

380R  
T<sup>~</sup> | c<sup>E</sup> [ ] ^ Ductless Split System  
Sizes 11 to 11



# Owner's Manual



## NOTE TO EQUIPMENT OWNER:

Please read this Owner's Information Manual carefully before installing and using this appliance and keep this manual for future reference.

For your convenience, please record the model and serial numbers of your new equipment in the spaces provided. This information, along with the installation data and dealer contact information, will be helpful should your system require maintenance or service.

### UNIT INFORMATION

Model # \_\_\_\_\_

Serial # \_\_\_\_\_

### INSTALLATION INFORMATION

Date Installed \_\_\_\_\_

### DEALERSHIP CONTACT INFORMATION

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Technician Name: \_\_\_\_\_

## SAFETY CONSIDERATIONS

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service mechanics should install, start-up, and service this equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

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 handling, 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 (NEC) for special requirements. Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.



## WARNING

### ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.



## WARNING



### EXPLOSION HAZARD

Failure to follow this warning could result in death, serious personal injury, and/or property damage.

Never use air or gases containing oxygen for leak testing or operating refrigerant compressors. Pressurized mixtures of air or gases containing oxygen can lead to an explosion.



## CAUTION

### EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Do not bury more than 36 in. (914 mm) of refrigerant pipe in the ground. If any section of pipe is buried, there must be a 6 in. (152 mm) vertical rise to the valve connections on the outdoor units. If more than the recommended length is buried, refrigerant may migrate to the cooler buried section during extended periods of system shutdown. This causes refrigerant slugging and could possibly damage the compressor at start-up.

## SYSTEM REQUIREMENTS

Allow sufficient space for airflow and servicing unit. See minimum required distances between unit and walls or ceilings.

### Recommended Connection Method for Power and Communication Wiring (To minimize communication wiring interference)

#### Power Wiring:

The main power is supplied to the outdoor unit. The field supplied connecting cable from the outdoor unit to indoor unit consists of three (3) wires and provides the power for the indoor unit. Two wires are high voltage AC power and one is a ground wire.

Consult your local building codes and the NEC (National Electrical Code) or CEC (Canadian Electrical Code) for special requirements.

All wires must be sized per NEC or CEC and local codes. Use Electrical Data table MCA (minimum circuit amps) and MOCP (maximum over current protection) to correctly size the wires and the disconnect fuse or breakers respectively.

Per caution note, only copper conductors with a minimum 300 volt rating and 2/64-inch thick insulation must be used.

#### Communication Wiring:

A separate shielded copper conductor only, with a minimum 300 volt rating and 2/64-inch thick insulation, must be used as the communication wire from the outdoor unit to the indoor unit.

To minimize voltage drop of the control wire, use the following wire size and maximum lengths shown in the chart below:

Wire Size	Length ft (m)
18 AWG	50 (15)
16 AWG	50 (15) to 100 (30)



## CAUTION

### EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

- Wires should be sized based on NEC and local codes.
- Use copper conductors only with a minimum 300 volt rating and 2/64 inch thick insulation.

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## Preface

- ◆ The total capacity of the indoor units which runs at the same time cannot exceed the capacity of the outdoor units; otherwise, the cooling (heating) effect of each indoor unit would be lower than the nominal capacity.
- ◆ Keep the operations manual for future reference and repair.
- ◆ The refrigerant pipes and accessories must be designed exclusively for R410A.
- ◆ It is a normal for the indoor fan to run 20~70 seconds after the indoor unit receives the “stop” signal to maximize the use of heat.
- ◆ When the indoor unit work mode conflicts with the outdoor unit work mode it will appear on the wired controller display for five seconds and the indoor unit stops. In this case, synchronize the unit's work modes. The cooling mode is compatible with the dry mode.
- ◆ If the supply power fails when the unit is running, the indoor unit sends the “start” signal to the outdoor unit three minutes after the power recovery.
- ◆ The power cable and transmission line must not be twisted together. The cable and the line must be separated with an interval of at least 0.79 in(2cm); otherwise it may result in a communication problem.
- ◆ Cautions for the debugging and maintenance personnel:  
During debugging and maintenance, before the startup of the compressor, makes sure the compressor's heater belt has been energized for at least eight hours. Once the compressor is started, it must work continuously for at least 30 minutes, otherwise it will be damaged.



This product must not be disposed with domestic waste. This product has to be disposed at an authorized place for recycling of electrical and electronic appliances.

# 1 Safety Precautions



**Warning!** :Indicates improper operation which may lead to severe injury or human casualty.



**Caution!** : Indicates that improper operation might lead to personal injury or property damage.



Follow this instruction to complete the installation work. Please carefully read this manual before unit startup and service.



Installation should be conducted by dealer or qualified personnel. Please do not attempt to install the unit by yourself. Improper handling may result in water leakage, electric shock or fire disaster.



Before installation, please check if the power supply is in accordance with the requirements specified on the nameplate. And also take care of the power safety.



Make sure the unit can be earthed properly and soundly after plugging into the socket to avoid electric shock. Please do not connect the ground wire to gas pipe, water pipe, lightning rod or telephone line.



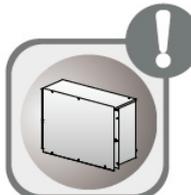
Be sure to use the exclusive accessory and part to prevent water leakage, electric shock and fire accidents.



If refrigerant leakage happens during installation, please ventilate immediately. Poisonous gas will emerge if the refrigerant gas meets fire.



Wire size of power cord should be long enough. The damaged power cord and connection wire should be replaced by exclusive cable.



After connecting the power cord, please fix the electric box cover properly to avoid accident.



Never fail to comply with the nitrogen charge requirements. Charge nitrogen when welding pipes.



Never short-circuit or cancel the pressure switch to prevent unit damage.



Connect the wired controller before energization, otherwise wired controller can not be used.



Before using the unit, please check if the piping and wiring are correct to avoid water leakage, refrigerant leakage, electric shock, or fire.



Do not insert fingers or objects into air outlet/inlet grille.



Open the door and window and maintain good ventilation in the room to avoid oxygen deficit when the gas/oil supplied heating equipment is used.



Never start up or shut off the air conditioner by directly plugging or unplugging the power cord.



Turn off the unit after it runs at least five minutes; otherwise it will influence oil return of the compressor.



Do not allow children to operate this unit.



Do not operate this unit with wet hands.



Turn off the unit or cut off the power supply before cleaning the unit, otherwise electric shock or injury may happen.



Never spray or flush water towards unit, otherwise malfunction or electric shock may happen.



Do not expose the unit to moist or corrosive circumstances.



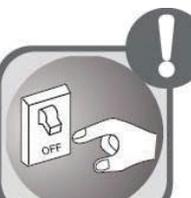
Power the unit 8 hours before operation. Do not cut off the power for short periods of time, like 24 hour periods, to protect the compressor.



Under cooling mode, please do not set the room temperature too low and keep the temperature difference between the indoor and outdoor unit within 41°F (5°C)



Volatile liquid, such as diluent or gas will damage the unit appearance. Only use soft cloth with a little neutral detergent to clean the outer casing of unit.



If anything abnormal happens (such as burning smell), power off the unit and cut off the main power supply, and immediately contact appointed service center. If the abnormality continues, the unit might be damaged and lead to electric shock or fire.



User is not allowed to repair the unit. Faulty service may cause electric shock or fire accidents. Please contact Gree appointed service center for help.

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## **2 Attention for Installation**

### **2.1 Precautions for R410A**

- ◆ The refrigerant pipes should be clean and dry.
- ◆ The R410A is a mixed refrigerant. When adding it to the unit, the refrigerant must keep the be kept in its liquid state. If the refrigerant is in a gas state, the composition has been changed and the capability of the unit will decrease.
- ◆ When the refrigerant leaks out, do not touch the refrigerant. Otherwise, it will result in frostbite.
- ◆ Do not allow an abundance of refrigerant into the ambient atmosphere, because it will increase the green house effect. Additionally, it will produce a toxic gas when the refrigerant contacts with fire.

### **2.2 Installation Precaution**

- ◆ The air conditioning unit is heavy and weighs more than 230 (lbs) or 110(kg). Two or more people may be needed to lift the unit.
- ◆ When moving the units, please place hands on the corner and be careful not to hurt your hands with the fins.
- ◆ Dispose the air conditioning packaging and waste in a waste container after installation.

### **2.3 Operation Test Precaution**

To protect the compressor from vibrating after installation, two metal gaskets are used. Remove the metal gaskets prior to use and firmly tie nuts so air conditioner functions properly.

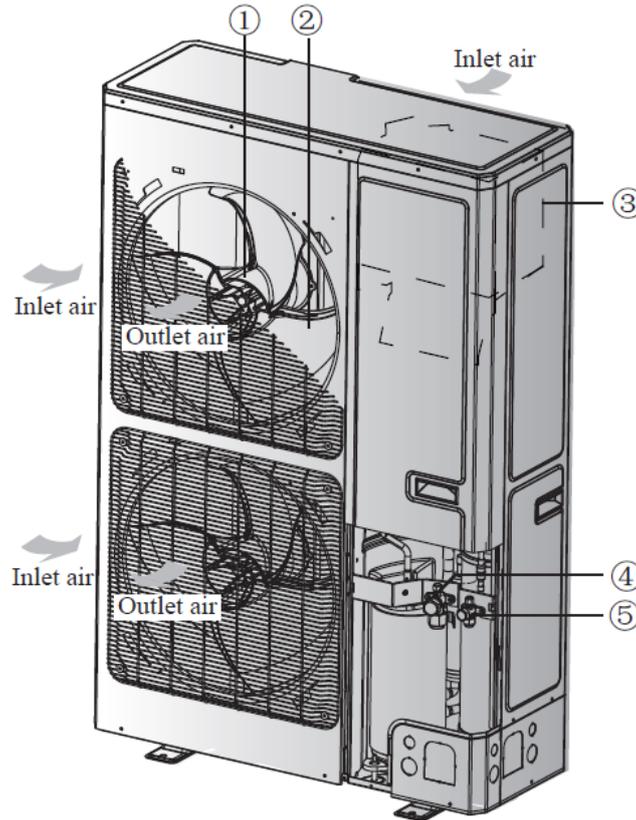
### **2.4 Accessories**

For the air conditioner accessories, please look in the Packing List.

### 3 Product Introduction

The GJ System adopts inverter compressor technology. According to change displacement of the compressor, a stepless capacity regulation within range of 10%~100% can be realized. Various product lineups are provided with a capacity range from 14kW to 16kW, which can be widely used in residential, office, hotel and where applicable to a site with a variable load change.

