



LG

LG Large Duct-Type Air Conditioner

INSTALLATION MANUAL

ENGLISH

ITALIANO

ESPAÑOL

FRANÇAIS

DEUTSCH

IMPORTANT

- Please read this installation manual completely before installing the product.
- When the power cord is damaged, replacement work shall 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.

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Safety Precautions

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

- 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.

- Meanings of symbols used in this manual are as shown below.

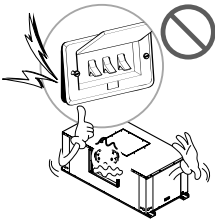
	Be sure not to do.
	Be sure to follow the instruction.

⚠ WARNING

■ 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.



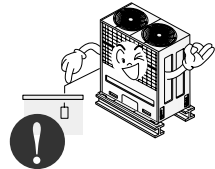
For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.

- Do not disassemble or repair the product. There is risk of fire or electric shock.



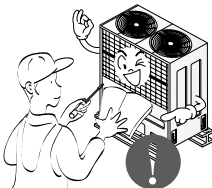
Always ground the product.

- There is risk of fire or electric shock.



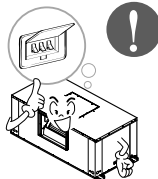
Install the panel and the cover of control box securely.

- There is risk of fire or electric shock.



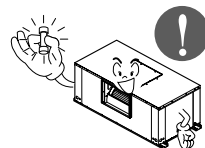
Always install a dedicated circuit and breaker.

- Improper wiring or installation may cause fire or electric shock



Use the correctly rated breaker or fuse.

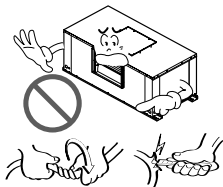
- There is risk of fire or electric shock.



Safety Precautions

Do not modify or extend the power cable.

- There is risk of fire or electric shock.



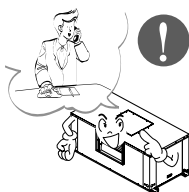
Be cautious when unpacking and installing the product.

- Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.



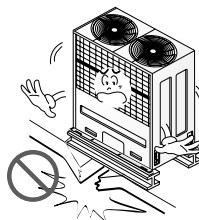
For installation, always contact the dealer or an Authorized Service Center.

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



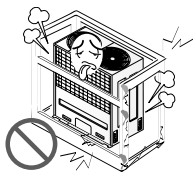
Do not install the product on a defective installation stand.

- It may cause injury, accident, or damage to the product.



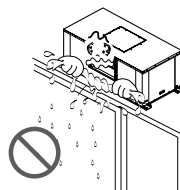
Be sure the installation area does not deteriorate with age.

- If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.



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.

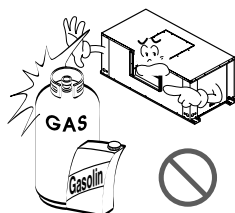
- Moisture may condense and wet or damage furniture.



■ Operation

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

- There is risk of fire or failure of product.

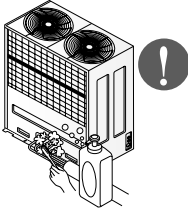


CAUTION

■ Installation

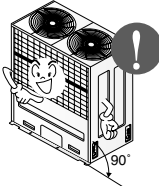
Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.



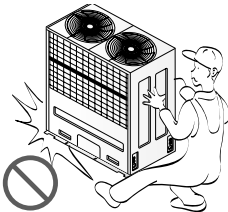
Keep level even when installing the product.

- To avoid vibration or water leakage.



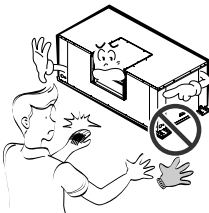
Use two or more people to lift and transport the product.

- Avoid personal injury.



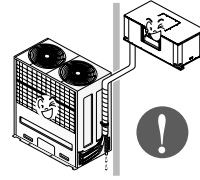
Always use gloves while servicing, cleaning and installation. Sharp edge can cause personal injury.

- There is risk of personal injury.



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

- A bad connection may cause water leakage.



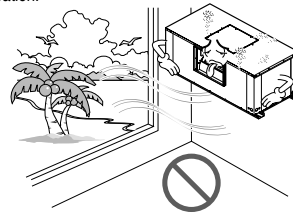
Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.

- It may cause a problem for your neighbors.



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.



Introduction

Symbols Used in this Manual



This symbol alerts you to the risk of electric shock.



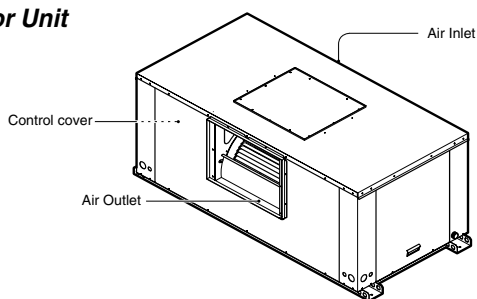
This symbol alerts you to hazards that could cause harm to the air conditioner.

NOTICE

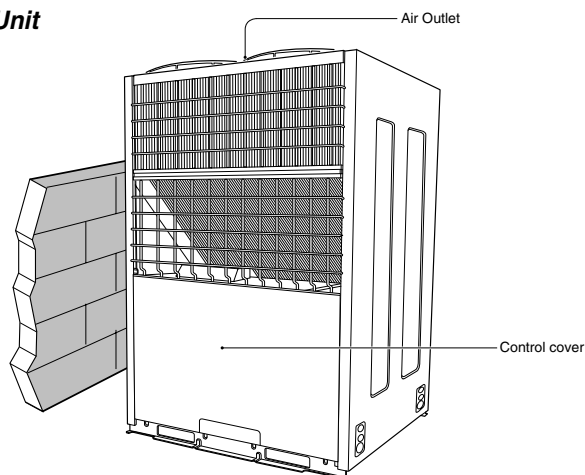
This symbol indicates special notes.

Features

Indoor Unit

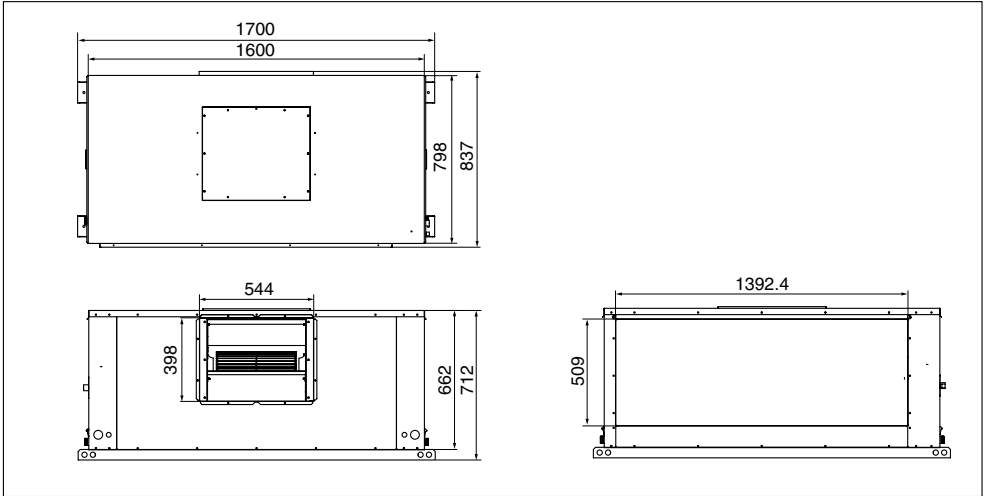


Outdoor Unit

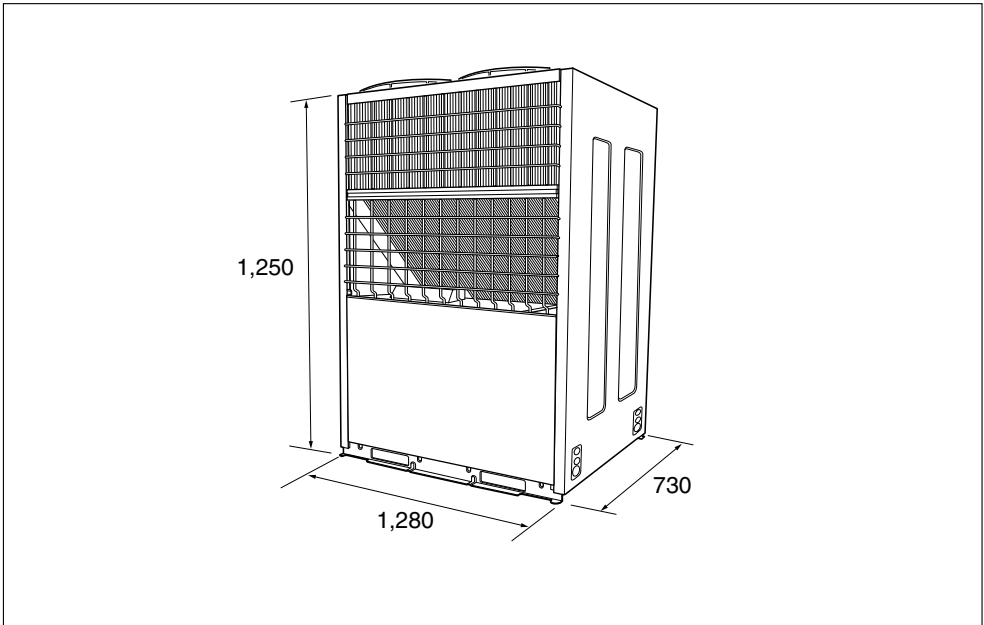


Dimensional Data

1. Indoor Unit



2. Outdoor Unit



Rigging

1. When rigging, use spreaders to prevent damage to the panels (see figs. 1 and 2).
Avoid violent movements.
2. To prevent damage while in transit, do not remove the unit from the skid until it is at its final location.
3. Never roll or tip the unit more than 15°.

