

Installer's Manual

Split System (R-410A)

*Air Handler for
Multi- Zone
Inverter System*
9,000 Btu/h to 24,000 Btu/h



Floor and Ceiling Type Models:

4MXX8509B10N0
4MXX8512B10N0
4MXX8518B10N0
4MXX8524B10N0

Warnings and Cautions

Warnings are provided to alert others of the potential hazards that could result in severe personal injury or death, while cautions are designed to alert others of the conditions that could result in minor or moderate injury.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

Attention: Warnings and Cautions appear at appropriate sections throughout this literature. Read these carefully.

⚠ WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION: Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE: Indicates a situation that could result in equipment or property damage.

⚠ WARNING

This equipment is to be serviced by professionally trained personnel ONLY. Under NO circumstances should an unqualified person service it. This equipment contains refrigerant under PRESSURE and operates at HIGH VOLTAGE. Improperly installed, adjusted or altered equipment by an unqualified person poses safety hazards including FIRE, ELECTROCUTION, or EXPLOSION, which could result in death or serious injury.

⚠ WARNING

Electrocution and Fire Hazards with Improperly Installed and Grounded Field Wiring!

Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in the National Electrical Codes (NEC) and your State and/or local electrical codes. All field wiring MUST be performed by qualified personnel. Failure to follow these requirements could result in death or serious injury.

Warnings and Cautions

WARNING

R410-A Refrigerant under Higher Pressure than R-22!

The units described in this manual use R410-A refrigerant which operates at 50 to 70% higher pressures than R-22. Use only R-410A approved service equipment. Refrigerant cylinders are painted with "pink" color to indicate the type of refrigerant and may contain a "dip" tube to allow for charging of liquid refrigerant into the system. For specific handling concerns with R-410A, please contact your local sales office.

Failure to use R-410A approved service equipment could result in standard equipment exploding under R-410A higher pressure which could result in death or serious injury.

NOTICE

Use appropriate oil with R410A systems. Oil type is found at the bottom of Connection Pipe Requirements table (included in the outdoor unit installation manual). R-410A systems utilize POE (Polyolester) or PVE (Polyvinyl Ether) oil. Both oil types absorb moisture readily, yet, lubrication properties vary. Do not leave the sealed system open to atmosphere except during service for a short period of time. If the sealed system is left open longer than four hours, the compressor oil must be changed. These systems utilize strainers placed before and after the expansion device in the outdoor unit, if debris or moisture is suspected, these strainers must be changed. Do not break a vacuum with air. Do not leak check the sealed system with compressed air. Unless instructed by factory service representative, external refrigeration driers are prohibited.

USE ONLY THE FACTORY RECOMMENDED OIL TYPE!

Important!

Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain chlorofluorocarbons (CFC's) and those containing hydrochlorofluorocarbons (HCFC's). Not all refrigerants containing these compounds have the same potential impact to the environment. The Company advocates the responsible handling of all refrigerants, including industry replacements for CFC's such as HCFC's and HFC's.

Responsible Refrigerant Practices



The manufacturer believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.


Contents

Safety Precautions	5
Pre-Installation Checklist.....	6
Items Shipped with the Unit and Necessary Tools.....	7
Unit Main Components.....	8
Refrigerant Piping Precautions	9
Installation Location	10
Installing the Indoor Unit	12
Floor Installation	12
Ceiling Installation	13
Installation of the Condensate Pipe	14
Design of the Condensate Pipe	15
Refrigerant Piping Requirements.....	16
Installing the Refrigerant Piping	18
Flaring Processing	18
Bending Pipes	18
Refrigerant Piping at the Outdoor Unit.....	19
Insulating the Refrigerant Piping and Connections.....	19
Wiring at the Indoor Unit	20
Stranded Wiring Connections	21
Electrical Connections.....	22
Electrical Cable Connection	22
Wiring Precautions	23
Grounding Requirements	23
Installation of Controllers.....	23
Post Installation Checklist	24
Test Operation	24
Wiring Diagrams.....	25
Indoor Unit Dimensions.....	26
Common Error Codes	27
Troubleshooting.....	28
General Maintenance.....	29
Check Before Seasonal Use	30
Maintenance After Seasonal Use	31
After Sales Service.....	31

Safety Precautions

Your personal safety and the proper operation of this equipment depend upon the strict observance of these precautions.

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 CAUTION	This mark indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.
NOTICE	This mark indicates a situation which could result in equipment and/or property damage.

 WARNING	
1.	Installation should be performed by a qualified HVAC professional. Industry Standard Personal Protective Equipment (PPE) and gear for height related safety should be worn during installation. Improper personal safety precautions and installation may cause death or serious injury.
2.	Install the air conditioner according to the instructions given in this manual. Incomplete installation work may cause water leakage, electrical shock or fire.
3.	Use the supplied or specified installation parts. Use of other parts may cause the unit to come loose, resulting in water leakage, electrical shock or fire.
4.	Install the unit in a location that can support the weight of the unit. An inadequate support structure or incomplete installation may cause injury or property damage in the event the unit falls off of the installation location. Refer to the installation specifications for additional requirements.
5.	Electrical work should be carried out in accordance with the installation manual and local, state and National Electric Code (NEC). Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
6.	Use a dedicated power circuit. Never use a power supply shared by another appliance.
7.	For wiring, use a cable that is long enough to cover the entire distance without splicing. Do not use an extension cord. Do not put other loads on the power supply; use a dedicated power circuit. Failure to do so may cause abnormal heat, electric shock or fire.
8.	Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the interconnecting wires so their terminals receive no external stresses. Incomplete connections or clamping may cause terminal overheating or fire.
9.	After joining the interconnecting and supply wiring, shape the cables so that they do not put undue force on the electrical covers or panels. Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shock, or fire.
10.	If any refrigerant leaks out during the installation, ventilate the room. The refrigerant produces a toxic gas if exposed to flames.
11.	When installing or relocating the system, keep the refrigerant circuit free from substances other than the specified refrigerant (R410-A), such as air. The presence of air or other foreign substances in the refrigerant circuit can cause an abnormal pressure rise or rupture, which could result in injury and damage.

Floor and Ceiling Unit

12. If a system pump-down is performed, turn off the associated equipment and close service valves prior to removing the refrigerant piping. Failure to do so will introduce non-condensables in the system, causing abnormal pressure in the refrigeration cycle which could lead to injury and damage.
13. Before system start-up, attach the refrigerant piping securely. Failure to do so will introduce non-condensables into the system when the compressor is running, causing abnormal pressure in the refrigeration cycle which could lead to injury and damage.
14. Establish a complete ground. Do not ground the unit to a utility pipe, arrester, or telephone ground. An incomplete ground may cause electrical shock, or fire. A high surge current from lightning or other sources may cause damage to the air conditioner.
15. If the power supply cable is damaged, it must be replaced by the manufacturer, its service agent or another qualified professional in order to avoid electrical risk during and after replacement.

CAUTION

1. Do not install the unit in a place where there is danger of exposure to flammable gas leakage. If gas leaks and builds up around the unit, it may result in fire.
2. After system installation is completed, make sure no refrigerant leakage is present.
3. This appliance is not intended for use by persons with a lack of experience and knowledge, unless they have been given adequate supervision or instruction concerning use of the appliance by a person responsible for their safety.
4. Children should be supervised to ensure that they do not play with the appliance.

NOTICE

1. Establish drain piping according to the instructions in this manual. Inadequate piping may cause flooding.
2. Tighten the flare nut according to the specified method. If the flare nut is tightened too hard, the flare nut may crack and cause refrigerant leakage.

Pre-Installation Checklist

1. Unpack and inspect each unit.
2. Check for any damage to the unit.
3. Check the model numbers to ensure a proper match.
4. Check the unit nameplate to ensure the proper electrical requirements will be met.
5. Check the installation locations to ensure the weight of the units can be supported.
6. Check the refrigerant pipe sizes and ensure they have been or will be installed according to the requirements in this manual.
7. Check the outdoor unit nameplate for electrical power supply and wiring requirements to ensure the proper wiring has been installed prior to connection.
8. Check the indoor unit for coil leakage. The pressure relief valve on the gas pipe should release pressurized nitrogen which ensures the unit has not leaked during shipping.

Items Shipped with the Floor and Ceiling Unit

After unpacking the unit(s), please refrain from disposing of the packaging materials until items listed below are located. If any of these are missing, please contact the point of sale to obtain these items.

Indoor Unit

1. Refrigeration pipe insulation (short piece)
2. Mounting brackets
3. Installation instructions (may be included in outdoor unit)
4. Flare nuts for connecting refrigerant pipes*
5. Mounting fasteners*
6. Wired remote control and 25 feet of connection cable.

