Installer's Manual

Split System (R-410A)

Air Handler for
Multi-Split
Inverter System
12,000 Btu/h to 24,000 Btu/h

Cassette Type Models:

4MXC8512B10N0
4MXC8518B10N0
4MXC8524B10N0

May 2021 MS-SVN36D-EN

Warnings and Cautions

Warnings and Cautions. Warnings are provided to alert installing contractors to potential hazards that could result in personal injury or death, while cautions are designed to alert personnel to conditions that could result in equipment damage.

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 only accidents.

⚠ 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 & 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 local/state 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

R-410A Refrigerant under Higher Pressure than R-22!

The units described in this manual uses 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 PVE Oil with R-410A Mini Split Units!

Most R-410A mini-splits use a PVE oil (Polyvinyl Ether Oil) that readily absorbs moisture from the atmosphere. To limit this "hygroscopic" action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement. For specific handling concerns with the PVE oil, contact your local sales office.

USE ONLY THE FACTORY RECOMMENDED - DAFNE HERMETIC OIL FV50S - for servicing multi-splits other than 4TXM2218A12N and 4TXM2221A13N. (4TXM2218A12N and 4TXM2221A13N can use POE oil.)

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

Warnings, Cautions and Notices: Warnings, cautions and notices appear at appropriate intervals throughout this manual. Warnings are provided to alert installing contractors to potential hazards that could result in serious injury or death. Cautions are designed to alert personnel to conditions that could result in minor to moderate injury. Notices alert to the possibility of equipment and/or property damage.

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

⚠ **WARNING**	This mark indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ **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 left to the dealer or another professional. Improper installation may cause water leakage, electrical shock or fire.
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. Be sure to 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 air conditioner on a solid base that can support the weight of the unit. An inadequate base or incomplete installation may cause injury or property damage in the event the unit falls off of the base.
5. Electrical work shall 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. Be sure to 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 a splice. 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 connecting the interconnecting and supply wiring, be sure to 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 has leaked out during the installation work, ventilate the room. (The refrigerant produces a toxic gas if exposed to flames.)
11. When installing or relocating the system, be sure to keep the refrigerant circuit free from substances other than the specified refrigerant (R410-A), such as air. (Any presence of air or other foreign substance in the refrigerant circuit can cause an abnormal pressure rise or rupture, resulting in injury.)

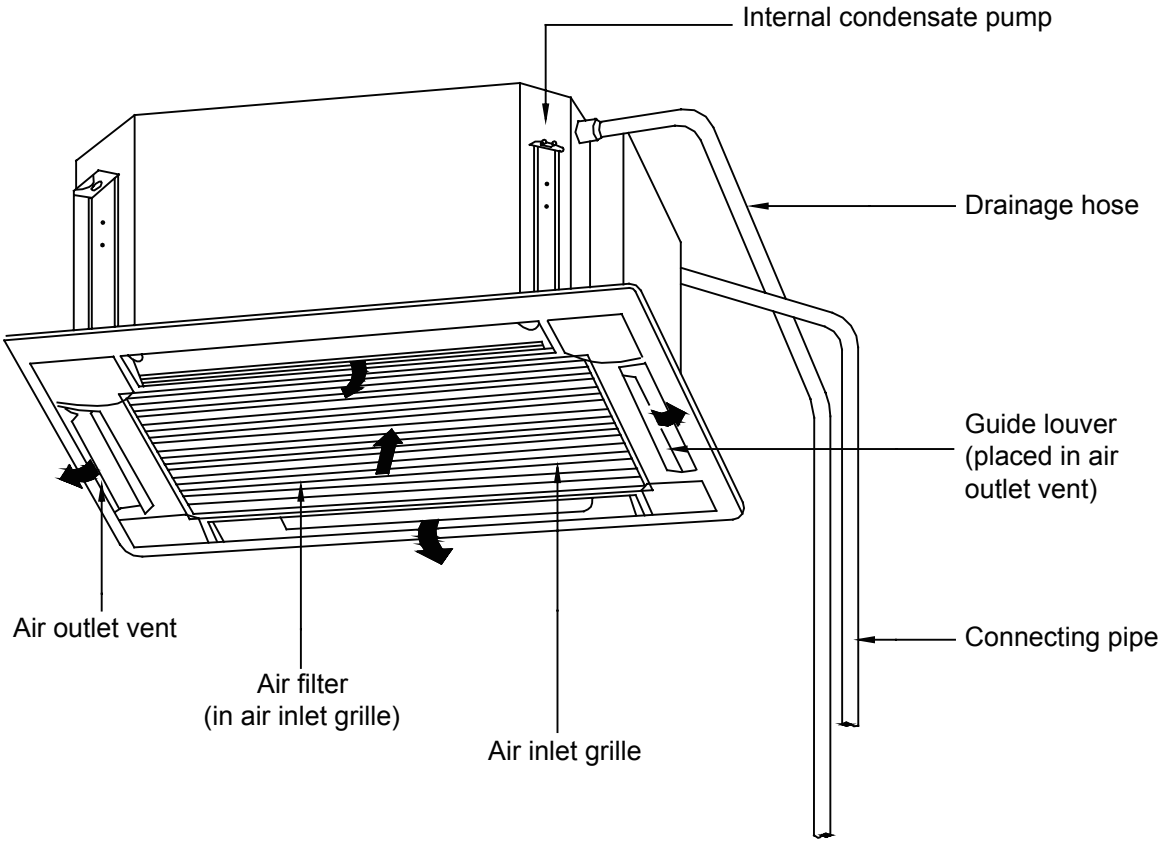
12. During pump-down, stop the compressor before removing the refrigerant piping. If the compressor is still running and the stop valve is open during pump-down, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in the refrigerant cycle which could lead to breakage and injury.
13. During installation, attach the refrigerant piping securely before running the compressor. If the compressor is not attached and the stop valve is open during pump-down, air will be sucked in when the compressor is run, causing abnormal pressure in the refrigerant cycle which could lead to breakage and injury.
14. Be sure to establish a ground. Do not ground the unit to a utility pipe, arrester, or telephone ground. 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 supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid risk of electrical shock or fire during and after replacement.

⚠ CAUTION
1. Do not install the air conditioner 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 all installation is complete, check to make sure that there is no refrigerant leakage.
3. This appliance is not intended for use by persons with a lack of experience and knowledge, unless they have been given 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 such as with a torque wrench. If the flare nut is tightened too hard, the flare nut may crack and cause refrigerant leakage.

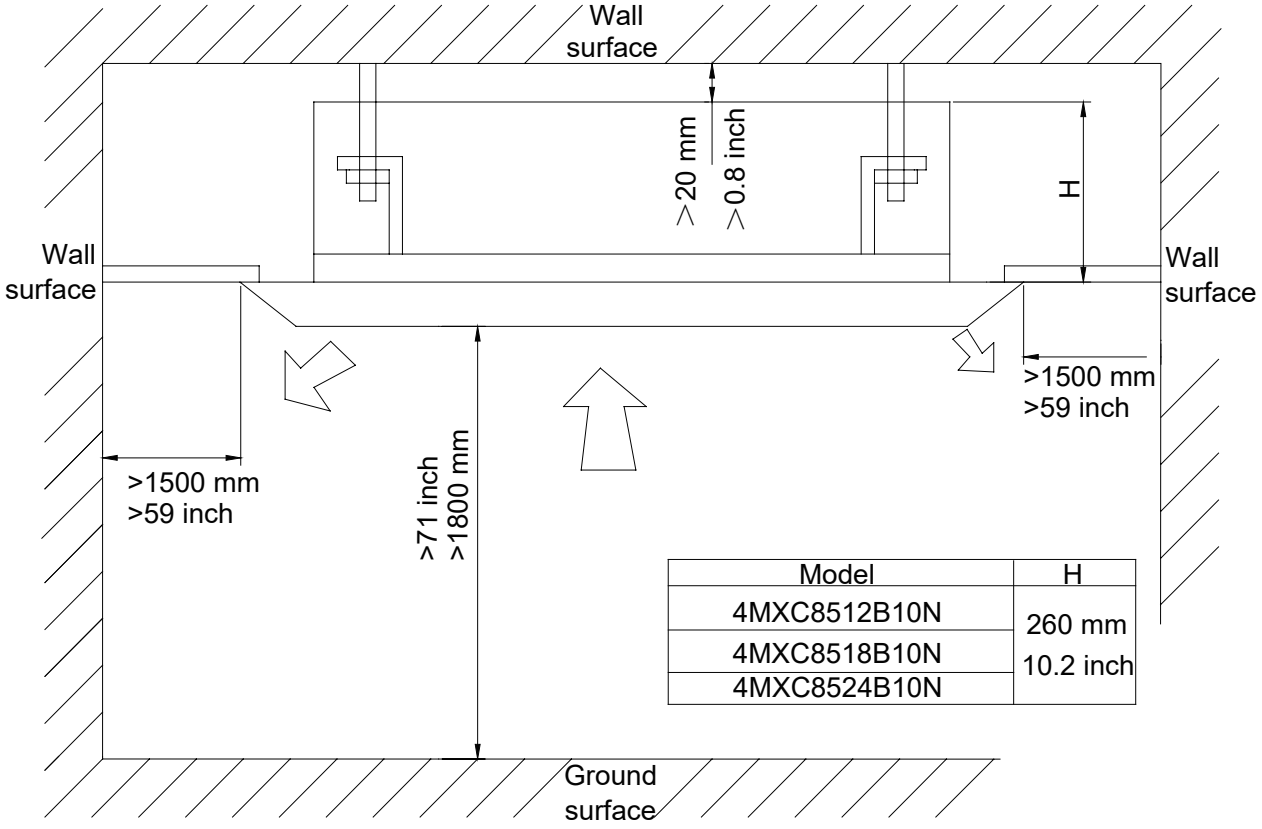
Pre-Installation Checklist

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 line set size requirements to ensure the correct refrigerant lines have been run prior to connection.
7. Check the electrical line requirements to ensure the proper wiring has been run prior to connection.
8. Check the indoor unit for coil leakage. The pressure relief valve on the gas line should release pressurized nitrogen which ensures the unit has not leaked during shipping.

Cassette Components



Clearance Requirements



Model	H
4MXC8512B10N	260 mm 10.2 inch
4MXC8518B10N	
4MXC8524B10N	

NOTE: The minimum distance from the floor to the bottom of the unit is 71 inches (1.8m). The maximum distance from the floor to the bottom of the unit is 13 feet (4m) for adequate comfort control.

Refrigerant Piping Precautions

⚠ WARNING

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 lines 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 lines to the connections. Excessive exposure to atmosphere (>5 min.) may allow moisture or dirt to contaminate the system, damaging valve seals and causing ice formation in the system components during operation.