IMPORTANT : Make sure that all unit panels are fixed in place before moving. Raise and set down the unit carefully.

Fig. 1 Rigging

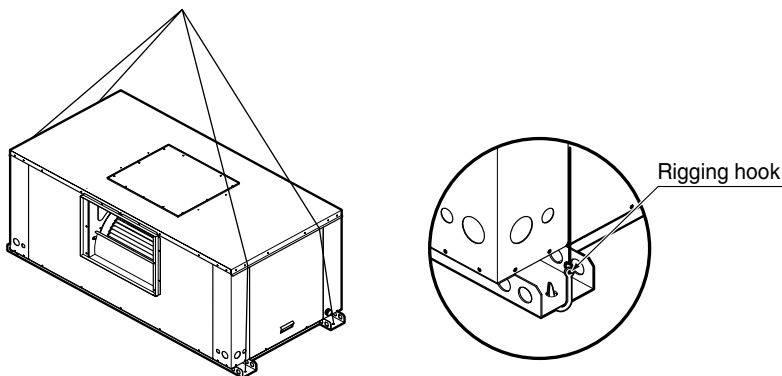
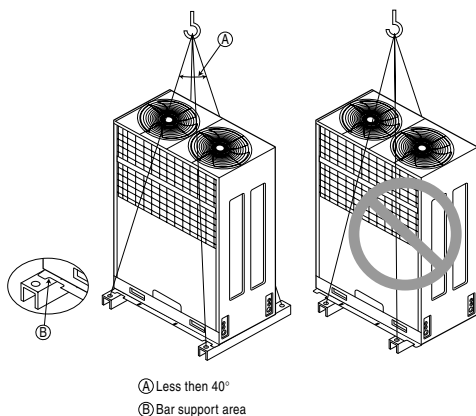


Fig. 2 Rigging

- Connect the rope across two supports at the bottom of outdoor unit while suspend to more.
- Connect the rope in four support points at the bottom of outdoor unit, else it may seriously impact the unit.
- Keep the angle between ropes approximately 40° as shown in picture.



IMPORTANT : The unit should be correctly levelled to avoid drainage problems.

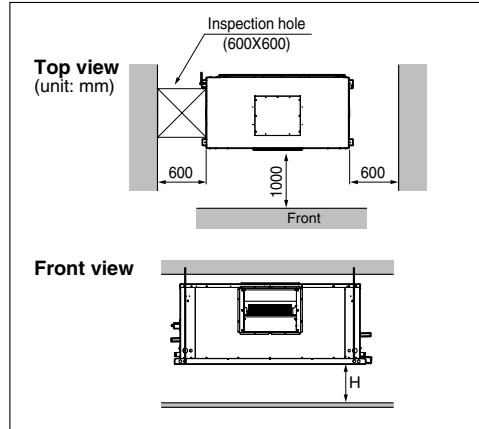
Installation of Indoor, Outdoor Unit

Selection of the best location

Indoor unit

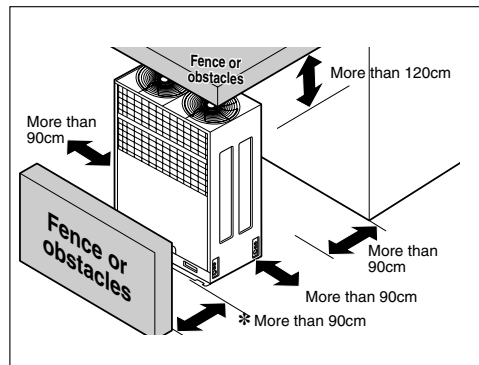
Install the air conditioner in the location that satisfies the following conditions.

- The place shall easily bear a load exceeding four times the indoor unit's weight.
- The place shall be able to inspect the unit as the figure.
- The place where the unit shall be leveled.
- The place shall allow easy water drainage. (Suitable dimension "H" is necessary to get a slope to drain as figure.)
- The place shall easily connect with the outdoor unit.
- The place where the unit is not affected by an electrical noise.
- The place where air circulation in the room will be good.
- There should not be any heat source or steam near the unit



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

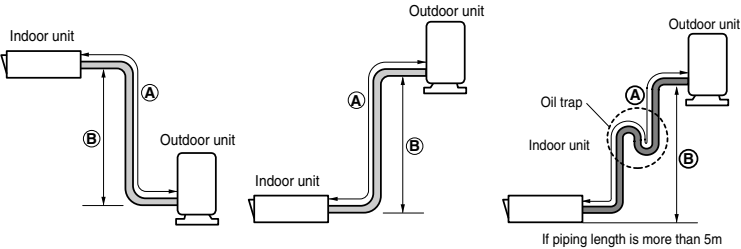


Rooftop Installations:

If the outdoor unit is installed on a roof structure, be sure to level the unit. Ensure the roof structure and anchoring method are adequate for the unit location. Consult local codes regarding rooftop mounting.

Piping length and the elevation

Capacity	Pipe Size (Diameter: Ø)		Length A(m)		Elevation B(m)		*Additional refrigerant (g/m)
	Gas(in)	Liquid(in)	Standard	Max.	Standard	Max.	
120K BTU/h(R410)	5/8"	1 1/8"	7.5	50	5	30	180
120K BTU/h(R22)	5/8"	1 1/8"	7.5	50	5	30	180



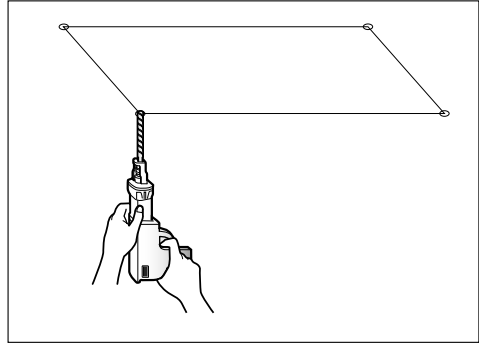
CAUTION:

- If 120k Model is installed at a distance of 30m, 4,050g of refrigerant should be added $(30-7.5) \times 180g = 4,050g$
- Capacity is based on standard length and maximum allowance length is on the basis of reliability.
- Improper refrigerant charge may result in abnormal cycle.
- Oil trap should be installed every 10 meters.

Indoor Unit installation

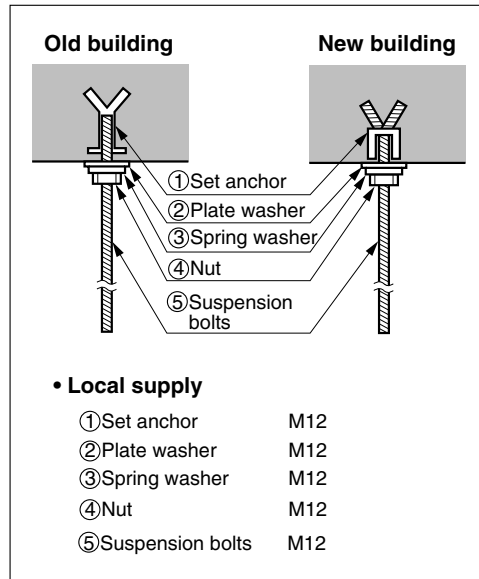
1) STEP 1 : Make hole for set anchor

- Select and mark the position for fixing bolts.
- Drill the hole for set anchor on the face of ceiling.



2) STEP 2 : Fix anchor

- Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the set anchor firmly.
- Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.

