LG
Life's Good

ENGLISH

INSTALLATION MANUAL

AIR CONDITIONER

- Please read this installation manual completely before installing the product.
- 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.

TYPE : Cooling Only Inverter

P/NO : MFL67476601

www.lg.com

TIPS FOR SAVING ENERGY

Here are some tips that will help you minimize the power consumption when you use the air conditioner. You can use your air conditioner more efficiently by referring to the instructions below:

- 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 or warm indoor air quickly, in a short period of time.
- 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 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.
- The product shall be installed according to the Wiring regulations of the corresponding country.
- 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.

Installation

- Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.
  - There is risk of fire or electric shock.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.
  - Do not disassemble or repair the product. There is risk of fire or electric shock.
- Always ground the product.
  - 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.
- Always install a dedicated circuit and breaker.
  - Improper wiring or installation may cause fire or electric shock.
- Use the correctly rated breaker or fuse.
  - There is risk of fire or electric shock.
- Do not modify or extend the power cable.
  - There is risk of fire or electric shock.
- 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.
- Be cautious when unpacking and installing the product.
  - Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.
- For installation, 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.
  - It may cause injury, accident, or damage to the product.
- Be sure the installation area does not deteriorate with age.
  - If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.
- 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 store or use flammable gas or combustibles near the product.
  - There is risk of fire or failure of product.

⚠ CAUTION

Installation

- Always check for gas (refrigerant) leakage after installation or repair of product.
  - Low refrigerant levels may cause failure of product.
- Install the drain hose to ensure that water is drained away properly.
  - A bad connection may cause water leakage.
- Keep level even when installing the product.
  - To avoid vibration or water leakage.
- Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.
  - It may cause a problem for your neighbors.
- Use two or more people to 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. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

TABLE OF CONTENTS

2 **TIPS FOR SAVING ENERGY**

3 **IMPORTANT SAFETY INSTRUCTIONS**

6 **INSTALLATION PLACES**

6 **PIPING LENGTH AND THE ELEVATION**

7 **CONNECTING PIPES**

7 Preparation of Piping

8 Connecting the pipings to the indoor unit and drain hose to drain pipe

8 Connecting the pipes to the Outdoor unit

9 Forming the piping

10 **LEAKAGE TEST AND EVACUATION**

10 Preparation

10 Leakage test

11 Evacuation

12 **WIRING CONNECTION**

12 Electrical Wiring

13 Connecting the cable to Outdoor Unit

14 **TEST RUNNING**

16 **NIGHT SILENT OPERATION SETTING**

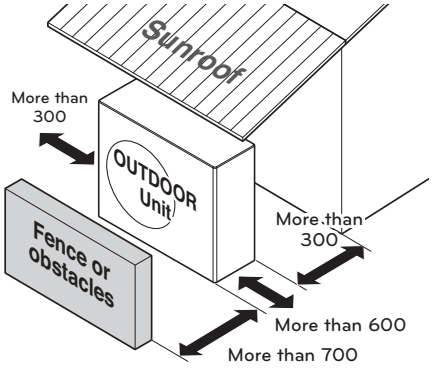
16 **SELF-DIAGNOSIS FUNCTION**

18 **INSTALLATION GUIDE AT THE SEASIDE**

INSTALLATION PLACES

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 spaces indicated by arrows around front, back and side of the unit.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration are minimum.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.



