installation work yourself

INDOOR UNIT / OUTDOOR UNIT HFC RAK-25PSEW/RAC-25WSE RAK-25PSES/RAC-25WSE RAK-35PSEW/RAC-35WSE RAK-35PSES/RAC-35WSE RAK-50PSEW/RAC-50WSE RAK-50PSES/RAC-50WSE

Carefully read through the procedures of proper installation before starting installation work. The sales agent should inform customers regarding the

Tools Needed For Installation Work

nark is tool exclusive use for R410A, R32)•⊕⊖Screwdrive Measuring Tape • Knife • Saw • Pipe Cutter • Hexagonal Wrench Key (፯◯ 4mm) • Power Drill (ø65~ø80mm Vacuum Pump • Pliers or Wrench • Torque Wrench Detector

Manifold Valve

Charge Hose

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.

MARNING......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.

Be sure that the unit operates in proper condition after installation. Explain to customer the proper operation and maintenance of the unit as described in the user's guide. Ask a customer to keep this installation manual together with the instruction manual.

A 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

Please observe the installation stated in the installation manual during the process of installation. Improper installation may cause water leakage, electric shock and fire. Make sure that the units are mounted at locations which are able to provide full support to the weight of the units. If not, the units may collapse and impose dange

Observe the rules and regulations of the electrical installation and the methods described in the installation manual when dealin with the electrical work. Use cables which are approved official in your country. Be sure to use the specified circuit. A short circuit and fire may occur due to the use of low quality wire or improper work.

Be sure to use the specified cables for connecting the indoor and outdoor units. Please ensure that the connections are tight after the conductors of the wire are inserted into the terminals to prevent the external force is being applied to the connection section of the terminal base. Improper insertion and loose contact may cause over-heating and fire. Please use the specified components for installation work. Otherwise, the unit may collapse or water leakage, electric shock, fire o stronger vibration may occur

Be sure to use the specified piping set for R410A, R32. Otherwise, this may result in broken copper pipes or faults. • When installing or transferring an air conditioner to another location, make sure that air other than the specified refrigerant (R32) does not enter the refrigeration cycle. If other air should enter, the pressure level of the refrigeration cycle may increase abnormally which could result in a rupture and injury.

Never install a drier to this R32 unit in order to guarantee its lifetime. Be sure to ventilate fully if a refrigerant gas leak while at work. If the refrigerant gas comes into contact with fire, a poisonous gas may occur. After completion of installation work, check to make sure that there is no refrigeration gas leakage. If the refrigerant gas leaks into the room, coming into contact with fire in the fan-driven heater, space heater, etc., a poisonous gas may occur.

Unauthorized modifications to the air conditioner may be dangerous. If a breakdown occurs please call a qualified air conditioner technician or electrician. Improper repairs may result in water leakage, electric shock and fire, etc. Be sure to connect the earth line from the power supply wire to the outdoor unit and between

the outdoor and indoor unit. Do not connect the earth line to the gas tube, water pipe, lighting rod or the earth line of the telephone unit. Improper earthing may cause electric shocks. When finishing the refrigerant collection (pumping down), stop the compressor and then remove the coolant pipe. If you remove the refrigerant pipe while the compressor is operating and the service valve is released, air is sucked and a

pressure in the freezing cycle system will build up steeply, causing an explosion or injury. When installing the unit, be sure to install the refrigerant pipe before starting the compressor If the refrigerant pipe is not installed and the compressor is operated with the service valve released, air is sucked and the pressure level of the refrigeration cycle may increase abnormally which could result in a rupture and injury.

The electric cables should neither be reworked nor added. Make sure to use an exclusive circuit breaker. Otherwise fire or electric shock might occur by connection failure, isolation failure or over current

Make sure to connect cables to terminal properly and terminal cover should close firmly. Otherwise, over heating at terminal contact, fire or electric shock might occur. Make sure that there is no dust on any connected points of electric cables and fix firmly. Otherwise, fire or electric shock might occur.

▲ 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 or more than 3mm has to be installed Without a circuit breaker, the danger of electric shock exists.

Do not install the unit near a location where there is flammable gas. The outdoor unit may catch fire if flammable gas leaks around it.

