



LG

Air Conditioner

INSTALLATION MANUAL

Type : Wall Mounted

Indoor Unit

R18AWN-NC9

R22AWN-NC9

R24AWN-NC9

R28AWN-NC9

Outdoor Unit

R18AWN-UC9

R22AWN-UC9

R24AWN-UC9

R28AWN-UC9

IMPORTANT

- Please read this instruction manual completely before installing the product.
- When the power cord is damaged, replacement should be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Please retain this installation manual for future reference after reading it thoroughly.

CONTENTS

Installation Requirements	Required Parts	Required Tools
Safety Precautions3	<input type="checkbox"/> Some pieces of type "A" screws	<input type="checkbox"/> Level gauge
	<input type="checkbox"/> Connecting cable	<input type="checkbox"/> Screw driver
Introduction6	<input type="checkbox"/> Installation guide map	<input type="checkbox"/> Electric drill
Symbols used in this manual.....6	<input type="checkbox"/> Pipes: Gas side	<input type="checkbox"/> Hole core drill(ø70mm)
	Liquid side	<input type="checkbox"/> Horizontal meter
Installation7	<input type="checkbox"/> Insulation materials	<input type="checkbox"/> Flaring tool set
Installation parts.....7	<input type="checkbox"/> Additional drain pipe	<input type="checkbox"/> Specified torque wrenches
Installation tools7	(Outer diameter15.5mm)	1.8kg.m, 4.2kg.m, 5.5kg.m,
Installation map.....8	<input type="checkbox"/> Some pieces of type "B" screws	6.6kg.m
Selecting the best location9	<input type="checkbox"/> Some pieces of type "C" screws	(different depending on model No.)
Fixing Installation Plate10		<input type="checkbox"/> SpannerHalf union
Drilling a hole in the wall10		<input type="checkbox"/> A glass of water
Flaring work11		<input type="checkbox"/> Hexagonal wrench(4mm)
Installation of indoor unit12		<input type="checkbox"/> Gas-leak detector
Connecting the cables18		<input type="checkbox"/> Vacuum pump
Checking the drainage20		<input type="checkbox"/> Gauge manifold
Forming the piping.....21		<input type="checkbox"/> Owner's manual
Air purging.....22		<input type="checkbox"/> Thermometer
Test running24		<input type="checkbox"/> Remote controller holder
Installation guide at the seaside...26		
Piping Length and Elevation27		

Safety Precautions

To prevent the injury of the user or other people and property damage, the following instructions must be followed.

- Be sure to read before installing the air conditioner.
- Be sure to observe the cautions specified here as they include important items related to safety.
- Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠ WARNING This symbol indicates the possibility of death or serious injury.

⚠ CAUTION This symbol indicates the possibility of injury or damage to properties only.

- The meanings of the symbols used in this manual are as shown below.



Be sure not to do.



Be sure to follow the instruction.

⚠ WARNING

Always use a power plug and socket with a ground terminal.

- There is a risk of electric shock.

Do not use a defective or underrated circuit breaker. Use the correctly rated breaker and fuse.

- There is risk of fire or electric shock .

Do not use a multi consent. Always use this appliance on a dedicated circuit breaker.

- Otherwise it can cause electric shock or fire.

For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center. Do not disassemble or repair the product by yourself.

- There is risk of fire or electric shock.

Always ground the product as per the wiring diagram. Do not connect the ground wire to gas or water pipes lightning rod or telephone ground wire.

- There is risk of fire or electric shock.

Install the panel and the cover of control box securely.

- There is risk of fire or electric shock due to dust , water etc.

Use the correctly rated breaker or fuse.

- There is risk of fire or electric shock.

Do not modify or extend the power cable. If the power cable or cord has scratches or skin peeled off or deteriorated then it must be replaced.

- There is risk of fire or electric shock.

For installation, removal or reinstall , always contact the dealer or an Authorized Service Center.

- There is risk of fire, electric shock, explosion, or injury.

Do not install the product on a defective installation stand. Be sure that the installation area does not deteriorate with age.

- It may cause product to fall.

Never install the outdoor unit on a moving base or a place from where it can fall down.

- The falling outdoor unit can cause damage or injury or even death of a person.

When the product is soaked (flooded or submerged) in water , contact an Authorized Service Center for repair before using it again.

- There is risk of fire or electric shock.

In outdoor unit the step-up capacitor supplies high voltage electricity to the electrical components. Be sure to discharge the capacitor completely before conducting the repair work.

- An charged capacitor can cause electrical shock.

When installing the unit, use the installation kit provided with the product.

- Otherwise the unit may fall and cause severe injury.

Be sure to use only those parts which are listed in the svc parts list. Never attempt to modify the equipment.

- The use of inappropriate parts can cause an electrical shock, excessive heat generation or fire.

Indoor/outdoor wiring connections must be secured tightly and the cable should be routed properly so that there is no force pulling the cable from the connection terminals.

- Improper or loose connections can cause heat generation or fire.

Safely dispose off the packing materials. Like screws, nails, batteries, broken things etc after installation or svc and then tear away and throw away the plastic packaging bags.

- Children may play with them and cause injury.

Make sure to check that the power cable plug is not dirty, loose or broken and then only insert the plug completely.

- Dirty, loose or broken power plug can cause electric shock or fire.

Be sure to check the refrigerant to be used. Please read the label on the product.

- Incorrect refrigerant used can prevent the normal operation of the unit.

Don't use a power cord, a plug or a loose socket which is damaged.

- Otherwise it may cause a fire or electrical shock.

Do not touch, operate, or repair the product with wet hands. Hold the plug by hand when taking out

- There is risk of electric shock or fire.

Do not place a heater or other heating appliances near the power cable.

- There is risk of fire and electric shock.

Do not allow water to run into electric parts. Install the unit away from water sources.

- There is risk of fire, failure of the product, or electric shock.

Do not store or use or even allow flammable gas or combustibles near the product.

- There is risk of fire.

Do not use the product in a tightly closed space for a long time. Perform ventilation regularly.

- Oxygen deficiency could occur and hence harm your health.

Do not open the front grille of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)

- There is risk of physical injury, electric shock, or product failure.

If strange sound, smell or smoke comes from product. Immediately turn the breaker off or disconnect the power supply cable.

- There is risk of electric shock or fire.

Ventilate the product room from time to time when operating it together with a stove, or heating element etc.

- Oxygen deficiency can occur and hence harm your health.

Turn the main power off and unplug the unit when cleaning or repairing the product.

- There is risk of electric shock.

When the product is not to be used for a long time, disconnect the power supply plug or turn off the breaker.

- There is risk of product damage or failure, or unintended operation.

Take care to ensure that nobody especially kids could step on or fall onto the outdoor unit.

- This could result in personal injury and product damage.

Take care to ensure that power cable could not be pulled out or damaged during operation.

- There is risk of fire or electric shock.

Do not place ANYTHING on the power cable.

- There is risk of fire or electric shock.

Do not plug or unplug the power supply plug to turn the unit ON/OFF .

- There is risk of fire or electric shock.

When flammable gas leaks, turn off the gas and open a window for ventilation before turning on the product.

- Do not use the telephone or turn switches on or off. There is risk of explosion or fire.