#### 3.1 Main Part Names



NO.	①	②	③	④	⑤
Name	Fan motor	Axial flow fan blade	Electrical box	Gas side stop valve	Liquid side stop valve

Fig. 1

#### 3.2 Combinations for Outdoor and Indoor Units

Table 1

Sorts		38GJQK48---3	38GJQL56---3
No. of indoor units to be connected	Min	2	2
	Max	8	9
No. of Branch Unit modules to connect	Min	1	1
	Max	3	3
Total capacity of indoor units to connect(Btu/h)	Min	24000	28000
	Max	72000	81000

Table 2

Indoor Unit	Nominal Unit Btuh	Indoor Model Number	Outdoor Model Number
High Wall 40GJ*B	9,000	40GJQB09B-3	38GJQK48---3 38GJQL56---3
	12,000	40GJQB12B-3	
	18,000	40GJQB18B-3	
	24,000	40GJQB24B-3	
Ducted 40GJ*D	9,000	40GJQB09D-3	
	12,000	40GJQB12D-3	
	18,000	40GJQB18D-3	
	21,000	40GJQB21D-3	
Floor Console	9,000	40GJQB09F-3	
	12,000	40GJQB12F-3	
	18,000	40GJQB18F-3	
Cassette 40GJ*C	12,000	40GJQB12C-3	
	18,000	40GJQB18C-3	
	24,000	40GJQB24C-3	

### 3.3 Unit Parts and Components

One outdoor unit can drive up to three BU modules and nine indoor units which include cassette type, duct type, wall mounted type, floor ceiling type and console type. The outdoor unit will run as long as any one indoor unit receives the running command, and all indoor units stop once the outdoor unit is turned off.

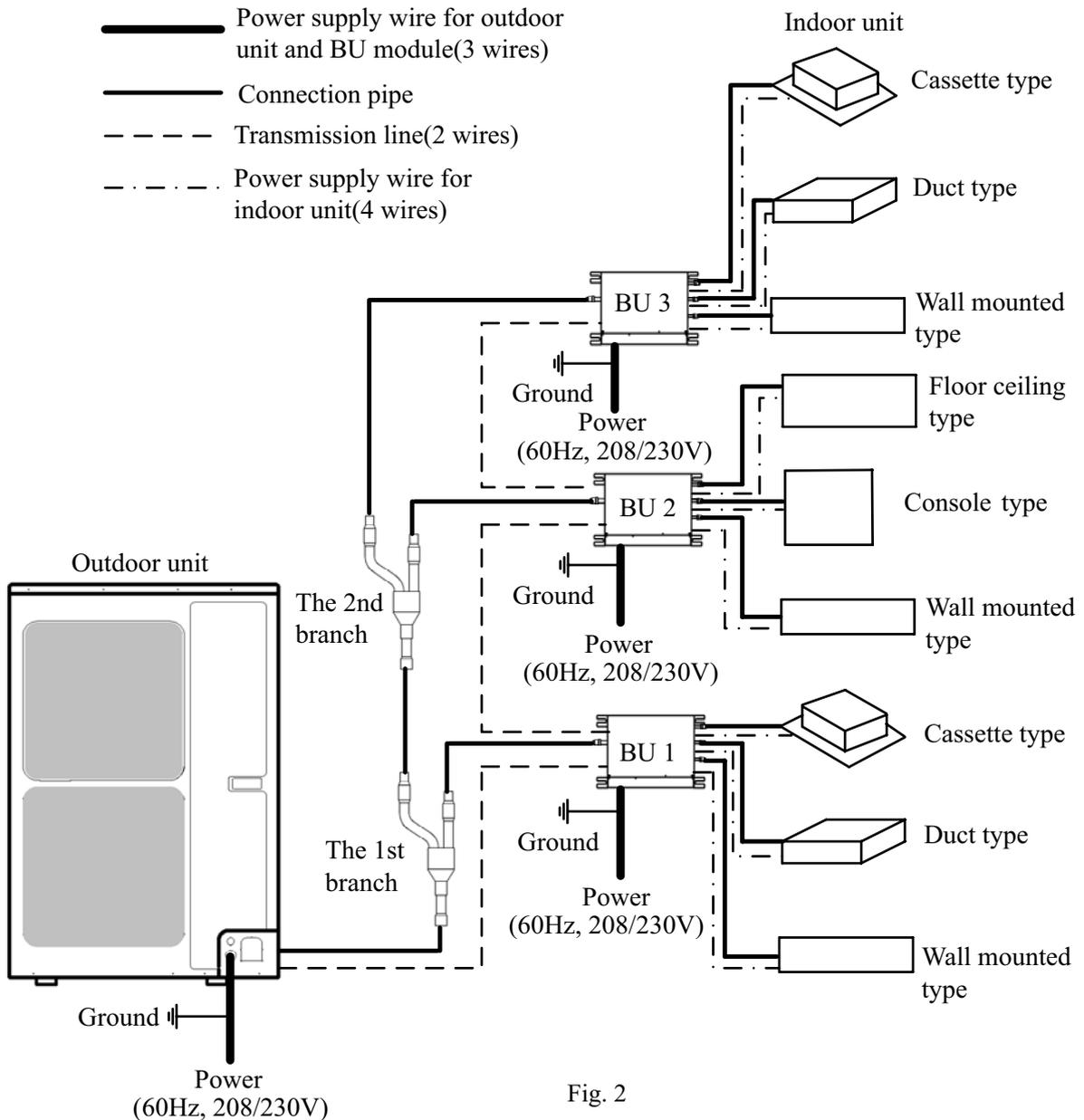


Fig. 2

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### 3.4 Working Temperature Range

Table 3

Sorts	Outside temperature DB/WB
Maximum cooling	118.4°F (48°C) / -
Minimum cooling	64.4°F (-18°C) / -
Maximum heating	75.2°F (24°C) / -
Minimum heating	68°F (-20°C) / -

## 4 Selection of Installation Location and Precautions

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### Caution!

- ◆ The installation of the air conditioner must be in accordance with the national and local laws and regulations.
  - ◆ The quality of the installation will affect the capability of the air conditioner. The installation should be performed by an authorized professional from an appointed service center. Please contact your dealer after purchasing this machine. Professional installation workers will provide installation and test services according to the installation manual.
- 

### 4.1 Selection of Installation Location

- ◆ The outdoor unit must be installed on a firm and solid support which can withstand the weight of the air conditioner. The mounting surface must be a horizontal plane. Otherwise, the unit may fall and cause injury or death.
  - ◆ Ensure there is enough space for the installation and maintenance. Remove any obstacles near the air inlet and outlet of the indoor and outdoor units.
  - ◆ The installation location should be wellventilated, so the machine can absorb and discharge sufficient air.
  - ◆ The outdoor unit shall be installed close to the indoor unit, to minimize the length and bends of the cooling pipe.
  - ◆ Avoid placing the outdoor unit under windows or between construction sites, to prevent normal operating noise from entering the room.
  - ◆ Do not install in a location near a heat source, flammable or explosive gas, excessive dust, salty fog and polluted air.
- 



### Caution!

Installation at the following locations may lead to an air conditioner malfunction. If it is unavoidable, contact the appointed service center.

- ◆ A location full of machine oil
  - ◆ A region with saline-sodic soil near coastal areas
  - ◆ A location where sulphide fog exists, such as the sulphur spring
  - ◆ A location where high frequency facilities exist, such as radio equipment, electric welder and medical equipment
  - ◆ An environment with special conditions.
-

## 4.2 Outline Dimension of Outdoor Unit

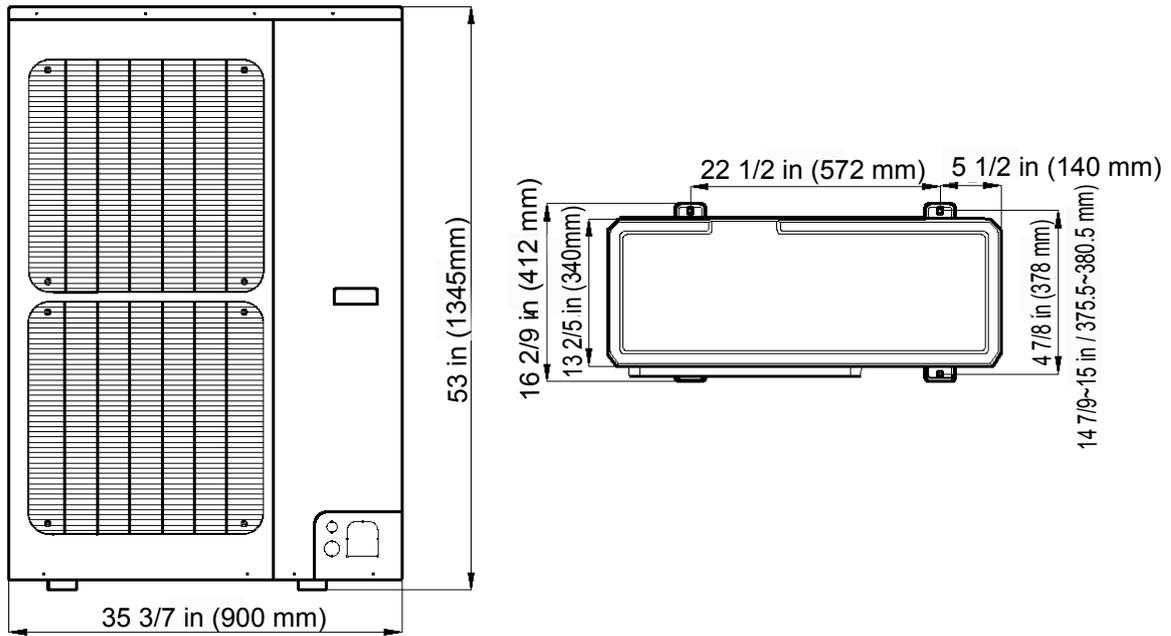


Fig. 3 (unit: in/mm)

## 4.3 Installation and Servicing Space

- 1) When the installation location is exposed to strong wind

When strong winds of convert to feet or more exist at the installation site, the unit outlet cannot face the wind. If the wind blows against the outdoor unit's air outlet, it will cause deterioration of the operational capacity and may break the fan.

- 2) Installing only one unit

In case obstacles exist around the unit, the required installation space is shown in Fig. 4.

- 3) Installing multiple units(2 units or more)

In case of multiple rows of series installation, the required installation space is in the Fig. 5.

