

Required tools for Installation Works

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|--|---------------------|-------------------------|----------------------------------|
| 1 Phillips screw driver | 7 Reamer | 13 Multimeter | 47.9 lbf.ft (6.5 kgm) |
| 2 Level gauge | 8 Knife | 14 Torque wrench | 73.8 lbf.ft (10.0 Nm) (10.2 kgm) |
| 3 Electric drill, hole core drill (ø2 3/4" (ø70 mm)) | 9 Gas leak detector | 15 Vacuum pump | |
| 4 Hexagonal wrench (1/2" (ø4 mm)) | 10 Measuring tape | 16 Digital Micron Gauge | |
| 5 Spanner | 11 Thermometer | | |
| 6 Pipe cutter | 12 Megameter | | |

SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

WARNING This indication shows the possibility of causing death or serious injury.

CAUTION This indication shows the possibility of causing injury or damage to properties only.

The items to be followed are classified by the symbols:

- Symbol with white background denotes item that is **PROHIBITED**.
- Symbol with dark background denotes item that must be carried out.

- Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

WARNING

- Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit on veranda of a high rise building, child may climb up to outdoor unit and cross over the handrail causing an accident.
- Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.
- Do not tie up the power supply cord into a bundle by hand. Abnormal temperature rise on power supply cord may happen.
- Do not insert your fingers or other objects into the unit, especially rotating fan may cause injury.
- Do not sit or step on the unit, you may fall down accidentally.
- Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.
- When installing or relocating air conditioner, do not let any substance other than the specified refrigerant, gas, air etc mix into refrigeration cycle (piping). Mixing of air etc will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.

- For R410A model, use piping, flare nut and tools which is specified for R410A refrigeration. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury.
- Thickness of copper pipes used with R410A must be more than 1/32" (0.8 mm). Never use copper pipes thinner than 1/32" (0.8 mm).
- It is desirable that the amount of residual oil is less than 0.0008 oz/ft (40 mg/10 m).

- Engage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.
- Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
- Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.
- Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.

- For installation work, follow all electrical, building, plumbing, local codes, regulations and these installation instructions. If electrical circuit capacity is not enough or a defect is found in electrical work, it will cause electrical shock or fire.
- Do not use spliced wires for indoor / outdoor connection cable. Use the specified indoor / outdoor connection cable, refer to instruction ③ INDOOR/OUTDOOR UNIT ELECTRICAL WIRING and connect tightly for indoor/outdoor connection. Clamp the cable so that no external force will have impact on the terminal. If connection or wiring is not perfect, it will cause heat-up or fire at the connection.
- Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock.

- This equipment must be installed with an Earth Leakage Circuit Breaker (ELCB) or Ground Fault Current Interrupter (GFCI) or Appliance Leakage Current Interrupter (ALCI) that has been certified by an NRTL Certified Testing Agency and that is suitable for the voltages and amperages involved. Otherwise, it may cause electrical shock and fire in case of equipment breakdown.
- During installation, install the refrigerant piping properly before running the compressor. Operation of compressor without fixing refrigeration piping and valves at opened condition will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- During pump down operation, stop the compressor before removing the refrigeration piping. Removal of refrigeration piping while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
- Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.

- After completion of installation, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant comes into contact with fire.
- Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the refrigerant comes into contact with fire.

- This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electrical shock in case of equipment breakdown or insulation breakdown.

CAUTION

- Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
- Do not release refrigerant during piping work for installation, re-installation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
- Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
- Do not touch the sharp aluminum fin, sharp parts may cause injury.
- Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
- Select an installation location which is easy for maintenance.

- Power supply connection to the room air conditioner.
- Power supply cord shall be UL listed or CSA approved 3 conductor with minimum AWG14 wires.
- Power supply points should be in an easily accessible place for power disconnection in case of emergency.
- In some countries, permanent connection to this air conditioner to the power supply is prohibited.
- Fix power supply connection to a circuit breaker for permanent connection.
- Use NRTL approved fuse or circuit breaker (rating refers to name plate) for permanent connection.

