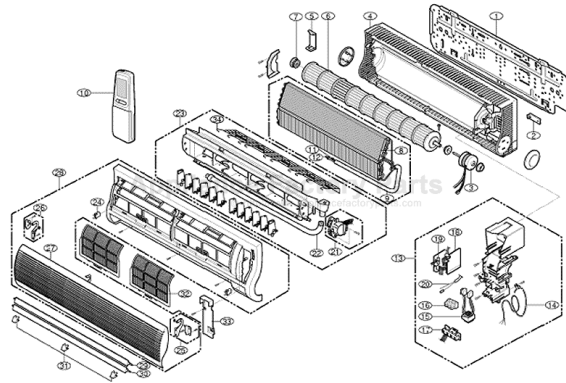


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# LG LM-1860HL Owner's Manual

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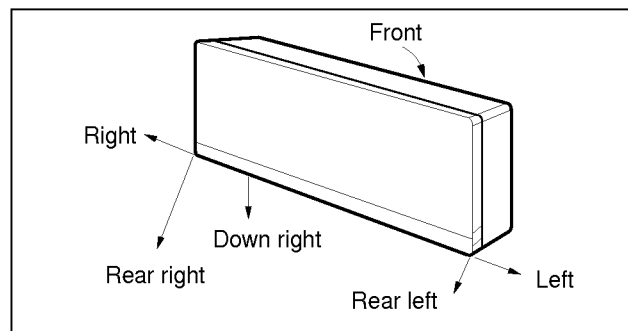
# Installation

## 1. Installation of Indoor, Outdoor unit

### 1) Selection of the best location

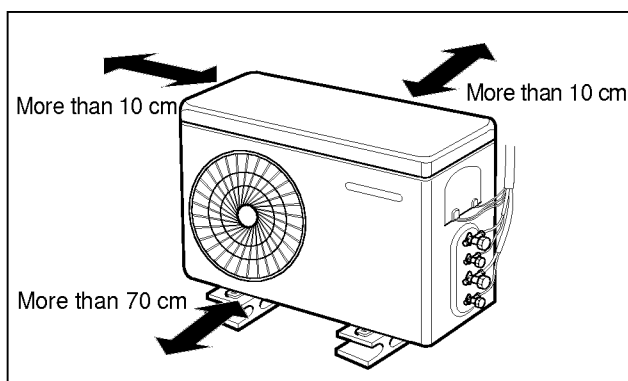
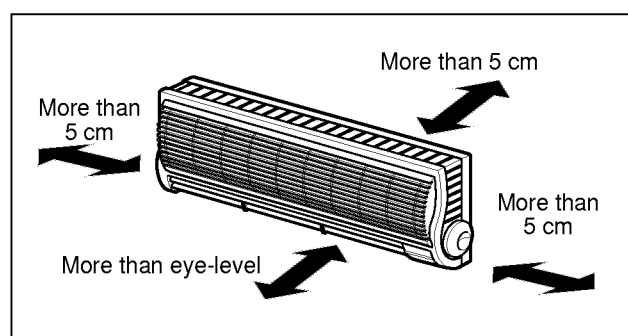
#### 1. Indoor unit

- 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.



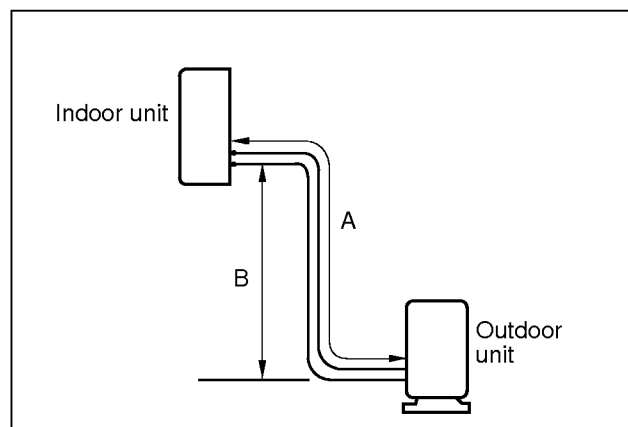
#### 2. Outdoor unit

- 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 spaces indicated by arrows from the wall, ceiling, fence, or other obstacles.



### 3. Piping length and the elevation

Pipe Size		Max. piping length A (m)	Max. Elevation B (m)
GAS	LIQUID		
3/8"	1/4"	7	5



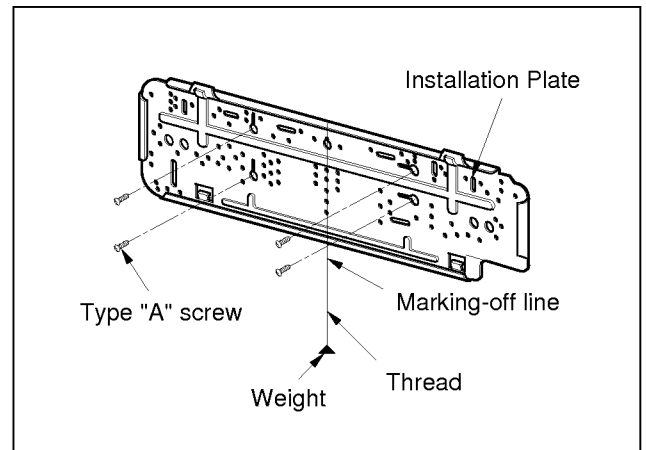
## 2) Indoor Unit Installation

The mounting wall should be strong and solid enough to prevent 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 with using the thread and a level.

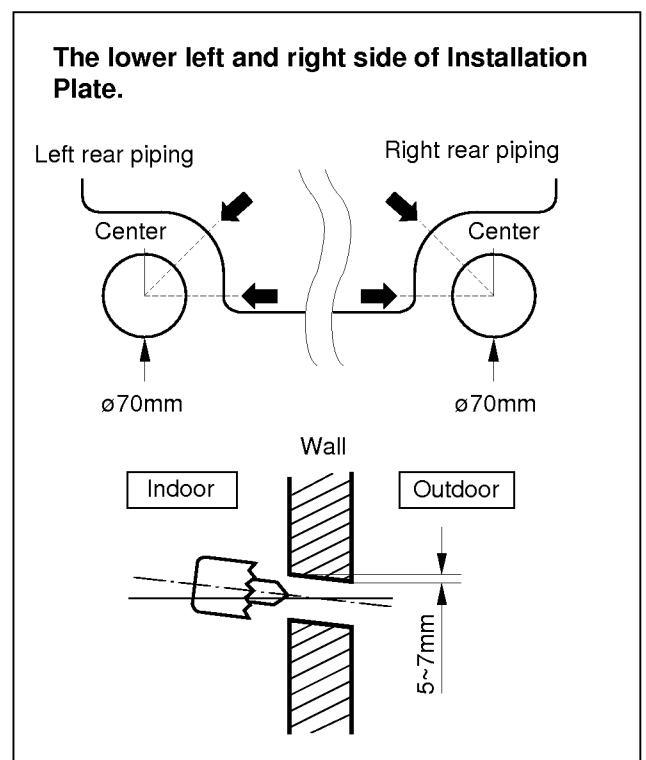


### 2. Drill the piping hole with 70mm dia. holecore drill.

- Line according to the arrows marked on lower the left and the right side of the Installation Plate.

