

Required tools for Installation Works

1 Phillips screw driver	7 Reamer	13 Multimeter	65 N·m (6.6 kgf·m)
2 Level gauge	8 Knife	14 Torque wrench	100 N·m (10.2 kgf·m)
3 Electric drill, hole core drill (φ70 mm)	9 Gas leak detector	15 Vacuum pump	
4 Hexagonal wrench (4 mm)	10 Measuring tape	42 N·m (4.3 kgf·m)	16 Gauge manifold
5 Spanner	11 Thermometer	55 N·m (5.6 kgf·m)	
6 Pipe cutter	12 Megohmmeter		

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 related here must be followed because they 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 abnormally 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 band. Abnormal temperature rise on power supply cord may happen.
- Do not insert your fingers or other objects into the unit, high speed 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, eg. 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, using pipe, flare nut and tools which is specified for R410A refrigerant. 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 or copper pipes used with R410A must be more than 0.8 mm. Never use copper pipes thinner than 0.8 mm.
- It is desirable that the amount of residual oil less than 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 weight of the set. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
- For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.
- Do not use joint cable for indoor/outdoor connection cable. Use the specified indoor/outdoor connection cable, refer to instruction ⑤. **CONNECT THE CABLE TO THE INDOOR UNIT AND connect tightly for indoor/outdoor connection.** Clamp the cable so that no external force will have impact on the terminal. If connector of flaring 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 is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.
- During installation, install the refrigerant piping properly before running the compressor. Operation of compressor without fixing refrigerant piping and valves at opened position will cause 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 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 contacts with fire.
- Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the refrigerant contacts 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.

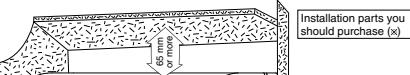
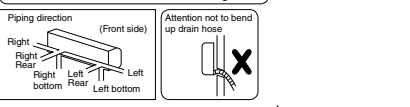
CAUTION

- Do not install the unit in a 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 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 aluminium 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.
 Use power supply cord φ 1.5 mm² (1.0 - 1.75HP), φ 2.5 mm² (2.0 - 2.5HP) type designation 60245 IEC 57 or heavier cord.
 Connect the power supply cord of the air conditioner to the mains using one of the following method.
 Power supply point should be in easily accessible place for power disconnection in case of emergency.
 In some countries, permanent connection of this air conditioner to the power supply is prohibited.
- Power supply connection to the receptacle using power plug.
 Use an approved 15/16A (1.0 - 1.75HP), 16A (2.0HP), 20A (2.5HP) power plug with earth pin for the connection to the socket.
 Power supply connection to a circuit breaker for the permanent connection.
 Use an approved 16A (1.0 - 2.0HP), 20A (2.5HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap.
- Installation work.
 It may need two people to carry out the installation work.

Attached accessories

No.	Accessories part	Qty.	Accessories part	Qty.
1	Installation plate	1	Remote control holder	1
2	Installation plate fixing screw	5	Remote control holder fixing screw	2
3	Remote control	1	Drain elbow	1
4	Battery	2		

Indoor/Outdoor Unit Installation Diagram



Model	Piping size		Additional refrigerant for add gas (kg)
	Gas	Liquid	
CZ-3FS, 7BP	9.52 mm (3/8")	6.35 mm (1/4")	7.5
CZ-4FS, 7, 10BP	12.7 mm (1/2")	6.35 mm (1/4")	7.5
CZ-5ZFS, 7, 10BP	15.88 mm (5/8")	6.35 mm (1/4")	7.5

SELECT THE BEST LOCATION

INDOOR UNIT

- Do not install the unit in excessive oil fume 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 2.5 m.

OUTDOOR UNIT

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that 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.

