

HITACHI HITACHI SPLIT UNIT AIR CONDITIONER INSTALLATION MANUAL

INDOOR UNIT / OUTDOOR UNIT
Tools Needed For Installation Work
WARNING: Incorrect methods of installation may cause death or serious injury.

SAFETY PRECAUTION

Read the safety precautions carefully before operating the unit. This appliance is filled with R32.
The contents of this section are vital to ensure safety. Please pay special attention to the following sign.

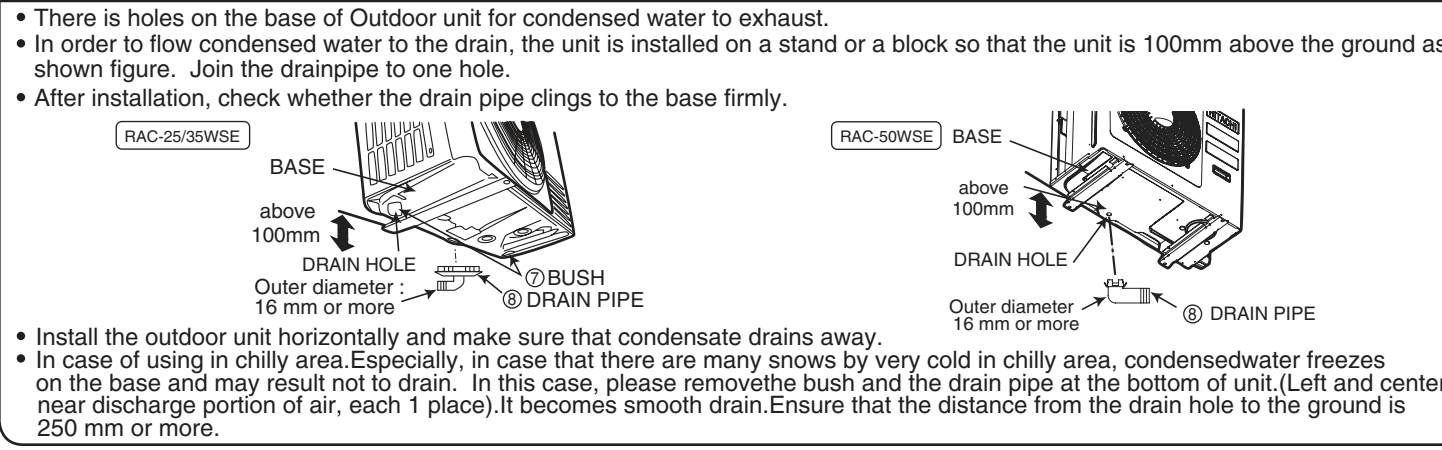
WARNING

- 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. Improper installation may cause water leakage, electric shock and fire.

CAUTION

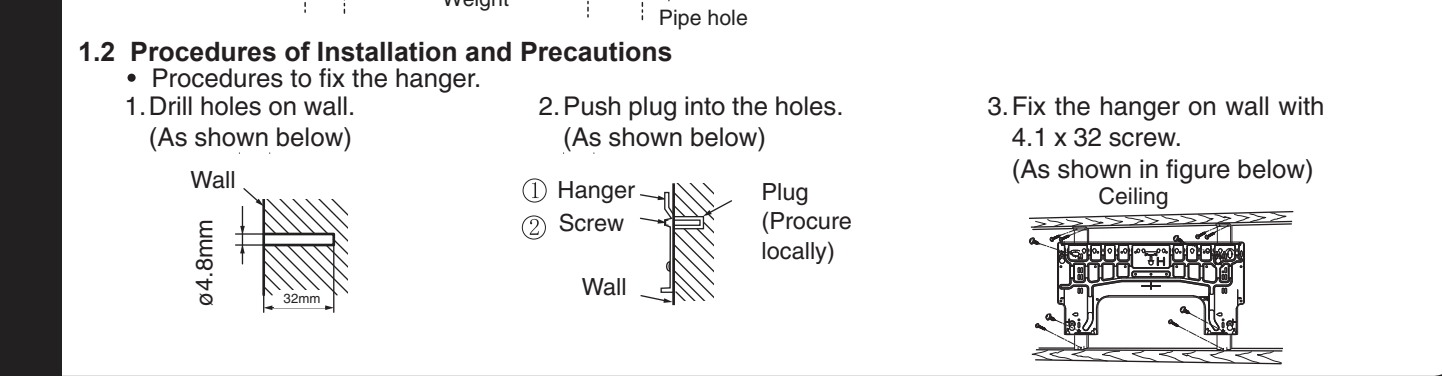
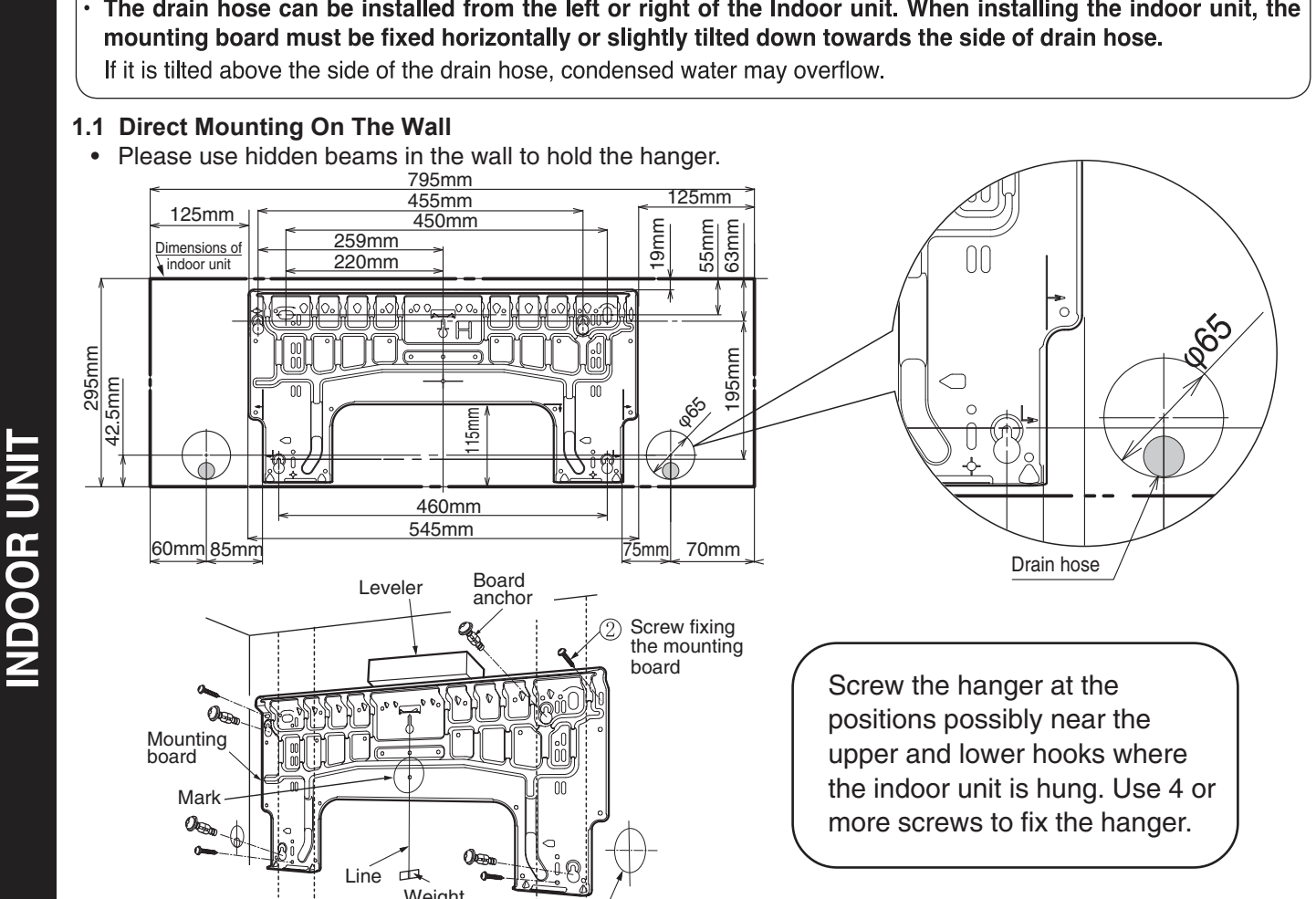
- A circuit breaker must be installed in the house distribution box for the direct connected power supply cables to the outdoor unit. In case of other installations a main switch with a contact gap of more than 3mm has to be installed.

