Memo

A series of horizontal dotted lines for taking notes, spanning the width of the page.

Installation of Art Cool Type Indoor Unit

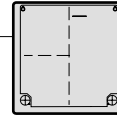


Installation of Art Cool Type Indoor Unit

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.

Installation Parts Provided

1. Installation guide map

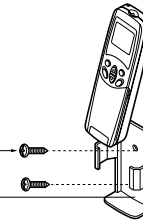


2. Type "A" screw and plastic anchors



3. Type "B" screws

4. Holder Remote Control



Cooling & Heating Model has included Drain Elbow.

Required Parts

- ☐ Installation plate
- ☐ Four type "A" screws
- ☐ Connecting cable
- ☐ Pipes: Gas side.....Ø12.7, Ø9.53
Liquid side.....Ø6.35
(Refer to page 4)
- ☐ Insulation materials
- ☐ Additional drain pipe
(Outer Diameter.....15.5mm)
- ☐ Two type "B" screws

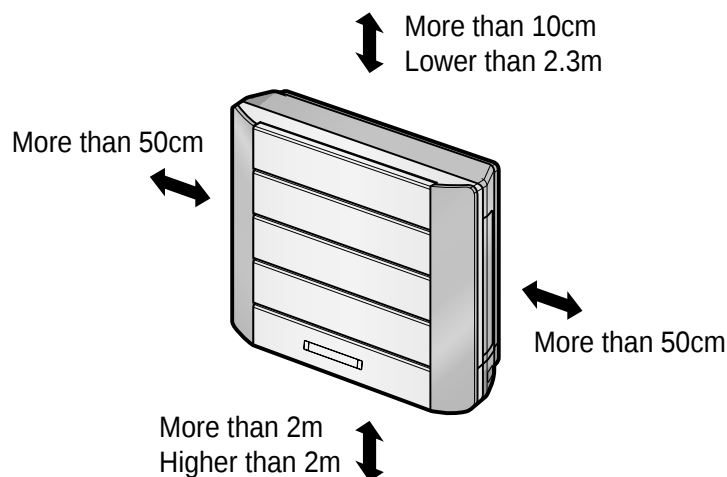
Required Tools

- ☐ Level gauge
- ☐ Screw driver
- ☐ Electric drill
- ☐ Hole core drill(Ø70mm)
- ☐ Flaring tool set
- ☐ Specified torque wrenches
1.8kg.m, 4.2kg.m, 5.5kg.m, 6.6kg.m
(different depending on model No.)
- ☐ Spanner.....Half union
- ☐ A glass of water
- ☐ Screw driver
- ☐ Owner's manual
- ☐ Thermometer
- ☐ Holder Remote Control

Installation of Art Cool Type Indoor Unit

1. Selection of the best location

- Do not have any heat or steam near the unit.
- Select a place where there are no obstacles in front of the unit.
- Make sure that condensation drainage can be conveniently routed away.
Do not install near a doorway.
- Ensure that the space around the left and right of the unit is more than 50cm. The unit should be installed as high on the wall as possible, allowing a minimum of 10cm from ceiling.
- Use a stud finder to locate studs to prevent unnecessary damage to the wall.





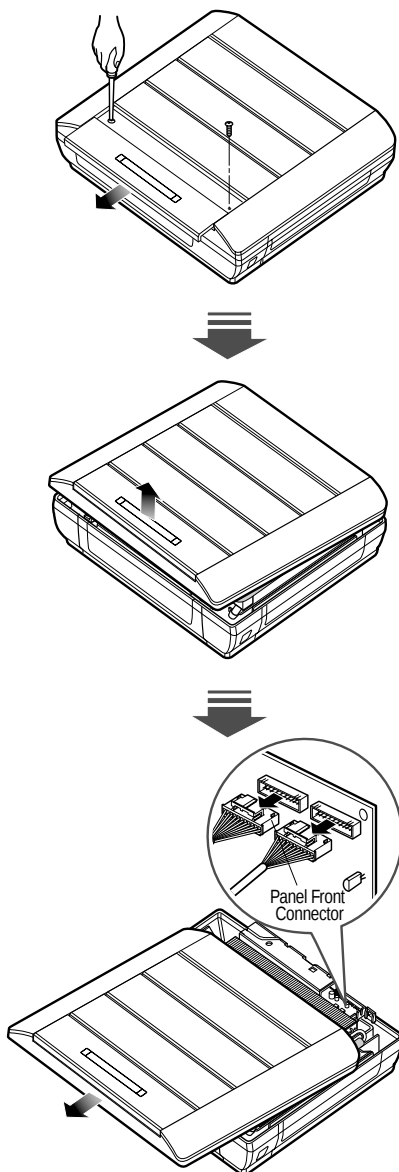
Installation of Art Cool Type Indoor Unit

2. Preparing work for Installation

The wall you select should be strong and solid enough to prevent vibration

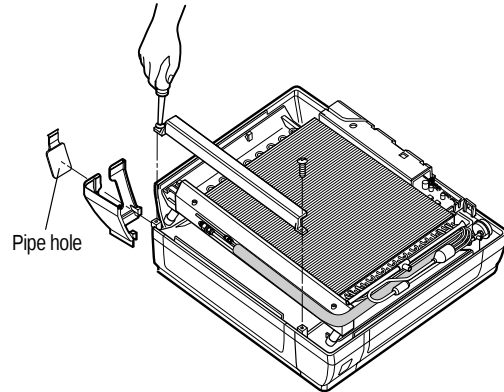
1) Open panel front

- First, Pull the grille bottom, then remove screws (2 pieces), and close grille bottom again.
- The moment of lifting the both lower parts of panel front, you can hear sound this panel came out, In this time panel front is separated
- After pull down this panel a bit, and separate connecting wire with product.



2) Cover pipe and cover side remove

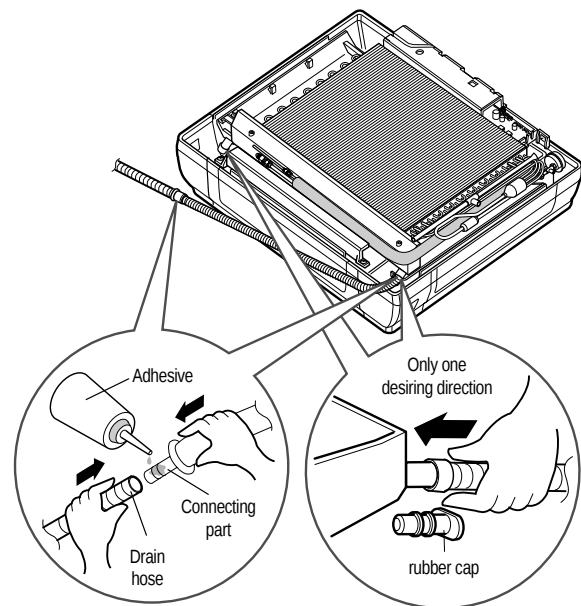
- Remove two screws (for fixing cover pipe)
- Pull up the cover side of desired connecting direction, then cover side is separated.
- In case connecting direction is left or right, path through the hole of cover side.
(When path through the hole, take care of burr.)



NOTE: When connecting pipe path through rear wall, don't remove the hole.

3) Drain hose junction

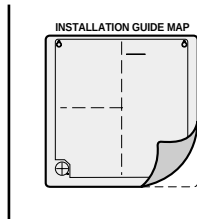
- Remove the rubber stopple of desired drain direction.
- As the following picture, Insert drain hose in the handle of drain pan, and join drain hose and connecting hose.



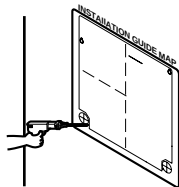
Installation of Art Cool Type Indoor Unit

3. Sticking the installation guide map and fixing Indoor unit

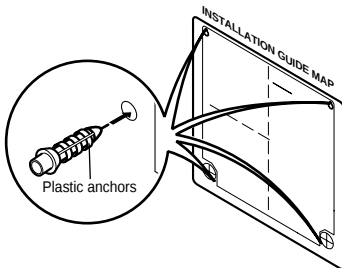
1) Put an Installation Guide Map on the desired surface.



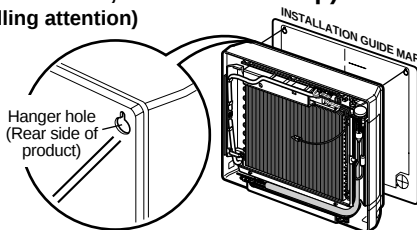
2) Make a hole with diameter of 6mm and depth of 30-35mm when piercing a screw point.



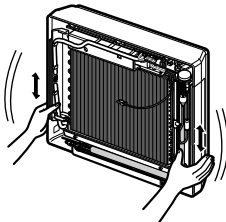
3) Drive the fore plastic anchors into drilled points.



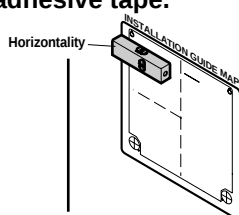
4) Hang the hole of product at the upper screws.
(In this time, Remove the map)
(Falling attention)



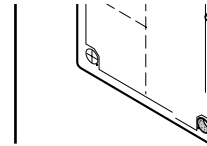
5) Check the fixed product with light power.



6) Look at suited horizon by horizontal meter on the horizontal setting line, and Fix lightly the map by adhesive tape.

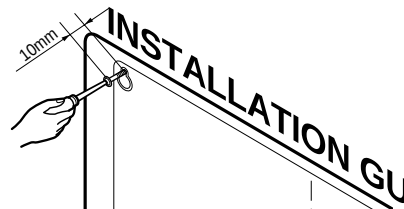


7) Drill the piercing part for connecting pipe as diameter 50mm. (In case of piercing rear surface)

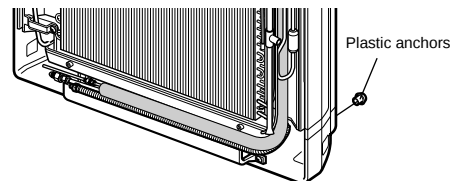


Refer to No. 5 on this page when making a hole in the wall.

8) First, Drive the two points of the upper parts by screws. (Leave 10mm for hanging product)



9) Drive the lower parts after facing the hole of product with plastic anchors, and fix completely the upper screws.

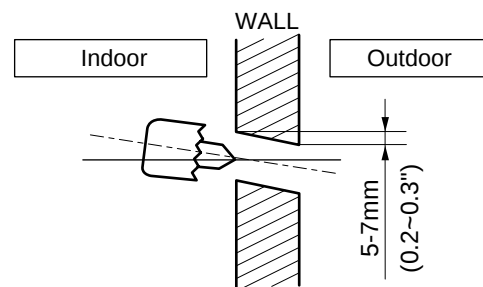


In case of nothing wrong in the matter,
connect the pipe and the wire.
(Installation manual reference)

4. Preparing work for installation

1) Drill a hole in the wall

- Drill the piping hole with a $\varnothing 50\text{mm}$ hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.





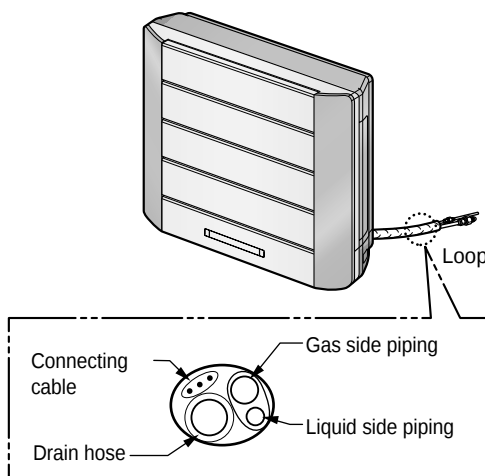
Installation of Art Cool Type Indoor Unit

5. Connection of piping Indoor

- Preparing the indoor unit's piping and drain hose for installation through the wall.

1) Route the indoor tubing and the drain hose in the direction of rear left or right.

2) Tape the tubing, drain hose, and the connecting cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.

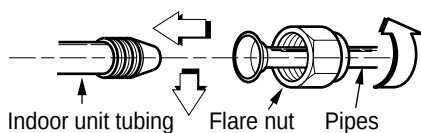


NOTE: If the drain hose is routed inside the room, insulate the hose with an insulation material* so that dripping from "sweating"(condensation) will not damage furniture or floors.

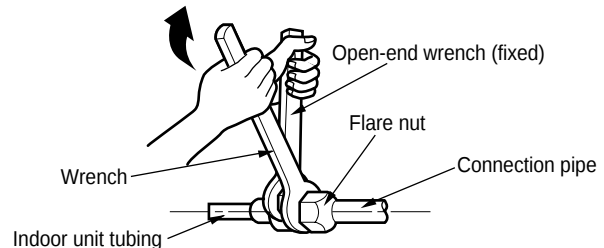
*Foamed polyethylene or equivalent is recommended.

3) Connecting the pipings to the indoor unit and drain hose to drain pipe.

- Align the center of the pipes and sufficiently tighten the flare nut by hand.

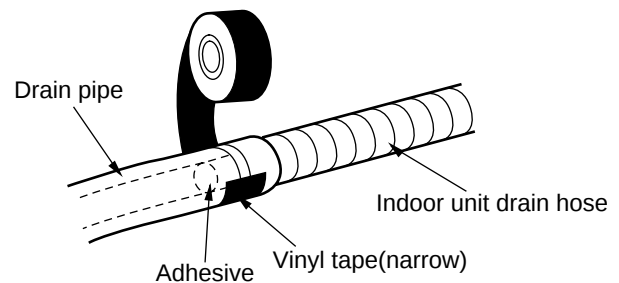


- Tighten the flare nut with a wrench.



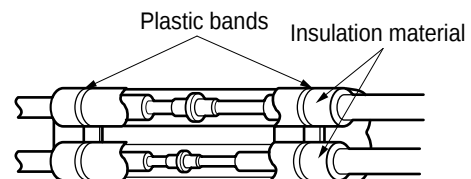
Capacity (kW/h)	Pipe Size[Torque]	
	GAS	LIQUID
2.05, 2.34, 2.64	Ø9.53[4.2kg.m]	Ø6.35[1.8kg.m]
3.22, 3.52, 4.10	Ø12.7[5.5kg.m]	Ø6.35[1.8kg.m]

- When extending the drain hose at the indoor unit, install the drain pipe.



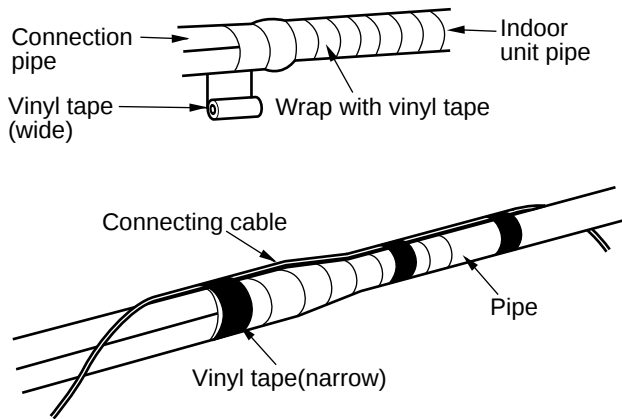
4) Wrap the insulation material around the connecting portion.

- Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap.

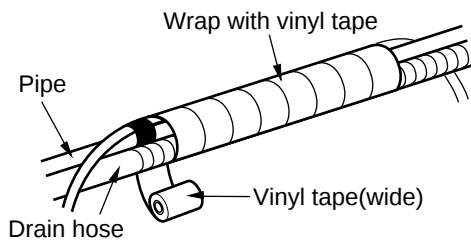


Installation of Art Cool Type Indoor Unit

- Wrap the area which accommodates the rear piping housing section with vinyl tape.



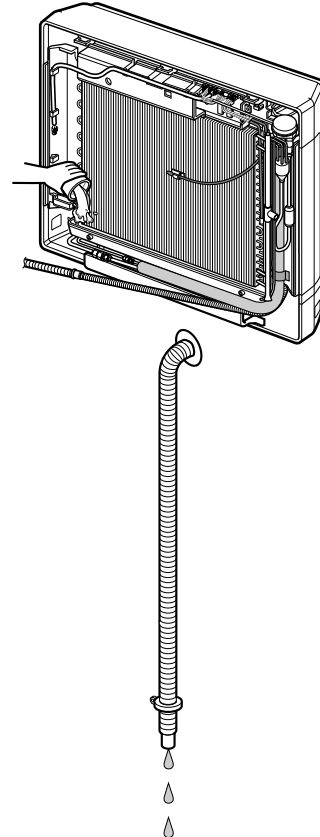
- Bundle the piping and drain hose together by wrapping them with vinyl tape for enough to cover where they fit into the rear piping housing section.



6. Checking the drainage

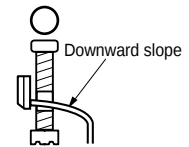
1) To check the drainage.

- Pour a glass of water on the evaporator.
- Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.

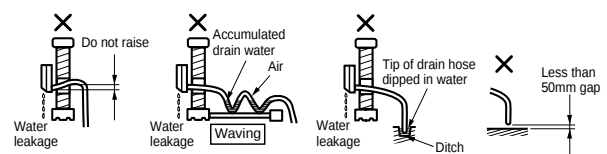


2) Drain piping

- The drain hose should point downward for easy drain flow.



- Do not make drain piping.

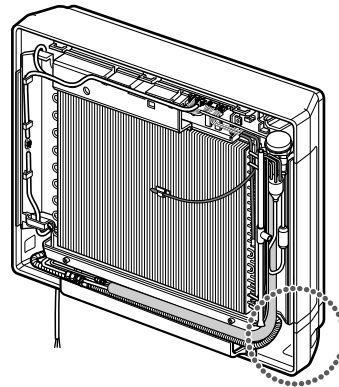




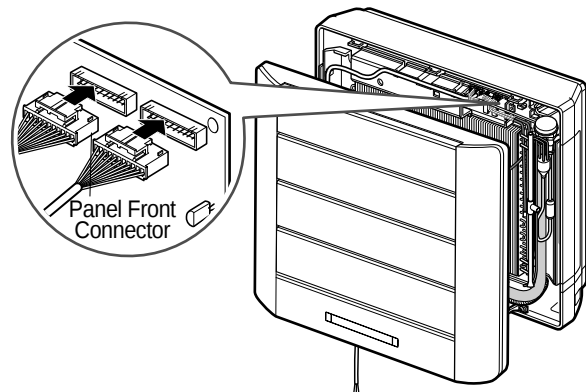
Installation of Art Cool Type Indoor Unit

7. Front panel assembly

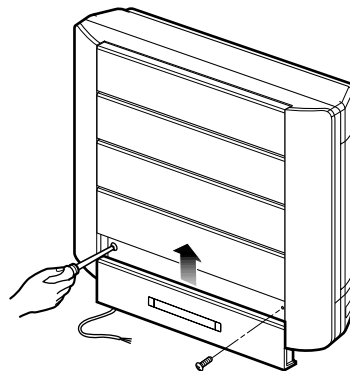
- 1) First, Check the side cover assembly exactly, Fix power cord in the bottom groove of cover side left.



- 2) Assemble connecting lead wire with controller and first fix the upper part of panel front, then match the lower part of panel front



- 3) Drive two screws.

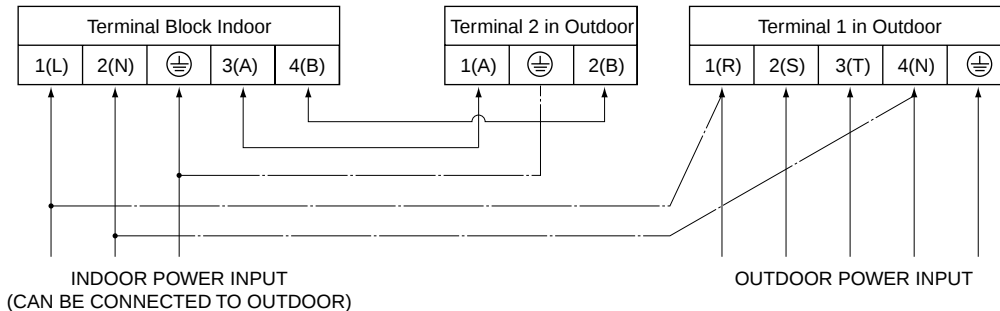


Installation of Art Cool Type Indoor Unit

8. Connect the cable to the Indoor unit.

- Connect the cable to the indoor unit by connecting the wires to the terminals on the control board in **dividually according to the outdoor unit connection.** (Ensure that the color of the wires of the outdoor unit and the terminal No. are the same as those of the indoor unit.)

The earth wire should be longer than the common wires.



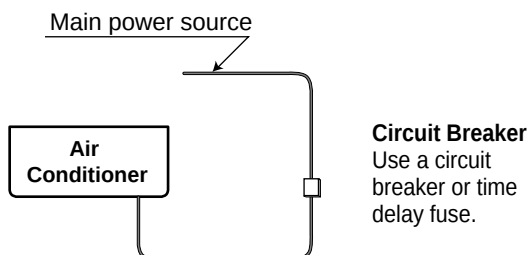
- When installing, refer to the circuit diagram on the Control Box of Indoor Unit.
- When installing, refer to the wiring diagram on the Control Cover Inside Outdoor Unit.

CAUTION

- The above circuit diagram is subject to change without notice.
- Be sure to connect wires according to the wiring diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the wiring diagram.

CAUTION

If a power plug is not to be used, provide a circuit breaker between power source and the unit as shown below.



CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) **Never fail to have an individual power circuit specifically for the air conditioner.** As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.
- 2) **The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)**
- 3) **Specification of power source.**
- 4) **Confirm that electrical capacity is sufficient.**
- 5) **See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
- 6) **Confirm that the cable thickness is as specified in the power source specification. (Particularly note the relation between cable length and thickness. (Refer to page 24))**
- 7) **Always install an earth leakage circuit breaker in a wet or moist area.**
- 8) **The following would be caused by voltage drop.**
 - Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.
- 9) **The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.**



Memo

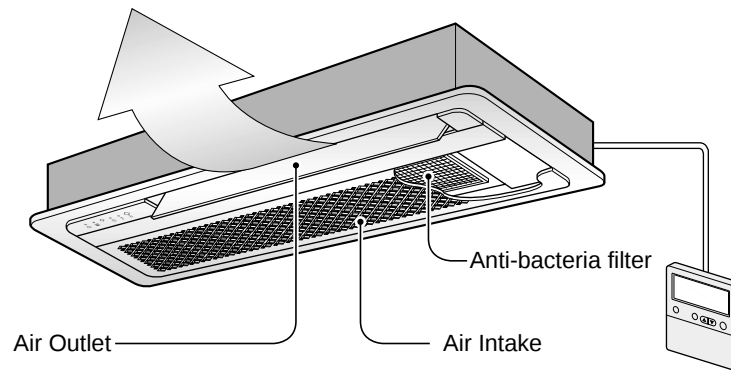
Installation of Art Cool Type Indoor Unit

Installation of Ceiling Cassette Type(1 way) Indoor Unit



Installation of Ceiling Cassette Type(1 way) Indoor Unit

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.