! CAUTION

Two or more people must lift and transport the product.

- Avoid personal injury.

Do not install the product where it will be exposed to sea wind (salt spray) directly.

- It may cause corrosion on the product.

Install the drain hose to ensure that the condensed water is drained away properly.

- A bad connection may cause water leakage.

Keep level even when installing the product.

- To avoid vibration or noise.

Do not install the product where the noise or hot air from the outdoor unit could damage or disturb the neighborhoods.

- It may cause a problem for your neighbors and hence dispute.

Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.

Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigeration system.

- There is risk of damage or loss of property.

Do not block the inlet or outlet of air flow.

- It may cause product failure.

Use a soft cloth to clean. Do not use harsh detergents, solvents or splashing water etc .

- There is risk of fire, electric shock, or damage to the plastic parts of the product.

Do not touch the metal parts of the product when removing the air filter.

- There is risk of personal injury.

Do not step on or put anything on the product. (outdoor units)

- There is risk of personal injury and failure of product.

Always insert the filter securely after cleaning. Clean the filter every two weeks or more often if necessary.

- A dirty filter reduces the efficiency.

Do not insert hands or other objects through the air inlet or outlet while the product is operating.

- There are sharp and moving parts that could cause personal injury.

Be cautious when unpacking and installing the product.

- Sharp edges could cause injury.

If the refrigerant gas leaks during the repair, do not touch the leaking refrigerant gas.

- The refrigerant gas can cause frostbite (cold burn)

Do not tilt the unit when removing or uninstalling it.

- The condensed water inside can spill .

Do not mix air or gas other than the specified refrigerant used in the system .

- If air enters the refrigerant system, an excessively high pressure results, causing equipment damage or injury.

If the refrigerant gas leaks during the installation, ventilate the area immediately.

- Otherwise it can be harmful for your health.

Dismantling the unit, treatment of the refrigerant oil and eventual parts should be done in accordance with local and national standards. Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.

- There is risk of fire or product failure.

Do not recharge or disassemble the batteries. Do not dispose off batteries in a fire.

- They may burn or explode.

If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote if the batteries have leaked.

- The chemicals in batteries could cause burns or other health hazards.

If you eat the liquid from the batteries, brush your teeth and see doctor. Do not use the remote if the batteries have leaked.

- The chemicals in batteries could cause burns or other health hazards.

Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.

- Moisture may condense and wet or damage furniture.

Do not expose your skin or kids or plants to the cool or hot air draft.

- This could harm to your health.

Do not drink the water drained from the product.

- It is not sanitary and could cause serious health issues.

Use a firm stool or ladder when cleaning, maintaining or repairing the product at an height.

- Be careful and avoid personal injury.

Introduction

Symbols used in this Manual



This symbol alerts you to the risk of electric shock.



This symbol alerts you to hazards that may cause harm to the air conditioner.

NOTICE

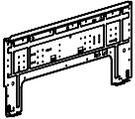
This symbol indicates special notes.

The figure of product can be different according to the type of model.

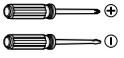
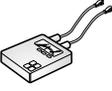
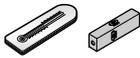
Installation

Read carefully, and then follow step by step.

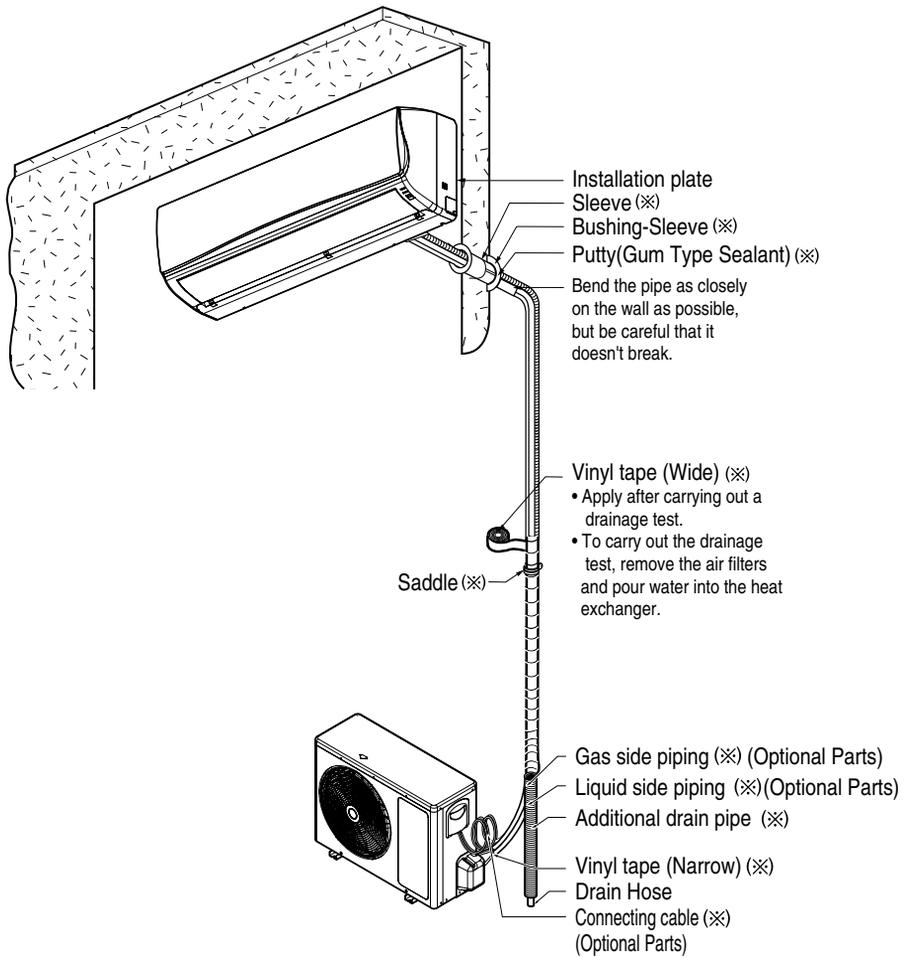
Installation Parts

<p>Installation plate</p>  <p>The feature can be changed according a type of model.</p>		<p>Type "A" screw</p> 
<p>Type "B" screw</p> 	<p>Type "C" screw</p> 	<p>Remote control holder</p> 

Installation Tools

Figure	Name	Figure	Name
	Screw driver		Multi-meter
	Electric drill		Hexagonal wrench
	Measuring tape, Knife		Ammeter
	Hole core drill		Gas-leak detector
	Spanner		Thermometer, Level
	Torque wrench		Flaring tool set

Installation Map



- The feature can be changed according a type of model.

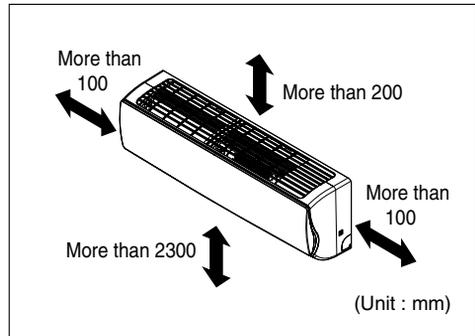
NOTICE

(※) You should purchase the installation parts.