CONDENSED WATER DISPOSAL OF OUTDOOR UNIT



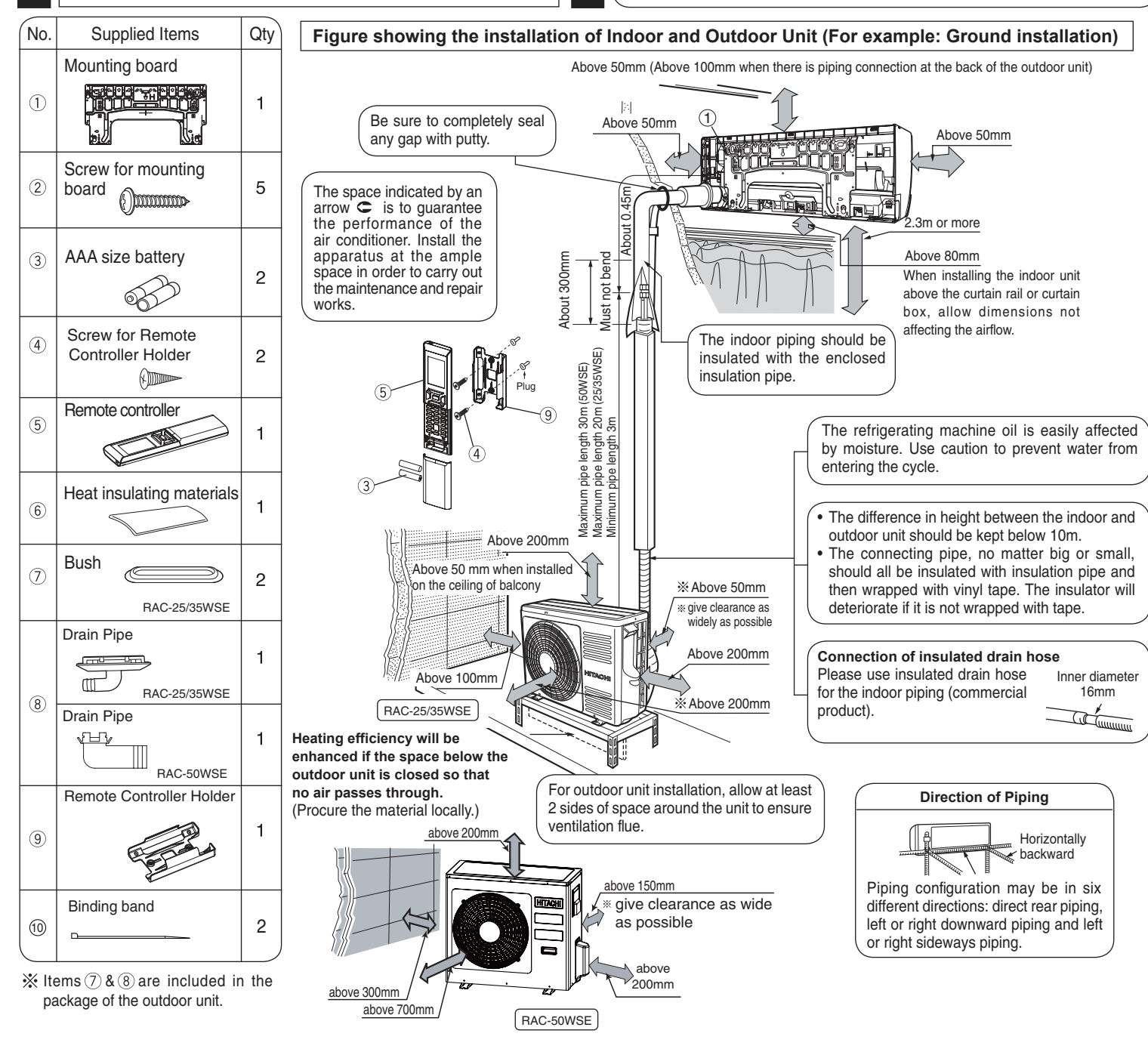
1. Installation of Mounting Board, Wall Penetration and Installation of Protection Pipe

CAUTION
The drain hose can be installed from the left or right of the Indoor unit. When installing the indoor unit, the mounting board must be fixed horizontally or slightly tilted down towards the side of drain hose.



THE CHOICE OF MOUNTING SITE

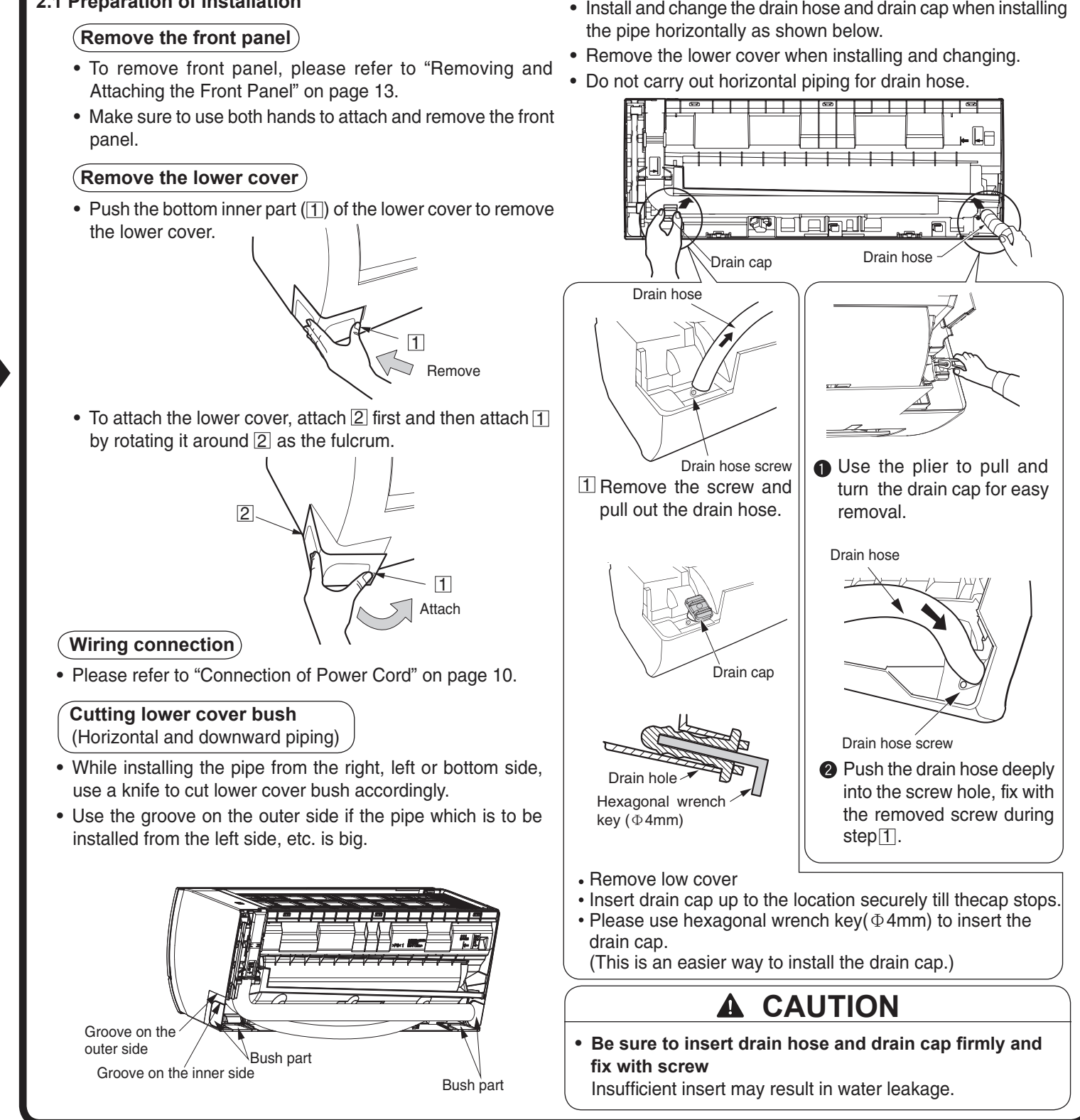
- WARNING
The unit should be mounted at stable, non-vibratory location which can provide full support to the unit.
CAUTION
No nearby heat source and no obstruction near the air outlet is allowed.



