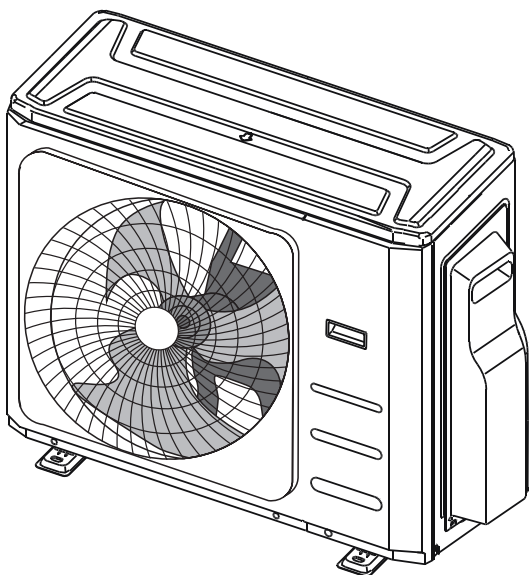




# Multi Zone Outdoor Installation Manual



## IMPORTANT NOTE:

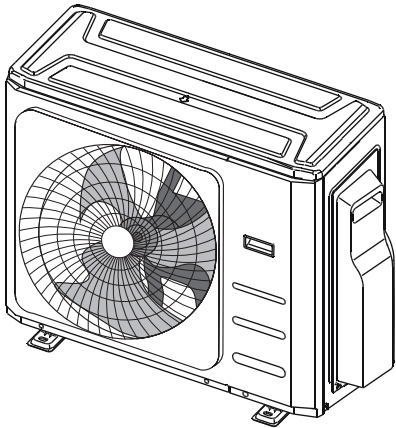
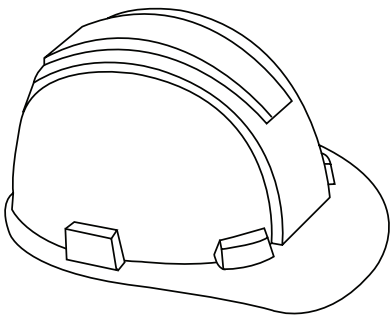
- Read this manual carefully before installing or operating your new air conditioning unit. Make sure to save this manual for future reference.
- This manual only describes the installation of outdoor unit. When installing the indoor unit, refer to the installation manual of indoor unit.



# Table of Contents

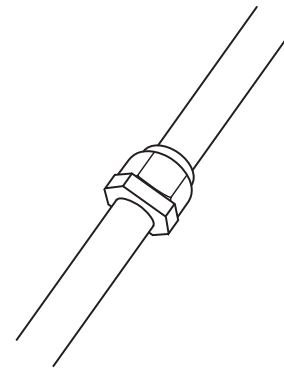
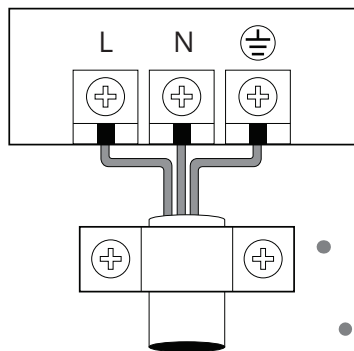
## Installation Manual

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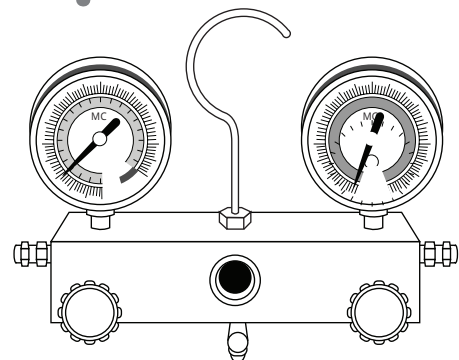


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# Safety Precautions

1

## Read Safety Precautions Before Installation

Incorrect installation due to ignoring instructions can cause serious damage or injury.

The seriousness of potential damage or injuries is classified as either a **WARNING** or **CAUTION**.



Failure to observe a warning may result in death. The appliance must be installed in accordance with national regulations.



Failure to observe a caution may result in injury or equipment damage.



**This symbol indicates that you must never perform the action indicated.**



### **WARNING**

1. Carefully read the Safety Precautions before installation.
2. For commercial applications, such as restaurant kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended.
3. Only trained and certified technicians should install, repair and service this air conditioning unit.
4. Improper installation may result in electrical shock, short circuit, leaks, fire or other damage to the equipment and personal property.
5. Strictly follow the installation instructions set forth in this manual.
6. Before you install the unit, consider strong winds, typhoons and earthquakes that might affect your unit and locate it accordingly.
7. Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
8. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
9. Children should be supervised to ensure that they do not play with the appliance.
10. An all-pole disconnect device must be incorporated in the high voltage wiring in accordance with local and national electrical codes.
11. Any person who is involved with working on a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority.
12. Servicing shall only be performed as recommended by the equipment manufacturer.
13. Maintenance and repair should be carried out by qualified personnel.
14. Keep ventilation openings clear of obstruction.
15. Do not turn on the power until all work has been completed.
16. When moving or relocating the air conditioner, consult experienced service technicians for disconnection and reinstallation of the unit.

## Accessories

2

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

Name			Shape	Quantity
Installation plate				1
Plastic expansion sheath				5-8 (depending on models)
Self-Tapping Screw A ST 3.9X25				5-8 (depending on models)
Drain joint (some models)				1
Seal ring (some models)				1
Insulated copper refrigerant lines	Liquid side	1/4"		Parts you must purchase. Consult a technician for the proper size.
		3/8"		
	Gas side	3/8"		
		1/2"		
		5/8"		
Owner's manual				1
Installation manual				1
Refrigerant line adapter (packed with the indoor or outdoor unit, depending on models) NOTE: Pipe size may differ from appliance to appliance. To meet different pipe size requirements, sometimes the pipe connections need an adapter installed on the outdoor unit .				Optional part (1-5 pieces for outdoor unit, depending on models)

### Optional Accessories

There are two types of remote controls: wired and wireless.

Select a remote controller based on customer preferences and requirements and install in an appropriate place.

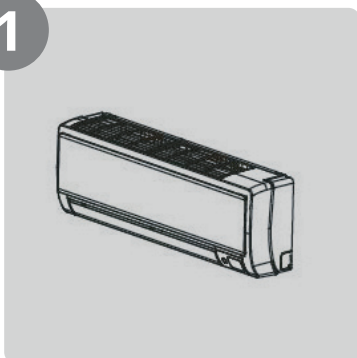
Refer to catalogues and technical literature for guidance on selecting a suitable remote controller.

