

Please read this manual carefully before installation and keep it for future reference.

Installation & Owner's Manual



MRCOOL®

COMFORT MADE SIMPLE

Olympus Series

Single-Zone (Hyper Heat & E-Star) & Multi-Zone Models

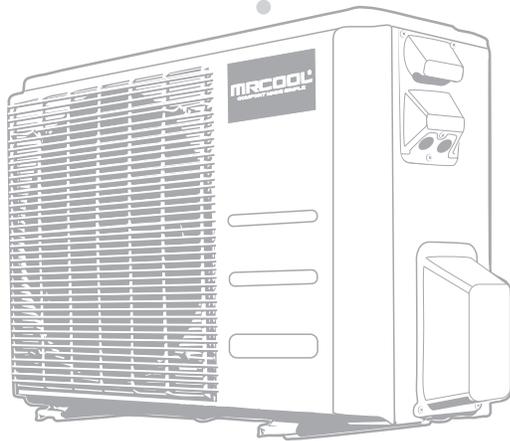
Due to updates and constantly improving performance, the information and instructions within this manual are subject to change without notice. Please visit www.mrcool.com/documentation to ensure you have the latest version of this manual.

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!	Safety Precautions	
	Warnings	3
	Cautions	5
1	Parts Overview	
	Parts Diagram	6
	Unpacking & Packing Instructions	8
	Indoor Unit Display	9
	Accessories	10
2	Operating Instructions	
	Operating Temperature	12
	Manual Operation	12
	Airflow Directional Control	13
	How the A/C & Heat Pump Work	14
	Operation Mode Selection	15
	Special Functions	15
3	Care & Maintenance	
	Maintenance Precautions	16
	Cleaning the Unit	16
	Cleaning the Air Filter(s)	16
	Preparation for Extended Non-Operation	17
	Preseason Inspection	17
4	Installation Diagram & Line Set Specifications	
	Installation Diagram	18
	Single-Zone Line Set Specifications	19
	Multi-Zone Line Set Specifications	20
	Multi-Zone Air Handler Compatibility Chart	21

DISCLAIMER: You are assuming risk by handling materials containing refrigerants under pressure, that if not handled properly, can cause bodily injury. If you do not feel comfortable conducting this installation process, we recommend you retain the services of a qualified HVAC professional.
******Electrical work must be completed by a qualified electrical technician.******

5 Indoor Unit Installation	22
1. Selecting an installation location	23
2. Attach mounting plate to wall	24
3. Drill wall hole for connective piping	25
4. Prepare indoor unit piping	25
5. Hook indoor unit to mounting plate	26
6. Remove indoor unit lower panel	26
7. Connect drain hose & refrigerant piping ...	27
8. Connect signal cable & power cables	29
9. Wrap piping & cables	30
10. Mount indoor unit	31



6 Outdoor Unit Installation	32
1. Selecting an installation location	33
2. Install drain joint	34
3. Anchor outdoor unit	35
4. Connect refrigerant piping	35
5. Connect power & signal cables	37
• Multi-zone wiring diagrams	39

7 Refrigerant Piping Connections	40
1. Cut pipes	40
2. Remove burrs	41
3. Flare pipe ends	41
4. Connect pipes	42
8 Air Evacuation & Adding Refrigerant	44
• Preparations & precautions	42
• Evacuation instructions	44
• Adding additional refrigerant	45
9 Electrical and Gas Leak Checks	46
10 Test Run	47
11 Troubleshooting	49
• Common issues	49
• Troubleshooting	50
• Wiring/piping self-correction function (Multi-zone systems ONLY)	52
12 EU Disposal Guidelines	53

Safety Precautions



Read Before Using

Incorrect usage may cause serious damage or injury.

The symbols below are used throughout this manual to indicate instructions that should be followed closely or actions that should be avoided to prevent death, injury, and/or property damage.



WARNING

This symbol indicates ignoring instructions may cause death or serious injury.



CAUTION

This symbol indicates ignoring instructions may cause bodily injury, damage to the unit, or other surrounding property.



This symbol indicates that you should NEVER perform the indicated action.



WARNING FOR PRODUCT USE

- ⊘ ***DO NOT*** insert fingers, rods, or other objects into the air inlet or outlet. This could cause injury, since the fan may be rotating at high speeds.
 - ⊘ ***DO NOT*** use flammable sprays such as hair spray, lacquer or paint near the unit, as this could cause fire and/or an explosion.
 - ⊘ ***DO NOT*** operate the unit in places near or around combustible gases. Emitted gas may collect around the unit and cause an explosion.
 - ⊘ ***DO NOT*** allow children to play with the air conditioner. Children must be supervised around the unit at all times.
 - ⊘ ***DO NOT*** operate the unit in a room where it could be exposed to excessive amounts of water, such as a bathroom or laundry room. Exposure to excessive water amounts can cause the electrical components to short circuit.
 - ⊘ ***DO NOT*** expose your body directly to direct cool airflow from the unit for a prolonged period of time.
1. If the unit operates abnormally (emits strange noises or a burning a smell), immediately turn off the unit and disconnect the power in order to avoid electric shock, fire, and/or injury. Call your local dealer, or MRCOOL® tech support at (270) 366-0457, for further assistance.
 2. If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room in order to avoid an oxygen deficiency.
 3. In certain functional environments (such as kitchens and server rooms etc.), the use of specially designed air-conditioning units is highly recommended.
 4. This appliance can be used by children (8 years and older) and persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge if they have been given instruction concerning the use of the appliance and understand the hazards involved.



WARNING FOR CLEANING & MAINTENANCE

- ⊘ ***DO NOT*** clean the unit with excessive amounts of water.
 - ⊘ ***DO NOT*** clean unit with combustible cleaning agents, as these could cause deformation and/or fire.
1. Turn off the device and disconnect the power before cleaning. Failure to do this could result in electrical shock.
 2. Children should not be allowed to play with the appliance or perform cleaning and user maintenance.



ELECTRICAL WARNINGS

******ELECTRICAL WORK MUST BE COMPLETED BY A QUALIFIED ELECTRICAL TECHNICIAN******

- ⊘ **DO NOT** share the power supply with other appliances. An improper or insufficient power supply could cause fire and/or electrical shock.
 - ⊘ **DO NOT** modify the length of the power supply, or use an extension cord to power the unit.
 - ⊘ **DO NOT** pull the power cord to unplug the unit. Hold the plug firmly and pull it from the outlet. Pulling directly on the cord could damage it, which can lead to fire or electric shock.
1. The product must be properly grounded during installation or electrical shock could occur.
 2. Appropriate wiring standards, regulations, and the installation manual must be followed for all electrical work.
 3. If connecting power to fixed wiring, the following must be incorporated within it, in accordance with the wiring rules; an all-pole disconnection device (which has at least 3 mm of clearances in all poles), and have a leakage current that may exceed 10 mA, the residual current device (RCD) having a rated residual operating current not exceeding 30 mA, all must be present.
 4. For all electrical work, fuse the specified cables. Connect cables tightly and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections could overheat, causing fire and/or electrical shock.
 5. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
 6. All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not properly closed, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
 7. Only use the specified power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified technician in order to avoid a hazard.
 8. Keep the power plug clean. Remove any dust or grime that accumulates around the plug as these could cause electric shock and/or fire.

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.

EXAMPLE: T3.15AL/250VAC, T5AL/250VAC, T3.15A/250VAC, T5A/250VAC, T20A/250VAC (for <24,000 Btu/h unit), T30A/250VAC (for >24,000 Btu/h unit), etc.

NOTE: For units with R32 or R290 refrigerant, only the blast-proof ceramic fuse can be used.



WARNING FOR PRODUCT INSTALLATION

- ⊘ **DO NOT** install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it could cause fire.
 - ⊘ **DO NOT** turn on the power until the installation and all work has been completed.
 - ⊘ **DO NOT** install a unit equipped with an auxiliary electric heater within 3 ft (1 m) of any combustible materials.
1. Installation must be performed by an authorized dealer or specialist. An improper installation can cause water leakage, electric shock, and/or fire.
 2. Installation must be performed according to the installation instructions. Improper installation could cause water leakage, electrical shock, fire, and could void the warranty. (In North America, installation must be performed in accordance with the requirements of NEC and CEC by authorized personnel only.)
 3. Contact an authorized service technician for repair or maintenance of this unit. This appliance should be installed in accordance with national wiring regulations.



WARNING FOR PRODUCT INSTALLATION (Continued)

4. Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and/or failure of the unit.
5. Install the unit in a firm location that can support the unit's weight. If the location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and damage.
6. Install the drainage piping according to the instructions in this manual. Improper drainage could cause water damage to your home and/or property.
7. When moving or relocating the air conditioner, consult experienced service technicians for disconnection and re-installation of the unit.
8. For detailed information of how to install the indoor and outdoor units to their respective supports, please refer to the indoor unit installation and outdoor unit installation sections of this manual.
9. Excessive Weight Hazard: Use two or more people when moving and installing the unit. Failure to do this could result in personal injury.

CAUTION

- ① ***DO NOT*** allow the air conditioner to operate for extended periods of time with the doors or windows open, or in very high humidity.
- ① ***DO NOT*** operate the unit with wet hands, as this could cause electric shock.
- ① ***DO NOT*** use this device for any other purpose than its intended use.
- ① ***DO NOT*** climb onto or place objects on top of the outdoor unit.
 1. Turn off the air conditioner and disconnect the power if it is not going to be used for an extended period of time.
 2. Turn off and unplug the unit during storms.
 3. Ensure that condensate water can drain smoothly from the unit.

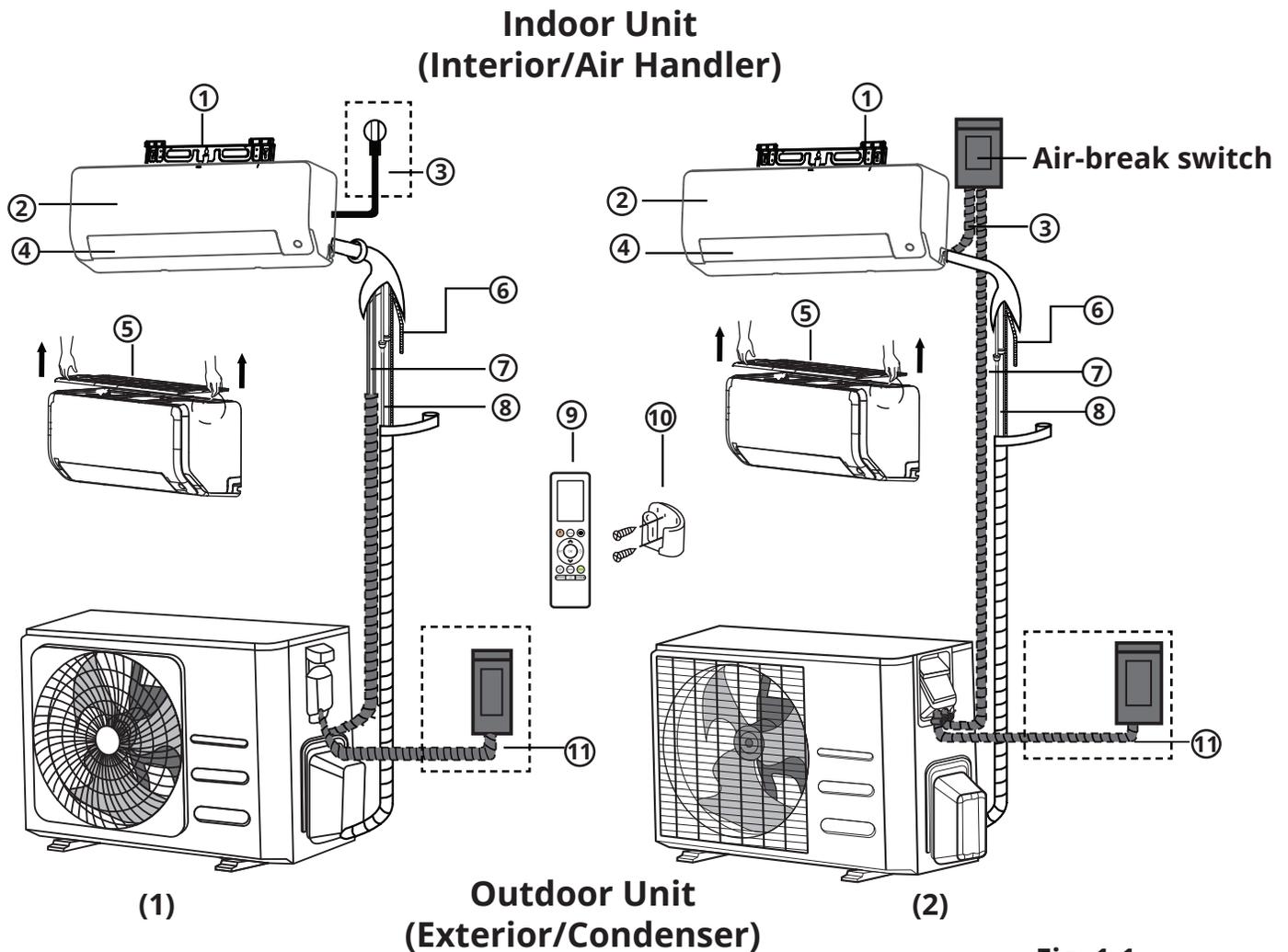
Note about Fluorinated Gases:

1. This unit contains fluorinated greenhouse gases.
2. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself.
3. Service, maintenance, and repair of this unit must be performed by a certified technician.
4. Product un-installation and recycling must be performed by a certified technician.
5. For equipment that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO₂ equivalent or more, but less than 50 tonnes of CO₂ equivalent, and has a leak-detection system installed, it must be checked for leaks at least every 24 months.
6. Keeping a record of all leak checks for the lifetime of the unit is strongly recommended.

NOTE

The installation must be performed in accordance with the requirement of local and national standards. The installation may be slightly different in different areas.

Single-Zone System Parts Diagram (E-Star & Hyper Heat)



- | | | |
|----------------------------|---|---|
| ① Wall Mounting Plate | ⑤ Air Filter (pulls out from top of the unit) | ⑨ Remote Controller |
| ② Front Panel | ⑥ Drainage Pipe | ⑩ Remote Controller Holder (Some Units) |
| ③ Power Cable (Some Units) | ⑦ Signal Cable | ⑪ Outdoor Unit Power Cable (Some Units) |
| ④ Louver | ⑧ Refrigerant Piping | |

NOTE ON ILLUSTRATIONS

Illustrations in this manual are for explanatory purposes. The actual shape of your unit may vary.

Multi-Zone System Parts Diagram

(A) With wall-mounted type air handler

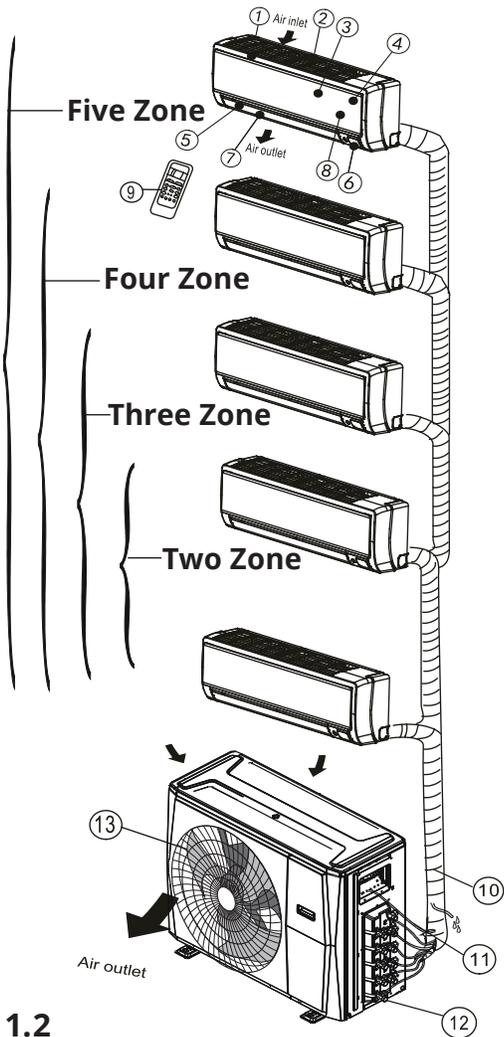


Fig. 1.2

Indoor unit

1. Panel frame
2. Rear air intake grille
3. Front panel
4. Air purifying filter & Air filter (behind)
5. Horizontal louver
6. LCD display window
7. Vertical louver
8. Manual control button (behind)
9. Remote controller holder

Outdoor unit

10. Drain hose, refrigerant connecting pipe
11. Connective cable
12. Stop valve
13. Fan hood

(B) With duct/ceiling type air handler

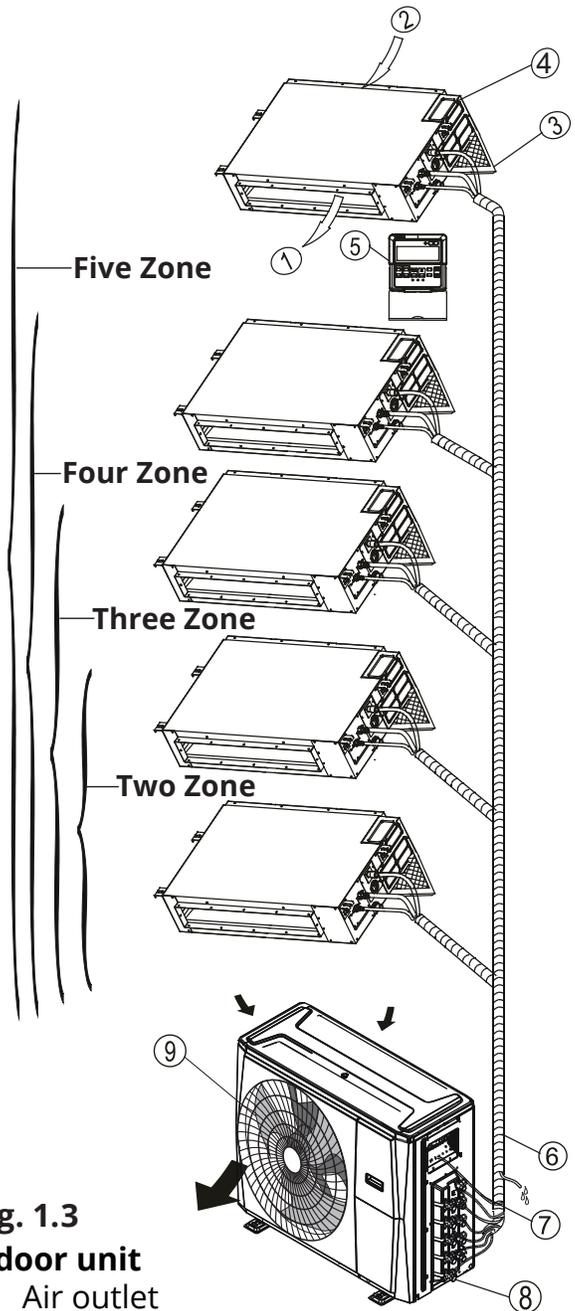


Fig. 1.3

Indoor unit

1. Air outlet
2. Air inlet
3. Air filter
4. Electric control cabinet
5. Wire controller

Outdoor unit

6. Drain hose, refrigerant connecting pipe
7. Connective cable
8. Stop valve
9. Fan hood

Multi-Zone System Parts Diagram

(C) With cassette type air handler

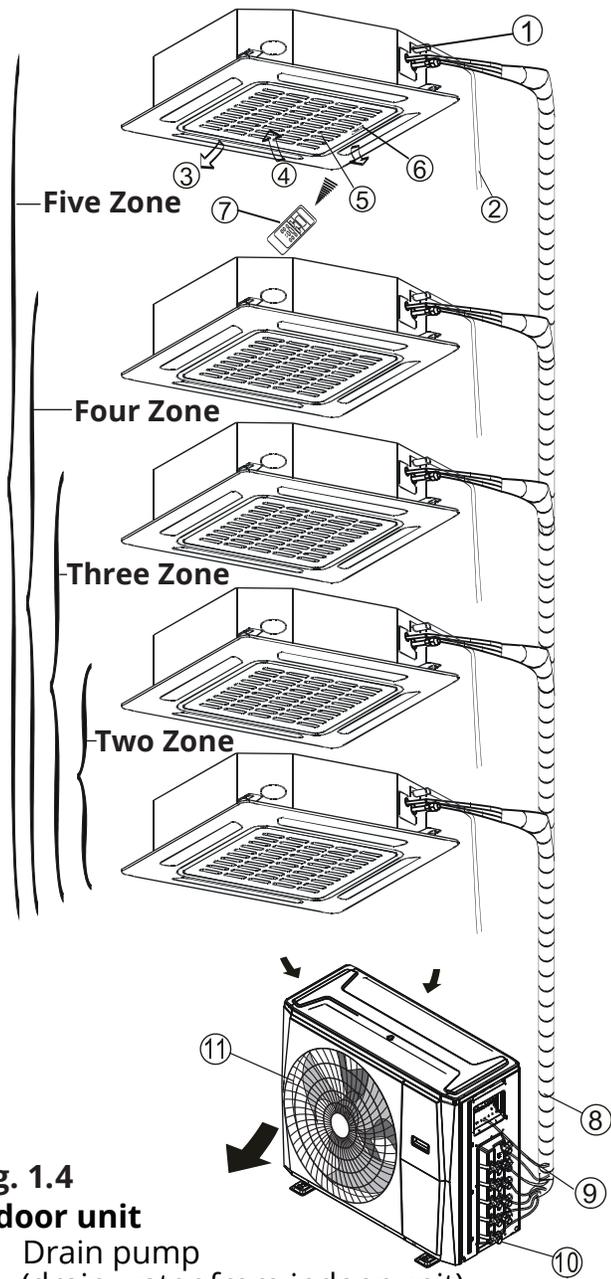


Fig. 1.4

Indoor unit

1. Drain pump (drain water from indoor unit)
2. Drain hose
3. Air outlet
4. Air inlet
5. Air-in grill
6. Display panel
7. Remote controller

Outdoor unit

8. Refrigerant connecting pipe
9. Connective cable
10. Stop valve
11. Fan hood

Instructions for Unpacking & Packing the Indoor & Outdoor Units

NOTE: Please keep all packaging materials included with the indoor and outdoor units in case they are needed for future use.

Unpacking:

Indoor Unit:

1. Carefully cut the sealing tape on the carton with a knife.
2. Remove the sealing nails on the top of the carton.
3. Open the carton.
4. Take out the middle support plate (if included).
5. Take out the accessory package and connecting wire (if included).
6. Lift the unit out of the carton and lay it on a flat surface that is sturdy enough to hold its weight.
7. Remove the left and right packing foam, or upper and lower packing foam (depending on unit), and untie the packing bag.