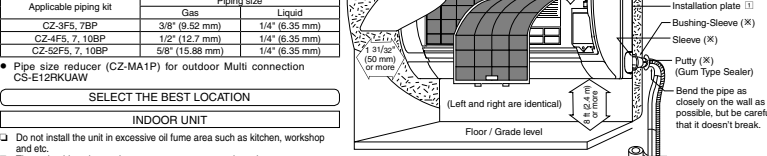
- Installation work.
- It may take two people to carry out the installation work.

- IMPORTANT**
- This product has been designed and manufactured to meet ENERGY STAR® criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow the manufacturer's refrigerant charging and air flow instructions. Failure to confirm proper charge and air flow may reduce energy efficiency and shorten equipment life.

Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.
1	Installation plate	1	6	Remote control holder fixing screw	2
2	Installation plate fixing screw	5	7	Drain elbow	1
3	Remote Control	1	8	Air purifying filter	1
4	Battery	2	9	Drain hose adapter	1
5	Remote control holder	1			

Indoor/Outdoor Unit Installation Diagram



- Do not install the unit in excessive of tube area such as kitchen, workshop and etc.
- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Recommended installation height for indoor unit shall be at least 8 ft (2.4 m).

OUTDOOR UNIT

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If piping length is over the piping length for additional gas, additional refrigerant should be added as shown in the table.
- Recommended installation height for outdoor unit should be above the seasonal snow level.

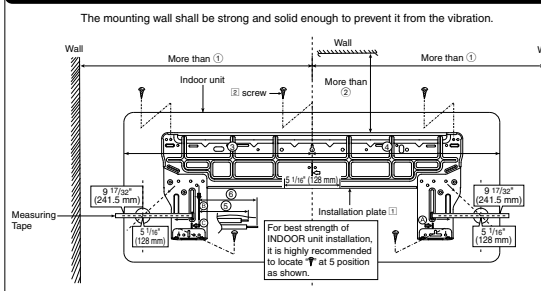
Model	Capacity (Btu/h)	Piping size	Gas	Liquid	Std. Max. Evap. (ft)	Max. Piping Length (ft)	Max. Piping Length (m)	Additional Refrigerant (lb)	Piping Length (ft)	Piping Length (m)
ERKJAW	9000	3/8"	1/4"	24.8	42.2	58.8	55.6	0.2 oz	24.8	7.5
E12RJKJAW	11500	1/2"	3/8"	24.8	42.2	58.8	55.6	0.2 oz	24.8	7.5

Example: For ERKJAW
If the unit is installed at 32.8 ft (10 m) distance, the quantity of additional refrigerant should be 1.64 oz (50 g) (32.8 - 24.8) ft x 0.2 oz/ft = 1.64 oz (110 - 7.5) m x 20 gm = 50 g.

INDOOR UNIT

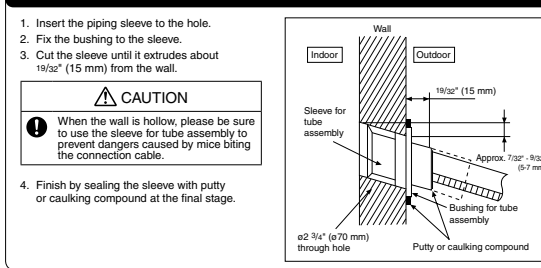
1 SELECT THE BEST LOCATION
(Refer to "Select the best location" section)