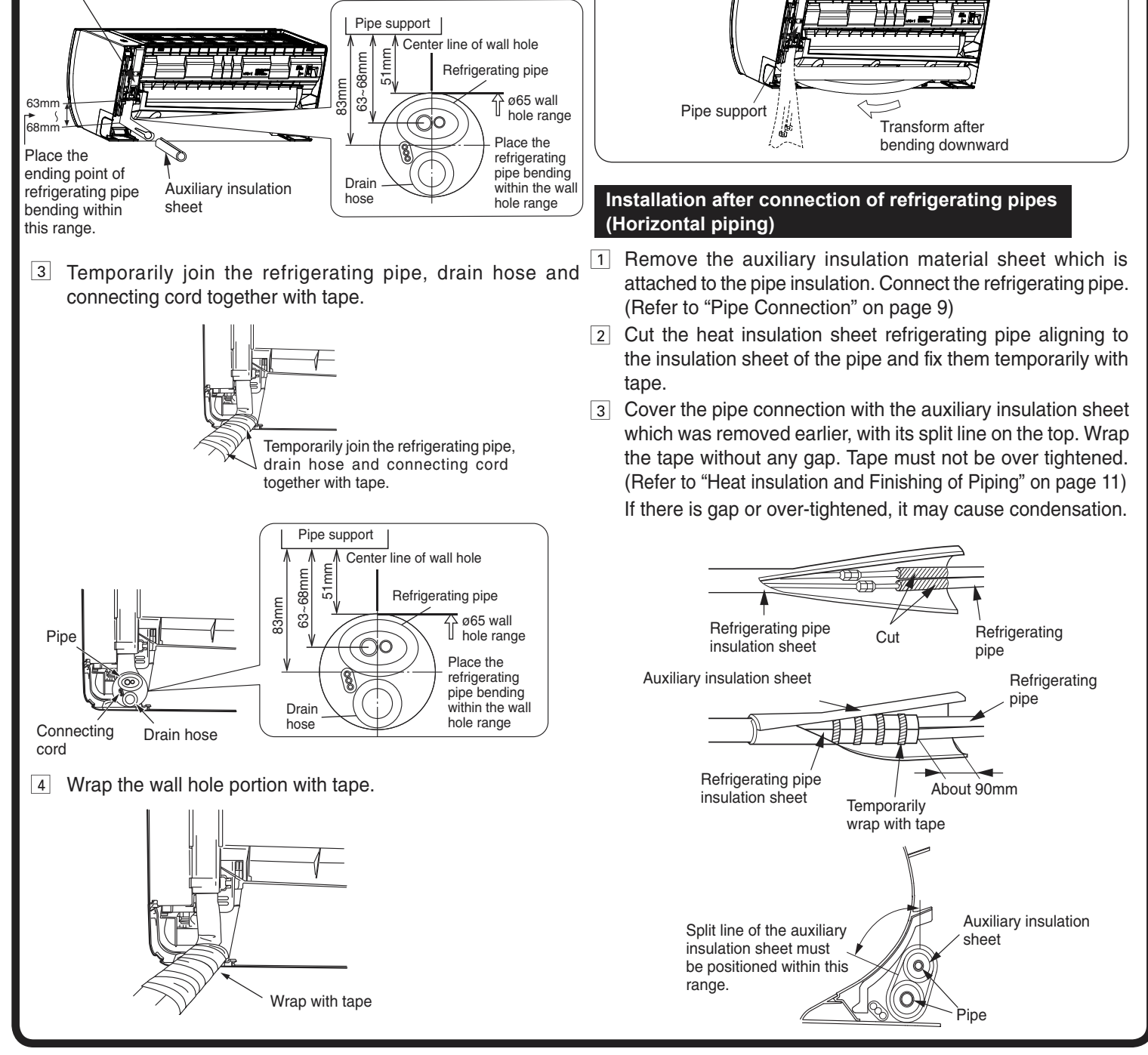
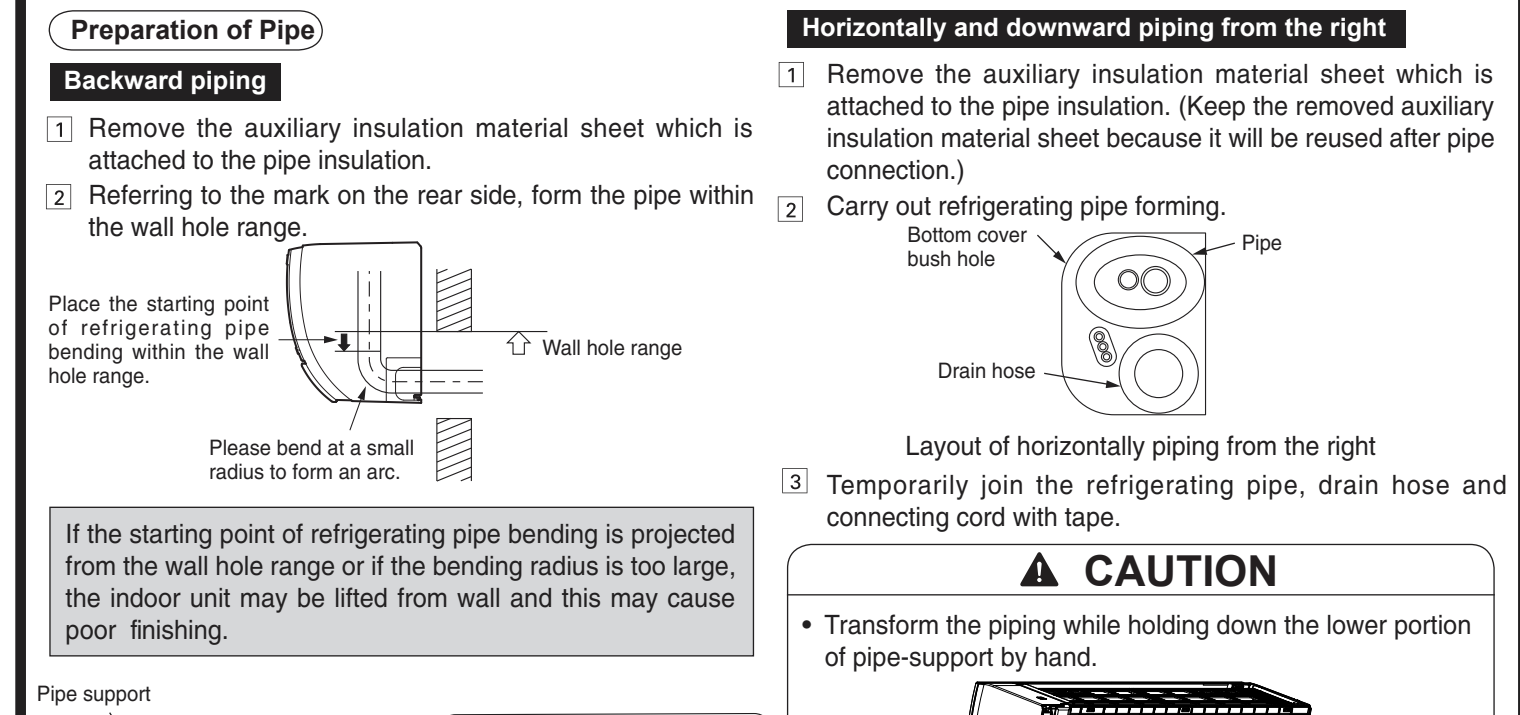
1.3 Wall Penetration and Installation of Protection Pipe

- WARNING
Protection pipe (commercial product) must be used. Be sure that the wire is not in contact with any metal in the wall.
CAUTION
Protection pipe (commercial product) must be used. Be sure that the wire is not in contact with any metal in the wall.

