FOR SERVICE PERSONNEL ONLY

HITACHI Inspire the Next HITACHI SPLIT UNIT AIR CONDITIONER

INSTALLATION MANUAL OUTDOOR UNIT RAC-25NXA1 RAC-35NXA1 RAC-50NXA1

before starting installation work. • The sales agent should inform customers regarding the correct operation of installation.

Carefully read through the procedures of proper installation

Tools Needed For Installation Work

(Mark ● is exclusive use tool for R410A) • ⊕ ⊖ Screwdrive · Measuring Tape · Knife · Saw · ø65mm Power Dril 22mm) • Gas leakage Detector • Pipe Cutter • Putty • Vinyl Tape • Pliers • Flare Tool

Vacuum Pump Adapter

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.
- ▲ CAUTIONImproper installation may result in serious consequence
- Make sure to connect earth line.

loose contact may cause over-heating and fire.

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 quide. 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

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

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

· 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

Please use the specified components for installation work. Otherwise, the unit may collapse or water leakage, electric shock, fire or stronger vibration

· 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

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

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

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 around it.

Please mount the outdoor unit on stable ground to prevent vibration and increase of noise level.

Please remove side cover

when connecting the piping

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

A CAUTION

Do not touch the suction port, bottom surface, or aluminium fin of the outdoor unit.

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

Cover the drain hole 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.

Especially when there are heavy snows in cold weather area, condensed water freezes on the base and may not drain.

In this case, please remove the bush and the drain pipe at the bottom of the unit (left and centre near discharge portion of air, each 1 place) to restore smooth drainage. Ensure that the distance from the drain hole to the ground is 250mm

Please face this side (suction

side) of the unit to the wall.

when connecting the piping

RAC-50NXA1

Please ensure smooth flow of water when installing the drain hose. Improper installing may wet your furniture.

Decide the location for piping after sorting out the different types of pipe available.

Failure to do so may cause an injury.

Condensed water disposal of outdoor unit

the ground as shown figure. Join the drain pipe to one hole.

There is holes on the base of outdoor unit for condensed water to exhaust.

RAC-25NXA1/RAC-35NXA1

In case of using in cold weather area

< 3768 : A >

Install the outdoor unit horizontally and make sure that condensate drains away.

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

cover in reverse order of the removal.

Please face this side (suction

side) of the unit to the wall.

Improper repairs may result in water leakage, electric shock and fire, etc.

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

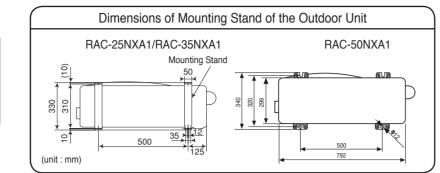
THE CHOICE OF MOUNTING SITE (Please note the following matters and obtain permission from customer before installation.)

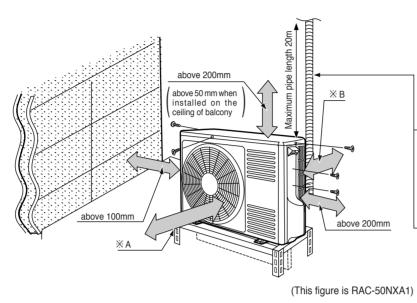
Do not expose the unit under direct sunshine or rain. Besides, ventilation must be good and clear of obstruction. The air blown out of the unit should not point directly to animals or plants. The clearances of the unit from top, left, right and front are specified in figure below. At least two of the above sides must be open air. 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 1m away from the antenna or signal line of television, radio or telephone. This

Names of Components Bush (RAC-25NXA1/RAC-35NXA1) 1 (RAC-50NXA1) Drain Pipe

is to avoid noise interference.





For outdoor unit installation, allow at least 2 sides of

space around the unit to ensure ventilation flue.

The connection of insulated drain hose. Please use insulated drain hose for the indoor piping (commercial product)

> RAC-25NXA1 RAC-35NXA1 RAC-50NXA1 above 300mm | above 300mm | above 200mm B above 50mm above 50mm above 50mm

to prevent water from entering the cycle.

will deteriorate if it is not wrapped with tape.)

The refrigerating machine oil is easily affected by moisture. Use caution

The difference in height between the indoor and outdoor unit should

The connecting pipe, no matter big or small, should all be insulated

with insulation pipe and then wrapped with vinyl tape. (The insulator

Inner diameter ø16mm

X give clearance as wide as possible

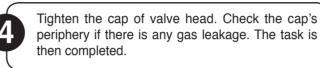
-2-

3. Remove of air from the pipe and gas leakage inspection Procedures of using vacuum pump for air removal

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

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

- Loosen the spindle of the service valve with small diameter by 1/4 turn and tighten the spindle
- immediately after 5 to 6 seconds. Remove the charging hose from the service
- Completely unscrew the spindle of the service valve (at 2 places) in anticlockwise direction to allow the low of refrigerant (using Hexagonal Wrench key).



Meter showing pressure R410A Manifold valve Charge hose Vacuum pump adapter When pumping starts, slightly loosen the flare nut to check of air sucked in. Then tighten the flare nut. RAC-25NXA1 / RAC-35NXA1 / RAC-50NXA1

When the meter reaches -101KPa

(-76cmHg) during pumping fully

tighten the shuttle.