Select the best Location

Indoor unit

1. There should not be any heat or steam near the unit.
2. Select a place where there are no obstacles around of the unit.
3. Make sure that condensation drainage can be conveniently routed away.
4. Do not install near a doorway.
5. Ensure that the interval between a wall and the left (or right) of the unit is more than 100mm. The unit should be installed as high as possible on the wall, allowing a minimum of 200mm from ceiling.
6. Use a metal detector to locate studs to prevent unnecessary damage to the wall.

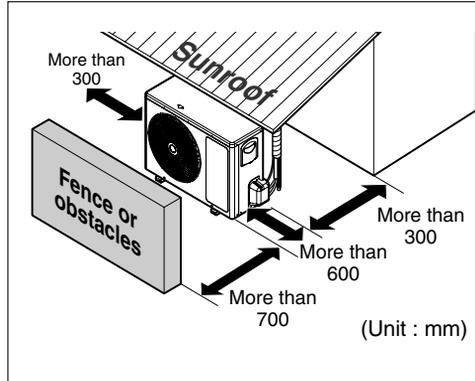


⚠ CAUTION

Install the indoor unit on the wall where the height from the floor is more than 2300mm.

Outdoor unit

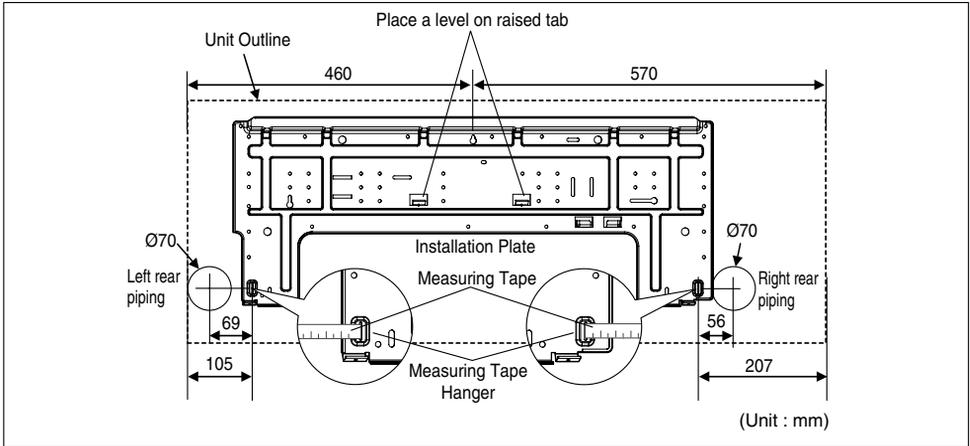
1. If an awning is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
2. Ensure that the space around the back and sides is more than 300mm. The space in front of the unit should be more than 700mm of space.
3. Do not place animals and plants in the path of the warm air.
4. Take the weight of the air conditioner into account and select a place where noise and vibration are minimum.
5. Select a place where the warm air and noise from the air conditioner do not disturb neighbors.



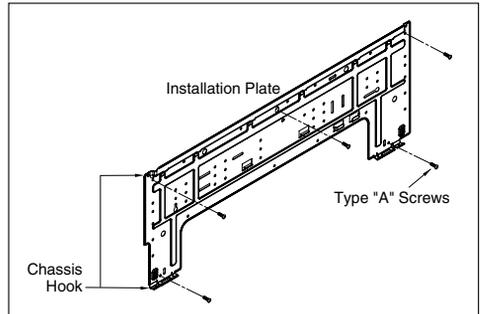
Indoor unit

Fixing Installation Plate

1. Measure the wall and mark the centerline. It is also important to use caution concerning the location of the installation plate. Routing of the wiring to power outlets is through the walls typically. Drilling the hole through the wall for piping connections must be done safely.

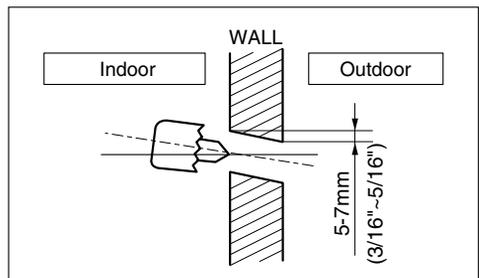


2. The wall you select should be strong and solid enough to prevent vibration
 - Mount the installation plate on the wall with type "A" screws. If mounting the unit on a concrete wall, use anchor bolts.
 - Mount the installation plate horizontally by aligning the centerline using Horizontal meter .



Drill a Hole in the Wall

- Drill the piping hole with a $\varnothing 70$ mm hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.

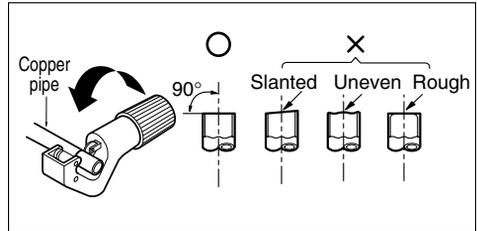


Flaring Work

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

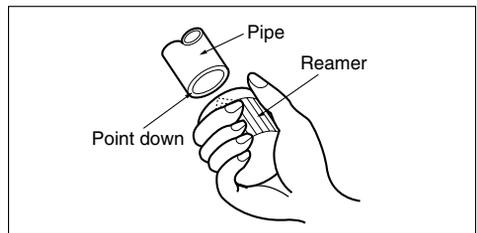
Cut the pipes and the cable.

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



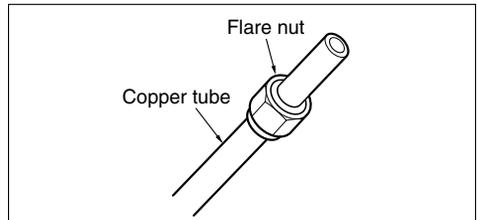
Burrs removal

1. Completely remove all burrs from the cut cross section of pipe/tube.
2. While removing burrs put the end of the copper tube/pipe in a downward direction while removing burrs location is also changed in order to avoid dropping burrs into the tubing.



Putting nut on

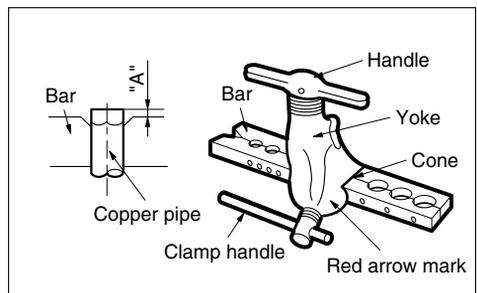
- Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.
(not possible to put them on after finishing flare work)



Flaring work

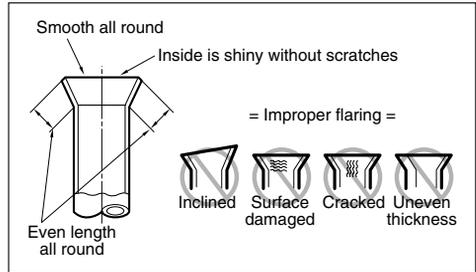
1. Firmly hold copper pipe in a bar with the dimension shown in below table below.
2. Carry out flaring work with the flaring tool.