Outdoor Unit:

1. Cut the packing belt.
2. Remove the unit from the carton.
3. Remove the foam from the unit.
4. Remove the packing bag from the unit.

Packing:

Indoor Unit:

1. Put the indoor unit into the packing bag.
2. Attach the left and right package foam, or upper and lower packing foam (depending on unit) to the unit.
3. Place the unit into the carton, then put the accessory bag in.
4. Close the carton and seal it with packaging tape.

Outdoor Unit:

1. Put the outdoor unit into the packing bag.
2. Put the bottom foam into the carton.
3. Place the unit into the carton, then put the upper packaging foam onto the unit.
4. Close the carton and seal it with packaging tape.

Indoor Unit Display

NOTE: Different models will have a different front panel and display window. Not all of the features listed below will be equipped on the unit you have purchased. Please check the indoor unit display window of the unit purchased to see which of these features your unit has.

Illustrations in this manual are for explanatory and demonstration purposes only. The actual shape of your and size of your indoor unit may be different.

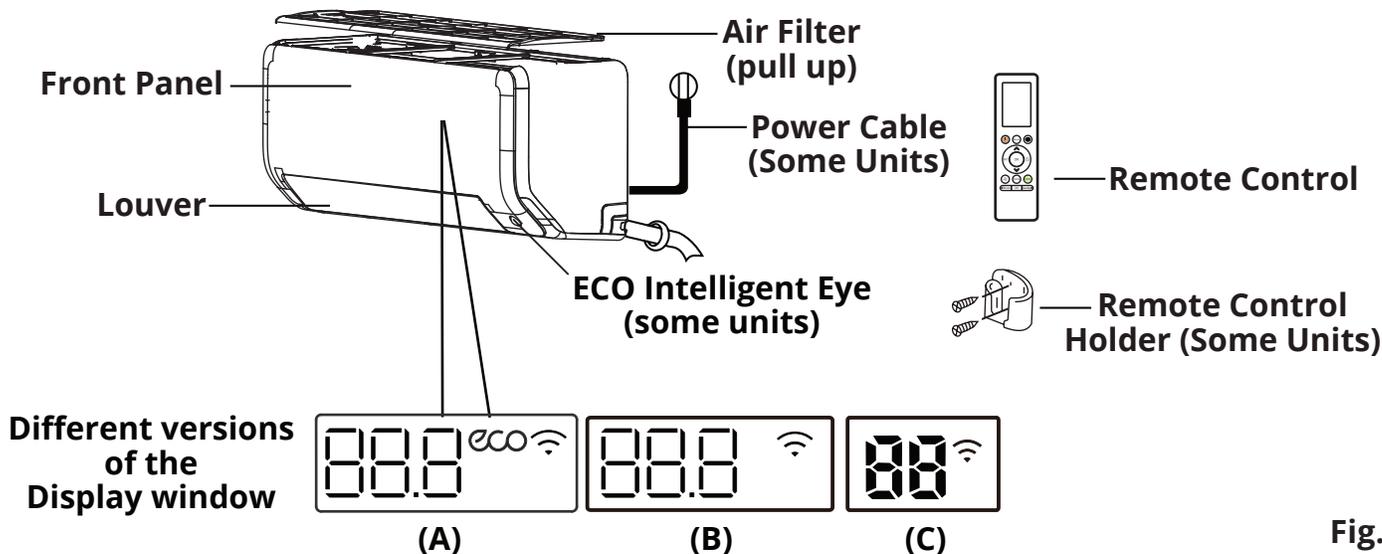


Fig. 1.5

Display Code Meanings

88 or **88.8** is the temperature display and will also display operational features and error codes:

ON will display for 3 seconds when:

- **TIMER ON** is set (if the unit is OFF, **ON** will remain on the display screen when the Timer On is set).
- **SWING, TURBO, SILENCE, or SOLAR PV ECO** features are turned on.

OF will display for 3 seconds when:

- **TIMER OFF** is set.
- **SWING, TURBO, SILENCE, ECO, or BREEZE AWAY** features are turned off.

dF will display when the unit is defrosting (cooling & heating units).

CL will display when the Active Clean feature is turned on.

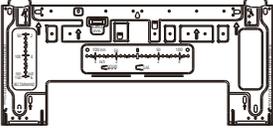
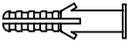
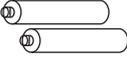
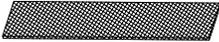
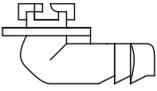
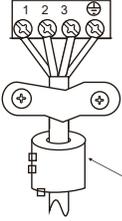
FP will display when 46.4°F (8°C) heating mode is turned on (some units).

eco will display when ECO mode is activated (some units).

Wi-Fi symbol will display when wireless control is activated (some units).

Accessories

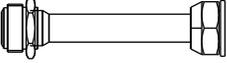
The listing below shows the accessories and parts (these may vary depending on purchase & options). Use all of the installation parts and accessories to install the system. Improper installation may result in water leakage, electrical shock, fire, and/or equipment failure.

PART	LOOKS LIKE...	QUANTITY
Installation & Owner's Manual		1
Remote Control Manual (some models)		1
Mounting Plate (some models depending on options)		1
Anchors		5~8 (depending on models)
Mounting Plate Screws		5~8 (depending on models)
Remote Control (some models)		1
Batteries		2
Small Filter		1
Seal (for cooling & heating models)		1
Drain Joint (for heating & cooling models)		1
Magnetic Ring & Belt (some models)*	 <p data-bbox="743 1608 1027 1724">Pass the belt through the hole of the Magnetic ring to fix it on the cable</p>	Varies by model

Note: Illustrations are for explanatory purposes only - The actual shape and size may vary.

*If supplied with unit, please refer to the wiring diagram for further details of how to install it on the connective cable.

Accessories

PART	LOOKS LIKE...		QUANTITY	Optional Parts
Screws to secure remote controller holder (optional)			2	
Remote Control Holder (optional)			1	
Transfer Connector (packed with the indoor or outdoor unit, depending on model)*			1 per indoor unit	
			1 - 5 pieces for outdoor unit, depending on model	
Connecting Pipe Assembly	Liquid side	Ø1/4 in (6.35 mm)	Parts must be purchased separately. Consult the dealer about the proper pipe size of the unit you purchased.	
		Ø3/8 in (9.52 mm)		
	Gas side	Ø3/8 in (9.52 mm)		
		Ø1/2 in (12.7 mm)		
		Ø5/8 in (16 mm)		
		Ø3/4 in (19 mm)		

Note: Illustrations are for explanatory purposes only - The actual shape and size may vary.

*Pipe size may differ from appliance to appliance. To meet different pipe size requirements, sometimes a transfer connector is needed so the pipes can be properly connected to the unit.

Operating Temperature Ranges

	COOL Mode	HEAT Mode	DRY Mode
Room Temperature	62°F - 90°F (17°C - 32°C)	32°F - 86°F (0°C - 30°C)	50°F - 90°F (10°C - 32°C)
Outdoor Temperature	32°F - 122°F (0°C - 50°C)	5°F - 75°F (-15°C - 24°C)	32°F - 122°F (0°C - 50°C)
	5°F - 122°F (-15°C - 50°C) (for models with low ambient cooling)		

NOTES:

- If the air conditioner operates for extended periods in cooling mode and the humidity is high (over 80%), condensed water may drip out of the unit. If this occurs, set the vertical airflow louver to its maximum angle (vertical toward the floor), and set it to **HIGH** fan mode.
- Optimum performance will be achieved within the above operating temperatures. If the air conditioner is operated outside of the above temperatures, certain safety protection features might be activated and cause the unit to function abnormally.
- **FOR OUTDOOR UNITS WITH BASE-PAN HEATER OR CRANKCASE HEATER:** When the outside temperature is below 32°F (0°C), we strongly recommend keeping the unit plugged in at all times to ensure smooth ongoing performance.

Manual Operation (without remote)

! CAUTION

The manual control button is intended for testing purposes and emergency operation only. Please do not use this function unless the remote control is lost and it is absolutely necessary. To restore regular operation, use the remote control to activate the unit. **THE UNIT MUST BE TURNED OFF BEFORE THE MANUAL OPERATION FUNCTION CAN BE ACTIVATED.**

To operate the unit manually, follow these steps:

1. Open the front panel of the indoor unit.
2. Locate the **MANUAL CONTROL BUTTON** on the right-hand side of the unit.
3. Press the **MANUAL CONTROL BUTTON** one time to activate the **FORCED AUTO MODE**.
4. Press the **MANUAL CONTROL BUTTON** a second time to activate the **FORCED COOLING FUNCTION**.
5. Press the **MANUAL CONTROL BUTTON** a third time to turn the unit off.
6. Close the front panel.

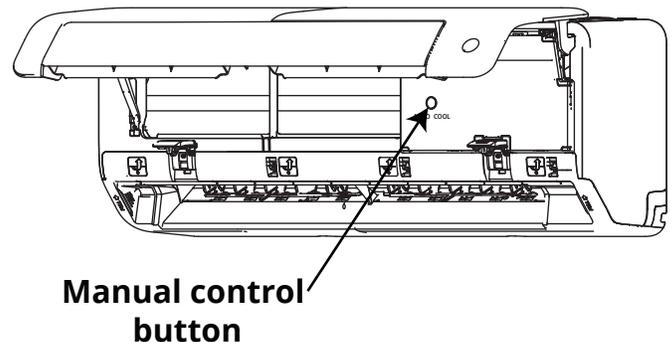
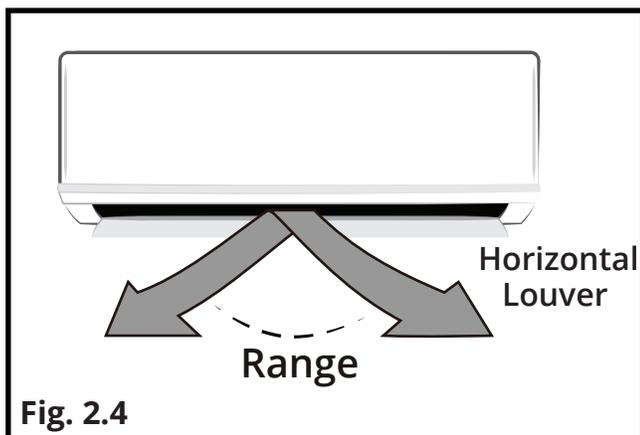
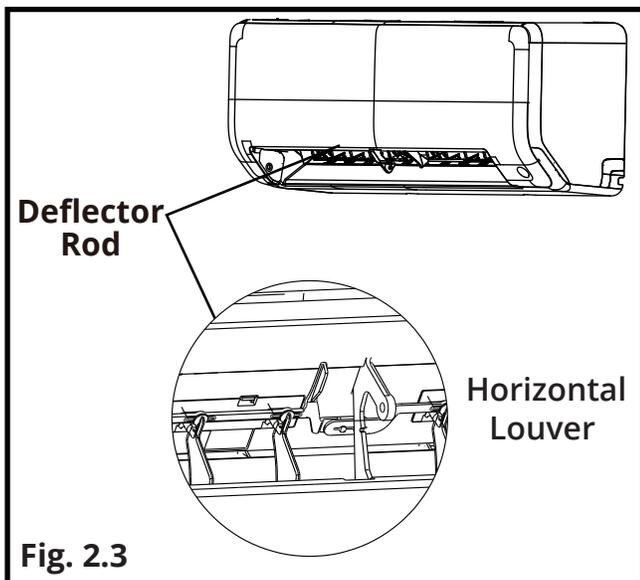
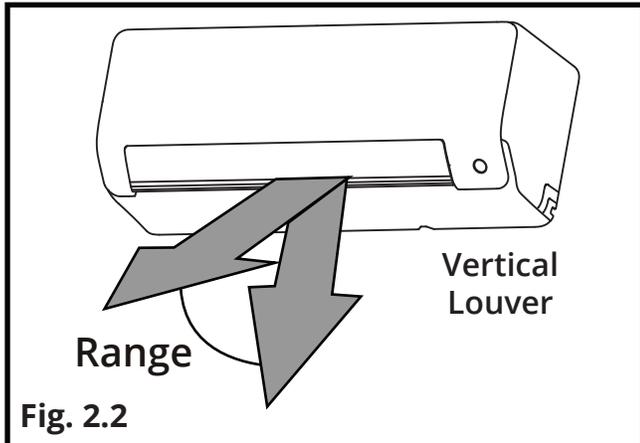


Fig 2.1

Airflow Directional Control

- Adjustment of the vertical and horizontal louvers will change airflow direction of the indoor unit to prevent discomfort and/or uneven room temperatures.
- **Adjust the vertical louver using the remote.**
- **Adjust the horizontal louver manually by hand.**



Adjust Vertical Airflow (Up/Down) using Vertical Louver (Fig 2.2):

This function is performed by using the **SWING/DIRECT** button on the remote control, while the unit is operating. The Vertical louver can move in small increments for each press, or continuously swing up and down automatically. Please refer to the "**Remote Control User Manual**" for further details.

Adjust Horizontal Airflow (Left/Right) using Horizontal Louver (Fig 2.3 & Fig 2.4)

The angle of the horizontal louver must be set manually. Move the deflector rod, located on the underside of the unit, by pushing the tab to manually adjust the airflow from side to side as desired. For some units, the horizontal angle of the airflow can be set by the remote control. Please refer to the "**Remote Control User Manual**" for further details.

CAUTION

- ⚠ **DO NOT** put your fingers into the panel of the blower and suction side. The high speed fan inside may cause injury.
- ⚠ **DO NOT** operate the unit for extended periods of time in COOL or DRY mode with the vertical airflow direction set with too much of a downward angle. This could cause condensation to form on the surface of the vertical louver and allow moisture/water droplets to drop onto furnishings or the floor.
- ⚠ **DO NOT** move the vertical louver manually, as this could cause it to become out of sync. If this occurs, turn off the unit and unplug it for a few seconds. Then, restart the unit. This will reset the louver.

NOTE: According to the relative standards requirement, set the vertical airflow louver to its maximum angle during the heating capacity test.

NOTE: The open angle of the vertical louver should not be set too small when using COOL or HEAT mode, as it will restrict airflow and reduce performance of the unit.

How the A/C & Heat Pump Work

Basic Operation Modes:

AUTO / COOL / DRY / HEAT
(Model Dependent)

AUTO Mode:

When you set the unit in **AUTO** mode, it will automatically select **COOL**, **HEAT**, or **FAN-ONLY** mode depending on the set temperature and the room temperature. The unit will control the room temperature automatically, according to the temperature you set the unit to.

DRY Mode:

The temperature is regulated while dehumidifying by intermittently switching the **COOL** or **FAN-ONLY** modes on and off. The fan speed is set to **LOW**.

HEAT Mode:

The unit is a heat pump by design. By reversing the air conditioning process, it absorbs heat from the outdoors and transfers it to the indoor unit. At the same time, heat loading of the air conditioner increases due to larger differences between the indoor and outdoor temperature. As a result, the operating performance and efficiency is reduced as the outdoor air temperature drops. If you feel that the heating performance is insufficient, it is recommended that you supplement heating with other appliances.

NOTE: When the indoor unit reaches the temperature set by the user, the compressor will stop automatically, and the system will switch to FAN-ONLY mode. The compressor will restart when the room temperature rises or falls from the set temperature.

SLEEP Mode (Fig. 2.5):

The **SLEEP** function is used to decrease energy use while you sleep. During sleep you do not need the same temperature settings to stay comfortable. This function can only be activated via the remote control. The **SLEEP** function is not available in **FAN** or **DRY** modes.

When **SLEEP** mode is activated, the temperature will increase while cooling, or decrease while heating by, 2°F (1°C) per hour for the first 2 hours. Thereafter, it keeps this new temperature for 6 hours before **SLEEP** mode will automatically switch off.

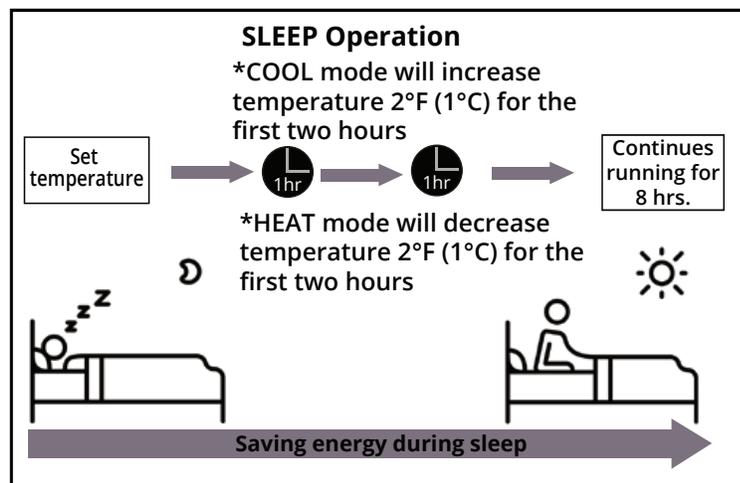
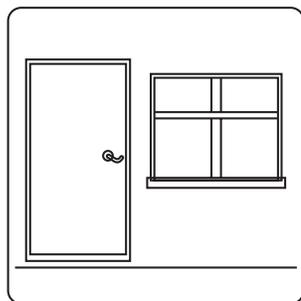


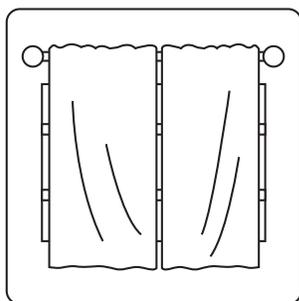
Fig. 2.5

NOTE: A lightning strike or cell phone being used near the unit could cause it to malfunction. In the event this occurs, disconnect the unit from it's power source, then reconnect it. Push the ON/OFF button on the remote controller to restart the system.

Optimal Operation



Doors and windows should be kept closed.



Closing the curtains while heating also helps keep the heat in

To achieve optimal performance, please note the following:

- ⊘ **DO NOT** put any objects near the air inlets & outlets. Doing this would impair performance and could cause the unit to shut down.
- Adjust the airflow direction of the louvers correctly, so that it is not towards people or at an extreme angle/closed.
- Adjust the temperature to achieve moderate comfort levels. An excessively low or high temperature setting wastes energy.
- Keep windows and doors closed, as this will improve performance.
- Limit energy usage (run time) using the **TIMER** function and **SLEEP/ECO** mode if applicable.
- Regularly inspect and clean the air filters.

Operation Mode Selection (Multi-Zone Systems)

While two or more indoor units are operating simultaneously, make sure the modes selected on each of the units do not conflict with one another. The **HEAT** mode claims precedence over all of the other modes. If the unit initially started to operate in **HEAT** mode, the other units can only operate in **HEAT** mode. For example: If the unit initially started to operate under **COOL** or **FAN** mode, the other units can operate under any mode except **HEAT**. If **HEAT** mode is selected on one of the units, the other units will cease operating, and one of the following will occur, depending on the model:

- **For models equipped with a display window only-** This "--" will appear in the display window.
- **For units without a display window-** The auto and operation indication light will flash rapidly, the defrost indication light will turn off, and the timer indication light will remain on.

Special Functions

Refrigerant Leakage Detection (some units):

When a refrigerant leakage is detected, the indoor unit will automatically display an "ELOC" code.

Louver Angle Memory Functions (some units):

When the unit is activated, the system will remember the last position selected by the user and return to it.

Defrosting Function (cooling and heating models only):

Frost may be generated on the outdoor unit during a heat cycle, when the outdoor temperature is low and the humidity is high. This results in lower heating efficiency by the unit. Under these conditions, the air conditioner will stop heating operations and will begin defrosting automatically. The time to defrost may vary from 4 to 10 minutes, depending on the outdoor temperature and the amount of frost buildup on the outdoor condenser. **NOTE: During defrosting, the indoor and outdoor fans will stop spinning.**

Anti-Mildew Function (some units):

When the unit is turned off when in **COOL, DRY, or, AUTO** modes, it will continue to operate at very low power. This is to aid in drying any condensation that has formed inside the unit to prevent mildew growth.

Auto-Restart (some units): If the unit is equipped with Auto-Restart, it will restart automatically and resume the previous operation when the power supply returns. **NOTE: In order to protect the compressor, once it stops it cannot be restarted for 3 minutes.**

Wireless Smart Control Function (some units):

Connect the wireless control module via the USB port in the back of the front cover of the indoor unit. This will allow the unit to be controlled by the remote control and/or the smartphone app.

Active Clean Function (some units):

If the unit is equipped with Active Clean, this feature will activate to automatically wash away the dust, mold, and grease that can accumulate on the heat exchanger, as these could cause odors to occur and restrict system performance. When this function is activated, "CL" will appear in the indoor unit display window. The active clean function operates by causing the system to create more condensate on the heat exchanger and freezing it. It then rapidly thaws the frost and the condensate water in turn washes accumulated dust and debris from the heat exchanger as it drains from the unit. While this is occurring, the fan will spin to blow the cold air from the unit. **NOTE: During this process a slight pinging noise may be audible.** Once this process has been completed, the fan will continue to circulate hot air in order to blow-dry the evaporator and prevent the growth of mildew. The entire process will last for a duration of 20 to 45 minutes. Once the process has been completed, the unit will turn off automatically and cancel the Active Clean function.

Breeze Away (some units):

This feature is used to control the direction of the airflow to keep air from being directly blown onto occupants in the room the unit is operating in.

ECO intelligent eye (some units):

This feature uses a sensor in the indoor unit to detect movement. While in cooling mode, if it senses there is no one in the room for a period of 30 minutes, it will automatically lower frequency to save energy. The system will automatically resume operation when movement is detected.

! CAUTION

The power supply must be disconnected before attempting any kind of cleaning or service. Before performing maintenance, turn the power off to the unit and then disconnect the power to the circuit at the breaker. Failure to do this could cause electrical shock and injury.

⊘ **DO NOT** use benzene, thinner, polishing powder, or similar solvents for cleaning. These could cause the plastic to deform and/or crack.

⊘ **DO NOT** clean the unit with excessive amounts of water.

⊘ **DO NOT** touch the metal parts of the unit when removing the filter. Injuries can occur when handling the sharp metal edges.

⊘ **DO NOT** use water to clean the inside of the unit. Exposure to water can destroy the insulation, which could lead to electric shock.

⊘ **DO NOT** use a chemically treated cloth or duster to clean the unit.

⊘ **DO NOT** touch the air freshening filter for at least 10 minutes after turning off the unit.

⊘ **DO NOT** use water hotter than 104°F (40°C) to clean the front panel or filter. This could cause them to deform or become discolored.

⊘ **DO NOT** expose the filter to direct sunlight, as this could cause it to shrink. Allow the filter to dry in the shade.

