

INSTALLATION MANUAL AIR CONDITIONER

TYPE : WALL MOUNTED



P/No: MFL67647124



TIPS FOR SAVING ENERGY

Here are some tips that will help you minimize power consumption when you use your air conditioner.

- Do not cool excessively indoors. This may be harmful for your health and may consume more electricity.
- Block sunlight with blinds or curtains while you are operating the air conditioner.
- Keep doors or windows closed tightly while you are operating the air conditioner.
- Adjust the direction of the air flow vertically or horizontally to circulate indoor air.
- Speed up the fan to cool indoor air quickly.
- Open windows regularly for ventilation as the indoor air quality may deteriorate if the air conditioner is used for many hours.
- Clean the air filter once every 2 weeks. Dust and impurities collected in the air filter may block the air flow or weaken the cooling / dehumidifying functions.

For your records

Staple your receipt to this page in case you need it to prove the date of purchase or for warranty purposes. Write the model number and the serial number here:

Model number :
Serial number :
You can find them on a label on the side of each unit.
Dealer's name :
Date of purchase :

IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and to ensure peak performance of your product.

WARNING

It can result in serious injury or death when the directions are ignored.

CAUTION

It can result in minor injury or product damage when the directions are ignored.

WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Air conditioner shall be installed in accordance with national wiring regulations.
- If the power cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.
- Failure to read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

Installation

- Always perform grounding.
- Otherwise, it may cause electrical shock.
- Don't use a power cord, a plug or a loose socket which is damaged.
- Otherwise, it may cause a fire or electrical shock.
- For installation of the product, always contact the service center or a professional installation agency.
- Otherwise, it may cause a fire, electrical shock, explosion or injury.
- Securely attach the electrical part cover to the indoor unit and the service panel to the outdoor unit.
- If the electrical part cover of the indoor unit and the service panel of the outdoor unit are not attached securely, it could result in a fire or electrical shock due to dust, water, etc.
- Always install an earth leakage circuit breaker and a dedicated switching board.
- No installation may be made in a downward direction while removing burrs location is also changed in order to avoid dropping burrs into the tubing.
- Do not keep or use flammable gases or combustibles near the air conditioner.
- Otherwise, it may cause a fire or the failure of product.
- Ensure that an installation frame of the outdoor unit is not damaged due to use for a long time.
- It may cause injury or an accident.
- Do not disassemble or repair the product randomly.
- It will cause a fire or electrical shock.
- Do not install the product at a place that there is concern of falling down.
- Otherwise, it may result in personal injury.
- Use caution when unpacking and installing.
- Sharp edges may cause injury.

- Thickness of copper pipes used are as shown "Flaring work" Table.
- Never use copper pipes thinner than that in the table even when it is available on the market.
- Do not use copper pipes having a collapsed.
- Otherwise, the expansion valve or capillary tube may become blocked with contaminants.
- For R410A model, use piping, flare nut and tools which is specified for R410A refrigerant.
- Using of (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury.
- It is desirable that the amount of residual oil less than 40 mg/10m.
- Do not turn on the breaker or power under condition that front panel, cabinet, top cover, and control box cover are removed or opened.
- Otherwise, it may cause fire, electric shock, explosion or death.
- If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit when the refrigerant leaks.
- Consult the dealer regarding the appropriate measures to prevent the safety limit from being exceeded. Should the refrigerant leak and cause the safety limit to be exceeded, hazards due to lack of oxygen in the room could result.
- Use a vacuum pump or inert (nitrogen) gas when doing leakage test or air purge. Do not compress air or oxygen and do not use flammable gases.
- Otherwise, it may cause fire or explosion. There is the risk of death, injury, fire or explosion.

