

FOR SERVICE PERSONNEL ONLY

HITACHI HITACHI SPLIT-UNIT AIR CONDITIONER INSTALLATION MANUAL

Indoor Unit / Outdoor Unit

- RAK-18PED/RAC-18WED RAK-25PEDC/RAC-25WED
RAK-25PED/RAC-25WED RAK-35PEDC/RAC-35WED
RAK-35PED/RAC-35WED RAK-50PEDC/RAC-50WED
RAK-50PED/RAC-50WED

SAFETY PRECAUTION

- This appliance is filled with R32. Read the safety precautions carefully before operating the unit. The contents of this section are vital to ensure safety. Please pay special attention to the following sign.
WARNING Incorrect methods of installation may cause death or serious injury.
CAUTION Improper installation may result in serious consequence.
Make sure to connect earth line.
This sign in the figures indicates prohibition.

WARNING

- Please request your sales agent or qualified technician to install your unit. Water leakage, short circuit or fire may occur if you do the installation work yourself. Please observe the installation stated in the installation manual during the process of installation.
Make sure that the units are mounted at locations which are able to provide full support to the weight of the units.
Observe the rules and regulations of the electrical installation and the methods described in the installation manual when dealing with the electrical work.

CAUTION

- A circuit breaker must be installed in the house distribution box for the direct connected power supply cables to the outdoor unit. Do not install the unit near a location where there is flammable gas. Please ensure smooth flow of water when installing the drain hose.

THE CHOICE OF MOUNTING SITE (Please note the following matters and obtain permission from customer before installation.)

WARNING

- The unit should be mounted at stable, non-vibratory location which can provide full support to the unit.

CAUTION

- No nearby heat source and no obstruction near the air outlet is allowed. The clearance distances from top, right and left are specified in figure below. The location must be convenient for water drainage and pipe connection with the Outdoor unit.

WARNING

- The Outdoor unit must be mounted at a location which can support heavy weight. Otherwise, noise and vibration will increase.

CAUTION

- Selecting the installation location: Suitable location that will reduce the impact from rain and direct sun that may affect the unit performance. Besides, ventilation must be good and clear of obstruction. The air blown out of the unit should not point directly to animals or plants.

INDOOR UNIT

OUTDOOR UNIT

Names of Indoor Components

Table with 3 columns: No., Item, Qty. Lists components like Hanger, Screw for Hanger, AAA size Battery, Remote Controller, Insulation sheet, Drain Pipe, Bush, Binding band.