• Please ensure smooth flow of water when installing the drain hose. Improper installing may wet your furniture. An IEC approved power cord should be used. Power cord type: NYM

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 drainpipe to one hole. After installation, check whether the drain pipe clings to the base firmly

DRAIN HOLE Outer diameter:

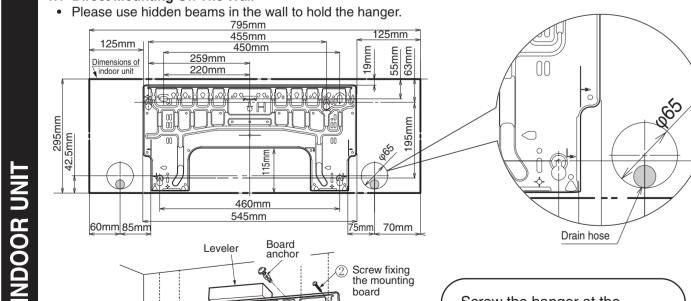
Install the outdoor unit horizontally and make sure that condensate drains away • In case of using in chilly area. Especially, in case that there are many snows by very cold in chilly area, condensedwater freezes on the base and may result not to drain. In this case, please removethe bush and the drain 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 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. If it is tilted above the side of the drain hose, condensed water may overflow.

1.1 Direct Mounting On The Wall



Screw the hanger at the positions possibly near the upper and lower hooks where the indoor unit is hung. Use 4 or more screws to fix the hanger.

1.2 Procedures of Installation and Precautions Procedures to fix the hanger 1. Drill holes on wall.

(As shown below)

Push plug into the holes. (As shown below) ① Hanger → N ② Screw ~ (Procure

locally)

3. Fix the hanger on wall with 4.1 x 32 screw. (As shown in figure below) Ceilina

can provide full support to the unit. correct operation of installation

CAUTION No nearby heat source and no obstruction near the air outlet is allowed. The clearance distances from top, right and left are specified as

in figure below. The location must be convenient for water drainage and pipe connection with the outdoor unit. Do not install at a location where there is flammable gas, steam, oil and smoke. There is a risk of fire, explosion, deterioration of

Remote Controller Holde

★ Items 7 & 8 are included in the

.3 Wall Penetration and Installation of Protection Pipe

which is slightly tilted towards Indoor

Drill a ø65mm hole on wall

2 Cut the protection pipe

according to the wall thickness

and pass through the wall

protection pipe should be pipe

completely sealed with putty

to avoid dripping of rain water

the outdoor side.

into the room.

2. Installation of the Indoor Unit

(Remove the front panel)

Remove the lower cover

by rotating it around 2 as the fulcrum.

the lower cover.

Wiring connection

Cutting lower cover bush

(Horizontal and downward piping)

installed from the left side, etc. is big.

While installing the pipe from the right, left or bottom side,

• Use the groove on the outer side if the pipe which is to be

use a knife to cut lower cover bush accordingly.

2.1 Preparation of Installation

package of the outdoor unit.

Binding band

resin and/or damage. To avoid interference from noise, please place the unit and its emote controller at least 1m from the radio and television. To avoid any error in signal transmission from the remote controller, please put the controller far away from high-frequency machines and high-power wireless systems. ighting fixtures with electronic starters may shorten the reception.

The unit should be mounted at stable, non-vibratory location which

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

distance and may even interfere with the signal being received. The installation height should be at least 2.3m or more from the floor. The indoor unit (air outlet) should be installed at least 1.5m away

A WARNING The outdoor unit must be mounted at a location which can support heavy veight. Otherwise, noise and vibration will increase

A CAUTION

Do not expose the unit under direct sunshine or rain. Besides, ventilation nust be good and clear of obstruction The air blown out of the unit should not point directly to animals or plants. The clearances of the unit from top, left, right and front are specified as ⇒ in figure below. At least two sides must be clear for ventilation. · Be sure that the hot air blown out of the unit and noise do not disturb the

· Place not exposed to strong wind Particularly on the rooftop of a building, strong wind blows and the outdoor unit may be damaged • Do not install at a location where there is flammable gas, steam, oil and smoke. The location must be convenient for water drainage.

Place the outdoor unit and its connecting cord at least 1m away from the

antenna or signal line of television, radio or telephone. This is to avoid noise interference Do not install the indoor unit in a place where small animals may build their nests. If small animal goes inside the unit and touches the electrical parts, failure of the unit, smoke or fire may be caused. Request your

customer to keep the surrounding of the unit clean. om fire alarm. Supplied Items Figure showing the installation of Indoor and Outdoor Unit (For example: Ground installation) Mounting board Above 50mm (Above 100mm when there is piping connection at the back of the outdoor unit) Be sure to completely seal any gap with putty. Screw for mounting board () The space indicated by an arrow C is to guarantee air conditioner. Install the AAA size battery apparatus at the ample space in order to carry out When installing the indoor unit the maintenance and repair above the curtain rail or curtain box, allow dimensions not affecting the airflow. Screw for Remote Controller Holder insulated with the enclosed (A) sulation pipe. Remote controller The refrigerating machine oil is easily affected by moisture. Use caution to prevent water from entering the cycle. Heat insulating materials The difference in height between the indoor and outdoor unit should be kept below 10m. Above 200mr The connecting pipe, no matter big or small, Above 50 mm when installed should all be insulated with insulation pipe and on the ceiling of balcony then wrapped with vinyl tape. The insulator will BAC-25/35WSE deteriorate if it is not wrapped with tape. Drain Pipe Connection of insulated drain hose Please use insulated drain hose Inner diameter BAC-25/35WSE for the indoor piping (commercial RAC-25/35WSE Drain Pipe VIEW leating efficiency will be

