ARasonic

Philips screw drive

Hexagonal wrench (4 mm)

Air conditioner **Installation Instruction**

MODEL NO.:- RS/RU-PV9**, RS/RU-PV12**. RS/RU-PV18**. RS/RU-PV24*

55 N•m (5.6 kgf•m) 65 N•m (6.6 kgf•m) 100 N•m (10.2 kgf•m)

15 Vacuum pump

SAFETY PRECAUTIONS

2 Level gauge 3 Electric drill, hole core drill (ø70 mm)

Read the following "SAFETY PRECAUTIONS" carefully before installation

• Electrical work must be installed by a licensed electricián. Be sure to use the correct rating of the power plug and main circuit for the model to be installed The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below.
 Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

Required tools for Installation Works

14 Torque wrench

18 Nem (1.8 kgfem) 42 Nem (4.3 kgfem)

^ CAUTION This indication shows the possibility of causing injury or damage to properties only. The items to be followed are classified by the symbols

Pipe cutter

9 Gas leak detecto

10 Measuring tape

 \bigcirc Symbol with white background denotes item that is PROHIBITED.

• Symbol with dark background denotes item that must be carried out. Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in

instructions. Please remind the customer to keep the operating instructions for future reference.

Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit on veranda of a high rise building, child may climb up to outdoor unit and cross over the handrail causing an accident.

Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire. Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen

Do not sit or step on the unit, you may fall down accidentally. Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.

Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.

When installing or relocating air conditioner, do not let any substance other than the specified refrigerant, eg. air etc mix into refrigeration cycle (piping). Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc. Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc

For R410A model, use piping, flare nut and tools which is specified for R410A refrigerant. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury.

Thickness for copper pipes used with R410A must be more than 0.8 mm. Never use copper pipes thinner than 0.8 mm. It is desirable that the amount of residual oil less than 40 mg/10 m.

install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.

Engage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.

nstall at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop an ause injury.

or electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical

rcuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire. on not use joint cable for indoor / outdoor connection cable. Use the specified indoor/outdoor connection cable, refer to instruction

CONNECT THE CABLE TO THE NOOR UNIT and connect tightly for indoor/outdoor connection. Clamp the cable so that no external force will have impact on the terminal. If connection or fixing is of perfect, it will cause heat up or fire at the connection.

Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause fire or electrical shock his equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD), with sensitivity of 30mA at

This equipment is strongly recommended to be installed with Earth Leakage circuit preaker (ELOp) or nestidual current Device (nOD), with sensitivity of John at 1,1 sec or less. Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.

During installation, install the refrigerant piping properly before running the compressor. Operation of compressor without fixing refrigeration piping and valves at opened ondition will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.

During pump down operation, stop the compressor before remove the refrigeration piping. Removal of refrigeration piping while compressor is operating and valves are

opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.

Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigeran

After completion of installation, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.

Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when the refrigerant contacts with fire.

This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may callectrical shock in case of equipment breakdown or insulation breakdown.

Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.

Do not release refrigerant during piping work for installation, re-installation and during repairing a refrigeration parts Take care of the liquid refrigerant, it may cause frostbite. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc

Do not touch the sharp aluminium fin, sharp parts may cause injury.

Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.

Power supply connection to the room air conditioner

Use power supply cord 3 x 1.5 mm² (1.0 - 2.0HP) or 3 x 2.5 mm² (2.5HP) type designation 60245 IEC 57 or heavier cord. Connect the power supply cord of the air nditioner to the mains using one of the following method. Power supply point should be in easily accessible place for power disconnection in case of emerge me countries, permanent connection of this air conditioner to the power supply is prohibited.

Power supply connection to the receptacle using power plug.

Use an approved 15A (1.0 - 2.0HP) or 20A (2.5HP) power plug with earth pin for the connection to the socket.

Indoor/Outdoor Unit Installation Diagram

(Left and right are identical)

Attaching the remote control holder to the wall

Remote control holder fixing screws

Carry out insulation after checking for gas leaks and secure with vinyl tape.

