

DUCTLESS MINI SPLIT SYSTEM AIR CONDITIONER / HEAT PUMP

PIONEER®

WAS / WYS Series

WAS: Cooling Only Version

WYS: Cooling and Heating Version

Inverter+® and Inverter++® Models

For 9,000-36,000 BTU/hr Systems



Installation Manual

IMPORTANT NOTICE:

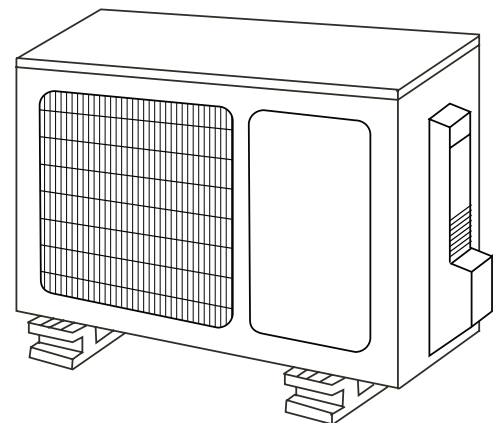
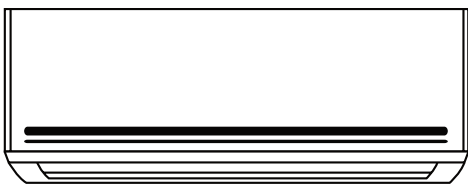
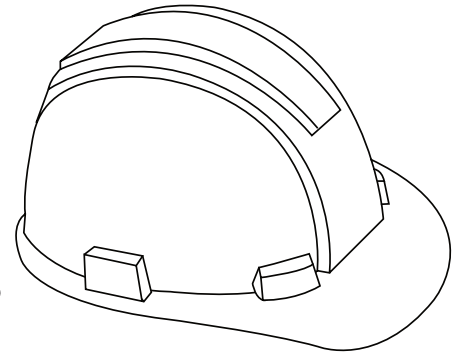
Please read this manual carefully before installing or operating your new air conditioning system. Be sure to save this manual for future reference.



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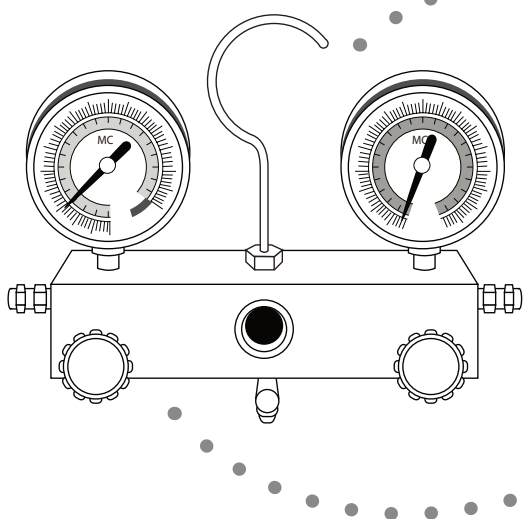
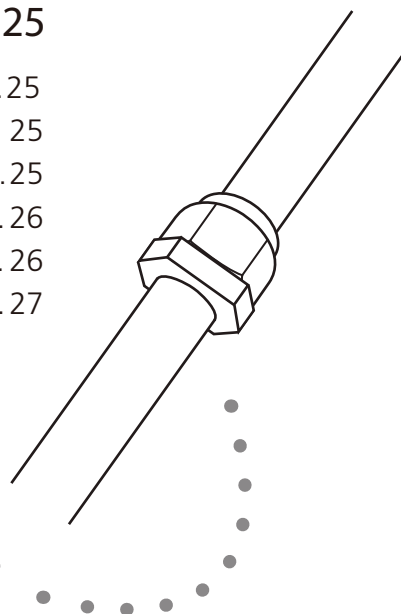
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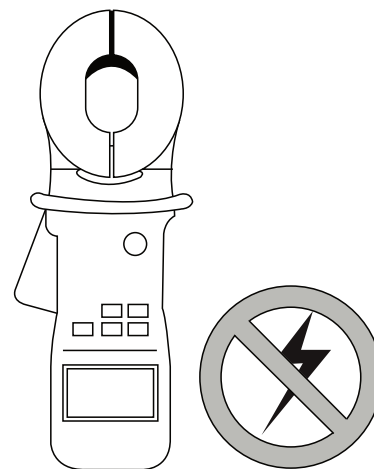
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Safety Precautions

Read and Understand Safety Precautions Prior to Installation

Improper installation due to negligence of instructions may result in serious damage or injury. The magnitude of potential damages or injuries is classified as either a **WARNING** or a **CAUTION**.



WARNING

This symbol indicates that ignoring the related instructions may cause death, or serious injury.



CAUTION

This symbol indicates that ignoring the related instructions may cause moderate injury to nearby persons, and/or damage to your appliance or other property.



This symbol indicates that you must never perform the action shown.



WARNING

- ⊘ **Do not** power the system using an extension cable or smaller than specified gauge wiring. **Do not** share the electrical circuit with other appliances. Improper or insufficient power supply can cause undesirable operation, fire, or electrical shock.
- ⊘ When connecting refrigerant piping, **do not** let any substances or gases other than the specified refrigerant enter the unit. The presence of other gases or substances will lower the unit's capacity, and can cause abnormally high pressure in the refrigeration cycle. This can also cause explosion and injury, as well as permanent equipment failure. Remember: No dust, humidity or air should be allowed to enter.
- ⊘ **Do not** allow children to play with or around the air conditioner. Children near the unit must be supervised at all times.
 1. Installation must be performed by a licensed and trained technician. Defective installation can cause water leakage, electrical shock, or fire. The usage of proper tools is a requirement.
 2. Installation must be performed according to the installation instructions. Improper installation can cause water leakage, undesired performance, electrical shock, or fire.
(In North America, installation must be performed in accordance with the requirements of NEC and CEC, by authorized personnel only.)
 3. Contact a qualified and licensed HVAC technician for any repairs or maintenance of this unit.
 4. Only use the included accessories, parts, and specified items for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause total unit failure.
 5. Install the unit on top of a firm structure that can fully support its weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may fall and cause serious injury and damage.

WARNING

6. For all electrical work, follow all local and national wiring standards, regulations, and especially this Installation Manual. You must use an independent circuit and a dedicated breaker to supply power. Do not connect other appliances to the same circuit. Insufficient electrical capacity or defects in electrical work can cause electrical shock or fire.
7. For all electrical work, use the specified cables. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminals. Improper electrical connections can overheat and cause fire, and may also cause shock.
8. All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
9. In certain functional environments, such as kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended. This is intended as a comfort cooling system.
10. If the supply cord is damaged, it must be replaced by a certified service agent or similarly qualified technicians, in order to avoid a hazard.
11. This appliance can be used by children aged 8 years and above, as well as persons with reduced physical, sensory, or mental capabilities, or lack of experience or knowledge, if they have been given supervision or instruction concerning use of the appliance in a safe way, and understand the hazards involved. Children shall not play with or near the appliance. Cleaning and user maintenance shall not be done or attempted by children or untrained personnel without proper supervision.

CAUTION

- ⊘ For units that have an auxiliary electric heater, **do not** install the unit within 1 meter (3 feet) of any combustible materials.
 - ⊘ **Do not** install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause fire.
 - ⊘ **Do not** operate your air conditioner in a highly humid space, such as bathrooms or laundry rooms. Exposure to high humidity or water can cause electrical components to short circuit.
1. The product must be properly grounded at the time of installation, else electrical shock may occur.
 2. Install drainage piping according to the instructions in this manual. Improper drainage may cause water damage to your home and property.

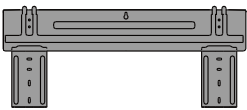




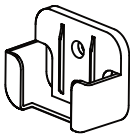


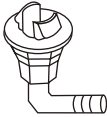
Note about Fluorinated Gasses



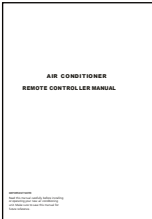
1. This air-conditioning unit contains fluorinated gasses. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself.
2. Installation, service, maintenance, and repair of this unit must be performed by a certified HVAC technician.
3. Product uninstallation and recycling must be performed by a certified HVAC technician.
4. If the system has a leak-detection feature installed, it must be checked for leaks at least every 12 months.
5. When the unit is being checked for leaks, proper logging and record-keeping of all checks is strongly recommended.

Accessories

1

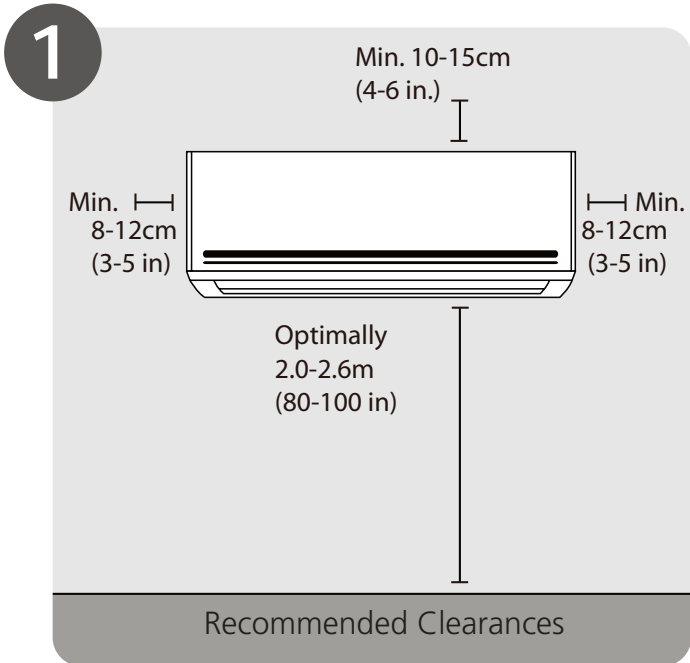
The air conditioning system comes with the following accessories. Use all of the installation parts and accessories to install the air conditioner. Improper installation may cause the equipment to fail, or result in water leakage, electrical shock, or fire.

Name	Appearance	Quantity	
Mounting plate		1	
Clip anchor		5	
Mounting plate fixing screw ST3.9 X 25		5	
Remote controller		1	
Fixing screw for remote controller holder ST2.9 x 10		2	Optional Parts
Remote controller holder		1	
Dry battery AAA.LR03		2	
Seal		1 (for cooling & heating models only) (For the Outdoor Unit)	
Drain joint			

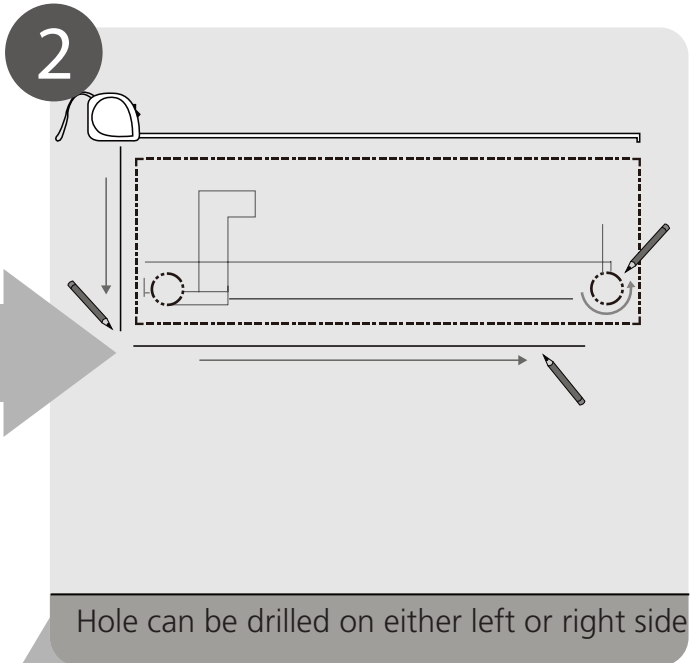
Name	Shape		Quantity
Owner's manual			1
Installation manual			1
Remote controller manual			1
Connecting pipe assembly (depending on capacity)	Liquid side	Φ 6.35(1/4in)	Parts sold separately. Consult your dealer about pipe size.
		Φ 9.52(3/8in)	
	Gas side	Φ 9.52(3/8in)	
		Φ 12.7(1/2in)	
		Φ 16(5/8in)	
	Φ 19(3/4in)		

Indoor Unit Installation Summary

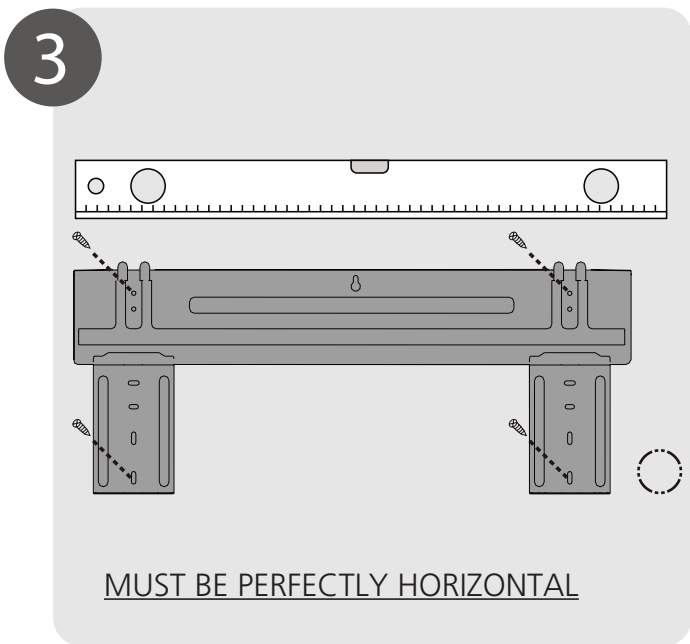
2



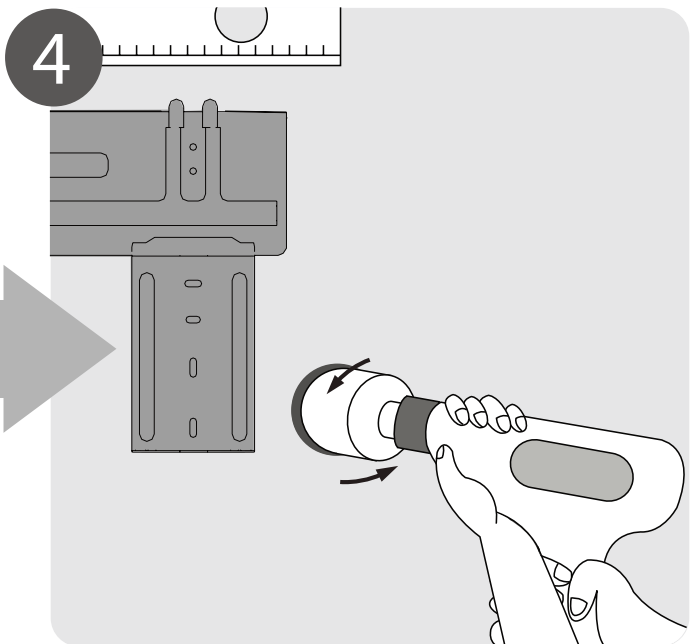
Select Installation Location
(Page 11)



