FOR SERVICE PERSONNEL ONLY

HITACHI

HITACHI SPLIT UNIT AIR CONDITIONER

INSTALLATION MANUAL INDOOR UNIT / OUTDOOR UNIT **RAS-18SX8 / RAC-18SX8**

RAS-25SX8 / RAC-25SX8 RAS-35SX8 / RAC-35SX8

Tools Needed For Installation Work

before starting installation work.

correct operation of installation

(● mark is tool exclusive use for R410A) • (+) (-) Screwdrive · Measuring Tape · Knife · Saw · Pipe Cutter · Hexagonal Wrench Key (鈦◯ 4mm) • Power Drill (ø65~ø80mm) · Vacuum Pump · Pliers or Wrench · Torque Wrench Detector

Manifold Valve

Charge Hose

Carefully read through the procedures of proper installation

· The sales agent should inform customers regarding the

 Be sure to perform the cleaning unit operation check. Installation information • Unlike conventional types, this model has no grille on its top surface.

-SAFETY PRECAUTION -

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. Make sure to connect earth line. ▲ CAUTION...... Improper installation may result in serious consequence. This sign 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 customers to keep this installation manual together with the instruction manual.

▲ 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 Please observe the installation stated in the installation manual during the process of installation. Improper installation may cause water leakage, electric

· 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 · Observe the rules and regulations of the electrical installation and the methods described in the installation manual when dealing with the electrical

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

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

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 or stronger vibration may occur.

 Be sure to use the specified piping set for R410A. 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 (R410A) 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. · 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.

• Unauthorized modifications to the air conditioner may be dangerous. If a breakdown occurs please call a qualified air conditioner technician or electrician.

· 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.

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.

A 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

· 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, join the drain pipe as shown in the figure. Cover the other

drain holes (2 places) with a bush. To install the bush, put it on the drain hole as shown in the figure and press the both sides of the bush to fit into the hole. After installation, check whether the drain pipe and bush cling to the base firmly.

Install the outdoor unit horizontally and make sure that condensate drains away. When using in areas with cold weather

Especially when there are heavy snows in areas with cold weather, condensed water may

Outer diameter:

Outer diameter:

Outer diameter:

Outer diameter:

Outer diameter:

Outer diameter: freeze on the base and result in bad drainage. In such areas, please do not install the bush and the drain pipe. Also, make sure that the distance from the drain hole to the ground is

250mm or more.

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

Drain hole

Screw at the positions near the upper and lower hooks where the indoor

unit is hung. Use more than 4 screws for fixing

A 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

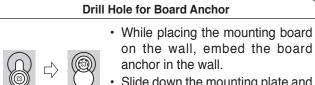
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Please use hidden beams in the wall to hold the

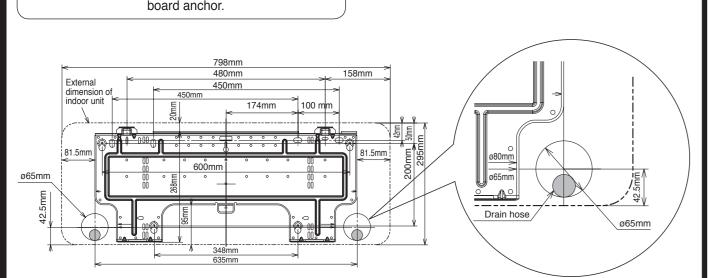
When it is difficult to look for a stud, use an item such

as board anchor (commercial product).

 When using the mounting hole provided by the apartment, cut it in such manner that the dimension of the mounting anchor projecting from the wall is 15mm



on the wall, embed the board Slide down the mounting plate and then fix the mounting board with the



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

A WARNING **▲** WARNING The outdoor unit must be mounted at a location which can support heavy can provide full support to the unit. weight. Otherwise, noise and vibration will increase.

A CAUTION · No nearby heat source and no obstruction near the air outlet is

The clearance distances from top, right and left are specified as ⇒ in figure belov 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 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. o 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. Lighting fixtures with electronic starters may shorten the reception istance and may even interfere with the signal being received.

The indoor unit (air outlet) should be installed at least 1.5m away rom fire alarm.

Mounting board

(3)

AAA size battery

Screw for remote

controller holder

Remote controller

Anti-mold wasabi

cassette

Drain pipe

Binding band

package of the outdoor unit.

