

INSTALLATION MANUAL

SPLIT TYPE ROOM AIR CONDITIONER

MODEL: AMS09 9000 BTU and 14.5 SEER
AMS12 12000 BTU and 13.5 SEER



WARNING

This symbol refers to hazard or unsafe practices which can result in severe personal injury or death

CAUTION

This symbol refers to hazards or unsafe practices which can result in severe personal injury or death and the potential for product or property damage.

- Electrical Hazard Symbols



ELECTRICAL



SAFETY / ALERT

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Life Without Compromise

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FOR WARRANTY INFORMATION, PLEASE REFER TO
WWW.ALENCORP.COM

IMPORTANT!

Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all danger, warning, and caution notices given in this manual.

Have it installed by a certified professional

Always use a certified HVAC professional to install the split air conditioning system to prevent damage to the unit or injury to yourself. The vacuuming and charging of the line set is required during installation. Improper installation can result in water or refrigerant leakage, electrical shock, or fire. Be sure to check with your local codes as an electrician may be needed to install a dedicated power circuit.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

When Wiring

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause accidental injury or death.
- Ground the unit following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

When Installing...

...In a Ceiling or Wall

Make sure the ceiling/wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

...In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

...In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

...In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

SPECIAL PRECAUTIONS

When Connecting Refrigerant Tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

When Servicing

Turn the power OFF at the main circuit breaker panel before opening the unit to check or repair electrical parts and wiring. Keep your fingers and clothing away from any moving parts. Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced. After installation, explain correct operation to the customer, using the operating manual.

This air conditioner uses R410A.

Please make note of these differences

(1) Since the working pressure is 1.6 times higher than that of conventional refrigerant(R22) models, some of the piping and installation and service tools may be different.

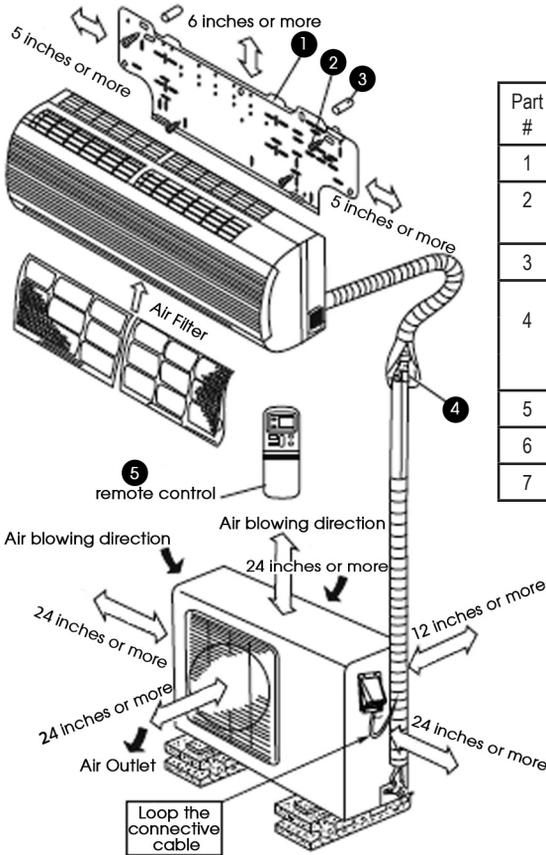
(2) Models that use refrigerant R410A have a different charging port thread diameter to prevent erroneous charging with conventional refrigerant(R22) and for safety. Therefore, check beforehand. [The charging port thread diameter for R410A is 1/2 threads per inch.]

(3) Be careful that foreign matter (oil, water, etc.) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc...

(4) When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable.

INSTALLATION MANUAL

For Room Air Conditioner (Split Wall-Mounted Type)



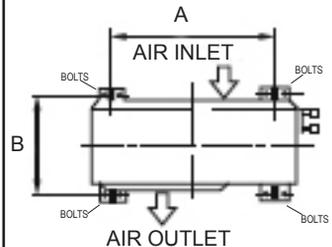
Parts Installation

Part #	Name of part	Qty
1	Installation Plate	1
2	Mounting Screw ST3.9 x 25-C-H	8
3	Clip Anchor	8
4	Refrigerant Pipe	Liquid Side ϕ 1/4"
		Gas Side <12000 Btu/h ϕ 3/8"
		\geq 12000 Btu/h ϕ 1/2"
5	Remote Controller	1
6	Seal	1
7	Drain Elbow	1

Anchor Bolts for Condenser Installation

* The condenser unit should not be exposed to strong wind.