Unit : mm

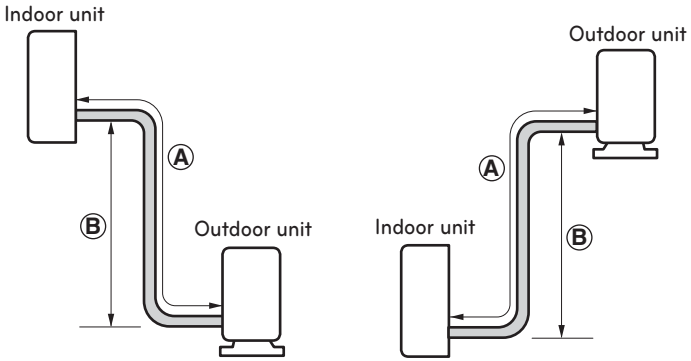
PIPING LENGTH AND THE ELEVATION

Single Operation

Model Name	Pipe Size (mm(inch))		Length 'A' (m)		Elevation 'B' (m)		Additional refrigerant (g/m)
	Gas	Liquid	Min.	Max.	Min.	Max.	
AUUQ18GH0	Ø12.7(1/2)	Ø6.35(1/4)	7.5	50	5	30	20
AUUQ21GH0	Ø12.7(1/2)	Ø6.35(1/4)	7.5	50	5	30	20
AUUQ24GH0	Ø15.88(5/8)	Ø9.52(3/8)	7.5	50	5	30	20
AUUQ36GH0	Ø15.88(5/8)	Ø9.52(3/8)	7.5	50	5	30	20

If installed tube is shorter than 10 m, additional charging is not necessary.

*Additional Refrigerant = ((A) -10) x Additional refrigerant (g)



CONNECTING PIPES

Preparation of Piping

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

Cut the pipes and the cable.

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

Burrs removal

- Completely remove all burrs from the cut cross section of pipe/tube.
- Put the end of the copper tube/pipe to downward direction as you remove burrs in order to avoid to let burrs drop in the tubing.

Putting nut on

- Remove flare nuts attached to indoor and outdoor units, than put them on pipe/tube having completed burr removal.
  (Not possible to put them on after flaring work)

Flaring work

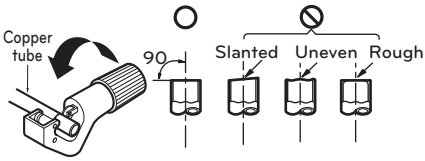
- Carry out flaring work using dedicated flaring tool for R-410A as shown below.

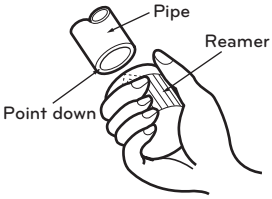
Outside diameter		"A"
mm	inch	mm
Ø6.35	1/4	1.1~1.3
Ø9.52	3/8	1.5~1.7
Ø12.7	1/2	1.6~1.8
Ø15.88	5/8	1.6~1.8

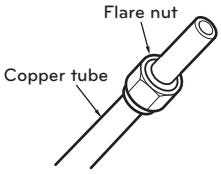
Firmly hold copper tube in a bar(or die) as indicated dimension in the table above.

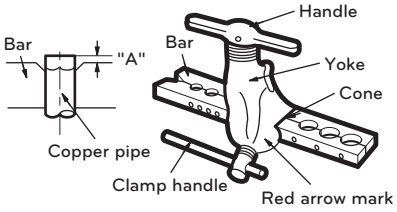
Check

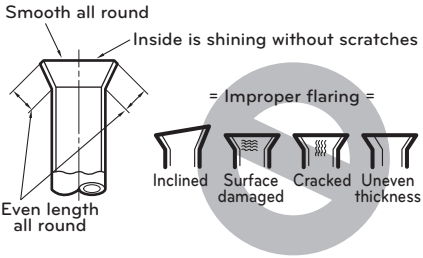
- Compare the flared work with figure below.
- If flare is noted to be defective, cut off the flared section and do flaring work again.









