MULTI SYSTEM AIR CONDITIONER
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.

This product has been determined to be in compliance with the Low Voltage Directive (2014/35/EC), and the Electromagnetic Compatibility Directive (2014/30/EC) of the European Union.



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

(When using this air conditioner in European countries, the following guidance must be followed)

- This marking shown on the product or its literature, indicates that waste electrical and eletrical equipment (WEEE as in directive 2002/96/EC) should not be mixed with general household waste.

It is prohibited to dispose of this appliance in domestic household waste.

For disposal, there are several possibilities:

1. The municipality has established collection systems, where electronic waste can be disposed of at least free of charge to the user.
2. When buying a new product, the retailer will take back the old product at least free of charge.
3. The manufacture will take back the old appliance for disposal at least free of charge to the user.
4. As old products contain valuable resources, they can be sold to scrap metal dealers.

Wild disposal of waste in forests and landscapes endangers your health when hazardous substances leak into the ground-water and find their way into the food chain.

Type	Model Name	Dimension	Rated Voltage & Hz
Outdoor Unit	38QUS014DS2*	800x333x554	220-240V~, 50/60Hz
	38QUS018DS2*/ 38QUS027DS3*	845x363x702	
	38QUS036DS4*/ 38QUS042DS5*	946x410x810	
Wall Mounted Indoor Unit	42QHC007DS*/ 42QHC009DS*	730x192x291	
	42QHC012DS*	812x192x300	
	42QHC018DS*	973x218x319	
	42QHC024DS*	1082x225x338	
Duct Type Indoor Unit	42QSS009DS*/ 42QSS012DS*	700x635x210	
	42QSS018DS*	880x674x210	
	42QSS024DS*	1100x774x249	
CassetteType Indoor Unit	42QTD009DS*/ 42QTD012DS*	570x570x260	
	42QTD018DS*	570x570x260	
	42QTD024DS*	840x840x245	
Console Type Indoor Unit	42QZA009DS*	700x600x210	
	42QZA012DS*	700x600x210	
	42QZA018DS*	700x600x210	

The manufacturer reserves the right to change any product specifications without notice.

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1. PREPARING FOR INSTALLATION

1.1 Safety cautions

- Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system ressures, electrical components, and equipment location (roofs, elevated structures, etc.).
- Only trained, qualified installers and service mechanics should install, start-up, and serve this equipment.
- When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.
- Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth and fire extinguisher nearby when brazing. Use care in handing, rigging, and setting bulky equipment.
- Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes and National Electrical Code for special requirement.

⚠ WARNING

This symbol indicates the possibility of personnel injury or loss of life.

- **Refrigerant gas is heavier than air and replaces oxygen. A massive leak could lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur leading to serious injury or death.**
- **When the air conditioner is installed in a small room, provide appropriate measures to ensure that the concentration of refrigerant leakage occur in the room does not exceed the critical level.**
- **If the refrigerant gas leaks during installation, ventilate the area immediately.**
  Refrigerant gas may produce a toxic gas if it comes in contact with fire such as from a fan heater, stove or cooking device.
  Exposure to this gas could cause severe injury or death.
- **Disconnect from power source before attempting any electrical work. Connect the connective cable correctly.**
  Wrongly connecting may result in electric parts damaged.
- **Use the specified cables for electrical connections and attach the wires firmly to the terminal block connecting sections so that the external force is not exerted to the terminal.**
- **Be sure to provide grounding.**
  Do not ground units to gas pipes, water pipes, lightning rods or telephone wires. Incomplete grounding could cause a severe shock hazard resulting in injury or death.
- **Safely dispose of the packing materials.**
  Packing materials, such as nails and other matal or wooden parts, may cause stabs or other injuries. Tear apart and throw away plastic pacaging bags so that children will not play with them. Children playing with plastic bags face the danger of suffocation.
- **Do not install unit near concentrations of combustible gas or gas vapors.**
- **Be sure to use the supplied or exact specified installation parts.**
  Use of other parts may cause the unit to come to lose, water leakage, electrical shock, fire or equipment damage.
- **When installing or relocating the system, do not allow air or any substances other than the specified refrigerant (R410A) to enter the refrigeration cycle.**
- **Duct and Cassette type indoor is not accessible to the general public and intended to be maintained by qualified service personnel and located at a level not less than 2.5m from floor.**
- **Electrical work should be carried out in accordance with the installation manual and the national, state and local electrical wiring codes.**
- **Be sure to use a delicated power circuit. Never share the same power outlet with other appliance.**

1. PREPARING FOR INSTALLATION

⚠ WARNING

- **Never modify this unit by removing any of the safety guards or bypassing any of the safety interlock switches.**
- **In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.**
- **Use the prescribed cables for electrical connection with insulation protected by insulation sleeving having an appropriate temperature rating.**
  Unconformable cables can cause electric leak, anomalous heat prodcution or fire.

⚠ CAUTION

This symbol indicates the possibility of property damage or serious consequences.

- **To avoid personal injury, be careful when handling parts with sharp edges.**
- **Do not install the indoor or outdoor units in a location with special environmental conditions.**
- **Do not install in a place that can amplify the noise level of the unit or where noise and discharged air might disturb neighbors.**
- **Perform the drainage/piping work securely according to the installation manual.**
  Improper drain piping may result in water leakage and property damage.
- **Do not instal the air conditioner in the following places.**
  -The place where there is mineral oil or arsenic acid.
  -The place where corrosive gas (such as sulfurous acid gas) or combustible gas (such as thinner) can accumulate or collect, or where volatile combustible substances are handled.
  -The place there is equipment that generates electromagnetic fields or high frequencey harmonics.