# Installation Overview

3

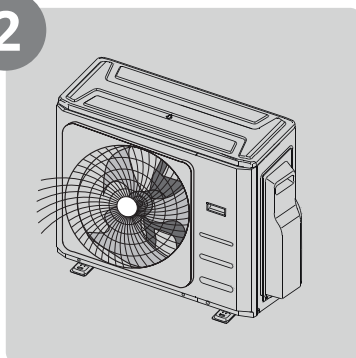
## INSTALLATION ORDER

1



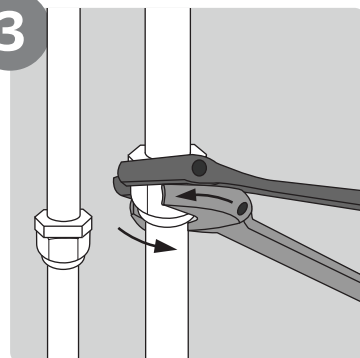
**Install the indoor unit**  
(separate manual)

2



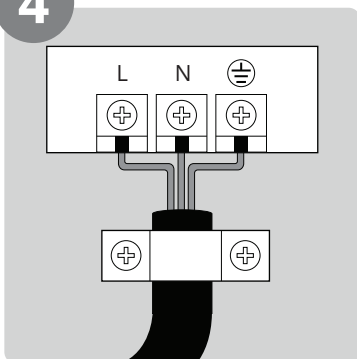
**Install the outdoor unit**  
(Page 09)

3



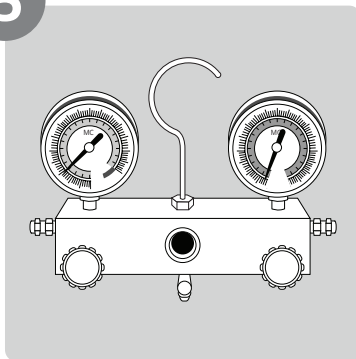
**Connect the refrigerant**  
**pipes (Page 12)**

4



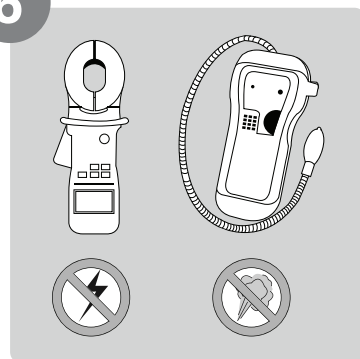
**Connect the wires**  
(Page 14)

5



**Evacuate the**  
**refrigeration system**  
(Page 21)

6



**Perform a test run**  
(Page 24)

# Specifications

4

**Table 5.1**

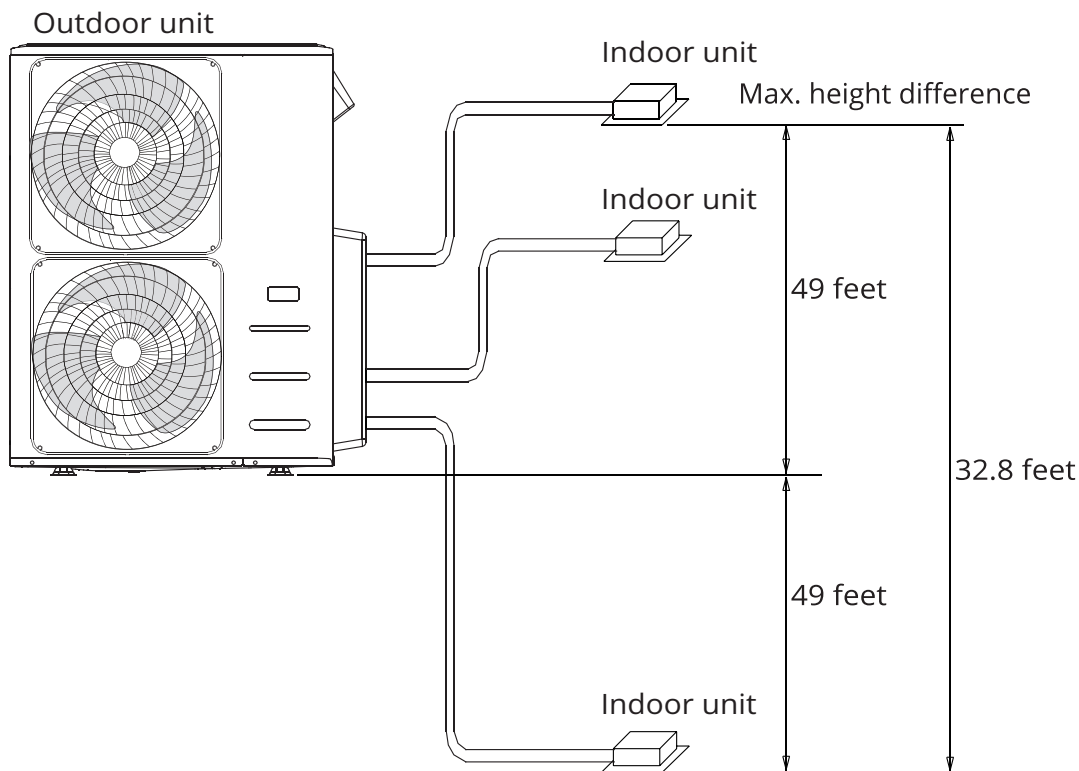
Number of units that can be used together	Connected units	1-5 units depending on model
Compressor stop/start frequency	Stop time	3 min or more
Power source voltage	voltage fluctuation	within $\pm 10\%$ of rated voltage
	voltage drop during start	within $\pm 15\%$ of rated voltage
	interval unbalance	within $\pm 3\%$ of rated voltage

**Table 5.2**

**Unit: feet.**

	2 Zone	3 Zone	4 Zone	5 Zone
Max. length for all rooms	131'	197'	262'	262'
Max. length for one indoor unit	82'	98'	115'	115'
Max. height different between indoor and outdoor unit	49'	49'	49'	49'
Max. height different between indoor units	33'	33'	33'	33'
Min. length	10' per zone	10' per zone	10' per zone	10' per zone

When installing multiple indoor units with a single outdoor unit, ensure that the length of the refrigerant pipe and the drop height between the indoor and outdoor units meet the requirements illustrated in the following diagram:



# Outdoor Unit Installation

# 5

## Outdoor Unit Installation Instructions

### Step 1: Select installation location.

The outdoor unit should be installed in the location that meets the following requirements:

- ❑ Place the outdoor unit as close to the indoor unit as possible.
- ❑ Ensure that there is enough room for installation and maintenance.
- ❑ The air inlet and outlet must not be obstructed or exposed to strong wind.
- ❑ Ensure the location of the unit will not be subject to snowdrifts, accumulation of leaves or other seasonal debris. If possible, provide an awning for the unit that does not obstruct airflow or maintenance access.
- ❑ The installation area must be dry and well ventilated.
- ❑ There must be enough room to install the connecting pipes and cables and to access them for maintenance.

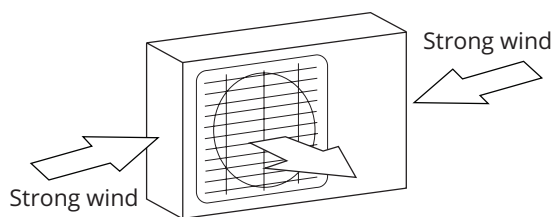


Fig 6.1

- ❑ The area must be free of combustible gases and chemicals.
- ❑ The pipe length between the outdoor and indoor unit may not exceed the maximum allowable pipe length.
- ❑ If possible, avoid installing the unit where it is exposed to direct sunlight.
- ❑ If possible, make sure the unit is located far away from your neighbors' property so that the noise from the unit will not disturb them.
- ❑ If the location is exposed to strong winds (for example: near a seaside), the unit must be placed against the wall to shelter it from the wind. If necessary, use an awning with at least 18" of clearance. (See Fig. 6.1 & 6.2)
- ❑ Install the indoor and outdoor units, cables and wires at least 3 feet from televisions or radios to prevent static or image distortion. Depending on the radio waves, 3 feet may not be enough to eliminate all interference.

