

INSTALLATION MANUAL AIR CONDITIONER

TYPE : WALL MOUNTED
Original instruction

ENGLISH



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MFL70500702 Rev.00_101618

IMPORTANT SAFETY INSTRUCTIONS READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and 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 supply 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 carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.
- When the power cord is to be replaced, replacement work shall be performed by authorized personnel only using only genuine replacement parts.
- Air conditioner shall be disconnected from its power source during service and when replacing parts.

Installation

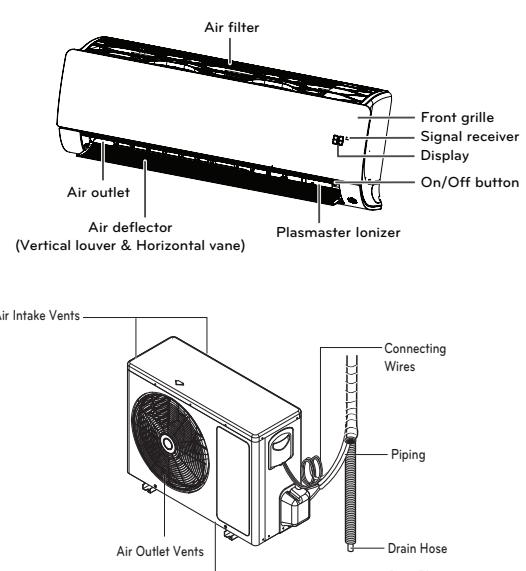
- Always perform grounding.
 - Otherwise, it may cause electrical shock.
- Don't use a power cord, a plug or a loose socket which is damaged.
 - Otherwise, it may cause a fire or electrical shock.
- For installation of the product, always contact the service center or a professional installation agency.
 - 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 electric shock due to dust, water, etc.

INTRODUCTION

Symbols used in this Manual

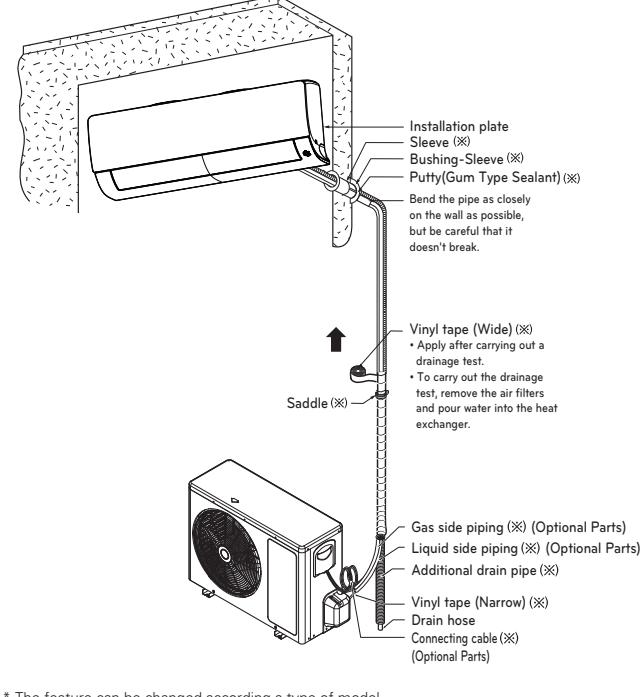
- ⚠ This symbol alerts you to the risk of electric shock.
- ⚠ This symbol alerts you to hazards that may cause harm to the air conditioner.
- ⚠ This symbol indicates special notes.

Features



* The feature can be changed according to type of model.

INSTALLATION MAP



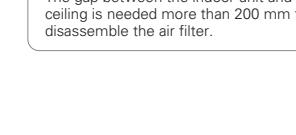
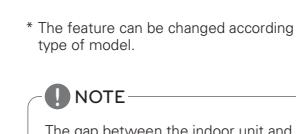
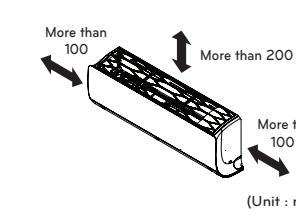
NOTE

* You should purchase the installation parts. (It can be changed according to market)

INSTALLATION

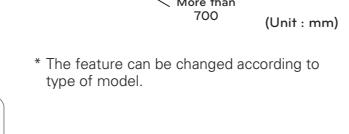
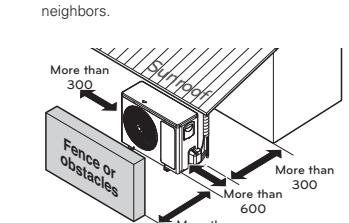
Select the best Location

- 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 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 200 mm from ceiling.
- Use a metal detector to locate studs to prevent unnecessary damage to the location.