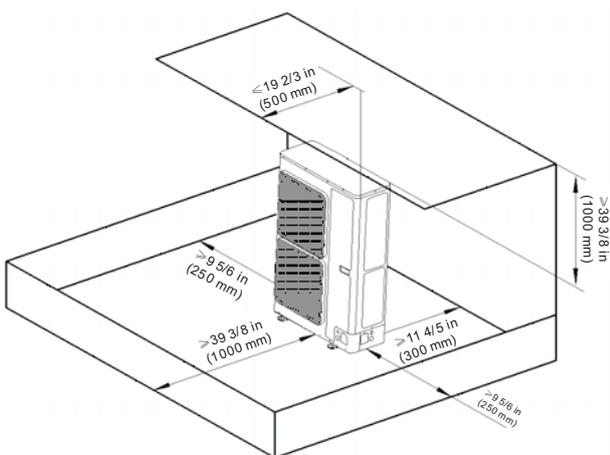


Fig. 4 (unit: in / mm)

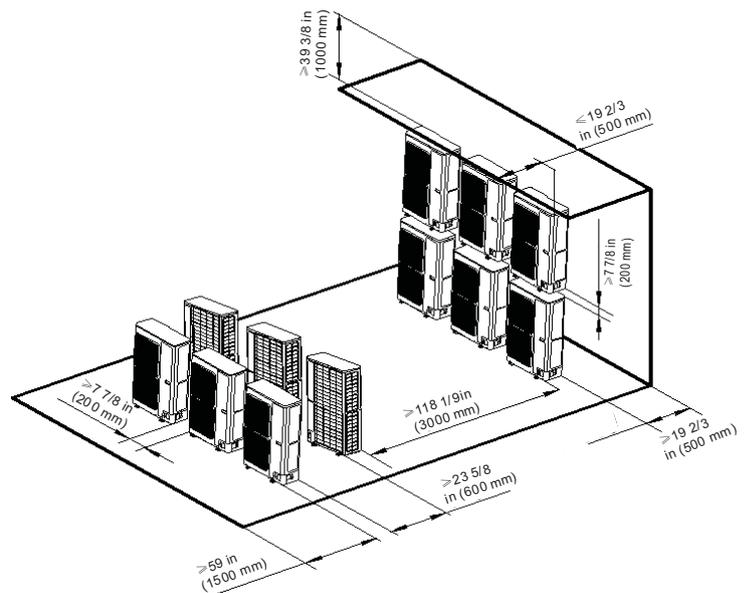


Fig. 5 (unit: in/mm)

## 5 Installation Instruction

- 1) Check the installation location and ensure the strength and level, so the unit will not cause any operating vibration or noise after installation.
- 2) In accordance with the foundation drawing in the following figure, drill 4 holes in the installation location.

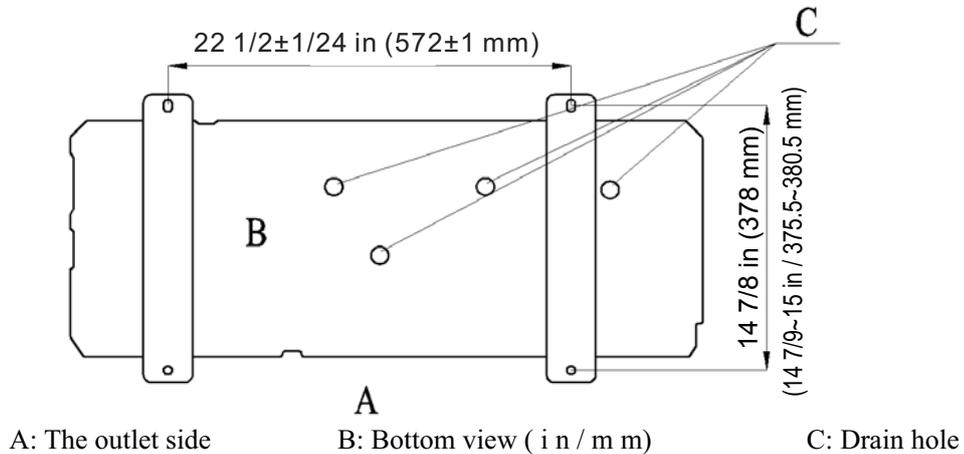


Fig. 6

- 3) Secure the unit with the foundation bolts. You can get the M10 or M12 foundation bolts, nuts and washers from the market.

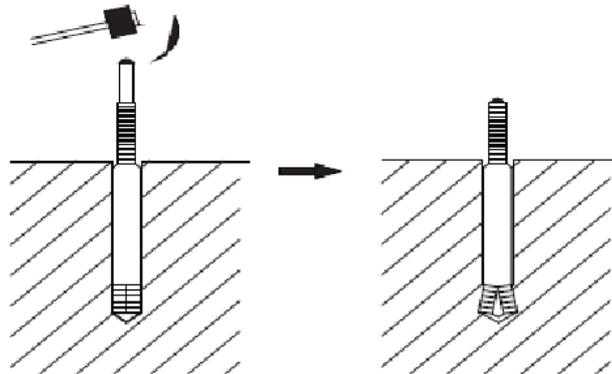


Fig. 7

- 4) Rubber or spring shock absorbers should be used during the outdoor unit installation to meet the noise and vibration requirements.
- 5) Screw the foundation bolts into the ground. The length should be less than 0.78in(20mm) from the foundation face.

## 6 Installation of Refrigerant Pipes

### 6.1 Allowable Length and Drop Height of the Connecting Pipe

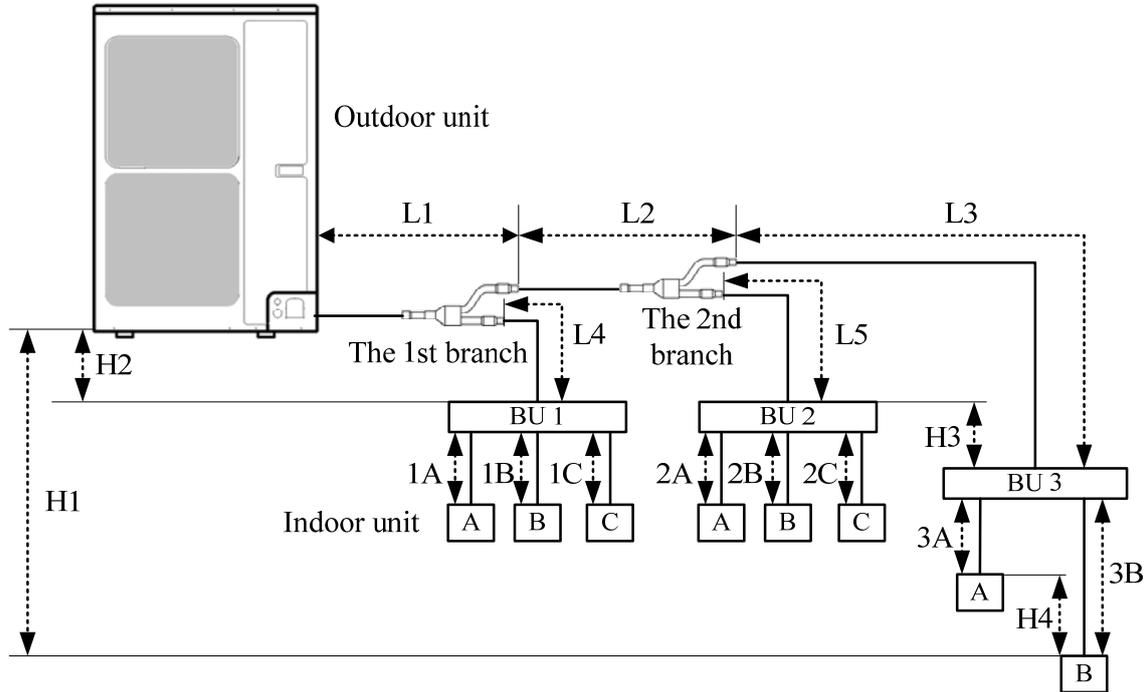


Fig. 8 (8 indoor units)

Table 4

The sorts		The pipes	Length(ft/m)
Maximum allowable length	Total length between outdoor unit and Branch Unit modules	$L1+L2+L3+L4+L5$	$\leq 180.4$ ft (55 mm)
	Total length between indoor units and Branch Unit	38GJQK48---3	$1A+1B+1C+2A+2B+2C+$
		38GJQL56---3	$3A+3B$
	Between indoor unit and Branch Unit module	$1A;1B;1C;2A;2B;2C;3A;3B$	$\leq 49.2$ ft (15mm)
	Between indoor unit and the 1st branch	$L4+1B;L2+L5+2A;L2+L3+3B$	$\leq 131.2$ ft (40 mm)
Maximum allowable length	Between outdoor and indoor units	H1	$\leq 98.4$ ft (30 mm)
	Between outdoor units and Branch Unit modules	H2	$\leq 98.4$ ft (30 mm)
	Between Branch Unit and Branch Unit modules	H3	$\leq 49.2$ ft (15mm)
	Between indoor and indoor units	H4	$\leq 49.2$ ft (15mm)
Minimum allowable length	Between outdoor and the 1st branch	L1	$\geq 16.4$ ft (5mm)
	Between Branch Unit and the branch	L3;L4;L5	as possible as short

◆ The Branch Unit module should be placed within the level between the outdoor unit and indoor unit.

## 6.2 Dimension of Connecting Pipe

Table 5

Sorts		Gas Pipe (in/mm)	Liquid Pipe (in/mm)
Outdoor unit	38GJQK48---3	Φ5/8 in (15.9 mm)	Φ3/8 in (9.52 mm)
	38GJQL56---3		
Between outdoor unit and the 1st branch	The pipe L1	Φ3/4 in (19.05 mm)	Φ3/8 in (9.52 mm)
Between the 1st and the 2nd branch	The pipe L2	Φ5/8 in (15.9 mm)	Φ3/8 in (9.52 mm)

## 6.3 Connection of Branch Pipe

- 1) If two or three Branch Unit modules are used, a Y-type branch pipe KSAUI0501AAA will be used.

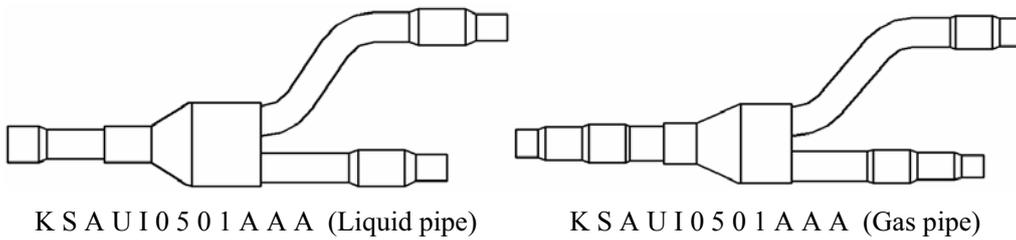


Fig. 9

- 2) The Y-type branch pipe is equipped with auxiliary tubes to adjust the diameter of the different pipes. If the dimension of the pipe selected is different from the dimension of the branch pipe joint, cut the copper tube in the middle with a tube cutter and clear up the burrs. Refer to Fig. 10

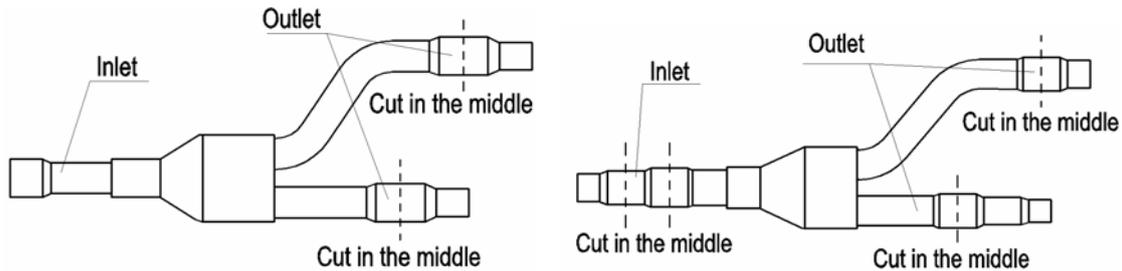


Fig. 10

- 3) The Y-type branch pipe must be installed in a vertical or horizontal direction. In the inlet of the branch pipe, keep at least 19.6 in (500mm) of straight pipe.