enhanced if the space below the outdoor unit is closed so that For outdoor unit installation, allow at least no air passes through. 2 sides of space around the unit to ensure ventilation flue above 150mm Piping configuration may be in six « give clearance as wide different directions: direct rear piping, left or right downward piping and lef or right sideways piping.

RAC-50WSE

▲ WARNING

Protection pipe (commercial product) must be used 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 to prevent damaged by mouse, possibility of short circuit or fire.

Direction of Piping

backward

Completely seal with putty 3 Empty gap in the sleeve of Protection Sleeve of

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.

Changing of drain hose (Horizontally piping)

• Install and change the drain hose and drain cap when installing the pipe horizontally as shown below. Remove the lower cover when installing and changing.

• To remove front panel, please refer to "Removing and • Do not carry out horizontal piping for drain hose. Attaching the Front Panel" on page 13. Make sure to use both hands to attach and remove the front

Putty

 Push the bottom inner part (1) of the lower cover to remove Drain hose • To attach the lower cover, attach 2 first and then attach 1

Drain hose screw

Please refer to "Connection of Power Cord" on page 10.

Use the plier to pull and 1 Remove the screw and turn the drain cap for easy pull out the drain hose. removal. Drain hose Drain hole Hexagonal wrench / key (⊕4mm)

Drain hose screw 2 Push the drain hose deeply into the screw hole, fix with the removed screw during Remove low cover

Insert drain cap up to the location securely till thecap stops Please use hexagonal wrench key(⊕4mm) to insert the

drain cap. (This is an easier way to install the drain cap.) **A** CAUTION

Be sure to insert drain hose and drain cap firmly and fix with screw Insufficient insert may result in water leakage.

Wrap with tape

indoor uni

Place the cushion under the right rear surface of the indoor

unit to lift the lower side of the unit by approximately 15cm.

Connect the refrigerating pipe. (Refer to "Pipe Connection"

Cover the pipe connection with the auxiliary insulation sheet

which was removed earlier, with its split line on the top.

Wrap the tape without any gap. (Refer to "Installation after

connection of refrigerating pipes (Horizontal piping)" on page

Connect the connecting cord. (Refer to "Connection of Power

Form connecting cord and refrigerating pipe and put them in

the space on the lower side of the rear surface of the indoor

Remove the temporary stand and hook the projection on the

lower part of the indoor unit onto the mounting board.

About 15cm

Connecting the refrigerating pipe at the back of the

Hang the indoor unit on the mounting board.

Insert the drain hose into the wall hole.

Remove the auxiliary

insulation material sheet

which is attached to the

pipe insulation. (Keep

the removed auxiliary

insulation material sheet

because it will be reused

after pipe connection.)

on page 9)

5, step 3)

Protection pipe

Drain hose

Pull this to the front during the connection of refrigera

and dew condensation.

installation plate

pipe to ease task.

Cord" on page 10).

Wrap the wall hole portion with tape.

Preparation of Pipe

the wall hole range

Place the starting point

of refrigerating pipe

bending within the wall

poor finishing.

ipe support

lace the

ending point of

ending within

efrigerating pipe

Connecting Drain hose

hole range.

attached to the pipe insulation.

Remove the auxiliary insulation material sheet which is

Referring to the mark on the rear side, form the pipe within

_↑ Center line of wall hole

Place the

pipe bending

/(((()))

If the starting point of refrigerating pipe bending is projected

from the wall hole range or if the bending radius is too large,

the indoor unit may be lifted from wall and this may cause

Temporarily join the refrigerating pipe, drain hose and

together with tape.

Pipe support

Temporarily join the refrigerating pipe

drain hose and connecting cord

↑ ↑ _ ↑ Center line of wall hole

//((00)

Refrigerating pipe

Place the

pipe bendir

hole range

Please bend at a small

Auxiliary insulation

connecting cord together with tape.

radius to form an arc.

Backward piping

How to remove the indoor unit

-5-

 Push the [PUSH] section at the bottom of the indoor unit from the outside, the claws are released from the mounting board. (2 places on the left and right) If the bottom of the indoor unit cannot be pushed, remove the bottom part of the front cover and insert a screwdriver into the hole for removal of indoor unit as shown in the figure. Then, push the claws upwards while holding down

Horizontally and downward piping from the right

connection.