Cooling & Heating Model has included Drain Elbow.

Required Parts

- Connecting cable
- Pipes: Gas side
Liquid side
- Hanging Bolt
(W 3/8 or M10 length 650mm)
- Insulated drain hose
- Additional Drain hose
(Inner Dia.....32mm)

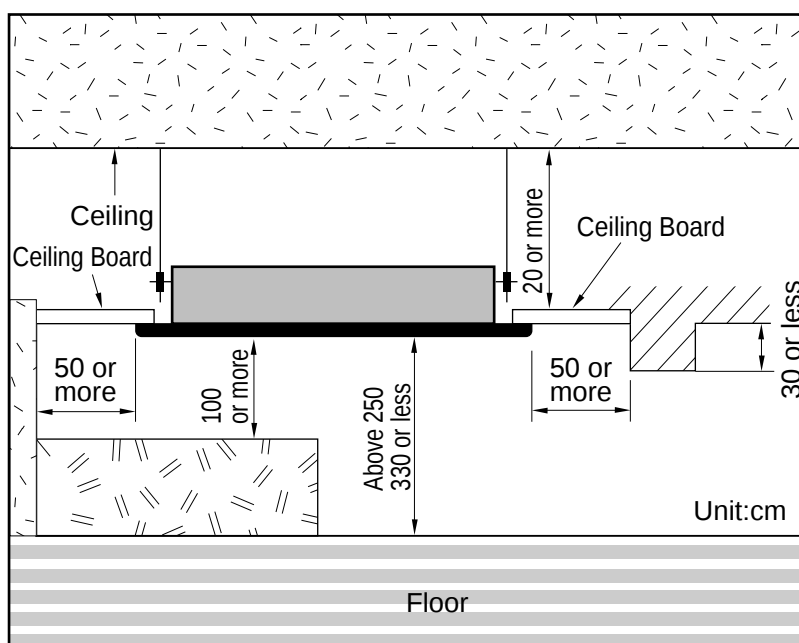
Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill (ø70mm)
- Flaring Tools set
- Torque Wrenches
- Hexagonal Wrench (4mm, 5mm)
- Gas-leak detector
- Owner's Manual
- Thermometer

Installation of Ceiling Cassette Type(1 way) Indoor Unit

1. Selection of the best location

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to the air circulation.
- A place where air circulation in the room will be good.
- A place where drainage can be easily obtained.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, or other obstacles.
- The indoor unit must have the maintenance space.

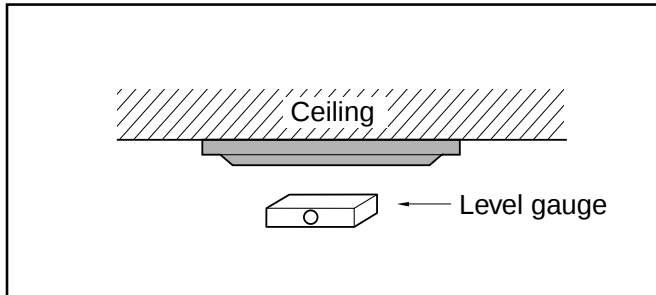




Installation of Ceiling Cassette Type(1 way) Indoor Unit

2. Ceiling opening dimensions and hanging bolt location

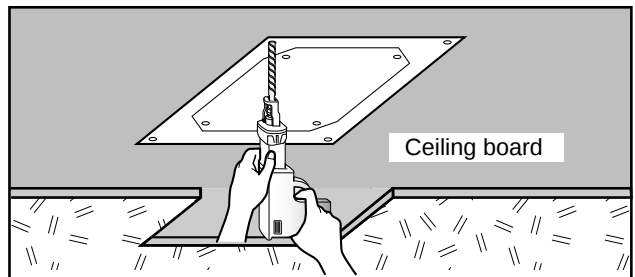
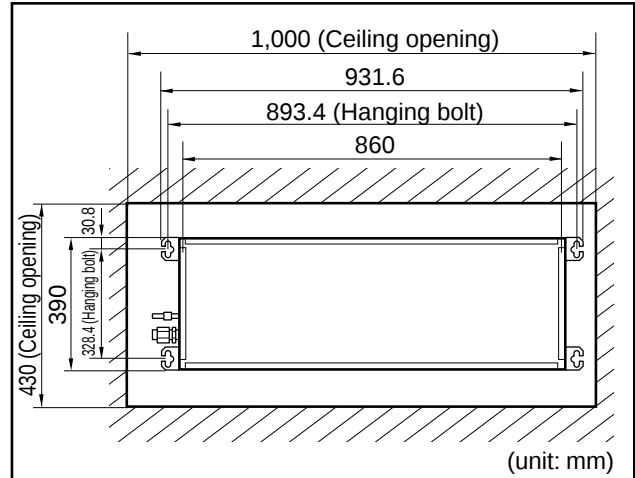
- The dimensions of the paper model for installing are the same as those of the ceiling opening dimensions.



CAUTION

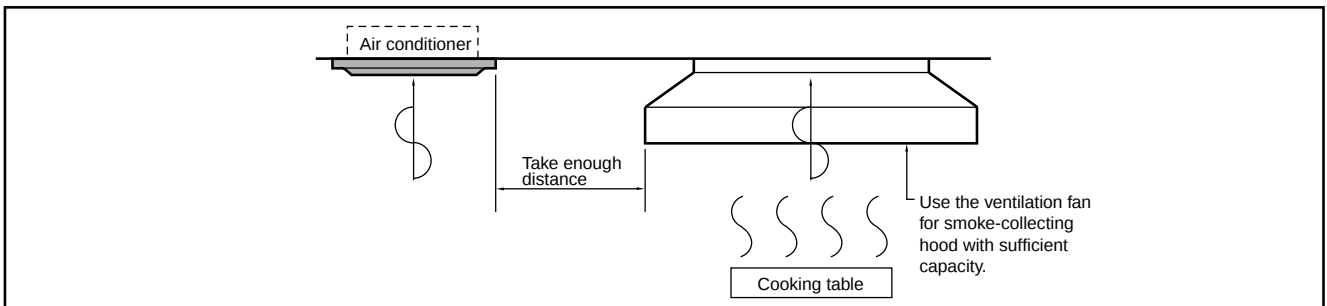
- This air-conditioner uses a drain pump.
- Install the unit horizontally using a level gauge.
- During the installation, care should be taken not to damage electric wires.

- Select and mark the position for fixing bolts and piping hole.
- Decide the position for fixing bolts slightly tilted to the drain direction after considering the direction of drain hose.
- Drill the hole for anchor bolt on the wall.



NOTE:

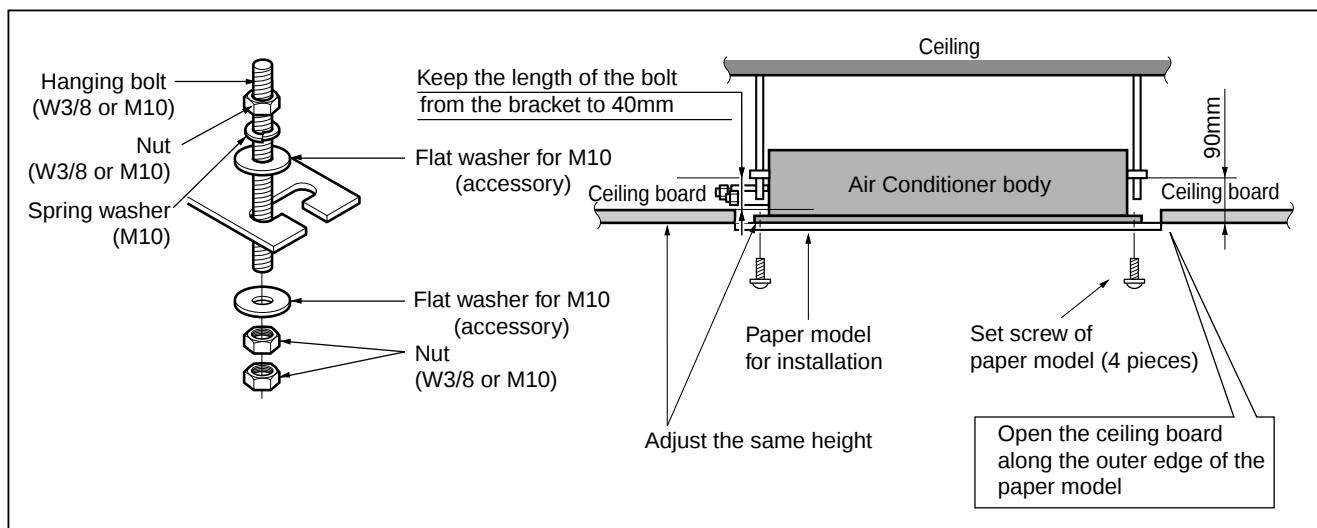
- Avoid the following installation location.
1. Such places as restaurants and kitchen where considerable amount of oil steam and flour is generated. These may cause heat exchange efficiency reduction, or water drops, drain pump mal-function. In these cases, take the following actions;
 - Make sure that ventilation fan is enough to cover all noxious gases from this place.
 - Ensure enough distance from the cooking room to install the air conditioner in such a place where it may not suck oily steam.



2. Avoid installing air conditioner in such places where cooking oil or iron powder is generated.
3. Avoid places where inflammable gas is generated.
4. Avoid place where noxious gas is generated.
5. Avoid places near high frequency generators.

Installation of Ceiling Cassette Type(1 way) Indoor Unit

3. The Indoor Unit Installation



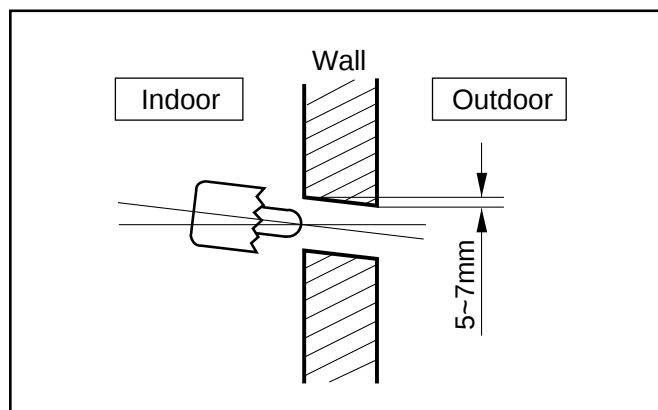
• The following parts are local purchasing.

- ① Hanging Bolt - W 3/8 or M10
- ② Nut - W 3/8 or M10
- ③ Spring Washer - M10
- ④ Plate Washer - M10

CAUTION

- Tighten the nut and bolt to prevent unit from falling off.

- Drill the piping hole on the wall slightly tilted to the outdoor side using a $\varnothing 70$ hole-core drill.

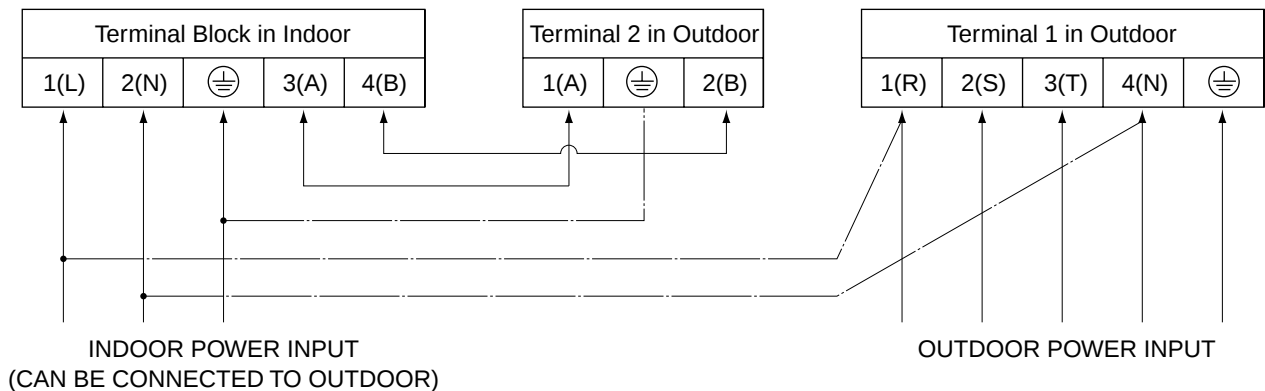
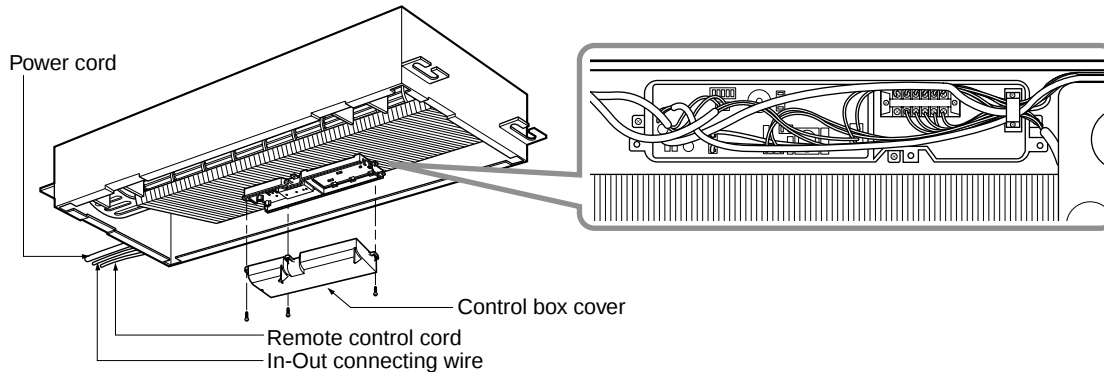




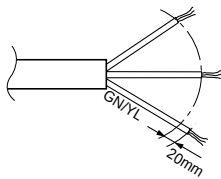
Installation of Ceiling Cassette Type(1 way) Indoor Unit

4. Wiring Connection

- Open the control box cover and connect the Remote controller cord and Indoor power wires.



The power cord connected to the outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).

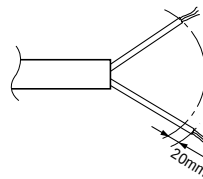


**NORMAL
CROSS-SECTIONAL
AREA 2.5mm²**

If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

CAUTION

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



**NORMAL
CROSS-SECTIONAL
AREA 1.5mm²**

⚠ WARNING

Make sure that the screws of the terminal are free from looseness.

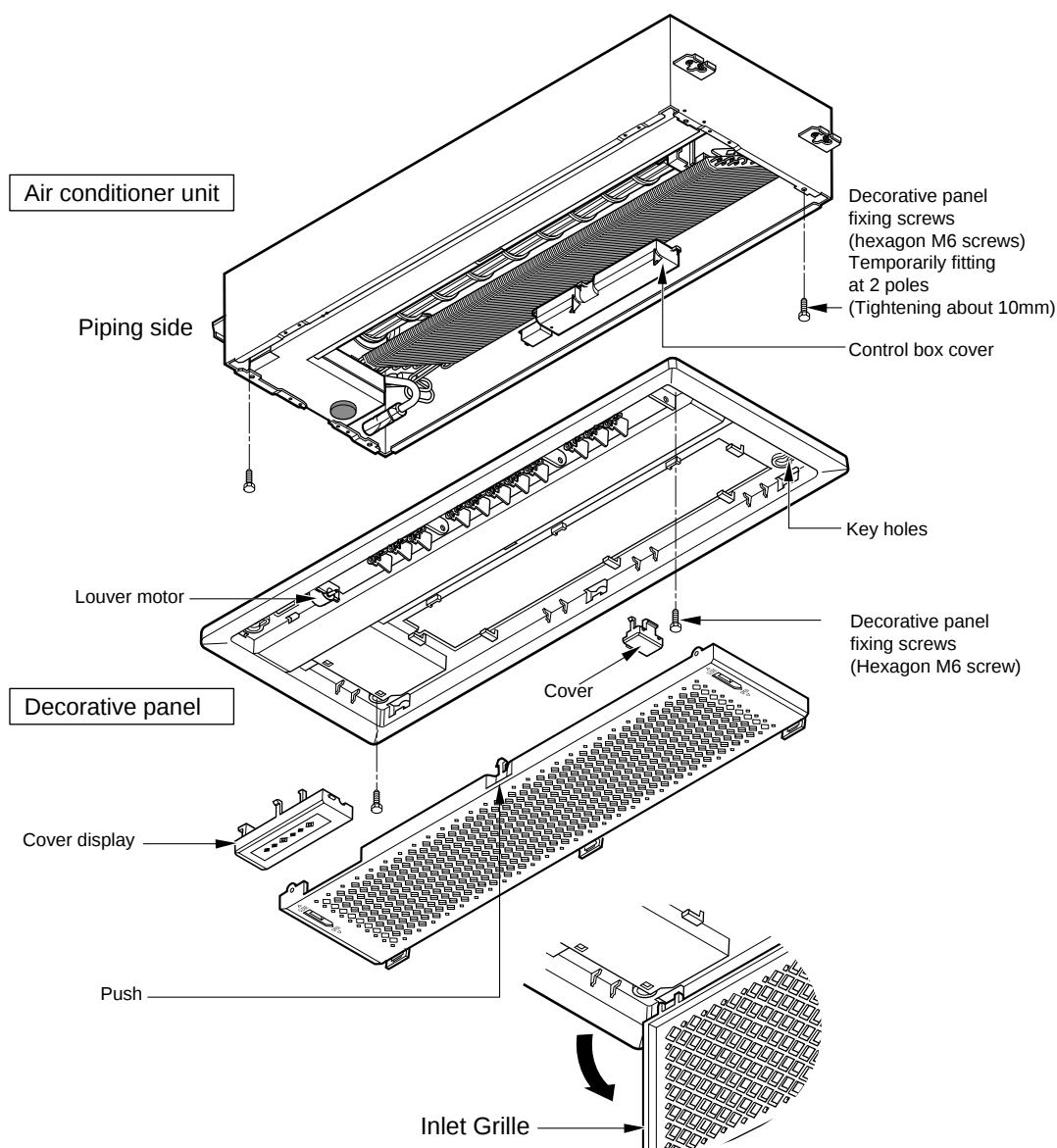
Installation of Ceiling Cassette Type(1 way) Indoor Unit

5. Installation of Decorative Panel

The decorative panel has its installation direction.

Before installing the decorative panel, always remove the paper template.

1. Temporarily fix two decorative panel fixing screws (hexagon M6 screw) on the unit body. (Tighten by amount 10mm in length.)
The fixing screws (hexagon M6 screw) are included the Indoor unit box.
2. Remove the air inlet grille from the decorative panel. (Remove the hook for the air inlet grille cord.)
3. Hook the decorative panel key hole () on the screws fixed in step above, and slide the panel so that the screws reach the key hole edge.
4. Retighten completely two temporarily fixed screws and other two screws. (Total 4 screws)
5. Connect the louver motor connector and display connector and room temp. thermistor connector.
6. After tightening these screws, install the air inlet grille (including the air filter) and push middle point of inlet grille.
7. Assemble the cover display and the cover.





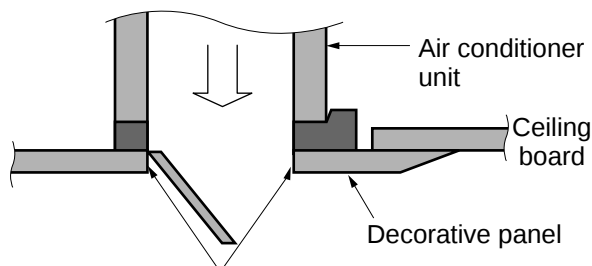
Installation of Ceiling Cassette Type(1 way) Indoor Unit

CAUTION

Install certainly the decorative panel.

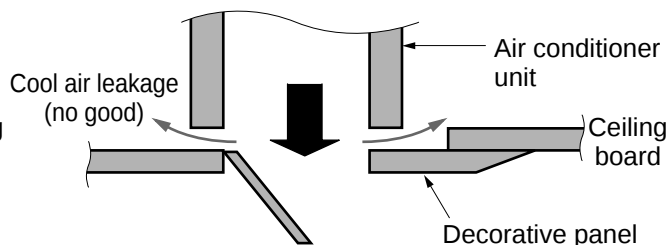
Cool air leakage causes sweating. ☐ Water drops fall.

Good example



Fit the insulator (this part) and be careful for cool air leakage

Bad example



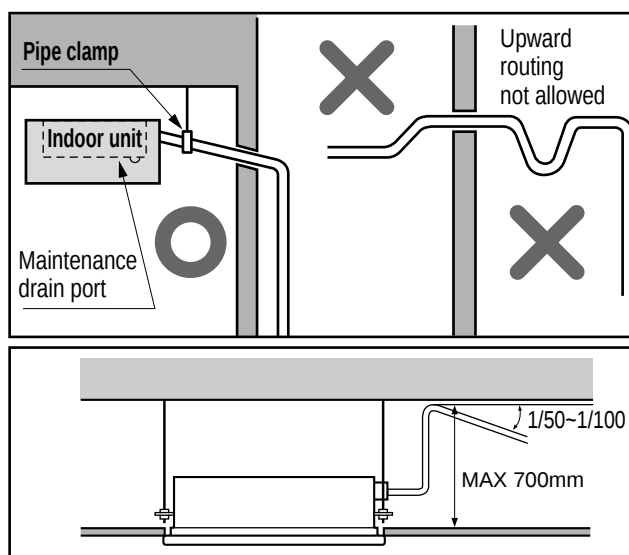
6. Indoor Unit Drain Piping

- Drain piping must have down-slope (1/50 to 1/100): be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port on the indoor unit.
- The outside diameter of the drain connection on the indoor unit is 32mm.

Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings

- Be sure to install heat insulation on the drain piping.

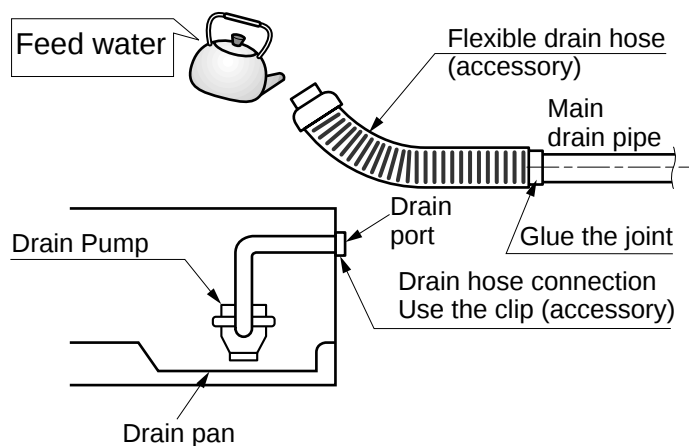
Heat insulation material: Polyethylene foam with thickness more than 8 mm.