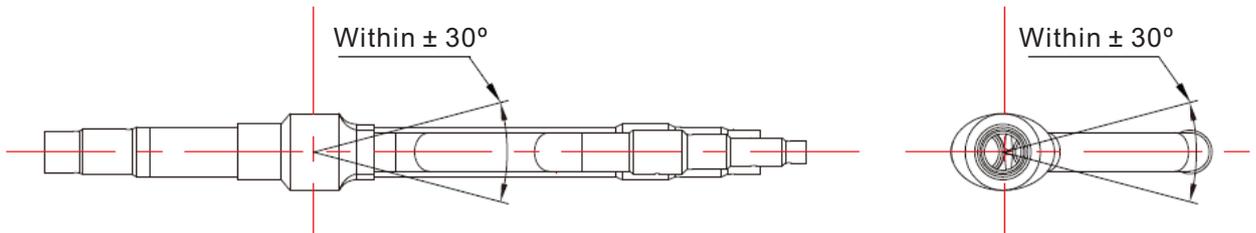


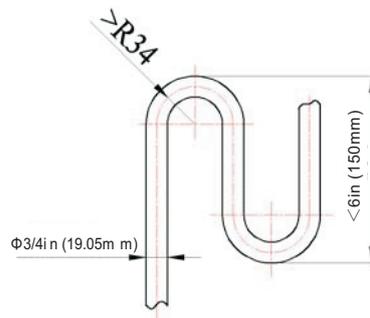
Fig. 11

## 6.4 Oil Trap Design Requirements

If the height difference between the indoor and outdoor units exceed 19.7ft (6m), install an oil trap every 19.7ft (6m) from the lower to the upper section of the vertical gas pipe. Fabricate the oil trap into two U-type elbows or one return-type elbow. The height shall be 3~5 times the piping diameter.

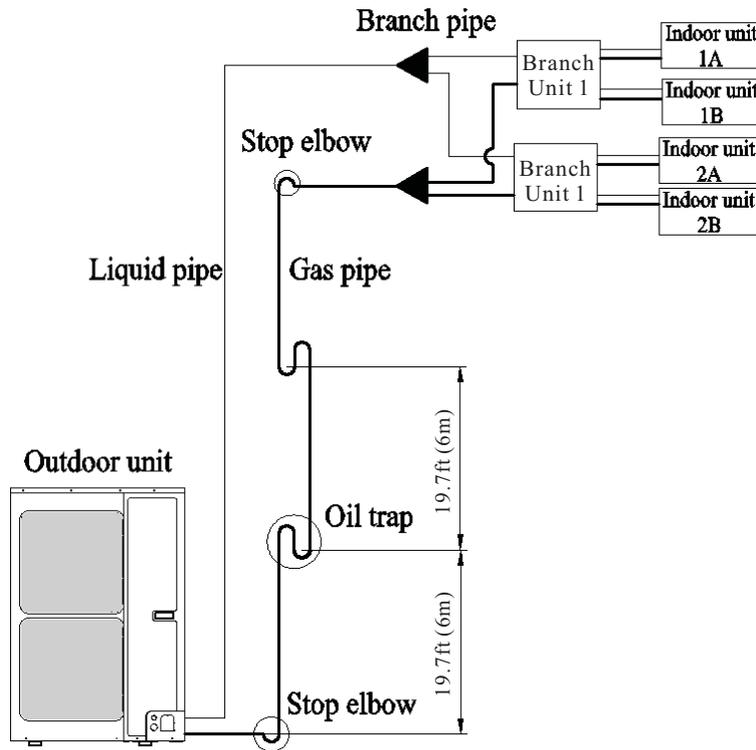
See the steps below for details on the installation and fabrication of the oil trap.

- ①. The oil trap may be fabricated into a U-type or return-type.
- ②. If the outdoor unit is below the indoor unit, there is no need to install an oil trap on the vertical pipe for gas piping.
- ③. If the outdoor unit is below the indoor unit, there is no need to install an oil trap at the highest or lowest position. If the outdoor unit is above the indoor unit, the oil trap and stop elbow must be installed at the lowest and the highest position of the vertical pipe. Refer to the schematics below.
- ④. The fabrication dimensions of the oil trap are shown below.

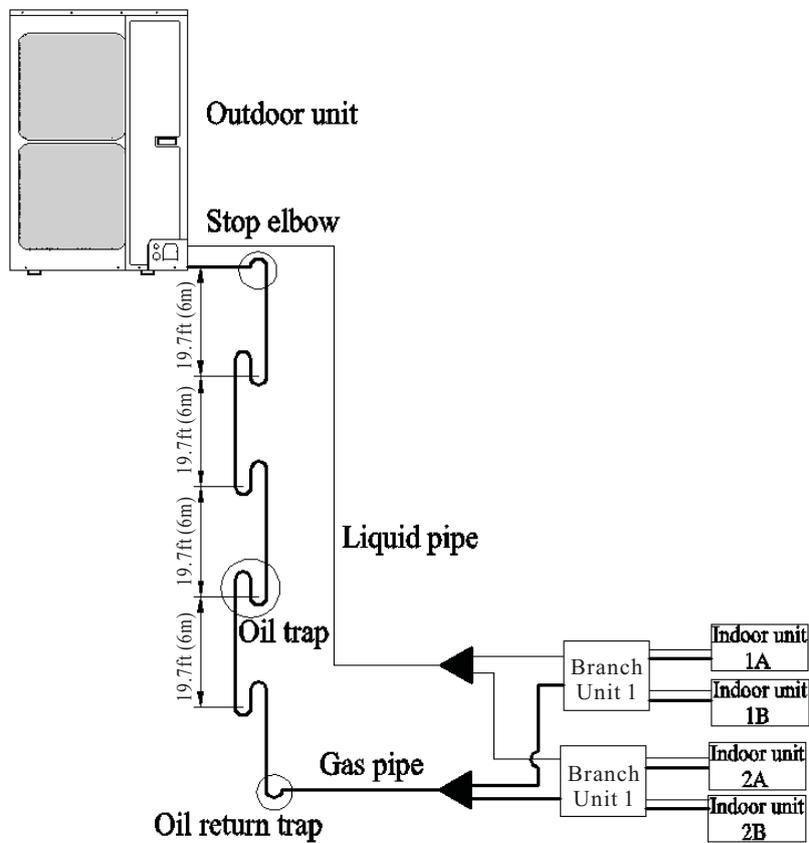


⑤. Refer to the schematics below.

◆ The outdoor unit is lower than the indoor unit.



◆ The outdoor unit is higher than the indoor unit.



## 6.5 Connection of Refrigerant Pipes

### 6.5.1 Precautions for connection

- 1) Pipe connections should be installed based on the following rules:
  - ① Outdoor unit should be installed near the indoor unit to minimize the length and bends of connection pipes.
  - ② The height gap of outdoor unit and indoor units should be as small as possible
- 2) The brazing operation must be performed strictly in accordance with the process requirements. During the installation, do not damage the pipeline.

### 6.5.2 The process of flaring

- ① Using the tube cutter to cut the connecting pipe in the appropriate place and remove the burrs.
- ② Install the nut before the flaring operation.
- ③ Check the flared portion, whether it is fractured or not.

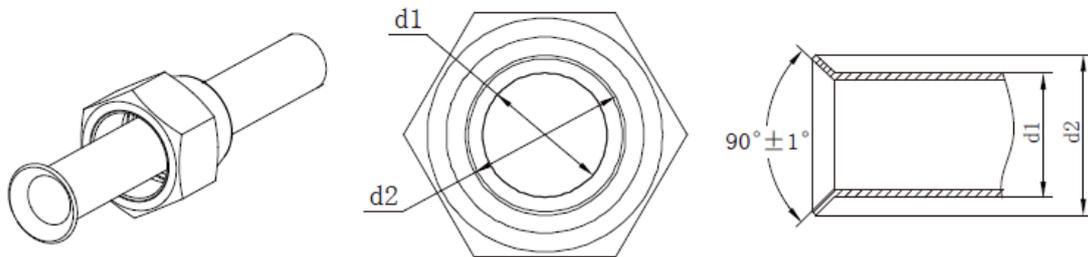


Fig. 12

### 6.5.3 Precaution for elbow operation

- ① The elbow operation could be done by hand. Be careful and do not damage the pipe.

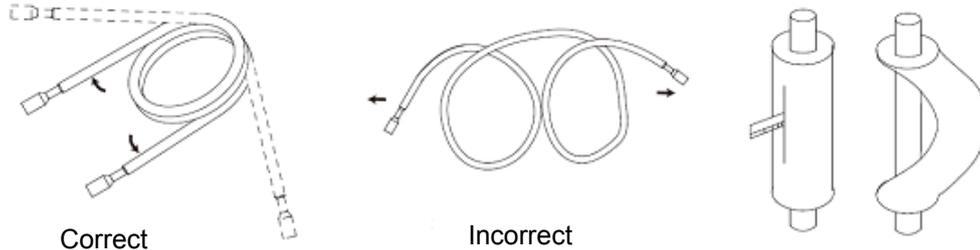


Fig. 13

- ② The bending diameter of the pipeline must be greater than 7 7/8 (in) 200 (mm). The connection pipe cannot often be bent or straightened. Otherwise it will harden and crack.
- ③ If the thermal insulation of the refrigerant pipe is not removed, please do not bend the pipe. Otherwise, it may cause the pipe to crack. It is better to make an incision with a knife in the thermal insulation and removes it. After elbow operation is finished, recover the thermal insulation with binding band.

### 6.5.4 The process of install refrigerant pipes

- ① Remove the screw caps from the pipes.
- ② Align the flared end of copper tube with the center of pipe joint. Tighten the nuts by hands. (If the flared end of copper tube and the center of pipe joint are not in coaxial, it is hard to tighten the nuts by hands, please do not tighten it with spanners, because the screw thread may be broken by force).
- ③ Tighten the flaring nuts with torque wrench until you hear a “click”. (The spanner and torque wrench should be perpendicular to the refrigerant pipeline).

④ The following table for the torque required to tighten the nuts.