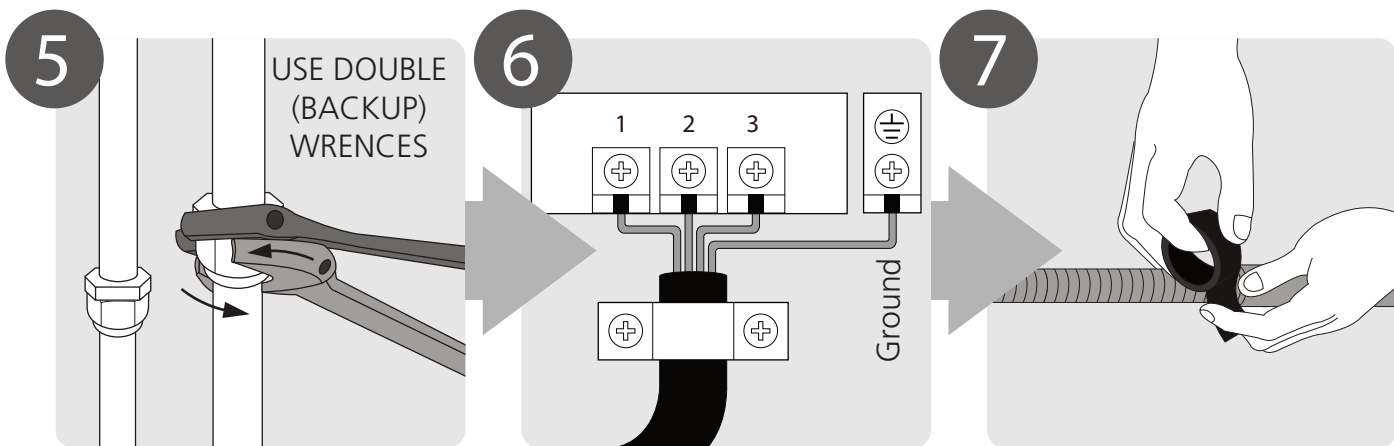
Determine Wall Hole Position
(Page 12)



Attach Mounting Plate
(Page 12)



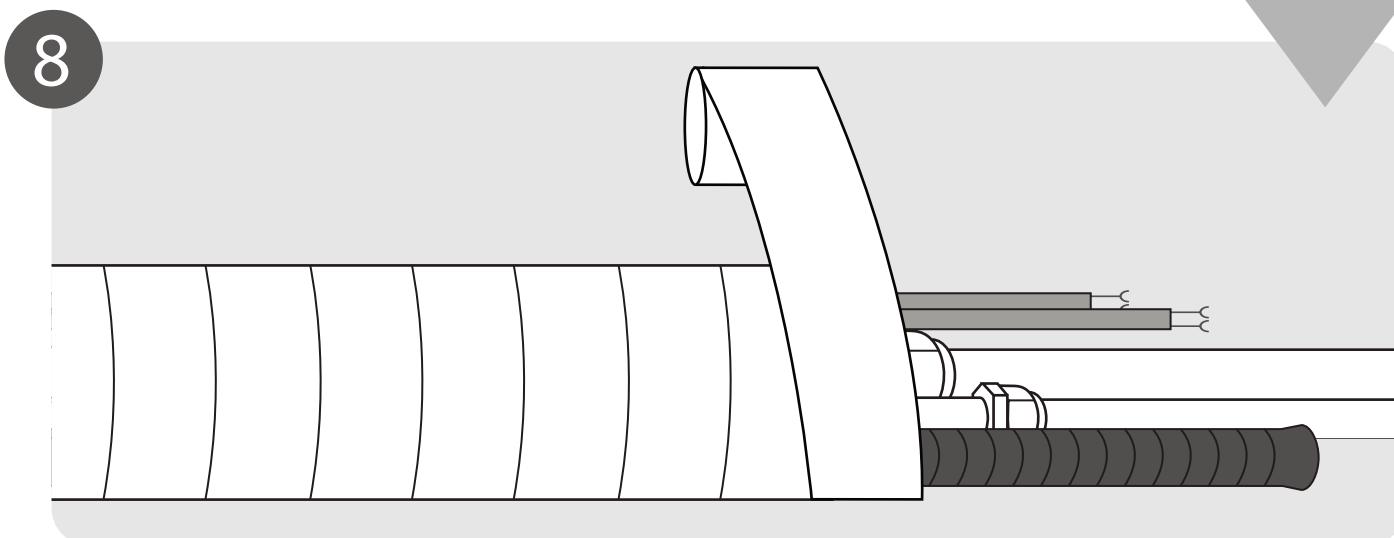
Drill Wall Hole
(Page 12)



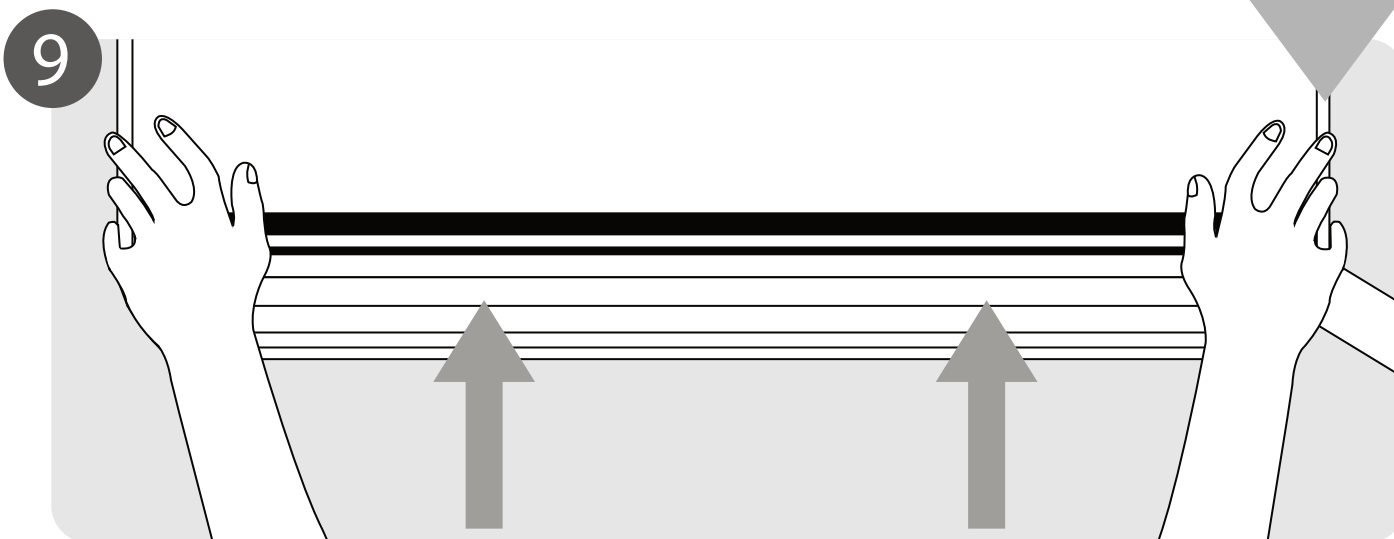
Connect Piping
(Page 25)

Connect Wiring
(Page 17)

Prepare Drain Hose
(Page 14)



Wrap Piping & Cables together
(Page 18)



Mount the Indoor Unit
(Page 18)

Unit Components

3

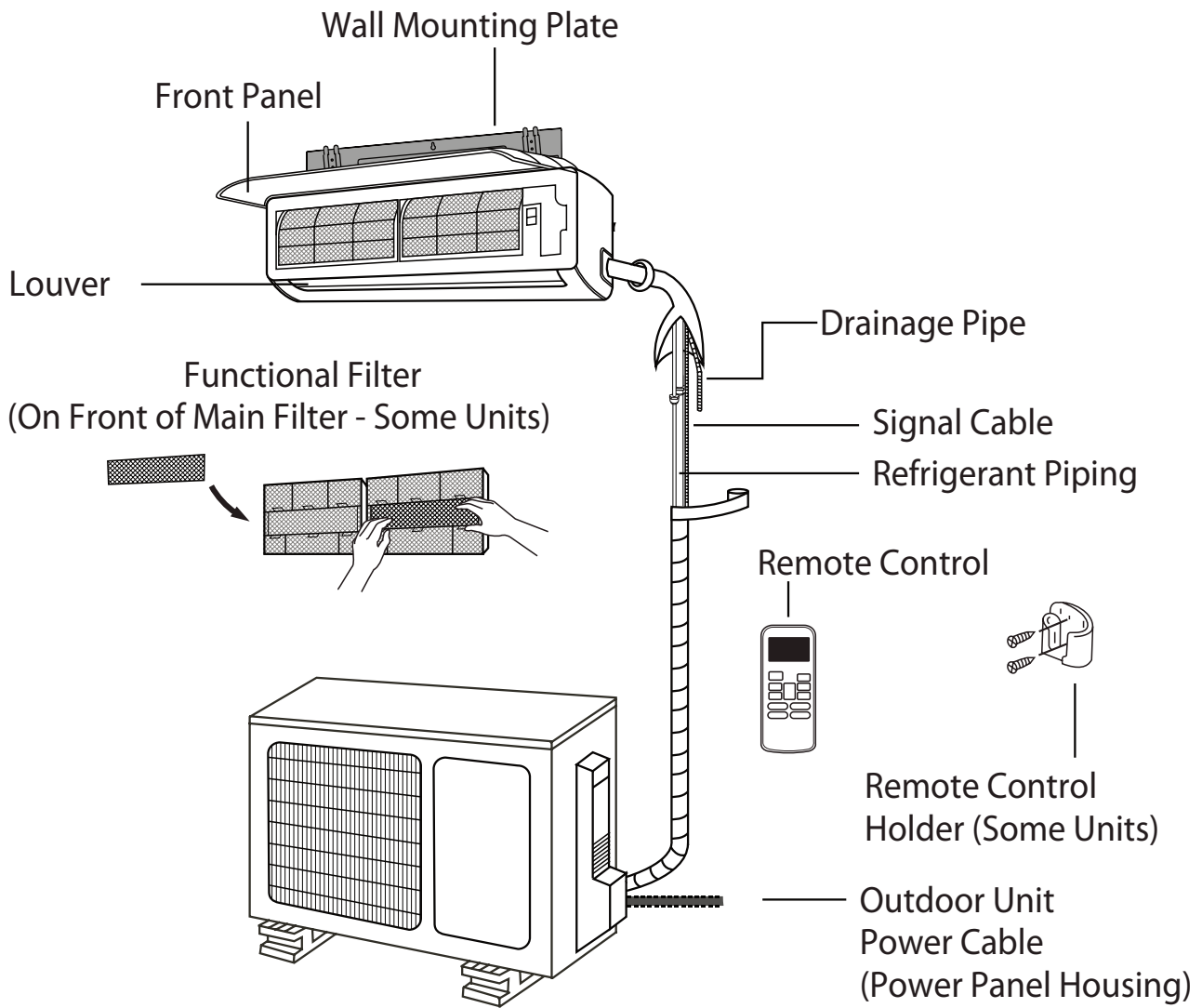


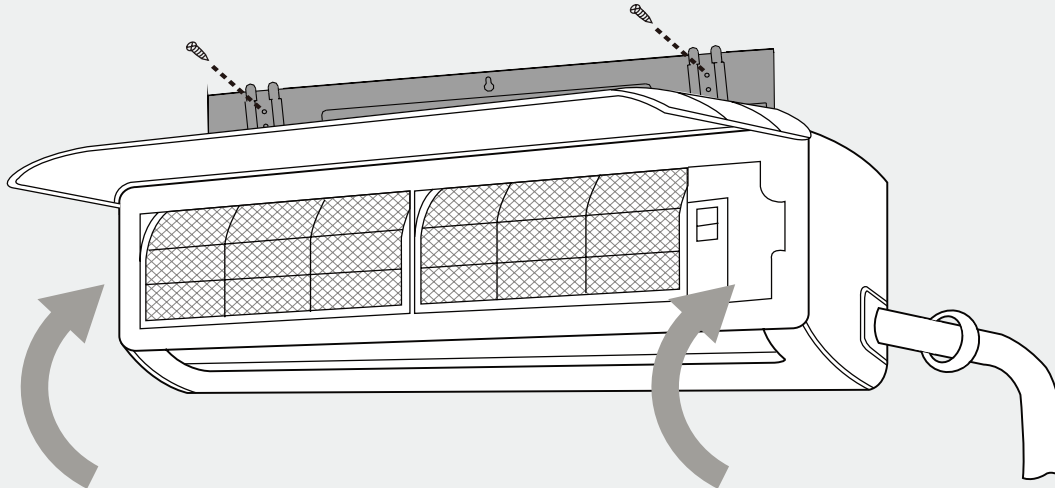
Fig. 2.1

NOTE ON ILLUSTRATIONS

Illustrations in this manual are strictly for explanatory purposes. The actual shape of your indoor unit may be slightly different. The actual shape shall take precedence over graphical representations.