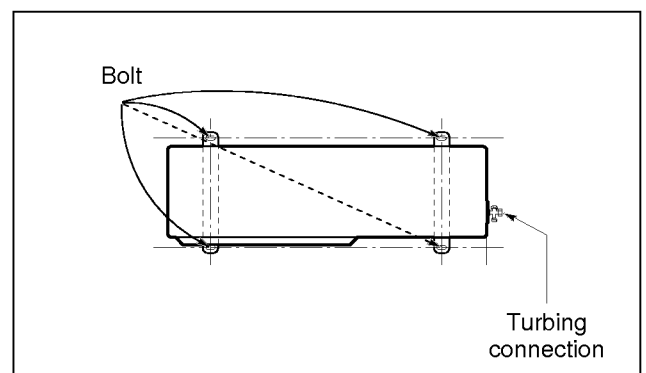
The meeting point of the extended line is the center of the hole.

- Drill the piping hole at either the right or the left and the hole should be slightly slant to the outdoor side.



### 3. Settlement of Outdoor Unit

- \* Anchor the outdoor unit with a bolt and nut (Ø 10cm) 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 with an antivibration rubber.



## 2. Piping and Drainage of Indoor Unit

### 1) Preparation of pipings

#### 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 the measured distance.
- Cut the cable 1.5m longer than the length.

Pipe Size	Torque
Liquid side(1/4")	1.8Kg . m
Gas side(3/8")	4.2Kg . m

#### 2. Remove burrs.

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

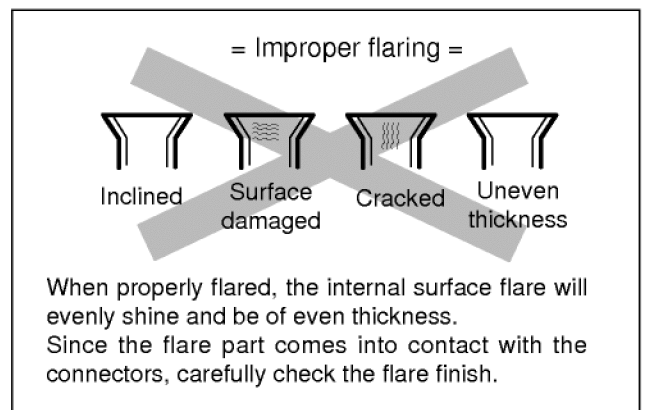
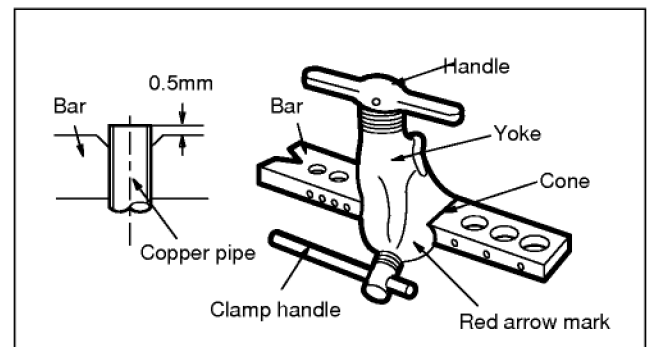
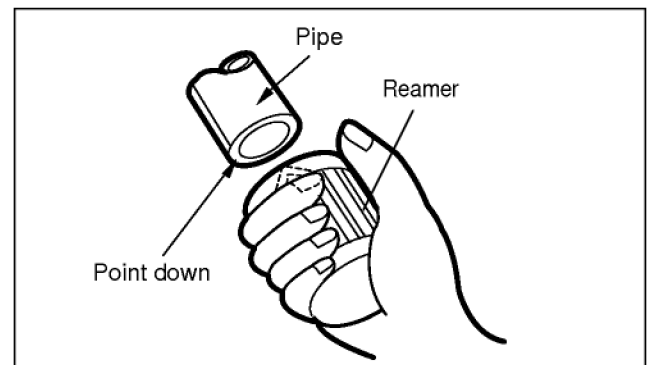
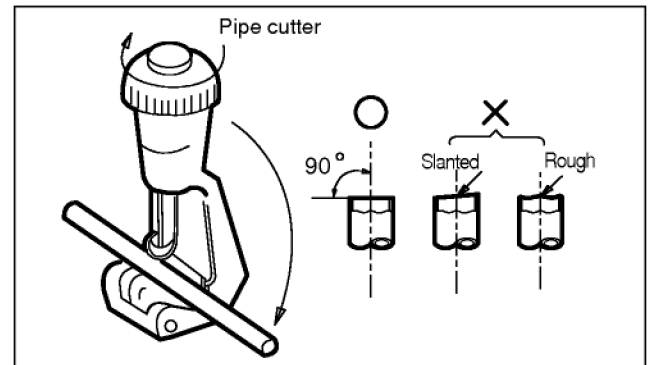
#### Caution:

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. Some gas may leak, when the flare nuts are removed from the indoor unit, 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 0.5mm higher. (See illustration)
- Flare the pipe ends.