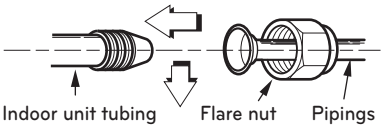


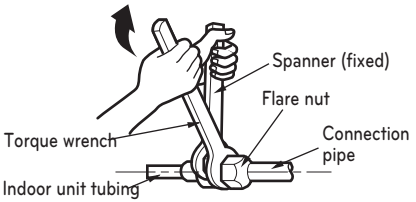
Connecting the pipings to the indoor unit and drain hose to drain pipe

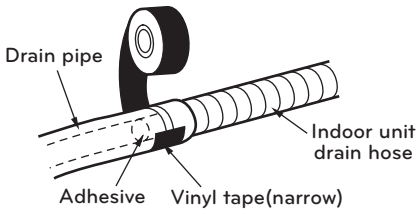
- Align the center of the pipings and sufficiently tighten the flare nut by hand.
- Tighten the flare nut with a wrench.

Outside diameter		Torque
mm	inch	N.m
Ø6.35	1/4	16±2
Ø9.52	3/8	38±4
Ø12.7	1/2	55±6
Ø15.88	5/8	75±7

- When extending the drain hose at the indoor unit, install the drain pipe.



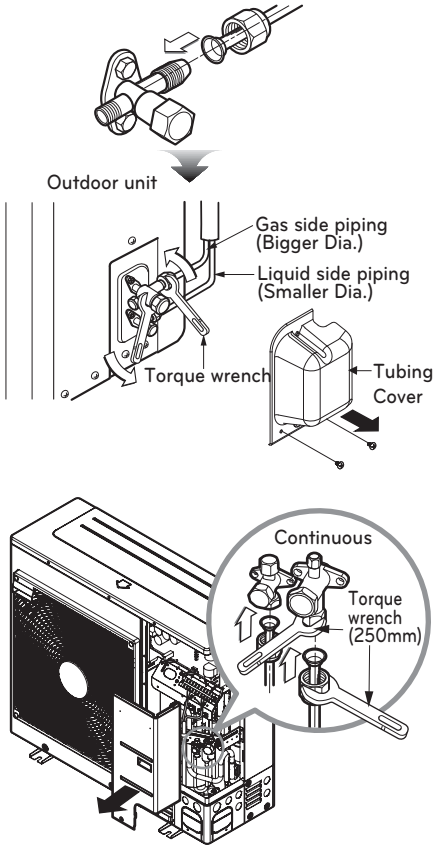




Connecting the pipes to the Outdoor unit

- Align the center of the piping and sufficiently tighten the flare nut by hand.
- 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.

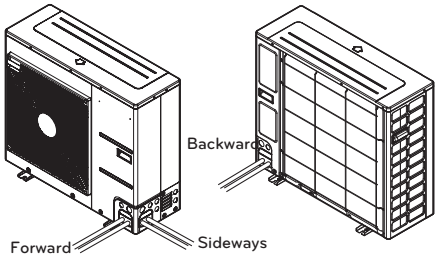
Outside diameter		Torque
mm	inch	N.m
Ø6.35	1/4	16±2
Ø9.52	3/8	38±4
Ø12.7	1/2	55±6
Ø15.88	5/8	75±7



* When tighten the pipe, hold the haxagonal body.

The installation piping is connectable in 3 directions.(refer to figure 1)

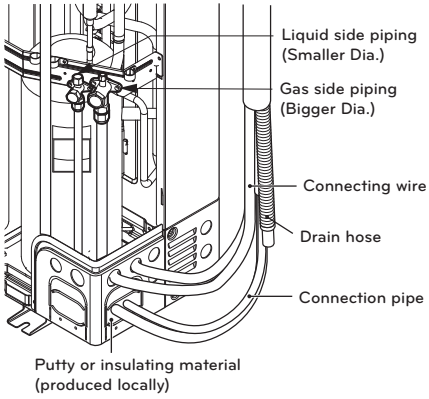
<Figure 1>



Preventing foreign objects from entering (refer to figure 2)

- Plug the pipe through-holes with putty or insulation material(procured locally)to stop up all gaps,as shown in the figure 2.
- Insects or small animals entering the outdoor unit may cause a short circuit in the electrical box.