Table 6

Pipe diameter	Thickness of copper tube	Tightening torque
Φ1/4 in (6.35 mm)	≥1/30 in (0.8 mm)	20.34~40.68 ft.lb(15~30 N.m)
Φ3/8 in (9.52 mm)	≥1/30 in (0.8 mm)	47.46~54.24 ft.lb(35~40 N.m)
Φ1/2 in (12.7 mm)	≥1/30 in (0.8 mm)	61.02~67.8 ft.lb(45~50 N.m)
Φ5/8 in (15.9 mm)	≥1/24 in (1 mm)	81.36~88.14 ft.lb(60~65 N.m)
Φ3/4 in (19.05 mm)	≥1/24 in (1 mm)	94.93~101.7 ft.lb(70~75 N.m)

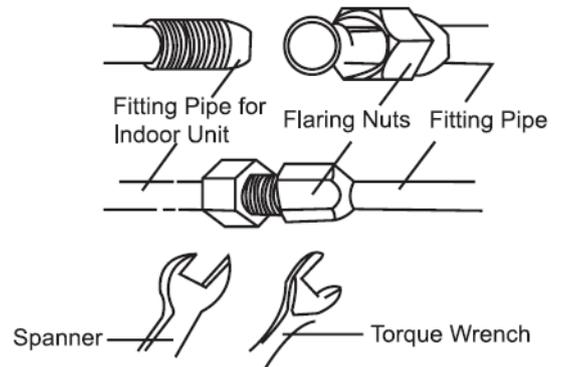
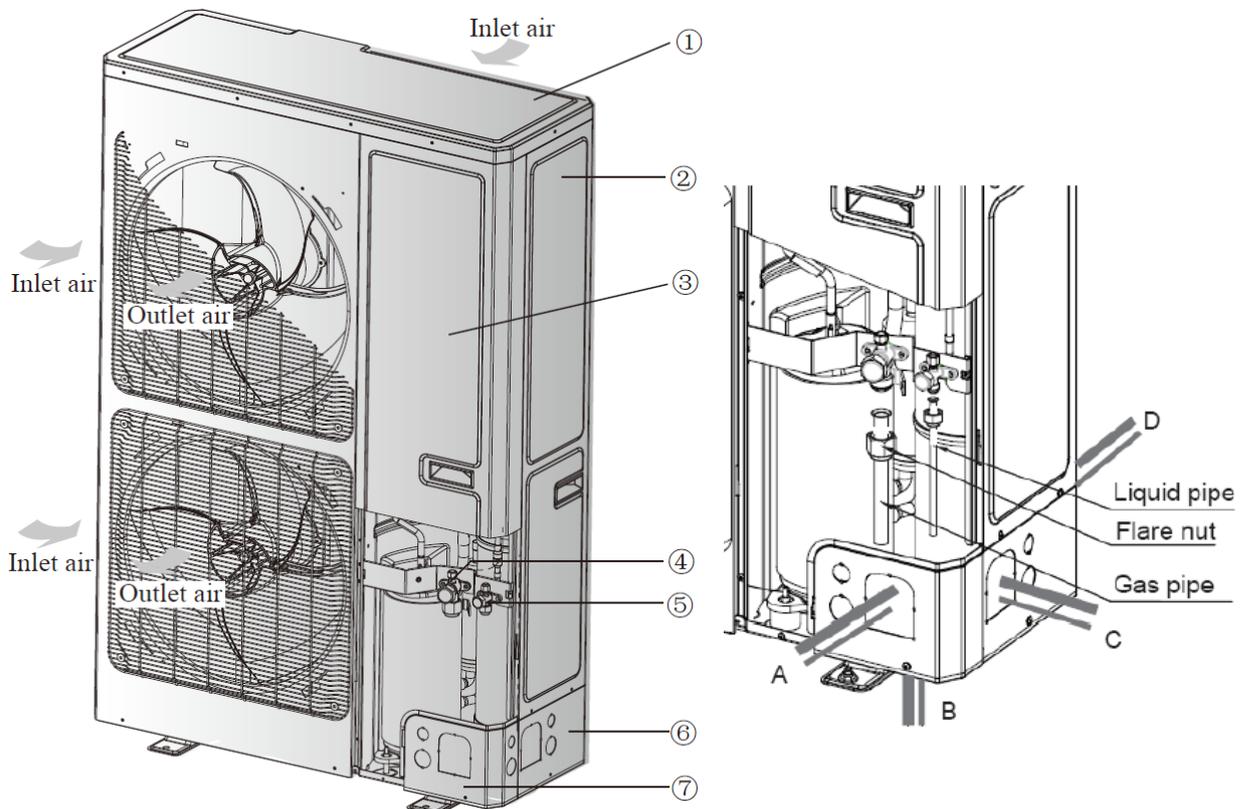


Fig. 14

**! Caution!**

- ◆ During the connection of the indoor unit and Branch Unit module to the refrigerant pipe, never pull any joints of the indoor unit and the Branch Unit module by force; otherwise the capillary pipe or other pipe may crack, which then would result in leakage.
- ◆ The refrigerant pipe should be supported by brackets, that is, don't let the unit withstand the weight of it.
- ◆ For the GJ system, each pipe should be labeled to tell which system it belongs to avoid mistaken inaccurate piping.

**6.6 Connection of Refrigerant Pipe**



NO.	①	②	③	④
Name	Coping plate	Rear side plate	Front side plate	Gas side stop valve
NO.	⑤	⑥	⑦	
Name	Liquid side stop valve	Right connection board	Front connection board	
NO.	A	B	C	D
Name	Front connection	Bottom connection	Side connection	Rear connection

Fig. 15

- 1) Unscrew the coping plate, front side plate, right connection board and front connection board.
- 2) The refrigerant pipes can be installed in four directions, choose the proper direction.
- 3) Knock the holes in the plate of the chosen direction with the drill and hammer.
- 4) Connect the pipes to the stop valves.
- 5) Bend the pipes to fit through the knockout holes.
- 6) Cover the through-holes with sealing materials to prevent water, dust or small animals from entering the outdoor unit.

### 6.7 Leak Test

- 1) Ensure the outdoor unit stop valves are closed during the operation.
- 2) The leak test should be done by pressurizing nitrogen gas.
- 3) Turn on the Hi-knob and Lo-knob. The leak test should be done simultaneously at both the gas and liquid stop valves.
- 4) Open the pressure reducing valve, pressurize the connection pipes to 1.0 MPa (145 psi) slowly, wait fifteen minutes, and ensure the pressure does not drop.
- 5) Rise the pressure to 4.0 MPa (580.1 psi) slowly, wait 24 hours, and ensure the pressure does not drop.
- 6) If the pressure does not decrease, the pipes have passed the test. Otherwise, look for gas leaks.

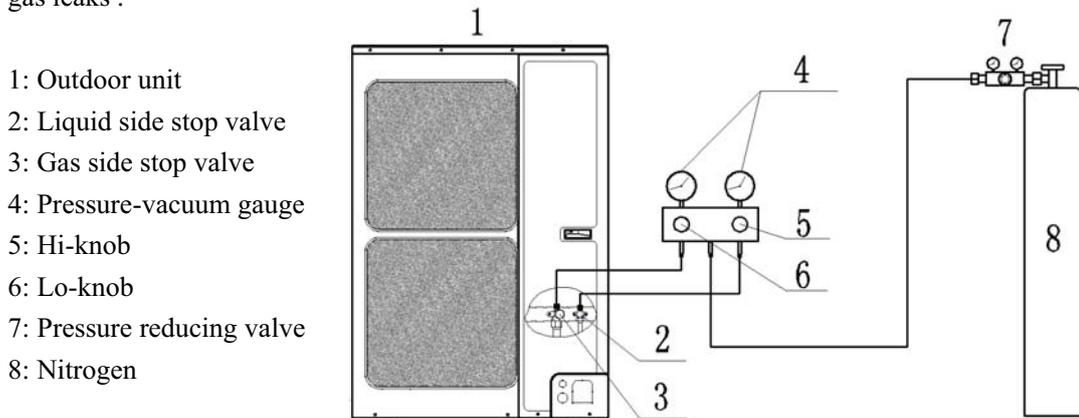


Fig. 16

### 6.8 Vacuum Operation

- 1) Make sure the liquid and gas stop valve of the outdoor unit are closed fully during the operation.
- 2) As shown in the following figure, expel the gas from the refrigerant pipes with the vacuum pump.
- 3) Open the pump and turn on the knobs to evacuate the gas in the liquid and gas pipes. The vacuuming should be done simultaneously at both the gas and liquid stop valves.
- 4) When the pressure of the system is less than  $-0.1\text{Mpa}$  ( $-14.5\text{ psi}$ ), keep the system at this level for more than one hour.

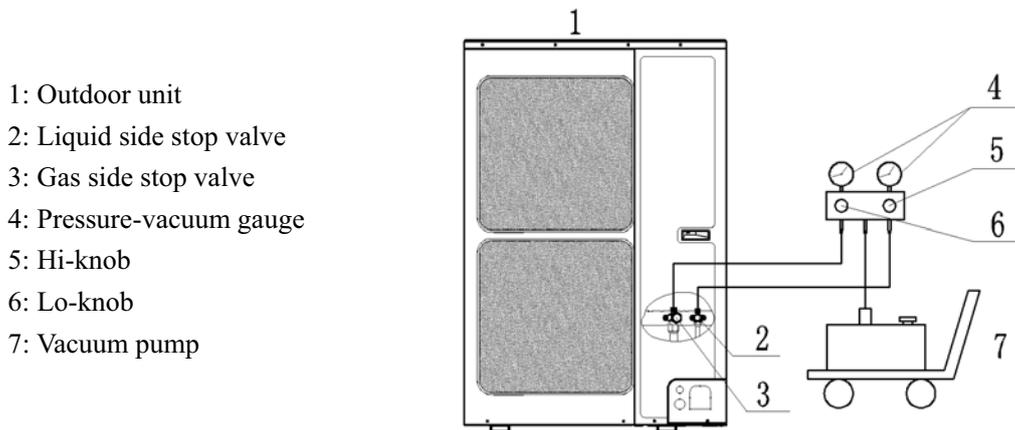


Fig. 17

- 5) Turn off the knobs first and then the pump. If the pressure of the pressure-vacuum gauge does not rise within 2 hours, the system is under a vacuum, otherwise, the system has leaked, so look for the gas leaks .

### 6.9 Refrigerant Charging

The refrigerant has been charged into the outdoor unit before shipped from the manufacturer, however additional refrigerant still needs be charged into the refrigerant pipe in the field installation.

#### 6.9.1 Calculation of the Additional Refrigerant Charging

- 1) Get the refrigerant charge of the outdoor unit from the nameplate.

-----  
**Note:**

- ◆ The refrigerant charge of the outdoor unit does not include the additional charge in the indoor unit, Branch Unit module and the refrigerant pipe.
  - ◆ Because the length of the connecting pipe is decided on the field, the amount of additional refrigerant shall be decided depending on the dimension and the length of the liquid pipe used on the field.
  - ◆ There is no need to add refrigerant if the total length of liquid pipe is within 30m.
- 

- 2) Calculating the Mass of Additional Refrigerant

Additional Refrigerant Charge (kg) =  $\Sigma$  the Liquid Pipe Length of  $\Phi 0.25$  in (6.35mm)  $\times$  0.022kg/m +  $\Sigma$  the Liquid Pipe Length of  $\Phi 0.37$  in (9.52mm)  $\times$  0.054kg/m - 1.47(kg)

- ◆ If the additional refrigerant charge is negative, there is no need to add the refrigerant.

