

3 Installation of Indoor Unit

Marking of the Positions of the Sling bolts and Piping Connections

1. Mark the positions of the sling bolts, refrigerant piping connections and drain connection.
2. Ceiling Work: it basically varies according to the building structure.

Consult with the architect or interior finish worker for more information on this.

(a) To maintain the appropriate levelness of the ceiling and preventing the vibration, the additional reinforcement in the ground of ceiling (Building Frame) is essential.

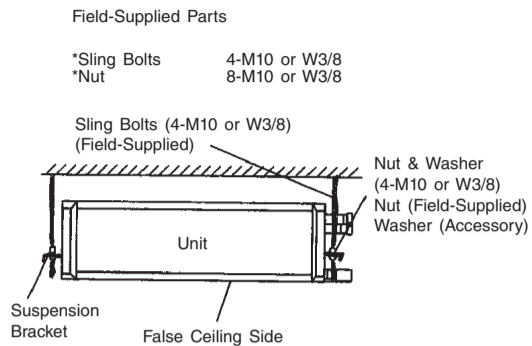
Also, rubber cushion can be applied for the insufficient strength of the frame around the sling part on the ceiling.

(b) Provide a space for the air inlet grille, air outlet grille and maintenance work.

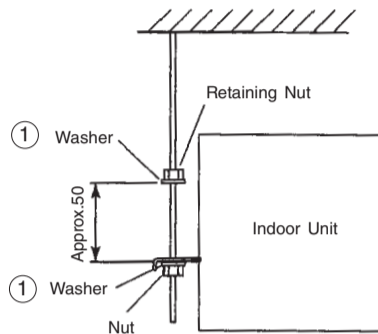
(c) Do not suspend the indoor unit and electric light units from the same auxiliary supporting beams, and do not connect the suspension bolts on the indoor units. If connected, the light may flicker or the light unit may be rattled by the vibration of the indoor units.

Mounting the indoor unit

Hanging indoor unit.

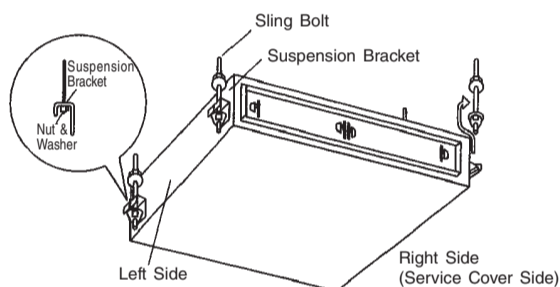


1. How to put Nuts or Sling Bolts
Put nuts on each of the four hanging bolts.



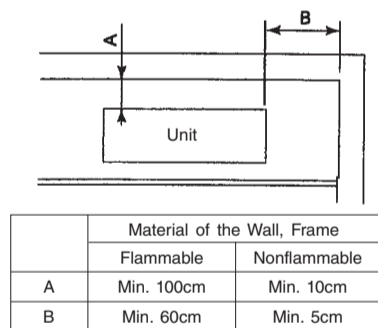
2. Hanging the Indoor unit

- Hook suspension bracket to the nut and washer of each hanging bolt, as shown, starting at the opposite side to service cover side.
- After checking that the nut and washer are correctly fixed by the retainers of the suspension bracket, hook the suspension bracket of the service cover side to the nut and washer. (Put the sling bolts away from the unit when hooking.)
- Piping and wiring work will be required in the ceiling after hanging the unit. Therefore, determine the drawing direction of the pipe after selecting the installation location, particularly if the ceiling has existing piping. Wiring work should be carried out up to the connecting positions before hanging the unit.

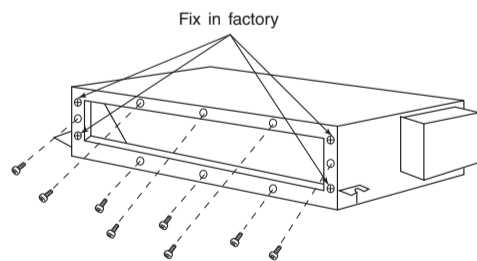


3. For reasons of disaster prevention, the distance between under the roof and the wall surface should be followed as shown in the figure below.

- Use the nonflammable material for the duct.

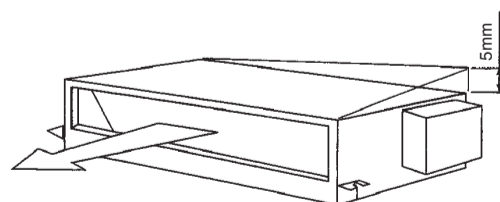


4. If decided to keep the flange at discharge side, fix screw ② at 8 positions. However, if decided not to keep the flange, remove 4 screws that fixed to the flange.