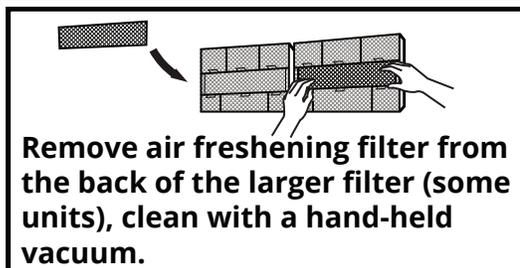
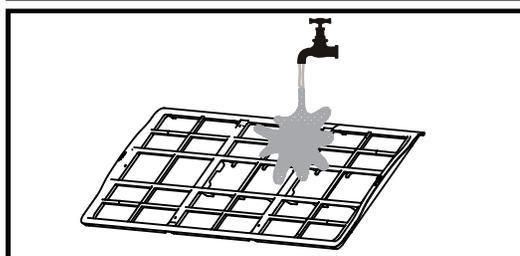
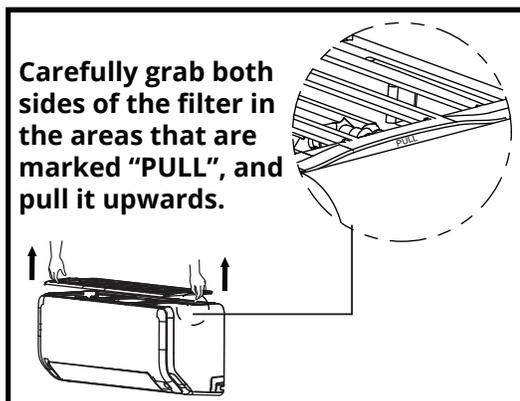


Fig. 3.1

Cleaning the Unit:

Wipe the unit with a soft dry cloth. If the unit is very dirty, wipe it with a cloth soaked in warm water.

⊘ **DO NOT** use bleach or abrasives.

Cleaning the Air Filter & Air Freshener (Fig. 3.1):

NOTE: A clogged air filter can greatly reduce heating and cooling efficiency of this unit. It can also create irregular airflow which can cause the unit to become excessively noisy. It is recommended to clean the air filter every 2 weeks. If abnormal air flow is heard, then clean the filter immediately.

1. The air filter is located on the top of the indoor unit.
2. Carefully grab both sides of the of the filter in the areas marked "PULL" and gently pull the filter upwards.
3. If the filter is equipped with smaller air freshening filters within the main filter (some models), unclip them from the filter. The air freshening filters can be cleaned with a hand-held vacuum.
4. The main filter can be cleaned with warm, soapy water. Ensure that mild detergent is used.
5. Rinse the filter with fresh water.
6. Allow the filter to air dry in a cool, dry place. However, avoid placing it in direct sunlight, as this could damage or shrink the filter.
7. Once the main filter has dried, clip the small air freshening filters back into the main filter.
8. Reinstall the main filter into the top of the indoor unit.

Air Filter Reminders (Optional)

Air Filter Cleaning Reminder

After 240 hours of use, the display window on the indoor unit will flash "CL." This is a reminder to clean your filter. After 15 seconds the unit will revert to the previous display.

To reset the reminder, press the **LED button** on your remote control 4 times, or press the **MANUAL CONTROL** button 3 times. If you do not reset the reminder, the "CL" indicator will flash again when you restart the unit.

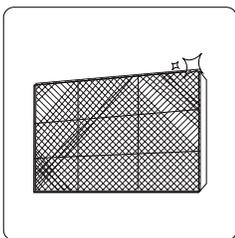
Air Filter Replacement Reminder

After 2,880 hours of use, the display window on the indoor unit will flash "nF." This is a reminder to replace your filter. After 15 seconds the unit will revert to the previous display.

To reset the reminder, press the **LED button** on your remote control 4 times, or press the **MANUAL CONTROL** button 3 times. If you do not reset the reminder, the "nF" indicator will flash again when you restart the unit.

Preparation for Extended Non-Operation

If you plan to not run the unit for an extended period of time (e.g. from the end of summer to the beginning of the following summer), perform the following:



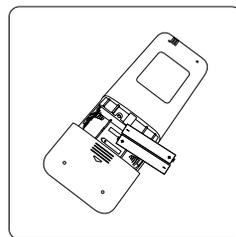
Clean all filters



Turn on FAN mode until unit dries out completely



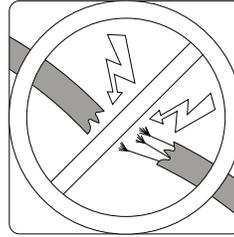
Turn off the unit and disconnect the power



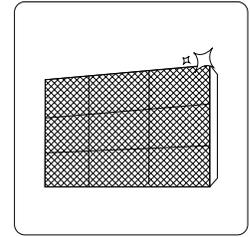
Remove batteries from remote control

Pre-Season Inspection

After prolonged non-operation, or before periods of frequent use, perform the following:



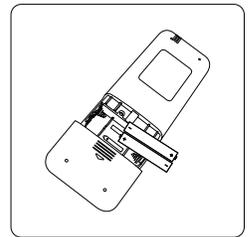
Check for damaged wires



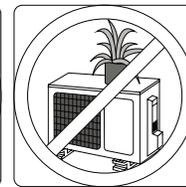
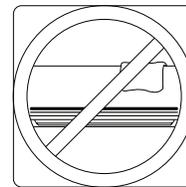
Clean all filters



Check for leaks



Replace batteries



Make sure nothing is blocking all air inlets and outlets

! CAUTION

- Any repairs to the unit should be performed by an authorized dealer or a licensed service provider.

Installation Diagram & Line Set Specifications

4

Installation Diagram

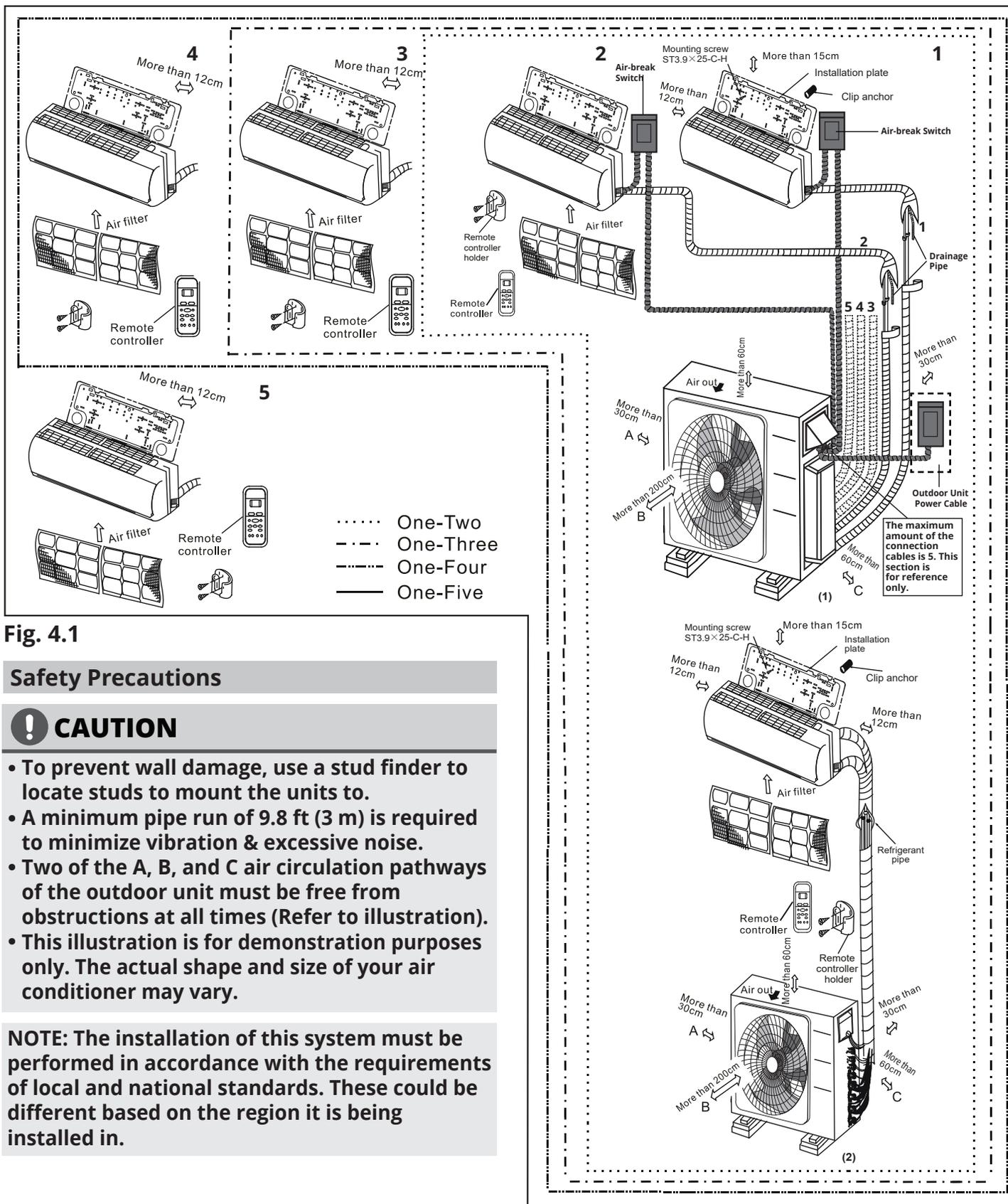


Fig. 4.1

Safety Precautions

! CAUTION

- To prevent wall damage, use a stud finder to locate studs to mount the units to.
- A minimum pipe run of 9.8 ft (3 m) is required to minimize vibration & excessive noise.
- Two of the A, B, and C air circulation pathways of the outdoor unit must be free from obstructions at all times (Refer to illustration).
- This illustration is for demonstration purposes only. The actual shape and size of your air conditioner may vary.

NOTE: The installation of this system must be performed in accordance with the requirements of local and national standards. These could be different based on the region it is being installed in.

Single Zone Line Set Specifications

Single-Zone Refrigerant Piping Length & Condenser Specifications

Number of units that can be used together	Connected units	1 unit
Compressor start/stop frequency	Stop time	3 minutes or more
Power Source Voltage	Voltage fluctuation	Within $\pm 10\%$ of rated voltage
	Voltage drop during start	Within $\pm 15\%$ of rated voltage
	Interval Unbalance	Within $\pm 3\%$ of rated voltage

Unit: feet (meters)

Single-Zone (Hyper Heat & E-Star) Refrigerant Piping Length Requirements	9K Condenser	12K Condenser	18K Condenser	24K Condenser
Max. piping length for indoor & outdoor unit	82.02 ft (25 m)	82.02 ft (25 m)	98.43 ft (30 m)	164.04 ft (50 m)
Max. height difference between indoor & outdoor unit	32.81 ft (10 m)	32.81 ft (10 m)	65.62 ft (20 m)	82.02 ft (25 m)

When installing a single-zone system ensure that the length of the refrigerant pipe and the drop height between the indoor and outdoor units meet the requirements in the table above and illustrated in Fig. 4.2 below:

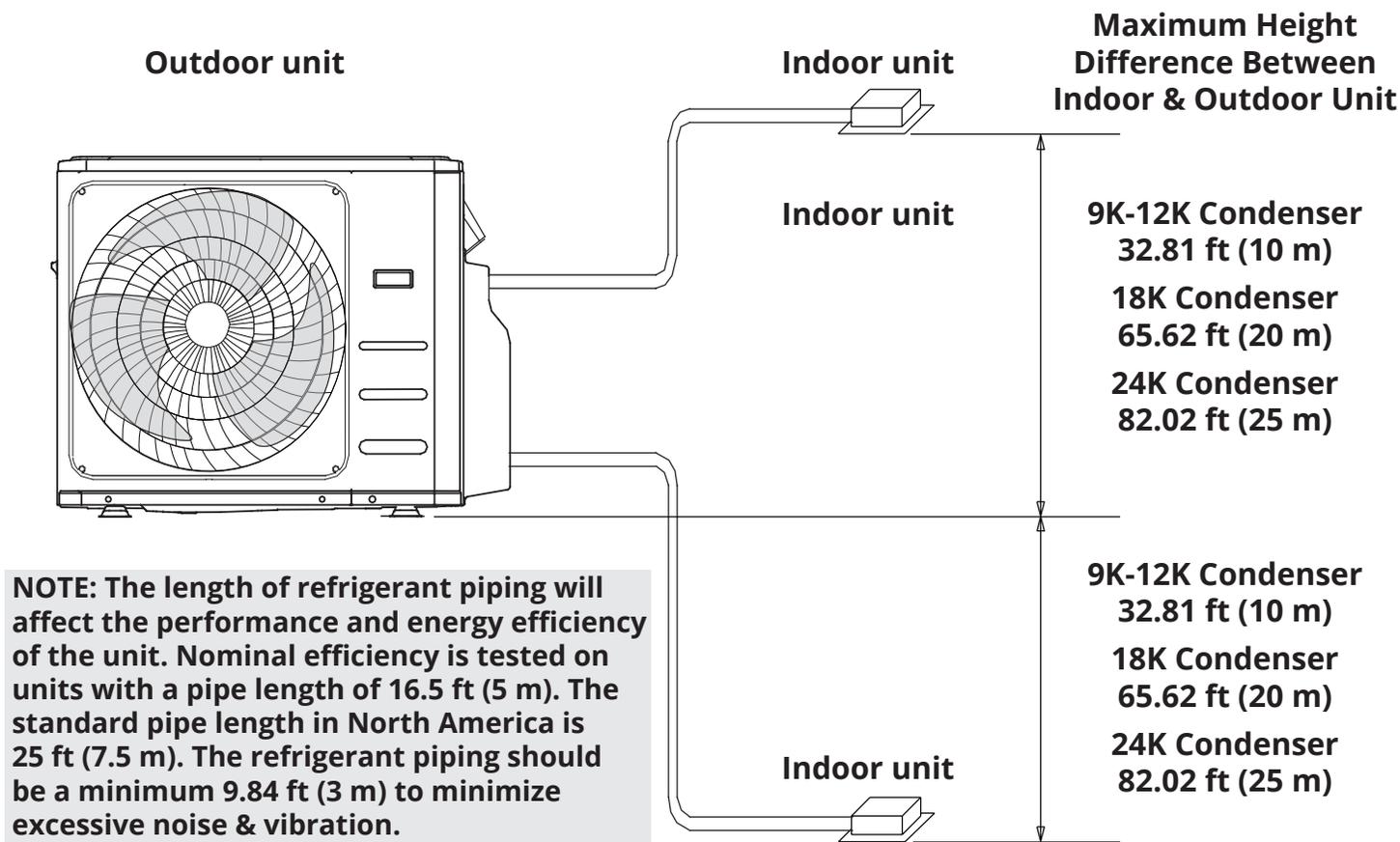


Fig. 4.2

Multi-Zone Line Set Specifications

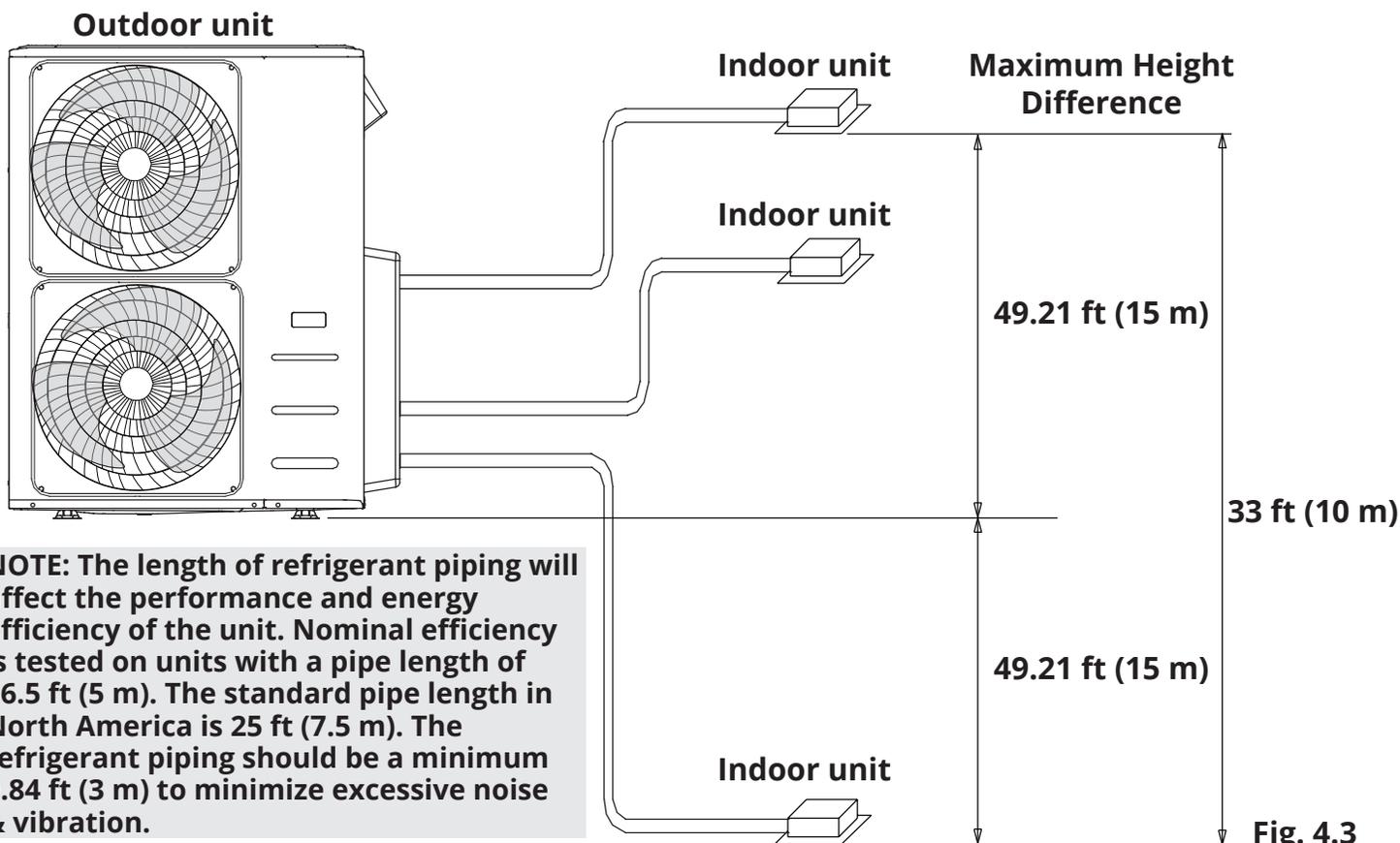
Multi-Zone Refrigerant Piping Length & Condenser Specifications

Number of units that can be used together	Connected units	2-5 units
Compressor start/stop frequency	Stop time	3 minutes or more
Power Source Voltage	Voltage fluctuation	Within $\pm 10\%$ of rated voltage
	Voltage drop during start	Within $\pm 15\%$ of rated voltage
	Interval Unbalance	Within $\pm 3\%$ of rated voltage

Unit: feet (meters)

Multi-Zone Refrigerant Piping Length Requirements	18K 2-Zone Condenser	27K 3-Zone Condenser	36K 4-Zone Condenser	48K 5-Zone Condenser
Max. combined piping length for all rooms	131.23 ft (40 m)	196.85 ft (60 m)	262.47 ft (80 m)	262.47 ft (80 m)
Max. piping length for one indoor unit	82.02 ft (25 m)	98.43 ft (30 m)	114.83 ft (35 m)	114.83 ft (35 m)
Max. height difference between indoor & outdoor unit	49.21 ft (15 m)	49.21 ft (15 m)	49.21 ft (15 m)	49.21 ft (15 m)
Max. height difference between indoor units	32.80 ft (10 m)	32.80 ft (10 m)	32.80 ft (10 m)	32.80 ft (10 m)

When installing a multi-zone system (multiple indoor units with a single outdoor unit), ensure that the length of the refrigerant pipe and the drop height between the indoor and outdoor units meet the requirements in the table above and illustrated in **Fig. 4.3** below:



NOTE: 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 16.5 ft (5 m). The standard pipe length in North America is 25 ft (7.5 m). The refrigerant piping should be a minimum 9.84 ft (3 m) to minimize excessive noise & vibration.

Fig. 4.3

Multi-Zone Air Handler Compatibility Chart

Multi-Zone Air Handler/Condenser Capacity Compatibility Charts

When installing a multi-zone system, ensure the capacities of the air handlers are compatible with the condenser by using the charts below.

18K 2-Zone Condenser - 2 Combinations

Two Indoor Units

9K + 9K 9K + 12K*

27K 3-Zone Condenser - 11 Combinations

Two Indoor Units

9K + 9K 12K + 12K

9K + 12K 12K + 18K*

9K + 18K 18K + 18K*

Three Indoor Units

9K + 9K + 9K 9K + 12K + 12K*

9K + 9K + 12K* 12K + 12K + 12K*

9K + 9K + 18K*

36K 4-Zone Condenser - 27 Combinations

Two Indoor Units

9K + 18K 12K + 24K

9K + 24K 18K + 18K

12K + 12K 18K + 24K*

12K + 18K 24K + 24K*

Three Indoor Units

9K + 9K + 9K 9K + 12K + 24K*

9K + 9K + 12K 9K + 18K + 18K*

9K + 9K + 18K 12K + 12K + 12K

9K + 9K + 24K* 12K + 12K + 18K*

9K + 12K + 12K 12K + 12K + 24K*

9K + 12K + 18K* 12K + 18K + 18K*

Four Indoor Units

9K + 9K + 9K + 9K

9K + 9K + 9K + 12K*

9K + 9K + 9K + 18K*

9K + 9K + 12K + 12K*

9K + 9K + 12K + 18K*

9K + 12K + 12K + 12K*

12K + 12K + 12K + 12K*

48K 5-Zone Condenser - 28 Combinations

Two Indoor Units

9K + 24K 18K + 24K

12K + 24K 24K + 24K

18K + 18K

Three Indoor Units

9K + 9K + 18K 12K + 12K + 12K

9K + 9K + 24K 12K + 12K + 18K

9K + 12K + 12K 12K + 12K + 24K

9K + 12K + 18K 12K + 18K + 18K

9K + 12K + 24K 18K + 18K + 18K*

9K + 18K + 18K

Four Indoor Units

9K + 9K + 9K + 9K

9K + 9K + 9K + 12K

9K + 9K + 9K + 18K

9K + 9K + 12K + 12K

9K + 9K + 12K + 18K

9K + 12K + 12K + 12K

9K + 12K + 12K + 18K*

12K + 12K + 12K + 12K

12K + 12K + 12K + 18K*

Five Indoor Units

9K + 9K + 9K + 9K + 9K

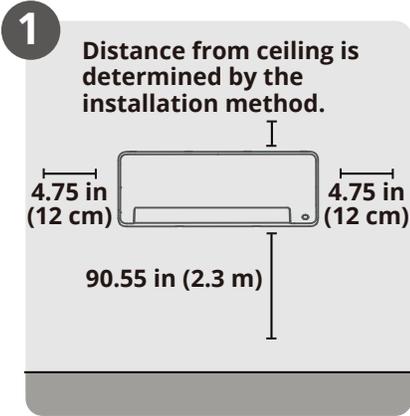
9K + 9K + 9K + 9K + 12K

9K + 9K + 9K + 12K + 12K*

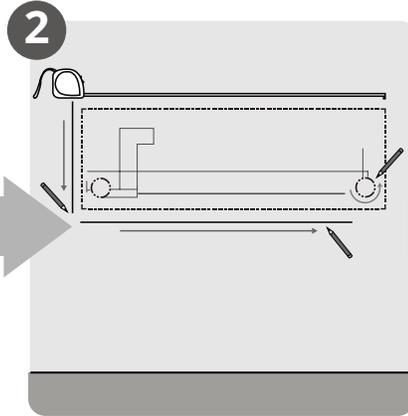
* If all indoor units run simultaneously, their combined BTU output will not exceed the BTU rating of the outdoor unit.

