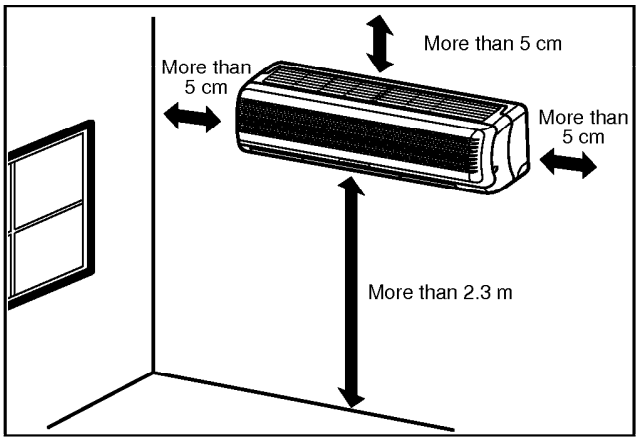
Installation

1. Installation of indoor, Outdoor unit

1) Selection of the best location

1. Indoor unit

- 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.

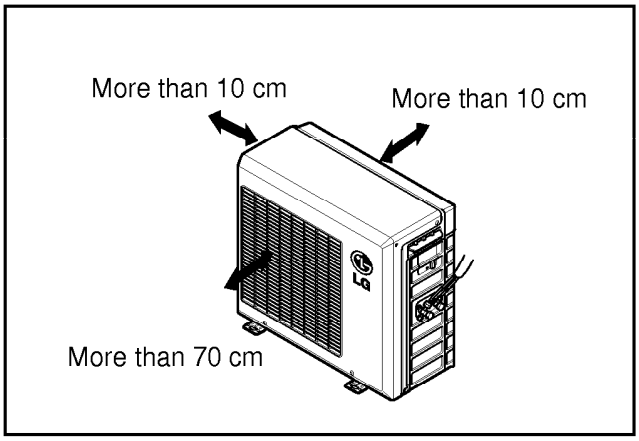


⚠CAUTION

Install the indoor unit on the wall where the height from the floor is more than 2.3 meters.

2. Outdoor unit

- If an awning is built over the unit to prevent direct sunlight or rain exposure, be careful that heat radiation from the condenser is not restricted.
- There should not be any animals or plants which could be affected by hot air discharged.
- Ensure the correct distance is left from the wall, ceiling, fence, or other obstacles as indicated in the diagram.

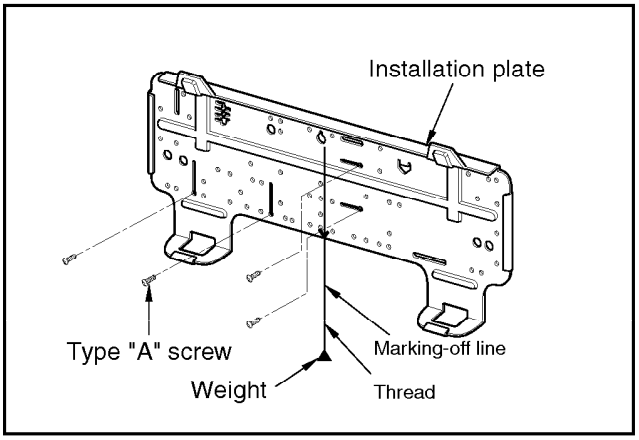


2) Indoor Unit Installation

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.)

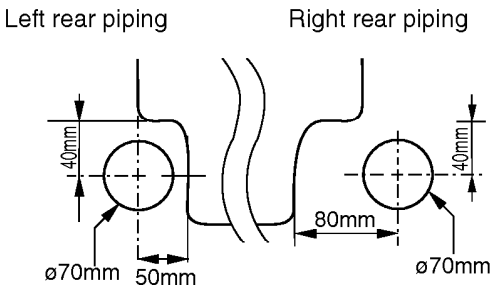
- Always mount the Installation plate horizontally by aligning the marking-off line by means of the thread and a level.

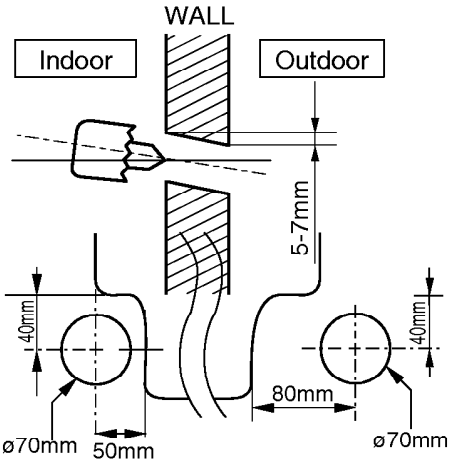


2. Drill the piping hole with 70mm dia. holecore drill.

- 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 slanted to the outdoor side.

The lower left and right side of Installation Plate



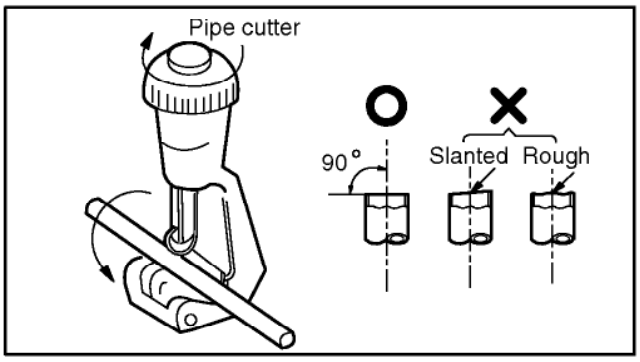


2. Piping and Drainage of Indoor Unit

1) Preparation of Piping

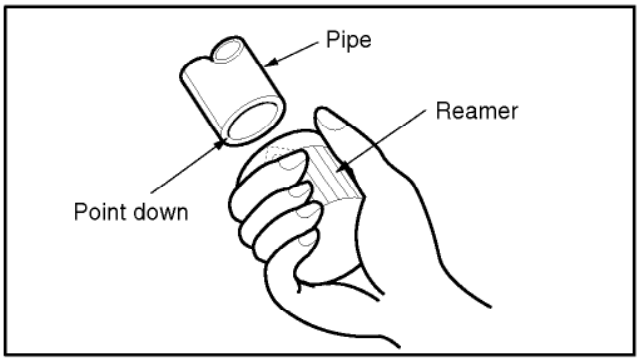
1. Cut the pipes and the cable.

- 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 length of the pipe.