Carry out refrigerating pipe forming.

Bottom cover

Drain hose

connecting cord with tape.

of pipe-support by hand.

Pipe support

bush hole

1 Remove the auxiliary insulation material sheet which is

Layout of horizontally piping from the right

3 Temporarily join the refrigerating pipe, drain hose and

▲ CAUTION

Transform after

bending downward

· Transform the piping while holding down the lower portion

nstallation after connection of refrigerating pipes

(Refer to "Pipe Connection" on page 9)

Refrigerating pipe

Split line of the auxiliary

insulation sheet must be positioned within this

1 Remove the auxiliary insulation material sheet which is

2 Cut the heat insulation sheet refrigerating pipe aligning to

attached to the pipe insulation. Connect the refrigerating pipe.

the insulation sheet of the pipe and fix them temporarily with

which was removed earlier, with its split line on the top. Wrap

the tape without any gap. Tape must not be over tightened.

(Refer to "Heat insulation and Finishing of Piping" on page 11)

If there is gap or over-tightened, it may cause condensation.

wrap with tape

About 90mm

Auxiliary insulation

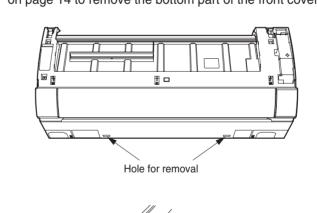
3 Cover the pipe connection with the auxiliary insulation sheet

attached to the pipe insulation. (Keep the removed auxiliary

insulation material sheet because it will be reused after pipe

the upper part of the hole 1 and pull the indoor unit towards you 2. When horizontal piping is used, be careful not to damage the pipe and connecting cord with the tip of the screwdriver during this operation.

Please refer to "Removing and Attaching the Front Cover" on page 14 to remove the bottom part of the front cover.



3. Drainage Check After the indoor unit is installed, please ensure the smooth flow of condensed water of the indoor unit during installation. (Careless work may result in water leakage.)

▲ CAUTION During drainage work, install the drain pipe to ensure smooth drainage. Make sure to carry out drainage

Careless work may result in water leakage. Make sure that there is no problem as shown in the figures on page 8.

Such problems may cause clogged drain and could result in water leakage. Drain hose must be at a slope of at least 1/25. • When inserting the drain hose into the drain pipe for embedded piping, etc., do not cut the drain hose in the

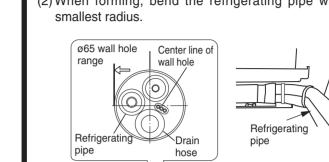
This may lead to poorer heat insulating performance of the drain hose and could result in water leakage. Do not lead the drain hose to a place where corrosive

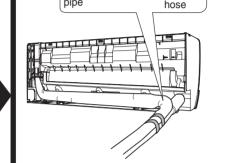
gas (sulfur, ammonia, etc.) is generated such as septic

Corrosive gas may flow into the indoor unit through the drain hose, and could result in corrosion on the copper pipe and odor in the room.

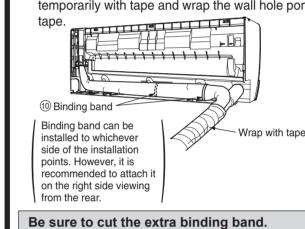
Especially in the case of horizontally backward piping, follow the instruction below to carry out accurate forming. Forming of refrigerating pipe for horizontally backward (1) Refer to the mark at the back, start bending the refrigerating piping within wall hole range. Please bend at a small radius to form an arc.

smallest radius.





Form the connecting cord and refrigerating pipe and put them in the space on the lower side of the rear surface of the indoor unit. Put the binding band on the hook located on the rear surface to fix it.

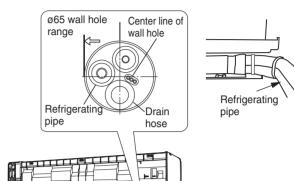


• Form and set the refrigerating pipe and connecting cord.

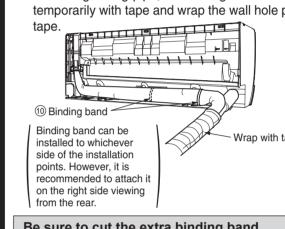
Place the starting point o - refrigerating pipe bending within the wall hole range.

If the starting point of refrigerating pipe bending is projected from the wall hole range or if the bending radius is too large, the indoor unit may be lifted from wall and this may cause poor finishing.