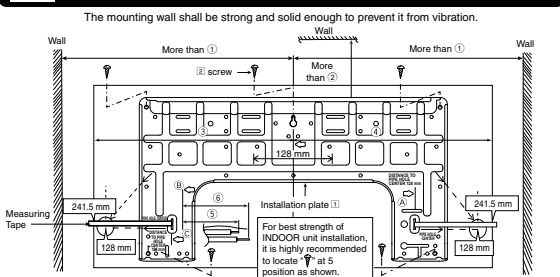
Model	Piping size	Max. Piping Length (m)	Min. Piping Length (m)	Max. Piping Length (m)	Additional refrigerant for add gas (kg)	
						Gas
RE9***, UE9***, YE9***	9.52mm (3/8")	15	3	15	20	7.5
RE12***, UE12***, YE12***	12.7mm (1/2")	15	3	15	20	7.5
RE15***	15.88mm (5/8")	15	3	15	20	7.5
RE18***	19.05mm (3/4")	15	3	15	20	7.5
RE24***	25.4mm (1")	20	3	20	30	10

Example: For RE9***
 If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 50 g ... (10-7.5) m x 20 g/m = 50 g

INDOOR UNIT

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

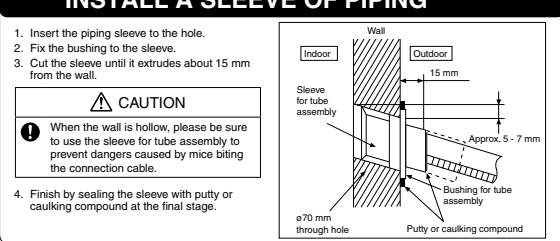
2 HOW TO FIX INSTALLATION PLATE



Model	Dimension					
	①	②	③	④	⑤	⑥
RE9***, UE9***, YE9*** RE12***, UE12***, YE12*** RE15***	490 mm	82 mm	439 mm	432 mm	43 mm	95 mm
RE18***, UE18*** RE24***	590 mm	82 mm	539 mm	532 mm	169 mm	219 mm

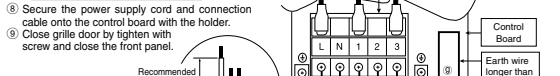
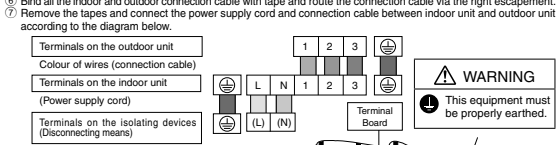
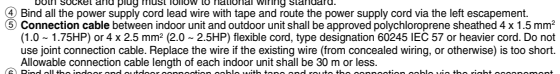
- The center of installation plate should be at more than ① at right and left of the wall.
- The distance from installation plate edge to ceiling should more than ②.
- From installation plate center to unit's left side is ③.
- From installation plate center to unit's right side is ④.
- ⑤ : For left side piping, piping connection for liquid should be about ⑤ from this line.
 : For left side piping, piping connection for gas should be about ⑥ from this line.
- 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 φ70 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 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



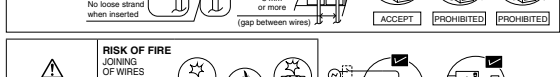
5 CONNECT THE CABLE TO THE INDOOR UNIT

- The power supply cord, indoor and outdoor unit connection cable can be connected without removing the front grille.
- Install the indoor unit on the installing holder that mounted on the wall.
- Open the front panel and grille door by loosening the screws.
- Connect the connection to the power supply through Isolating Devices (Disconnecting means).
- Connect approved type polychloroprene sheathed power supply cord φ 1.5 mm² (1.0 - 1.75HP), φ 2.5 mm² (2.0 - 2.5HP) type designation 60245 IEC 57 or heavier cord to the terminal board, and connect the others and of the cord to Isolating Devices (Disconnecting means).
- Do not use joint power supply cord. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.
- In unavoidable case, joining of power supply cord between isolating devices and terminal board of air conditioner shall be done by using approved socket and plug with earth pin rated 15/16/20A. Wiring work to that socket and plug must follow to national wiring standard.
- Bind all the power supply cord lead wire with tape and route the power supply cord via the left escapement.
- Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed φ 4 x 1.5 mm² (1.0 - 1.75HP) or φ 2 x 2.5 mm² (2.0 - 2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short. Allowable connection cable length of each indoor unit shall be 30 m or less.
- Bind all the indoor and outdoor connection cable with tape and route the connection cable via the right escapement.
- Remove the tapes and connect the power supply cord and connection cable between indoor unit and outdoor unit according to the diagram below.