Adjusting of the Unit Level

1. Check to ensure that the foundation is flat, taking into account the maximum foundation gradient.
If not, it will occur malfunction of float switch or not operation. Then it will drop the drain water from the ceiling.



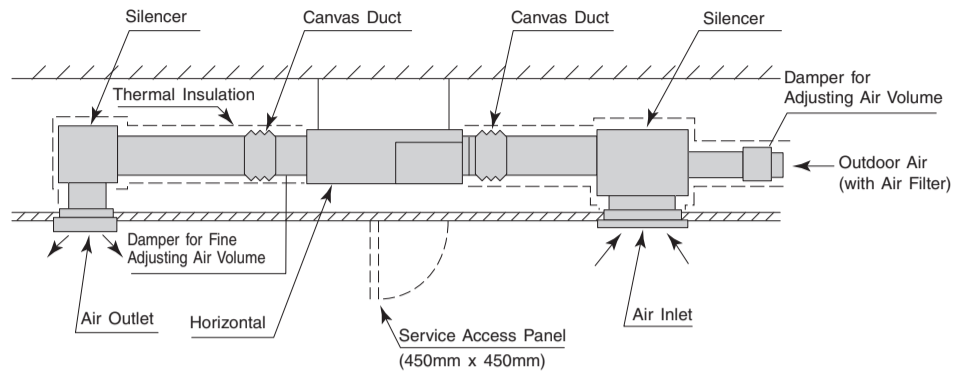
2. The unit should be installed so that the rear side of the unit is slightly (0mm to 5mm) lower than the front side, in order to avoid the incorrect position of the drain discharge.
3. Tighten the bolts of the sling nuts with the suspension brackets after adjustment is completed. Special plastic paint must be applied to the bolts in order to prevent them from loosening.
Keep the unit as well as relevant equipment covered with the vinyl cover during installation work.

Connecting Return Duct and Supply Duct

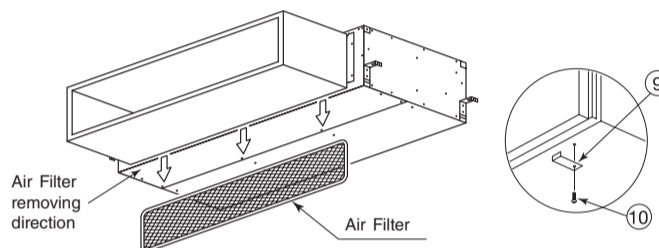
1. The return duct should be connected with the indoor through canvas ducts between inlet side of the indoor unit and ceiling of the room. The supply duct should be connected with the indoor unit through canvas ducts, in order to avoid abnormal sound vibration. The unit is equipped with a pre-drilled duct flange for the return and supply duct connection.
2. Attach the vibration proof rubber to Sling Bolt in order to avoid abnormal sound vibration.
3. Undamped natural frequency is 9 to 21 Hz.
4. Duct material should be non-flammable material.
5. Perform the heat insulation work over the duct and the duct flange for dew protection.

CAUTION

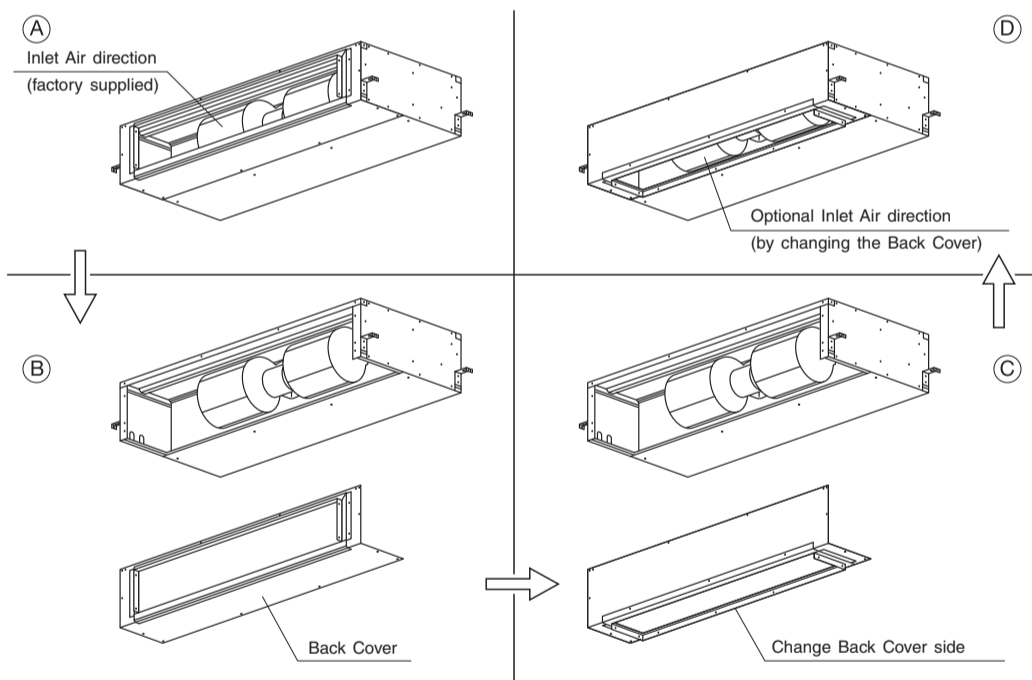
- If a lower sound level is still required, install a silencer (field-supplied).
- The facility design should be "Unit External static Pressure = Duct Pressure Loss Suction / Discharge Loss". If the duct pressure loss becomes under to the unit external static pressure, air speed will get larger and lead to the occurrence of louder noise, splashing water and activation of motor protection circuit, and if the unit external static pressure becomes under to the duct pressure loss, some problems such as inability to change the air speed may occur. Set the airflow control damper or shift the static pressure control switch to adjust to get almost equal level between the external static pressure and the duct pressure loss. (See "Setting of External Pressure" section for the details.)
- Basically this unit is designed to install the ducts on the inlet side and the outlet side.