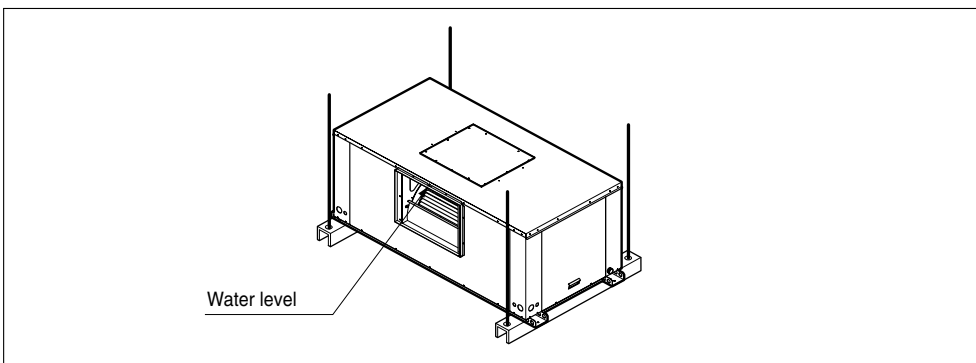
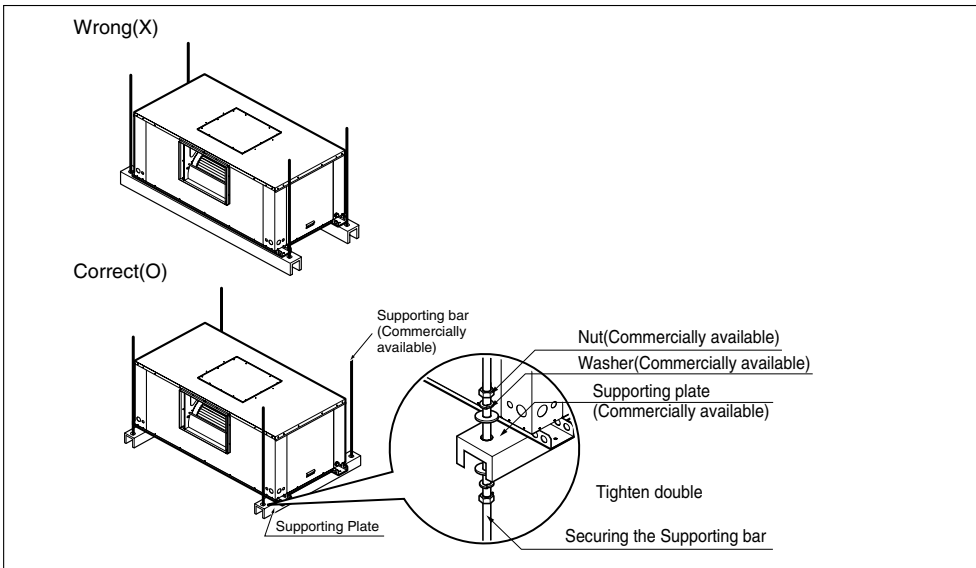


CAUTION:

Tighten the nut and bolt to prevent unit falling.

3) STEP 3 : Hang the indoor

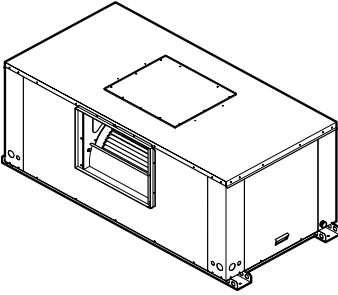
- Install the unit above the ceiling correctly
- Secure the unit and supporting plate (commercially available) at four places with M12 screw
- Fit the supporting plate into the suspension bolt using washers, secure and tighten both the upper and lower nuts to the suspension bolt (refer to following fig.)
- Adjust the unit to the desired height.
- Make sure the unit level (refer to following fig.)
Adjust the unit using a level this is installed unevenly, water may leak from the unit.



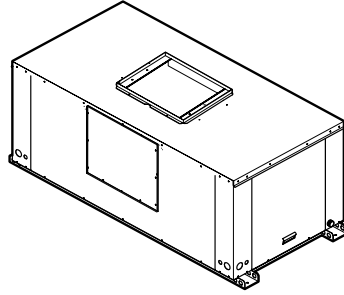
■ When the indoor unit is installed

Check whether or not the ceiling is strong enough to support the weight of the unit.
If there is a risk that the ceiling is not strong enough, reinforce the ceiling before installing the unit.

One Unit-2 Appliance



Horizontal Supply/Horizontal Return



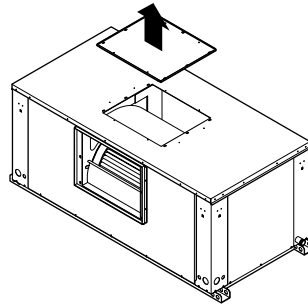
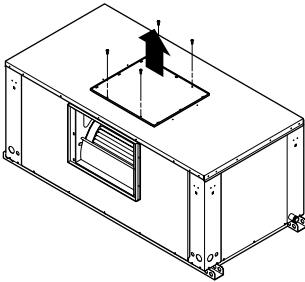
Vertical Supply/Horizontal Return

NOTICE

How to change Air Flow(Horizontal/Vertical)

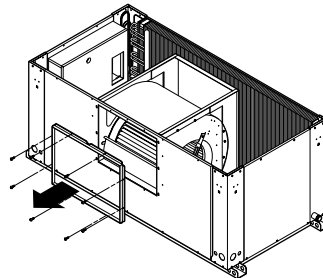
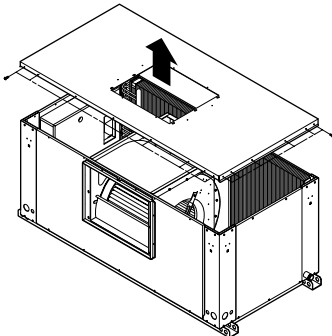
Step 1) Remove screws(9EA) the cover I

Step 2) Remove cover I

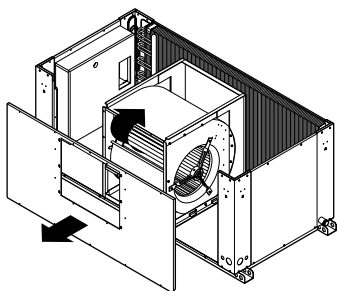


Step 3) Remove top cover

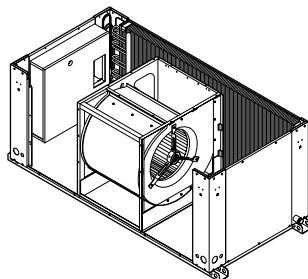
Step 4) Remove duct flange.



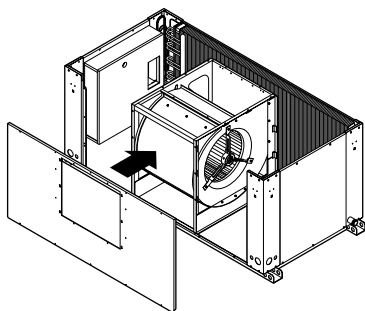
Step 5) Remove front panel.



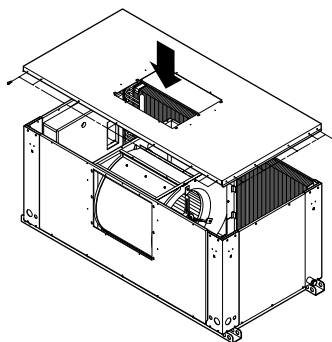
Step 6) Rotate blower housing assembly like following.



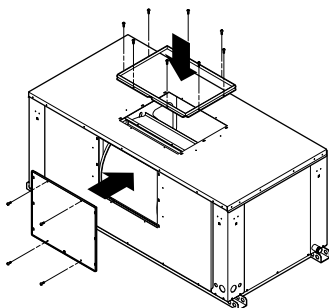
Step 7) Re assemble front panel.



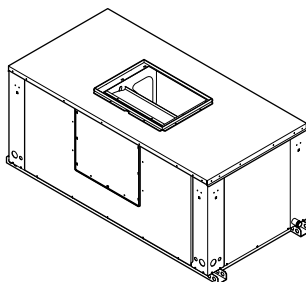
Step 8) Assemble top cover.



Step 9) Assemble cover I & Duct flange.



Step 10) After change air flow direction.



Drain Pipe Work

The drain pipe must be installed as shown in the fig.

To avoided water damage caused by leaks and condensation.

- Assemble the unit as shown in fig

- The drain pan outlet can be installed on either the left or right side.

The drain plug can be removed and placed on either the left and right side as well.

- For best result try to keep the drain piping as short as possible.

Slant the piping at an angle to improve flow(the drain pipe provided with the indoor unit has male threads.

- Securely insulate the drain pipe.

- Keep pipes as straight as possible for easy cleaning and to prevent the accumulation of dirt and debris.

- After closing the drain pipe on the opposite side of unit, completely wrap the drain pipes with insulation(See fig.)

- Pour water in the drain pan to test for smooth drainage.

- In humid environments use an extra drain pan to cover the entire area of the indoor unit.

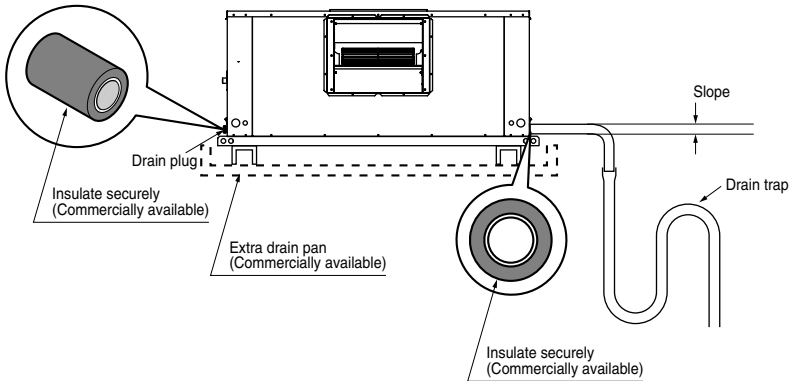
Drain Pipe Connection

1. Install declination of the indoor unit is very important for the drain of the duct type air conditioner.

2. Minimum thickness of the insulation for the connecting pipe shall be 19mm.

- Male threads + Female threads

(Indoor unit) (Commercially available)



CAUTION:

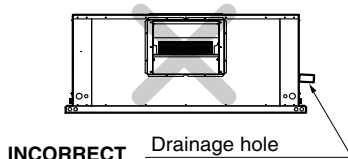
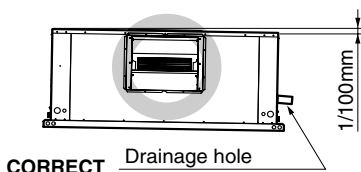
Extra drain pan should be insulated with proper insulation (more than 10mm)

CAUTION

1. Install declination of the indoor unit is very important for the drain of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 5mm.

