

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

Installation & Owner's Manual



MRCOOL®

COMFORT MADE SIMPLE

DIY® Ceiling Cassette

Model - DIYCASSETTE**HP-230C25

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.

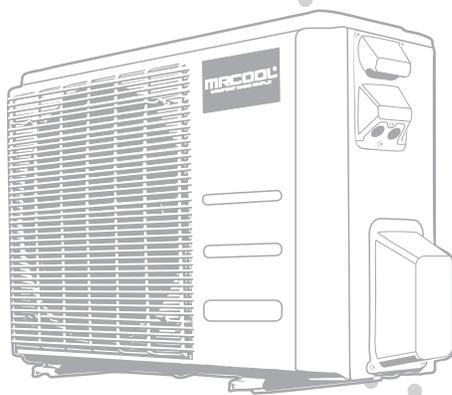
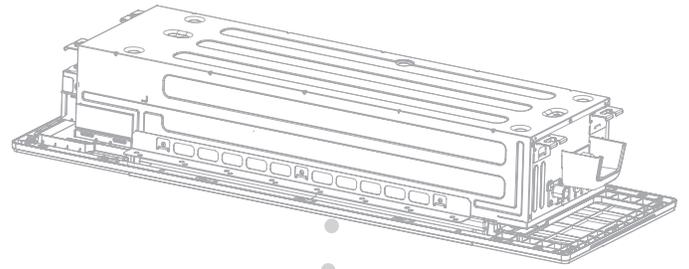
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DISCLAIMER: You are assuming risk by handling materials containing refrigerants under pressure, that if not handled properly, can cause bodily injury. If you do not feel comfortable conducting this installation process, we recommend you retain the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

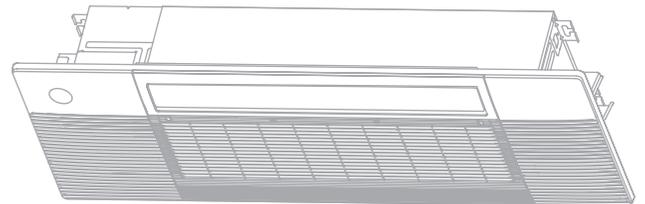
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*Pat. <https://mrcool.com/mrcool-patents/>

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

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 performing this installation process, we recommend you retain the services of a qualified HVAC professional.

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

- ⊘ **DO NOT** share the electrical circuit with other appliances. You must use an independent power supply. An improper or insufficient power supply could cause fire or electrical shock.
- ⊘ **DO NOT** allow any substances or gases to enter the unit when connecting the refrigerant piping. The presence of other gases or substances will lower the unit's capacity, and may cause abnormally high pressure during the operation cycle. This could cause an explosion and/or injury.
- ⊘ **DO NOT** allow children to play with the air conditioner. Children should be supervised around the unit at all times.
- ⊘ **DO NOT** insert your fingers, rods, or other objects into the air inlet or outlet. The fan within the unit could be rotating at high speeds and could cause injury.
- ⊘ **DO NOT** use flammable sprays such as hair spray, lacquer, or paint near the unit. These could cause fire and/or an explosion.
- ⊘ **DO NOT** operate the unit in places where it could be exposed to or near combustible gas. Emitted gas could collect around the unit and cause an explosion.
- ⊘ **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). Too much exposure to water can cause electrical components to short circuit.
- ⊘ **DO NOT** expose your skin or body directly to the cool air coming from the unit for a prolonged period of time.
- ⊘ **DO NOT** install the unit within 3 ft (1 m) of any combustible gas if the unit is equipped with an auxiliary heater.
- ⊘ **DO NOT** operate the air conditioner with wet hands. This could cause electrical shock.
- ⊘ **DO NOT** turn on the power until the installation has been completed.

WARNING

- ① ***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 can damage it, which could lead to fire and/or electric shock.
- ② ***DO NOT*** modify the length of the power supply or use an extension cord to power the unit.
- ③ ***DO NOT*** open or remove the unit's panel while the unit is powered on. Touching the unit's internal components while the unit is powered on could lead to electric shock or injury from moving parts such as the fan.
- ④ ***DO NOT*** spray any liquids onto the unit or allow any liquids to drip onto the unit.
 1. Installation must be performed according to the installation instructions. Improper installation could cause water leakage, electrical shock, fire, and could void the warranty.
 2. 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.
 3. In North America, service or repair must be performed in accordance with the requirements of NEC and CEC (by authorized personnel or authority having jurisdiction only). Contact an authorized service technician for repair or maintenance of the unit.
 4. Only use the included accessories and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and may cause the unit to fail.
 5. Install the unit in a firm, stable location that can support its weight. If the installation location cannot support the weight of the unit, it could fall and cause serious injury and/or damage.
 6. Appropriate wiring standards, regulations, local codes, and the installation manual must be followed for all electrical work.
 7. 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.
 8. 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.
 9. All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion, which can cause the connection points on the terminal to overheat, which could result in fire and/or electric shock.
 10. In certain functional environments (such as kitchens and server rooms etc.), the use of specially designed air-conditioning units is highly recommended.
 11. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person in order to avoid a hazard.
 12. 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. Children should not play with the appliance. Cleaning and user maintenance should not be performed by children.
 13. If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room in order to avoid an oxygen deficiency.
 14. Contact an authorized service technician for repair or maintenance of this unit.
 15. Install drainage piping according to the instructions in this manual. Improper drainage may cause water damage to your home and property.
 16. When moving or relocating the air conditioner, consult experienced service technicians for disconnection and re-installation of the unit.

Safety Precautions

WARNING

17. The product must be properly grounded during installation or electrical shock could occur.
18. For more information on how to install the appliance to its support, please refer to the indoor unit installation and outdoor unit installation sections of this manual.
19. Keep the power plug clean and remove dust or grime that accumulates around the plug. A dirty plug could cause fire or electric shock.
20. Dispose of this unit's packaging carefully and ensure children do not play with it. The packaging for this unit, especially plastic components, can be dangerous and can cause serious injury or death. Screws, staples, and other metal packaging components can be sharp and can also cause injury.
21. The refrigerant in the unit is safe and should not leak if the system is installed properly. However, in the event that a large amount of refrigerant leaks into a room, the oxygen concentration will decrease rapidly. This can cause serious injury or death. The refrigerant is heavier than air, so the danger is greater in basements or other underground spaces. Should a refrigerant leak occur, turn off any devices that produce a naked flame and any heating devices (toxic fumes could be produced if refrigerant comes in contact with them), ventilate the room, and contact your supplier or service technician immediately.

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* use the 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. Some parts of the unit are very sharp and can cause injury if touched. To prevent this, always wear gloves when installing or servicing the unit.
 4. Ensure water condensate from the unit can flow freely through the condensate drain pipe.

NOTE ON 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.

TAKE NOTE OF FUSE SPECIFICATIONS

The air conditioner's circuit board (PCB) is designed with a fuse to provide over-current protection. The specifications of the fuse are printed on the circuit board. Examples of this include, T5A/250VAC and T10A/250VAC.

NOTE ON INSTALLATION

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

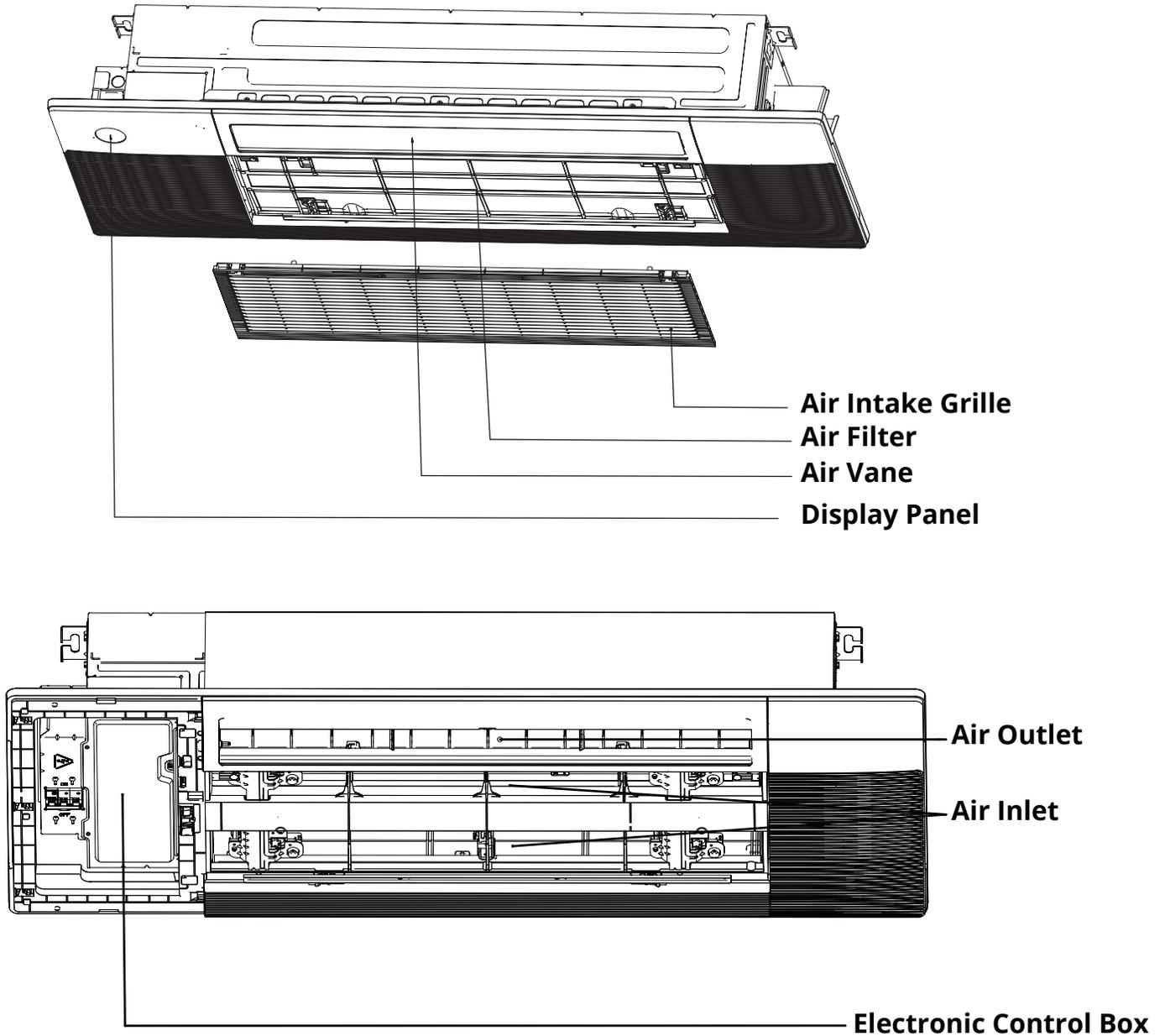


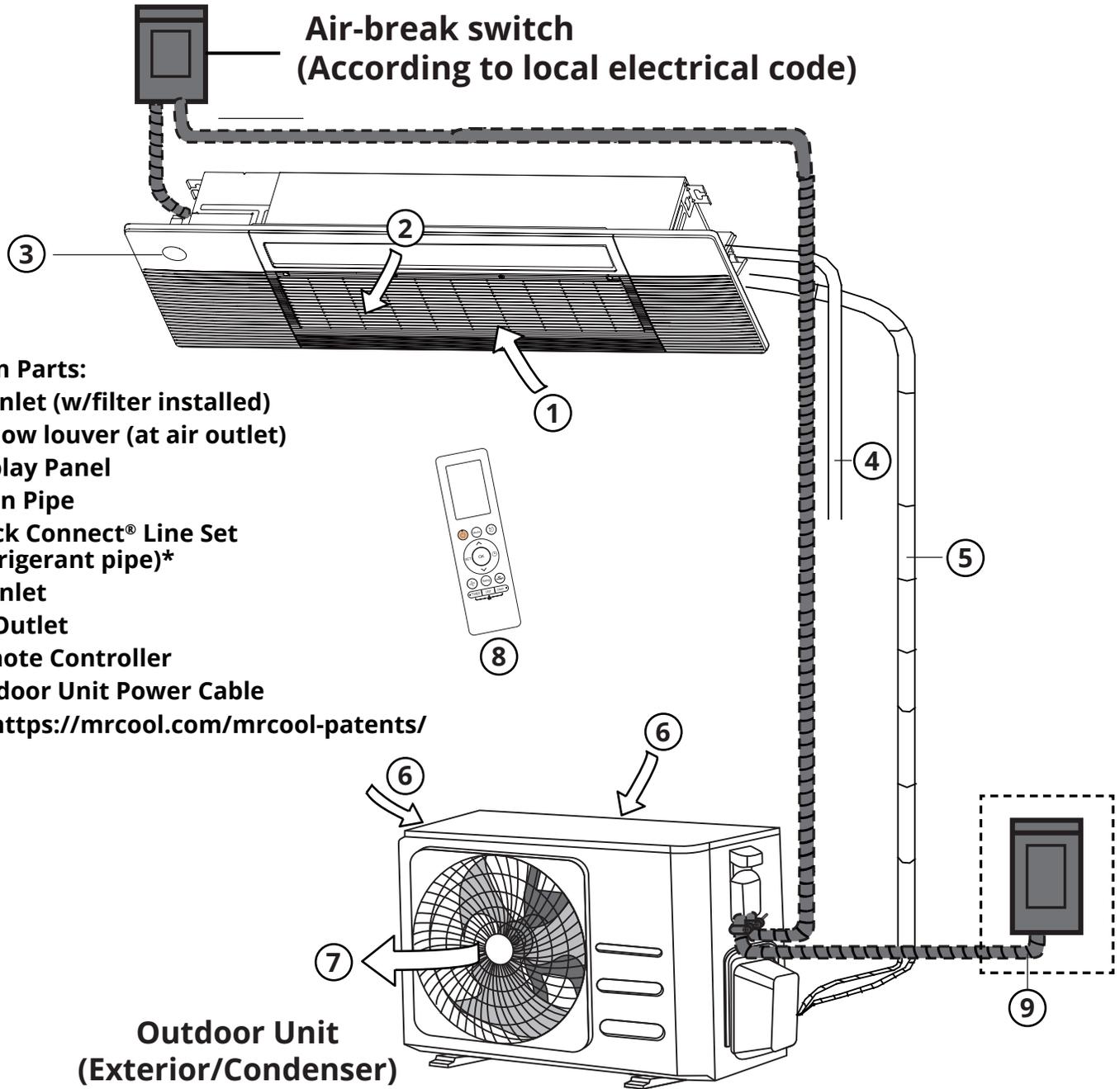
Fig. 1.1

NOTE ON ILLUSTRATIONS

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

Overview - System Diagram

Indoor Unit (Interior/Cassette)



NOTE ON INSTALLATION OF A DIY SINGLE-ZONE OR MULTI-ZONE SYSTEM

Please read this instruction manual fully before you attempt to install the cassette as part of a single-zone or multi-zone system. There are many considerations to make installing either system. However, because there are multiple units, pipes, and lines to be installed in different locations, and heating/cooling zones to consider in a multi-zone system, planning your installation is extremely important in order to help prevent any potential problems. Taking proper measurements is also vital to determine the line set lengths needed to connect the indoor units to the outdoor unit. If you find the standard line set length is not sufficient for your application, you may need to purchase additional line sets and coupler kits. It should be noted that in a multi-zone system, with multiple line sets, the line sets may need to be run to a central location, such as an attic, basement, or crawlspace, and have them exit the house (to the outdoor unit) from that location.

Overview - Indoor Unit Display

Display Panel

The display panel of the indoor unit will look similar to illustration below.

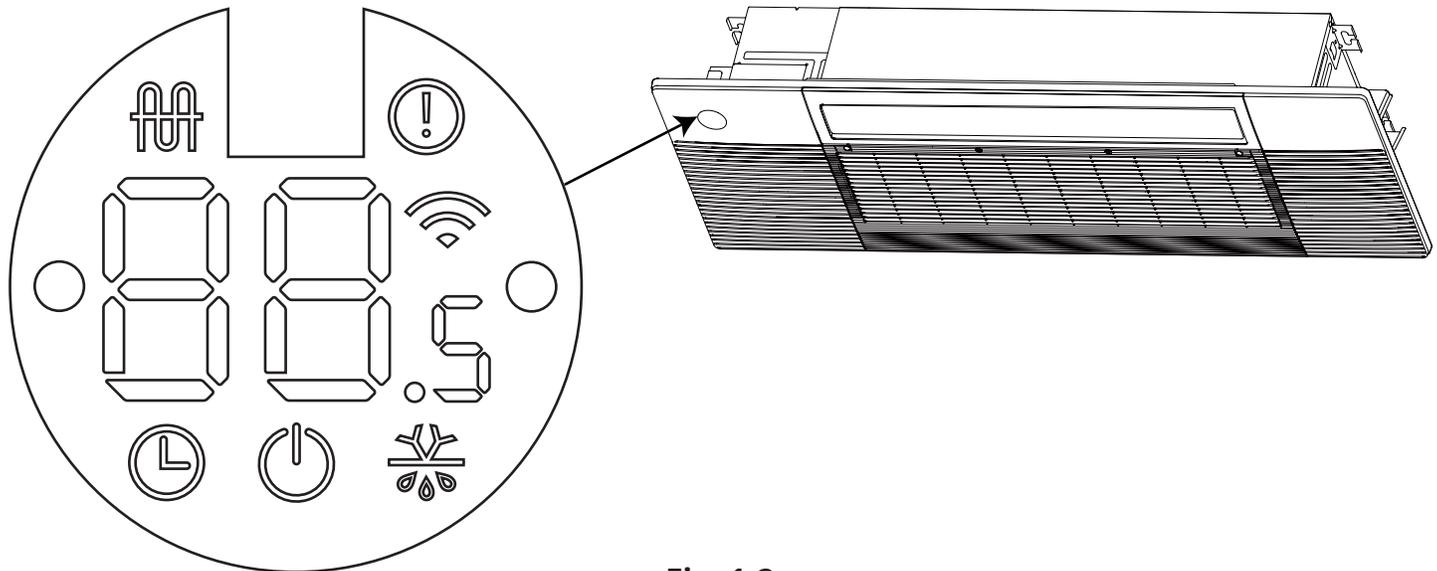


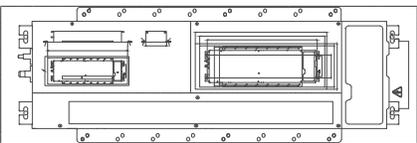
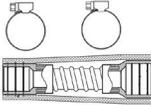
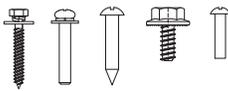
Fig. 1.2

Display Code Meanings

-  Will display when the electric heating function is activated (not available on this unit).
-  Will display when the timer is activated.
-  Will display when the unit is powered on.
-  Alarm indicator.
-  Will display when the Wireless Control feature is activated (some units).
-  Will display when preheating/defrost feature is activated.
- 88.5** Displays set temperature reading, operation feature, and error codes.
- FP** Will display when the heating feature is activated in a room with a temperature under 46°F (8°C).
- CL** Will display when the Active Clean feature is activated.
- AP** Will display when WIFI module enters AP mode (some units).
- FC** Will display when forced cooling feature is activated.

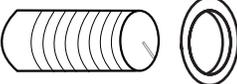
Accessories

The listing below shows the accessories and parts (these may vary depending on purchase & options). Some of the parts listed as optional may be included in the packaging for the condenser all others will need to be purchased separately. 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
Cardboard Installation Template		1
Remote control		1
AAA Batteries		2
Cable Ties		6
Drain Pipe Adapter (w/clamps)		1
Assembly & Installation Hardware Kit (Screws: ST8*50, M4*22, ST3.9*16, ST4.8*12, ST3.9*10)		1 (8, 8, 2, 2, 3)
Water Receiver Tray		1
DIYPRO™ Cable		1
Drain Joint		1
Insulation Sleeves		2
Seal		1
Sound Deadening Pads		2
Cassette Panel		1

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

Accessories

PART	LOOKS LIKE...	QUANTITY
Plastic Wall Sleeve & Cap (included with condenser)		1
Quick Connect® Line Set (refrigerant pipe)* Line Set Sizes Include: 16 ft & 25 ft		Depends on Purchase
Neoprene (included with condenser)		1 (Sealant for Wall Hole)
Rubber Ring (optional)		1
Wireless Controller Module (WiFi)		1

Note: Illustrations are for explanatory purposes only - The actual shape and size may vary. The installation of this product, as described in this manual, may require additional items or tools to complete the installation which need to be purchased separately. Such as the drain pipe (PVC tube with a 3/4 in (19.05 mm) exterior diameter, length dependent on needs of application) which can be found at a local hardware store or dealer. Please read this manual entirely and ensure you have everything required on-hand before you begin the installation!

*Pat. <https://mrcool.com/mrcool-patents/>

Operating Temperature Ranges

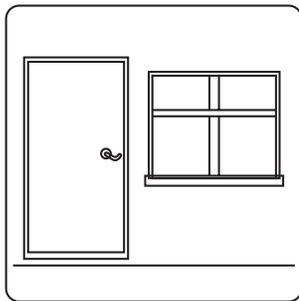
The table below represent the normal temperature ranges the unit is designed to operate in. If the unit is operated outside of these ranges, certain safety protection features could activate and cause the unit to disable or operate abnormally.

	COOL Mode	HEAT Mode	DRY Mode
Room Temperature	61°F - 90°F (16°C - 32°C)	32°F - 86°F (0°C - 30°C)	50°F - 90°F (10°C - 32°C)
Outdoor Temperature	-13°F - 122°F (-25°C - 50°C)	-13°F - 75°F (-25°C - 24°C)	32°F - 122°F (0°C - 50°C)

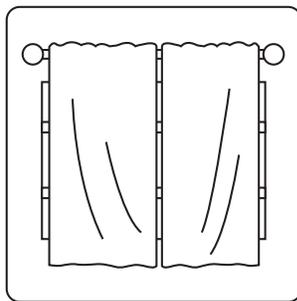
NOTES:

- 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 airflow louver to its maximum angle, 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 or disable.

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/ECONOMY** mode if applicable.
- Inspect and clean the air filter every two weeks.

! CAUTION

- ⊘ **DO NOT** put your fingers into the panel of the blower and suction side. The high speed fan inside may cause injury.

Basic Operation Modes:

AUTO / COOL / DRY / HEAT / FAN (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.

COOL Mode:

When unit is set in **COOL** mode, it puts the system into the cooling operation. It will continually cool the room until the it reaches the temperature set on the display.

DRY Mode:

The temperature is regulated while dehumidifying by intermittently switching the **COOL** or **FAN** 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.