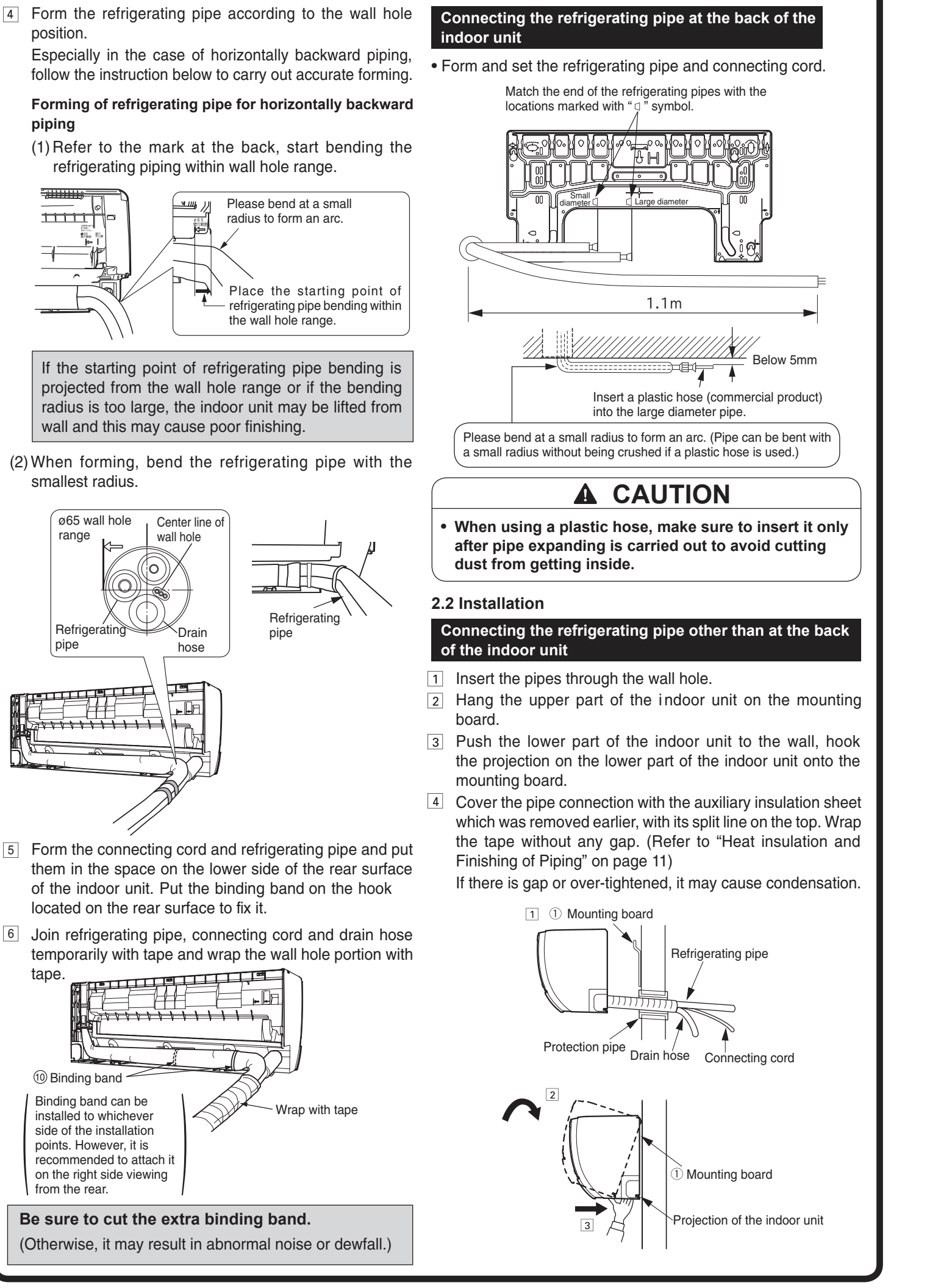
2. Installation of the Indoor Unit



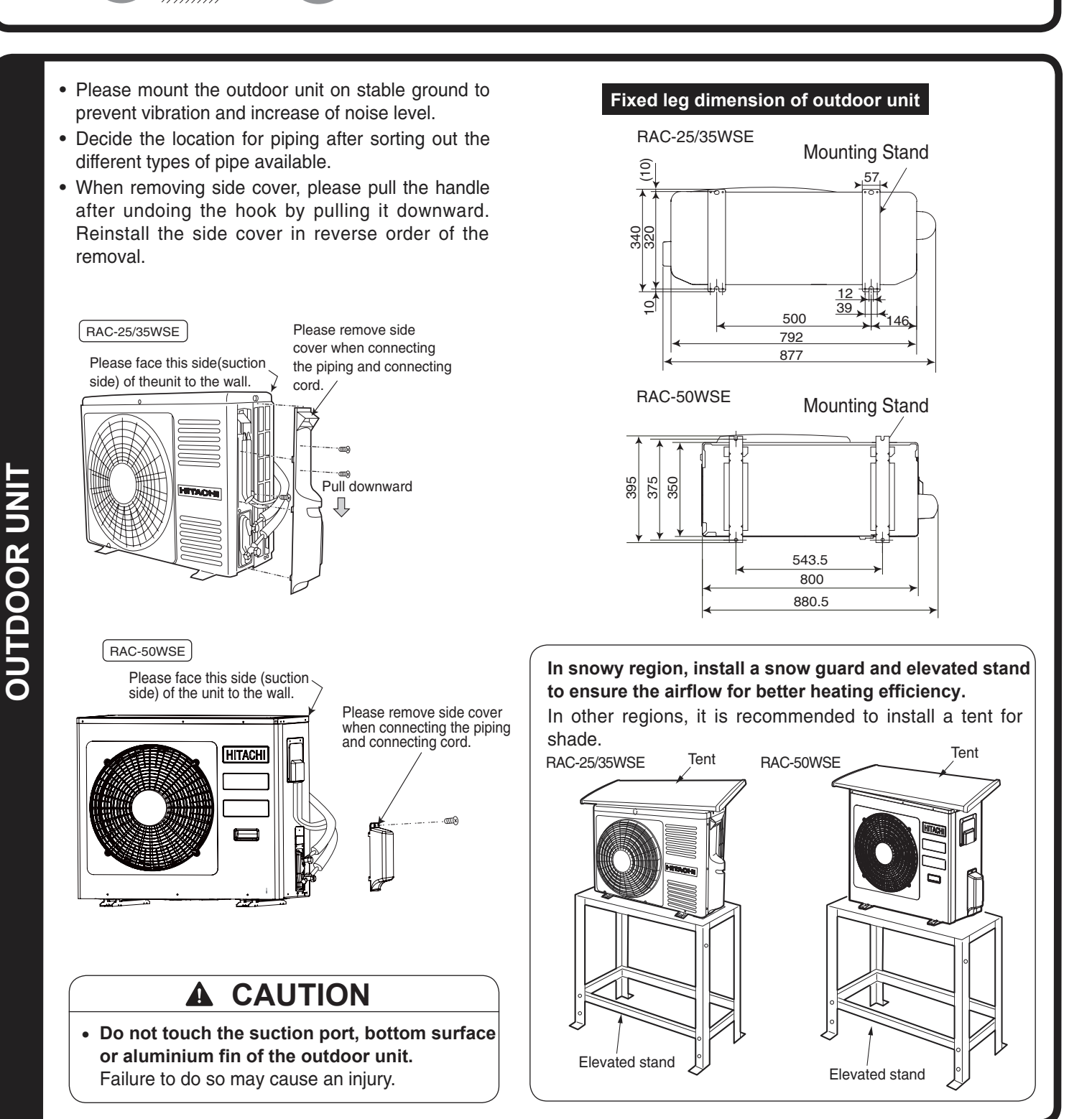
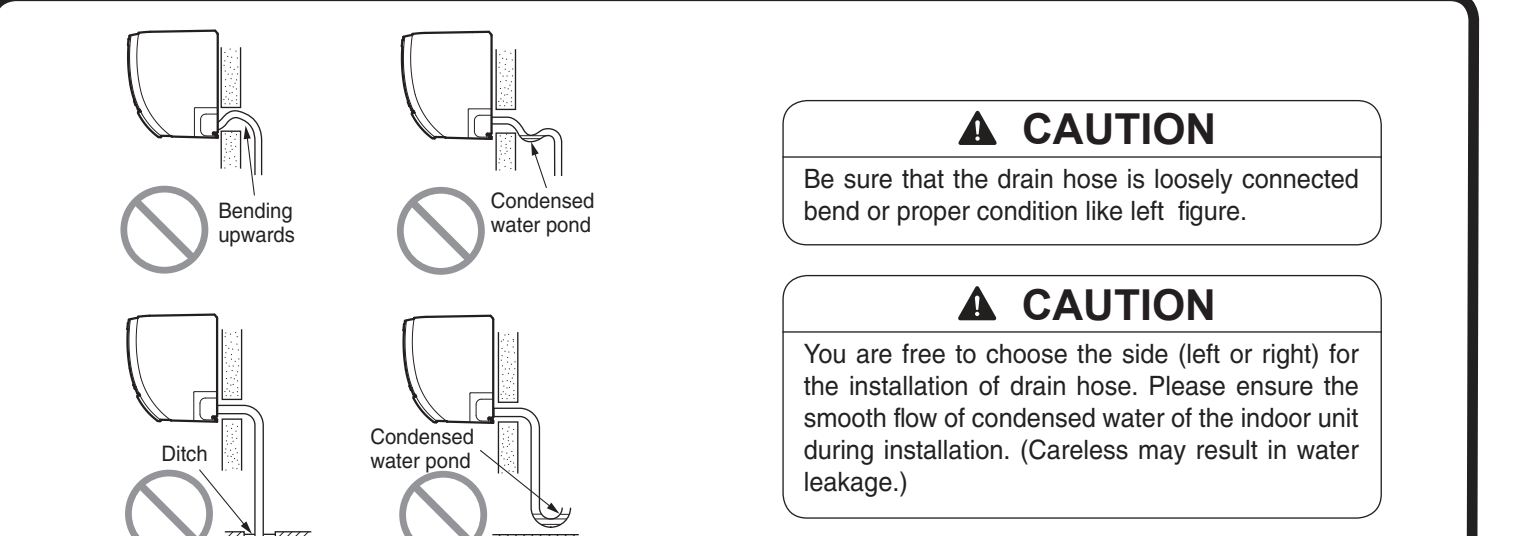
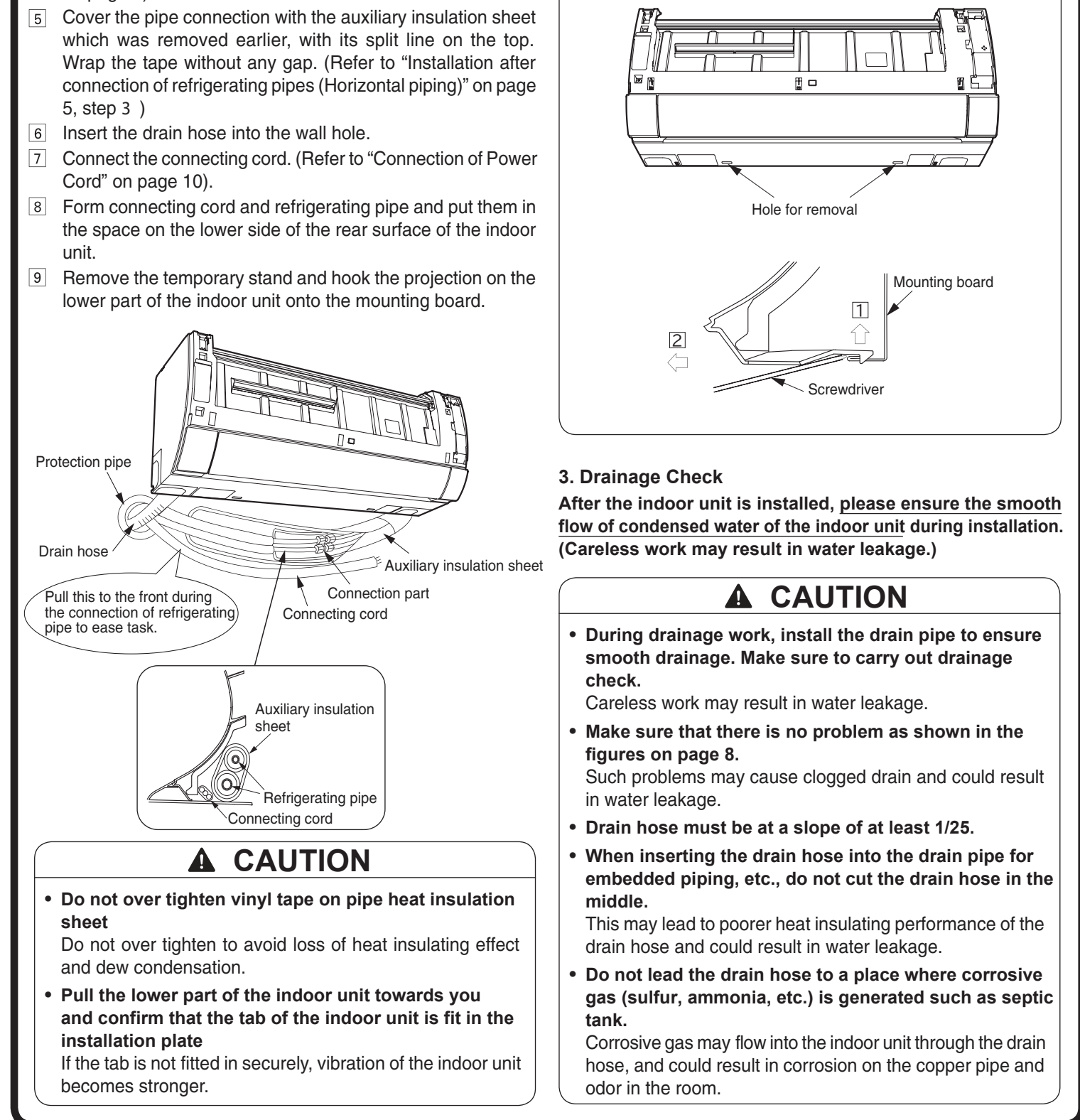
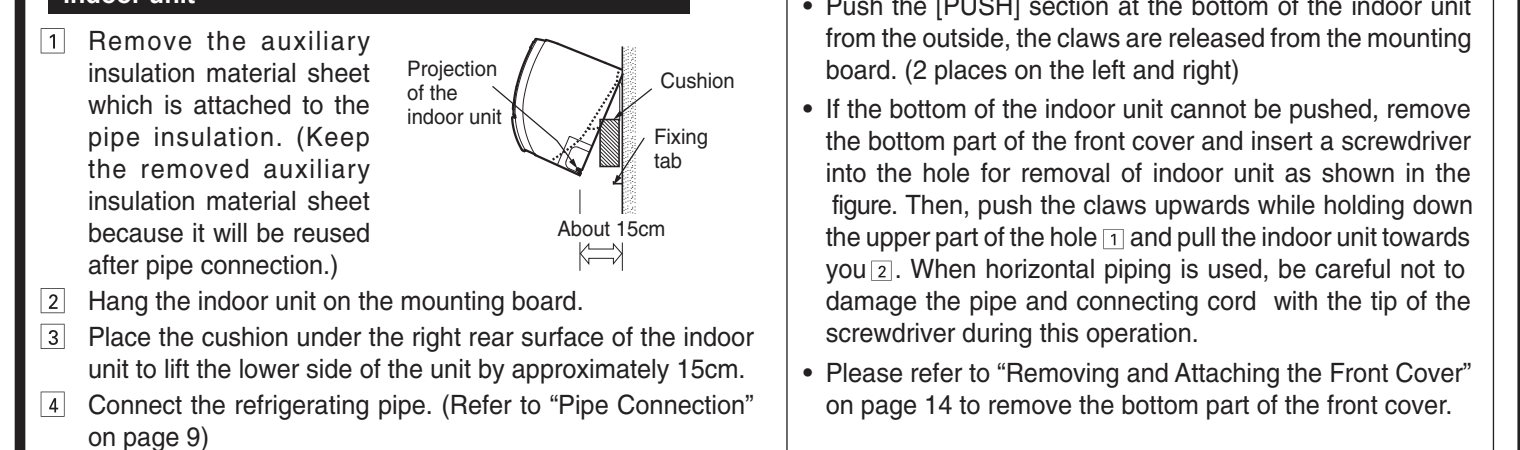
Preparation of Pipe