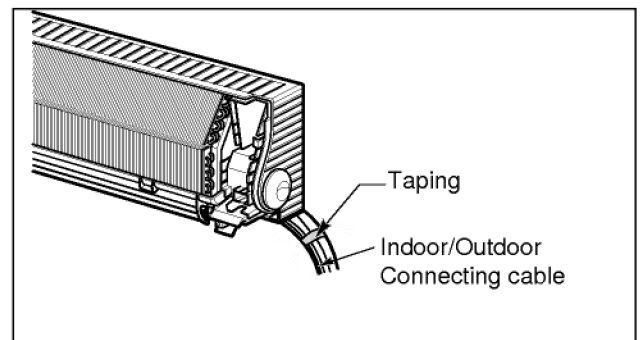
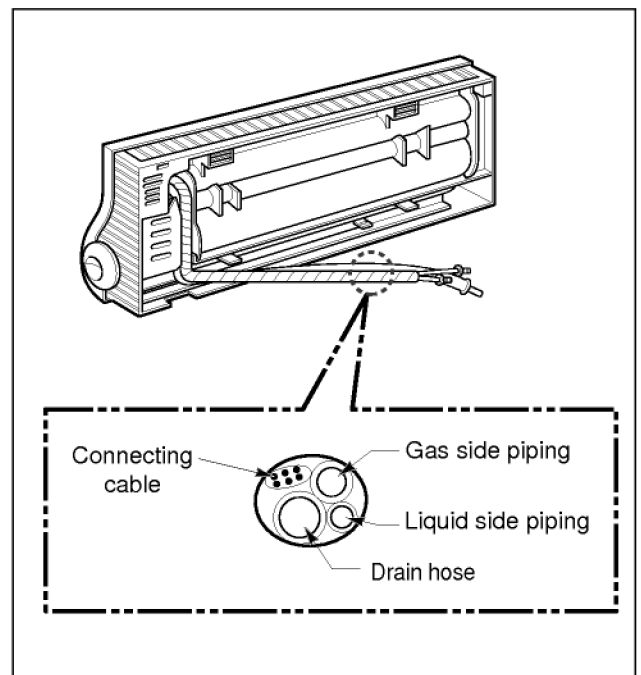
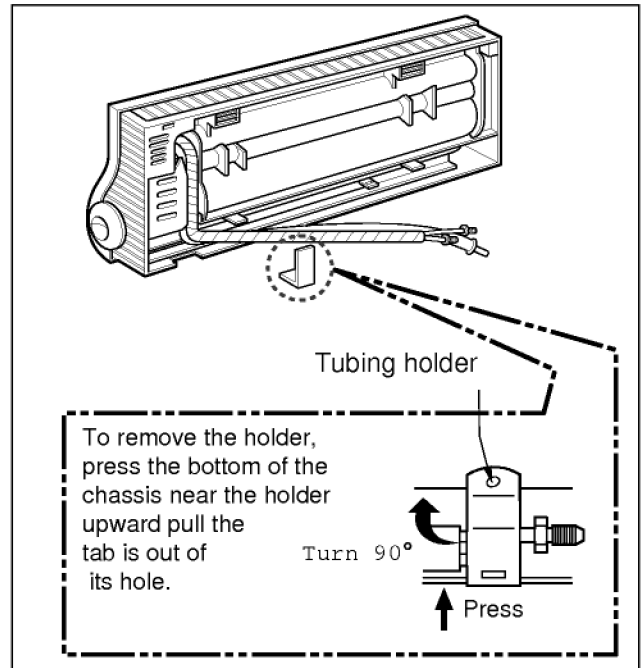
#### 4. Tape the flaring portion to protect it from the dust or damages.



## 2) Connection of Pippings

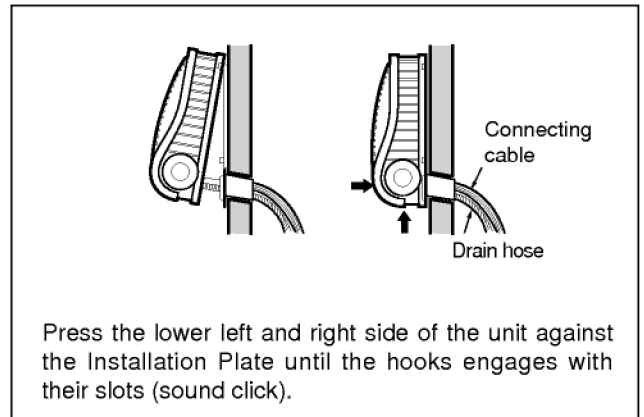
### For right rear piping

- 1. Remove the indoor tubing with Drain hose to the hole.**
  - Remove tubing holder and pull the tubing out of the chassis.
- 2. Replace the tubing holder into original position.**
- 3. Route the tubing and the drain hose straight backwards.**
- 4. Insert the connecting cable into the indoor unit through the piping hole.**
  - Don't connect the cable to the indoor unit.
  - Make a small loop with the cable for easy connection later.
- 5. Tape the tubing, drain hose and the connecting cable.**



## 6. Indoor unit installation.

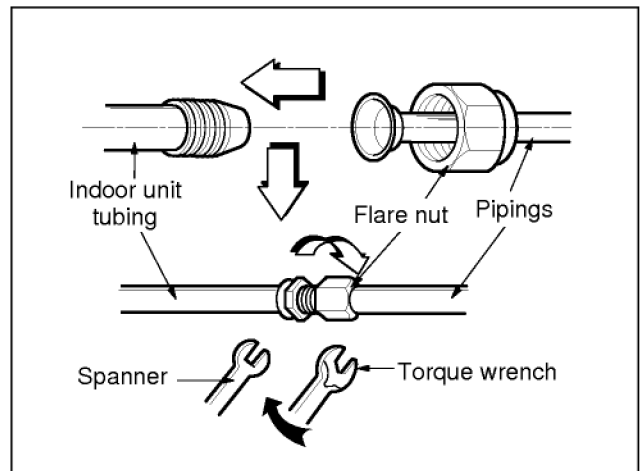
- Hook the indoor unit onto the upper position of installation plate. (Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.)  
Ensure the hooks are properly seated on the installation plate by moving it in left and right.



## 7. Connecting the pipings to the indoor unit.

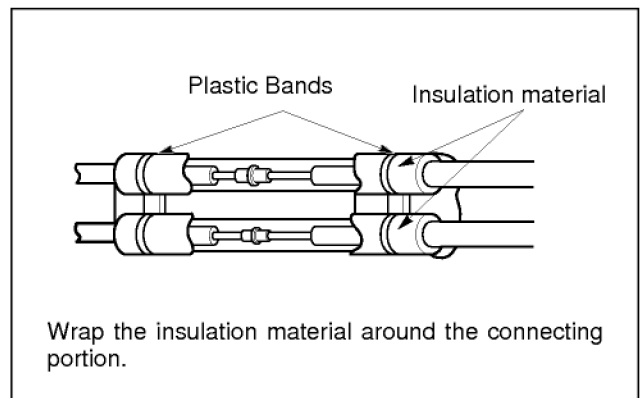
- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.  
Wrench tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrows on the wrench.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg <sub>·</sub> m
Gas Side (3/8")	4.2kg <sub>·</sub> m



## 8. Wrap the insulation material around the connecting portion.

**CAUTION:** Take care to arrange the pipings, drain hose and cables as the feature 7 page for inserting it into the indoor unit and refixing the tubing holder easily.