2. Remove burrs.

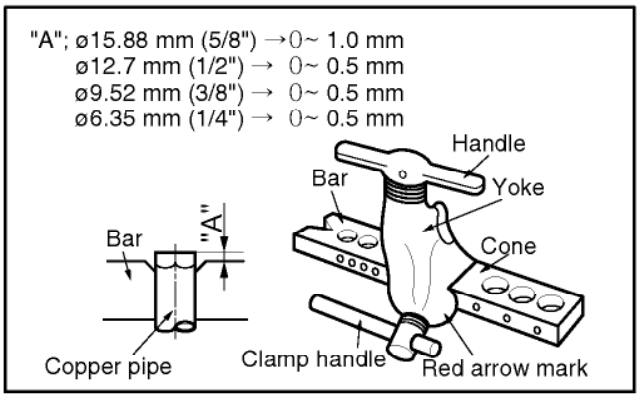
- Remove burrs from cut edges of pipes.
- Turn the pipe end toward down to avoid the metal powder entering the pipe.



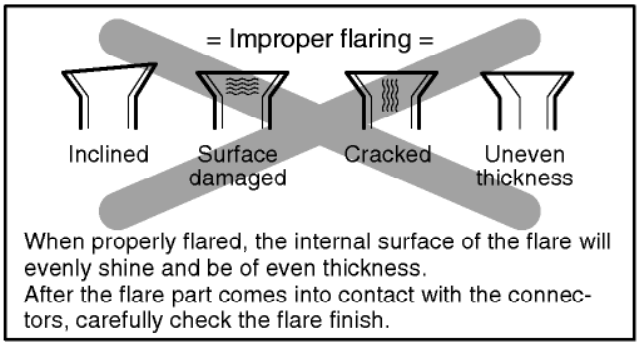
Caution:
If burrs are not removed, they may cause a gas leakage.

3. Flaring the pipes.

- Insert the flare nuts, mounted on the connection ports of both indoor and outdoor unit, onto the copper pipes. (When the flare nuts are removed from the indoor unit.) Some gas may leak, as some gas is charged to prevent the inside of the pipe from rusting.
- Fit the copper pipe end into the Bar of flare tool about 0~1.0mm higher. (See illustration)
- Flare the pipe ends.



4. Tape the flaring portion to protect it from the dust or damages.

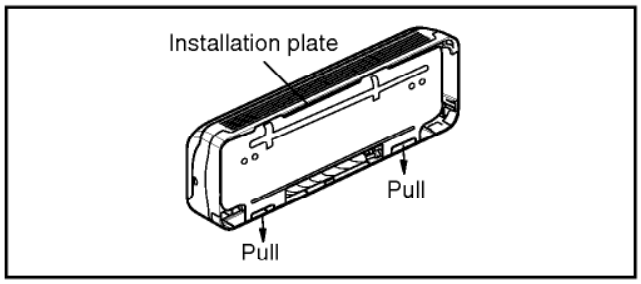


When properly flared, the internal surface of the flare will evenly shine and be of even thickness.
After the flare part comes into contact with the connectors, carefully check the flare finish.

2) Connection of Pipings

1. Remove the installation plate

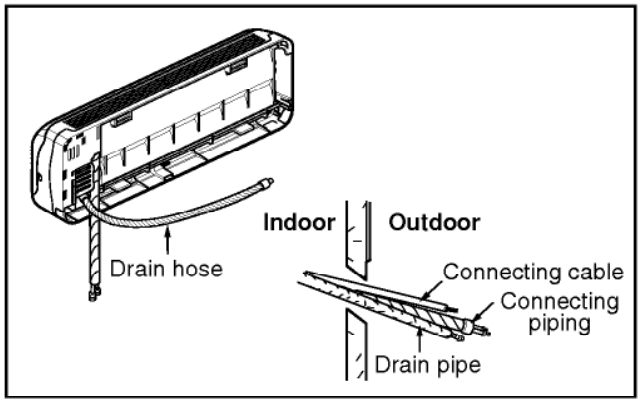
- Pull the two '∆' marked portion of bottom of the chassis and pull the installation plate out of chassis.



2. Route the drain hose and the indoor tubing.

For right rear piping

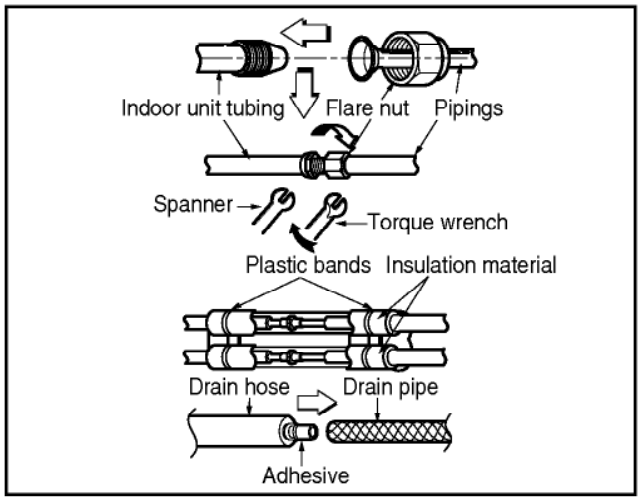
3. Insert the piping, the connecting cables and the drain pipe through the piping hole on the wall.



4. Connect the piping and the indoor tubing, and drain hose and drain pipe.

- Don't connect the cable to the indoor unit.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m
Gas Side (1/2")	5.5kg·m



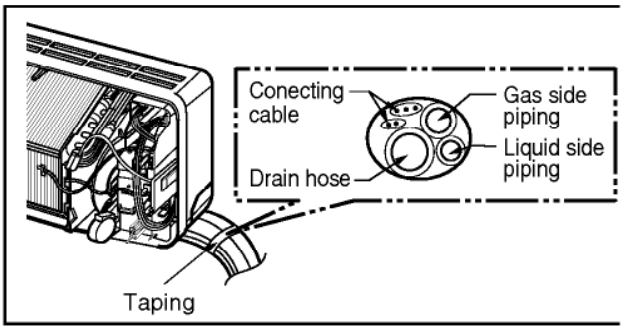
- Wrap the insulation material around the connecting portion.

- Glue up the connection portion of drain hose and drain pipe.

