FOR SERVICE PERSONNEL ONLY

HITACHI

Inspire the Next

HITACHI SPLIT-UNIT AIR CONDITIONER INSTALLATION MANUAL

HFC R410A

Indoor Unit / Outdoor Unit

RAS-D10EX3/RAC-D10EX3

RAS-D14EX3/RAC-D14EX3

- Carefully read through the procedures of proper installationbefore starting installation work.
- The sales agent should inform customers regarding thecorrect operation of installation.

Tools Needed For Installation Work

(Mark◉ is exclusive use tool for R410A) ⊕ ⊖ Screwdriver • Measuring Tape • Knife • Saw • ø65mm PowerDrill • Hexagonal Wrench Key (4mm) • Wrench(14,17,19,22mm) ◉ Gas leakage Detector • PipeCutter • Putty • Vinyl Tape • Pliers • Flare Tool ◉ Vacuum Pump Adapter ◉ Manifold Valve ◉ Charge Hose ◉ Vacuum Pump

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.**
  - ⚠ **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.

⚠ 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.
- 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 danger.
- Observe the rules and regulations of the electrical installation and the methods described in the installation manual when dealing 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 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.
- 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.

⚠ 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 funiture.
- An IEC approved power cord should be used. Power cord type: NYM.

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

INDOOR UNIT

⚠ 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.
- To avoid interference from noise, please place the unit and its remote 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.

OUTDOOR UNIT

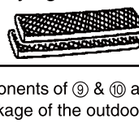
⚠ WARNING

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

⚠ CAUTION

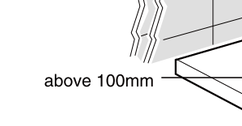
- Do not expose the unit under direct sunshine or rain. Besides, ventilation must be good and clear of obstruction.
- The air blown out of the unit should not point directly to animals or plants.
- The clearances of the unit from top, left, right and front are specified in figure below. At least two of the above sides must be open air.
- The installation height should be at least 2,300 mm or more from the floor.
- Be sure that the hot air blown out of the unit and noise do not disturb the neighbourhood.
- 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 1 m away from the antenna or signal line of television, radio or telephone. This is to avoid noise interference.

Names of Indoor Components

No.	Item	Qty
①	Hanger 	1
②	Screw for Hanger (4.1 x 32)	6
③	Holder for Remote Controller	1
④	AAA size Battery	2
⑤	Screw for holder of Remote Controller (3.1 x 16)	2
⑥	Holder	1
⑦	Remote Controller	1
⑧	Insulation sheet	1
⑨	Bush	1
⑩	Drain Pipe	1
⑪	Purifying Filter	1

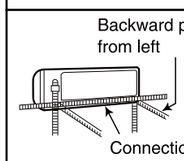
The components of ⑨ & ⑩ are included in the package of the outdoor unit.

The Length of Indoor Unit Connecting Cord



When the power is supplied from the indoor unit, pull the power cable from the cable drawer at the right or left side of the indoor unit.

Direction of Piping



There are 6 directions allowed, namely, backward piping, backward piping from left, horizontally piping from right, horizontally piping from left, vertically down from right, vertically down from left.

Dimension of Mounting Stand of thae Outdoor unit

(unit : mm)

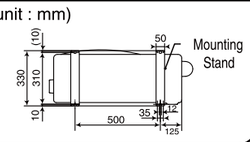
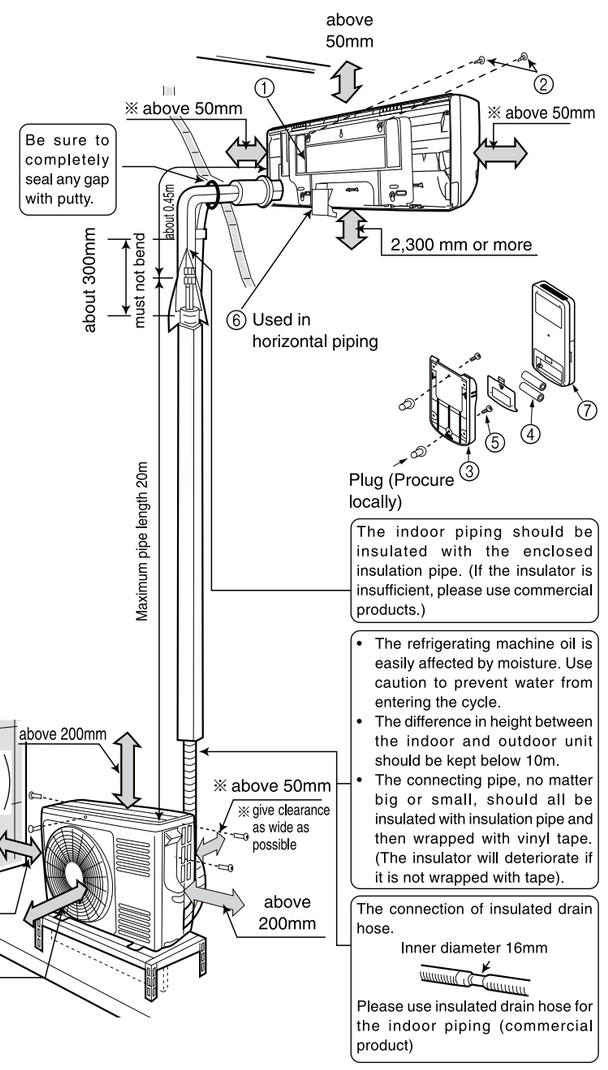


Figure showing the Installation of Indoor and Outdoor Unit.