- Select the indoor unit position, fixing the direction of air outlet so that the cool/hot air reaches all around the room. The standard position of the indoor unit is with the wall side on the ceiling.
- Remove the factory fitted filter and filter holders before installing of full duct type.



Inlet air direction change instructions



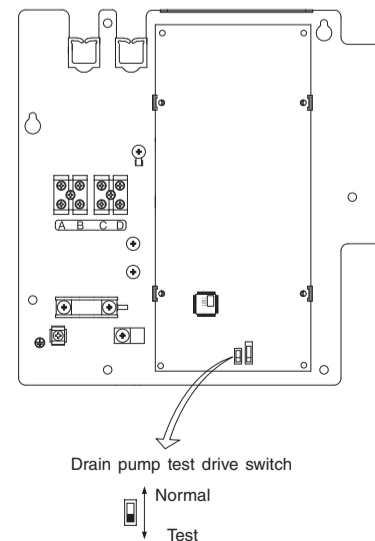
4 Connection of drain pipe

- (1) Securely glue connection part of drain hose and PVC pipe, using PVC adhesive.

CAUTION

- If the glue between the drain hose and PVC pipe is too weak, water leakage may occur.

- (2) Be sure to wrap generally-available insulator (10mm or more of foamed polyethylene) around drain hose, inside the house, for insulation heat.
- (3) Checking drain and water leakage.
Perform after connecting power.
• Add water to water pan of indoor unit.
- (4) Test run method.
① Turn the power on.
② Remove the lid of the electric box and set the drain pump test run switch to TEST RUN.
③ After checking the drainage, return the switch to NORMAL.
- (5) Perform a test run of the drain pump to check drainage operation.

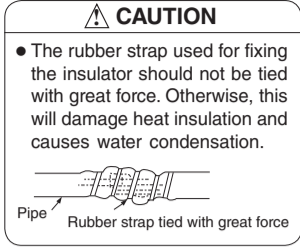
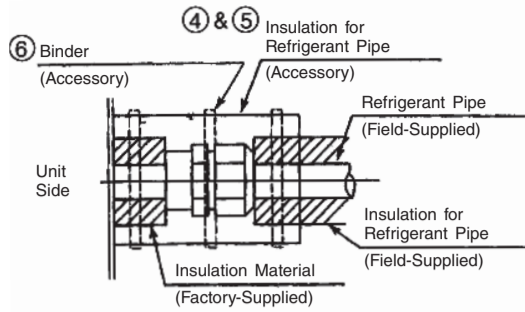


CAUTION

- If checking of drainage is omitted, water loss may occur.
- If drain pump test run is left set to TEST RUN, drain pump may malfunction.

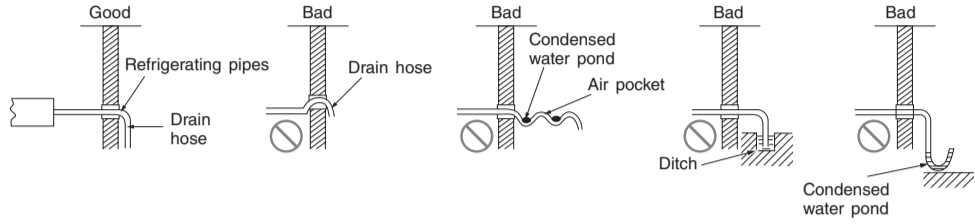
5 Pipe Connection

After connecting the refrigerant piping, seal the refrigerant pipes by using the factory supplied insulation material.