*typically packaged in cellophane bubble

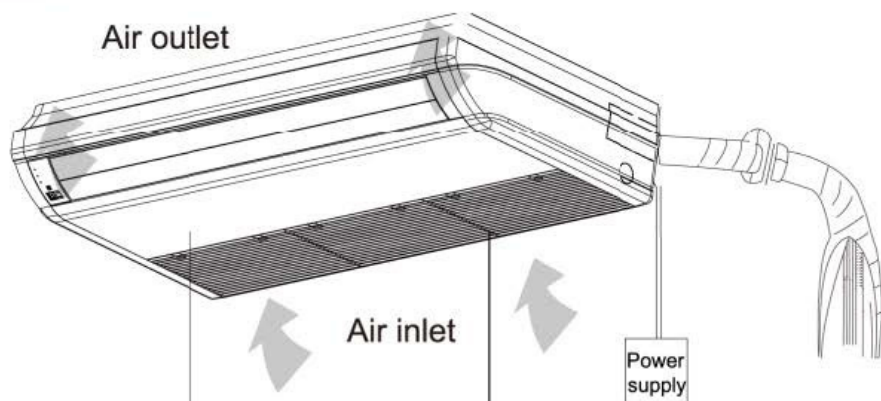
Necessary tools

1. Drill
2. Hole Saw
3. Phillips(TM) screwdriver
5. Vacuum pump capable of pulling to 350 microns
6. Manifold gauge set designed for this type of equipment
7. Manifold gauge hoses with 5/16" connections or 1/4" to 5/16" adapters.
8. Tubing benders
9. R-410A Flaring tool
10. Adjustable wrench
11. Nitrogen regulator
12. Nitrogen flow meter
13. Tube cutter
14. Torque wrench set

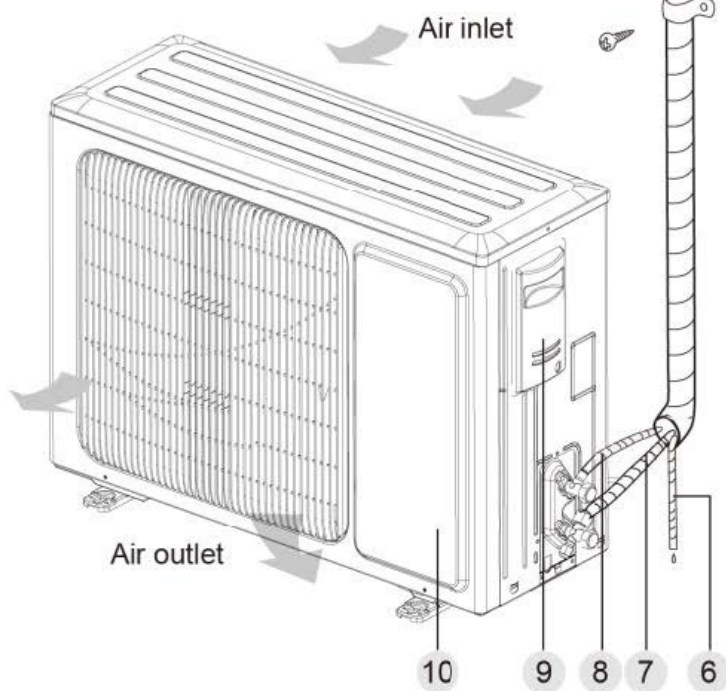
Floor and Ceiling Unit

Unit Main Components

Indoor



Outdoor



- 1. Guide Louver
- 2. Air Filter
- 3. Wired Controller
- 4. Wireless Controller (Optional)
- 5. Binding Tape
- 6. Drain Pipe
- 7. Gas Pipe
- 8. Liquid Pipe
- 9. Handle
- 10. Front Board

NOTE: The minimum distance from the floor to the bottom of the indoor unit is a minimum of 11.75" (300mm) for floor installation and 90.5" (2300mm) for ceiling installations.

Refrigerant Piping Precautions



Hazard of Explosion and Deadly Gases!

Failure to follow all proper safe refrigerant handling practices could result in death or serious injury. Never solder, braze or weld on refrigerant pipes or any unit components that are above atmospheric pressure or where refrigerant may be present. Always remove refrigerant by following the guidelines established by the EPA Federal Clean Air Act or other state or local codes as appropriate. After refrigerant removal, use dry nitrogen to bring system back to atmospheric pressure before opening system for repairs. Mixtures of refrigerants and air under pressure may become combustible in the presence of an ignition source leading to an explosion. Excessive heat from soldering, brazing or welding with refrigerant vapors present can form highly toxic gases and extremely corrosive acids.

NOTICE

System Component Damage!

Do not remove the seal caps from the refrigerant connections and piping until prepared to braze refrigerant pipes to the connections. Excessive exposure to atmosphere (greater than 5 minutes) may allow moisture or other particulates to contaminate the system, damaging valve seals and causing ice formation in the system components during operation.

Nitrogen Purging While Brazing

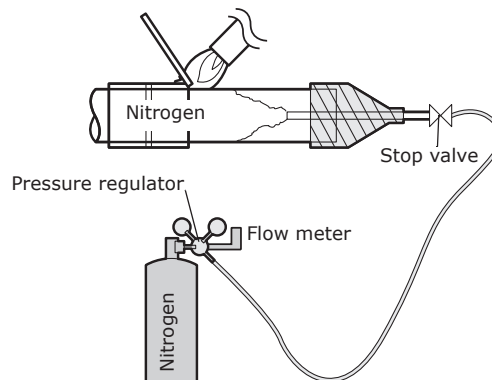
NOTICE

Avoid Unit Damage!

Never braze pipe connections without performing nitrogen purging. Failure to perform this procedure will damage the unit, resulting in capacity loss and reduced long-term reliability.

While brazing refrigerant pipes, continuously purge them with nitrogen gas. Use a pressure regulator to maintain a flow rate of 1.76 ft³ /h (0.05 m³ /h) or more.

Nitrogen purging while brazing refrigerant pipes



Floor and Ceiling Unit

Installation Location

Indoor Unit



Adequate Support Required!

The wall or ceiling structure must be adequate to support the weight of the unit. Failure to ensure adequate structural support could result in death, serious injury, and equipment or property damage.

1. Avoid locating the indoor unit where the return and/or supply air may be obstructed.
2. Select a location where it is easy to route refrigerant lines and communication wiring to the outdoor unit.
3. Select a location where it is easy to drain the condensate water and connect to the outdoor unit.
4. Keep the indoor unit away from heat sources, vapor and flammable gas.
5. Select a location that meets or exceeds the clearance specifications in this manual.
6. It is not recommended that this unit be installed in or near a kitchen environment. If adequate distance from the kitchen cannot be achieved, the kitchen must have adequate ventilation to prevent contamination of the units external and internal working parts.
7. Be sure that the installation of the indoor unit conforms to the installation dimension diagram.
8. Ensure the installation is horizontally level.
9. Be sure to leave enough space to allow access for routine maintenance; clearance between the bottom of the indoor unit and the floor is a minimum of 11.75" (300mm) for floor installation and 90.5" (2300mm) for ceiling installations.
10. Install in a location where the unit is more than 3 feet away from other electronic appliances that could cause interference such as television, audio devices, etc.
11. Select a location where air filters can be easily removed and replaced.
12. When installing the threaded rod or bolt, check if the installation location can withstand 4 times the weight of the unit. If not, reinforce before installation.

NOTICE

Installing the unit in one of the following locations could result in unit malfunction:

1. Places where oil (machine oil) is used.
2. Seacoast places with high levels of salt in the air.
3. Places with high levels of sulphur gas such as areas with hot springs.
4. Places where high-frequency waves are generated by radio equipment, welders and medical equipment.
5. Other unusual places where unit operation may be altered.
6. Places where minimum clearances cannot be met.

For instructions on installing the outdoor unit please refer to the installation guide supplied with the selected outdoor unit for your application.

Installing the Indoor Unit



WARNING

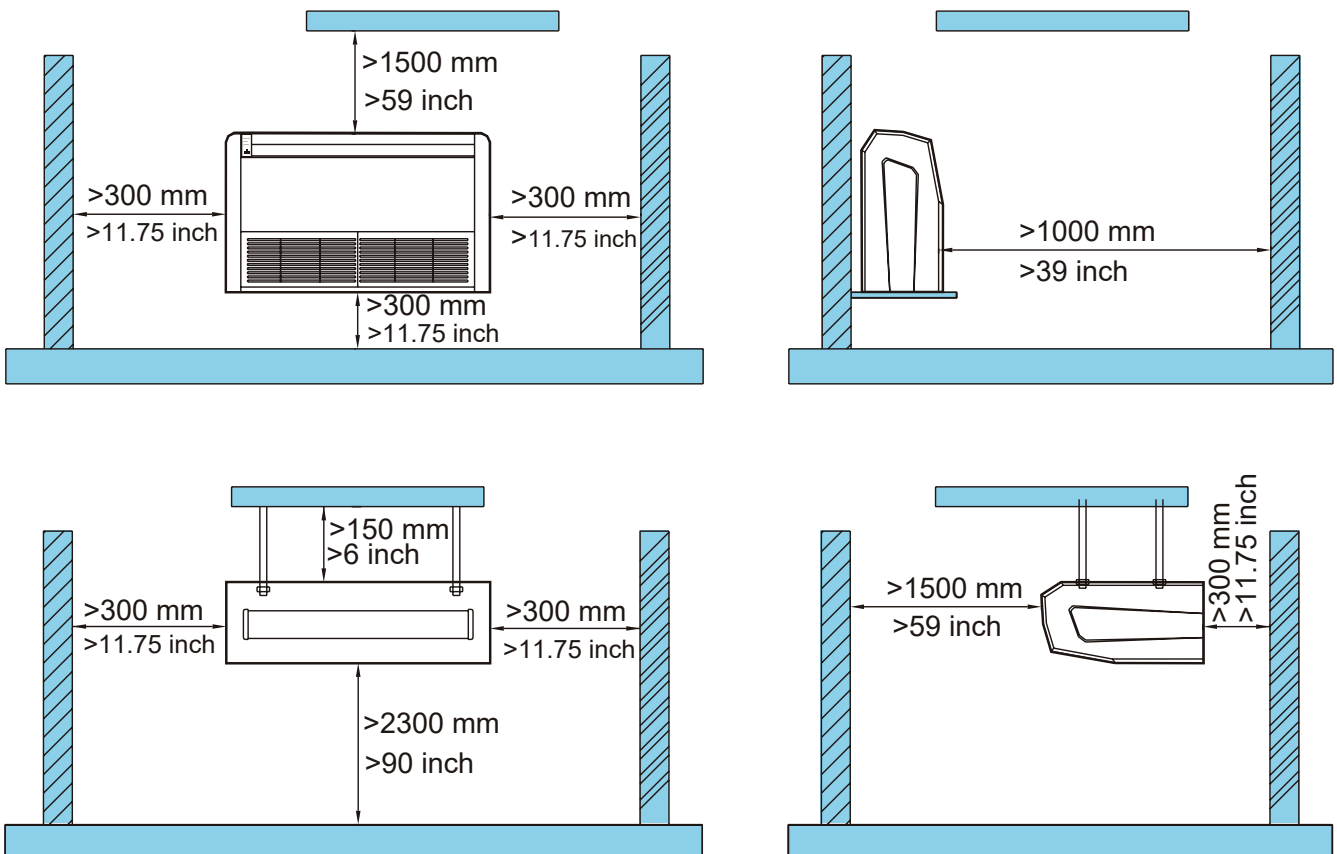
Hazardous Service Procedures!