Front of view

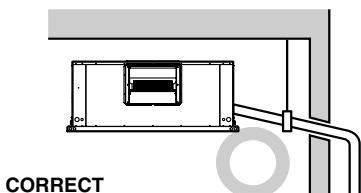
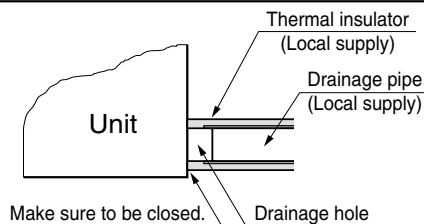
- The unit must be horizontal or declined to the drain hose connected when finished installation.



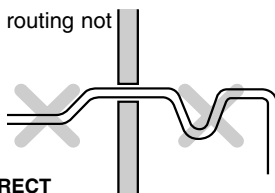
CAUTION FOR GRADIENT OF UNIT AND DRAIN PIPING

Lay the drain hose with a downward inclination so water will drain out.

- Always lay the drain with downward inclination (1/50 to 1/100). Prevent any upward flow or reverse flow in any part.
- 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.



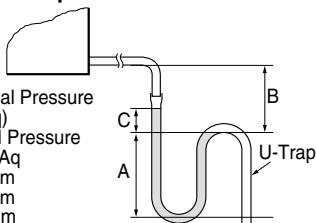
- Upward routing not allowed



Applied U-Trap Dimension

- Install the P-Trap (or U-Trap) to prevent a water leakage caused by the blocking of intake air filter.

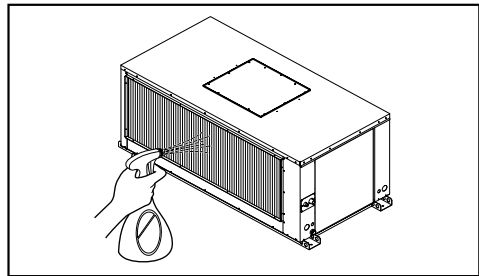
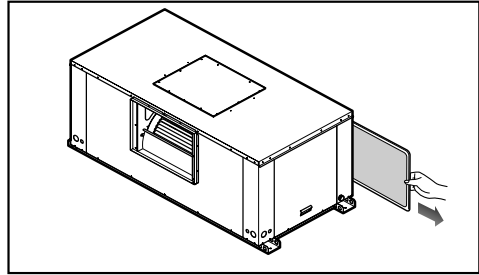
$A \geq 70\text{mm}$
 $B \geq 2C$
 $C \geq 2 \times \text{SP}$
 SP = External Pressure (mmAq)
 Ex) External Pressure = 10mmAq
 $A \geq 70\text{mm}$
 $B \geq 40\text{mm}$
 $C \geq 20\text{mm}$



Checking the Drainage

Checking the Drainage

- Remove the Filter as described below.
- When you assemble the filter, follow in reverse order of separation.
- Check the drainage.
 - Spray one or two glasses of water upon the evaporator.
 - Ensure that water flows drain hose of indoor unit without any leakage.



Ductwork

- The ductwork dimensions should be determined in accordance with the air flow to be carried, and the available static pressure of the unit. The different air flows and power input values for each unit are shown in the fan performance tables.
- It is recommended to observe the following considerations:
 - Whatever type of ductwork is used, it should not be made of materials which are flammable, or which give off toxic gases in the event of a fire. The internal surfaces should be smooth, and not contaminate the air which passes through. It is recommended to use sheet metal ducts which are adequately insulated to avoid condensation and thermal leakage.
 - At the points where the ducts joins the unit, it is recommended to use flexible connections which absorb vibrations, prevent noise inside the ductwork and allow access to the unit.
 - Bends near the unit outlet should be avoided as much as possible. If unavoidable, they should be as slight as possible, and internal deflector should be used when the duct has large dimensions.

Note : All duct sizing and design work should be carried out by qualified technicians.

Connections to the unit should be made with three-inch canvas connectors to minimize noise and vibration transmission.

Elbows with turning vanes or splitters are recommended to minimize air noise and resistance.

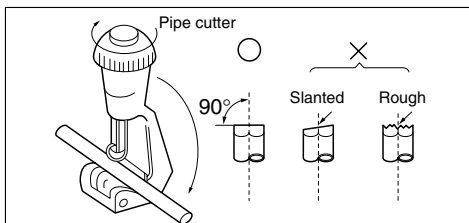
The first elbow in the ductwork leaving the unit should be no closer than three times blower diameter to avoid turbulence and back pressure.

Piping of Indoor Unit

1. Preparation of piping

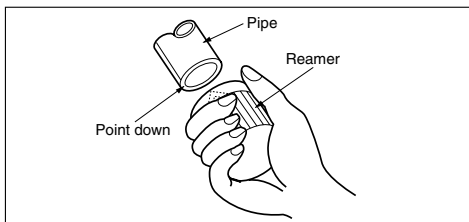
1) Cut the pipes and the cable

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



2) Remove burrs.

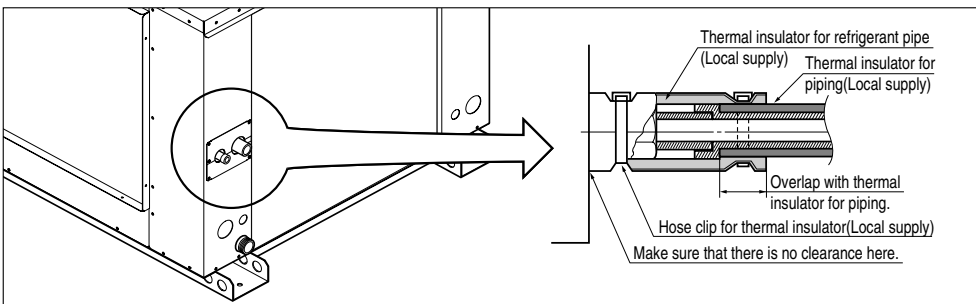
- Remove burrs from cut edges of pipes.
- Turn the pipe end down to avoid the metal powder entering the pipe.



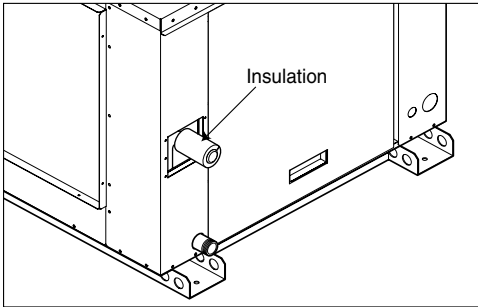
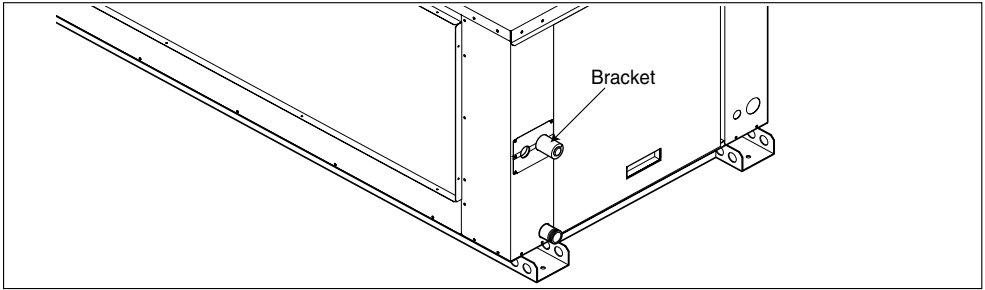
Caution:

If burrs are not removed, they may cause a gas leakage.