<Figure 2>



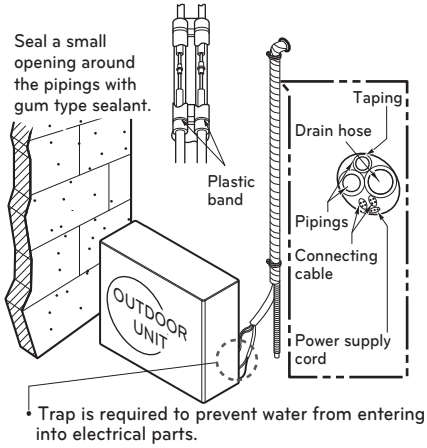
Forming the piping

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

- 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.

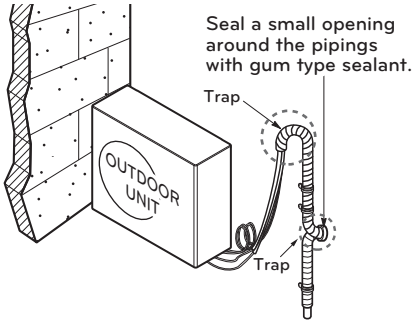
In cases where the outdoor unit is installed below the indoor unit perform the following.

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



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

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



LEAKAGE TEST AND EVACUATION

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

- Pressure in the system rises.
- Operating current rises.
- Cooling(or 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, the indoor/outdoor unit and connecting tube must be checked for leak tight, and vacuumed to remove incondensible gas and moisture in the system.

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. Check that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

Leakage test

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

CAUTION

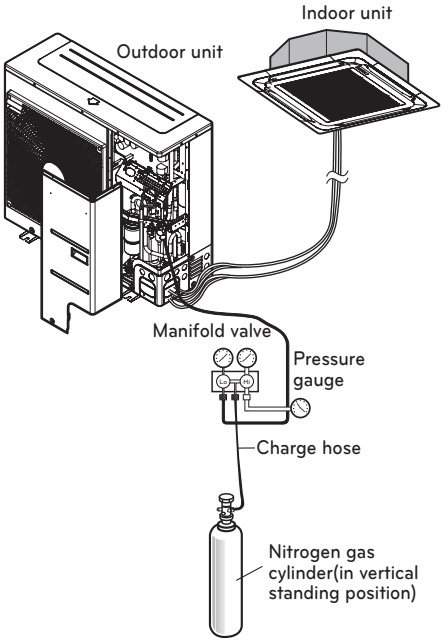
Be sure to use a manifold valve for leakage test.
If it is not available, use a stop valve for this purpose. The "Hi" knob of the manifold valve must always be kept close.

- Pressurize the system to no more than 3.0 Mpa with dry nitrogen gas and close the cylinder valve when the gauge reading reached 3.0 Mpa 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.

- Do a leakage 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.



Evacuation

- Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit. Confirm the "Lo and Hi" knob of the manifold valve 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 10 m(33 ft)	If tubing length is longer than 10 m(33 ft)
30 min. or more	60 min. or more
0.5 torr or less	

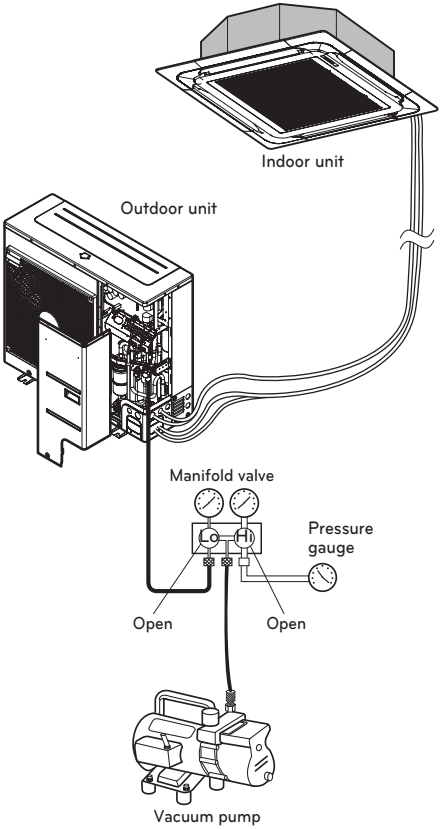
- When the desired vacuum is reached, close the "Lo and Hi" knob of the manifold valve and stop the vacuum pump.