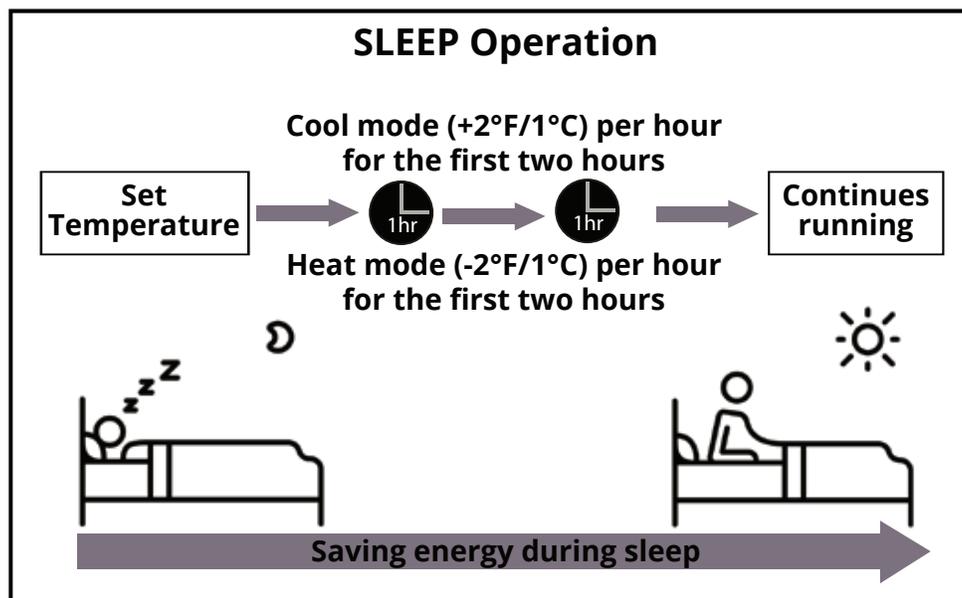
FAN Mode:

When the unit is put into **FAN** mode, the **HEAT** or **COOL** modes are deactivated and only the fan operates. The fan continually recirculates the air in the room.

Special Features & Functions:

SLEEP Mode:

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 and return to the original temperature before it was activated.



Special Features & Functions (continued):

Refrigerant Leakage Detection System:

If a refrigerant leak should occur, the LED display will show a refrigerant leak error code and the LED indicator light will flash.

Louver Angle Memory Functions (optional):

Some models are equipped with a louver angle memory function. When the unit restarts after a power failure, the angle of the horizontal louvers will automatically to their previous position. **NOTE: To reset the louver, press the manual button, which will reset the louver settings.**

CAUTION

 **DO NOT** set the angle of the horizontal louver too narrow, as this could cause condensation to form and drip into the unit.

Three-Minute Protection Feature:

This is a protection feature that will prevent the air conditioner from being activated for approximately 3 minutes when it is restarted immediately after being turned off. This is to prevent the compressor from being damaged during a quick restart.

Auto-Restart:

In the event of a power interruption, such as a blackout, the unit will immediately stop. When power is restored, the operation light on the cassette will begin to flash. To restart the unit, press the ON/OFF button on the remote control.

- **If the system has an auto restart function**, the unit will restart using the settings before the outage occurred.
- **If the unit is not equipped with an auto-restart function**, the system will revert back to the factory default settings (**AUTO** mode, **AUTO** fan, and a temperature setting of 76°F (24°C)). This may cause inconsistencies on the remote control and unit display panel. Use the remote control to update the settings.

Active Clean Function:

This function actively washes away dust and dirt that can collect on the heat exchanger within the cassette. It functions by operating to create more condensate (water) on the heat exchanger. Then it will automatically freeze the condensate on the heat exchanger and rapidly thaw the frost to wash away the debris that has collected. The fan will operate to blow out the cold air created. Once the dust and dirt have been washed away, the fan will continue to spin to blow dry the evaporator with hot air. When this function is activated, the letters **CL** will appear in the display panel. The process will take anywhere from 20 to 130 minutes to complete. Once it is complete, the unit will automatically shut off and cancel the Active Clean function.

NOTE: During this operation a pinging sound may be heard coming from the unit.

CAUTION

 **DO NOT** stand near the air outlet of the unit while the Active Clean function is occurring. For some units, the air outlet temperature will be very high.

Wireless Smart Control Function (optional):

Connect the wireless control module via the USB port inside the left access panel of the cassette. Please refer to the **Indoor Unit Installation** section of this manual for more detailed instructions. This will allow the unit to be controlled by the remote control and/or the smartphone app.

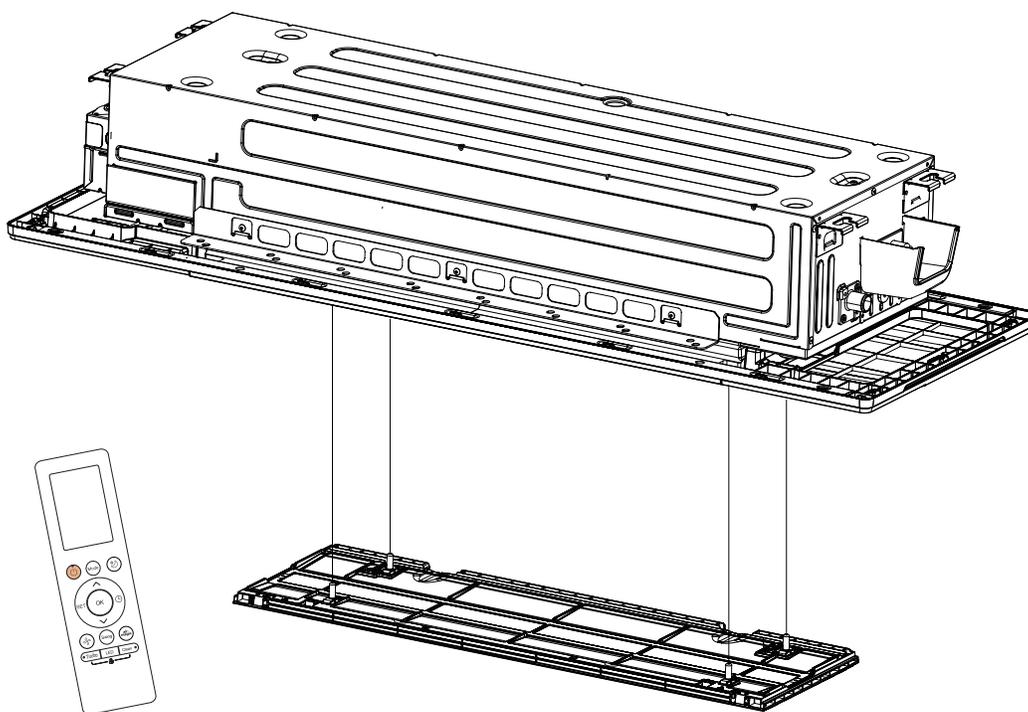
Special Features & Functions (continued):

Automated Panel Drop Function:

This unit is equipped with four electric motors which raise and lower the air intake grille, which houses the air filter. This function allows for easy access to the air intake grille and filter for cleaning or replacement if necessary. The grille can be lowered to a maximum of 4.9 ft (1.5 m) from the ceiling cassette. Below are instructions of how to raise and lower the panel while using the remote control. For more detailed instructions of this operation and cleaning the filter, please refer to the **Care & Maintenance** section of this manual.

Panel Drop Operation:

- 1.) While in stand-by mode, press and hold the **MODE** and **DOWN** buttons on the remote control simultaneously for 3 seconds. This will allow you to enter the panel setting mode. When this mode is accessed the remote controller will display **F2**.
- 2.) While in the panel setting mode use the **UP** or **DOWN** buttons to raise or lower the air intake grille, respectively.
- 3.) Press any button to exit the panel setting mode.



! CAUTION

- ⚠ **DO NOT** allow obstacles to get in the path of the panel while it is being raised or lowered. If the panel comes into contact with an obstruction that causes it to raise while it is being lowered, it will stop. If the panel comes into contact with an obstruction while being raised and is not fully retracted, it will automatically lower after a period of time and then try to rise again. If this occurs three times an error code will display and prompt you to correct this manually. **NOTE:** The unit will not function until the obstruction is removed and the panel is fully retracted and seated in the cassette faceplate.

! CAUTION

The power supply must be disconnected before attempting any kind of service and most cleaning procedures (removal and cleaning of the air filter is the only exception)!

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** attempt to perform any repairs on the unit. Contact an authorized service technician. Improper repair could cause water leakage, electrical shock, fire, and could void the warranty.
- ⊘ **DO NOT** substitute a blown fuse with a higher or lower amperage fuse than what is specified for your application. Using an improperly rated fuse could cause circuit damage and/or an electrical fire.
- ⊘ **DO NOT** operate the unit or perform any maintenance if the drain hose is not installed and set up properly according to the instructions. Failure to do this could result in leakage, property damage, fire, and/or electric shock.
- ⊘ **DO NOT** operate the unit or perform any maintenance if the wires are not connected properly according to the instructions. Failure to properly connect the wires could result in electrical shock and/or fire.

Cleaning the Unit:

Wipe the unit with a soft dry cloth. If the unit is very dirty, clean it with a damp, lint-free cloth soaked in warm water and neutral detergent. Dry the unit with a dry, lint-free cloth.

! CAUTION

- ⊘ **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 or wash the unit under running water, as it could create an electrical hazard.
- ⊘ **DO NOT** use a chemically treated cloth or duster to clean the unit.
- ⊘ **DO NOT** clean the unit with combustible cleaning agents. These could cause fire and/or deformation of the unit.
- ⊘ **DO NOT** wash the front panel with water hotter than 104°F (40°C). Doing this could cause the panel to deform or become discolored.
- ⊘ **DO NOT** use water to clean the inside of the unit. This can destroy the insulation and cause electric shock.



Cleaning the Air Filter:

The air filter prevents dust and other particles from entering the indoor unit. Dust buildup can reduce the efficiency of the unit. For optimum efficiency, clean the air filter every two weeks. If you live in a dusty area, it may be necessary to clean the filter more frequently. In the event the air filter is heavily clogged and cannot be cleaned, it is recommended to replace it with a new one.

NOTE: In households that have pets or other animals, it will be necessary to periodically wipe down the air intake grille on the unit to remove any animal hair that could block or restrict airflow.

! CAUTION

- ⊘ **DO NOT** expose the filter to direct sunlight when allowing it to dry. This could cause the filter to shrink.
- ⊘ **DO NOT** attempt to dry out the filter with fire or any other heat source.
- ⊘ **DO NOT** touch the metal parts of the unit when removing the filter. The sharp edges could cut you.

Directions to Access, Remove, & Clean the Air Filter

1. The air filter of the cassette is located inside the air intake grille of the unit. In order to gain access to the filter, you will have to lower the air intake grille using the remote control.
2. With the unit in stand-by mode, press and hold the **MODE & DOWN** buttons simultaneously for 3 seconds. This will allow you to enter the panel setting mode. The remote control should display **F2**.
3. Then, press the **DOWN** button on the remote control. The air intake grille will automatically start lowering. Wait until it stops before attempting to remove the air filter (**Refer to Fig. 3.1**).
4. Remove the filter from the air intake grille by following these steps (**Refer to Fig. 3.2**):
 - a. Hold the upper edge of the filter with both hands and gently lift upward until the upper edge is free from the air intake grille lowering cables.
 - b. Lift the filter and move it forward slightly until the filter screen is separated from all four lowering cables.
 - c. Move the filter to the right until it is separated from the air grille. Then it can be taken out for cleaning.
5. The air filter can be cleaned by using a vacuum cleaner or rinsing it with water (**Refer to Fig. 3.3**).
 - a. If using a vacuum cleaner, ensure the air intake side of the filter is face up, as that is the side that will trap the dust and debris.
 - b. If rinsing the filter with water, ensure the air intake side of the filter is facing down and the water runs on the back side. This will effectively rinse the dust and debris from the filter.
6. Reinstall the filter by reversing step 4.
7. Press the **UP** button on the remote control to raise the air intake grille back into place.

NOTE: For filters that have collected excessive amounts of dust, it may be necessary to use a soft brush and neutral detergent to gently brush it away. Once clean, allow to dry in a cool place.

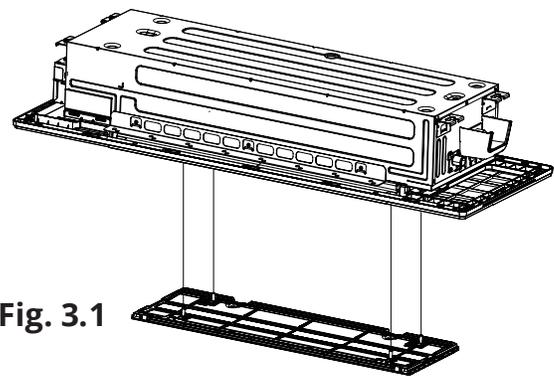


Fig. 3.1

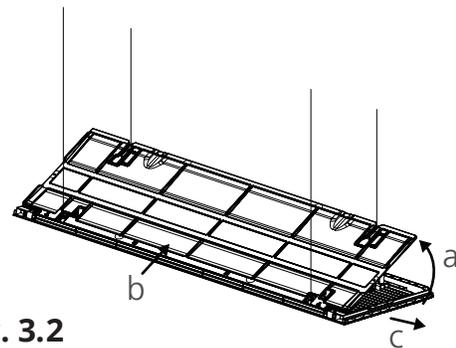


Fig. 3.2

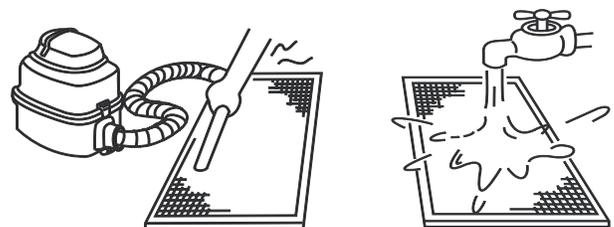
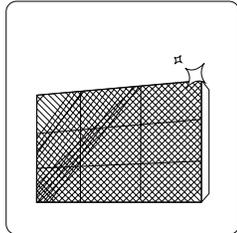


Fig. 3.3

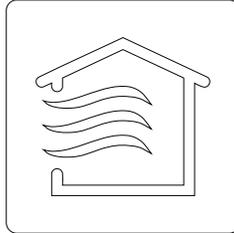
Preparation for Extended Non-Operation:

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:

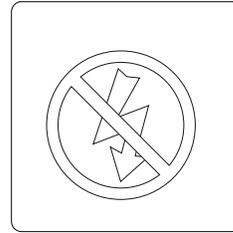
1. Clean the indoor unit and filters as outlined in the previous steps.
2. Operate the unit in **FAN-Only** mode for at least 8 hours to dry out the inside of the unit.
3. Turn off the unit. Then, turn off the power to the circuit at the breaker. The unit should be the only appliance on this circuit.
4. Remove the batteries from the remote control.
5. The outdoor unit also requires periodic maintenance. However, it is highly recommended you contact a qualified service professional to perform this. Please **DO NOT** attempt to do this on your own.



Clean all filters



Turn on FAN function until unit dries out completely

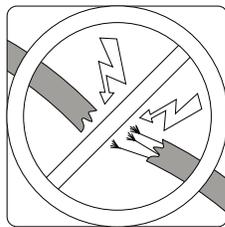


Turn off the unit and disconnect the power

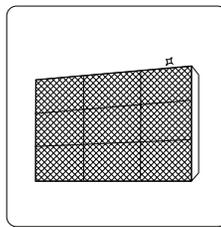
Pre-Season Inspection:

After prolonged non-operation perform the following:

1. Use a dry cloth to wipe off any dust that has accumulated on the air intake grille. This will avoid any dust from being dispersed from the indoor unit.
2. Check for any damaged or disconnected wires.
3. Clean or replace the filters and ensure they are properly installed.
4. Check for water and oil leaks.
5. Check for blockages in the airflow inlet and outlet.
6. Replace batteries in the remote control.



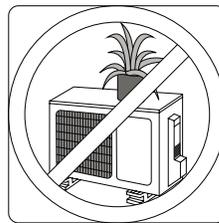
Check for damaged wires



Clean all filters



Check for leaks



Make sure no obstructions are blocking air inlets and outlets

Fig. 4.1 Face Plate (bottom view when installed in ceiling)

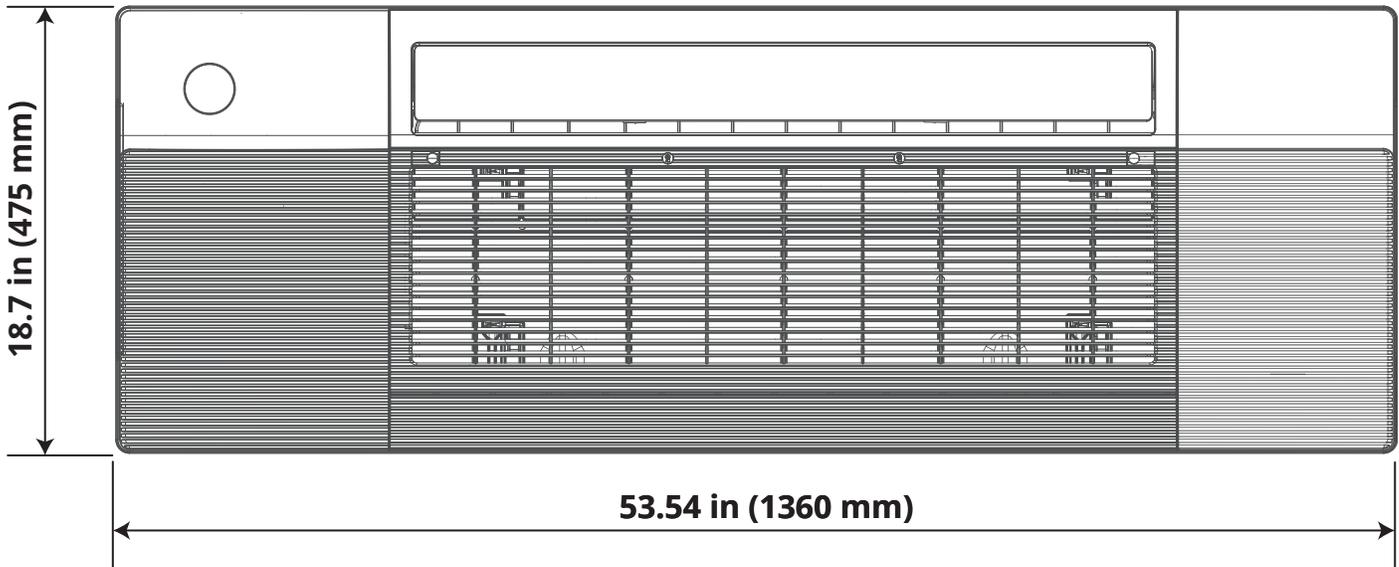


Fig. 4.2 Side View

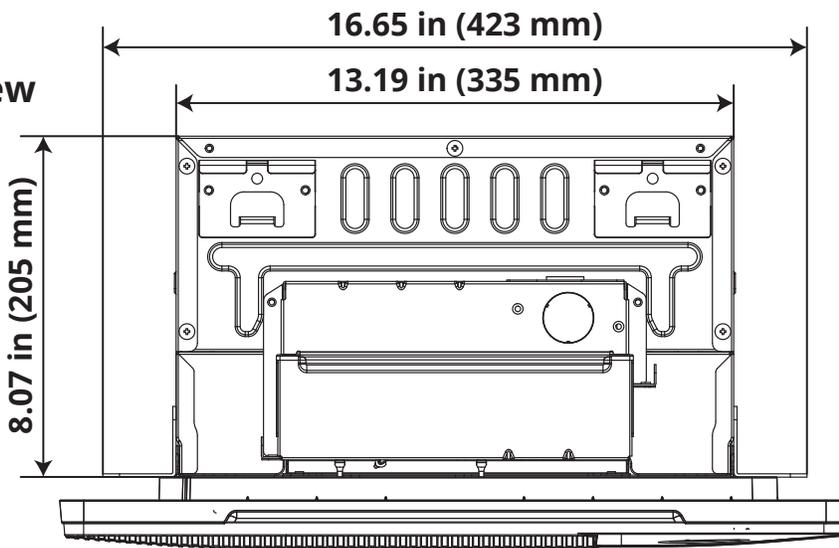
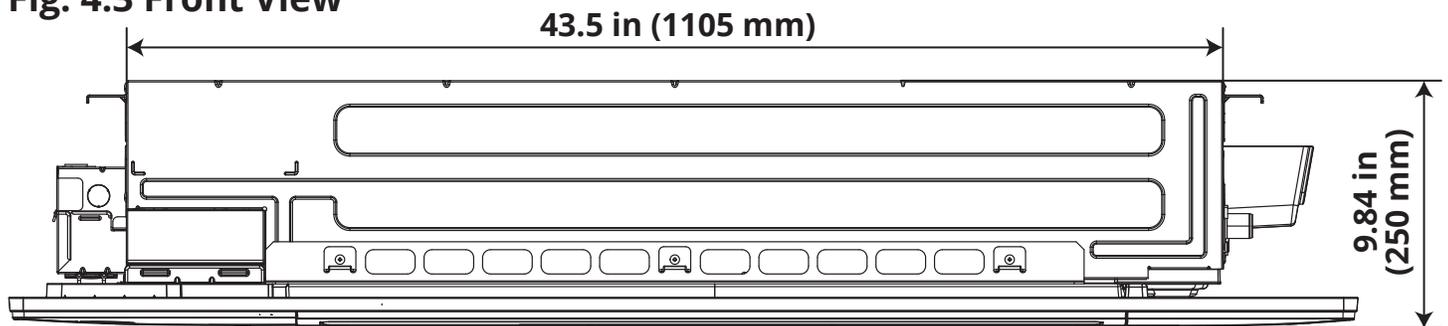


Fig. 4.3 Front View



Line Set Length Specifications

Line Set Length & Height Specifications

When installing the ceiling cassette as part of a single-zone (18K capacity cassette & condenser only) or multi-zone system (9K, 12K, & 18K capacity cassettes can be used with multi-zone condensers), ensure that the length of the refrigerant pipe and the drop height between the indoor and outdoor units meet the requirements listed in the tables below:

! IMPORTANT!

Maximum Line Set Length and Height Specifications

The tables below represents the maximum length and height that the refrigerant line sets can be for each system based on its respective capacity. In order to achieve some of these lengths, if needed for your application, line set coupler kits and additional line sets must be used (not included, sold separately). Any attempt to increase the line set length beyond what is specified in these tables, could result in reduced heating/cooling performance, system damage or failure, and **WILL VOID THE WARRANTY**.