Indoor Unit Installation

4



Installation Instructions – Indoor Unit

PRIOR TO INSTALLATION

Before installing the indoor unit, refer to the label on the product box to make sure that the system set is a matching set for capacity, voltage, and efficiency (indoor and outdoor).

Step 1: Select installation location

Before installing the indoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

- ☑ Good air circulation
- ☑ Convenient drainage
- ☑ Isolated enough to not cause disturbance for other people
- ☑ Firm and solid—the location will not vibrate
- ☑ Strong enough to support the weight of the unit
- ☑ A location at least 1m (40 in) from all other electrical devices (e.g., TV, radio, computer)

DO NOT install unit in the following locations:

- ⊘ Near any sources of heat, steam, or combustible gas
- ⊘ Near flammable items such as curtains or clothing
- ⊘ Near any obstacle that might block air circulation
- ⊘ Near doorways
- ⊘ In locations subjected to direct sunlight

NOTE ABOUT WALL HOLE:

There are multiple options for piping routes: While choosing a location, be aware that you should leave ample room for a wall hole (see **wall hole drilling for piping connection** step) for the signal cable and refrigerant piping that connect the indoor and outdoor units. The wall hole position for all piping can be located at either the right or left side of the indoor unit (while facing unit). Pipes can also be routed out from either side, or the bottom.

Refer to the following diagram to verify these recommended distances from walls and ceiling:

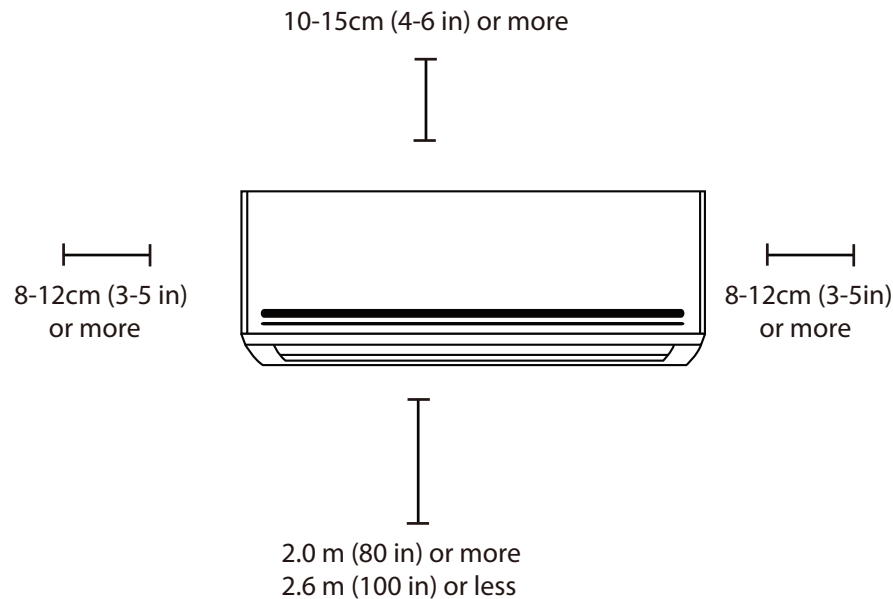


Fig. 3.1

Step 2: Attach mounting plate to the wall

The mounting plate is the device on top of which the indoor unit will be mounted.

1. Remove the screw that attaches the mounting plate to the back of the indoor unit.
2. Place the mounting plate against the wall in a location that meets the standards in the "Select Installation Location" step. (See "Mounting Plate Dimensions" for detailed information on mounting plate sizes.)
3. Drill holes for mounting screws in places that:
 - have studs and can support the weight of the unit
 - correspond to screw holes in the mounting plate
4. Secure the mounting plate to the wall with the screws provided.
5. Make sure that the mounting plate is fully flat against the wall.

NOTE FOR CONCRETE OR BRICK WALLS:

If the wall is made of brick, concrete, or similar material, drill 5mm-diameter (3/16 in-diameter) holes in the wall and insert the provided sleeve provided. Then, secure the mounting plate to the wall by tightening the screws directly into the clip anchors.

Step 3: Drill wall hole for connective piping

You must drill a hole in the wall for the refrigerant piping, the drainage pipe, and the signal cable that will connect the indoor and outdoor units.

1. Determine the location of the wall hole based on the position of the mounting plate. Refer to "Mounting Plate Dimensions" on the next page to help you determine the optimal position. The wall hole should have a 65mm (2.5in) diameter at least, and at a slight downward angle to facilitate drainage.
2. Using a 65mm (2.5 in) or 90mm(3.5 in) (depending on models) core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 5mm to 7mm (3/16-5/16 in). This will ensure proper water drainage. (See Fig. 3.2)
3. Place the protective sleeve in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

! CAUTION

When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

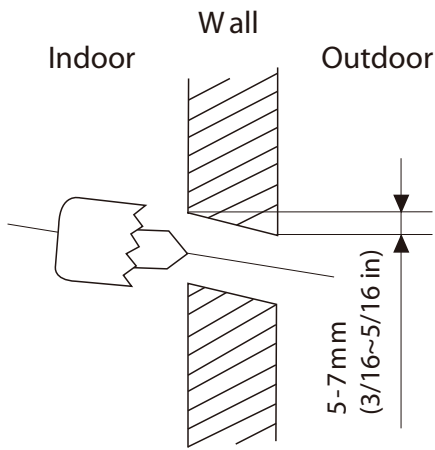


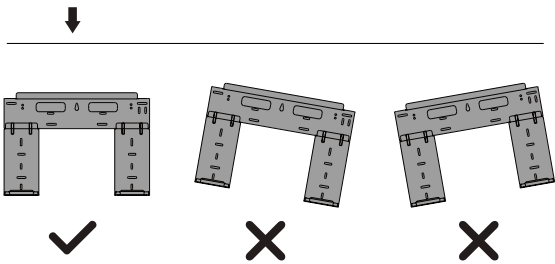
Fig. 3.2

MOUNTING PLATE DIMENSIONS

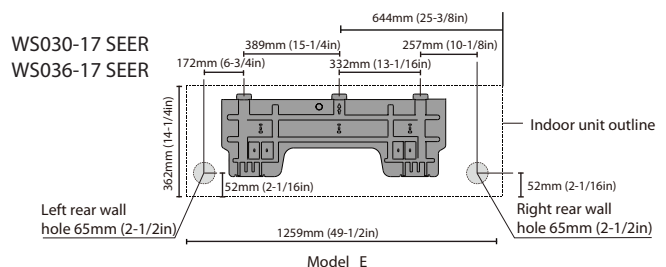
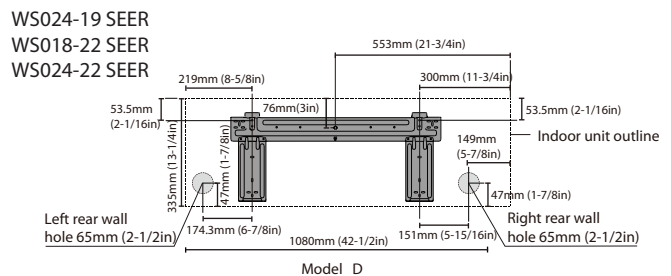
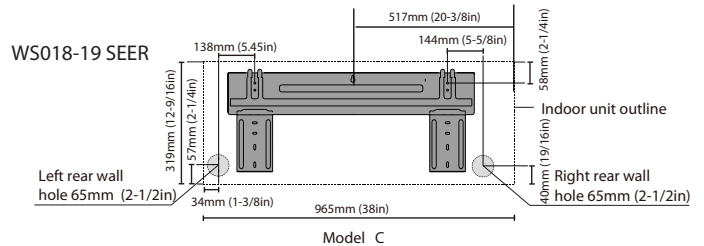
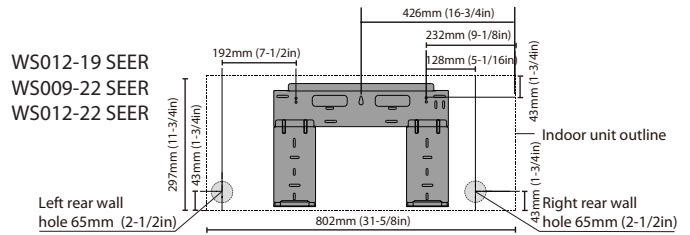
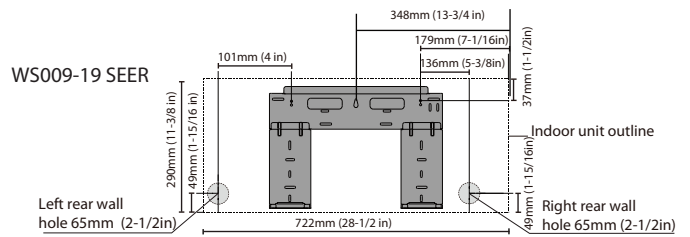
Different models have different mounting plates. To ensure that you have ample room to mount the indoor unit, refer to the diagrams to the right which show different types of mounting plates, along with the following dimensions:

- Width of the mounting plate
- Height of the mounting plate
- Width of indoor unit relative to the plate
- Height of indoor unit relative to the plate
- Recommended position of wall hole (both to the left and right of the mounting plate)
- Relative distances between the screw holes

Correct orientation of the Mounting Plate



Be sure to obtain perfect horizontal position



NOTE: When the gas side connective pipe is Φ 16mm (5/8in) or more, the wall hole could be 75mm (3 in). (for 24, 30, 36K Models).

Step 4: Prepare refrigerant piping

The refrigerant piping is inside an insulating sleeve attached to the back of the unit. You must prepare the piping before passing it through the hole in the wall. Refer to the "Refrigerant Piping Connection" section of this manual for detailed instructions on pipe flaring and flare torque requirements, technique, etc.

1. Based on the position of the wall hole relative to the mounting plate, choose the side from which the piping will exit the unit.
2. If the wall hole is behind the unit, keep the knock-out panel in place. If the wall hole is to the side of the indoor unit, remove the plastic knock-out panel from that side of the unit. (See Fig. 3.3). This will create a slot through which your piping can exit the unit. Use needle nose pliers if the plastic panel is too difficult to remove by hand.

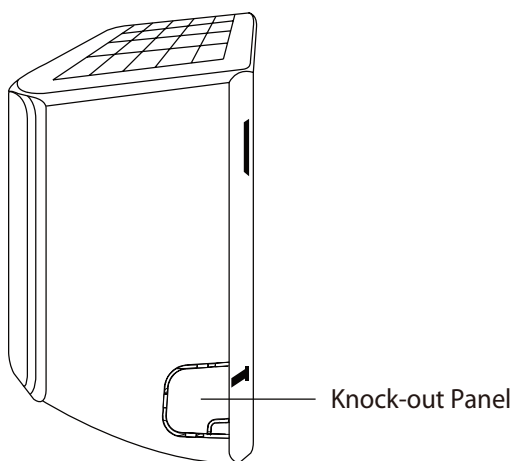


Fig. 3.3

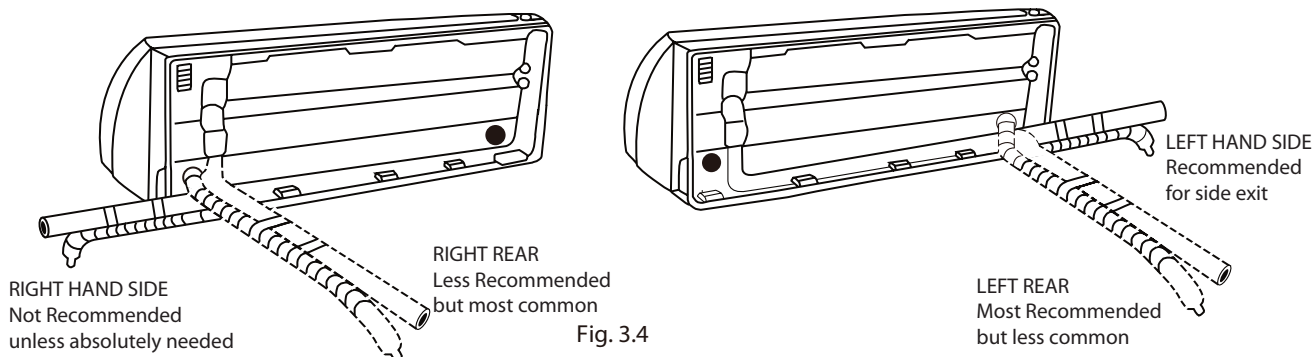
3. Use scissors to cut down the length of the insulating sleeve to reveal about 15cm (6in) of the refrigerant piping. This serves two purposes:
 - To facilitate the "Refrigerant Piping Connection" process.
 - To facilitate "Gas Leak Checks" and enable you to check for dents or kinks.
4. If existing connective piping is already embedded in the wall, proceed directly to the "Connect Drain Hose" step. If there is no embedded piping, connect the indoor unit's refrigerant piping to the connective piping that will join the indoor and outdoor units. Refer to the "Refrigerant Piping Connection" section of this manual for detailed instructions.
5. Based on the position of the wall hole relative to the mounting plate, determine the necessary angle of your piping.
6. Grip the refrigerant piping at the base of the bend.
7. Slowly, and with even pressure, bend the piping towards the hole. **Do not** kink or damage the piping during the process !!!! (CAUTION)

NOTE ON PIPING ANGLE

Refrigerant piping can exit the indoor unit from four different angles:

- Left-hand side
- Left rear
- Right-hand side
- Right rear

Refer to Fig. 3.4 for details.



! CAUTION

Be extremely careful not to kink or damage the piping while bending them away from the unit. Any dents or kinks in the piping will seriously affect the unit's performance.