6 Checking of drawing drain hose

- Connect the separate drain hose to the drain hose that is attached to the indoor unit.
- For keeping the smooth flowing of condensed water the drain hose should be inclined as shown in figure below.



CAUTION Please ensure the smooth flow of condensed water of the indoor unit during installation. (Carelessness may result in water leakage.)

CAUTION Be sure that the hose is not loosely connected or bent.

7 Checking procedure after installation

- Confirm the smooth water flowing from the drain hose by pouring some water into the evaporator pan.
- Arrange the penetrating part of the wall presentably with the bushing for refrigerating pipes and sealer which is belonging to the pipe set as shown in Fig. 7-1.

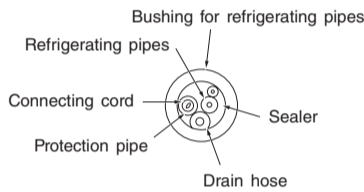


Fig. 7-1

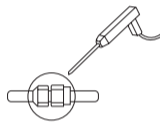


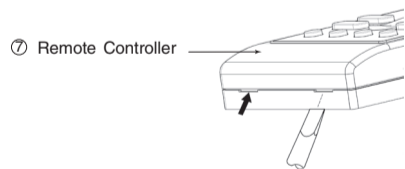
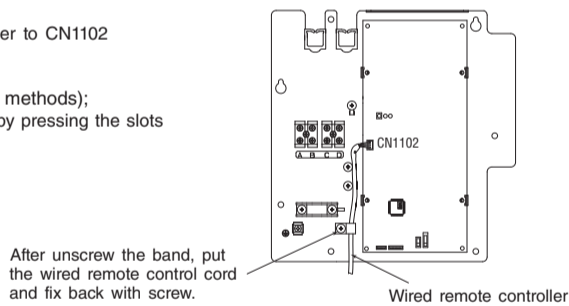
Fig. 7-2

CAUTION Be sure that the wire is not in contact with any metal in the wall. Please use the protection pipe around the wire passing through the hollow part of the wall so as to prevent the possibility of the wire being damaged by a mouse.

- Wind the inadhensive vinyl tape which is belonged to the pipe set round the refrigerating pipes and the connecting cord.
- Leakage checking of refrigerant at the coupling by gas leak detector or soapsuds, as shown in Fig. 7-2.
- Checking of evaporator coldness (cooling operation).
- Checking of warm wind from condenser (cooling operation).

8 Installation of wired remote controller (optional)

- Connection to the electrical box;
 - Remove the cover of electric box
 - Connect the connector of wired remote controller to CN1102
 - Assemble back the cover of electrical box
- Wiring installation for wired remote controller (2 methods);
 - Wired remote controller casing can be opened by pressing the slots with minus screw driver (see below diagram)



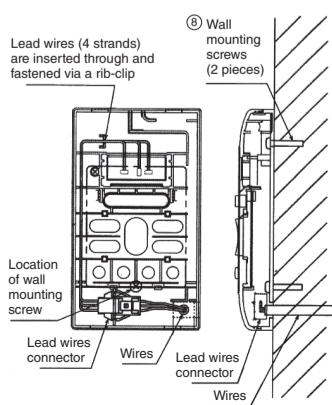
- Decide the fixing location of remote controller so that the length of wire shall be within 5 meters.

CAUTION Do not cut the provided wire. Excess wire should be properly wound and fitted in a safe place. Do not join the wire with additional wire.

Wiring installation illustrations

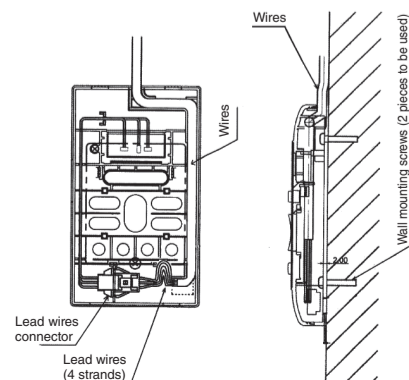
Wall recessed wiring installation (Optional)

- When connecting the wires via the wall's recessed slot;
 - Fix the bottom casing to the wall with the provided screw.
 - Assemble the top casing to the fixed bottom casing. (Refer to the illustration below for a detailed installation)



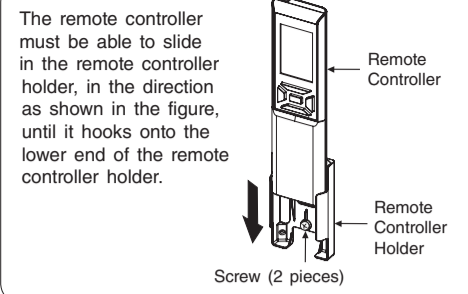
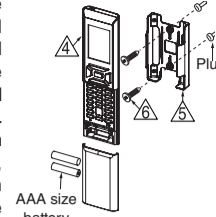
Inside top wiring installation (Alternative)