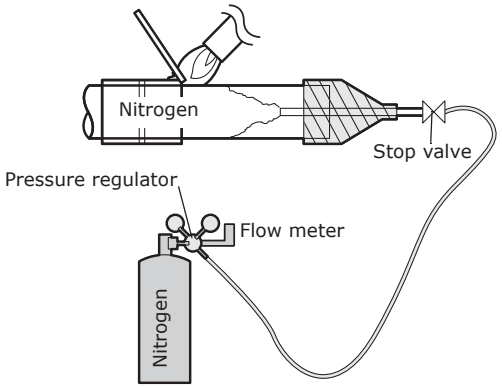
Nitrogen Purging While Brazing

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 0.03 CFM (0.05 m³/h) or more.

Nitrogen purging while brazing refrigerant pipes



Installation Location

Indoor Unit

⚠ 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. Avoid locating the indoor unit where the return and/or supply air may be obstructed.
2. Select an installation location where it is easy to drain the condensing water from the indoor unit and where it will be easy to route refrigerant lines and communication cabling to the outdoor unit.
3. Keep the indoor unit far away from heat sources, vapor and flammable gas.
4. 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.
5. Be sure that the installation of the indoor unit conforms to the installation dimension diagram.
6. Ensure the installation is horizontally level.
7. Be sure to leave enough space to allow access for routine maintenance; clearance between the bottom of the indoor unit and the floor should not be less than 71 inches.
8. Install in a location where the unit is more than 3 feet away from other electronic appliances that could cause interferance such as television, audio devices, etc.
9. Select a location where air filters can be easily removed and replaced.
10. When installing the threaded rod or bolt, check if the installation location can withstand 4 times the weight of the units. If not, reinforce before installation. (Refer to the installation template and locate where it should be reinforced)

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

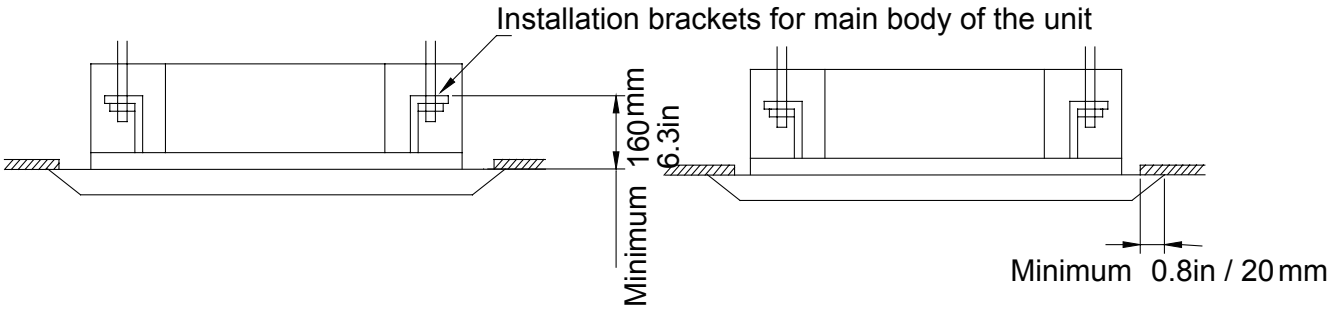
Installing the Indoor Unit

⚠ 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/tagout 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

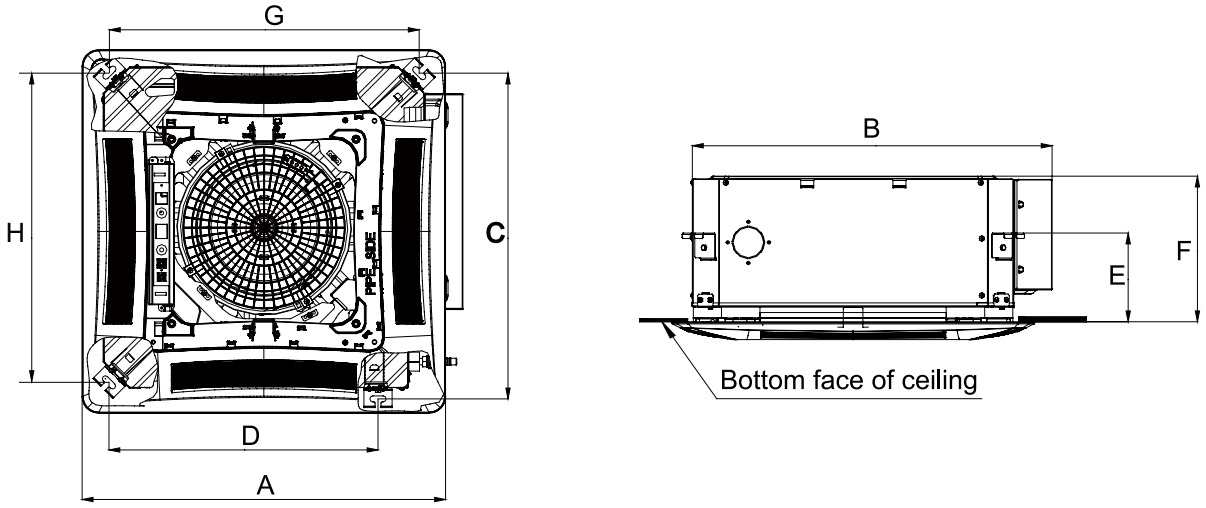
1. Confirm the mounting location with the customer. Keep in mind the guidelines for a safe installation location on page 8.
2. The drilling of holes in the ceiling must be done by the installing technician.
3. The dimensions for the ceiling openings can be as large as 35.8 inches (190mm). The panel should overlap the ceiling by no less than 0.8 inches (20mm).
4. Ensure the hanging point is strong enough to support 4 times the weight of the unit.
5. The weight of the unit should be shared equally by the expansion bolts.
6. Insert the M10 (or larger) expansion bolts into the hole and knock the nail into the bolt. Refer to the outline dimension drawings for the distance between holes.
7. Install the indoor unit by inserting the bolts through the hanging brackets as shown below.



- If there is an opening in the ceiling, it should be reinforced to keep it flat and prevent vibration.
- If the support structure of the ceiling is not strong enough, a beam made of angle iron can be used to mount the unit to for added support.
- If the indoor unit is not installed in an air conditioned area, please insulate around the unit to prevent condensation. The thickness of the insulation depends on the actual installation environment.

Dimension of Ceiling Opening and Location of the Expansion Bolts (M10)

For the units: 12-18k



For the units: 24k

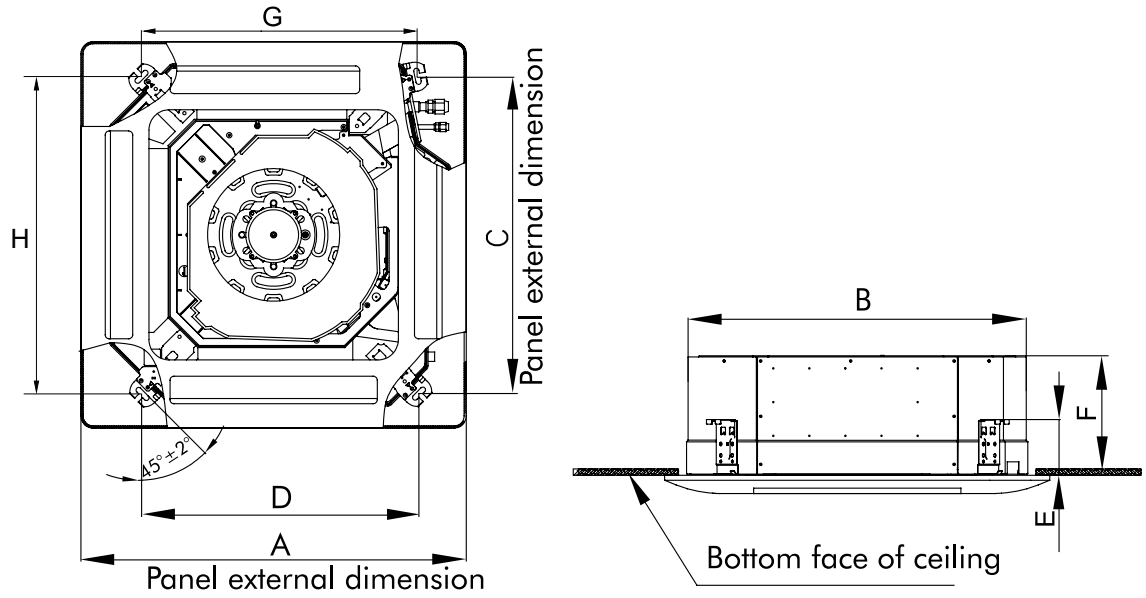


Fig.3

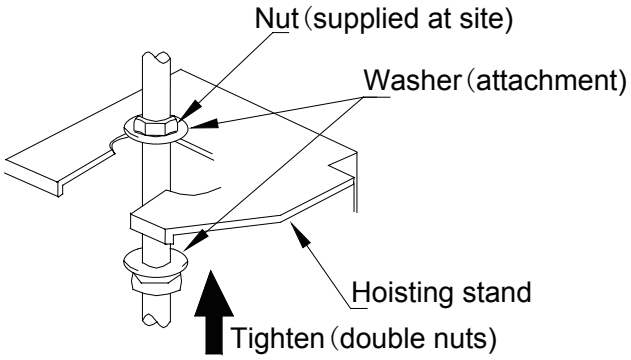
Unit: Inch (mm)

Item / Model	A	B	C	D	E	F	G	H
12K	26-3/8 (670)	26-1/4 (666)	23-5/8 (600)	19-1/2 (495)	5-11/16 (145)	9-7/16 (240)	22-7/16 (570)	22-7/16 (570)
18K								
24K	37-3/8 (950)	33-1/16 (840)	30-11/16 (780)	26-3/4 (680)	5-11/16 (145)	9-7/16 (240)	26-3/4 (680)	30-11/16 (780)

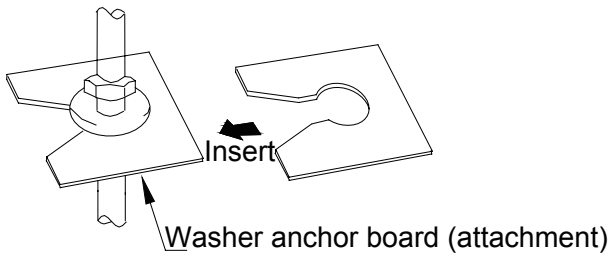
Cassette Unit

Hoisting the Main Body of the Unit

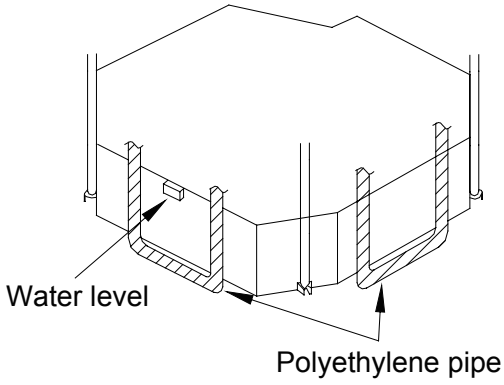
1. Use a hoisting stand to aid in lifting and securing the unit.
2. To attach the hoisting stand, use a nut and gasket at the upper and lower section of the hoisting stand to secure it. The use of a washer anchor board can prevent the washer from breaking off.
3. Use the enclosed installation template.
4. Please refer to the installation template to verify the dimensions of the ceiling opening.
5. The central mark of the ceiling opening is marked on the installation template.
6. Attach the installation template to the unit using screws, and fix the angle of the drainage pipe at the outlet vent with a bolt.
7. Adjust the unit to align with the ceiling.
8. Check to ensure the unit is horizontal.
9. The inner drainage pump and float switch are included in the indoor unit, check the four corners of the unit to ensure they are level. If the unit is slanted toward the opposite side of the drain pan from the float switch, there may be a malfunction of the float switch that may lead to overflowing condensation.
10. Remove the washer anchor board used to prevent a washer break off and tignten the nut.
11. Remove the installation template.
12. Tighten the nuts to prevent the unit from falling.