2 HOW TO FIX INSTALLATION PLATE



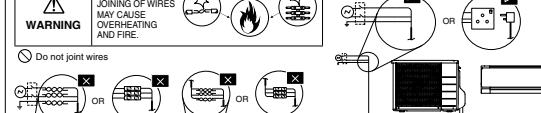
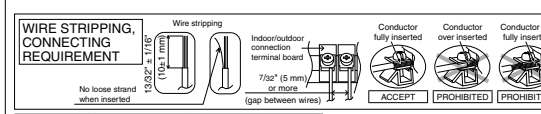
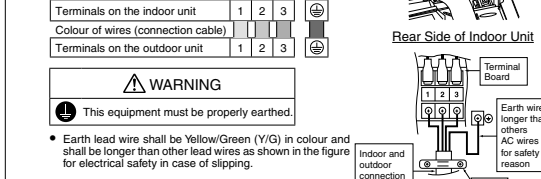
- The mounting wall shall be strong and solid enough to prevent it from the vibration.
- The center of installation plate should be at more than ① at right and left of the wall. The distance from installation plate edge to ceiling should more than ②.
- From installation plate right edge to unit's right side is ③.
- ④ : For left side piping, piping connection for liquid should be about ⑤ from this line.
- ⑥ : For left side piping, piping connection for gas should be about ⑥ from this line.
- Mount the installation plate on the wall with 5 screws or more (at least 5 screws). (If mounting the unit on the concrete wall, consider using anchor bolts.)
- Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.
- Drill the piping hole with ø2 3/4" (ø70 mm) hole-core drill.
- Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 5 1/16" (128 mm) for left and right hole respectively.
- Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side.

3 TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING



5 CONNECT THE CABLE TO THE INDOOR UNIT

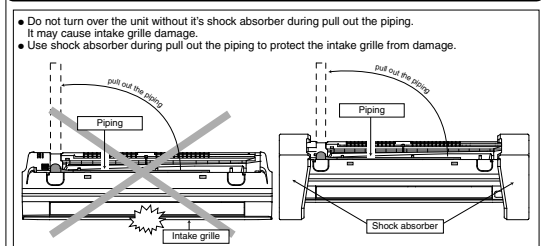
- The inside and outside connection cable can be connected without removing the front grille.
- Unscrew the conduit cover and fix the conduit connector at connection cover with lock nut, then secure it against chassis.
- Connection cable between indoor unit and outdoor unit should be UL listed or CSA approved 4 conductor wires minimum AWG16 in accordance with local electric codes.
- Ensure the color of wires of outdoor unit and terminal number are the same as the indoor's respectively.



CUTTING AND FLARING THE PIPING

- Please cut using pipe cutter and then remove the burrs.
- Remove the burrs by using reamer. If burrs are not removed, gas leakage may be caused. Turn the piping end using to avoid the metal powder entering the pipe.
- Please make flare after inserting the flare nut onto the copper pipes.

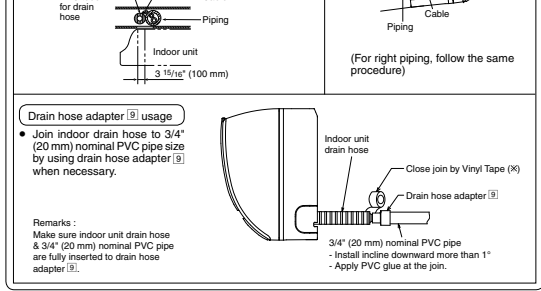
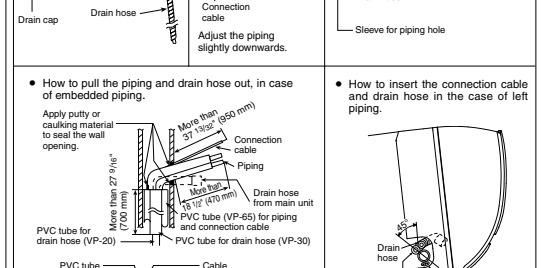
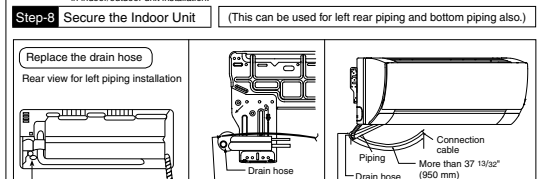
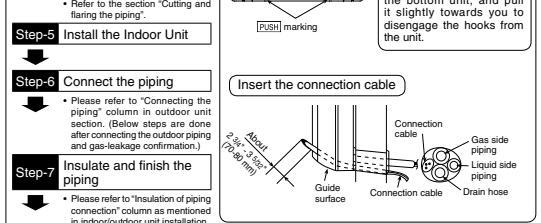
4 INDOOR UNIT INSTALLATION



- Do not turn over the unit without its shock absorber during pull out the piping. It may cause intake grille damage.
- Use shock absorber during pull out the piping to protect the intake grille from damage.