Operation

- Do not share the outlet with other appliances.
- It will cause an electric shock or a fire due to heat generation.
- Do not use the damaged power cord.
- Otherwise, it may cause a fire or electrical shock.
- Do not modify or extend the power cable.
- Scratches or peeling insulation on the power cables may result in fire or electric shock, and should be replaced.
- Take care so that the power cord may not be pulled during operation.
- Otherwise, it may cause a fire or electrical shock.
- Unplug the unit if strange sounds, smell, or smoke comes from it.
- Otherwise, it may cause electrical shock or a fire.
- Keep the flames away.
- Otherwise, it may cause a fire.
- Take the power plug out if necessary, holding the head of the plug and do not touch it with wet hands.
- Otherwise, it may cause a fire or electrical shock.

- Do not use the power cord near the heating tools.
- Otherwise, it may cause a fire and electrical shock.
- Do not open the suction inlet of the indoor/outdoor unit during operation.
- Otherwise, it may cause electrical shock and failure.
- Do not allow water to run into electrical parts.
- Otherwise, it may cause the failure of machine or electrical shock.
- Hold the plug by the head when taking it out.
- It may cause electric shock and damage.
- Never touch the metal parts of the unit when removing the filter.
- They are sharp and may cause injury.
- Do not step on the indoor/outdoor unit and do not put anything on it.
- It may cause an injury through dropping of the unit or falling down.
- Do not place a heavy object on the power cord.
- Otherwise, it may cause a fire or electrical shock.
- When the product is submerged into water, always contact the service center.
- Otherwise, it may cause a fire or electrical shock.
- Take care so that children may not step on the outdoor unit.
- Otherwise, children may be seriously injured due to falling down.

CAUTION

Installation

- Install the drain hose to ensure that drain can be securely done.
- Otherwise, it may cause water leakage.
- Install the product so that the noise or hot wind from the outdoor unit may not cause any damage to the neighbors.
- Otherwise, it may cause dispute with the neighbors.
- Always inspect gas leakage after the installation and repair of product.
- Otherwise, it may cause the failure of product.
- Keep level parallel in installing the product.
- Otherwise, it may cause vibration or water leakage.

Operation

- Avoid excessive cooling and perform ventilation sometimes.
- Otherwise, it may do harm to your health.
- Use a soft cloth to clean. Do not use wax, thinner, or a strong detergent.
- The appearance of the air conditioner may deteriorate, change color, or develop surface flaws.
- Do not use an appliance for special purposes such as preserving animals, vegetables, precision machine, or art articles.
- Otherwise, it may damage your properties.
- Do not place obstacles around the flow inlet or outlet.
- Otherwise, it may cause the failure of appliance or an accident.

* Features may change according to the type of model.

INSTALLATION PARTS

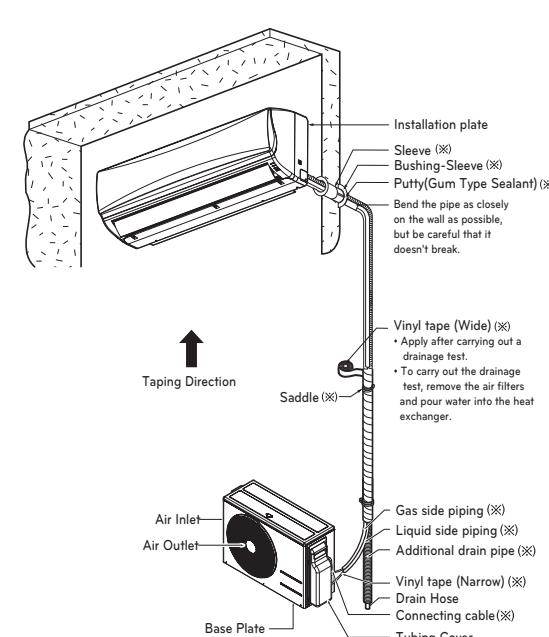
Name	Quantity	Shape
Installation plate	1 EA	
Type "A" screw	5 EA	
Type "B" screw	2 EA	
Type "C" screw	2 EA	
Type "D" screw	2 EA	
Remote control holder	1 EA	Type "B" screw
Bracket	1 EA	

* The features may change according to the type of model.
Screws for fixing panels are attached to decoration panel.