The body of service valve

Cap of valve core Cap of valve head Hexagonal wrench key

Gas leakage inspection

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

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

▲ 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 if the contact is tight. Improper insertion may burn the terminal. Be sure to use only wire specified for the use of air-conditioner. Please refer to the manual for wire connection and the wiring technique should meet the standard of the electrical Leave some space in the connecting cord for maintenance purpose and be sure to secure it with the 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.

THIS APPLIANCE MUST BE EARTHED.

WARNING

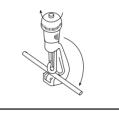
Outdoor unit

Procedures of wiring

Detail of cutting the connecting cord

RAC-25NXA1 / RAC-35NXA1 / RAC-50NXA1

1. Preparation of pipe



▲ CAUTION

Remove burr and jagged edge will cause leakage. Point the side to be trimmed downwards during trimming to prevent copper chips from entering the pipe.

Before flaring, please put on the flare nut.

Please use exclusive tool for refrigerant R410A.



Outer diameter (ø)	A (mm) Rigid Flaring Tool		
	For R410A tool	For R22 tool	
6.35 (1/4")	0 – 0.5	1.0	
9.52 (3/8")	0 – 0.5	1.0	
12.7 (1/2")	0 – 0.5	1.0	

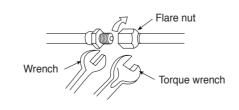
2. Pipe connection

▲ CAUTION

In case of removing flare nut of a indoor unit, first remove a nut of small diameter side, or a seal cap of big diameter side will fly out. Free from water into the piping when working. Be sure to tighten the flare nut to the specfied torque with a torque wrench. If the flare nut is overtightened, the nut may

be split after a long period has passed, and may cause a refrigerant leak.

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



		Outer diameter of pipe (ø)	Torque N·m (kgf·cm)
Small diameter side		6.35 (1/4")	13.7 – 18.6 (140 – 190)
_arge diameter side		9.52 (3/8")	34.3 – 44.1 (350 – 450)
		12.7 (1/2")	44.1 – 53.9 (450 – 550)
Valve head cap	Small diameter side	6.35 (1/4")	19.6 – 24.5 (200 – 250)
	Large diameter side	9.52 (3/8")	19.6 – 24.5 (200 – 250)
	Large diameter side	12.7 (1/2")	29.4 – 34.3 (300 – 350)
Valve core cap			12.3 – 15.7 (125 – 160)

Wiring of the outdoor unit

Please remove the side cover for wire connection

▲ WARNING

If you cannot attach the side plate due to the connection cord, please press the connecting cord in the direction to the front

Be sure that the hooks of the side cover fixed in certainly. Otherwise water leakage may occur and this causes short circuit

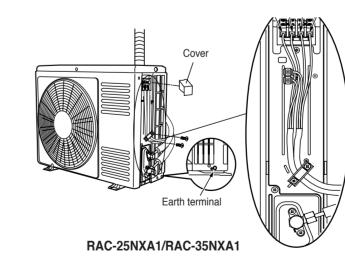
The connecting cord should not touch to service valve and pipes. (It becomes high temperature in heating operation.)

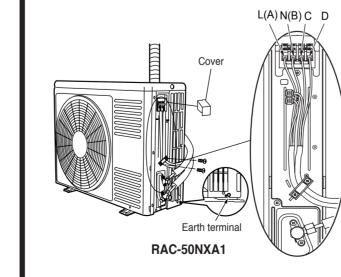
Checking for the electric source and the voltage range

Before installation, the power source must be checked and necessary wiring work must be completed. To make the wiring capacity proper, use the wire gauge list below for the wiring from house distribution fuse box to the outdoor unit in consideration of the blocked rotor current.

IMPORTANT

	wire length	vvire gauge
L, N	up to 6m	1.5mm ²
	up to 15m	2.5mm ²
	up to 20m	4.0mm ²
C, D	up to 6m	1.5mm ²
	up to 20m	2.5mm ²





When putting two connecting cords through the band.

MPORTANT Fuse Capacity 16A time delay fuse

 Investigate the power supply capacity and other electrical conditions at the installing location. Depending on the model of room air conditioner to be installed, request the customer to make arrangements for the necessary

The electrical work includes the wiring work up the outdoor unit. In localities where electrical conditions are poor, use of a voltage regulation is recommended.

Install outdoor for the room air conditioner within the reaching range of the line cord.

. Operation test

Please ensure that the air conditioner is in normal operating condition during the operation test.

Explain to your customer the proper operation procedures as described in the user's manual.

• Turn on the lamp in the room where the indoor unit is installed and check the remote controller for normal operation.

Insulation and maintenance of pipe connection

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.

Force-cooling operation

When the service switch of the outdoor unit is pressed for 1 or more seconds, the force-cooling operation starts. Use this mode when performing the failure diagnosis or collecting refrigerant into the outdoor unit.

ervice switch (If the switch is pressed or more than 1 second, the forcecooling operation starts. If the switch is pressed for additional more than 1 second, the operation stops.)

is pressed for additional more than second, the operation stops.)

RAC-25NXA1 / RAC-35NXA1

A CAUTION

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

The connected terminals should be completed sealed with heat insulator and then tied up with rubber strap.

Please tie the pipe and power line together with vinyl tape as shown in the figure showing the installation of Indoor and outdoor units. Then fix their position

OUTSIDE INSIDE

RAC-50NXA1

If the indoor unit does not operate, check to see that the connections are correct.