5. Bend the tubing as shown in the figure and bind the piping, the connecting cables and the drain hose altogether.

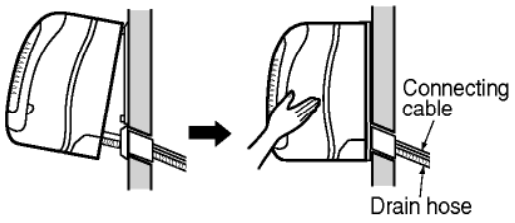
• Make a small loop for easy connection later.

6. Wrap the tubing, the drain hose and the connecting cable with tape.



7. Indoor unit installation

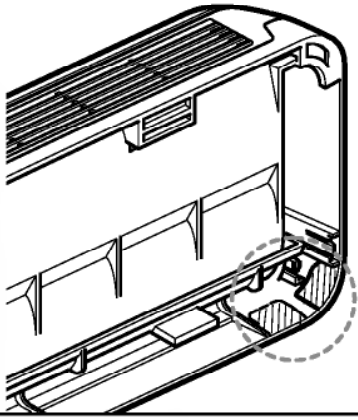
• Hook the indoor unit onto the upper portion of the installation plate. (Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.)
Ensure the hooks are properly seated on the installation plate by moving it in left and right.



Press the lower left and right side of the unit against the Installation Plate until the hooks engage with their slots (sound click).

CAUTION

Take care to arrange the piping, drain hose and cables as the feature 7 page for inserting it into the indoor unit and mount the indoor unit on the installation plate.

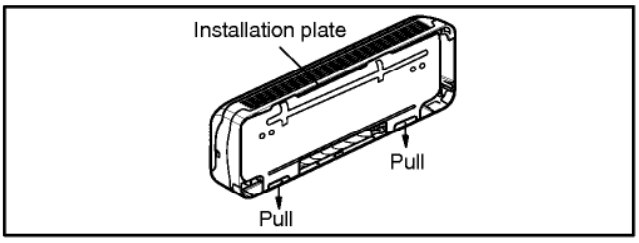


CAUTION

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

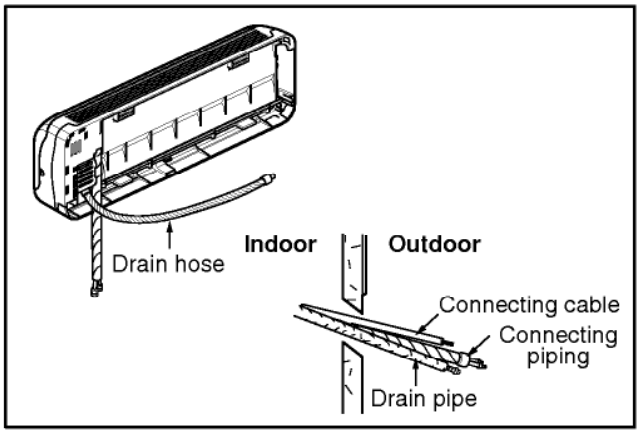
3. Insert the connecting cables, the drain pipe and connecting piping through the piping hole on the wall.



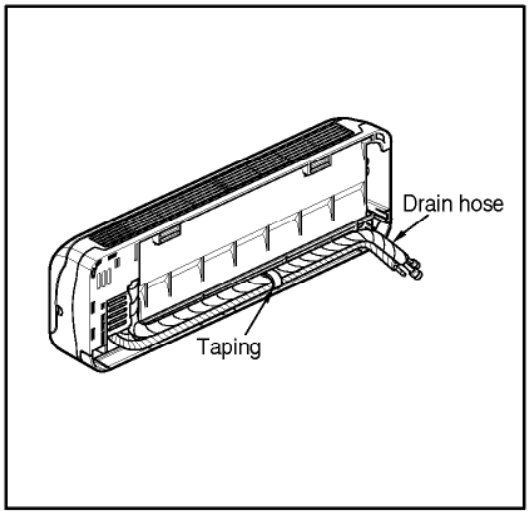
4. Connect the piping and the indoor tubing, and drain hose and drain pipe and place the drain pipe into the chassis.

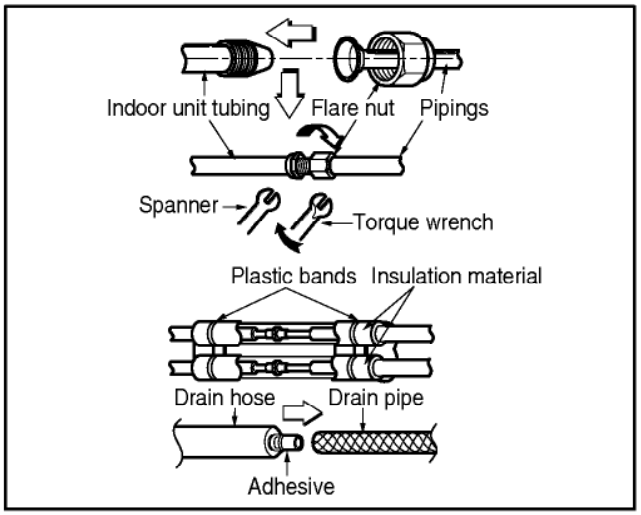
- Don't connect the cable to the indoor unit.
- Make a small loop for easy connection later.
- Glue up the connection portion of drain hose and drain pipe.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m
Gas Side (1/2")	5.5kg·m



5. Bend the drain hose and bind the drain hose, the piping and the connecting cables altogether.

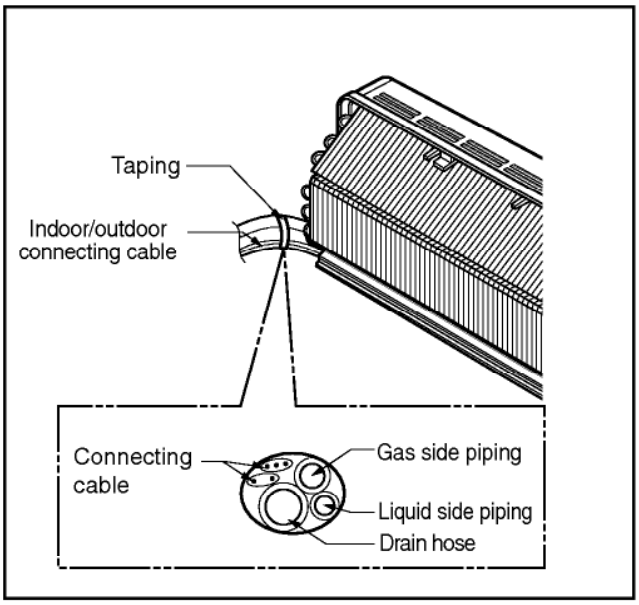




6. Wrap the insulation material around the connecting portion.

CAUTION

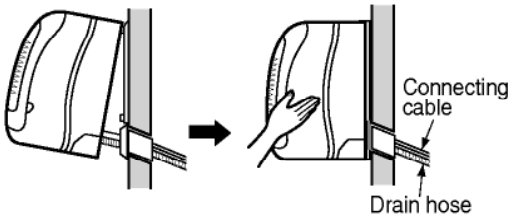
Take care to arrange the piping, drain hose and cables as the figure 7 page for inserting it into the indoor unit and mount the indoor unit on the installation plate.