©2000000000000000

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

A CAUTION

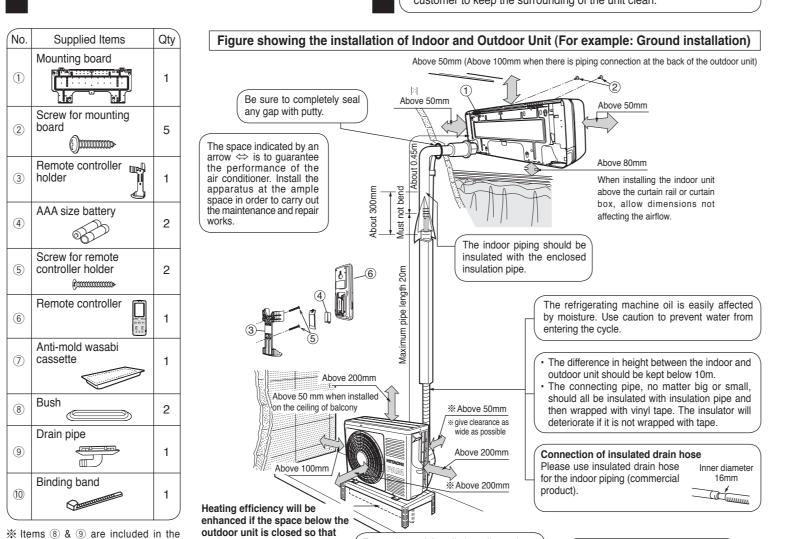
Do not expose the unit under direct sunshine or rain. Besides, ventilation must be good and clear of obstruction. The air blown out of the unit should not point directly to animals or

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

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

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.



For outdoor unit installation, allow at least

2 sides of space around the unit to ensure

Do not modify the power cable

ventilation flue

Length of Power Cable

-2-

and pass through the wall

3 Empty gap in the sleeve of Protection protection pipe should be pipe completely sealed with putty to avoid dripping of rain water spreading into the room. into the room.

2. Installation of the Indoor Unit

2.1 Preparation of Installation

Attaching the Front Panel" on page 13.

Make sure to use both hands to attach and remove the front

by rotating it around 2 as the fulcrum.

Wiring connection

Groove on the inner side

Cutting lower cover bush (Horizontal and downward piping)

A WARNING

Protection pipe (commercial product) must be used

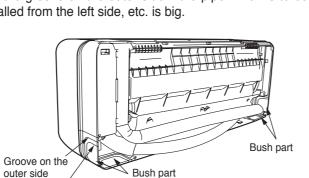
no air passes through.

(Procure the material locally.)

Push the bottom inner part (1) of the lower cover to remove

To attach the lower cover, attach 2 first and then attach

• While installing the pipe from the right, left or bottom side, use a knife to cut lower cover bush accordingly. • Use the groove on the outer side if the pipe which is to be



the hollow part of the wall to prevent damaged by mouse,

Completely seal with putty

Wall Penetration and Installation of Protection Pipe

which is slightly tilted towards Indoor

1 Drill a ø65mm hole on wall

2 Cut the protection pipe

according to the wall thickness

Remove the front panel

• To remove front panel, please refer to "Removing and

Remove the lower cover

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

installed from the left side, etc. is big.

cap stops.

Direction of Piping

Piping configuration may be in six

different directions: direct rear piping.

left or right downward piping and left

or right sideways piping.

Be sure that the wire is not in contact with any metal in the wall. Please use the protection pipe as wire passing through

possibility of short circuit or fire.

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

Changing of drain hose

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. Do not carry out horizontal piping for drain hose.

Drain hose Use the plier to pull and turn the drain cap for easy

Drain hose screw Remove the screw and pull out the drain hose.

2 Push the drain hose deeply into the screw hole, fix with the removed screw during Insert drain cap up to the location securely till the

A CAUTION Be sure to insert drain hose and drain cap firmly and

Insufficient insert may result in water leakage. becomes stronger

Connecting the refrigerating pipe at the back of the

Preparation of Pipe

the wall hole range.

Place the starting point

of refrigerating pipe

bending within the wall

poor finishing.

Pipe support

Place the

this range.

ending point of

bending within

refrigerating pipe

hole range.

attached to the pipe insulation.

Please bend at a small

radius to form an arc.

Auxiliary insulation

connecting cord together with tape.

Wrap the wall hole portion with tape.

Remove the auxiliary insulation material sheet which is

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

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

Temporary join the refrigerating pipe, drain hose and

together with tape.

Pipe support

Temporary join the refrigerating pipe,

drain hose and connecting cord

Refrigerating pipe

hole range

Place the

refrigerating

- 5 -

How to remove the indoor unit

board. (2 places on the left and right)

screwdriver during this operation.

Drainage Check

figures on page 8.

in water leakage.

odor in the room.

