

538KE
Multi-zone Ductless Split System
Sizes 18to 24



Owner's Manual & Installation Instructions



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NOTE: Read the entire instruction manual before starting the installation.

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

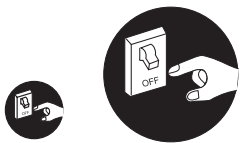
EQUIPMENT DAMAGE HAZARD

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.

WARNING

- ★ If the appliance emits smoke or a burning smell, immediately disconnect the power supply and contact your local dealer or service center.

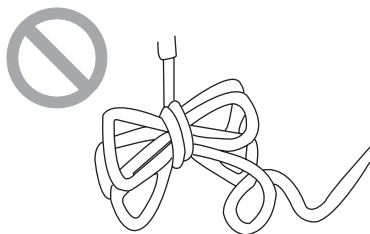


- ★ The air conditioner automatically turns on or off, according to your settings. Do not turn on or turn off the unit frequently, to prevent damaging the appliance.

- ★ If damage to the power or control wiring occurs, contact a professional to repair the wiring.



- ★ Refer to the installation manual for electrical requirements.



Otherwise, electric shock or fire may occur.

- ★ Preparing for extended shutdown period.



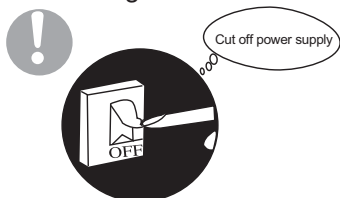
Clean the filters and reposition them in the unit. Operate the unit in Fan only mode for 12 hours to dry all internal parts. Turn the main power supply off and remove the batteries from the remote control.

- ★ All wires must be sized per NEC or CEC and local codes.



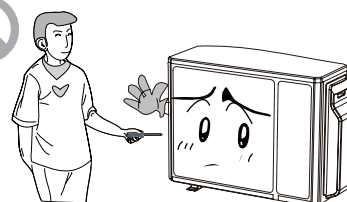
Non-compliance will cause overheating or fire.

- ★ Before cleaning or performing maintenance tasks, disconnect the main power to the air conditioning unit.



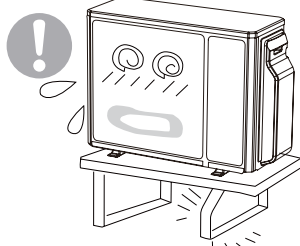
Disconnecting the power supply will prevent risk of electric shock or damage.

- ★ The rated voltage on this air conditioner is 208/230-60-1. The compressor will vibrate sharply if the voltage is too low. Electrical components may be damaged if the voltage is too high.



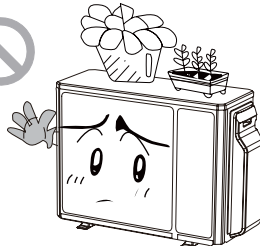
Incorrect installation or repair may cause a malfunction or injury.

- ★ Make sure the base of the outdoor unit is installed level and secure before use.



Improper installation could lead to damage and/or injury.

- ★ Do not climb onto or place any objects on top of the air conditioner.



- ★ The air conditioning unit must be properly grounded.



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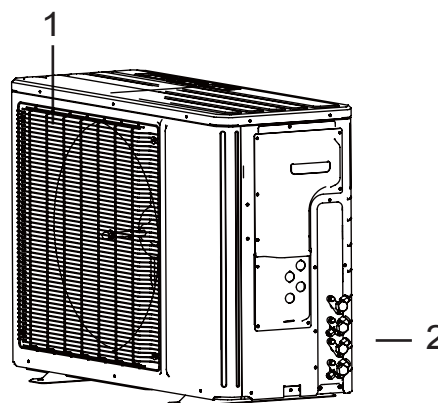
WARNING

- Turn off the power supply before cleaning the air conditioner to prevent electric shock.
- Volatile liquids such as thinner or gasoline will cause damage to the appearance of the air conditioner. (Only use a soft dry cloth or moist cloth to clean the air conditioner cabinet.)
- This product must not be disposed together with the domestic waste.
The air conditioner must be disposed of at an authorized place for recycling electrical and electronic appliances.
- The temperature of refrigerant circuit will be high. Keep the interconnection cable away from the copper tube.