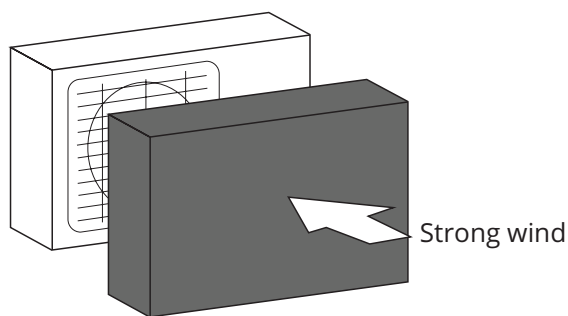


Fig 6.2

### Step 2: Install outdoor unit.

Fix the outdoor unit with anchor bolts (M10)

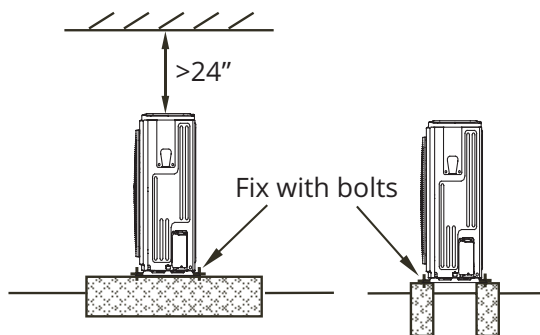


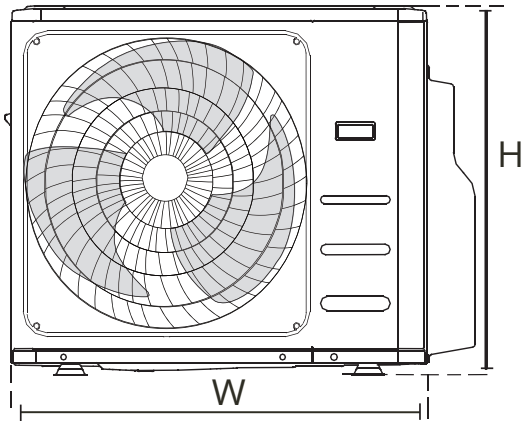
Fig 6.3



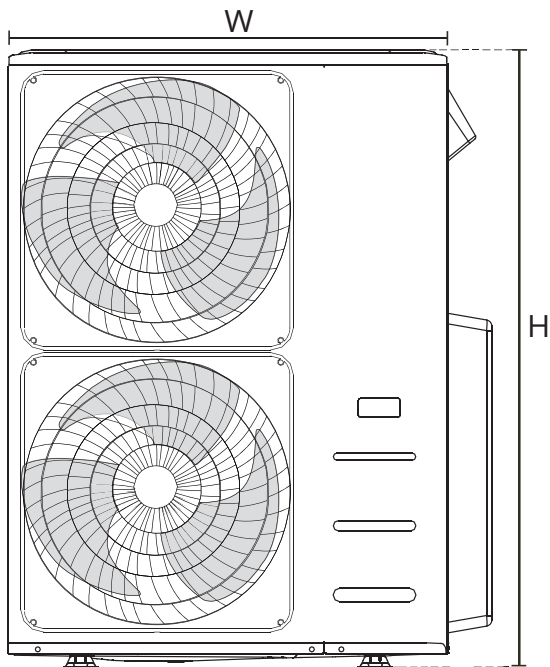
### CAUTION

- Be sure to remove any obstacles that may block air circulation.
- Make sure you refer to Length Specifications (Table 5.2) to ensure there is enough room for installation and maintenance.

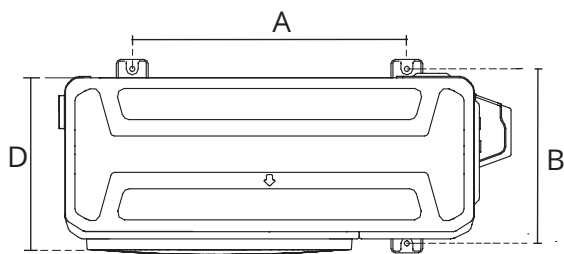
## Outdoor Units



**BM18M23C, BM27M23C, BM36M23C,  
BMHH18M22C, BMHH27M22C**



**BMHH36M22C, BM48M22C, BMHH48M22C**



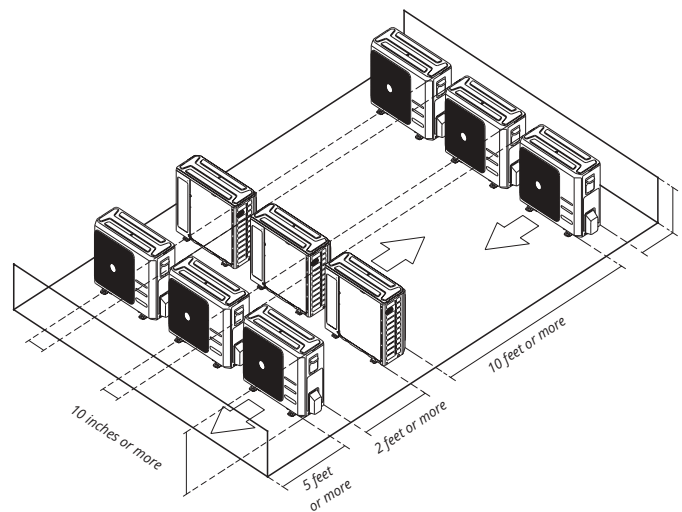
**Top View All Condensers**  
(A, B = mount point dimensions)

**Table 6.1:**

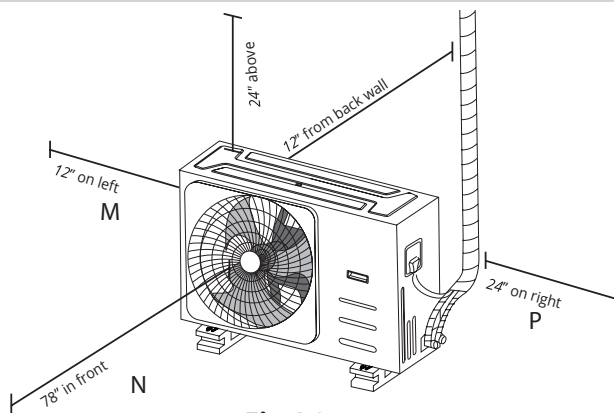
Model	W	D	H	A	B
BM18M23C	33.27"	14.29"	27.64"	21.3"	13.8"
BM27M23C	37.2"	16.5"	31.9"	26.5"	15.9"
BM36M23C	37.2"	16.5"	31.9"	26.5"	15.9"
BM48M22C	37.5"	16.3"	52.5"	25"	15.9"
BMHH18M22C	37.2"	16.5"	31.9"	26.5"	15.9"
BMHH27M22C	37.2"	16.5"	31.9"	26.5"	15.9"
BMHH36M22C	37.5"	16.3"	52.5"	25"	15.9"
BMHH48M22C	37.5"	16.3"	52.5"	25"	15.9"

Outdoor Unit  
Installation

## Multiple Outdoor Unit installation clearance requirements



**NOTE:** Be sure to maintain minimum clearances for optimum operation as shown below.



**Fig 6.8**

### Drain Joint Installation (optional)

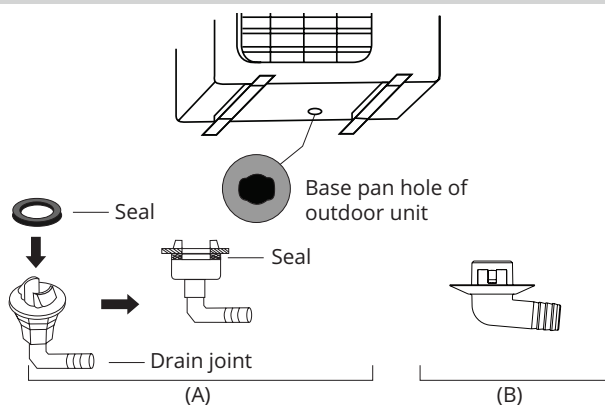
*Note: Drain joint will require additional clearance beneath the unit. Condensation drains under the unit without installing the drain joint.*

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 doesn't come with a rubber seal (see Fig. 6.9 - 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.