Drain test

The air conditioner uses a drain pump to drain water.

Use the following procedure to test the drain pump operation:



- Connect the main drain pipe to the exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain pump for normal operating and noise when electrical wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit.

Installation of Ceiling Cassette Type(1 way) Indoor Unit

CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) **Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.**
- 2) **Provide a circuit breaker switch between power source and the unit.**
- 3) **The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)**
- 4) **Specification of power source**
- 5) **Confirm that electrical capacity is sufficient.**
- 6) **Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
- 7) **Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)**
- 8) **Never fail to equip a leakage breaker where it is wet or moist.**
- 9) **The following troubles would be caused by voltage drop-down.**
 - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
 - Proper starting power is not given to the compressor.

HAND OVER

Teach the customer the operation and maintenance procedures, using the operation manual (air filter cleaning, temperature control, etc.).



Memo

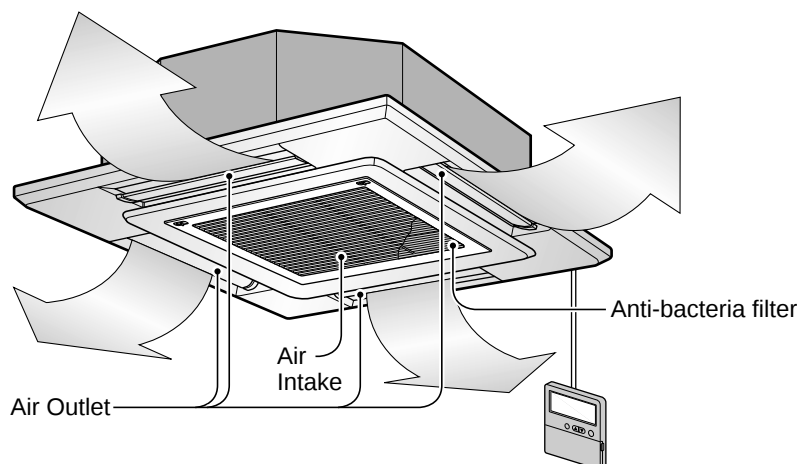
Installation of Ceiling Cassette Type(1 way) Indoor Unit

Installation of Ceiling Cassette Type(4 way) Indoor Unit



Installation of Ceiling Cassette Type(4 way) Indoor Unit

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.



Cooling & Heating Model has included Drain Elbow.

Required Parts

- Connecting cable
- Pipes: Gas side
Liquid side
- Hanging Bolt
(W 3/8 or M10 length 650mm)
- Insulated drain hose
- Additional Drain hose
(Inner Dia32mm)

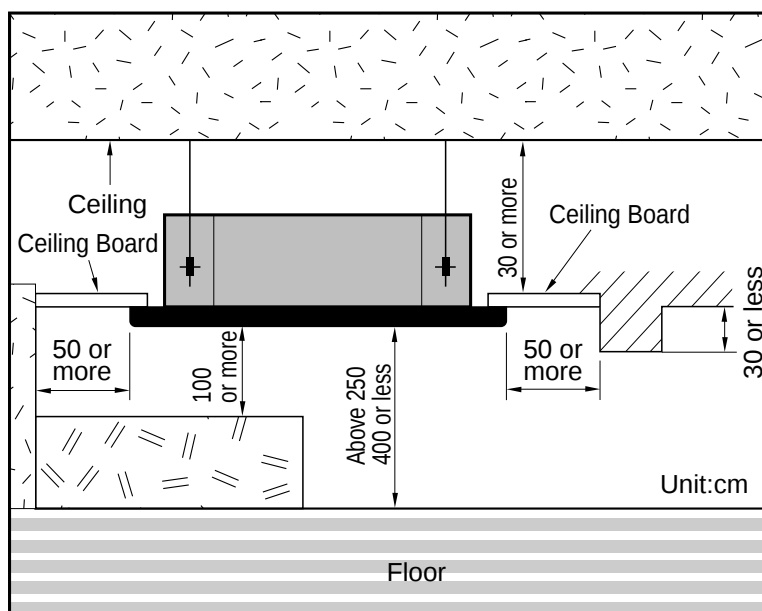
Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill (ø70mm)
- Flaring Tools set
- Torque Wrenches
- Hexagonal Wrench (4mm, 5mm)
- Gas-leak detector
- Owner's Manual
- Thermometer

Installation of Ceiling Cassette Type(4 way) Indoor Unit

1. Selection of the best location

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to the air circulation.
- A place where air circulation in the room will be good.
- A place where drainage can be easily obtained.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, or other obstacles.
- The indoor unit must have the maintenance space.

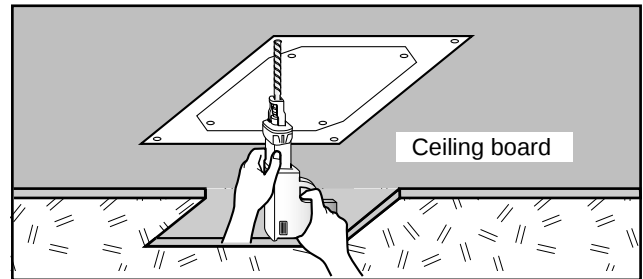
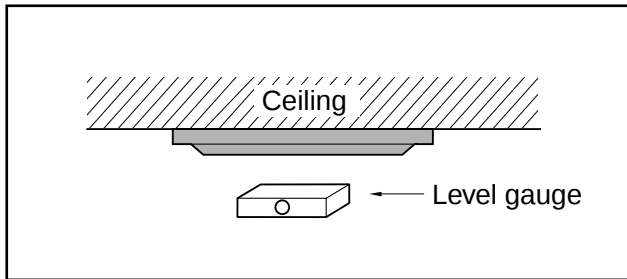




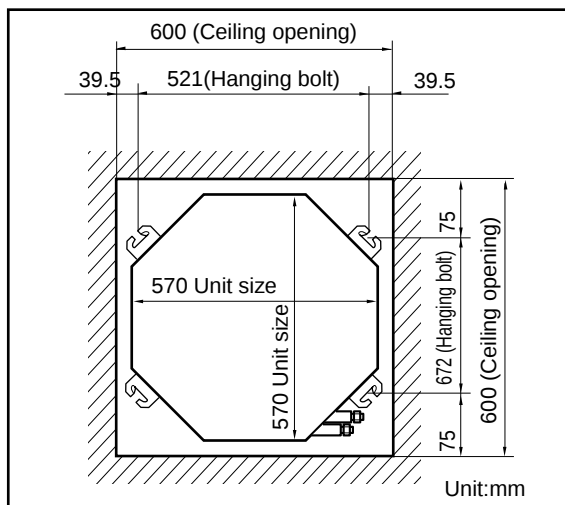
Installation of Ceiling Cassette Type(4 way) Indoor Unit

2. Ceiling opening dimensions and hanging bolt location

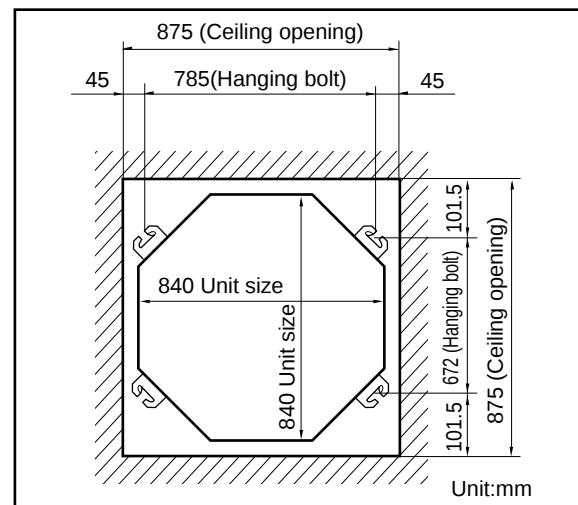
- The dimensions of the paper model for installing are the same as those of the ceiling opening dimensions.



CRUN186TE0, CRUN246TE0



CRUN366TD0



CAUTION

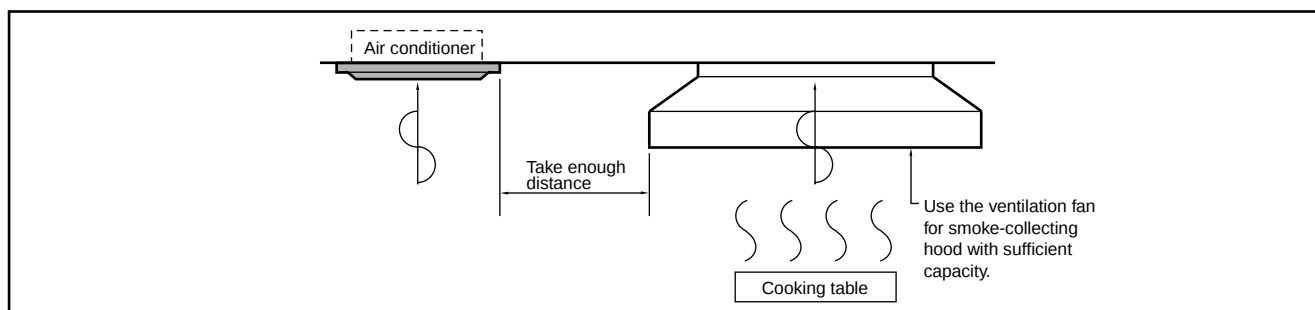
- This air-conditioner uses a drain pump.
- Install the unit horizontally using a level gauge.
- During the installation, care should be taken not to damage electric wires.

- Select and mark the position for fixing bolts and piping hole.
- Decide the position for fixing bolts slightly tilted to the drain direction after considering the direction of drain hose.
- Drill the hole for anchor bolt on the wall.

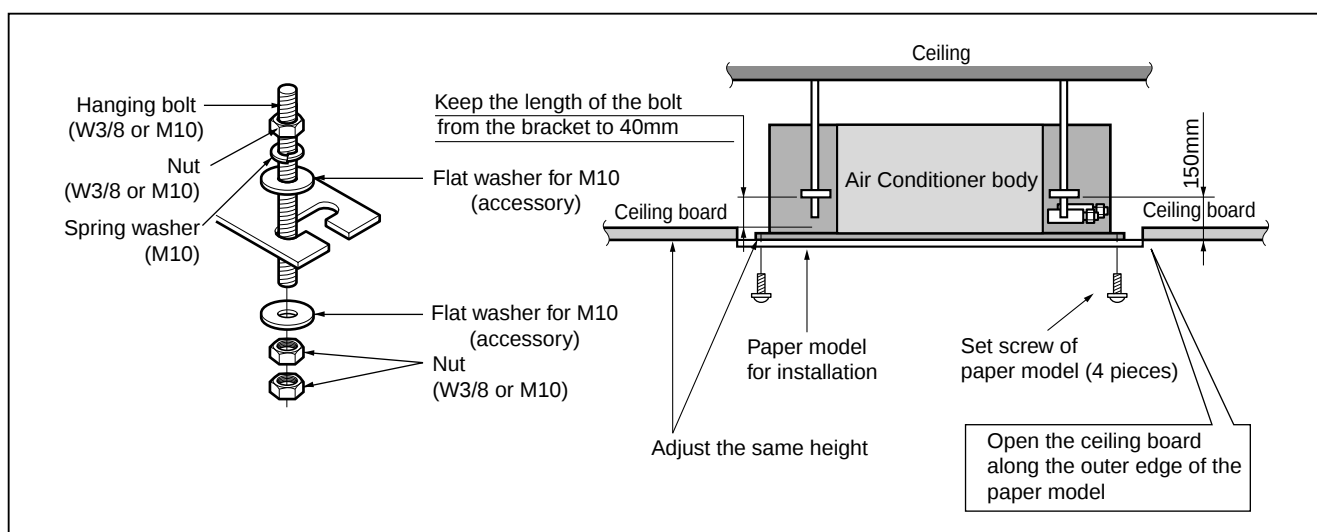
NOTE:

- Avoid the following installation location.
1. Such places as restaurants and kitchen where considerable amount of oil steam and flour is generated. These may cause heat exchange efficiency reduction, or water drops, drain pump mal-function. In these cases, take the following actions;
 - Make sure that ventilation fan is enough to cover all noxious gases from this place.
 - Ensure enough distance from the cooking room to install the air conditioner in such a place where it may not suck oily steam.

Installation of Ceiling Cassette Type(4 way) Indoor Unit



2. Avoid installing air conditioner in such places where cooking oil or iron powder is generated.
3. Avoid places where inflammable gas is generated.
4. Avoid place where noxious gas is generated.
5. Avoid places near high frequency generators.



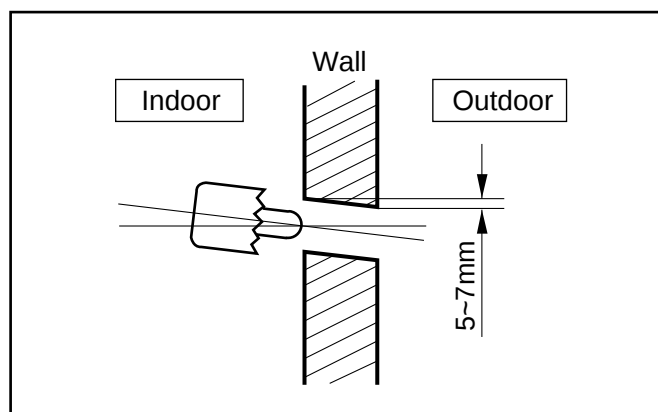
- The following parts are local purchasing.

- ① Hanging Bolt - W 3/8 or M10
- ② Nut - W 3/8 or M10
- ③ Spring Washer - M10
- ④ Plate Washer - M10

CAUTION

- Tighten the nut and bolt to prevent unit from falling off.

- Drill the piping hole on the wall slightly tilted to the outdoor side using a $\varnothing 70$ hole-core drill.

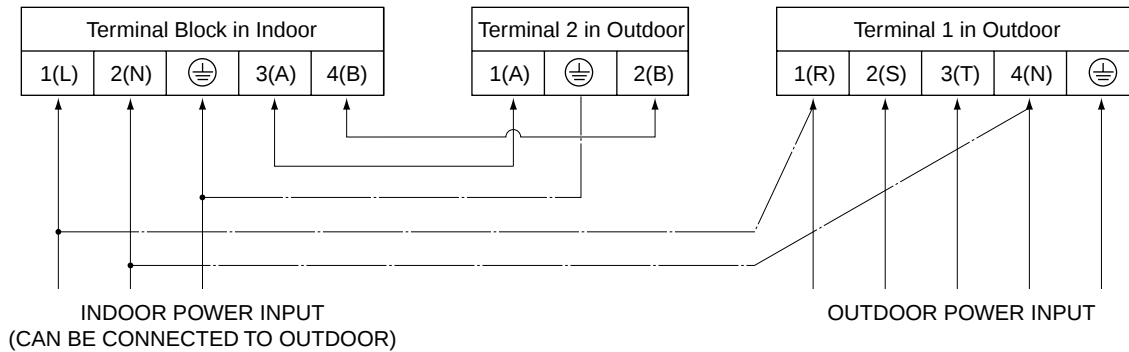
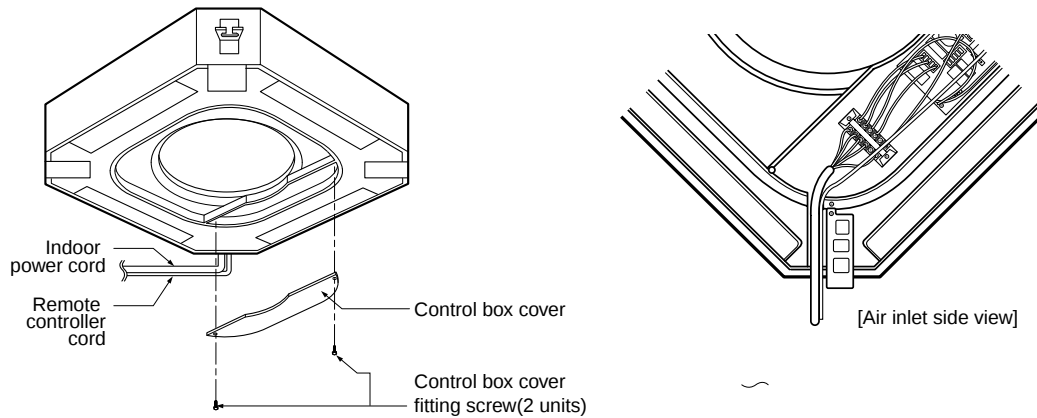




Installation of Ceiling Cassette Type(4 way) Indoor Unit

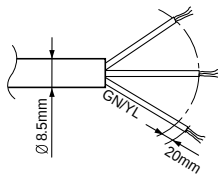
3. Wiring Connection

- Open the control box cover and connect the Remote controller cord and Indoor power wires.

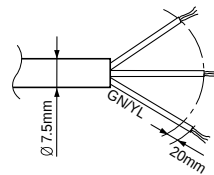


CAUTION

The power cord connected to the outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



**NORMAL
CROSS-SECTIONAL
AREA 4.0mm² (10.6kW)
6.0mm² (14.1kW)
8.0mm² (17.6kW)**



**NORMAL
CROSS-SECTIONAL
AREA 1.5mm²**

If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

WARNING

Make sure that the screws of the terminal are free from looseness.

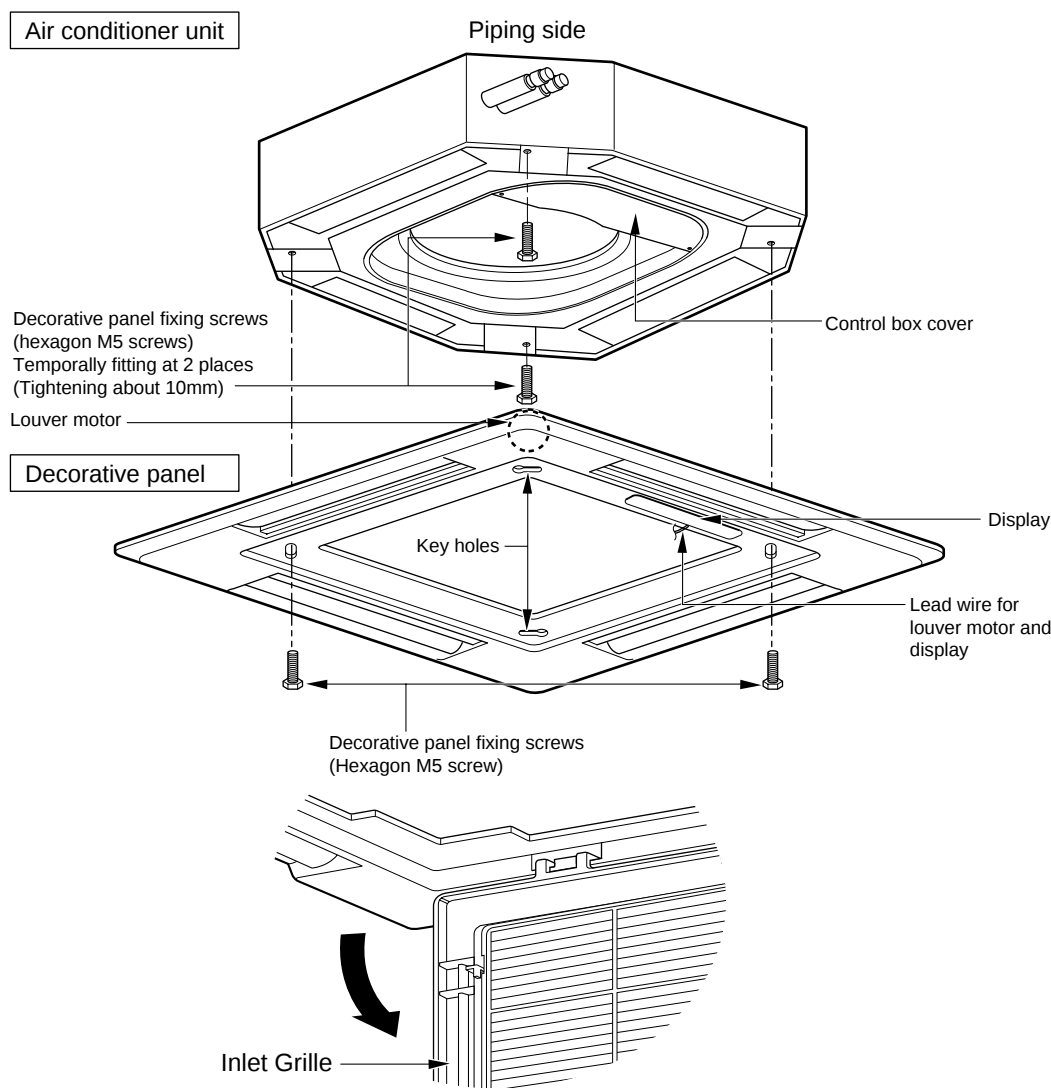
Installation of Ceiling Cassette Type(4 way) Indoor Unit

4. Installation of Decorative Panel

The decorative panel has its installation direction.

Before installing the decorative panel, always remove the paper template.

1. Temporarily fix two decorative panel fixing screws (hexagon M5 screw) on the unit body. (Tighten by amount 10mm in length.)
The fixing screws (hexagon M5 screw) are included the indoor unit box.
2. Remove the air inlet grille from the decorative panel. (Remove the hook for the air inlet grille cord.)
3. Hook the decorative panel key hole () on the screws fixed in step above, and slide the panel so that the screws reach the key hole edge.
4. Retighten completely two temporarily fixed screws and other two screws. (Total 4 screws)
5. Connect the louver motor connector and display connector.
6. After tightening these screws, install the air inlet grille (including the air filter).



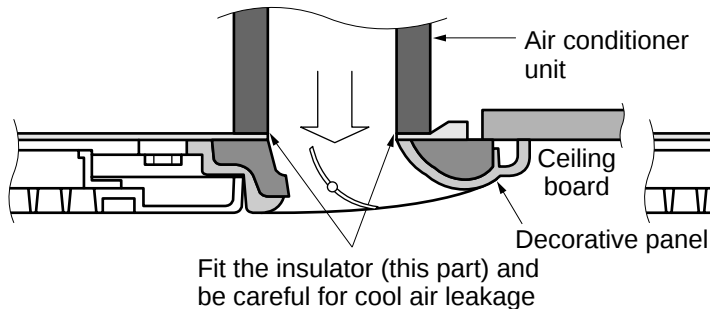


Installation of Ceiling Cassette Type(4 way) Indoor Unit

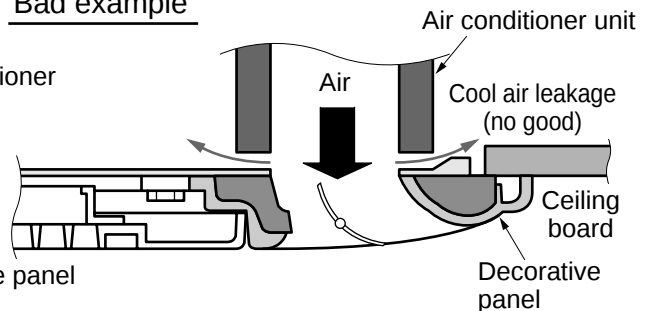
CAUTION

Install certainly the decorative panel.
Cool air leakage causes sweating. ⇨ Water drops fall.