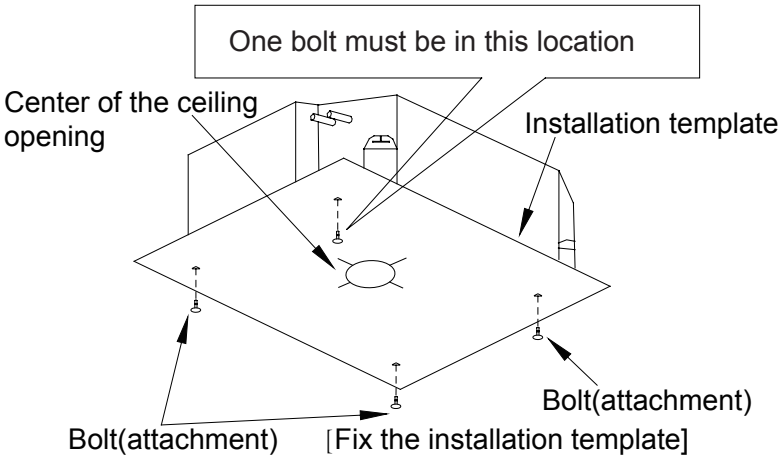


[Fix the hoisting stand firmly]



[Fix the washer firmly]





[Fix the installation template]

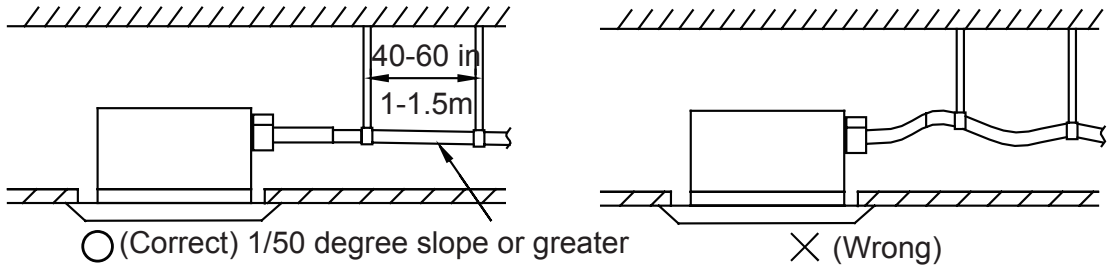
Installation of the Condensate Pipe

Design of the Condensate Pipe

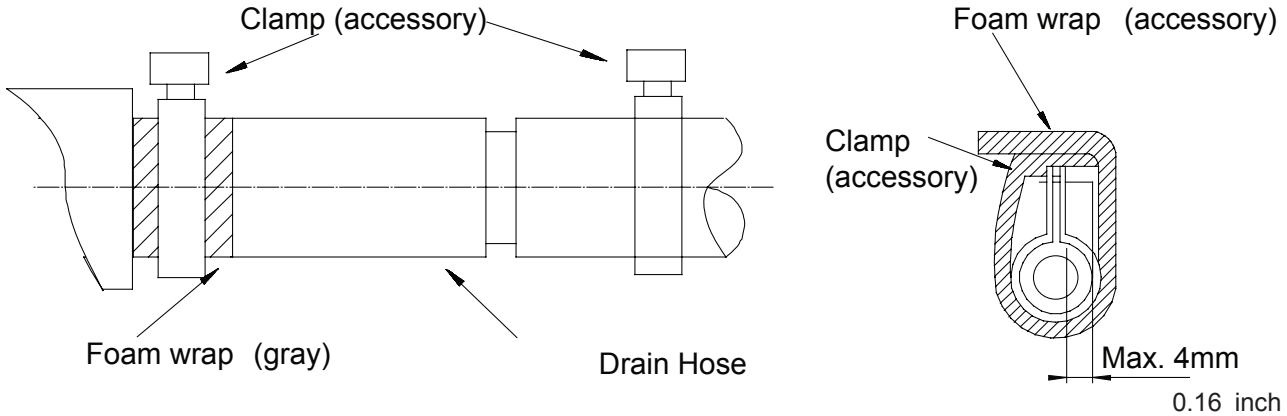
1. The drain pipe should maintain a downward slope of 1/50 to avoid water accumulation or improper drainage which could lead to equipment and/or property damage.
2. When connecting the drain pipe to the unit, avoid excessive force on the connection. The pipe should be as close to the unit as possible.
3. The drain pipe can be ordinary hard PVC pipe which can be purchased locally. During the connection, insert the end of the PVC pipe to the drain outlet, then tighten it to the drain hose with a hose clamp. Do not connect the drain outlet and the drain hose with an adhesive.
4. When the drain pipe is used for multiple units, the joined section of the pipe should be 3.9 inches (100mm) lower than the drain hole of each device and it is suggested to use a larger diameter pipe when connecting multiple units.

Installation of the Condensate Pipe

1. 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).
2. The drain pipe should be as short as possible and with at least a 1/50 slope to avoid forming air pockets.
3. If the proper degree of slope of the drain pipe is not feasible, a lift bracket should be installed.
4. A maximum distance of 60 inches (1.5m) must be maintained between supports to avoid the drain hose sagging or bending.

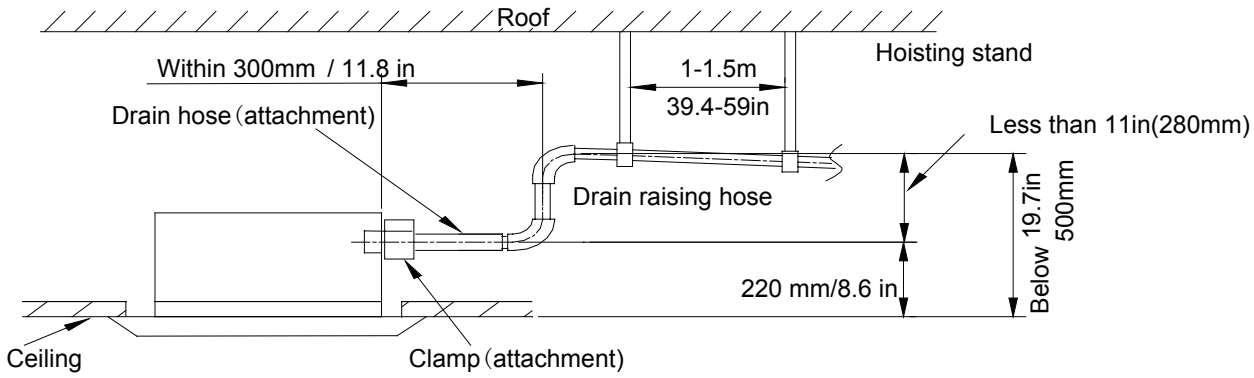


5. Insert the drain hose into the drain hole and tighten it with clamps.
6. Insert the drain pipe into the opposite end of the drain hose and clamp securely. Do not use adhesive at this joint.
7. Wrap the clamps with a large amount of foam wrap for thermal insulation to prevent condensation and water damage.

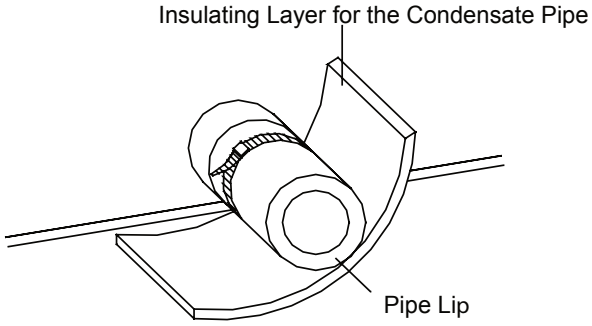


Precautions for the Drain Pipe

The installed height of the lift pipe should be less than 11 inches (280mm). It is recommended to set an inclination angle of 1~2° for the lift pipe toward the drainage direction. If the lift pipe and the unit form a right angle, the lift pipe must be less than 11.8 inches (300mm) from the unit.



Insulation of the Condensate Pipe



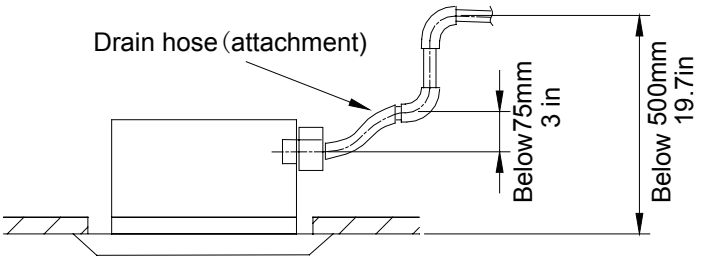
Thermal Insulation of the Condensate Pipe

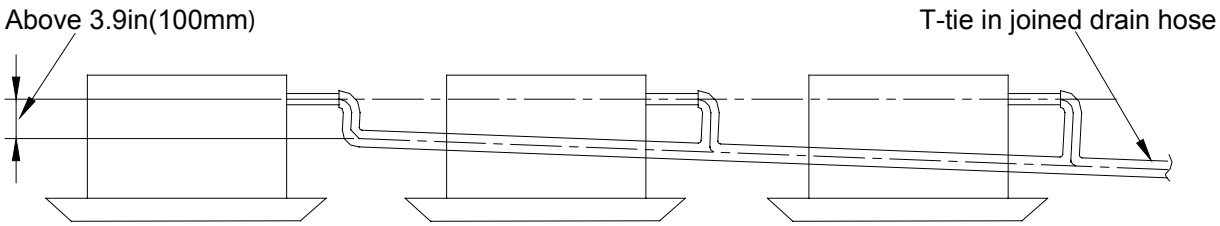
Be sure to secure with a clamp and insulate completely to avoid condensate build-up.