2) When forming, bend the refrigerating pipe with the



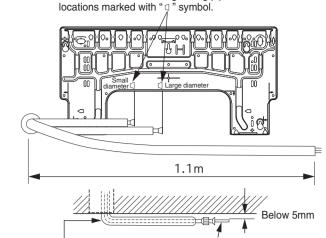
Join refrigerating pipe, connecting cord and drain hose temporarily with tape and wrap the wall hole portion with



Be sure to cut the extra binding band. (Otherwise, it may result in abnormal noise or dewfall.)

Form the refrigerating pipe according to the wall hole

Connecting the refrigerating pipe at the back of the Match the end of the refrigerating pipes with the



into the large diameter pipe. Please bend at a small radius to form an arc. (Pipe can be bent with a small radius without being crushed if a plastic hose is used.)

after pipe expanding is carried out to avoid cutting dust from getting inside.

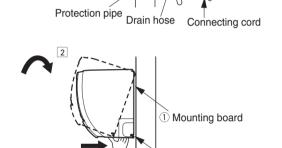
2.2 Installation

of the indoor unit

3 Push the lower part of the indoor unit to the wall, hook the projection on the lower part of the indoor unit onto the mounting board.

4 Cover the pipe connection with the auxiliary insulation sheet which was removed earlier, with its split line on the top. Wrap the tape without any gap. (Refer to "Heat insulation and Finishing of Piping" on page 11)

1 ① Mounting board



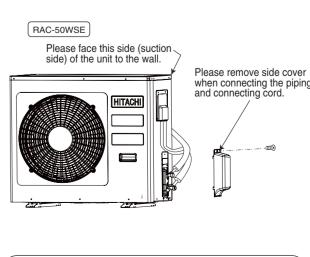
Projection of the indoor unit

A CAUTION Be sure that the drain hose is loosely connected

the installation of drain hose. Please ensure the smooth flow of condensed water of the indoor unit during installation. (Careless may result in water leakage.)

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

RAC-25/35WSE Please remove side cover when connecting Please face this side(suction the piping and connecting side) of theunit to the wall.



Mounting Stand In snowy region, install a snow guard and elevated stand RAC-50WSF

In other regions, it is recommended to install a tent for

Groove on the inner side

Groove on the

outer side

Auxiliary insulation sheet

Connection part

Connecting cord

Auxiliary insulation

Refrigerating pipe

A CAUTION

Do not over tighten vinyl tape on pipe heat insulation

Do not over tighten to avoid loss of heat insulating effect

and confirm that the tab of the indoor unit is fit in the

If the tab is not fitted in securely, vibration of the indoor unit

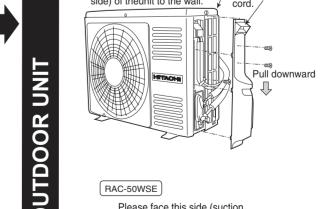
Pull the lower part of the indoor unit towards you

Elevated stand

-8 -

- 6 -

 When removing side cover, please pull the handle after undoing the hook by pulling it downward. Reinstall the side cover in reverse order of the



A CAUTION Do not touch the suction port, bottom surface

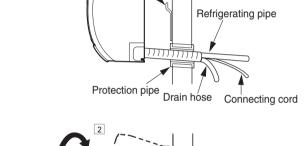
bend or proper condition like left figure.

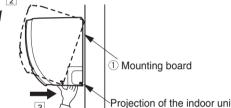
Fixed leg dimension of outdoor unit

to ensure the airflow for better heating efficiency.

Insert a plastic hose (commercial product)

1 Insert the pipes through the wall hole. 2 Hang the upper part of the indoor unit on the mounting





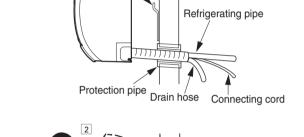
A CAUTION

shade. RAC-25/35WSE

If there is gap or over-tightened, it may cause condensation.