Good example



Bad example



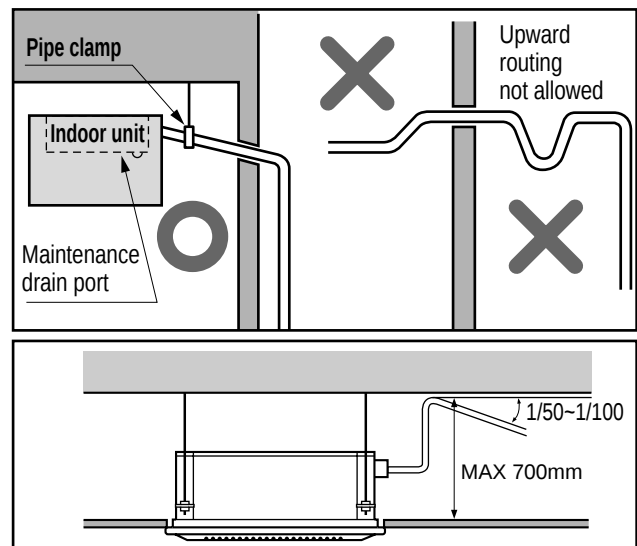
5. Indoor Unit Drain Piping

- Drain piping must have down-slope (1/50 to 1/100): be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port on the indoor unit.
- The outside diameter of the drain connection on the indoor unit is 32mm.

Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings

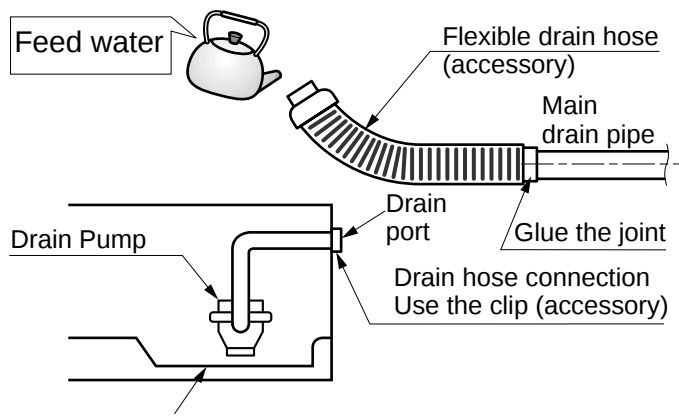
- Be sure to install heat insulation on the drain piping.

Heat insulation material: Polyethylene foam with thickness more than 8 mm.



Drain test

The air conditioner uses a drain pump to drain water.
Use the following procedure to test the drain pump operation:



- Connect the main drain pipe to the exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain pump for normal operating and noise when electrical wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit.

Installation of Ceiling Cassette Type(4 way) Indoor Unit

CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) **Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.**
- 2) **Provide a circuit breaker switch between power source and the unit.**
- 3) **The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)**
- 4) **Specification of power source**
- 5) **Confirm that electrical capacity is sufficient.**
- 6) **Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
- 7) **Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)**
- 8) **Never fail to equip a leakage breaker where it is wet or moist.**
- 9) **The following troubles would be caused by voltage drop-down.**
 - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
 - Proper starting power is not given to the compressor.

HAND OVER

Teach the customer the operation and maintenance procedures, using the operation manual (air filter cleaning, temperature control, etc.).



Memo

Installation of Ceiling Cassette Type(4 way) Indoor Unit

Installation of Convertible Type Indoor Unit



Installation of Convertible Type Indoor Unit

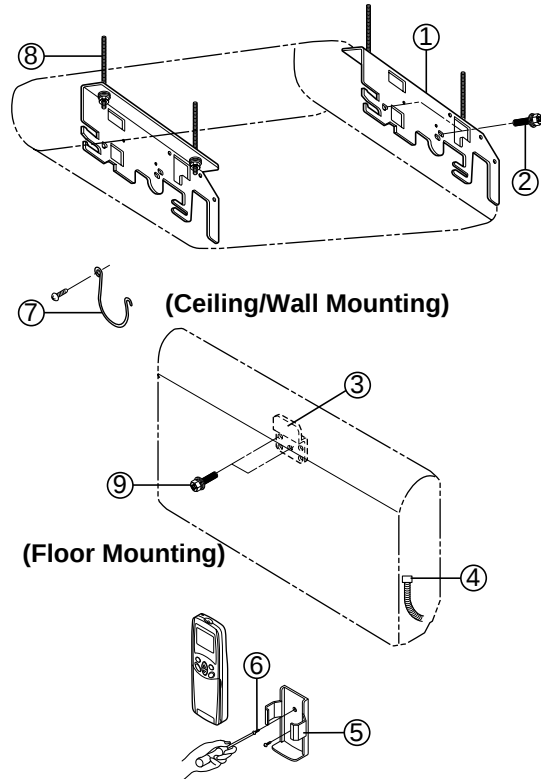
- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.

Installation Parts Provided

- ① Installation Plate (2pcs)
- ② Washer Bolt (M8 × L25, 4pcs, type "A")
- ③ Floor Mount Bracket (1pcs)
- ④ Drain Hose, Insulated
- ⑤ Remocon Holder
- ⑥ Screw for Remocon Holder (type "B")
- ⑦ Drain Hose Hanger and screw

The other Installation Parts Needed

- ⑧ Suspension Bolt
- ⑨ Bolts for Mount Bracket
- ⑩ Connecting Tube
 - Gas side : Ø12.7/Ø15.88
 - Liquid side : Ø6.35/Ø9.52
- ⑪ Connecting Cable
- ⑫ Drain Hose Extended



Required Parts

- Installation Plate
- Four Type "A" screws
- Connecting cable
- Pipes: Gas sideØ12.7, Ø15.87
Liquid sideØ6.35, Ø9.53
- Insulated drain hose
- Insulation materials
- Two type "B" screws

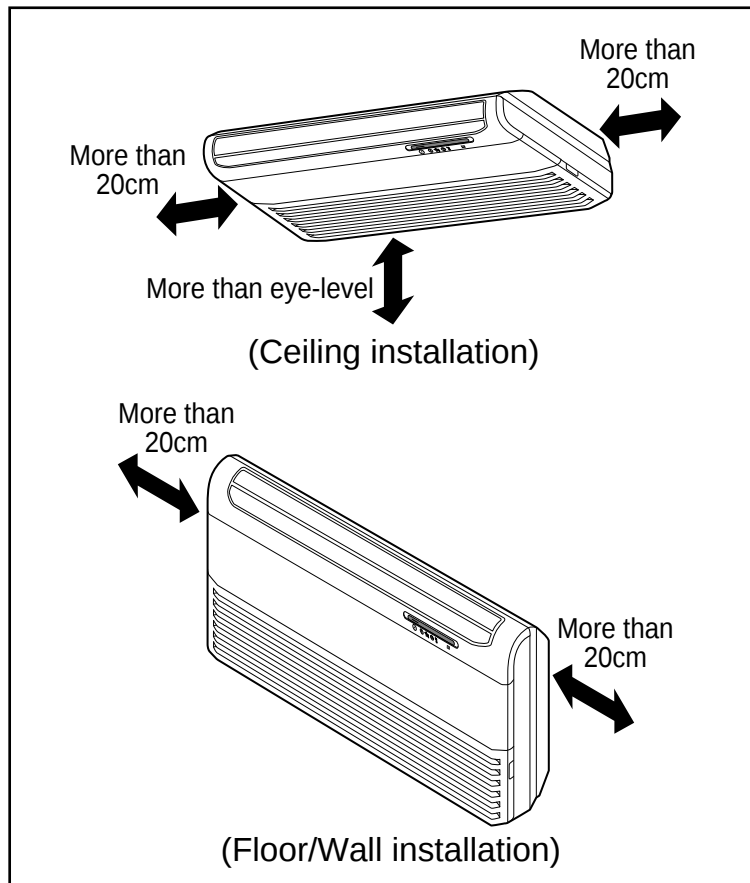
Required Tools

- Level
- Screw driver
- Electric drill
- Hole core drill (Ø70mm)
- Flaring Tools set
- Specified Torque Wrenches
 - 1.8kg·m.....Liquid side piping
 - 5.5kg·mGas side piping
 - SpannerHalf union
- Specified Torque Wrenches
 - 1.8kg·m.....Liquid side piping
 - 5.5kg·m.....Gas side piping
- Hexagonal Wrench (4mm)
- Gas-leak Detector
- Owner's Manual
- Thermometer

Installation of Convertible Type Indoor Unit

1. Selection of the best location

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to prevent the air circulation.
- A place where air circulation in the room will be good.
- A place where drainage can be easily obtained.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, or other obstacles.





Installation of Convertible Type Indoor Unit

2. installation

■ Before Installing, prepare Installation Plates

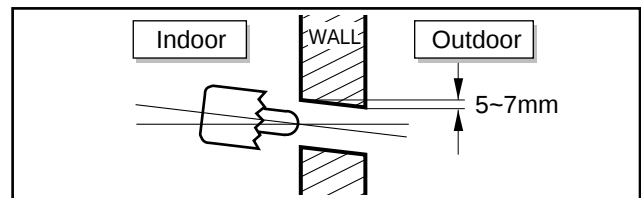
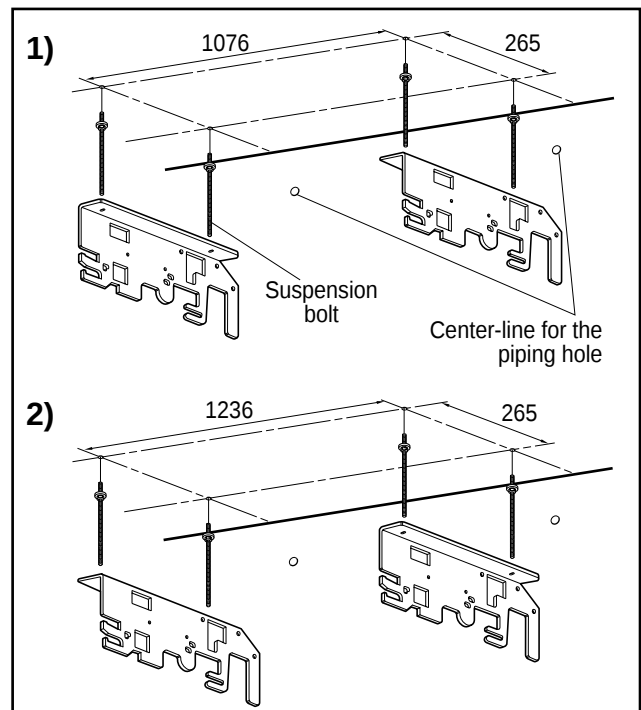
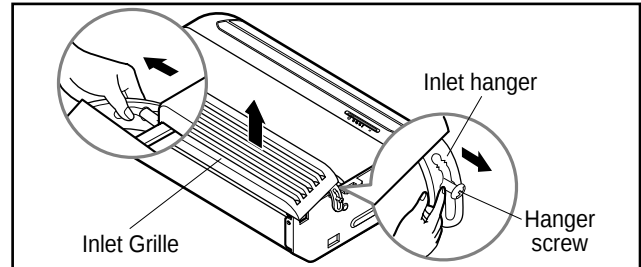
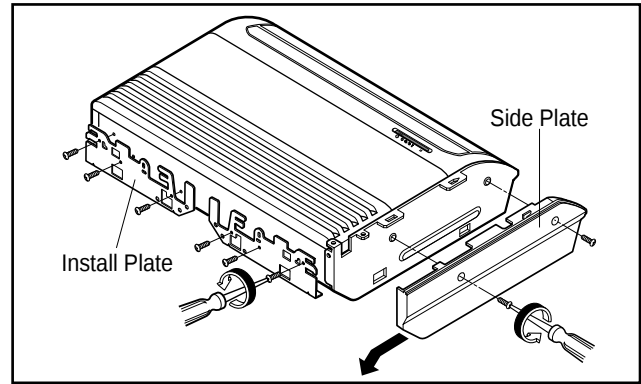
- 'Installation Plates' are attached at the bottom of indoor unit.
Detach them by removing each 3 screws at both sides.
- Detach 'Side Plate (R,L)' by removing each 2 screws on both sides.
- Pull the upper right and left side of 'Inlet Grille' to the front, and it will stop at slightly tilted position.
- Unhook the 'Inlet hanger' from the 'Hanger screw' on the both left and right side.
- Detach the 'Inlet Grille' from the Indoor Unit.

1) Installation on the ceiling

- Measure and mark the position for the Suspension bolts and the piping hole.
- Drill the hole for anchor nut on the ceiling.

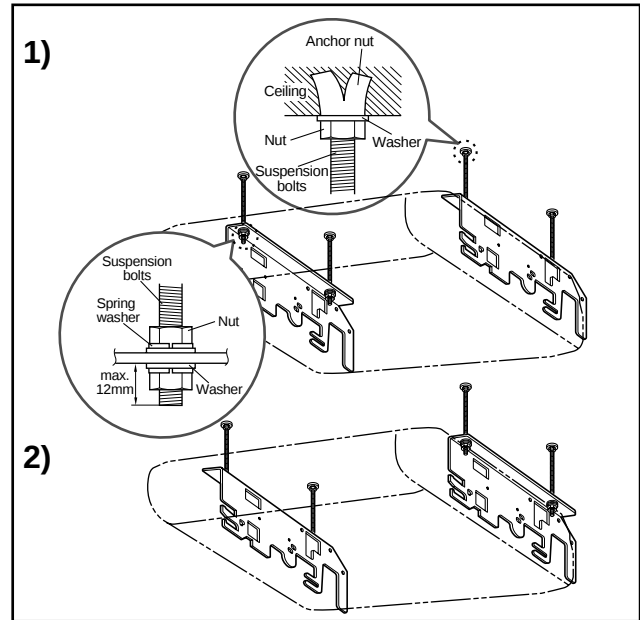
Before secure the Installation Plates, select the bent direction of the Installation Plate to the inside or the outside according to the installation circumstances.

- Drill the piping hole on the wall slightly tilted to the outdoor side using a $\varnothing 70$ hole-core drill.

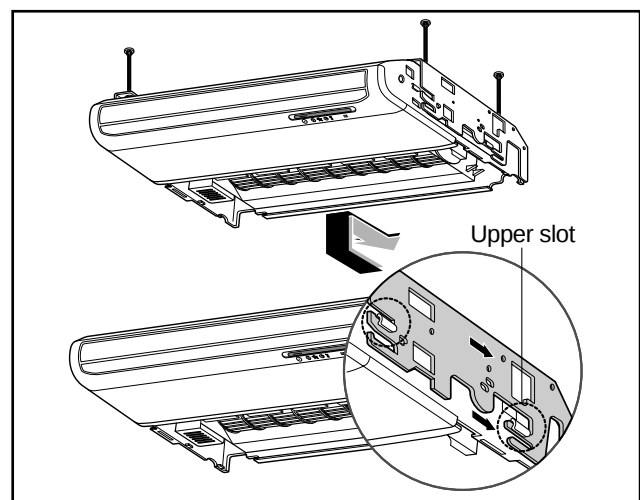
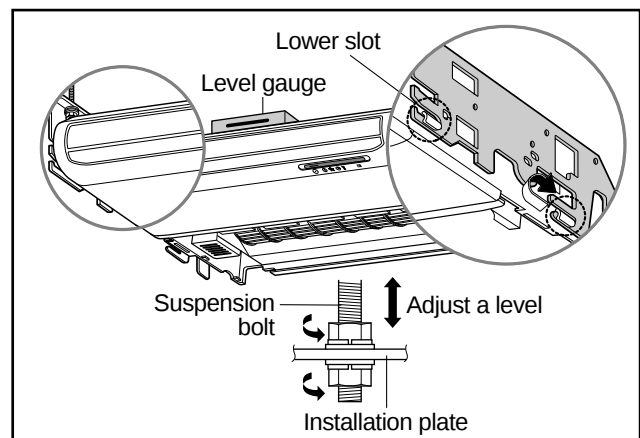


Installation of Convertible Type Indoor Unit

- Insert the nuts and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the anchor-nuts firmly.
- Secure the Installation plates onto the Suspension bolts (adjust level roughly.) using nuts, washers and spring washers.



- Engage 2 hooks on the both left and right side of the unit to the lower slot of Installation Plates.
- Adjust a level with a level gauge on the direction of left-right, back-forth by adjusting suspension bolts.
- Move the hooks on the unit to the upper slot of Installation Plates. Then the unit will be declined to the bottomsides so as to drain well.





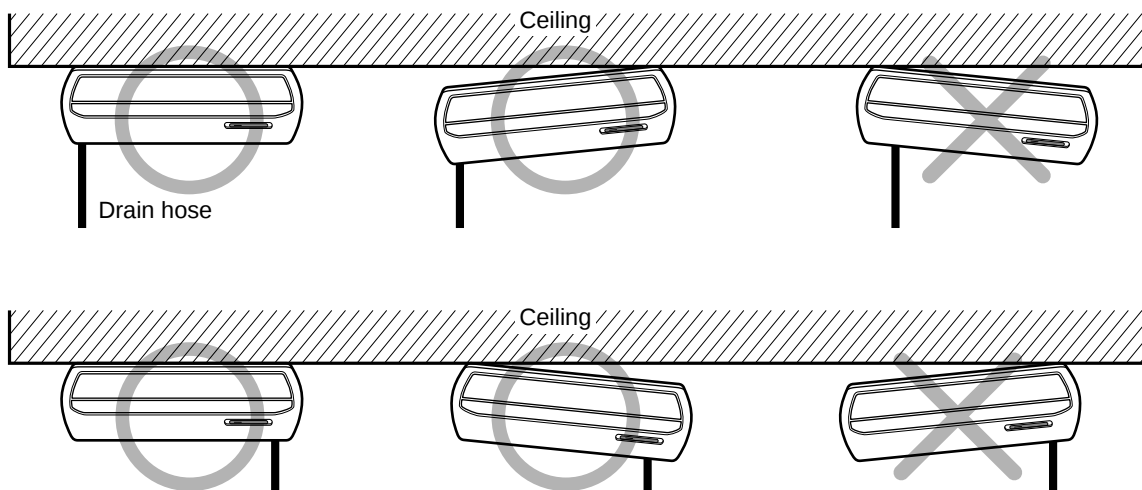
Installation of Convertible Type Indoor Unit

CAUTION

1. **Install declination** of the indoor unit is very **important for the drain** of the convertible type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 7mm.
3. If the Installation Plates are fixed to horizontal line, the indoor unit after installing will be declined to the bottomside.

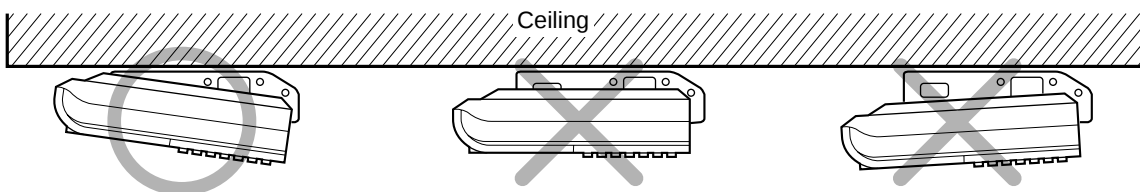
Front of view

- The unit must be horizontal or declined to the drain hose connected when finished installation.



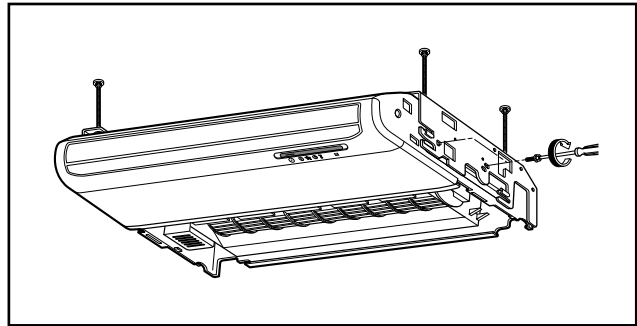
Side of view

- The unit must be declined to the bottomside of the unit when finished installation.



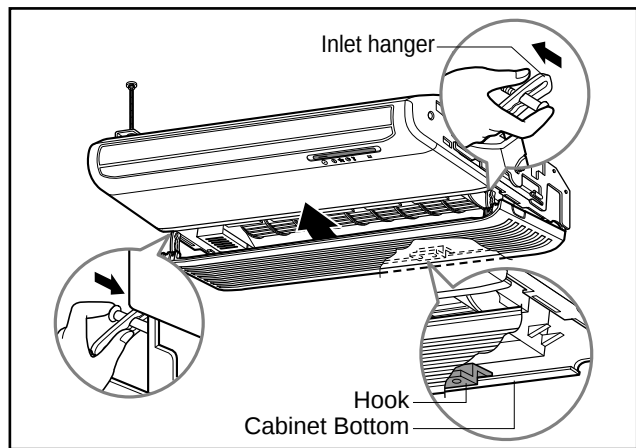
Installation of Convertible Type Indoor Unit

- Secure the unit to the Installation Plates with four M8 bolts and washers.

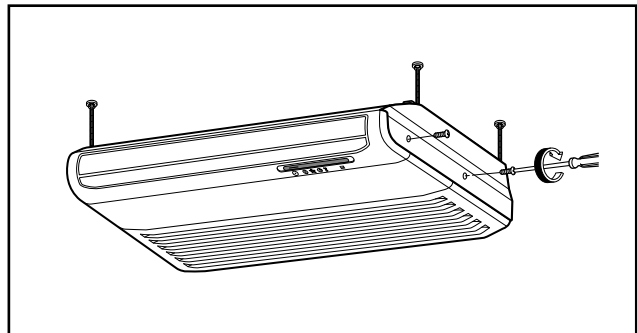
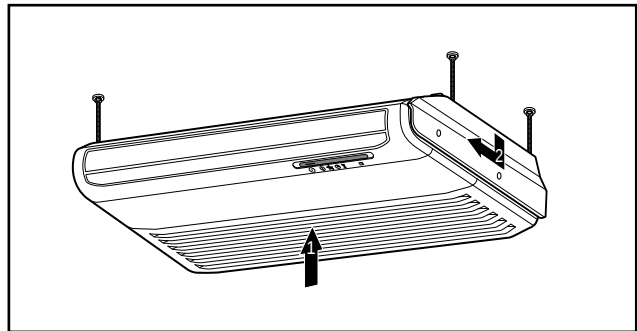


- Before working, refer to 'Connecting pipe and cable to Indoor Unit'.