Center line of wall hole

→ Place the

hole range

Backward piping

Remove the auxiliary insulation material sheet of the which is attached to the indoor unit pipe insulation. (Keep the removed auxiliary insulation material sheet About 15cm

because it will be reused after pipe connection.) Hang the indoor unit on the mounting board.

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 5, step 3)

Insert the drain hose into the wall hole. Connect the connecting cord. (Refer to "Connection of Power

Cord" on page 10). Form connecting cord and refrigerating pipe and put them in the space on the lower side of the rear surface of the indoor

lower part of the Indoor unit onto the mounting board.

Remove the temporary stand and hook the projection on the

the connection of refrigerating / Connecting cord Auxiliary insulation

A CAUTION

Refrigerating pipe

Do not over tighten vinyl tape on pipe heat insulation Do not over tighten to avoid loss of heat insulating effect

and dew condensation.

Pull the lower part of the indoor unit towards you 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

1 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

2 Carry out refrigerating pipe forming. Bottom cover <

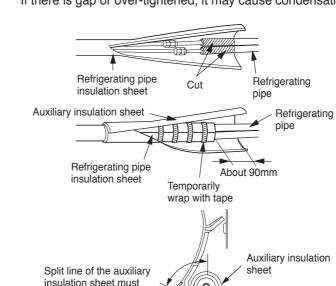
Layout of horizontally piping from the right

3 Temporary join the refrigerating pipe, drain hose and connecting cord with tape.



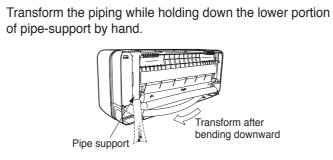
Remove the auxiliary insulation material sheet which is attached to the pipe insulation. Connect the refrigerating pipe.

2 Cut the heat insulation sheet refrigerating pipe aligning to



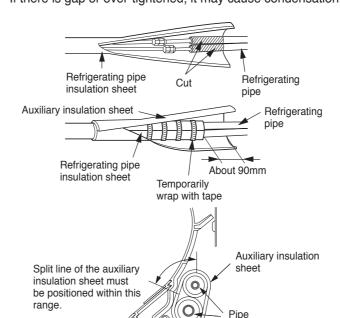
Horizontally and downward piping from the right

A CAUTION



(Refer to "Pipe Connection" on page 9)

3 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. 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.



· Push the [PUSH] section at the bottom of the indoor unit

from the outside, the claws are released from the mounting

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

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

Please refer to "Removing and Attaching the Front Cover"

on page 14 to remove the bottom part of the front cover.

After the indoor unit is installed, please ensure the smooth

flow of condensed water of the indoor unit during installation.

A CAUTION

During drainage work, install the drain pipe to ensure

smooth drainage. Make sure to carry out drainage

Make sure that there is no problem as shown in the

Such problems may cause clogged drain and could result

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

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

Drain hose must be at a slope of at least 1/25.

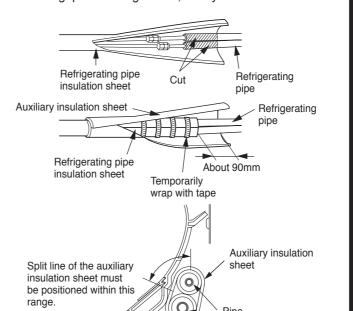
drain hose and could result in water leakage.

(Careless work may result in water leakage.)

Careless work may result in water leakage.

stallation after connection of refrigerating pipes

the insulation sheet of the pipe and fix them temporarily with



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

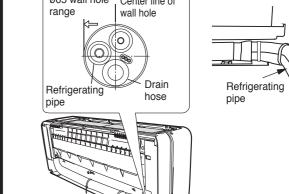
Place the starting point of

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.

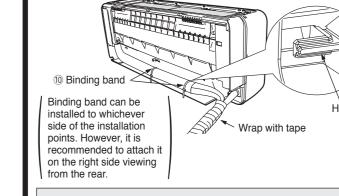
(2) When forming, bend the refrigerating pipe with the smallest radius. ø65 wall hole . Center line of



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 100 on the hook

located on the rear surface to fix it.

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

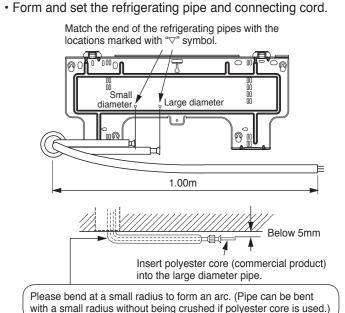


Be sure to cut the extra binding band.