18K Ceiling Cassette & 18K Single Zone Condenser

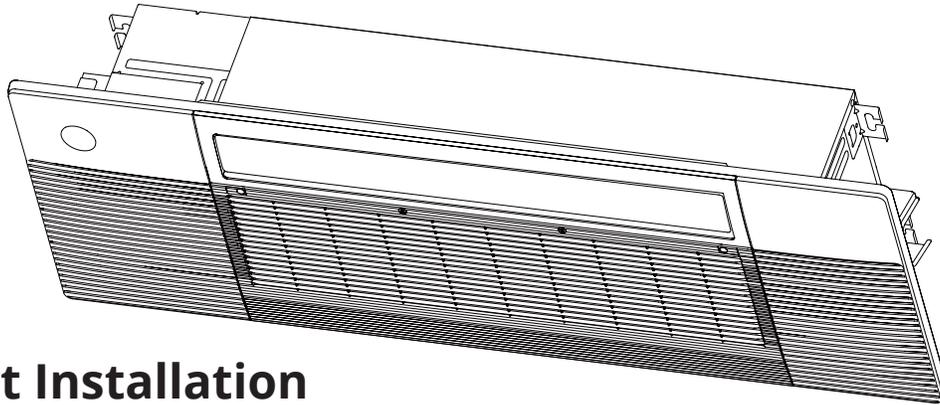
System Capacity	18K Single-Zone Condenser
Maximum line set length	98 ft (30 m)
Maximum height difference between indoor & outdoor unit	66 ft (20 m)

Units: feet (meters)

9K, 12K, & 18K Ceiling Cassette when used with a Multi-Zone Condenser

Condenser Capacity	18K 2-Zone Condenser	27K 3-Zone Condenser	36K 4-Zone Condenser	48K 5-Zone Condenser
Maximum combined line set length for all rooms	123 ft (37.5 m)	172.2 ft (52.5 m)	221.5 ft (67.5 m)	221.5 ft (67.5 m)
Maximum line set length for one indoor unit	73.8 ft (22.5 m)	73.8 ft (22.5 m)	73.8 ft (22.5 m)	73.8 ft (22.5 m)
Maximum height difference between indoor & outdoor unit	33 ft (10 m)	33 ft (10 m)	33 ft (10 m)	49.2 ft (15 m)
Maximum height difference between indoor units	33 ft (10 m)	33 ft (10 m)	33 ft (10 m)	33 ft (10 m)

Units: feet (meters)



Indoor Unit Installation

PRIOR TO INSTALLATION

- Determine the best prearranged route in which to move the unit to the installation site as it will be heavy.
- Unpack and unseal the unit from its packaging. Then, lift and move the unit using the base of the 4 brackets (2 per side) shown in Fig. 5.1 below.

NOTE: Avoid lifting or exerting force on any other parts of the unit (especially any of the refrigerant piping, water discharge piping, or plastic parts as these could get damaged).

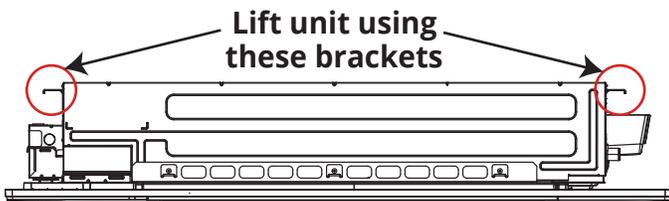


Fig. 5.1

Step 1: Select an installation location

Before installing the indoor unit, you must choose an appropriate installation location. The ceiling cassette is designed to fit and mount between two ceiling joists that are 16 inches apart (on-center) from one another. If this unit is to be installed in a room that has a finished ceiling, the steps on the following pages of this section will require you to locate the joists and cut a large hole in the ceiling (using the included cardboard template as a guide) between them. You will also be required to drill a hole in the wall for refrigerant piping and wiring to run through to the exterior of the house to be connected to the outside unit. **Please carefully read the entire manual and refer to the guidelines and illustrations on this page to help you determine an appropriate location and plan your installation before proceeding.**

Proper installation locations should meet the following standards:

- The location meets the clearance requirements specified on the next page for the installation and maintenance of the unit.
- There is enough room for the refrigerant piping and condensate drain pipe.
- The ceiling is horizontal/level and its structure can support the weight of the unit.
- The air inlet and outlet will not be blocked.
- Cassette airflow will fill the entire room.
- There is no direct radiation from heaters.

! IMPORTANT!

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

- ⊘ Areas with oil drilling or fracking.
- ⊘ Areas that experience electrical power fluctuations, such as factories.
- ⊘ Enclosed spaces, such as cabinets.
- ⊘ Kitchens that use natural gas.
- ⊘ Areas with strong electromagnetic waves.
- ⊘ Areas where flammable gas or materials are stored.
- ⊘ Rooms with high humidity, such as bathrooms or laundry rooms.

Cassette Installation Clearance Requirements

Fig. 5.2 Side View (Shown Installed)

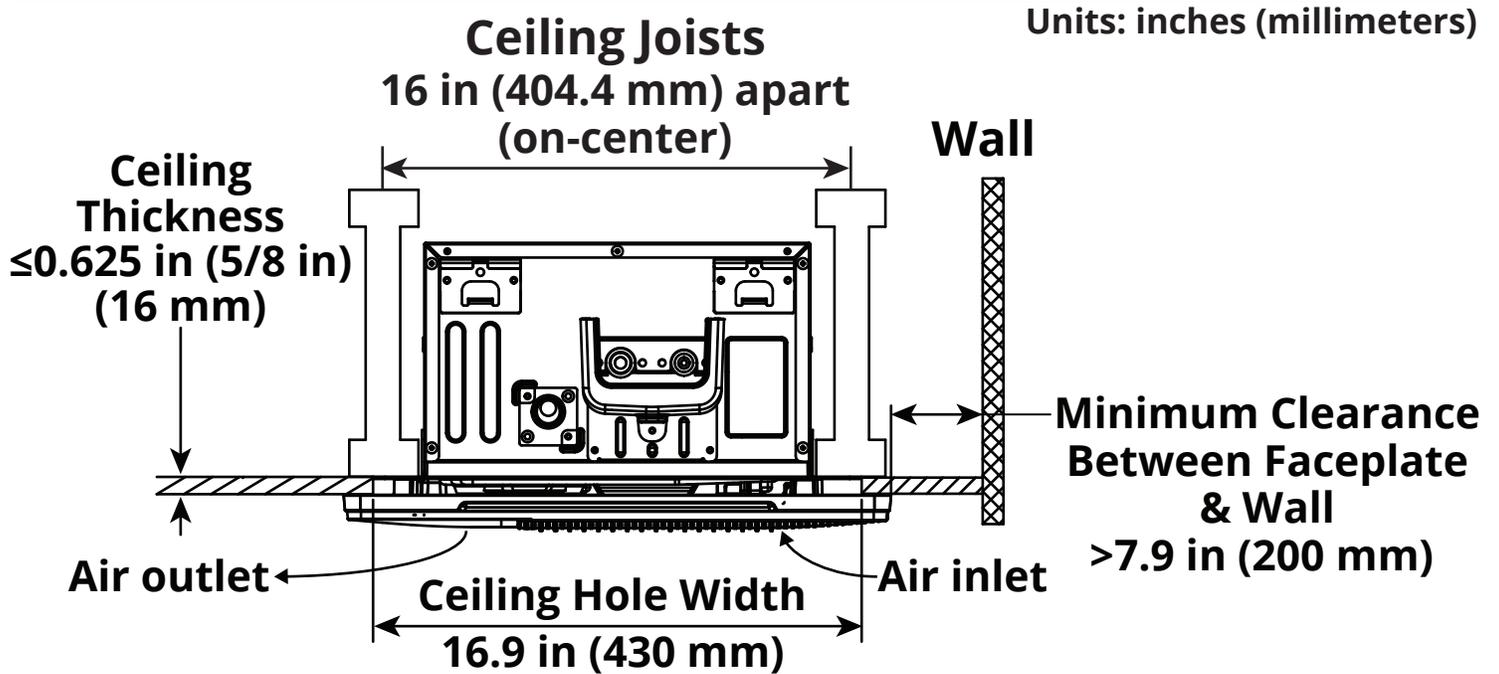
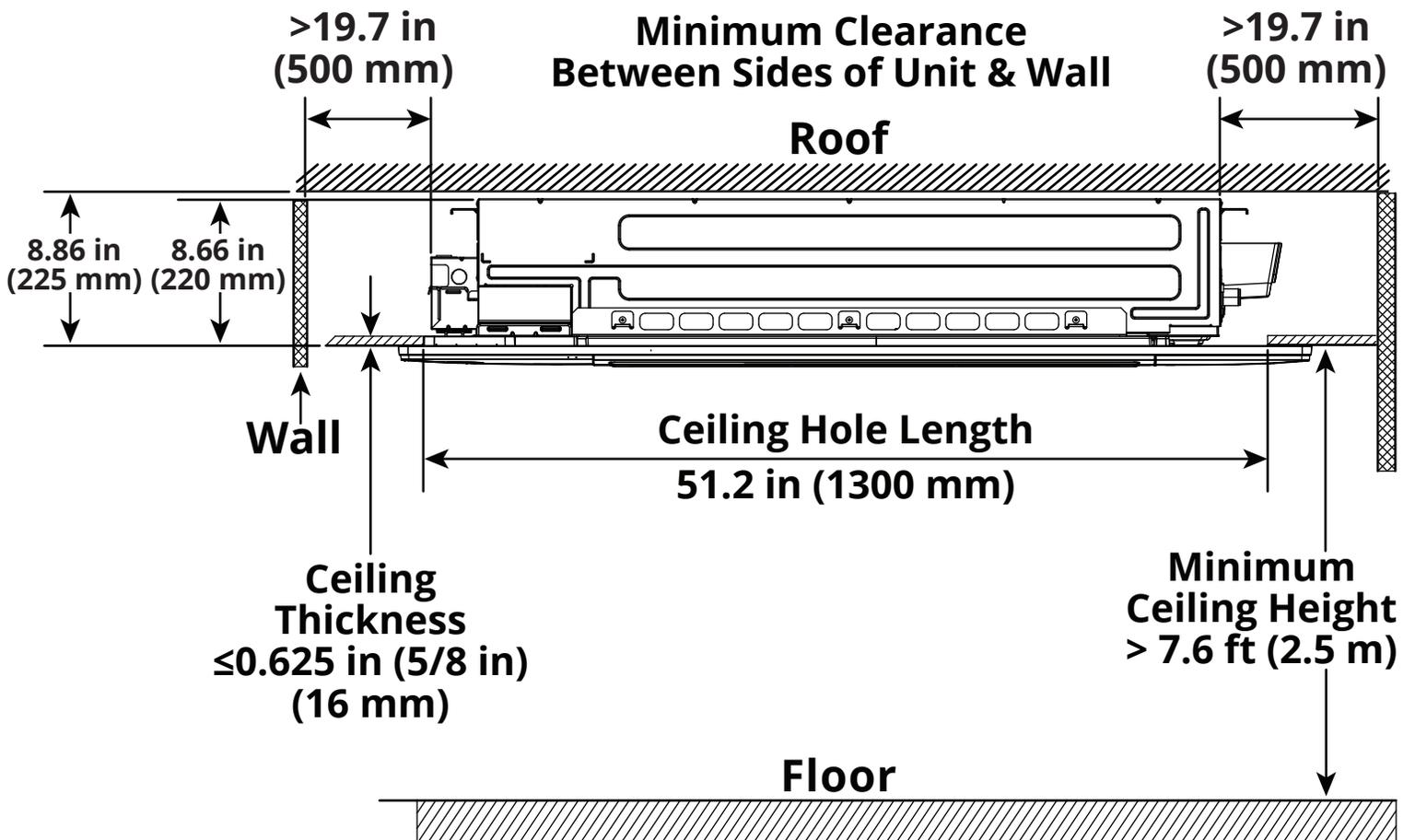


Fig. 5.3 Front View (Shown Installed)



Step 2: Cut a Ceiling Hole using Template

If your installation location has exposed ceiling joists or is a new construction build, please skip to step 3. If your installation location has a finished ceiling, you must cut a hole in the drywall between two ceiling joists, using the included cardboard template as guide (refer to Fig. 5.4).

- Using a stud finder, locate two ceiling joists at the selected installation location the unit will be mounted in between.

NOTE ON TEXTURED CEILINGS

If the installation location has a textured ceiling it may be difficult to locate the joists using the stud finder. If so, take a small square of cardboard and hold it flat against the ceiling at the installation location. Then, run the stud finder across the cardboard. This will allow for a smooth surface in order to properly locate the ceiling joists.

- Once the ceiling joists have been located, lightly mark their location using a pencil or scribe. Then, take measurements of the distance between the joists and ensure they meet what is required to install the unit.

IMPORTANT:

Ensure the distance between the joists meets the dimensional and clearance requirements for the cassette, as shown on the previous page before proceeding to the next step.

- Then, using the cardboard template included with the unit, hold it against the ceiling. Ensure the center of the template is centered between the two ceiling joists. Then, lightly sketch around the template using a pencil or scribe to create a guide of where the hole is to be cut. The dimensions of the ceiling hole are 16.9 in x 51.2 in (430 mm x 1300 mm).

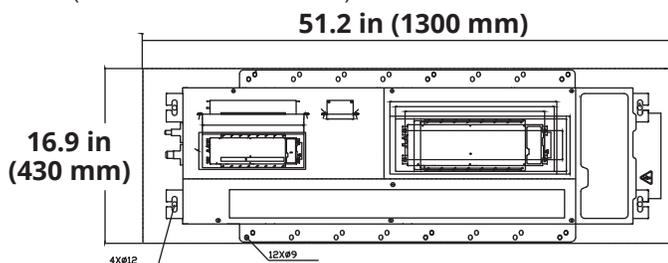


Fig. 5.4

- Now, using a utility knife score the outline sketch of the template you created. Scoring the outline will create a guide to follow making it easier to make clean, straight cuts into the ceiling sheetrock when creating the ceiling hole.

- Then, carefully cut the drywall around the scored outline. The preferred method of cutting the drywall is by using a spiral saw or an oscillating multi-tool with an attachment blade for cutting drywall. These tools are designed for cutting through drywall quickly and also allow you to easily control the depth of your cut. This hole can also be cut by simply using the utility knife you used to score the drywall. In order to use this method, continue making deeper passes in each of the scored lines around the outline until you break through the layer of drywall on each side.

CAUTION

- When cutting the ceiling hole, be sure to wear a face mask and safety glasses to avoid consuming the dust particles that will be created.
 - When cutting the ceiling hole, be sure to avoid any electrical wiring, plumbing, nails, screws, or other sensitive components.
 - Be sure to have someone else or some way to support the piece you are cutting as it breaks free from the ceiling.
 - Be sure to cover the flooring beneath where the hole is being cut to catch any falling dust and debris.
- Now, carefully break away and remove the drywall from the ceiling around the cut lines. The small areas of drywall that will expose the base of the ceiling joists may take some work to remove, as the drywall will be nailed or screwed to the joists in these areas. **NOTE: Any nails or screws that are exposed in the base of the ceiling joists during the removal of the drywall will need to be removed to ensure the cassette will have a flat surface to mount against.**



- Remove or readjust any insulation or obstructions above the ceiling hole that might prevent the cassette from being installed.
- Take measurements of the space above the ceiling hole and ensure the available space meets all of the dimensional and clearance requirements needed for the cassette installation as shown in Fig. 5.2 & 5.3 on the previous page.

Step 3: Drill a Wall Hole for Connective Piping

You must drill a hole in the wall for the refrigerant piping, drainage pipe, and DIYPRO™ cable to pass through in order to connect the indoor and outdoor units.

1. Determine the location of the wall hole based on where the indoor unit is being installed and relative to where you plan to install the outdoor unit. The wall hole should be located on an exterior wall nearest to where the outdoor unit is to be installed.
2. Using a core drill, with a 3.54 in (90 mm) diameter, 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 (refer to Fig. 5.5).

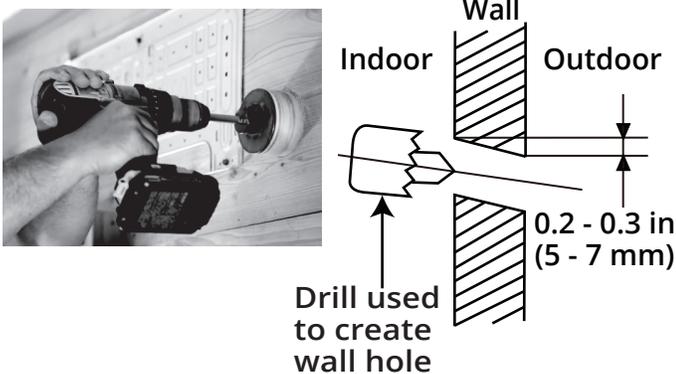


Fig. 5.5

! CAUTION

When drilling the wall hole be sure to avoid any wires, screws, plumbing, or any other sensitive components that could be in or behind the wall.

3. Insert the protective wall sleeve through the hole of the inside wall, noting the amount it protrudes from the exterior wall. Then, trim the excess, with a utility knife or a saw, to make it flush with the exterior wall (See Fig 5.6). Then, reinsert the wall hole sleeve for the final time.

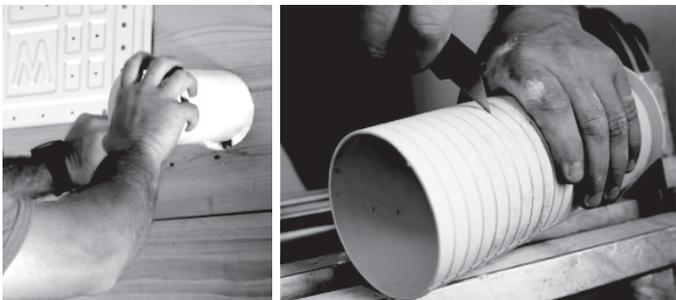


Fig. 5.6

4. Install the wall sleeve finishing cap on the exterior side of the wall hole.



Step 4: Unwind Quick Connect Line Set to Necessary Length

1. While at the exterior, use your hands to slowly unwind the copper piping of one end of the Quick Connect® Line Set. The end you unwind will connect to the indoor unit piping. You should unwind the end until the connectors are close to flat on the ground (with little to no bend). If this is not done, it could make the line set difficult to maneuver when aligning the connectors with the cassette connection points. Only unwind as much as necessary for your application, and allow any excess to remain coiled (Refer to Fig 5.7).



NOTE ON PIPE BEND RADIUS

When bending the connective refrigerant piping, it needs to have a bend radius of 4 inches. (Refer to Fig. 5.7)

! CAUTION

If the pipe is repeatedly bent or extended, it will become hard and difficult to manipulate. Avoid bending or extending the pipe more than 3 times, or at an angle greater than 90°, as it could break.

Carefully unroll to indoor cassette connection

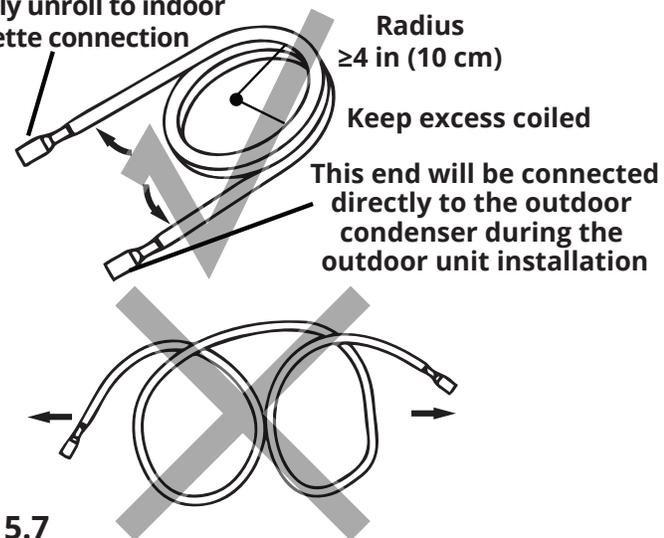


Fig. 5.7

Indoor Unit Installation

2. Now, carefully feed the end of the line set you unrolled through the exterior wall hole and route it to the ceiling hole/installation location.

Step 5: Connect DIYPRO™ Cable to Indoor Unit

In this step, you will connect the DIYPRO™ Cable to the indoor unit. This cable is how the indoor and outdoor units communicate with one another. The wiring within this cable is covered by a durable and flexible conduit covering.

1. Remove the four screws shown in the image below. Removing these will allow you to open and access the indoor control box and circuit breaker box (See Fig. 5.8).

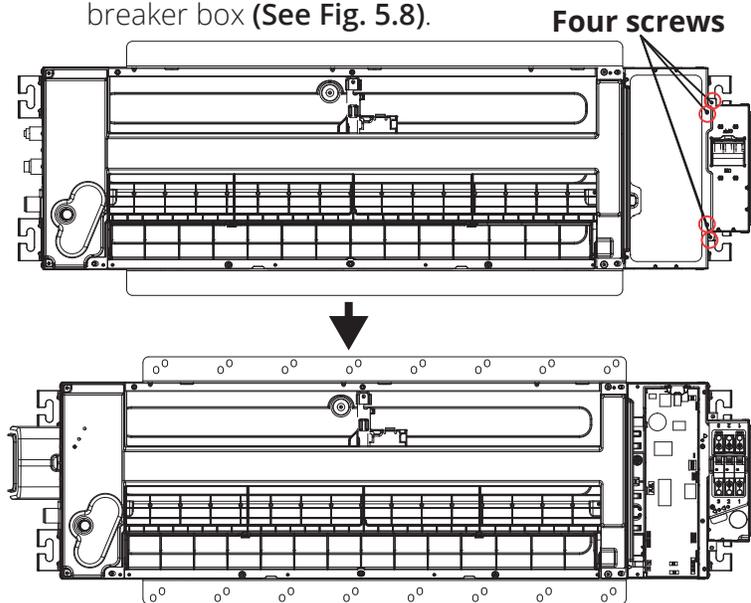


Fig. 5.8

2. You will notice three circular covers on the circuit breaker box, as shown in the illustration below. The two covers labeled No. 1 in Fig. 5.9 below are each suitable to use to feed the DIYPRO™ cable into the circuit breaker box. The hole labeled No. 2 is suitable for other types of cables. Break-out and remove one of the circular covers for the DIYPRO™ Cable that best suits your installation. Then, feed the end of the DIYPRO™ Cable that has a metal clad into the circuit breaker box through the break-out hole.