**NOTE:** Heat insulating tape should be used on the drain joint to prevent freezing in colder climates.



**Fig 6.9**

### Notes On Drilling Hole In Wall

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

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 2.5" hole bit, drill a hole in the wall.

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

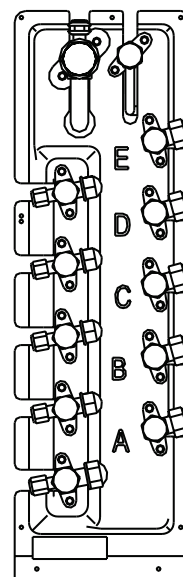
3. Place the protective wall cuff in the hole. This protects the edges of the hole and helps seal it when you finish the installation process.

### Note: 24K Indoor Units Only

The 24K indoor unit can only be connected with a 36k or 48k condenser due to refrigerant pipe diameter. Use connection A on the 36k and connections A&B on the 48k. (See Fig. 6.10)

**Table 6.3: Refrigerant line size multizone air handlers (unit: inch)**

Indoor Unit capacity (Btu/h)	Liquid	Gas
9K	1/4"	3/8"
12K/18K	1/4"	1/2"
24K	3/8"	5/8"



**Fig 6.10**

# Refrigerant Piping Connection

# 6

## Safety Precautions



### WARNING

- All field piping must be completed by a licensed technician and must comply with the local and national regulations.
- When the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. If the refrigerant leaks and its concentration exceeds its proper limit, hazards due to lack of oxygen may result.
- When installing the refrigeration system, ensure that air, dust, moisture or foreign substances do not enter the refrigerant circuit. Contamination in the system may cause poor operating capacity, high pressure in the refrigeration cycle, explosion or injury.
- Ventilate the area immediately if there is refrigerant leakage during the installation. Leaked refrigerant gas is both toxic and flammable. Ensure there is no refrigerant leakage after completing the installation work.

## Refrigerant Piping Connection Instructions



### CAUTION

- The branching pipe must be installed horizontally. An angle of more than 10° may cause malfunction.
- **DO NOT** install the connecting pipe until both indoor and outdoor units have been installed.
- Insulate both the gas and liquid piping to prevent condensation.

### Step1: Cut pipes.

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

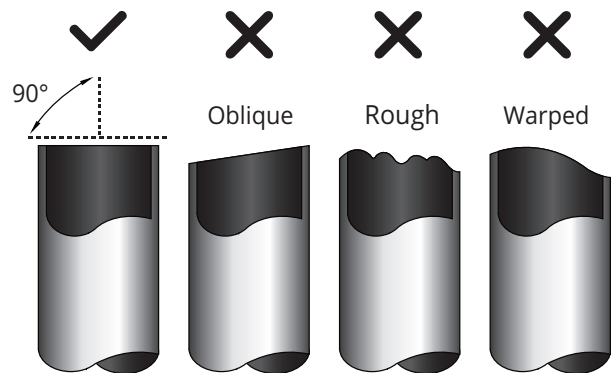
1. Measure the distance between the indoor and outdoor units.
2. Using a pipe cutter, cut the pipe a little longer than the measured distance.



### CAUTION

**DO NOT** deform pipe while cutting. Be extra careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

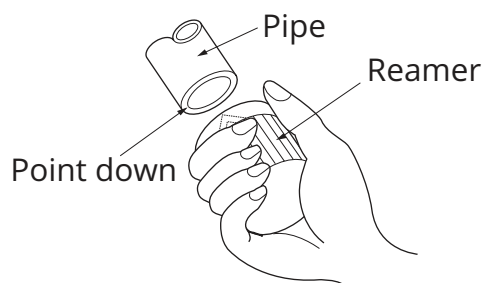
1. Make sure that the pipe is cut at a perfect 90° angle. Refer to Fig. 7.1 for examples of bad cuts.



### Step 2: Remove burrs.

Burrs can affect the air-tight seal of refrigerant piping connection. They must be completely removed.

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

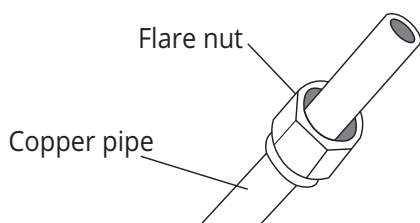


**Fig 7.2**

### Step 3: Flare pipe ends.

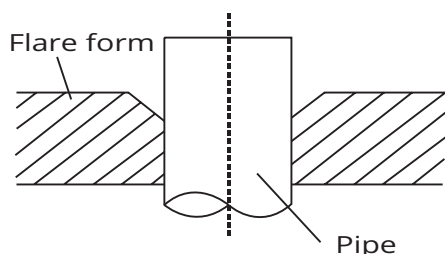
Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.
2. Sheath the pipe with insulating material.
3. Place flare nuts on both ends of pipe. Make sure they are facing in the right direction, because you can't put them on or change their direction after flaring. See Fig. 7.3.



**Fig 7.3**

4. Remove PVC tape from ends of pipe when ready to perform flaring work.
5. Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the flare form.



**Fig 7.4**

6. Place flaring tool onto the form.
7. Turn the handle of the flaring tool clockwise until the pipe is fully flared. Flare the pipe in accordance with the dimensions shown in table 7.1.

**Table 7.1: Torque chart and flaring guide**

Pipe gauge	Flaring torque	Flare dimension (A) (Unit: Inch)		Flare shape
		Min.	Max.	
1/4"	14 ft/ lbs	0.33	0.34	
3/8"	18 ft/ lbs	0.52	0.53	
1/2"	26 ft/ lbs	0.64	0.65	
5/8"	34 ft/ lbs	0.76	0.78	

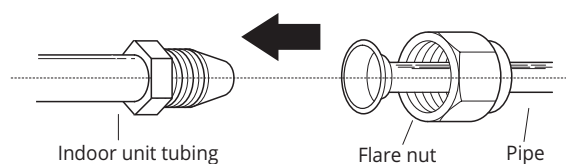
**Fig 7.5**

8. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

### Step 4: Connect pipes.

Connect the copper pipes to the indoor unit first, then connect it to the outdoor unit. You should first connect the low-pressure pipe, then the high-pressure pipe.

1. When connecting the flare nuts, apply a thin coat of refrigeration oil or approved refrigerant sealant to the flared ends of the pipes.
2. Align the center of the two pipes that you will connect.



**Fig 7.6**

3. Tighten the flare nut as tightly as possible by hand.
4. Using a spanner, grip the nut on the unit tubing.
5. While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values in Torque Requirements below. Tighten once, loosen slightly, then tighten again.