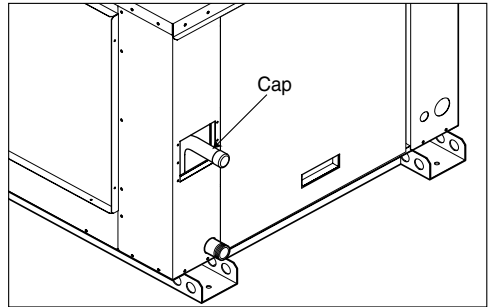
2. Connection of piping



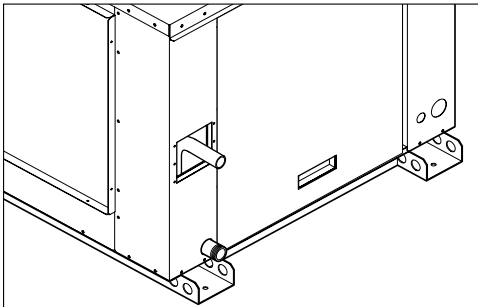
How to connect pipe



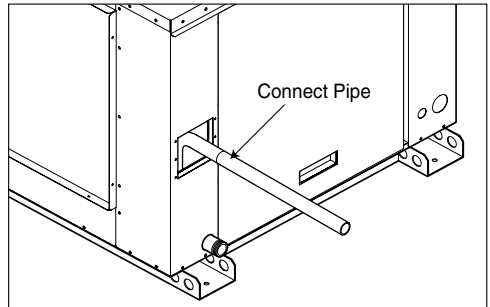
Step1. Remove Bracket(2EA)



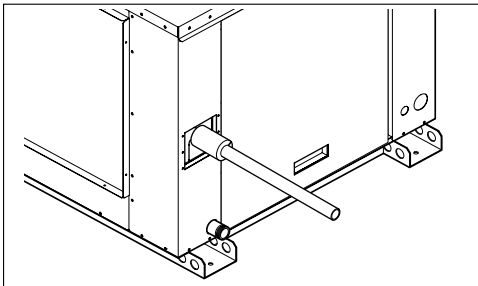
Step2. Remove Insulation



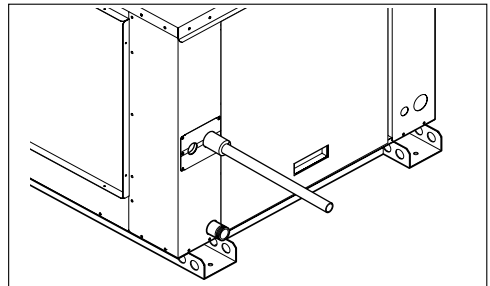
Step3. Remove Cap



Step4. Connect Pipe(Local Supply)



Step5. Wrap The Removed Insulation at The First Place



Step6. • Assembly The Removed Bracket
• Certainly Wrap Connect Pipe in Insulation

Pipe bending

Annealed copper pipe with small diameter ($\phi 6.35$ or $\phi 9.52$) can be easily bent manually. In this case, secure large R(radius) for the bend section and gradually bend pipe. If annealed copper pipe is large in diameter ($\phi 15.88$ or $\phi 19.05$), bend pipe with bender. Use bender appropriate for the pipe diameter.

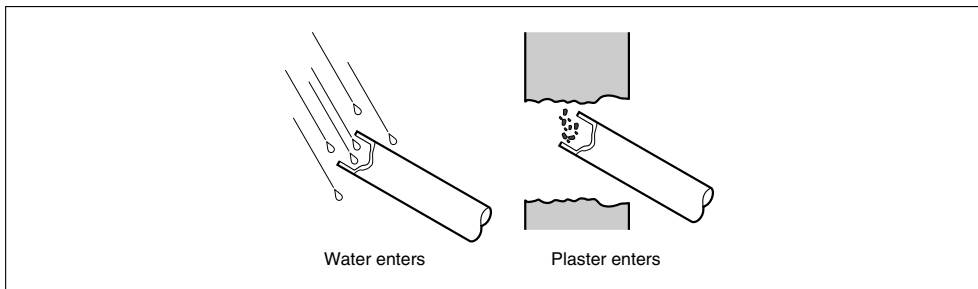
Brazing

In refrigerant piping, bending (in particular, acute bending) must be minimized to reduce piping resistance. Bending is, however, necessary in some places by virtue of the installation position of devices auxiliary to the packaged air conditioner, or of the building structure, piping distance or finishing appearance. If a more acute bend is required than that attainable by pipe bender, perform brazing using ready-made elbow. Aside from this function, brazing also serves to connect straight pipes, generally using ready-made sockets. While brazing, protect piping against heat with wet cloth to avoid damaging valve packing or burning thermal insulator with burner heat. While brazing, blow inert gas (nitrogen gas or carbonic gas) to prevent formation of oxidation film in copper piping; otherwise, the refrigerant circuit will clog. The blowing of nitrogen gas (or carbonic gas) through 3-way valves is described in the following:

Refrigerant piping

When connecting piping, be sure to keep piping dry(keep piping away from water), clean (keep piping away from dust) and airtight (avoid refrigerant leakage).

When connecting piping on rainy days or making a through-hole in wall, take due care to prevent water or plaster from entering piping.

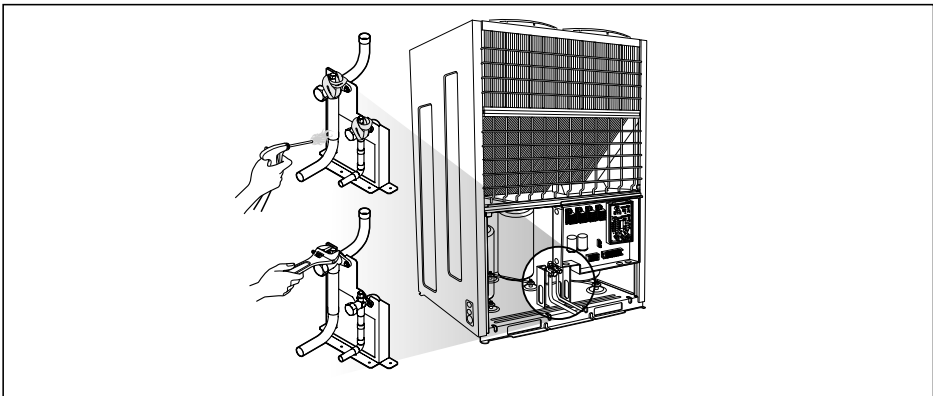
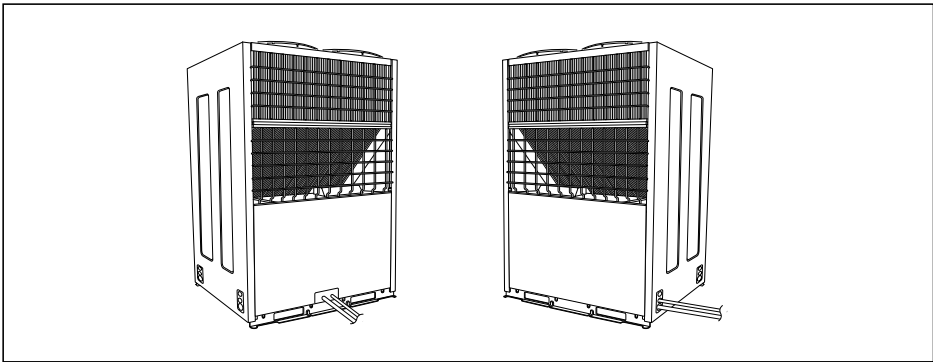
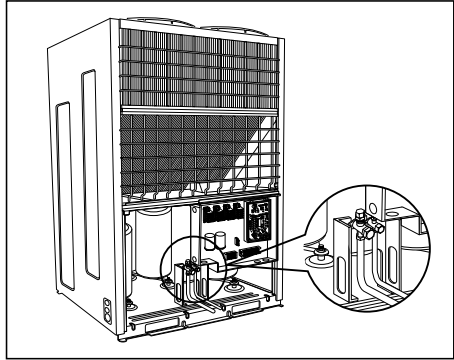


CAUTION:

- This procedure is designed to prevent formation of oxidation film by filling piping with inert gas. Note that excessive gas pressure will generate pinholes at brazed points.
(Nitrogen gas: Supply pressure 0.05~0.1kg/cm²G)
- When supplying inert gas, be sure to open one end of piping.

Connecting of piping - Outdoor

Please weld connecting pipes using Elbows.



⚠ CAUTION

Wrap the valve by wet towel or gauze, the internal parts of the valve are very sensitive to heat.

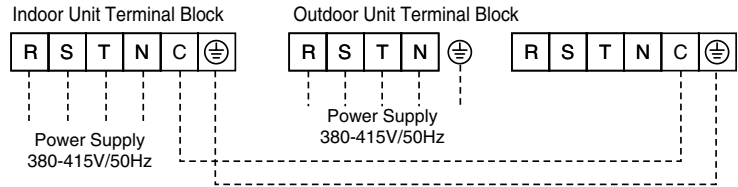
⚠ WARNING

After completing work, securely tighten both service ports and caps so that gas not leak.

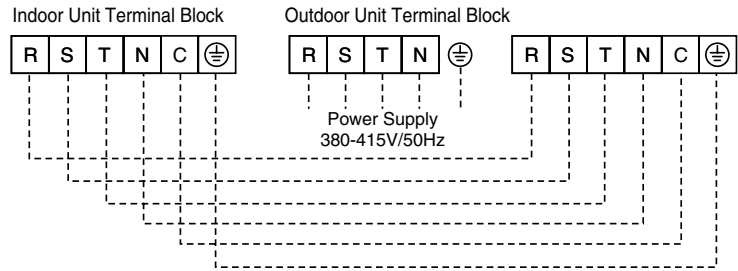
Connecting Cables between Indoor Unit and Outdoor Unit

- Connect the wires to the terminals on the control board individually according to the outdoor unit connection.
 - Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively

Two Power Supply Use(Recommended Method)



One Power Supply Use

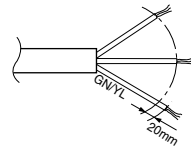


MODEL		MCC	MOP	MCB
AB-H1208VA0	INDOOR	5.25	10	10
	OUTDOOR	36.4	60	60
LB-H1208VA0	INDOOR	5.25	10	10
	OUTDOOR	35.1	60	60

*MCC: MINIMUM CONTINUOUS CURRENT
*MOP: MAXIMUM OVERCURRENT PROTECTOR
*MCB: MAXIMUM CIRCUIT BREAKER

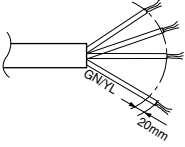
CAUTION

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).