- Hook up the Inlet Grille Hook to the cabinet.
- Hang the Inlet Hanger to the screw.



- Fit the projection hooks of the side plates to the 'Side Panel' and the 'Front Panel' by lifting it.
- Fasten the screws.

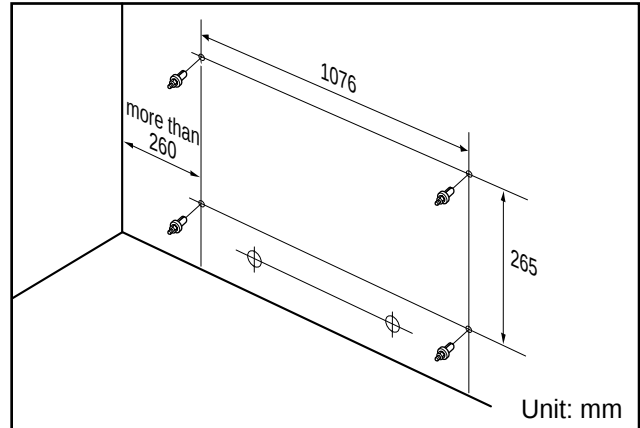




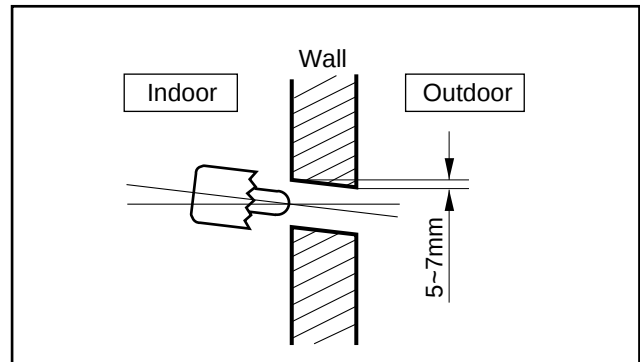
Installation of Convertible Type Indoor Unit

2) Installation on the Wall

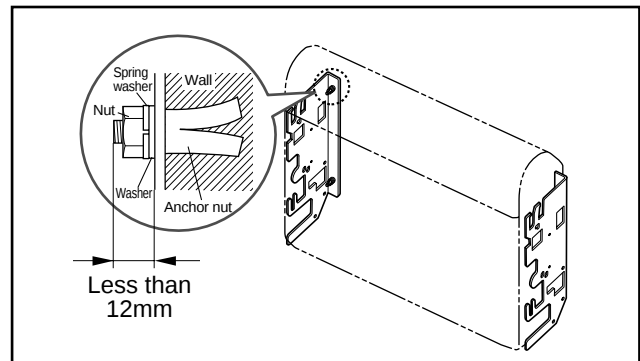
- Select and mark the position for fixing bolts and piping hole.
Decide the position for fixing bolts slightly tilted to the drain direction after considering the direction of drain hose.
- Drill the hole for anchor nut on the wall.



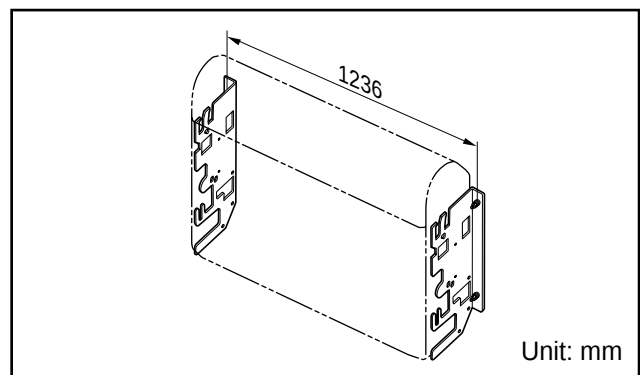
- Drill the piping hole on the wall slightly tilted to the outdoor side using a $\varnothing 70$ hole-core drill.



- Secure the 'Install Plate' onto the wall with four anchor bolts, washers and spring washers.



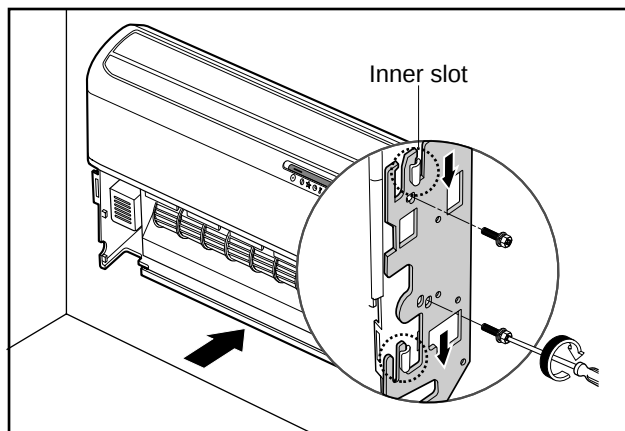
Before secure the Install Plates, select the bent direction of the 'Install Plate' to the inside or outside according to the installation circumstances.



Installation of Convertible Type Indoor Unit

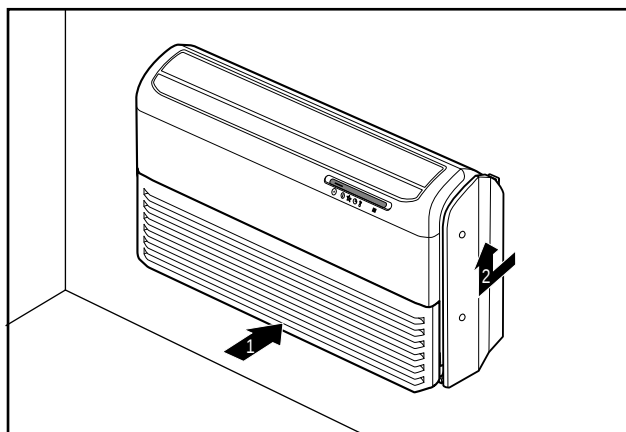
Install the Indoor unit onto Installation Plate.

- Insert 2 hooks on the both left and right side of the unit to the inner slot (wall side) of the Installation Plate.
- Secure the unit to the Installation Plate with four M8 bolts and washers.

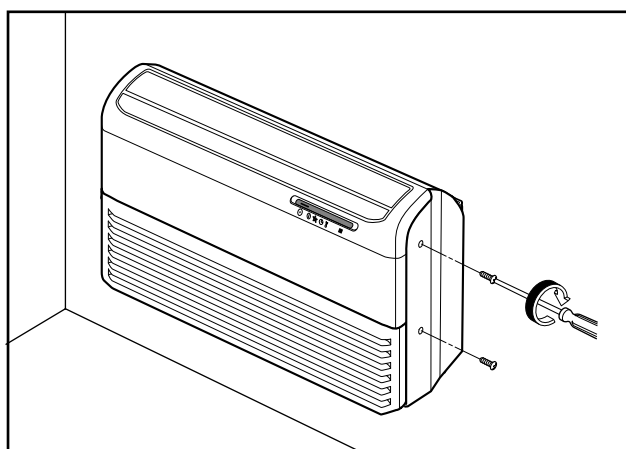


- Before working, refer to "Connecting pipe and cable to Indoor Unit".

- Hook up the Inlet Grille Hook to the cabinet.
- Hang the Inlet Hanger to the screw.



- Fit the projection hooks of the side plates to the 'Side Panel' and the 'Front Panel' by lifting it.
- Fasten the screws.





Installation of Convertible Type Indoor Unit

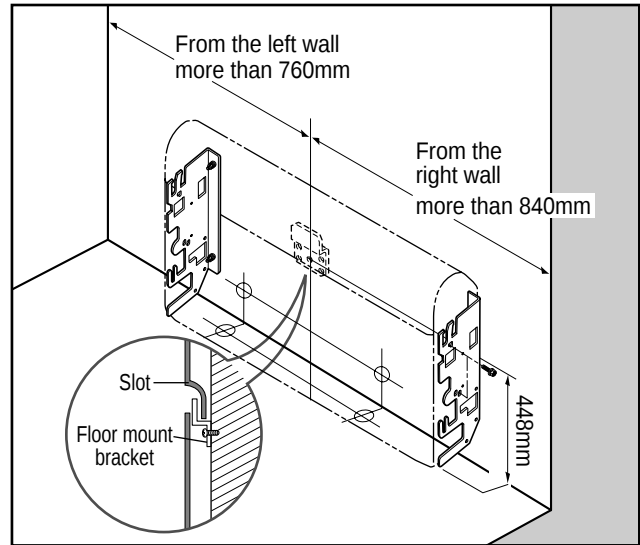
3) Installation on the floor

Installation of Mount Bracket.

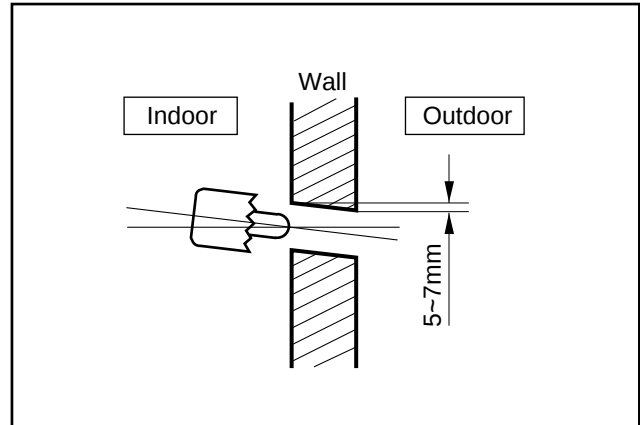
- Select and mark the position for Mount Brackets and the piping hole.
- Drill the hole for the anchor nut on the wall.
- Drill the piping hole using a $\varnothing 70$ hole-core drill.
- Secure the Mount Brackets on the wall with four M4 screws.

Install the indoor unit onto the Mount Brackets.

- Engage the slot at the back of the unit with Mount Bracket.

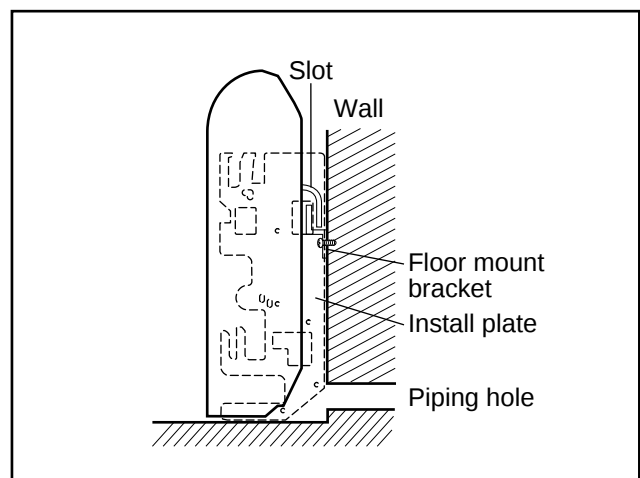


- Drill the piping hole with 70mm dia, hole core drill.
- Piping hole should be slightly slant to the outdoor side.



After Installing, reassemble detached parts.

- Hang the 'Inlet Grille' and hook the 'Inlet Hanger' to the Hanger Screw.
- Assemble the 'Side Plates(R,L)' with 2 screws on both left and right side.



Installation of Convertible Type Indoor Unit

3. Piping and drainage

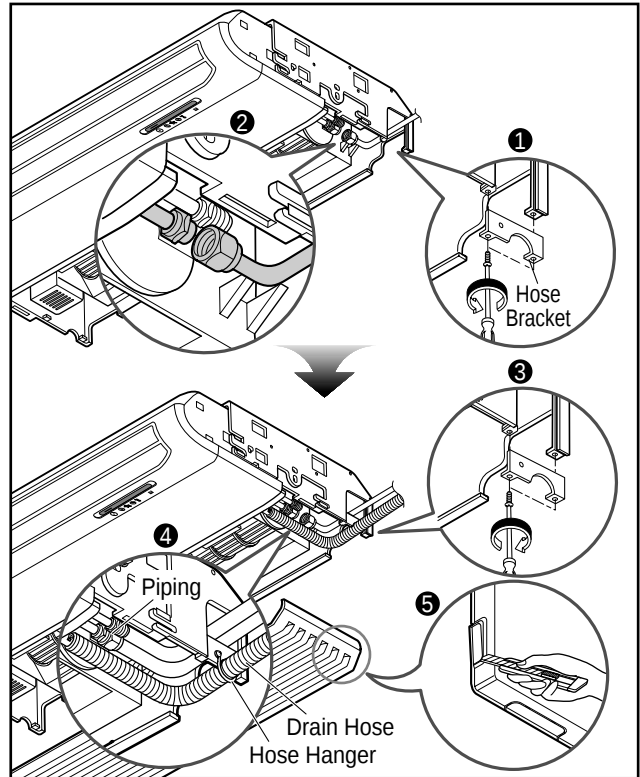
3-1. Installation on the ceiling

1) Connecting the pipes to the indoor unit

The pipe can be connected to right side, bottom or back of the unit.

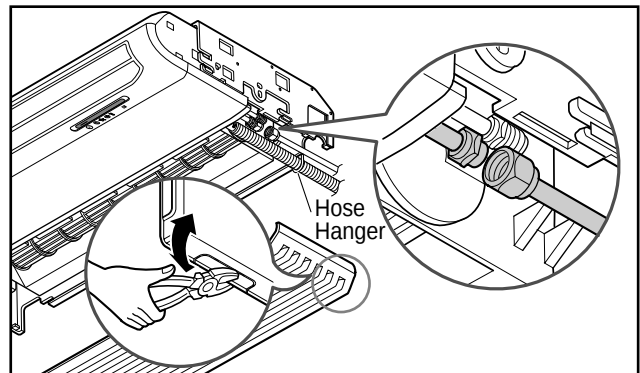
1. For the Right Side Piping

- After bending an end of the connecting tube, align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.
- Connect the Drain Hose insulated to the drain outlet. Drain hose should go through under the Hose Bracket as shown in figure ④.
- Hang the drain hose on the hose hanger and fix it to the hole of the hose bracket with a screw.



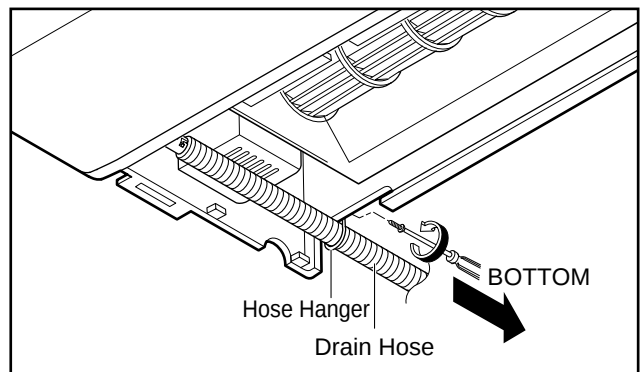
2. For the Bottom Side Piping

- Remove the knock-out on the bottomside of Inlet Grille.
- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.
- Connect the Drain Hose insulated to the drain outlet.
- Hang the drain hose on the hose hanger and fix it to the hole of cabinet bottom with a screw.



2) Connecting the Drain Hose

- The drain hose can be connected to not only the right side but also left side of the unit.
- If the drain hose is connected to the left side, it should go through the cabinet bottom.
- Hang the drain hose on the hose hanger and fix it to the hole of cabinet bottom with a screw.





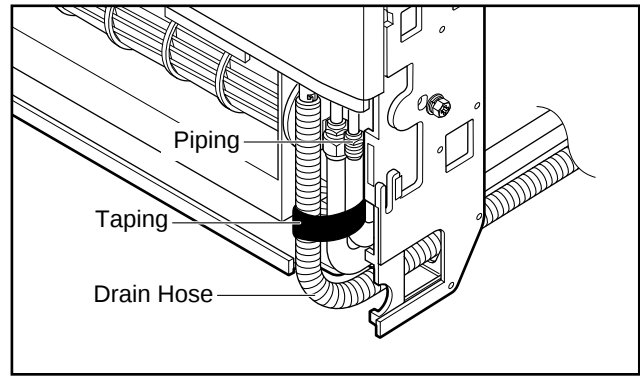
Installation of Convertible Type Indoor Unit

3-2. Installation on the wall or floor

1) Connecting the pipes to the indoor unit

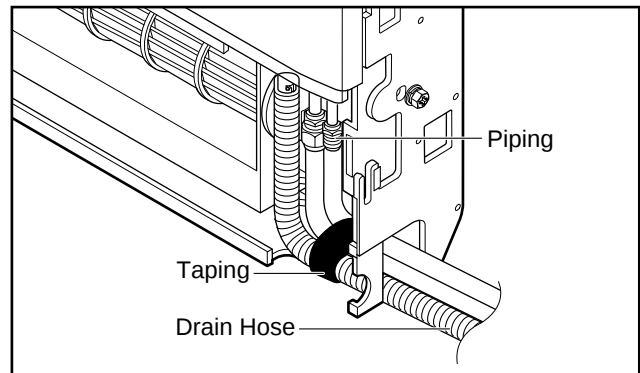
1. For the Right Rear Piping

- Remove the knock-out at the back side of the cabinet.
- After bending an end of the connecting tube, align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.
- Connect the Drain Hose insulated to the drain outlet.
- Tape the Drain Hose to the pipings to avoid coming off the drain-outlet.



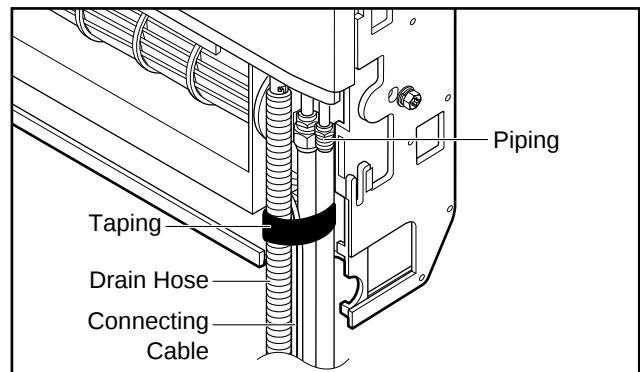
2. For the Right Side Piping

- After bending an end of the connecting tube, align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.
- Connect the Drain Hose insulated to the drain outlet.
- Tape the Drain Hose to the pipings to avoid coming off the drain-outlet.



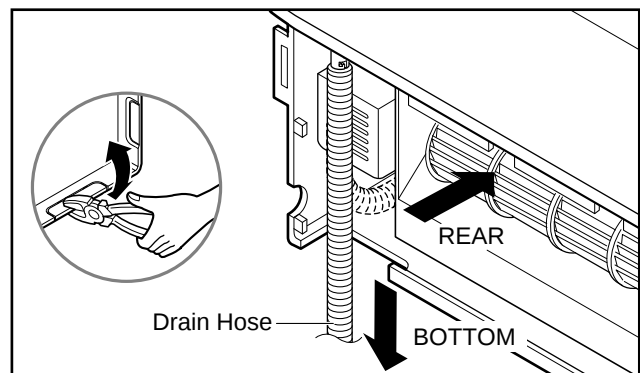
3. For the Right Bottom Piping

- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.
- Connect the Drain Hose insulated to the drain outlet.



2) Connecting the Drain Hose

- The drain hose can be connected to not only right side but also left side of the unit.

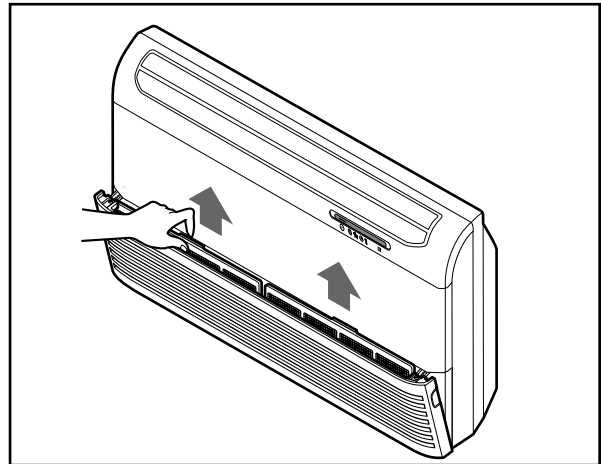


Installation of Convertible Type Indoor Unit

3-3. Checking the Drainage

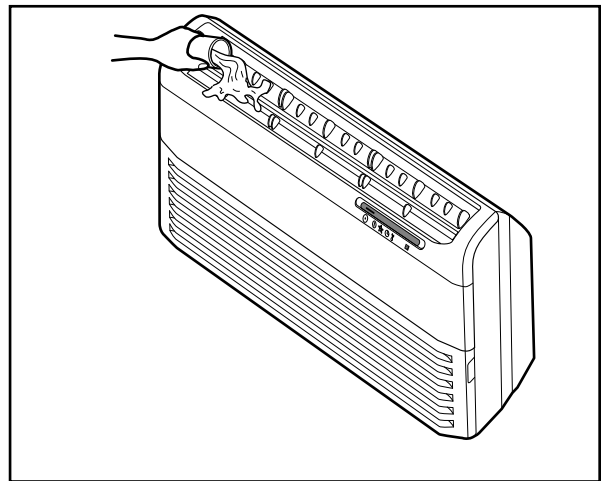
1. Remove the Air Filter.

- To remove air filter, take hold of tab and pull slightly upwards.



2. Check the drainage.

- Spray one or two glasses of water upon the evaporator.
- Ensure that water flows drain hose of indoor unit without any leakage.