- 3) Example: 38GJQL56---3

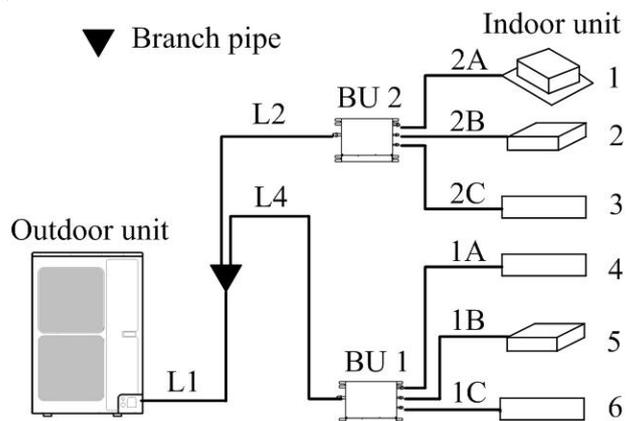


Fig. 18

Table 7

Serial No.	Model	
Indoor unit 1	Cassette type	40GJQB12C--3
Indoor unit 2	Duct type	40GJQB09D--3
Indoor unit 3	Wall mounted type	40GRQB09B--3
Indoor unit 4	Wall mounted type	40GJQB09B--3
Indoor unit 5	Duct type	40GJQB09D--3
Indoor unit 6	Wall mounted type	40GJQB09B--3

Table 8

Serial	Diameter (in / mm)	Length(ft / mm)
L1	Φ3/8 in (9.52 mm)	65.6 ft (20 m)
L2	Φ3/8 in (9.52 mm)	32.8 ft (10 m)
L4	Φ3/8 in (9.52 mm)	32.8 ft (10 m)
1A	Φ 1/4 in (6.35 mm)	16.4 ft (5 m)
1B	Φ 1/4 in (6.35 mm)	16.4 ft (5 m)
1C	Φ 1/4 in (6.35 mm)	16.4 ft (5 m)
2A	Φ 1/4 in (6.35 mm)	16.4 ft (5 m)
2B	Φ 1/4 in (6.35 mm)	16.4 ft (5 m)
2C	Φ 1/4 in (6.35 mm)	16.4 ft (5 m)

The total length of the liquid pipes: 20+10+10+5+5+5+5+5+5=70(m) or 65.6+32.8+32.8+16.4+16.4+16.4+16.4+16.4=229.6 (ft). Thus, the total length is over than 98.4 ft (30m), so the air conditioner needs to add refrigerant.

◆ Additional refrigerant charge

$$\Sigma \text{ the Liquid Pipe Length of } \Phi 6.35 \times 0.022\text{kg/m} + \Sigma \text{ the Liquid Pipe Length of } \Phi 9.52 \times 0.054\text{kg/m} - 1.47(\text{kg})$$

$$= (5+5+5+5+5)(\text{m}) \times 0.022\text{kg/m} + (20+10+10)(\text{m}) \times 0.054\text{kg/m} - 1.47(\text{kg})$$

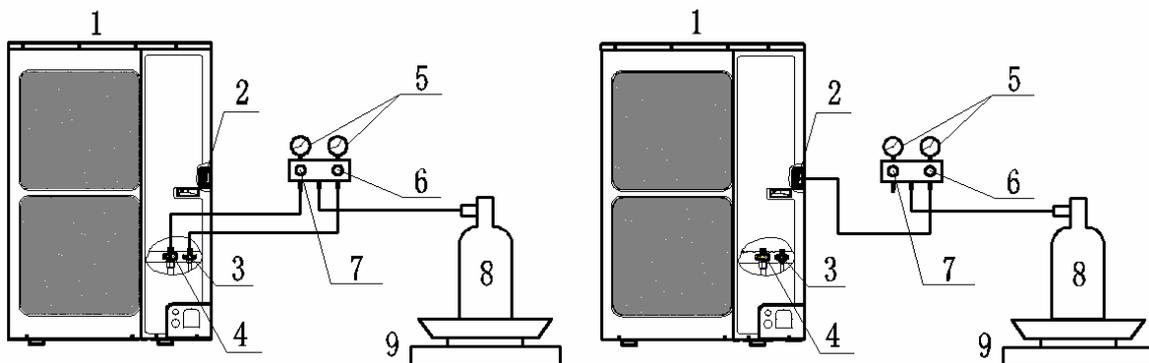
$$= 1.35(\text{kg}) \text{ or } 2.98 \text{ lb.}$$

4) Additional refrigerant charge record for future maintenance

Table 9

Diameter(in/mm)	Total length(ft/m)	Additional refrigerant charge(lb/kg)
Φ1/4 in (6.35 mm)	98.4 ft (30m)	
Φ3/8 in (9.52 mm)	131.2 ft (40 m)	
Total	229.6 ft (70 m)	2.98 lb (1.35 kg)

6.9.2 Procedures for adding refrigerant



NO.	1	2	3	4	5
Name	Outdoor unit	Service port	Liquid side stop valve	Gas side stop valve	Pressure-vacuum gauge
NO.	6	7	8		9
Name	Hi-knob	Lo-knob	R410A tank		Scale

Fig. 19

- 1) When the liquid and gas stop valves have not been opened, the system is under the vacuum:
  - a. Refer to the left side of the previous figure and connect the R410A tank to the system.
  - b. Turn on the R410A tank and the Hi-knob and charge the R410A refrigerant into the unit from the liquid side stop valve. The Lo-knob should be closed completely.
  - c. Turn off the R410A tank and the Hi-knob immediately after adding enough additional refrigerant.
  - d. Turn on the liquid and gas side stop valves in a counter-clockwise direction slowly and completely.
- 2) If the pressure of the system is too high to charge the refrigerant, you can perform the following steps.
  - a. Turn on the liquid and gas side stop valves in an counter-clockwise direction slowly and completely.
  - b. Turn on the air conditioner power, and set the cooling mode. Run the unit more than 0.5h when the outside temperature is higher than 59°F (15°C) DB.
    - i) Refer to the left side of the previous figure and connect the R410A tank to the system.
    - ii) Turn on the R410A tank and the Lo-knob; charge the R410A refrigerant into the unit from the gas side stop valve. The Hi-knob should be closed completely.
    - iii) Turn off the R410A tank and the Lo-knob immediately after adding enough additional refrigerant.
  - c. Turn on the air conditioner power, and set the heating mode. Run the unit more than 0.5h when the outside temperature is lower than 59°F (15°C) DB.
    - i) Refer to the right side of the previous figure and connect the R410A tank to the system.
    - ii) Turn on the R410A tank and the Hi-knob; charge the R410A refrigerant into the unit from the service port. The Lo-knob should be closed completely.
    - iii) Turn off the R410A tank and the Hi-knob immediately after adding enough additional refrigerant.

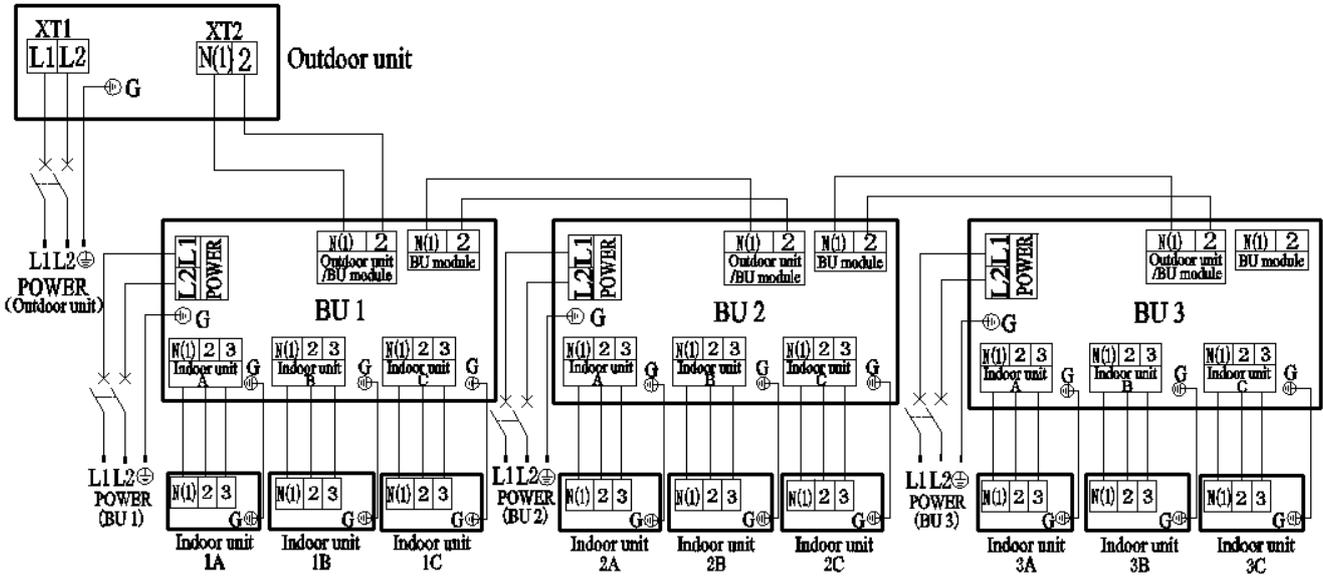
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 **Caution !**

- ◆ Ensure the liquid and gas side stop valves are opened completely after the installation.
  - ◆ Ensure the length of liquid pipe is exact.
  - ◆ Additional refrigerant charge must be measured exactly.
  - ◆ Ensure the refrigerant is in liquid state.
  - ◆ Prevent refrigerant from spilling on your body when removing the charging hose.
  - ◆ Heat the refrigerant tank with hot water or hot air when the outside temperature is too low. Never use fire as a heating source; it may lead to an explosion.
-

## 7 Electrical Wiring Work

### 7.1 Wiring Connection



- ◆ The “L1”, “3” terminals are connected to the live wire, the “L2”, “N(1)” terminals are connected to the neutral wire and the ”2” terminal is connected to the transmission line.

Fig. 20

### 7.2 Requirements of Power Circuit and Cable

Table 10

Phase and frequency		1Ph,60Hz
Voltage		208/230V
Recommended cable of outdoor unit (Pieces × Sectional area)	38GJQK48---3	3X0.009 in <sup>2</sup> (3×6.0 mm <sup>2</sup> )
	38GJQL56---3	
Recommended cable of Branch Unit module (Pieces × Sectional area)		3X0.001 in <sup>2</sup> (3X0.75 mm <sup>2</sup> )
Transmission line (Pieces × Sectional area)		2X0.002 in <sup>2</sup> (2×1.5 mm <sup>2</sup> )
Recommended cable of indoor unit (Pieces × Sectional area)		4X0.001 in <sup>2</sup> (4X0.75 mm <sup>2</sup> )
Capacity of the air switch	38GJQK48---3	40A
	38GJQL56---3	40A
	Branch Unit module	10A

#### Note:

- ◆ The total length of the transmission line between the outdoor unit and the furthest Branch Unit module must not exceed 180.4 ft (55 m), otherwise, the system may not function.
- ◆ The specifications of the power cable and transmission line listed in the table above are determined based on the maximum power (maximum amps) of the unit.