## For left rear pipings

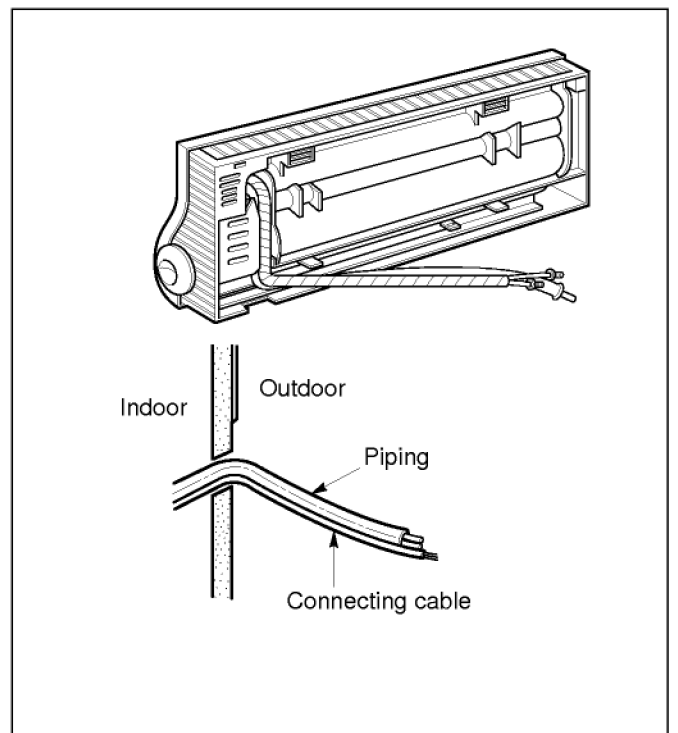
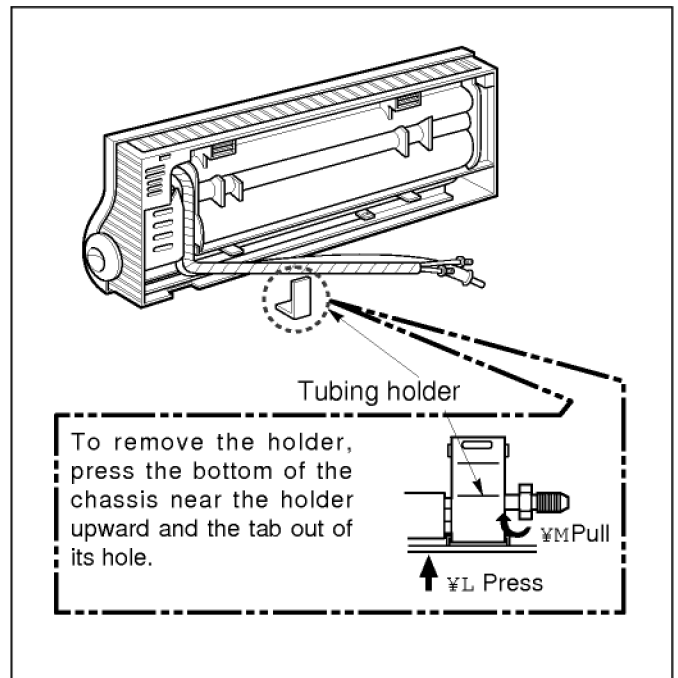
### 1. Remove the indoor tubing with Drain hose from the hole.

- Remove the indoor holder and pull the tubing out of the chassis.

### 2. Replace the tubing holder into original position.

### 3. Route the indoor tubing with the drain hose to the piping hole as desired position.

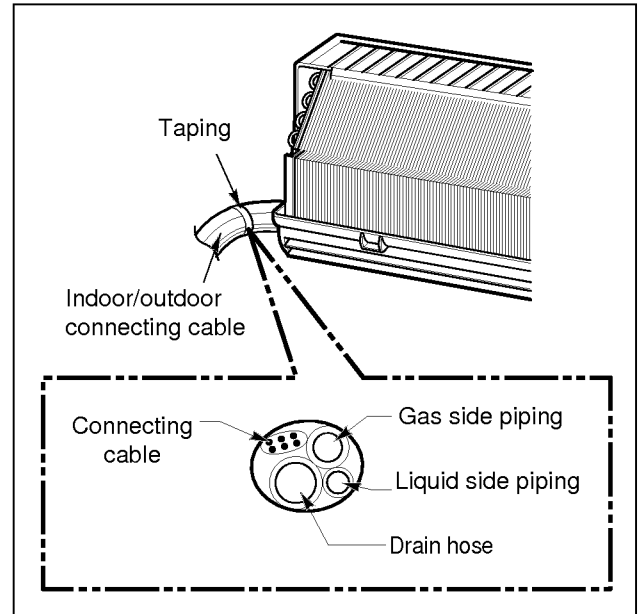
### 4. Insert the pipings and connecting cable into the piping hole.



**5. 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.

**6. Tape the tubing, drain hose and the connecting cable.**

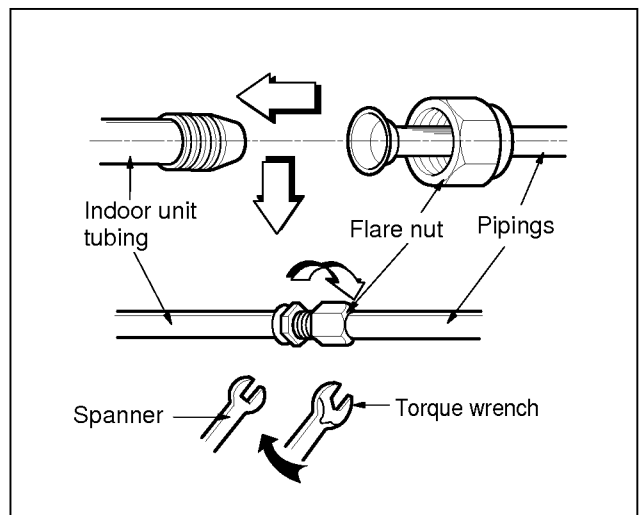


**7. Indoor unit installation**

- Hook the indoor unit onto the upper position 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 in left and right.

**8. Connecting the pipings to the indoor unit**

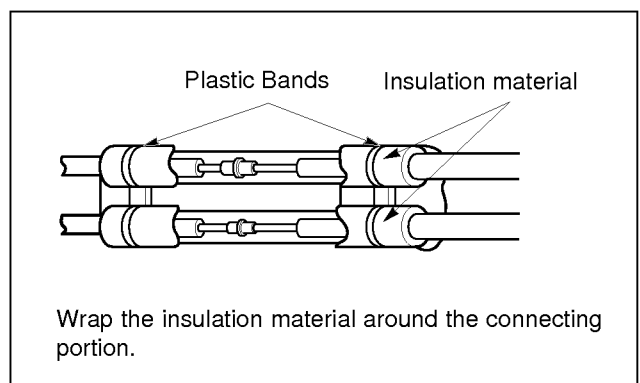
- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.  
When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.