X Vinyl tape

Insulation of piping con

Hemote control 3

This illustration is for

Attention not to ber

Installation parts you

should purchase (*)

Bushing-Sleeve (X

Putty (*) (Gum Type Sealer)

- Bend the pipe as

closely on the wall a

Power supply cord

Saddle (*)

- Connection cable

Liquid side piping (*)

Gas side piping (*)

possible, but be carefu that it doesn't break.

Sleeve (X)

Power supply connection to a circuit breaker for the permanent connection.

Use an approved 16A (1.0 ~ 2.0HP) or 20A (2.5HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm

It may need two people to carry out the installation work.

Accessories part Qty. No.

or or fixing screw (0)⊕ ⊖ 2

plicable piping kit CZ-3F5, 7BP 9.52 mm (3/8") 6.35 mm (1/4")
CZ-4F5, 7, 10BP 12.7 mm (1/2") 6.35 mm (1/4") CZ-52F5, 10BP 15.88 mm (5/8") 6.35 mm (1/4") SELECT THE BEST LOCATION

INDOOR UNIT

 Do not install the unit in excessive oil fume area such as kitchen, workshop and etc.
 There should not be any heat source or steam near the unit.

A place where air circulation in the room is good.

A place where drainage can be easily done.

A place where noise prevention is taken into consideration.

 Do not install the unit near the door way.

 Ensure the spaces indicated by arrows from the wall, ceiling, fence or other

Indoor unit of this air conditioner shall be installed in a height of at least 1.8 m.

OUTDOOR UNIT

 If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.

 There should not be any animal or plant which could be affected by hot air displanced. discharged.

kep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.

on on place any obstacles which may cause a short circuit of the discharged air.

If piping length is over the [piping length for additional gas], additional refrigerant should be added as shown in the table.

Model Power Gas Liquid Std. Length Elevation (m) Win. Max. Length (m) Piping Length (m) Additional Piping Corado. PV24** 2.5HP 15.88mm (5/8")

Example: For PV9** If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 25 g (10-7.5) m x 10 g/m = 25 g.



SELECT THE BEST LOCATION

HOW TO FIX INSTALLATION PLATE

Indoor unit or best strength of INDOOR unit installation Model

INDOOR unit installa Model

The center of installation plate should be at more than ① at right and left of the wall. The distance from installation plate edge to ceiling should more than From installation plate center to unit's left side is 3.

From installation plate center to unit's right side is 4

For left side piping, piping connection for liquid should be about ⑤ from this line.
 For left side piping, piping connection for gas should be about ⑥ from this line.
 Mount the installation plate on the wall with 5 screws or more (at least 5 screws).

(If mounting the unit on the concrete wall, consider using anchor bolts.)

• Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.

Always induit the installation plate florizontally by aligning the file
 Drill the piping plate hole with o70 mm hole-core drill.
 Putting measuring tape at position as shown in the diagram above

The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively. Another method is intersection point of arrow mark extension. The meeting point of the extension arrow mark is the hole center position

• Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side. (refer to step 3)

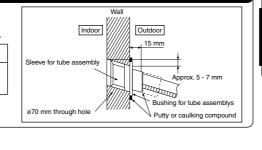
TO DRILL A HOLE IN THE WALL AND INSTALL A

Fix the bushing to the sleeve.
 Cut the sleeve until it extrudes about 15 mm from the wall

⚠ CAUTION When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused

by mice biting the connection cable.

Finish by sealing the sleeve with putty or caulking compound at the final stage.



This equipment mus be properly earthed.

Control Board

CONNECT THE CABLE TO THE INDOOR UNIT

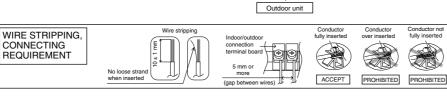
The indoor and outdoor unit connection cable can be connected without removing the front grille.

2. Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 x 1.5 mm² (1.0 ~ 2.0HP) or 3 x 2.5 mm² (2.5HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short. Terminals on the outdoor unit

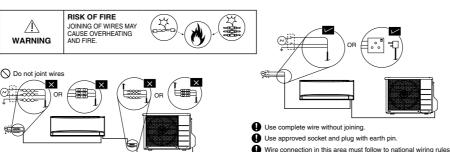
Colour of wires (connection cable) Terminals on the indoor unit 1 | 2 | 🕞 Secure the connection cable onto the control board with the holder

3.0 mm contact gap.

Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively. Farth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the anchorage.



Indoor & outdoor



4 INDOOR UNIT INSTALLATION

Do not turn over the unit without it's shock absorber during pull out the piping It may cause intake grille damage.
Use shock absorber during pull out the piping to protect the intake grille from damage. Piping Intake grille Shock absorber

. FOR THE RIGHT REAR PIPING Right Rear piping Pull out the Indoor piping ape it with piping in a position as entioned in Fig. below. Install the Indoor Unit Secure the Indoor Unit If indoor power supply, excess length of power supply must arrange accordingly, please refer "Power supply cord arrangement" before secure the indoor unit. How to keep the cove n case of the cover is cut, Step-4 Insert the connection cable

Tape it with piping in a

ition as mention in Fig. below.

Drain hose

and right

Piping

Install the indoor unit

look the indoor unit onto the

Secure the Indoor Unit

behind the chassis at piping keeping area as shown in the diagram without tying up in a

Ensure that the power supply

cord is not clamped in betwee unit's hook (2 position) and

Ensure that the power supply cord is not stretched between

chassis back and installation

plate. It may create squeak

side of the unit against the

installation plate until hooks engages with their slot (sound

Insert the connection cable

Power supply cord arrange.

Excess length of power supply parranged

the illustration for future (Left, right and 2 bottom covers for piping.) 2. FOR THE RIGHT AND RIGHT BOTTOM PIPING

Right and Right Bottom piping Pull out the Indoor piping nstall the Indoor Unit

nsert the connection cable

If indoor power supply, excess length of power supply must upper portion of installation

Secure the Indoor Unit

plate. (Engage the indoor unit with the upper edge of seated on the insta plate by moving it in left

Replace the drain hose

3. FOR THE EMBEDDED PIPING

ull the connection cable

Bend the embedded piping

o Indoor Unit The inside and outside connection cable can be onnected without removing th Cut and flare the embedded

 When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.
Refer to the section "Cutting and

laring the piping". nstall the Indoor Unit

Connect the piping Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.) nsulate and finish the

Please refer to "Piping and finishin

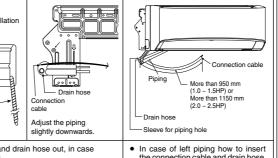
Replace the drain hose

Step-8 Secure the Indoor Unit

To take out the unit, push the PUSH marking at the bottom unit, and pull it slightly towards you to disengage the hooks from the unit. (This can be used for left rear piping and bottom piping also.)

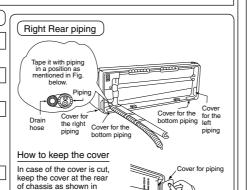
PUSH marking

Liquid side piping



 How to pull the piping and drain hose out, in case of the embedded piping. Apply putty or More mm Connection cable
Piping Drain hose from main unit PVC tube (VP-65) for piping and connection cable PVC tube for drain hose (VP-30) PVC tube for drain hose (VP-20) Drain hose PVC tube for ---- Cable Piping Cable Piping Hole center 55 mm (1.0 ~ 1.5HP) or (For the right piping, follow the same

82 mm (2.0 ~ 2.5HP)



Cover for the the left bottom piping piping

piping hole

Connecting The Piping to Outdoor Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (locate at valve) onto the copper pipe.

pipe. (In case of using long piping)

Connecting The Piping to Indoor

Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper

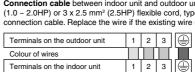
Connect the piping

Align the center of piping and sufficiently

tighten the flare nut with fingers.