Capacity	AREA
120K BTU/h	8.0mm ²

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



NORMAL
CROSS-SECTIONAL
AREA 1mm²

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



CAUTION: Make sure that the screws of the terminal fixed tightly.

INSTALLATION OF REMOTE CONTROL BOX

Install the remote control box and cord correctly.

POINT OF REMOTE CONTROLLER INSTALLATION

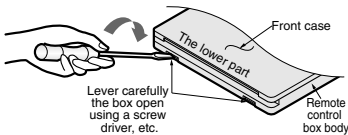
- Although the room temperature sensor is in the indoor unit, the remote control box should be installed in such places away from direct sunlight and high humidity.

INSTALLATION OF THE REMOTE CONTROL BOX

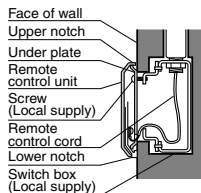
- Select places that is not splashed by water.
- Select control position after receiving customer approval.
- The room temperature sensor of the thermostat for temperature control is built in the indoor unit.
- This remote controller equipped with liquid crystal display. If this position is higher or lower, display is difficult to see.
(The standard height is 1.2~1.5m high)

ROUTING OF THE REMOTE CONTROL CORD

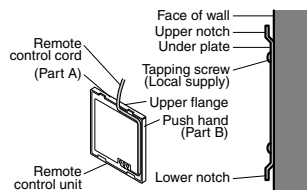
- Keep the remote control cord away from the refrigerant piping and the drain piping.
- To protect the remote control cord from electrical noise, place the cord at least 5cm away from other power cables. (Audio equipment, Television set, etc)
- If the remote control cord is secured to a wall, provide a trap at the top of the cord to prevent water droplets from running.

DISASSEMBLING OF THE REMOTE CONTROLLER**WHEN THE REMOTE CONTROL BOX IS INSTALLED WITH THE CORD BURIED.****PROCEDURE OF INSTALLATION**

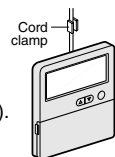
- Fix the under plate on the switch box by screws(Local supply). In this case, fit the under plate on the wall, and be careful of deformation.
- Receive the remote control cord in the switch box.
- Hook the remote control unit on the under plate.

**WHEN THE REMOTE CONTROL BOX IS INSTALLED WITH THE CORD EXPOSED.****PROCEDURE OF INSTALLATION**

- Fix the under plate on the wall by self tapping screws (accessory).
- Make a slit (Part A) at the top side of the remote control box by nipper.
- Route the cord as shown in the following figure. In this case, push the cord into the around of case(Part B).
- Hook the remote control unit on the under plate.

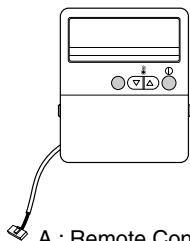
**FIXING OF REMOTE CONTROL CORD**

- Fix the cord clamps on the wall by $\phi 3$ tapping screws(Local supply).
- Fix the remote control cord.



ELECTRICAL WIRING BETWEEN REMOTE CONTROLLER AND INDOOR CONTROL BOX TERMINAL

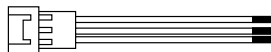
1. Prepare below parts as accessory:



A : Remote Controller

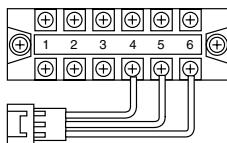


B : Connection Cable



C : Connector

2. Connect connector to terminal block for remote control function.



3. Connect connection cable to remote controller and connector.

⚠ CAUTION

Wrap the valve by wet towel or gauze, the internal parts of the valve are very sensitive to heat.

1. Do not install the wired remote controller in the wall.
2. Leave the minimum distance (2cm) each the wired remote controller
When installing several wired remote controller in one space horizontally.
3. The maximum length of the cords is 100m
If length of the cord exceeds 50m, use a wire size greater than 0.5mm².
4. Make sure that connection cable are connected to their respective ports at between a remote controller and an unit.

⚠ WARNING

After completing work, securely tighten both service ports and caps so that gas not leak.

1. Never supply the power to the system before properly connecting the Wired remote controller.
2. Always change the Wired remote controller after turning off the power supply.
In case this guideline is not followed, an error might happen if the unit is operated.
3. **Never cut the connection cable, It might cause a communication error.**
If the distance between a remote controller and an unit is over than 10m, use additional cable (locally sourced) without connectors between connector and the unit.

WIRED REMOTE CONTROLLER INSTALLATION

- Since the room temperature sensor is in the remote controller, the remote controller box should be installed in a place away from direct sunlight, high humidity and direct supply of cold air to maintain proper space temperature. Install the remote controller about 5ft(1.5m) above the floor in an area with good air circulation at an average temperature.

Do not install the remote controller where it can be affected by:

- Drafts, or dead spots behind doors and in corners.
 - Hot or cold air from ducts.
 - Radiant heat from sun or appliances.
 - Concealed pipes and chimneys.
 - Uncontrolled areas such as an outside wall behind the remote controller.
 - This remote controller is equipped with a seven segment LED display. For proper display of the remote controller LED's, the remote controller should be installed properly as shown in Fig.1.
- (The standard height is 1.2~1.5 m from floor level.)

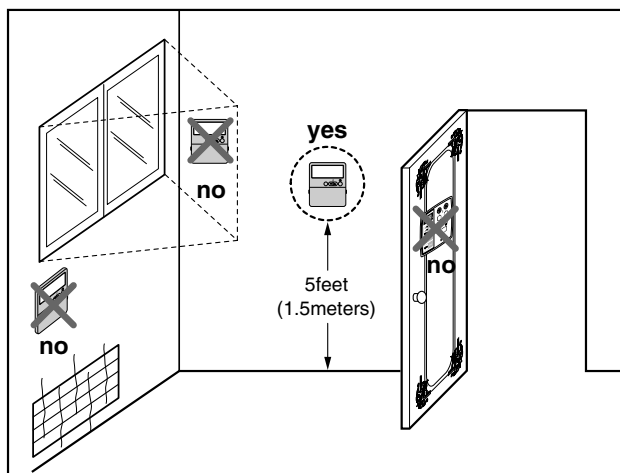


Fig.1 Typical locations for remote controller

Control Wiring

Remote controller conductors are standard thermostat wire 22 to 14 ga.

Recommended wire sizes and lengths for installing the remote controller are provided in the table on page 12. Resistance of 2 1/2 ohms per conductor can cause deviation in the accuracy of the control.

Field Installed DC Control Wiring

- Before installing the connecting wiring between the components utilizing a DC analog output/input signal and the unit, refer to the following table for conductor sizing guidelines and;
- 1) Use standard copper conductor thermostat wire unless otherwise specified.
 - 2) Ensure that the wiring between the controls and the unit's termination point does not exceed two and a half (2 1/2) ohms/conductor for the length of the run.
 - 3) Refer to Figure 5 for the electrical access locations provided on the unit.
 - 4) Do not run the electrical wires transporting Sensor DC signals in or around AC wires.

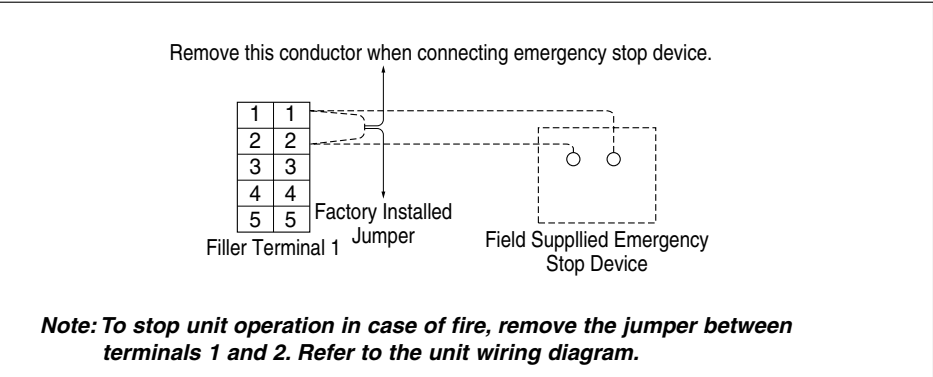
Note: Resistance in excess of 2.5 ohms per conductor can cause deviations in the accuracy of the controls

DC Conductors	Distance from Unit to Control	Recommended Wire Size	Remark
	000 - 150 feet	22 gauge	Shielded wire recommended
	151 - 240 feet	20 gauge	
	241 - 385 feet	18 gauge	
	386 - 610 feet	16 gauge	
	611 - 970 feet	14 gauge	

Mark connections as shown in the following wiring diagram for the applicable remote controller.

Emergency Shut Down

For Emergency Shut Down, remove the jumper between 1 and 2 and install normally closed contacts (Open at Fault Condition). Immediate shut down will occur and the MAIN CONTROLLER will be disabled.



Important: After completion of wiring, check all electrical connections, including factory wiring within the unit, and ensure all connections are tight. Replace and secure all electrical box covers and access doors before leaving unit or connecting power to circuit supplying unit.