(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



A CAUTION

When using a polyester core, make sure to insert it only after flaring is carried out to avoid cutting dust from getting inside.

2.2 Installation Connecting the refrigerating pipe other than at the back

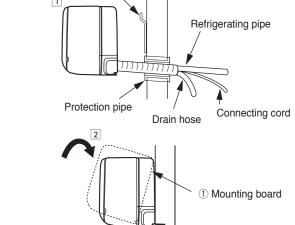
of the indoor unit

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

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



Projection of the indoor unit

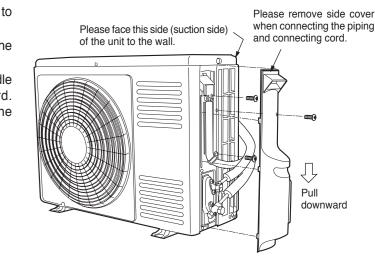
- 6 -

A CAUTION Be sure that the drain hose is loosely connected bend or proper condition like left figure.

A CAUTION You are free to choose the side (left or right) for the installation of drain hose. Please ensure the smooth flow of condensed water of the indoor unit during installation. (Careless may result in water

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. 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



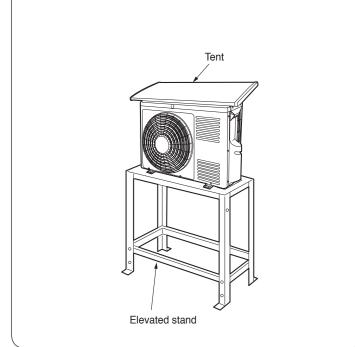
Fixed leg dimension of outdoor unit

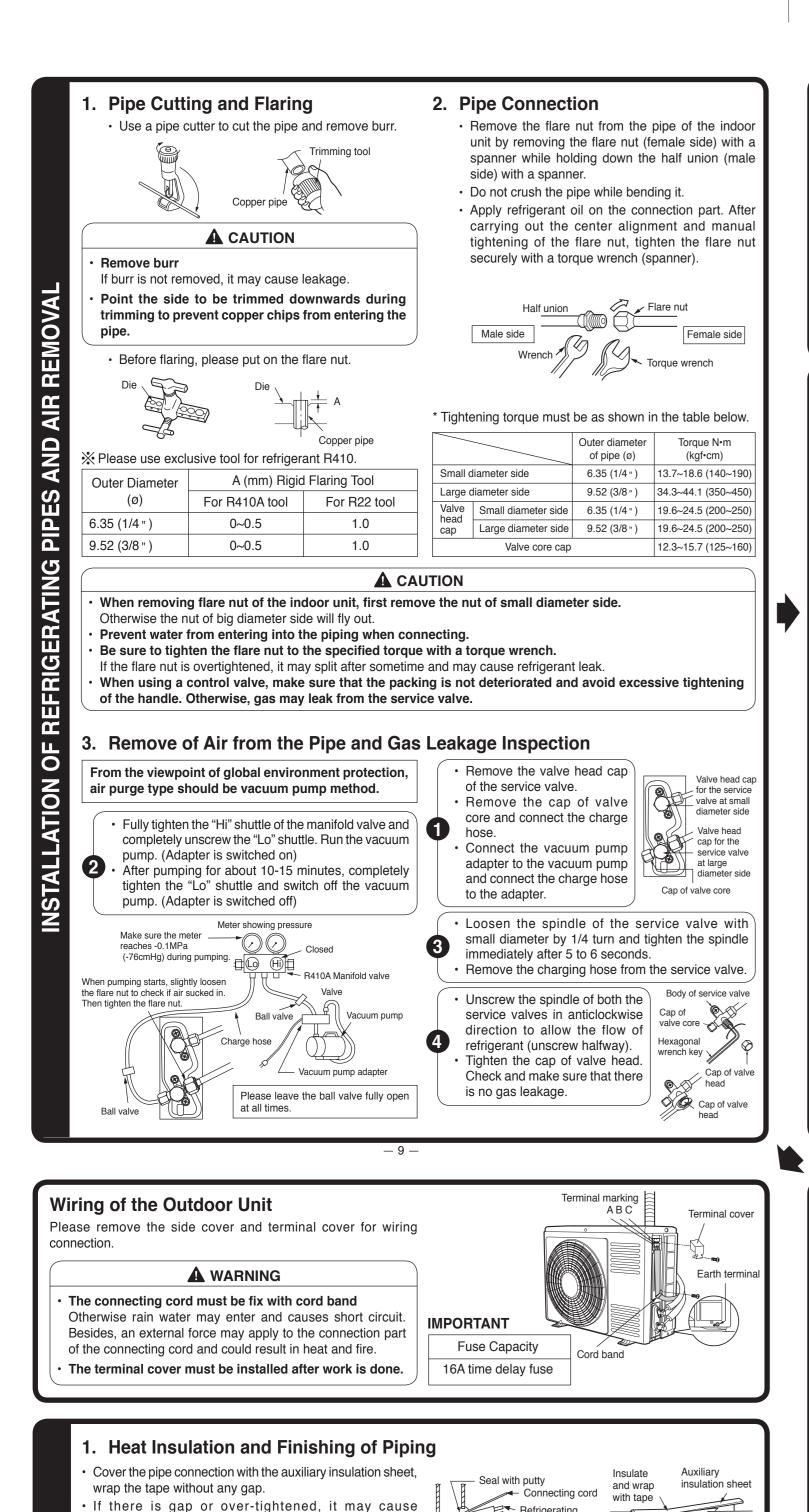
▲ CAUTION Do not touch the suction port, bottom surface