Further tighten the flare nut with torque wrench in specified torque as stated in the table.

Align center of piping to valve and then tighten with torque



4. Attach the control board cover back to the original position with screw.

Secure the cable onto the control board with the holder (clamper) 5. For wire stripping and connection requirement, refer to instruction (5) of indoor unit.

AIR PURGING METHOD IS PROHIBITED FOR R410A SYSTEM

OUTDOOR UNIT

EVACUATION OF THE EQUIPMENT

WHEN INSTALLING After selecting the best location, start installation to Indoor/Outdoor Unit Installation Diagram CONDITIONER EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the 474 mm | 87 mm | 18.5 mm | 261 mm PV12** | 570 mm | 105 mm | 18.5 mm | 320 mm Close 540 mm | 160 mm | 18.5 mm | 330 mm (D) (E) CLOSE

Connect a charging hose with a push pin to the Low side of a charging set and the service port of the

3-way valve.
 Be sure to connect the end of the charging hose with the push pin to the service port.

pump

Connect the center hose of the charging set to a vacuum pump. Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.

Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes. Note: BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.

Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve Tighten the service port caps of the 3-way valve at a torque of 18 N•m with a torque wrench.

Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to

"OPEN" using a hexagonal wrench (4 mm)

Mount valve caps onto the 2-way valve and the 3-way valve. · Be sure to check for gas leakage. If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step ③ above

take the following measure:

If the leak stops when the piping connections are tightened further, continue working from step 3 If the leak does not stop when the connections are retightened, repair location of leak. Do not release refrigerant during piping work for installation and reinstallation. Take care of the liquid refrigerant, it may cause frostbite.

CONNECT THE CABLE TO THE OUTDOOR UNIT

Piping size

6.35 mm (1/4")

9.52 mm (3/8")

12.7 mm (1/2")

15.88 mm (5/8")

19.05 mm (3/4")

Remove the control board cover from the unit by loosening the screw. . Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 x 1.5 mm²

SELECT THE BEST LOCATION

INSTALL THE OUTDOOR UNIT

. Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (ø10 mm).

Model

PV18**, PV24**

CONNECT THE PIPING

A B C D

Torque

[18 N•m (1.8 kgf•m)]

[42 N•m (4.3 kgf•m)]

[55 N•m (5.6 kgf•m)]

[65 N•m (6.6 kgf•m)]

[100 N•m (10.2 kgf•m)]

. When installing at roof, please consider strong wind and earthquake.

 $(1.0 \sim 2.0 \text{HP}) \text{ or } 3 \times 2.5 \text{ mm}^2$ (2.5 HP) flexible cord, type designation 60245 IEC 57 or heavier cord. Do not use joint connection cable. Replace the wire if the existing wire (from concealed wiring, or otherwise) is too short.

Indoor and outdo

This equipment must be properly earthed Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

PIPING INSULATION

ase carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.

HOW TO TAKE OUT FRONT GRILLE

If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

· Use Test pen to

Please follow the steps below to take out front grille if necessary such as when servicing

3. Pull the lower section of the front grille towards you to remove the front grille.

horizontal position and then carry out above steps 2 - 3 in the reverse order.

2. Remove the 2 caps (1.0 ~ 1.5HP) or 3 caps (2.0 ~ 2.5HP) on the front grille as shown in the llustration at above, and then remove the 3 (1.0 \sim 1.5HP) or 4 (2.0 \sim 2.5HP) mounting screws.

nen reinstalling the front grille, first set the vertical airflow direction louver to the

The ON/OFF of Remote controller receiving sound can be change over by the following step

a) Press "AUTO" switch continuously for 5 sec. until "pep pep" sound is heard during first 20

b) Press "AUTO" switch again. Everytime "AUTO" switch is pressed (within 20 sec. interval)

Drain elbow 🗆 → Hose

Install the hose at an angle so that the water smoothly flows out

Remote controller receiving sound status will be swapped between ON and OFF. Long "peep" sound indicates that Remote controller receiving sound is ON. Short "pep" sound indicates that Remote controller receiving sound is OFF.