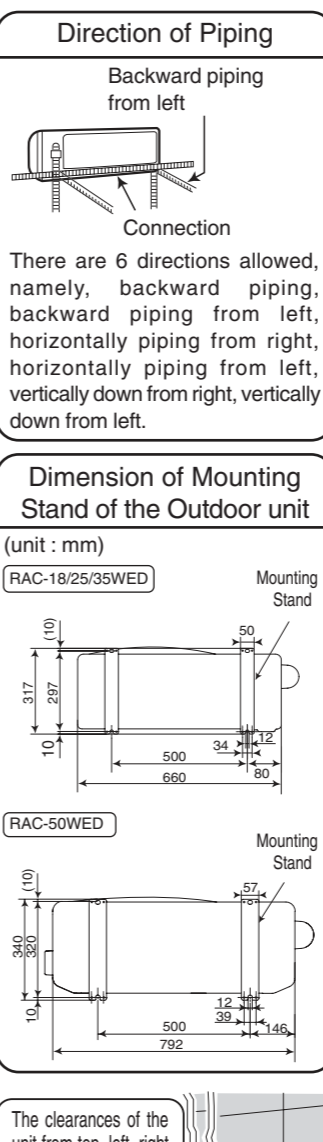
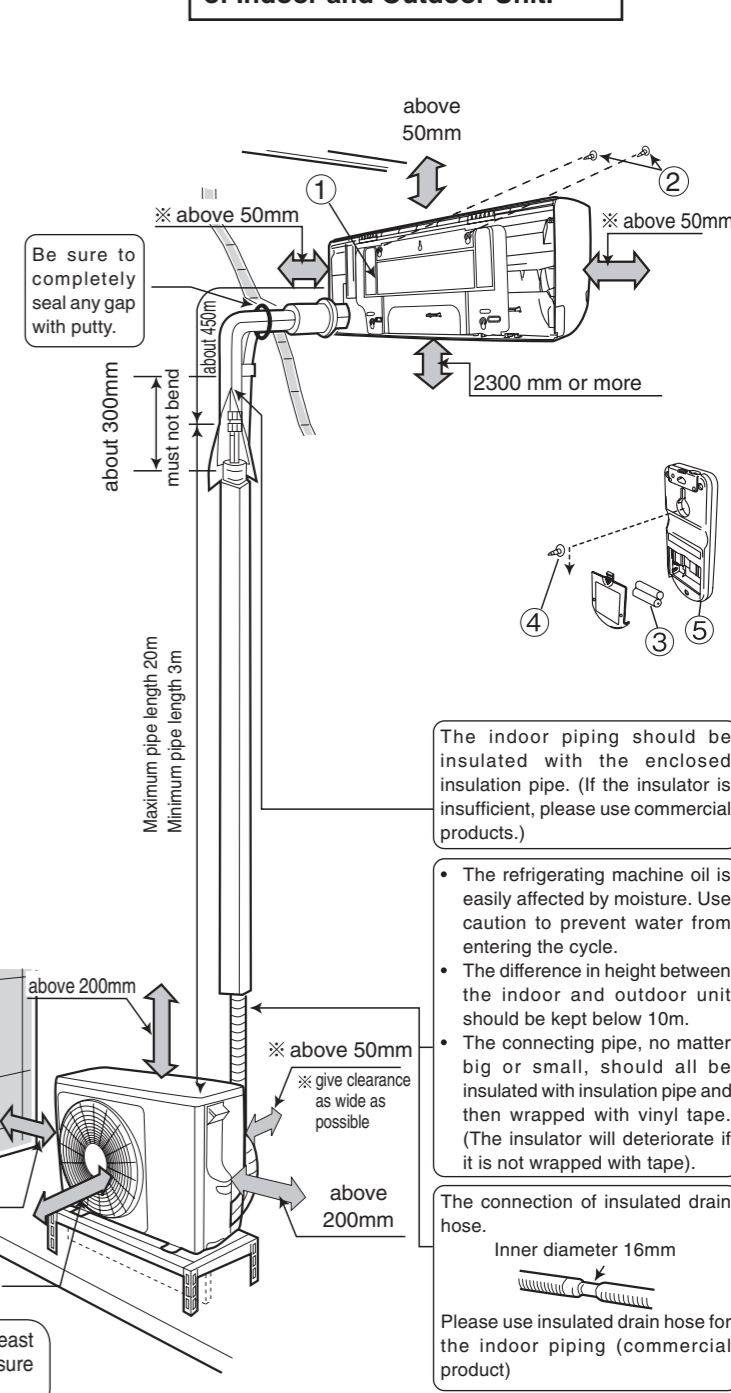


Figure showing the Installation of Indoor and Outdoor Unit.



INDOOR UNIT

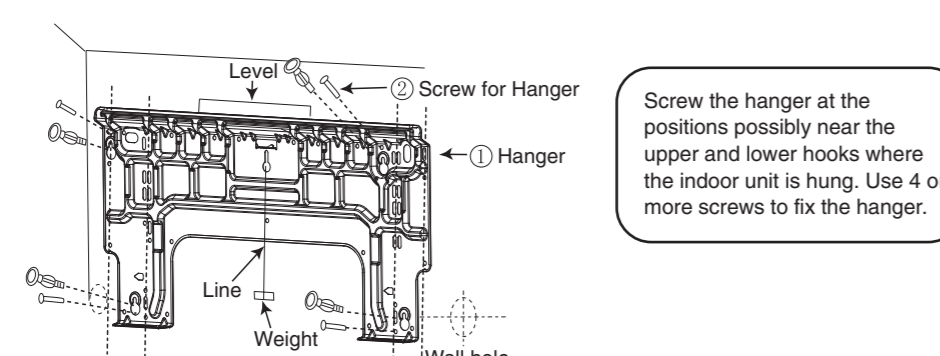
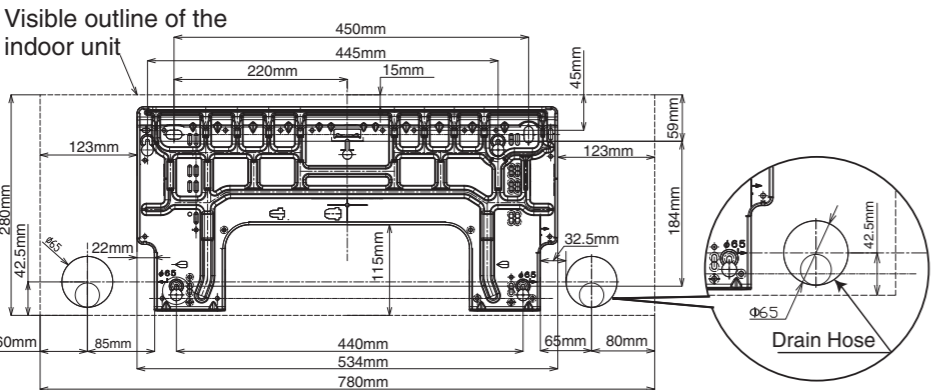
1 Installation of Hanger, Wall Penetration and Installation of Protection Pipe