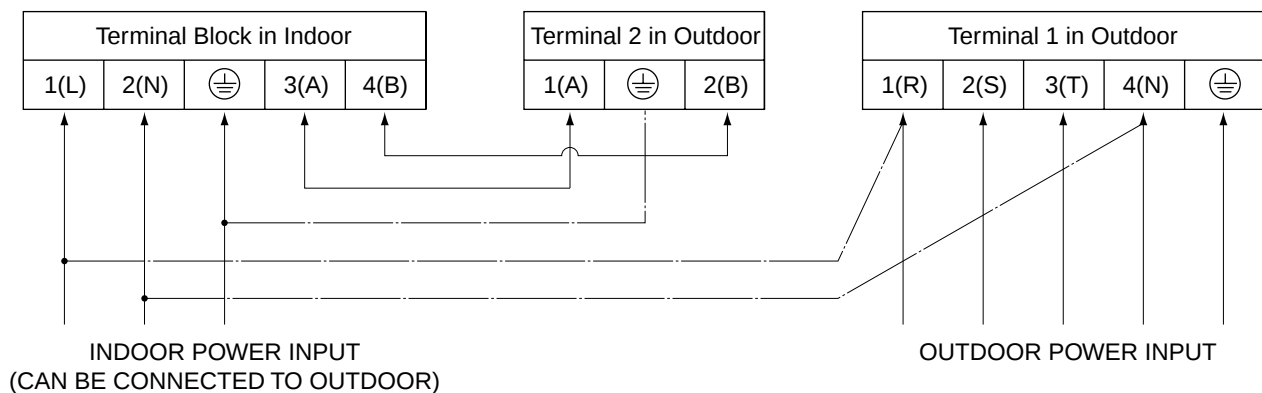
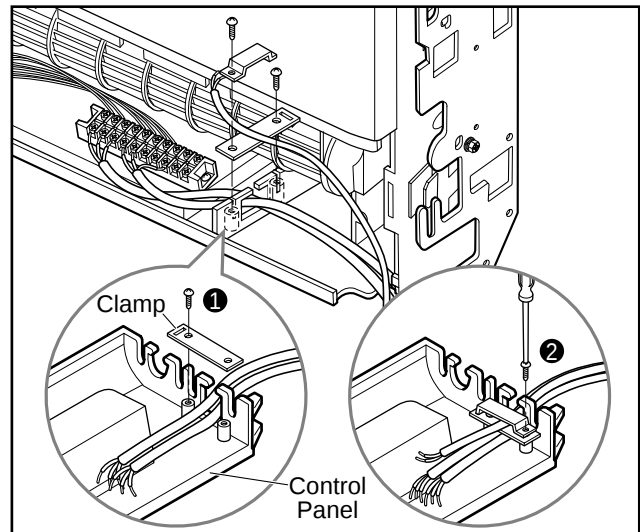
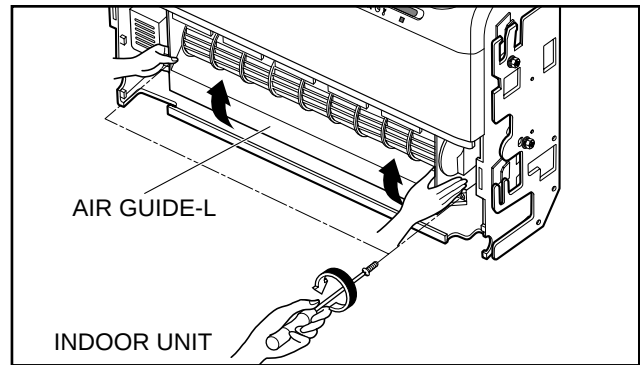


Installation of Convertible Type Indoor Unit

4. Wiring connection

1) Connecting cables to the Indoor Unit

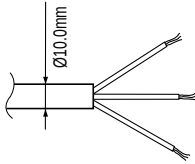
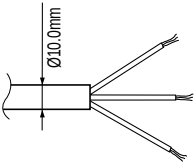
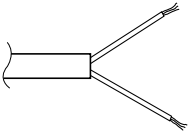
1. Remove the Air guide - L by loosening 2 screws after removing the Inlet grille from the Indoor unit.
 2. Connect the wires to the terminals on the control board individually according to the outdoor unit connection.
- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively



Installation of Convertible Type Indoor Unit

2) Clamping of cables

- 1) Arrange 2 power cables on the control panel.
- 2) First, fasten the steel clamp with a screw to the inner boss of control panel.
- 3) For the cooling model, fix the other side of the clamp with a screw strongly.
For the heat pump model, put the 0.75mm² cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.
- 4) In Australia, the length of power supply cord measured from the entry of the power supply cord to the middle of live pin on the power plug should be over 1.8m.

CAUTION		
The power cord connected to the indoor unit should be complied with the following specifications (Type H05VV-F(Indoor) approved by HAR or SAA).  NORMAL CROSS-SECTIONAL AREA • 2.5mm²	The power connecting cable connected between the indoor and outdoor unit should be complied with the following specifications (Type H07RN-F approved by HAR or SAA).  NORMAL CROSS-SECTIONAL AREA • 2.5mm²	The connecting cable connected between the indoor and outdoor unit should be complied with the following specifications (Type H07RN-F approved by HAR or SAA).  NORMAL CROSS-SECTIONAL AREA 1.5mm²

⚠ CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) **Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.**
- 2) **Provide a circuit breaker switch between power source and the unit.**
- 3) **The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)**
- 4) **Specification of power source**
- 5) **Confirm that electrical capacity is sufficient.**
- 6) **Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
- 7) **Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)**
- 8) **Never fail to equip a leakage breaker where it is wet or moist.**
- 9) **The following troubles would be caused by voltage drop-down.**
 - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
 - Proper starting power is not given to the compressor.
- 10) **The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.**



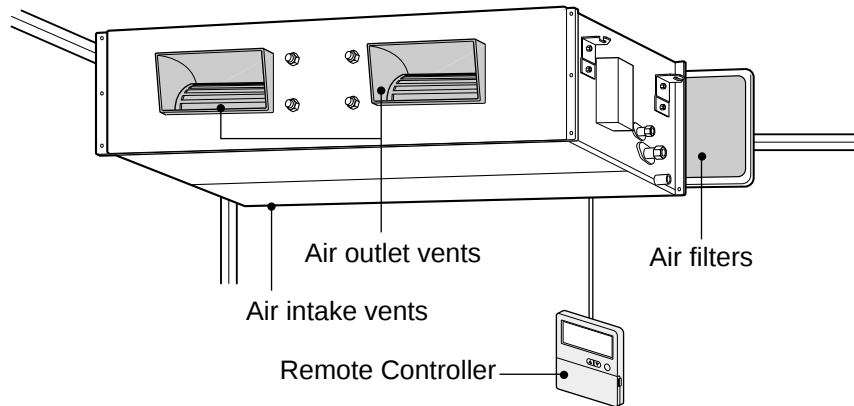
Installation of Convertible Type Indoor Unit

Installation of Ceiling Concealed Duct Type Indoor Unit



Installation of Ceiling Concealed Duct Type Indoor Unit

- Please read this instruction sheet completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.



Required Parts

- Four Type "A" screws
- Connecting cable
- Pipes: Gas sideØ12.7, Ø15.87, Ø19.05
Liquid sideØ6.35, Ø9.53, Ø12.7
- Insulated drain hose
- Insulation materials
- Additional Drain hose
(Inner Dia.....25mm)

Required Tools

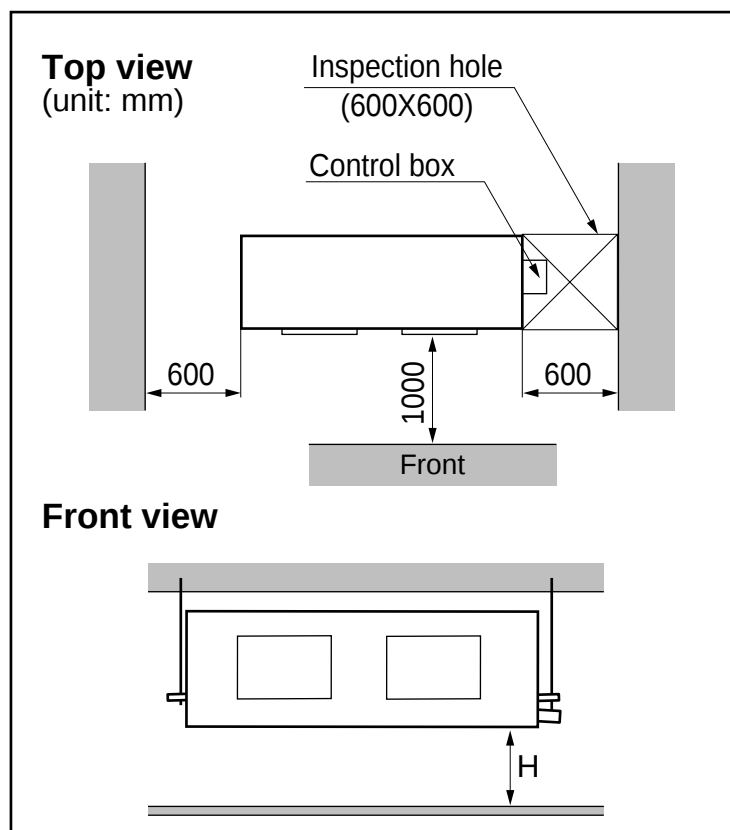
- Level
- Screw driver
- Electric drill
- Hole core drill (Ø70mm)
- Flaring Tools set
- Screw driver
- Hexagonal Wrench (4mm/5mm)
- Gas-leak Detector

Installation of Ceiling Concealed Duct Type Indoor Unit

1. Selection of the best location

Install the air conditioner in the location that satisfies the following conditions.

- The place shall easily bear a load exceeding four times the indoor unit's weight.
- The place shall be able to inspect the unit as the figure.
- The place where the unit shall be leveled.
- The place shall allow easy water drainage.(Suitable dimension "H" is necessary to get a slope to drain as figure.)
- The place shall easily connect with the outdoor unit.
- The place where the unit is not affected by an electrical noise.
- The place where air circulation in the room will be good .
- There should not be any heat source or steam near the unit.





Installation of Ceiling Concealed Duct Type Indoor Unit

2. Ceiling dimension and hanging bolt location

■ Installation of Unit

Install the unit above the ceiling correctly.

CASE 1

POSITION OF SUSPENSION BOLT

- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.
- Apply a filter Accessory at air return hole.

(Unit:mm)

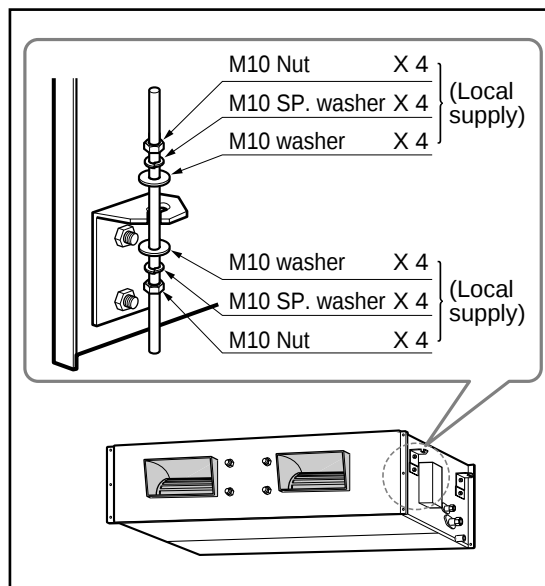
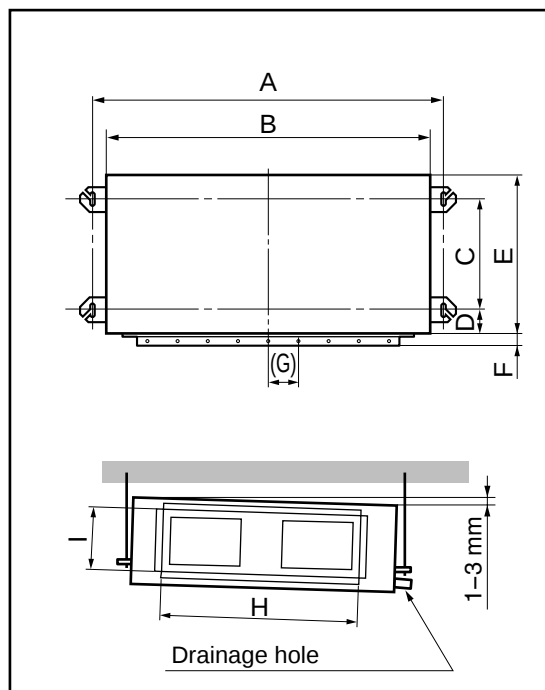
Dimension Capacity (kW/kBtu)	A	B	C	D	E	F	(G)	H	I
5.3/18	942	880	466	54	575	30	87	750	186
7.0/24	942	880	466	54	575	30	87	750	186
10.6/36	1242	1180	492	54	600	30	87	830	186

- Install the unit leaning to a drainage hole side as a figure for easy water drainage.

CASE 2

POSITION OF CONSOLE BOLT

- A place where the unit will be leveled and that can support the weight of the unit.
- A place where the unit can withstand its vibration.
- A place where service can be easily performed.



NOTE:

- Thoroughly study the following installation locations:

1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the fan, the fin of the heat exchanger, resulting in heat exchange reduction, spraying, dispersing of water drops, etc.

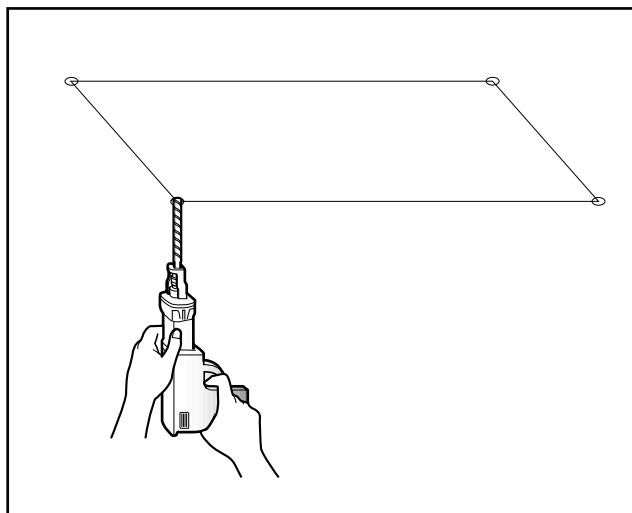
In these cases, take the following actions:

- Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
 - Make enough distance from a cooking room to install the air conditioner in such a place where it may not suck in oil steam.
2. Avoid installing air conditioner in such circumstances where cutting oil mist or iron powder is in suspension in factories, etc.
3. Avoid places where inflammable gas is generated, flows in, is stored or vented.
4. Avoid places where sulfurous acid gas or corrosive gas is generated.
5. Avoid places near high frequency generators.

Installation of Ceiling Concealed Duct Type Indoor Unit

3. The Indoor Unit Installation

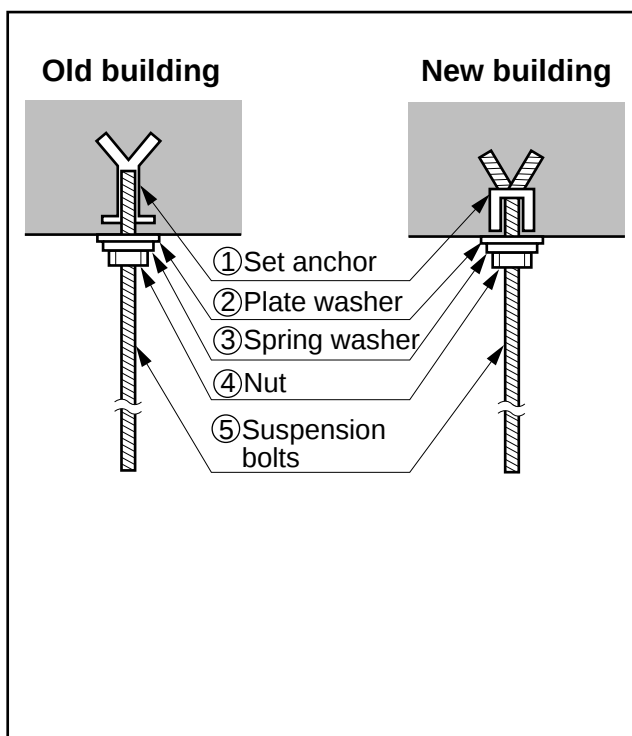
- Select and mark the position for fixing bolts.
- Drill the hole for set anchor on the face of ceiling.



- Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the set anchor firmly.
- Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.

CAUTION

Tighten the nut and bolt to prevent unit falling.



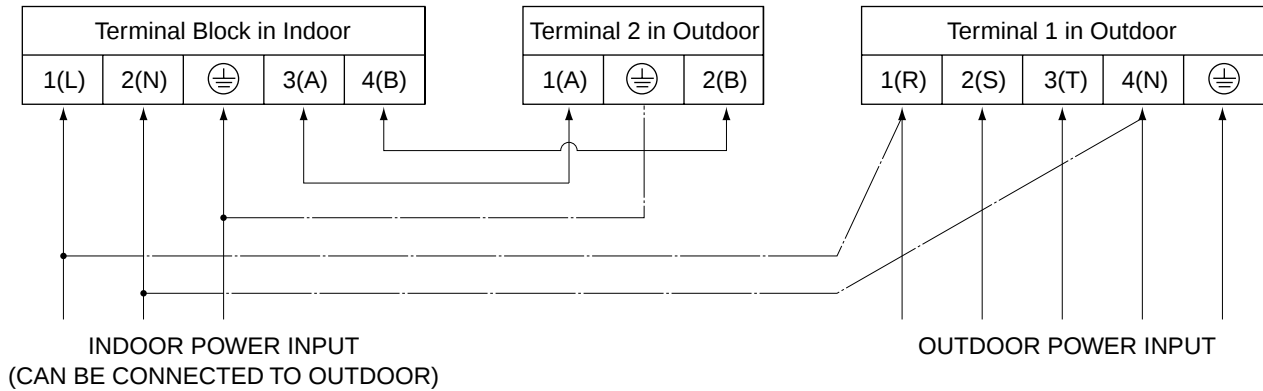


Installation of Ceiling Concealed Duct Type Indoor Unit

4. Connecting Cables between Indoor Unit and Outdoor Unit

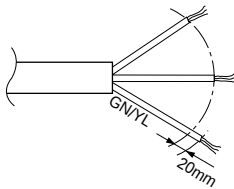
Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively



CAUTION

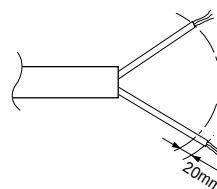
The power cord connected to the outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



NORMAL CROSS-SECTIONAL AREA

Capacity	1 Phase
5.3	2.5mm ²
7.0	2.5mm ²
10.6	6.0mm ²

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



NORMAL
CROSS-SECTIONAL
AREA 1.5mm²

If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

WARNING

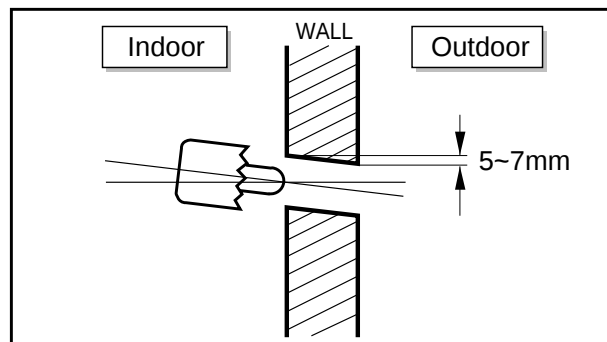
Make sure that the screws of the terminal are free from looseness.

Clamping of cables

- 1) Arrange 2 power cables on the control panel.
- 2) First, fasten the steel clamp with a screw to the inner boss of control panel.
- 3) For the cooling model, fix the other side of the clamp with a screw strongly. For the heat pump model, put the 0.75mm² cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.
- 4) In Australia, the length of power supply cord measured from the entry of the power supply cord to the middle of live pin on the power plug should be over 1.8m.

Installation of Ceiling Concealed Duct Type Indoor Unit

- Drill the piping hole with 70mm dia, hole core drill.
- Piping hole should be slightly slant to the outdoor side.



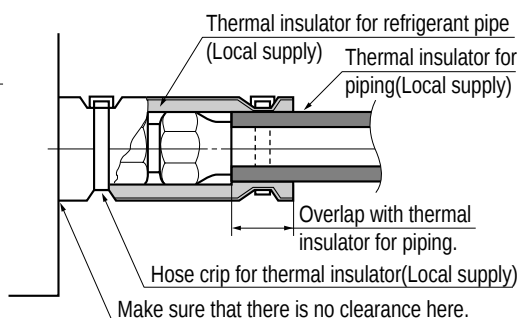
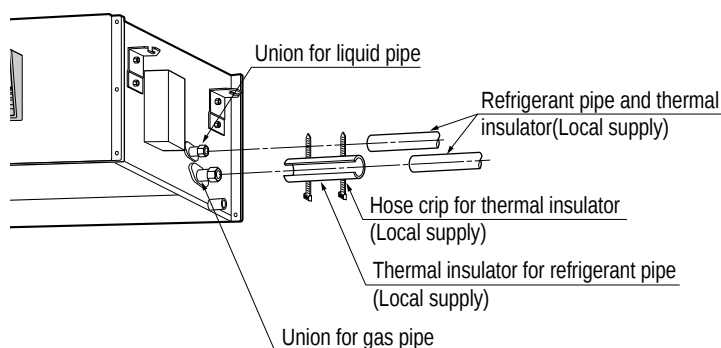
INSULATION, OTHERS

Insulate the joint and tubes completely.

THERMAL INSULATION

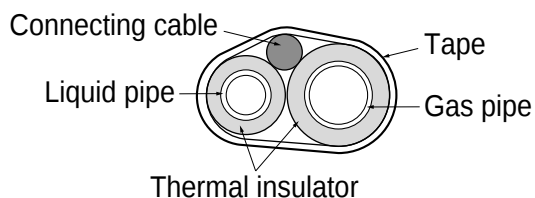
All thermal insulation must comply with local requirement.

INDOOR UNIT



REFRIGERANT PIPE

- Insulate and tape both the gas piping and liquid piping.

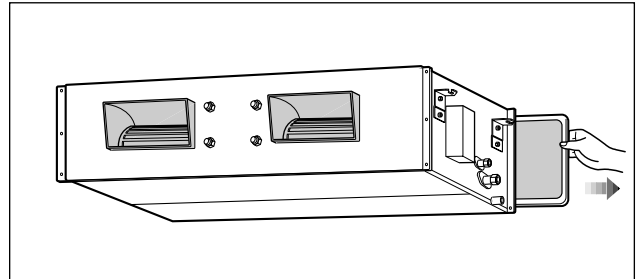




5. Checking the Drainage

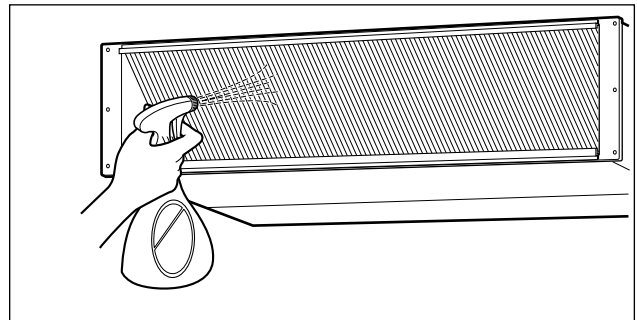
1) Checking the Drainage

1. Remove the Air Filter.



2. Check the drainage.

- Spray one or two glasses of water upon the evaporator.
- Ensure that water flows drain hose of indoor unit without any leakage.



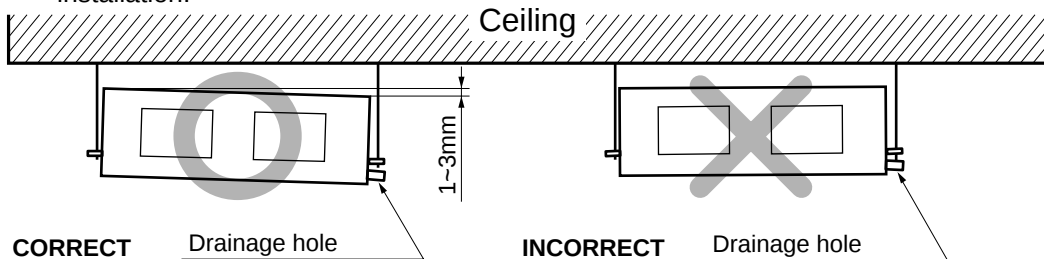
Installation of Ceiling Concealed Duct Type Indoor Unit

CAUTION

1. **Install declination** of the indoor unit is very **important for the drain** of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 5mm.