This product contains fluorinated gases covered by the Kyoto Protocol	
Chemical Name of Gas	**R410A**
Global Warming Potential (GWP) of Gas	**2088**

⚠ CAUTION

1. Paste the enclosed refrigerant label adjacent to the charging and/or recovering location.
2. Clearly write the charged refrigerant quantity on the refrigerant label using indelible ink.
3. Prevent emission of the contained fluorinated gas. Ensure that the fluorinated gas is never vented to the atmosphere during installation, service or disposal. When any leakage of the contained fluorinated gas is detected, the leak shall be stopped and repaired as soon as possible.
4. Only qualified service personnel are allowed to access and service this product.
5. Any handling of the fluorinated gas in this product, such as when moving the product or recharging the gas, shall comply under (EC) Regulation No. 842/2006 on certain fluorinated greenhouse gases and any relevant local legislation.
6. Contact dealers, installers, etc., for any questions.

1. PREPARING FOR INSTALLATION

1.2 Accessories

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, electriclshock and fire, or equipment failure.

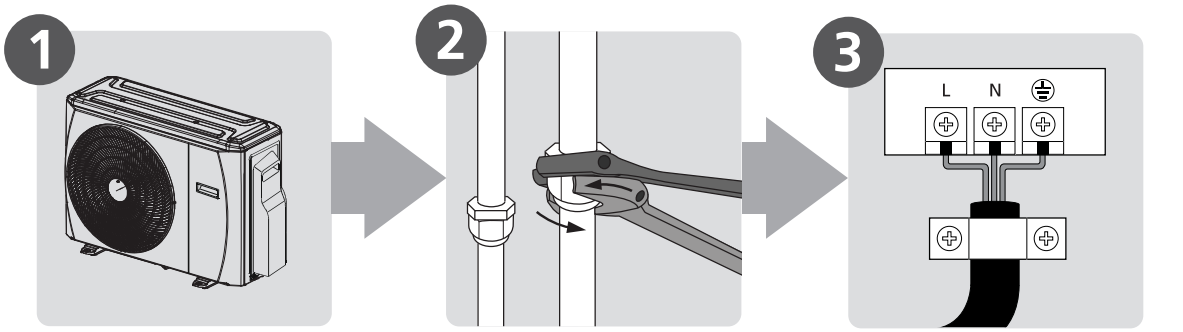
Name			Shape	Quantity
Installation plate				1
Plastic expansion sheath				5-8 (depending on models)
Self-Tapping Screw A ST3.9X25				5-8 (depending on models)
Drain joint (some models)				1
Seal ring (some models)				1
Connecting pipe assembly	Liquid side	Ø6.35		Parts you must purchase. Consult a technician for the proper size.
		Ø9.52		
	Gas side	Ø9.52		
		Ø12.7		
		Ø15.9		
Owner's manual				1
Installation manual				1
Transfer connector (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 a transfer connector installed on the outdoor unit .				Optional part (one piece/one indoor unit) Optional part (1-5 pieces for outdoor unit, depending on models)
Magnetic ring (Hitch on the connective cable between the indoor unit and outdoor unit after installation.)				Optional part (one piece/one cable)
Cord protection rubber ring (If the cord clamp cannot fasten on a small cord, use the cord protection rubber ring [supplied with accessories] to wrap around the cord. Then fix it in place with the cord clamp.)				1 (on some 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.

2. INSTALLATION OVERVIEW

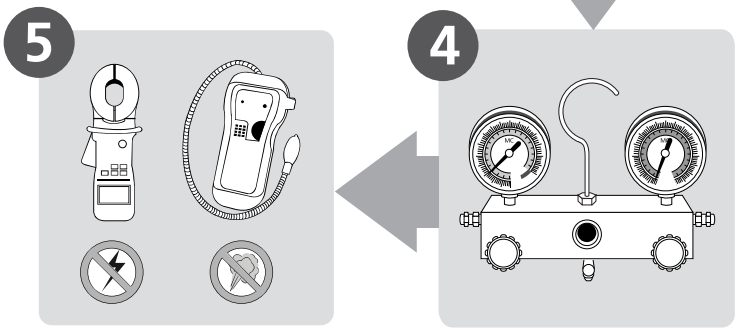
Installation order



Install the outdoor unit
(Page 9)

Connect the refrigerant pipes
(Page 12)

Connect the wires
(Page 14)



Evacuate the refrigeration system
(Page 19)

Perform a test run
(Page 21)