Outdoor unit

- If the unit is placed 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 and sides is more than 300 mm. The space in front of the unit should be more than 700 mm of air flow.
- 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.



INSTALLATION PARTS

Name	Quantity	Shape
Installation plate	1 EA	
Type "A" screw	5 EA	
Type "B" screw	2 EA	
Type "C" screw	2 EA	
Remote control holder	1 EA	
Cloth tape	1 EA	
Connector	1EA(18 kBTU/h) (24 kBTU/h)	

Screws for fixing panels are attached to decoration panel.

When Indoor unit (18,24 kBTU) is connected to the Multi Outdoor unit, use the connector.

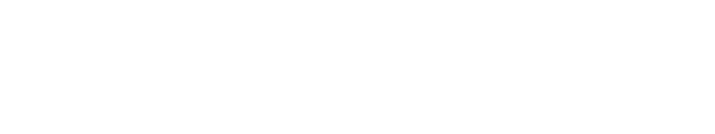
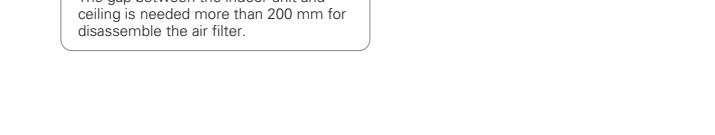
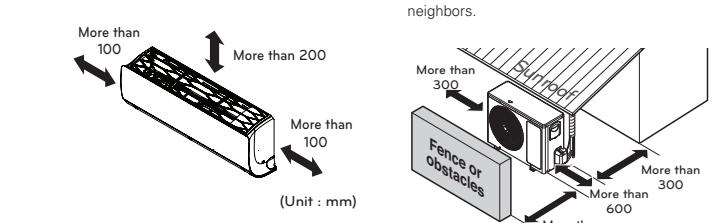
INSTALLATION TOOLS

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

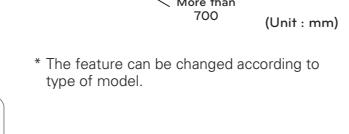
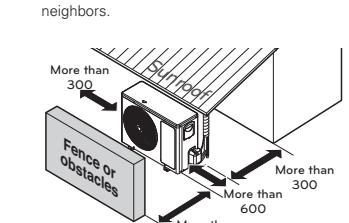
Select the best Location

- 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 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 200 mm from ceiling.
- 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

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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.
- Install at places where it can endure the weight and vibration/noise of the outdoor unit.
- Keep level parallel in installing the product.
- Otherwise, it may cause vibration or water leakage.

- Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
- 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.
- If outdoor unit is installed close to the sea-side, it should avoid direct exposure to the sea wind.
- Otherwise it needs additional anticorrosion treatment on the heat exchanger.
- Always install an earth leakage circuit breaker in a wet or moist area.
- The earth wire should be longer than the common wires.
- As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.
- 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.
- Confirm that electrical capacity is sufficient.
- 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.
- Open the terminal cover block before connecting the indoor side wire.
- The indoor unit can be dropped from the wall, when the indoor unit is not screwed correct position on the install plate.
- 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.
- Inert gas (nitrogen) should be used when you check plumbing leaks, cleaning or repairs of pipes etc.
- If you are using combustible gases including oxygen, product may have the risk of fires and explosions.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- This equipment shall be provided with a supply conductor complying with the national regulation.

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.
- Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

1

2

3

Fixing Installation Plate

The wall you select should be strong and solid enough to support the weight of the unit.

- 1 Mount the installation plate on the wall on a concrete wall, use anchor bolts.

- Mount the installation plate horizontally by aligning the centerline using Horizontal meter.

Installation Plate
Type "A" Screws
Chassis Hook
Type "A" Screws

Drill a Hole in the Wall

- Drill the piping hole with a Ø 65 mm hole saw.

- Drill the piping hole with a Ø 57 mm hole saw.

WALL
Indoor Outdoor
Right Left
Backwards

5.7 mm
(3/16-5/16")

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 pipe a little longer than measured distance.

- 4 Cut the cable 1.5 m longer than the pipe length.