or aluminium fin of the outdoor unit

Failure to do so may cause an injury.

In snowy region, install a snow guard and elevated stand to ensure the airflow for better heating efficiency. In other regions, it is recommended to install a tent for





pipe

Bush for pipe

A CAUTION

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

Install the 7 anti-mold wasabi cassette.

(Refer to page 8 of the Operation Manual)

Noise may occur if the anti-mold wasabi

connection.

cassette is not installed properly.

7 Anti-mold wasabi

Completely seal any gap with putty

inside the wall spreading into the room.

Do not cut the drain

hose in the middle

When using an exit

cover, do not attach a

bush for pipe.

2. Affixing the Remote Controller and Installing the Anti-mold Wasabi Cassette

When operating the air conditioning with the remote controller attached, please make sure that the signal is received by

the air conditioning. Furthermore, fluorescent lighting may affect the reception of the signal, therefore, please make sure

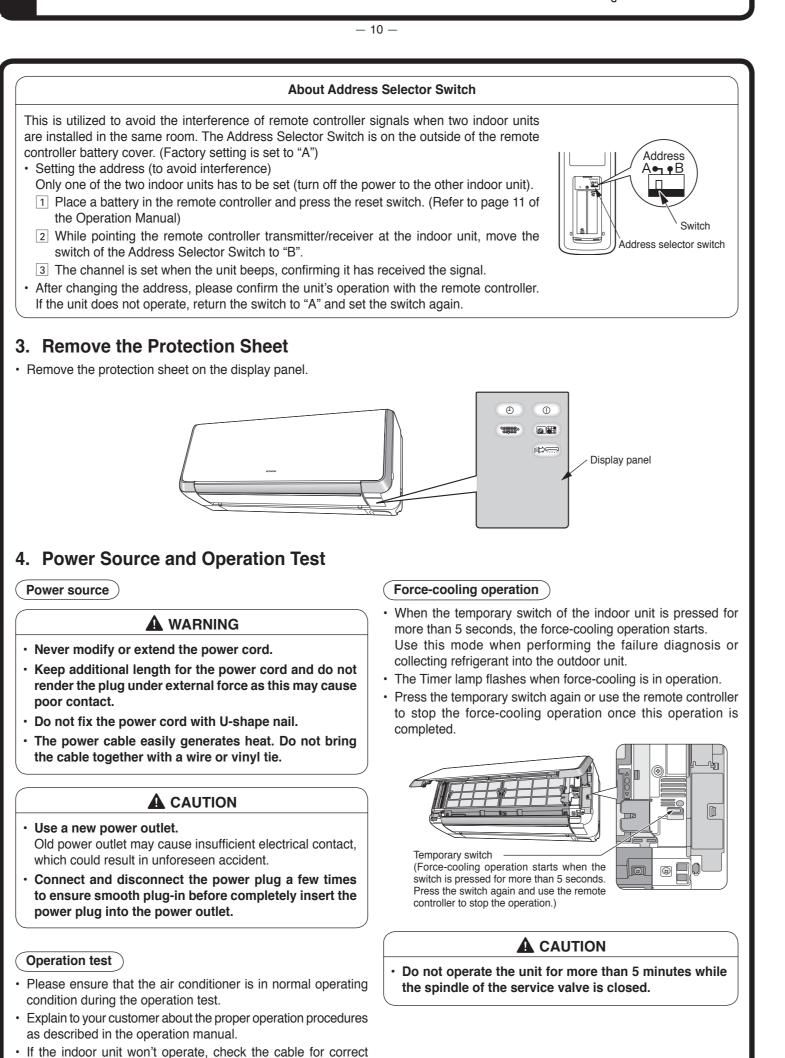
Lighting fixtures with electronic starters may shorten the reception distance and may even interfere with the signal being

and right. Doing so could

result in coming off of the

The remote controller may be affixed to a wall or pillar with the remote controller mounting screw.