3. INSTALLATION DIAGRAM

Installation Diagram

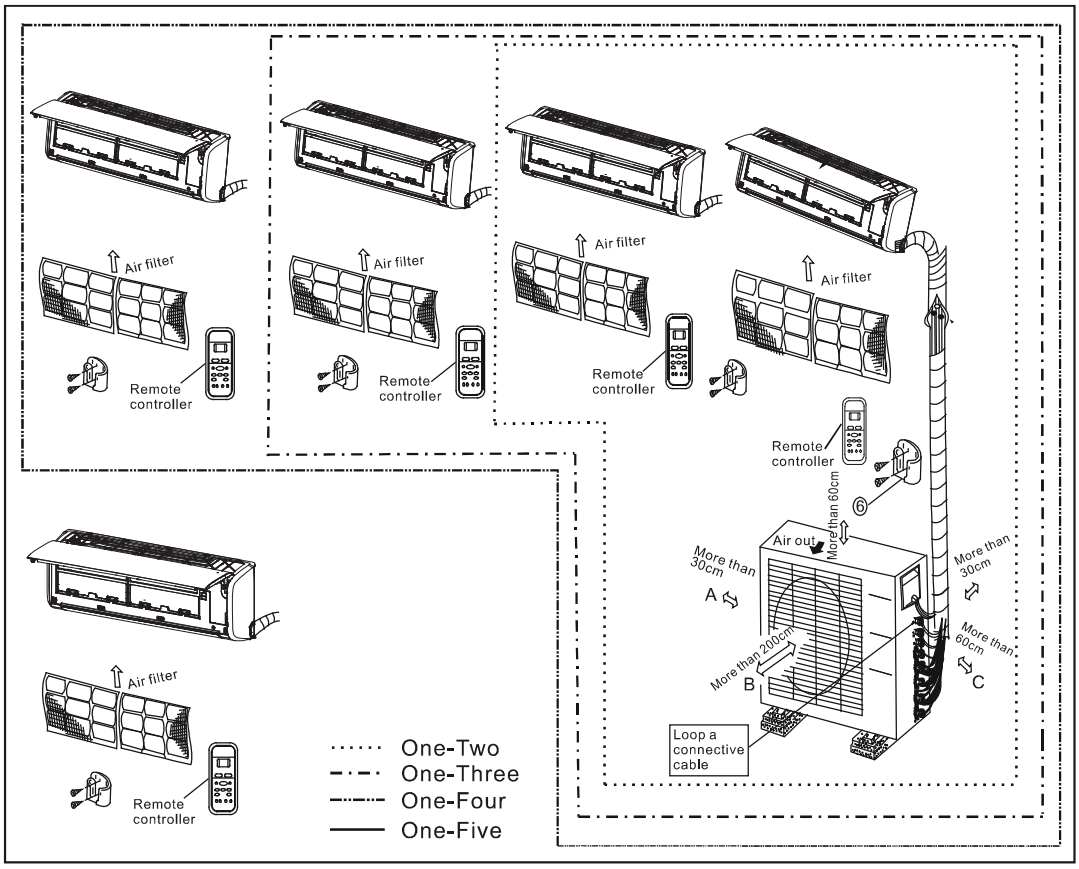


Fig. 3.1

Safety Precautions

⚠ CAUTION

- This illustration is for demonstration purposes only.
  The actual shape of your air condtioner may be slightly different.
- Copper lines must be independently insulated.

❗ CAUTION

- To prevent wall damage, use a stud finder to locate studs.
- A minimum pipe run of 3 metres is required to minimise vibration & excessive noise.
- Two of the A, B, and C air circulation pathways must be free from obstructions at all times.

4. SPECFICATIONS

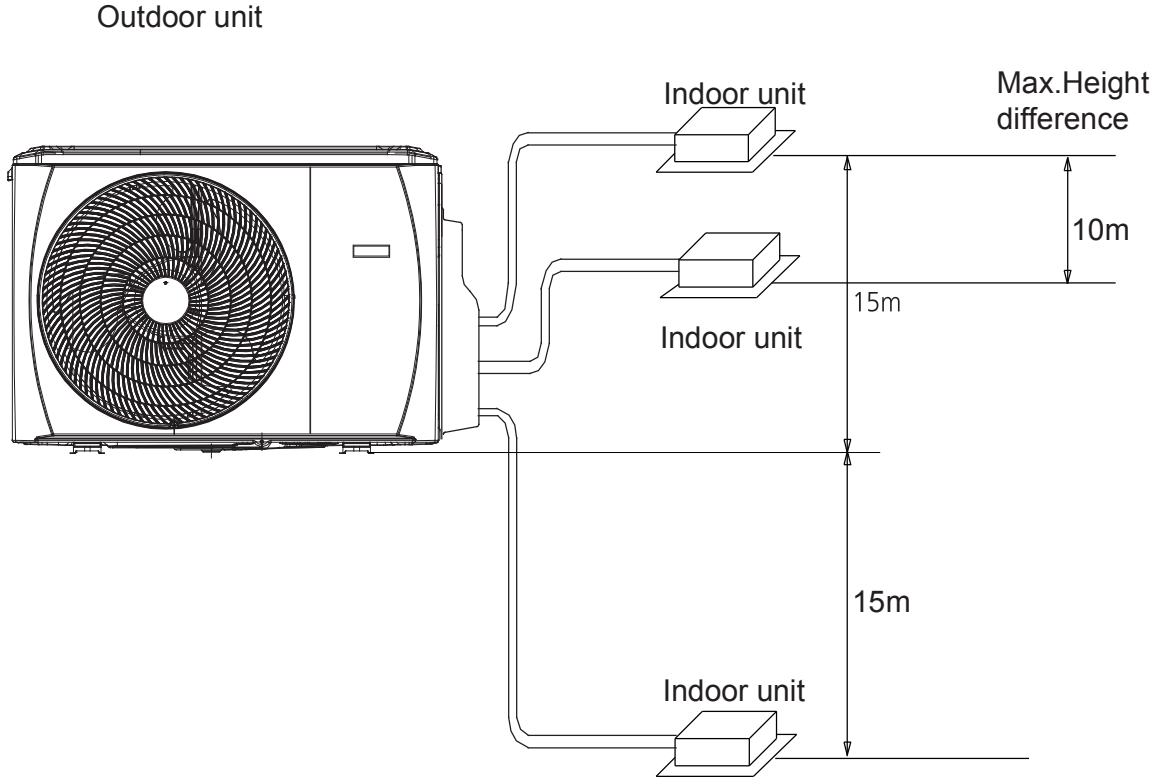
Table 4.1

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

Table 4.2 **Unit: m**

		1 drive 2	1 drive 3	1 drive 4	1 drive 5
Max. length for all rooms		30	45	60	75
Max. length for one indoor unit		25	30	35	35
Max. height different between indoor and outdoor unit	OU higher than IU	15	15	15	15
	OU lower than IU	15	15	15	15
Max. height different between indoor units		10	10	10	10

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:



5. OUTDOOR UNIT INSTALLATION

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. Ensure the awning does not obstruct airflow.
- ☑ 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.
- ☑ 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, **DO NOT** install 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. (See Fig. 5.1 & 5.2)
- ☑ Install the indoor and outdoor units, cables and wires at least 1 meter from televisions or radios to prevent static or image distortion. Depending on the radio waves, a 1 meter distance may not be enough to eliminate all interference.