## Torque Requirements

Outer Diameter of Pipe (inch)	Tightening Torque (ft/lb)	Add. Tightening Torque (ft/lb)
1/4"	11 ft/ lb	11.8 ft/ lb
3/8"	18.4 ft/ lb	19.18 ft/ lb
1/2"	25.8 ft/ lb	26.55 ft/ lb
5/8"	33.19 ft/ lb	34.67 ft/ lb

**NOTE:** Use both a spanner and a torque wrench when connecting or disconnecting pipes to/from the unit.

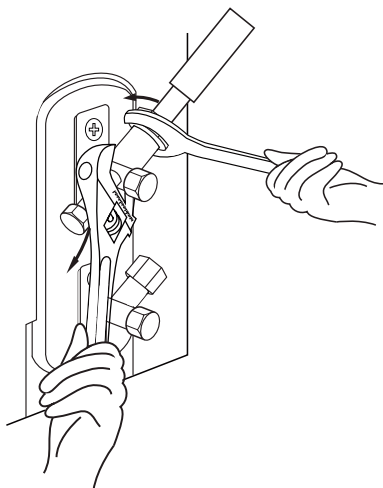
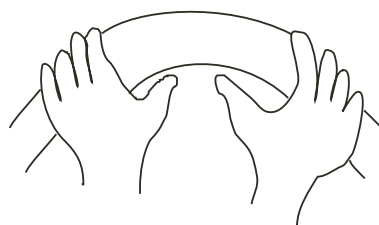


Fig 7.7

## NOTE ON MINIMUM BEND RADIUS

Carefully bend the tubing in the middle according to the diagram below. **DO NOT** bend the tubing more than 90° or more than 3 times.

Bend the pipe with thumb



min-radius 3.9"

Fig 7.8

## ! CAUTION

- Fully wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Make sure the pipe is properly connected. Over tightening may damage the bell mouth and under tightening may lead to leakage.

- After connecting the copper pipes to the indoor unit, wrap the power cable, signal cable and the piping together with binding tape.

**NOTE: DO NOT** intertwine signal cable with other wires. While bundling these items together, do not intertwine or cross the signal cable with any other wiring.

- Thread this pipeline through the wall and connect it to the outdoor unit.
- Insulate all the piping, including the valves of the outdoor unit.

## Safety Precautions



### WARNING

- Be sure to disconnect the power supply before working on the unit.
- All electrical wiring must be done according to local and national regulations.
- Electrical wiring must be done by a qualified technician. Improper connections may cause electrical malfunction, injury and fire.
- An independent circuit and single outlet must be used for this unit.  
**DO NOT** plug another appliance or charger into the same outlet. If the electrical circuit capacity is not enough or there is a defect in the electrical work, it can lead to shock, fire, unit and property damage.
- Connect the power cable to the terminals and fasten it with a clamp. An insecure connection may cause fire.
- Make sure that all wiring is done correctly and the control board cover is properly installed. Failure to do so can cause overheating at the connection points, fire, and electrical shock.
- Ensure that main supply connection is made through a switch that disconnects all poles, with contact gap of a least 3mm (0.118").
- **DO NOT** modify the length of the power cord or use an extension cord.



### CAUTION

- Connect the outdoor wires before connecting the indoor wires.
- Make sure you ground the unit. The grounding wire should be away from gas pipes, water pipes, lightning rods, telephone or other grounding wires. Improper grounding may cause electrical shock.
- **DO NOT** connect the unit with the power source until all wiring and piping is completed.
- Make sure that you do not cross your electrical wiring with your signal wiring, as this can cause distortion and interference.

## TAKE NOTE OF FUSE SPECIFICATIONS

The air conditioner's circuit board(PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board, such as:  
**Outdoor unit:** T20A/250VAC (for <24000Btu/h unit), T30A/250VAC (for >24000Btu/h unit)

**NOTE:** The fuse is made of ceramic.

## Outdoor Unit Wiring



### WARNING

Before performing any electrical or wiring work, turn off the main power to the system.

Follow these instructions to prevent distortion when the compressor starts:

- The unit must be connected to the main outlet. Normally, the power supply must have a low output impedance of 32 ohms.
- No other equipment should be connected to the same power circuit.
- The unit's power information can be found on the rating sticker on the product.

**Table 8.1: Wire Gauge/ Amperage chart**

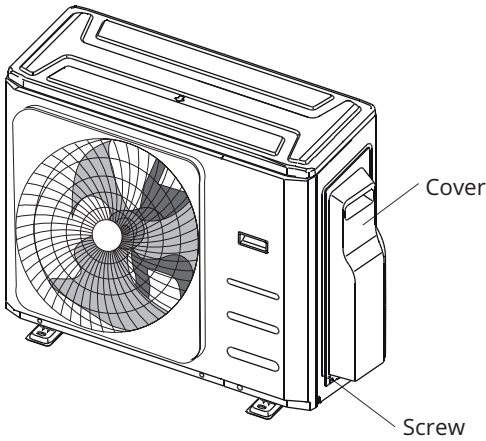
Rated Current of Appliance (A)	Wire Gauge
13 - 18	14
18 - 25	12
25 - 30	10
30 - 50	8

**NOTE:** Gauge shown in Table 8.1 is for 50' run or less. For longer runs, consult an electrician.

1. Prepare the cable for connection
  - a. You must first choose the right gauge wire before preparing it for connection.
  - b. Refer to the table above for 50 foot and under. For over 50 foot runs, consult an electrician.
  - c. Using wire strippers, strip the rubber jacket from both ends of signal cable to reveal about 6" of wire.
  - d. Strip the insulation from the ends of the wires.
  - e. Using a wire crimper, crimp u-lugs on the ends of the wires.

**NOTE:** While connecting the wires, please strictly follow the wiring diagram (found inside the electrical box cover).

2. Remove the electric cover of the outdoor unit. If there is no cover on the outdoor unit, disassemble the bolts from the maintenance board and remove the protection board. (See Fig. 8.1)



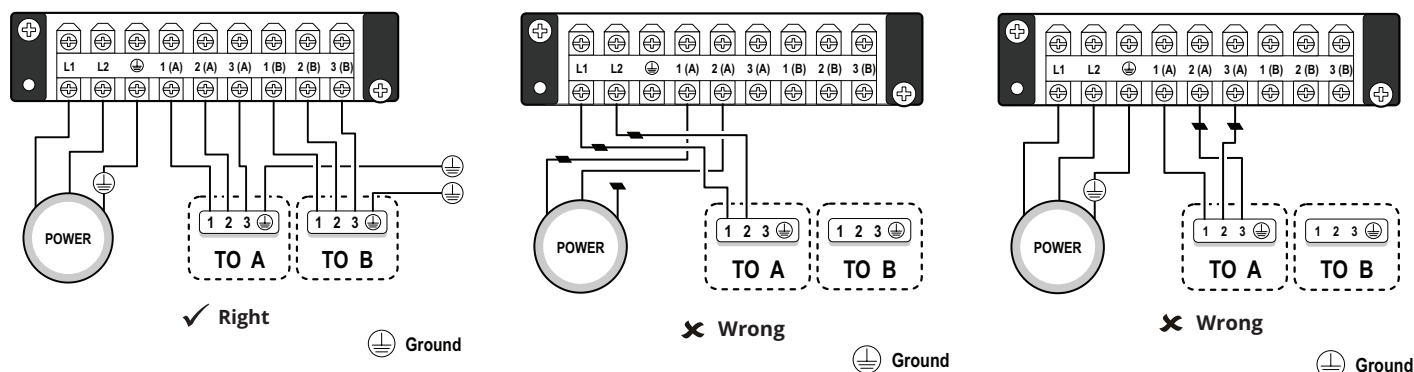
**Fig 8.1**

3. Connect the u-lugs to the terminals Match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal.
4. Clamp down the cable with designated cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
6. Reinstall the cover of the electric control box.