Outside diameter		A
mm	inch	mm
Ø6.35	1/4	1.1~1.3
Ø9.52	3/8	1.5~1.7
Ø12.7	1/2	1.6~1.8
Ø15.88	5/8	1.6~1.8
Ø19.05	3/4	1.9~2.1



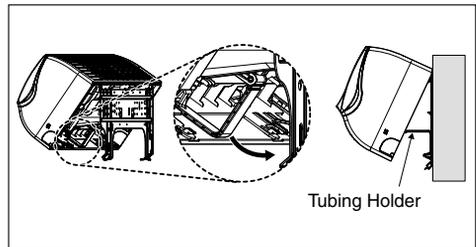
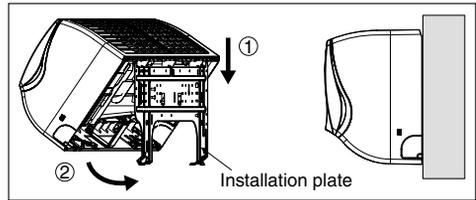
Check

1. Compare the flared work with the figure by.
2. If a flared section is defective, cut it off and do flaring work again.



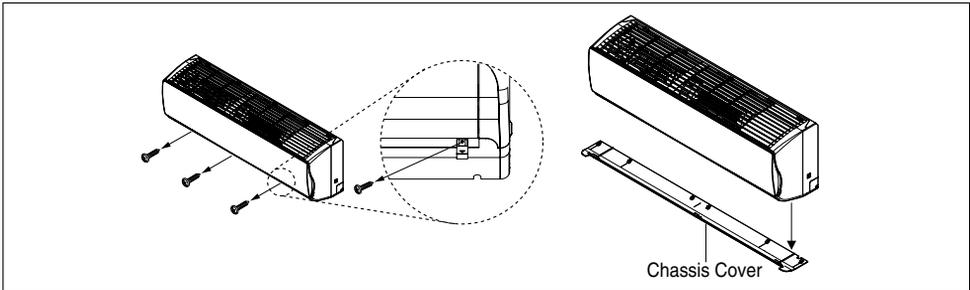
Installation of Indoor Unit

1. Hook the indoor unit onto the upper portion of the installation plate. (engage the three hooks at the 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
2. Unlock the tubing holder from the chassis and mount between the chassis and installation plate in order to separate the bottom side of the indoor unit from the wall

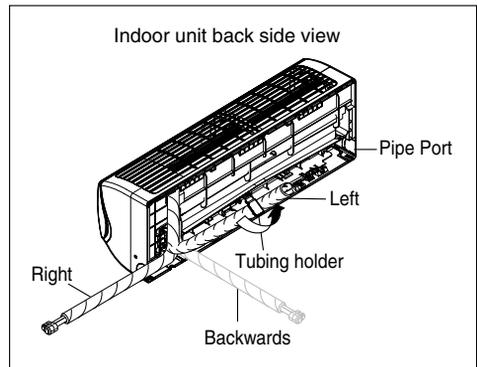


Connecting the Piping

- (1) Pull the screw cap at the bottom of the indoor unit
- (2) Remove the chassis cover from the unit by loosening 3 screws
(Be careful not to scratch Horizontal Vane Main!)



- (3) Pull back the tubing holder.
- (4) Remove pipe port cover and position the tubing.

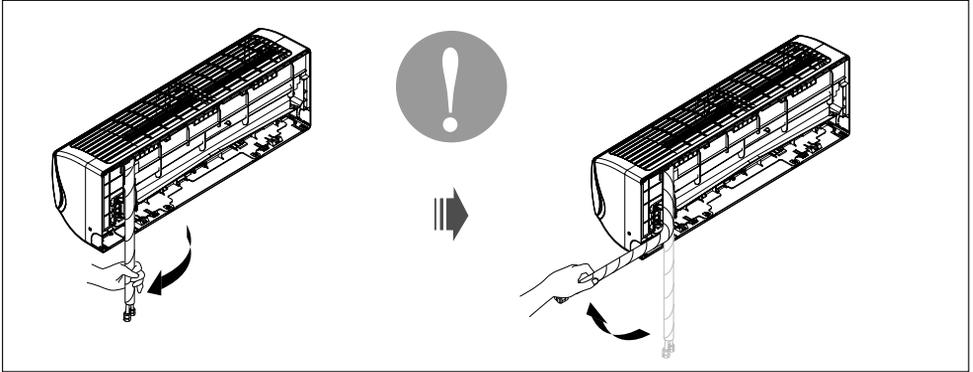


⚠ CAUTION

Installation Information. For right piping. Follow the instruction below.

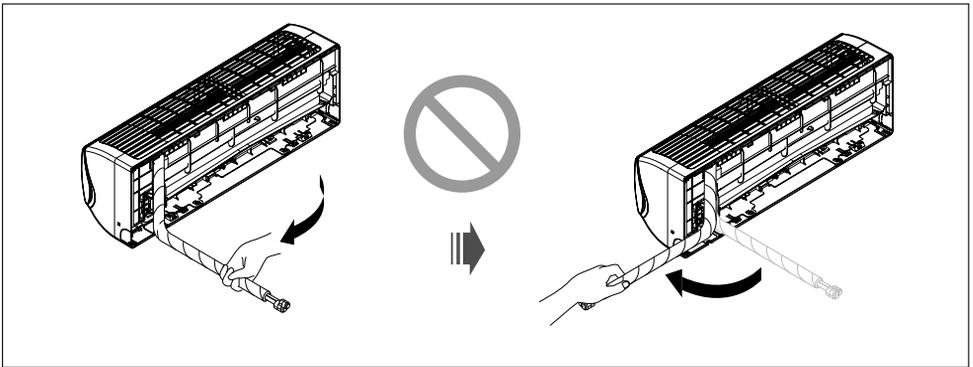
Good case

- Press on the tubing cover and unfold the tubing to downward slowly. And then bend to the left side slowly.



Bad case

- Following bending case from right to left directly may cause damage to the tubing.



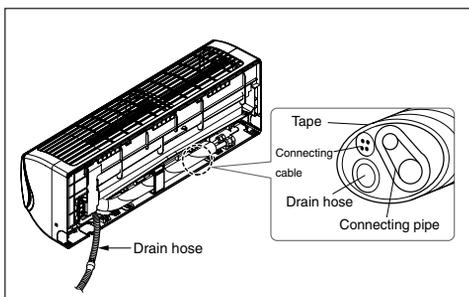
3. Tape the tubing pipe, drain hose and the connection cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause overflow from the drain pan through the inside of the unit.

⚠ CAUTION

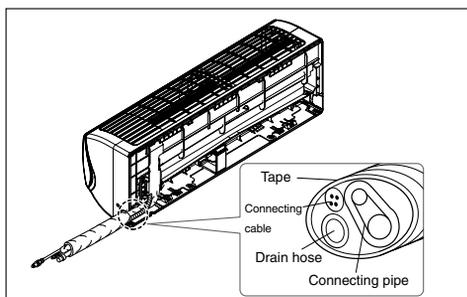
If the drain hose is routed inside the room insulate the hose with an insulation material* so that dripping from sweating (condensation) will not damage furniture or floors.

* Foamed polyethylene or equivalent is recommended.