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 to the type of model.

NOTE

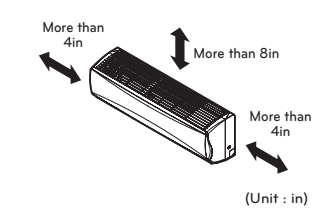
- You should purchase the installation parts.

INSTALLATION

Select the best Location

Indoor unit

- There should not be any heat or steam near the unit.
- Select a place where there are no obstacles around the unit.
- Make sure that condensation drainage can be conveniently routed away.
- Do not install near a doorway.
- Ensure that the gap between a wall and the left or right of the unit is more than 4in. The unit should be installed as high as possible on the wall, allowing a minimum of 8in from ceiling.
- Use a metal detector to locate studs to prevent unnecessary damage to the wall.



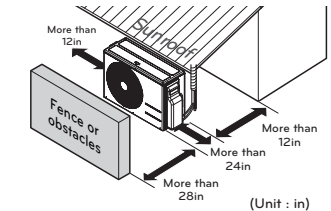
- * Recommended height 6.5ft from the floor.
- * Features may change according to the type of model.

NOTE

- Remove obstructions to prevent blockage of airflow path.

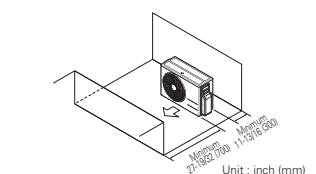
Outdoor unit

- 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.
- Ensure that the space around the back side and other sides is more than 12in. The space in front of the unit should be more than 28in.
- Do not place animals and plants in the path of the warm air.
- Take the weight of the air conditioner into account and select a place where noise and vibration are minimum.
- Select a place where the warm air and noise from the air conditioner do not disturb neighbors.

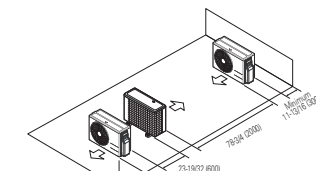


Outdoor Unit Service Access and Allowable Clearances

- Where there are obstacles on both suction and discharge sides (discharge side obstacle is lower than the outdoor unit).



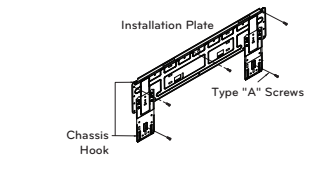
- Where there are obstacles above, and on both suction and discharge sides (discharge side obstacle is lower than the outdoor unit).



Fixing Installation Plate

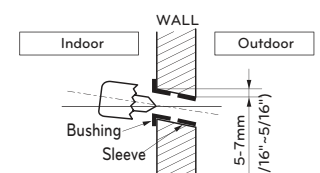
The wall you select should be strong and solid enough to prevent vibration.

- 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 ø85mm hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.



CAUTION

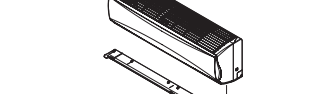
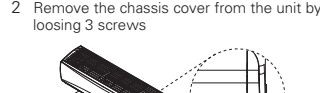
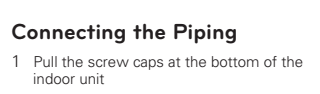
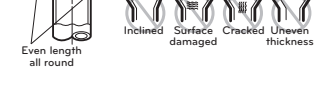
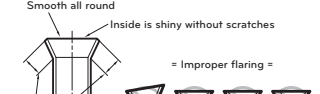
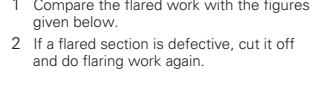
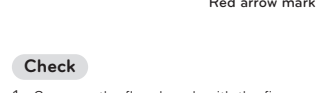
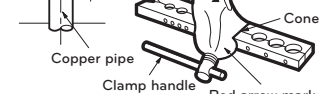
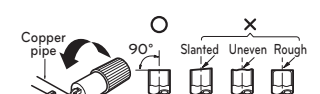
- Use the sleeve to prevent damage for tube assembly.