Drain hose



Works to be done when transferring or removing air

From the viewpoint of global environment protection,

refrigerant should be recovered (pumped down) when the

Perform force-cooling operation (refer to "Force-cooling"

operation" on page 12) for about 5 minutes as a preliminary

Tighten the spindle of the service valve at small diameter

Continue the force-cooling operation for another 1-2

at large diameter side in clockwise direction.

Detail of Cutting the Connecting Cord

minutes, and then tighten the spindle of the service valve

air conditioner is transferred or removed.

side in clockwise direction.

Stop the force-cooling operation.

Gas Leakage Inspection

shown on the right.

AC 220-230

1ø 50Hz

Please use gas leakage detector

If gas leakage occurs, further

tighten the connection to stop

to check if leakage occurs at

leakage. (Be sure to use R410A

Procedures of Wiring

Outdoor unit

if the contact is tight. Improper insertion may burn the terminal.

Be sure to use only wire specified for the use of air-conditioner.

Remove the front panel. (Refer to "Removing and 4 Bring the connecting

on the wire as this may cause overheating or fire

Remove the terminal cover and screw, hold the upper

Wiring of the Indoor Unit

part when removing.

Remove the lower cover.

Attaching the Front Panel" on page 13)

▲ WARNING

The naked part of the wire core should be 10mm fix it to the terminal tightly. Then try to pull the individual wire to check

Please refer to the manual for wire connection, the wiring technique should meet the standard of the electrical

cord from the rear

surface to the front

5 Connect the connecting

6 Hook onto the claw at

the lower part of the

terminal cover and fix

with screw.

cord and fix with cord

Connecting cord

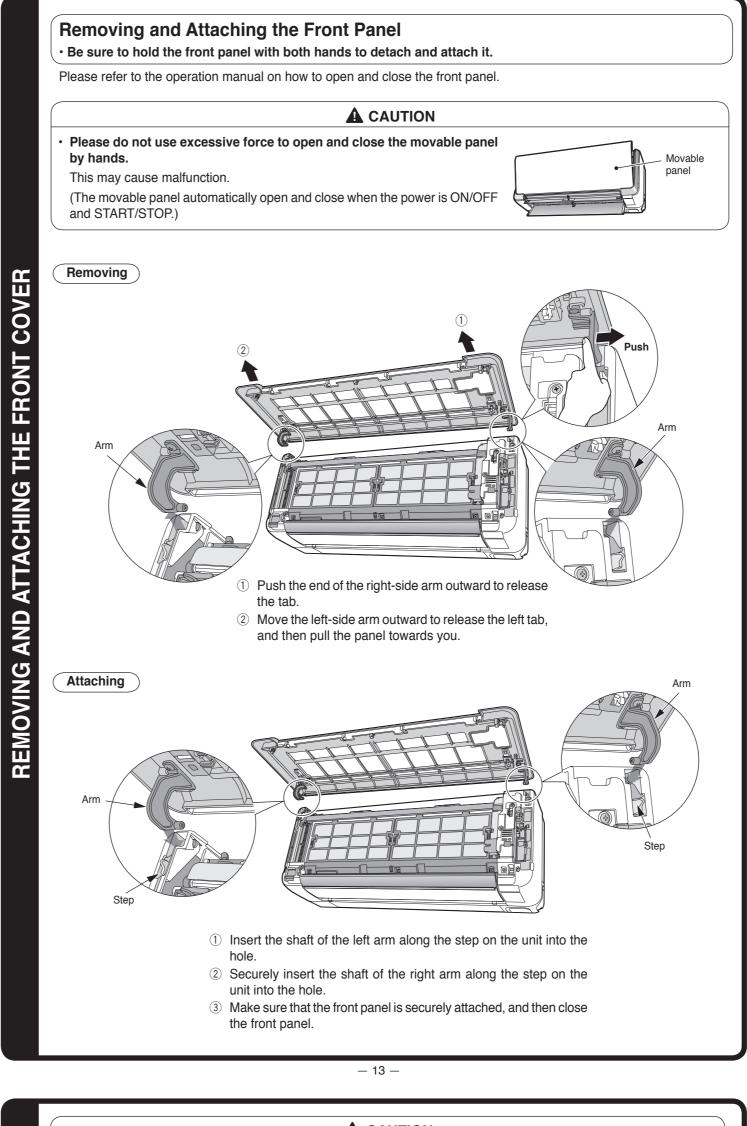
cable guide.