The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. Disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tag out procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

Mounting Location

1. Confirm the mounting location with the customer. Keep in mind the basic installation guidelines on page 10.
2. The drilling of holes in the ceiling must be done by the installing technician.
3. Ensure the hanging point is strong enough to support 4 times the weight of the unit.
4. The weight of the unit should be shared equally by the expansion bolts.

Clearance Requirements

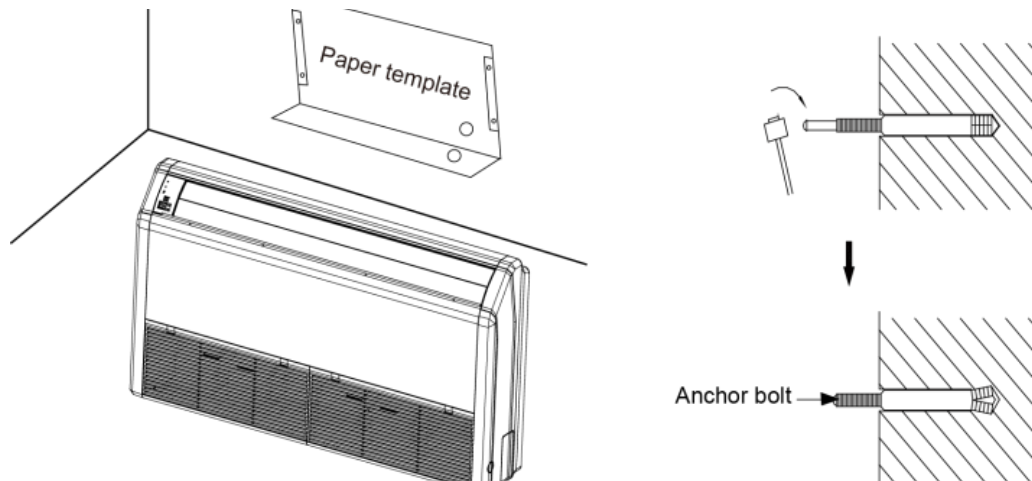


Floor and Ceiling Unit

Installing the Indoor Unit

Prepare the Indoor Unit

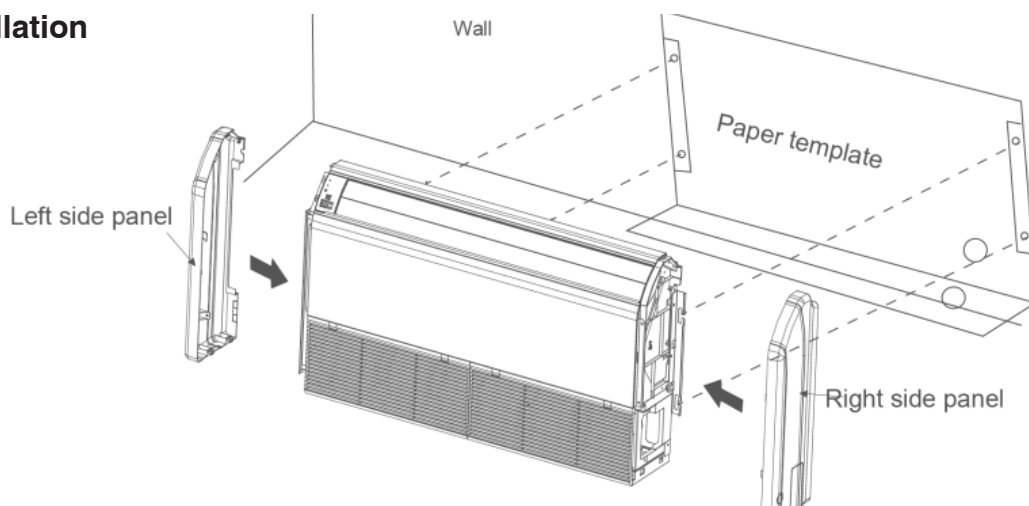
1. Determine the mounting location on the ceiling or wall by using the installation template. Mark the bolt locations and remove the installation template.
2. Remove the return air grille, side panels and the hanger bracket from the indoor unit. Open the air inlet grille and the screw cover and remove the screws.
3. Loosen the side panel fixing screw and remove the side panels.
4. Loosen the two hanger bracket setting bolts (M8) on each side by about 0.4 inches (10mm).
5. Remove the two hanger bracket fixing bolts (M6) on the rear side. Detach the hanger bracket by pulling it backward.
6. Release the claws in the 3 places indicated.
7. Release the center hook and remove the front panel.
8. Release the claws in the places indicated on the electric box cover and remove the box.



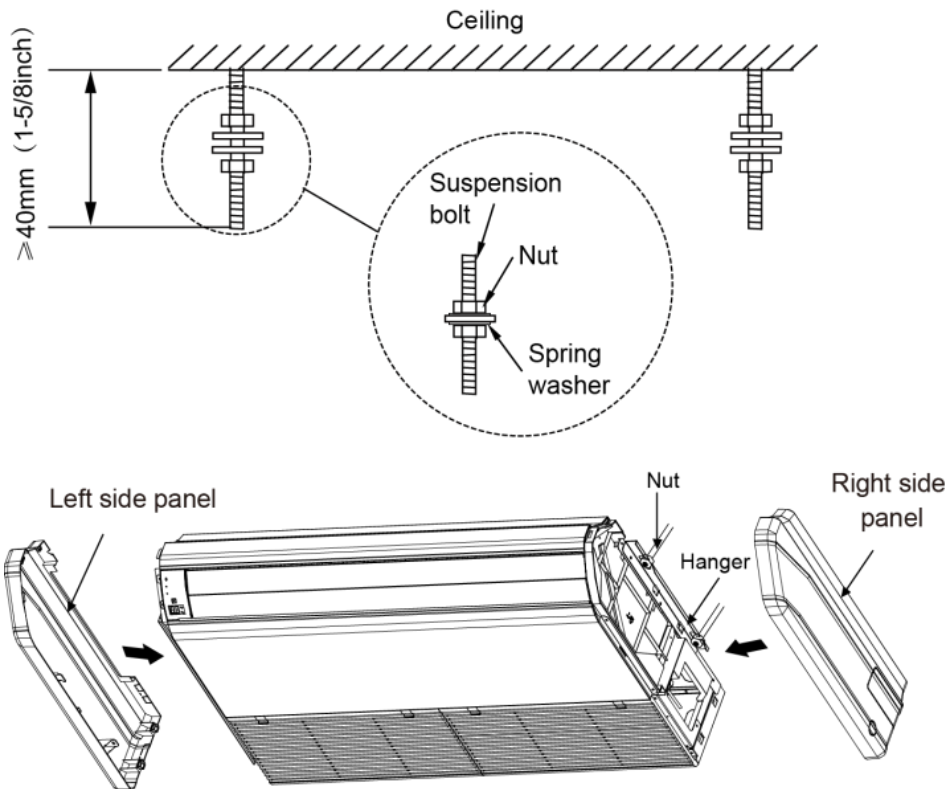
Installing the Unit

1. Once the mounting location has been marked using the installation template, drill the mounting holes. The unit must be level to ensure proper condensate drainage.
2. Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer.
3. Fix the hanger bracket to the anchor bolts.
4. Put the hanger bolt into the clasp of the indoor unit and tighten the screws on the hanger to prevent the indoor unit from moving.
5. Reinstall and tighten the right and left side panels.