⚠CAUTION
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.

NOTES:

1. The connection height of the drain hose should be within 3 inches (7.5mm) so that the outlet of the drain hose does not suffer from external force.
2. If multiple drain pipes converge, please follow the installation diagrams below.



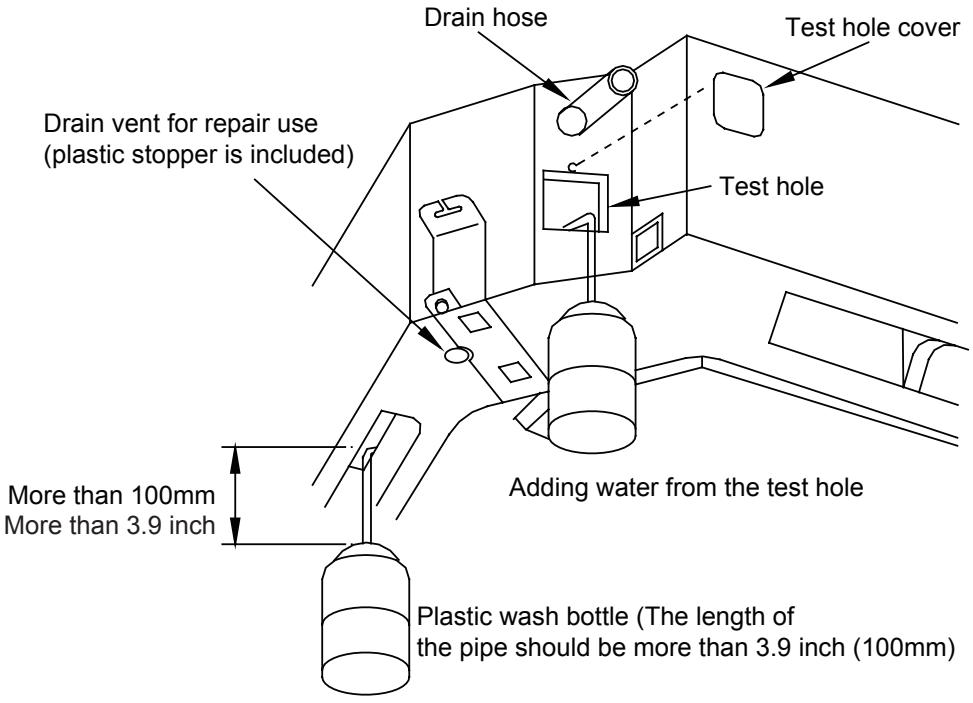


The specs of the selected joined drain hose should fits the running capacity of the unit

Test the Drainage System

After the electrical installation, test the drainage system.

1. Turn on power to the system to allow the drain pump to operate.
2. Use a squeezable wash bottle with a spout longer than 3.9 inches (100mm) to squirt water into the drain pan. Water can be introduced into the drain pan by 2 methods shown below, depending on the model of cassette.
3. During the test, check to ensure the water flow goes through the pipe correctly and observe the joint carefully to see if it leaks. If this unit is installed in a newly built house, it is suggested to perform this test prior to the ceiling installation.



Adding water from the outlet vent terminal

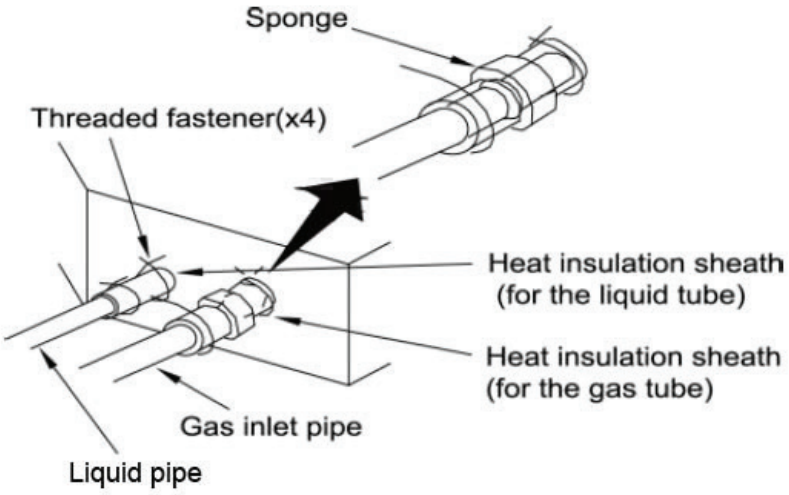
Note: This drawing represents several models of cassettes. On some models, the test hole option will be unavailable.

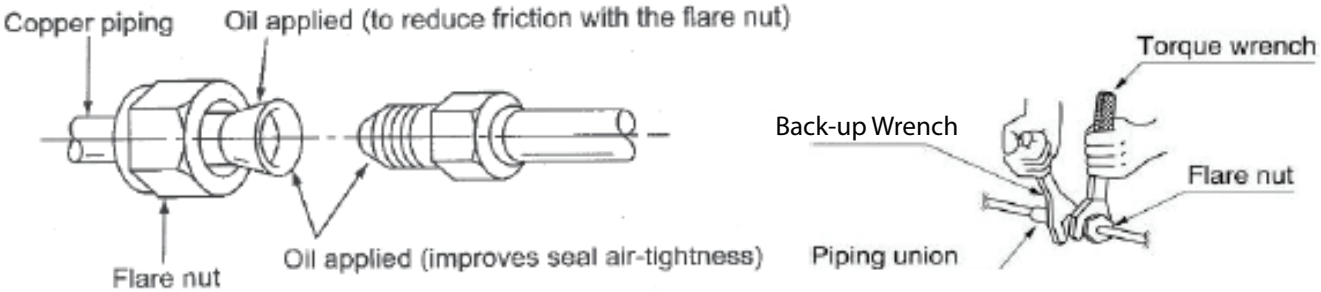
Connecting the Pipe at the Indoor Unit

Remove the caps and plugs from the pipes.

NOTICE
1. Be sure to connect the pipe to the 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.
2. Do not remove the flare nut until the connection pipe is to be connected so as to prevent dust and impurities from coming into the pipe system.

1. When connecting the pipe to the unit or removing it from the unit, please use both a torque wrench and a back-up wrench. See illustration below.
2. When connecting, smear both inside and outside of the flare nut with refrigeration oil, tighten it by hand and then tighten it with the spanner.
3. Refer to the table below before tightening to determine the appropriate torque (too tight would damage the nut and lead to refrigerant leakage).
4. Examine the connection pipe to see if it leaks, then apply thermal insulation for the liquid and gas lines, as shown below.
5. Use medium-sized sponge wrap to insulate the coupler of the gas pipe and secure with tape.





In. (mm)	Tightening Torque
1/4 (6.35)	15 ~ 30 N•m / 20.3-40.7 (ft-lbf)
3/8 (9.52)	35 ~ 40 N•m / 40.7-54.2 (ft-lbf)
1/2 (12.7)	45 ~ 50 N•m / 61.0-67.8 (ft-lbf)
5/8 (15.9)	60 ~ 65 N•m / 81.3-88.1 (ft-lbf)
3/4 (19.05)	70 ~ 75 N•m / 94.9-101.7 (ft-lbf)

Item / Model	Size of Fitting Pipe Inch (mm)		Max. Pipe Length ft (m)	Max. Height Difference between Indoor Unit and Outdoor unit ft (m)	Drainage pipe (Outer Diameter x wall thickness) Inch (mm)
	Liquid	Gas			
12K	1/4 (6.35)	3/8 (9.53)	65-5/8 (20)	49-1/4 (15)	Ø 1 x 1/16 (Ø 25 x 1.5)
18K		1/2 (12.70)	65-5/8 (20)	49-1/4 (15)	
24K	3/8 (9.53)	5/8" (15.88)	98-7/16 (30)	49-1/4 (15)	

⚠CAUTION

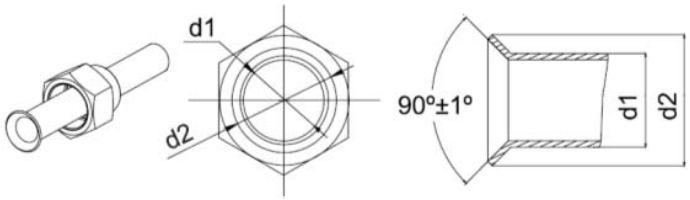
1. During the connection of the indoor unit and the refrigerant pipe, never pull any parts of the indoor unit forcefully: otherwise the refrigerant pipes or other pipes may crack, which would then result in leakage.
2. The refrigerant piping should be supported by brackets. Unsupported piping will put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

If the specification of the outdoor unit pipe joint does not conform to that of the indoor unit, then the joint specification of the outlet pipe of the indoor unit takes precedence. A reducing transition shall be installed at the connection point of the outdoor unit so as to make the connection of the outdoor unit compatible with that of the indoor unit.

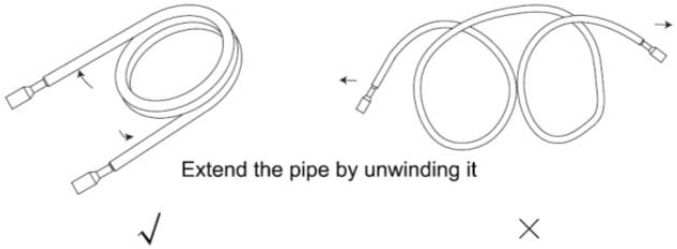
Installing the Refrigerant Piping

Flaring Process

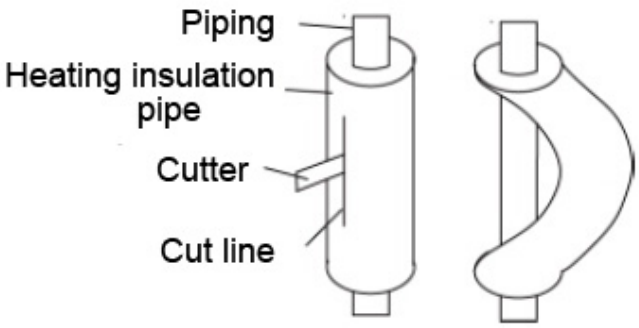
1. Hold the pipe downward to prevent cuttings from entering the pipe.
2. Cut the refrigerant pipe with the pipe cutter and remove the burrs.
3. Remove the flare nuts at the stop valve of the outdoor unit and inside the accessory bag of the indoor unit, put them onto the refrigerant pipe as shown below then flare the refrigerant pipe with a flaring tool.
4. Check if the flare part is spread evenly and there are no cracks.