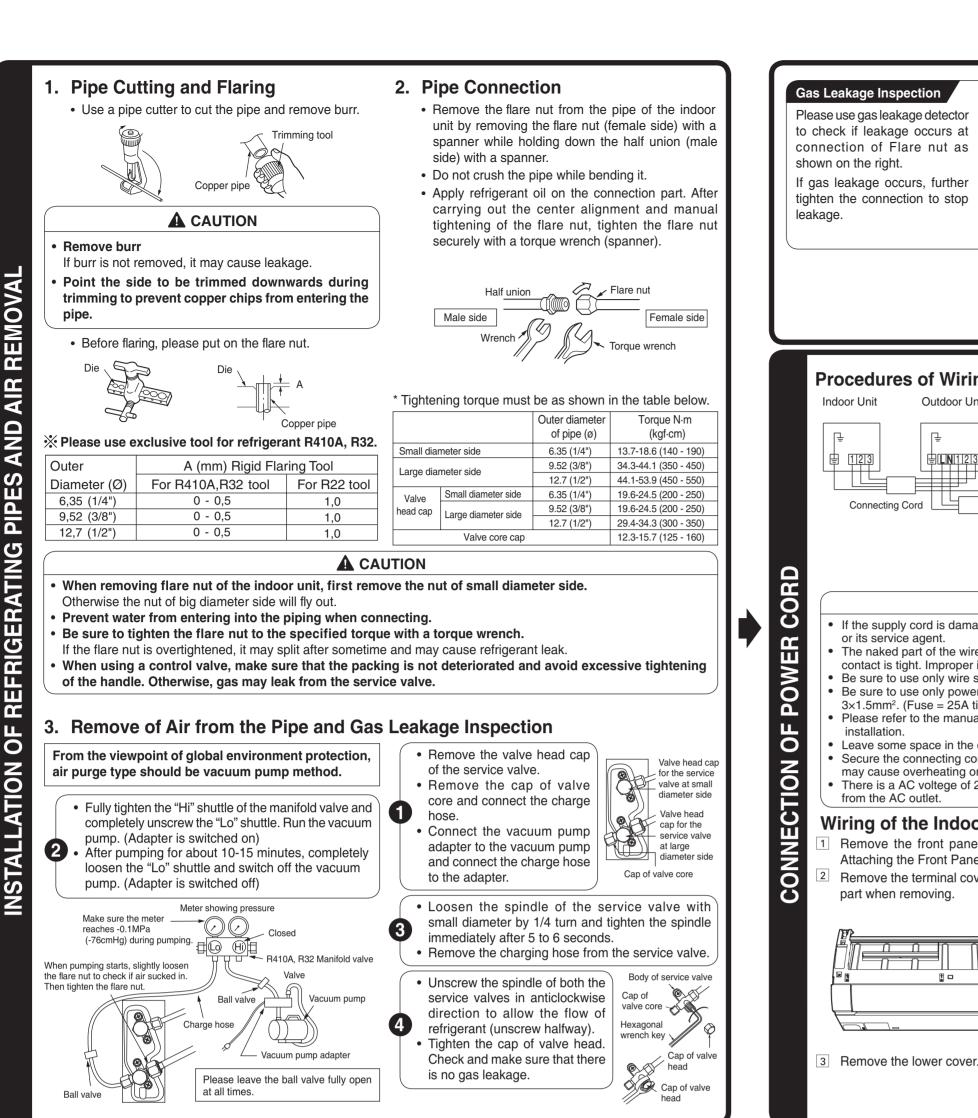
or aluminium fin of the outdoor unit. Failure to do so may cause an injury.

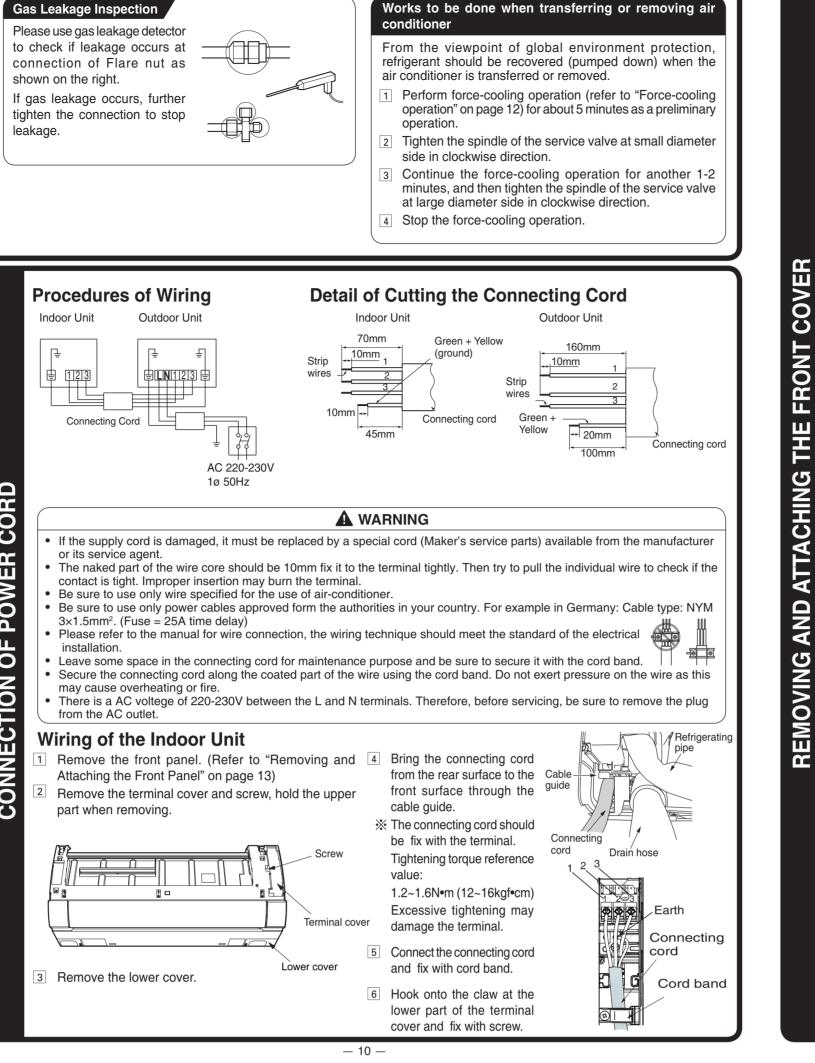
▲ CAUTION When using a plastic hose, make sure to insert it only Connecting the refrigerating pipe other than at the back