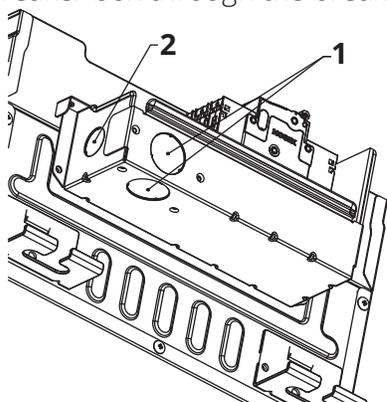


Fig. 5.9

3. Now, you will connect the wires of the DIYPRO™ Cable to the terminals of the circuit breaker box. There are 4 wires, 3 of them will be labeled 1, 2, and 3. The 4th wire is a ground. The numbered wires will correspond to the numbered terminals of the circuit breaker box. Securely connect each wire to the corresponding terminal. Then, securely fasten the ground wire to the screw on the metal plate in front of the circuit breaker terminals. Please refer to Fig. 5.10 below.

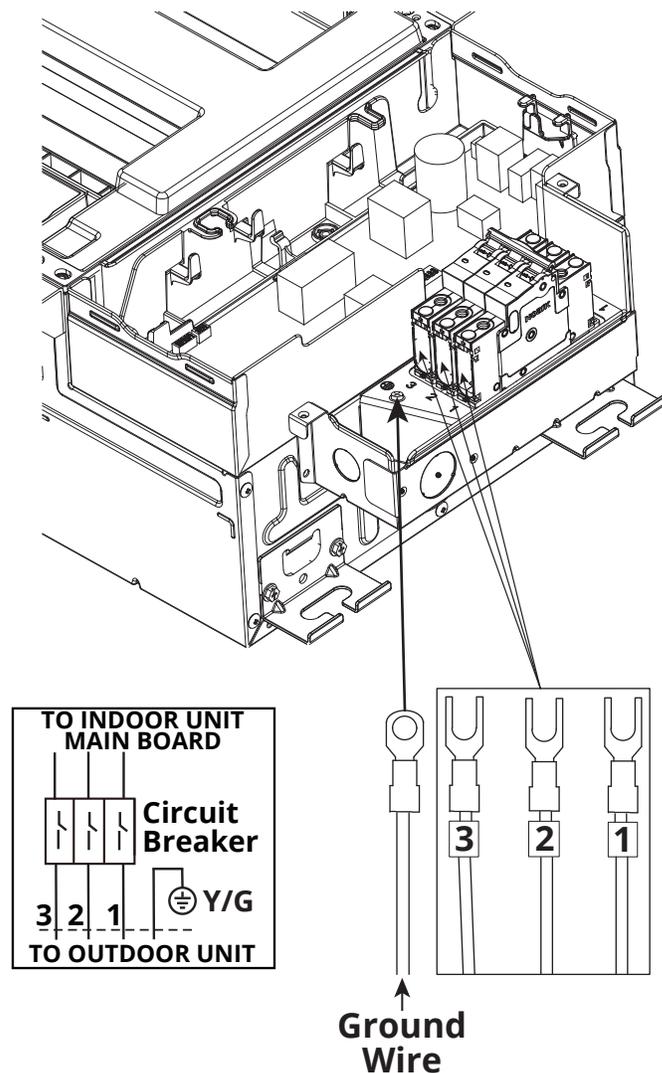


Fig. 5.10

⚠ WARNING

Ensure the ground wire is tightened firmly and will not loosen over time.

Indoor Unit Installation

- Secure the metal clad of the DIYPRO™ Cable to the circuit breaker box with two ST3.9*10 screws. Then, secure the wire body within the circuit breaker box with a tie. Please see Fig. 5.11 below.

NOTE: Three ST3.9*10 screws are provided, but only two are needed to complete this step. The remaining screw is to be kept as a spare.

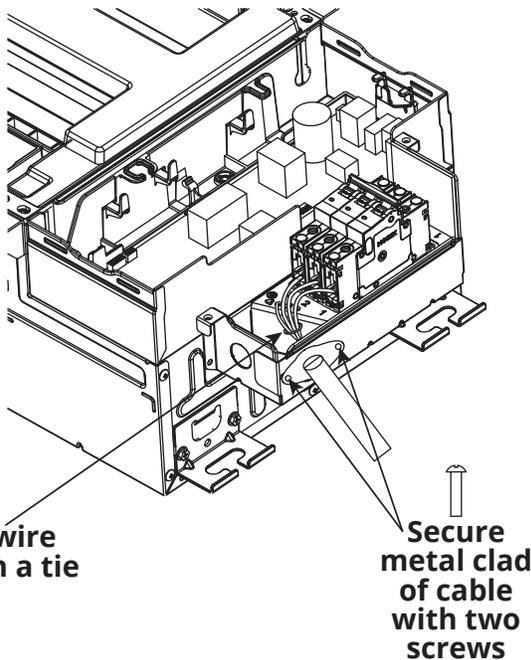


Fig. 5.11

- Reinstall the circuit breaker cover with the two screws you previously removed (See Fig. 5.12).

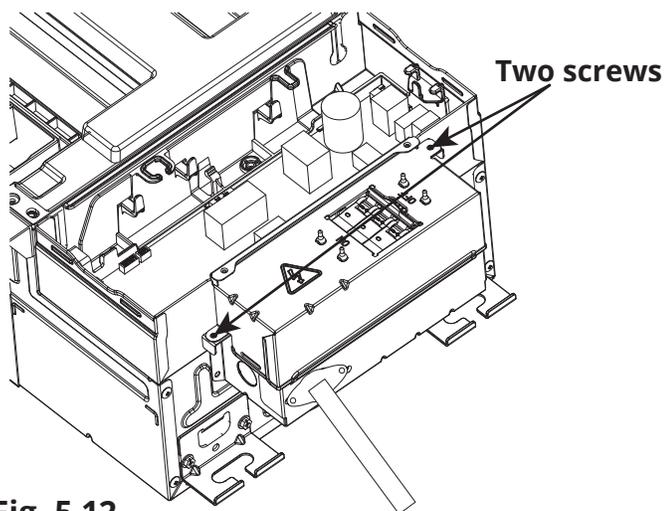


Fig. 5.12

- Once the DIYPRO™ Cable is installed to the cassette, feed the cable up through the hole and into the ceiling and out of the wall hole to the exterior of the house.

Step 6: Install Cassette into Ceiling

In this step you will position the cassette into place in the ceiling hole and mount it to the ceiling joists using the supplied screws.

- Determine the orientation the cassette needs to be installed into the ceiling before attempting to position it in place. The orientation will be based on where the refrigerant line set will connect to the unit. The side of the cassette which has the connection ports for the refrigerant piping should align with the side of ceiling hole where the line set has been routed to ensure a smooth connection.
- Now, with the assistance of at least one other person, carefully lift and position the cassette into the ceiling hole and ensure that the cassette fits completely into the hole unhindered from any unforeseen obstructions. Continue to position the cassette until it is completely aligned with the hole and the mounting flanges on each side of the unit sit flat against the ceiling joists.



- Then, mount the unit to the ceiling joists by installing six ST8.0*50 screws (3 per side) through the holes of the unit mounting flanges and into the ceiling joists. Ensure the screws are fully threaded into the joist and will not loosen over time (see Fig 5.13). **NOTE: Eight ST8.0*50 screws provided, but only six are needed to complete this step. The remaining two screws are to be kept as spares.**

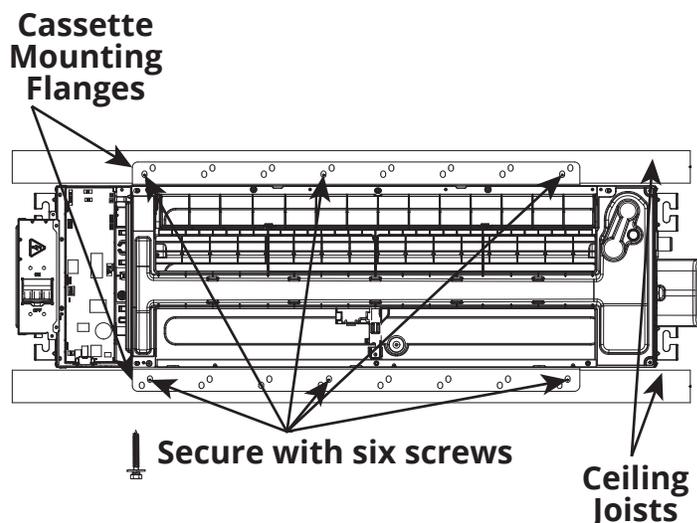


Fig. 5.13

Step 7: Connect Line Set to Cassette

In this step, you will align and connect the pre-charged line set to the ceiling cassette.

TOOLS NEEDED:

NOTE ON WRENCH SIZES

Depending on the capacity rating of your unit, (18K, 27K, 36K, 48K) the wrench sizes needed will vary, refer to the table below (the unit uses metric sizes, the standard sizes listed are approximations). Based on the availability of wrenches in some of the sizes needed, the recommended method is to use crescent wrenches (adjustable-type) that can be adjusted to fit the size each step requires.

- Opened-ended wrench sizes needed, based on condenser capacity (1x of each of these).

18K & 24K	36K & 48K
3/4" / 19 mm	3/4" / 19 mm
7/8" / 22 mm	15/16" / 24 mm
15/16" / 24 mm	1" / 26 mm
1" / 26 mm	1-1/8" / 29 mm
	1-1/4" / 31 mm

} Or 2x Crescent Wrenches

- 1x HVAC Torque Wrench (if available)
- 1x Allen key, 5 mm
- 1x Phillips-head screwdriver
- 1x leak-detection spray or a soapy water solution (liquid detergent/mix, applied by brush or spray bottle)

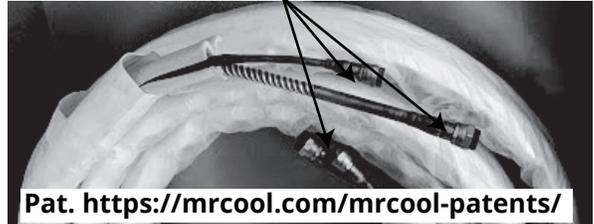
IMPORTANT:

- Follow the detailed instructions for connecting the line set to the indoor unit and outdoor units. A warranty will only be provided if the line set is installed correctly as described in the instructions.
- To prevent leaks, ensure that the Quick Connect® connectors are free of dirt. Moisture or dirt will adversely affect the function of the connectors and could lead to a risk of refrigerant loss (not covered by the warranty).
- Only install the line set outdoors in dry weather.
- The line set must not be plastered over after being installed.
- Always wear work gloves and goggles and use caution when handling refrigerant. Please make sure that refrigerant is never allowed to enter the environment. Improper handling of refrigerant may be harmful to your health.
- The equipment must never be operated without the line set connected, otherwise the equipment will be damaged immediately.
- Quick Connect® line set connections must only be tightened using the appropriate open-ended or crescent (adjustable) wrenches.

⚠ WARNING

- ⊘ DO NOT remove the sealing caps and stoppers from the line set or valves until immediately before they are to be connected.
- ⊘ DO NOT smoke during the installation.

Refrigerant Pipe Connectors (both ends):

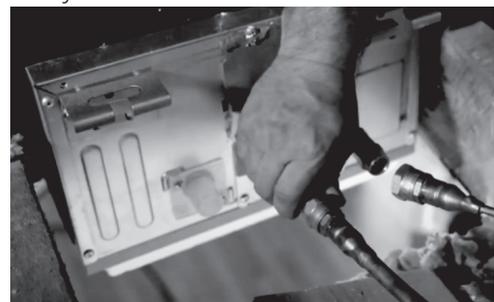


If the screw connections are tightened with too little torque, they will leak. If they are tightened with too much torque, the screw connections could suffer damage. Please refer to the torque requirements section for more information. If you do not feel confident connecting the line set connectors yourself, it is imperative that you contact the MRCOOL® customer service team or an HVAC professional.

IMPORTANT:

The line sets are designed to only be installed once. The seal within the line set cannot be guaranteed if they are installed more than once. This will void the warranty. They also contain a compression fitting to seal and do not require a thread sealant (Teflon tape, etc.). Using a sealant may actually cause the connection to leak over time.

1. Do not remove the plastic seals of the piping connection points of the cassette, or the corresponding line set connector, until immediately before they are to be connected. The plastic seals on each of the connectors should be color-coded to match the seals of the cassette connection points they are to be connected to.
2. Align the quick connectors at the end of the line set which was routed to the ceiling hole with the adapters of the cassette. Ensure the dimensions of the connecting refrigerant pipe match. Unscrew the seals and place the screw connector of the line set onto the threads of the piping connection point of the cassette and tighten the first few threads by hands.



! TORQUE REQUIREMENTS

1. Excessive force can break the connector or damage the refrigerant piping. You must not exceed the torque requirements shown in the table below.
2. You can find the Outer Pipe Diameter stamped (in inches) on the valve set of the condenser. Refer to this when finding and applying the torque values in the table below.
3. Please note that there may be differences in Torque Wrenches (i.e. automotive torque wrench versus an HVAC torque wrench) and that a socket style wrench cannot be used in this installation.

NOTE: Torque ratings in the table below are to be used if you have access to an HVAC torque wrench. These are available for purchase from online retailers. However, it is possible to complete installation of refrigerant line sets with conventional open-ended/crescent wrenches. It is imperative, however, that you not overtighten the connector, and that once the lines have been fully connected, you follow the steps to check for leaks. If you do not feel comfortable attempting this, please contact a qualified HVAC technician.

3. Using the Fig. 5.14 below as a guide, and the steps outlined in this paragraph, you will now tighten the nuts of the screw connectors of the Quick Connect® line set to the cassette. Using two appropriately sized open-ended wrenches (depending on the dimensions of the connector) or adjustable crescent wrenches, place one of the wrenches on the nut marked "1", and the other wrench on the nut marked "2," as shown in the image below. Now, turn the wrench marked "2" in the direction of the rotational arrow, as shown, while holding the other wrench in place. Continue to tighten the connector until snug.
4. Repeat the previous steps for the other connector.

Line Set Connector Torque Specifications

Stamp (on connector)	Coupling Size inch (millimeter)	Tightening Torque lb-ft (N-m)
FA06	3/8 in (9.5 mm)	18-20 lb/ft (24.4-27.1 Nm)
FA09	1/2 in (12.7 mm)	30-35 lb/ft (40.6-47.4 Nm)
FA12	3/4 in (19.1 mm)	45-50 lb/ft (61.0-67.7 Nm)
FA16	1 in (25.4 mm)	60-65 lb/ft (81.3-88.1 Nm)

NOTE: work quickly and make sure the screw connectors do not become crooked as you tighten them.

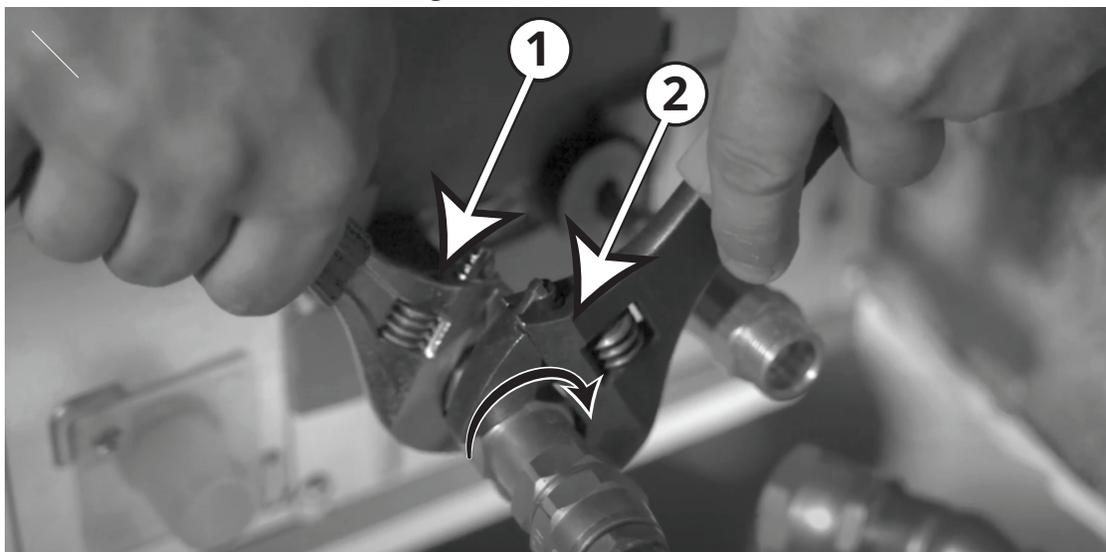
*** If an HVAC torque wrench is available:**

Once the connector is snug, using the torque wrench, tighten the connector to the specified torque rating, as listed in the table to the right (based on pipe/coupling size).

*** If an HVAC torque wrench is NOT available:**

Using two wrenches you used to tighten the connector, once the connector is snug, turn the wrench slightly beyond that point to torque the connector, but do not overtighten it.

Fig. 5.14



Step 8: Check Line Set Connectors for Leaks

1. After connecting the line set to the cassette, you will now need to check the piping connections for leaks. You can do this by using leak detection spray, or applying a soapy water solution (liquid detergent/water mixture) to the connection via a spray bottle or brush. If any bubbles begin to form, that indicates there is a leak, and the connection needs to be re-tightened. Tighten the connection and recheck it for leaks. Refer to **Electrical and Gas Leaks Checks** section of this manual for more detailed information.

IMPORTANT:

You will be asked to check for leaks at the piping connections multiple times throughout the installation, because the pressures within the lines will change once the unit is turned on and this could reveal leaks not present during the initial check. These checks are imperative to ensure refrigerant is not escaping the system. When checking for leaks, if any bubbles form, it indicates the system has a leak and the connector needs to be re-tightened. For more information, please refer to the Electrical and Gas Leak Checks section of the manual.

Step 9: Wrap Line Set Connections

After confirming the line set connections do not leak, you will now wrap the connections to insulate them and prevent sweating.

1. Tightly wrap each line set connector with the supplied sound deadening pads as shown in the image below.

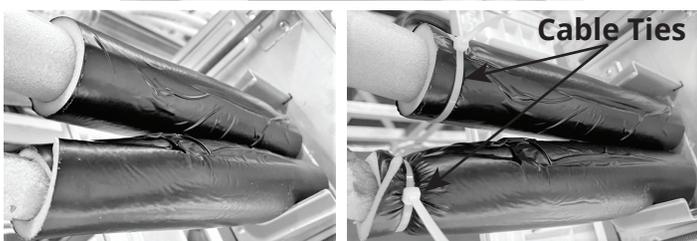


2. Then, install the two provided insulation sleeves over the sound deadening pads. Secure them into place by wrapping adhesive tape around the sleeve and installing the provided cable ties around the ends to prevent water leakage.

Adhesive Tape



Cable Ties



Step 10: Install Water Receiver Tray

After wrapping and insulating the line set connections of the cassette, you will now install the plastic water receiver tray beneath the connectors.

1. Position the water receiver tray beneath the connectors and secure it into place with a ST4.8*12 screw (refer to Fig. 5.15). **NOTE: Two ST4.8*12 screws are included, one of them is to be kept as a spare.**

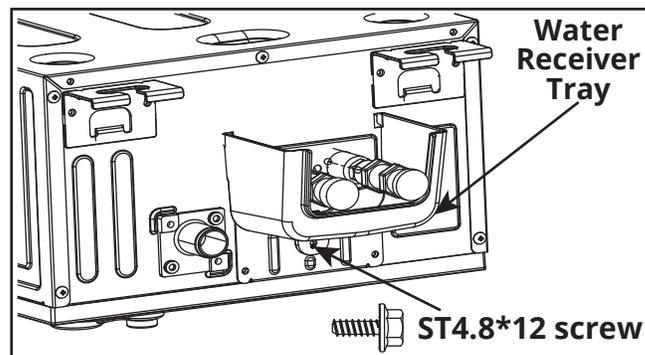


Fig. 5.15

Step 11: Install Drainpipe & Adapter

During normal operation, the cassette will produce condensate (water). The purpose of the drainpipe is to effectively drain the condensate produced so that it will exit from the pipe to the exterior of the house. The cassette includes the drainpipe adapter, however, the drainpipe will need to be purchased separately.

! CAUTION

- Insulate all piping to prevent condensation, which could cause property damage.
- If the drain pipe is bent or incorrectly installed, water could leak and cause a water-level switch malfunction.
- In HEAT mode, the outdoor unit will discharge water. Ensure that the drain hose is placed in an appropriate areas to avoid water damage and slippage. **DO NOT** pull the drain hose forcefully. This could cause it to disconnect.

NOTE ON PURCHASING THE DRAINPIPE

The installation of this unit requires a drainpipe which must be purchased separately. It is recommended to use PVC piping that has an exterior diameter of 3/4 in (19.05 mm). This type of piping can be obtained through a local hardware store or dealer. You may also need to purchase PVC elbows, connectors, and glue so the piping can be run and installed as described in the following pages of the installation manual.

NOTE DRAINPIPE INSTALLATION

- When using an extended drainpipe, tighten the indoor connection with an additional clamp to prevent it from being pulled loose.
- The drainpipe should have a downward slope of at least 1/100 to prevent water from flowing back into the unit.
- To prevent the drainpipe from sagging, place support wires every 39-59 inches (1-1.5 meters). Refer to Fig. 5.17 and 5.18 below.
- If the outlet of the drainpipe is higher than the drain outlet of the cassette body, create a vertical section in the drainpipe. This section of vertical pipe must not be higher than 29.5 in (75 cm) from the ceiling drywall and must have a distance of less than 11.8 in (30 cm) away from the unit (refer to Fig. 5.18). Incorrect installation could cause water to flow back into the unit and flood which could result in property damage.
- To prevent air bubbles from forming, keep the drain pipe adapter level or slightly tilted up at an height of less than 3 in (75 cm). Refer to Fig 5.18.
- If you're installing multiple units and plan to connect them all to one drainpipe, please refer to Fig. 5.19 & 5.20 on the next page for more details on how the drainpipe should be run.

1. First, you will install the drainpipe adapter to the drain outlet port of the cassette, using one of the supplied clamps to secure it in place by tightening the clamp (refer to Fig. 5.16).
2. Slide the other metal clamp onto the other end of the drainpipe adapter. Then, slide the drainpipe into the end of the adapter and secure it by tightening the clamp (refer to Fig. 5.16).