Connecting the refrigerating pipe at the back of the indoor unit

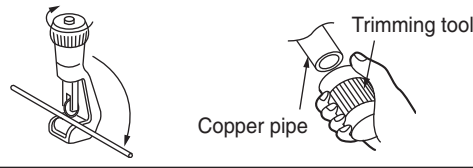


Connecting the refrigerating pipe at the back of the outdoor unit



1. Pipe Cutting and Flaring

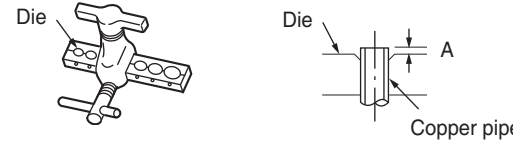
- Use a pipe cutter to cut the pipe and remove burr.



CAUTION

- Remove burr. If burr is not removed, it may 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.



CAUTION

※ 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

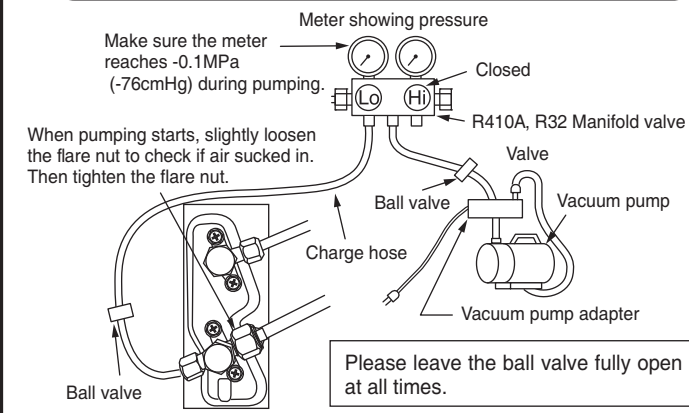
CAUTION

- When removing flare nut of the indoor unit, first remove the nut of small diameter side. Otherwise the nut of big diameter side will fly out.
- Prevent water from entering into the piping when connecting.
- Be sure to tighten the flare nut to the specified torque with a torque wrench.
- If the flare nut is over-tightened, it may split after sometime and may cause refrigerant leak.
- When using a control valve, make sure that the packing is not deteriorated and avoid excessive tightening of the handle. Otherwise, gas may leak from the service valve.

3. Remove of Air from the Pipe and Gas Leakage Inspection

From the viewpoint of global environment protection, air purge type should be vacuum pump method.

- Fully tighten the "H" shuttle of the manifold valve and completely unscrew the "Lo" shuttle. Run the vacuum pump. (Adapter is switched on)
- After pumping for about 10-15 minutes, completely loosen the "Lo" shuttle and switch off the vacuum pump. (Adapter is switched off)



- Remove the valve head cap of the service valve.
- Remove the cap of valve core and connect the charge hose.
- Connect the vacuum pump adapter to the vacuum pump and connect the charge hose to the adapter.
- 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.

- Unscrew the spindle of both the service valves in anticlockwise direction to allow the flow of refrigerant (unscrew halfway).
- Tighten the cap of valve head. Check and make sure that there is no gas leakage.

Check and make sure that there is no gas leakage.

Gas Leakage Inspection

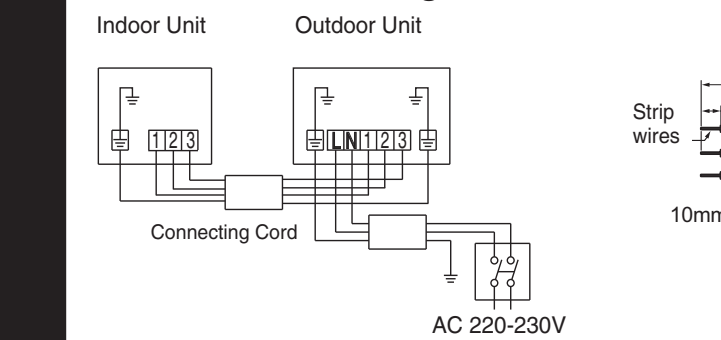
Please use gas leakage detector to check if leakage occurs at connection of Flare nut as shown on the right.

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

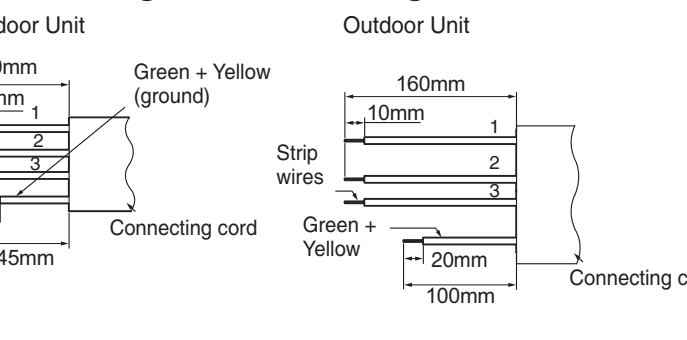
Works to be done when transferring or removing air conditioner

- From the viewpoint of global environment protection, refrigerant should be recovered (pumped down) when the air conditioner is transferred or removed.
- Perform force-cooling operation (refer to "Force-cooling operation" on page 12) for about 5 minutes as a preliminary operation.
- Tighten the spindle of the service valve at small diameter side in clockwise direction.
- Continue the force-cooling operation for another 1-2 minutes, and then tighten the spindle of the service valve at large diameter side in clockwise direction.
- Stop the force-cooling operation.