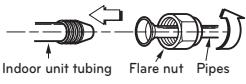
Copper Pipe
90° Soldered Unsan Rough

Unit Outline Place a level on raised tab C Type 418 C Type 418
Left side piping C Type 98 C Type 134
C Type 134
Unit Outline Place a level on raised tab C Type 494 C Type 524
Left side piping C Type 134
C Type 134
Minimum gap height
Max. gap height
Unit : mm

Unit Outline Place a level on raised tab C Type 134 C Type 150
Left side piping C Type 134
C Type 134
Minimum gap height
Max. gap height
Unit : mm

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

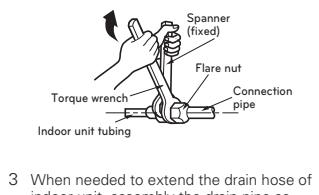
1 Align the center of the pipes and sufficiently tighten the flare nut by hand.



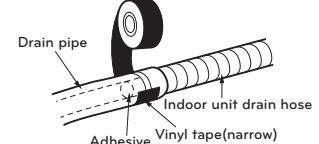
* When Indoor unit (6.6 kW) is connected to the Multi Outdoor unit, use the connector.

2 Tighten the flare nut with a wrench.

Outside Diameter	Torque
mm inch	kgf cm N.m
Ø 6.35 1/4	180~250 17.6~24.5
Ø 9.52 3/8	340~420 33.3~41.2
Ø 12.7 1/2	550~660 53.9~64.7
Ø 15.88 5/8	630~820 61.7~80.4



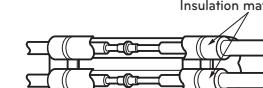
3 When needed to extend the drain hose of indoor unit, assemble the drain pipe as shown on the drawing.



* Wrap the piping of the indoor unit that are visible from the outside with vinyl tape.

Wrap the insulation material around the connecting portion.

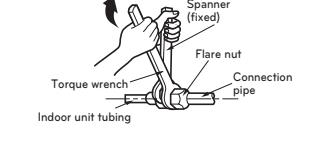
1 Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there may be no gap.



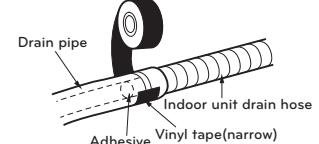
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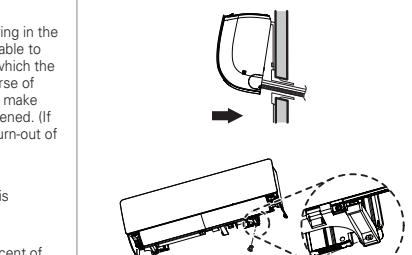
3 When needed to extend the drain hose of indoor unit, assemble the drain pipe as shown on the drawing.



* Wrap the piping of the indoor unit that are visible from the outside with vinyl tape.

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 hook against the installation plate until the hook 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.



* The feature can be changed according to type of model.

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 earth leakage filter are liable to come loose from time to time which the unit is transported during the transportation. Check them and make sure that they are all tightly fastened. (If the wires are loose, it could cause burn-out of the wires.)
- 3 Preparation of power source.
- 4 Confirm the 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 on 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, and induce 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 3 mm in each active/phases conductors.
- 10 Open the terminal cover block before connecting the indoor side wire.

* The feature can be changed according to type of model.

Forming the Piping

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.

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.

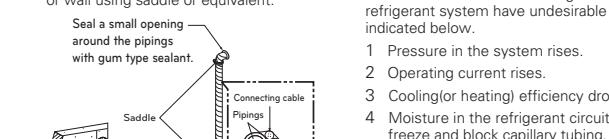
3 Fix the piping onto the wall using saddle or equivalent.



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 tapped piping along the exterior wall using saddle or equivalent.



* The feature can be changed according to type of model.

CAUTION
The indoor unit can be dropped from the wall, the indoor unit is not screwed correctly position on the install plate.

To avoid the gap between the indoor unit and wall , screw the indoor unit to the install plate correctly.

* The feature can be changed according to type of model.

In cases where the Outdoor unit is installed above 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.

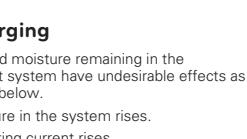
3 Seal a small opening around the piping with gum type sealant.



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 tapped piping along the exterior wall using saddle or equivalent.



* The feature can be changed according to type of model.

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/heating efficiency drops.