- 
- ◆ The specifications of the power cable listed in the table above are applied to the conduit-guarded multi-wire copper cable (for example, YJV copper cable, consisting of PE insulated wires and a PVC cable jacket) used at 104°F (40°C) and resistant to 194°F (90°C), and shall be at least those of ordinary polychloroprene sheathed cords. If the working condition changes, they should be modified according to the related national standard.
  - ◆ The specifications of the air switch listed in the table above are applied to the breaker with the working temperature at 104°F (40°C). If the working condition changes, they should be modified according to the related national standard.
  - ◆ The length of the recommended power cable should be less than 49.2 ft (15 m); otherwise, the diameter of the power cable is not enough.
  - ◆ The mentioned power cable and transmission line length is just a reference value. It may be different depending on the condition of the installation, humidity or materials.
  - ◆ An all-pole disconnection switch, with a contact separation of at least 0.12 in (3 mm) in all poles, should be connected in fixed wiring.
- 

### 7.3 Ground Requirements

- ◆ The air conditioner is classified as a Class I appliance, so the grounding methods must be reliable.
- ◆ The ground wire must be secured on the screw hole with the sign as the right figure. 
- ◆ The yellow-green wire of the air conditioner is the ground wire and must be secured with a tapping screw. The wire cannot be used for other purpose or cut off, otherwise, it will cause an electric shock.
- ◆ A reliable ground terminal should be provided. The ground wire cannot be connected to any of the following items: a. water pipe; b. coal gas pipe; c. sewage pipe; d. lightning rod e. telephone line f. other unreliable places determined by a professional.

### 7.4 Precautions on the Electrical Wiring Work

- ◆ The ground connection should be reliable and the ground wire should be connected to the dedicated device of the building by the professional.
- ◆ The electric installation should be carried out by the professional as instructed by the local laws, regulations and also this manual.
- ◆ The air switch coupled with the leakage current protection switch must be equipped in the circuits, which is of enough capacity and of both magnetic and thermal tripping functions in case of a short circuit and overload.
- ◆ The electrical work should use a cable long enough to cover the entire distance with no connection. If it is unavoidable, ensure the connection is reliable, the external forces will not impact the wires and the joint is not bare, otherwise it will cause electrical shock or fire.
- ◆ A power cable with the rated voltage and exclusive circuit for the air conditioning should be used.
- ◆ Do not pull the power cable forcefully after it is installed.
- ◆ The diameter of the power cable should be large enough and once it is damaged, it must be replaced by the dedicated one.
- ◆ The multi-wire copper cable should be used for the power cable and the transmission line.

---

## 7.5 Precaution of Laying Wires

- 1) Use a wire stripper to strip off a length of the insulation layer at the end of the wires.
- 2) Loosen the screws on the terminal block of the air conditioner.
- 3) Press the ends of the cable tightly onto the round terminals corresponding to the size of the screws.
- 4) Pass the screw through the round terminals and fix it onto the terminal block.

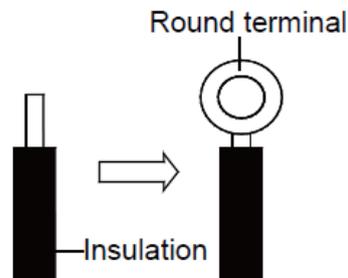


Fig. 21

## 7.6 Procedures for Electrical Wiring Work

- 1) Knock the holes in the plate of the chosen direction with the hammer.
- 2) Place the rubber ring on the knockout hole.
- 3) Pass the power cable and transmission line through the knockout hole.
- 4) Connect the power cable of the outdoor unit to the L1, L2 terminals with the sign of the XT1 and as well as the ground screw.
- 5) Connect the transmission line of the outdoor unit to the N(1), 2 terminals with the sign of the XT2.
- 6) Secure the power cable and transmission line firmly by a cable fixing clip. To protect the power cable and transmission line from damage by the pipes or others, an interval of at least .79 inch is required.
- 7) Screw the coping plate, front side plate, right connection board, and front connection board back.
- 8) Cover the through-holes with sealing materials to prevent water, dust or small animals from entering the outdoor unit.



### Caution!

- ◆ The transmission line and the power cable must be separated with an interval of at least .79 inch; otherwise it may result in a communication problem.
  - ◆ To protect the power cable and the transmission line from damage by the hole, a rubber ring must be placed on the hole, otherwise, it may cause electrical shock or fire.
  - ◆ The power wire and transmission line must be more than 3 1/2 feet away from televisions or radios which can emit electromagnetic waves to prevent image interference or noise, otherwise the unit may not work.
  - ◆ Confirm each cable connected to the terminal screw is exact and secure after finishing the electric work.
  - ◆ Secure each ground wire separately with the ground screw.
  - ◆ If the connecting wire is connected to the terminal incorrectly, the unit will not function normally.
-

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## 8 Design of Drainage Pipeline

### 8.1 Installation of Drain Hose

- 1) Choose one drain hole in the bottom of the outdoor unit.
- 2) Connect the drain hose to the drain hole.
- 3) The drain hose should be kept at 5~10 degrees of gradient to facilitate discharge of the condensing water. Ensure the gradient does not exert too much force on the hose.
- 4) Thermal insulation materials should be placed at the joints of the drain hose to prevent dew condensation. Secure the drain hose firmly with a binding band.

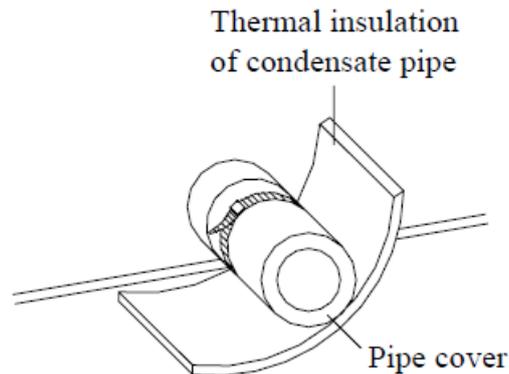


Fig. 22

- 5) The end of the drain hose should be inserted into the hole of the drainage pipeline.

### 8.2 Design of Drainage Pipeline

- 1) The drainage pipeline should be kept at a certain gradient ( $1/50$ — $1/100$ ) to avoid pipe bulges where there may be water bends.
- 2) The drainage pipeline is in the form of the hard PVC pipes for common purposes and can be purchased locally. The diameter of the PVC pipes is no less than 0.67 in (17 mm) and the pipeline should be fixed as close to the Branch Unit module as possible.
- 3) Insert the drain hose into the drain hole of the drainage pipeline. Use a binding band to secure it tightly. Do not use adhesive glue to join the drain hose to the drainage hole.
- 4) When the drainage pipeline is laid for a couple of units, the position of the shared pipeline should be approximately 3.94 in (100 mm) lower than the drainage hole of each module. In this case, some special-purpose pipes with thicker walls will be used.
- 5) At intervals of about 1 meter, secure the drain pipes to the wall with brackets.

---

## 9 Installation of the Protective Layer

- 1) The refrigerant pipes should be insulated by the heat insulation material and plastic tape to prevent water condensation and leakage.
- 2) Do not use the foam on the branch pipe for heat insulation.  
The heat insulation material: Heat resistance to 212°F (100°C) or more; Thickness of 0.35 in (9 mm) or more.
- 3) The system joints should be wrapped with the heat insulation material. There should be no gap on the system joint. Refer to the following figure.

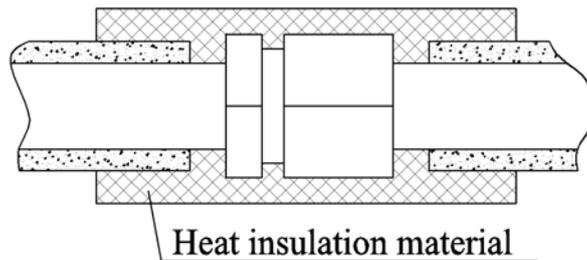


Fig. 23

- 4) Bundle the refrigerant pipe and transmission line together with tape, and separate them from the drain pipe to prevent the condensate water from overflowing.
- 5) Wrap the pipe from the bottom of the outdoor unit to the top of the pipe where it enters the wall. During the wrapping, the last circle should cover half of the first one.
- 6) At intervals of about 3.28 ft (1 m), secure the refrigerant pipes to the wall with brackets. Do not allow the unit to withstand the weight of the refrigerant pipes or allow them to dangle.



### Caution !

- ◆ After the pipe is protected well, do not bend it to form a small angle ( $< 90^\circ$ ), otherwise it would crack or break.
  - ◆ Do not wrap the refrigerant pipes very tight, otherwise the insulation effect would be weakened. Additionally, make sure the drain hose is separated from the refrigerant pipes.
  - ◆ Cover the hole on the wall with sealing materials to prevent wind and noise from entering into the room.
-

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## 10 Test Operation

### 10.1 Check after Installation

Table 11

Items to be checked	Possible malfunction
Has it been fixed reliably?	The unit may drop, vibrate or make noise.
Has the gas leakage been checked?	It may cause insufficient cooling(heating) capacity.
Is the thermal insulation of the unit sufficient?	It may cause condensation and dripping.
Is the drainage well?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause an electric malfunction or the components may burn out.
Are the lines and pipelines correctly installed?	It may cause an electric malfunction or the components may burn out.
Has the unit been safely grounded?	It may cause electrical leakage.
Do the models of lines conform with the requirements?	It may cause an electric malfunction or the components may burn out.
Are there any obstacles near the air inlet and outlet of the indoor and outdoor units?	It may cause insufficient cooling(heating) capacity.
Have the length of connection pipes and refrigerant charge amount been recorded?	It is not easy to determine the charge amount of the refrigerant.

### 10.2 Test Operation

- 1) Before test operation
  - ◆ The appearance of the unit and the refrigerant pipes cannot be damaged during the installation.
  - ◆ Do not switch on the power before installation is finished completely.
  - ◆ Electrical wiring must be connected correctly and securely.
  - ◆ The stop valves of the outdoor unit should be opened fully.
  - ◆ All dust and debris must be cleared from the unit.
- 2) Test operation method
  - ① The test operation should be carried out by the professionally skilled personnel to ensure that all items listed above are in normal conditions.
  - ② Set the status of the power supply switch to “ON” eight hours before the start of operation.
  - ③ Press the mode button, to select COOL, or HEAT. Whether the air conditioner is working normally or not.
    - ◆ The indoor unit fan motor will run automatically in one minute.
    - ◆ The outdoor unit fan motor and compressor unit will run automatically in one minute.
  - ④ Make sure that every combination of the indoor units work well.

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 **Caution!**

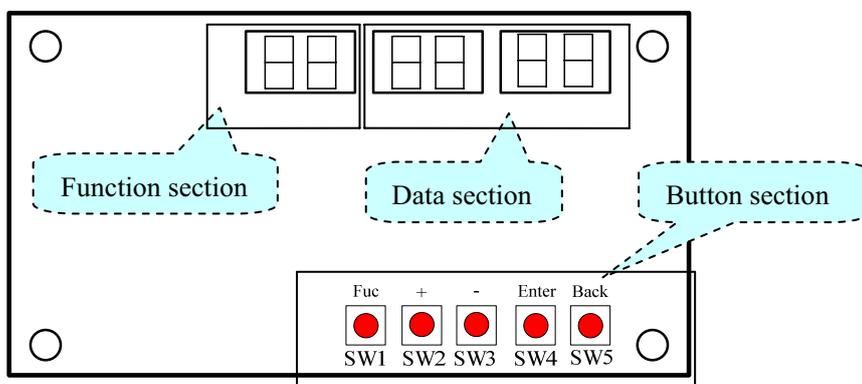
If the unit does not work or emits an abnormal noise after the compressor starts, turn off the unit and check immediately.