Step 5: Connect drain hose

By default, the drain hose is attached to the left-hand side of unit ("left" when facing the back of the unit). However, it can also be attached to the right-hand side.

1. To ensure proper drainage, attach the drain hose on the same side that your refrigerant piping exits the unit.
2. Attach drain hose extension (sold separately) to the end of drain hose.
3. Wrap the connection point firmly with Teflon tape to create a good seal, and to prevent leaks.
4. For the portion of the drain hose that will remain indoors, wrap it with foam pipe insulation to prevent condensation.
5. Remove the air filter and pour a small amount of water into the drain pan to make sure that water flows from the unit smoothly.

NOTE ON DRAIN HOSE PLACEMENT

Make sure to arrange the drain hose according to Fig. 3.5 .

- ⊘ DO NOT kink the drain hose.
- ⊘ DO NOT create a water trap (siphon).
- ⊘ DO NOT put the end of the drain hose in water or in a container that will collect water.

DUAL DRAIN HOLE LOCATIONS EXIST

The indoor unit has 2 drain connections on left and right sides. Either one can be utilized. One side will have a hose connected, while the other is plugged.

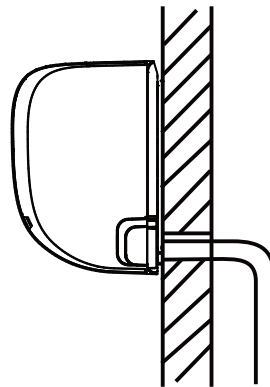


Fig. 3.5

CORRECT

Make sure there are no kinks, dents or siphons in the drain hose, to ensure proper drainage.

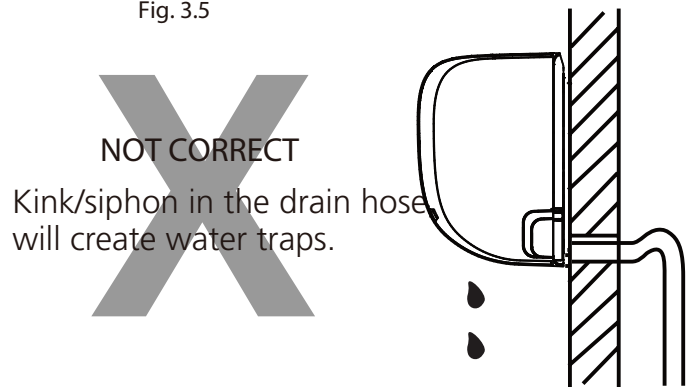


Fig. 3.6

NOT CORRECT

Kink/siphon in the drain hose will create water traps.

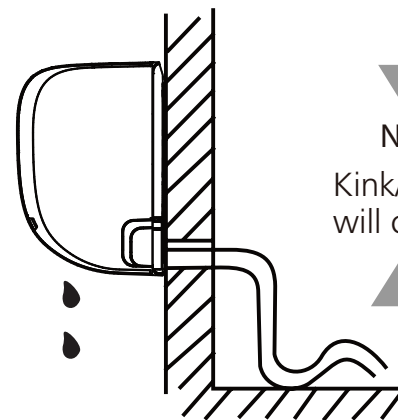


Fig. 3.7

NOT CORRECT

Kink/siphon in the drain hose will create water traps.

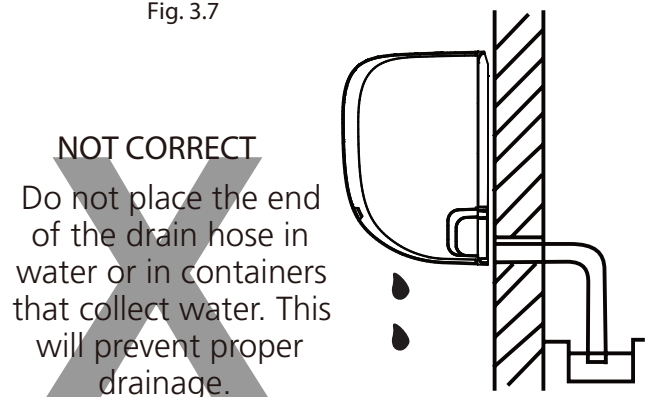


Fig. 3.8

NOT CORRECT

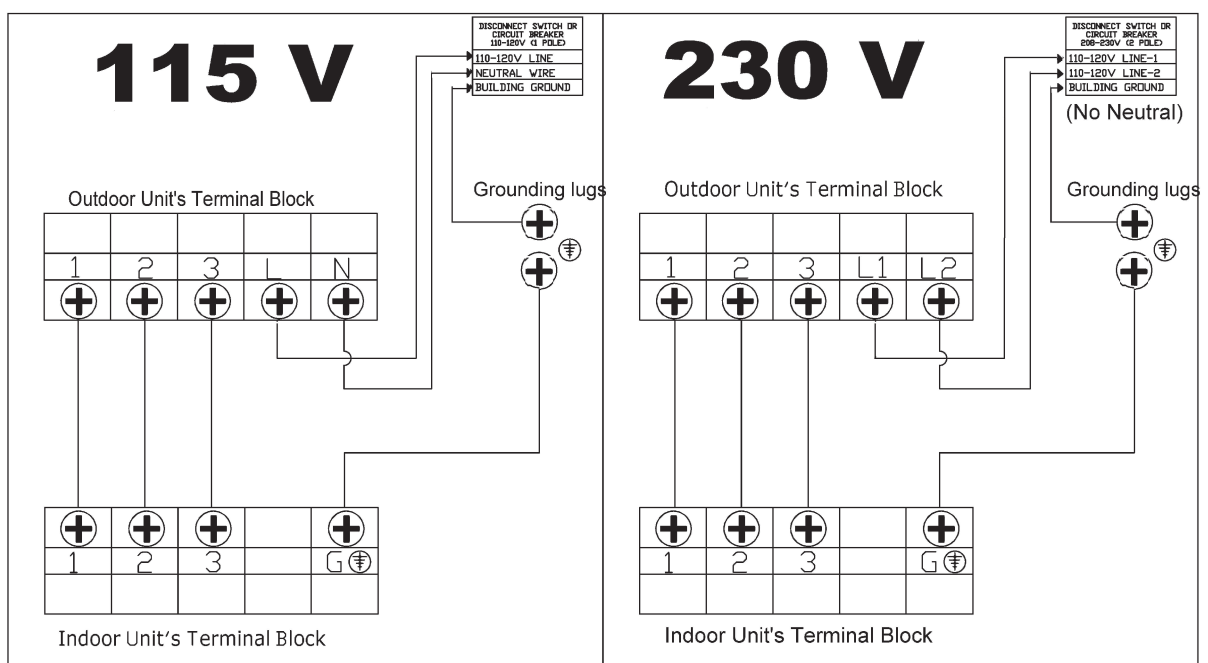
Do not place the end of the drain hose in water or in containers that collect water. This will prevent proper drainage.

! BEFORE PERFORMING ELECTRICAL WORK, READ THESE REGULATIONS

1. All wiring must comply with local and national electrical codes, and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and suspend all installation until the safety issue is properly resolved.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. Connect power through fixed wiring, install a surge protector and a disconnect switch box, and a dedicated circuit breaker with a capacity of 1.5 times the maximum current of the unit.
6. A properly rated HACR-type fuse or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or fuse.
7. Only connect the unit to an individual branch circuit. Do not connect another appliance to that outlet. This equipment requires its own dedicated and protected circuit.
8. Make sure to properly ground the air conditioner.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.
11. If the unit has an auxiliary electric heater, it must be installed at least 1 meter (40in) away from any combustible materials.

! WARNING: BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.

Simplified Wiring Diagrams



Step 6: Connect signal cable

The signal cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection.

Cable Types

- Outdoor Power Cable: H07RN-F
- Signal Cable: H07RN-F

Minimum Cross-Sectional Area of Power and Signal Cables

North America

Appliance Amps (A)	AWG
10	18
13	16
15	14
20	12
30	10

Other Regions

Rated Current of Appliance (A)	Nominal Cross-Sectional Area (mm ²)
> 3 and ≤ 6	0.75
> 6 and ≤ 10	1
> 10 and ≤ 16	1.5
> 16 and ≤ 25	2.5
> 25 and ≤ 32	4
> 32 and ≤ 40	6

CHOOSE THE RIGHT CABLE SIZE

The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current of the unit. The maximum current is indicated on the nameplate located on the side panel of the unit. Refer to this nameplate to choose the right cable, fuse, or switch.

TAKE NOTE OF FUSE SPECIFICATIONS

The air conditioner's circuit board (PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board, such as: T3.15A/250VAC, T5A/250VAC, etc.

1. Prepare the cable for connection:
 - a. Using wire strippers, strip the rubber jacket from both ends of signal cable to reveal about 40mm (1.5 in) of the wires inside.
 - b. Strip the insulation from the ends of the wires.
 - c. Using a wire crimper, crimp u-type lugs on the ends of the wires, if needed.

PAY ATTENTION TO MAKE GOOD CONTACT

While crimping wires, make sure to make good electrical contact between the wire and terminal

2. Open the front panel of the indoor unit.
3. Using a screwdriver, open the wire box cover on the right side of the unit. This will reveal the terminal block.

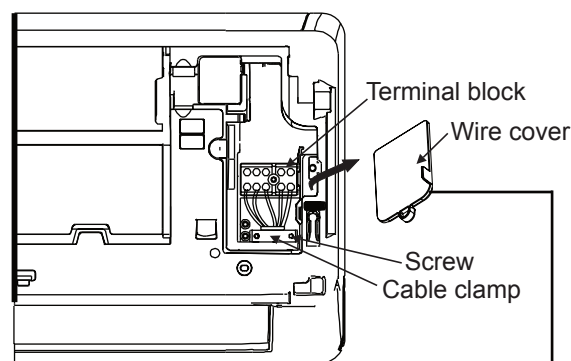


Fig. 3.9

The Wiring Diagram is located on the inside of the indoor unit's front panel or under this cover.

WARNING

ALL WIRING MUST PERFORMED STRICTLY IN ACCORDANCE WITH THE WIRING DIAGRAM LOCATED ON THE INSIDE OF THE INDOOR UNIT'S FRONT PANEL OR UNDER COVER.

4. Unscrew the cable clamp below the terminal block and place it to the side.
5. Facing the back of the unit, remove the plastic panel on the bottom left-hand side.

6. Feed the signal wire through this slot, from the back of the unit to area near terminals.
7. Facing the front of the unit, attach 4 leads of the signal wire to the 4 terminal positions marked as 1-2-3-G (Ground). Note the color of the wire used for each terminal, to connect same wire to the same position at other end.

! CAUTION

DO NOT MIX UP THE WIRES BETWEEN EACH ENDS

This is hazardous, and can cause the air conditioning unit to malfunction.

8. After checking to make sure every connection is secure, use the cable clamp to fasten the signal cable to the unit. Screw the cable clamp down tightly.
9. Replace the wire cover on the front of the unit, and the plastic panel on the back.

! NOTE ABOUT WIRING

THE WIRING CONNECTION PROCESS MAY DIFFER SLIGHTLY BETWEEN UNITS.

Step 7: Wrap piping and cables

Before passing the piping, drain hose, and the signal cable through the wall hole, you must bundle them together to save space, protect them by sealing the ends, and insulate them.

1. Bundle the drain hose, refrigerant pipes, and signal cable according to Fig. 3.10.

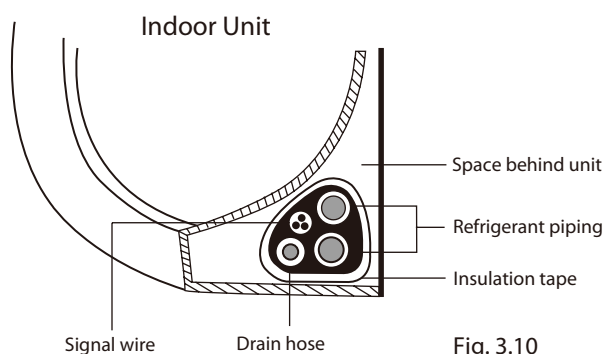


Fig. 3.10

DRAIN HOSE MUST BE ON BOTTOM

Make sure that the drain hose is at the bottom of the bundle. Putting the drain hose at the top of the bundle can cause the drain pan to overflow, which can lead to fire or water damage.

DO NOT INTERTWINE SIGNAL CABLE WITH OTHER WIRES

While bundling these items together, do not intertwine or cross the signal cable with any other wiring.

2. Using adhesive vinyl tape, attach the drain hose to the underside of the refrigerant pipes.
3. Using insulation tape, wrap the signal wire, refrigerant pipes, and drain hose tightly together. Double-check that all items are bundled in accordance with Fig. 3.10.

DO NOT REMOVE DUST CAPS FROM THE PIPING

When wrapping the bundle, keep the ends of the piping sealed well with the original dust caps or using duct tape so that dust cannot enter inside. Leave connection points accessible for leak and electrical checking later (see next sections).

Step 8: Mount indoor unit

If you installed new connective piping to the outdoor unit, do the following:

1. If you have already passed the refrigerant piping through the hole in the wall, proceed to Step 4.
2. Otherwise, double-check that the ends of the refrigerant pipes are sealed to prevent dirt or foreign materials from entering the pipes.
3. Slowly pass the wrapped bundle of refrigerant pipes, drain hose, and signal wire through the hole in the wall.
4. Hook the top of the indoor unit onto the upper hooks of the mounting plate.
5. Check that the unit is hooked firmly on mounting plate by applying slight pressure to the left and right-hand sides of the unit. The unit should not jiggle or shift.
6. Using even pressure, push the bottom half of the unit toward the wall. Keep pushing evenly until the unit snaps onto the hooks along the bottom of the mounting plate.
7. Again, check that the unit is firmly mounted by applying slight pressure to the left and the right-hand sides of the unit.
8. During this entire process, make sure that the copper pipes, insulation materials, drain hose, electrical wires are not stressed, bent, kinked, or received any stresses or damaged otherwise.