NOTE: It is critical during selection of the outdoor unit that you select a capacity for the entire application area and select each indoor unit capacity based on the size of the zone it will cover.

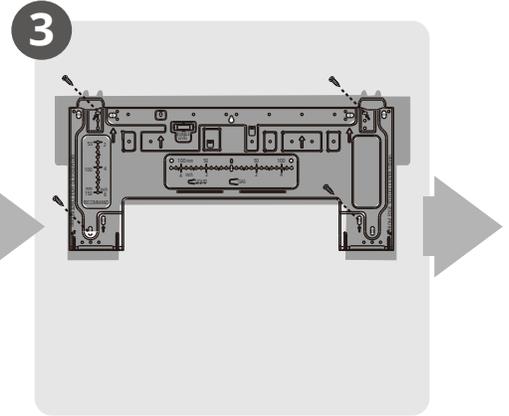
Installation Summary - Indoor Unit



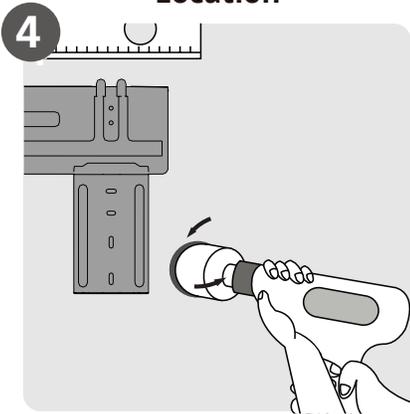
Select Installation Location



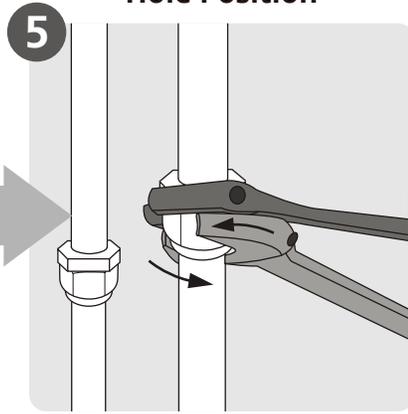
Determine Wall Hole Position



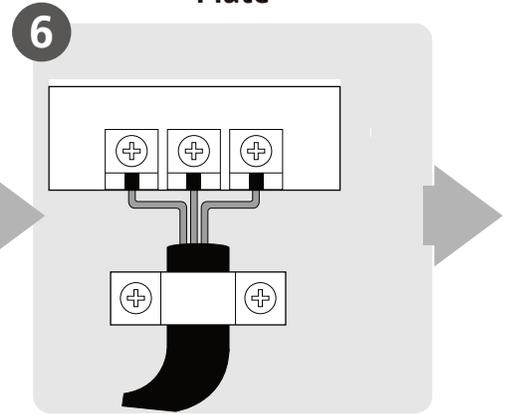
Attach Mounting Plate



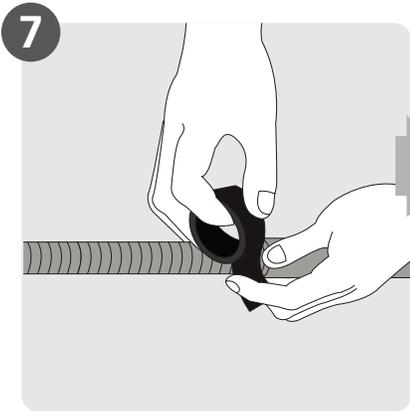
Drill Wall Hole



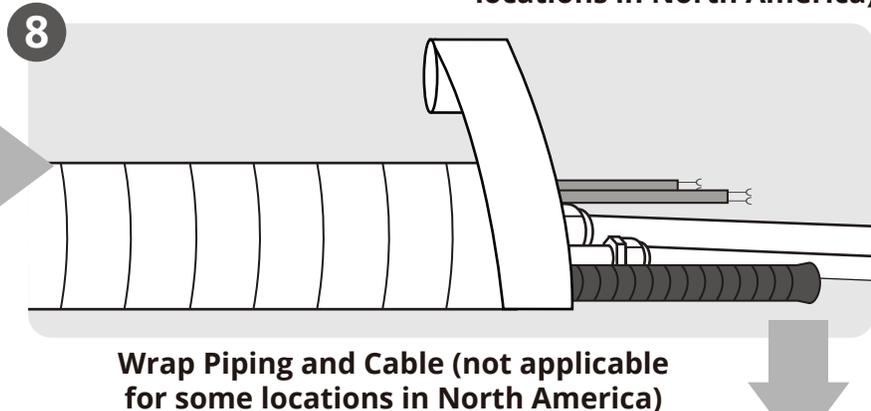
Connect Piping & Drain Hose



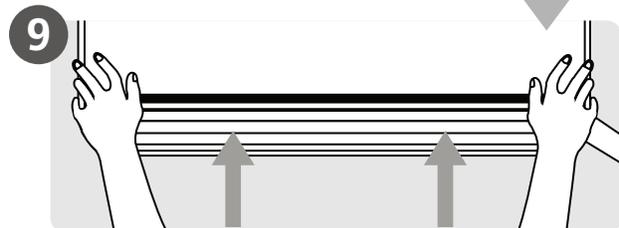
Connect Wiring
(not applicable for some locations in North America)



Prepare Drain Hose



Wrap Piping and Cable (not applicable for some locations in North America)



Mount Indoor Unit

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 model numbers of the indoor unit and the outdoor unit match.

Step 1: Selecting an installation location

Before installing the indoor unit, you must choose an appropriate location. The following standards and guidelines will help you choose an appropriate location for the unit. **Also refer to Fig. 5.1 below to ensure the chosen location meets the indoor unit clearance requirements.**

Proper installation locations should meet the following standards

- ☑ Good air circulation
- ☑ Convenient drainage
- ☑ Noise from the unit will not disturb other people
- ☑ Firm & solid location that will not vibrate
- ☑ Strong enough to support the weight of the unit
- ☑ A location that is at least 3.3 ft (1 m) from all other electronic devices (e.g., TV, radio, computer)

DO NOT install the indoor unit in any of the following locations:

- ⊘ Near any source of heat, steam, or combustible gas.
- ⊘ Near flammable items such as curtains or clothing.
- ⊘ Near any obstacles that could block air circulation.
- ⊘ Near a doorway or where outside air may blow directly on the indoor unit.
- ⊘ In a location subject to direct sunlight exposure.

NOTE ABOUT WALL HOLE:

If there is no fixed refrigerant piping: While choosing a location, be sure that you leave ample room for a wall hole (see the **Drill Wall Hole for Connective Piping** step on the following pages) for the signal cable and refrigerant piping, which connect the indoor and outdoor units. The default position for all piping is the right-hand side of the indoor unit (while facing the front of the unit). However, the unit can accommodate piping to both the left or right side.

Refer to the diagram below to ensure the indoor unit mounting location meets the clearance requirements:

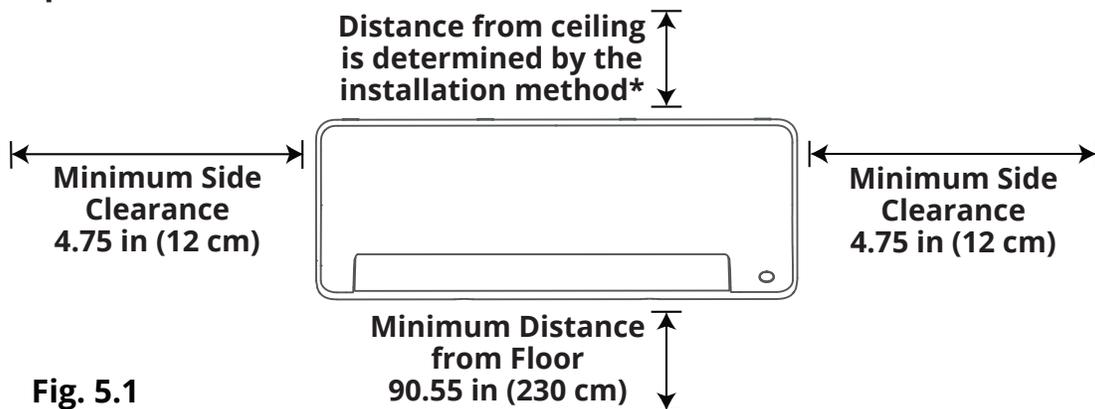


Fig. 5.1

* If the refrigerant piping and cables are going to be connected to the indoor unit before it is mounted to the wall, 2 in (5 cm) is an allowable amount of clearance from the ceiling but this could reduce system performance. However, in order to ensure there is enough space to allow for the removal and installation of the air filter, the clearance should be at least 4 in (10 cm). **If the refrigerant piping and cables are going to be connected after the indoor unit is mounted to the wall with the front panel opened**, the minimum clearance from the ceiling should be at least 8.7 in (22 cm). **If the piping and cables are connected with the front panel removed**, the minimum clearance should be 4.3 in (11 cm).

Indoor Unit Installation

Step 2: Attach mounting plate to wall

The mounting plate is a metal plate that allows the indoor unit to be mounted to the wall. In this step you will position and mount the plate to the wall using the provided screws.

1. Remove the screw that attaches the mounting plate to the back of the indoor unit. Refer to Fig. 5.2 below.

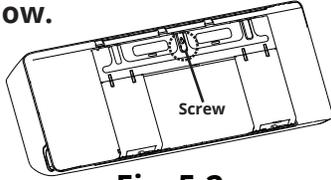


Fig. 5.2

2. Place the mounting plate against the wall in a location that meets the guidelines in the **Selecting an Installation Location** step. Refer to the illustrations in Fig. 5.3 for more information on mounting plate sizes.
3. Drill holes for wall plate mounting screws in places that have the following:
 - studs that can support the weight of the unit.
 - correspond to the holes in the mounting plate.
4. Secure the mounting plate to the wall with the supplied screws.
5. Make sure that the mounting plate sits level and flat against the wall.

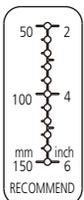
NOTE FOR CONCRETE OR BRICK WALLS:

If the wall is made of brick, concrete, or a similar material, drill 0.2 in (5 mm) diameter holes in the wall and insert the sleeve anchors provided. Secure the mounting plate to the wall by tightening the screws directly into the anchors.

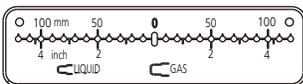
MOUNTING PLATE DIMENSIONS

Different models have different mounting plates. In order to ensure that you have ample room to mount the indoor unit, the diagrams to the right show different types of mounting plates along with dimensions. Each mounting plate is also equipped with a bubble level, vertical ruler, & horizontal ruler, as shown below. Please use these, along with the information provided on this page, to in to properly position and install the mounting plate.

Vertical Ruler

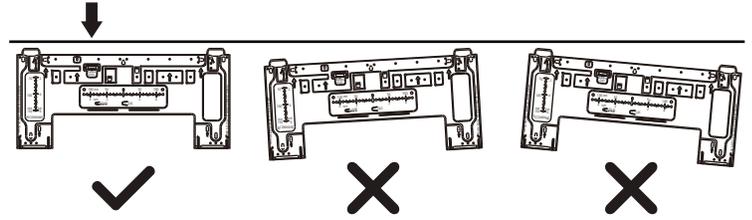


Horizontal Ruler



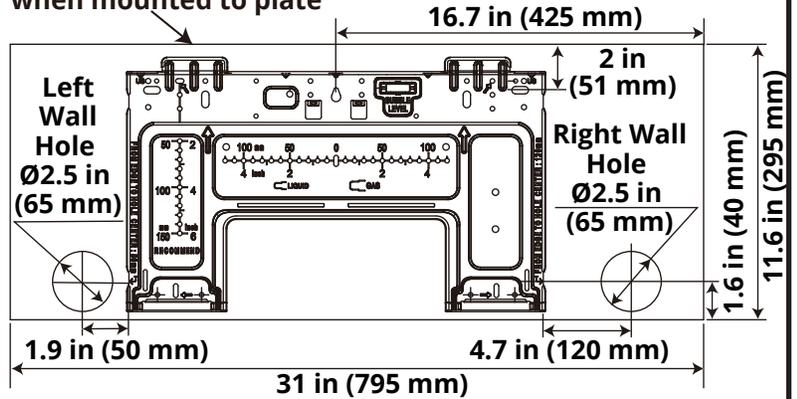
CAUTION! The bubble level on the mounting plate cannot be removed. Should it become broken, be sure to clean up any liquid that has leaked from it.

Correct orientation of Mounting Plate



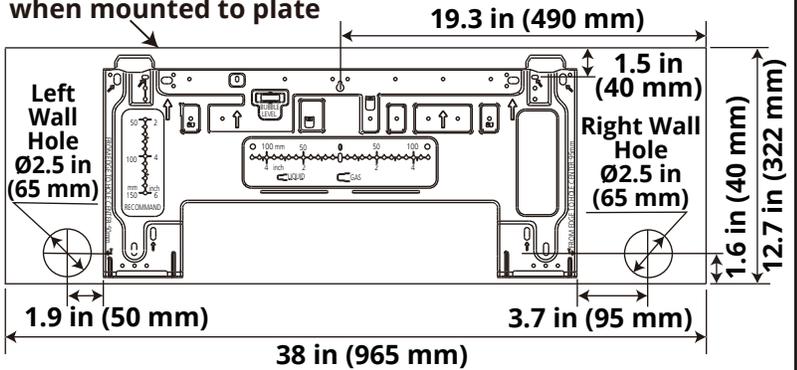
9K & 12k Wall Mounted Air Handler

Outline of Indoor Unit when mounted to plate



18K Wall Mounted Air Handler

Outline of Indoor Unit when mounted to plate



24K Wall Mounted Air Handler

Outline of Indoor Unit when mounted to plate

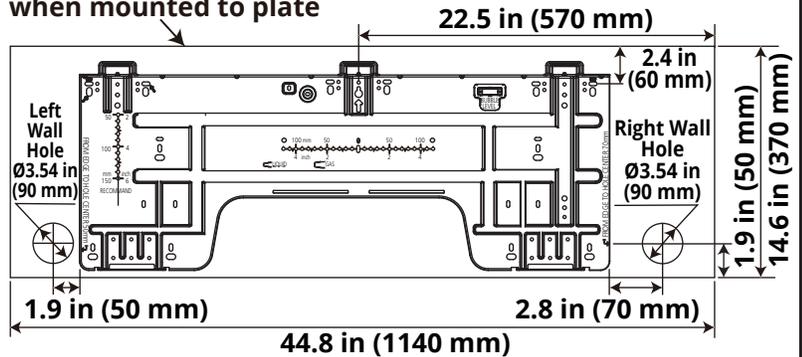


Fig. 5.3

Step 3: Drill Wall Hole for Connective Piping

If refrigerant piping is not already embedded, you must drill a hole in the wall for the refrigerant piping, drainage pipe, and signal cable to pass through in order to connect the indoor and outdoor units.

1. Determine the location of the wall hole based on the position of the mounting plate. Refer to the **Mounting Plate Dimensions (Fig 5.3)** to assist you in determining the optimal position for the hole, based on the type of mounting plate provided with your unit.
2. Using a core drill, with a 2.5 in (65 mm) or 3.54 in (90 mm) diameter (depending on model), drill a hole in the wall at a slight downward angle, so that the indoor end of the hole is higher than the outdoor end of the hole, by approximately 0.2 in to 0.275 in (5 mm to 7 mm). This will ensure proper water drainage from the indoor unit (**See Fig. 5.4**).
3. Insert the protective wall sleeve through the hole of the inside wall. This will protect the edges of the hole and help seal it when you finish the installation process.

! CAUTION

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

Correct Angle to Drill Wall Hole

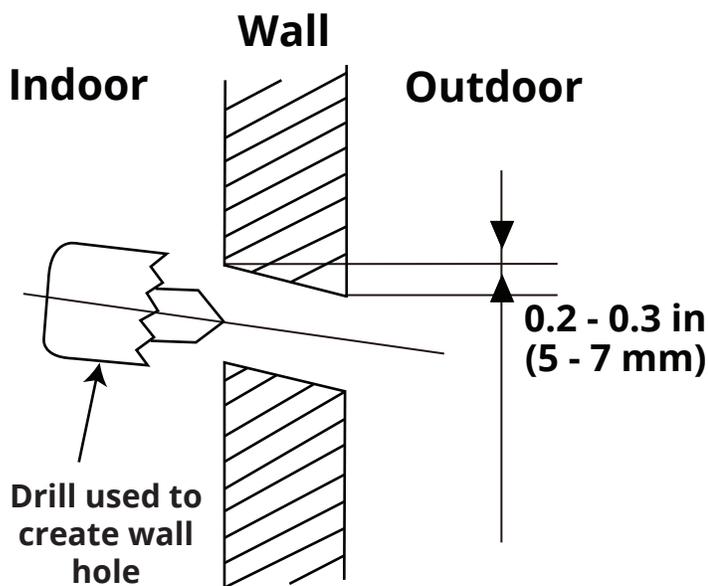


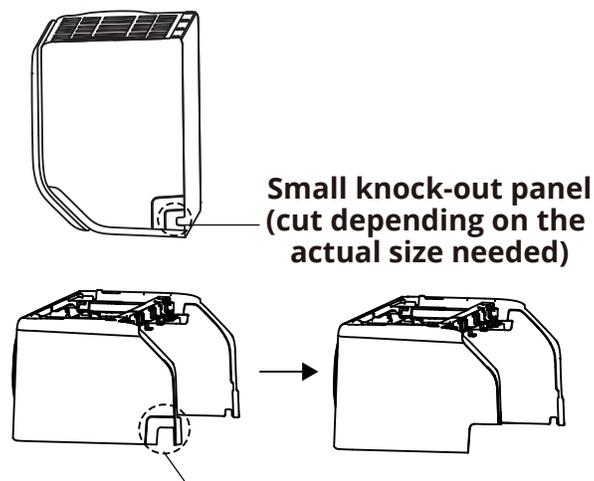
Fig. 5.4

NOTE: If the system requires gas piping that has diameter of 5/8 in (16 mm) or greater, the wall hole size should be 3.54 in (90 mm).

Step 4: Prepare Indoor Unit Piping

The piping of the indoor unit is attached to the back of the unit towards the bottom. It will be covered with an insulation sleeve. You must prepare the piping before the unit can be mounted and connected.

1. Based on the position of the wall hole (relative to the mounting plate), or the location of the embedded refrigerant piping, choose the side from which the piping will exit the unit.
2. If the wall hole is behind the unit, keep the knockout panel, as shown in the illustration below, in place (**Refer to Fig. 5.5**). If the wall hole is to the side of the indoor unit, remove the knockout panel from that side of the indoor unit. This will create a slot through which your piping can exit the unit. It may be necessary to remove the knockout panel with needle-nose pliers if it is too difficult to remove by hand.



If your installation requires a larger slot for the piping to pass through cut out the larger panel as shown above.

Fig. 5.5

3. Use scissors to cut down the length of the piping insulating sleeve to reveal roughly 1.57 in (40 mm) of the refrigerant piping. This serves two purposes: to facilitate the refrigerant piping connection process, and allow the leak checks of the piping.

NOTE ON INDOOR UNIT PIPING ANGLE:

The refrigerant piping can exit the indoor unit from four different angles: left-hand side, left rear, right-hand side, and right rear. Refer to Fig. 5.6 below for more details.

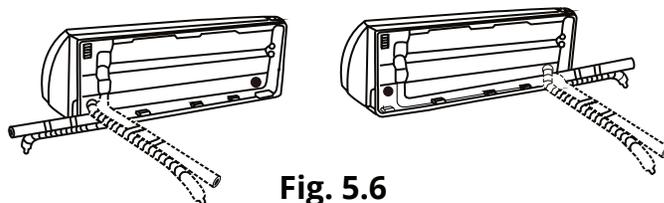


Fig. 5.6

PIPING DIRECTION & EXITING THE UNIT:

- In some regions a conduit tube must be used for the cabling exiting the unit. In order to ensure there is enough space for the piping and conduit when the unit is mounted to the wall, it is recommended to attach the drain hose to the right-hand side of the unit (when you're facing the back of the unit).
- When selecting if the piping will exit the unit on the left-hand or right-hand side, please ensure that the pipes exit horizontally. This will ensure that the removal or installation of the unit's lower panel will not be affected by the piping.

4. Grip the refrigerant piping of the indoor unit at the base of the bend. Then, slowly and with even pressure, bend the piping to the orientation selected for it to exit the unit (Refer back to Fig. 5.6).

! CAUTION

Be extremely careful not to dent or damage the piping while bending away from the unit, as this could affect the unit's performance.

5. Seal the ends of the piping of the indoor unit to ensure no moisture or foreign debris enters it. Keep the piping sealed until they are ready to be connected.

Step 5: Hook Indoor Unit to Mounting Plate

In this step you will partially install the indoor unit to the wall mounting plate in order to make necessary piping and electrical connections.

! IMPORTANT

Depending on the type of installation being performed (connecting indoor unit to existing, embedded piping or not), selection of where the piping will exit the unit, and room necessary to make connections, it may be necessary to connect the refrigerant piping, drain hose and signal cable before attempting to hook and mount the indoor unit to the mounting plate. If this is the case, please skip to the next step.

1. Carefully lift the air handler and carry it to the mounting plate. Slightly lean the top of the air handler toward the wall and hook the top of the indoor unit on the upper hooks of the wall mounting plate.