OUTDOOR UNIT	
No.	Description
1	Air outlet grille
2	Valve

Note: This illustration is for reference only. Your unit may differ in appearance or may not include all the components shown.



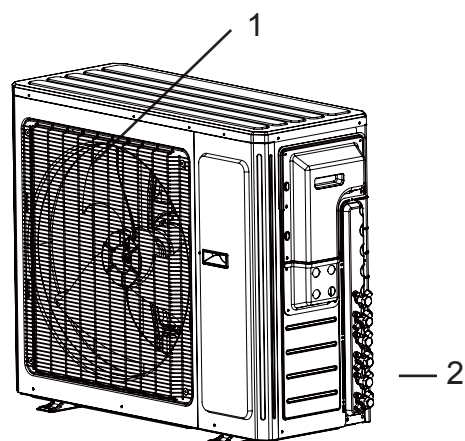
538KEQ024RDGA

WARNING

- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
- Turn off the power supply before cleaning the air conditioner to prevent electric shock.
- Volatile liquids such as thinner or gasoline will cause damage to the appearance of air conditioner. (Only use a soft dry cloth or moist cloth to clean the air conditioner cabinet.)
- Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.
- The temperature of the refrigerant circuit will be high. Keep the interconnection cable away from the copper tube.

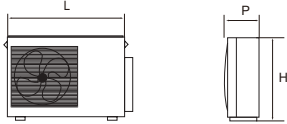
OUTDOOR UNIT	
No.	Description
1	Air outlet grille
2	Valve

Note: This illustration is for reference only. Your unit may differ in appearance or may not include all components shown.



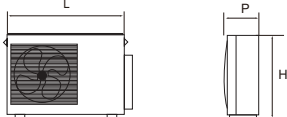
TECHNICAL DATA

GENERAL INFORMATION

MODE		538KEQ018RCGA		
Electrical data				
Electricity supply		208/230V,60HZ		
Fuse or air switch		20		
Minimum power cord section		2.69(2.5)		ft ² (mm ²)
Size and clearance				
	L	2.9(0.89)		ft(m)
	P	1.19(0.362)		ft(m)
	H	2.3(0.7)		ft(m)

TECHNICAL DATA

GENERAL INFORMATION

MODE		538KEQ024RDGA		
Electrical data				
Electricity supply		208/230V,60HZ		
Fuse or air switch		25		
Minimum power cord section		2.69(2.5)		ft ² (mm ²)
Size and clearance				
	L		3(0.92)	ft(m)
	P		1.2(0.38)	ft(m)
	H		2.6(0.79)	ft(m)

OUTDOOR UNIT WORKING TEMPERATURE RANGE

GENERAL INFORMATION

	OutdoorsideDB/WB(°F/°C)
Maximum cooling	118/-(48/-)
Maximum heating	81/-(27/-)

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1. Remove the handle at the right side plate of the outdoor unit (one screw).
2. Remove the wire clamp, connect the power connection wire with the terminal at the row of connection and secure the connection. The fitting line distribution must be consistent with the indoor unit-terminal of the line bank. The wiring should be the same as the wiring of the indoor unit.
3. Fix the power connection wire by a wire clamp.
4. Ensure the wire is attached securely.
5. Install the handle.

! Including an air switch with suitable capacity, please note the following table. The air switch should include a magnet buckle and heating buckle function to protect the unit from circuit-short and overload. (Caution: do not use the fuse only for protect the circuit)

Air-conditioner	Air switch capacity
538KEQ018RCGA	25A
538KEQ024RDGA	35A

! An all-pole disconnection switch with a contact separation of at least 0.12 inch for all poles should be connected in fixed wiring.