7. Wrap the tubing, the drain hose and the connecting cable with tape.

8. Indoor unit installation

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



Press the lower left and right side of the unit against the Installation Plate until the hooks engage with their slots (sound click).

3. Connecting Piping and Cable to the outdoor unit

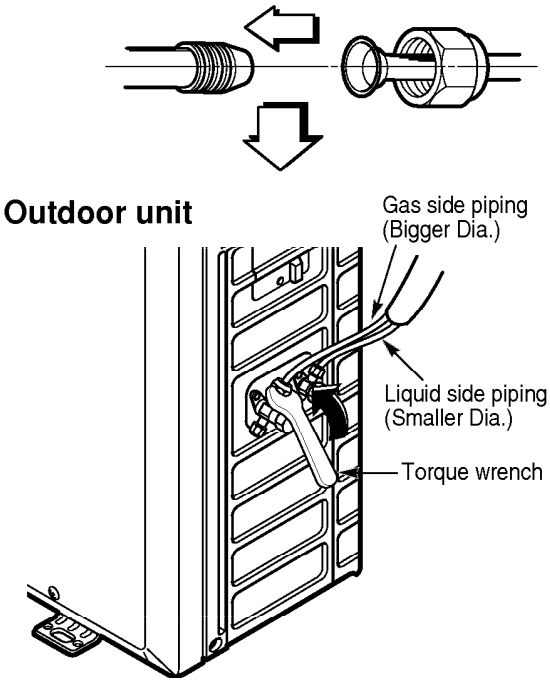
1) Connecting the piping to the Outdoor unit

1. Align the center of the piping and sufficiently tighten the flare nut with fingers.

2. Finally, tighten the flare nut with torque wrench until the wrench clicks.

- When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m
Gas Side (1/2")	5.5kg·m



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) See to it 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.

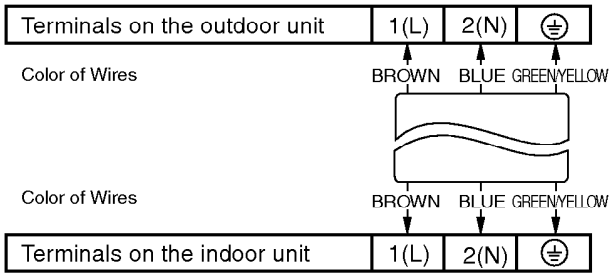
9) The following troubles would be caused by voltage drop-down.

- 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.

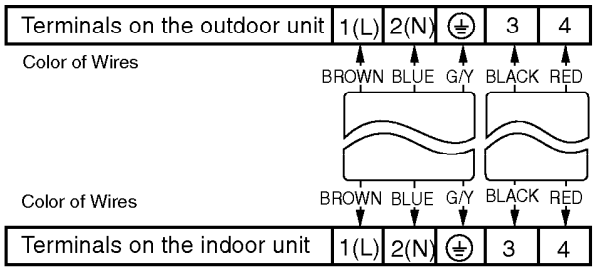
2) Connection of the cable

1. Remove the cover control from the unit by loosening the screw.
   Connect the wires to the terminals on the control board individually as the following.

1) Cooling only type

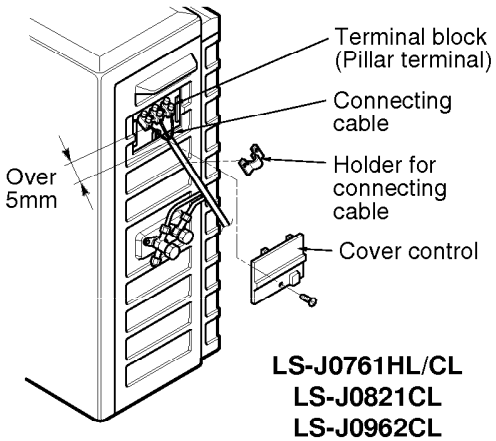


2) Cooling & Heating type



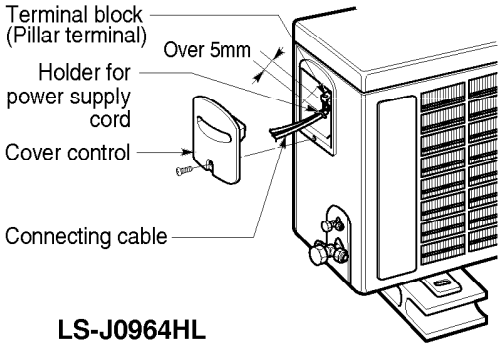
2. Secure the cable onto the control board with the holder (clamper).
3. Refix the cover control to the original position with the screw.
4. Use a recognized circuit breaker 16A between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.

Outdoor unit



LS-J0761HL/CL
LS-J0821CL
LS-J0962CL

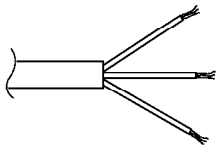
Outdoor unit



LS-J0964HL

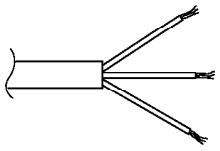
The length of the power supply cord should be over 1.8m measured from the power supply cord entry of the cabinet to the middle of the live pin of the plug.

The power cord connected to the indoor unit should be complied with the following specifications (Type H05VV-F approved by HAR or SA).



NORMAL CROSS-SECTIONAL AREA
1.0mm²

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H07RN-F approved by HAR or SA).