- 1. FOR THE RIGHT REAR PIPING**
- Step-1 Pull out the indoor piping
- Step-2 Install the Indoor Unit
- Step-3 Secure the Indoor Unit
- Step-4 Insert the connection cable
- 2. FOR THE RIGHT BOTTOM PIPING**
- Step-1 Pull out the Indoor piping
- Step-2 Install the Indoor Unit
- Step-3 Insert the connection cable
- Step-4 Secure the Indoor Unit

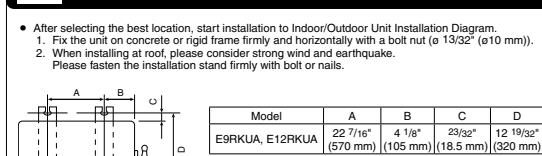
- 3. FOR THE EMBEDDED PIPING**
- Step-1 Replace the drain hose
- Step-2 Bend the embedded piping
- Step-3 Pull the connection cable into Indoor Unit
- Step-4 Cut and flare the embedded piping
- Step-5 Install the Indoor Unit
- Step-6 Connect the piping
- Step-7 Insulate and finish the piping
- Step-8 Secure the Indoor Unit



OUTDOOR UNIT

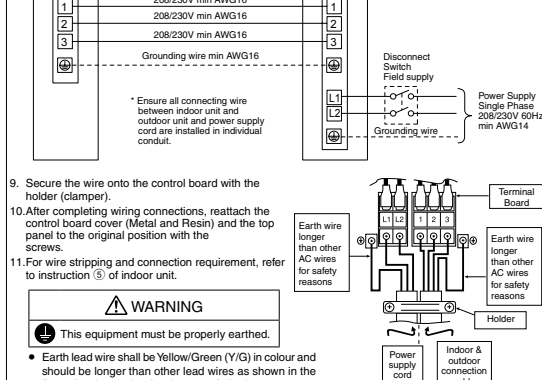
1 SELECT THE BEST LOCATION
(Refer to "Select the best location" section)

2 INSTALL THE OUTDOOR UNIT



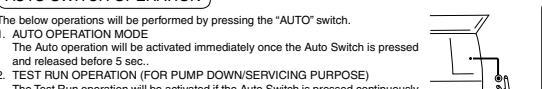
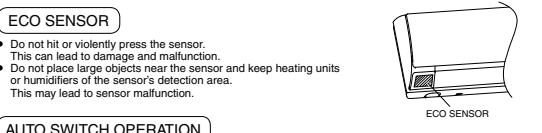
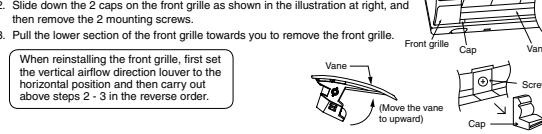
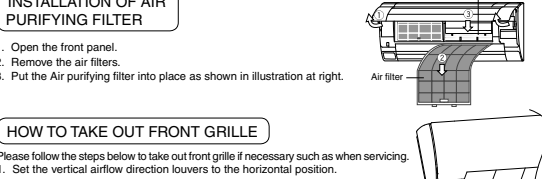
- After selecting the best location, start installation to Indoor/Outdoor Unit Installation Diagram.
- Fix the unit on concrete or rigid frame firmly and horizontally with a bolt nut (ø 13/32" (ø10 mm)).
- When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.