- When the wires are to be connected from the inside top portion of top casing;
 - Break off a perforated aperture located at the top portion of the bottom casing by nipper. Smoothen the aperture by cutter.
 - Fix the bottom casing to the wall by provided screw.
 - Connect the wires to the lead wires connector.
 - Mount the wires through the provided slot on top casing.
 - Assemble the top casing to the fixed bottom casing (Refer to the illustration below for detail installation)



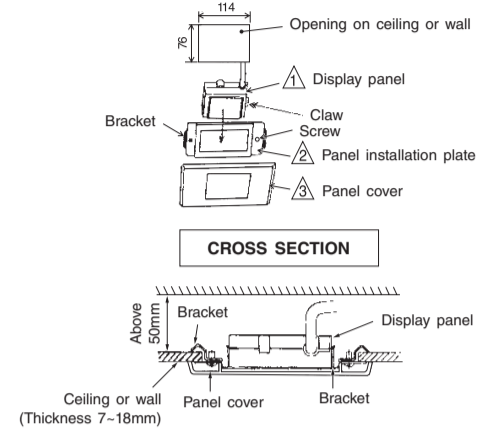
9 Installation of wireless remote controller (optional)

- The remote controller can be placed in its holder which is then fixed on a wall or beam.
- To operate the remote controller at its holder, please ensure that the unit can receive the signal transmitted from the controller at the place where the holder is to be fixed. The unit will beep when a signal is received from the remote controller. The signal transmission is weakened by the fluorescent light. Therefore, during the installation of the remote control holder, please switch on the light, even during day time, to determine the mounting location of the holder.



Installation of display panel (Optional)

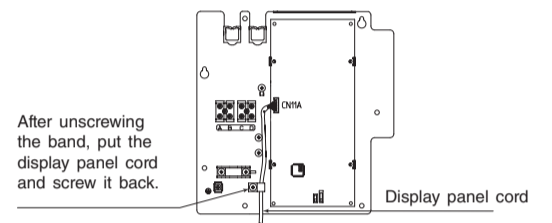
- Select an installation position on ceiling or wall where there is no obstacle to interrupt signal reception.
- Loosen screws of panel installation plate so that bracket can be slightly moved.
- Match the display panel to panel installation plate so the fixing claws on the panel are securely hooked.
- Match brackets to the opening on ceiling or wall and tighten screws until bracket is firmly secured to ceiling material.
- Install the panel cover so inside claws are securely hooked to the panel installation plate.
- Conduct the indoor unit side housing of display panel cord to the electric box of the indoor unit and connect it with the housing at the side of the unit.



CAUTION Please disconnect wired remote controller connector at CN1102 if to use wireless remote controller.

Connection of discharge duct and display panel lead wires (Optional)

- Connect the motor connector of discharge duct to the connector CN8 (see diagram on the right).
- Attach the connector of this panel to the connector CN11A on the control PWB.
- Be sure to fix the motor lead wire of discharge duct using fixing band. (For full duct type and semi duct type connect only display panel.)

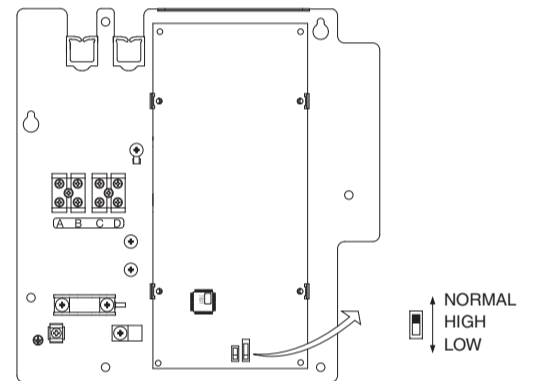


10 Setting of external static-pressure switch

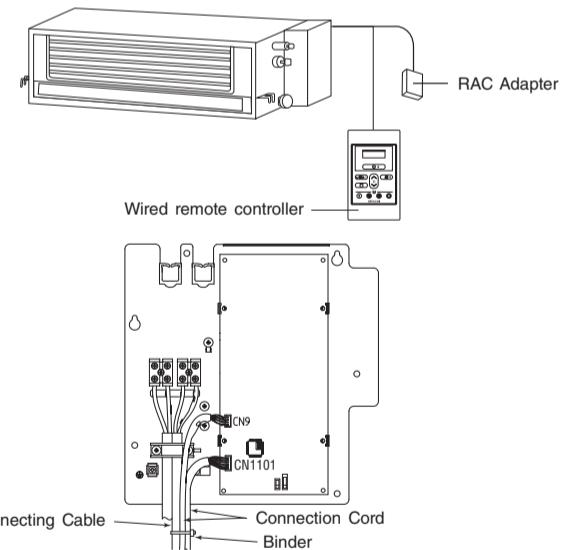
- Setting of External Pressure Remove lid of electric box and set the "STATIC PRESSURE" switch.