Bending Pipes



1. The pipes should be shaped by your hands or a refrigerant pipe bending tool for tighter bends. Be careful not to collapse them.
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 it is encased in the insulation. In this case, cut the insulation with a sharp cutting tool as shown below, and bend it after exposing the pipe. After bending the pipe as you want, be sure to put the insulation back on the pipe, and secure it with tape.

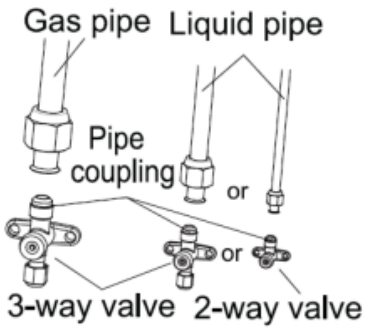


NOTICE
1. To prevent distortion and breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 6 in. (150 mm) or more.
2. If the pipe is bent repeatedly at the same place, it will break.

⚠ CAUTION
Be sure to connect the gas pipe after connecting the liquid pipe completely.

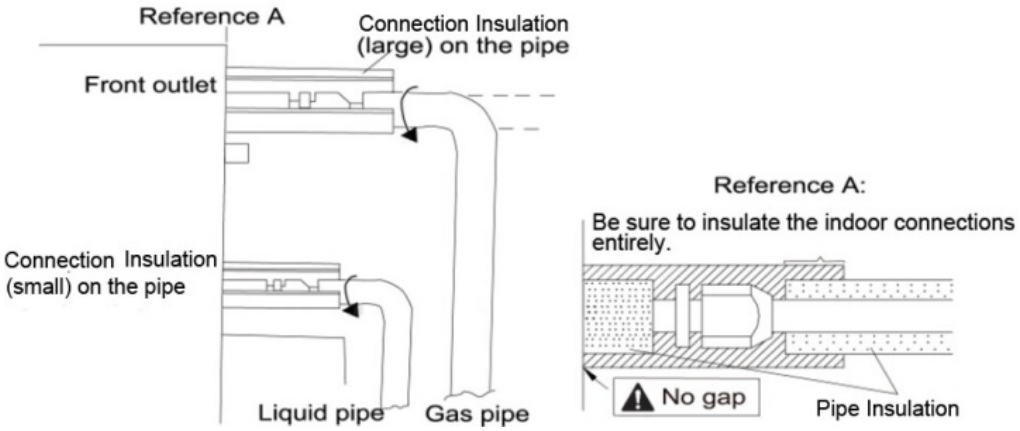
Connecting the Pipe at the Outdoor Units

Tighten the flare nut of the connection pipe at the outdoor unit valve connector. The tightening method is the same as the method at the indoor unit.



Insulation of the Pipe Joints

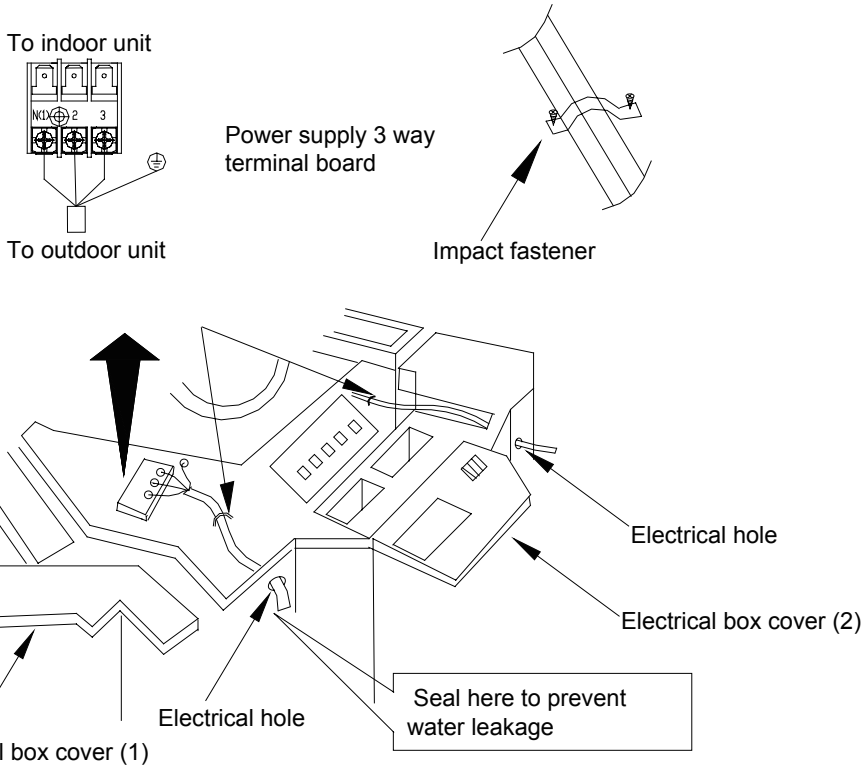
1. The refrigerant pipe should be insulated with appropriate insulating material and plastic tape in order to prevent condensation and water leakage.
2. The joints of the indoor unit should be wrapped with insulating material. No gap is allowed on the joint of the indoor unit, as shown below.



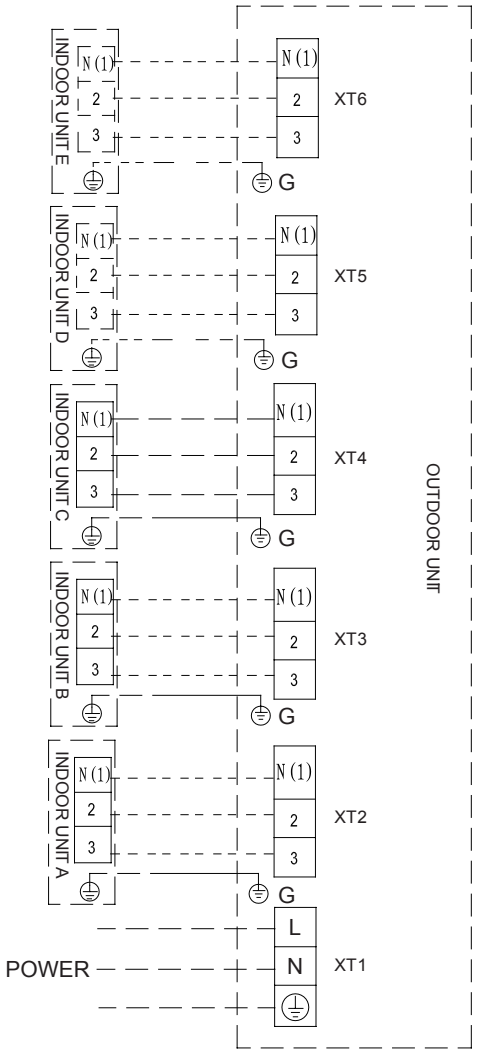
Wiring the Indoor Unit

⚠ WARNING
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 air conditioning 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 cover of the electrical box of the indoor unit.
2. Insert the power cord through the rubber ring.
3. 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).



Example: Wiring Connection for 4TXM6542A1050

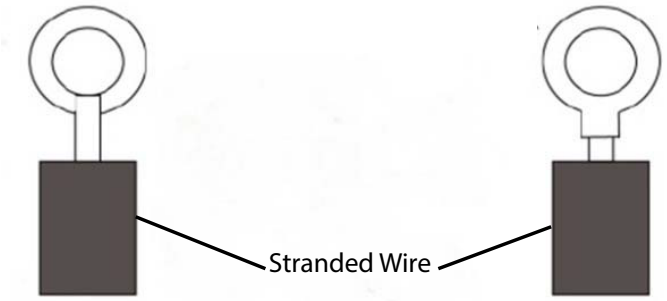


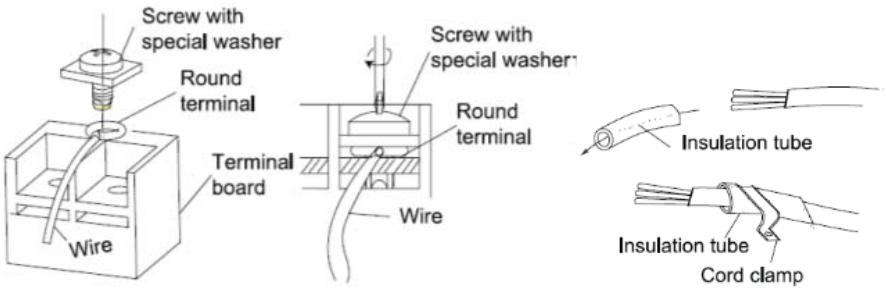
NOTE: The wiring diagrams in this guide are included as a reference. The manufacturer has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. Always check the unit nameplate and wiring diagram for the actual unit requirements.

Note: Ground must be wired from the outdoor unit. If the indoor unit is grounded locally, communication errors will occur.

Stranded Wiring

1. Cut the wire end with a wire cutter or wire cutting pliers, then strip the insulation about 3/8" (10mm).
2. Using a screwdriver, remove the terminal screw(s) on the terminal board.
3. Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
4. Position the round terminal wire, and replace and tighten the terminal screw with a screwdriver.
5. Fix the communication cable and power cable by a cable clamp.
6. After passing the communication cable and power cord through the insulation tube, fasten it with the cable clamp.





⚠ WARNING
1. Before starting work, check that power is not being supplied to the indoor unit and outdoor unit and follow lock-out-tag-out practices.
2. Improperly installed field wiring poses fire and electrocution hazards. Pay special attention to the wiring of the units.
3. Connect the communication cables firmly to the terminal block. Improper installation may cause a fire.
4. Always fasten the outside covering of the communication cable with cable clamps. (If the wire or cable is not clamped, electrical leakage may occur)
5. Always connect the ground wire.

Note:
Match the terminal block numbers and communication wire colors with those of the indoor unit.

Electrical Wiring

Wiring Precautions

⚠ WARNING
1. Before obtaining access to terminals, all supply circuits must be disconnected.
2. 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 local/state electrical codes. All field wiring MUST be performed by qualified personnel. Failure to follow these requirements could result in death or serious injury.

Electrical Notes:
1. Before turning on, verify that the voltage is within the 187~252 V range (for single phase units).
2. Always use a grounded terminal and install a dedicated receptacle to supply power to the air conditioner. For high voltage connections, flexible electrical conduit is recommended whenever vibration transmission may create a noise problem within the structure.
3. Use a dedicated breaker and receptacle matched to the capacity of the air conditioner.
4. Indoor units MUST be wired in PARALLEL. Wiring the indoor units in series will result in a communication error and the system will not operate.