CAUTION

- The draining of the water container inside the Indoor unit can be done from the left. Therefore the hanger must be fixed horizontally or slightly tilted towards the side of drain hose.

Direct Mounting On The Wall

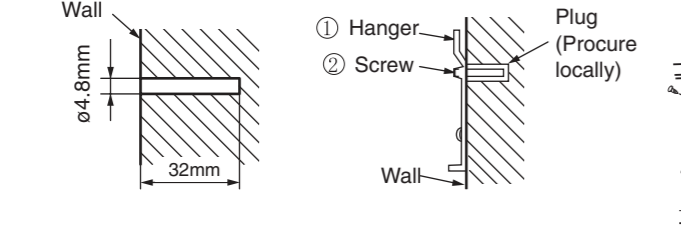
- Please use hidden beams in the wall to hold the hanger. Visible outline of the indoor unit.



Procedures of Installation and Precautions

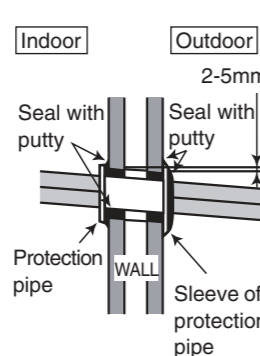
- Procedures to fix the hanger.

- 1. Drill holes on wall. 2. Push plug into the holes. 3. Fix the hanger on wall with 4.1 x 32 screw.



Wall Penetration and Installation of Protection Pipe

- Drill a 65mm hole on wall which is slightly tilted towards the outdoor side. Cut the protection pipe according to the wall thickness. Empty gap in the sleeve of protection pipe should be completely sealed with putty.



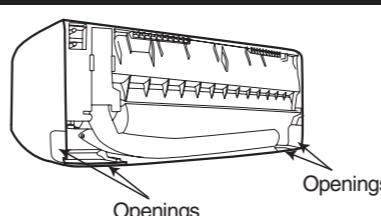
WARNING

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

2 Installation Of The Indoor Unit

Cutting Low Cover bush

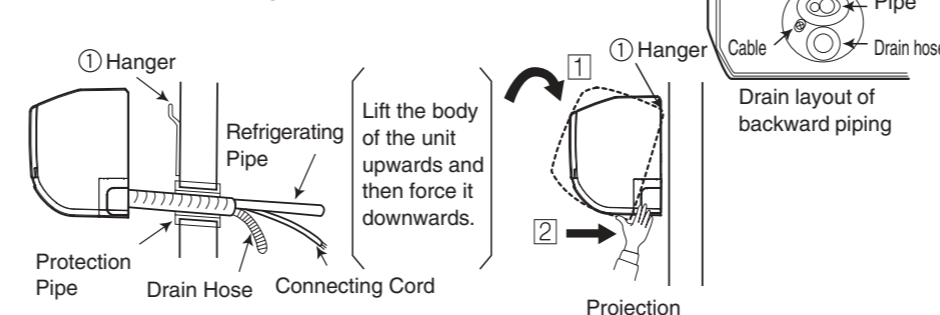
- While installing the pipe from the right, left or bottom side, use a knife to cut openings as shown in figure. Then smoothen the edges of openings with a file.



1 PIPING FROM THE RIGHT SIDE (BACKWARD, DOWNWARD, HORIZONTAL)

- Preparation: Connect connecting cord. Pull out the pipe, connecting cord and drain hose. Installation: Insert the pipe through the wall hole.

- The upper part of the Indoor unit is hanged on the hanger. The projection at the lower part of the Indoor unit is hooked onto the hanger.