Procedures of Wiring



Detail of Cutting the Connecting Cord

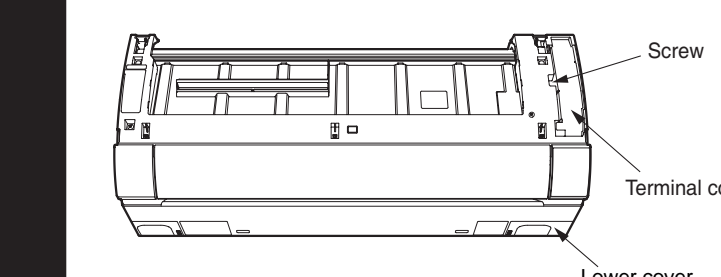


WARNING

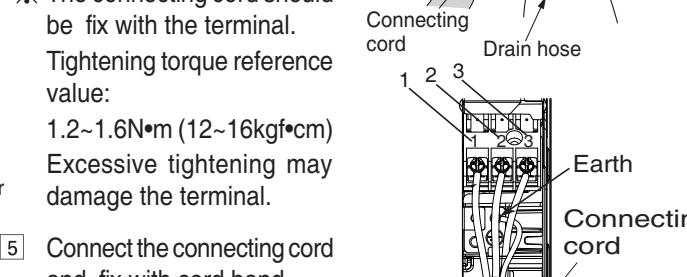
- If the supply cord is damaged, it must be replaced by a special cord (Maker's service parts) available from the manufacturer or its service agent.
- The naked part of the wire core should be 10mm fit it to the terminal tightly. Then try to pull the individual wire to check if the contact is tight. Improper insertion may burn the terminal.
- Be sure to use only wire specified for the use of air-conditioner.
- Be sure to use only power cables approved from the authorities in your country. For example in Germany: Cable type: NYM 3x1.5mm². (Fuse = 25A time delay)
- Please refer to the manual for wire connection, the wiring technique should meet the standard of the electrical installation.
- Leave some space in the connecting cord for maintenance purpose and be sure to secure it with the cord band.
- Secure the connecting cord along the coated part of the wire using the cord band. Do not exert pressure on the wire as this may cause overheating or fire.
- There is a AC voltage of 220-230V between the L and N terminals. Therefore, before servicing, be sure to remove the plug from the AC outlet.

Wiring of the Indoor Unit

- Remove the front panel. (Refer to "Removing and Attaching the Front Panel" on page 13)
- Remove the terminal cover and screw, hold the upper part when removing.



- Bring the connecting cord from the rear surface to the front surface through the cable guide.
- The connecting cord should be fix with the terminal. Tightening torque reference value: 1.2-1.6Nm (12-16kgfcm)
- Excessive tightening may damage the terminal.
- Connect the connecting cord and fix with cord band.
- Hook onto the claw at the lower part of the terminal cover and fix with screw.



- Remove the lower cover.

Remove the lower cover.

Hook onto the claw at the lower part of the terminal cover and fix with screw.

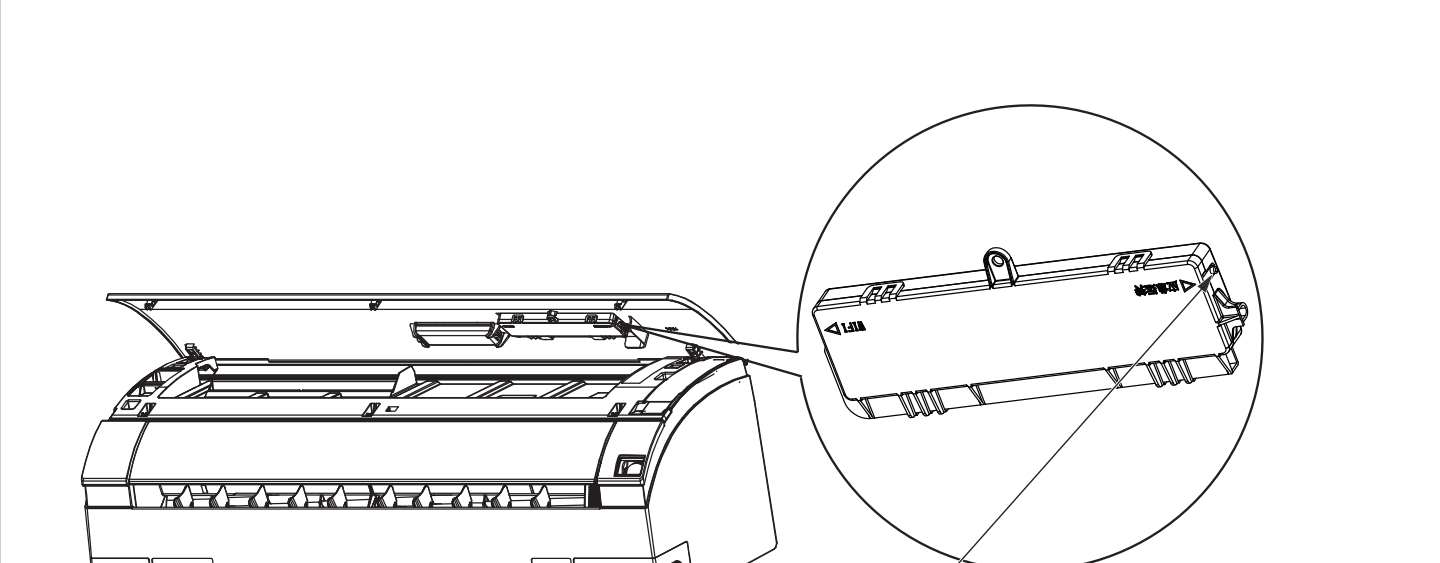
3. Operation Test

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.

Force-cooling operation

- When the temporary switch of the indoor unit is pressed for more than 5 seconds, the force-cooling operation starts. Use this mode when performing the failure diagnosis or collecting refrigerant into the outdoor unit.
- The Timer lamp flashes when force-cooling is in operation.
- Press the temporary switch again or use the remote controller to stop the force-cooling operation once this operation is completed.



Force-cooling operation starts when the switch is pressed for more than 5 seconds. Press the switch again and use the remote controller to stop the operation.

CAUTION

- Do not operate the unit for more than 5 minutes while the spindle of the service valve is closed.

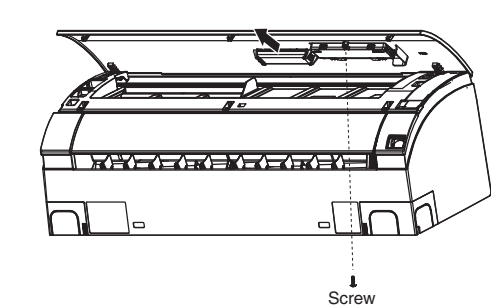
Removing and Attaching the Front Panel

- Be sure to hold the front panel with both hands to detach and attach it.

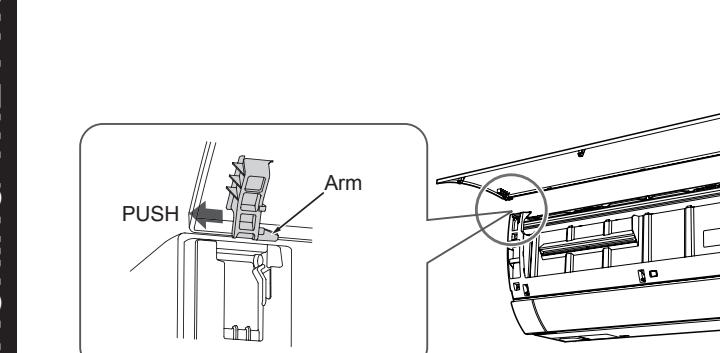
Please refer to the operation manual on how to open and close the front panel.

Removing

- After removing 1 screw with a short screw driver(L100,TYPE-PH2x38), remove the Temperature Display box(Please remove it toward the direction as illustrated if the WIFI adapter is installed).

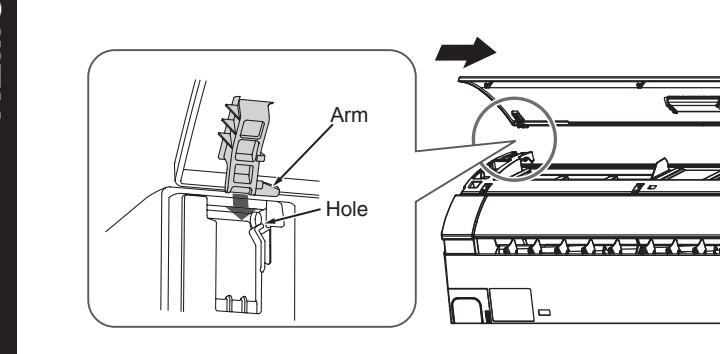


- Push the end of the right-side arm outward to release the tab.
- Move the left-side arm outward to release the left tab, and then pull the panel towards you.



Attaching

- 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.
- Attach the temperature display box and WIFI adapter.

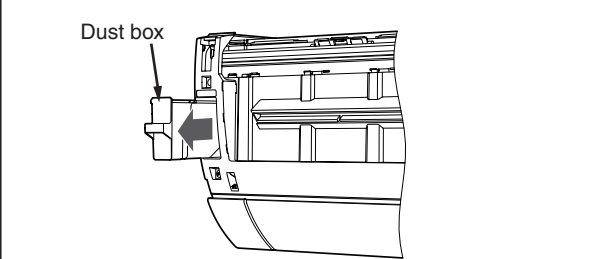


CAUTION

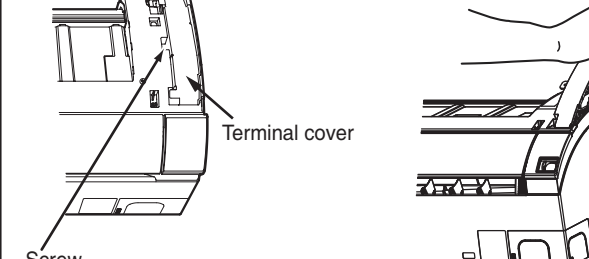
- When being installed or removed, the panel is likely to slide off.
- When lifting to open the panel, do not apply too much force. Otherwise, the panel may come off or malfunction may be caused.