Electrical Cable Connection

Model	Power Supply	Wiring between indoor unit and outdoor unit
4MXC8512B	208/230V-60Hz, 1 phase	AWG 14 x 4 Stranded
4MXC8518B		
4MXC8524B		

⚠ CAUTION
Improper operation may lead to personal injury or property damage.

1. The fuse is located on the main board.
2. 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 agree with the equipment nameplate.
3. The communication wiring between the outdoor unit and the indoor unit(s) should be 14 AWG stranded wire, and the communication wiring length should not exceed the allowed refrigerant pipe length(s) in the Product Data specifications. Please select the appropriate line length as per the actual installation conditions. The communication wires cannot be spliced together.
4. For the wired controller: The communication distance between the main board of the indoor unit and the wired controller can be up to 65 ft. (The standard distance is 25 ft.)

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

- Be sure to 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 line of the air conditioner is the ground wire and can not 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 surge in current from lightning or other sources may cause damage to the air conditioner.

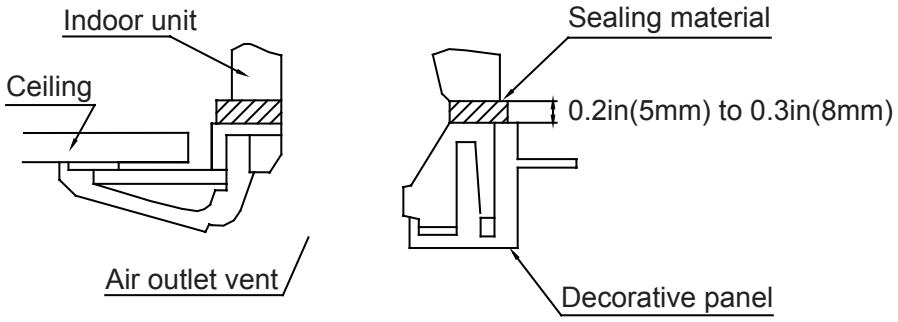
Installation of Controllers

Refer to the Installation Manual of the controller for more details.

Communication Wiring of the Wired Controller at the Indoor Unit

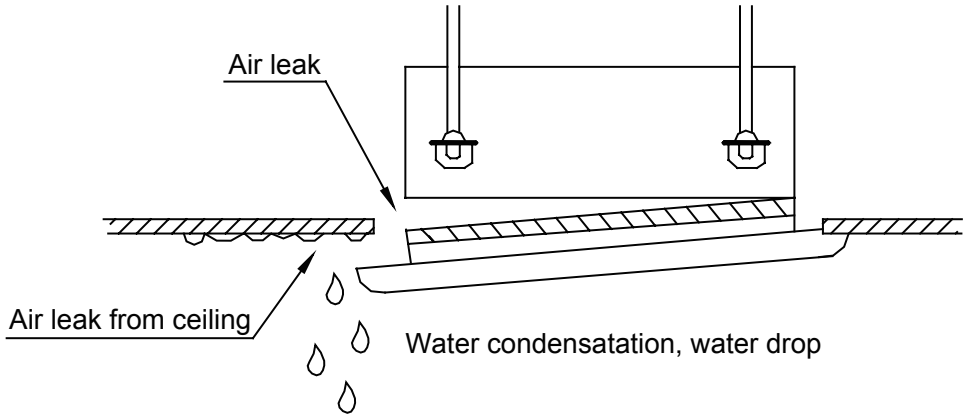
1. Open the cover of the electric box of the indoor unit.
2. Let the communication wiring go through the rubber ring.
3. Insert the communication line to the four-pin socket on the printed circuit board of the indoor unit.

Install the Panel

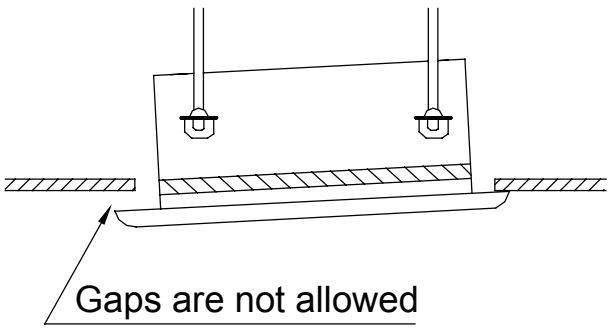


1. Remove the filter access panel to access the fasteners.
2. Tighten the 4 fasteners under the return grille to secure the panel to the cassette body.
3. Tighten the fasteners until the thickness of the foam between the panel and the indoor unit is compressed to 0.2-0.3 inches (5-8mm).
4. Check for gaps and uneven spacing around all edges of the panel.

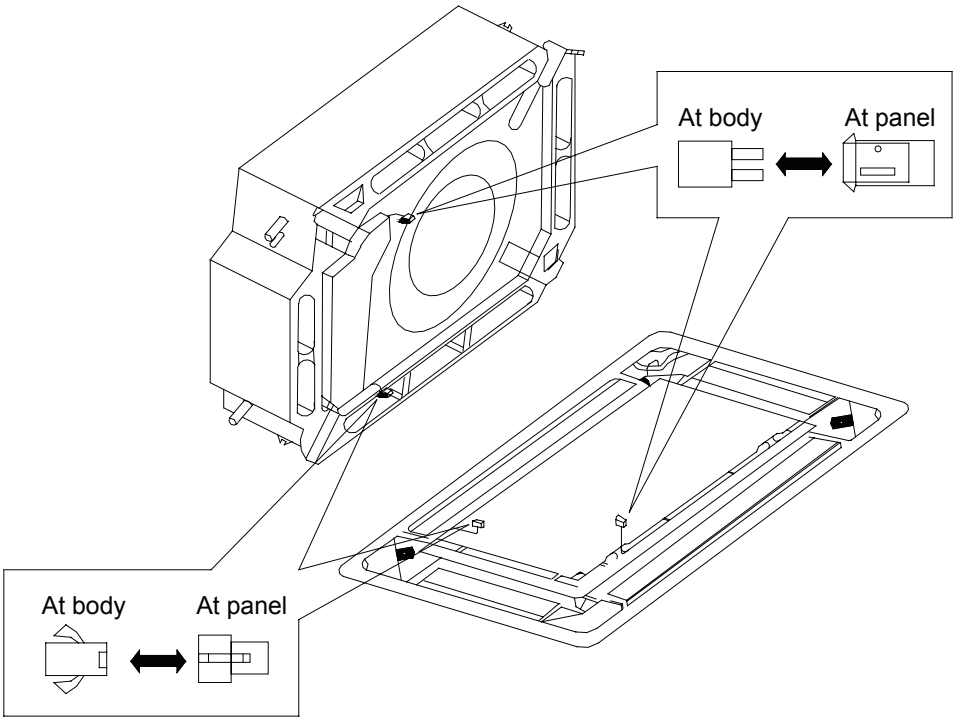
Note:
Improper or uneven tightening of the screws may cause gap problems between the panel and the ceiling, resulting in air leaks and condensation.



If a gap still exists between the ceiling and decorative panel after tightening the screws, readjust the height of the indoor unit, as shown below. After adjusting, make sure no gap is left between the ceiling and the panel.



Connect the wire connectors for the louver motor wire (at 2 places) installed on the panel.



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 and low pressure errors.
3	Have the pipes been properly insulated?	Lack of insulation may cause condensation, water damage and reduced capacity.
4	Is the water condensate drainage sufficient?	Lack of proper drainage may cause water damage.
5	Does the voltage of the power supply comply with the voltage on the nameplate?	Improper wiring can cause a 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 a malfunction and fire or electrocution hazard.
8	Does the power cord match the unit requirements per NEC?	Improper wiring can cause a 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. Non-compliance with unit clearances could cause a unit malfunction, including air recirculation and coil freezing.
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:

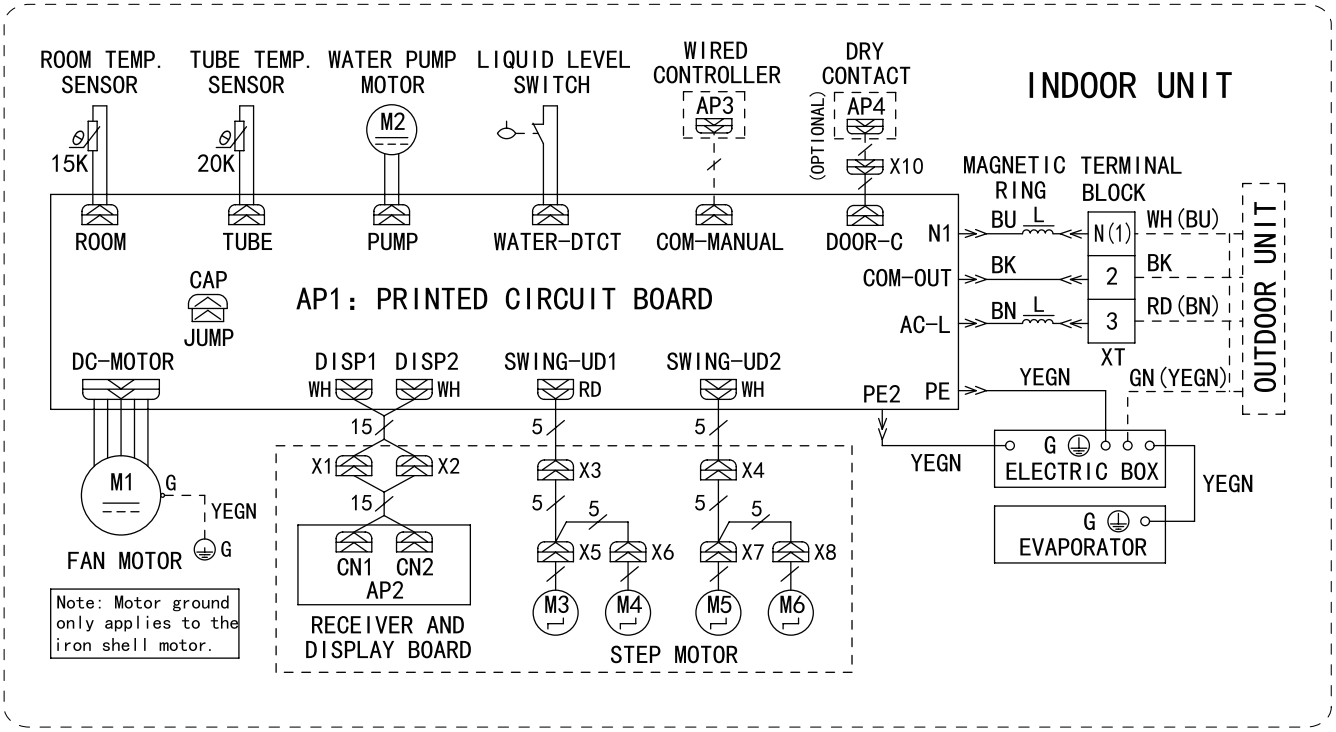
1. Turn on main power to the units.
2. Using the remote control, press the ON/OFF button to start operation.
3. Press the MODE button to select and test each option for normal operation. Cycle through all functions: AUTO, COOL, DRY, FAN and HEAT. Note: If the indoor ambient temperature is lower than 61°F (16°C) the air conditioner will not run in COOL mode.
4. Go over basic operating, maintenance and troubleshooting functions with the customer.