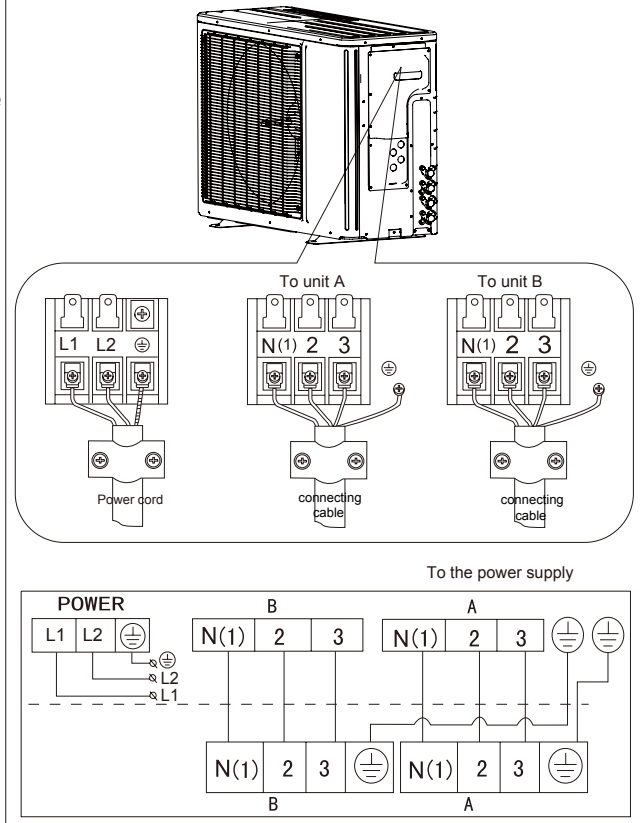
! An incorrect wire connection may cause a malfunction of some electric components. After securing the cable, ensure the leads between the connection and the fixed point have some space.

! The connection pipes and the connection wirings of the unit A and unit B must correspond to each other.

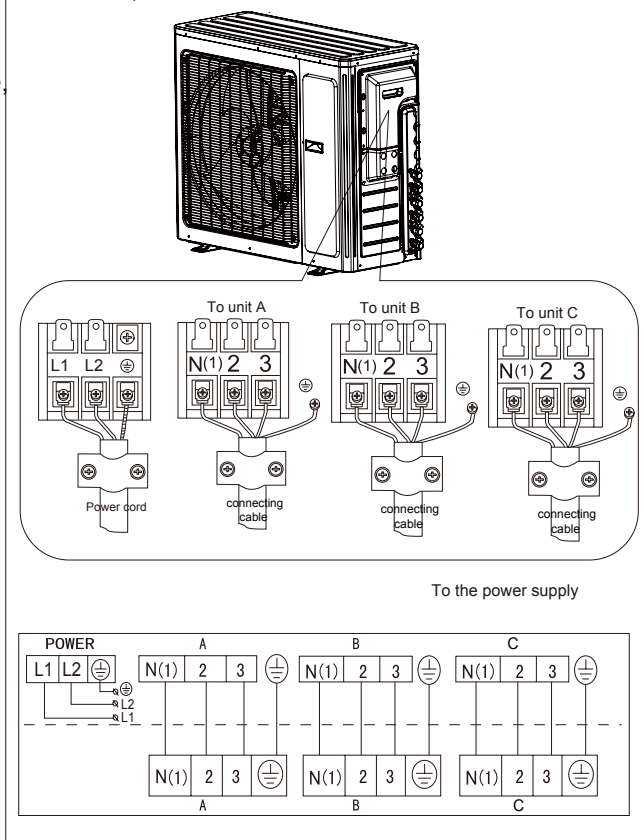
! The appliance shall be installed in accordance with national wiring regulations.

Note: This illustration is for reference only. Your unit may differ in appearance or may not include all components shown.

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538KEQ024RDGA



Location

- Use bolts to secure the unit to a flat, solid floor. When mounting the unit on a wall or the roof, ensure the support is firmly secured so that it cannot move in the event of intense vibrations or a strong wind.
- Do not install the outdoor unit in pits or air vents.

Installing the pipes

- Use suitable connecting pipes and equipment for the refrigerant R410A.

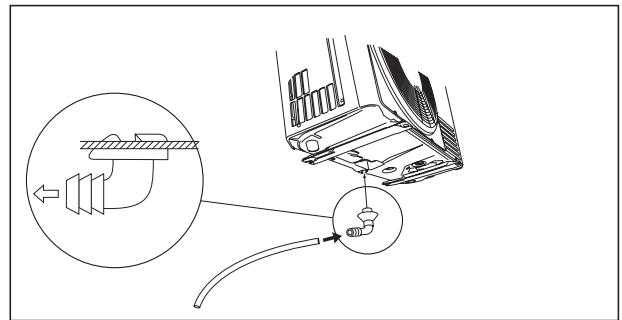
Models(ft/m)	18Kx2	24Kx2	24Kx3	28Kx4
Max. connection pipe length	65.6(20)	65.6(20)	196.9(60)	229.7(70)
Max. connection pipe length (Simple one indoor unit)	32.8(10)	32.8(10)	65.6(20)	65.6(20)

- The refrigerant pipes must not exceed the maximum heights 16.4ft (5m)(18K) or 32.8ft(10m)(24K&28K).
- Wrap all the refrigerant pipes and joints.
- Tighten the connections using two wrenches working in opposite directions.