Flaring Work

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

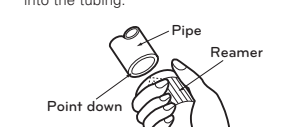
Cut the pipes and the cable

- Use the piping kit accessory 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 (4.9 ft) longer than the pipe length.



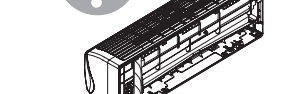
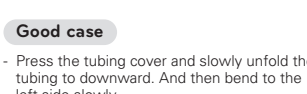
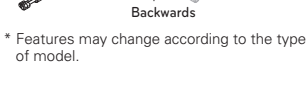
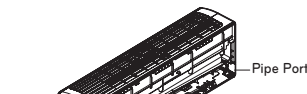
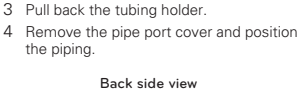
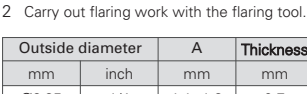
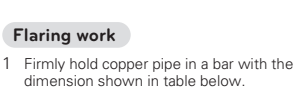
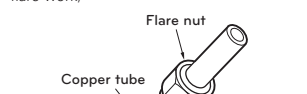
Burrs removal

- Completely remove all burrs from the cut cross section of pipe/tube.
- 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.



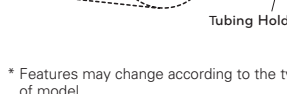
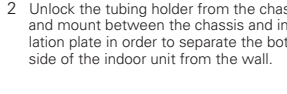
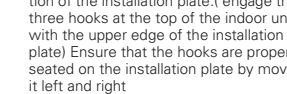
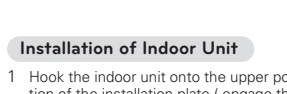
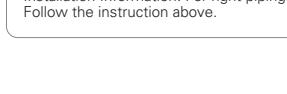
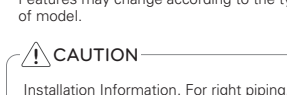
Putting nut on

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



Bad case

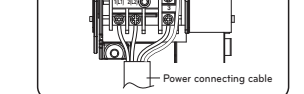
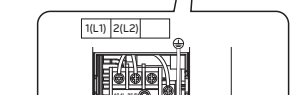
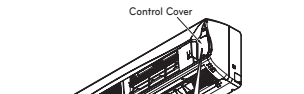
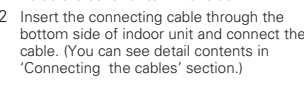
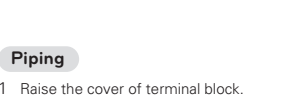
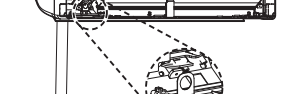
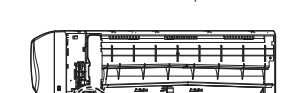
- Following bending case from right to left directly may cause damage to the tubing.