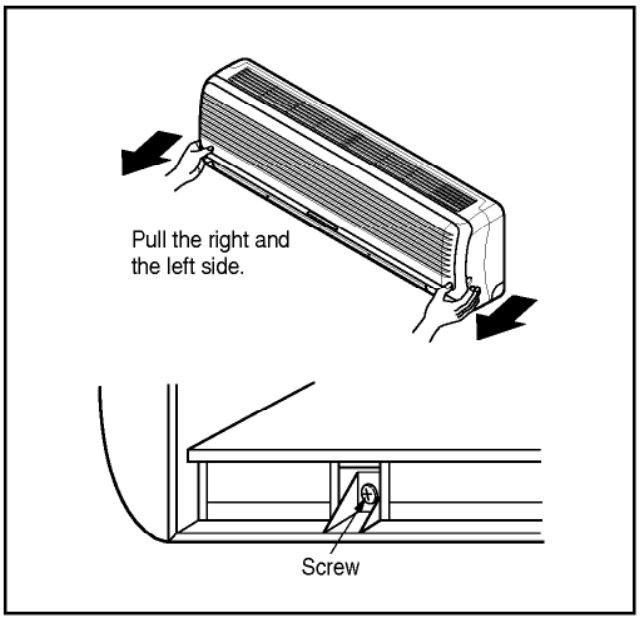
NORMAL CROSS-SECTIONAL AREA
1.0mm²

4. Checking the Drainage and Connecting the cable to Indoor unit

1) Checking the Drainage

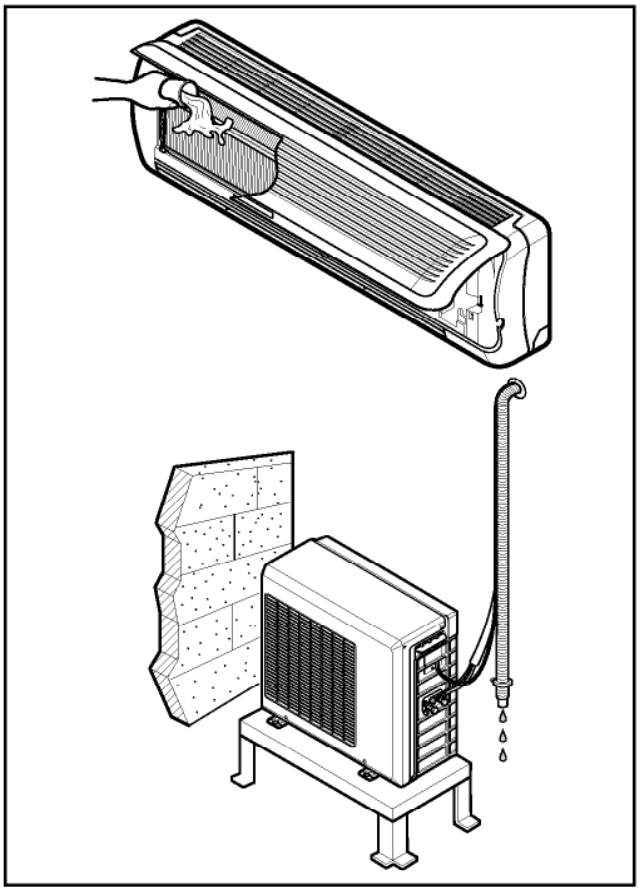
1. Remove the Grille from the cabinet.

- Set the up-and-down air direction louver to the open position (horizontally) by finger pressure.
- Remove the securing screws.
- To remove the Grille, pull lower the left and right side of the grille toward you (slightly tilted) and lift it straight upward (Two tabs on the top inside edge of chassis are clear of their slots).



2. Check the drainage.

- Pour a glass of water on the evaporator.
- Ensure if water flows drain hose of indoor unit without any leakage.

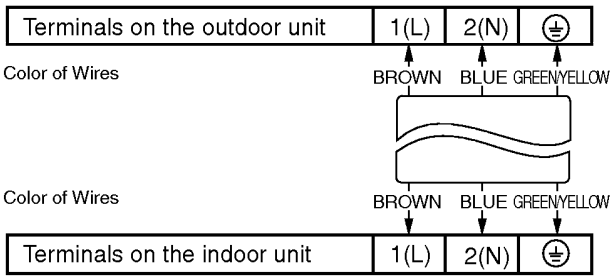


2) Connecting of the cable to the indoor unit

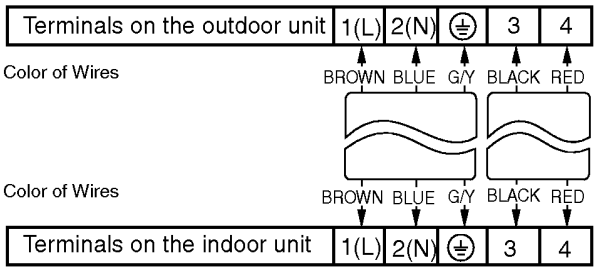
1. Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

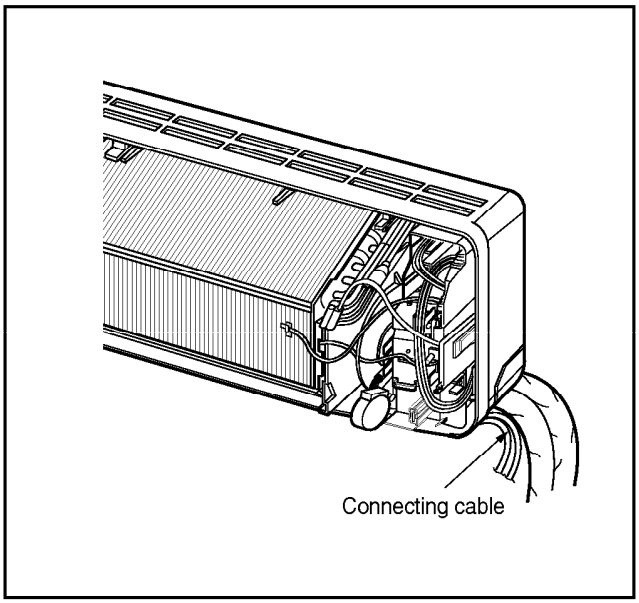
- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as the indoor unit.

1) Cooling only type



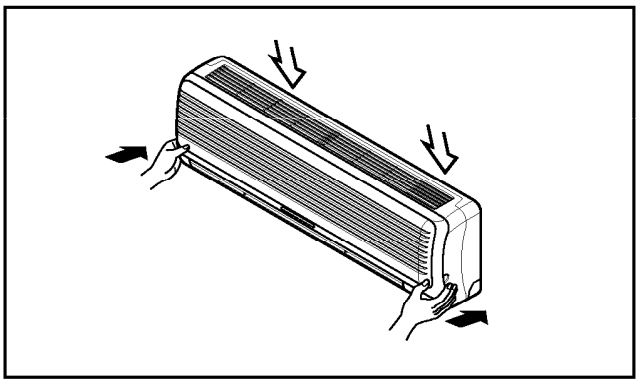
2) Cooling & Heating type





2. Attach the Grille onto the cabinet.

- Grasp lower the left and the right side of the Grille and engage two tabs on the top inside edge of the grille with two slots on the cabinet's top front edge.
- Press the Grille toward to the cabinet until it will be back into place.