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

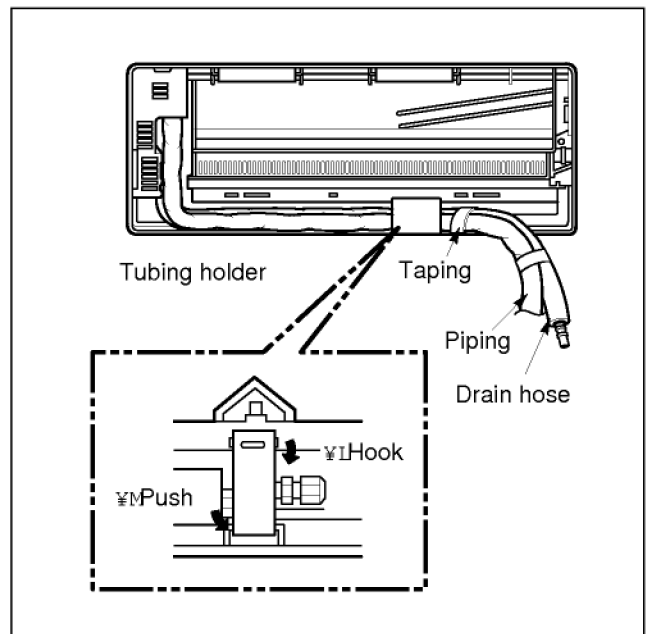
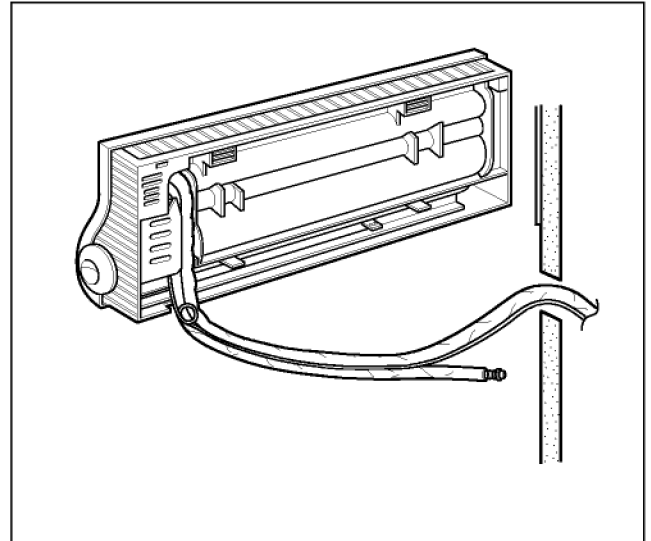
**9. Wrap the insulation material around the connecting portion.**

**CAUTION:** Take care to arrange the pipings, drain hose and cables as the feature 7 page for inserting it into the indoor unit and refixing the tubing holder easily.



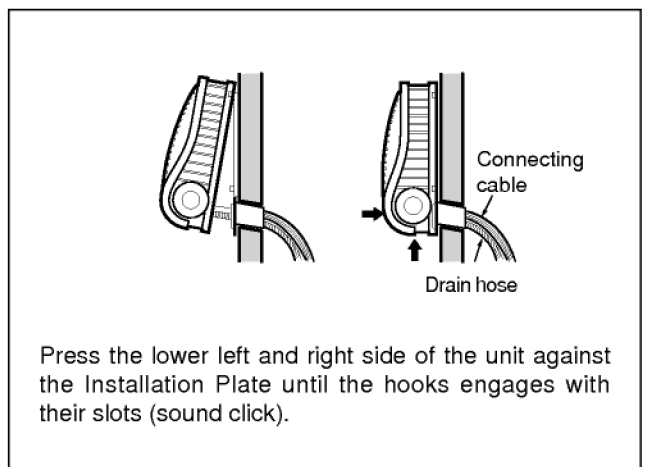
**10. Set the pipings and the connecting cable to the back of the chassis with the tubing holder.**

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



**11. 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 in left and right.

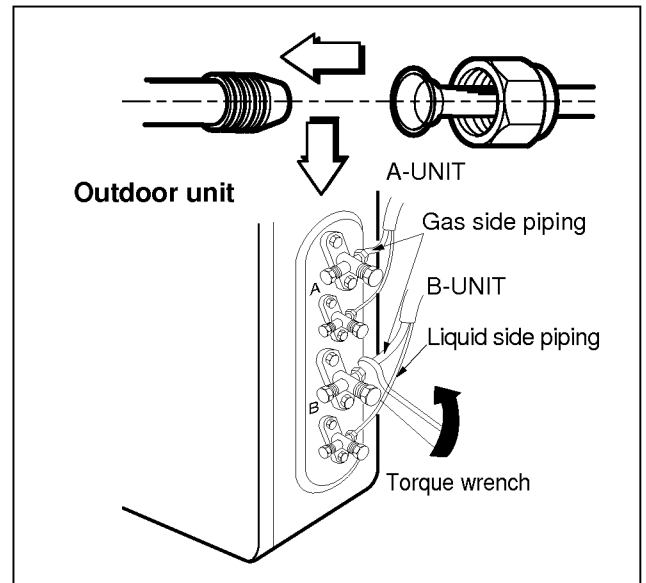


### 3. Connecting Pipings and the cable to Outdoor unit

#### 1) Connecting the pipings to the Outdoor unit

1. Align the center of the pipings 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.

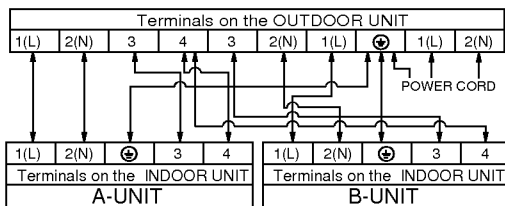
Pipe Size	Torque
Liquid Side (1/4")	1.8kg <sub>r</sub> ·m
Gas Side (3/8")	4.2kg <sub>r</sub> ·m



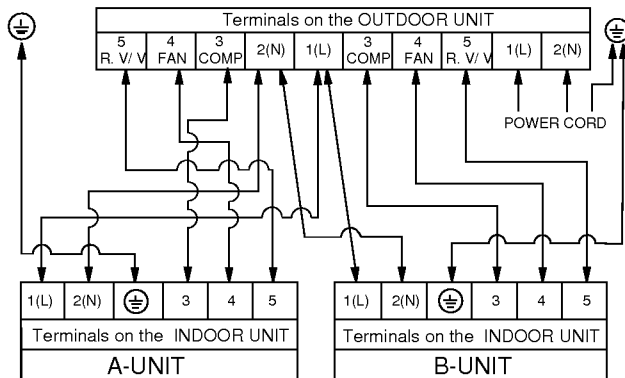
#### 2) Connection of the cable

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.