Floor Installation



Ceiling Installation



WARNING

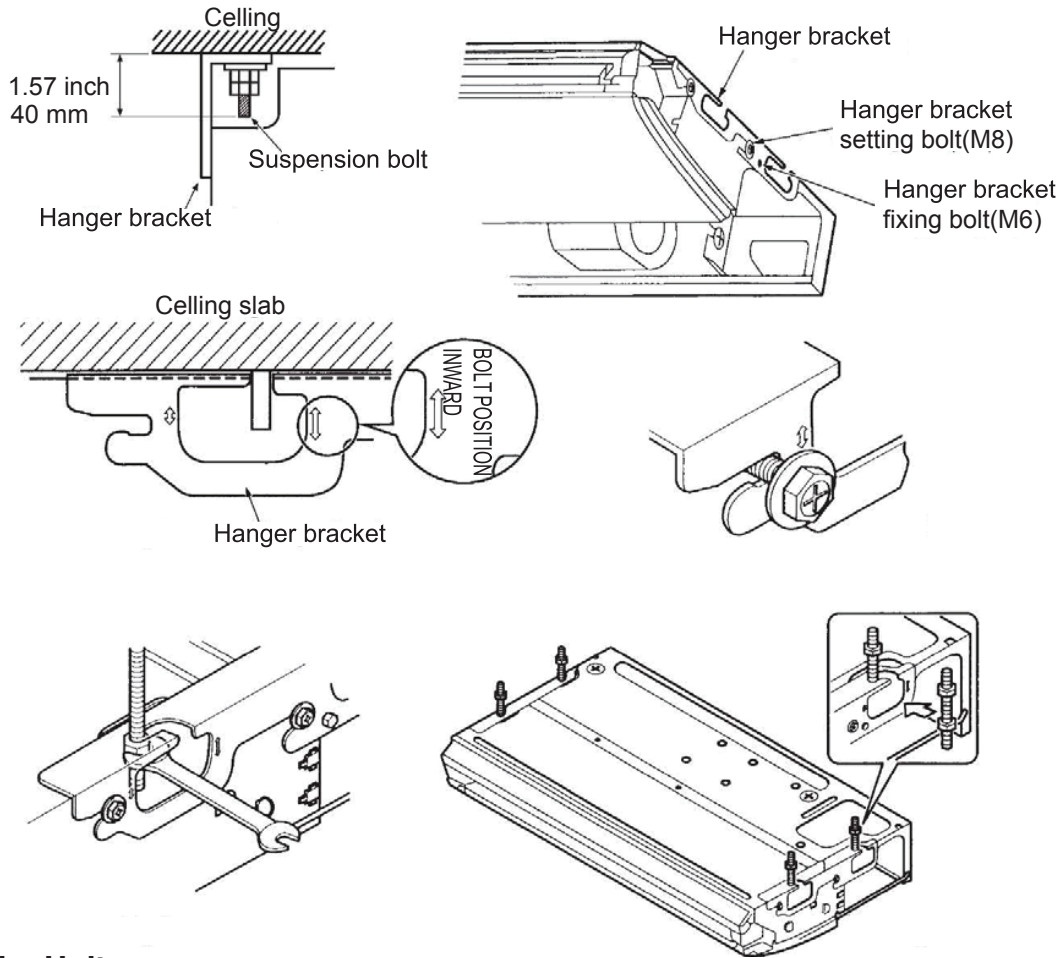
Adequate Support Required!

The wall/ceiling structure must be adequate to support 4 times the weight of the unit. Failure to ensure adequate structural support could result in the unit falling from its location which could result in death, serious injury, or equipment or property-only damage.

1. Set the suspension bolts and adjust the distance from the unit to the ceiling before hanging the unit.
2. Fix the hanger bracket to the suspension bolt. Make sure that the extended suspension bolt is firmly seated into the ceiling support.
3. Lift the unit and slide it forward until it is in place in the hanger brackets.
4. Tighten both hanger bracket setting bolts (M8).
5. Tighten both hanger bracket fixing bolts (M6) to prevent displacement of the indoor unit.
6. Adjust the height so the rear side of the drain pipe is at a slight decline for improved condensate drainage.
7. Reinstall and tighten the right and left side panels.

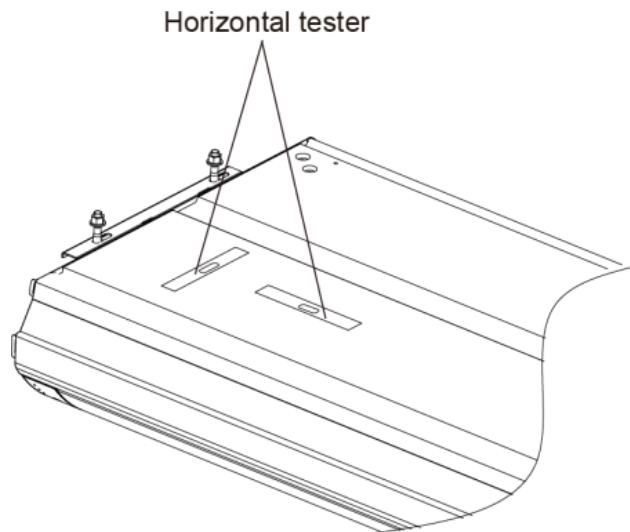
NOTE: Only the specified accessories and parts for installation work should be used.

Floor and Ceiling Unit



Levelling the Unit

1. Ensure that the unit is level side to side for floor applications.
2. For ceiling applications the unit must be level side to side. Adjust the height of the unit fore and aft to make the drain pipe slant slightly downward so condensate water will flow properly.



Installation of the Condensate Pipe



Seal properly and verify there is no water leakage from the joint of the condensate pipe. Failure to do so may result in equipment and/or property damage.

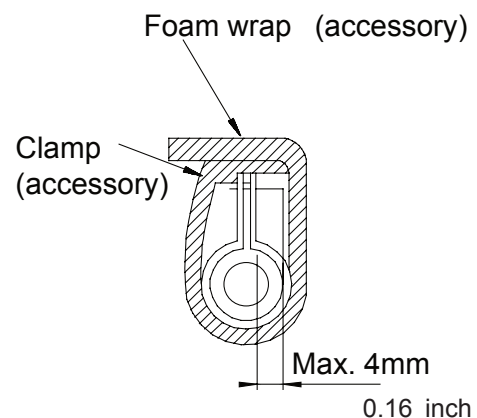
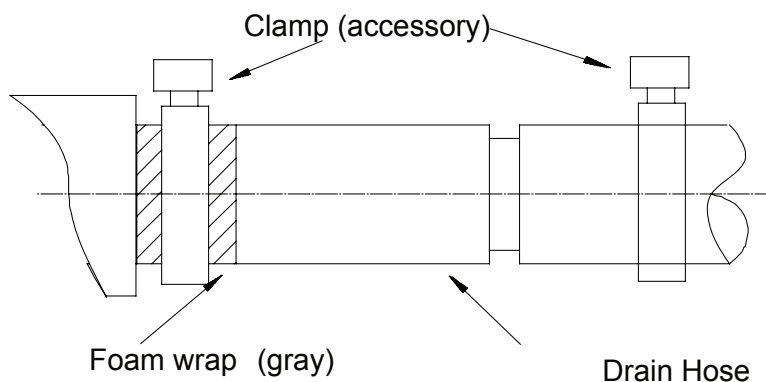
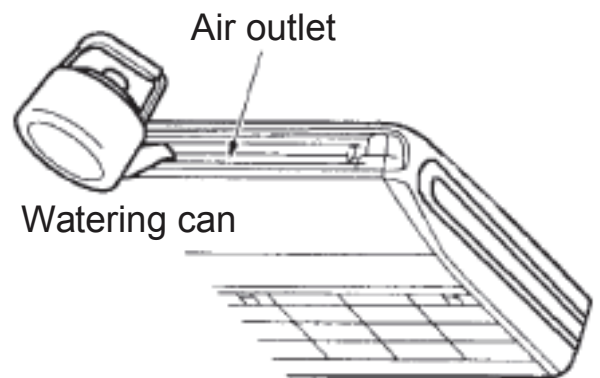
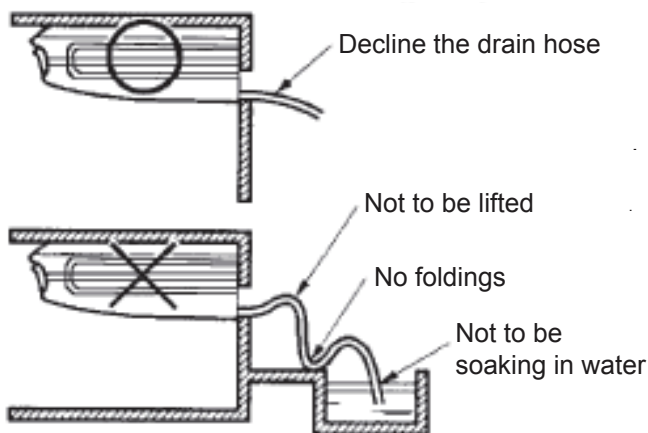
Design of the Condensate Pipe

1. Either the right rear or right side of the unit is suitable for affixing the condensate pipe.
2. The drain pipe should maintain a downward sloping angle of 5~10° to avoid water accumulation or improper drainage which could lead to equipment and/or property damage.
3. When connecting the drain pipe to the unit, avoid excessive force on the connection. The pipe should be as close to the unit as possible.
4. Construct the drain pipe from material approved by the Authority Having Jurisdiction (AHJ). Make a liquid tight connection between the drain hose and main drain with a clamp rather than adhesive.
5. The diameter of the drain pipe should be greater than or equal to that of the refrigerant pipe. (PVC pipe, outer diameter : 1 inch (25mm), wall thickness \geq 0.05 inches (1.5mm).
6. The drain pipe should be as short as possible and with at least a 0.6 degree slope to avoid forming air pockets.