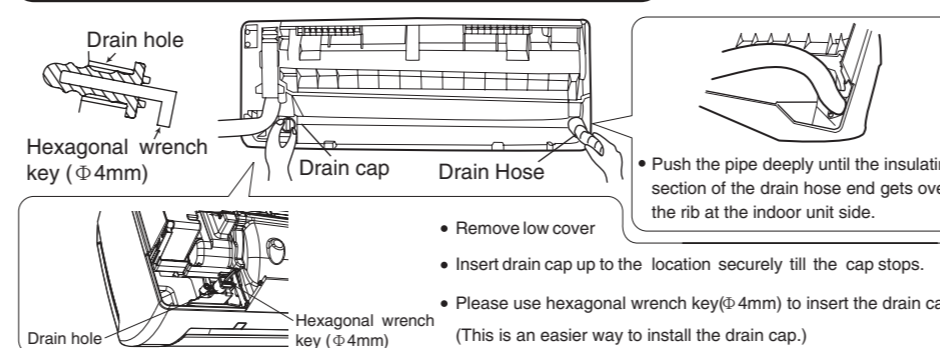
2 PIPING FROM THE LEFT SIDE (BACKWARD, DOWNWARD, HORIZONTAL)

- Preparation: Changed of Drain Hose and Installation Procedures. Exchange the location of drain hose and drain cap while installing the pipe from the left side as shown in below.

- Please use pliers to pull out the drain cap. (This is an easier way to remove the drain cap.)

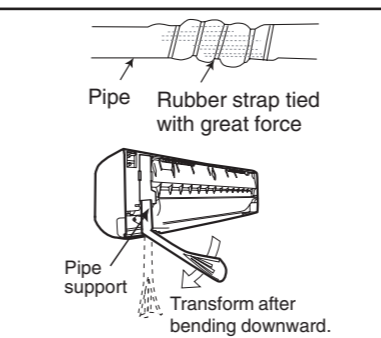
CAUTION

Insufficient insert may result in water leakage.



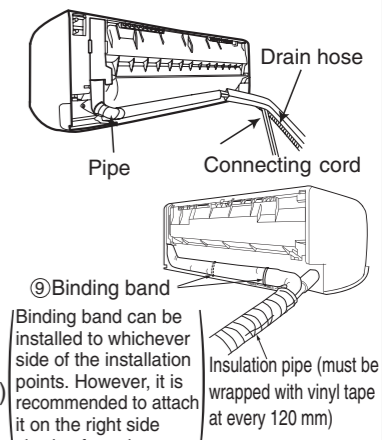
CAUTION

- The rubber strap used for fixing the insulator should not be tied with great force. Please pull the lower part of the Indoor unit outwards to check if the unit is hooked onto the hanger.



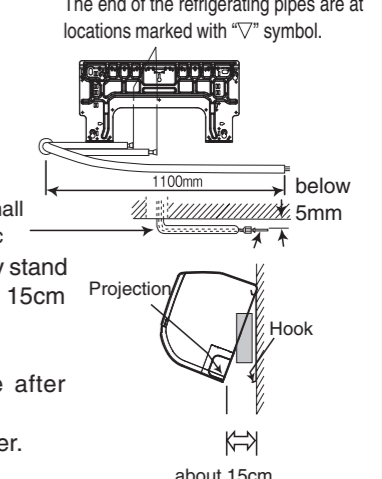
INSTALLATION AFTER CONNECTION OF REFRIGERATING PIPES

- The refrigerating pipe should be adjusted to fit into the hole on the wall and then ready for further connection. The terminals of 2 connected pipes must be covered with insulator used for terminal connection.



THE CONNECTION OF REFRIGERATING PIPE DURING THE INSTALLATION OF INDOOR UNIT

- Preparation To Install Refrigerating Pipes: The refrigerating pipes and connecting cord transform and are attached.

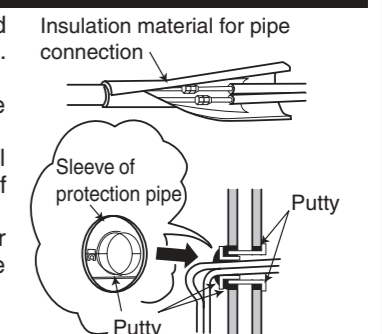


Installation

- Hang the indoor unit onto the hanger. Use the temporary stand at the back of the Indoor unit to push its lower part 15cm forwards. Place the drain hose through the hole on the wall.