<Left side piping>

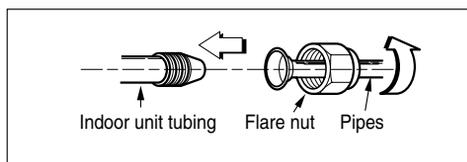


<Right side piping>



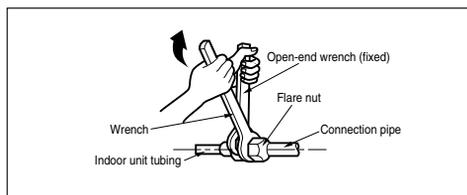
Connecting the installation pipe and drain hose to the indoor unit.

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

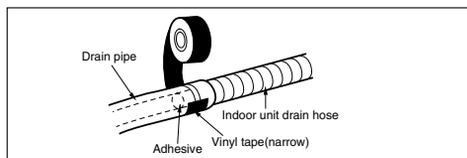


2. Tighten the flare nut with a wrench

Outside diameter		Torque
mm	inch	kgf-m
Ø6.35	1/4	1.8~2.5
Ø9.52	3/8	3.4~4.2
Ø12.7	1/2	5.5~6.5
Ø15.88	5/8	6.3~8.2
Ø19.05	3/4	9.9~12.1

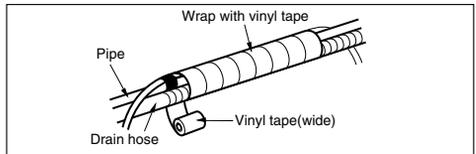
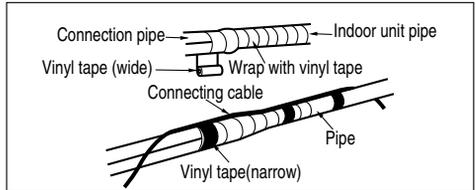
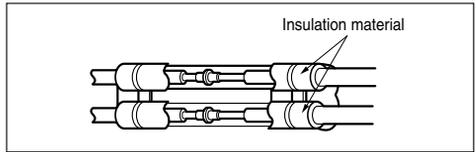


3. When needed to extend the drain hose of indoor unit, assembly the drain pipe as shown on the drawing



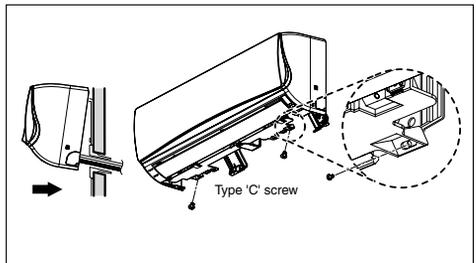
Wrap the insulation material around the connecting portion.

1. Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there may be no gap.
2. Wrap the area which accommodates the rear piping housing section with vinyl tape.
3. Bundle the piping and drain hose together by wrapping them with vinyl tape sufficient enough to cover where they fit into the rear piping housing section.



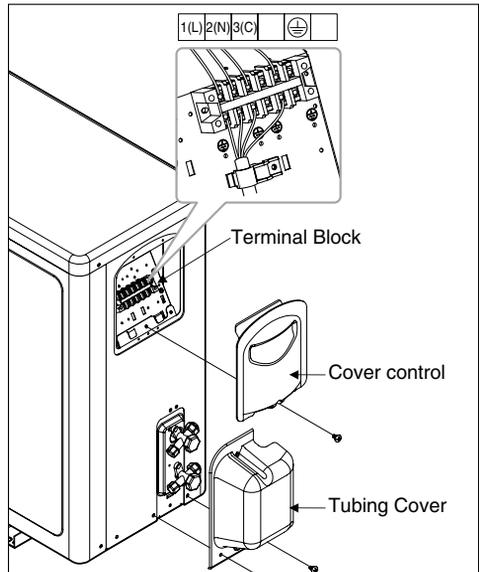
Finishing the indoor unit installation

1. Mount the tubing holder in the original position.
2. Ensure that the hooks are properly seated on the installation plate by moving it left and right.
3. Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots (clicking sound).
4. Finish the assembly by screwing the unit to the installation plate by using two pieces of type "C" screws. And assemble a chassis cover.

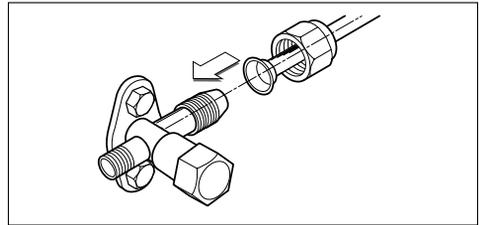


Outdoor unit

1. Remove the tubing cover from the unit by loosening the screw.

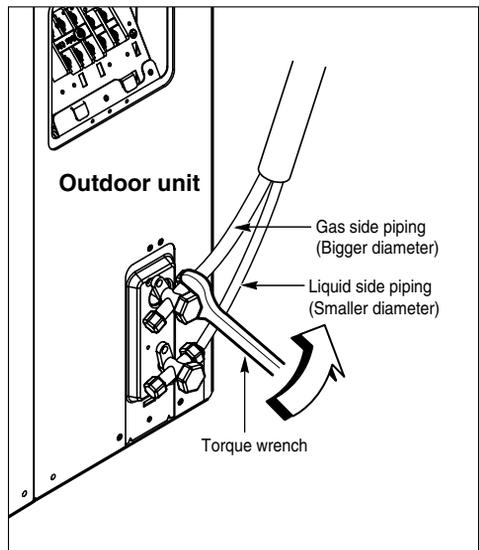


2. Align the center of the pipings and sufficiently tighten the flare nut by hand.



3. 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.

Outside diameter		Torque
mm	inch	kgf.m
Ø6.35	1/4	1.8~2.5
Ø9.52	3/8	3.4~4.2
Ø12.7	1/2	5.5~6.5
Ø15.88	5/8	6.3~8.2
Ø19.05	3/4	9.9~12.1



Connecting the Cables

Indoor unit

Connect the cable to the indoor unit by connecting the wires to the terminals on the control board individually 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.)

⚠ CAUTION

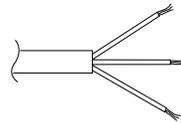
- The circuit diagram is a subject to change without notice.
- The earth wire should be longer than the common wires.
- When installing, refer to the circuit diagram on the chassis cover.
- Connect the wires firmly so that they may not be pulled out easily.
- Connect the wires according to color codes, referring to the wiring diagram.

⚠ CAUTION

The power cord connected to the unit should be selected according to the following specifications (Type "B" approved by HAR or SAA).

(mm²)

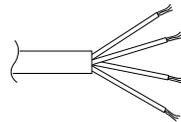
NORMAL CROSS - SECTIONAL AREA	Grade	
	18k	22k, 24k, 28k
	1.5	2.5
Unit(A)	Indoor	Indoor
Cable Type(B)	H05VV-F	H05VV-F



The power connecting cable connecting the indoor and outdoor unit should be selected according to the following specifications (Type "B" approved by HAR or SAA).