Finishing the job

- With a service valve wrench, turn the valve stem of liquid side valve counter-clockwise to fully open the valve.
- Turn the valve stem of gas side valve counter-clockwise to fully open the valve.
- Loosen the charge hose connected to the gas side service port 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 process is very 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.

The air conditioner is now ready to test run.



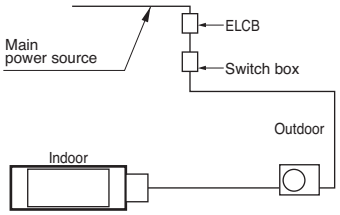
WIRING CONNECTION

Electrical Wiring

Perform the electrical wiring work according to the electrical wiring connection.

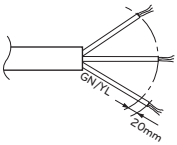
- All wiring must comply with local requirements.
- Select a power source that is capable of supplying the current required by the air conditioner.
- Use a recognized ELCB(Electric Leakage Circuit Breaker) between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.
- Model of circuit breaker recommended by authorized personnel only

Model	ELCB	Phase(Ø)
AUUQ18GH0	20	1
AUUQ21GH0	20	1
AUUQ24GH0	25	1
AUUQ36GH0	30	1



CAUTION

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



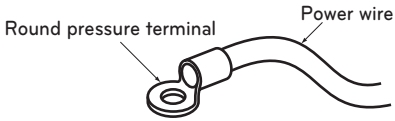
NORMAL CROSS-SECTIONAL AREA

Model	mm²
AUUQ18GH0	2.5
AUUQ21GH0	2.5
AUUQ24GH0	2.5
AUUQ36GH0	4

- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

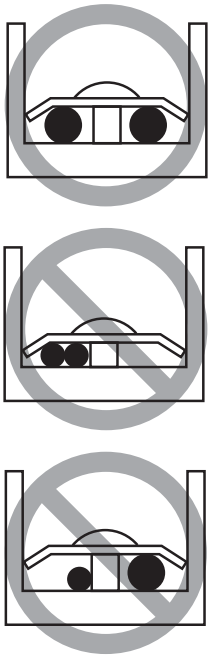
Precautions when laying power wiring

Use round pressure terminals for connections to the power terminal block.



When none are available, follow the instructions below.

- Do not connect wiring of different thicknesses to the power terminal block. (Slack in the power wiring may cause abnormal heat.)
- When connecting wiring which is the same thickness, do as shown in the figure below .

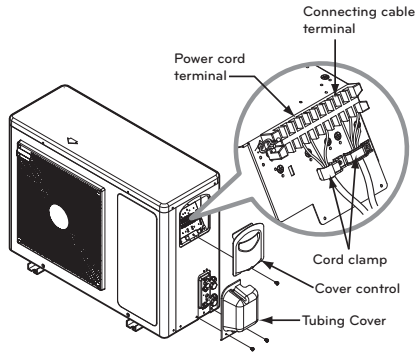


WARNING

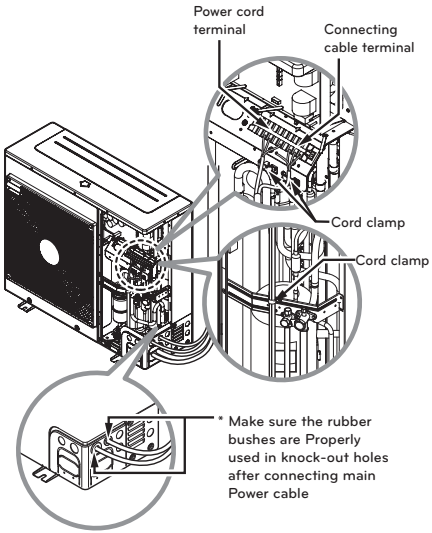
- Make sure that the screws of the terminal are free from looseness.

