

4 CONNECT THE CABLE TO THE INDOOR UNIT

Electrical work

Electric safety regulations for the initial installation

- If there is any safety concerns with the electrical power supply the technician should consult a certified electrician and have the problem resolved before installing the unit.
- Power voltage should be in the range of 90%~110% of rated voltage.
- The circuit breaker at the electrical panel should be no more than 1.5 times the max current of the outdoor unit. All the electrical information is located on the reverse side of the electrical cover on the outdoor unit. Follow all local and national electric codes.
- Each outdoor unit must have its own circuit breaker.
- Install the proper sized electrical wire from the circuit breaker located at the electrical panel to an outdoor weather proof disconnect.
- The outdoor unit must be grounded per code. If the unit is not grounded it will not operate per system specifications.
- Install a liquid tight electrical whip from the outdoor disconnect to the outdoor unit.
- All wiring must comply with local and national codes and be installed by a certified electrician.

Minimum nominal cross-sectional area of conductors:

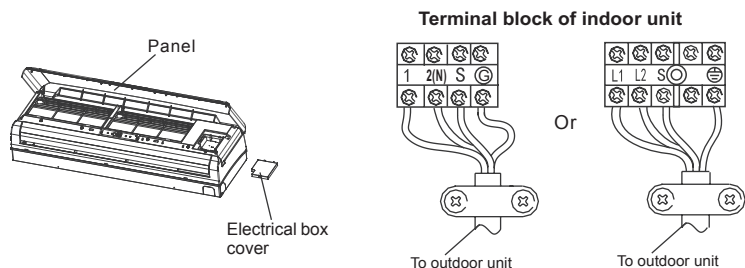
Rated current of appliance (A)	Nominal cross-sectional area (mm ²)
>3 and ≤6	0.75
>6 and ≤10	1
>10 and ≤16	1.5
>16 and ≤25	2.5
>25	4.0

NOTE: The air conditioner can be connected only to a supply with system impedance no more than 0.0538 ohm. In case necessary, please consult your supply authority for system impedance information.

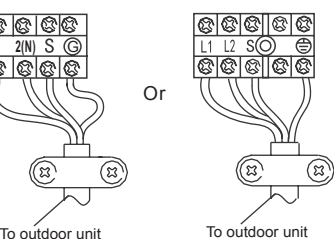
Connect the cable to the indoor unit

NOTE: Before performing any electrical work, turn off the power at the main panel to the unit.

- The inside and outside connecting cable can be connected without removing the front grill.
- The connecting cable required is: 14AWG, 600V, 4-conductor, direct burial, sun resistant.
- Lift the indoor unit panel up, remove the electrical box cover by loosening the screw.
- Ensure the color of wires of outdoor unit and the terminal Nos. are the same to the indoor units respectively.
- Wrap those cables not connected with terminals with insulation tape, so that they will not touch any electrical components. Secure the cable onto the control board with the cord clamp.

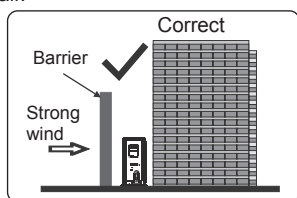
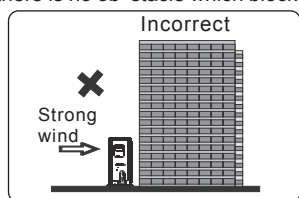


Terminal block of indoor unit



1 OUTDOOR INSTALLATION PRECAUTION

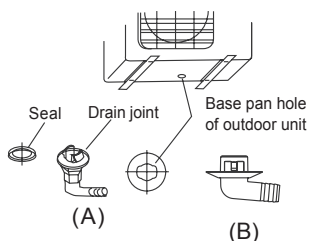
- Install the outdoor unit on a rigid base to prevent increasing noise level and vibration.
- Determine the air outlet direction where the discharged air is not blocked.
- In the case that the installation place is exposed to strong wind such as a seaside, make sure the fan operates properly by putting the unit lengthwise along the wall or using a dust or shield plate.
- In windy area, install the unit to prevent the admission of wind. If need suspending installation, the installation bracket should accord with technique requirement in the installation bracket diagram. The installation wall should be solid brick, concrete or the same intensity construction, or actions to reinforce, damping supporting should be taken.
- The connection between bracket and wall, bracket and the air conditioner should be firm, stable and reliable.
- Be sure there is no obstacle which block radiating air.