- 5 CONNECT THE CABLE TO THE OUTDOOR UNIT**
- 1. Remove Top panel.
- 2. Remove Control Board Cover (Resin and Metal).
- 3. Remove Plugs.
- 4. Fix the conduit connectors to the knockout holes with lock-nuts, then secure them against the side panel.
- 5. All wires pass through conduits.
- 6. Connection cable between indoor unit and outdoor unit should be UL listed or CSA approved 4 conductor wires minimum AWG16 in accordance with local electric codes.
- 7. Wire connection to the power supply (208/230V 60Hz) through circuit breaker.
- 8. Connect the power supply cord and connection cable between indoor unit and outdoor unit according to the diagram below.



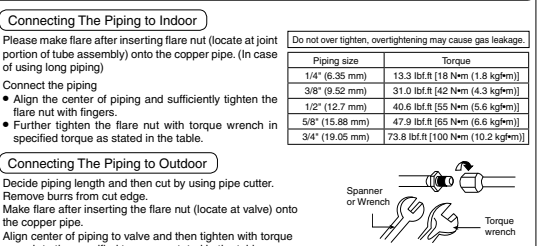
6 PIPING INSULATION

- Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
- If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 1/4" (6 mm) or above.

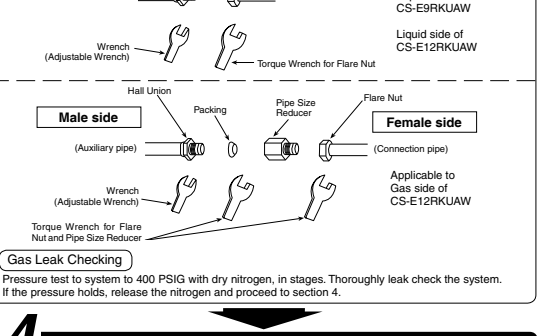


- ECO SENSOR**
- Do not hit or violently press the sensor.
- This can lead to damage and malfunction.
- Do not place large objects near the sensor and keep heating units or humidifiers of the sensor's detection area. This may lead to sensor malfunction.
- AUTO SWITCH OPERATION**
- The below operations will be performed by pressing the "AUTO" switch.
- 1. AUTO OPERATION MODE**
The Auto operation will be activated immediately once the Auto Switch is pressed and released before 5 sec.
- 2. TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)**
The Test Run operation will be activated if the Auto Switch is pressed continuously for more than 5 sec. to below 8 sec.
A "pep" sound will occur at the fifth sec., in order to identify the starting of Test Run operation.
- 3. HEATING TRIAL OPERATION**
Press the "AUTO" switch continuously for more than 8 sec. to below 11 sec. and release when a "pep pep" sound is occurred at eight sec. (However, a "pep" sound is heard at fifth sec.) then press Remote controller "A/C Reset" button once. Remote controller signal will activate operation force heating mode.
- 4. REMOTE CONTROLLER RECEIVING SOUND ON/OFF**
The ON/OFF of Remote controller receiving sound can be changed by the following steps:
a) Press "AUTO" switch continuously for more than 16 sec. to below 21 sec.
b) Press the "A/C Reset" button once. Remote controller signal will activate the Remote controller sound setting mode.
c) Press the "AUTO" switch once to select Remote controller receiving sound ON/OFF. A "pep" sound indicates receiving sound ON, and a "pep" sound indicates receiving sound OFF.