Connecting the cable to Outdoor Unit

• Use the cord clamp to fix the cord.



AUUQ18GH0
AUUQ21GH0
AUUQ24GH0



AUUQ36GH0

CAUTION

- The circuit diagram is not subject to change without notice.
- Be sure to connect wires according to the wiring diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the wiring diagram.

TEST RUNNING

Precautions in test running

- The initial power supply must provide at least 90% of the rated voltage.
  Otherwise, the air conditioner should not be operated.

CAUTION

- For test run, carry out the cooling operation firstly even during heating season. If heating operation is carried out firstly, it leads to the trouble of compressor. Then attention must be paid.
- Carry out the test run more than 5 minutes without fail.
  (Test run will be cancelled 18 minutes later automatically)

- To cancel the test run, press any button.

Check the following items when installation is complete

After completing work, be sure to measure and record trial run properties, and store measured data, etc.

Measuring items are room temperature, outside temperature, suction temperature, blow out temperature, wind velocity, wind volume, voltage, current, presence of abnormal vibration and noise, operating pressure, piping temperature, compressive pressure.

As to the structure and appearance, check following items.

- Is the circulation of air adequate?
- Is the draining smooth?
- Is the heat insulation complete (refrigerant and drain piping)?
- Is there any leakage of refrigerant?
- Is the remote controller switch operated?
- Is there any faulty wiring?
- Are not terminal screws loosened?

M4.....118N.cm{12kgf.cm}
M5.....196N.cm{20kgf.cm}
M6.....245N.cm{25kgf.cm}
M8.....588N.cm{60kgf.cm}

Connection of power supply

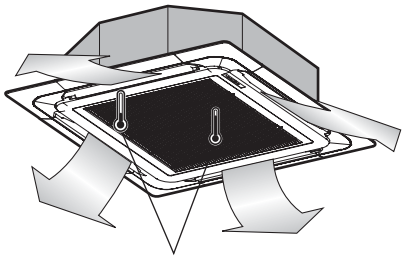
Connect the power supply cord to the independent power supply.
- Circuit breaker is required.

Operate the unit for fifteen minutes or more.

Evaluation of the performance

Measure the temperature of the intake and discharge air.

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



Thermometer

⚠ CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

- Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.
- Provide a circuit breaker switch between power source and the unit.
- The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burnout of the wires.)
- Specification of power source.
- Confirm that electrical capacity is sufficient.
- Be sure 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 sources specification.
  (Particularly note the relation between cable length and thickness.)
- Never fail to equip a leakage breaker where it is wet or moist.
- The following troubles would be caused by voltage drop-down.
  - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
  - Proper starting power is not given to the compressor.

HAND OVER

Teach the customer the operation and maintenance procedures, using the operation manual (air filter cleaning, temperature control, etc.).

NIGHT SILENT OPERATION SETTING

Open the panel of outdoor unit.

Set the DIP SW01N as below Fig.



DIP Switch2	Function
ON	Night Silent Operation -ON
OFF	Night Silent Operation - OFF



Close the panel

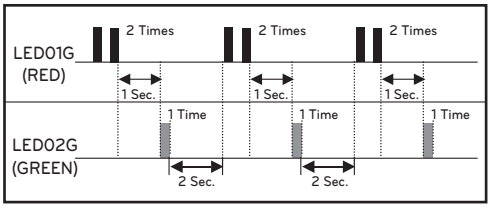
WARNING

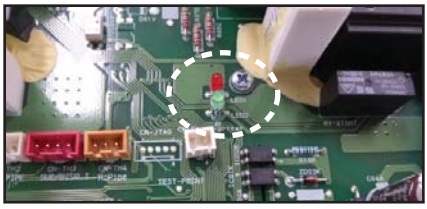
- Do not open the panel when operating the product.