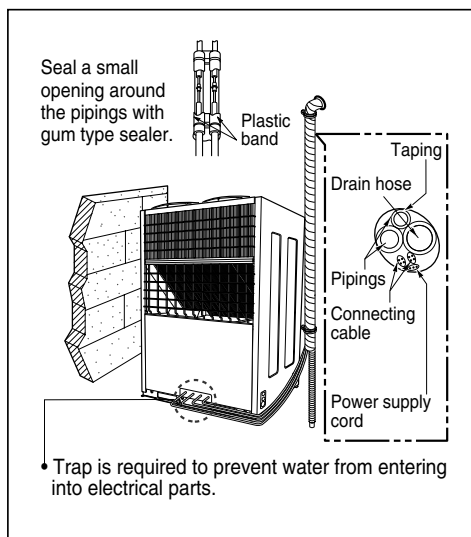
Forming the piping

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.

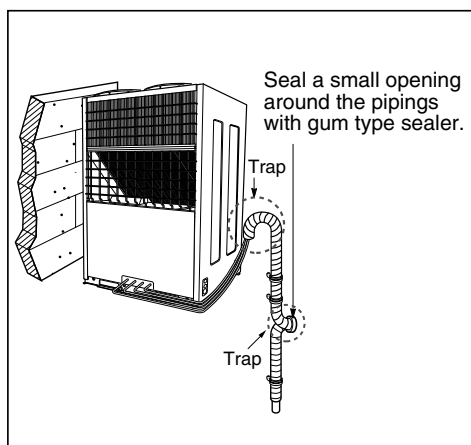
In cases where the outdoor unit is installed below the indoor unit perform the following.

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.



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

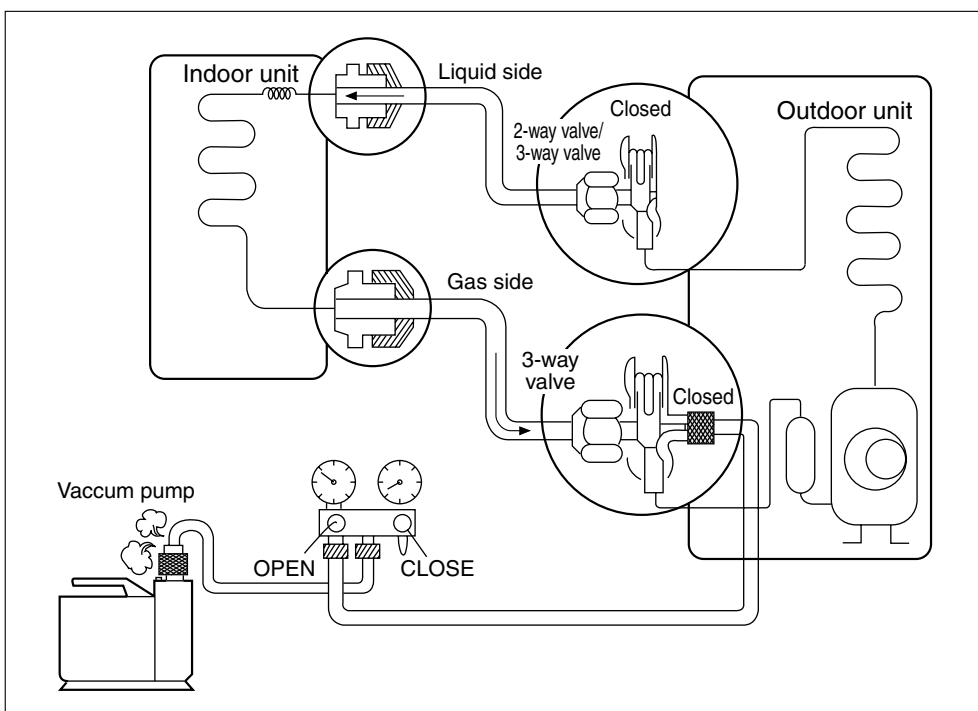
1. Tape the piping and connecting cable from down to up.
2. Secure the taped piping along the exterior wall. Form a trap to prevent water entering the room.
3. Fix the piping onto the wall by saddle or equivalent.



Air Purging of the Connecting Pipes and the Indoor Unit

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

1. Confirm that both the liquid side valve and the gas side valve are set to the closed position.
2. After connecting the piping, check the joints for gas leakage with gas leak detector.
3. Remove the service port nut, and connect the gauge manifold and the vacuum pump to the service port by the charge hose.
4. Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below -76cmHg.
5. Remove the valve stem nuts, and fully open the stems of the 2-way and 3-way valves with a hexagon wrench.
6. Tighten the valve stem nuts of the 2-way valve and 3-way valve.
7. Disconnect the charge hose and fit the nut to the service port.
(Tightening torque: 1.8kg.m)



Checking method

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.

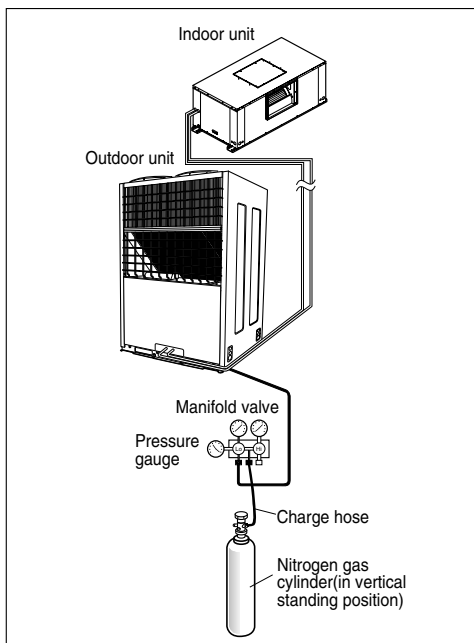
If it is not available, use a stop valve for this purpose. The "Hi" knob of the manifold valve must always be kept close.

- Pressurize the system to no more than 150 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reached 150 P.S.I.G. Next, test for leaks with liquid soap.



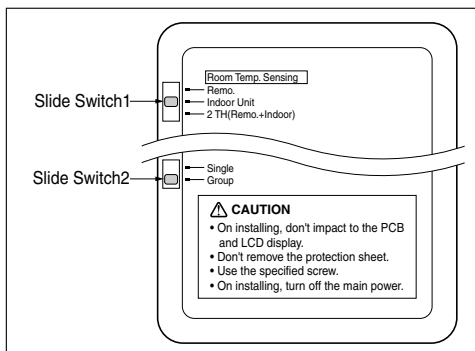
CAUTION: To avoid nitrogen entering the refrigerant system in a liquid state, the top of the cylinder must be higher than its bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.

1. Do a 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.
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.



Two Thermistor system

- Open the rear cover of Remote Controller to set up the mode.
- Selectable options are three as follows.
 - Remo: Sensing the room Temperature.
 - Indoor Unit: Sensing the intake air into indoor Unit.
 - 2 TH: Sensing the lower temperature of the two thermistors.
- To set up the mode, adjust the slide switch to desired mode position on installing.

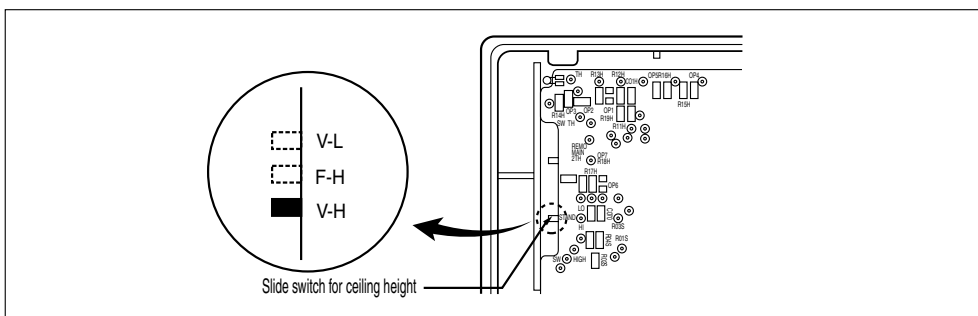


E.S.P.(External Static Pressure) Setting

Open the rear cover of the wired remote-controller to set the mode.
Select one of three selectable modes as follows.

■ Without Zone System

1. Position V-H, F-H:
 - This position sets the maximum E.S.P as a default set.
2. Position V-L:
 - This position sets the minimum E.S.P as a default set.



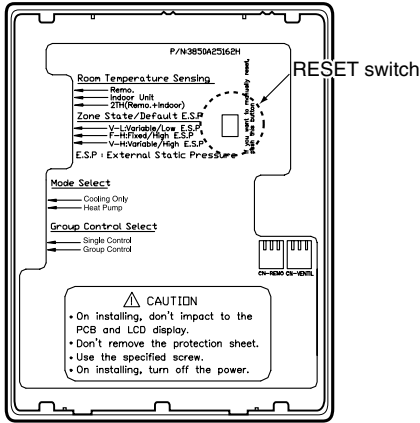
Close the rear cover and check if it works normally.



CAUTION:

- Select the position after checking duct work and E.S.P of the unit.
- Manufactured in the position F-H.

DETAIL INFORMATION OF SLIDE SWITCH



Room Temperature Sensing select Switch

1. Use Remocon's sensor
2. Use Indoor's sensor
3. Use sensor which has lower temperature between Remocon's and indoor's

Zone State/Default E.S.P

1. Variable/Low E.S.P
2. Fixed/High E.S.P
3. Variable/High E.S.P

Mode select switch

1. Cooling only
2. Heater pump

Group control select switch

1. Case of Single control
2. Case of Group control

* When changing the product selection switch and group control switch, you must press the reset switch to use the changed selection.