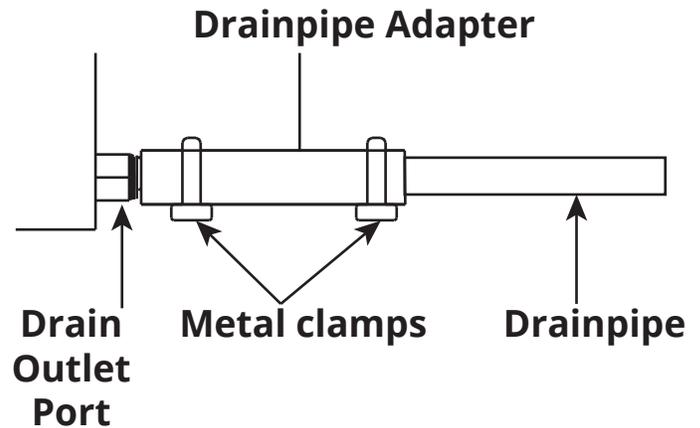


Fig. 5.16

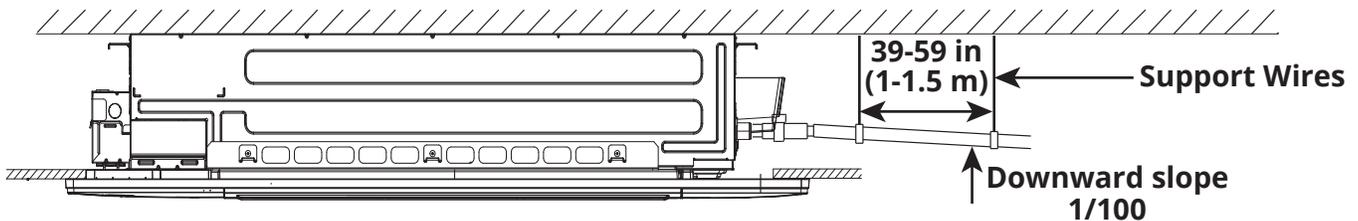


Fig. 5.17

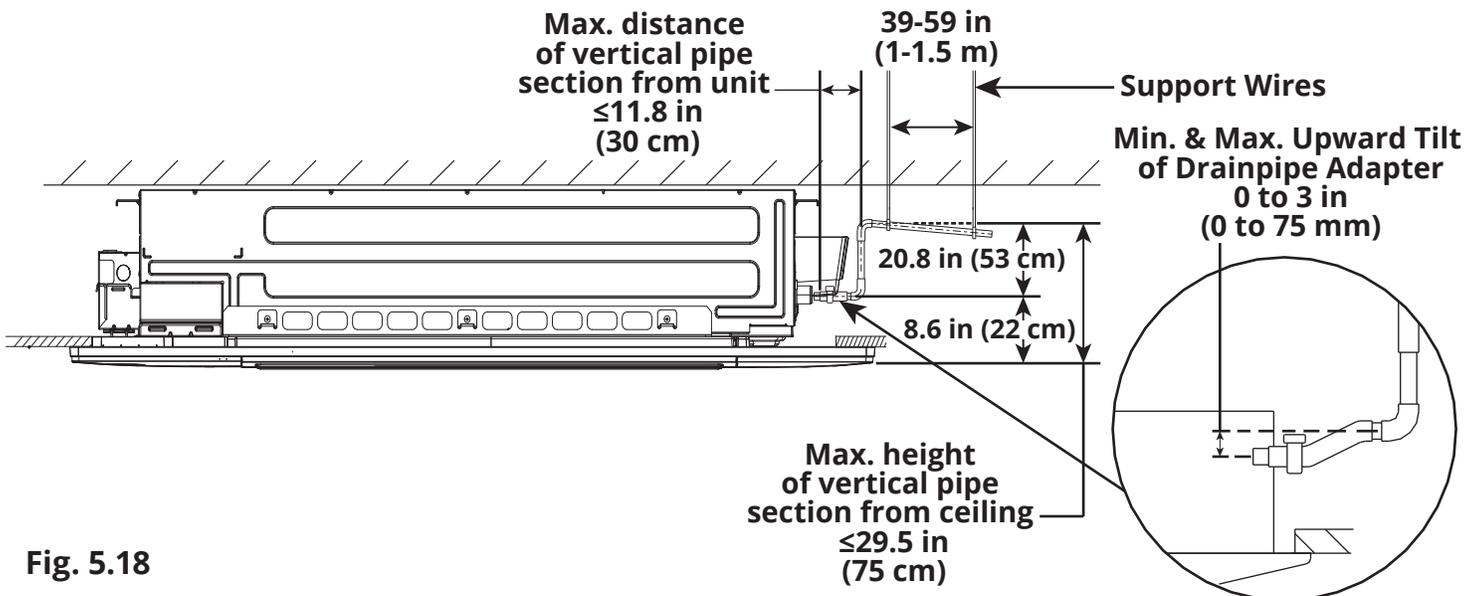


Fig. 5.18

Indoor Unit Installation

Minimum & Maximum height of vertical pipe section when connecting multiple units & outlet of the drainpipe is higher than cassette drain outlet port:

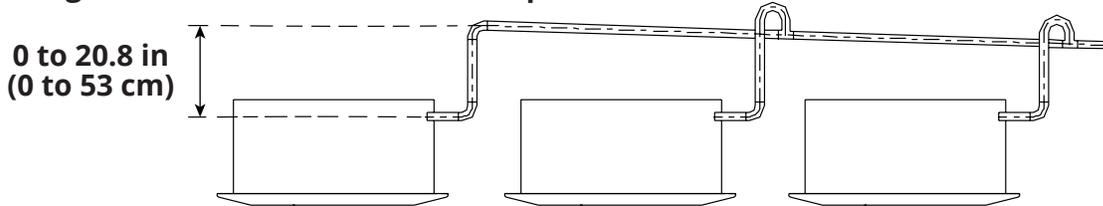


Fig. 5.19

Minimum height of vertical pipe section when connecting multiple units & outlet of the drainpipe is lower than cassette drain outlet port:

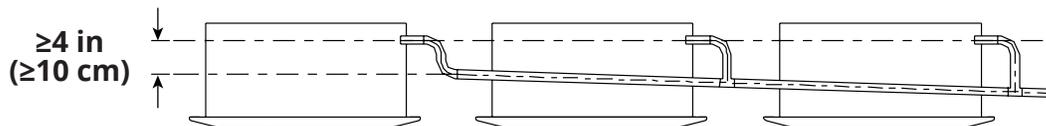


Fig. 5.20

- Now, pass the drain pipe through the wall hole to the exterior of the house. If it has not already been done, also pass the end of the DIYPRO™ Cable through the wall hole to the exterior as well.
- Position the drainpipe and line set so they pass through the wall hole in the orientation shown below in Fig. 5.21.

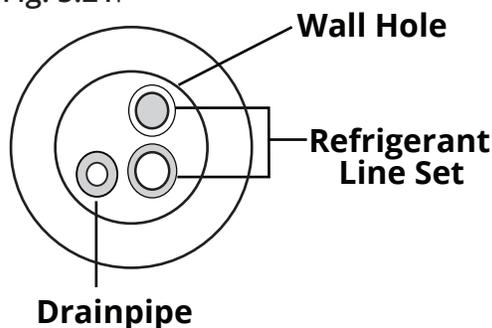


Fig. 5.21

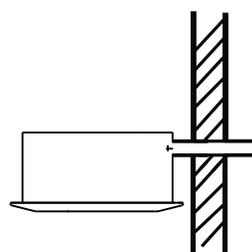


Fig. 5.22a

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



NOT CORRECT
KINKS in the drainpipe will create water traps

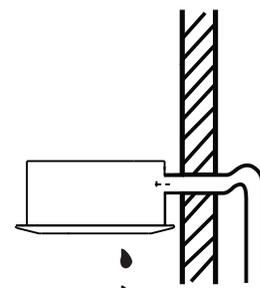


Fig. 5.22b

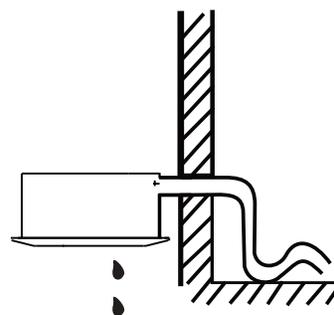


Fig. 5.22c

NOT CORRECT
DENTS in the drainpipe will create water traps

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

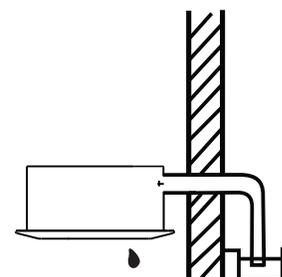


Fig. 5.22d

NOTE ON DRAINPIPE OUTLET

The drainpipe should exit the wall hole and run in a way that allows the condensate to flow freely and be discharged from the outlet onto the ground. The drainpipe outlet should be at least 1.9 in (5 cm) above the ground. If the drainpipe touches the ground it could become blocked and cause the unit to malfunction. If you discharge the condensate directly into the sewer, ensure that the drain has a U or S pipe to catch any odors that might otherwise come back into the home. Please refer to Figs. 5.22a - 5.22d on the right as a guide when determining how the drainpipe should exit your application.

Step 12: Seal Exterior Wall Hole

Next you will complete steps to finish the exterior wall hole before installing the outdoor unit. This will consist of bending the line set downward toward the exterior wall and sealing the wall hole with neoprene.

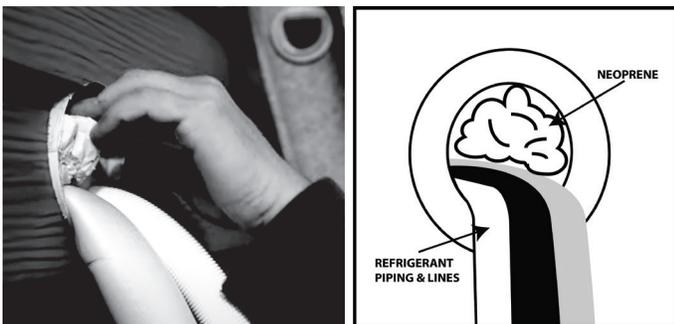
1. In this step, you will carefully bend the portion of the line set coming out of the exterior wall hole down towards the wall. Place your hand on the underside of the piping coming through the exterior wall hole (from indoor unit), close to the wall. With your other hand, using even pressure, carefully bend the piping downward toward the wall, being mindful not to damage or dent the piping in the process.



! CAUTION

Be extremely careful not to dent or damage the piping while bending it down the exterior wall, as this could negatively affect the performance.

2. Pack the wall hole with the supplied Neoprene (or Spray Foam can be used) to seal the hole, filling any space that was not taken up by the refrigerant piping and lines.



! IMPORTANT!

Once the entire installation has been completed and the system has been fully tested, the area above and around the cassette should be re-insulated. This will help to guard against the condensation/sweating of the unit that can occur due to the differences in the room temperature the cassette provides air to and the environment it is installed in (example: attic). If the area is not re-insulated it could cause property damage and the system to malfunction!

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

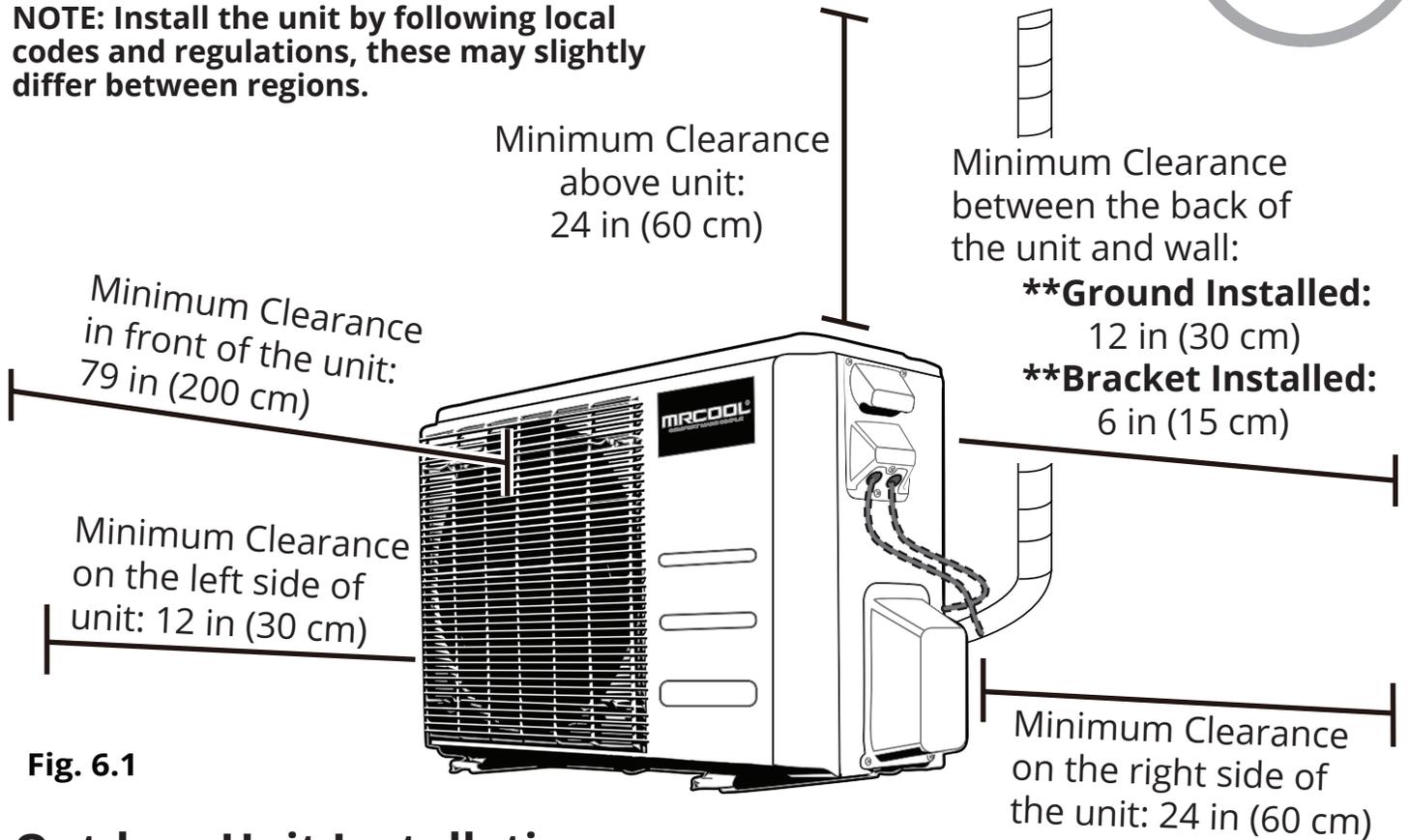


Fig. 6.1

Outdoor Unit Installation

Step 1: Select 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
- Unit noise 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. Mount the unit high enough to be above the average accumulated area snowfall. The minimum height must be 18 inches.

! IMPORTANT!

***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 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. See Fig. 6.2 and Fig. 6.3 below.

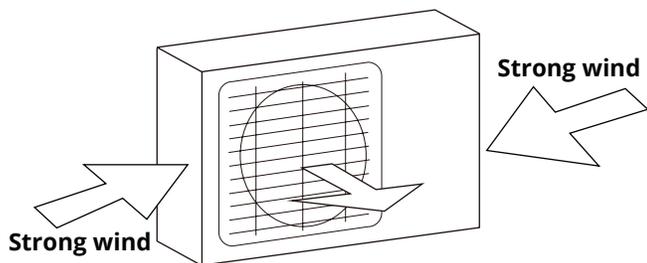


Fig. 6.2

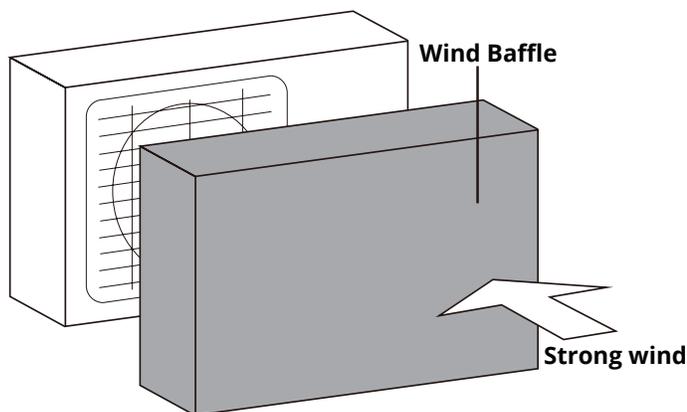


Fig. 6.3

If the unit is frequently exposed to heavy rain or snow: Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct 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.

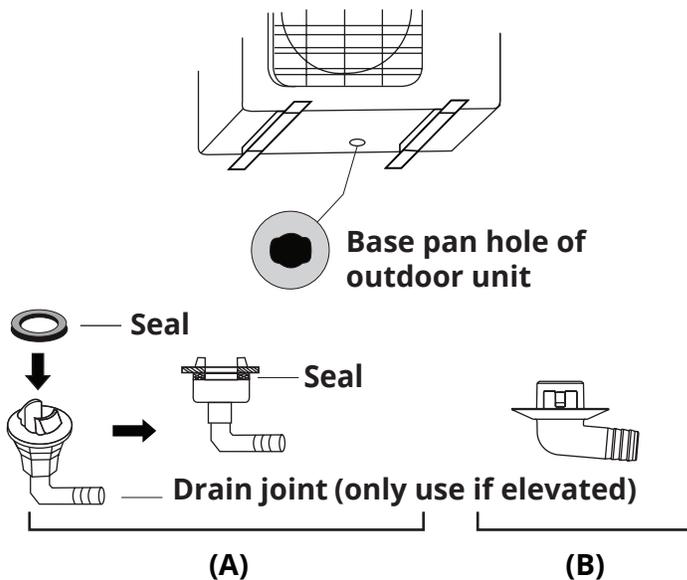
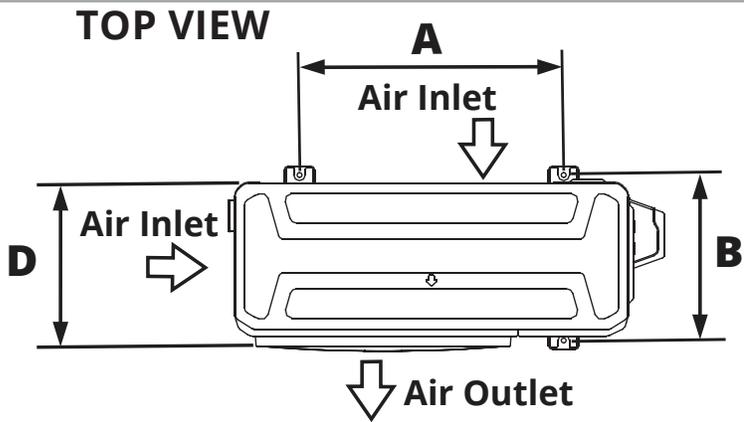


Fig. 6.4

! DRAINAGE IN COLD CLIMATES

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

Outdoor Unit Installation



FRONT VIEW

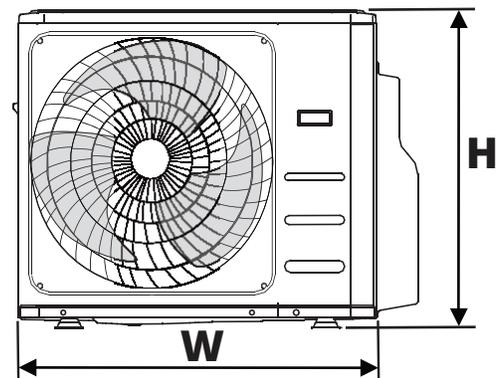
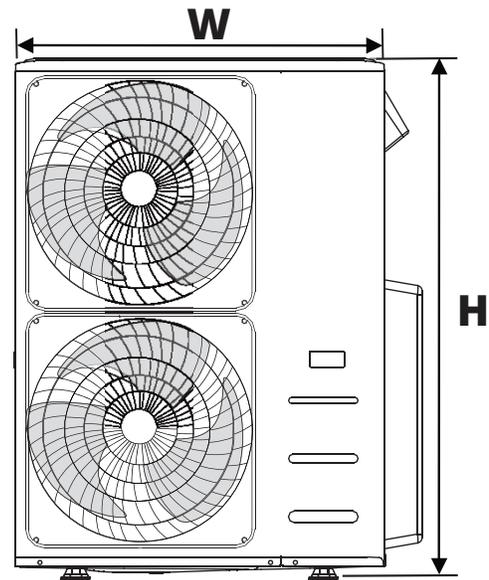


Fig. 6.5
Single-Zone: 18K
Multi-Zone: 18K, 27K, & 36K



Multi-Zone: 48K

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 installation base of the unit according to the dimensions below. For instructions of how to mount the unit to a wall mounted bracket, please refer to the following page.

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

1. Mark the positions for four expansion bolts based on dimensions in the **Mounting Dimensions** chart and illustrations above.
2. Pre-drill holes for expansion bolts.
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.

WARNING

When drilling into concrete, eye protection is recommended at all times.

UNIT MOUNTING DIMENSIONS

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

	Outdoor Unit Model #:	Outdoor Unit Dimensions: Inches (Millimeters)		Mounting Dimensions: Inches (Millimeters)	
		Width (W)	Height (H) x Depth (D)	Width (A)	Depth (B)
Single Zone	DIY-18-HP-C-230C	35.04 in (890 mm)	26.50 in x 13.46 in (673 mm x 342 mm)	26.10 in (663 mm)	13.93 in (354 mm)
Multi Zone	DIY-MULTI2-18HP230C	35.04 in (890 mm)	26.50 in x 13.46 in (673 mm x 342 mm)	26.10 in (663 mm)	13.93 in (354 mm)
	DIY-MULTI3-27HP230C	37.24 in (946 mm)	31.89 in x 16.14 in (810 mm x 410 mm)	26.50 in (673 mm)	15.87 in (403 mm)
	DIY-MULTI4-36HP230C	37.24 in (946 mm)	31.89 in x 16.14 in (810 mm x 410 mm)	26.50 in (673 mm)	15.87 in (403 mm)
	DIY-MULTI5-48HP230C	37.48 in (952 mm)	52.48 in x 16.34 in (1333 mm x 415 mm)	24.96 in (634 mm)	15.90 in (404 mm)

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

! CAUTION

Before installing 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 Mounting Dimensions chart on the previous page.
2. Pre-drill the holes for the expansion bolts.
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 WALL-MOUNTED OUTDOOR UNIT

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

Step 4: Connect Line Set to Outdoor Unit

In this step, you will connect the coiled end of the line set to the outdoor condenser. You will need the wrenches you previously used when connecting the line set to the indoor unit.