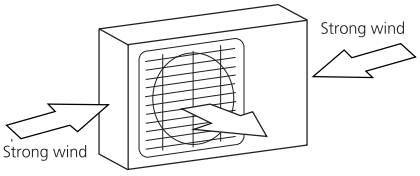


Fig. 5.1

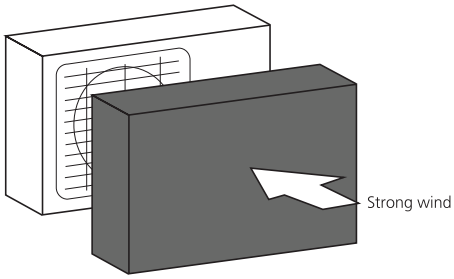


Fig. 5.2

Step 2: Install outdoor unit.

Fix the outdoor unit with anchor bolts (M10)

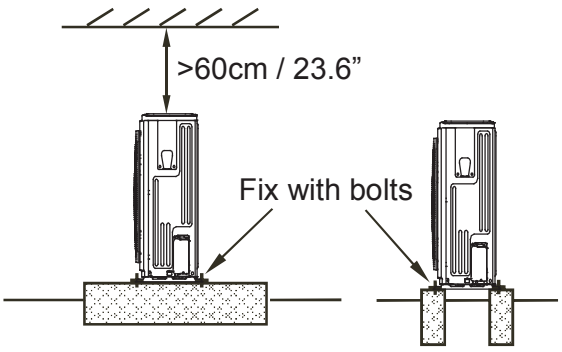


Fig. 5.3

CAUTION

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

5. OUTDOOR UNIT INSTALLATION

Split Type Outdoor Unit

(Refer to Fig 5.4, 5.5, 5.6, 5.9 and Table 5.1)

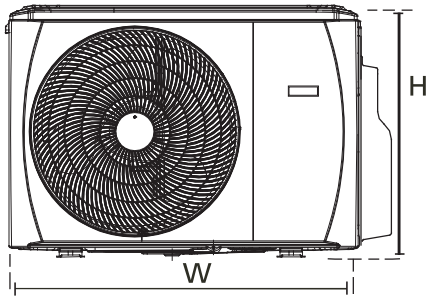


Fig. 5.4

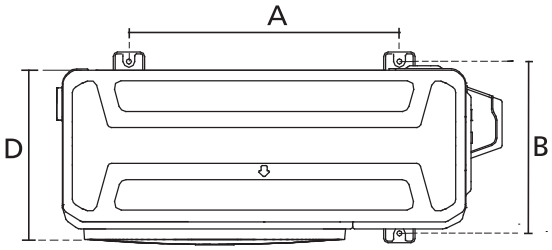


Fig. 5.5

Rows of series installation

Table 5.2 The relations between H, A and L are as follows.

	L	A
L ≤ H	L ≤ 1/2H	25 cm / 9.8” or more
	1/2H < L ≤ H	30 cm / 11.8” or more
L > H	Can not be installed	

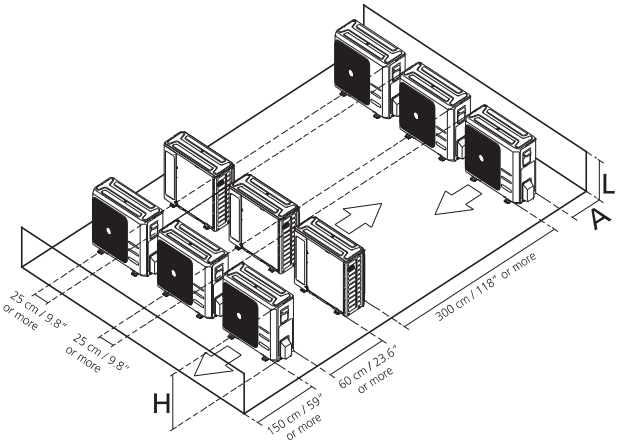


Fig. 5.6

Table 5.1: Length Specifications of Split Type Outdoor Unit (unit: mm)

Outdoor Unit Dimensions W x H x D	Mounting Dimensions	
	Distance A	Distance B
800x554x333 (31.5x21.8x13.1)	514	340
845x702x363 (33.27x27.6x14.3)	540	350
946x810x420 (37.2x31.9x16.53)	673	403
946x810x410 (37.2x31.9x16.14)	673	403

5. OUTDOOR UNIT INSTALLATION

NOTE: The minimum distance between the outdoor unit and walls described in the installation guide does not apply to airtight rooms. Be sure to keep the unit unobstructed in at least two of the three directions (M, N, P) (See Fig. 5.7)

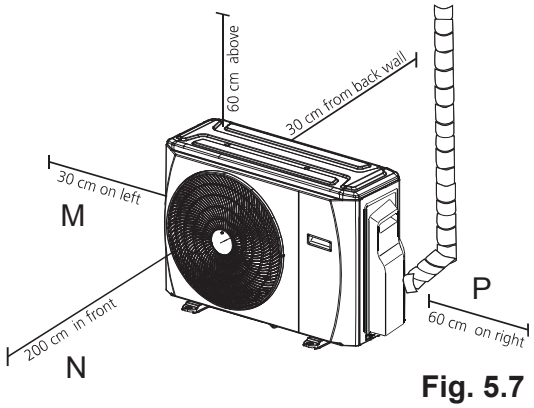


Fig. 5.7

Drain Joint Installation

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. (See Fig. 5.8)

1. Fit the rubber seal on the end of the drain joint where it will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan.
3. Rotate the drain joint 90° until it clicks in place and faces 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.