4 Moisture in the refrigerant circuit may freeze and block capillary tubing.

5 Water hammer leads 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.

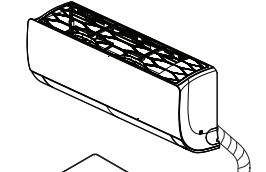
Air purging with vacuum pump

1 Preparation

- Check that each tube/tube liquid and gas side tubes between the indoor and outdoor units have been properly connected and all tubing for the run has been evacuated.

- Remove the gas side service valves 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.

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



* The feature can be changed according to a type of model.

Required time for evacuation when 30 gal/h vacuum pump is used

If tubing length is less than 10 m (33 ft)	10 min. or more
If tubing length is longer than 10 m (33 ft)	15 min. or more

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

Finishing the Piping

- With a service valve wrench, turn the valve of liquid side counter-clockwise to fully open the valve

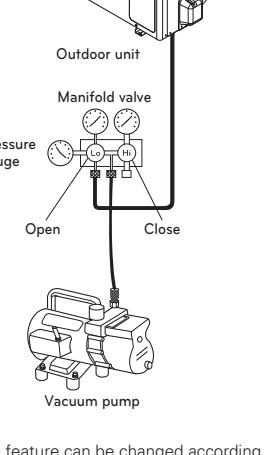
- Turn the valve of gas side counter-clockwise to fully open the valve

- Loosen the charge hose connected to the gas side service port and slightly to release the pressure, then remove the hose

- Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench. This procedure is important to prevent leakage from the system

- 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.

**Test Running**

- Check that all tubing and wiring are properly connected.

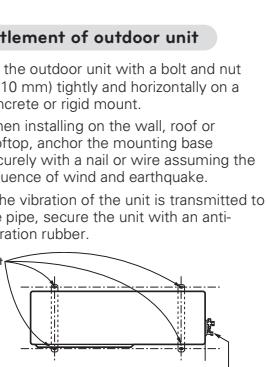
- Check that the gas and liquid side service valves are fully open.

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.

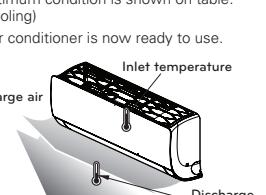


Settlement of outdoor unit

1 Fix the outdoor unit with a bolt and nut (Ø 10 mm) tightly and horizontally on a concrete or rigid mount.

2 When installing on the wall, roof or floor, secure the base with a nail or wire adding 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.

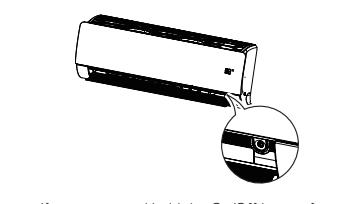


Evaluation of the performance

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.

Test operation

* The feature can be changed according to a type of model.

Refrigerant	Outside ambient TEMP.	The pressure of the gas side service valve.
R22	35 °C (95 °F)	4~5 kg/cm²G (56.8~71.0 P.S.I.G.)
R410A	35 °C (95 °F)	8.5~9.5 kg/cm²G (120~135 P.S.I.G.)

- Memo -

NOTE

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.

NOTE

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

WARNING

It may cause explosion or injury.
After pump down, power must be turned off before removing the pipe.

When operating this product without connecting pipe, there will be high pressure inside the compressor due to the entry of air, possibly causing explosion or injury.

Pump Down Procedure

- Connect a low-pressure gauge manifold hose to the charge port on the gas side service valve.

- Open the gas side service valve halfway and purge the air in the manifold hose using the refrigerant.

- Close the liquid side service valve half the way.

- Turn on the unit's operating switch and start the cooling operation.

- When the pressure gauge reading becomes 1 to 0.5 kg/cm² G(4.2 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.

NOTE

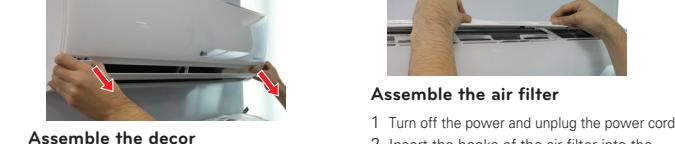
Be sure to perform Pump Down procedure in the cooling mode.

Manual the decor, air filter Assembly & Disassembly**Disassemble the decor**

- 1 Turn off the power and unplug the power cord.
- 2 Pull the decor at the bottom of the indoor unit.



- 3 Remove the decor from the indoor unit.



- 4 Push the knobs to assemble the decor.



- 5 Push the knobs to assemble the decor.