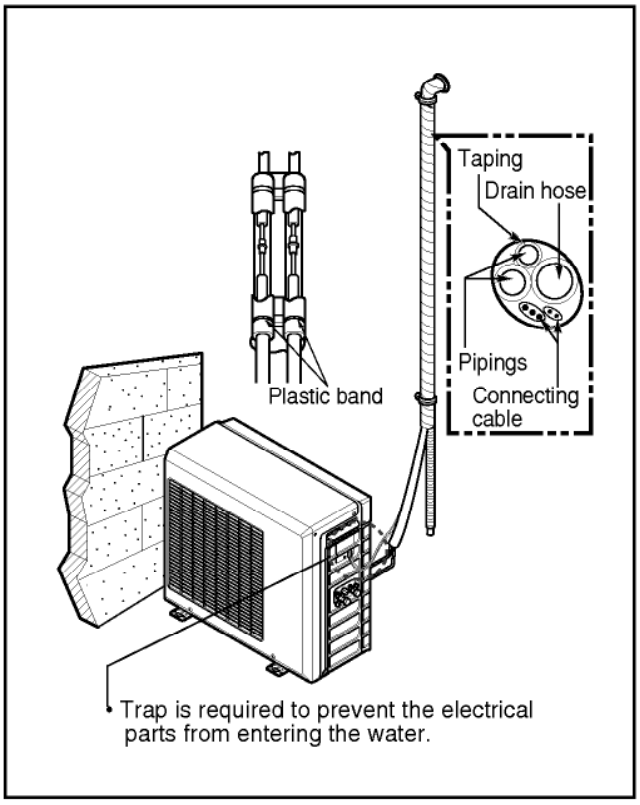


3) Form the piping

1. Wrap the connecting portion of indoor unit with the Insulation material and secure it with two Plastic Bands.(for the right piping)

- If you want to connect an additional drain hose, the end of the drain-outlet should be off the ground.(Do not dip it into water, and fix it on the wall to avoid swinging in the wind.)

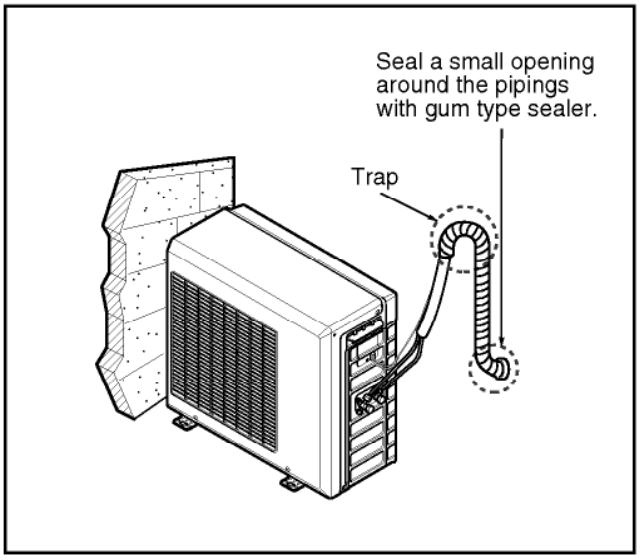
In case of the Outdoor unit to be installed below the position of the Indoor unit.



2. Tape the Piping, drain hose and Connecting Cable from down to up.

3. Form the piping gathered by taping along the exterior wall and fix it onto the wall by saddle or equivalent.

In case of the Outdoor unit being installed upper position of the Indoor unit.



2. Tape the Pipings and Connecting cable from down to up.

3. Form the pipings gathered by taping along the exterior wall, make the Trap to be required to prevent the room from entering the water.

4. Fix the pipings onto the wall by saddle or equivalent.

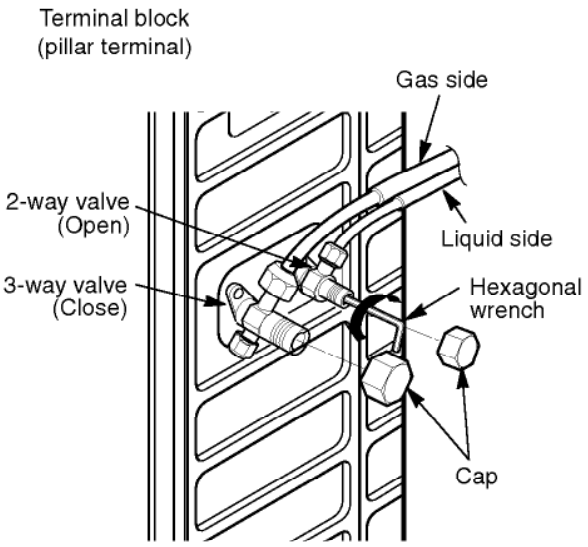
5. Air Purging of the Piping and Indoor Unit