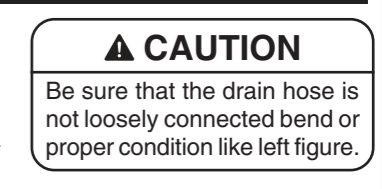
3 Heat Insulation and Finish of the Piping

- The connected terminals should be completely sealed with heat insulator and then tied up with rubber strap. Do not tie the terminals with the tape too tight. Please tie the pipe and power line together with vinyl tape.



4 Installation of Drain Hose

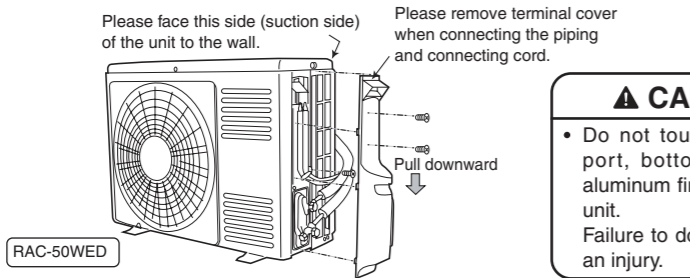
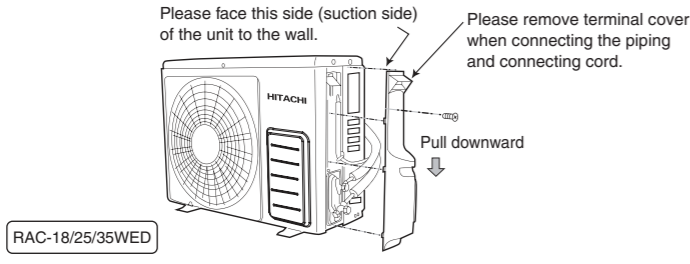
- Be sure that the drain hose is not loosely connected bend or proper condition like left figure.





OUTDOOR UNIT

- Please mount the Outdoor unit of stable ground to prevent vibration and increase of noise level.
- Decide the location for piping after sorting out the different types of pipe available.
- When removing side cover, please pull the handle after undoing the hook by pulling it downward. Reinstall the side cover in the reverse order of the removal.

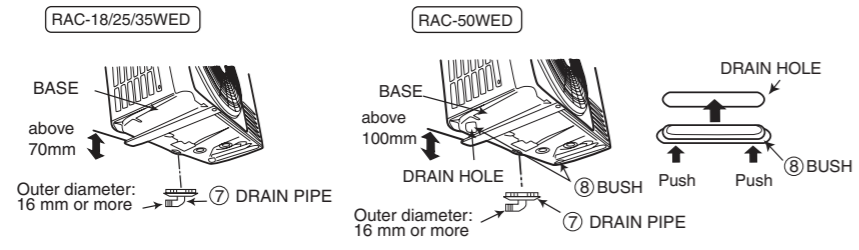


CAUTION

- Do not touch the suction port, bottom surface, or aluminum fin of the outdoor unit. Failure to do so may cause an injury.

CONDENSED WATER DISPOSAL OF OUTDOOR UNIT

- There is 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.
- After installation, check whether the drain pipe clings to the base firmly.



- Install the outdoor unit horizontally and make sure that condensate drains away.
- In case of using in chilly area Especially, in case that there are many snows by very cold in chilly area, condensed water freezes on the base and may result not to drain. In this case, please remove the bush and the drain pipe at the bottom of unit. (Left and center near discharge portion of air, each 1 place). It becomes smooth drain. Ensure that the distance from the drain hole to the ground is 250 mm or more.

INSTALLATION OF REFRIGERATING PIPES AND AIR REMOVAL

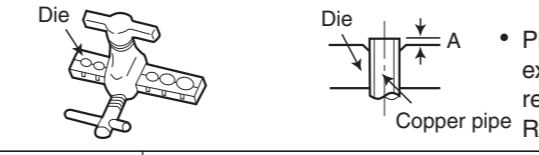
1 Preparation of Pipe

- Use a pipe cutter to cut the copper pipe and remove burr.



CAUTION

- Remove burr and 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.



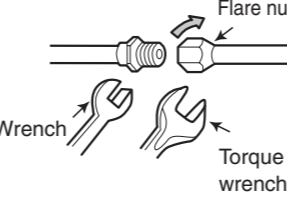
- Please use exclusive tool for refrigerant R410A, R32.