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## 11 Testing Board Introduction

### 11.1 Compose of the Testing Board

The testing board is in front of the electrical box and is quite visible. The testing board has the following advantages: detects indoor unit numbers and indoor unit address, displays real running functionality and detects code automatically. It is composed of the function section, data section and the button section.



### 11.2 Instruction of Function and Data Section

Running state	The display of function section	The display of data section																
Stop	<p>① The section displays the numbers of the indoor units which have established communication with the outdoor unit. For example, if there are seven established indoor units, the section displays “7”.</p> <p>② It displays the address of the indoor units by turns. For example, the “1b” is represented of the indoor unit 1B. (Branch Unit module:1/2/3, Indoor unit: A/b/C/d/E)</p>	<p>① If the function section displays the numbers of the indoor units, the data section displays the outside temperature. For example, the “95” is represented of 95°F (35°C).</p> <p>② If the function section displays the address of the indoor unit, the data section displays the model of the indoor unit, for example, the “95” is represented of 95 model.</p>																
Normal	<p>The code of running state:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Code</th> <th>Running state</th> <th>Code</th> <th>Running state</th> </tr> </thead> <tbody> <tr> <td>UE</td> <td>Pressure equalization</td> <td>UH</td> <td>Heating</td> </tr> <tr> <td>UP</td> <td>Pump down</td> <td>F7</td> <td>Oil returning</td> </tr> <tr> <td>UC</td> <td>Cooling</td> <td>H1</td> <td>Defrosting</td> </tr> </tbody> </table>	Code	Running state	Code	Running state	UE	Pressure equalization	UH	Heating	UP	Pump down	F7	Oil returning	UC	Cooling	H1	Defrosting	<p>It displays the target gear of the compressor. If the gear is zero, it displays “0”. For example, the gear is the fifteenth; it displays “15”. The range of the gear is from 0 to 60.</p>
Code	Running state	Code	Running state															
UE	Pressure equalization	UH	Heating															
UP	Pump down	F7	Oil returning															
UC	Cooling	H1	Defrosting															
Malfunction	<p>If the malfunction occurs in the system, the section displays the error code. If there are several malfunctions, it displays the error codes by turns at intervals of 2 seconds.</p>	<p>① If the malfunction occurs in the outdoor unit, the section displays nothing.</p> <p>② If the malfunction occurs in the indoor units, the section displays the address of the indoor unit.</p>																

## 12 Troubleshooting



### Caution!

- ◆ In the event of abnormal conditions (i.e. burning smell or unusual odor) , shut off the power supply immediately and contact the appointed service center. If the air conditioning continues to run abnormally, it may cause electric shock or a fire hazard.
- ◆ Do not repair the air conditioning personally. Contact the professionally skilled personnel at the appointed service center, as the incorrect repair would cause electric shock or fire hazard.

### 12.1 Check before Contacting Service Center

Please check the following items before contacting your Service Center.

Conditions	Causes	Corrective actions
The unit does not run at all	Broken fuse or breaker is off	Replace the damaged fuse or close the breaker
	Power off	Restart the unit after power supply resumes
	Power supply plug is loose	Plug the power supply properly
	The remote controller battery voltage is insufficient	Replace with new batteries
	Remote controller is out of the control scope	The distance shall be within 26 1/4 feet
The unit stops soon after it starts	Air inlet or outlet of the indoor unit or outdoor unit is blocked	Remove the obstacles
Cooling or heating is abnormal	Air inlet or outlet of the indoor unit or outdoor unit is blocked	Remove the obstacles
	Temperature setting is improper	Adjust the setting of the remote controller or wire controller
	Air speed is set too low	Adjust the setting of the remote controller or wire controller
	Improper airflow direction	Adjust the setting of the remote controller or wire controller
	Door or window is open	Close the door or window
	Under direct sunshine	Hang curtain or blinds over the window
	Too many people in the room	
	Too many heat sources indoors	Reduce the heat sources
	The filter screen is dirt or blocked	Clean the filter screen

If the air conditioner still runs abnormally after the above have been checked and resolved if need be, contact the local appointed service center and give a description of the error as well as the model of the unit.

## 12.2 Problem Handling

The conditions listed below are not classified as errors.

Conditions		Causes
The unit does not run	When restarting the unit soon after it is stopped	The overload protection switch of the unit delays the startup for three minutes
	As soon as power supply is on	The unit will stand by for approximate one minute
The unit blows out mist	When the cooling operation starts	The high humidity indoor air is cooled quickly
The unit generates noise	The unit “clatters” as soon as it starts running	It is the sound generated during the initialization of the electronic expansion valve
	The unit “swishes” during the cooling operation	It is the sound when the refrigerant gas runs inside the unit
	The unit “swishes” when it is started or stopped	It is the sound when the refrigerant gas stops running
	The unit “swishes” when it is on and after the running	It is the sound when the draining system is operating
	The unit “squeaks” when it is in and after the running	It is the sound of friction generated by the skin plate which swells due to the temperature change
The unit blows out dust	When the unit restarts after it is not used for a long time	The dust inside the unit is blown out
The unit emits odors	When the unit is running	The odors absorbed by the unit are blown out

## 12.3 Error Description

If an error occurs when the unit is running, the error code will display. Check the following table for details about the error.

Definition of errors	Main control display for outdoor unit			Indoor unit code	Testing board code
	Yellow LED	Red LED	Green LED		
The compressor starts up	Flash 1 time				
IPM current protection	Flash 3 times			H5	H5
IPM temperature protection	Flash 5 times			P8	P8
PFC current protection	Flash 7 times				HC
PFC temperature protection	Flash 8 times			P8	P8
Low voltage protection	Flash 9 times			PL	PL
High voltage protection	Flash 10 times			PH	PH
Low pressure protection	Flash 11 times				E3
High pressure protection	Flash 12 times				E8
High pressure switch protection	Flash 13 times				E1
Capacitor charging error	Flash 14 times				PU
AC current protection	Flash 15 times			E5	E5

Memory card error	Flash 16 times				EE
Compressor demagnetizing protection	Flash 17 times			HE	HE
Compressor desynchronizing	Flash 18 times			H7	H7
Compressor phase lack	Flash 19 times			U2	U2
Compressor phase circuit detection error	Flash 20 times			U1	U1
Compressor power protection	Flash 21 times			L9	L9
Compressor overload protection	Flash 22 times			H3	H3
Compressor discharge temperature protection	Flash 23 times			E4	E4
Lack of refrigerant or jam protection	Flash 31 times			F0	F0
Normal operation		Flash 1 time			
Frequency limitation for AC current		Flash 2 times			F8
Oil returning		Flash 3 times			F7
Defrosting		Flash 4 times		H1	H1
Frequency limitation for IPM temperature		Flash 5 times			EU
Frequency limitation for PFC temperature		Flash 6 times			EU
Frequency limitation for compressor overload		Flash 8 times			LU
Frequency limitation for compressor discharge temperature		Flash 9 times			F9
Frequency limitation for low pressure		Flash 10 times			Pn
Frequency limitation for high pressure		Flash 11 times			F6
Discharge temperature sensor error		Flash 12 times		F5	F5
Outdoor temperature sensor error		Flash 13 times		F3	F3
Suction temperature sensor error		Flash 15 times			dc
Condenser temperature sensor error		Flash 16 times		A7	A7
Sub-cool temperature sensor error		Flash 17 times			bC
Low pressure sensor error		Flash 18 times			dL
High pressure sensor error		Flash 19 times			e1
Fan motor error for indoor unit		Flash 20 times		H6	H6
Driving board is connected			Flash 1 time		
Testing board is connected			Flash 2 times		
Computer is connected			Flash 4 times		
Indoor unit 1 is connected			Flash 5 times		
Indoor unit 2 is connected			Flash 6 times		
Indoor unit 3 is connected			Flash 7 times		
Indoor unit 4 is connected			Flash 8 times		
Indoor unit 5 is connected			Flash 9 times		

Indoor unit 6 is connected			Flash 10 times		
Indoor unit 7 is connected			Flash 11 times		
Indoor unit 8 is connected			Flash 12 times		
Indoor unit 9 is connected			Flash 13 times		
Indoor unit anti-freeze protection				E2	E2
Indoor temperature sensor error				F1	F1
Indoor evaporator midway temperature sensor error				F2	F2
Temperature sensor error for liquid pipe of Branch Unit module				b5	b5
Temperature sensor error for gas pipe of Branch Unit module				b7	b7
Running mode conflicts				E7	E7
Communication error				E6	E6 indoor unit address
Communication error between the main board and driving board					P6
Communication error between the main board and testing board					CE
Gas sensor error of indoor unit					Fn
Humidity sensor error of indoor unit					L1
Water full error of indoor unit				E9	E9
Jumper terminal error of indoor unit				C5	C5
Phase lack of power supply					dJ
Fan motor error of outdoor unit					L3
Refrigerant recovery mode				Fo	Fo

- ◆ Display mode of Red LED and Yellow LED: At intervals of half a second, flash for half a second; if there are several malfunctions, it will display the error codes by turns at intervals of one second.
- ◆ Display mode of Green LED: At intervals of 1/4 second, flash for 1/4 second; it displays the running states by turns at intervals of half a second.

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## 13 Maintenance

Inspection, , maintenance and care regularly should be performed by professional personnel, which will prolong the unit service life.

### 13.1 Outdoor Condenser

The outdoor condenser must be cleaned every two months. Use a vacuum cleaner with a nylon brush to clean up dust and debris on the surface of the condenser. Blow away dust by compressed air if available. Never use water to wash the condenser.

### 13.2 Drain Pipe

To drain condensate smoothly, check the drain pipe regularly for clogs.

### 13.3 Check before Seasonal Use

- ◆ Check the air inlet and outlet of the indoor and outdoor units to confirm there is no blockage.
- ◆ Check the ground wire to confirm the grounding is reliable.
- ◆ Check the wireless remote controller batteries to ensure they have been replaced.
- ◆ Check the filter screen to ensure it has been set soundly.
- ◆ If the air-conditioning unit shall be operated again after a long-term of nonuse, set the power supply switch status to “ON” eight hours before the start of operation, to ensure the successful startup of the air-conditioning unit.
- ◆ Check the outdoor unit to ensure the installation is secure . Contact the appointed service center to verify if there is any abnormal condition.

### 13.4 Maintenance after Seasonal Use

- ◆ Turn off the air conditioning unit power supply and set the power supply switch status to “OFF”.
- ◆ Clean the filter screen and the housing of the indoor and outdoor units.
- ◆ Remove the dust and debris from the outdoor unit.
- ◆ In the event of rusting, use the anti-rust paint to stop the spreading of rust.

Refer to the *Installation and Operation Manual* of each indoor unit respectively for detailed maintenance.



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