If refrigerant piping is already embedded in the wall, do the following:

1. Hook the top of the indoor unit onto the upper hook of the mounting plate.
2. Use a bracket or wedge to prop up the unit, giving you enough room to connect the refrigerant piping, signal cable, and drain hose. Refer to Fig. 3.11 for an example.

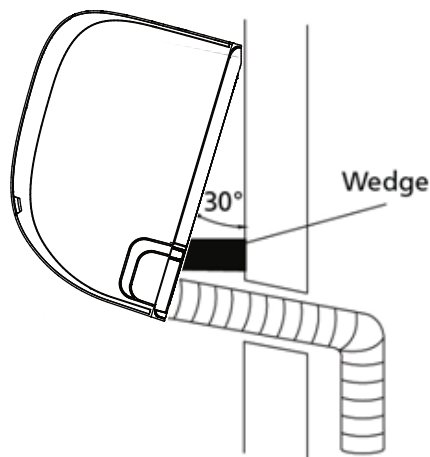


Fig. 3.11

3. Connect drain hose and refrigerant piping (refer to "Refrigerant Piping Connection" section of this manual for instructions).
4. Keep pipe connection points exposed to perform the leak test (refer to "Electrical Checks and Leak Checks" section of this manual).
5. After the leak test, wrap the connection point with insulation tape.
6. Remove the bracket or wedge that is propping up the unit.
7. Using even pressure, push the bottom half of the unit toward the wall. Keep pushing evenly until the unit snaps onto the hooks along the bottom of the mounting plate.

UNIT IS ADJUSTABLE

Keep in mind that the hooks on the mounting plate are smaller than the holes on the back of the unit. If you find that you don't have ample room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by about 30-50mm (1-2 inches), depending on the model. (See Fig. 3.12 .)

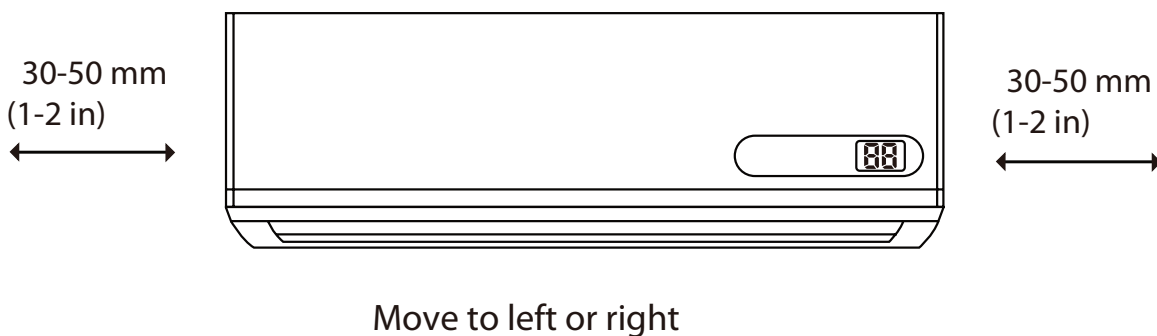
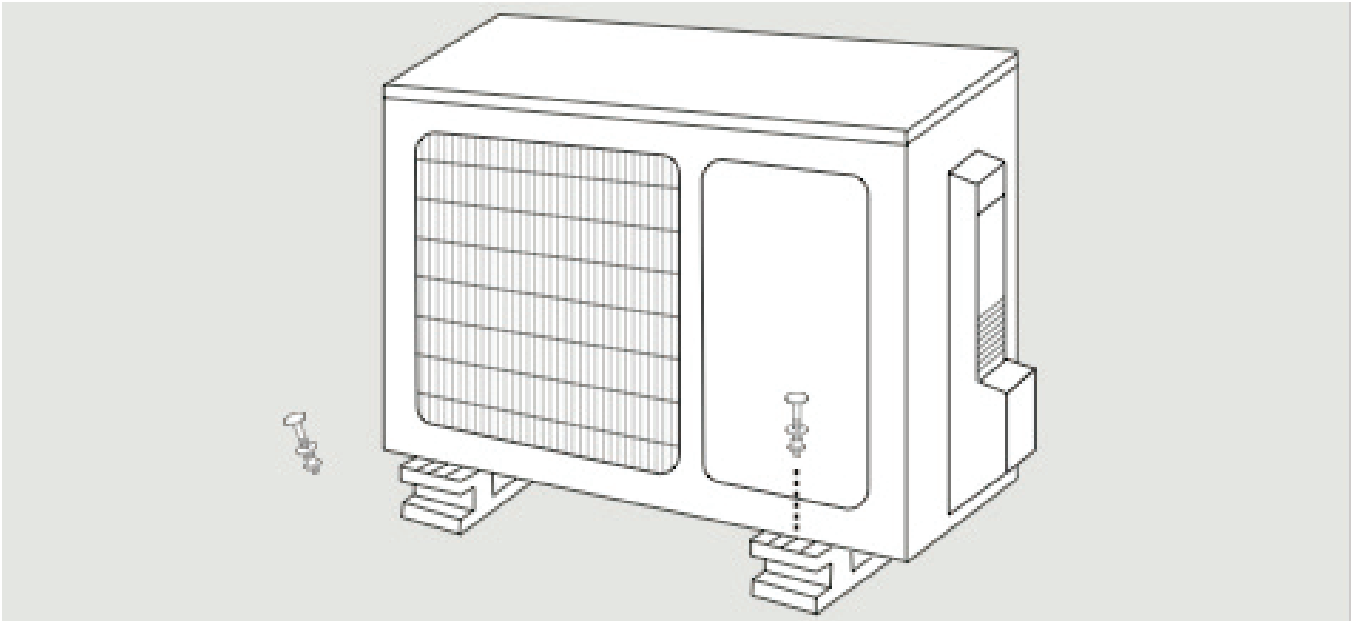


Fig. 3.12

Outdoor Unit Installation

5



Installation Instructions – Outdoor Unit

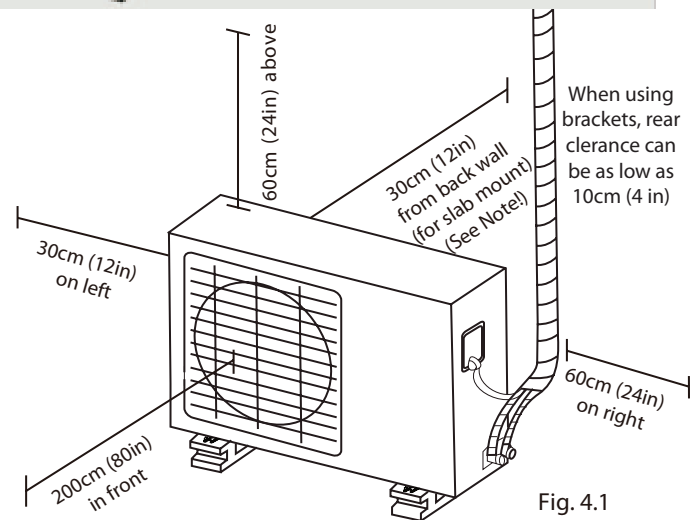
Step 1: Select installation location

Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

- ☑ Meets all spatial requirements shown in “Installation Space Requirements” (Fig. 4.1)
- ☑ Good air circulation and ventilation
- ☑ Firm and solid—the location can support the unit and will not vibrate
- ☑ Noise from the unit will not disturb others
- ☑ Protected from prolonged periods of direct sunlight, rain, flooding.

Additional note when using wall mounting brackets: Please note that the rear clearance required as shown in Fig 4.1 is not as strict when using wall mounting brackets. Minimum rear clearance when using wall mounting brackets is 10 cm (~4 inches).



DO NOT install unit in the following locations:

- ⊘ Near an obstacle that will block air inlets and outlets
- ⊘ Near a public street, crowded areas, or where noise from the unit will disturb others
- ⊘ Near animals or plants that will be harmed by hot or cold air discharge
- ⊘ Near any source of combustible gas
- ⊘ In a location that is exposed to large amounts of dust or receiving high winds
- ⊘ In a location exposed to excessive amounts of salty air due to sea body proximity

SPECIAL CONSIDERATIONS FOR EXTREME WEATHER

If the unit is exposed to heavy wind:

Install unit so that air outlet fan is at a 90° angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely heavy winds.

See Fig. 4.2 and Fig. 4.3 below.

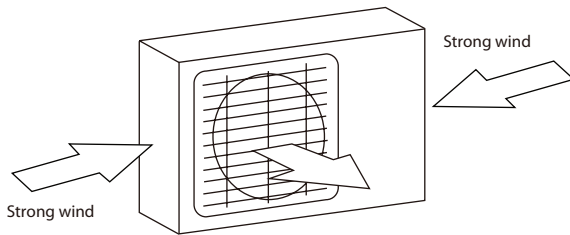


Fig. 4.2

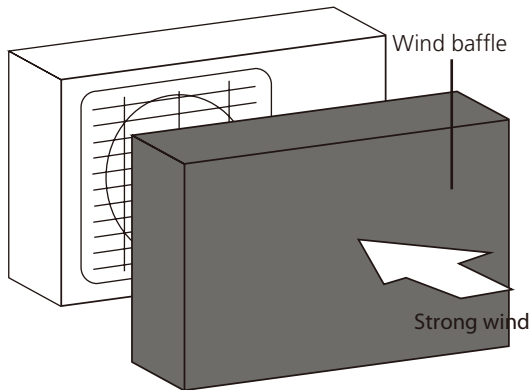


Fig. 4.3

If the unit is frequently exposed to heavy rain or snow:

Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct air flow around the unit.

If the unit is frequently exposed to salty air (seaside):

Use specific-approved anti-corrosion coating sprays on heat exchanger surface to resist corrosion.

Step 2: Install drain joint

Heat pump units require a drain joint. Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. Note that there are two different types of drain joints depending on the type of outdoor unit.

If the drain joint comes with a rubber seal (see Fig. 4.4 - A), do the following:

1. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan of the unit.
3. Rotate the drain joint 90° until it clicks in place facing the front of the unit.
4. Connect a drain hose extension (included) to the drain joint to redirect water from the unit during heating mode.

If the drain joint doesn't come with a rubber seal (see Fig. 4.4 - B), do the following:

1. Insert the drain joint into the hole in the base pan of the unit. The drain joint will click in place.
2. Connect a drain hose extension (included) to the drain joint to redirect water from the unit during heating mode.

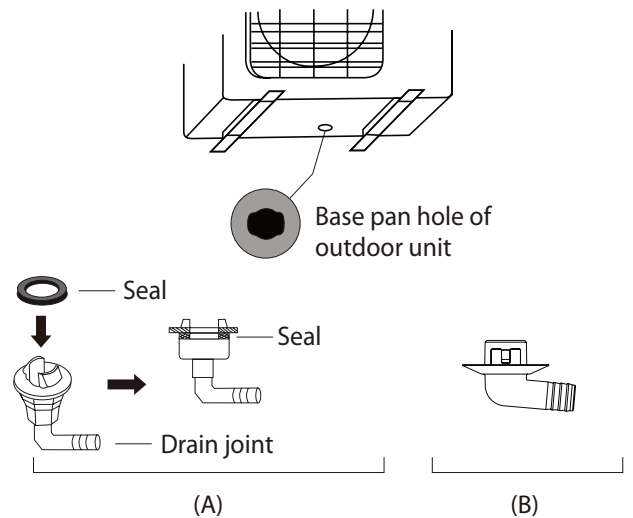


Fig. 4.4

! IN COLD CLIMATES

In cold climates, make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood inside unit. Insulate the drain hose for cold climates to prevent freezing. Frequently inspect the unit to ensure it is not buried in snow, or the inside is not filled up from heavy buildup of snow or ice, which can prevent the fan from spinning.

Step 3: Anchor the outdoor unit

The outdoor unit can be anchored to the ground or to a wall-mounted bracket.

UNIT MOUNTING DIMENSIONS

The following is a list of different outdoor unit sizes and the distance between their mounting feet. Prepare the installation base of the unit according to the dimensions below.

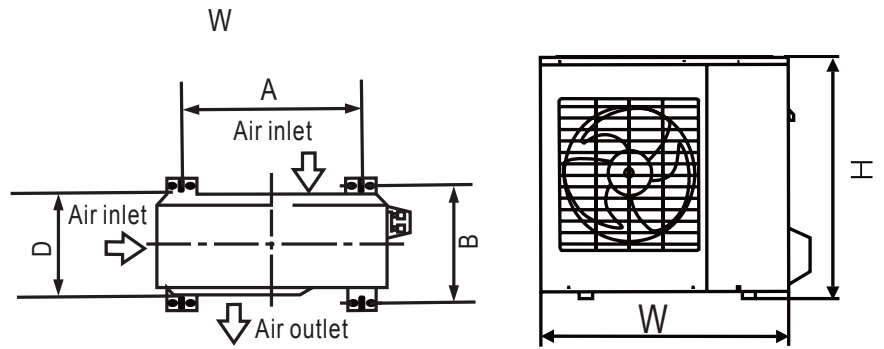


Fig. 4.5

Outdoor Unit Dimensions (mm) W x H x D (mm) & (in)	Mounting Dimensions	
	Distance A (mm) & (in)	Distance B (mm) & (in)
19 SEER Inverter + Models		
9K BTU-19 SEER: 770x555x300 (30-3/8x21-7/8x11-7/8)	487 (19-1/4)	298 (11-3/4)
12K BTU-19 SEER: 800x554x333 (31-1/2x21-3/4x13-1/8)	514 (20-1/4)	340 (13-3/8)
18K BTU-19 SEER: 800x554x333 (31-1/2x21-3/4x13-1/8)	514 (20-1/4)	340 (13-3/8)
24K BTU-19 SEER: 845x702x363 (33-1/4x27-5/8x14-3/8)	540 (21-1/4)	350 (13-3/4)
30K BTU-17 SEER: 946x810x410 (37-1/4x31-7/8x16-1/4)	673 (26-1/2)	403 (15-7/8)
36K BTU-17 SEER: 946x810x410 (37-1/4x31-7/8x16-1/4)	673 (26-1/2)	403 (15-7/8)

22 SEER Inverter ++ Models		
9K BTU-22 SEER: 770x555x300 (30-3/8x21-7/8x11-7/8)	487 (19-1/4)	298 (11-3/4)
12K BTU-22 SEER: 800x554x333 (31-1/2x21-3/4x13-1/8)	514 (20-1/4)	340 (13-3/8)
18K BTU-22 SEER: 845x702x363 (33-1/4x27-5/8x14-3/8)	540 (21-1/4)	350 (13-3/4)
24K BTU-22 SEER: 946x810x410 (37-1/4x31-7/8x16-1/4)	673 (26-1/2)	403 (15-7/8)

If you are installing the unit on the ground or on a concrete mounting platform, do the following:

1. Mark the positions for four expansion bolts based on dimensions in the "Unit Mounting Dimensions" chart.
2. Pre-drill holes for expansion bolts.
3. Clean concrete dust away from holes.
4. Place a nut on the end of each expansion bolt.
5. Hammer expansion bolts into the pre-drilled holes.