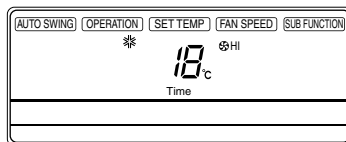
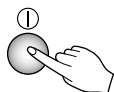
How to Set E.S.P?

Procedure of RPM change:

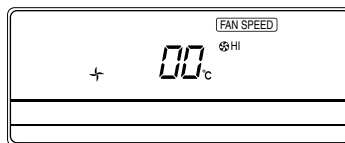
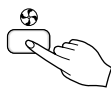
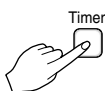
Ex) External Static pressure is 10mmAq for Model Name "LB-H1208VA0"

- To protect the unit, compressor is designed to be off during E.S.P. setting.

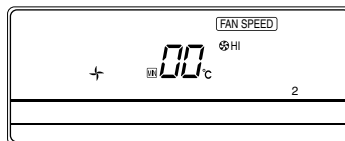
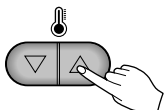
- 1 Push the "On/Off" button.
The unit will start.



- 2 Push the "Timer" and "Wind" button simultaneously for more then 3 seconds.



- 3 Push the "Up" of "Down" button for E.S.P adjustment.
And, adjust the number which you want. (In this example, the number is "200". Refer to the table 1 on the next page.)

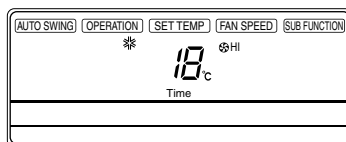
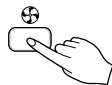


NOTICE The range of selection is from 1~254. Since, the display is two Digit only.
If the range selection is above 100 then the third digit will appear in the screen as shown.

- 4 Shift the fan speed mode by pressing the fan speed button.
And then, Adjust numbers of next steps by repeating the stage 3.
(In this example, the numbers are "220" and "240" respectively)



- 5 Push the "Timer" and "Wind" button simultaneously for more than 3 seconds.
Then, Wind Data is memorized by the EEPROM of the main PCB.



External Static Pressure & air Flow

[Table-1]. Evaporator Fan Performance Data

LB-H1208VA0

CFM	External Static Pressure(in aq)																					
	0		0.12		0.24		0.35		0.47		0.59		0.71		0.83		0.94		1.06		1.18	
	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)	RPM	INPUT(W)
3108	560	706	612	819	661	925	705	1020	745	1107	782	1187	818	1264	851	1336	883	1405	914	1472	944	1537
3496	614	972	666	1085	715	1191	759	1286	799	1372	836	1453	871	1529	905	1602	937	1671	968	1738	998	1803
3885	671	1275	723	1388	772	1495	816	1589	856	1676	893	1757	928	1833	962	1905	994	1975	-	-	-	-
4273	730	1617	783	1730	832	1837	876	1931	916	2018	953	2099	988	2175	-	-	-	-	-	-	-	-
4662	793	1998	845	2111	894	2218	938	2313	978	2399	-	-	-	-	-	-	-	-	-	-	-	-

MOTOR SPEED WITH CHOP VALUE

CHOP	RPM	CHOP	RPM	CHOP	RPM	CHOP	RPM	CHOP	RPM
245	968	195	807	145	646	95	485	45	325
235	936	185	775	135	614	85	453	35	293
225	904	175	743	125	582	75	421	25	260
215	871	165	711	115	550	65	389	15	228
205	839	155	678	105	518	55	357	5	196

Auto Function Setting

1. Press the "Timer + Fan Speed" button more than 3 seconds at the same time.
2. Press the Fan Auto button, then choose "■" or "■■■■".
3. Repeat the first step to keep the setting.

AIRFLOW SETTING IN WIRE REMOTE CONTROLLER	FAN OPTION CONDITION	COMP ON	COMP OFF
Low Airflow	■■■	Setting Airflow(Low Airflow)	Low Airflow
Medium Airflow	■■■	Setting Airflow(Medium Airflow)	Low Airflow
High Airflow	■■■	Setting Airflow(High Airflow)	Low Airflow
Low Airflow	■	Setting Airflow(Low Airflow)	Setting Airflow(Low Airflow)
Medium Airflow	■	Setting Airflow(Medium Airflow)	Setting Airflow(Medium Airflow)
High Airflow	■	Setting Airflow(High Airflow)	Setting Airflow(High Airflow)
Low Airflow(Choose to AUTO)	■■■	Setting Airflow(Low Airflow)	FAN OFF
Medium Airflow(Choose to AUTO)	■■■	Setting Airflow(Medium Airflow)	FAN OFF
High Airflow(Choose to AUTO)	■■■	Setting Airflow(High Airflow)	FAN OFF
Low Airflow(Choose to AUTO)	■	Setting Airflow(Low Airflow)	FAN OFF
Medium Airflow(Choose to AUTO)	■	Setting Airflow(Medium Airflow)	FAN OFF
High Airflow(Choose to AUTO)	■	Setting Airflow(High Airflow)	FAN OFF

Start-Up Pre-Start Quick Check List

- Is unit level and located with proper clearances?
- Is the duct work correctly sized, run, taped, insulated and weather proofed with proper unit arrangement?
- Is condensate line properly sized, run trapped and pitched?
- Is the filter of the correct size, clean and in place?
- Is the wiring properly sized and run in according to the unit wiring diagram?
- Are all wiring connections tight including those in unit and compressor electrical boxes?
- Has the unit been properly grounded and fused with the recommended fuse size?
- Have the air conditioning systems been checked at the service ports for charge and leak tested if necessary?
- Does the condenser fan and indoor fan turn freely without rubbing and are they tight on the shafts?
- Visually inspect the unit to ensure that the airflow required for the condenser coil is not obstructed from the unit.
- Inspect the control panel wiring to verify that all electrical connections are tight, and that wire insulation is intact.
- Has the indoor fan speed been determined and the proper speed been set?
- Has all work been done in accordance with applicable local and national codes?
- Are all covers and access panels in place to prevent air loss and safety hazards?



WARNING:

Bodily injury can result from high voltage electrical components. If operating checks must be performed with the unit operating, it is the technician's responsibility to recognize these hazards and proceed safely. Failure to do so could result in severe personal injury or death due to electrical shock or contact with moving parts.

Final Installation Checklist and Maintenance

- Is the condenser fan and indoor blower operating correctly, with proper rotation and without undue noise?
- Are the compressors operating correctly and has the system been checked with a charging chart?
- Have voltage and running currents been checked to determine if it is within limits?
- Have the air discharge grilles been adjusted to balance the system?
- Has the ductwork been checked for air leaks and condensation?
- Has the indoor airflow been checked and adjusted if necessary?
- Has the unit been checked for tubing and sheet metal rattles and are there unusual noises to be checked?
- Are all covers and panels in place and properly fastened?
- Has the owner or maintenance personnel been given this manual, warranty, and been instructed on proper operation and maintenance?

Routine Maintenance By Owner

You can do some of the periodic maintenance functions for your unit yourself; this includes cleaning air filters, cleaning unit cabinet, cleaning the condenser coil, and conducting a general unit inspection on a regular basis.



WARNING:

Before removing access panels to service unit, disconnect power supply. Failure to disconnect power before attempting any servicing can result in severe injury or death.

Air Filters

It is very important to keep the central duct system air filters clean. Be sure to inspect them at least once each month when the system is in constant operation. (In new buildings, check the filters every week for the first 4 weeks.)

Permanent type filters can be cleaned by washing with a mild detergent and water. Ensure that the filters are thoroughly dry before reinstalling them in the unit (or duct system).

Condenser coil

Unfiltered air circulates through the unit's condenser coil and can cause the coil's surface to become clogged with dust, dirt, etc.. To clean the coil, vertically (i.e., along the fins) stroke the coil surface with a soft bristled brush.

Keep all vegetation away from the condenser coil area.

Maintenance Performed by Serviceman-Cooling Season

To keep your unit operating safely and efficiently, the manufacturer recommends that a qualified serviceman check the entire system at least once each year, or more frequently if conditions warrant. Your serviceman may examine these areas of your unit:

1. Filters	→ For cleaning
2. Motors and drive system components	
3. Condenser coils	→ For cleaning
4. Safety Controls	→ For mechanical cleaning
5. Electrical components and wiring	→ For possible replacement or connection tightness
6. Condensate drain	→ For cleaning
7. Inspect the unit duct connections to ensure they are physically sound and sealed to the unit casing.	
8. Inspect the unit mounting support to see that it is sound.	
9. Inspect the unit to ensure there is no obvious deterioration.	

Maintenance Performed By Serviceman-Heating Season

Complete the unit inspections and service routines described below at the beginning of each heating season.



WARNING:

To prevent injury or death due to electrical shock of contact with moving parts, lock unit disconnect switch in open position before servicing unit.

To prevent an explosion and possible injury, death and equipment damage, do not store combustible materials, gasoline or other flammable vapors and liquids near the unit.

Inspect the control panel wiring to verify that all electrical connections are tight and wire insulation is intact.