2. The hooks on the mounting plate are smaller than the holes on the back of the unit. This allows the unit to be adjusted on either side. If you find there is not ample room to connect the piping to the unit, the unit can be adjusted left or right by approximately 1.18 - 1.95 in (30 - 50 mm) depending on model (Refer to Fig. 5.7).



Adjust Unit to the left or right

Fig. 5.7

Step 6: Remove Indoor Unit Lower Panel

In this step you will remove the lower panel of the indoor unit. This will allow access to make necessary refrigerant piping connections, connect the drainage pipe and connect the signal cable (Refer to Fig. 5.8).

1. Lift the front panel of the air handler and lock it into the open position as shown below.
2. Open the screw covers shown below and remove the screws using a screwdriver.
3. Then, unscrew the screws shown below on the lower panel of the air handler.
4. Hold both sides of the lower panel on the places that are both labeled "PULL." Then, carefully pull the lower panel upwards to release the buckles so the panel can be removed from the unit.

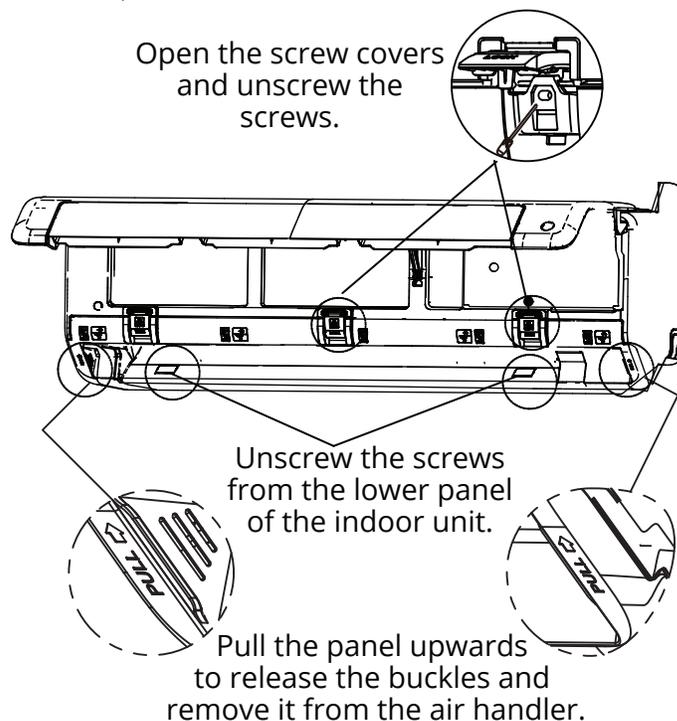
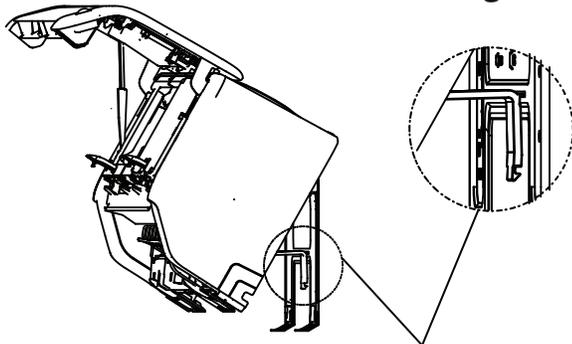


Fig. 5.8

5. **If the unit is hooked to the wall mounting plate**, you can gain access to the rear by propping the lower rear portion of the unit at an angle against the mounting plate using the hinged prop on the back of the unit, as shown in **Fig. 5.9** below.



Extend the hinged prop at the back of the unit against the mounting plate to prop up the air handler and gain access to the rear.

Fig. 5.9

Step 7: Connect Drain Hose & Refrigerant Piping

In this step you will connect the drain hose and refrigerant piping to the indoor unit. **For detailed instructions about connecting the refrigerant piping, please refer to the Refrigerant Piping Connection section of this manual.** By default, the drain hose is attached to the left-hand side of the unit (when facing the back of the indoor unit). However, it can also be attached to the right-hand side. To ensure proper drainage, attach the hose on the same side that the refrigerant piping will exit the unit.

NOTE: In some regions, if the unit has a conduit panel installed, it is required for drainage to occur on the right-hand side of the unit.

1. Attach the drain hose extension (purchased separately) to the end of the drain hose.
2. Wrap the point where the drain hose and drain hose extension connect securely with Teflon tape to ensure a good seal and prevent leaks.
3. Then, wrap the portion of the drain hose that will remain indoors with foam pipe insulation to prevent condensation/sweating.
4. Remove the air filter from the indoor unit and pour a small amount of water into the drain pan and ensure that water flows from the unit smoothly.

CAUTION

Ensure the drain hose and extension are arranged as shown in Fig. 5.10a and follow the guidelines below to ensure proper drainage.

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

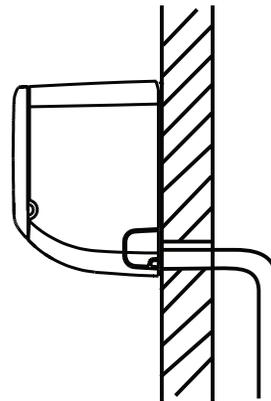


Fig. 5.10a

CORRECT
Make sure there are **NO** kinks or dents in the hose to ensure proper drainage.

NOT CORRECT
Kinks in the drain hose will create water traps.

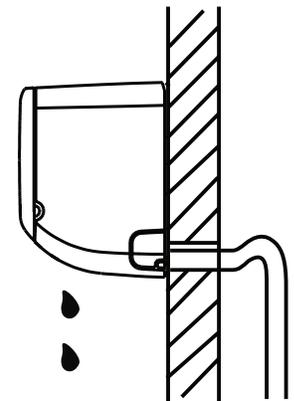


Fig. 5.10b

NOT CORRECT
Dents in the drain hose will create water traps.

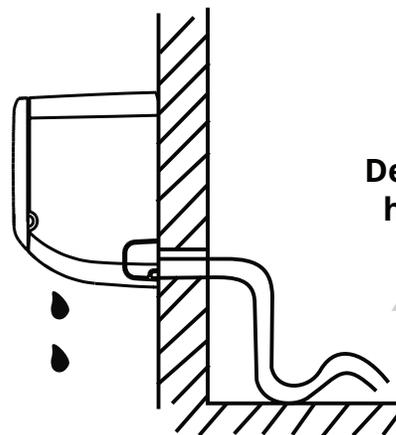


Fig. 5.10c

NOT CORRECT
DO NOT place the end of the drain hose in water or in containers that collect water. This will prevent proper drainage.

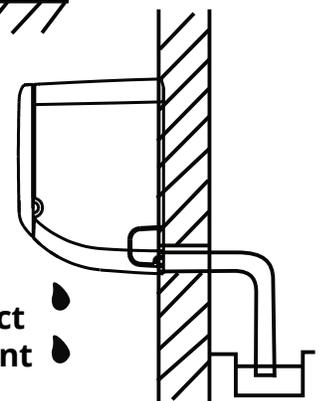
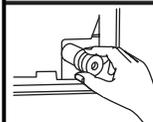


Fig. 5.10d

PLUG THE UNUSED DRAIN HOLE



To prevent unwanted leaks you must plug the unused drain hole with the rubber plug provided.



BEFORE PERFORMING ELECTRICAL WORK, READ THESE REGULATIONS

- ⚠ **DO NOT** connect another appliance to outlet dedicated to the unit. The unit should be connected to an individual branch circuit outlet.
 - ⚠ **DO NOT** allow the wires to touch or rest against the refrigerant piping, the compressor, or any moving parts within the unit.
1. All wiring must be installed by a licensed electrician and comply with local and national electrical codes.
 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 refuse to install the unit until the safety issue is properly resolved.
 4. Power voltage should be within 90-110% of the rated voltage. An insufficient power supply can cause a malfunction, electrical shock, and/or fire.
 5. If connecting to fixed wiring, a surge protector and main power switch should be installed. The qualified technician must install and incorporate an approved circuit breaker or switch that disconnects all poles, and has a contact separation of at least 1/8 in (3 mm), into the fixed wiring.
 6. Circuits, including any switches should have 1.5 times the maximum unit current (amps).
 7. Ensure the unit is properly grounded.
 8. Ensure every wire is firmly connected. Loose wiring can cause the terminal to overheat which could result in a malfunction and/or fire.
 9. If the unit is equipped with an auxiliary heater, it must be installed at least 40 in (1 m) away from combustible materials.
 10. To avoid electrical shock, never touch the electrical components directly after the power supply has been turned off. Once the power has been turned off, always wait at least 10 minutes before touching any electrical components.



WARNING

BEFORE PERFORMING ANY ELECTRICAL WORK, TURN OFF ALL POWER TO THE SYSTEM.

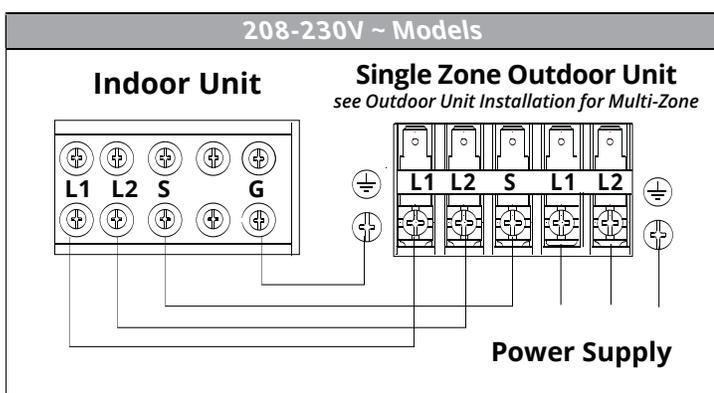


Fig. 5.11a

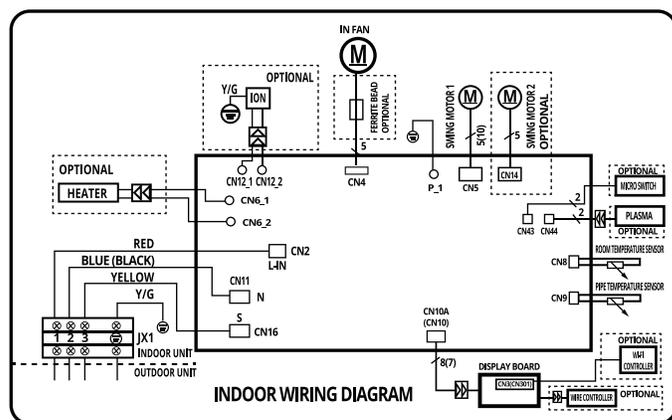


Fig. 5.11b

Indoor Unit Installation

Step 8: Connect Signal and Power Cables to the Indoor Unit

In this step you will install the signal cables and power cables to the indoor unit. The signal cable enables the indoor and outdoor units to communicate with one another. These cables must be purchased separately. Use the guidelines below for selecting the proper cables for your application.

Cable Types

- **Indoor Power Cable (if applicable):** H05VV-F or H05V2V2-F
- **Outdoor Power Cable:** H07RN-F or H05RN-F
- **Signal Cable:** H07RN-F

NOTE: In North America, choose the cable type according to the local electrical codes and regulations.

Minimum Cross-Sectional Area of Power and Signal Cables North America

Appliance Amps (A)	AWG
10	18
13	16
18	14
25	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

SELECT THE RIGHT CABLE SIZE:

The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current rating of the unit. This rating is indicated on the nameplate, located on the side panel of the unit. Refer to this nameplate to select the proper cable, fuse, and/or switch. In North America, please choose the right cable size according to the Minimum Circuit Ampacity (MCA) indicated on the nameplate of the unit.

1. Prepare the cable for connection.
 - a. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal roughly 1.57 in (40 mm) 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.
2. With the front panel of the indoor unit propped open and the lower panel removed (completed earlier in Step 6), open the wire box cover at the top of the unit to expose the terminal block.
3. Then, unscrew the cable clamp below the terminal block and place it to the side.
4. While facing the back of the unit, remove the plastic panel on the bottom left-hand side.

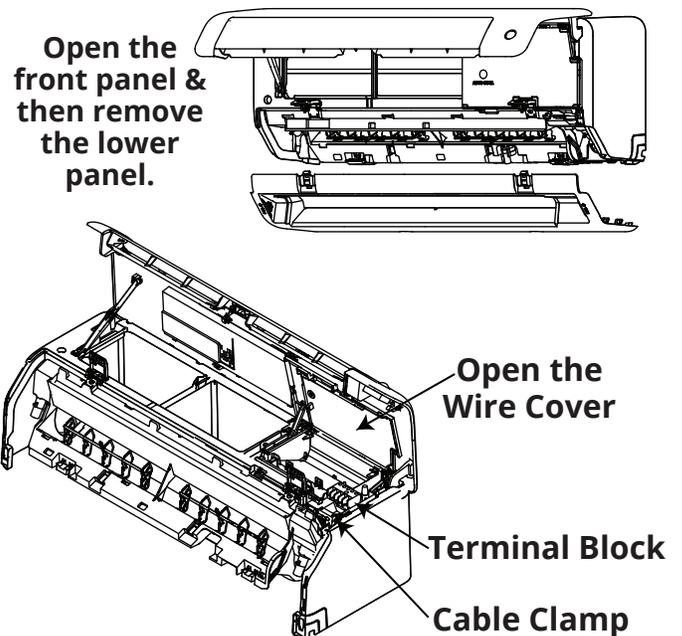


Fig. 5.12

5. Feed the signal cable through this slot, from the back of the unit to the front.

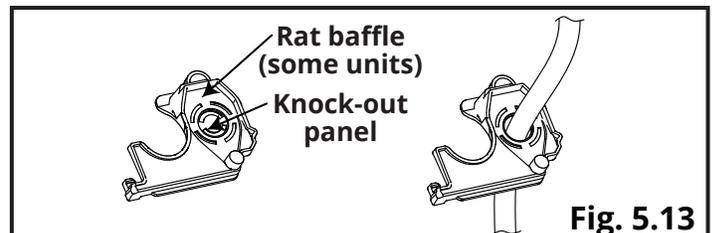


Fig. 5.13

NOTES:

- If the cable selected for the installation is too large to fit through the hole of the unit, remove the middle knock-out panel of the rat baffle (Refer to Fig. 5.13).
- If the chassis or drain hose ever need to be removed from the unit, please remove the rat baffle first.

! IMPORTANT

If the electrical code or the region the unit is being installed in requires the use of conduit tubing for the indoor unit wiring to run through, please follow the steps below before attempting to wire the unit (Refer to Fig. 5.14):

1. Remove the knock-out panel from the rat baffle of the indoor unit, as shown below. This is required in order to make the hole large enough to allow the conduit tubing to fit into it.
2. Once the conduit tubing has been installed, run the wiring through the conduit tube and into the unit to be connected.

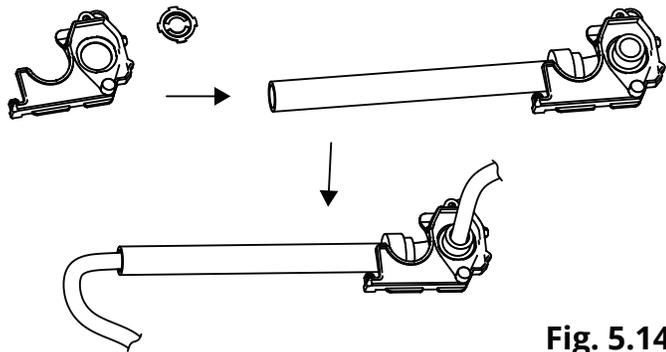


Fig. 5.14

! WARNING

All wiring must be installed strictly in accordance with the wiring diagram located on the back of the indoor unit front panel.

6. Facing the front of the unit, connect the wiring by securely fastening the u-lug of each wire to the corresponding terminal on the terminal block using a screwdriver. The wiring connections must be made according to the wiring diagram on the indoor unit.

! CAUTION

⚠ **DO NOT** mix up live and null wires, as it could create a potentially dangerous situation and cause unit to malfunction.

7. Double-check the wiring connections to ensure they are secure. Then, use the cable clamp to secure the cable to the unit. Be sure to screw the clamp tightly to the unit.
8. Close the wire cover and reinstall the plastic panel on the back of the unit.

! NOTE ABOUT WIRING

The wiring connection process may differ slightly depending upon the unit or the region it is being installed in.

Step 9: Wrap Piping and Cables

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

1. Bundle the refrigerant pipes, drain hose, and signal cable in the orientation as shown in Fig. 5.15.

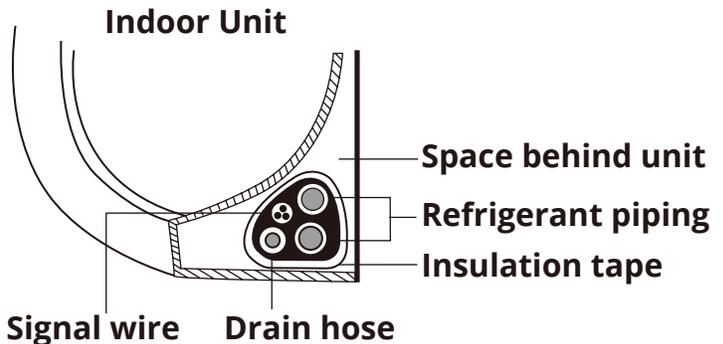


Fig. 5.15

! CAUTION

⚠ **DO NOT** intertwine the signal cable with any other wiring when bundling these items together, as this could cause the system to malfunction.

- Ensure the drain hose is at the bottom of the bundle as shown above. If the drain hose is put at the top of the bundle it could cause the drain pan to overflow, which could result in system failure, water damage and/or fire.

2. Using adhesive vinyl tape, secure the drain hose to the underside of the refrigerant piping.
3. Using insulation tape, wrap the signal wire, refrigerant piping, and drain hose tightly together. Then, double-check that everything has been bundled.

! CAUTION

⚠ **DO NOT** wrap the ends of the piping. You will need access to them in order to test the system for leaks when the installation process has been completed (refer to the Electrical Checks and Leak Checks section of this manual for more information).

Step 10: Mount the Indoor Unit

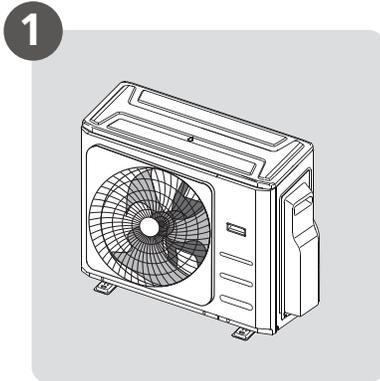
If you're installing new connective piping and the indoor unit has not been hooked onto the wall mounting plate, follow these steps:

1. If you have already passed the refrigerant piping, drain hose, and signal cable through the wall hole, proceed to Step 4.
2. Otherwise, double-check that the ends of the refrigerant pipes are sealed to prevent dirt or any other foreign materials from entering the pipes.
3. Slowly pass the wrapped bundle of refrigerant pipes, drain hose, and signal cable through the hole in the wall.
4. Hook the top of the indoor unit on the upper hook of the wall mounting plate.
5. Check that the unit is firmly hooked on the mounting plate by applying slight pressure to the left and right-hand sides of the unit. The unit should not jiggle or shift.
6. Reinstall the lower panel of the indoor unit by following the instructions of **Step 6: Remove Indoor Unit Lower Panel** in reverse order.
7. Once the lower panel has been reinstalled, using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the wall mounting plate.
8. Again, check that the unit is firmly mounted by applying slight pressure to the left and right-hand sides of the unit.

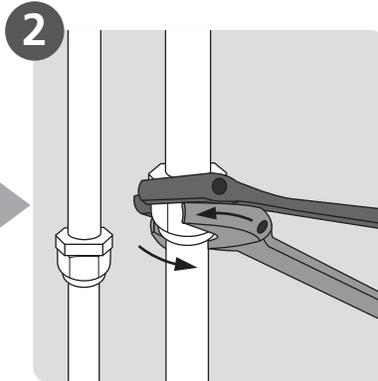
If the air handler has already been hooked on the wall mounting plate and connected to existing, embedded refrigerant piping, follow these steps:

1. Reinstall the lower panel of the indoor unit by following the instructions of **Step 6: Remove Indoor Unit Lower Panel** in reverse order.
2. If the hinged bracket is being used to prop the unit against the wall mounting plate, carefully fold it back into the rear of the unit. Once this is complete, ensure the back of the unit is resting against the wall mounting plate.
3. Then, using even pressure, push down on the bottom half of the unit. Continue pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.
4. Again, check that the unit is firmly mounted by applying slight pressure to the left and right-hand sides of the unit.

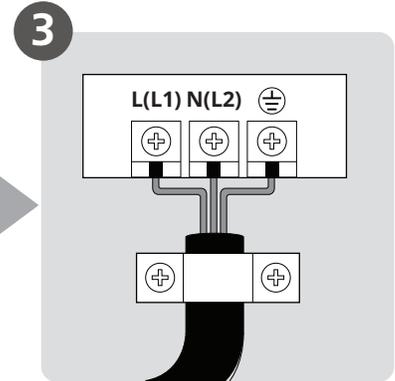
Installation Summary - Outdoor Unit



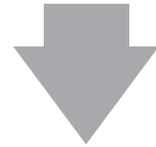
1
Install the outdoor unit



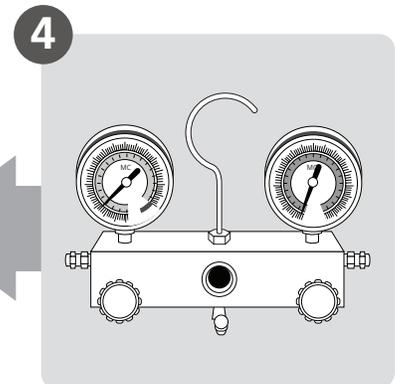
2
Connect the refrigerant pipes



3
Connect the wires



5
Perform a test run



4
Evacuate the refrigeration system



Outdoor Unit Installation

NOTE: Install the unit by following local codes and regulations, these may slightly differ between regions.