Outer Diameter (Ø)	A (mm) Rigid Flaring Tool	
	For R410A,R32 tool	For R22 tool
6.35 (1/4")	0 - 0.5	1.0
9.52 (3/8")	0 - 0.5	1.0
12.7 (1/2")	0 - 0.5	1.0

2 Pipe Connection

- 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. Free from water into the piping when working.
- Be sure to tighten the flare nut to the specified torque with a torque wrench. If the flare nut is overtightened, the nut may be split after a long period has passed, and may cause a refrigerant leak.

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



	Outer diameter of pipe (ø)	Torque N·m (kgf·cm)
Small diameter side	6.35 (1/4")	13.7-18.6 (140 - 190)
	9.52 (3/8")	34.3-44.1 (350 - 450)
	12.7 (1/2")	44.1-53.9 (450 - 550)
Large diameter side	6.35 (1/4")	19.6-24.5 (200 - 250)
	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 Remove of Air From The Pipe And Gas Leakage Inspection

Procedures of using Vacuum Pump for Air Removal

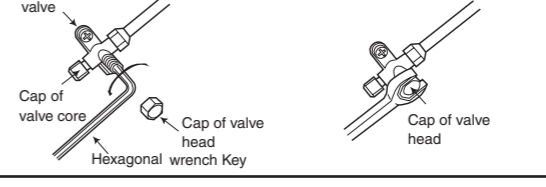
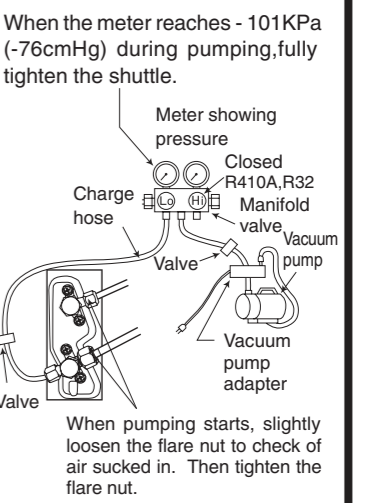
As shown in right figure, remove the cap of valve core. Then, connect the charge hose. Remove the cap of valve head. Connect the vacuum pump adapter to the vacuum pump and connect the charge hose to the adapter.

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

- Loosen the spindle of the service valve with small diameter by 1/4 turn and tighten the spindle immediately after 5 to 6 seconds.
- Remove the charging hose from the service valve.

Completely unscrew the spindle of the service valve (at 2 places) in anticlockwise direction to allow the flow of refrigerant (using Hexagonal Wrench key).

Tighten the cap of valve head. Check the cap's periphery if there is any gas leakage. The task is then completed.



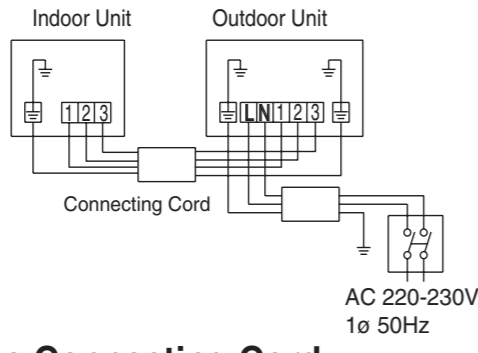
Gas leakage inspection

Please use gas leakage detector to check if leakage occurs at connection of Flare nut as shown on the right. If gas leakage occurs, further tighten the connection to stop leakage.

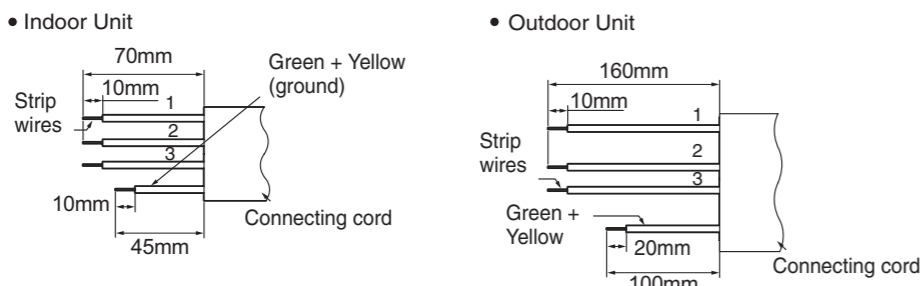
CONNECTION OF POWER CORD

WARNING THIS APPLIANCE MUST BE EARTHED.