2 DRAIN JOINT INSTALLATION

NOTE: The drain joint is slightly different according to the different outdoor unit.

For the drain joint with the seal (Fig.A), first fit the seal onto the drain joint, then insert the drain joint into the base pan hole of outdoor unit, rotate 90° to securely assemble them. To install drain joint as shown in Fig.B, insert the drain joint into the base pan hole of outdoor unit until it remains fixed with a clicking sound. Connecting the drain joint with an extension drain hose (locally purchased), in case of the water draining off the outdoor unit during the heating mode.

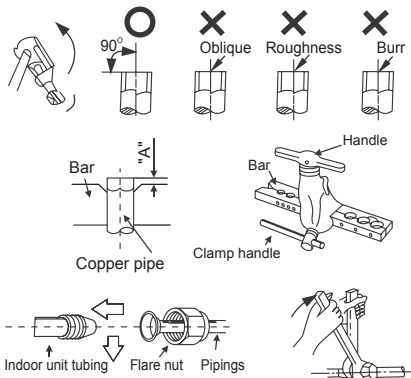


3 REFRIGERANT PIPE CONNECTION

Flaring

- Cut the copper tube with a pipe cutter. Clean and remove any burrs from the end of the pipe.
- Remove the flare nuts attached to the indoor and outdoor unit. Slide the nuts on the copper tube.
- Insert copper tube into a flaring block and use the table to determine how much tube should be above the block before flaring the tube. You can also figure the thickness of a nickel to use as a standard.

Outer diam. (Inch)	A (inch)	
	Max.	Min.
φ 1/4	0.052	0.027
φ 3/8	0.063	0.04
φ 1/2	0.071	0.04
φ 5/8	0.087	0.08
φ 3/4	0.095	0.08



Outer diam in.	Tightening torque(N.cm)	Additional tightening torque(N.cm)
φ 1/4	1500 (153kgf.cm)	1600 (163kgf.cm)
φ 3/8	2500 (255kgf.cm)	2600 (265kgf.cm)
φ 1/2	3500 (357kgf.cm)	3600 (367kgf.cm)
φ 5/8	4500 (459kgf.cm)	4700 (479kgf.cm)
φ 3/4	6500 (663kgf.cm)	6700 (683kgf.cm)

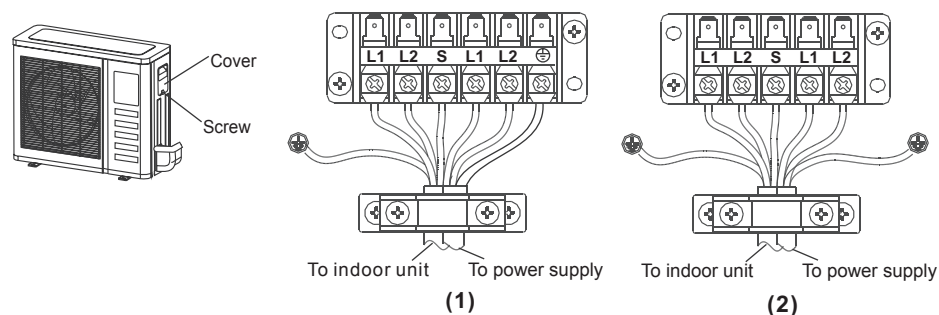
Tightening connection

- Align the tube to the proper connections on the indoor and outdoor units.
- Sufficiently tighten the flare nut with fingers, and then tighten it with a crescent wrench and torque wrench as shown.
- Excessive torque can break nut depending on installation conditions.

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- Remove the electrical control board cover from the outdoor unit by loosening the screw.
- Attach the electrical whip from the outdoor disconnect to the proper connections shown in the wiring diagram.
- Connect the cable from the indoor unit as identified with their respective matching numbers on the terminal block of the indoor unit.
- Secure the cables on the control board with the supplied clamp.
- Do not allow any bare wires to touch any other wires or metal parts.