1. Remove the water tray from the side of the outdoor unit as shown below in Fig. 6.6.

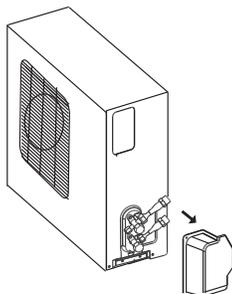
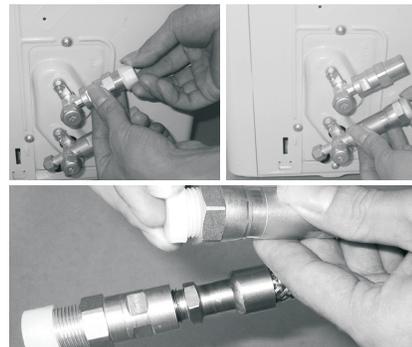


Fig. 6.6

NOTE ON AIR HANDLER CONNECTION ORDER WITH A MULTI-ZONE CONDENSER

If you're installing the cassette as part of a multi-zone system with other air handlers, there is a guideline to which respective port on the condenser each air handler should be connected to. The line set connection ports on a multi-zone condenser are labeled A, B, C, D, E, etc. The capacities of the air handlers you use will determine which ports 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. To distinguish the connectors to be connected to the indoor units and outdoor unit, the refrigerant pipe connectors have been labeled "A", "B", "C", "D", and "E". Ensure the marks on the connectors match the indoor units and outdoor unit respectively during connection. If this guideline is not followed, it could affect the heating/cooling performance of the unit and/or system.

2. Do not remove the plastic seals from the outdoor unit piping connectors and corresponding refrigerant pipes (line set to be attached) until immediately before you connect them.



NOTE: Ensure the adapters attached to the outdoor valves have been tightened properly before attempting to connect the line set.

3. Align the refrigerant pipes so they line up with the corresponding valves and have enough slack. **NOTE: The refrigerant pipes must be connected to the valves with as little stress as possible.** Unscrew the plastic seals and place the screw connector of the refrigerant line just onto the threads of the outdoor unit, tightening the first few threads by hand.



4. Using the first image below as a guide, starting with the bottom screw connector, you will now tighten the line set to the outdoor unit. Using two appropriate sized open-ended wrenches (depending on the dimensions of the connector), or adjustable crescent wrenches, place one of the wrenches on the nut marked "1", and the other wrench on the nut marked "2." Now, turn the wrench on nut "2" in the direction of the rotational arrow, while holding the other wrench in place, as seen in the first image below. Continue to tighten the connector until snug.
NOTE: work quickly and make sure the screw connectors do not become crooked as you tighten them.

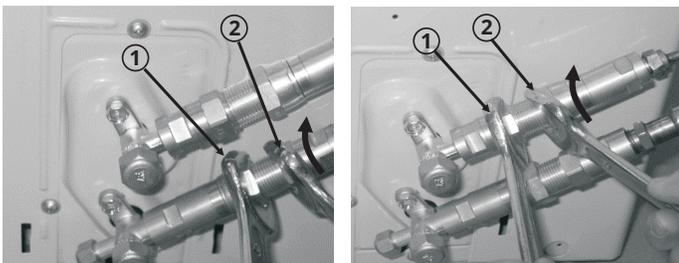
***If an HVAC torque wrench is available:**

Once the connector is snug, using the torque wrench, tighten the connector to the specified torque rating, listed in the table to the right (based on the pipe/coupling size).

***If an HVAC torque wrench is NOT available:**

Using the two wrenches you used to tighten the connector, once the connector is snug, then turn the wrench slightly beyond that point to torque the connector, but do not overtighten it.

5. Repeat the same process for the top screw connector, using the second image below as a guide. Then, repeat all of these steps for every line set for all of the other air handlers (if applicable).



IMPORTANT:

The coupling of the outdoor unit uses tapping rings, if you disconnect and reconnect the refrigerant pipes, it could cause it to leak. This will also void the warranty.

NOTE ON EXCESS REFRIGERANT PIPING

Keep excess refrigerant hose coiled and store it behind the condenser in a horizontal position (flat with the ground).

! TORQUE REQUIREMENTS

1. Excessive force can break the connector or damage the refrigerant piping. You must not exceed the torque requirements shown in the table below.
2. You can find the Outer Pipe Diameter stamped (in inches) on the valve set of the condenser. Refer to this when finding and applying the torque values in the table below.
3. Please note that there may be differences in Torque Wrenches (i.e. automotive torque wrench versus an HVAC torque wrench) and that a socket style wrench cannot be used in this installation.

NOTE: The torque specifications in the table below are to be used if you have access to an HVAC torque wrench. These are available for purchase from online retailers. However, it is possible to complete installation of refrigerant line sets with conventional open-ended/crescent wrenches. It is imperative, however, that you not over-tighten the connector, and that once the lines have been fully connected, you follow the steps to check the pipe connections for leaks (Refer to the Electrical & Gas Leak Checks section of this manual for more information). If you do not feel comfortable attempting this, please contact a qualified HVAC technician.

Line Set Connector Torque Specifications

Stamp (located on connector)	Coupling Size (inch (millimeter))	Tightening Torque (foot pounds (Newton meters))
FA06	3/8 in (9.5 mm)	18-20 lb/ft (24.4-27.1 Nm)
FA09	1/2 in (12.7 mm)	30-35 lb/ft (40.6-47.4 Nm)
FA12	3/4 in (19.1 mm)	45-50 lb/ft (61.0-67.7 Nm)
FA16	1 in (25.4 mm)	60-65 lb/ft (81.3-88.1 Nm)

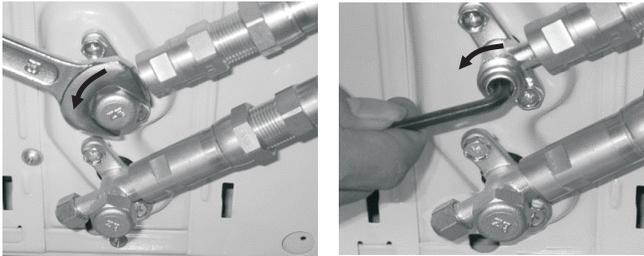
Step 5: Opening Refrigerant Valves

In this step you will be opening the refrigerant valves & king valves (multi-zone condenser only) of the outdoor unit. This will release refrigerant from the pre-charged line set into the whole system.

! CAUTION

All of these steps must be completed *BEFORE* powering the unit. Otherwise, it could cause system damage and/or complete system failure.

1. Using the images below as a guide, remove the cover on the top valve, using a 19 mm open-ended wrench or a crescent (adjustable-type) wrench. Then, insert a 5 mm Allen key and open the valve by turning it counter-clockwise as far as it will go. ***DO NOT* force it.** The valve is now open. Screw the cover back onto the top valve and tighten it well to ensure that it is properly sealed.



2. Now, you will repeat the same process for the bottom valve. Remove the cover on the bottom valve, using a 19 mm open-ended wrench or a crescent (adjustable-type) wrench. Then, insert a 5 mm Allen key and open the valve by turning it counter-clockwise as far as it will go. ***DO NOT* force it.** Screw the cover back onto the bottom valve and tighten it well to ensure that it is properly sealed. **NOTE: if your installation is a multi-zone system, continue this process for all of the line sets connected to the condenser until all of the refrigerant valves are fully opened.**

NOTE: The step below only applies to units being installed with a 3, 4, or 5-zone multi-zone condenser. If you are installing the one-way cassette with a single-zone or a two-zone multi-zone condenser please skip to the next step.

3. After opening all of the line set connection valves, you must also open the two main valves (King Valves), as shown in the images below. To do this, first unscrew the caps from the valves in a counter-clockwise direction using an appropriately sized wrench, or crescent (adjustable-type) wrench. Then, insert a 5 mm Allen key and open each of the valves by turning them counter-clockwise as far as they will go. ***DO NOT* force it.** Then, reinstall the caps and tighten them



Step 6: Check Line Set Connections & Valves for Leaks

1. After connecting the line set and opening the condenser refrigerant valves, you will now need to check all of the piping connections & valves for leaks. You can do this by using leak detection spray, or applying a soapy water solution (liquid detergent/water mixture) to the connection via a spray bottle or brush. If any bubbles begin to form, that indicates there is a leak, and the connection needs to be re-tightened. Tighten the connection and recheck it for leaks. Refer to **Electrical and Gas Leaks Checks** section of this manual for more detailed information.

IMPORTANT:

You will be asked to check for leaks at the piping connections multiple times throughout the following steps of the installation, because the pressures within the lines will change once the unit is turned on and this could reveal leaks not present during the initial check. These are imperative to make sure your connections are not allowing refrigerant to escape the system. When checking for leaks, if any bubbles form, it indicates the system has a leak and the screw connector needs to be retightened. For more information about checking for leaks, please refer to the **Electrical and Gas Leak Checks** section of the manual.



! IMPORTANT!

Once the entire installation has been completed and the system has been fully tested, the area above and around the cassette should be re-insulated. This will help to guard against the condensation/sweating of the unit that can occur due to the differences in the room temperature the cassette provides air to and the environment it is installed in (example: attic). If the area is not re-insulated it could cause property damage and the system to malfunction!

Cassette Panel Installation & Wireless Controller Module

7

Step 1: Mount Panel to Indoor Unit

1. Carefully grab the air intake grille with your fingers and slowly pull it out and allow it to hang from the panel as shown in **Fig. 7.1** below. This is necessary to access some of the holes for the mounting screws to attach the panel to the unit.

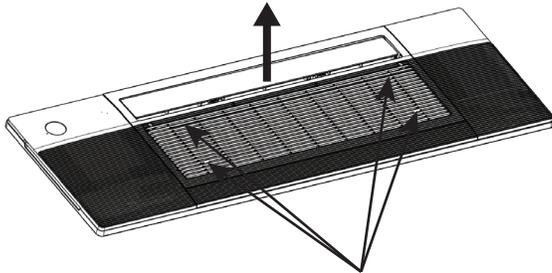


Fig. 7.1 Grab at these locations

2. Now, with the assistance of another person, carefully raise and position the cassette face panel into place. There are tabs, as shown in **Fig. 7.2** below, that will align the cassette panel to the indoor unit. Make sure these tabs are aligned and the cassette is properly seated to the indoor unit before attempting to install the mounting screws.

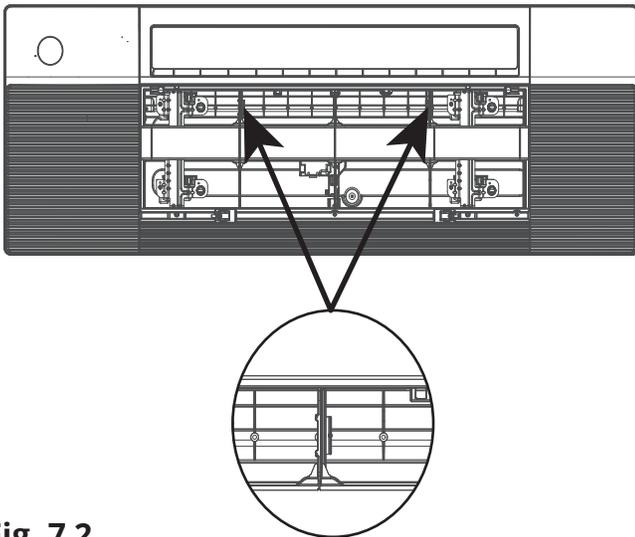
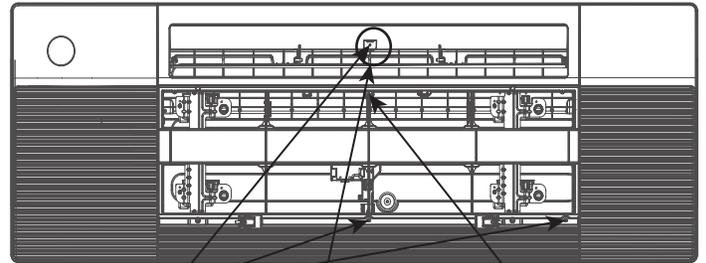


Fig. 7.2

3. Now, manually rotate the air deflector (louver) of the panel. This will allow access to a mounting hole that is protected by a cover. Please see **Fig. 7.3**. **NOTE: this cover must be opened before one of the M4*22 screws in the next step can be installed.**

4. Then, secure the panel by installing three M4*22 screws and one ST3.9*16 in locations shown in **Fig. 7.3** below and close the screw cover behind the air deflector (louver).



3x M4*22 screws

1x ST3.9*16 screw

Before installing this screw, this cover must be opened. Once the screw has been installed, close the cover.

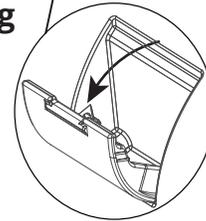
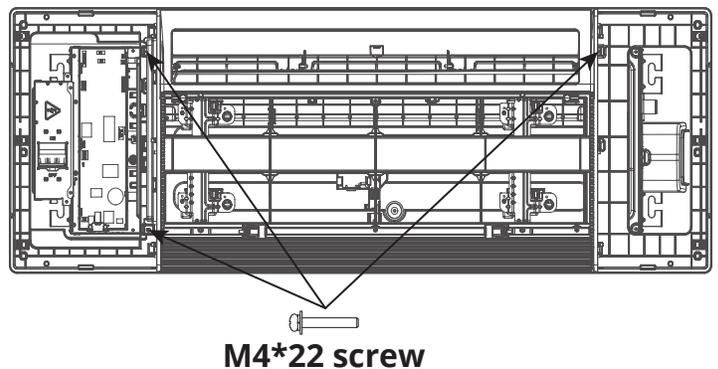


Fig. 7.3

5. Now, open the two covers on each side of the panel and install three m4*22 screws in the locations shown in **Fig. 7.4** below. **NOTE: there are eight M4*22 screws provided, only six will be used for the installation. There are two ST3.9*16 screws provided, only one will be used for the panel installation. The remaining screws are to be kept as spares.**



M4*22 screw

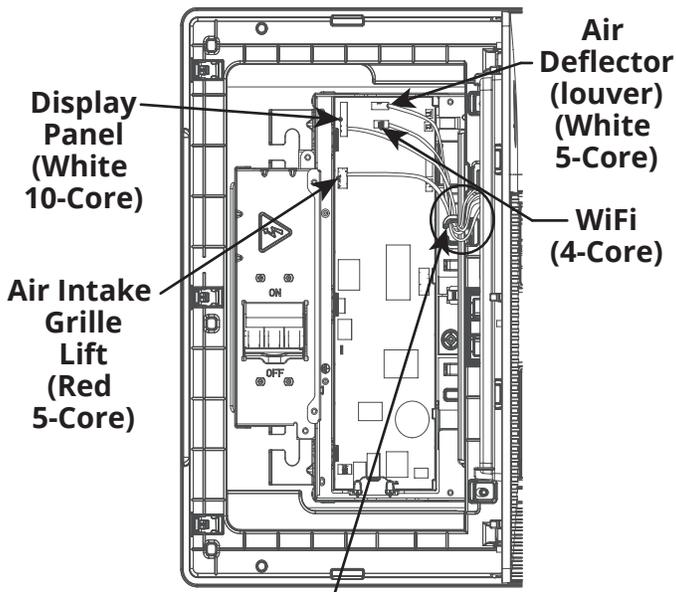
Fig. 7.4

Cassette Panel Installation & Wireless Controller Module

Step 2: Connect Panel Display Board to Indoor Unit Main Control Board

In this step, you will connect the panel wiring harness for the display board to the main control board of the indoor unit.

1. Connect each connector of the panel wiring harness to its corresponding port on the main control board. The corresponding connectors and ports should be color-coded match one another. Please refer to **Fig. 7.5** below for an illustration of the connectors and ports of the main control board.
2. When the connections are complete, please clip the wires to the buckle of the main control board. Refer to **Fig. 7.5** below.



When connections are completed, please clip the wires to the buckle.

Fig. 7.5

3. Reinstall the control box cover you removed earlier in the installation by reinstalling the two screws. Then, flip the circuit breaker switch to the **ON** position. Refer to **Fig. 7.6** below.

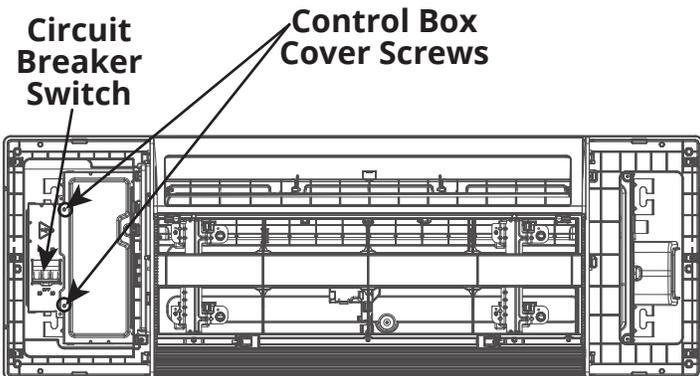
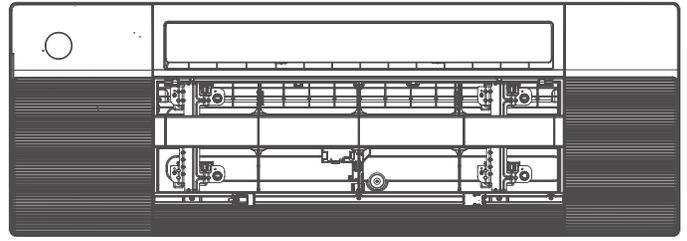
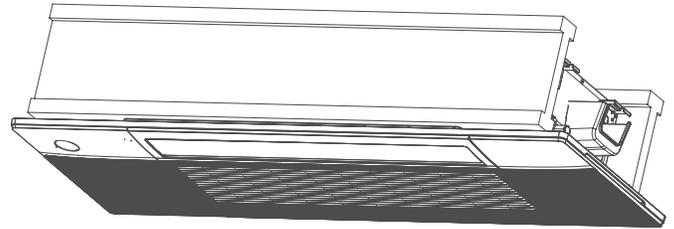


Fig. 7.6

4. Close both sides of the panel.



5. During the test-run portion of the installation the air intake grille will automatically retract and the display panel will illuminate.



Step 3: Install Wireless Controller Module

If you have selected the wireless control module it is recommended that it be installed during this portion of the installation process. Please follow the steps below to install the module into the cassette.

1. Remove the protective cap of the wireless module (refer to **Fig. 7.7** below).

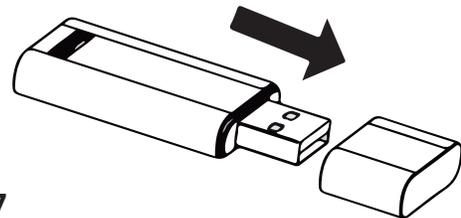


Fig. 7.7

2. Open the side panel of the cassette that contains the display panel. On the back of the panel is a cover that is held in place with a screw. Loosen the screw and remove the panel (see **Fig. 7.8** below).

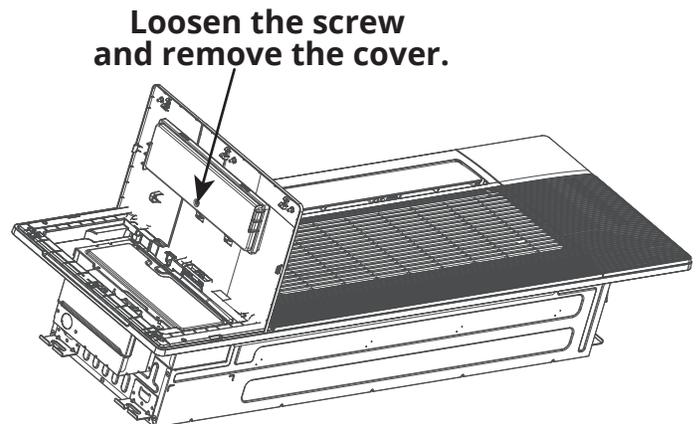


Fig. 7.8

Cassette Panel Installation & Wireless Controller Module

3. Open the front panel and insert the wireless module into the designated interface (refer to Fig. 7.9 and the images below).

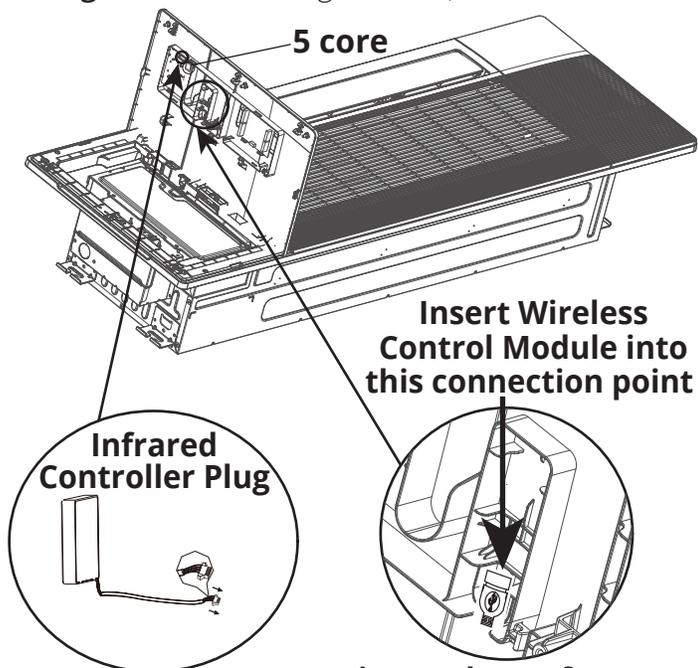
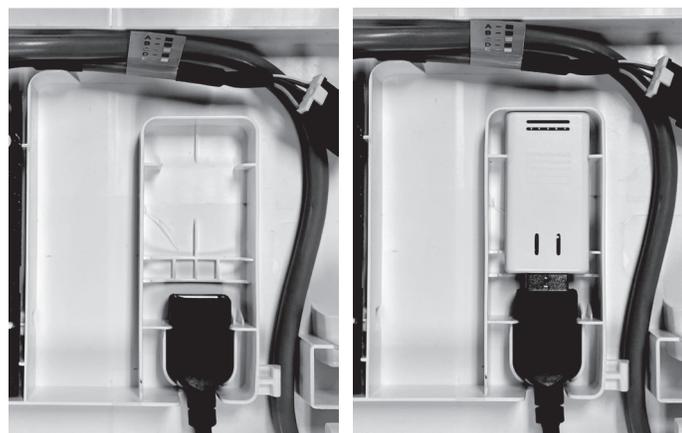


Fig. 7.9

Designated Interface for Wireless Control Module



4. Reinstall cover by reinstalling the screw you previously removed. Then, close the side panel.

For more detailed information about the wireless module and its operation, please refer to the user manual that was included with the module.