How to remove the front cover

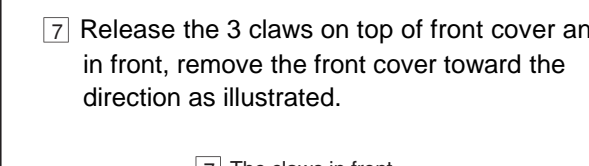
- Remove the front panel.
- Hold the handle and Pull the dust box to the front towards the direction as illustrated.



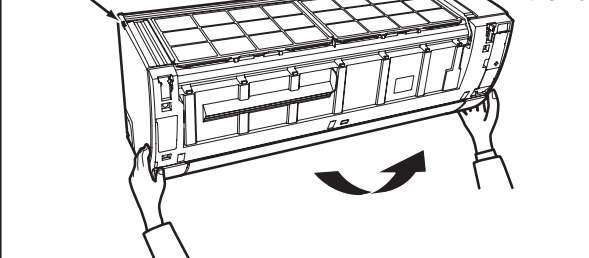
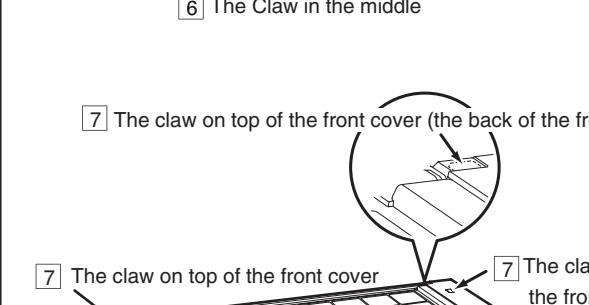
- Unscrew screw of the terminal cover, and remove it toward the direction as illustrated.



- Remove 2 screws.
- Open the horizontal deflector to the position where the front cover is easy to remove.
- Pull the center of the front cover towards you and release the claw in the middle.

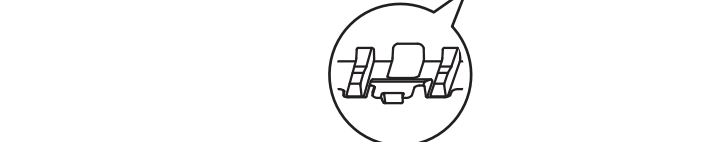
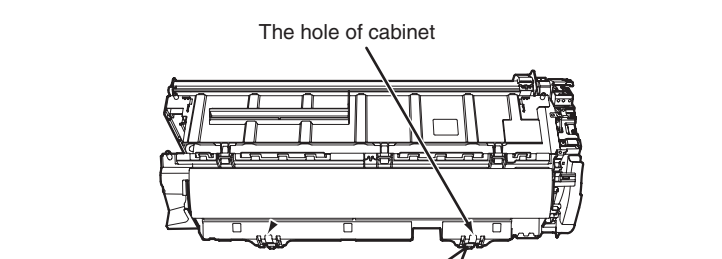
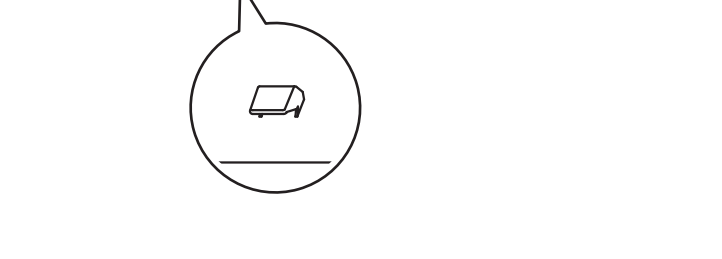
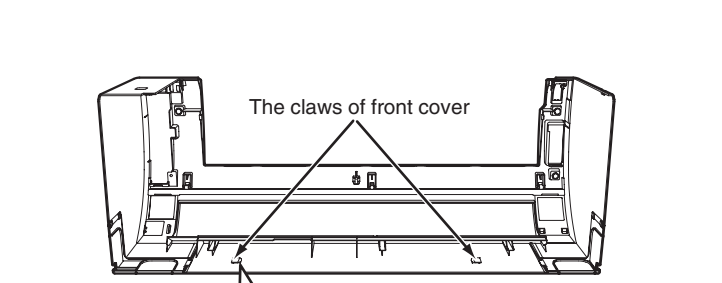


- The claws in front
- The claw on top of the front cover (the back of the front cover)
- The claw on top of the front cover
- The claw on top of the front cover



Attaching the front cover

It's the opposite order of removing the front cover. When Attaching the Front Cover, ensure that the 2 claws of the front cover is in the hole of cabinet. Also, ensure that the claws on top of the front cover have been fixed on.



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.
 - Dry contact: CN6
 - WIFI Adapter or H-LINK RAC Adapter: CN7
 - 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

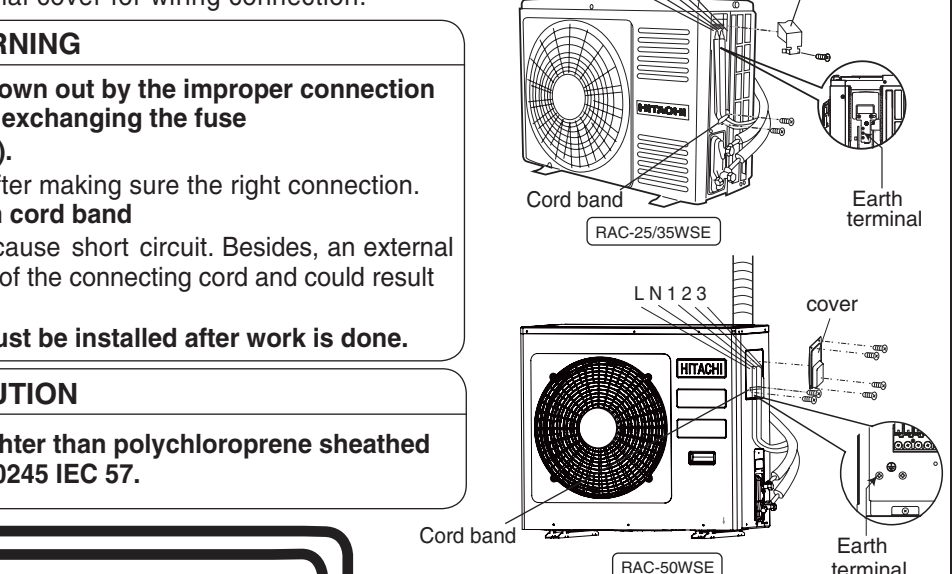
Please remove the side cover and terminal cover for wiring connection.

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-50N2 A52).
- Please exchange the blown-out fuse after making sure the right connection.
- The connecting cord must be fix with cord band. Otherwise rain water may enter and cause short circuit. Besides, an external force may apply to the connection part of the connecting cord and could result in heat and fire.
- The terminal cover and side cover must be installed after work is done.

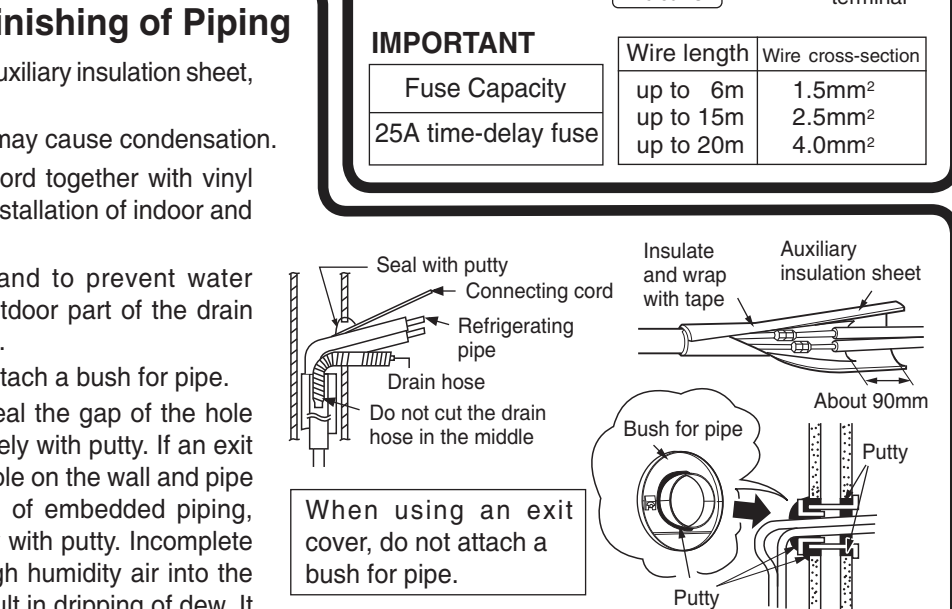
CAUTION

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



1. Heat Insulation and Finishing of Piping

- Cover the pipe connection with the auxiliary insulation sheet, wrap the tape without any gap.
- If there is gap or over-tightened, it may cause condensation.
- Please wrap the pipe and power cord together with vinyl tape as shown in the figure of the installation of indoor and outdoor units on page 2.
- To enhance the heat insulation and to prevent water condensation, please cover the outdoor part of the drain hose and pipe with insulation sheet.
- When using an exit cover, do not attach a bush for pipe.
- When an exit cover is not used, seal the gap of the hole on the wall, bush and pipe completely with putty. If an exit cover is used, seal the gap of the hole on the wall and pipe completely with putty. In the case of embedded piping, seal the gap of the pipe completely with putty. Incomplete sealing could cause entering of high humidity air into the wall or indoor unit, which could result in dripping of dew. It could also cause smell or odor present outdoor and inside the wall spreading into the room.