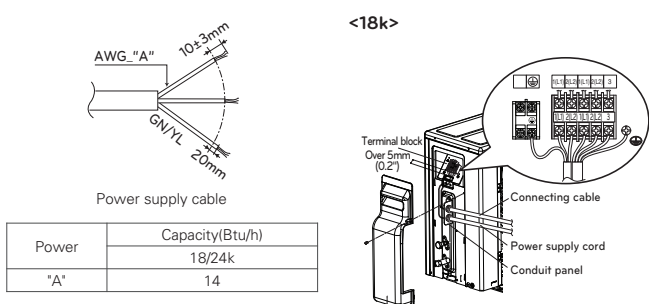


CAUTION

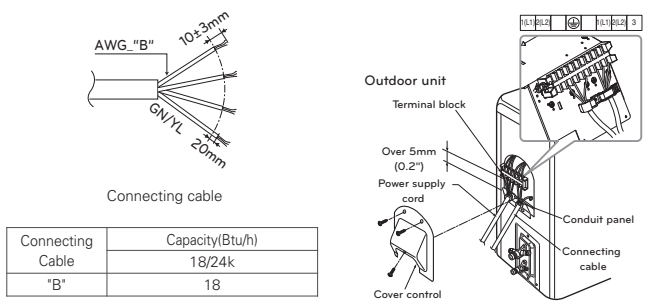
- Secure the pipe by using the tubing cover.
- Do not strongly press the refrigerant pipes onto the bottom frame.
- Do not strongly press the refrigerant pipes on the front grille, either.

- Before bending the tubing, set the conduit like picture below by using the bracket and black screws from accessory kit.





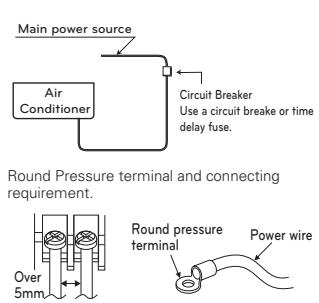
The power connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (UL recognized or CSA certified).



Outdoor unit

- Connect the wires to the terminals on the control board individually.
- Secure the cable onto the control board with the cord clamp.
- 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)	Capacity(Btu/h)
18/24k	20



CAUTION

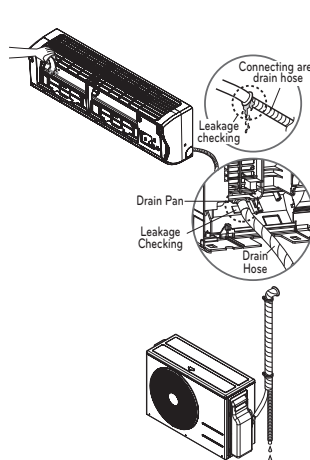
According to the confirmation of the above conditions, prepare the wiring as follows.

- 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.
- The screw which fastens the wiring in the casing of electrical fittings are liable to become loose from vibrations to which the unit is subjected during the transportation. Check them and make sure that they are all are tightly fastened. (If they are loose, it could cause burn-out of the wires.)
- Specification of power source.
- Confirm that electrical capacity is sufficient.
- See that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- Confirm that the cable thickness is as specified in the power source specification. (Particularly note the relation between cable length and thickness.
- Always install an earth leakage circuit breaker in a wet or moist area.
- 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.
- 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.

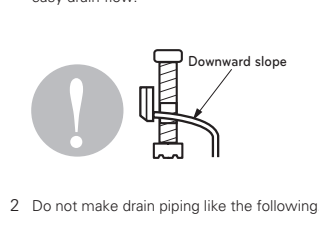
- Pour a glass of water on the evaporator.
- Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.



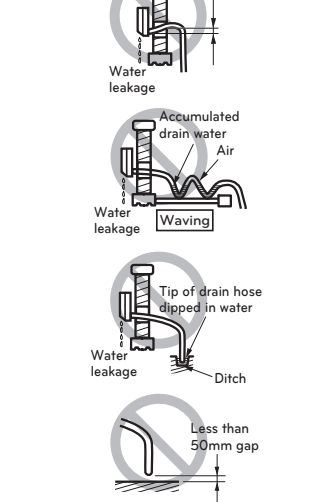
* Features may change according to the type of model.

Drain piping

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



- Do not make drain piping like the following.

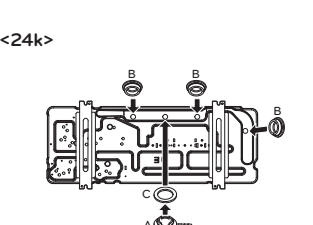
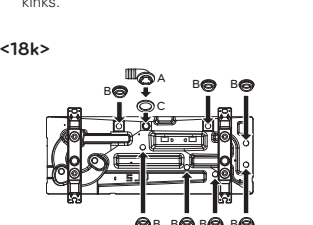


* Features may change according to the type of model.