NOTE: Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

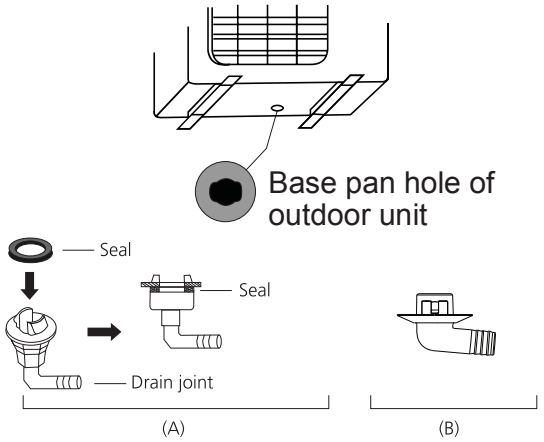


Fig. 5.8

Notes On Drilling Hole In Wall

You must drill a hole in the wall for the refrigerant piping, and 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 65-mm (2.5”) core drill, 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.

When Select a 24K Indoor Unit

The 24K indoor unit can only be connected with an A system. If there are two 24K indoor units, they can be connected with A and B systems. (See Fig. 5.9)

Table 5.3: Connective pipe size of an A and B system (unit: inch)

Indoor Unit capacity (Btu/h)	Liquid	Gas
7K/9K/12K	1/4	3/8
18K	1/4	1/2
24K	3/8	5/8

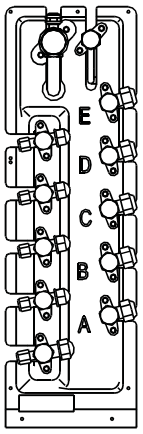


Fig. 5.9

6. REFRIGERANT PIPING CONNECTION

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 water leakage.

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. 6.1 for examples of bad cuts

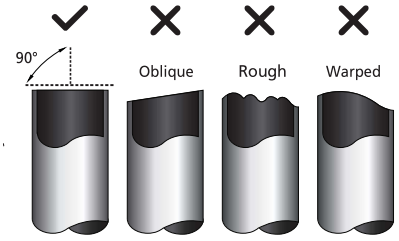


Fig. 6.1

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.

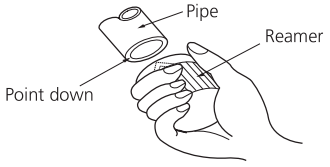


Fig. 6.2

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. 6.3

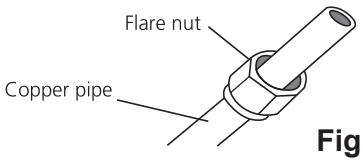


Fig. 6.3

6. REFRIGERANT PIPING CONNECTION

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.

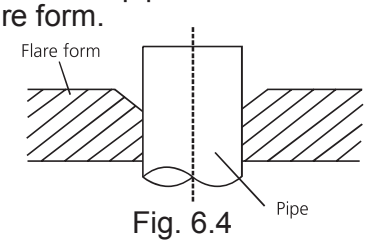


Fig. 6.4

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 6.1.

Table 6.1: PIPING EXTENSION BEYOND FLARE FORM

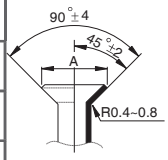
Pipe gauge	Tightening torque	Flare dimension (A) (Unit: mm)		Flare shape
		Min.	Max.	
Ø 6.4	14.2-17.2 N.m (144-176 kgf.cm)	8.3	8.3	
Ø 9.5	32.7-39.9 N.m (333-407 kgf.cm)	12.4	12.4	
Ø 12.7	49.5-60.3 N.m (504-616 kgf.cm)	15.4	15.8	
Ø 15.9	61.8-75.4 N.m (630-770 kgf.cm)	18.6	19	
Ø 19.1	97.2-118.6 N.m (990-1210 kgf.cm)	22.9	23.3	
Ø 22	109.5-133.7 N.m (1117-1364 kgf.cm)	27	27.3	

Fig. 6.5

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 to the flared ends of the pipes.
2. Align the center of the two pipes that you will connect.

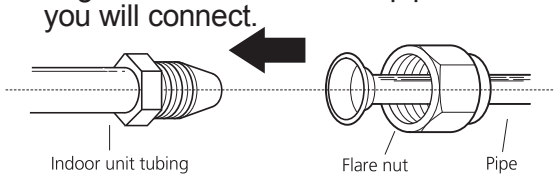


Fig. 6.6

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 table 7.1.

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

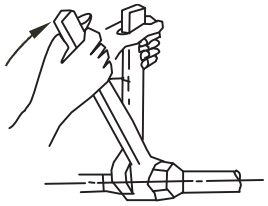


Fig. 6.7

CAUTION

- Ensure to 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.

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 t han 3 times.

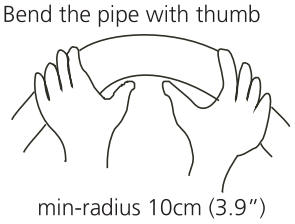


Fig. 6.8

6. 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.

7. Thread this pipeline through the wall and connect it to the outdoor unit.
8. Insulate all the piping, including the valves of the outdoor unit.
9. Open the stop valves of the outdoor unit to start the flow of the refrigerant between the indoor and outdoor unit.

CAUTION

Check to make sure there is no refrigerant leak after completing the installation work. If there is a refrigerant leak, ventilate the area immediately and evacuate the system (refer to the Air Evacuation section of this manual).

7. WIRING

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 e lectrical work, it can lead to shock, fire, unit and property damage.
- Connect the power cable to the terminalsand 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 theindoor 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.

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.

Outdoor Unit Wiring

⚠ WARNING

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

1. Prepare the cable for connection
   a. You must first choose the right cable size before preparing it for connection. Be sure to use H07RN-F cables.