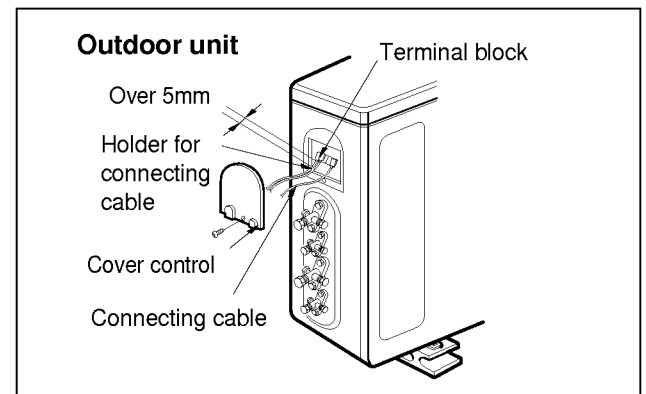
##### 1) Cooling only type



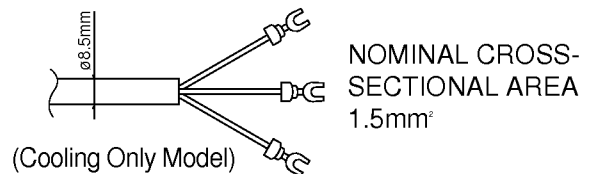
##### 2) Cooling & Heating type



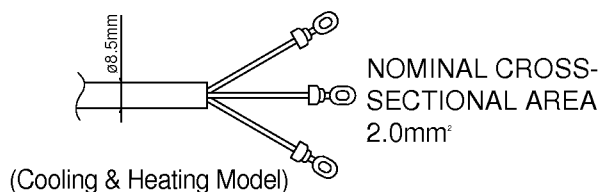
2. Secure the cable onto the control board with the holder (clamer).
3. Refix the cover control to the original position with the screw.
4. Use a recognized circuit breaker 16A between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.



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



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

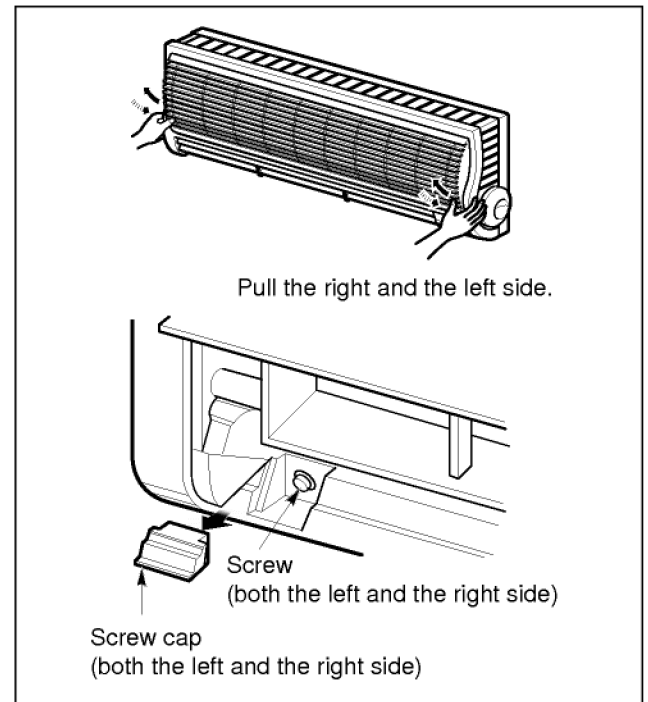


## 4. Checking the Drainage and Connecting the cable to Indoor unit

### 1) Checking the Drainage

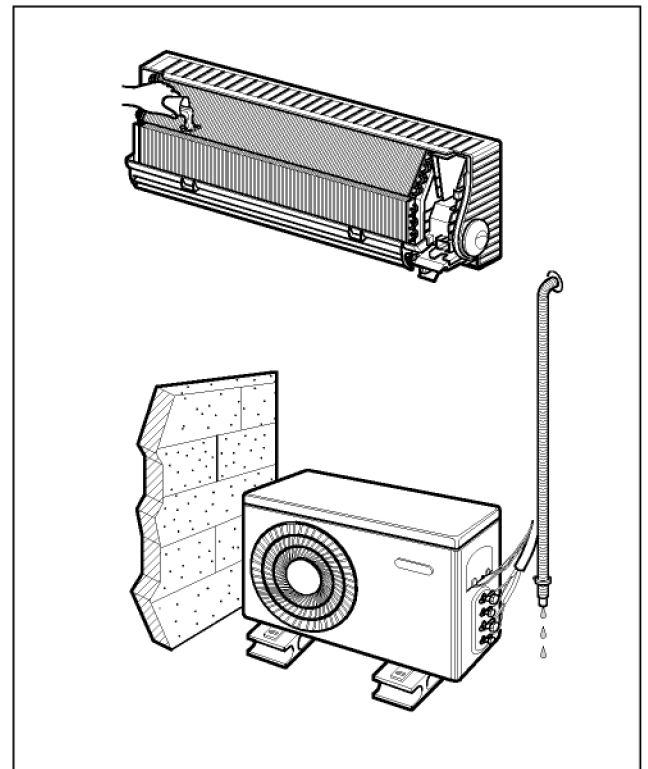
#### 1. Remove the Grille from the cabinet

- Set the up-and-down air direction louver to open position(horizontally) by finger pressure.
- Remove the screws caps and 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 the grille 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.

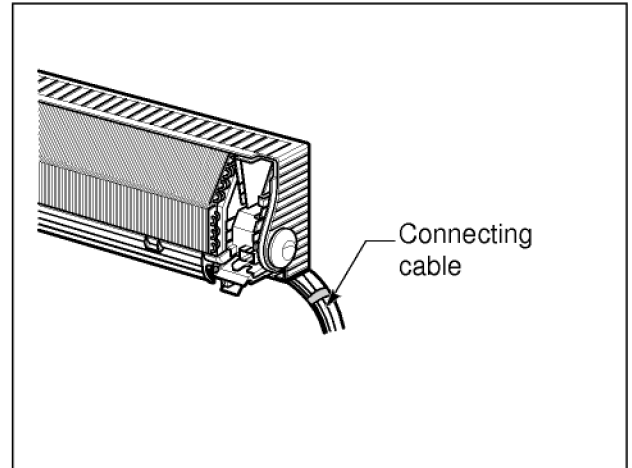
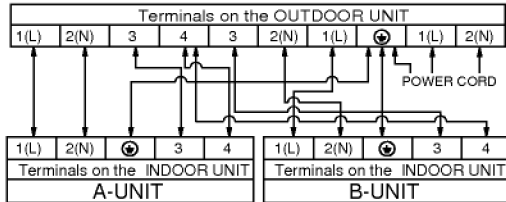


## 2) Connect the cable to the indoor unit

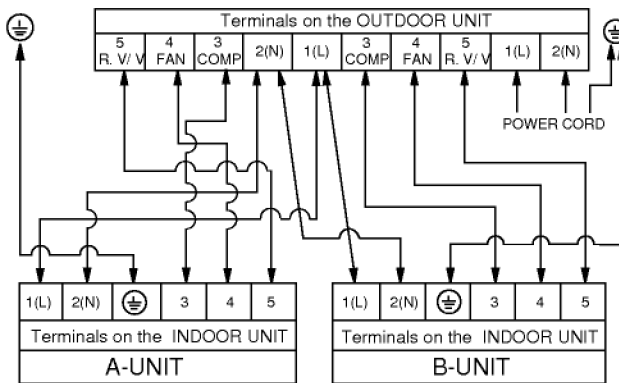
### 1. Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of wires of outdoor unit and the terminal No. are the same to the indoor's respectively.