! IMPORTANT!

Once the entire installation has been completed and the system has been fully tested, the area above and around the cassette should be re-insulated. This will help to guard against the condensation/sweating of the unit that can occur due to the differences in the room temperature the cassette provides air to and the environment it is installed in (example: attic). If the area is not re-insulated it could cause property damage and the system to malfunction!

! WARNING

The interface inside the cassette is only compatible with the wireless control module that is available from the unit manufacturer. If any other module from another manufacturer is attempted to be used to operate this unit, it could cause it to malfunction.



BEFORE PERFORMING ELECTRICAL WORK, READ THESE REGULATIONS

****NOTE: ELECTRICAL WORK MUST BE COMPLETED BY A QUALIFIED TECHNICIAN!****

- ⚠ **DO NOT** connect another appliance to the outlet for the unit. Only connect the unit to an individual branch circuit outlet.
- ⚠ **DO NOT** allow wires to touch or rest against the refrigerant piping, compressor, or any other moving parts within the unit.
- 1. All wiring must comply with local and national electrical codes, regulations, and must be installed by a licensed electrician.
- 2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
- 3. If there is a serious safety issue with the power supply, stop work immediately. Explain the issue to the client, and refuse to continue the installation 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 power to fixed wiring, a surge protector and main power switch should be installed.
- 6. The circuit, including any switches, should have a capacity 1.5 times the maximum unit current (amps).
- 7. A qualified technician must use an approved circuit breaker or switch that disconnects all poles and has a contact separation of at least 1/8 in (3 mm) incorporated in the fixed wiring.
- 8. Make sure the unit/system is properly grounded.
- 9. Every wire must be firmly and securely connected. Loose wiring can cause the terminal to overheat, which could result in a malfunction and/or fire.
- 10. If the unit has an auxiliary electric heater, it must be installed as least 40 in (1 m) away from combustible materials.
- 11. To avoid electrical shock, never touch the electrical components soon after the power supply has been turned off. Always wait 10 minutes or more before touching the electrical components once the power has been turned off.
- 13. Ensure that the electrical wiring and signal wiring do not cross. This could cause distortion and interference.
- 14. The unit must be connected to the main outlet. Normally, the power supply must have an impedance of 32 ohms.



WARNING

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

NOTE: The wire colors of this series/model may differ from previous models, other series and general conventions. All wiring must be performed in accordance with the wiring diagram on the back of the wiring cover of the outdoor condenser and/or the wiring diagrams found in this section of the manual.

- ⚠ **DO NOT MIX UP LIVE AND NULL WIRES!** This is dangerous and can cause the air conditioning unit to malfunction. Make sure you clearly distinguish the Live ("L") Wires from the other wires.

Air Switch Information

NOTE ON AIR SWITCH

- When the maximum current of the air conditioner is more than 16A, an air switch or leakage protection switch with protective device shall be used (purchased separately).
- When the maximum current of the air conditioner is less than 16A, the power cord of the air conditioner should be equipped with a plug.

Systems in the North American market should be wired according to NEC & CEC requirements and regulations.

Please refer to the different air switch wiring diagrams Fig. 8.1 below:

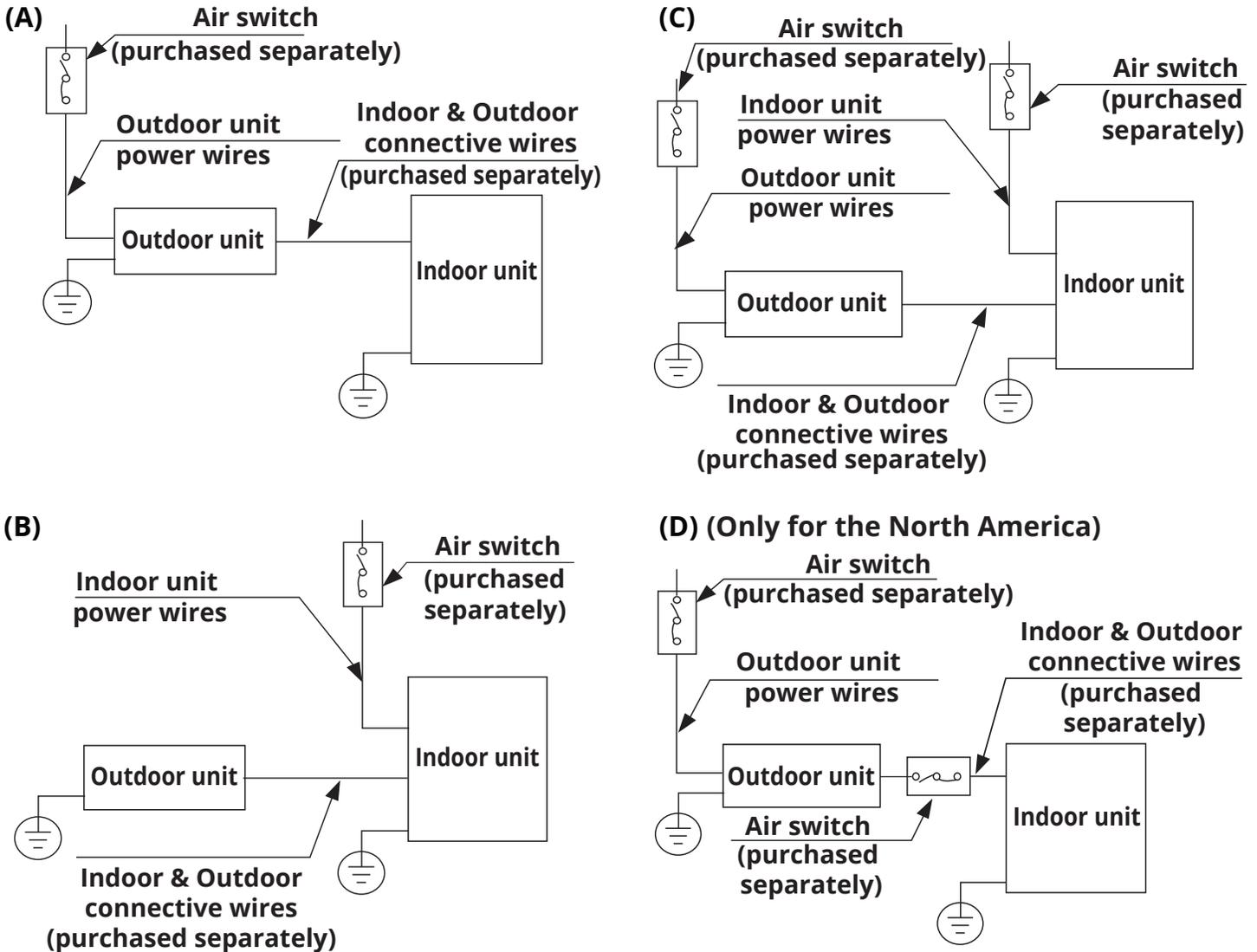


Fig. 8.1

NOTE: The diagrams above are illustration/reference purposes only

18K Single-Zone Wiring Information & Diagrams

18K Single-Zone Wiring Information

If the system being installed is an 18K single-zone cassette and condenser, please read the information below before proceeding to the next step in the installation. If you're installing a ceiling cassette as part of a multi-zone system, please proceed to the next page for the multi-zone wiring information and diagrams.

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

WARNING

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

Note that the wire colors of this series/model may differ from previous models, other series and general wiring conventions. All wiring must be performed in accordance with the wiring diagrams shown in Fig. 8.2 and demonstrated in the images below.

WIRING DIAGRAM 18K SINGLE-ZONE CONDENSER

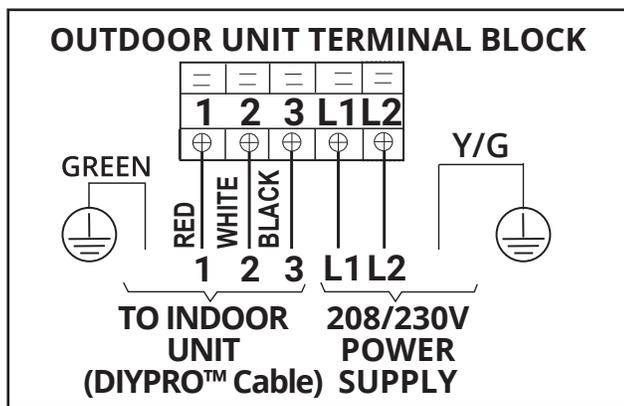
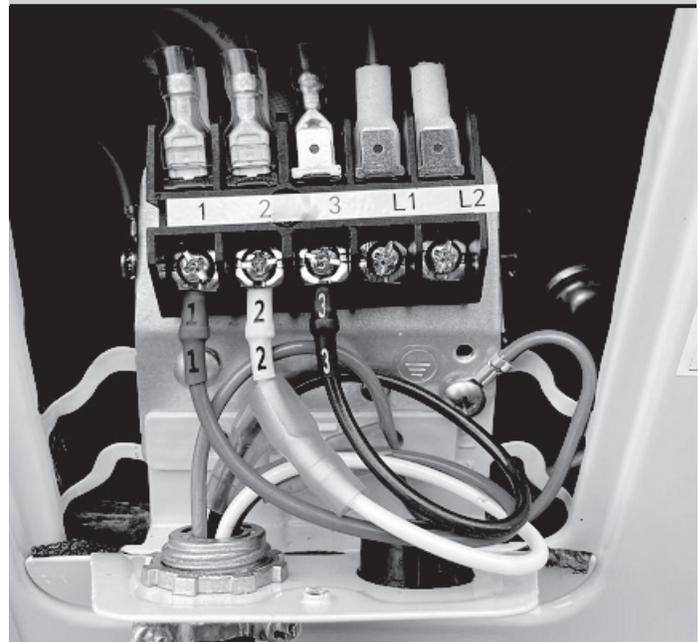


Fig. 8.2

 **WIRES AND TERMINALS ARE NUMBERED TO CORRESPOND WITH ONE ANOTHER AS SHOWN BELOW.**



WARNING

 **DO NOT MIX UP LIVE AND NULL WIRES.**

- This is dangerous and could cause the unit to malfunction. Make sure you clearly distinguish the live ("L") wires from the other wires.
- All wiring must be performed in accordance with the wiring diagrams shown in Fig. 7.1 and demonstrated in the images shown here.

SELECT THE CORRECT POWER CABLE

- See table below for gauge requirements

NOTE: The table below is a standard chart, the AWG ratings and wiring needs will change based on wire length and temperature.

Minimum Wire Gauge for Power Cables

Capacity of Outdoor Unit	Appliance Amps (A)		AWG	
	MCA	MOP	Min.	Pref.
18K	18	30	12	10

Multi-Zone System Wiring Information

If the ceiling cassette is being installed as part of a multi-zone system, please read the information below and refer to the wiring diagrams on the following pages before proceeding to the next step in the installation.

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

CAUTION

NOTE: ELECTRICAL WORK MUST BE COMPLETED BY A QUALIFIED TECHNICIAN!

Connect the connective cables to the terminals, as identified with diagrams and illustrations on the following pages, with their matching numbers on the terminal block of the indoor and outdoor units. Ensure that all screws and wires are securely fastened to the terminal block. For example, in the US models shown in the Fig. on the following page, Terminal L1(A) of the outdoor unit must connect with terminal 1 on the indoor unit. Continue to match zone to zone for any additional connections.

See wiring diagrams on the following pages for each type of multi-zone system (Fig. 8.4 - 8.7 on the following page) and take note of the following precautions:

- Always have an individual power circuit specifically for the air conditioner.
- Always follow the circuit diagram posted on the inside of the control cover.
- Check the specifications for the power source before proceeding.
- Confirm the starting voltage is maintained at more than 90 percent of the rated voltage listed on the name plate.
- Confirm that the electrical capacity is sufficient.
- Confirm that the cable thickness is as specified in the power source specifications.
- Always install an earth leakage circuit breaker in wet or moist areas.
- The following can be caused by a drop in voltage; vibration of a magnetic switch, damaging the contact point, broken fuses, and disturbance of normal functioning.
- Disconnection from a power supply must be incorporated into the fixed wiring. It must have an air gap contact separation of at least 1/8 in (3 mm) in each active (phase) conductors.
- Before accessing terminals, all supply circuits must be disconnected.
- If using magnetic rings (optional - not supplied), you must use the correct magnetic rings on your equipment to satisfy the EMC compulsory regulations required by the international standard CISPR 14-1:2005/A2:2011. Please make sure to apply the correct magnetic rings on the equipment according to the wiring diagrams. Please contact your distributor or installer for further information.

SELECT THE CORRECT POWER CABLE

- See table below for gauge requirements

NOTE: The table below is a standard chart, the AWG ratings and wiring needs will change based on wire length and temperature.

Minimum Wire Gauge for Power Cables

Capacity of Outdoor Unit	Appliance Amps (A)		AWG	
	MCA	MOP	Min.	Pref.
18K	18	25	12	10
27K	26	40	10	8
36K	27	45	10	8
48K	40	60	8	6

WARNING

⚠ DO NOT MIX UP LIVE AND NULL WIRES.

- This is dangerous and could cause the unit to malfunction. Make sure you clearly distinguish the live ("L") wires from the other wires.
- All wiring must be performed in accordance with the wiring diagrams shown in Figs. 8.4 - 8.7 and demonstrated in the images shown here.

Multi-Zone System Wiring Information & Diagrams

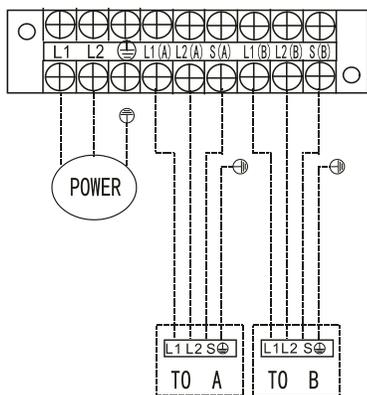
NOTE ON PROPER USE OF MAGNETIC RINGS IN MULTI-ZONE WIRING

This product is designed to run on 60Hz frequency which is the North American standard. Run the main power cord through the lower line-outlet of the cord clamp. Use a magnetic ring (not supplied, optional part) to hitch the connective cable of indoor and outdoor units after installation. One optional magnetic ring is used for one cable.

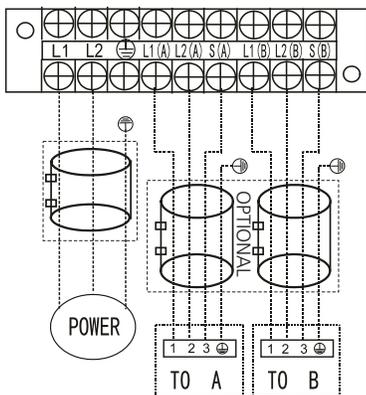
---- This symbol indicates field wiring.



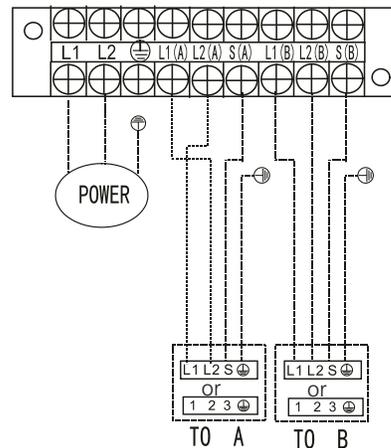
This symbol indicates optional magnetic ring.



✓
Correct



✓
Correct



✗
Incorrect

Fig. 8.3

Wiring Diagrams (2-Zone & 3-Zone)

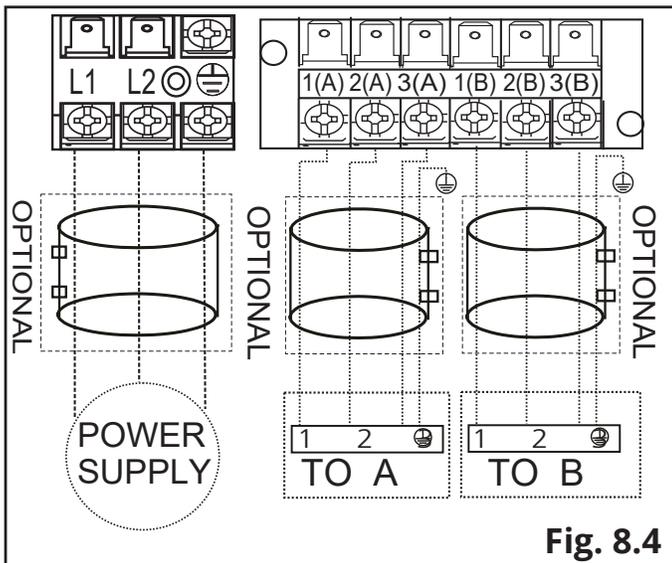


Fig. 8.4

DIY-MULTI2-18HP230C (Up to 2 zones)

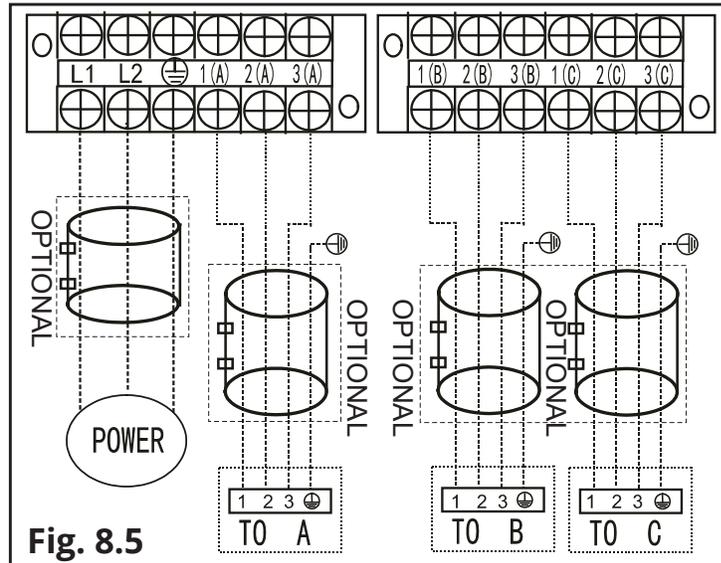


Fig. 8.5

DIY-MULTI3-27HP230C (Up to 3 zones)

NOTE: For wiring diagrams for 4-zone and 5-zone systems, please refer to the next page.

Wiring Diagrams (4-Zone & 5-Zone)

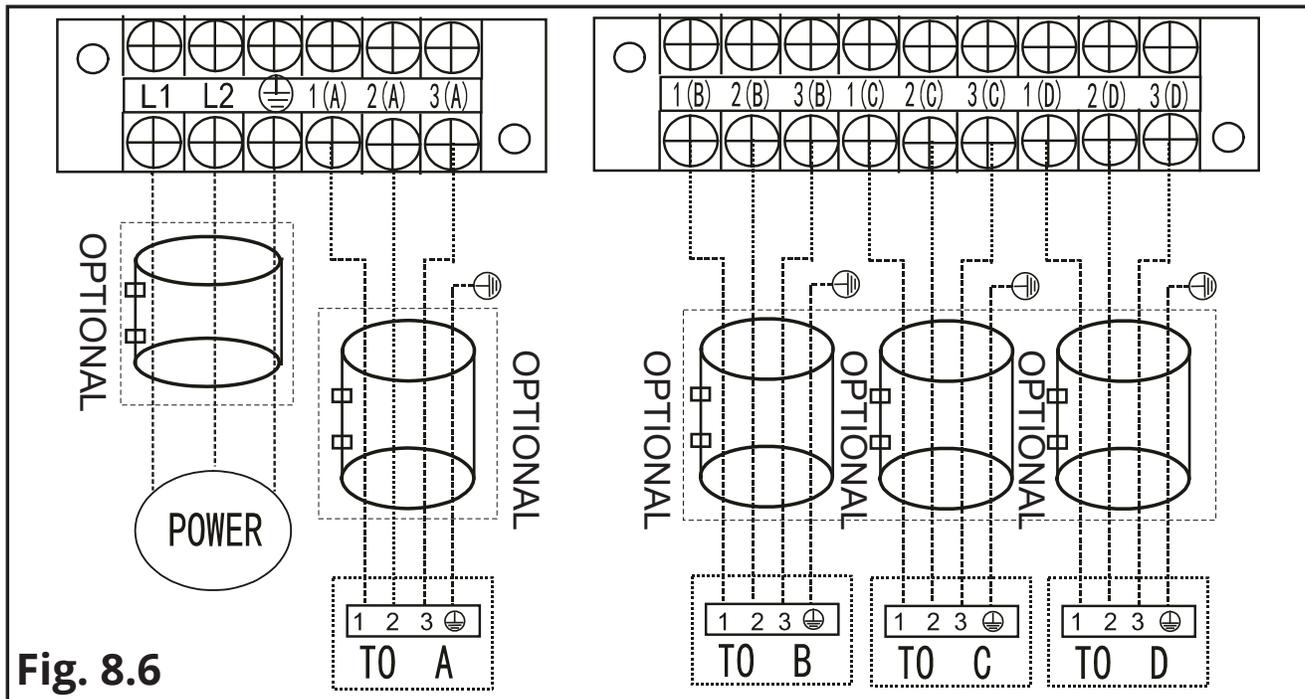


Fig. 8.6

DIY-MULTI4-36HP230C (Up to 4 zones)

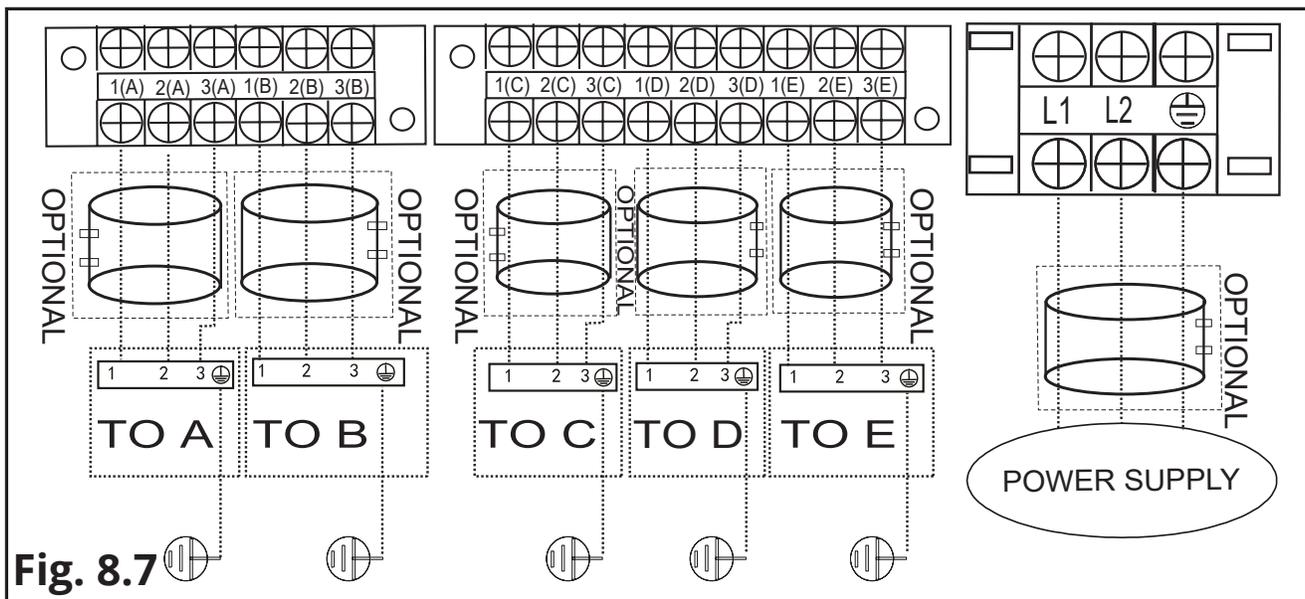


Fig. 8.7

DIY-MULTI5-48HP230C (Up to 5 zones)

Connecting DIYPRO™ Cable to Outdoor Unit

Step 1: Connect DIYPRO™ Cable to Outdoor Unit

1. Remove the screws from the electrical wiring cover from the outdoor condenser, as shown in the image below and **Fig. 8.8**, and remove it.