7. WIRING

Table 7.1: Other Regions

Rated Current of Appliance (A)	Nominal Cross-Sectional Area (mm²)
≤6	0.75
6 - 10	1
10 - 16	1.5
16 - 25	2.5
25- 32	4
32 - 45	6

b. Using wire strippers, strip the rubber jacket from both ends of signal cable to reveal about 15cm (5.9”) of the wires inside.
c. Strip the insulation from the ends of the wires.
d. 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)

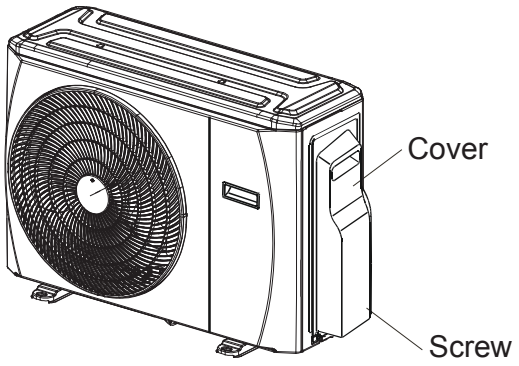


Fig. 7.1

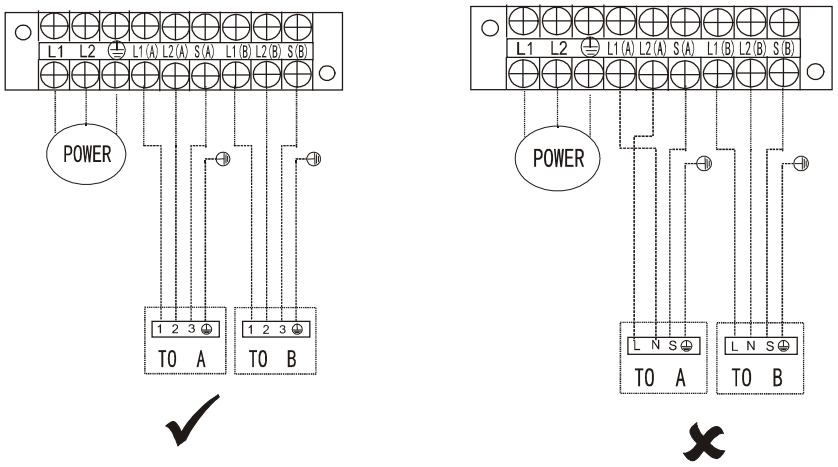
3. Connect the u-lugs to the terminals Match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal.
4. Clamp down the cable with designated cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any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

7. WIRING

Wiring Figure

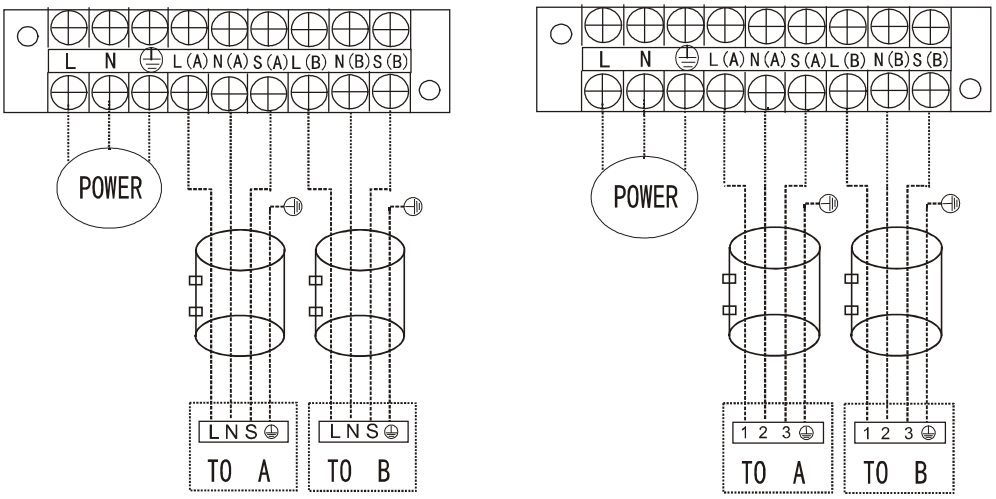
CAUTION

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 models shown in the following diagram, Terminal L1(A) of the outdoor unit must connect with terminal 1 on the indoor unit A.



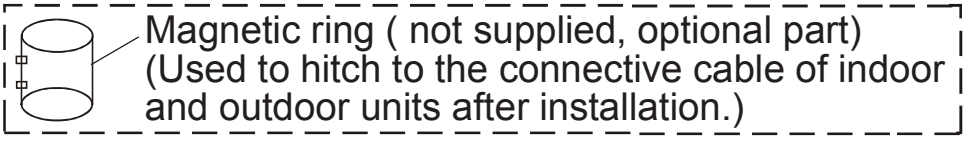
NOTE: Refer to the following figures if end-users wish to perform their own wiring. Run the main power cord through the lower line-outlet of the cord clamp.

One-two models:



Model A

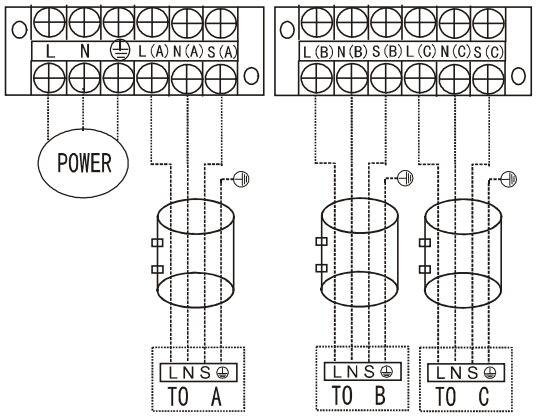
Model B



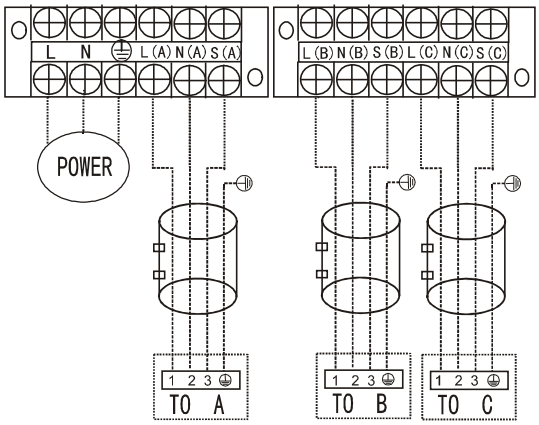
7. WIRING

NOTE: Please refer to the following figures if end-users wish to perform their own wiring.