* Fix the condenser unit with ϕ 3/8" anchor bolts.



MODEL	A (inches)	B (inches)
<12000Btu/h	215	105
\geq 12000Btu/h	208	114

INSTALLATION PRECAUTIONS

Selecting the Location for the Indoor and Outdoor Units:

The following should be reviewed prior to selecting the location for your installation.

Evaporator Unit (Indoor Unit)

Install the indoor unit level on a wall that can support the weight of the unit and is not subject to vibration.

The inlet and outlet ports should not be blocked.

Install the unit near an electric outlet or special branch circuit.

Do not install the unit where it will be exposed to direct sunlight.

Install the unit where connection to the outdoor unit is easy.

Install the unit where the drain pipe can be easily installed.

Install in a location where the unit can be easily accessed for maintenance.

Ensure there is a clearance of at least 6 inches above and 5 inches on either side of the unit.

Condensor Unit (Outdoor Unit)

If possible, do not install the unit where it will be exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)

Do not install the unit where a strong wind blows or where it is very dusty.

Do not install the unit where people can come into contact with the unit.

Install in an area where the noise from this unit will not disturb your neighbors.

Ensure there is a clearance of the following minimum distances from the unit:

Above: 24 inches

In front: 24 inches

Behind: 12 inches

Side with connections: 24 inches

Side without connections: 4 inches

Notes on the remote control installation

- Keep the remote at least one yard from a TV or radio.
- Do not place in an area that is exposed to direct sunlight or a heat source
- Ensure batteries are inserted properly



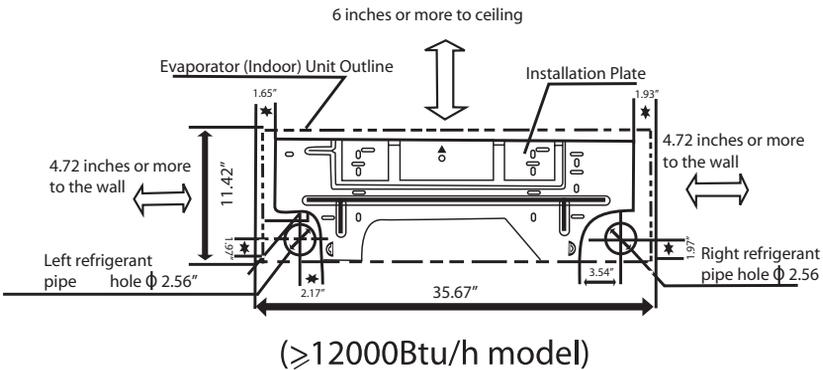
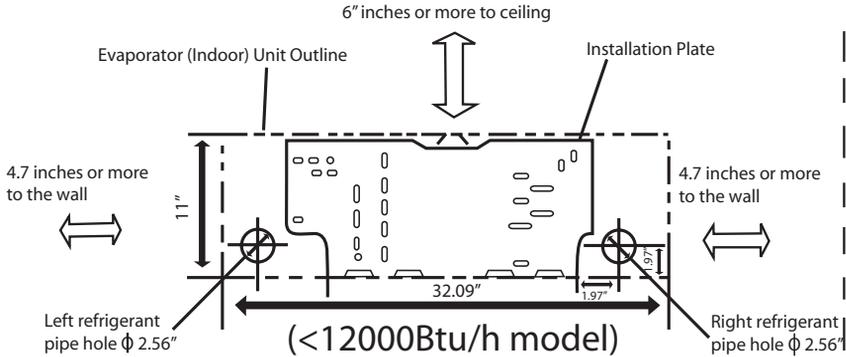
CAUTION

- 1. Connect the (evaporator) indoor unit first then the outdoor unit and bend and arrange the pipe carefully.**
- 2. Ensure there is no slack in the drain hose.**
- 3. After removing drain hose, be sure not to forget mounting drain cap.**
- 4. Be sure to fix the drain hose with tape to the bottom of piping.**
- 5. Prevent drain water from freezing in low temperature environments. When installing evaporator (indoor) unit's drain hose outdoors, necessary measures for frost protection should be taken to prevent the drain hose from freezing (becoming blocked) which could result in water leakage.**
- 6. Measures for frost protection should be taken to prevent the drain hose from freezing (becoming blocked) which could result in water leakage.**

EVAPORATOR INSTALLATION (INDOOR)

The Installation Plate would look like one of the following (Depending on the models):

Installation plate and its dimensions (Unit: Inches)



1) Mounting Installation Plate

i) Fix the installation plate

- 1) Install the installation plate horizontally on structural parts in the walls with the spaces provided around the plate.
- 2) In case of brick, concrete or similar type of walls, Make holes in the wall. Insert clip anchors for appropriate mounting screws.
- 3) Fix the installation plate on the wall.