Caution: Installation must be performed in accordance with the NEC/CEC by authorized personnel only.

Install the drain fitting and the drain hose (for model with heat pump only)

Condensation is produced and flows from the outdoor unit when the appliance is operating in the heating mode. In order not to disturb neighbours and to respect the environment, install a drain fitting and a drain hose to channel the condensate water. Install the drain fitting and rubber washer on the outdoor unit chassis and connect a drain hose to it as shown in the figure.



SYSTEM VACUUM

INSTALLER

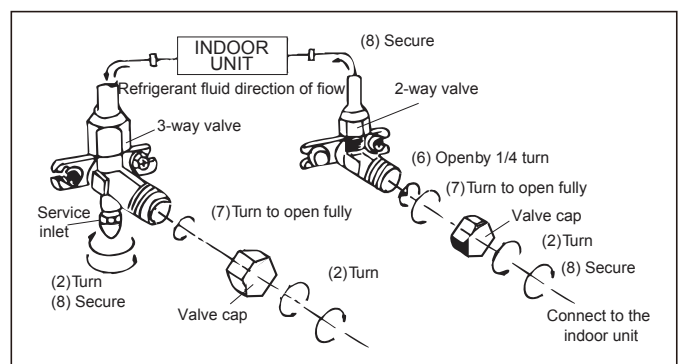
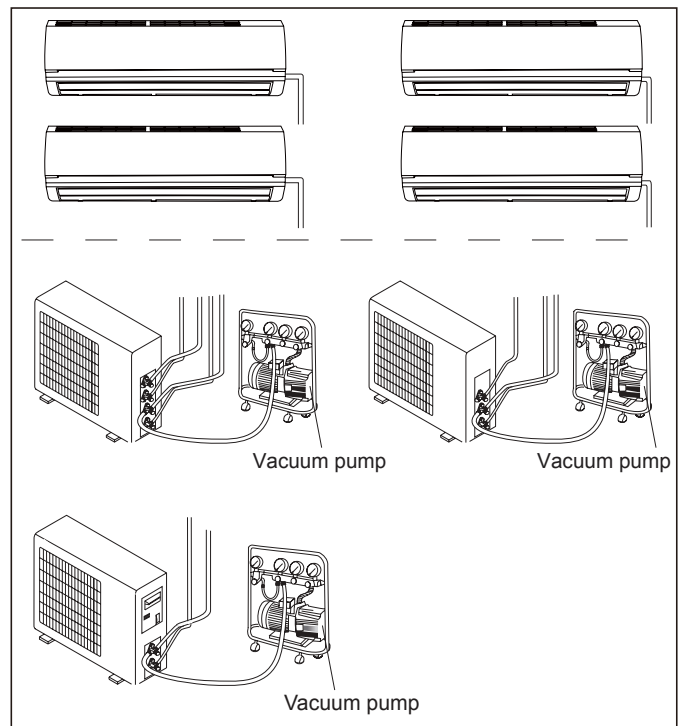
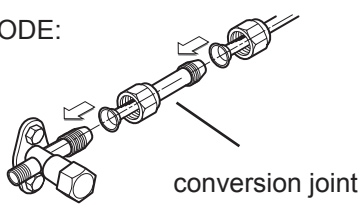
Humid air left inside the refrigerant circuit can cause compressor malfunction. After connecting the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit using a vacuum pump.

- Unscrew and remove the caps from the 2-way and 3-way valves.
- Unscrew and remove the cap from the service valve.
- Connect the vacuum pump hose to the service valve.
- Operate the vacuum pump for 10-15 minutes until an absolute vacuum of 27.85lb/ft(10 mm Hg) has been reached.
- With the vacuum pump still in operation, close the low-pressure knob on the vacuum pump coupling. Stop the vacuum pump.
- Open the 2-way valve by 1/4 turn and then close it after 10 seconds. Check all the joints for leaks using liquid soap or an electronic leak device.
- Turn the body of the 2-way and 3-way valves. Disconnect the vacuum pump hose.
- Replace and tighten all the caps on the valves.