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

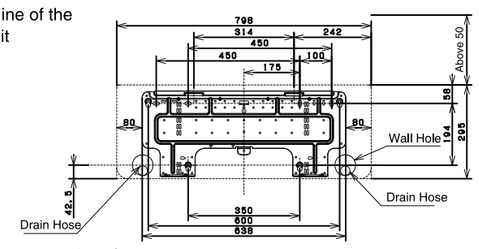
⚠ CAUTION

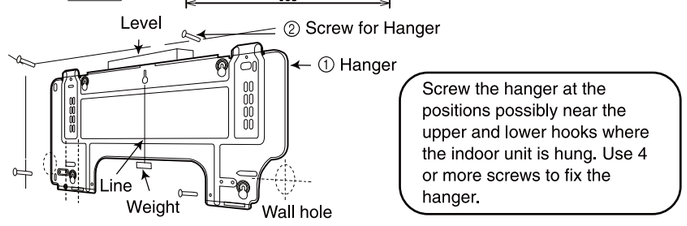
- The draining of the water container inside the Indoor unit can be done from the left. Therefore the hanger must be fixed horizontally or slightly tilted towards the side of drain hose. Otherwise, condensed water may overflow the water container.

Direct Mounting On The Wall

- Please use hidden beams in the wall to hold the hanger.

Visible outline of the outdoor unit



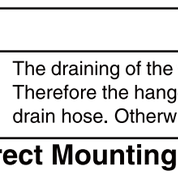


Screw the hanger at the positions possibly near the upper and lower hooks where the indoor unit is hung. Use 4 or more screws to fix the hanger.

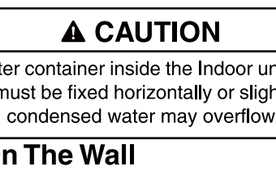
Procedures of Installation and Precautions

- Procedures to fix the hanger.

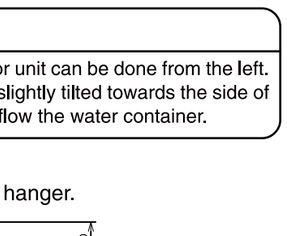
1. Drill holes on wall. (As shown below)



2. Push plug into the holes. (As shown below)



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



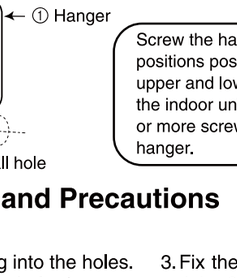
- Procedures to fix the holder of remote control.

1. Drill holes on wall. (As shown below)

2. Push plug into the holes. (As shown below)

Wall Penetration and Installation of Protection Pipe

- Drill a ø65mm hole on wall which is slightly tilted towards the outdoor side. Drill the wall at a small angle.
- Cut the protection pipe according to the wall thickness.
- Empty gap in the sleeve of protection pipe should be completely sealed with putty to avoid dripping of rain water into the room.
- Please ensure smooth flow of water when installing the drain hose. Improper installing may wet your funiture.
- An IEC approved power cord should be used. Power cord type: NYM.



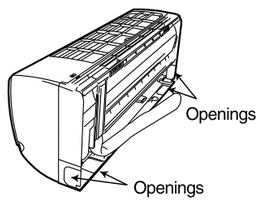
⚠ WARNING

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.
Unless it seals completely, any air with high humidity flows from outdoor and any dew may drop.

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

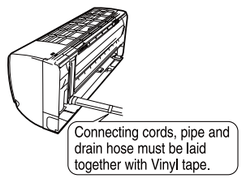
- Connect connecting cord.
- Pull out the pipe, connecting cord and drain hose.

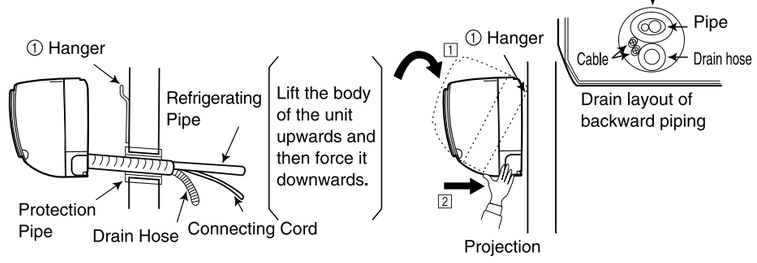
Installation

- Insert the pipe through the wall hole.