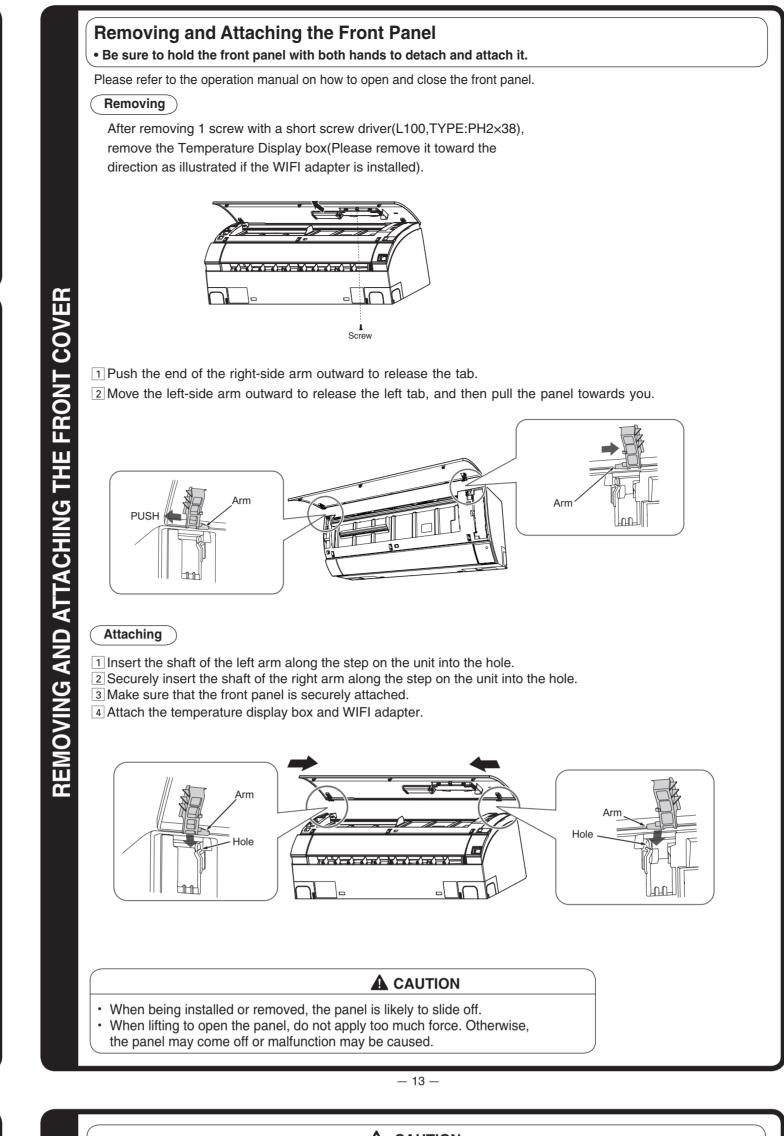


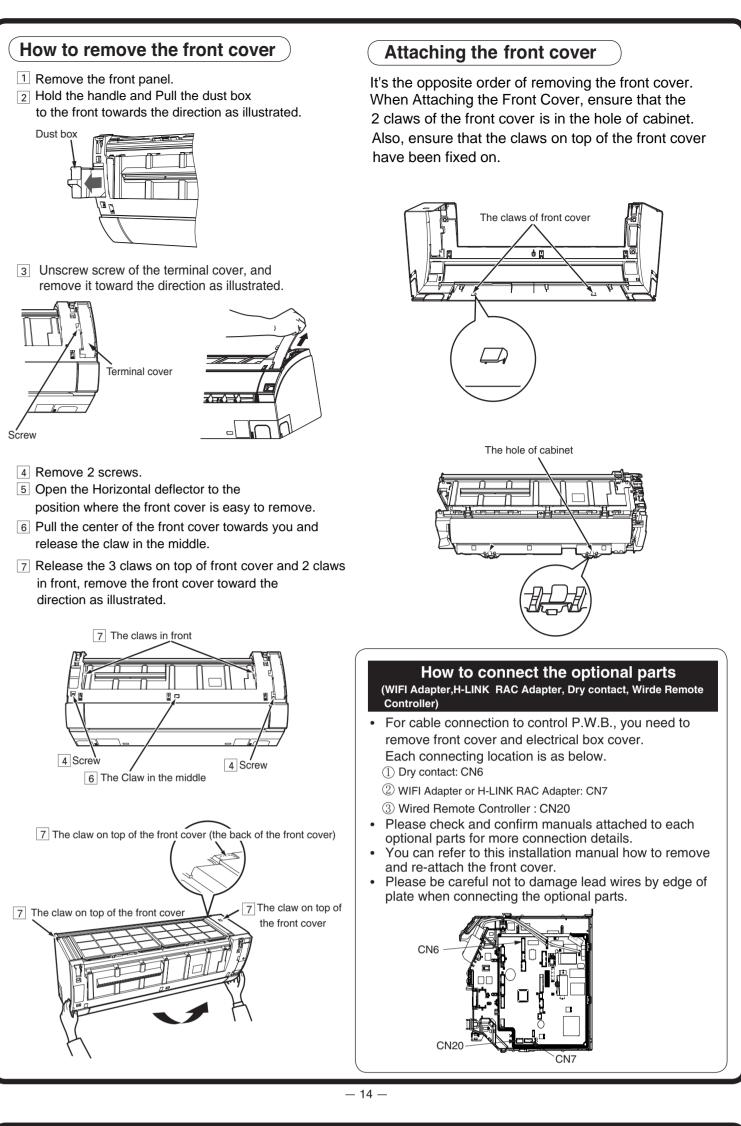
You are free to choose the side (left or right) for