6. Remove the nuts from expansion bolts, and place outdoor unit on bolts.
7. Put washer on each expansion bolt, then replace the nuts.
8. Using a wrench, tighten each nut until snug.

WARNING

WHEN DRILLING INTO CONCRETE, EYE PROTECTION SHOULD BE WORN AT ALL TIMES.

If you are installing the unit on a wall-mounting bracket, do the following:

CAUTION

Before installing a wall-mounted unit, make sure that the wall is made of solid brick, concrete, or of similarly strong material. **The wall must be able to support at least four times the weight of the unit.**

1. Mark the position of bracket holes based on dimensions in the “Unit Mounting Dimensions” chart.
2. Pre-drill the holes for the expansion bolts.
3. Clean dust and debris away from holes.
4. Place a washer and nut on the end of each expansion bolt.
5. Thread expansion bolts through holes in mounting brackets, put mounting brackets in position, and hammer expansion bolts into the wall.
6. Check that the mounting brackets are level.
7. Carefully lift unit and place its mounting feet on brackets.
8. Bolt the unit firmly to the brackets.

TO REDUCE VIBRATIONS OF WALL-MOUNTED UNIT

If available, you can install the wall-mounted unit with rubber gaskets to reduce vibrations and noise transmitting into the structure.

Step 4: Connect signal and power cables

The outside unit’s terminal block is protected by an electrical wiring cover on the side of the unit. A comprehensive wiring diagram is printed on the inside of the wiring cover.

BEFORE PERFORMING ANY ELECTRICAL WORK, READ THESE REGULATIONS

1. All wiring must comply with local and national electrical codes, and must be installed by a fully-licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the side panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and suspend all installation of the unit until the safety issue is properly resolved.
4. Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause electrical shock or fire.
5. Connect the power through fixed wiring, install a surge protector, and disconnect switch box. Use a dedicated circuit breaker with a capacity of 1.5 times the maximum current of the unit.
6. A properly rated HACR-type fuse or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or switch.
7. Only connect the unit to a dedicated individual branch circuit breaker. Do not connect another appliance to that same circuit.
8. Be sure to properly ground the air conditioner.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. **Do not** let wires touch or rest against refrigerant tubing, the compressor, or any other moving parts within the unit.
11. If the unit has an auxiliary electric heater, it must be installed at least 1 meter (40in) away from any combustible materials.

! WARNING

BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, TURN OFF THE MAIN POWER TO THE SYSTEM.

1. Prepare the cable for connection:

USE THE RIGHT CABLE

- Outdoor Power Cable: H07RN-F
- Signal Cable: H07RN-F

Minimum Cross-Sectional Area of Power and Signal Cables

North America

Appliance Amps (A)	AWG
10	18
13	16
15	14
20	12
30	10

INDOOR UNIT TERMINAL POSITION #1 connects to OUTDOOR UNIT TERMINAL POSITION #1.

INDOOR UNIT TERMINAL POSITION #2 connects to OUTDOOR UNIT TERMINAL POSITION #2.

INDOOR UNIT TERMINAL POSITION #3 connects to OUTDOOR UNIT TERMINAL POSITION #3.

INDOOR UNIT TERMINAL POSITION "GROUND" connects to OUTDOOR UNIT GROUNDING LUG

- Using wire strippers, strip the rubber jacket from both ends of cable to reveal about 40mm (1.5 in) of the wires inside.
- Strip the insulation from the ends of the wires.
- Using a wire crimper, crimp u-lugs on the ends of the wires.

Note: Some cables come with preinstalled u-lugs from the factory.

PAY ATTENTION TO MAKE GOOD CONTACT

While crimping wires, make sure to make good electrical contact between the wire and terminal

! WARNING

ALL WIRING MUST PERFORMED STRICTLY IN ACCORDANCE WITH THE WIRING DIRGRAM LOCATED INSIDE THE OUTDOOR UNIT 5 WIRING TERMINAL BLOCK COVER.

- Unscrew the electrical wiring terminal block cover and place it to the side.
- Unscrew the cable clamp below the terminal block and place it to the side.
- Attach 3 leads of the signal wire to 1-2-3 lugs of the terminal block and ground wire to ground lug on metal panel, to ensure a tight connection.
- After checking to make sure every connection is secure, loop the wires around to prevent rain water from flowing into the terminal.
- Using the cable clamp, fasten the cable to the unit. Screw the cable clamp down tightly.
- Insulate unused wires with PVC electrical tape. Arrange them so that they do not touch any electrical or metal parts.
- Replace the wire cover on the side of the unit, and screw it into place.

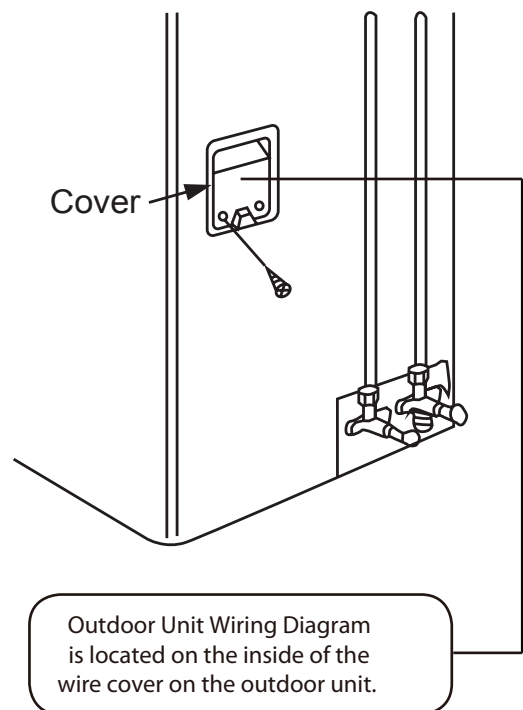
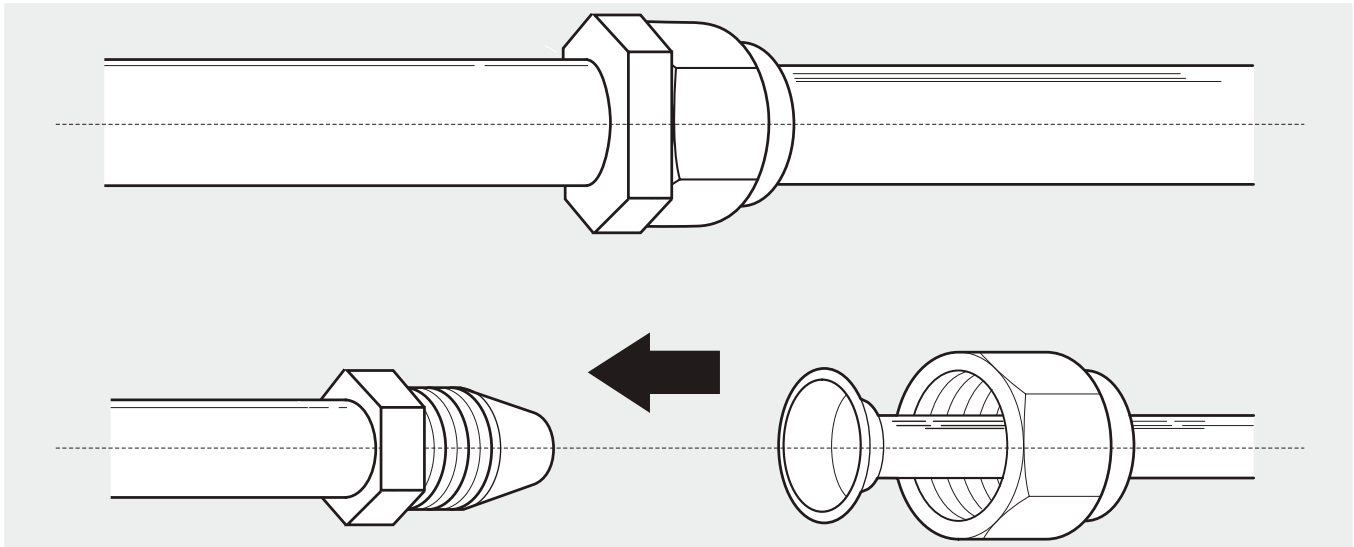


Fig. 4.6

Refrigerant Piping Connection

6



Note on Pipe Length

The length of refrigerant piping will affect the performance and energy efficiency of the unit. Nominal efficiency is tested on units with a pipe length of 5 meters (16 ft).

Refer to the table below for specifications on the maximum length and drop height of piping.

Maximum Length and Drop Height of Refrigerant Piping per Unit Model

Model	Capacity (BTU/h)	Max. Length (m)	Max. Drop Height (m)
R410A Inverter Split Air Conditioner	< 15,000	25 (80 ft)	10 (33 ft)
	≥ 15,000 and < 24,000	30 (100 ft)	20 (66 ft)
	≥ 24,000 and < 36,000	50 (165 ft)	25 (82 ft)
	≥ 36,000 and ≤ 60,000	65 (215 ft)	30 (100 ft)

Connection Instructions – Refrigerant Piping

Step 1: Cut pipes

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1. Measure the distance between the indoor and outdoor units.

2. Using a pipe cutter, cut the pipe a little longer than the measured distance.
3. Make sure that the pipe is cut at a perfect 90° angle. Refer to Fig. 5.1 for bad cut examples.

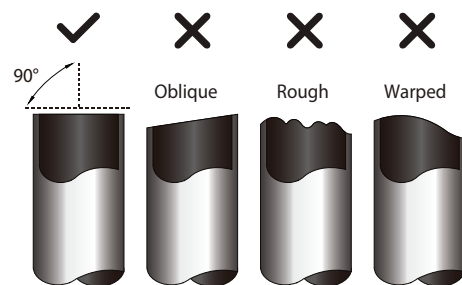


Fig. 5.1

! DO NOT DEFORM PIPE WHILE CUTTING

Be extra careful not to damage, kink, or deform the pipe while cutting. This will drastically reduce the efficiency and capacity of the unit and may cause internal damage.

Step 2: Remove any burrs carefully.

Burrs can affect the air-tight seal of refrigerant piping connection. They must be completely removed. Follow steps below for proper deburring.

1. Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
2. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.

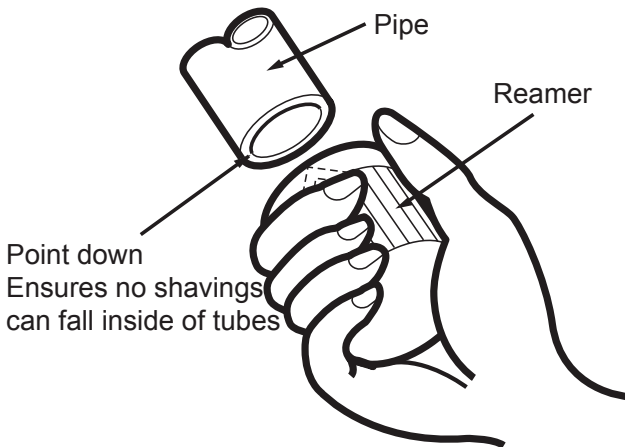


Fig. 5.2

Step 3: Flare pipe ends

Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.
2. Sheath the pipe with insulating material.
3. Place flare nuts on both ends of pipe. Make sure they are facing the correct direction, because you can't put them on or change their direction after flaring. See Fig. 5.3 .

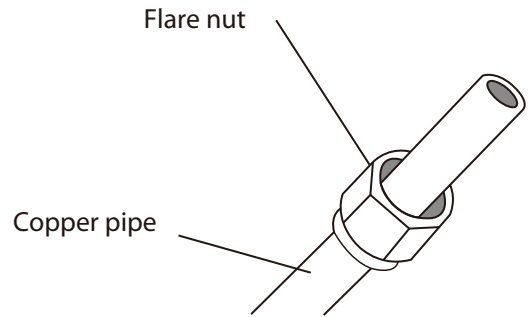


Fig. 5.3

4. Remove PVC tape from ends of pipe when ready to perform flaring work.
5. Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the edge of the flare form in accordance with the dimensions shown in the table below.