1 The upper part of the Indoor unit is hanged on the hanger.

2 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

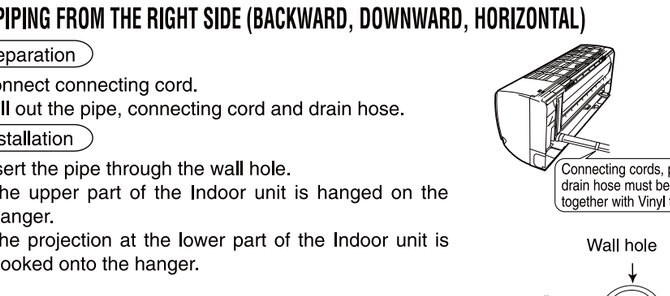
Changed of Drain Hose and Installation Procedures.

- Exchange the location of drain hose and drain cap while installing the pipe from the left side as shown in below. Be sure to plug in the drain hose until the insulating material folds upon itself.

- 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.

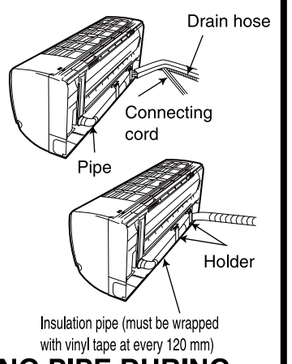


⚠ CAUTION

- The rubber strap used for fixing the insulator should not be tied with great force. Otherwise, this will damage heat insulation and causes water condensation.
- Please pull the lower part of the Indoor unit outwards to check if the unit is hooked onto the hanger. Improper installation may cause vibration and noise.
- Transform the piping while holding down the lower portion of pipe-support by hand.

INSTALLATION AFTER CONNECTION OF REFRIGERATING PIPES

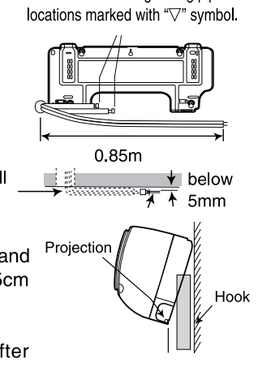
- The refrigerating pipe should be adjusted to fit into the hole on the wall and then ready for further connection.
- The terminals of 2 connected pipes must be covered with insulator used for terminal connection. Then the pipes are wrapped with insulation pipe.
- Connect the connecting cord after removing low cover. (Refer to "CONNECTION OF POWER CORD")
- After adjustment, fit the connecting cord and pipes into the space available under the unit. Use holder to hold them tight.
- Holder can be attached at the either of 2 places. Please select the easier position.



THE CONNECTION OF REFRIGERATING PIPE DURING THE INSTALLATION OF INDOOR UNIT

Preparation To Install Refrigerating Pipes

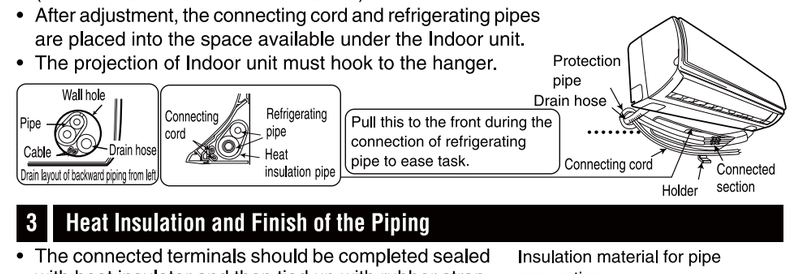
- The refrigerating pipes and connecting cord transform and are attached.



Installation

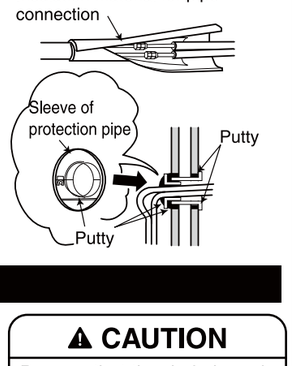
Hang the indoor unit onto the hanger. Use the temporary stand at the back of the Indoor unit to push its lower part 15cm forwards.

- Place the drain hose through the hole on the wall.
- Wrap the refrigerating pipes with insulation pipe after connecting refrigerating pipe.
- Connect the connecting cord after removing low cover. (Refer to "Connection of Power Cord")
- After adjustment, the connecting cord and refrigerating pipes are placed into the space available under the Indoor unit.
- The projection of Indoor unit must hook to the hanger.

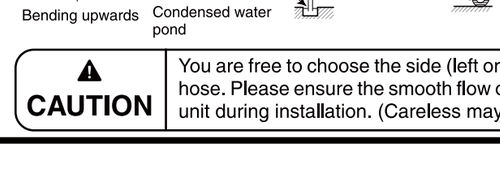


3 Heat Insulation and Finish of the Piping

- The connected terminals should be completed sealed with heat insulator and then tied up with rubber strap.
- Do not tie the terminals with the tape too tight. If any clearance or over-tightening may cause condensation.
- Please tie the pipe and power line together with vinyl tape as shown in the figure showing the installation of Indoor and Outdoor units.
- To enhance the heat insulation and to prevent water condensation, please cover the outdoor part of the drain hose and pipe with insulation pipe.
- Completely seal any gap with putty.



4 Installation of Drain Hose



⚠ CAUTION

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

⚠ 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 leakage.)