Procedures of Wiring

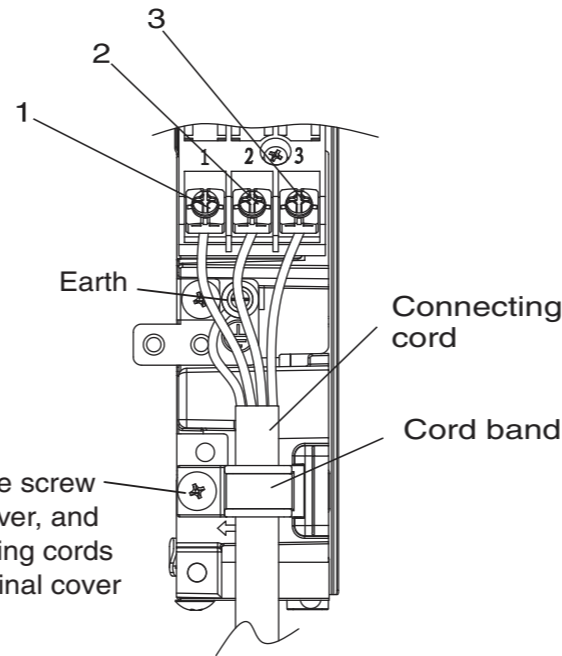


Detail of Cutting the Connecting Cord



Wiring of The Indoor Unit

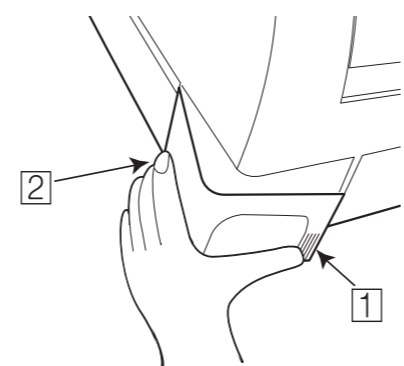
- For wire connection of the Indoor unit, you need to remove the front cover, the low cover under the body of the unit and terminal cover.
- Remove the cover from the terminal base and screw the cable.



After remove the screw and terminal cover, and put the connecting cords and fix the terminal cover with screw.

Method to remove the low cover

- Pull at the 1 and 2 in the directions as shown by arrows to remove the cover.



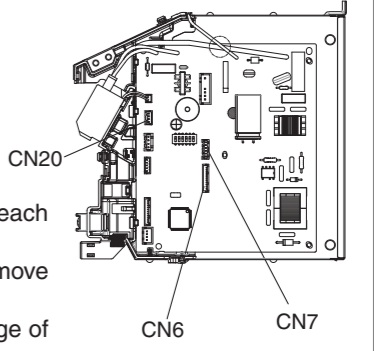
WARNING

- When the fuse (F5 or F6) has been blown out by the improper connection of power cable, it can be restored by exchanging the fuse (service part No HWRAC-50NX2 A52). Please exchange the blown-out fuse after making sure the right connection.

How to connect the optional parts

(WIFI Adapter, H-LINK RAC Adapter, Dry contact, Wired Remote Controller)

- For cable connection to control P.W.B., you need to remove front cover and electrical box cover. Each connecting location is as below.
 - 1 Dry contact: CN6
 - 2 WIFI Adapter or H-LINK RAC Adapter: CN7
 - 3 Wired Remote Controller: CN20
- Please check and confirm manuals attached to each optional parts for more connection details.
- You can refer to this installation manual how to remove and re-attach the front cover.
- Please be careful not to damage lead wires by edge of plate when connecting the optional parts.



Wiring of the Outdoor Unit

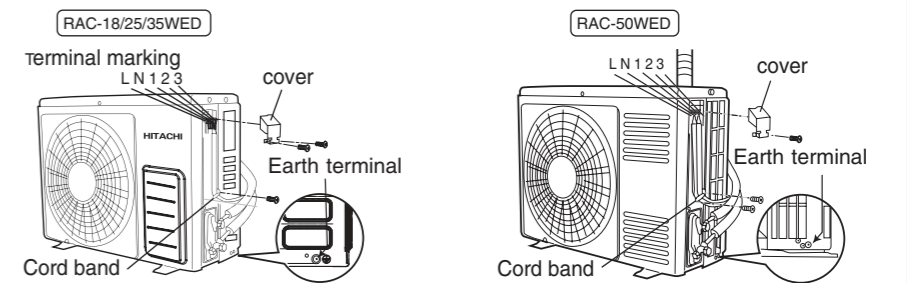
- Please remove the side cover for wire connection.

WARNING

- If you cannot attach the side plate due to the connection cord, please press the connecting cord in the direction to the front panel to fix it.
- Be sure that the hooks of the side cover 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 wiring capacity proper, use the wire gauge list below for the wiring from house distribution fuse box to the outdoor unit in consideration of the blocked rotor current.