HIGH : 80pa
NORMAL : 50pa
LOW : 30pa

- If not set to HIGH STATIC-PRESSURE, there will be reduction of cooling and heating capacities. (At the time of delivery, the switch is set as "NORMAL")



11 How To Connect The Optional Parts (RAC Adapter, Wired Remote Control)



[For all optional parts, please refer to the catalog for part numbers]

As for connecting to H-Link, a separately purchased RAC Adapter is required.

- To install the wiring the electrical box cover must be opened.
- Connect the connector of RAC adapter to CN1101.
- Assemble back the cover of electrical box.
- Please refer to the respective user manual of RAC Adapter for further details.
- Please be careful not to damage the lead wires with the edge of the plate when connecting the optional parts.

WIRED REMOTE CONTROLLER

[For all optional part, please refer catalog for part number]

- To connect to the electrical box;
 - Remove the cover of electrical box.
 - Connect the connector of wired remote controller to CN1102.
 - Assemble back the cover of electrical box.
 - Please refer to the respective user manual of wired remote controller for further details.
 - Please be careful not to damage lead wires by edge of plate when connecting the optional parts.

12 Protection of lead wire

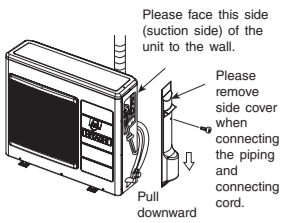
Wrap aluminum tape around PVC tube between electric box and indoor unit (cord band).

13 Operation test

- Please ensure that the air conditioner is in normal operating condition during the operation test.
- Explain to your customer the proper operation procedures as described in the user's manual.
- If the indoor unit does not operate, check to see that the connections are correct.

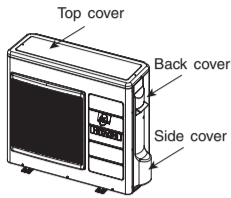
CAUTION Trial run should be conducted on one unit at a time to check for incorrect wiring of connecting cord.

- Please mount the outdoor unit on stable ground to prevent vibration and increase of noise level.
- Decide the location for piping after sorting out the different types of pipe available.
- Open the side plate by unscrewing the screws as shown below.



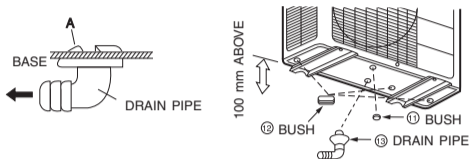
CAUTION

- Please make sure to remove all spacers inside the unit.
- Open the Top, Back and Side cover of the unit.
- Pull out the spacers inside. (Spacers are only for transportation purpose). If not remove, vibration and noise will occur.



CONDENSED WATER DISPOSAL OF OUTDOOR UNIT

- There are holes on the base of Outdoor unit for condensed water to exhaust.
- In order to flow condensed water to the drain, the unit is installed on a stand or a block so that the unit is 100mm above the ground as shown figure. Join the drain pipe to one hole.
- At first insert one portion of the hook to the base (Portion A), then pull the drain pipe in the direction shown by the arrow while inserting the hook into the base. After installation, check whether the drain pipe cling to the base firmly.



- When using in cold region, etc. In cold region with severe cold climate and heavy snow, water discharged from heat exchanger freeze on the base surface and this may affect drainage. In such a region, remove bush on the bottom face of outdoor unit for better drainage. When using drainpipe, consult our dealer.

1 Preparation of Pipe

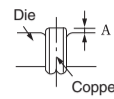
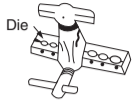
- Use a pipe cutter to cut the copper pipe.



CAUTION

- Jagged edge will cause leakage.
- Point the side to be trimmed downwards during trimming to prevent copper chips from entering the pipe.

- Before flaring, please put on the flare nut.