Installing drain piping of the outdoor unit

Depending on installation site, it may be required to install drain plug for drainage(Supplied with the unit). In cold areas, do not use a drain hose With the outdoor unit. Otherwise, drain water may freeze, impairing the heating performance.

- See the figure below for installation of the drain plug.
 - A : Drain connection B : Drain cap C : Drain washer
- Connect a field supplied vinyl hose to the drain connection (A). If the hose is too long and hangs down, fix it carefully to prevent kinks.



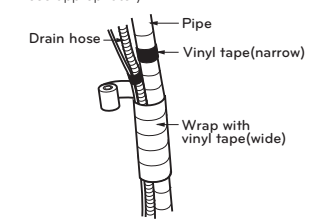
* Features may change according to the type of model.

* The provided parts may change according to the type of model.

Forming of 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.

1. Tape the piping and connecting cable from down to up.
2. Secure the taped piping along the exterior wall using saddle or equivalent.
3. Fix the piping onto the wall using saddle or equivalent.

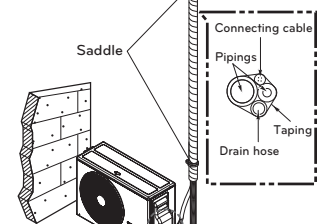


In cases, where the outdoor unit is installed below the indoor unit, perform the following.

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. Seal small openings around pipings with a gum type sealant.
2. Connect the piping and connecting cable from down to up.



* Features may change according to the type of model.

* Trap is required to prevent water from entering into electrical parts.

Air Purging

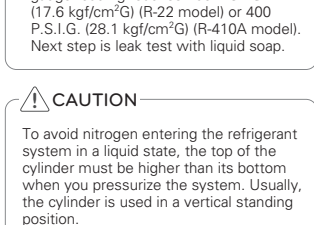
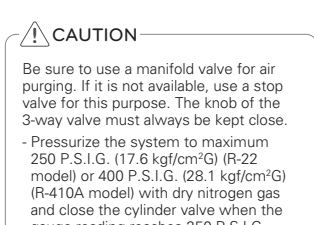
The air and moisture remaining in the refrigerant system have undesirable effects as indicated below.

- Pressure in the system rises.
- Operating current rises.
- Cooling/heating efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- 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

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

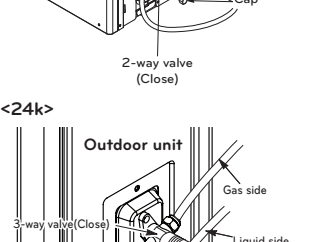
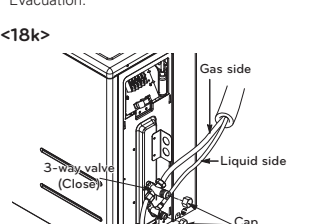


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Evacuation

- Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit. Confirm the "L" 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.

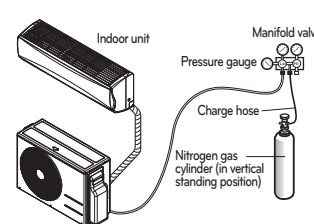


Required time for Evacuation when 30 gal/h vacuum pump is used	
If tubing length is less than 10m (33 ft)	If tubing length is longer than 10m (33 ft)
10 min. or more	15 min. or more

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- 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.
- 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.



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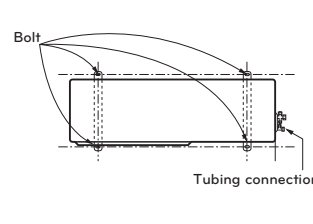
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Settlement of outdoor unit

- Replace the valve caps at both gas and liquid side service valves and fasten them tight. This completes air purging with a vacuum pump.
- Replace the pipe cover to the outdoor unit by one screw.
- Now the air conditioner is ready for test run.
- The feature can be changed according to the type of model.



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