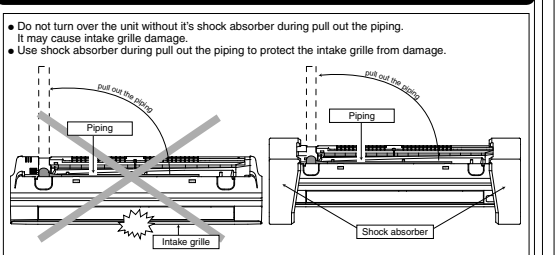
- Secure the power supply cord and connection cable onto the control board with the holder.
- Close grille door by tighten with screw and close the front panel.

WIRE STRIPPING, CONNECTING REQUIREMENT

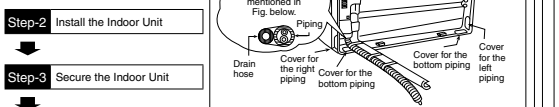


- Do not joint wires.
- Use complete wire without joining.
- Use approved socket and plug with earth pin.
- Wire connection in this area must follow to national wiring rules.

4 INDOOR UNIT INSTALLATION

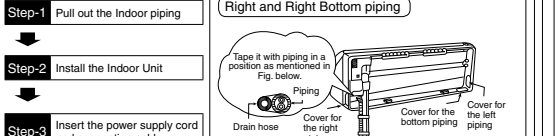


- Do not turn over the unit without its shock absorber during pull out of the piping. It may cause intake grille damage.
- Use shock absorber during pull out of the piping to protect the intake grille from damage.

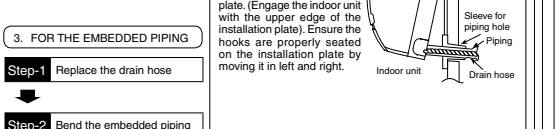


- Insert the power supply cord and connection cable.
- Insert the cables from bottom of the unit through the control board hole unit terminal board area.

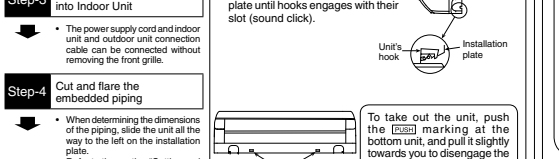
2. FOR THE RIGHT AND RIGHT BOTTOM PIPING



- Replace the drain hose.
- Bend the embedded piping.
- Use a spring binder or equivalent to bend the piping so that the piping is not crushed.
- Pull the connection cable into indoor unit.
- Use a spring binder or equivalent to bend the piping so that the piping is not crushed.
- Cut and flare the embedded piping.
- When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.
- Refer to the section "Cutting and flaring the piping".



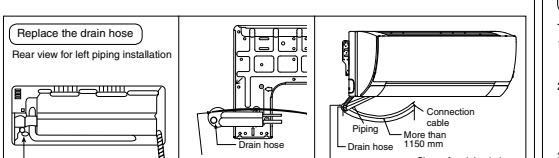
3. FOR THE EMBEDDED PIPING



6 PIPING INSULATION

- Remove the control board cover from the unit by loosening the screw.
- Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed φ 4 x 1.5 mm² (1.0 - 1.75HP) or φ 2 x 2.5 mm² (2.0 - 2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short. Allowable connection cable length of each indoor unit shall be 30 m or less.
- Secure the cable onto the control board with the holder (clammer).
- Attach the control board cover back to the original position with screw.
- For wire stripping and connection requirement, refer to instruction ⑤ of indoor unit.

6 PIPING INSULATION



HOW TO TAKE OUT FRONT GRILLE

- Follow the steps below to take out front grille if necessary such as when servicing.
- Set the vertical airflow direction louvers to the horizontal position.
- Remove the 2 caps (1.0 - 1.75HP) or 3 caps (2.0 - 2.5HP) on the front grille as shown in the illustration at right, and then remove the 2 (1.0 - 1.75HP) or 4 (2.0 - 2.5HP) mounting screws.
- Pull the lower section of the front grille towards you to remove the front grille.