Wiring Diagrams

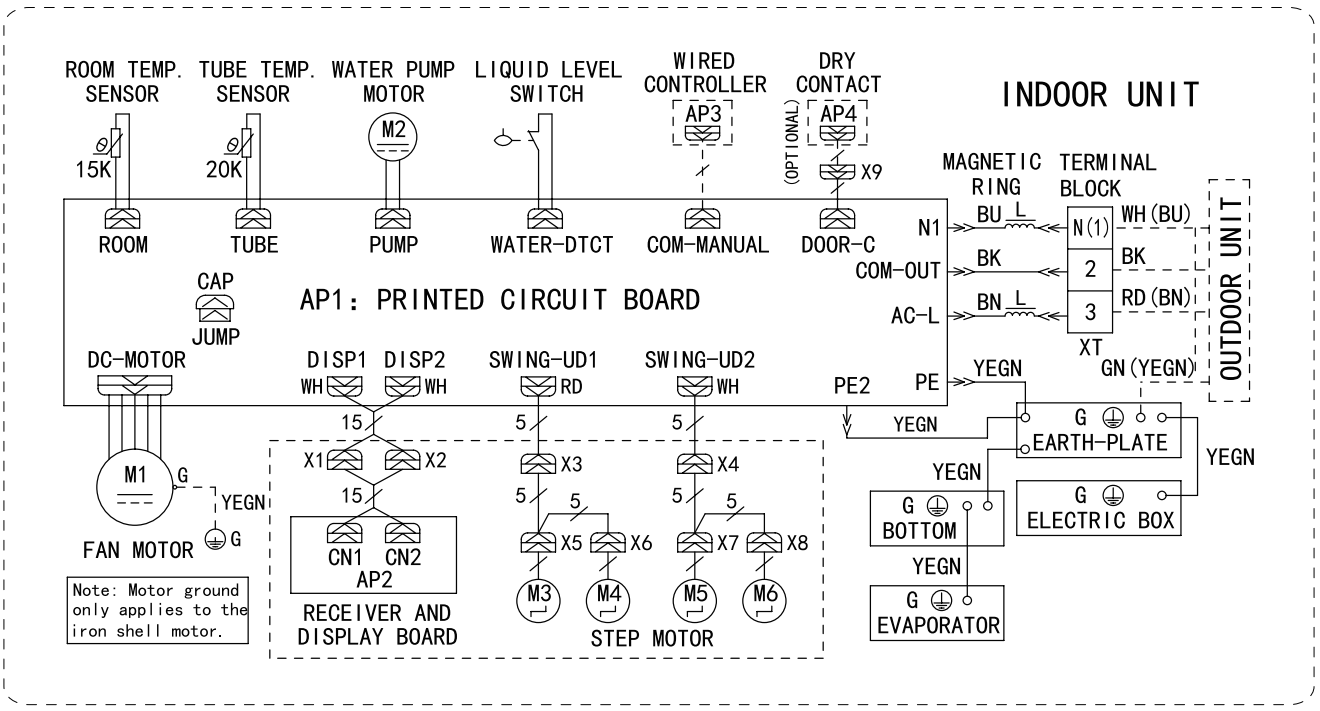
Color Key

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

Cassette Indoor Unit 12K-18K



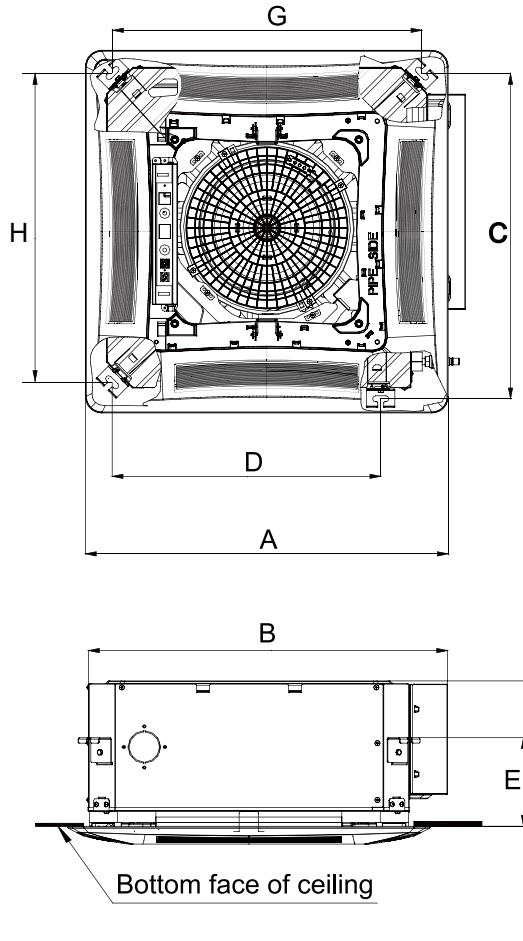
Cassette Indoor Unit 24K



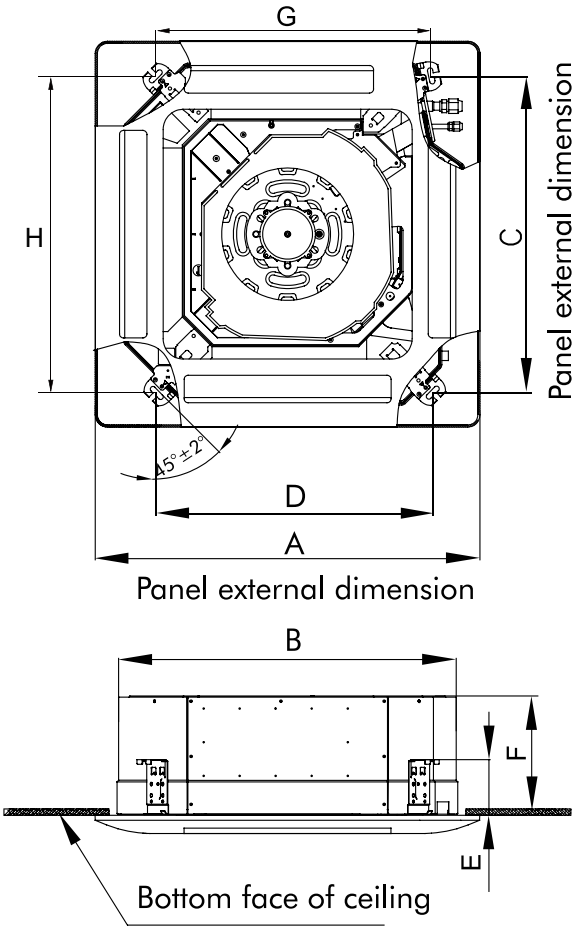
NOTE: The wiring diagrams in this guide are included as a reference. The manufacturer has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. Always check the unit nameplate and wiring diagram for the actual unit requirements.

Indoor Unit Dimensions 4MXC8512B, 4MXC8518B and 4MXC8524B

For the units: 12-18k



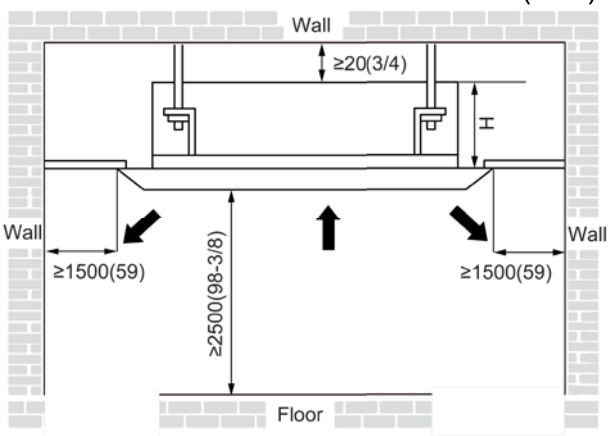
For the units: 24k



Unit: Inch (mm)

Item / Model	A	B	C	D	E	F	G	H
12K	26-3/8 (670)	26-1/4 (666)	23-5/8 (600)	19-1/2 (495)	5-11/16 (145)	9-7/16 (240)	22-7/16 (570)	22-7/16 (570)
18K								
24K	37-3/8 (950)	33-1/16 (840)	30-11/16 (780)	26-3/4 (680)	5-11/16 (145)	9-7/16 (240)	26-3/4 (680)	30-11/16 (780)

Unit: mm(inch)



Model	H: Inch (mm)
12K	10-1/16 (255)
18K	
24K	10-1/4 (260)

Error Codes

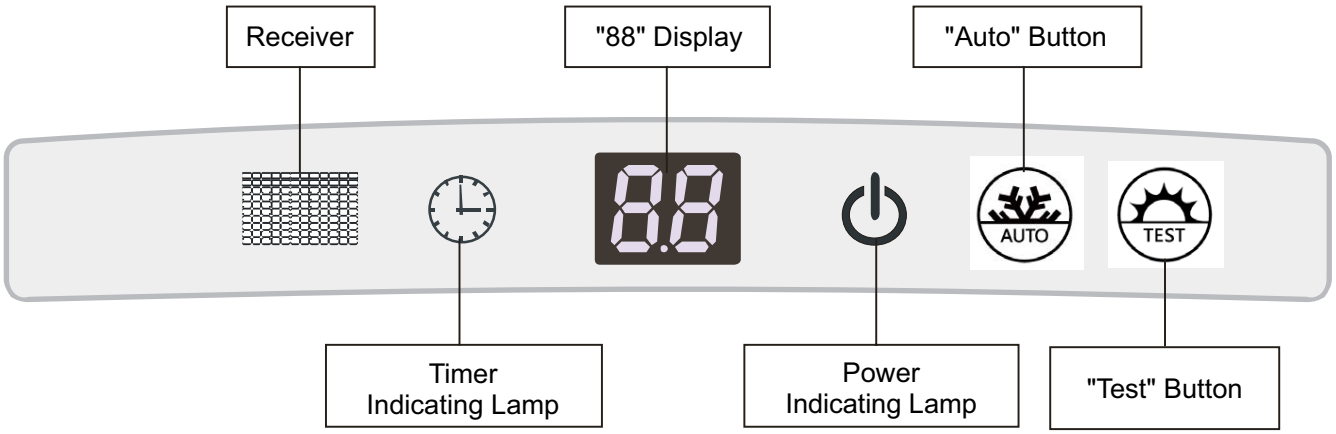
The meaning of error codes as shown below:

Number	Error Code	Error
1	E1	Compressor high pressure protection
2	E2	Indoor anti-freeze protection
3	E3	Compressor low pressure protection, refrigerant lack protection and refrigerant colleting mode
4	E4	Compressor high discharge temperature protection
5	E5	AC over-current protection
6	E6	Communication error
7	E7	Mode conflict
8	E8	Anti-high temperature protection
9	E9	Full water protection
10	F1	Indoor ambient temperature sensor is open/short circuited
11	F2	Indoor evaporator temperature sensor is open/short circuited
12	F3	Outdoor ambient temperature sensor is open/short circuited
13	F4	Outdoor condenser temperature sensor is open/short circuited
14	F5	Outdoor discharge temperature sensor is open/short circuited
15	C5	Jumper cap malfunction protection
16	EE	Loading EEPROM malfunction

NOTE: If there're other error codes, please contact qualified professionals for service.
When the unit is connected with the wired controller, the error code will be simultaneously shown on it.