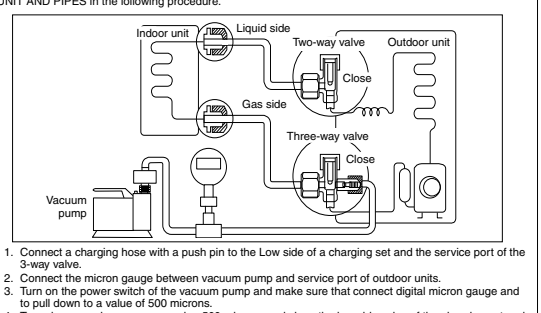
3 CONNECT THE PIPING



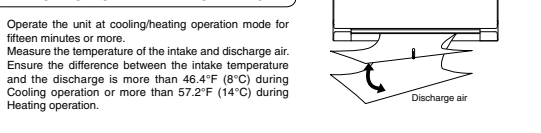
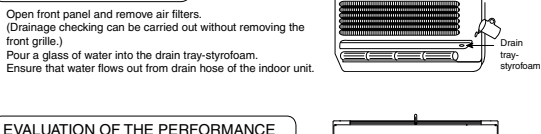
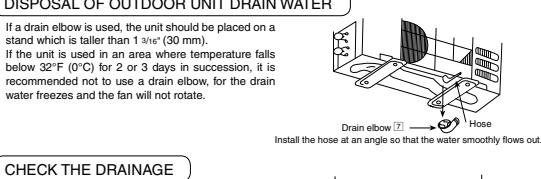
- Connecting The Piping to Indoor**
- Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)
- Connect the piping
- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.
- Connecting The Piping to Outdoor**
- Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge.
- Make flare after inserting the flare nut (locate at valve) onto the copper pipe.
- Align center of piping to valve and then tighten with torque wrench to the specified torque as stated in the table.



4 EVACUATION OF THE EQUIPMENT



- Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
- Connect the micron gauge between vacuum pump and service port of outdoor units.
- Turn on the power switch of the vacuum pump and make sure that connect digital micron gauge and to pull down to a value of 500 microns.
- To make sure micron gauge a value 500 microns and close the low side valve of the charging set and turn off the vacuum pump.
- Disconnect the vacuum pump hose from the service port of the 3-way valve.
- Tighten the service port caps of the 3-way valve at a torque of 13.3 lbf.ft (1.8 Nm) with a torque wrench.
- Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to "Open" using a hexagonal wrench (CS-2" (4 mm)).
- Mount valve caps onto the 2-way valve and the 3-way valve.
- Be sure to check for gas leakage.
- If micron gauge value does not descend 500 microns, take the following measures:
- If the leak stops when the piping connections are tightened further, continue working from step ③.
- If the leak does not stop when the connections are tightened, repair location of leak.
- Do not release refrigerant during piping work for installation and reinstallation.
- Be careful with the liquid refrigerant, it may cause frostbite.



- DISPOSAL OF OUTDOOR UNIT DRAIN WATER**
- If a drain elbow is used, the unit should be placed on a stand which is taller than 1 m (30 mm).
- If the unit is used in an area where temperature falls below 32°F (0°C) for 2 or 3 days in succession, it is recommended not to use a drain elbow, for the drain water freezes and the fan will not rotate.
- CHECK THE DRAINAGE**
- Open front panel and remove air filters. (Drainage checking can be carried out without removing the front grille.)
- Pour a glass of water into the drain tray-styrofoam.
- Ensure that water flows out from drain hose of the indoor unit.
- EVALUATION OF THE PERFORMANCE**
- Operate the unit at cooling/heating operation mode for fifteen minutes or more.
- Measure the temperature of the intake and discharge air.
- Ensure the difference between the intake temperature and the discharge is more than 46.4°F (8°C) during Cooling operation or more than 57.2°F (14°C) during Heating operation.
- CHECK ITEMS**
- Is there any gas leakage at flare nut connections?
- Has the heat insulation been carried out at flare nut connection?
- Is the connection cable being fixed to terminal board firmly?
- Is the connection cable being clamped firmly?
- Is the drainage ok? (Refer to "Check the drainage" section)
- Is the earth wire connection properly done?
- Is the indoor unit properly hooked to the installation plate?
- Is the power supply voltage complied with rated value?
- Is there any abnormal sound?
- Is the cooling/heating operation normal?
- Is the thermostat operation normal?
- Is the remote control's LCD operation normal?
- Is the Air purifying filter installed?