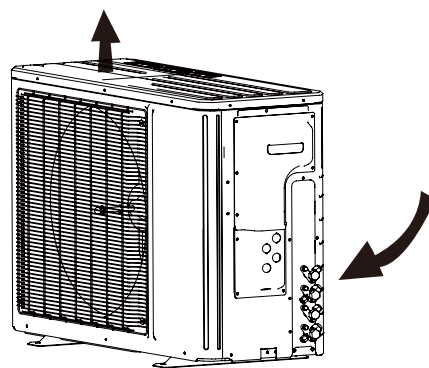
Diameter (in/mm)	Twisting moment (ft.lb/N.m)
Φ1/4 (Φ6)	20.34-27.12(15-20)
Φ3/8 (Φ9.52)	47.46-54.24(35-40)
Φ5/8 (Φ16)	81.36-88.14(60-65)
Φ1/2 (Φ12)	61.02-67.8(45-50)
Φ3/4 (Φ19)	94.92-101.7(70-75)

The 18K unit needs to be installed with the indoor unit.

18K MODE:



- ⚠ Use suitable instruments for the refrigerant R410A.
- Only use refrigerant R410A.
- ⚠ Do not use mineral oils to clean the unit.

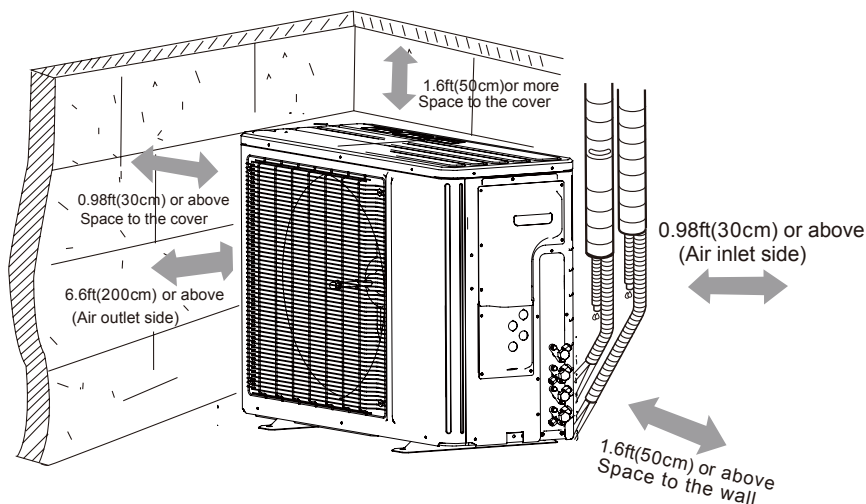


CLEARANCES

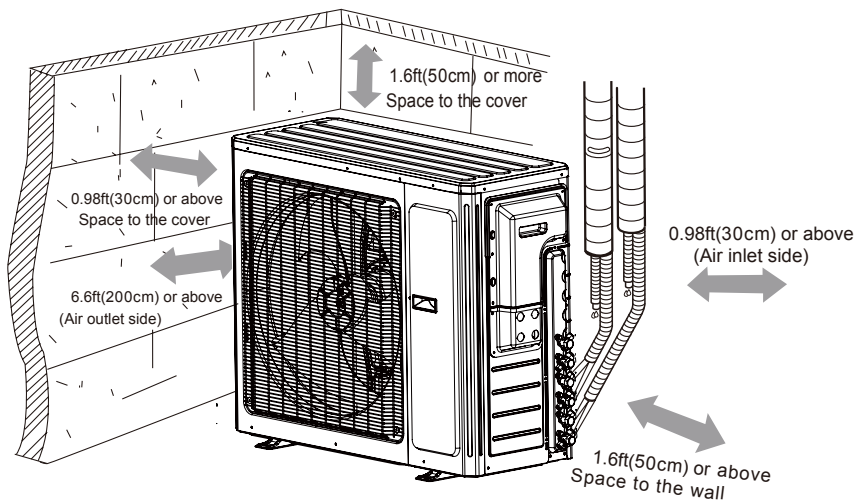
INSTALLER

- ⚠ The installation must be done by trained and qualified service personnel with the assistance of this manual.
- ⚠ Contact the service center before installation to avoid a malfunction due to unprofessional installation.
- ⚠ When picking up and moving the units, you must be instructed by trained and qualified person.
- ⚠ Ensure that the recommended clearances remain around the air conditioning unit.