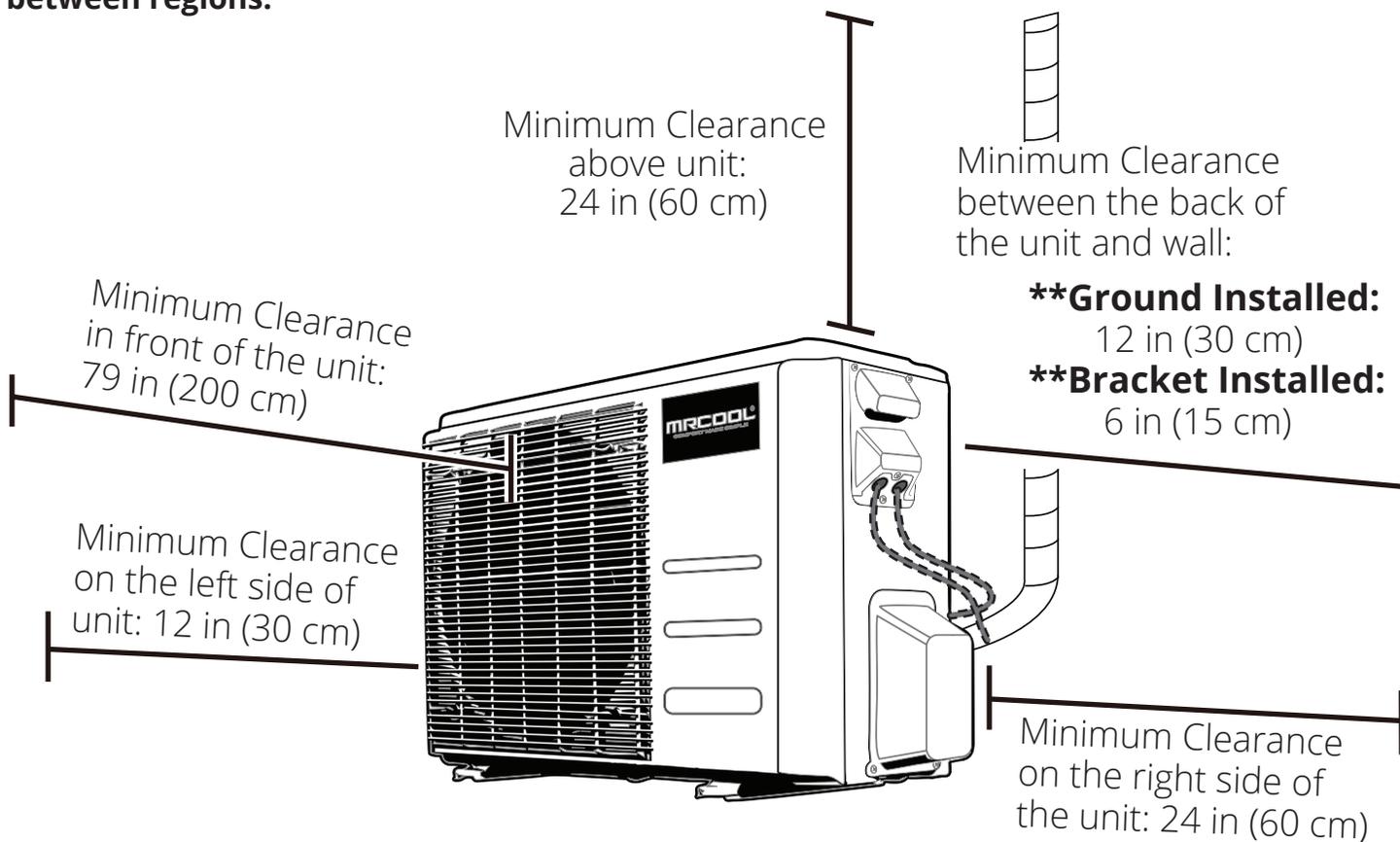


Fig. 6.1

Installation Instructions - Outdoor Unit

Step 1: Selecting an Installation Location

Before installing the outdoor unit, you must choose an appropriate location. Use the following guidelines to help you select an appropriate location.

Proper installation locations should meet following guidelines:

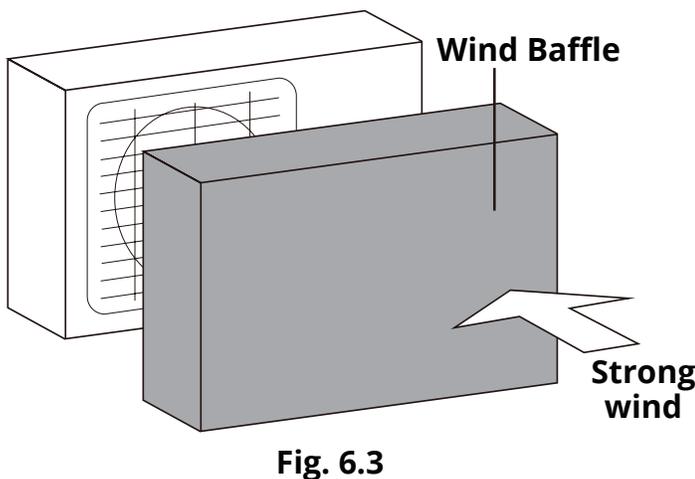
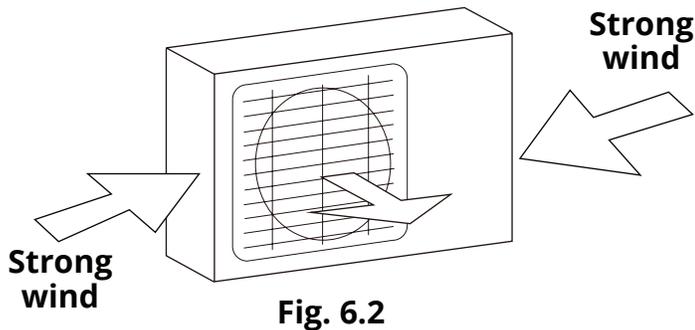
- Meets all spatial requirements shown in the illustration above (Fig. 6.1)
- Good air circulation and ventilation
- Firm and solid location that can support the unit and will not cause vibration
- Noise from the unit will not disturb others
- Protected from prolonged periods of exposure to direct sunlight or rain
- If installed in an area where snowfall is expected, take appropriate measures to prevent ice buildup and coil damage.

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 could be harmed by hot air discharge.
- Near any source of combustible gas.
- In a location that is exposed to large amounts of dust.
- In a location exposed to excessive amounts of salty air.
- In a location that exposes the unit to large amounts of forced water.

SPECIAL CONSIDERATIONS FOR EXTREME WIND & WEATHER

If the unit is exposed to heavy wind:
Install the unit so the 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. Ensure the wind barrier does not block necessary airflow. Please refer Fig. 6.2 and Fig. 6.3 below.



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 airflow around the unit.

If the unit is frequently exposed to salty air (seaside):
Use an outdoor unit that is specially designed to resist corrosion.

Step 2: Install drain joint

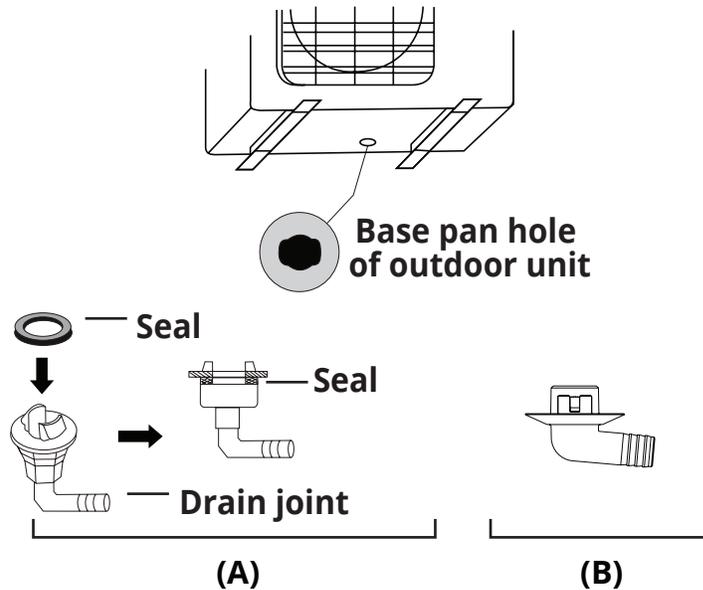
Heat pump units require a drain joint if the unit is elevated. Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. **NOTE: there are two different types of drain joints depending on the type of outdoor unit.**

If the drain joint comes with a rubber seal (see Fig. 6.4 - 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 (not included) to the drain joint to redirect water from the unit during heating mode.

If the drain joint does not come with a rubber seal (see Fig. 6.4 - 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 (not included) to the drain joint to redirect water from the unit during heating mode.



! DRAINAGE IN COLD CLIMATES

In cold climates, make sure that the drain pipe is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can cause the pipe to freeze and flood the unit.

Step 3: Anchor Outdoor Unit

The outdoor unit can be anchored to the ground or to a wall-mounted bracket using M-10 bolts. Prepare the mounting surface of the unit according to the dimensions listed in the table on the following page, using the illustrations as a guide to correspond with the table.

If you are installing the outdoor unit on the ground, or a concrete mounting platform, follow these steps:

1. Mark the positions for four expansion bolts based on dimensions in the **Mounting Dimensions** chart and illustrations above (for multi-zone condensers please refer to the next page).
2. Pre-drill holes for expansion bolts.



WARNING

When drilling into concrete, eye protection should be worn at all times.

3. Clean concrete dust away from the 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 the expansion bolts, and place outdoor unit on bolts.
7. Put a washer on each of the expansion bolts, then reinstall the nuts.
8. Using a wrench, tighten each nut until snug.

If you are installing the unit on a wall-mounted bracket, follow these steps:



CAUTION

Before attempting to install a wall-mounted unit, make sure that the wall is made of solid brick, concrete, or a similarly strong material. The wall must be able to support at least 4 times the weight of the unit.

1. Mark the position of the bracket holes based on the dimensions in the table on the next page.
2. Pre-drill the holes for the expansion bolts.



WARNING

When drilling into concrete, eye protection should be worn at all times.

3. Clean dust and debris away from the holes.
4. Place a washer and nut on the end of each expansion bolt.
5. Thread expansion bolts through the holes in the mounting brackets. Then, put the mounting brackets in position and hammer the expansion bolts into the wall.
6. Check that the mounting brackets are level.

7. If the feet of the outdoor unit have rubber pads already installed, and you're using a MRCOOL® wall-mounted bracket, remove them before attempting to mount the condenser to the bracket. The mounting bracket has rubber isolating pads on it that will take the place of these.
8. Carefully lift the unit and place its mounting feet on the brackets.
9. Then, bolt the unit firmly to the brackets.

TO REDUCE VIBRATION OF UNIT

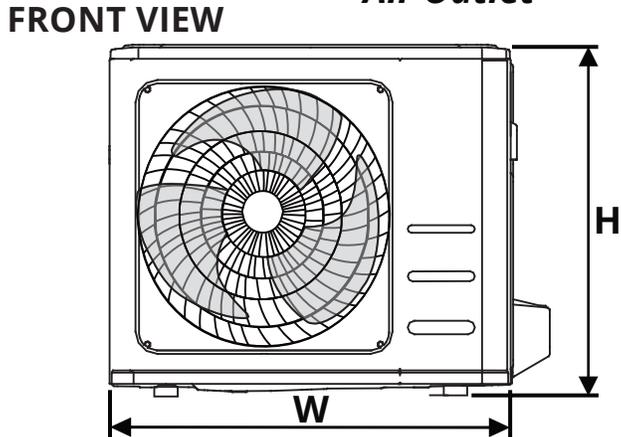
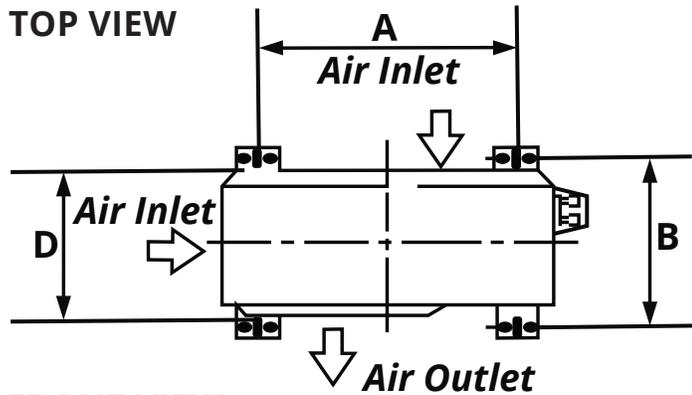
If allowed, you can install the wall-mounted unit with rubber gaskets which will reduce vibration and noise.

Step 4: Connect Refrigerant Piping to Outdoor Unit

Once the outdoor unit has been securely mounted, the refrigerant piping that will connect it to the indoor unit(s) can now be installed. For more detailed information of how to connect the refrigerant piping to the indoor and outdoor units, **please refer to the Refrigerant Piping Connection section of this manual and complete all piping connections before proceeding to the next step.**

Outdoor Unit Installation

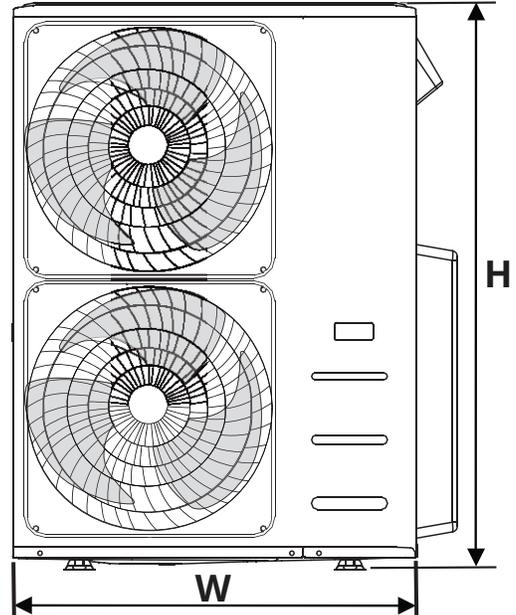
Olympus Hyper Heat, E Star, & Multi-Zone Condenser Dimensions



Single-Zone: 9K, 12K, 18K, & 24K
Multi-Zone: 18K, 27K, & 36K

UNIT MOUNTING DIMENSIONS

The table below is a list of different outdoor unit sizes and the distance between their mounting feet. Prepare the mounting surface according to the dimensions, using the illustrations below (Fig 6.5) as a guide to correspond with the table.



Multi-Zone: 48K

Fig. 6.5

		Model No.	Outdoor Unit Dimensions Width (W) x Height (H) x Depth (D)	Mounting Dimensions Width (A)	Depth (B)
Single-Zone Condensers	Hyper Heat Condensers	O-HH-09-HP-C-230B	31.69 in x 21.81 in x 12.99 in (805 mm x 554 mm x 330 mm)	20.10 in (511 mm)	12.50 in (317 mm)
		O-HH-12-HP-C-230B	31.69 in x 21.81 in x 12.99 in (805 mm x 554 mm x 330 mm)	20.10 in (511 mm)	12.50 in (317 mm)
		O-HH-18-HP-C-230B	35.04 in x 26.50 in x 13.46 in (890 mm x 673 mm x 342 mm)	26.10 in (663 mm)	13.90 in (354 mm)
		O-HH-24-HP-C-230B	37.24 in x 31.89 in x 16.14 in (946 mm x 810 mm x 410 mm)	26.5 in (673 mm)	15.90 in (403 mm)
	E Star Condensers	O-ES-09-HP-C-230B	30.12 in x 21.85 in x 11.93 in (765 mm x 555 mm x 303 mm)	17.80 in (452 mm)	11.30 in (286 mm)
		O-ES-12-HP-C-230B	30.12 in x 21.85 in x 11.93 in (765 mm x 555 mm x 303 mm)	17.80 in (452 mm)	11.30 in (286 mm)
		O-ES-18-HP-C-230B	35.04 in x 26.50 in x 13.46 in (890 mm x 673 mm x 342 mm)	26.10 in (663 mm)	13.90 in (354 mm)
		O-ES-24-HP-C-230B	37.24 in x 31.89 in x 16.14 in (946 mm x 810 mm x 410 mm)	26.50 in (673 mm)	15.90 in (403 mm)
Multi-Zone Condensers	MULTI2-18HP230B	35.04 in x 26.50 in x 13.46 in (890 mm x 673 mm x 342 mm)	26.10 in (663 mm)	13.90 in (354 mm)	
	MULTI3-27HP230B	37.24 in x 31.89 in x 16.14 in (946 mm x 810 mm x 410 mm)	26.50 in (673 mm)	15.90 in (403 mm)	
	MULTI4-36HP230B	37.24 in x 31.89 in x 16.14 in (946 mm x 810 mm x 410 mm)	26.50 in (673 mm)	15.90 in (403 mm)	
	MULTI5-48HP230B	37.48 in x 52.48 in x 16.34 in (952 mm x 1333 mm x 415 mm)	25.20 in (640 mm)	15.90 in (404 mm)	

⚠ BEFORE PERFORMING ELECTRICAL WORK, READ THESE REGULATIONS

- ⚠ **DO NOT** connect another appliance to outlet dedicated to the unit. The unit should be connected to an individual branch circuit outlet.
 - ⚠ **DO NOT** allow the wires to touch or rest against the refrigerant piping, the compressor, or any moving parts within the unit.
1. All wiring must be installed by a licensed electrician and comply with local and national electrical codes.
 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 refuse to install the unit until the safety issue is properly resolved.
 4. Power voltage should be within 90-110% of the rated voltage. An insufficient power supply can cause a malfunction, electrical shock, and/or fire.
 5. If connecting to fixed wiring, a surge protector and main power switch should be installed. The qualified technician must install and incorporate an approved circuit breaker or switch that disconnects all poles, and has a contact separation of at least 1/8 in (3 mm), into the fixed wiring.
 6. Circuits, including any switches, should have 1.5 times the maximum unit current (amps).
 7. Ensure the unit is properly grounded.
 8. Ensure every wire is firmly connected. Loose wiring can cause the terminal to overheat which could result in a malfunction and/or fire.
 9. If the unit is equipped with an auxiliary heater, it must be installed at least 40 in (1 m) away from combustible materials.
 10. To avoid electrical shock, never touch the electrical components directly after the power supply has been turned off. Once the power has been turned off, always wait at least 10 minutes before touching any electrical components.

Step 5: Connect Power and Signal Cables to the Outdoor Unit

In this step, the power supply and the signal cable from the indoor unit will be connected to the outdoor unit. The terminal block of the outdoor condenser is protected by an electrical wiring cover located on the side of the unit. A comprehensive wiring diagram is printed on the back side of the wiring cover.

⚠ WARNING

BEFORE PERFORMING ANY ELECTRICAL WORK, ENSURE THE MAIN POWER TO THE SYSTEM IS TURNED OFF.

SELECT THE RIGHT CABLE SIZE:

The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current rating of the unit. This rating is indicated on the nameplate, located on the side panel of the unit. Refer to this nameplate to select the proper cable, fuse, and/or switch. In North America, please choose the right cable size according to the Minimum Circuit Ampacity (MCA) indicated on the nameplate of the unit and also in the table below.

North America
Minimum Wire Gauge for Power Cables

	Model Capacity (BTU/hr)	Appliance Amps (A)		AWG	
		MCA	MOP	Min.	Pref.
E-Star Condensers	9K	13	15	14	12
	12K	13	15	14	12
	18K	19	30	12	10
	24K	22	30	10	8
Hyper-Heat Condensers	9K	15	15	14	12
	12K	15	15	14	12
	18K	16	25	12	10
	24K	25	35	10	8
Multi-Zone Condensers	18K (2-Zone)	18	25	12	10
	27K (3-Zone)	24.5	30	10	8
	36K (4-Zone)	25	40	8	6
	48K (5-Zone)	40	60	8	6

1. Prepare the cable for connection.
 - a. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal roughly 1.57 in (40 mm) 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.

PAY ATTENTION TO THE LIVE WIRE:

While crimping the wires, make sure you can clearly distinguish the Live ("L") wire from the other wires.

2. Remove the electrical wiring cover of the outdoor unit by removing the screws securing it in place.
3. Unscrew the cable clamp below the terminal block and place it to the side.
4. Connect each wire to its corresponding terminal on the outdoor unit terminal block according to the wiring diagram. Secure the U-lug of each wire to the terminal block by tightening the terminal screws firmly with a screwdriver.

⚠ WARNING

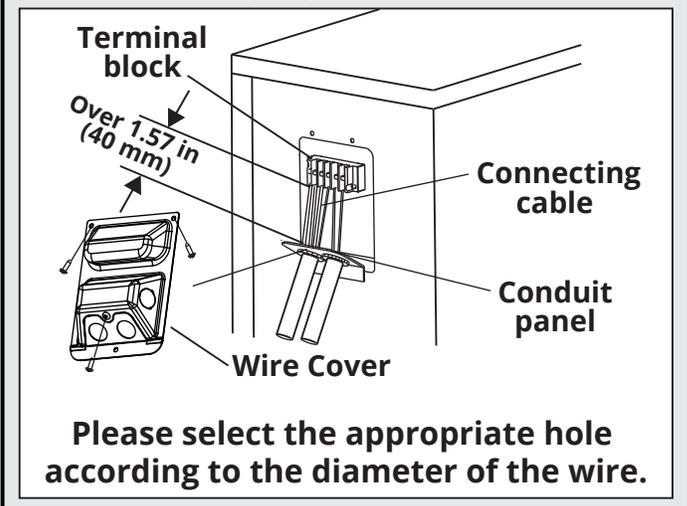
ALL WIRING MUST BE INSTALLED STRICTLY IN ACCORDANCE WITH THE WIRING DIAGRAM LOCATED ON THE INSIDE OF THE ELECTRICAL WIRING COVER OF THE OUTDOOR UNIT.

5. After checking to make sure every connection is secure, loop the wires around to prevent rain water from flowing into the terminals.
6. Using the cable clamp, fasten the cable to the unit. Then, screw the clamp down tightly.
7. Insulate unused wires with PVC electrical tape. Arrange the wires so that they do not touch any electrical or metal parts.
8. Reinstall the electrical wiring cover onto the side of the unit, using the screws you previously removed.

❗ IMPORTANT

If the electrical code or region the unit is being installed in requires the use of conduit tubing for the wiring to run through, please follow the steps below when wiring the unit:

1. Remove the electrical wiring cover on the side of the unit by removing the 3 screws securing it to the condenser.
2. Remove the caps on the conduit panel.
3. Temporarily mount the conduit tubes (not included, sold separately) onto the conduit panel.
4. Properly connect both the power supply and low voltage wires to the corresponding terminals on the terminal block according to the wiring diagram.
5. Ensure to ground the unit in accordance with local codes.
6. Be sure each wire is several inches longer than the length required for wiring to allow for slack.
7. Install the lock nuts to secure the conduit tubes to the conduit panel.
8. Reinstall the electrical wiring cover to the side of the unit. Secure it in place using the 3 screws you previously removed.