One-three models:

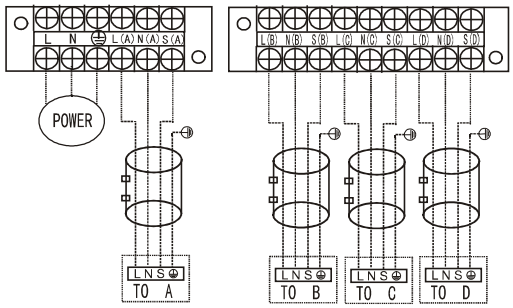


Model A

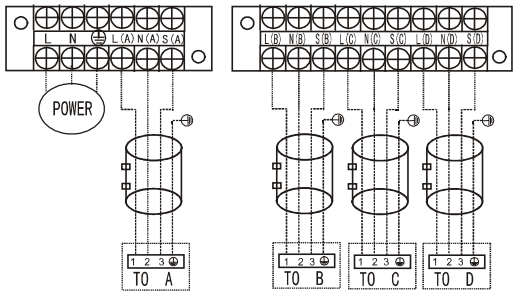


Model B

One-four models:



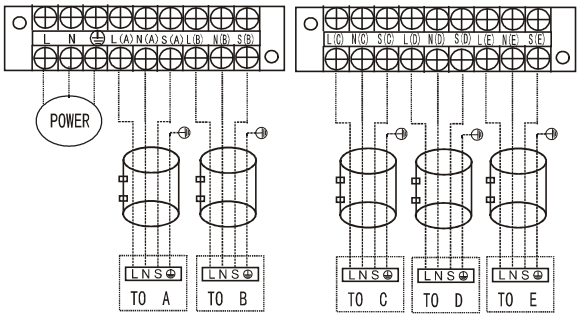
Model A



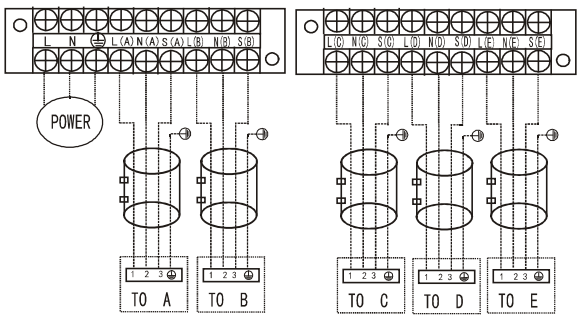
Model B

7. WIRING

One-five models:



Model A



Model B

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 transporation. Because loose screws may cause wire burn-ou, 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.
- Disconnection 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.

8. AIR EVACUATION

Safety Precautions

CAUTION

- Use a vacuum pump with a gauge reading lower than -0.1MPa and an air discharge capacity above 40L/min.
- The outdoor unit does not need to be vacuumed. **DO NOT** open the outdoor unit's gas and liquid stop valves.
- Ensure that the Compound Meter reads -0.1MPa or below after 2 hours. If after three hours the gauge reading is still above -0.1 MPa, check if there is a gas leak or water inside the pipe. If there is no leak, perform another evacuation for 1 or 2 hours.
- **DO NOT** use refrigerant gas to evacuate the system.

Evacuation Instructions

Before using a manifold gauge and a vacuum pump, read their operation manuals to make sure you know how to use them properly.

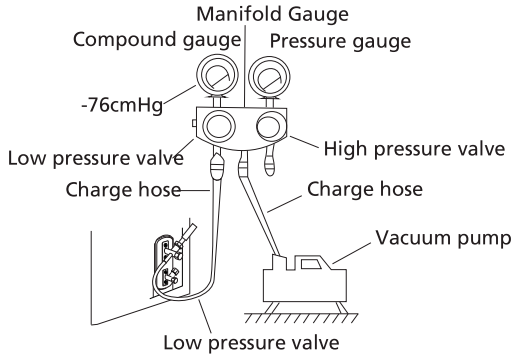


Fig. 8.1

1. Connect the manifold gauge's charge hose to the service port on the outdoor unit's low pressure valve.
2. Connect the manifold gauge's charge hose from the to the vacuum pump.
3. Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.
4. Turn on the vacuum pump to evacuate the system.
5. Run the vacuum for at least 15 minutes, or until the Compound Meter reads -76cmHG (-1x105Pa).
6. Close the manifold gauge's Low Pressure valve and turn off the vacuum pump.
7. Wait for 5 minutes, then check that there has been no change in system pressure.

NOTE: If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve). If there is a change in system pressure, there may be a gas leak.

8. Insert hexagonal wrench into the packed valve (high pressure valve) and open the valve by turning the wrench 1/4 counterclockwise. Listen for gas to exit the system, then close the valve after 5 seconds.

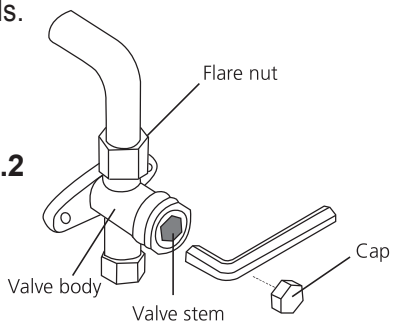


Fig. 8.2

9. Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. It should read slightly higher than the atmospheric pressure.
10. Remove the charge hose from the service port.
11. Using hexagonal wrench, fully open both the high pressure and low pressure valves.