AUTO SWITCH OPERATION

- The below operations will be performed by pressing the "AUTO" switch.
- AUTO OPERATION MODE: The Auto operation will be activated immediately once the Auto Switch is pressed and released before 5 sec.
- 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.
- HEATING TRIAL OPERATION: Press the "AUTO" switch continuously for more than 8 sec. to below 11 sec. and release when a "pep" sound is occurred at eight sec. (However, a "pep" sound is occurred at fifth sec.) then press Remote controller "A/C Reset" button once. Remote controller signal will activate operation to force heating mode.
- REMOTE CONTROLLER RECEIVING SOUND ON/OFF: The ON/OFF of Remote controller receiving sound can be change over by the following steps: a) Press "AUTO" switch continuously for more than 16 sec. to below 21 sec. A "pep", "pep", "pep", "pep" sound will occur at the sixteenth 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.

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 by bolt nut (φ10 mm).
- When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.

Model	A	B	C	D
RE9***, UE9***, YE9*** UE12***, YE12***	570 mm	105 mm	18.5 mm	320 mm
RE12*** RE15*** UE18***	540 mm	160 mm	18.5 mm	330 mm
RE18*** RE24***	613 mm	131 mm	16 mm	360.5 mm

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)
- 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.

Piping size	Torque
6.35 mm (1/4")	18 N·m (1.8 kgf·m)
9.52 mm (3/8")	42 N·m (4.3 kgf·m)
12.7 mm (1/2")	55 N·m (5.6 kgf·m)
15.88 mm (5/8")	65 N·m (6.6 kgf·m)
19.05 mm (3/4")	100 N·m (10.2 kgf·m)

- 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.

5 CONNECT THE CABLE TO THE OUTDOOR UNIT

- Remove the control board cover from the unit by loosening the screw.
- Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed φ 4 x 1.5 mm² (1.0 - 1.75HP) or φ 2 x 2.5 mm² (2.0 - 2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short. Allowable connection cable length of each indoor unit shall be 30 m or less.
- Secure the cable onto the control board with the holder (clammer).
- Attach the control board cover back to the original position with screw.
- For wire stripping and connection requirement, refer to instruction ⑤ of indoor unit.

6 PIPING INSULATION

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

DISPOSAL OF OUTDOOR UNIT DRAIN WATER

- If a drain elbow is used, the unit should be placed on a stand which is taller than 3 cm.
- If the unit is used in an area where temperature falls below 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

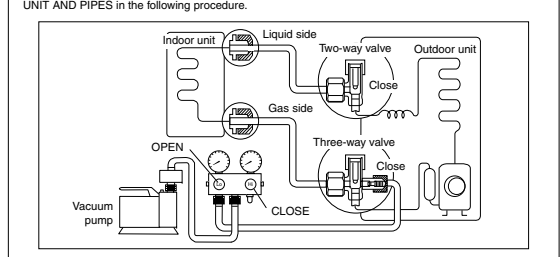
- Operate the unit at cooling/heating operation mode for fifteen minutes or more.
- Measure the temperature of the intake and discharge air.
- Ensure the difference between the intake temperature and the discharge is more than 8°C during Cooling operation or more than 14°C during Heating operation.

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?
- 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?

4 EVACUATION OF THE EQUIPMENT

WHEN INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES IN the following procedure.



- 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.
- Be sure to connect the end of the charging hose with the push pin to the service port.
- Connect the center hose of the charging set to a vacuum pump.
- Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.
- Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
- Note : BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
- Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
- Tighten the service port caps of the 3-way valve at a torque of 18 N·m 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 (4 mm).
- Mount valve caps onto the 2-way valve and the 3-way valve.
- Be sure to check for gas leakage.

- If gas needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step ③ above take the following measure:
- 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.
- Take care of the liquid refrigerant, it may cause frostbite.