- Investigate the power supply capacity and other electrical conditions at the installing 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 outdoor unit. In localities where electrical conditions are poor, use of a voltage regulation is recommended.
- Install outdoor for the room air conditioner within the reaching range of the line cord.

IMPORTANT

Fuse Capacity	
RAC-18/25/35WED	15A time delay fuse
RAC-50WED	25A time delay fuse

Wire length	Wire cross-section
up to 6m	1.5mm ²
up to 15m	2.5mm ²
up to 20m	4.0mm ²

FINAL STAGE OF INSTALLATION

Power Source And Operation Test

Power Source

WARNING

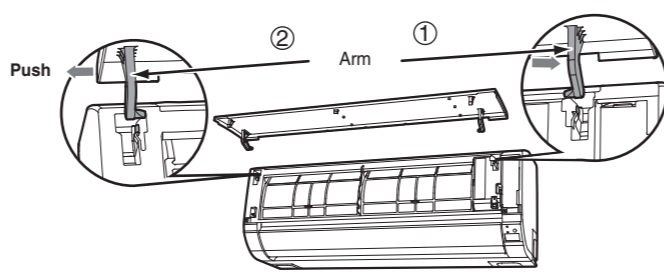
- Never remodel the power plug nor extend the long-distance cord.
- Keep additional length for the power cord and do not render the plug under external force as this may cause poor contact.
- Do not fix the power cord with U-shape nail.
- The power cable easily generates heat. Do not bring the cable together with a wire or vinyl tie.

Operation test

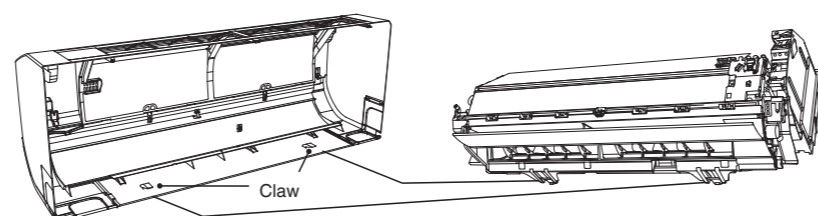
- Please ensure that the air conditioner is in normal operating condition during the operation test.
- Explain to your customer about the proper operation procedures as described in the operation manual.
- If the indoor unit won't operate, check the cable for correct connection.

How to remove the front cover

- 1 Remove the front panel

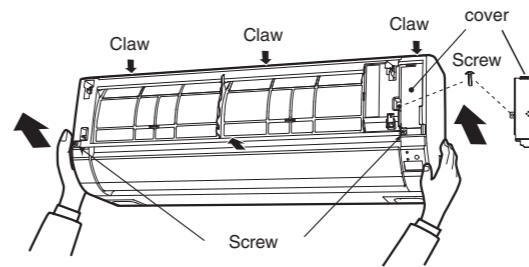


- 1 Push the end of the right-side arm outward to release the tab.
- 2 Move the left-side arm outward to release the left tab, and then pull the panel towards you.
- 2 Remove the filters.
- 3 After removing 3 screws, remove the cover of electric box, pull the center of the front cover towards you and release the claws.
- 4 Pull the side faces (lower sections) of the front cover towards you as shown in the figure and remove the cover.



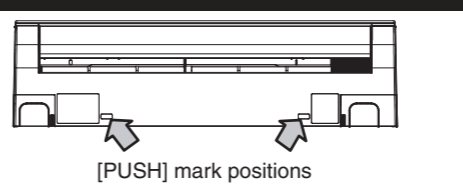
How to Attach the Front Cover

- 1 After installing the front cover onto the unit, hook three claws at upper side of the cover securely. Then, push the center of the front cover to lock the claws.
- 2 Assemble the cover of electric box.
- 3 Tighten the 3 screws.
- 4 Install the filter.
- 5 Attaching the Front Panel
 - Insert the shaft of the left arm along the step on the unit into the hole.
 - Securely insert the shaft of the right arm along the step on the unit into the hole.
 - Make sure that the front panel is securely attached, and then close the front panel.



HOW TO REMOVE INDOOR UNIT

- Push up the [PUSH] sections at the bottom of the indoor unit and pull the bottom plate towards you. Then the claws are released from the stationary plate. (The [PUSH] sections are indicated by 2 arrows in the right figure)



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