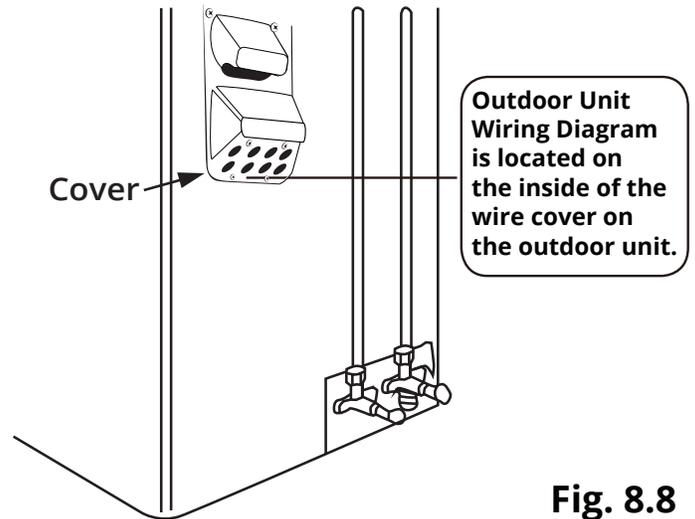
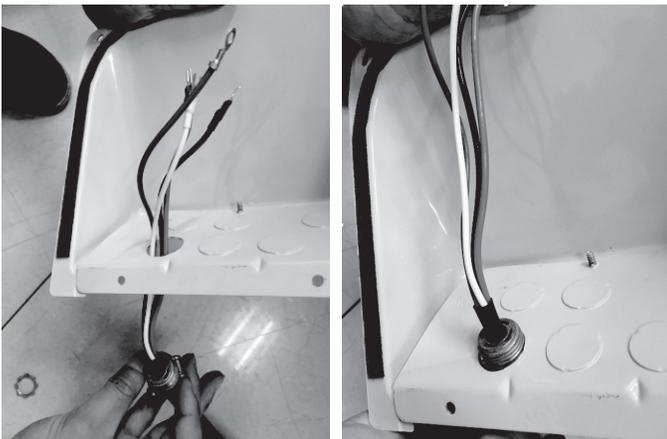


Fig. 8.8

2. Remove the retaining nut from the end of the DIYPRO™ cable that you fed through the wall hole earlier in the installation, as shown in the image below.



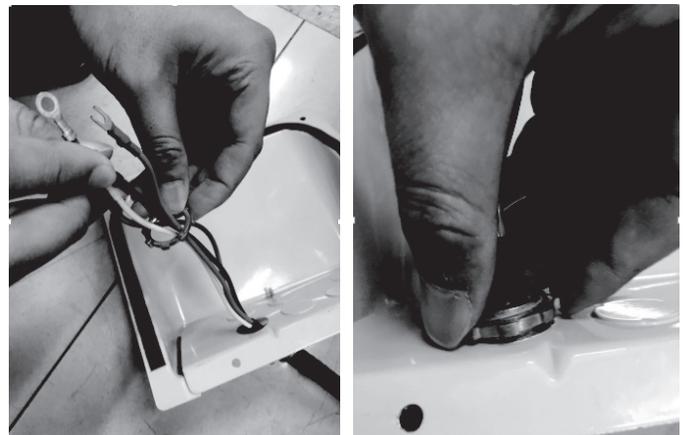
3. Now, pull the end of the DIYPRO™ cable through the hole of the electrical cover you removed earlier. Please refer to the images below.



! WARNING

ALL WIRING MUST BE INSTALLED STRICTLY IN ACCORDANCE WITH THE WIRING DIAGRAM LOCATED ON THE INSIDE OF THE OUTDOOR CONDENSER WIRE COVER AS SHOWN IN FIG. 8.8.

4. Now, secure the DIYPRO™ cable to the electrical cover by pushing the threaded end of the cable into the hole and reinstalling the retaining nut previously removed. Please refer to the images below. **If installing a multi-zone system, continue to do this for each of the DIYPRO™ cables coming from each of the air handlers installed.**

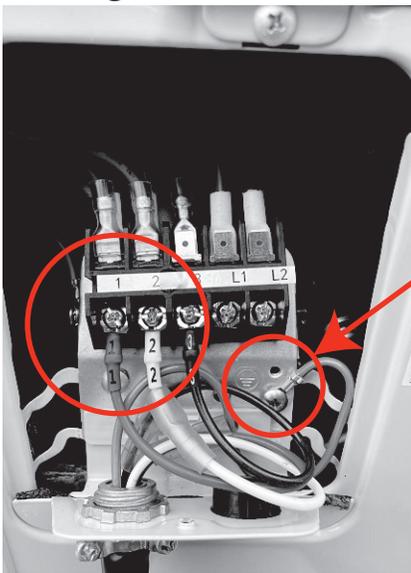


Connecting DIYPRO™ Cable to Outdoor Unit

5. Then, you will connect the wires to the terminal block. Each wire should be numbered and correspond with a connection port on the terminal block. Match up each wire with the correct port, and firmly screw the u-lug of each wire to its corresponding terminal. Now, screw the ground wire into the bottom screw of the terminal block, as shown in the images below.

If installing a multi-zone system, continue to do this with all of the DIYPRO™ cables from each of the air handlers. Use the wiring diagrams for your system on the previous pages and the back of the wire cover as a guide until they are all connected to the condenser.

Single-Zone Condenser Terminal Block

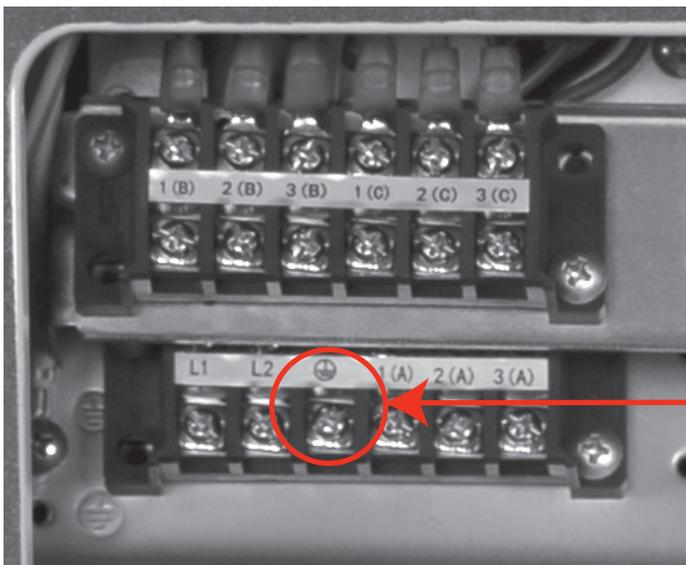


Ground wire Connection

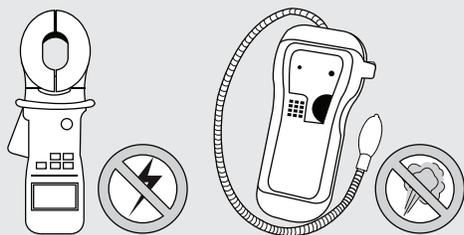
6. Finally, reinstall the electrical wiring cover and secure it by reinstalling the screws you previously removed.



Multi-Zone Condenser Terminal Block



Ground wire Connection



WARNING – RISK OF ELECTRICAL SHOCK

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

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 the installation manual.

BEFORE TEST RUN

Check Insulated Resistance

The insulated resistance must be more than 2MΩ.

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.

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.

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

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 pipe connection points DO NOT leak, replace the valve cover on the outside unit and wrap and insulate the piping connections of the indoor unit.

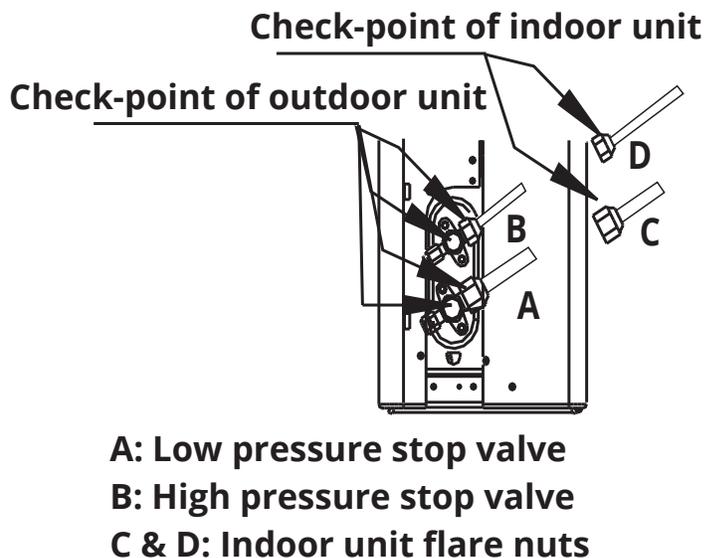


Fig. 9.1

NOTE: The illustration above is for demonstration purposes only. It depicts the check points of a single-zone system. For a multi-zone system, perform this check at all of the connection points for each air handler.

Before Test Run

A test run must be performed after the entire system has been completely installed. Complete and confirm the list of checks below before performing a test run.

List of Checks to Perform Before Test Run

- The indoor & outdoor units are properly installed.
- All piping & wiring are properly connected.
- No obstacles are near the inlet and outlet of the unit that might cause poor performance or product malfunction.
- Refrigeration system and all refrigerant piping connection points ***DO NOT*** leak.
- Drainage system is unimpeded and drains to a safe location.
- Heating insulation is properly installed.
- Ground wires are properly connected and system is properly grounded.
- Length of the piping and additional refrigerant stow capacity have been recorded.
- Power voltage is the correct voltage for the unit.
- Wall Hole Sleeve is packed airtight

Test Run Instructions

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.**

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

1. Ensure both the liquid and gas stop valves are fully opened.
2. Connect power to the unit. Then, turn on the main power switch and allow the unit to warm up.
3. Set the air conditioner to **COOL** mode.
4. While the system is running, perform the checks listed in the tables below:

List of Checks to Perform During Test Run

For Indoor Unit

- Ensure the room temperature is being registered/displayed correctly
- Ensure the manual buttons of the indoor air unit function properly
- Check to see that the drainage system unimpeded and draining smoothly
- Ensure there is no vibration or abnormal noise during operation

For Outdoor Unit

- Ensure refrigerant piping connections ***DO NOT*** leak.
- Ensure there is no vibration or abnormal noise during operation.
- Ensure the air current, noise, and water generated by the unit ***DO NOT*** pose a safety hazard or cause a disruption to your neighbors.

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

Drainage Test Instructions

The drainage test is performed to ensure the drain pipe flows smoothly. **NOTE: Units being installed in new buildings should have this test performed before finishing the ceiling.**

1. Remove the test cover and add 2000 ml of water to the tank through the attached tube.
2. Turn on the main power switch and run the air conditioner in **COOL** mode.
3. Listen to the sound of the drain pump to see if it makes any unusual noises.

4. Ensure water is being drained from the pipe. It could take up to one minute before the unit begins to drain depending on the length of the drain pipe.
5. Ensure there are no leaks in any of the piping.
6. Stop the air conditioner. Then, turn off the main power switch.
7. Now, reinstall the test cover.

Water Discharge Test Instructions

IMPORTANT:

- **Before performing the test, ensure that the water discharge pipeline is installed and sealed properly.**
 - **If this unit is being installed during construction of the location, ensure this test is performed before the ceiling is finished or paved.**
1. Connect the power supply, and set the air conditioner to operate in the **COOL** mode. Ensure you can hear the drainage pump operating.
 2. Allow the unit to operate in **COOL** mode for at least 10 minutes.
 3. Then, stop the air conditioner and wait for 3 minutes. After 3 minutes has passed, check if there is anything unusual with how the unit is draining. If the water discharge piping layout is not correct, the excessive water flow will cause a water level error code to be triggered and the "EE" error code will be displayed on the display panel. There could even be water overflowing from the water pan.
 4. Continue to add water until the alarm for excessive water levels is triggered. Then, check if the drainage pump drains the water immediately. If after three minutes the water level does not fall below the warning level, the unit will shut down. **NOTE: If this occurs, you will need to turn off the power supply, and drain away the accumulated water before the unit can be turned on normally.**
 5. Turn off the power supply, remove the water manually using the drainage plug, and put the test cap back in its original place.

! CAUTION

The drainage plug at the bottom of the unit body is used to discharge accumulated water from the drain pan if the air conditioner should ever malfunction. When the unit is operating normally, ensure the drainage plug is properly installed and seated to prevent water from leaking out of the unit.

! THANK YOU

Thank you for purchasing a MRCOOL® ductless mini-split heating and air conditioning product.

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!

! IMPORTANT!

Once the entire installation has been completed and the system has been fully tested, the area above and around the cassette should be re-insulated. This will help to guard against the condensation/sweating of the unit that can occur due to the differences in the room temperature the cassette provides air to and the environment it is installed in (example: attic). If the area is not re-insulated it could cause property damage and the system to malfunction!



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!

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 the ON/OFF button.	The unit has a 3 minute restart protection feature that prevents the unit from overloading from quick restarts. The unit cannot be restarted within 3 minutes of being turned off.
	Cooling and heating models: If the operation light and PRE-DEF (Pre-heating/Defrost) indicators are lit up, it indicates the outdoor temperature has dropped low enough that the unit's anti-frost is activated in order to defrost the unit.
	In cooling-only models: If the "Fan-Only" indicator is lit up, it indicates the outdoor temperature has dropped low enough that the unit's anti-frost is activated in order to defrost the unit.
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.
	The system has reached the set temperature, at which point the unit will turn off the compressor. The unit will continue operating under fan mode, to circulate the air, until the temperature fluctuates again. At this point the compressor will turn back on.
The indoor unit emits a white mist	In humid regions, a large temperature difference between the room's air and the conditioned air from the unit can cause a white mist.
Both the indoor unit 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	A squeaking sound can be heard when the system is OFF or in COOL mode. The noise can also be heard when the drain pump is in operation.
	A squeaking sound may occur after running the unit in HEAT mode due to expansion and contraction of the unit's plastic parts.
The outdoor unit makes noises	The unit will make different sounds based on its current operating mode.

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

Troubleshooting

Issue	Possible Causes
Both indoor and outdoor units make noises	If a low hissing sound is heard during operation, this is normal. It is caused by refrigerant gas flowing through the system.
	If a low hissing sound is heard when the system starts, is defrosting, or has just stopped running this is normal. The noise is caused by the refrigerant gas stopping or changing direction.
	If a squeaking sound is heard, this can be caused by the normal expansion and contraction of the plastic and metal parts during operation because of temperature changes.
Dust is emitted from either the indoor or outdoor unit	The unit may accumulate dust during extended periods of not being used. This dust will be emitted from the system when it is first turned on. This can be mitigated by covering the unit during long periods of non-use.
The unit emits a bad odor	The unit may absorb odors from the environment it operates in (furniture, cooking, cigarettes, etc.) which will be emitted during operation.
	The unit's filters have become moldy and should be cleaned.
The fan of the outdoor unit does not operate	During operation, the fan speed is controlled to optimize product operation.

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

Troubleshooting

Should any problems occur, please check the following items before contacting the manufacturer or service provider.

Issue	Possible Causes	Solution
Poor Cooling Performance	Temperature setting may be higher than the ambient room temperature.	Lower the temperature setting.
	The heat exchanger in the indoor and out door unit is dirty.	Clean the 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 off the unit, remove the obstruction and then turn it back on.
	Doors and window are open.	Ensure that all doors and windows are closed while operating the unit.
	Excessive heat generated by sunlight.	Close windows and curtains during periods of bright sunshine or high heat.
	Too many sources of heat in the room (people, computers, electronics, etc.).	Reduce the amount of heat sources.
Poor Heating Performance	Low refrigerant due to leak or long-term use.	Check for leaks and reseal if necessary. Then, top off the refrigerant.
	Cold air is entering through doors and windows.	Make sure that all doors and windows are closed during operation.
	Low refrigerant due to leak or long-term use.	Check for leaks and reseal if necessary. Then, top off the refrigerant.

Troubleshooting

Issue	Possible Causes	Solution
The unit is not working	Power outage or failure.	Wait for power to be restored.
	The power is turned off.	Turn the power on.
	The fuse is blown or burned out.	Replace the fuse.
	The unit's 3 minute protection has been activated.	Wait 3 minutes after restarting the unit.
	Timer is activated.	Turn off the timer.
The unit starts and stops frequently	The system has too much or not enough refrigerant.	Check for leaks and recharge the system with refrigerant.
	Incompressible gas or moisture has entered the system.	Evacuate and recharge the system with refrigerant.
	A system circuit is blocked.	Determine with circuit is blocked and replace the malfunctioning piece of equipment.
	The compressor is broken.	Replace the compressor.
	The voltage is too high or too low.	Install a manostat to regulate the voltage.

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

Automatic Wiring/Piping Correction Function for Multi-Zone Condensers ONLY!

NOTE

The function for the automatic wiring/piping correction illustrated below is intended for use by a licensed electrical technician only.

Newer models now feature automatic correction of wiring/piping errors. Press the "check switch" on the PCB board of the outdoor unit for 5 seconds until the LED displays "CE." This indicates that this function is working. Approximately 5-10 minutes after the switch is pressed, the "CE" will disappear, meaning that the wiring/piping error is corrected and all of the wiring/piping is properly connected (refer to Figs. 11.1 & 11.2).

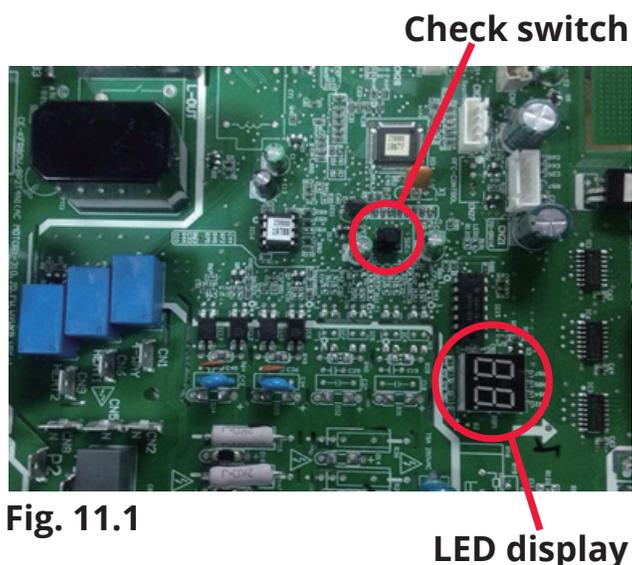
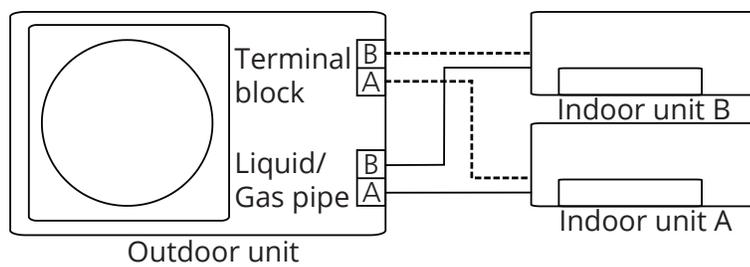


Fig. 11.1

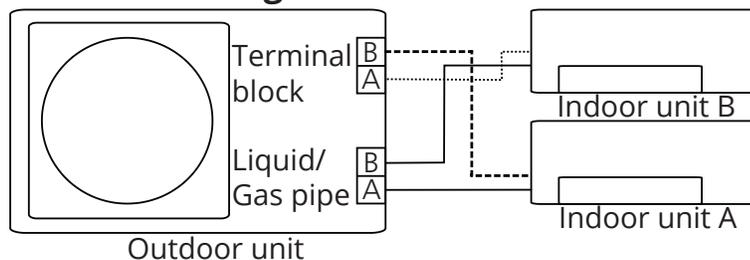
How To Activate This Function

1. Check that outside temperature is above 41°F (5°C). This function does not work when outside temperature is not above 41°F (5°C).
2. Check that the stop valves of the liquid pipe and gas pipe are open.
3. Turn on the breaker and wait at least 2 minutes.
4. Press the check switch on the outdoor PCB board unit LED display "CE".

Correct



Incorrect wiring



Incorrect wiring

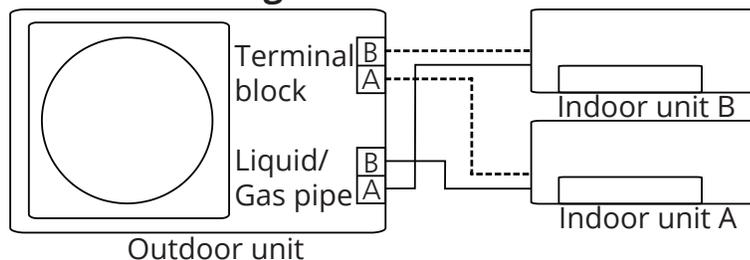


Fig. 11.2

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

DIY® Ceiling Cassette

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.