Terminal block of outdoor unit



5 AIR PURGING AND TEST OPERATION

1. Air purging

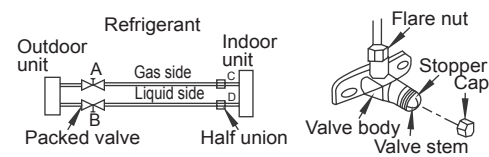
- Air and moisture in the refrigerant system have undesirable effects. Therefore, the indoor unit and tubing between the indoor and outdoor unit must be leak tested and evacuated to remove any noncondensables and moisture from the system.
- Check that each tube (both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed.
- Pipe length and refrigerant amount:

Connective pipe length	Air purging method	Additional amount of refrigerant to be charged	
Less than 16.41ft(5m)	Use vacuum pump		
More than 16.41ft(5m)	Use vacuum pump	Liquid side: φ 1/4 " (6.35mm) 9k, 12k, 18k R410A: 0.212 oz/ft	Liquid side: φ 3/8 " (9.52mm) 22k, 30k, 36k R410A: 0.423 oz/ft

- For the R407C refrigerant model, make sure the refrigerant added into air conditioner is liquid form in any case.
- When relocating the unit to another place, use vacuum pump to perform evacuation.

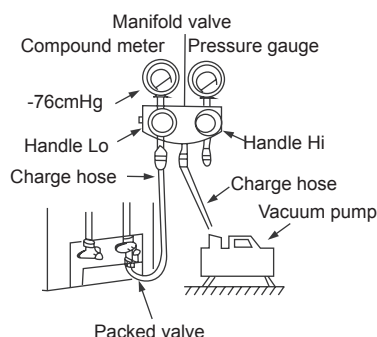
CAUTION

- 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. See Tightening Torque Table.



2. When using the Vacuum Pump

- Completely tighten the flare nuts, A, B, C, D, Connect the manifold valve charge hose to a charge port of the packed valve on the gas pipe side.
- Connect the charge hose connection to the vacuum pump.
- Fully open the handle Lo of the manifold valve.
- Operate the vacuum pump to evacuate. After starting evacuation, slightly loosen the flare nut of the packed valve on the gas pipe side and check that the air is entering. (Operation noise of the vacuum pump changes and a compound meter indicates 0 instead of minus)
- After the evacuation is complete, fully close the handle Lo of the manifold valve and stop the operation of the vacuum pump.
- Make evacuation for 15 minutes and more and check that the compound meter indicates -76cmHg(-1.0x10⁵Pa).
- Turn the stem of the packed valve B about 45° counter-clockwise for 6~7 seconds after the gas coming out, then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure.
- Remove the charge hose from the Low pressure charge hose.
- Fully open the packed valve stems B and A.
- Securely tighten the cap of the packed valve.

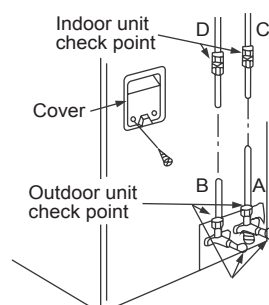


3. Safety and leakage check

- Soapy water method:
Apply a soapy water or a liquid neutral detergent on the indoor unit connections and outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping. If bubbles come out, it indicates that the pipes have leakage.
- Leak detector
Use the leak detector to check for leakage.

CAUTION

A: Lo packed valve B: Hi packed valve
C and D are ends of indoor unit connection.



4. Test running

Perform test operation after completing gas leak check at the flare nut connections and electrical safety check.

- Check that all tubing and wiring have been properly connected.
 - Check that the gas and liquid side service valves are fully open.
- Connect the power, press the ON/OFF button on the remote control to turn the unit on.
 - Use the MODE button to select COOL, HEAT, AUTO and FAN to check if all the functions work well.
 - When the ambient temperature is too low (lower than 62.6°F(17°C)), the unit cannot be controlled by the remote control to run at cooling mode, manual operation can be taken. Manual operation is used only when the remote control is disabled or maintenance necessary.
- Hold the panel sides and lift the panel up to an angle until it remains fixed with a clicking sound.
 - Press the Manual control button to select the AUTO or COOL, the unit will operate under Forced AUTO or COOL mode (see User Manual for details).
- The test operation should last about 30 minutes.