Installation Plate

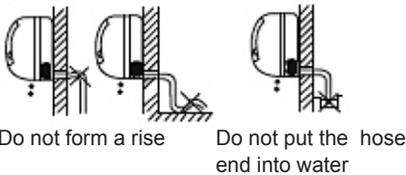


EVAPORATOR INSTALLATION (INDOOR)

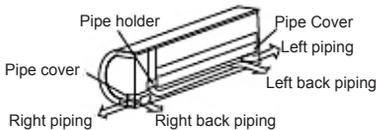
2) Connective Pipe and Drainage Installation

i) Drainage

Run the drain hose downward.
Do not install the drain hose as illustrated below.

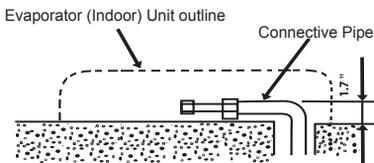


ii) Connective Pipe



a) For the left-hand and right-hand piping, remove the pipe cover from the side panel. Explain to the customer that the pipe cover must be kept as it may be used if the air conditioner is moved to another location.

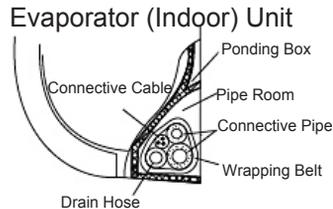
b) For the left-hand and rear-left-hand piping, install the piping as shown. Bend the connective pipe to be placed at a height of 1 5/8 inches or less from the wall.



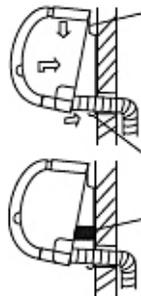
c) Fix the end of the connective pipe. (Refer to Tightening Connection in Refrigerant Piping Connection).

iii) Piping and Bandaging

Wind the Connective cable, drain hose and wiring tape securely, evenly as shown below.



3) Evaporator (Indoor) Unit Installation



i) Pass the piping through the hole in the wall

ii) Put the upper claw at the back of the installation plate, move the evaporator (indoor) unit from side to side to see if it is securely hooked.

iii) Insert a spacer between the evaporator (indoor) unit and the wall bracket to separate the bottom of the unit from the wall.

iv) Push the lower part of the evaporator (indoor) unit up on the wall. Then move the evaporator (indoor) unit from side to side, up and down to check if it is hooked securely.

EVAPORATOR INSTALLATION (INDOOR)

4) Wiring

Prepare the power source for exclusive use with the air conditioner.

The supply voltage must comply with the rated voltage of the air conditioner.

Model	Power Source	Plug socket and fuse rating	AWG (MIN)	
			Power Supply Cord	Connecting Cable
<12000Btu/h	60 Hz 115V~	32/25A	14	18
≥12000Btu/h				

⚠ CAUTION

- Perform the wiring with sufficient capacity. Installation legally requires a short circuit isolator to be attached to prevent electrical shock.
- Do not extend the power cable cord by cutting.
- Power voltage should be in the range of 90% ~110% of rated voltage.
- The plug of the air conditioner takes a grounding leg, so clients should use a grounding socket so that the air conditioner can be grounded efficiently.

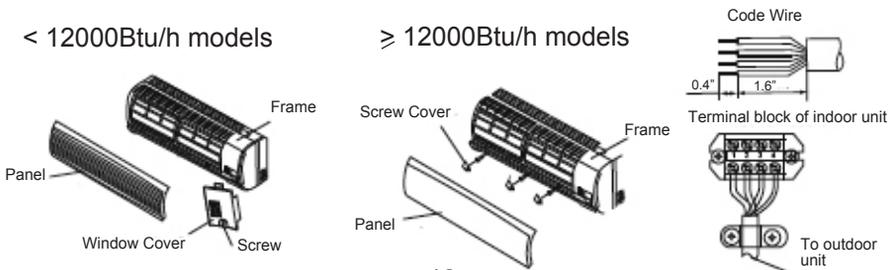
5) Connecting Cables

i) Evaporator (Indoor) and Condensor (Outdoor) connecting cable should be Aw18 or more.

ii) Remove the panel and screw, then remove the window cover (for <12000Btu/h models). Remove the panel screws covers, then remove the screws and take out the frame (for model >12000Btu/h models)

iii) Connect cables according to their marks to terminals.