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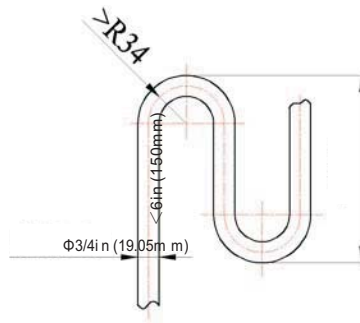
538KEQ024RDGA



If the height difference between the indoor unit and the outdoor unit exceeds 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.

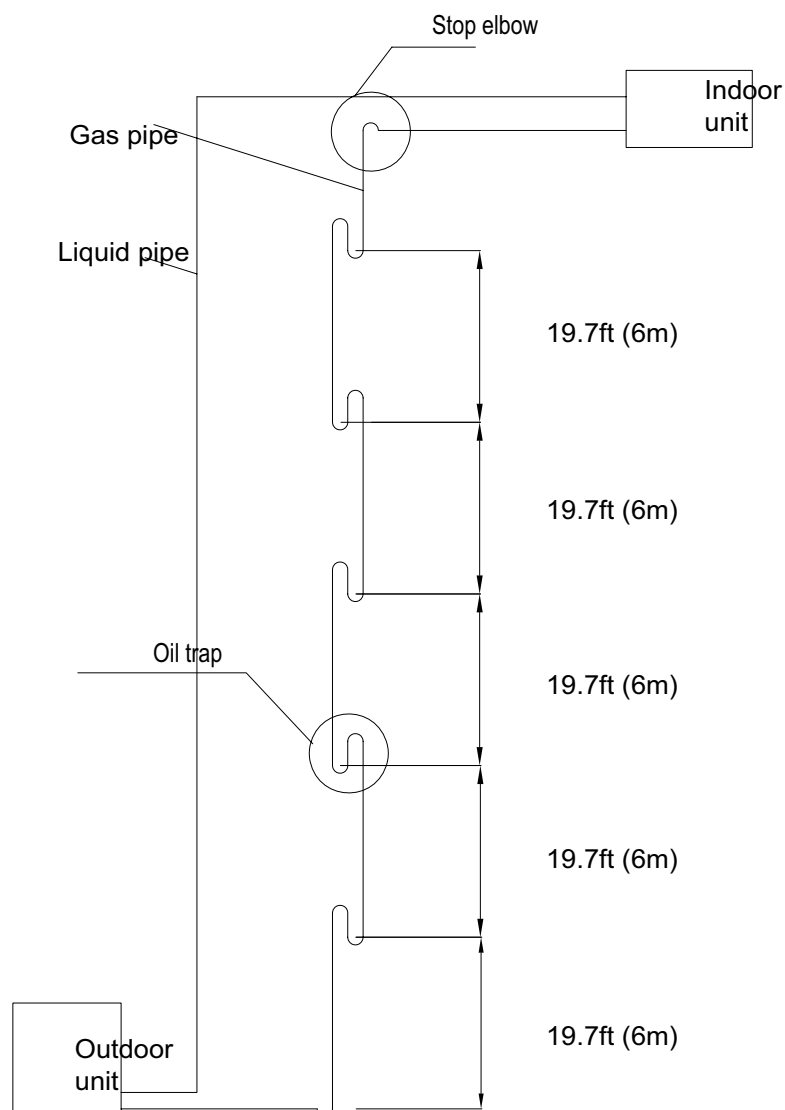
See below for details on the installation and fabrication of the oil trap.

- 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.