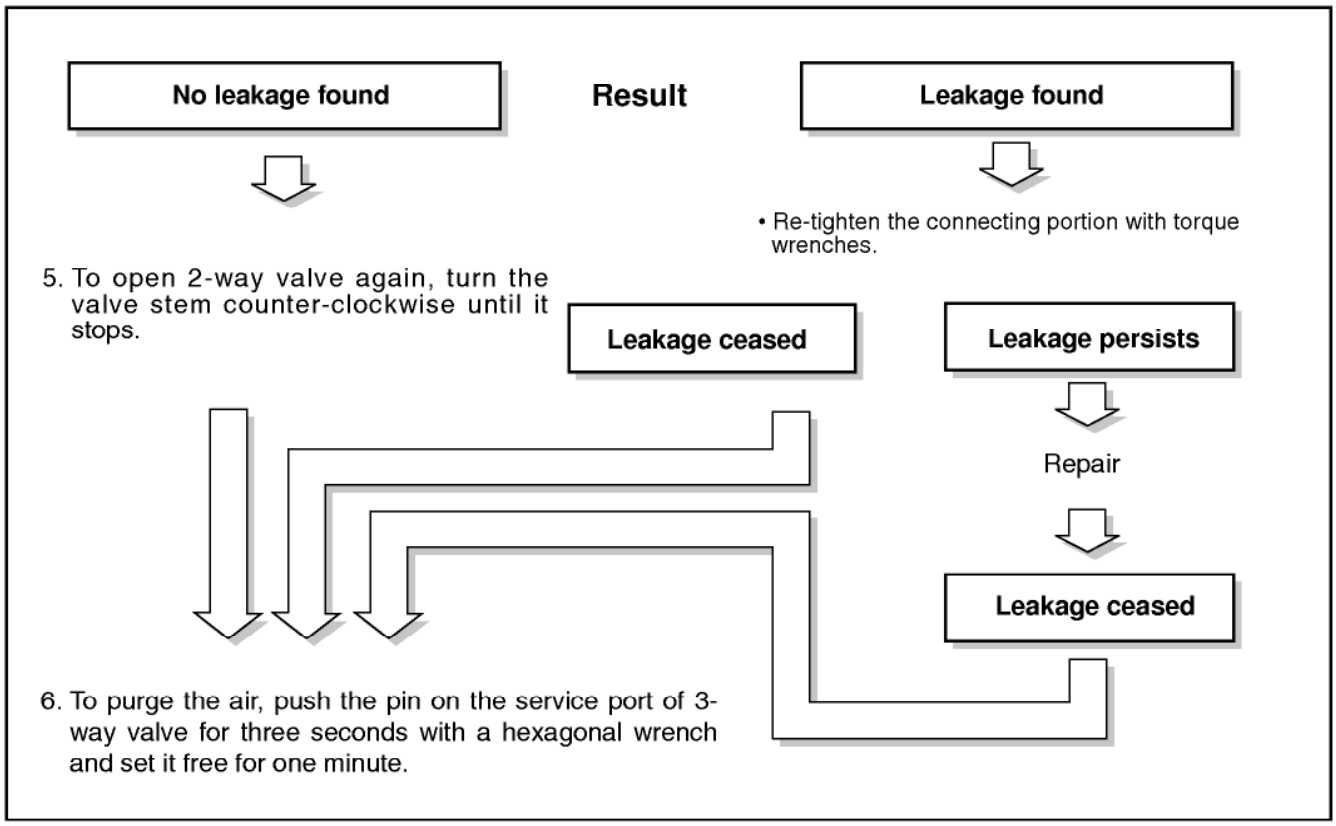
1) Air purging

The air remaining which contains moisture in the refrigeration cycle may cause a malfunction on the compressor.

1. Remove the caps from the 2-way and 3-way valves.
2. Remove the service-port cap from the 3-way valve.
3. To open the valve, turn the valve stem of 2-way valve counter-clockwise approx. 90° and hold it there for five seconds, then close it.
4. Check a gas-leakage of the connecting portion of the pipings.

CAUTION: Do not leak the gas in the air during air purging, with vacuum pump as possible as you can.



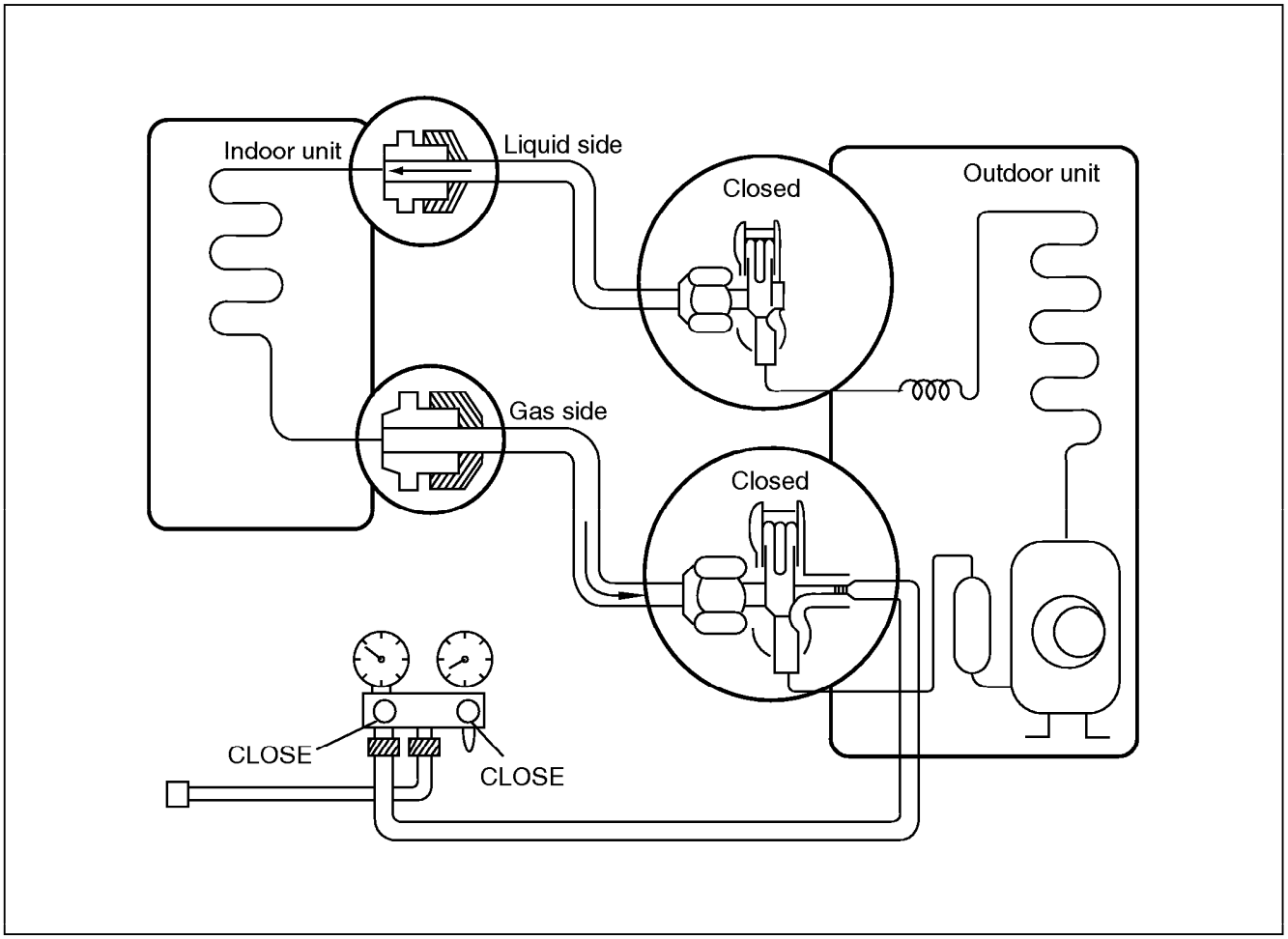


7. Set both liquid and gas side valves to open position with the Hexagonal wrench for the unit operation.

8. Checking a gas leakage

(1) Connect the manifold gauge to the service port of 3-way valve.
Measure the pressure.