## Wiring Diagrams

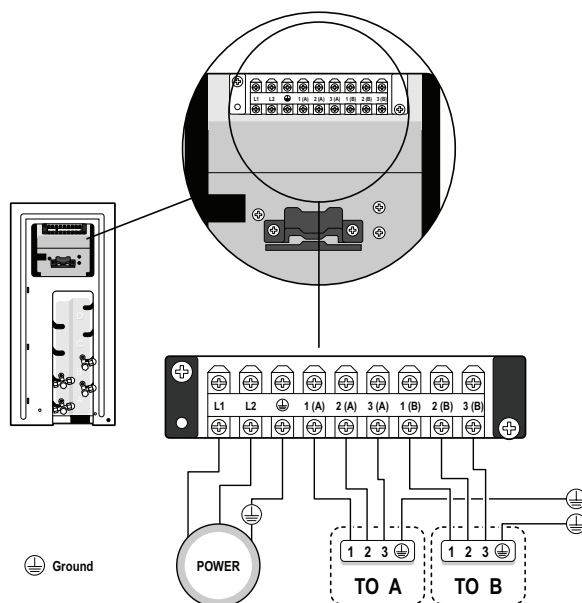
### ! CAUTION

Connect the connective cables to the terminals, as identified, with their matching numbers on the terminal block of the indoor and outdoor units. For example, in the US models shown in the following diagram, Terminal 1(A) of the outdoor unit must connect with terminal 1 on the indoor unit.

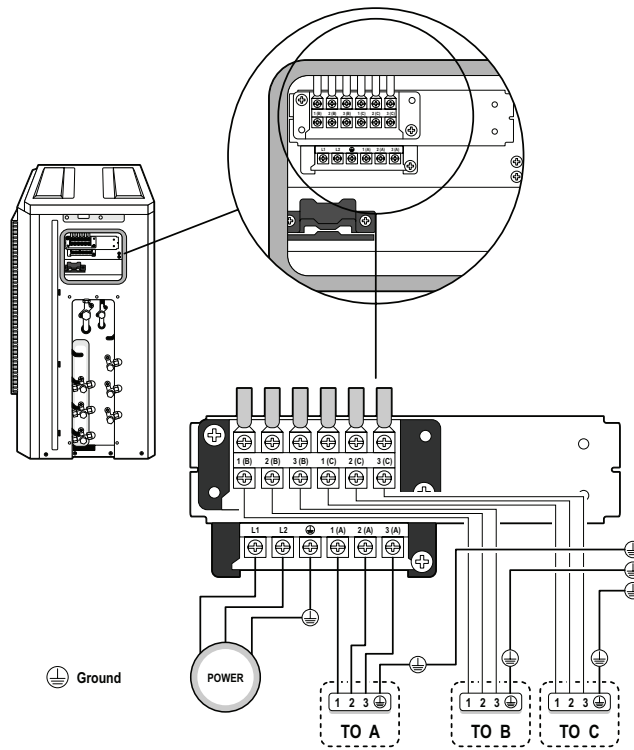


**NOTE:** Refer to the following figures if end-users wish to perform their own wiring. Run the main power cord through the lower line-outlet of the cord clamp.  
 \_\_\_\_ This symbol indicates field wiring.

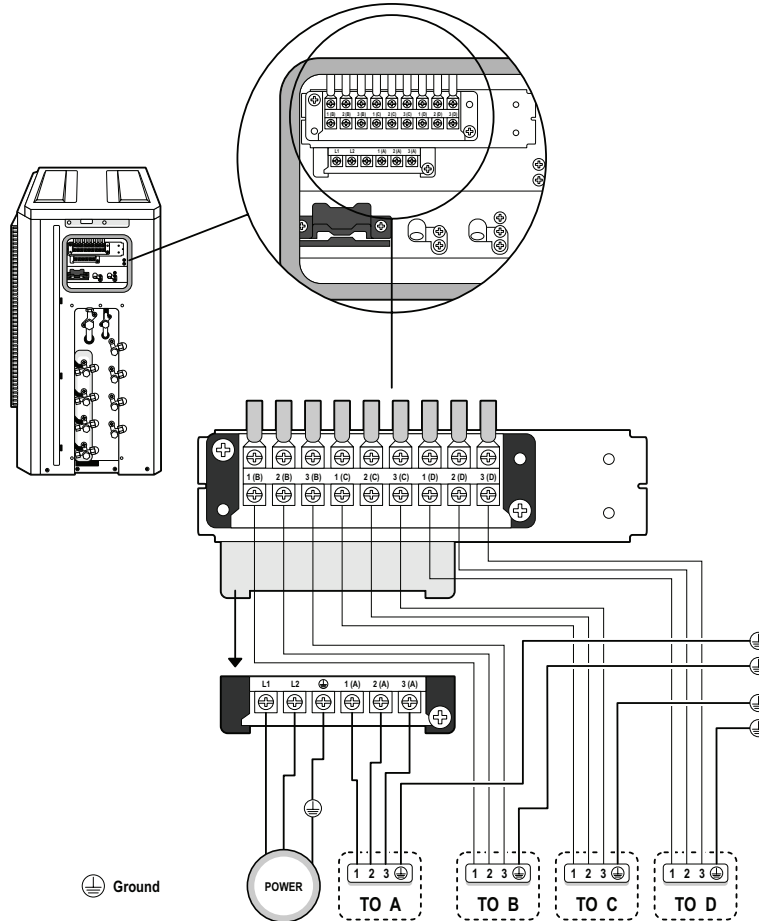
### BM18M two zone condenser:



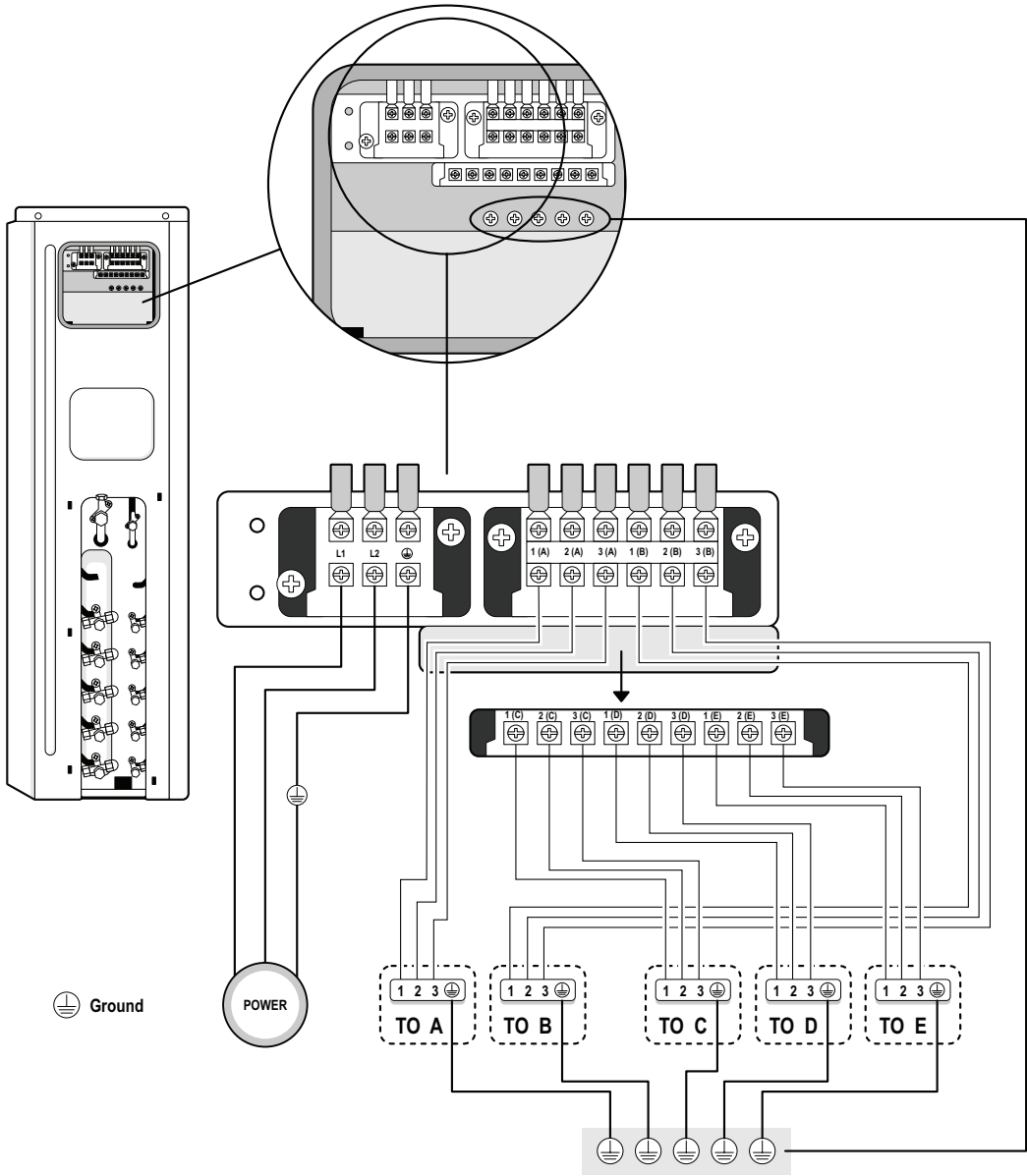
## BM27M three zone condenser



## BM36M four zone condenser



BM48M five zone condenser





## CAUTION

After confirmation of the above conditions, follow these guidelines when performing wiring:

- Always have an individual power circuit specifically for the air conditioner.
- Always follow the circuit diagram posted on the inside of the control cover.
- Screws fastening the wiring in the casing of electrical fittings may come loose during transportation. Because loose screws may cause wire burn-out, check that the screws are tightly fastened.
- Check the specifications for the power source.
- Confirm that electrical capacity is sufficient.
- Confirm that starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- 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.
- An electrical disconnect from a power supply must be incorporated into the fixed wiring. It must have an air gap contact separation of at least 3mm in each active (phase) conductors.
- Before accessing terminals, all supply circuits must be disconnected.

# Refrigerant handling: Leak Test, Evacuation, and Refrigerant Charging

8

## Tools needed:

- Dry nitrogen tank and regulator
- R410a manifold gauge set
- 1/4" to 5/16" mini-split gauge adapter (yellowjacket)
- Soap bubble solution sprayer
- Micron gauge
- Vacuum pump

## Procedure:

- 1. Open King valves** (see Fig. 9.1) Open both King Valves fully until you hit the stopper. Do not force.
- 2. Connect gauges** Connect low pressure manifold gauge hose to mini-split adapter; connect mini-split adapter to low pressure lineset valve A (see Fig. 9.2).

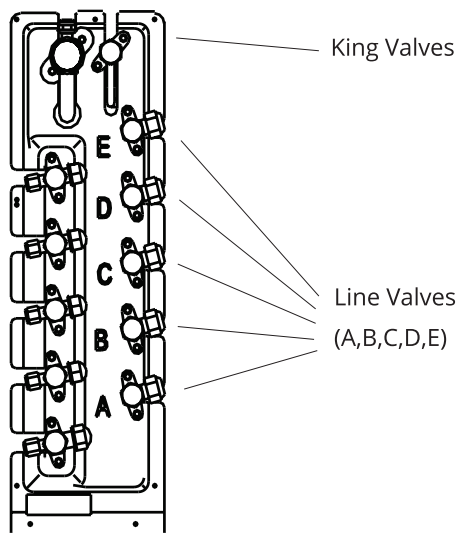


Fig 9.1

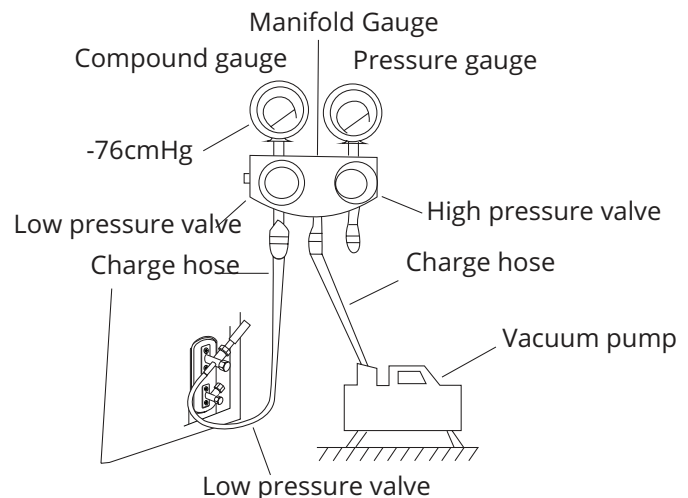
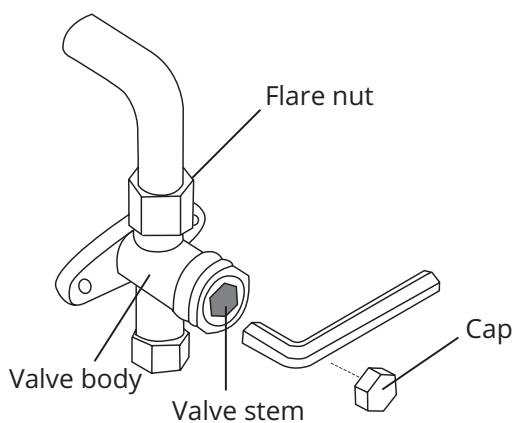


Fig 9.2

- 3. Pressure test** Connect nitrogen tank regulator to charging hose on manifold gauges. Pressurize lineset to 200 psi of dry nitrogen.
- 4. Check for leaks** Spray soap bubbles on fittings at outdoor and indoor units to check for bubbles/ leaks. If leaks are present, retorque flare nut. If leak is still present, release nitrogen, inspect and re-work flare. Repeat. Once there are no leaks, proceed to step 6.
- 5. Discharge nitrogen** pressure from lineset A and disconnect nitrogen tank.
- 6. Evacuate lines** Connect micron gauge and vacuum pump to the line valve A as shown in Fig. 9.2.
- 7. Vacuum lineset** to below 500 microns. Once micron gauge slows to a stop (usually 200 - 400 microns) , close manifold valve and turn off vacuum pump.