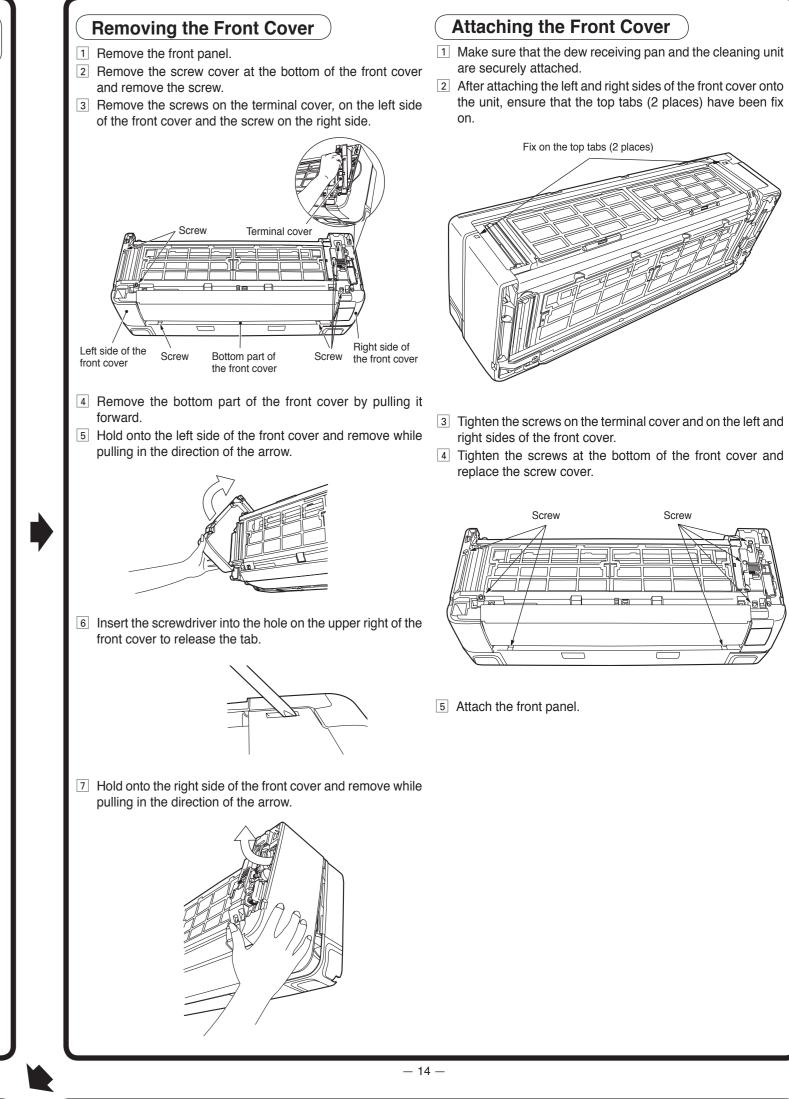
surface through the Cable

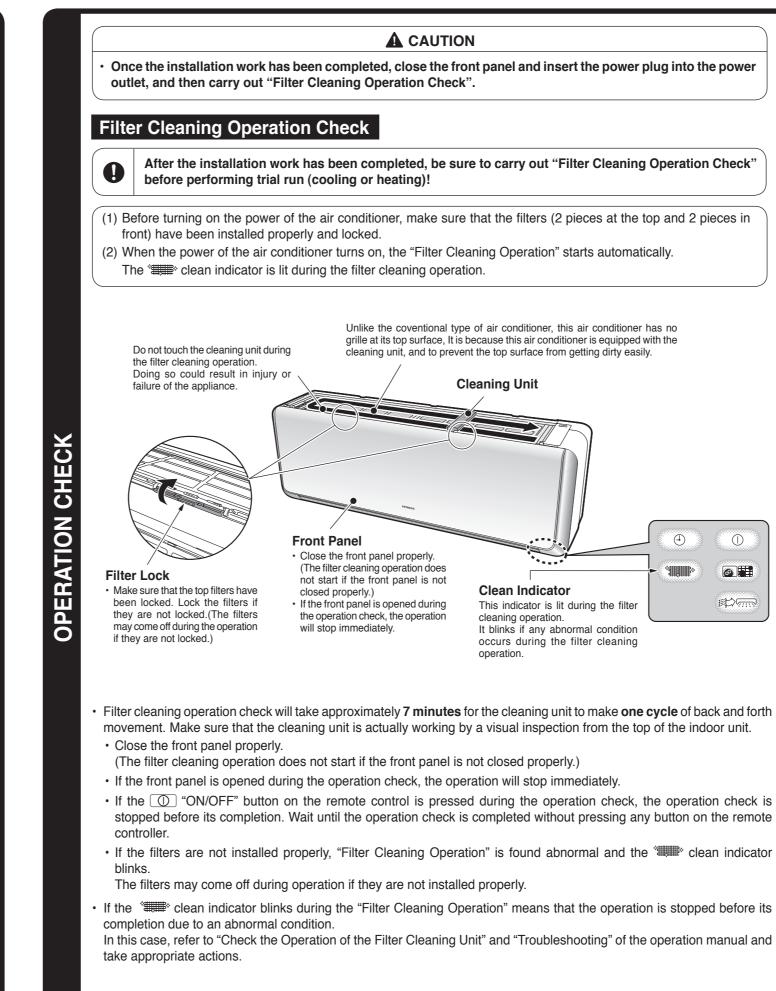
Leave some space in the connecting cord for maintenance purpose and be sure to secure it with the cord