Installation of the Condensate Pipe

1. Use the supplied drain hose and clamp.
2. Insert the drain pipe into the opposite end of the drain hose and clamp securely (this clamp supplied by installer). Do not use adhesive at this joint.
3. Insert the drain hose completely into the drain socket. Tighten the clamp to ensure a good seal.
4. Wrap the attached foam wrap over the clamp and drain hose to insulate.
5. Confirm that adequate drainage is achieved after the condensate hose has been attached. Test by pouring water into the drain pan from the air outlet.

(When drain hose is connected)



Floor and Ceiling Unit

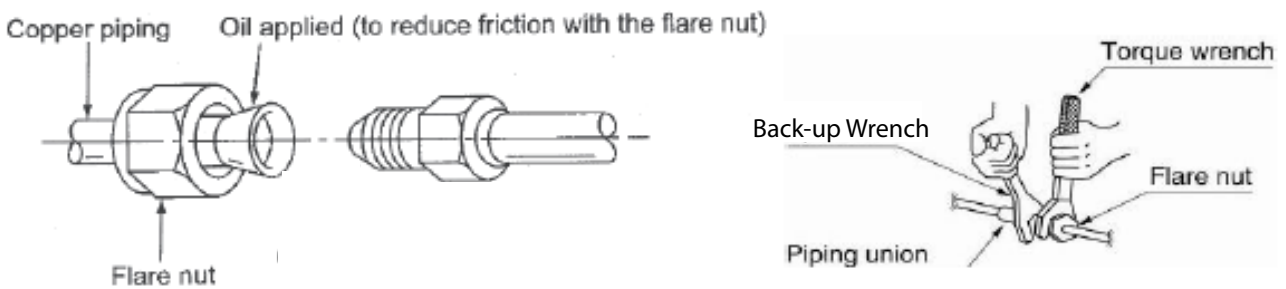
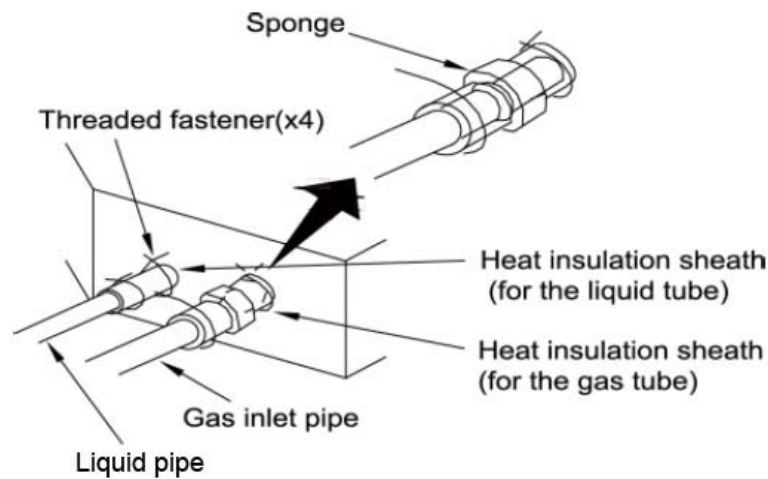
Refrigerant Piping Requirements

Note: Until the outdoor unit is set and ready to connect refrigeration pipes, do not remove the caps from the indoor unit.

NOTICE
1. Connect each pipe to its port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged. Refer to the flaring process guidelines in this manual for additional information.
2. Do not remove the tube caps nut until the connection pipe is made ready to prevent dust and impurities from entering the system.

1. Connect each pipe to its port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged. Refer to the flaring process guidelines in this manual for additional information.
 2. Do not remove the tube caps nut until the connection pipe is made ready to prevent dust and impurities from entering the system.
-
1. When connecting refrigerant pipe to the unit or removing it from the unit, please use both a back-up wrench and the torque wrench. See illustration on page 17.
 2. When connecting, place the equipment specified oil type on the backside of the copper tube flare prior to tightening. Do not place oil on the flare face, as this will promote system contamination, tighten it by hand and then tighten it with the spanner or adjustable wrench.
 3. Refer to the torque reference table within this document before tightening to determine the appropriate torque (over-tightening will damage the nut and lead to leakage).
 4. Use dry Nitrogen to pressurize the piping circuit with 150 PSIG and allow it to hold while performing other installation processes. It is recommended to apply a soap bubble solution and observe the connection.
 5. Evacuate each individual refrigeration circuit to 350 microns or below, and close off the valve to the vacuum pump. If the pressure rises above 500 microns within one minute, but not above 1500 microns within 5 minutes, moisture is present. If the pressure continues to rise above 1500 microns, a leak exists in the circuit being tested.
 - a) If moisture is present, use triple evacuation process to eliminate the moisture.
 - b) If a leak is present, leak check all joints and piping.Evacuation is not completed until the micron gauge does not rise above 500 microns within one minute after achieving 350 micron pressure vacuum.
 6. After evacuation is complete, additional charge can be added.
 - a) If no additional charge is required, break the vacuum with refrigerant, then remove the gauge connectors.
 - b) slightly open the liquid valve at the OD unit, allow system to equalize, then fully open the liquid valve and then open the vapor service valve.
 7. After leak checking is complete, apply thermal insulation around the flare connections and all exposed refrigeration pipes Refer to the guidelines for insulating refrigerant piping and connections in this manual for additional information.
 - a) Seal the insulation
 - b) Inspect the insulation to assure no breakages are present.

NOTE: Use Dry Nitrogen for leak checking purposes. Never use oxygen, compressed air, or any flammable gas for leak checking purposes.



Pipe Diameter in. (mm)	Tightening Torque
1/4 (6.35)	11.25-14.75 ft-lbf / 15 ~ 20 N•m
3/8 (9.52)	22.25-29.50 ft-lbf / 30 ~ 40 N•m
1/2 (12.7)	33.25-40.50 ft-lbf / 45 ~ 55 N•m
5/8 (15.9)	44.25-47.75 ft-lbf / 60 ~ 65 N•m

⚠ CAUTION

1. During the connection of the indoor unit and the refrigerant pipe, never pull any parts of the indoor unit forcefully: otherwise the refrigerant pipes or other pipes may crack, which would then result in leakage.
2. The refrigerant piping should be supported by brackets. Unsupported piping will put stress on the indoor unit and could lead to leaking or breakage.

Install refrigeration lines matching the indoor unit refrigeration tubing diameters. Tube adapters are supplied with the outdoor unit in order to complete the connection at the outdoor unit.

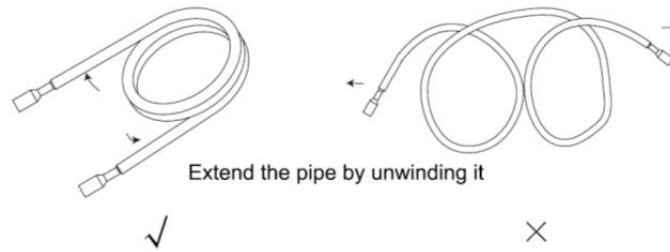
Floor and Ceiling Unit

Installing the Refrigerant Piping

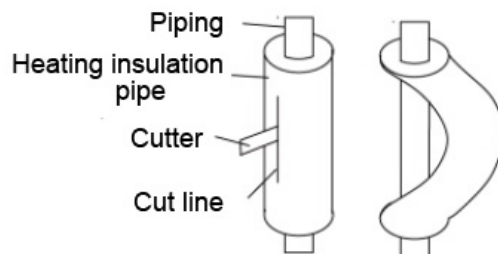
Flaring Process

1. Hold the pipe downward to prevent cuttings from entering the pipe.
2. Using an appropriate tube cutter and deburring tool, cut and deburr the refrigerant pipe.
3. Remove the flare nuts at the stop valve of the outdoor unit and inside the accessory bag of the indoor unit, put them onto the refrigerant pipe as shown below then flare the refrigerant pipe with a flaring tool.
4. When flaring copper tubing, only use flaring tools that utilize an orbiting mandrel and clutched handle. These are typically referenced as R410A flaring tools. By using this type of flaring tool, the copper tubing is rolled while being pressed, thereby reducing the probability of copper flare cracking.
5. Check if the flare part is spread evenly and there are no cracks.

Bending Pipes



1. Use a refrigerant pipe bending tool to shape refrigerant piping; smaller diameter piping may allow for light hand bending, providing minimum diameter of 6 inches.
2. Do not bend the pipes in an angle more than 90°.
3. When pipes are repeatedly bent or stretched, the material will be prone to damage, which may lead to refrigerant leaks. Do not bend or stretch the pipes more than three times.
4. Do not bend the pipe while insulated. First, cut the insulation with a sharp cutting tool and expose it to the appropriate bend radius, as shown below. After bending the pipe, replace the insulation and seal it with pipe wrap tape.



NOTICE

1. To prevent distortion and breaking of the pipe, bend the pipe with a radius of curvature of 6 in. (150 mm) or more. Use a tubing bender when forming the copper tubing into a bend.
2. If the pipe is bent repeatedly at the same place, it will break.