- 8. Test Vacuum** Let lineset sit in vacuum and watch for rise in the gauge over 15 - 30 minutes. A slow rise is normal. If the gauge stays below 500, proceed to next step. If a leak is suspected, repeat Step 8. If moisture is suspected, breaking vacuum with dry nitrogen to 5 psi may help remove the moisture. Once vacuum test is complete, follow the next step to release refrigerant into Zone A.
- 9. Release refrigerant** (See Fig. 9.3) Release refrigerant into the lineset by opening the larger (gas side, or suction) lineset valve fully. Then open the smaller (liquid side) lineset valve fully. **NOTE:** do not force valves open past the point it stops turning under normal hand pressure.



**Fig 9.3**

- 10. Repeat for each zone** Disconnect your gauges and attach to lineset valve B. Repeat steps 2 - 10 for each remaining zone in sequence.
- 11. Test Run** Once you complete the vacuum test on the last zone, leave the gauges in place. Follow the remaining steps to test run the system, and add refrigerant if needed.

- 12. Record Pressure** Start the unit in cooling-mode. Run for 10 minutes and monitor operating pressure reading. Power down the unit and wait 5 minutes. Remove the low pressure gauge and attach the high pressure gauge to the service port. Change to Heat mode and restart. Run for 10 minutes and monitor the operating pressure. Normal pressure will vary based on outside temperature and cooling vs. heating mode. Enter both results in the adjacent chart. Completing this step on first startup will provide information in case troubleshooting is required.

### Record Pressure Readings here

Cooling Mode Pressure Reading	psi
Heat Mode Pressure Reading	psi

- 13. Add refrigerant** (if needed) Depending on lineset length and the configuration of your system, you may need to add refrigerant. Use Table 9.1 on the next page to calculate the amount, if any, to add to your system.

*Note: The system must be running in cooling mode as you add refrigerant.*

## Table 9.1 Refrigerant Chart

### Directions:

1. Find your condenser model below.
2. Enter lineset length for each connected zone - calculate total.
3. Subtract your unit's pre-charge from the total.
4. If the result is negative, system is fully charged, do nothing.
5. If result is positive. multiply by 0.16.
- 6 This is how much to add.

	Line length (feet)	Subtract pre-charge	Length minus pre-charge	Calculate addition- al refrigerant	Add this much re- frigerant to your system
<b>BM18M 2 zone</b>					
Zone B					
Zone A					
Total		-50		x 0.16	ozs
<b>BM27M 3 zone</b>					
Zone C					
Zone B					
Zone A					
Total		-75		x 0.16	ozs
<b>BM36M 4 zone</b>					
Zone D					
Zone C					
Zone B					
Zone A	*if 24k, x2				
Total		-100		x 0.16	ozs
<b>BM48M 5 zone</b>					
Zone E					
Zone D					
Zone C					
Zone B	*if 24k, x2				
Zone A	*if 24k, x2				
Total		-125		x 0.16	ozs

\*Note: For 24k air handlers using 3/8" - 5/8" lineset, double the length.  
Example: if the 24k line length is 15', enter 30'.

### Note On Adding Refrigerant

#### ! CAUTION

- Refrigerant charging must be performed after wiring, leak testing and vacuuming.
- **DO NOT** exceed the maximum allowable quantity of refrigerant or overcharge the system. Doing so can damage the unit or impact it's functioning.
- Charging with unsuitable substances may cause explosions or accidents. Ensure that the appropriate refrigerant is used.
- Refrigerant containers must be opened slowly. Always use protective gear when charging the system.
- **DO NOT** mix refrigerants types.

## Before Test Run

A test run must be performed after the entire system has been completely installed. Confirm the following points before performing the test:

- a) The indoor and outdoor units are properly installed.
- b) Piping and wiring are properly connected.
- c) No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.
- d) The refrigeration system does not leak.
- e) Drainage system is unimpeded and draining to a safe location.
- f) The heating insulation is properly installed.
- g) The grounding wires are properly connected.
- h) Length of the piping and additional refrigerant storage capacity have been recorded.
- i) The power voltage is the correct voltage for the air conditioner.

## CAUTION

Failure to perform the test run may result in unit damage, property damage or personal injury.

## Test Run Instructions

1. Open both the liquid and gas stop valves.
2. Turn on the main power switch and allow the unit to warm up.
3. Set the air conditioner to COOL mode.
4. For the Indoor Unit
  - a. Ensure the remote control and its buttons work properly.
  - b. Ensure the louvers move properly and can be changed using the remote control.
  - c. Double check to see if the room temperature is being registered correctly.
  - d. Ensure the indicators on the remote control and the display panel on the indoor unit work properly.
  - e. Ensure the manual buttons on the indoor unit work properly.
  - f. Check to see that the drainage system is unimpeded and draining smoothly.
  - g. Ensure there is no vibration or abnormal noise during operation.
5. For the Outdoor Unit
  - a. Check to see if the refrigeration system is leaking.
  - b. Make sure there is no vibration or abnormal noise during operation.
  - c. Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.

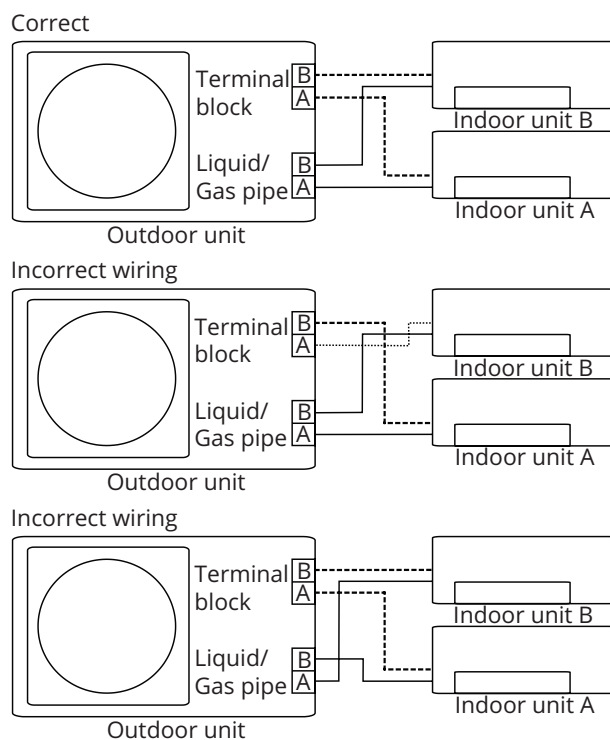
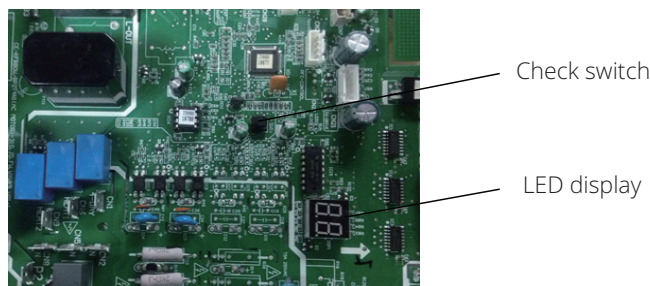
**NOTE:** If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service.

# Function of Automatic Wiring/Piping Correction

# 10

## Automatic Wiring/Piping Correction Function

More recent models now feature automatic correction of wiring/piping errors. Press the "check switch" on the outdoor unit PCB board for 5 seconds until the LED displays "CE", indicating that this function is working. Approximately 5-10 minutes after the switch is pressed, the "CE" disappears, meaning that the wiring/piping error is corrected and all wiring/piping is properly connected.



## How To Activate This Function

1. Check that outside temperature is above 5°C.  
(This function does not work when outside temperature is not above 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 "C E".

**The design and specifications are subject to change without  
prior notice for product improvement.**



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