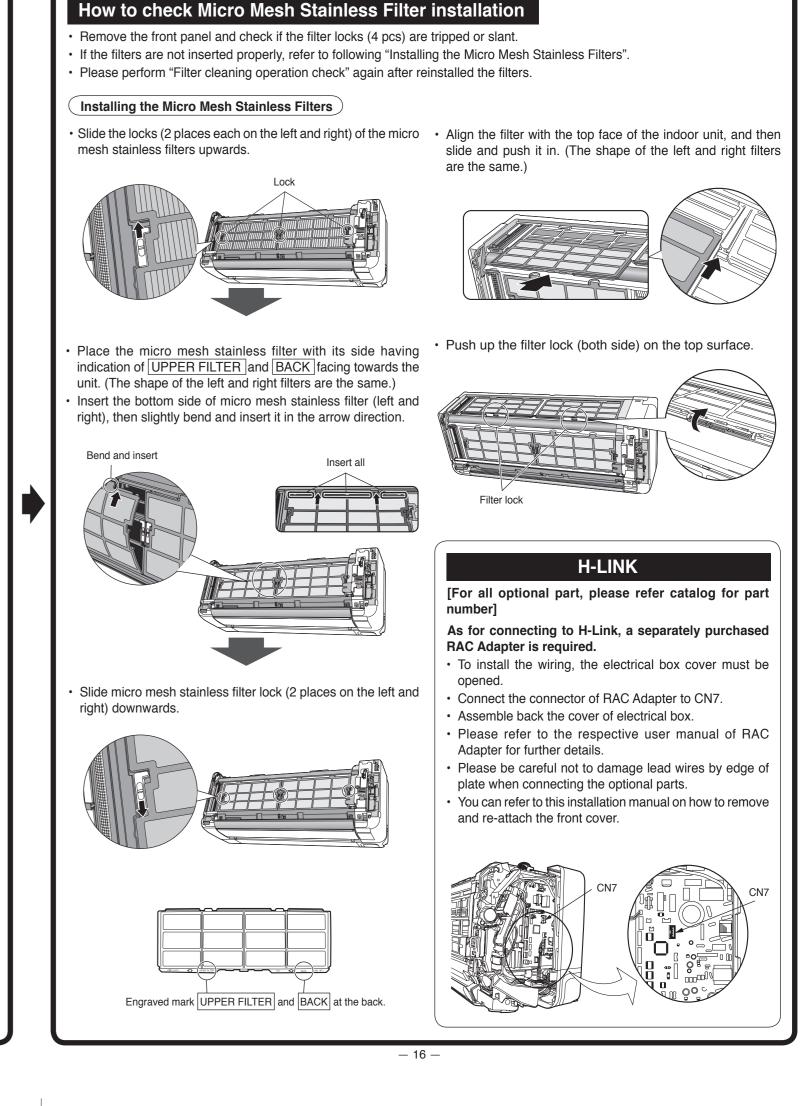
Secure the connecting cord along the coated part of the wire using the cord band. Do not exert pressure

connection of Flare nut as









< \$842 : (A) >

Wall or

condensation.

outdoor units on page 2

hose and pipe with insulation sheet.

the wall spreading into the room.

3 Remote controller holde

Please wrap the pipe and power cord together with vinyl

To enhance the heat insulation and to prevent water

condensation, please cover the outdoor part of the drain

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

by turning on the fluorescent lighting even during the day.

Installation

 Hold the upper part of the remote controller

tape as shown in the figure of the installation of indoor and