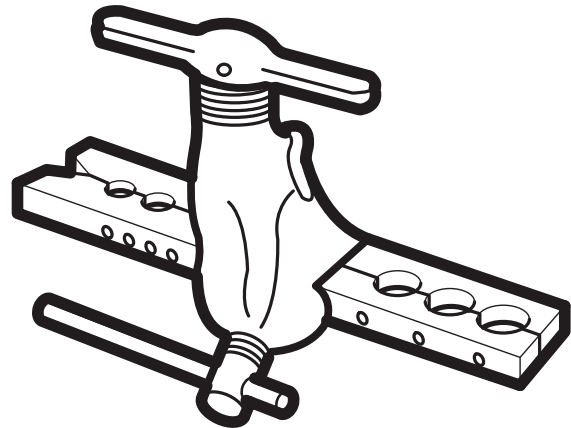


Fig. 5.4

PIPING EXTENSION BEYOND FLARE FORM

Outer Diameter of Pipe (mm)	A (mm)	
	Min.	Max.
Ø 6.35 (Ø 1/4")	0.7 (0.03")	1.3 (0.05")
Ø 9.52 (Ø 3/8")	1.0 (0.04")	1.6 (0.06")
Ø 12.7 (Ø 1/2")	1.0 (0.04")	1.8 (0.07")
Ø 16 (Ø 5/8")	2.0 (0.08")	2.2 (0.09")
Ø 19 (Ø 3/4")	2.0 (0.08")	2.4 (0.1")

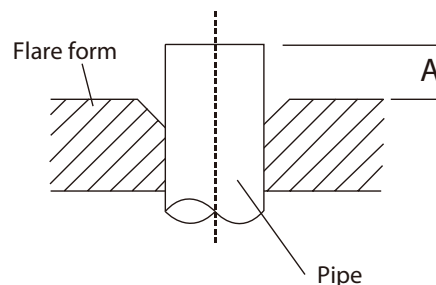


Fig. 5.5

6. Place flaring tool onto the form.
7. Turn the handle of the flaring tool clockwise until the pipe is fully flared.
8. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and successful, even flaring.

Step 4: Connect pipes

When connecting refrigerant pipes, be careful not to use excessive torque, or to deform the piping in any way. You should first connect the low-pressure pipe, then the high-pressure pipe.

If provided by your supplier, apply leak guard material on all flared mating surfaces.

MINIMUM BEND RADIUS

When bending connective refrigerant piping, the minimum bending radius is 10cm (4"). See Fig.5.6

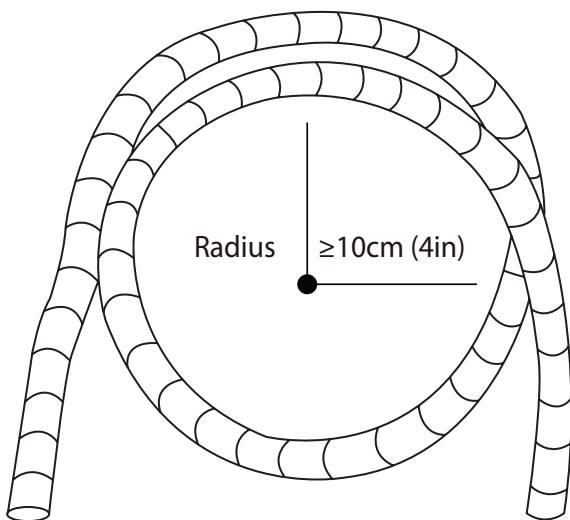


Fig. 5.6

Instructions for Connecting Piping to Indoor Unit

1. Align the center of the two pipes that you will connect. See Fig. 5.7

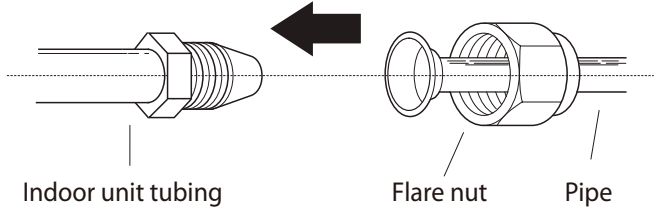


Fig. 5.7

2. Tighten the flare nut as tightly as possible by hand.
3. Using a spanner, grab the nut on the unit tubing.
4. While firmly holding the nut on the unit tubing, use a torque wrench to tighten the flare nut according to the torque values in the "Torque Requirements" table below. Loosen the flaring nut slightly, then tighten again.

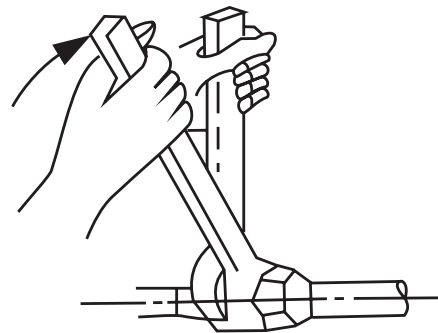


Fig. 5.8

TORQUE REQUIREMENTS

Outer Diameter of Pipe (mm)	Tightening Torque (N·cm)	Add. Tightening Torque (N·cm)
Ø 6.35 (Ø 1/4")	1,500 (11 lb•ft)	1,600 (11.8 lb•ft)
Ø 9.52 (Ø 3/8")	2,500 (18.4 lb•ft)	2,600 (19.2 lb•ft)
Ø 12.7 (Ø 1/2")	3,500 (25.8 lb•ft)	3,600 (26.6 lb•ft)
Ø 16 (Ø 5/8")	4,500 (33.2 lb•ft)	4,700 (34.7 lb•ft)
Ø 19 (Ø 3/4")	6,500 (47.9 lb•ft)	6,700 (49.4 lb•ft)

! DO NOT USE EXCESSIVE TORQUE

Excessive force can break the nut or damage the refrigerant piping. You must not exceed the torque requirements shown in the table above.

Instructions for Connecting Piping to Outdoor Unit

1. Unscrew the cover from the packed valve on the side of the outdoor unit. (See Fig. 5.9)

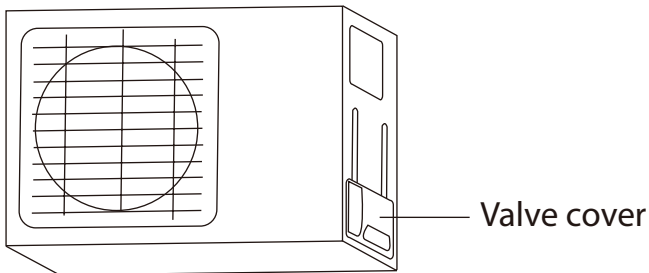


Fig. 5.9

2. Remove protective caps from the valve ends.
3. Align flared pipe end with each valve, and tighten the flare nut as tightly as possible by hand.
4. Using a spanner, grab the body of the valve. Do not grab the nut that seals the service valve. (See Fig. 5.10)

! USE SPANNER TO GRAB THE BODY OF THE SERVICE VALVE

Torque from tightening the flare nut can snap off other parts of valve.

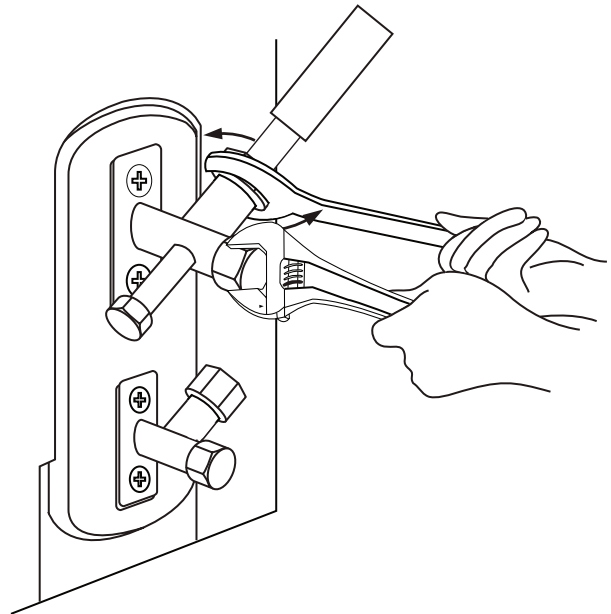
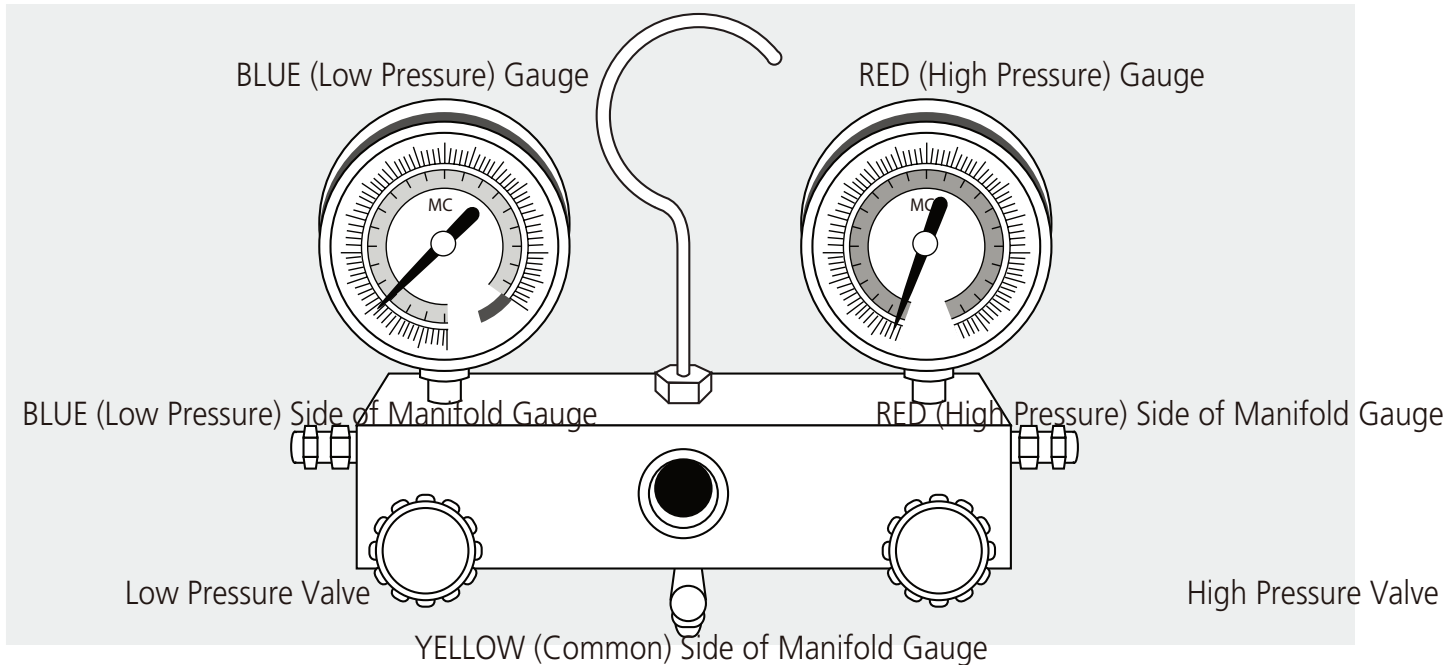


Fig. 5.10

5. While firmly gripping the body of the valve, use a torque wrench to tighten the flare nut according to the correct torque values.
6. Loosen the flaring nut slightly, then tighten again.
7. Repeat Steps 3 to 6 for the remaining pipe.



Preparations and Precautions

Air and foreign matter in the refrigerant circuit can cause abnormal spikes in pressure, which can damage the air conditioner, reduce its efficiency, and cause injury. Use a vacuum pump and manifold gauge to evacuate the line sets circuit, removing any non-condensable gas and moisture from the system.

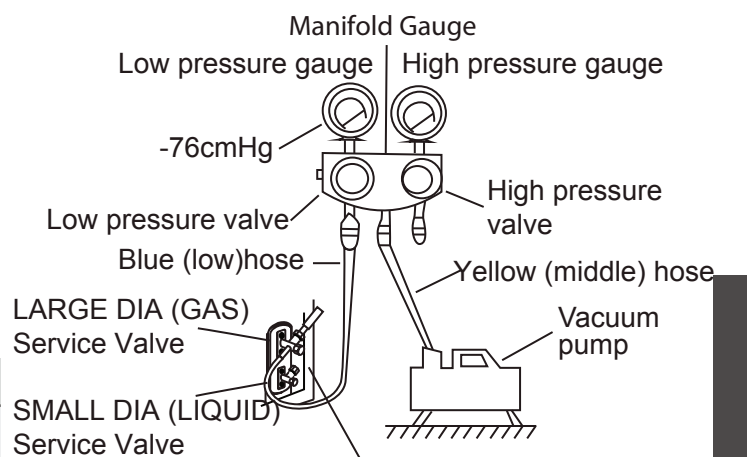
Evacuation should be performed upon initial installation or when the unit is relocated.

BEFORE PERFORMING EVACUATION

- ☑ Check to make sure that both LIQUID SIDE and GAS SIDE pipes between the indoor and outdoor units are connected properly in accordance with the "Refrigerant Piping Connection" section of this manual.
- ☑ Check to make sure all wiring is connected properly.

Before using the manifold gauge and vacuum pump, read their operation manuals to familiarize yourself with how to use them properly.

Evacuation Instructions

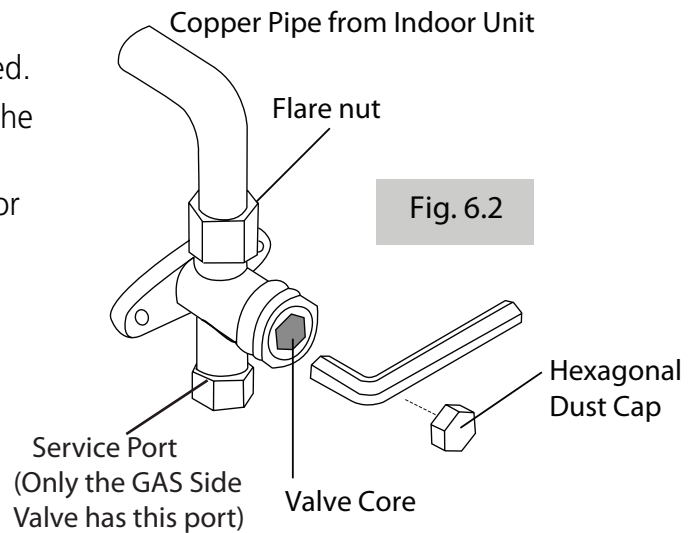


Outdoor Unit Service Valve Set (GAS and LIQUID Valves)

Fig. 6.1

1. Connect the blue (low side) hose of the manifold gauge to service port on the outdoor unit's GAS SIDE valve (use a 1/4" to 5/16" port adapter if needed, which is sold separately)
2. Connect yellow (middle) hose from the manifold gauge to the vacuum pump.