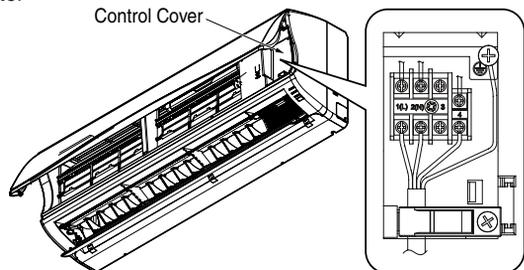
(mm²)

NORMAL CROSS - SECTIONAL AREA	Grade	
	18k	22k, 24k, 28k
	1.5	2.5
Cable Type(B)	H07RN-F	H07RN-F



Insert the connecting cable through the bottom side of indoor unit and connect the cable (You can see detail contents in 'Connecting the cables' section)

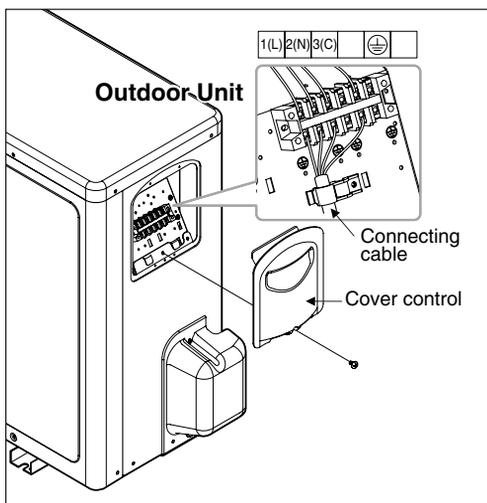
- (1) Open the Front Grille
- (2) Support the Front Grille with supporter
- (3) Open the Control Cover
- (4) Connect the connecting cable



Outdoor unit

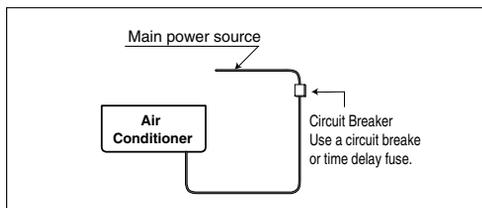
1. Connect the wires to the terminals on the control board individually.
2. Secure the cable onto the control board with the cord clamp.
3. Use a recognized circuit breaker between the power source and the unit.
A disconnecting device to adequately disconnect all supply lines must be fitted.

Circuit Breaker(A)	Grade	
	18k	22k, 24k, 28k
20	30	



⚠ CAUTION

Provide the circuit breaker between power source and the unit as shown by



⚠ CAUTION

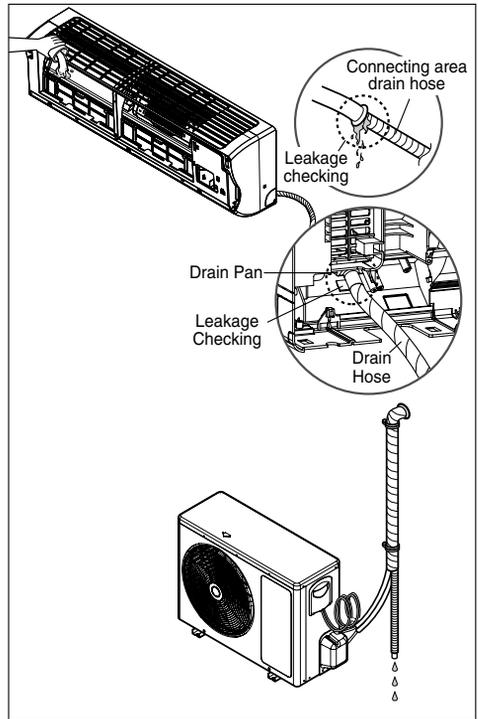
According to the confirmation of the above conditions, prepare the wiring as follows.

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 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.

Checking the Drainage

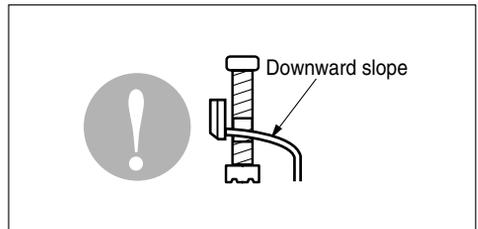
To check the drainage.

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

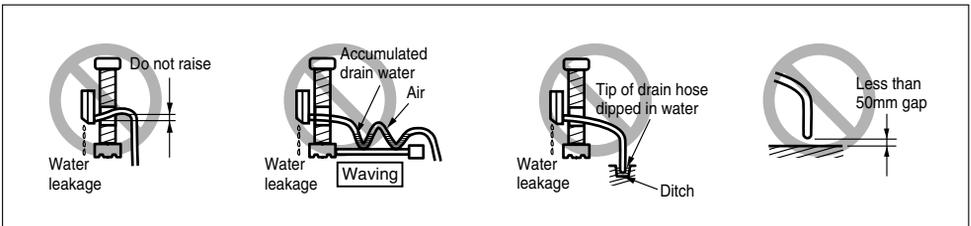


Drain piping

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



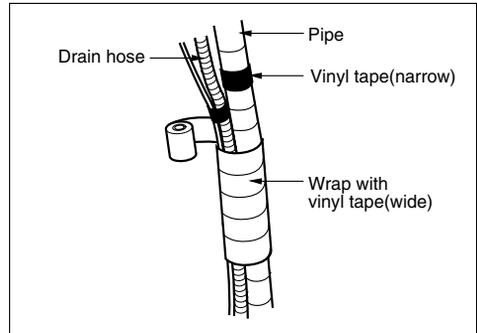
2. Do not make drain piping like the following.



Forming the Piping

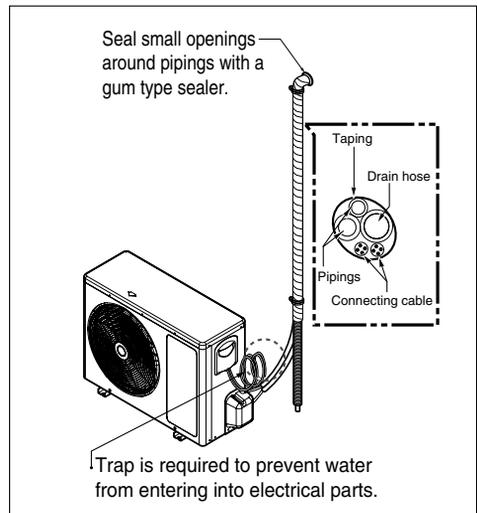
Form the piping by wrapping the connecting portion of the indoor unit with insulation material and secure it with two kinds of vinyl tapes.

- If you want to connect an additional drain hose, the end of the drain outlet should be routed above the ground. Secure the drain hose appropriately.



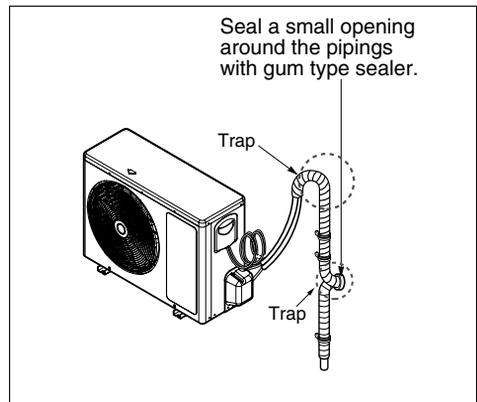
In cases where the outdoor unit is installed below the indoor unit perform the following.