- Please use exclusive tool

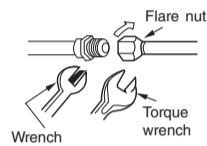
Outer Diameter mm (inch)	Thickness (mm)	A (mm)		
		Flare tool for R410A Clutch type	Conventional flare tool Clutch type Wing nut type	
6.35 (1/4")	0.8	0.0 ~ 0.5	1.0 ~ 1.5	1.5 ~ 2.0
9.52 (3/8")	0.8	0.0 ~ 0.5	1.0 ~ 1.5	1.5 ~ 2.0
12.70 (1/2")	0.8	0.0 ~ 0.5	1.0 ~ 1.5	1.5 ~ 2.5
15.88 (5/8")	1.0	0.0 ~ 0.5	1.0 ~ 1.5	1.5 ~ 2.5

2 Pipe Connection

CAUTION

In case of removing flare nut of an indoor unit, first remove a nut of small diameter side, or a seal cap of big diameter side will fly out. Prevent water from entering into the piping when working.

- Please be careful when bending the copper pipe.
- Screw in manually while adjusting the center. After that, use of torque wrench to tighten the connection.



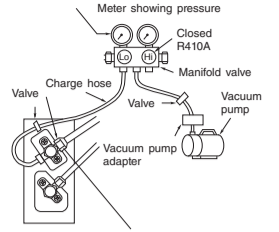
	Outer dia. of pipe	Torque N·m (kgf·cm)
Small dia. side	6.35 (1/4")	14.0 - 18.0 (140 - 180)
Large dia. side	9.52 (3/8")	33.0 - 42.0 (330 - 420)
	12.70 (1/2")	50.0 - 62.0 (500 - 620)
	15.88 (5/8")	63.0 - 77.0 (630 - 770)
Valve head cap	Small dia. side	6.35 (1/4") 19.6 - 24.5 (200 - 250)
	Large dia. side	9.52 (3/8") 19.6 - 24.5 (200 - 250) 12.7 (1/2") 29.4 - 34.3 (300 - 350)
Valve core cap		12.3 - 15.7 (125 - 160)

3 Removal Of Air From The Pipe And Gas Leakage Inspection

Procedures of using Vacuum Pump for Air Removal

- As shown in the right figure, remove the cap of valve core. Then, connect the charge hose. Remove the cap of valve head. Connect the vacuum pump adapter to the vacuum pump and connect the charge hose to the adapter.

When the meter reaches - 101KPa (-76cmHg) during pumping, fully tighten the shuttle.

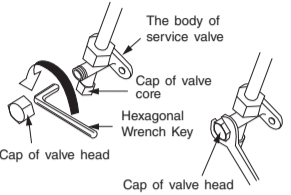


When pumping starts, slightly loosen the flare nut to check of air sucked in. Then tighten the flare nut.

- Fully tighten the "Hi" knob of the manifold valve and completely unscrew the "Lo" knob. Run the vacuum pump for about 10-15 minutes, then completely tighten the "Lo" knob and switch off the vacuum pump.

- Remove the charge hose and tighten the cap of valve core. Check the cap's periphery if there is any gas leakage.

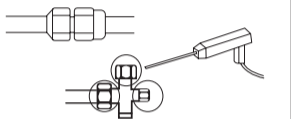
- Completely unscrew the spindle of the service valve (at 2 places) in anti-clockwise direction to allow the flow of refrigerant (using Hexagonal Wrench Key).



- Re-cap the service valve and tighten using wrench. Check the cap's periphery if there is any gas leakage. The task is then completed.

Gas Leakage Inspection

Please use the gas leakage detector to check if a leakage occurs at the connection of the flare nut as shown on the right.

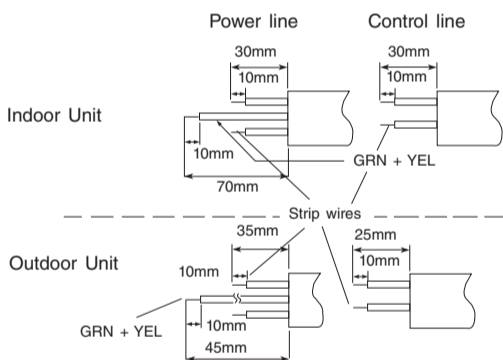
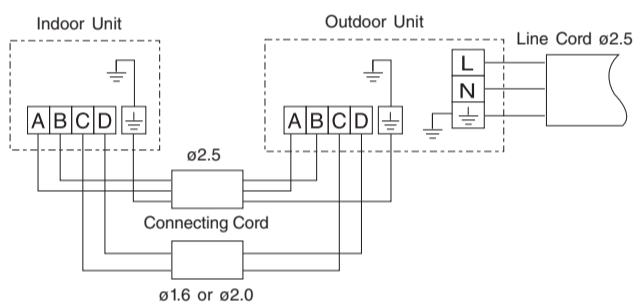


If the gas leakage occurs, tighten the connection to stop leakage.

WARNING • THIS APPLIANCE MUST BE EARTHED.