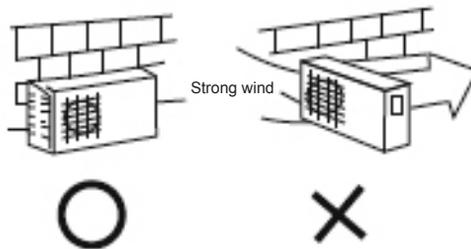
iv) Wrap those cables not connected with terminals with insulation tapes, so that they will not touch any electrical components.



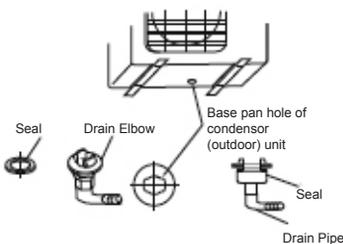
CONDENSOR INSTALLATION (OUTDOOR)

1) Condensor (Outdoor) Unit Installation Precaution

- Install the outdoor unit on a rigid base to prevent increasing noise level and vibration. Determine the air outlet direction where the discharged air is not blocked.
- In the case that the installation place is exposed to strong wind place the unit lengthwise along the wall or use dust or shield plates.
- If need suspended installation, the installation bracket should accord with technique requirement in the installation bracket diagram. The connection between bracket and wall, bracket and the air conditioner should be firm, stable and reliable.
- Be sure there is no obstacle which blocks the air flow.
- Install the unit on a flat, level surface where is can be fastened securely.



2) Drain Elbow Installation



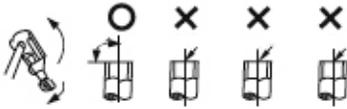
Fit the seal into the drain elbow, then insert the drain elbow into the base pan hole of the condenser (outdoor) unit, rotate 90° to securely assemble. Connect the drain elbow with an extension drain hose (locally purchased), in case the water drains off the condenser (outdoor) unit during the heating mode. (heating models only).

CONDENSOR INSTALLATION (OUTDOOR)

3) Refrigerant Piping Connection

i) Flaring

Cut a pipe with a pipe cutter



Insert a flare nut into a pipe and flare the pipe



ii) Tightening Connection

Align pipes to be connected.

Sufficiently tighten the flare nut with fingers, and then tighten it with a spanner and torque wrench as shown.



⚠ CAUTION

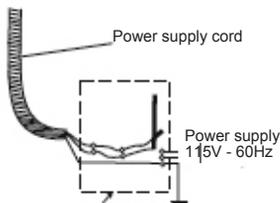
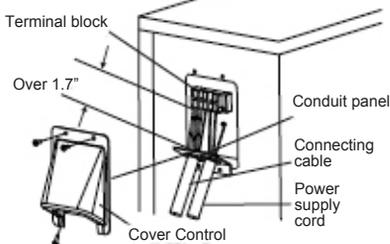
Excessive torque can break the flare nut and cause a leakage of refrigerant.

* Ensure the refrigerant pipe is firmly attached before running the compressor.

Outer Diameter (inches)	A (inches)		Outer Diameter	Tightening Torque (N. inches)	Additional Tightening torque (N. inches)
	Max.	Min.			
Φ 1/4	0.5	0.028	Φ 3/8	11.57 ft lbs (160kgf.cm)	14.45 ft lbs (200kgf.cm)
Φ 3/8	0.6	0.04		21.7 ft lbs (300kgf.cm)	25.30 ft lbs (350kgf.cm)
Φ 1/2	0.7	0.04	Φ 1/2	36.14 ft lbs (500kgf.cm)	39.75 ft lbs (550kgf.cm)

4) Wiring Connection

Condensor (Outdoor) Unit



Special Branch Circuit Breaker
(Fuse/Breaker capacity: 20A)

i) Remove the cover control from the unit by loosening 3 screws.

ii) Dismount caps on the conduit panel.

iii) Temporarily mount the conduit tubes (not included) on the conduit panel.

iv) Properly connect both the power supply and low voltage lines to the corresponding terminals on the terminal block.

v) Ground the unit in accordance with local codes.

vi) Be sure to size each wire allowing several inches longer than the required length for wiring.

vii) Use lock nuts to secure the conduit tubes.