Wiring Diagrams For Multi-Zone Systems:

2-Zone System

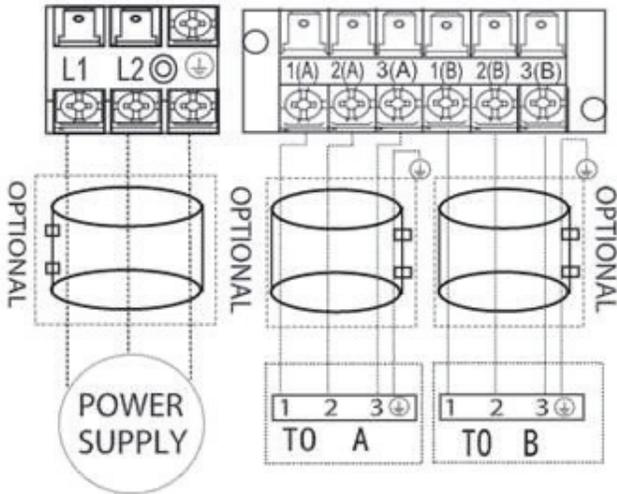


Fig. 6.6

3-Zone System

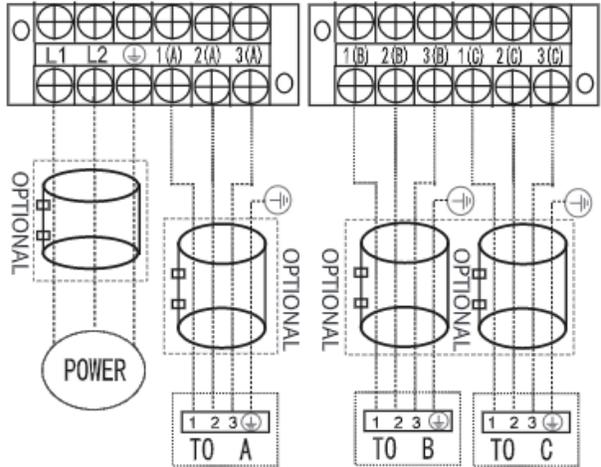


Fig. 6.7

4-Zone System

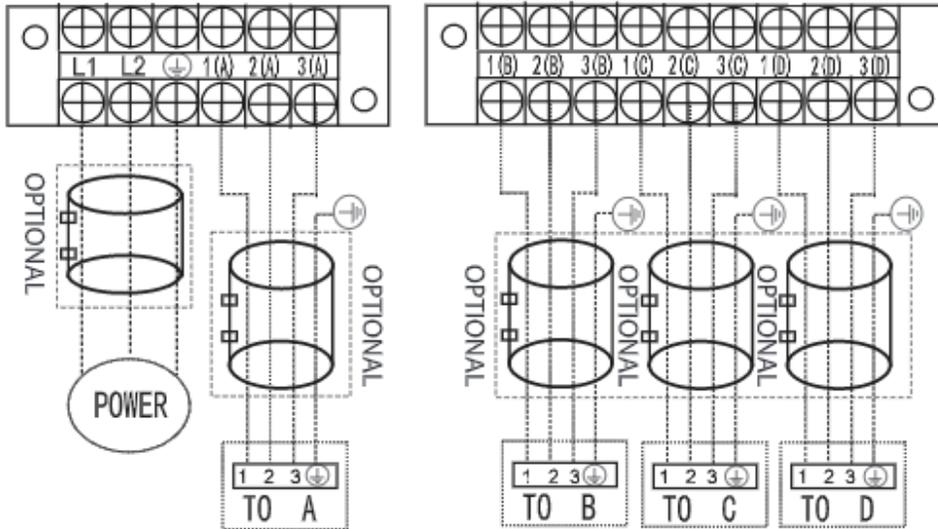


Fig. 6.8

Magnetic Ring (optional part)

The magnetic rings depicted in these wiring diagrams are used to isolate the wiring of each indoor unit near the terminal block of the condenser in a multi-zone system. This is in an effort to prevent interference that can sometimes occur between units.

5-Zone System

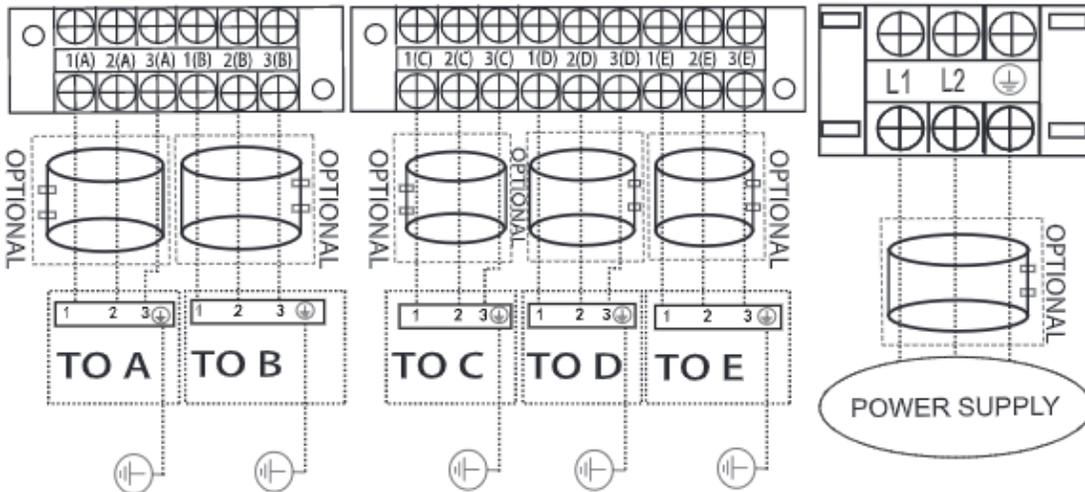
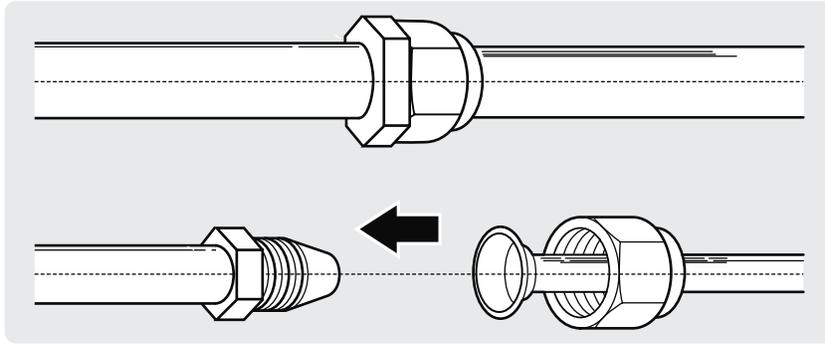


Fig. 6.9



⚠ WARNING

When connecting refrigerant piping, **DO NOT** allow any foreign substances or gases enter the refrigeration system. The presence of foreign gases or substances will lower the unit's capacity, and can cause abnormally high pressure in the refrigeration cycle. This could result in an explosion and/or personal injury.

NOTE ON PIPE LENGTH

The length of the refrigerant piping will affect the performance and energy efficiency of the unit. The following guidelines should be noted regarding pipe length:

- Nominal efficiency is tested on units with a pipe length of 16.5 ft (5 m).
 - In North America, the standard pipe length is 25 ft (7.5 m).
 - A minimum pipe run of 9.8 ft (3 m) is required to minimize vibration & excessive noise
- Refer to the table below for specifications on maximum length & drop height of piping.

Maximum Length & Drop Height of Refrigerant Piping per Unit Model

Model	Capacity (BTU/h)	Max. Length ft (m)	Max. Drop Height ft (m)
R410A Inverter Split Air Conditioner	< 15,000	82 ft (25 m)	33 ft (10 m)
	≥ 15,000 and < 24,000	98.5 ft (30 m)	66 ft (20 m)
	≥ 24,000 and < 36,000	164 ft (50 m)	82 ft (25 m)
	≥ 36,000 and ≤ 60,000	213 ft (65 m)	98.5 ft (30 m)

Preparation Instructions - Cut & Flare 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. Ensure the pipe is cut at a perfect 90° angle. Refer to **Fig. 7.1** for correct and incorrect examples.

⚠ CAUTION

- ⊗ **DO NOT** Deform the pipes while cutting them. Use care to not damage, dent, or deform the pipe while cutting. This will drastically reduce the heating & cooling efficiency of the unit.

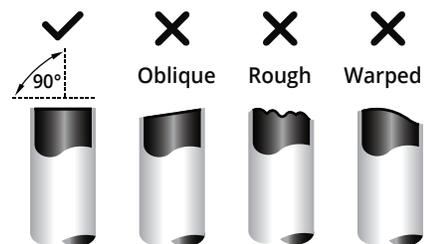


Fig. 7.1

Refrigerant Piping Connection

Step 2: Remove Burrs

Burrs can affect the airtight seal of the refrigerant piping connections. They must be completely removed from the piping ends before they can be flared and connected.

1. Hold the cut section of the piping at a downward angle in order to prevent the burrs from falling into the pipe while they are being removed.
2. Using a reamer or deburring tool, remove all of the burrs from the piping. **Refer to Fig. 7.2 below.**

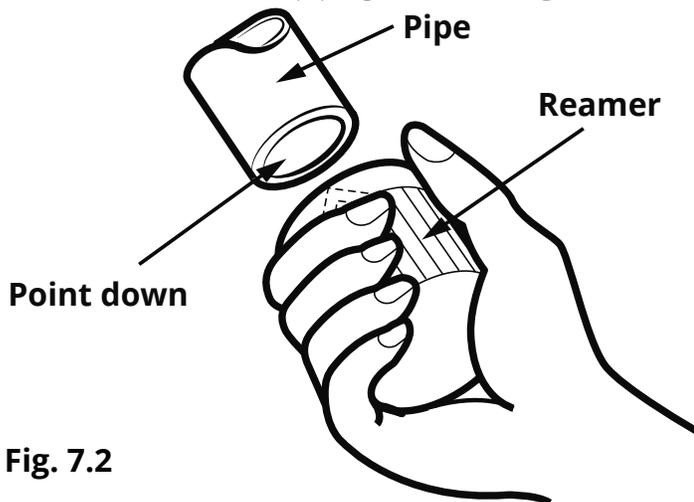


Fig. 7.2

Step 3: Flare Pipe Ends

Proper flaring is essential for the refrigerant piping connections to achieve an airtight seal.

1. Once the burrs have all been removed from the cut pipe, seal the ends with PVC tape to prevent any foreign materials from entering it.
2. Then, sheath the pipe with insulating material.
3. Place flare nuts on both ends of the pipe. Ensure each of the nuts is facing in the correct direction. Their direction cannot be changed nor can they be replaced once the pipe end has been flared. **Please refer to Fig. 7.3 below.**

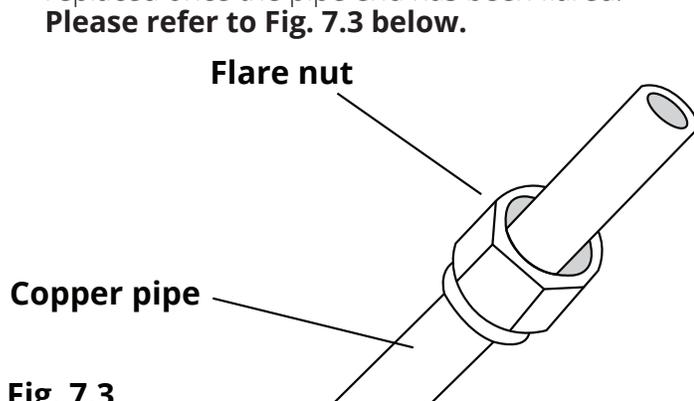


Fig. 7.3

4. Remove the PVC tape from both ends of the pipe when you're ready to flare the pipe.

5. Clamp the 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 in the table below. **Please refer to Figs. 7.4 - 7.5.**

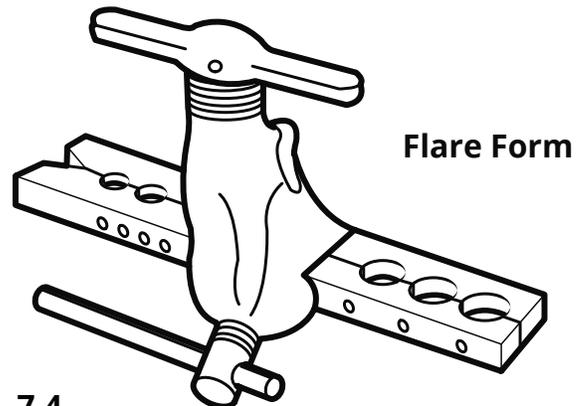


Fig. 7.4

PIPING EXTENSION BEYOND FLARE FORM		
Outer Diameter of Pipe	A	
	Min.	Max.
Ø 0.25 in (6.35 mm)	0.0275 in (0.7 mm)	0.05 in (1.3 mm)
Ø 0.375 in (9.5 mm)	0.04 in (1.0 mm)	0.063 in (1.6 mm)
Ø 0.5 in (12.7 mm)	0.04 in (1.0 mm)	0.07 in (1.8 mm)
Ø 0.63 in (16 mm)	0.078 in (2.0 mm)	0.086 in (2.2 mm)
Ø 0.75 in (19 mm)	0.078 in (2.0 mm)	0.094 in (2.4 mm)

Units: inch (millimeter)

Fig. 7.5

6. Place flaring tool onto the flare form. Refer to the table at the bottom of the following page to find the correct flare dimensions for the piping diameter being flared.
7. Turn the handle of the flaring tool clockwise until the pipe is fully flared.
8. Remove the flaring tool and the flare form from the pipe. Inspect the end of the pipe for cracks and that it has been flared evenly.

Refrigerant Piping Connection

Connection Instructions – Refrigerant Piping

Step 4: Connect Pipes

When connecting or bending refrigerant pipes, be careful to avoid using excessive torque or deforming the piping in any way. The low pressure piping should be connected first, then the high pressure piping

MINIMUM BEND RADIUS OF PIPING

When bending connective refrigerant piping, the minimum bending radius is 4 in (10 cm). Be sure not to dent or damage the piping while bending it, as this could negatively affect system performance. Please refer to Fig. 7.6 below.

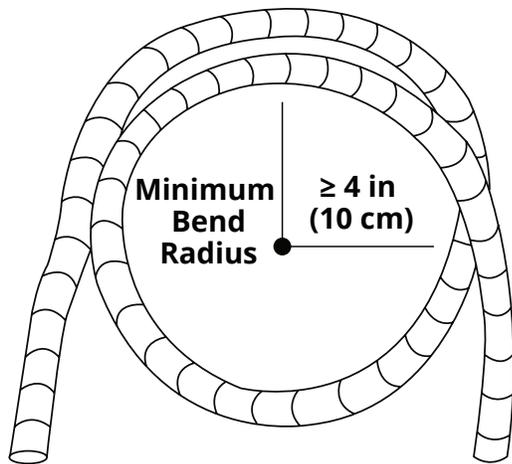


Fig. 7.6

Connect Piping to Indoor Unit

1. Align the center of the two pipes to be connected. Please refer to Fig. 7.7 below.

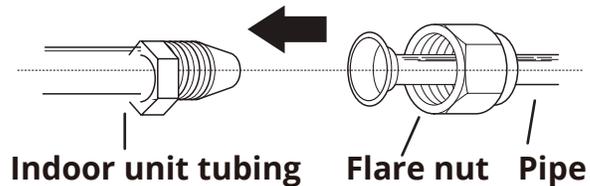


Fig. 7.7

2. Tighten the flare nut as tightly as possible by hand.
3. Using a spanner, grip the nut on the indoor unit tubing.
4. While firmly gripping the nut on the indoor unit tubing with the spanner, use a torque wrench to tighten the flare nut (Refer to Fig. 7.8 below). Continue tightening the flare nut until the specified torque rating in the table below (based on pipe size) is achieved. Then, loosen the flare nut slightly and tighten it again to the specified torque rating.

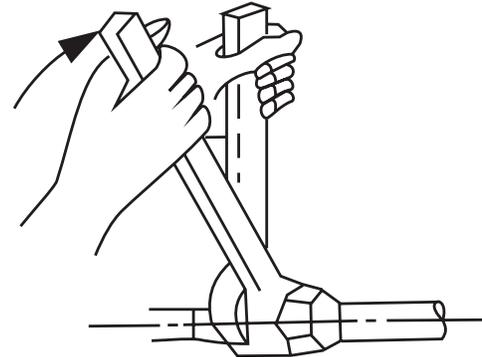


Fig. 7.8

⚠ WARNING

⚠ **DO NOT** use excessive torque when tightening the flare nut. Excessive force can break the nut or damage the refrigerant piping. You must not exceed the torque requirements shown in the table below.

REFRIGERANT PIPING FLARE DIMENSIONS & TORQUE REQUIREMENTS

Outer Diameter of Pipe	Tightening Torque	Flare Dimension (B)	Flare Shape
Ø 0.25 in (6.35 mm)	13.28~14.75 ft•lb (18~20 N•m)	0.33~0.34 in (8.4~8.7 mm)	
Ø 0.375 in (9.52 mm)	23.60~28.76 ft•lb (32~39 N•m)	0.52~0.53 in (13.2~13.5 mm)	
Ø 0.5 in (12.7 mm)	36.14~43.52 ft•lb (49~59 N•m)	0.64~0.65 in (16.2~16.5 mm)	
Ø 0.63 in (16 mm)	42.04~52.37 ft•lb (57~71 N•m)	0.76~0.78 in (19.2~19.7 mm)	
Ø 0.75 in (19 mm)	49.42~74.49 ft•lb (67~101 N•m)	0.91~0.93 in (23.2~23.7 mm)	

Units: inch (millimeter), foot/pounds (newton meters)

Refrigerant Piping Connection

Connect Piping to Outdoor Unit

1. Remove the valve cover from the side of the outdoor unit by unscrewing it. **Refer to Fig. 7.9.**

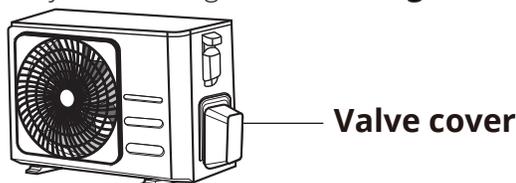
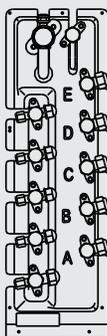


Fig. 7.9

2. Remove the protective caps from the end of each of the valves.

NOTE ON MULTI-ZONE SYSTEMS

If you're installing a multi-zone system, the sets of valves on the outdoor condenser are labeled A,B,C,D,E, etc. The capacities of the air handlers you are installing will determine which valves they should be connected to. The largest capacity air handler should be connected to the "A" port. Then, the next largest capacity air handler should be connected to the "B" port and so on.



3. Align the flared pipe ends with the valves of the outdoor condenser and tighten the flare nut as tightly as possible by hand.
4. Using a spanner, grip the main body of the valve. Do not grip the nut that seals the service valve. **Refer to Fig. 7.10.**
5. While firmly gripping the body of the valve with the spanner, use a torque wrench to tighten the flare nut (**Refer to Fig. 7.10**). Continue tightening the flare nut until the specified torque rating in the table on the previous page (based on pipe size) is achieved.
6. Then, loosen the flare nut slightly and tighten it again to the specified torque rating.
7. Repeat steps 3-6 for the remaining pipe. **NOTE: If installing a multi-zone system, repeat the entire process for each air handler being installed until they are all connected to the condenser.**

IMPORTANT

When tightening the flare nut, use the spanner to grip the main body of the valve. Refer to Fig. 7.10 below. Gripping in any other location could cause damage to the unit, as the torque from tightening the flare nut could cause other parts of the valve to break.

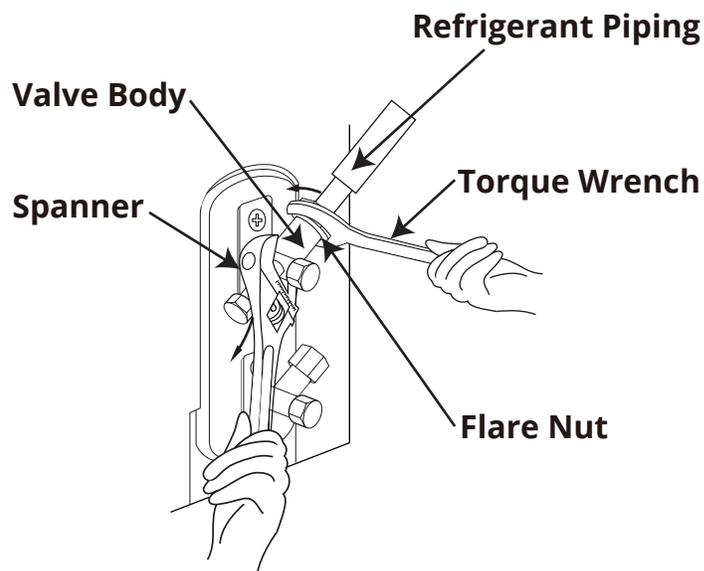


Fig. 7.10

Preparations & Precautions

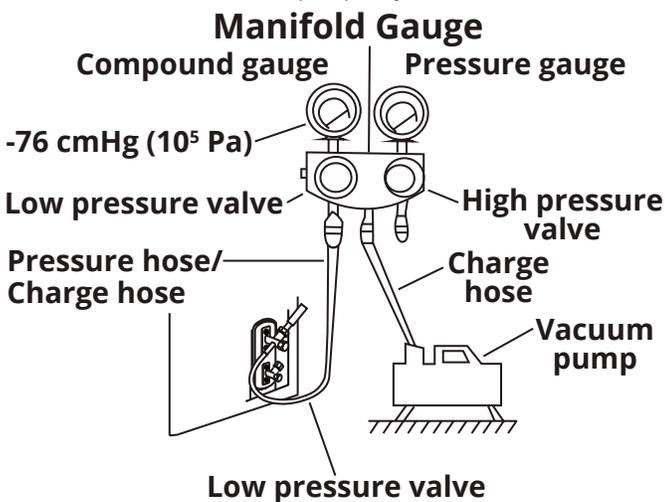
Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the system, reduce its efficiency, and/or cause personal injury. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit and remove any incondensable gas and moisture from the system. **NOTE: Evacuation should be performed upon initial installation or when the unit is relocated.**

BEFORE PERFORMING EVACUATION

- ☑ Check to make sure the refrigerant piping between the indoor and outdoor unit is connected properly and in accordance with the Refrigerant Piping Connection section of this manual.
- ☑ Ensure all wiring is properly connected in accordance with all local & national electrical codes and the wiring diagram located on the back of the outdoor condenser wiring cover .

Evacuation Instructions

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



1. Connect the charge hose of the manifold gauge to the service port on the outdoor unit's low pressure valve.
2. Connect another charge hose from the manifold gauge to the vacuum pump.
3. Open the low pressure side of the manifold gauge. Keep the high pressure side closed.
4. Turn on the vacuum pump to evacuate the system.
5. Run the vacuum for at least 15 minutes, or until the compound gauge reads -76 cmHG (-10⁵ Pa).