3. Open the BLUE (Low Pressure) valve of Manifold Gauge. Keep the RED (High Pressure) valve closed.
4. Turn the vacuum pump ON to start evacuating the air from the line set and indoor unit circuits.
5. Run the vacuum pump for at least 15 minutes, or until the Low Pressure Gauge reads -76cmHG (-100 kPa or -30 In Hg). (Negative value)
6. Close the Blue (Low Pressure) valve of Manifold Gauge, then turn the vacuum pump OFF.
7. Wait for 5 minutes, then check that there has been no rise in Low Pressure Gauge reading.
8. If there is a rise (Vacuum Loss), refer to the Gas Leak Check section for information on how to check for leaks. If there is no change in vacuum reading, unscrew the cap from the LIQUID Side Service Valve (Fig. 6.2)
9. Insert hexagonal wrench into the service valve (LIQUID Side Valve) and open the valve by turning the wrench in a 1/4 counterclockwise turn. Listen for sound of gas exiting the system, then close the valve after 5 seconds.
10. The Low Pressure Gauge should now show a positive pressure value (Above Zero). Watch the Pressure Gauge for few minutes to make sure that there is no drop in the pressure value (Indicating a leak)



11. Using a hexagonal wrench, fully open both the LIQUID and GAS pressure valves.
12. Remove the charge hose from the service port.
13. Tighten valve caps on all three valves (Service Port, Liquid Valve, Gas Valve) by hand. Tighten further using a torque wrench if needed.

! OPEN VALVE STEMS GENTLY

When opening valve stems, turn the hexagonal wrench, until it seats against the stopper. Do not try to force the valve to open further.

Note on Adding Refrigerant

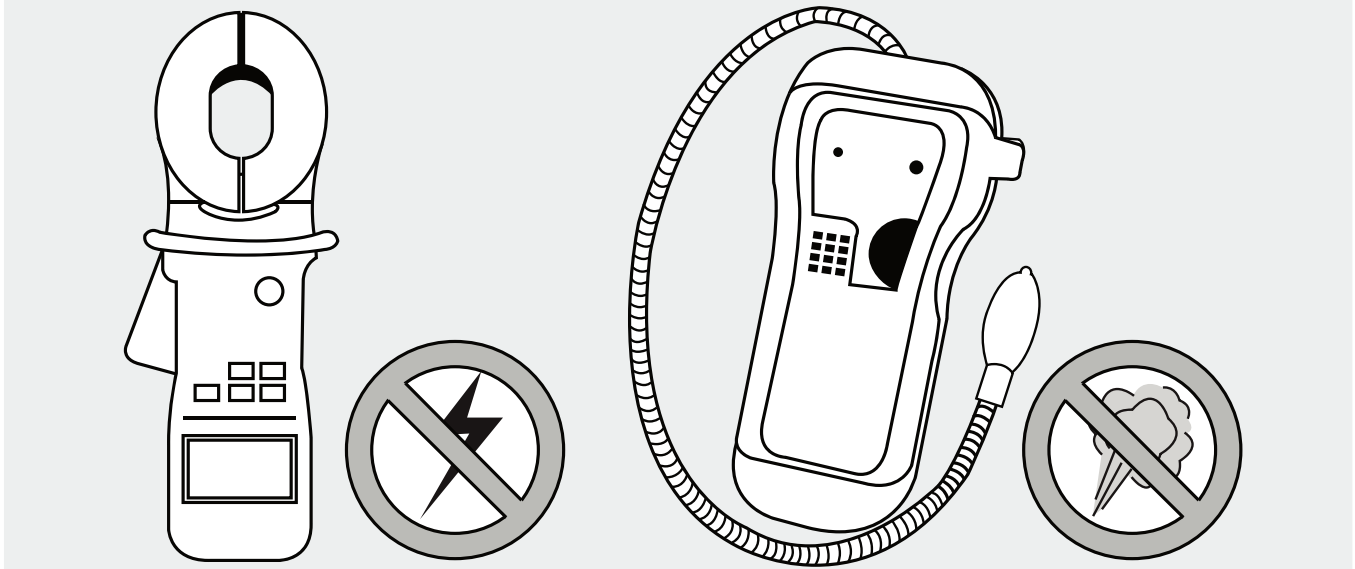
Some systems require additional charging depending on pipe lengths. The pipe length varies according to locations of the indoor and outdoor units. The system has been factory charged with sufficient R410a refrigerant for the standard pipe length of 5m (16'). The additional refrigerant to be charged can be calculated using the following formula. This is necessary only if the length exceeds 7.5m (25 feet).

ADDITIONAL REFRIGERANT PER PIPE LENGTH

Connective Pipe Length (m)	Air Purging Method	Additional Refrigerant	
≤ Standard pipe length	Vacuum Pump	N/A	
> Standard pipe length	Vacuum Pump	Liquid Side: Ø 6.35 (ø 1/4") Gas side either Ø 9.52 (ø 3/8") or Ø 12.7 (ø 1/2") Add for lengths beyond 5m (16 feet) (Per additional meter): 15 g/m (Per additional feet): 0.16 oz/ft	Liquid Side: Ø 9.52 (ø 3/8") Gas side either Ø 15.87 (ø 5/8") or Ø 19.05 (ø 3/4") Add for lengths beyond 5m (16 feet) (Per additional meter): 30 g/m (Per additional feet): 0.32 oz/ft

! CAUTION

DO NOT mix refrigerant types. Use only the same type of refrigerant (R410a).



Electrical Safety Checks

After installation, confirm that all electrical wiring is installed in accordance with local and national regulations, and according to the Installation Manual.

BEFORE TEST RUN

Check Grounding Work

Measure grounding resistance by visual detection and with a grounding resistance tester. Grounding resistance must be less than 4Ω .

Note: This may not be required for some locations in the US.

DURING TEST RUN

Check for Electrical Leakage

During the Test Run, use an electroprobe and multimeter to perform a comprehensive electrical leakage test.

If electrical leakage is detected, turn off the unit immediately and call a licensed electrician to find and resolve the cause of the leakage.

Note: This may not be required for some locations in the US.

WARNING – RISK OF ELECTRIC SHOCK

ALL WIRING MUST COMPLY WITH LOCAL AND NATIONAL ELECTRICAL CODES, AND MUST BE INSTALLED BY A LICENSED ELECTRICIAN.

Gas Leak Checks

There are two different methods to check for gas leaks.

Soap and Water Method

Using a soft brush, apply soapy water or liquid detergent to all pipe connection points on the indoor unit and outdoor unit. The presence of bubbles indicates a leak.

Leak Detector Method

If using leak detector, refer to the device's operation manual for proper usage instructions.

AFTER PERFORMING GAS LEAK CHECKS

After confirming that the all pipe connection points DO NOT leak, replace the valve cover on the outside unit.

Test Run

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Before Test Run

Only perform a test run after you have completed the following steps:

- **Electrical Safety Checks** – Confirm that the unit's electrical system is safe and operating properly
- **Gas Leak Checks** – Check all flare nut connections and confirm that the system is not leaking
- Confirm that the gas and liquid (high and low pressure) valves are fully open

Test Run Instructions

You should perform the Test Run for at least 30 minutes.

1. Connect power to the unit.
2. Press the **ON/OFF** button on the remote controller to turn it on.
3. Press the **MODE** button to scroll through the following functions, one at a time:
 - **COOL** – Select lowest possible temperature
 - **HEAT** – Select highest possible temperature
4. Let each function run for 5 minutes, and perform the following checks:

List of Checks to Perform	PASS/FAIL	
No electrical leakage		
Unit is properly grounded		
All electrical terminals properly covered		
Indoor and outdoor units are securely installed		
All pipe connection points do not leak	Outdoor (2):	Indoor (2):
Water drains properly from drain hose (cooling)		
All piping is properly insulated		
Unit performs COOL function properly		
Unit performs HEAT function properly		
Indoor unit louvers rotate properly		
Indoor unit responds to remote controller		

DOUBLE-CHECK PIPE CONNECTIONS

During operation, the pressure of the refrigerant circuit will increase. This may reveal leaks that were not present during your initial leak check. Take time during the Test Run to double-check that all refrigerant pipe connection points are leak free. Refer to the **Gas Leak Check** section for instructions.

5. After the Test Run is successfully completed, and you confirm that all checks points in "List of Checks to Perform" have PASSED, do the following:
 - a. Using the remote control, return the unit to normal operating temperature.
 - b. Using insulation tape, wrap the indoor refrigerant pipe connections that you left uncovered during the indoor unit installation process.

IF AMBIENT TEMPERATURE IS TOO LOW TO RUN THE COOLING FUNCTION FOR TESTING

You cannot use the remote controller to turn on the COOL function when the ambient temperature is extremely low. In this instance, you can use the **MANUAL CONTROL** button to test the COOL function.

1. Lift the front panel of the indoor unit, and raise it until it clicks into place.
2. The **MANUAL CONTROL** button is located on the right-hand side of the unit. Press it 2 times to select the COOL function. See Fig.8.1
3. Perform the Test Run as normal.

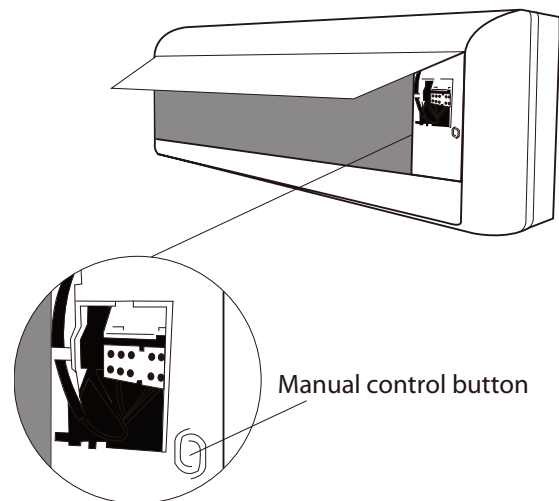


Fig. 8.1

The operating pressures of the system are approximately 4 times higher when the HEAT mode is running. Therefore, it is much easier to check for and locate any refrigerant leaks while running the HEAT mode. Slower leaks can also be detected due to the higher pressures in the system.

System pressures change based on the inside and outside air temperatures. Usual range of pressures are (R410a):

- a. Suction pressures in Cooling Mode: 120 to 155 PSI. Both copper pipes are cold but do not exhibit any frosting.
- b. Hot gas pressures in Heating Mode: 320 to 440 PSI. Both copper pipes are hot, but the gas side is much hotter.

Note: Values are indicative only.

European Disposal Guidelines

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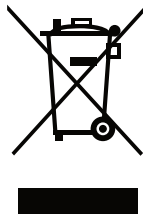
This appliance contains refrigerant and other potentially hazardous materials. When disposing of this appliance, the law requires special collection and treatment. **Do not** dispose of this product as household waste or unsorted municipal waste.

When disposing of this appliance, you have the following options:

- Dispose of the appliance at designated municipal electronic waste collection facility.
- When buying a new appliance, the retailer will take back the old appliance free of charge.
- The manufacturer will take back the old appliance free of charge.
- Sell the appliance to certified scrap metal dealers.

Special Notice

Disposing of this appliance improperly, or in other natural surroundings, endangers your health and is bad for the environment. Hazardous substances may leak into the ground water and enter the food chain. Please follow proper disposal protocol.



Indoor Unit Error Codes List

Operation lamp	Timer lamp	Display	LED STATUS
☆ 1 time	X	E0	Indoor unit EEPROM parameter error
☆ 2 times	X	E1	Indoor / outdoor units communication error
☆ 3 times	X	E2	Zero-crossing signal detection error
☆ 4 times	X	E3	Indoor fan speed has been out of control
☆ 5 times	X	E4	Indoor room temperature sensor T1 open circuit or short circuit
☆ 6 times	X	E5	Evaporator coil temperature sensor T2 open circuit or short circuit
☆ 7 times	X	EC	Refrigerant leakage detection
☆ 1 times	O	F0	Overload current protection
☆ 2 times	O	F1	Outdoor ambient temperature sensor T4 open circuit or short circuit
☆ 3 times	O	F2	Condenser coil temperature sensor T3 open circuit or short circuit
☆ 4 times	O	F3	Compressor discharge temperature sensor TP open circuit or short circuit
☆ 5 times	O	F4	Outdoor unit EEPROM parameter error
☆ 6 times	O	F5	Outdoor fan speed has been out of control
☆ 1 times	☆	P0	IPM malfunction or IGBT over-strong current protection
☆ 2 times	☆	P1	Over voltage or over low voltage protection
☆ 3 times	☆	P2	High temperature protection of IPM module or compressor shell top
☆ 4 times	☆	P3*	Outdoor ambient temperature too low.
☆ 5 times	☆	P4	Inverter compressor drive error
☆ 6 times	☆	P5	Indoor units mode conflict (multi-zone ONLY)
☆ 7 times	☆	P6	Low pressure protection(Only for 36K)

O (light) X (off) ☆ (flash)

*P3

- 1) In heating mode, when the outdoor temperature is lower than -25°C (-13F) for 1 hour, the indoor unit display error code P3. Low Ambient Protection.
- 2) If the outdoor temperature goes higher than -22°C (-8F) for 10 minutes and compressor has stopped for 1 hour or outdoor temperature goes higher than -5°C (23F) for 10 minutes, then the unit will restart.

* **Fault Symptom:** The display board shows a garbled code or a code that is not an error code found in the service manual nor a temperature reading.

A more comprehensive service and diagnostics manual is available for service technicians. Contact the manufacturer for download instructions.