Note: To prevent wires from loosening or leaving the Cord Clamp, please select proper cord diameter to fill the holes on the cord clamp

AIR PURGE AND TEST OPERATION

1) Air Purge

Choose Purge method from the table.

Connective Pipe Length	Air Purging Method	Additional amount of refrigerant to be charged
less than 16.4 feet	Use vacuum pump	N/A
16.4 ~ 32.8 feet	Use vacuum pump	0.32 ounces per foot for each foot beyond 16.4 feet (5 meters).

- Make sure the R410A refrigerant added into air conditioner is liquid form.
- When relocating the unit to another place, perform evacuation, with a vacuum pump.



CAUTION IN HANDLING THE PACKED VALVE

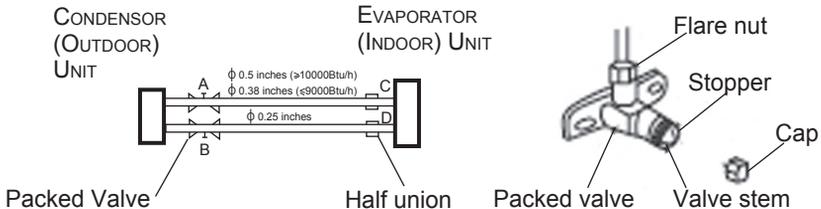
Open the valve stem until it hits against the stopper. Do not try to open it further.

Securely tighten the valve stem cap with a spanner or the like.

Valve stem cap tightening torque.

Liquid pipe side	ϕ 1/4"	11.57 ft lbs (160kgf.cm)
Gas pipe side	ϕ 3/8"	21.7 ft lbs (300kgf.cm)

Refrigerant Gas



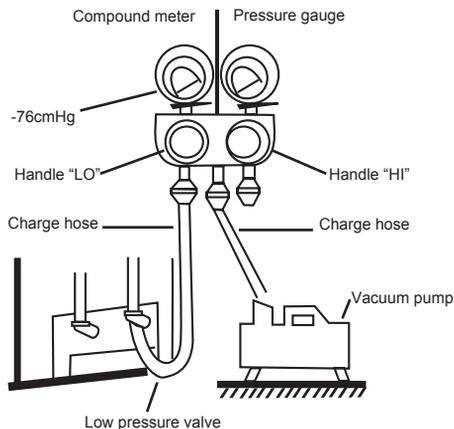
AIR PURGE AND TEST OPERATION

When Using The Vacuum Pump

(For method using a manifold valve, refer to this operation manual.)

- i.** Completely tighten the flare nuts, A, B, C, D, connect the manifold valve charge hose to a charge port of low-pressure valve on the gas pipe side.
- ii.** Connect the charged hose connection to the vacuum pump.
- iii.** Fully open the handle “Lo” of the manifold valve.
- iv.** Operate the vacuum pump to evacuate. After starting the evacuation, slightly loosen the flare nut of the “Lo” valve on the gas pipe side and check that the air is entering. (Operation noise of the vacuum pump changes and a compound meter indicated 0 instead of minus)
- v.** After the evacuation is complete, fully loosen the handle “Lo” of the manifold valve and stop the operation of the vacuum pump. Make evacuation for 15 minutes or more and check that the compound meter indicates -76cmHg ($-1.0 \times 10^5 \text{Pa}$).
- vi.** Turn the stem of the packed valve B about 45° counter clockwise for 6~7 seconds after the gas comes out, then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure.
- vii.** Remove the charge hose from the Low pressure charge hose.
- viii.** Fully open the packed valve stems B and A.
- ix.** Securely tighten the cap of the packed valve.

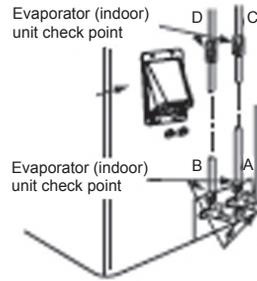
Manifold Valve



AIR PURGE AND TEST OPERATION

2. Gas Leak Check

Make sure no gas comes out from the connections with a leak detector or soap water.



CAUTION

A: Lo packed valve

B: Hi packed valve

C and D: end of Evaporator (indoor) unit connection.

3. Test Operation

Perform test operation after completing gas leak check and installation.

- i. Connect the power. Push the “COOL” button on the control panel to begin testing.
- ii. Check if all the functions work well while testing the air conditioner. A protection feature prevents the air from being activated for about 3 minutes when it is restarted immediately after operation or when the power switch is switch on.
- iii.. Push the “COOL” button again till the running light switch off after finishing the test operation.