OPEN VALVE STEMS GENTLY

When opening the valve stems, turn the hexagonal wrench until it hits against the stopper. **DO NOT** try to force the valve to open further.

12. Tighten valve caps by hand, then tighten it using the proper tool.
13. If the outdoor unit uses all vacuum valves, and the vacuum position is at the main valve, the system is not connected with the indoor unit. The valve must be tightened with a screw nut. Check for gas leaks beforeoperation to prevent leakage.

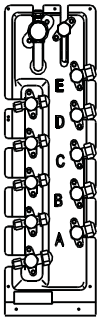


Fig. 8.3

8. AIR EVACUATION

Note On Adding Refrigerant

CAUTION

- Refrigerant charging must be performed after wiring, vacuuming, and the leak testing.
- **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.

N=2(one-twin models), N=3(one-three models), N=4(one-four models), N=5(one-five models). Depending on the length of connective piping or the pressure of the evacuated system, you made need to add refrigerant. Refer to table below for refrigerant amounts to be added:

ADDITIONAL REFRIGERANT PER PIPE LENGTH

Connective Pipe Length	Air Purging Method	Additional Refrigerant(R410A:)	
Pre-charge pipe length(ft/m) (Standard pipe lengthxN)	Vacuum Pump	N/A	
More than (Standard pipe lengthxN)ft/m	Vacuum Pump	Liquid Side: Ø 6.35 (Ø 1/4") (Total pipe length - standard pipe lengthxN) x15g/m (Total pipe length - standard pipe lengthxN) x0.16oZ/ft	Liquid Side: Ø 9.52 (Ø 3/8") (Total pipe length - standard pipe lengthxN) x30g/m (Total pipe length - standard pipe lengthxN) x0.32oZ/ft

Note: The standard pipe length is 7.5m (24.6').

Safety And Leakage Check

Electrical safety check

Perform the electrical safety check after completing installation. Cover the following areas:

1. Insulated resistance
   The insulated resistance must be more than 2MΩ.
2. Grounding work
   After finishing grounding work, measure the grounding resistance by visual detection and using the grounding resistance tester. Make sure the grounding resistance is less than 4Ω.
3. Electrical leakage check (performing during test while unit is on)
   During a test operation after completed installation, use the electroprobe and multimeter to perform an electrical leakage check. Turn off the unit immediately if leakage happens. Try and evaluate different solutions until the unit operates properly.

Gas leak check

1. Soap water method:
   Apply a soap-water solution or a liquid neutral detergent on the indoor unit connection or outdoor unit connections with a soft brush to check for leakage of the connecting points of the piping. If bubbles emerge, the pipes are experiencing leakage.
2. Leak detector
   Use the leak detector to check for leakage.

NOTE: The illustration is for example purposes only. The actual order of A, B, C, D, and E on the machine may be slightly different from the unit you purchased but the general shape will remain the same.

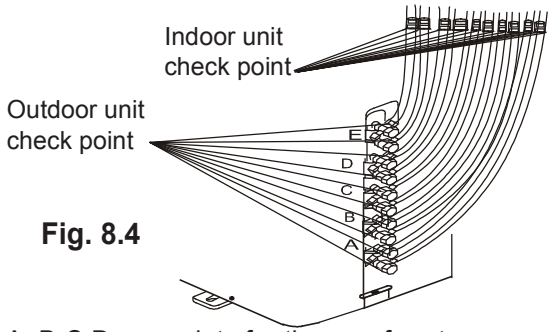


Fig. 8.4

A, B,C,D are points for the one-four type.
A, B,C,D, and E are points for the one-five type.

9. TEST RUN

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) 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) Refrigeration system does not leak.
e) Drainage system is unimpeded and draining to a safe location.
f) Heating insulation is properly installed.
g) Grounding wires are properly connected.
h) Length of the piping and additional refrigerant stow capacity have been recorded.
i) 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 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 works 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.

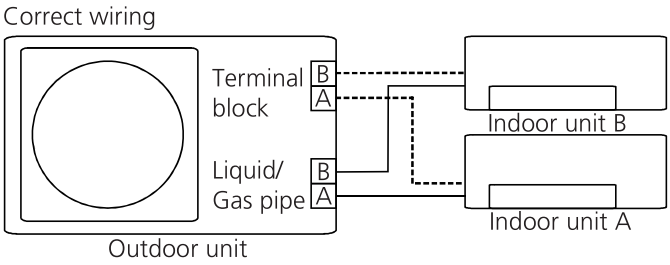
NOTE: If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service.

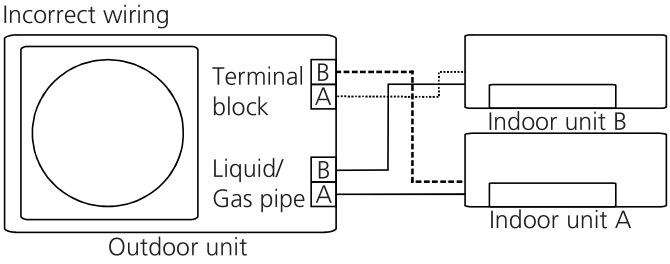
10. FUNCTUON OF AUTOMATIC WIRING/PIPING CORRECTION

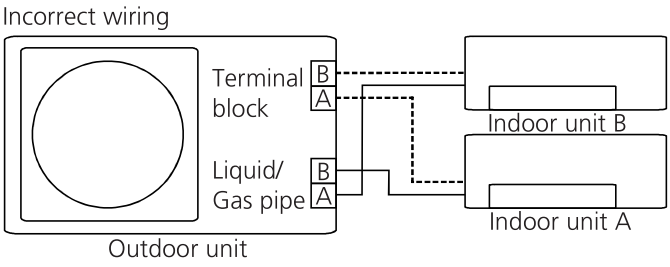
Automatic Wiring/Piping Correction Function

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℃.
   (This function does not work when outside temperature is not above 5℃)
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".