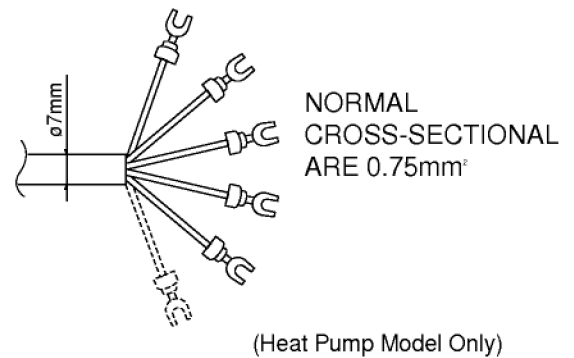
#### 1) Cooling only type



#### 2) Cooling & Heating type



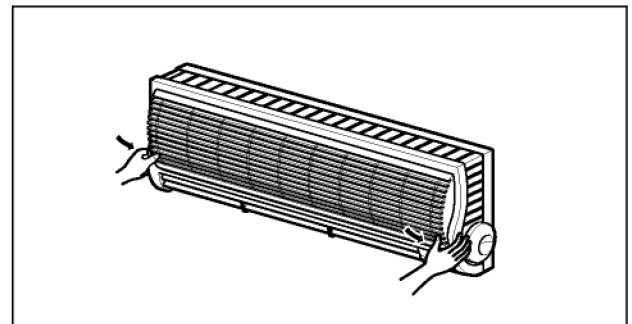
The connecting cable, from the indoor unit to the outdoor unit should be complied with the following specification. (Rubber insulation, type H05RN-F approved by TUV or VDE)



- Secure the cable onto the control board with the holder (clamer).

## 2. Attach the Grille onto the cabinet.

- Grasp the lower left and 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.



## 2) Form the pipings

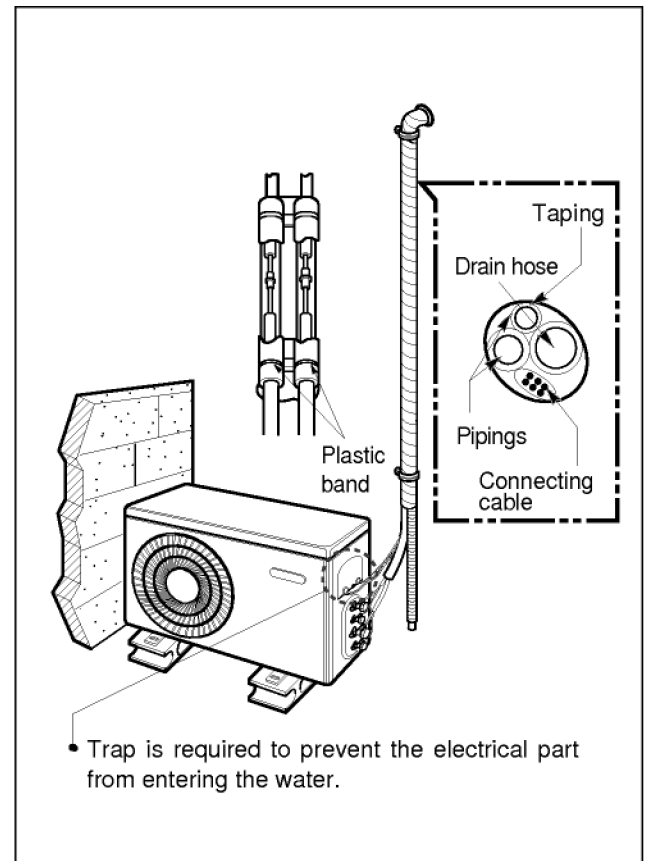
### 1. Wrap the connecting portion of indoor unit with the Insulation material and secure it with two Plastic Bands(for the right pipings).

- If you want to connect an additional drain hose, the end of the drain-outlet should keep distance from 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 is installed bellow position of the Indoor unit.

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

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

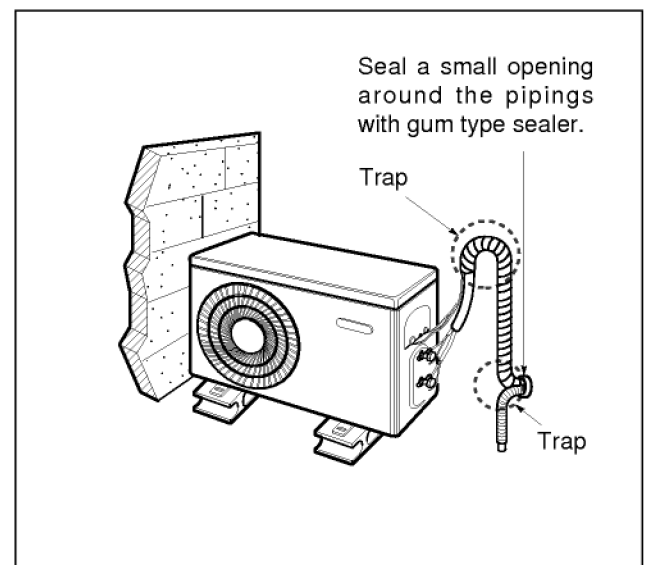


In case of the Outdoor unit to be installed upper position of the Indoor unit.

### 1. Tape the Pipings and Connecting cable from down to up.

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

### 3. Fix the pipings onto the wall by saddle or equivalent.



## 5. Air Purging of the Pipings and indoor unit

### 1) Air purging

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

**1. Confirm that both the liquid side valve and the gas side valve are set to the closed position.**

**2. Connect the charge set and a gas cylinder to the service port of the liquid side valve.**

Leave the valve on the gas cylinder closed.

**3. Check for gas leakage.**

Open the valves on the gas cylinder and the charge set wait, 10 seconds, and then set it closed position.

Check the flare connections for gas leakage.

**4. Air purging**

Open the valves on the gas cylinder and the charge set.

Using the Hexagonal wrench to press the gas side valve's core pin, discharge for three seconds and then wait for one minute. Repeat this three times.