Cassette Unit

Instructions to the Error Indicating Lamps on the Panel of the Cassette Type Unit:



- **Power and ON/OFF Indicating Lamp:**
  It goes red when the unit is powered on while it goes white when the unit is started.
- **Timer Indicating Lamp:**
  Timer indicator on indoor unit will be on when timer ON is set under off status and timer OFF is set under on status.
- **“88” Display:**
  When there is no error, the dual-8 nixie tube display the set temperature. After receiving the command of displaying indoor ambient temperature from the remote controller, the dual-8 nixie tube displays indoor temperature for 3s and then resume to display the set temperature. If there is error, error code will be displayed. If there’s multiple error, error codes will be displayed in turn.

  “Auto” button:It’s used for turning on or turning off the unit. When use this button to turn in the unit, the unit is under auto mode.

  “Test” button:It’s only used for the test units. This button is only valid within 3mins after the unit is energized.

NOTES:

1. If the light of indoor unit is turned off, when operating the remote controller to send command, the display will be on for 3s and then off.
2. When the wired controller is connected, the indoor unit display is invalid and the unit won’t receive the remote control command.

Troubleshooting

⚠ CAUTION
Improper operation may lead to personal injury or casualty.

- Turn off the main power switch immediately if a malfunction is detected. Contact your servicing or installing dealer. 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.

Condition		Possible Reason
Unit doesn't run	When the unit is restarted immediately after it has just been 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 refrigerant gas flowing through the unit may be audible.
	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	This sound may be the condensate drain pump 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 that has collected in the 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 20-70s so as to use excess cooling and heating and prepare for the next operation. When the X-Fan or Dry feature is activated, the fan continues to operate for a short time to dry off the coil.
Mode conflict	COOL or HEAT mode can not be operated	When switching between cooling and heating modes, the outdoor unit will take several minutes to reverse the direction of refrigerant flow and to pre-heat the coil in heating mode. COOL mode doesn't conflict with DRY mode and FAN mode.
Error Code	E7 is shown on one or more indoor units	E7 means that this indoor unit is calling for a mode that conflicts with the mode of the outdoor unit. E7 will disappear a few seconds after the mode of the unit is changed to match the outdoor unit mode. The outdoor unit mode will only change when all indoor units have been changed to the new 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.

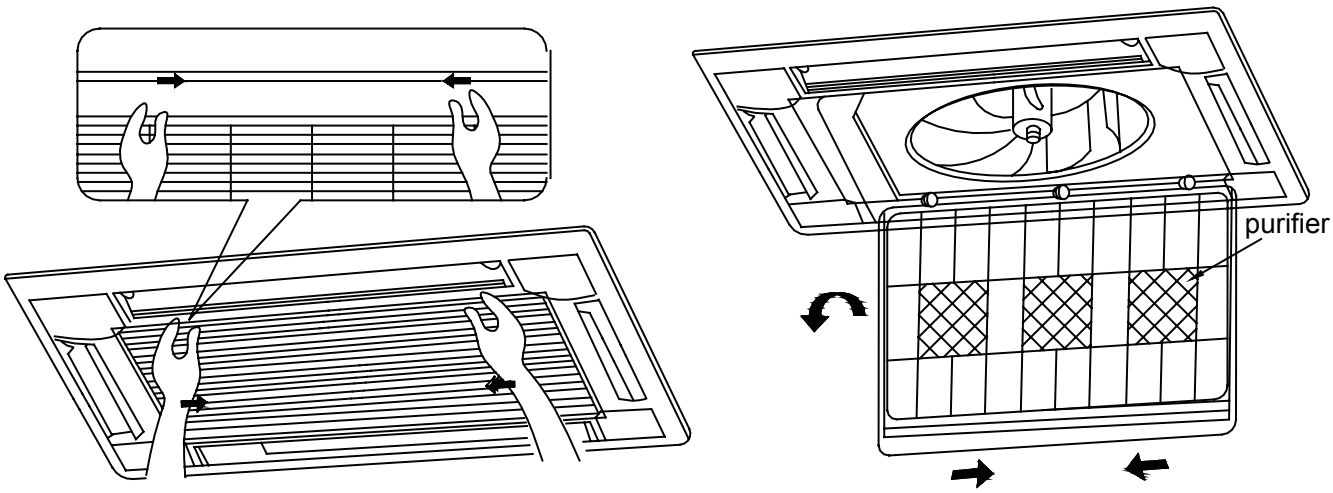
Filter Care

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.

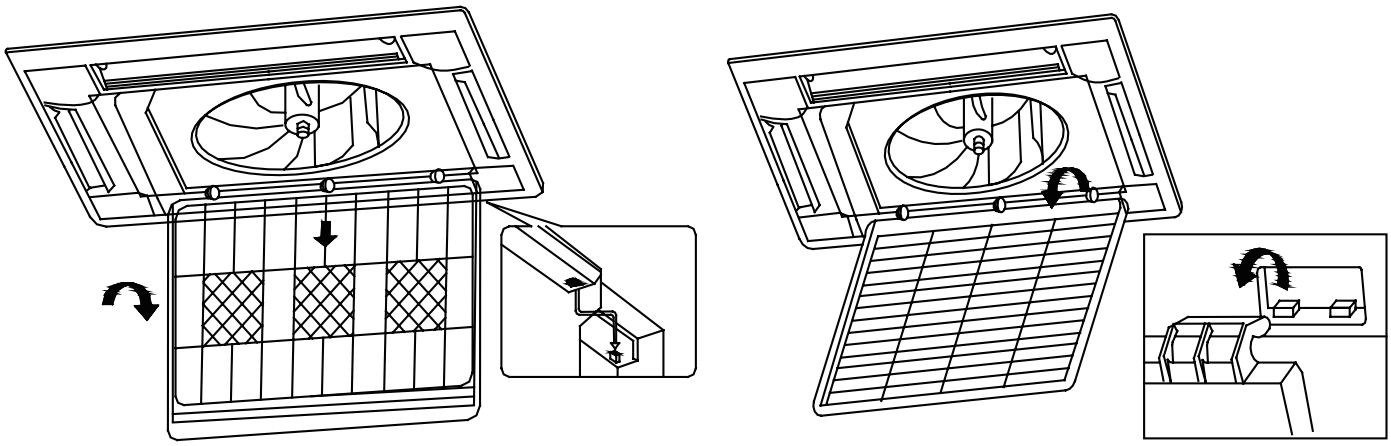
Cleaning the Air Filter

1. Open the air inlet grille. Pull the 2 handles on the grille at the same time in the direction shown below. Pull the filter assembly down slowly.
2. Remove the air filter. Pull the handle behind the air inlet grille, raise it and lift the filter up and out.
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.



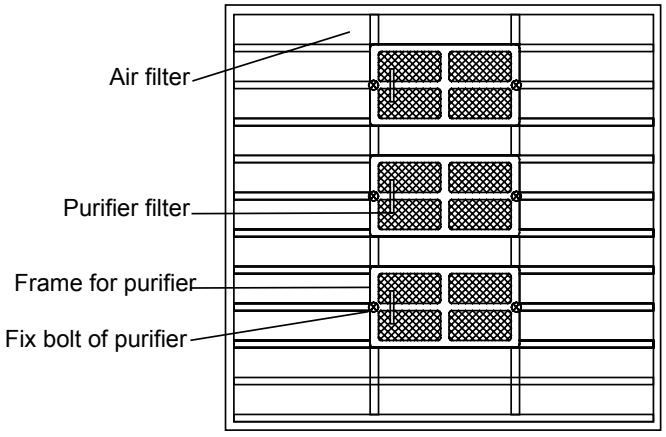
Cleaning the Air Inlet Grille

1. Open the air inlet grille. Pull the 2 handles on the grille at the same time in the direction shown below. Pull the filter assembly down slowly.
2. Remove the air filter and air purifiers from the grille.
3. Lift the grille from the hinge for easier cleaning.
4. Using a soft brush, clean any debris from the grille surface.
5. Rinse the grille with lukewarm water. If the grille is excessively dirty, a mild neutral detergent may be used, Rinse thoroughly and allow to air dry. .
6. Do not clean the filter grille 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.
7. Install the cleaned and dried air filter grille.
8. Between scheduled cleanings the outer surface of the grille and unit cover may be cleaned with a soft brush and wiped down with a cloth dampened with lukewarm water.



Changing the Air Purifier Filters

1. Open the air inlet grille. Pull the 2 handles on the grille at the same time in the direction shown in step 1 in cleaning the air filter. Pull the filter grille assembly down slowly.
2. Remove the air purifier filters by removing the screws holding the purifier filters to the grille surface.
3. Replace the purifier filters onto the grille surface. Purifier filter refills may be purchased from your intalling/servicing dealer. It is recommended to change the purifier filters every 6-12 months at minimum.



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. Check that the inlet and outlet of the indoor and outdoor units are not clogged or obstructed.
2. Check that the power and communication cables are securely attached and that there is no visible damage to any of the electrical wiring.
3. Check that the batteries of the wireless remote controller have been replaced.
4. Check that 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. Check that the outdoor and indoor units are installed securely.
7. If there is anything abnormal, please contact your installing dealer.

Maintenance After Seasonal Use

1. Cut off 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 dealer if necessary.

NOTE: During leakage testing, never mix oxygen, ethyne (acetylene) or other dangerous gases into the refrigeration circuit. Nitrogen should be used for leakage testing.

After-Sales Service

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

About Trane and American Standard Heating and Air Conditioning

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The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

MS-SVN36D-EN 23 May 2021
Supersedes MS-SVN36C-EN (June 2020)