NOTICE

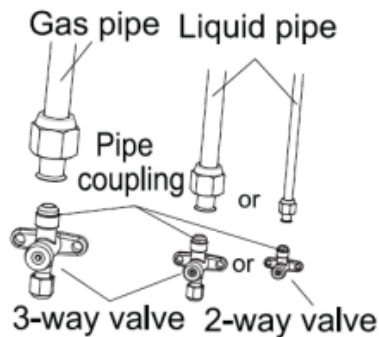
1. To prevent distortion and breaking of the pipe, bend the pipe with a radius of curvature of 6 in. (150 mm) or more. Use a tubing bender when forming the copper tubing into a bend.
2. If the pipe is bent repeatedly at the same place, it will break.

CAUTION

Connect the gas pipe after connecting the liquid pipe completely.

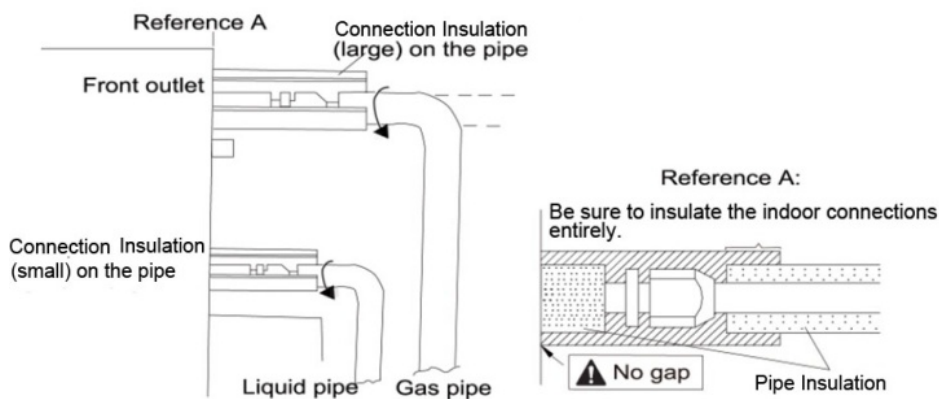
Refrigerant Piping at the Outdoor Unit

Tighten the flare nut of the connection pipe at the outdoor unit valve connector. Follow the flare nut guidelines in this manual.



Insulating the Refrigerant Piping and Connections

1. The refrigerant pipes should be insulated and wrapped with appropriate insulating material and wrapping tape. This will prevent condensation, water leakage and damage to the insulating material.
2. The connections at the indoor unit should be wrapped with insulating material. No gap is allowed on the joint of the indoor unit, as shown below.



Floor and Ceiling Unit

Wiring at the Indoor Unit



Disconnect all electrical power and discharge all energy storing devices such as capacitors to the outdoor unit(s) prior to wiring the indoor unit(s) to avoid risk of death, injury, or damage to equipment.



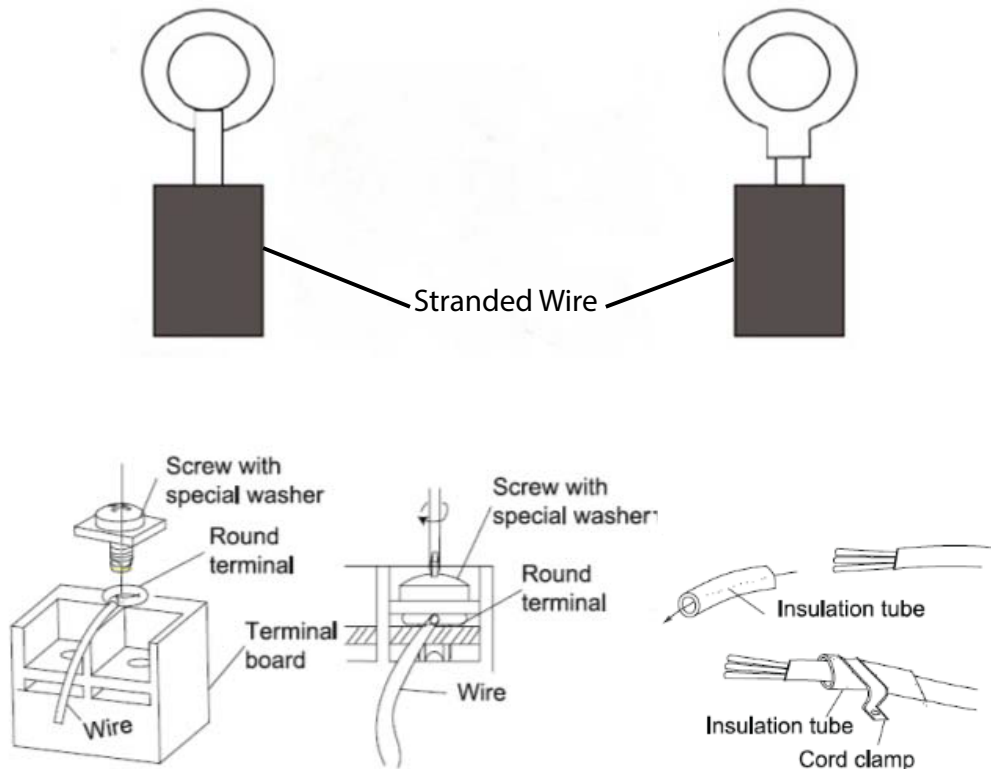
1. If the power cord or the communication line are damaged, they must be replaced with the required replacement part.
2. Prior to wiring, please check the electrical information marked on the nameplate and carry out the wiring following the wiring diagram.
3. The unit must be grounded to prevent electrical shock hazards.
4. All wiring should be done strictly in accordance with the wiring diagram. Improper wiring would cause abnormal operation or damage to the unit.
5. Do not let the electrical wires touch the refrigerant pipe, the compressor, the fan or other moving parts.
6. Do not modify the wiring inside the indoor unit, otherwise the manufacturer will not assume any responsibility for damage or abnormal operation of the unit.

1. Open and remove the front panel of the unit.
2. Remove the cover of the electrical box of the indoor unit.
3. Route the power connection cord from the back of the indoor unit and pull it toward the front through the wiring hole.
4. Insert the power cord through the rubber ring.
5. Pull the 4-wire cable through the wiring hole of the chassis upward, then connect the power line and the communication line from the outdoor unit to the corresponding terminals N(1), 2, 3 and grounding terminal of the indoor unit. Wiring shall be done properly as per the wiring diagram. (NOTE: Be sure the wiring terminals A/B/C/D/E and piping ports A/B/C/D/E of the indoor unit match with that of the outdoor unit respectively).
6. Replace the cover of the electrical box of the indoor unit.
7. Reinstall and secure the front panel of the unit.
8. Do not allow the wiring to come in contact with any of the refrigerant lines.

Stranded Wiring Connections

Cut the wire end with a wire cutter or wire cutting pliers, then strip the insulation about 3/8" (10mm).

1. Using a screwdriver, remove the terminal screw(s) on the terminal board.
2. Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
3. Position the round terminal wire, and replace and tighten the terminal screw with a screwdriver.
4. Affix and secure the power supply and connection wiring under unit wiring clamps.



WARNING

1. Ensure power supplied to the equipment (both indoor and outdoor units) is disconnected and the units are not energized prior to performing work on the system.
2. Improperly installed field wiring poses fire and electrocution hazards. Install wiring carefully.
3. Secure the connection wires firmly to the terminal block. Improper installation may cause a fire.
4. Always fasten the outside covering of the connection wire with wire clamps. If the insulator is not clamped, electric leakage may occur.
5. Always completely connect the ground wire.

Note:

Match the terminal block numbers and connection wire colors with those of the indoor units.

Floor and Ceiling Unit

Electrical Connections

CAUTION
Improper operation may lead to personal injury or property damage.
Size the power supply wiring according to the NEC, local code and the MCA indicated on the unit nameplate.

Electrical Cable Connection

Model	Power Supply	Wiring between indoor unit and outdoor unit
4MXX8509B	208/230V-60Hz, 1 phase	14 AWG / 600 volt / Stranded Wire / 4 Wires
4MXX8512B		
4MXX8518B		
4MXX8524B		

1. Always check the unit nameplate for the MCA and MOP requirements.
2. The fuse is located on the main electrical board.
3. The indoor unit must be powered from the outdoor unit. If a disconnect is required by the Authority Having Jurisdiction (AHJ), a three pole disconnect must be used. Any means of disconnecting shall meet the approval of the AHJ
4. Install a separate disconnect at the outdoor unit. The power supply, wiring and grounding of equipment must comply with National, State and/or local codes. The power supply must match with the equipment nameplate specification.
5. Improperly installed and grounded field wiring poses fire and electrocution hazards. For high voltage connections, flexible electrical conduit is recommended whenever vibration transmission may create a noise problem within the structure. To avoid these hazards you **MUST** follow requirements for field wiring installation and grounding as described in the National Electrical Codes (NEC) and your State and/or local electrical codes. All field wiring **MUST** be performed by qualified personnel. Failure to follow these requirements could result in death or serious injury.
6. The wiring, including the ground wire, between the indoor and outdoor units should be at least 14 AWG, 600 volt rated, stranded wire, with an absolute maximum length of 230 ft. (70m). Shorter lengths result in more robust communication between the indoor and outdoor unit. Please select an appropriate length for the installation conditions. The wires cannot be cut and spliced together.
7. For the wired controller: The communication distance between the main board and the wired controller can be up to 65 ft. (19.8m). The standard distance is 25 ft. (7.6m).