Front of view

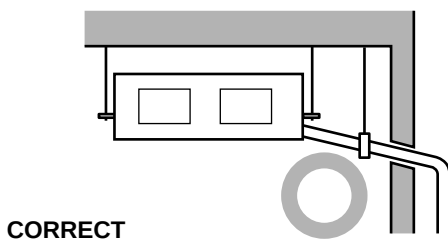
- The unit must be horizontal or declined to the drain hose connected when finished installation.



CAUTION FOR GRADIENT OF UNIT AND DRAIN PIPING

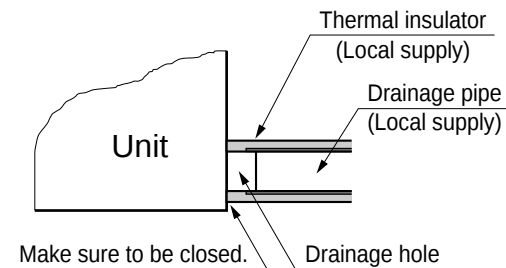
Lay the drain hose with a downware inclination so water will drain out.

- Always lay the drain with downward inclination (1/50 to 1/100). Prevent any upward flow or reverse flow in any part.
- 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.

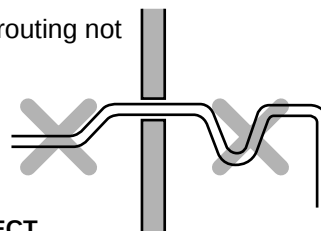


CORRECT

- Install the P-Trap (or U-Trap) to prevent a water leakage caused by the blocking of intake air filter.



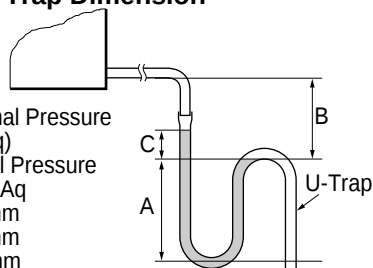
- Upward routing not allowed



INCORRECT

Applied U-Trap Dimension

- $A \geq 70\text{mm}$
- $B \geq 2C$
- $C \geq 2 \times \text{SP}$
- SP = External Pressure (mmAq)
- Ex) External Pressure = 10mmAq
- $A \geq 70\text{mm}$
- $B \geq 40\text{mm}$
- $C \geq 20\text{mm}$





70

Common Installation Process



Installation of remote controller

- Although the room temperature sensor is in the indoor unit, the remote controller should be installed in such places away from direct sunlight and high humidity.

Installation of the remote controller

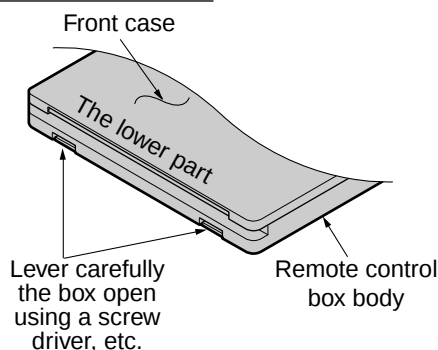
- Select places that are not splashed with water.
- Select control position after receiving customer approval.
- The room temperature sensor is built in the indoor unit.
- This remote controller equipped with liquid crystal display. If this position is higher or lower, display is difficult to see. (The standard height is 1.2 ~ 1.5m high)

Routing of the remote controller cord

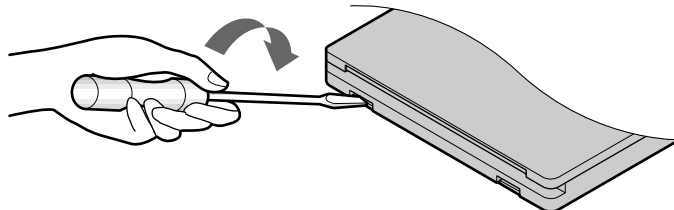
- Keep the remote controller cord away from the refrigerant piping and the drain piping.
- To protect the remote controller cord from electrical noise, place the cord at least 5cm away from other power cables (audio equipment, television set, etc.)
- If the remote controller cord is secured to the wall, provide a trap at the top of the cord to prevent water droplets from running.

WIRED REMOTE CONTROL INSTALLATION

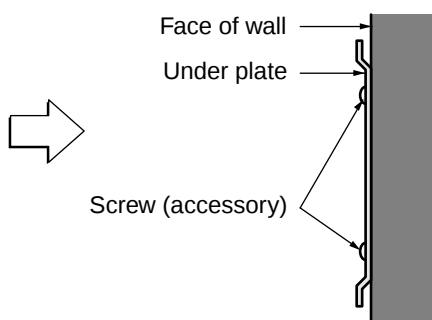
DISASSEMBLING



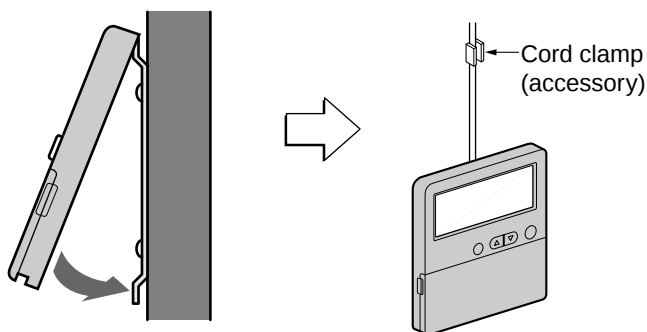
- Separate the under plate from Remote control box.



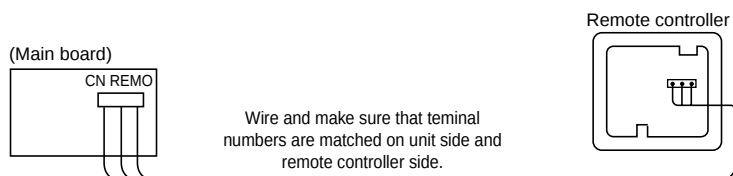
- Fix the under plate on the wall



- Fix the cord clamps on the wall by $\phi 3$ tapping screws (accessory).
- Fix the remote control cord.



ELECTRICAL WIRING



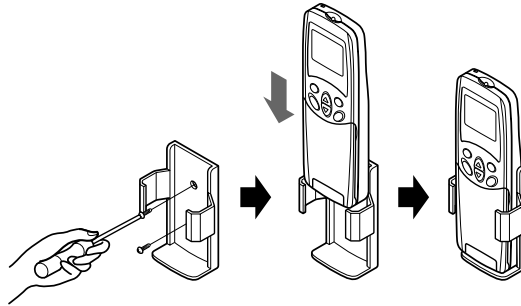
Wire and make sure that terminal numbers are matched on unit side and remote controller side.

The maximum length of the cord is 100m.
If the length of the cord exceeds 50m,
use a wire size greater than 0.5mm².

Installation of remote controller

REMOTE CONTROL PREPARATION(OPTIONAL)

HOW TO MOUNT ONTO A WALL



HOW TO INSERT BATTERIES

- 1** Remove the battery cover from the remote controller.
 - Slide the cover according to the arrow direction.
- 2** Insert the two batteries.
 - Be sure that the (+) and (-) directions are correct.
 - Be sure that both batteries are new.
- 3** Re-attach the cover.
 - Slide it back into position.



- Do not use rechargeable batteries, such batteries differ from standard dry cells in shape, dimensions, and performance.
- Remove the batteries from the remote controller if the air conditioner is not going to be used for some long time.

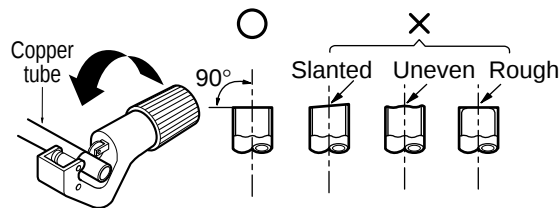


Preparation of Piping

Main cause of gas leakage is defect in flaring work. Carry out correct flaring work in the following procedure.

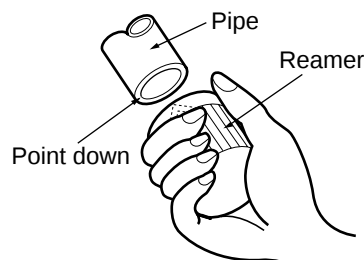
1) Cut the pipes and the cable.

- Use the accessory piping kit or the pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than measured distance.
- Cut the cable 1.5m longer than the pipe length.



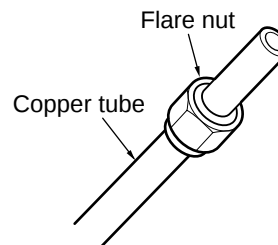
2) Burrs removal

- Completely remove all burrs from the cut cross section of pipe/tube.
- Put the end of the copper tube/pipe to downward direction as you remove burrs in order to avoid to let burrs drop in the tubing.



3) Putting nut on

- Remove flare nuts attached to indoor and outdoor units, than put them on pipe/tube having completed burr removal.
(Not possible to put them on after flaring work)

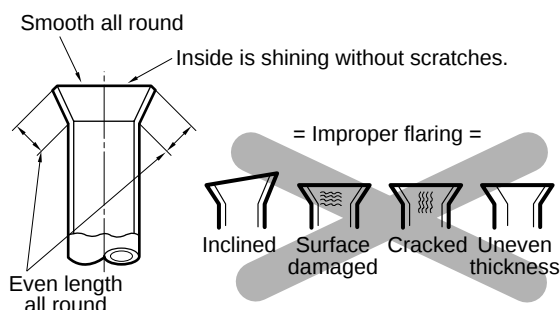
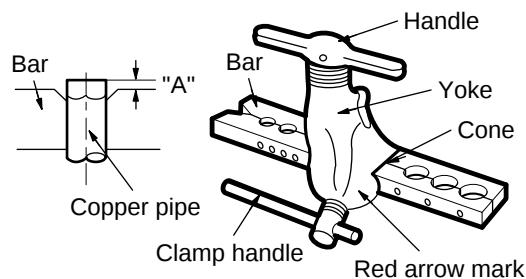


4) Flaring work

- Carry out flaring work using flaring tool as shown below.

Capacity (kW/h)	Outside Diameter		"A"	
	Gas	Liquid	Gas	Liquid
5.3	Ø15.87	Ø6.35	0.8~1.0	0~0.5
7.0	Ø15.87	Ø6.35	0.8~1.0	0~0.5
8.2	Ø15.87	Ø9.53	0.8~1.0	0.5~0.8
10.6	Ø15.87	Ø9.53	0.8~1.0	0.5~0.8
12.3	Ø19.05	Ø9.53	1.0~1.3	0.5~0.8
14.1	Ø19.05	Ø9.53	1.0~1.3	0.5~0.8
17.6	Ø19.05	Ø12.7	1.0~1.3	0.5~0.8

Firmly hold copper tube in a bar(or die) as indicated dimension in the table above.



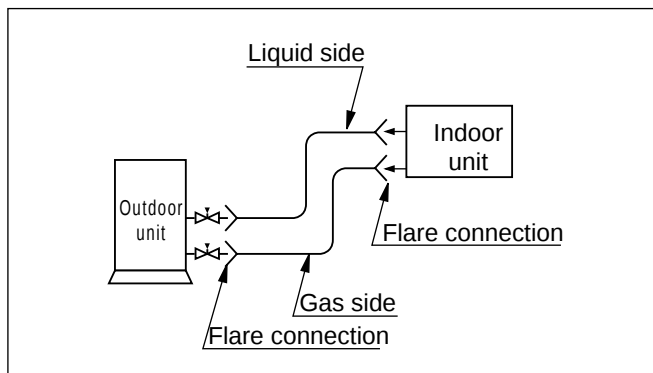
5) Check

- Compare the flared work with figure below.
- If flare is noted to be defective, cut off the flared section and do flaring work again.

Preparation of Piping

Piping Connection

1. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening the pipe.)
2. After deforming the piping, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
3. Connect pipe to the service valve or ball valve which is located below the outdoor unit.
4. After completing the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.



Vacuum drying

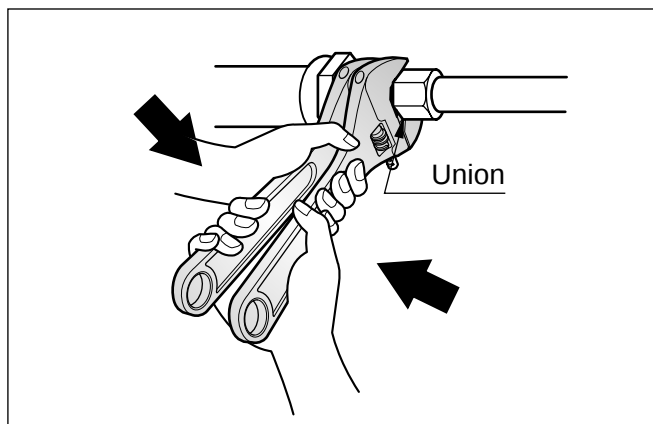
After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit. The vacuum drying must be carried out using the service ports of both the liquid and gas side valves.

Model	Liquid side piping	Gas side piping
5.3kW, 7.0kW	Ø6.35	Ø15.87
8.2kW	Ø9.53	Ø15.87
10.6kW	Ø9.53	Ø15.87
12.3kW	Ø9.53	Ø19.05
14.1kW	Ø9.53	Ø19.05
17.6kW	Ø12.7	Ø19.05

CAUTION

Use two wrenches and tighten with regular torque.

Flare nut fastening torque	
Ø6.35mm	1.8kg·m
Ø9.52mm	4.0kg·m
Ø12.7mm	5.5kg·m
Ø15.88mm	6.6kg·m
Ø19.05mm	6.6kg·m





Preparation of Piping

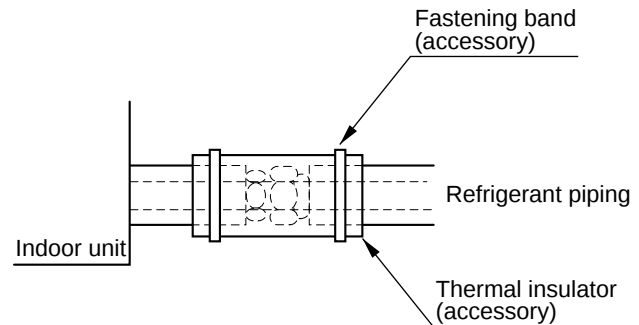
HEAT INSULATION

1. Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).

2. Precautions in high humidity circumstance:

This air conditioner has been tested according to the "KS Standard Conditions with Mist" and confirmed that there is not any default. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23°C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:

- Heat insulation material to be prepared... Adiabatic glass wool with thickness 10 to 20mm.
- Stick glass wool on all air conditioners that are located in ceiling atmosphere.
- In addition to the normal heat insulation (thickness: more than 8mm) for refrigerant piping (gas piping: thick piping) and drain piping, add further 10mm to 30mm thickness material.

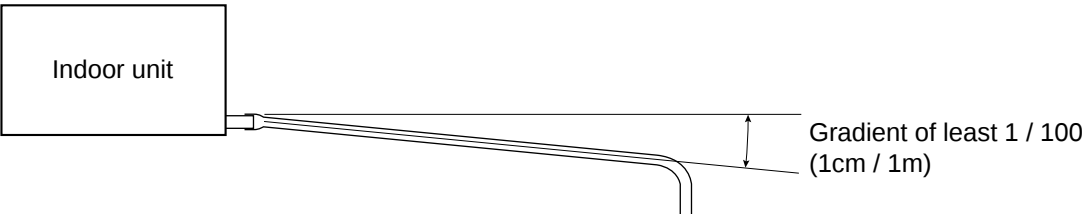


Indoor Unit Drain Pipe Work

Indoor unit drain pipe work

1) Drain pipe gradient and support

- a) - The drain pipe must be fitted at a gradient of at least 1/100.
- The drain pipe should be as short as possible and free from airlocks.



- b) - Suspension bolts should be used to support long stretches of drain pipe in order to ensure that a gradient of 1/100 is maintained (PVC pipe should not be bent)

Spacing of supports for horizontal piping

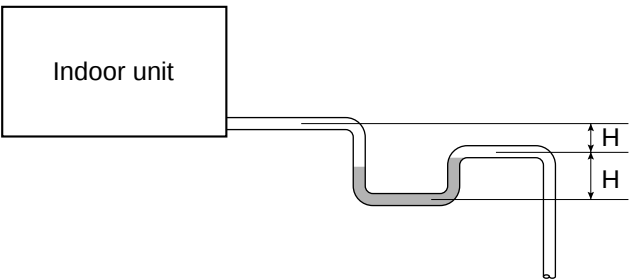
Class	Normal diameter	Spacing
Rigid PVC pipe	25~40mm	1.0m or less

- c) - The length of pipe laid horizontally should be kept a minimum.

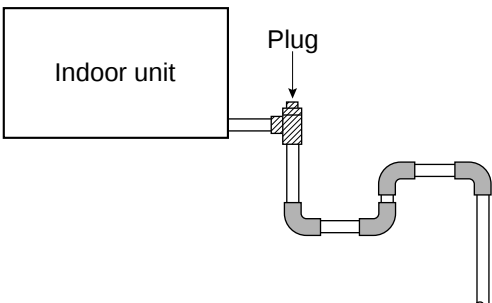
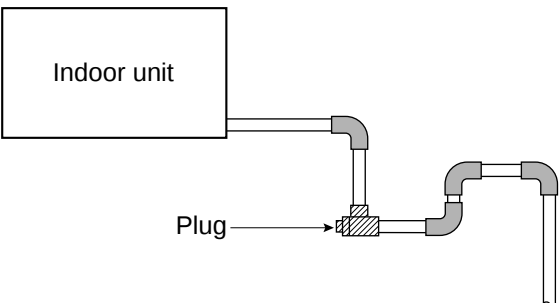
2) Drain trap

Fit any indoor unit whose drain pipe connection is subjected to negative pressure, with a drain trap.

- a) Rig the drain trap shown in the drawing below.



- b) Provide one trap per unit. A single trap for converging units will prove ineffective.
- c) Rig the trap to allow for future changing.

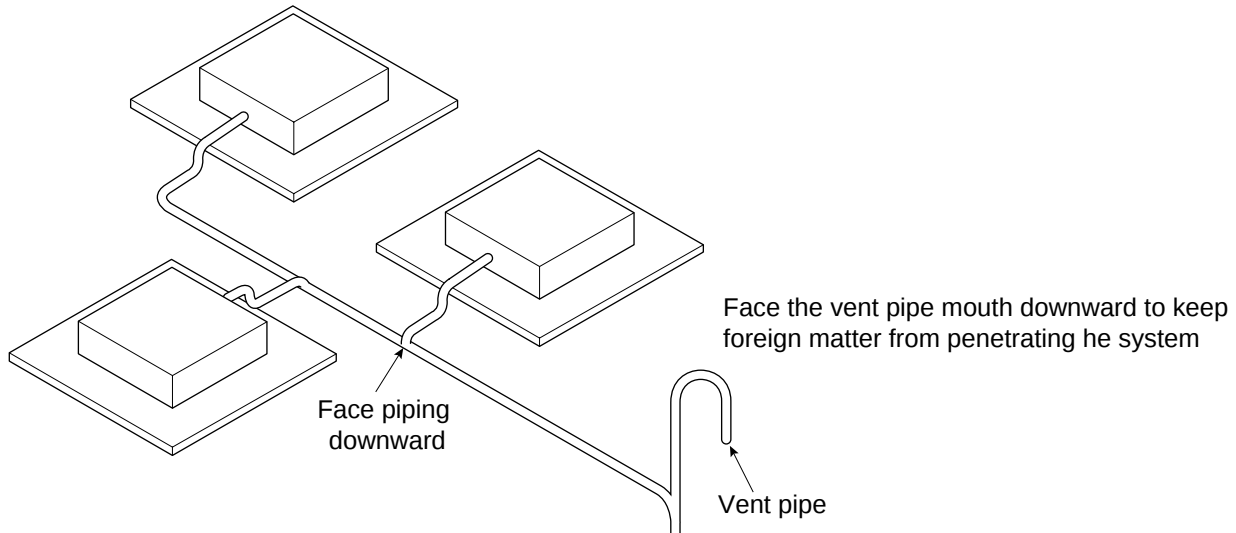




Indoor Unit Drain Pipe Work

3) Ground drain piping

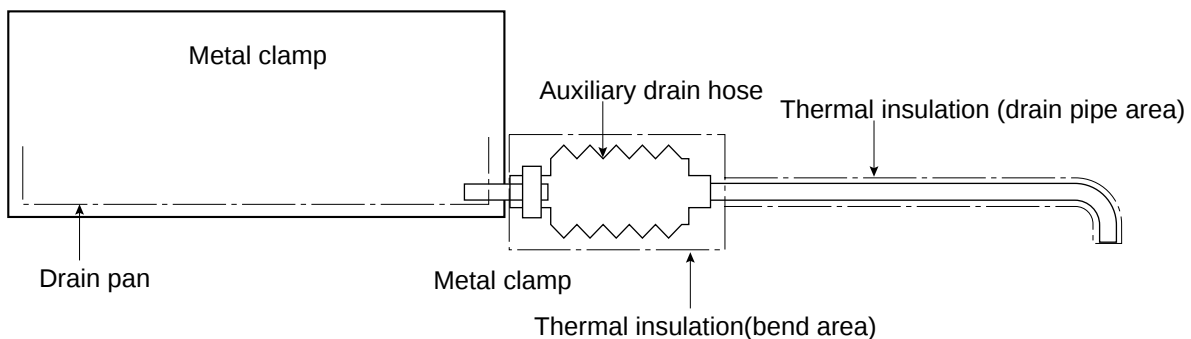
- a) It is standard work practice to make connections to the main pipe from above. The pipe down from the combination should be as large as possible.



- b) The pipe work should be kept as short as possible and the number of indoor units per group kept to a minimum.

4) Use of an auxiliary drain hose(flexible)

- a) If the drain pan made of polystyrene foam is used then an auxiliary drain hose(flexible) is also essential. A flexible drain hose permits the drain socket and drain pipe to be connected without difficulty and prevents any undue strain being placed on the drain pan.