SELF-DIAGNOSIS FUNCTION

Error Indicator (Outdoor)

Outdoor Unit Error
Ex) Error 21 (DC Peak)





Error Code	Description	LED 1 (Red)	LED 2 (Green)	Indoor status
21	DC Peak(IPM Fault)	2times ◑	1time ◑	OFF
22	Max. CT(CT2)	2times ◑	2times ◑	OFF
23	DC Link Low Volt.	2times ◑	3times ◑	OFF
24	Pressure switch/Heater Sink.	2times ◑	4times ◑	OFF
26	DC Comp Position Error	2times ◑	6times ◑	OFF
27	PSC Fault Error	2times ◑	7times ◑	OFF
28	DC Link High Volt.	2times ◑	8times ◑	OFF
29	Comp Over Current	2times ◑	9times ◑	OFF
32	D-Pipe High(Inv.)	3times ◑	2times ◑	OFF
41	Inv. D-Pipe Th Error(Open/Short)	4times ◑	1time ◑	OFF
44	Outdoor air Th Error(Open/Short)	4times ◑	4times ◑	OFF
45	Cond. Middle Pipe Th Error(Open/Short)	4times ◑	5times ◑	OFF
46	Suction Pipe Th Error(Open/Short)	4times ◑	6times ◑	OFF
48	Cond. Out-Pipe Th Error(Open/Short)	4times ◑	8times ◑	OFF
51	Capacity over	5times ◑	1time ◑	OFF
53	Communication Error(Indoor↔Outdoor)	5times ◑	3times ◑	OFF
60	EEPROM Error(Outdoor)	6times ◑	0	OFF
61	Cond. Middle Pipe High	6times ◑	1time ◑	OFF
62	Heatsink Error(High)	6times ◑	2times ◑	OFF
65	Heatsink Th Error(Open/Short)	6times ◑	5times ◑	OFF
67	BLDC motor fan lock(Outdoor)	6times ◑	7times ◑	OFF
73	PFC Fault Error(S/W)	7times ◑	3times ◑	OFF

* Repeatedly after LED1 is turned on and off as the Error code number of tens digit, LED2 is turned on and off as the Error code number of single-digit.

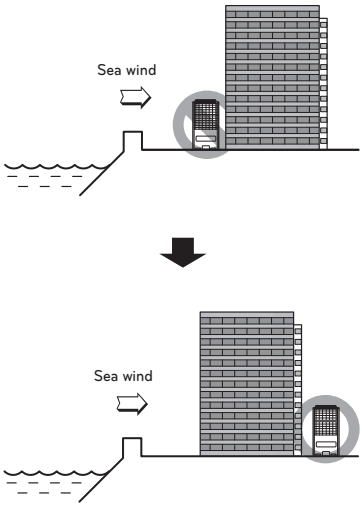
INSTALLATION GUIDE AT THE SEASIDE

CAUTION

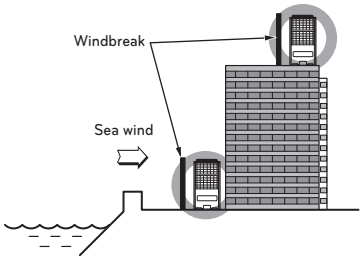
- Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
- Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient performance.
- If outdoor unit is installed close to the 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)

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



In case, to install the outdoor unit on the seaside, set up a windbreak not to be exposed to the 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.
- It should be keep more than 70 cm of space between outdoor unit and the windbreak for easy air flow.

Select a well-drained place.

- Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water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