**5. Discharge the refrigerant.**

Close the valve on the gas cylinder and discharge the refrigerant until the gauge indicates 0.5 to 1 kg/cm<sup>2</sup>·G.

**6. Disconnect the charge set and the gas cylinder, and set the liquid side and gas side valves to the open position.**

Be sure to use a hexagonal wrench to operate the valve stems.

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

### Caution

If gas leakage are discovered in step 3 above, take the following measures:

If the gas leaks stop when the piping connections are tightened further, continue working from step 4.

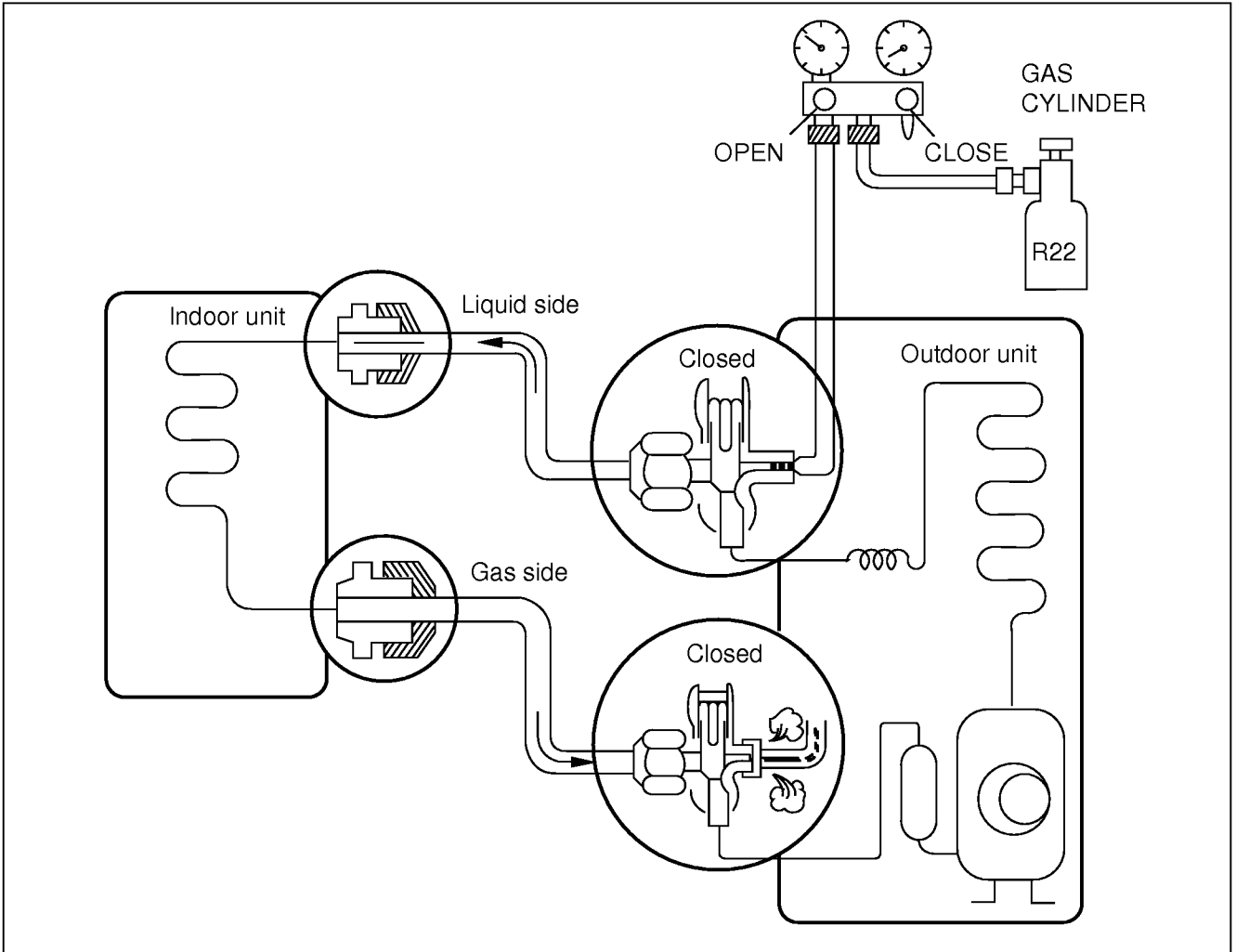
If the gas leaks do not stop when the connections are retightened, repair the location of the leak, discharge all of the gas through the service port, and then recharge with the specified amount of gas from a gas cylinder.

### 8. Cheacking 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.

### 9. Mount the valve stem nuts and the service port nut.

Use torque wrench to tighten the service port nut to a torque of 1.8kg.m.  
Be sure to check for gas leakage.



### 10. Apply steps from 1 to 9 to each unit (A-unit, B-unit) by the same method.

#### NOTE:

Remember that outdoor unit does not contain refrigerant for air purge.

When you purge the air you should charge your refrigerant (or purchased) by use of the gas cylinder and charge set.

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

## 6. Test running

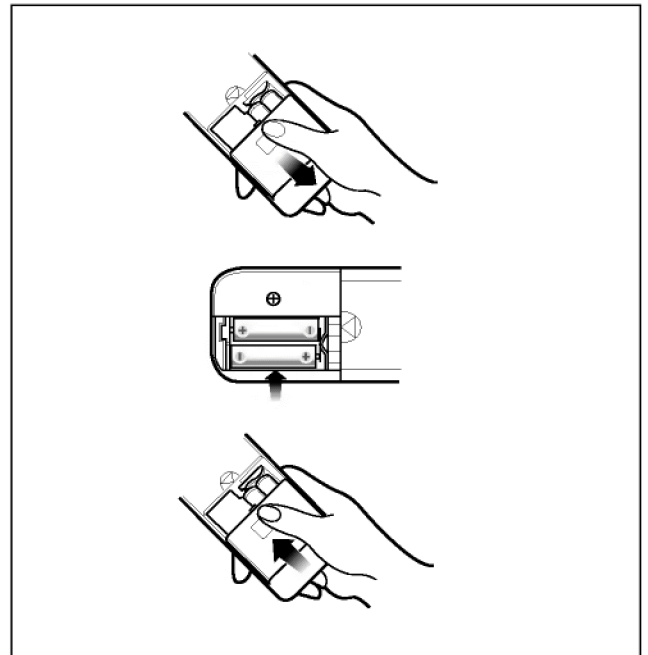
### 1) Connection of power supply

**1. Connect the power supply cord to independent power supply.**

**2. Prepare the Remote Controller.**

- Insert two batteries provided.  
Remove the cover from the back of the remote control.
- Slide the cover according to the arrow direction.  
Insert the 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 at cooling operation mode for fifteen minutes or more.**



### 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.**