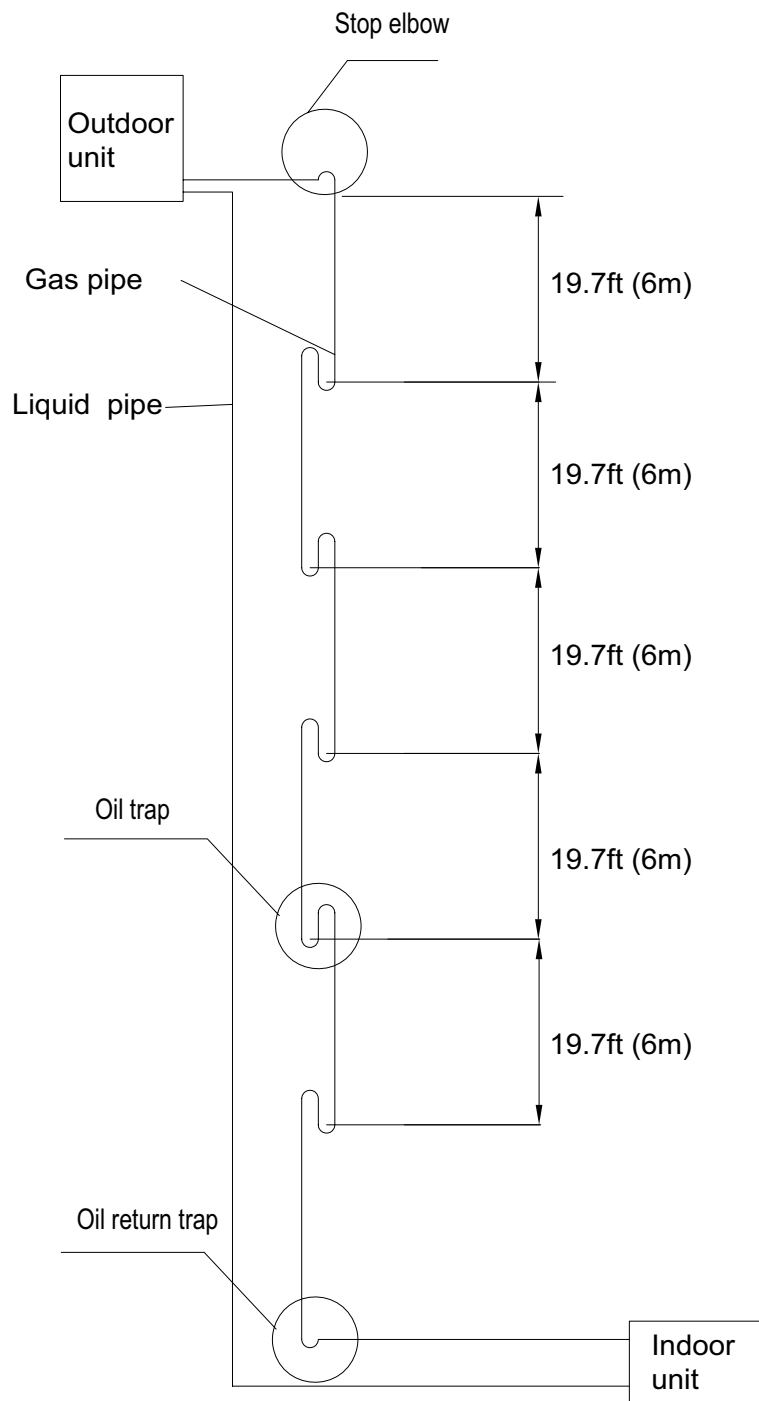


- ⑤. Refer to the schematics below.

◆ The outdoor unit is lower than the indoor unit.



- ◆ The outdoor unit is higher than the indoor unit.



Check Items	Problems From Improper Installation
Is the installation reliable?	The unit may drop, vibrate or make noises
Has the gas leakage been checked?	May cause unsatisfactory cooling (heating) effect
Is the thermal insulation of the unit sufficient?	May cause condensation and water dripping
Is the drainage smooth?	May cause condensation and water dropping
Does the power supply voltage match the rated voltage specified on the nameplate?	The unit may break down or the components may be burned out
Are the lines and pipelines correctly installed?	The unit may break down or the components may be burned out
Has the unit been safely grounded?	Risk of electrical leakage
Are the models of lines in conformity with requirements?	The unit may break down or the components may be burned out
Are there any obstacles near the air inlet and outlet of the indoor and outdoor units?	The unit may break down or the components may be burned out
Have the length of refrigerating pipe and refrigerant charge amount been recorded?	It is not easy to decide the charge amount of refrigerant.