Wiring Precautions



CAUTION

Improper operation may lead to personal injury or property damage.

Note: When connecting the power supply cord, make sure that the phase of the power supply matches with the voltage and phase indicated on the nameplate, . If the power supply does not match the nameplate, the compressor will not operate properly and the equipment may be damaged.

Grounding Requirements

- Follow your local, State and National Electric Codes (NEC) when grounding this unit.
- The air conditioner is classified as a Class I appliance and must be grounded.
- The yellow-green wire of the air conditioner is the ground wire and cannot be used for other purposes or cut off, otherwise it would create an electric shock hazard.
- Do not ground the unit to a utility pipe, arrester or telephone ground. Incomplete ground may cause electrical shock or fire. A high current surge from lightning or other sources may cause damage to the air conditioner.

Installation of Controllers

Refer to the controller installation manual for instructions and functionality.

Floor and Ceiling Unit

Post Installation Checklist

Check the following points before testing the unit:

NO.	Item to be checked	Possible problem
1	Have the indoor and outdoor units been securely installed?	The units may fall, vibrate or make noise.
2	Has the refrigerant leak test been completed?	Unresolved leaks may cause insufficient cooling or heating.
3	Have the pipes been properly insulated?	Lack of insulation may cause condensation and water damage.
4	Is the water condensate drainage sufficient?	Lack of proper drainage may cause condensation and water damage.
5	Does the voltage of the power supply comply with the voltage on the nameplate?	Incorrect power supply can create malfunction and fire or electrocution hazard.
6	Is the electric wiring and drain piping installed correctly?	Improper wiring and drainage can create a malfunction, fire or electrocution hazard and water damage to the unit and property.
7	Is the unit grounded properly?	Improper grounding can cause malfunction and fire or electrocution hazard.
8	Does the power wiring match the unit requirements?	Improper wiring can create malfunction and fire or electrocution hazard.
9	Are there any obstructions near the air inlets and air outlets for the indoor and outdoor units?	Improper ventilation and airflow will cause insufficient cooling and heating and possible freezing and condensate issues at the indoor unit.
10	Have dust and debris been cleaned and removed from the installation site?	Excessive dust and debris in and around the units may cause a malfunction or damage to the units.
11	Are the gas valve and liquid valve of the connection pipes open completely?	Restricted refrigerant flow may cause insufficient cooling or heating.

Test Operation:

1. Turn on main power to the units.
2. Using the remote control, press the ON/OFF button to start operation.
3. Press the MODE button to select and test each option for normal operation. Cycle through all functions: AUTO, COOL, DRY, FAN and HEAT (heat pump models only).
4. Note: When conducting this test, be mindful of the modes of operation and the ambient temperature ranges specified in this manual.
5. Instruct the end-product user about basic operating, maintenance and troubleshooting functions.

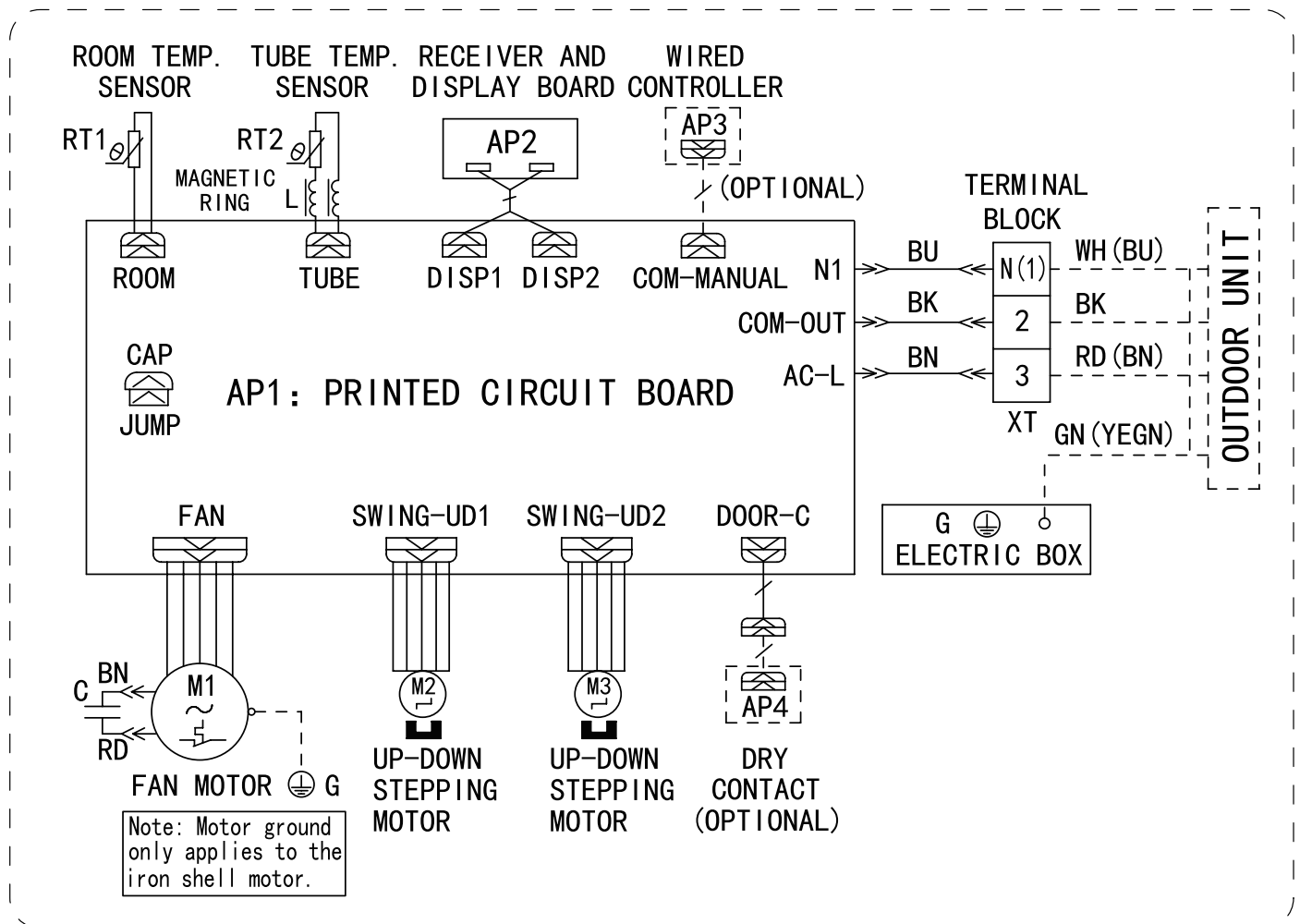
Wiring Diagrams

Color Key

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	CAP	Jumper cap
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue		Grounding wire
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

NOTE: Jumper cap is used to determine fan speed and the swing angle of horizontal louver for this model

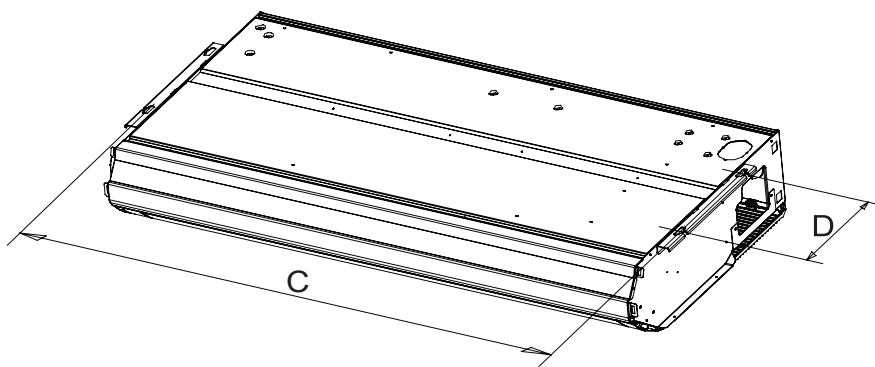
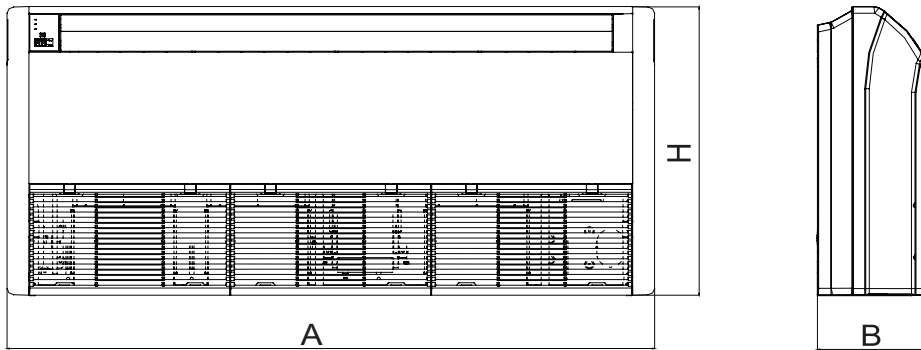
Indoor Unit Wiring Diagram



NOTE: The wiring diagrams in this guide are included as a reference. The manufacturer has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. Always check the unit nameplate and wiring diagram for the actual unit requirements.