(2) Keep it for 5-10 minutes.
Ensure if the pressure indicated on the gauge is as same as that of measured at first time.



NOTE:

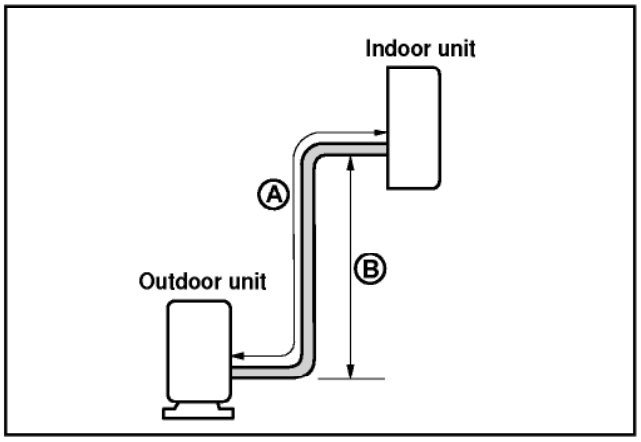
The additional gas for air purping has been charged in the outdoor unit.

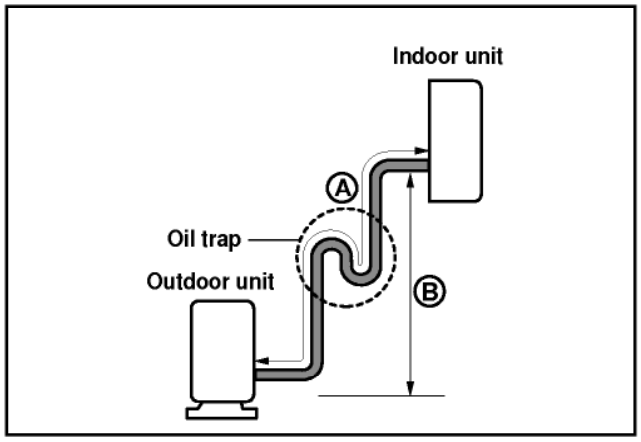
However, if the flare connections have not been done correctly and there gas leaks, a gas cylinder and the charge set will be needed.

CAUTION : Do not leak the gas in the air during air purging. Use vaccum pump as far as possible

6. Pipe length and the elevation

Capacity (Btu/h)	Max. Piping Length ☐ (m)	Max. Elevation ☐ (m)	Standard Length(m)	Additional Refrig-erant (g/m)
7~12K	15	7	5	20





In case more than 5m

CAUTION

- Capicity is based on standard length and maximum allowance length is the basis of reliability.
- **Oil trap should be installed per 5~7 meters.**
- Numerical value in "( )" is for Rotary Comp. model.

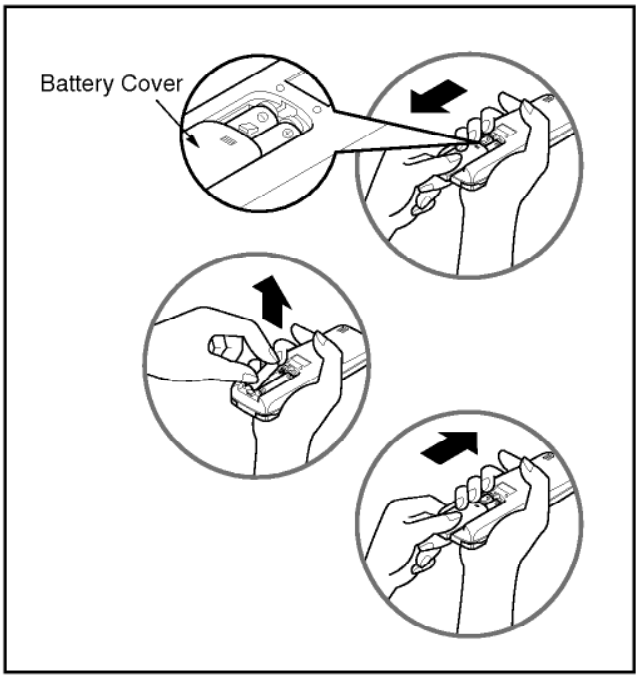
7. Test running

1) Connection of power supply

1. Connect the power supply cord to the independent power supply.
- Circuitbreaker is required.

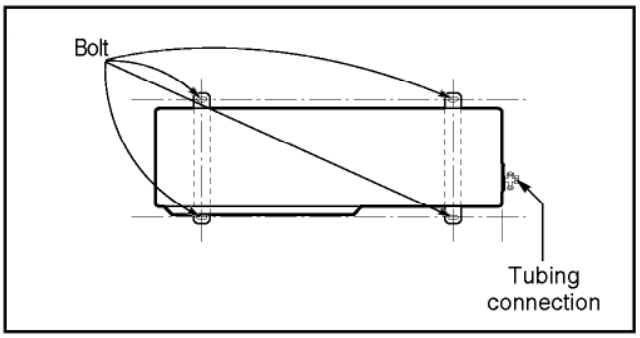
2. Prepare the remote controller.
- Insert two batteries provided.
  Remove the battery cover from the remote controller.
- Slide the cover according to the arrow direction.
  Insert two batteries.
  (Two "R03" or "AAA" dry-cell batteries or equivalent.)
- Be sure that the (+) and (-) directions are correct.
- Be sure that both batteries are new.
  Re-attach the cover.
- Slide it back into position.

3. Operate the unit for fifteen minuites or more.



Settlement of Outdoor Unit

- Anchor the outdoor unit with a bolt and nut (ø10cm) tightly and horizontally on a concrete or rigid mount.
- When installing on the wall, roof or rooftop, anchor the mounting base securely with a nail or wire assuming the influence of wind and earthquake.
- In the case when the vibration of the unit is conveyed to the house, settle the unit with an anti-vibration rubber.



2) Evaluation of the performance

1. Measure the temperature of the intake and discharge air.

2. Ensure the difference between the intake temperature and the discharge one is more than 8 °C(Cooling) or reversely (Heating).