1. Tape the piping, drain hose and connecting cable from down to up.
2. Secure the taped piping along the exterior wall using saddle or equivalent.



In cases where the Outdoor unit is installed above the Indoor unit perform the following.

1. Tape the piping and connecting cable from down to up.
2. Secure the taped piping along the exterior wall. Form a trap to prevent water entering the room.
3. Fix the piping onto the wall using saddle or equivalent.



Air Purging

The air and moisture remaining in the refrigerant system have undesirable effects as indicated below.

1. Pressure in the system rises.
2. Operating current rises.
3. Cooling(or heating) efficiency drops.
4. Moisture in the refrigerant circuit may freeze and block capillary tubing.
5. Water may lead to corrosion of parts in the refrigeration system.

Therefore, after evacuating the system, take a leak test for the piping and tubing between the indoor and outdoor unit.

Air purging with vacuum pump

1. Preparation

- Check that each tube(both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Note that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

2. Leak test

- Connect the manifold valve(with pressure gauges) and dry nitrogen gas cylinder to this service port with charge hoses.

▲ CAUTION

Be sure to use a manifold valve for air purging. If it is not available, use a stop valve for this purpose. The knob of the 3-way valve must always be kept close.

- Pressurize the system to not more than 150 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reaches 150 P.S.I.G. Next, test for leaks with liquid soap.

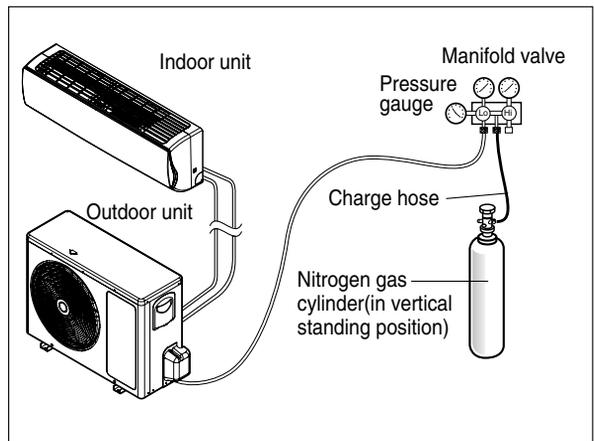
▲ CAUTION

To avoid nitrogen entering the refrigerant system in a liquid state, the top of the cylinder must be higher than its bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.

1. Do a leak test of all joints of the tubing(both indoor and outdoor) and both gas and liquid side service valves.

Bubbles indicate a leak. Be sure to wipe off the soap with a clean cloth.

2. After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder.



Soap water method

1. Remove the caps from the 2-way and 3-way valves.
2. Remove the service-port cap from the 3-way valve.
3. Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping.
4. If bubbles come out, the pipes have leakage

Evacuation

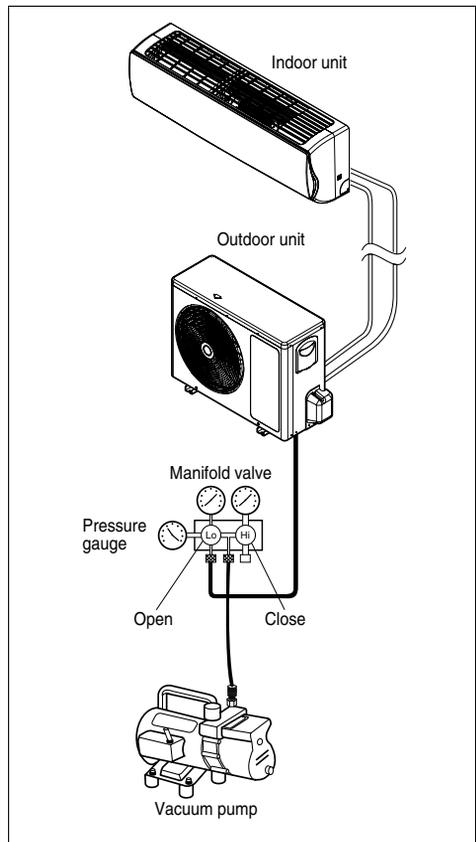
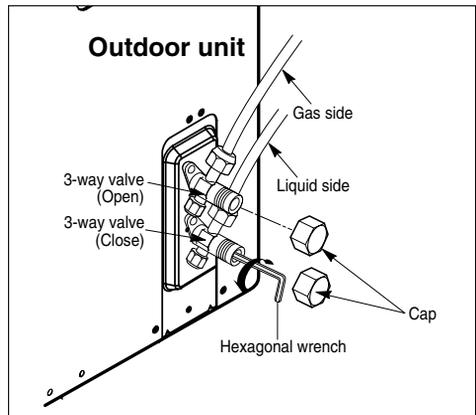
1. Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit. Confirm the "Lo" knob of the pressure Gauge is open. Then, run the vacuum pump. The operation time for evacuation varies with tubing length and capacity of the pump. The following table shows the time required for evacuation.

Required time for evacuation when 30 gal/h vacuum pump is used	
If tubing length is less than 10m (33 ft)	If tubing length is longer than 10m (33 ft)
10 min. or more	15 min. or more

2. When the desired vacuum is reached, close the knob of the 3-way valve and stop the vacuum pump.

Finishing the Job

1. With a service valve wrench, turn the valve of liquid side counter-clockwise to fully open the valve
2. Turn the valve of gas side counter clockwise to fully open the valve
3. Loosen the charge hose connected to the gas side service port slightly to release the pressure, then remove the hose.
4. Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench. This process is very important to prevent leakage from the system
5. Replace the valve caps at both gas and liquid side service valves and fasten them tight. This completes air purging with a vacuum pump.



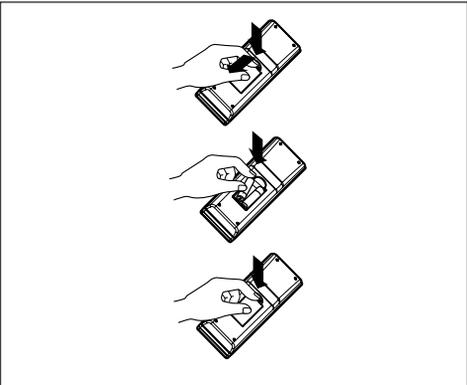
6. Replace the pipe cover to the outdoor unit by one screw
Now the air conditioner is ready for test run.

Test Running

1. Check that all tubing and wiring are properly connected.
2. Check that the gas and liquid side service valves are fully open.

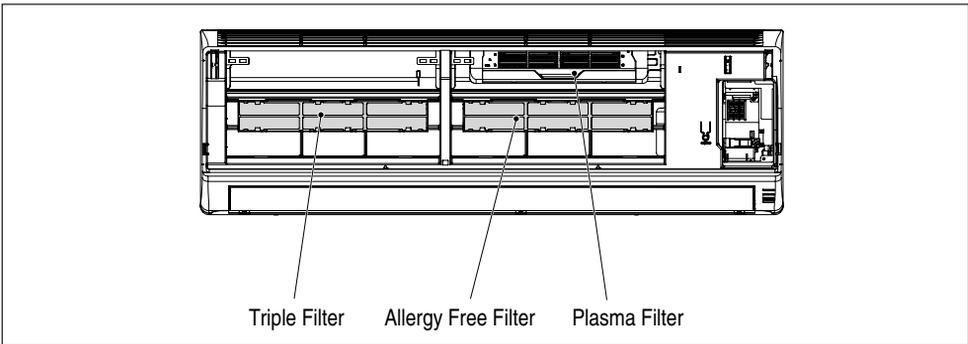
Prepare remote controller

1. Remove the battery cover by pulling it according to the arrow direction.
2. Insert new batteries making sure that the (+) and (-) of battery are installed correctly.
3. Reattach the cover by pushing it back into position.