Floor and Ceiling Unit

Indoor Unit Dimensions 4MXX8509B-4MXX8524B



Unit: inch (mm)

Model	A	B	H	C	D
4MXX8509B	34.2 (870)	9.2 (235)	26.2 (665)	32 (812)	12.5 (318)
4MXX8512B					
4MXX8518B					
4MXX8524B	47.2 (1200)	9.2 (235)	26.2 (665)	45 (1142)	12.5 (318)

Common Error Codes

Error Code	Error
E1	Compressor high pressure protection
E2	Indoor anti-freeze protection
E3	Compressor low pressure protection, refrigerant lack protection and refrigerant collecting mode
E4	Compressor high discharge temperature protection
E5	AC over-current protection
E6	Communication error
E7	Mode conflict
E8	Anti-high temperature protection
F1	Indoor ambient temperature sensor is open/short circuited
F2	Indoor evaporator temperature sensor is open/short circuited
F3	Outdoor ambient temperature sensor is open/short circuited
F4	Outdoor condenser temperature sensor is open/short circuited
F5	Outdoor discharge temperature sensor is open/short circuited
C5	Jumper cap malfunction protection
EE	Loading EEPROM malfunction

NOTE: If there're other error codes, please contact qualified professionals for service.

If any of the following occurs, shut off the unit and contact your dealer or qualified service technician:

- Power cord overheats or becomes damaged
- If you notice a burning smell
- The unit trips the breaker panel or cycles off frequently without obtaining the set temperature
- Abnormal sound during operation
- If you notice water leakage

Floor and Ceiling Unit

Troubleshooting



WARNING

Improper operation may lead to personal injury or casualty.

- Turn off the main power switch immediately if a malfunction is detected. Contact the installing dealer or qualified service technician. If the unit continues to run during a malfunction, the unit may be damaged or electric shock or fire may occur.
- Do not try to move or reposition the units. Please contact the servicing/installing dealer to repair or move the units.
- Check the following items before contacting the dealer or qualified service technician.

	Condition	Possible Reason
Unit doesn't run	When unit is started immediately after it is just turned off	Overload protection switch delays unit start up for three minutes
	When power is turned on	The unit is in standby for one minute
Mist comes from the unit	When cooling cycle starts	Indoor high humidity air is cooled rapidly
Sound comes from the unit	Slight cracking sound is heard when unit starts	This sound occurs when the electronic expansion valve initializes
	There is sound when cooling	The sound of gas refrigerant flowing in unit
	There is sound when unit starts or stops	This sound occurs when gas refrigerant starts or stops flowing
	There is slight sound when unit is running or after running	The sound of the drainage system operating.
Cracking sound is heard when unit is operating and after operating	This sound occurs when the unit panels expand or contract due to temperature change	
The unit blows out dust	When the unit has been off for a period of time.	Dust in indoor unit is blown out
The unit emits odor	When the unit is operating	The room odor absorbed by the unit is blown out again
Indoor unit still runs after switch off	After every indoor unit receives the "stop" signal, fan will keep running	Indoor fan motor will keep running 20-70 seconds to use excess cooling and heating and prepare for the next operation
Mode conflict	COOL or HEAT mode can not be operated	When the indoor operating mode conflicts with that of the outdoor unit, the indoor fault indicator will flash and conflict will be shown on the wired controller after 5 minutes. Indoor unit stops running and the outdoor unit changes its mode of operation to match the indoor unit, then the unit will go back to normal. COOL mode doesn't conflict with DRY mode. FAN mode doesn't conflict with any mode
Continuous low speed fan operation	Cool or heat mode low speed fan operation after setpoint temperature achieved	Functionality ensures accurate temperature control for the conditioned space

NOTE: If the problem persists after checking the above items and taking appropriate measures, please stop operation of the unit immediately and contact your local service agency or dealer. Diagnostics and repairs should be completed by a professional service technician.

General Maintenance

Regular checks, maintenance and care should be performed by professional personnel, which will prolong the unit life span.

Filter Care

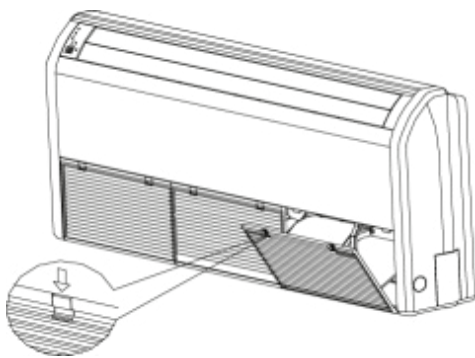
Regular filter cleanings are essential for efficient operation and extending the unit life. Clean the unit filter every 30-90 days as needed. When the unit is in a dusty environment, the unit may require more frequent cleaning.

WARNING

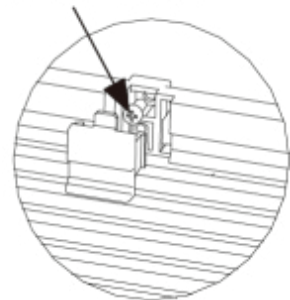
1. Turn off the unit and disconnect the main power supply when cleaning the air conditioner, otherwise electric shock or injury may occur.
2. Do not wash the air conditioner by rinsing with water, otherwise electric shock may occur.

Cleaning the Air Filter

1. Open the air inlet grille. Open the two buckles on the grille as shown in Fig. A below. Remove the screws under the buckles with a screwdriver, then open the inlet grille.
2. Remove the air filter.
3. Clean the filter. Wash the filter with lukewarm water. If the filter is excessively dirty, a mild neutral detergent may be used to clean it. Rinse thoroughly and allow to air dry. Note: Do not clean the filter with hot water above 113 F (45 C). Do not use any chemical cleaning solvents or dry with a heat source to avoid damage, warping and discoloration.
4. Install the cleaned and dried air filter.
5. Replace the screw under the buckles.
6. Fasten the buckles on the grille to secure the filters.



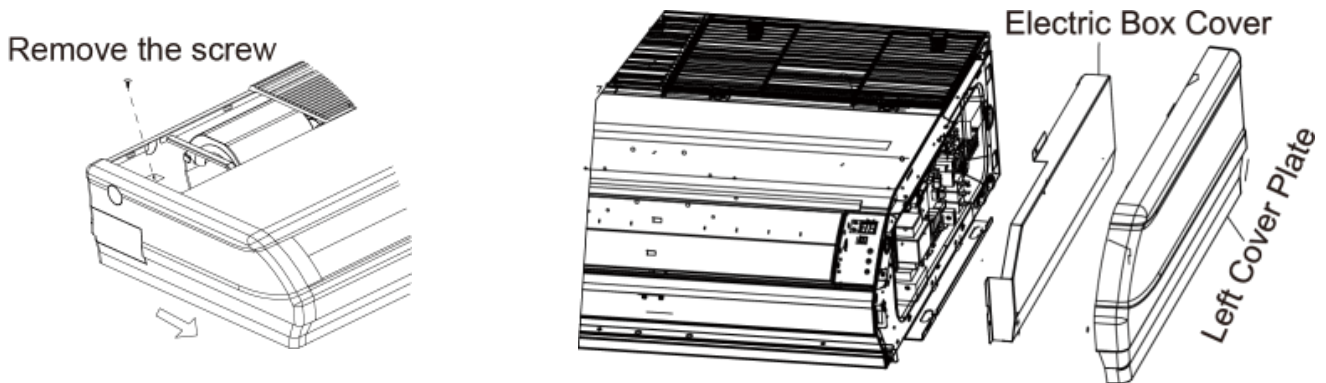
Remove the screw



Floor and Ceiling Unit

Disassemble the Electric Box

1. Disassemble the left and right side board. After the grille is removed use a screwdriver to remove the screws shown in the picture. Push the side plate in the direction of the arrow and remove it.
2. Disassemble the right side board.
3. Disassemble the electric box cover. After the right side board is removed, the electric box cover will be exposed. Remove the fixed screws.



General Maintenance

Regular checks, maintenance and care should be performed by professional personnel, which will prolong the unit life span.

Outdoor Heat Exchanger

The outdoor heat exchanger should be checked and cleaned once every two months. Use a vacuum cleaner with a nylon brush to clean up dust and debris on the surface of the heat exchanger. Blow away dust by compressed air if available. Never use water to wash the heat exchanger.

Drain Pipe

Regularly check to see if the drain pipe is clogged in order to ensure drain condensate doesn't overflow and cause water damage.

Check Before Seasonal Use

1. The inlet and outlet of the indoor and outdoor units are not clogged or obstructed.
2. The power and communication cables are securely attached and that there is no visible damage to any of the electrical wiring.
3. The batteries of the wireless remote controller have been replaced.
4. The filter screen has been cleaned and replaced securely.
5. After long periods of shutdown, open the main power switch 8 hours before operating the unit so as to preheat the compressor.
6. The outdoor and indoor units are installed securely.
7. If there is anything abnormal, please contact the installing dealer or qualified service technician.

Floor and Ceiling Unit

Maintenance After Seasonal Use

1. Disconnect the main power supply of the unit. A power disconnect should be located near the outdoor unit.
2. Clean the indoor unit filters.
3. Clean any dust and debris on the indoor and outdoor units.
4. In the event of rusting, use anti-rust paint to stop spreading of rust.

Parts Replacement

Purchase parts from the installing or servicing center or dealer if necessary.

After-Sales Service

In the event you have problems with the unit or require service, please contact your local installing/servicing dealer.

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