6. Close the low pressure side of the manifold gauge, and turn off the vacuum pump.
7. Wait for a duration of 5 minutes, then check that there has been no change in system pressure.
8. If there is a change in system pressure, refer to the Gas Leak Checks section of this manual for more detailed information on how to check the piping and connections for leaks. If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve).
9. Insert an Allen/hexagonal wrench into the packed valve (high pressure valve) and open the valve by turning the wrench 1/4 turn counter-clockwise (Refer to Fig. 8.1). Listen for gas to exit the system, then close the valve after 5 seconds. **If installing a 3, 4, or 5 zone multi-zone condenser, open all of the high pressure valves connected to the air handler piping 1/4 turn counter-clockwise first. Now, open the high pressure main valve 1/4 turn counter-clockwise. Listen for gas to exit the system, then close the main valve after 5 seconds. Then, close all of the other valves. Refer to Fig. 8.2.**

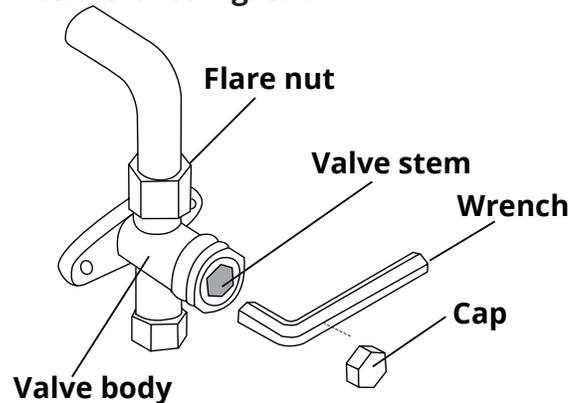


Fig. 8.1

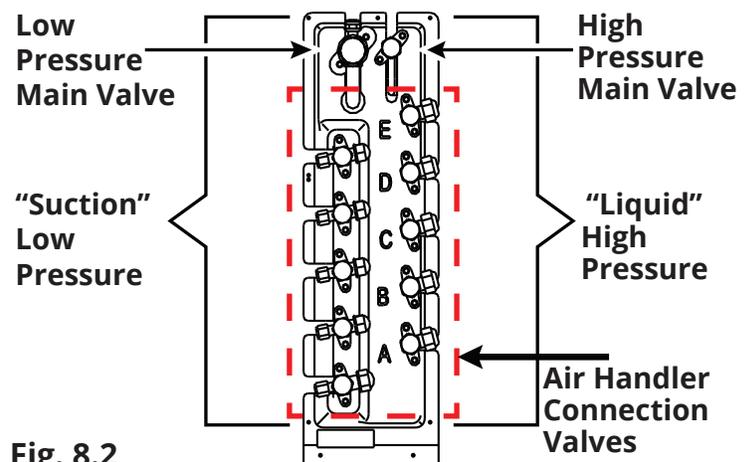


Fig. 8.2

Air Evacuation & Adding Refrigerant

10. Watch the pressure gauge for 1 minute to ensure that there are no changes in pressure. The pressure gauge should read slightly higher atmospheric pressure.
11. If the pressure gauge reads slightly higher than atmospheric pressure, then remove the charge hose from the service port.
12. Remove all of the remaining valve caps. Then, using an Allen/hexagonal wrench, fully open the valves. **If installing a 3, 4, or 5 zone multi-zone condenser, open the air handler connection point valves first. Then open the high pressure and low pressure main valves.**

Note on Adding Additional Refrigerant

Some systems require additional refrigerant to be charged into the system depending upon the length of the refrigerant piping. Standard pipe length varies depending upon the local regulations of the country/region the unit is being installed. For example, in North America, the standard pipe length is 25 ft (7.5 m). In other areas, the standard pipe length is 16 ft (5 m). Any additional refrigerant should be charged into the system from the service port on the outdoor unit's low pressure valve. The additional refrigerant to be charged can be calculated using the information and formula found in the table below.

! IMPORTANT

Open all of the valves gently. When opening the valve stems, turn the Allen/hexagonal wrench until it hits against the stopper.

⊘ **DO NOT** try to force the valve to open beyond the stopper, as this could damage the valve and/or cause it to leak.

13. Reinstall and tighten all of the valve caps by hand. You may tighten them further if necessary using a torque wrench.

! CAUTION

⊘ **DO NOT** under any circumstances mix refrigerant types.

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 0.25 in (ø 6.35 mm) R32: (Pipe length – standard length) x 12 g/m (Pipe length – standard length) x 0.13 oZ/ft R290: (Pipe length – standard length) x 10 g/m (Pipe length – standard length) x 0.10 oZ/ft R410A: (Pipe length – standard length) x 15 g/m (Pipe length – standard length) x 0.16 oZ/ft R22: (Pipe length – standard length) x 20 g/m (Pipe length – standard length) x 0.21 oZ/ft	Liquid Side: Ø 0.375 in (ø 9.52 mm) R32: (Pipe length – standard length) x 24 g/m (Pipe length – standard length) x 0.26 oZ/ft R290: (Pipe length – standard length) x 18 g/m (Pipe length – standard length) x 0.19 oZ/ft R410A: (Pipe length – standard length) x 30 g/m (Pipe length – standard length) x 0.32 oZ/ft R22: (Pipe length – standard length) x 40 g/m (Pipe length – standard length) x 0.42 oZ/ft

For R290 refrigerant unit, the total amount of refrigerant to be charged is no more than:

387g (≤9000 Btu/h), 447g (>9000 Btu/h and ≤12000 Btu/h), 547g (>12000 Btu/h and ≤18000 Btu/h), 632g (>18000 Btu/h and ≤24000 Btu/h).

Before Test Run

Only proceed with performing a test run after you have completed the following steps:

- **Electrical Safety Checks** - Confirm that all of the wiring and electrical connections are secure, safe, and installed in accordance with any and all electrical codes.
- **Gas Leak Checks** - Confirm that the gas and liquid (high & low pressure) valves are fully opened. **If installing a 3, 4, or 5 zone condenser, also ensure the high & low pressure main valves are fully opened.** Then, check and confirm all flare nut connections do not have any leaks by using the leak detection methods described to the right.

Electrical Safety Checks

After installation is complete, confirm that all electrical wiring has been installed in accordance with local and national regulations, and according to this 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 0.1Ω.

NOTE: This may not be required for some locations in North America.

DURING TEST RUN

Check for Electrical Leakage

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

NOTE: This may not be required for some locations in North America.

IF ELECTRICAL LEAKAGE IS DETECTED

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

⚠ WARNING – ELECTRICAL SHOCK RISK

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

Gas Leak Checks

There are two different methods to check for gaseous leaks. Use **Fig. 9.1** below as a guide for the critical points to check for leaks.

Soap and Water Method

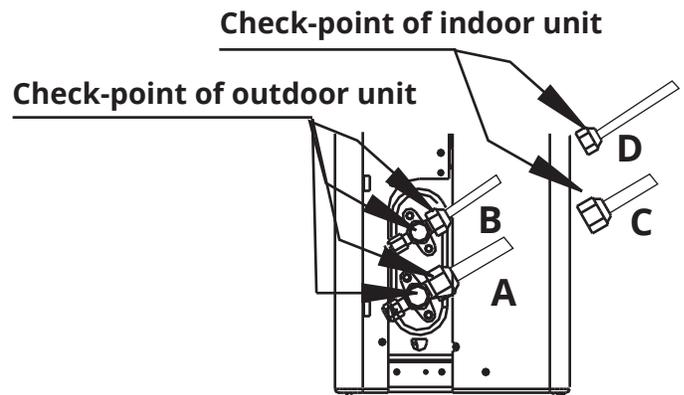
Using a soft brush or spray bottle, apply a soapy water solution to all of the pipe connection points of the indoor and outdoor units, watching to see if any bubbles form. The presence of bubbles indicates there is a leak.

Leak Detector Method

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

AFTER PERFORMING GAS LEAK CHECKS

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



**A: Low pressure stop valve
B: High pressure stop valve
C & D: Indoor unit flare nuts**

Fig. 9.1

NOTE: The illustration shown above in Fig. 9.1 is for demonstration purposes only. The connection points of a single zone condenser are pictured. If installing a multi-zone condenser be sure to check all of the indoor and outdoor unit connection points and piping for leaks.

Before Test Run

WARNING

Failure to perform the test run could result in damage to the unit, property, or personal injury. Only perform test run after you have ensured the following steps have been completed:

- **Electrical Safety Checks** - Confirm that the unit's electrical system is safe and operating properly.
- **Gas Leak Checks** - Check all refrigerant piping/line set connections and confirm that the system is not leaking.
- Confirm that the gas and liquid (high and low pressure) stop valves are fully open. **If the valves are not fully opened before the system is turned on, damage could occur.**

Test Run Instructions

The Test Run should be performed for at least 30 minutes.

1. Connect power to the unit. Then, turn on the main power switch and allow the unit to warm up.
2. Press the **ON/OFF** button on the remote controller to turn on the system.
3. Press the **MODE** button to scroll through the following functions, one at a time:
 - **COOL** - Select the lowest possible temperature
 - **HEAT** - Select the highest possible temperature
4. Let each function run for 5 minutes and then perform all of the system checks listed in the table to the right.
5. After the Test Run has been successfully completed, and you confirm that the system has PASSED all of items on the checklist, perform the following tasks:
 - a. Using the remote control, return the unit to a normal operating temperature.
 - b. Using insulation tape, wrap the indoor refrigerant pipe connections that were left uncovered during the indoor unit installation process.

NOTE: If the unit malfunctions or does not operate correctly, please refer to the Troubleshooting section of this manual before contacting technical support.

Test Run Checklist

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

DOUBLE-CHECK PIPE CONNECTIONS

During operation, the pressure of the refrigerant circuit/piping 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 do not have leaks. Refer to the **Electrical & Gas Leak Checks** section for instructions.

! IMPORTANT

If the ambient temperature is below 63°F (17°C), the remote controller cannot be used to turn on the COOL function. In this instance, you will need to use the MANUAL CONTROL BUTTON to test the COOL function. Follow the steps below to access this function:

1. Lift the front panel of the indoor unit.
2. The MANUAL CONTROL BUTTON is located on the right-hand side of the unit (Refer to Fig 10.1).
3. Press the button 2 times to select the COOL function.
4. Perform Test Run as normal.

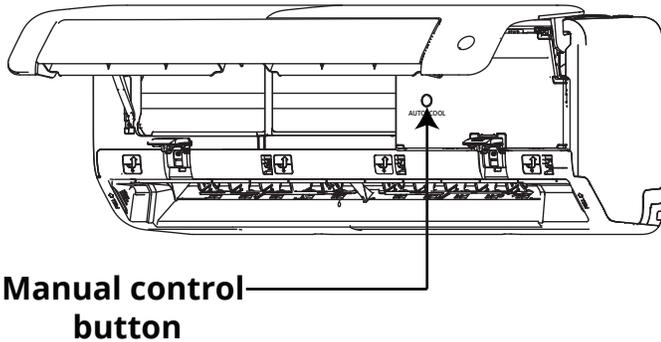


Fig. 10.1

! THANK YOU

Thank you for choosing MRCOOL® for your heating and air conditioning needs.

MRCOOL® is a young, family-owned company, so we are truly thankful you trusted us with your business. Should you ever need technical support, or just have questions about your MRCOOL® product or any of the other products we offer, please do not hesitate to call us at (270) 366-0457.

Also, if you can spare a few minutes today, and leave a review of your new MRCOOL® product on the partner site where you purchased it, it would really mean a lot to us. We are always looking for ways to improve, and real reviews, from actual customers like yourself, are vital and invaluable to our growing company.

Thank you for being a valued customer! We appreciate your business.

Common Issues

The following events may occur during normal operation, and may not indicate a malfunction.

Issue	Possible Causes
Unit does not turn on when pressing ON/OFF button.	The unit has a 3 minute protection feature that prevents the unit from overloading. The unit cannot be restarted within 3 minutes of being turned off.
The unit changes from COOL/HEAT mode to FAN mode.	The unit may change its setting to prevent frost from forming on the unit. Once the temperature increases, the unit will start operating in the previously selected mode again.
	Once the set temperature has been reached, at this point the unit turns off the compressor. The unit will continue operating when the temperature fluctuates again.
The indoor unit emits white mist.	In humid regions, a large temperature difference between the room's air and the conditioned air can cause a white mist to occur.
Both indoor and outdoor units emit a white mist.	When the unit restarts in HEAT mode after defrosting, a white mist may be emitted due to moisture generated from the defrosting process.
The indoor unit makes noises.	The sound of rushing air may occur when the louver resets it's position.
	A squeaking sound may occur after running the unit in HEAT mode due to the expansion and contraction of the unit's plastic parts.
Both indoor and outdoor unit make noises.	A low hissing sound during operation: This is normal and is caused by refrigerant gas flowing through both indoor and outdoor units.
	A low hissing sound when the system starts, has just stopped running, or is defrosting: This noise is normal and is caused by the refrigerant gas changing direction or stopping.
	Squeaking sound: Normal expansion and contraction of the plastic and metal parts caused by temperature changes during operation can cause squeaking noises.
The outdoor unit makes noises.	The unit will make different noises based on which mode it is currently operating in.
Dust is emitted from the indoor or outdoor unit.	The unit may accumulate dust during extended periods of not being used, which will be emitted when the unit is turned on. This can be mitigated by covering the unit during any long periods of inactivity.
The unit emits a bad odor.	The unit may absorb odors from the environment (such as furniture, cooking, cigarettes, etc.) which will be emitted during operations.
	The unit's filters have become moldy and should be cleaned.
Outdoor unit fan does not operate.	During operation, the fan speed is controlled to optimize product operation.
Operation is erratic, unpredictable, or unit is unresponsive.	Interference from cell phone towers and remote boosters may cause the unit to malfunction. If this is the case, try the following: <ul style="list-style-type: none"> • Disconnect the power, then reconnect. • Press ON/OFF button on remote control to restart operation.

NOTE: If problem persists, contact a local dealer or your nearest customer service center. Be sure to provide them with a detailed description of the unit malfunction as well as the model number of your unit.

Troubleshooting

WARNING

In the case of any of the following, turn off the unit immediately!

- Signal/power cable is damaged or abnormally warm
- Burning odor
- Loud or abnormal sounds
- A power fuse or circuit breaker trips frequently
- Water or other objects fall into or out of the unit

DO NOT ATTEMPT TO CORRECT OR FIX THESE ITEMS YOURSELF!

CONTACT AN AUTHORIZED SERVICE PROVIDER IMMEDIATELY!

Before calling for service assistance, troubleshoot a problem by performing the following checks:

Symptom	Possible Causes	Solution
Poor Cooling Performance	Temperature setting may be higher than ambient room temperature.	Lower the temperature setting.
	The heat exchanger on the indoor or outdoor unit is dirty.	Clean the affected heat exchanger.
	The air filter is dirty.	Remove the filter and clean it according to the instructions.
	The air inlet or outlet of either unit is blocked.	Turn the unit off, remove the obstruction and turn it back on.
	Doors and windows are open.	Ensure all windows and doors are closed while operating the unit.
	Excessive heat is generated by sunlight.	Close windows and curtains during periods of high heat or bright sunshine.
	Too many other sources of heat in the room (people, computers, electronics, etc.).	Reduce the amount of heat sources.
	Low refrigerant due to a leak or long-term use.	Check for leaks, reseal if necessary and top off the refrigerant level.
	SILENCE function is activated (optional feature).	The SILENCE function can lower product performance by reducing operating frequency. Turn off the SILENCE function.
The unit is not working	Power failure.	Wait for power to be restored.
	The power is turned off.	Turn on the power.
	The fuse is burned out.	Replace the fuse.
	Remote control batteries are dead.	Replace the batteries.
	The unit's 3 minute protection feature has been activated.	Wait three minutes after restarting the unit.
	Timer is activated.	Turn timer off.
The unit starts and stops frequently	There's too much or too little refrigerant in the system.	Check for leaks and recharge the system with refrigerant.
	Incompressible gas or moisture has entered the system.	Evacuate and recharge the system with refrigerant.
	The compressor is broken.	Replace the compressor.
	The voltage is too high or too low.	Install a manostat to regulate the voltage.

Troubleshooting

Symptom	Possible Causes	Solution
Poor heating performance	The outdoor temperature is extremely low.	Use auxiliary heating device.
	Cold air is entering through doors and windows.	Make sure that all doors and windows are closed during use.
	Low refrigerant due to leak or long-term use.	Check for leaks, re-seal if necessary, and top off refrigerant.
Indicator lamps continue flashing	The unit may stop operation or continue to run safely. If the indicator lamps continue to flash or error codes appear, wait for roughly 10 minutes. The problem may resolve itself. If not, disconnect the power, then connect it again. Turn the unit on. If the problem persists, disconnect the power and contact your nearest customer service center.	
Error code appears and begins with the letters, as shown below in window display of the indoor unit: <ul style="list-style-type: none"> • E(x), P(x), F(x) • EH(xx), EL(xx), EC(xx) • PH(xx), PL(xx), PC(xx) 		

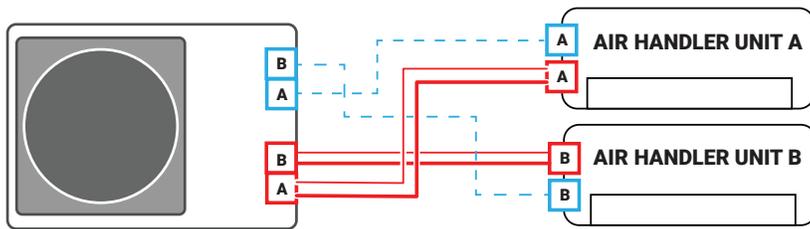
NOTE: If the problem you are experiencing persists after the checks and diagnostics listed in this chapter are completed, turn off the unit immediately and contact MRCOOL® or an authorized service center.

Self-Correction Function (Multi-Zone Models ONLY)

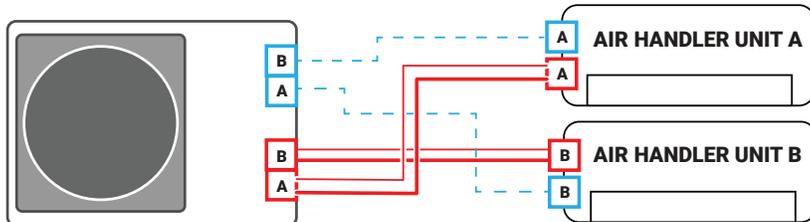
Multi-Zone condensers have a self-check function for wiring-to-piping association errors. Press the "check switch" on the outdoor unit PCB board for 5 seconds until LED displays "CE". Approximately 5 to 10 minutes after the switch is pressed, the "CE" will disappear when the wiring and piping have been reorganized and the error is corrected. Refer to Fig. 11.1.

NOTE: This function only works in situations where either all of unit A Air Handler wiring has been connected to the terminals of the condenser meant for the unit B Air Handler or all of unit B Air Handler wiring has been connected to the unit A Air Handler terminals of the condenser. This scenario also assumes that the indoor unit wiring is connected correctly. There can be no cases of a partial association mismatch, such as a cross terminal/partial wiring mismatch or one side of the refrigerant system being crossed between handlers. Refer to Fig. 11.2.

CORRECT CONNECTION



INCORRECT - CONNECTION CAN BE CORRECTED



NO OTHER CORRECTABLE COMBINATIONS

(gas/liquid lines cannot be mixed between units)

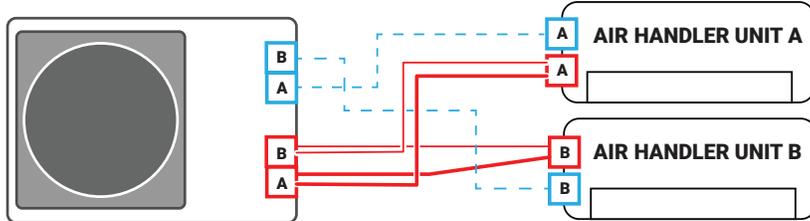


Fig. 11.2

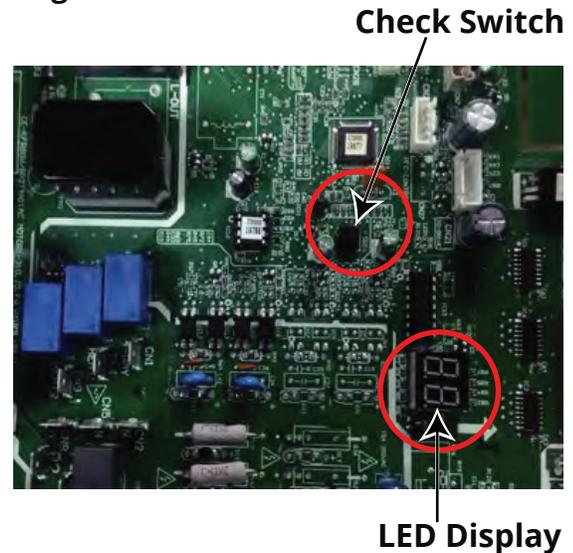
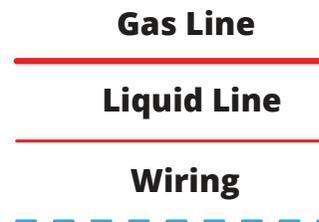


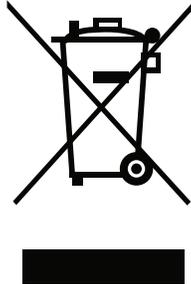
Fig. 11.1



Operating Instructions of Self-Correction Function

1. Check that outside temperature is above 41°F (5°C). This function will not work when outside temperatures are at or below 41°F (5°C).
2. Check that the stop valves of the liquid pipe and gas pipe are fully opened.
3. Turn on the breaker and wait at least 2 minutes.
4. Press the check switch on the outdoor unit PCB board until the LED displays "CE".
5. In circumstances where the wiring for one unit is mismatched with the piping of the other, the system will correct itself, reorganizing the wiring to the associated piping.
6. After 5 to 10 minutes, if the system has corrected itself, the "CE" will disappear from the display. If the system did not correct itself, then the system will have to be shut down and the piping/wiring will need to be re-checked against the manual to find the wiring corrections that will need to be made.

The marking shown below, when depicted on the product or its literature, indicates that electrical waste and electrical equipment should not be mixed with general household waste.



Correct Disposal of This Product (Electrical Waste & Electronic Equipment)

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

Special notice

Disposing of this appliance in the forest or 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.



MRCOOL®

COMFORT MADE SIMPLE

Olympus Series

Single-Zone (Hyper Heat & E-Star) & Multi-Zone Models

Due to updates and constantly improving performance, the information and instructions within this manual are subject to change without notice. Please visit www.mrcool.com/documentation to ensure you have the latest version of this manual.