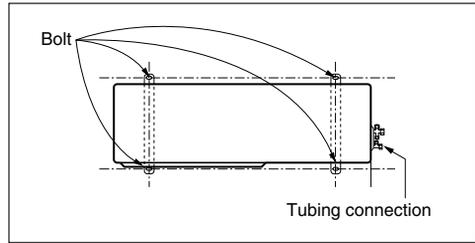
NOTICE

- Use 2 AAA(1.5volt) batteries. Do not use rechargeable batteries.
 - Remove the batteries from the remote controller if the system is not used for a long time.
-
- Rational type
 1. Pull out the triple filter and allergy free filter from the separately packed plastic bag.
 2. Insert the triple filter into the left case and insert the allergy free filter into the right case.
 3. Detach two nitto tapes from the plasma filter.



Settlement of outdoor unit

1. Fix the outdoor unit with a bolt and nut($\phi 10\text{mm}$) tightly and horizontally on a concrete or rigid mount.
2. 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.
3. If the vibration of the unit is transmitted to the pipe, secure the unit with an anti-vibration rubber.

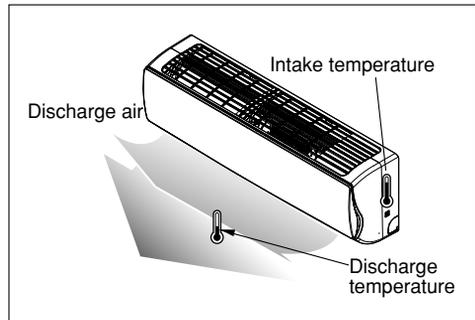


Evaluation of the performance

Operate the unit for 15~20 minutes, then check the system refrigerant charge:

1. Measure the pressure of the gas side service valve.
2. Measure the air temperature from inlet and outlet of air conditioner.
3. Ensure the difference between the inlet and outlet temperature is more than 8°C .
4. For reference; the gas side pressure at optimum condition is shown on table (cooling)

The air conditioner is now ready to use.



Refrigerant	Outside ambient TEMP.	The pressure of the gas side
R-410A	35°C (95°F)	$8.5\text{--}9.5\text{kg/cm}^2\text{G}$ ($120\text{--}135\text{ P.S.I.G.}$)

NOTICE

If the actual pressure is higher than shown, the system is most likely over-charged, and charge should be removed. If the actual pressure are lower than shown, the system is most likely undercharged, and charge should be added.

PUMP DOWN

This is performed when the unit is relocated or the refrigerant circuit is serviced.

Pump Down means collecting all refrigerant into the outdoor unit without the loss of refrigerant.

CAUTION

Be sure to perform Pump Down procedure in the cooling mode.

Pump Down Procedure

1. Connect a low-pressure gauge manifold hose to the charge port on the gas side service valve.
2. Open the gas side service valve halfway and purge the air in the manifold hose using the refrigerant.
3. Close the liquid side service valve(all the way).
4. Turn on the unit's operating switch and start the cooling operation.
5. When the low-pressure gauge reading becomes 1 to $0.5\text{kg/cm}^2\text{ G}$ (14.2 to 7.1 P.S.I.G.), fully close the gas side valve and then quickly turn off the unit. Now Pump Down procedure is completed, and all refrigerant is collected into the outdoor unit.

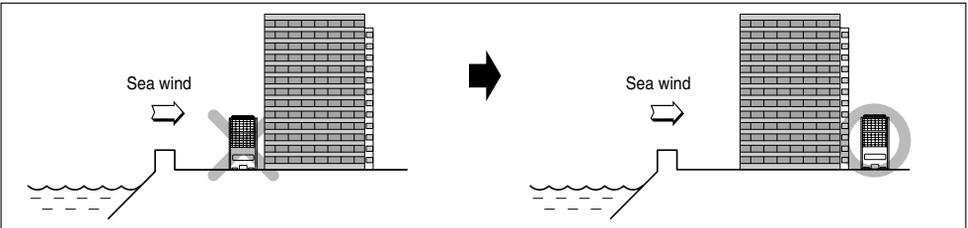
Installation guide at the seaside

⚠ CAUTION

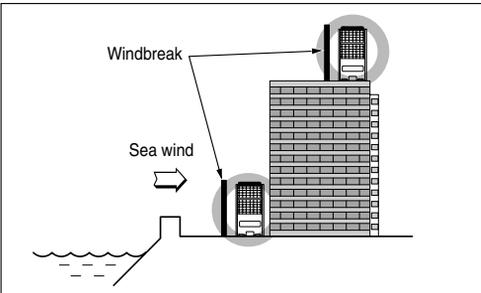
1. Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
2. Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient performance.
3. If outdoor unit is installed close to the seaside, it should avoid direct exposure to the sea wind. Otherwise it needs additional anticorrosion treatment on the heat exchanger.

Selecting the location(Outdoor Unit)

- 1) If the outdoor unit is to be installed close to the seaside, then direct exposure to the sea wind should be avoided. Install the outdoor unit on the opposite side of the sea wind direction.



- 2) In case of installing the outdoor unit on the sea side, setup a windbreak to prevent sea wind.



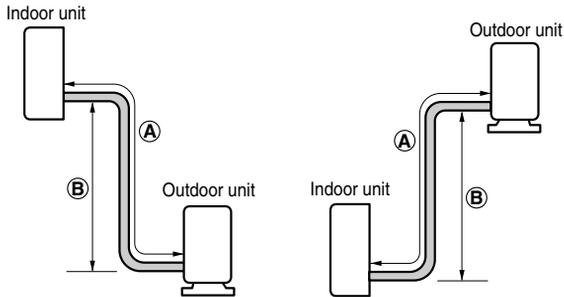
- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150% of the outdoor unit.
- Keep more than 70 cm of space between outdoor unit and the windbreak for easy air flow.

- 3) Select a well-drained place.

1. If you can't meet above guide line in the seaside installation, please contact LG Electronics for the additional anticorrosion treatment.
2. Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water

Piping Length and Elevation

Capacity (Btu)	Pipe Size				Standard Length (m)	Max. Elevation Ⓑ (m)	Max. Length Ⓐ (m)	Additional Refrigerant (g/m)
	GAS		LIQUID					
	mm	inch	mm	inch				
18k	Ø12.7	1/2	Ø6.35	1/4	7.5	15	20	20
22k, 24k, 28k	Ø15.88	5/8	Ø9.52	3/8	7.5	15	30	35



⚠ CAUTION

Capacity is based on standard length and maximum allowable length is on the basis of reliability. Additional refrigerant must be charged after 7.5m.