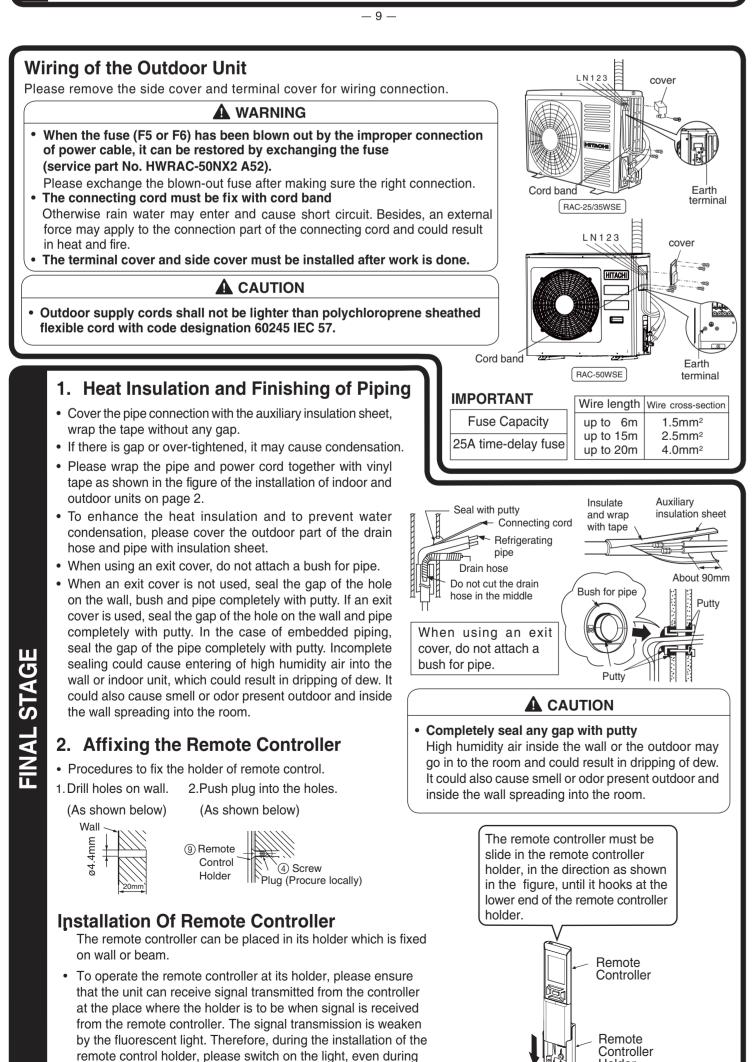
Mounting Stand











Screw (2 pieces)

day time, to determine the mounting location of the holder.