Set the vertical airflow direction louvers to the horizontal position

The below operations will be performed by pressing the "AUTO"

The Auto operation will be activated immediately once the Auto

TEST RUN OPERATION (FOR PUMP DOWN/SERVICING

The Test Run operation will be activated if the Auto Switch is

A "pep" sound will occur at the fifth sec., in order to identify the

DISPOSAL OF OUTDOOR UNIT DRAIN WATER

If a drain elbow is used, the unit should be placed on a

stand which is taller than 5 cm.

If the unit is used in an area where temperature falls below

0°C for 2 or 3 days in succession, it is recommended not

o use a drain elbow, for the drain water freezes and the

pressed continuously for more than 5 sec. to below 8 sec..

REMOTE CONTROLLER RECEIVING SOUND ON/OFF

AUTO SWITCH OPERATION

Switch is pressed and release within 5 sec.

AUTO OPERATION MODE

starting of Test Run operation.

fan will not rotate

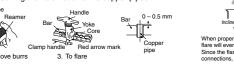
Please cut using pipe cutter and then remove the burrs.

3. Please make flare after inserting the flare nut onto the copper pipes.

Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused Turn the piping end down to avoid the metal powder entering the pipe.

CUTTING AND FLARING THE PIPING

Terminal Board



Point down 1. To cut

Indoor Unit

2. To remove burrs

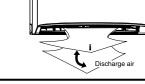
Inclined Surface Cracked Uneven damaged thickness

CHECK THE DRAINAGE

 Open front panel and remove air filters (Drainage checking can be carried out without removing the fron Pour a glass of water into the drain tray-styrofoam



Operate the unit at cooling/heating operation mode for fifteen minutes or more. Measure the temperature of the intake and discharge air. Ensure the difference between the intake temperature and the discharge is more than 8°C during Cooling operation or more



Pump Down Method When Reuse Existing Piping (R22 Model) for R410A Model Compressor oil of R22 model is insoluble in compressor oil of R410A model. The mixing of compressor oil may cause damage of compressor.

Possibility of Mixina To Reuse Old Piping ■ Reuse of piping of R22 model is dangerous ■ Piping of R22 model can be reused only when

because of its compressor oil.

Reuse the piping of R22 model only when it is unavoidable, eg. concealed piping.

When reuse piping of R22 model, pump down must be carried out properly to ensure compressor oil which is mixed with refrigerant and circulating inside refrigeration cycle) properly into the outdoor unit of air conditioner. unavoidable, eg. concealed piping.

■ When reuse piping of R22 model, pump down must be carried out properly to ensure compressor oil which is remained inside piping is collected away.

3 Take out air

Proper Pump Down Method Operate air 2 After 10 ~ 15 minutes of pre

than 14°C during Heating operation

operation, close 2 way valve. After 3 minutes, close 3 way cooling mode for 10 ~ 15 minutes. Most Important Proces

Purpose: To make the oi

Only very small amount of oil remain inside piping, which Mixed refrigera & oil will be

In case pump down cannot be done, please flush the piping using R410A refrigerant.

Is the indoor unit properly hooked to the

Is the power supply voltage complied with rated value?

CHECK ITEMS Is there any gas leakage at flare nut

Has the heat insulation been carried out at flare nut connection?

Is the connection cable being fixed to terminal board firmly?

Is the connection cable being clamped firmly?

Is the drainage ok?
(Refer to "Check the drainage" section) Is the earth wire connection properly done?

Is there any abnormal sound? Is the cooling/heating operation normal? Is the thermostat operation normal? Is the remote control's LCD operation normal?

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4 Install New

Refrigerant air conditioner.