✱ Important points

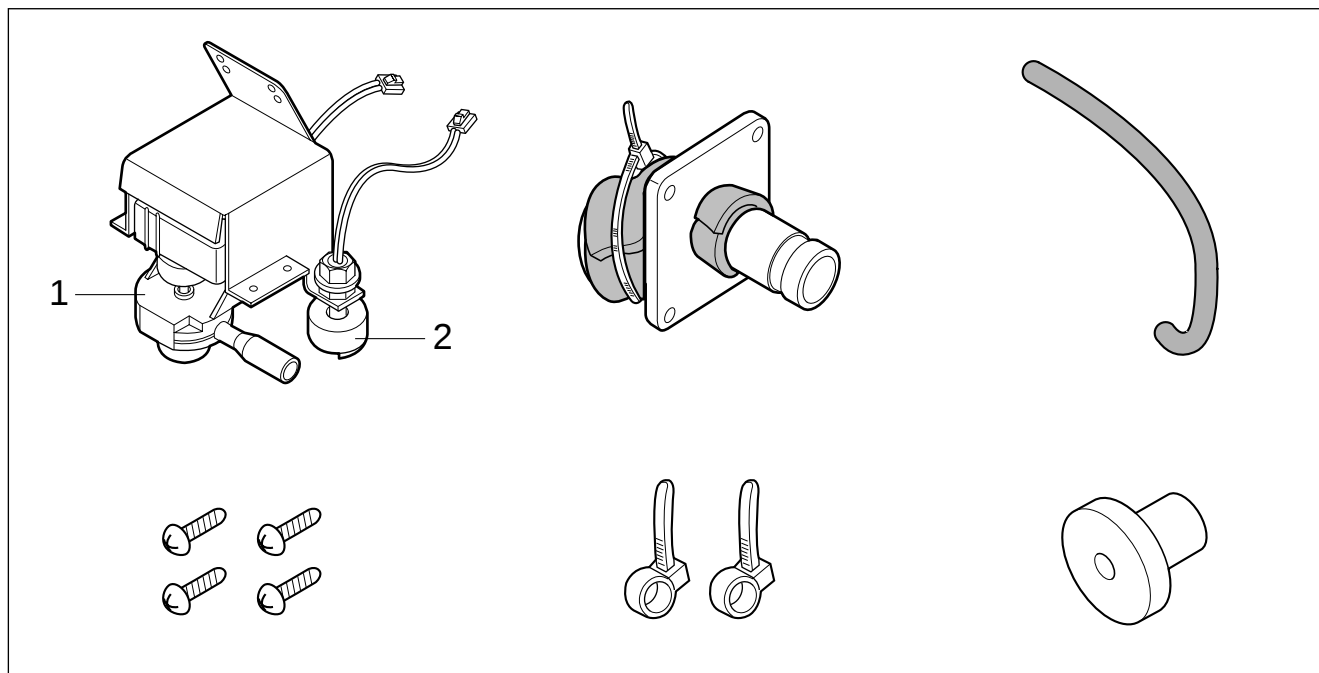
- The drain pipe should be at least equal in size to that of the indoor unit.
- The drain pipe is thermally insulated to prevent the formation of condensation inside the pipe.
- The drain up mechanism should be fitted before the indoor unit is installed and when the electricity has been connected some water should be added to the drain pan and the drain pump checked to see that it is functioning correctly.
- All connections should be secure. (Special care is needed with PVC pipe)

Installation of Drain Pump

Installation of drain pump

1) Safety First

- Cut off the power supply before installation and maintenance.
- Drain Pump Assy, Elbow and Hose must be installed at safe area where it is far away from the user.
- Drain Pump Assy must be installed at appointed location.
- All wiring and connections are for installation only.



2) Quantity

<u>Quantity</u>	<u>Package contents</u>
1	Drain Pump Assy(AC220~240V, 50/60Hz, 400cm ³ /min)
1	Elbow(ø32mm)
1	Hose
2	Tie Wrap
10	Screw
1	Rubber
1	Installation manual

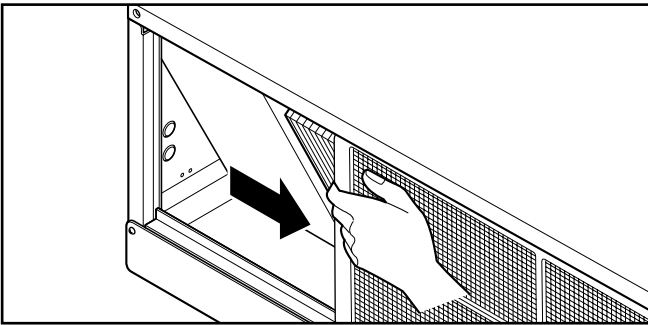
3) Service Parts List

No.	Location No.	P/No.	Description	Remark
1	158590	5858A10001L	Pump Water	
2	266012	6601A20001E	Switch Assy, Float	

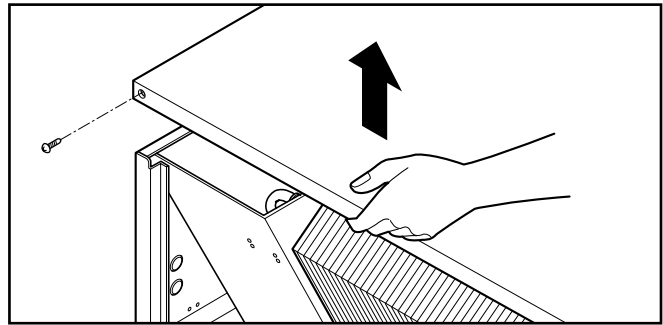


Installation of Drain Pump

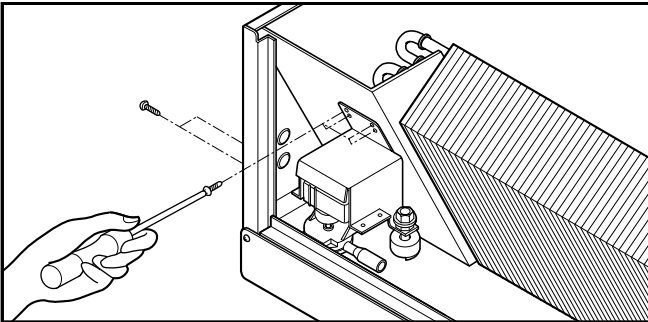
4) How to install



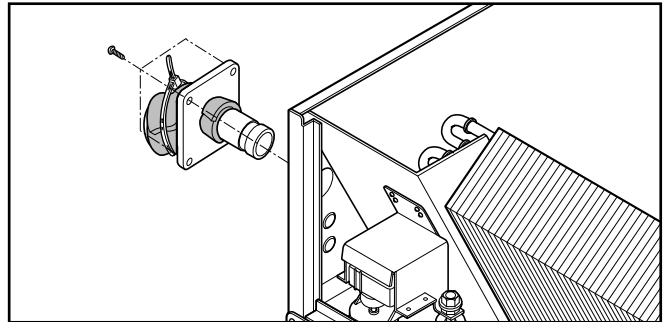
1. Separate the filter.



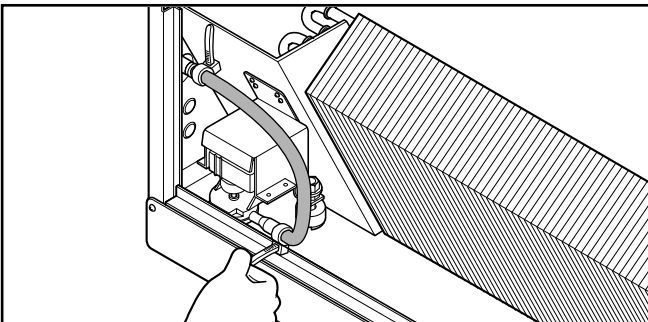
2. Open the top cover.



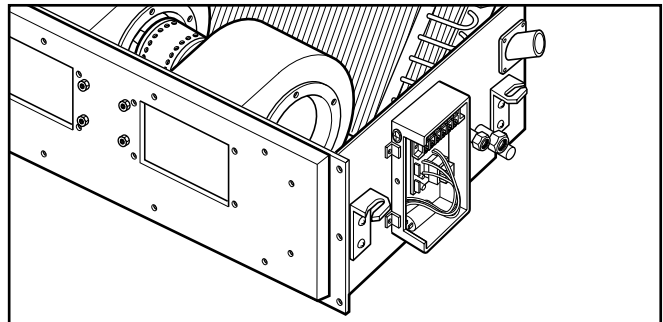
3. Assemble the drain pump assy
- Drive 4 screws to the Channel.
- Drive 2 screws to the Side Panel.



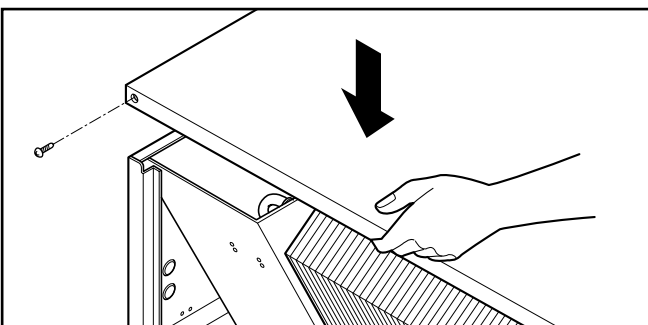
4. Attach the elbow to the side panel.



5. Connect the hose and tie wrap.



6. Connect two lead wires to control box.
(One is float switch, the other is for power supply to drain pump.)

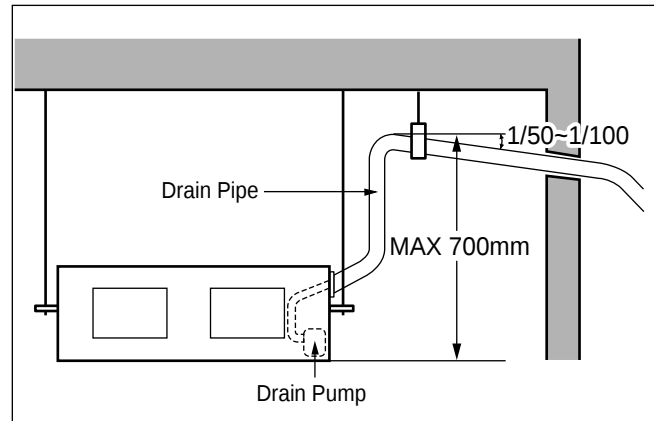


7. Assemble the top cover.

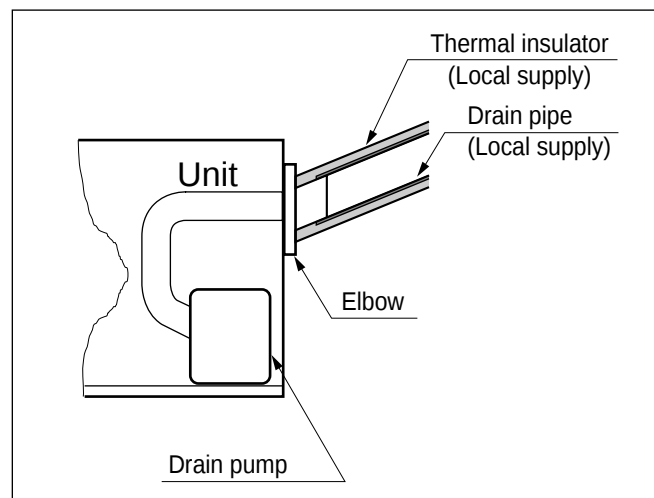
Installation of Drain Pump

5) Attention

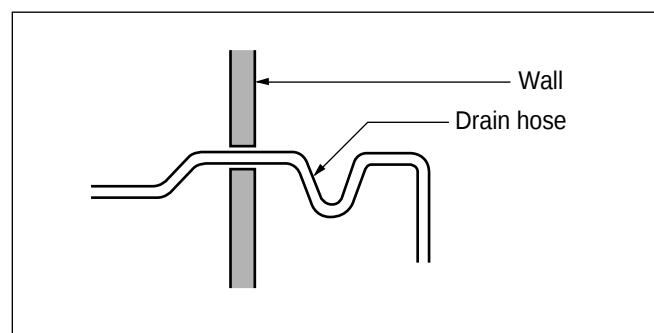
1. Possible drain-head height is up to 700mm. So, it must be installed below 700mm.
2. Keep the drain hose downward up to 1/50~1/100 inclination. Prevent any upward flow or reverse flow in any part.



3. 5mm or thicker formed thermal insulator is provided for the drain pipe.



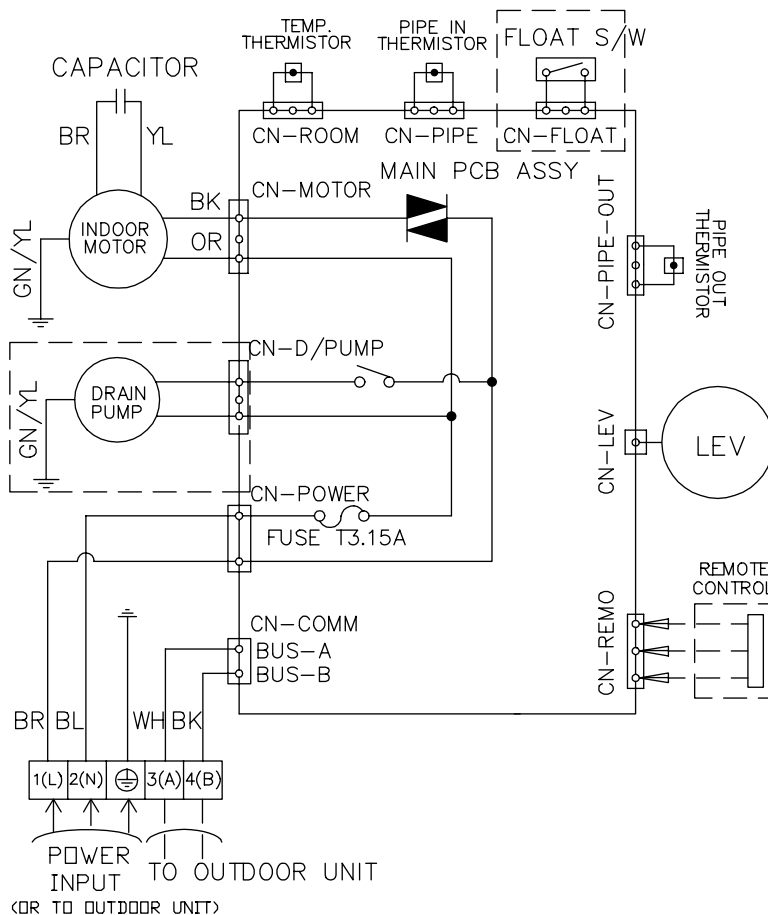
4. Upward routing is not allowed.
5. Be sure to check the drain pump for normal operation and abnormal noise when electrical wiring is complete.





Installation of Drain Pump

6) Wiring Diagram



7) Test operation

- Before test operation, be sure all information is understood completely, and follow the guideline of manual.
- Connect the power and turn on cooling mode.
- After compressor operating, it starts and compressor off, it stops 6 minutes later.

8) Troubleshooting

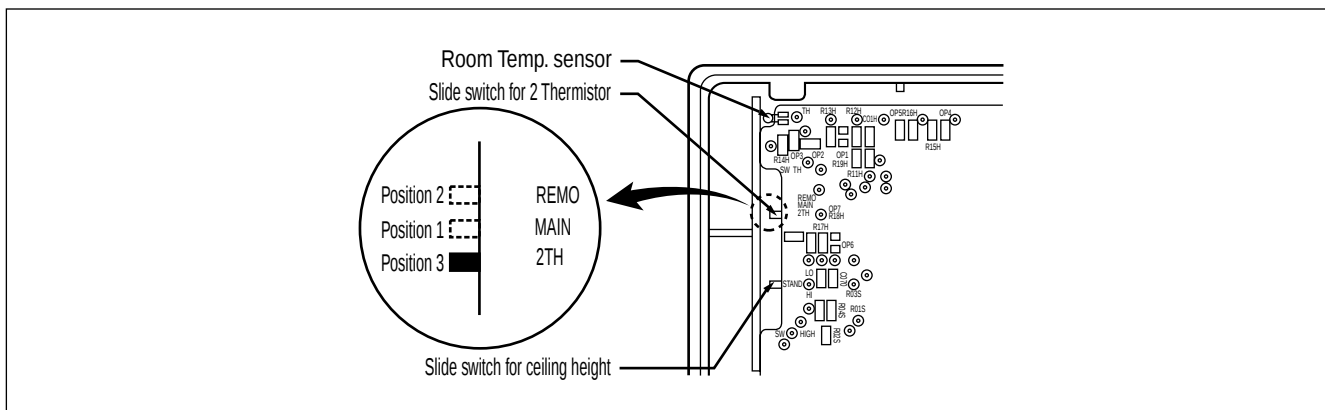
PROBLEM	CAUSE	REMEDY
Pump does not work.	No power supply	Check electrical connection and voltage of the power supply.
	Float switch doesn't operate.	Check float switch.
Pump noisy	Pumping air	Check pump connection for water contamination.
	Vibrating against surfaces.	Check the assembly state of drain pump to the unit.

Optional Operation

Optional operation

1) Two Thermistor System

- (1) Open the rear cover of the wired remote-controller to set the mode.
- (2) Select one of three selectable modes as follows.
 - Position 1:
The room temperature is controlled by the thermistor of the main body.
 - Position 2:
The room temperature is controlled by the thermistor of the wired remote-controller, control the temperature according to the position of wired remote-controller.
 - Position 3:
The room temperature is controlled by lower temperature between the temperature of main body and of remote-controller sensor.
- (3) Move the slide switch to set position.



- (4) Close the rear cover and check if it works normally.

CAUTION

- Select the position after counselling with a customer.
- In case of cooling mode, room temperature is controlled by the main body sensor.
- To control the room temperature by a wired remote controller, install controller(room temp. sensor) to sense the temperature more accurately.
- Manufactured in the position 3.



Optional Operation

2) Adjusting air volume to the height of ceiling

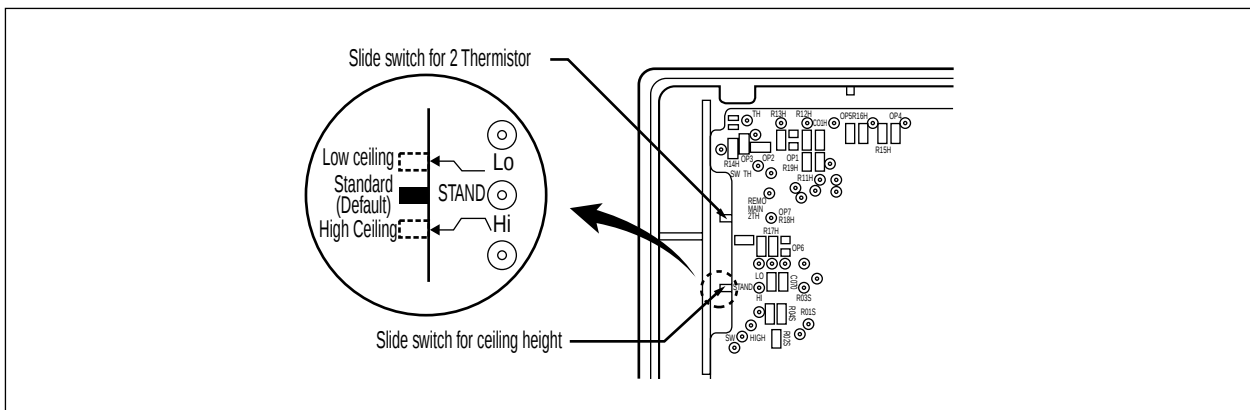
You can choose the RPM(or air volume) of indoor motor according to the height of ceiling to supply the comfortable atmosphere to consumers.

Procedure

1. Choose the selectable position in the table after measuring the height of ceiling.

Ceiling height	Mode of slide switch	Change of air volume	Remark
more than 4.0m	High Ceiling	Increasing	Manufactured in standard mode
3.2~4.0m	Standard	-	
less than 3.2m	Low Ceiling	Decreasing	

2. In the case of changing the height as "high" or "low", open the rear cover of the wired remote-controller.
3. Move the slide switch to the set position.



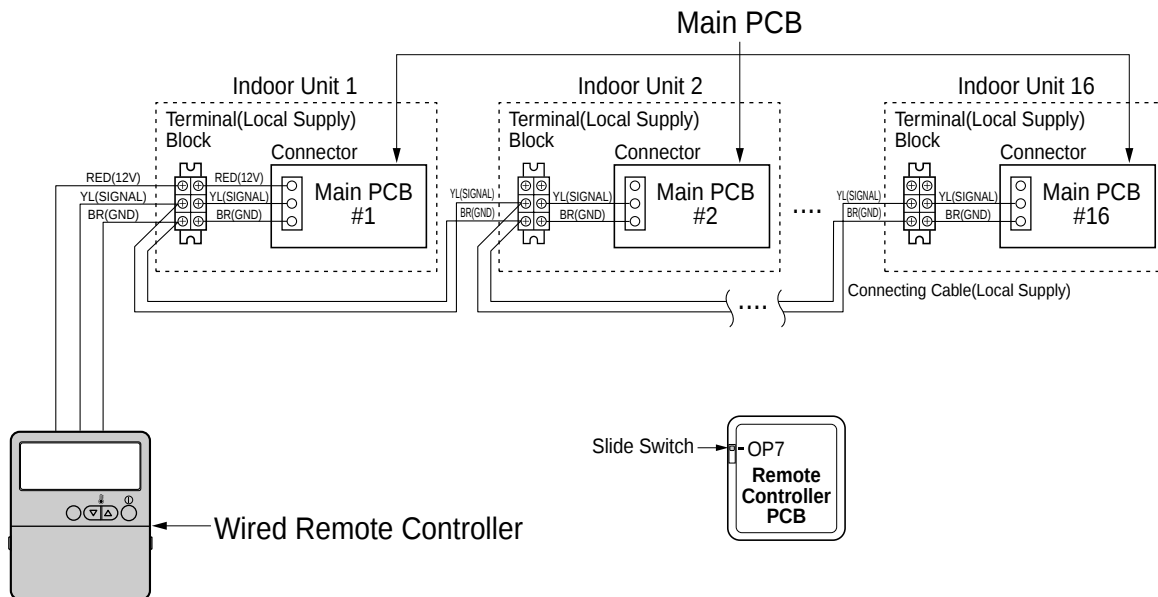
4. Close the rear cover and check if it works normally.

Optional Operation

3) Group Control(Optional Wiring)

- You can use a group control operation after connecting the brown and yellow wire of each air-conditioner.
- Remove the resistor "OP 7" in remote controller.
- It operates maximum 16 Units by only one Wired Remote Controller, and each Unit starts sequentially to prevent overcurrent.

Wiring design



Features

- Use Only One Wired Remote Controller with several air conditioners(max. 16 Units)
- Random starting to prevent overcurrent.

⚠ CAUTION

- Be careful not to exchange the color of wires.
- The maximum length of connecting wire should be below 200m(25Ω) on connecting each units.
- Use a wire more than 0.5mm²