Procedures of Wiring

Power is supplied from Outdoor Unit



WARNING

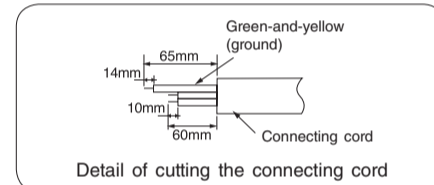
- The naked part of the wire core should be 10 mm and fix it to the terminal tightly. Then try to pull the individual wire to check if the contact is tight. Improper insertion may burn the terminal.
- Be sure to use only power cables approved from the authorities in your country. For example in Germany: Cable type: NYM 3x1.5mm², (fuse = 30A time delay)
- Please refer to the installation manual for wire connection to the terminals of the units. The cabling must meet the standards of electrical installation.
- There is an AC voltage of 220-240V between the L and N terminals. Therefore, before servicing, be sure to remove the plug from the AC outlet or switch off the main switch.
- Do not make any connection in the middle of the connecting cable. It may cause the wire to over heat, and emit smoke and fire.

Wiring Of The Indoor Unit

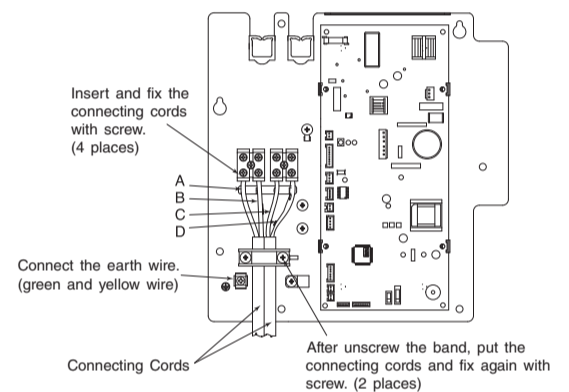
For wire connection of the Indoor unit, you need to remove electrical cover.

Method to remove electrical cover

- Remove the cover of the electric box.
- Connect the connecting cords.
- Assemble the cover of electric box.



WARNING • THIS APPLIANCE MUST BE EARTHED.

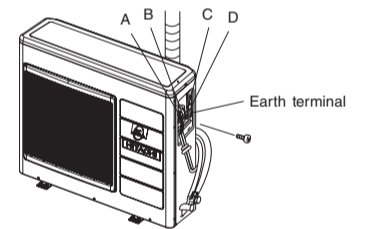


Wiring Of The Outdoor Unit

- Please remove the side cover for wire connection.

WARNING

- If you cannot attach the side cover due to the connecting cord, press the connecting cord in direction to the front panel to fix it.
- Be sure that the hooks of the side cover is fixed in certainly. Otherwise water leakage may occur and this causes short circuit or faults.
- The connecting cord should not touch to service valve and pipes. (It becomes high temperature in heating operation.)



Checking for the electric source and the voltage range

- Before installation, the power source must be checked and necessary wiring work must be completed. To make the proper wiring capacity, use the wire gauges list below for the lead-in from a pole transformer and for the wiring from a switch board of fuse box to the outlet in consideration of the locked rotor current.

IMPORTANT

Cable length	Wire cross-section
up to 15m	2.5mm ²
up to 25m	4.0mm ²

CAUTION

Outdoor supply cords shall not be lighter than polychloroprene sheathed flexible cord with code designation 60245 IEC 57.

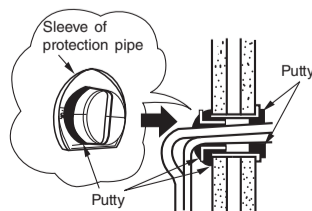
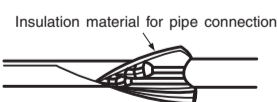
- Investigate the power supply capacity and other electrical conditions at the installation location. Depending on the model of room air conditioner to be installed, request the customer to make arrangements for the necessary electrical work etc. The electrical work includes the wiring work up the outlet. In localities where electrical conditions are poor, use of a voltage regulation is recommended.

IMPORTANT

Fuse Capacity
30A time delay fuse

1 Insulation And Maintenance Of Pipe Connection

- The connected terminals should be completed sealed with a heat insulator and then tied up with a rubber strap.
- Please tie the pipe and power line together with vinyl tape as shown in the figure showing the installation of the Indoor and Outdoor units. Then fix their position with holders.
- To enhance the heat insulation and to prevent water condensation, please cover the outdoor part of the drain hose and pipe with insulation pipe.
- Completely seal any gap with putty.



2 Power Source And Operation

Power Source

CAUTION

- Please use a new socket. An accident may occur while using an old socket because of the poor contact.
- Please plug in and then remove the plug for 2 - 3 times. This is to ensure that the plug is completely plugged into the socket.
- Keep additional length for the power cord and do not render the plug under external force as this may cause poor contact.
- Do not fix the power cord with U-shape nail.