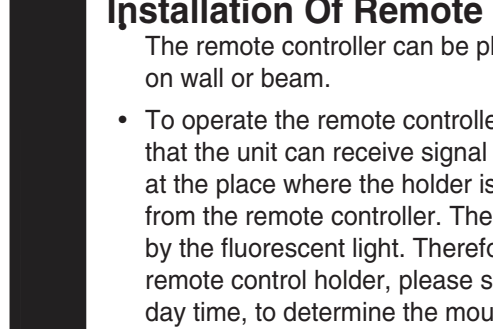


CAUTION

- Completely seal any gap with putty. High humidity air inside the wall or the outdoor may go in to the room and could result in dripping of dew. It could also cause smell or odor present outdoor and inside the wall spreading into the room.

2. Affixing the Remote Controller

- Procedures to fix the holder of remote control.
 - Drill holes on wall.
 - Push plug into the holes.



Installation Of Remote Controller

The remote controller can be placed in its holder which is fixed on wall or beam.

- To operate the remote controller at its holder, please ensure that the unit can receive signal transmitted from the controller at the place where the holder is to be when 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.

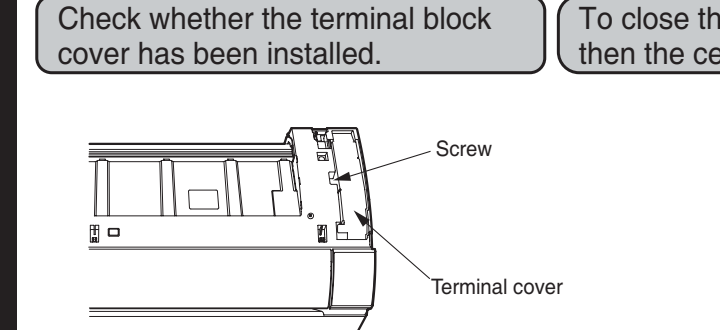
OPERATION CHECK

CAUTION

- Before trial running of the air conditioner, be sure to check the following steps 1 and 2, and then operate it in the cooling-heating room.

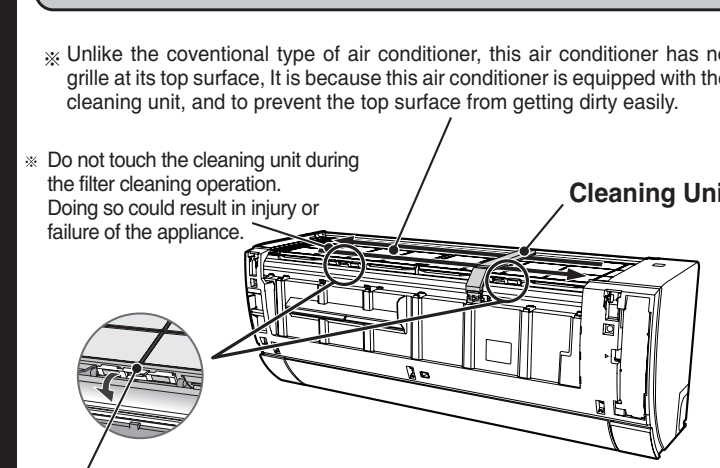
1. Verifying installation of the terminal block and the front panel

- Check whether the terminal block cover has been installed.
- To close the front panel, press its right and left sides first and then the center until it clicks into place.



2. Verifying cleaning of the filter mesh

- Before turning on the power of the air conditioner, make sure that the filters (2 pieces at the top and 2 pieces in front) have been installed properly and locked.
- When the power of the air conditioner turns on, the "Filter Cleaning Operation" starts automatically. The CLEAN indicator is lit during the filter cleaning operation.



Filter Lock

- Make sure that the top filters have been locked. Lock the filters if they are not locked. (The filters may come off during the operation if they are not locked.)

FILTER CLEAN LAMP

This lamp lights during filter cleaning operation.

FROST WASH LAMP

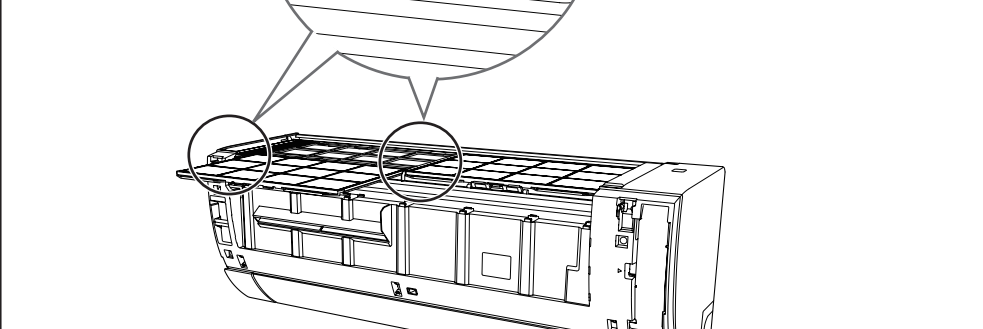
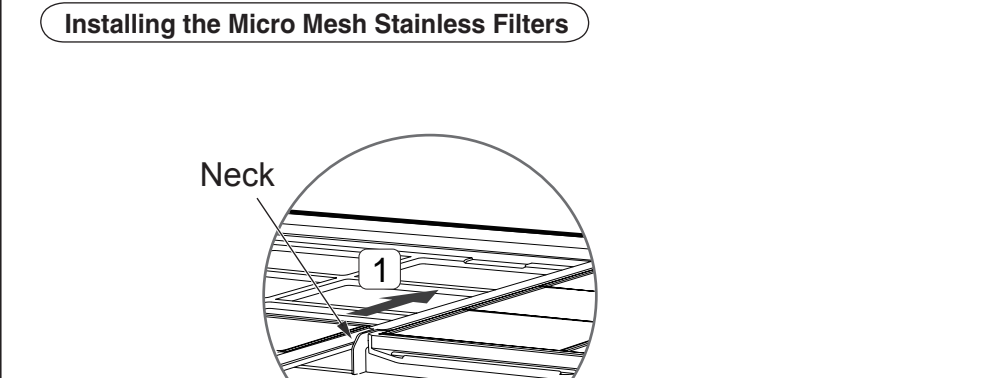
This lamp lights when frost wash is working.

- Filter cleaning operation check will take approximately 8 minutes for the cleaning unit to make one cycle of back and forth movement. Make sure that the cleaning unit is actually working by a visual inspection from the top of the indoor unit.
- Close the front panel properly.
- If the "ON/OFF" button on the remote control is pressed during the operation check, the operation check is stopped before its completion. Wait until the operation check is completed without pressing any button on the remote controller.
- If the filters are not installed properly, "Filter Cleaning Operation" is found abnormal and the CLEAN indicator blinks. The filters may come off during operation if they are not installed properly.
- If the CLEAN indicator blinks during the "Filter Cleaning Operation" means that the operation is stopped before its completion due to an abnormal condition. In this case, refer to "Check the Operation of the Filter Cleaning Unit" and "Troubleshooting" of the operation manual and take appropriate actions.

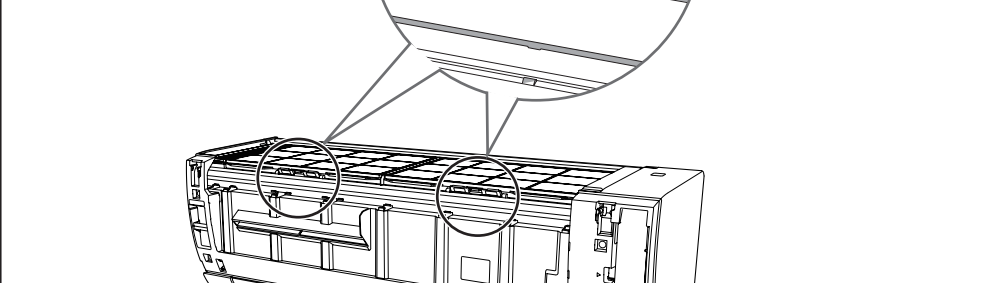
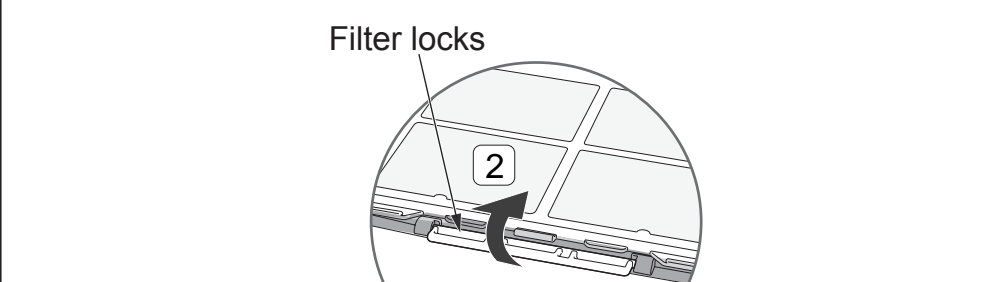
How to check Micro Mesh Stainless Filter installation

- Remove the front panel and check if the filter locks (2 pcs) are tripped or slant.
- If the filters are not inserted properly, refer to following "Installing the Micro Mesh Stainless Filters".
- Please perform "Filter cleaning operation check" again after reinstalled the filters.

Installing the Micro Mesh Stainless Filters



Align the filter with the top face of the indoor unit, and then slide and push it in. (The shape of the left and right filters is the same.)



- Tighten the left and right filter locks to the indicated direction.