

MULTI TYPE ROOM AIR CONDITIONER INSTALLATION INSTRUCTION SHEET

(PART NO. 9373559016)

WARNING: This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.
CAUTION: This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user or damage to property.

For authorized service personnel only.

WARNING: For this room air conditioner to operate satisfactorily, install it as outlined in this installation instruction sheet.

- Connect the indoor unit and outdoor unit with the room air conditioner piping and cords available standard parts. This installation instruction sheet describes the correct connections using the installation set available from our standard parts.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.
- Do not use an extension cord.
- Do not turn on the power until all installation work is complete.
- Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation.
- There is not extra refrigerant in the outdoor unit for air purging.

- Be careful not to scratch the room air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
- Let the customer keep this installation instruction sheet because it is used when the room air conditioner is serviced or moved.

STANDARD ACCESSORIES

The following installation accessories are supplied. Use them as required.

INDOOR UNIT ACCESSORIES (Wall Mounted type)

Name and Drawing	Qty	Use
Wall hook bracket	1	For indoor unit installation
Wall cap	1	For through hole connection pipe penetration
Remote control	1	Use for air conditioner operation
Battery (power)	1	For remote control use
Remote control unit holder	1	Use as remote control unit holder
Cloth tape	1	For indoor unit installation
Refrigerant gauge (R410A)	1	For remote control unit holder installation
Seal A	1	For indoor unit installation
Air cleaning filter	2	
Air cleaning filter	2	

OUTDOOR UNIT ACCESSORIES

Name and Drawing	Qty	Use
Through bracket	1	For draining the refrigerant when out of the outdoor unit

ELECTRICAL REQUIREMENT

Electric wire size and fuse capacity

Power supply cord (mm ²)	MIN.	MAX.
Connection cord (mm ²)	MIN.	MAX.
Connection cord (mm ²)	MIN.	MAX.
Fuse capacity (A)		

Always use NEC/IEE or equivalent to the connection cord.
 • Install the connection cord with a minimum gap of at least 3mm (about 1/8 inch) between the indoor unit and outdoor unit.

CONNECTION PIPE REQUIREMENTS

Install heat insulation around both the gas and liquid pipes. Pay attention to do not install water leaks.

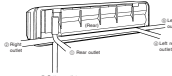
Heat insulation with heat resistance above 25°C (77°F) is required. If the humidity level at the installation location of the refrigerant piping is expected to exceed 75%, install heat insulation around the refrigerant piping. If the expected humidity level is 75-80%, use heat insulation that is 15 mm or thicker and if the expected humidity exceeds 80%, use heat insulation that is 25 mm or thicker. If heat insulation is used that is not as thick as specified, consideration may form on the surface of the insulation. In addition, use heat insulation with heat conductivity of 0.040 W/m·K or less (at 25 °C).

Model	Min. Insulation Thickness
All models	15 mm (5/8")
Small	15 mm (5/8")
Large	25 mm (1")
Minimum length	15 x 90 x 11.2

INSTALLATION PROCEDURE

1 INDOOR UNIT INSTALLATION

The piping can be connected in the five directions indicated by ①, ②, ③, ④, and ⑤. When the piping is connected in direction ① or ②, cut along the piping groove in the side of the under cover with a hacksaw. When connecting the piping in direction ③, cut a hole in the wall at the bottom of the under cover.



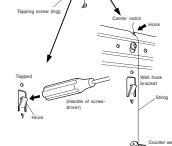
1. INSTALLING THE WALL HOOK BRACKET

Install the wall hook bracket horizontally and perpendicular to the floor. If the wall hook bracket is tilted, water will drip to the floor.

Install the wall hook bracket on the wall in a strong enough to withstand the weight of an indoor unit.

Before lowering the wall hook bracket to the wall with the screws, bear in mind the following points:

- Fasten the wall hook bracket to the wall with the screws through the under cover.
- Check that there is no wall at the wall hook bracket.



2. CUTTING THE HOLE IN THE WALL FOR THE CONNECTING PIPING

If the wall pipe is not used, the point intersecting the indoor and outdoor units may touch metal and cause electric leakage.

- Use a 60 mm diameter hole in the wall at the position shown in Fig. 1.
- When cutting the wall hole at the inside of the installation frame, cut along the piping groove in the side of the under cover with a hacksaw. When cutting the piping in direction ③, cut a hole in the wall at the bottom of the under cover.
- Always align the corner of the wall hole if finished, water leak might occur.
- Align the wall pipe to match the wall thickness, stick it into the hole and mark it. Then the top with vinyl tape, and seal the pipe through the hole. (The connection pipe is supplied in the installation set.)

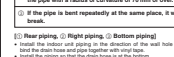


3. FORMING THE DRAIN HOLE AND PIPE

Do not remove the foam net from the indoor unit pipe.

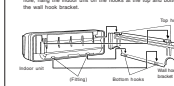
- Remove the foam net from the indoor unit pipe.
- To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 70 mm or more.
- If the pipe is bent repeatedly at the same place, it will break.

Remove the drain hose from the indoor unit and the wall hook bracket. Insert the drain hose into the hole and secure it with the screws.



4. REMOVING THE DRAIN HOSE

Remove the under cover and pull off the drain hose.



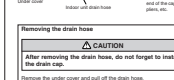
5. INSTALLING THE DRAIN HOSE

For all piping and left rear piping, align the marks on the wall hook bracket and shape the connection pipe.



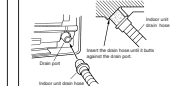
6. REMOVING THE DRAIN HOSE

Remove the under cover and pull off the drain hose.



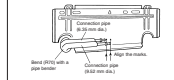
7. REMOVING THE DRAIN HOSE

Remove the under cover and pull off the drain hose.



8. REMOVING THE DRAIN HOSE

Remove the under cover and pull off the drain hose.



SELECTING THE MOUNTING POSITION

Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.

Do not install where there is the danger of combustible gas leakage.

Do not install near heat sources.

If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

Observe the mounting position with the outdoor unit below:

1. INDOOR UNIT

- Install the indoor unit level on a strong wall which is not subject to vibration.
- The inlet and outlet pipes should be installed: the air should be able to flow and vent the pipes.
- Do not install the unit where it will be exposed to direct sunlight.
- Install the unit where operation to the remote control is easy.
- Install the unit where the drain pipe can be easily drained.
- Take necessary measures to prevent the pipes from being damaged by heat, frost, and so on.
- Install the unit where the filter can be removed.



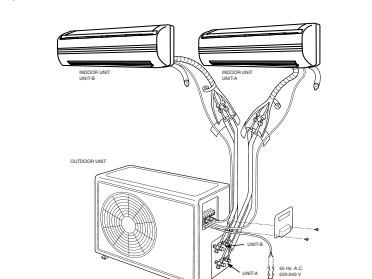
2. OUTDOOR UNIT

- Install the unit where it will be exposed to direct sunlight if necessary, install a shade that does not interfere with the air flow.
- Do not install the unit where a strong wind blows or where it is too hot.
- Do not install the unit where people pass.
- Take your neighbors into consideration so that they are not disturbed by air blowing and noise from the unit.
- Provide the space shown in Fig. 2 so that the air flow is not blocked. Also, provide the space shown in Fig. 3 so that the air flow is not blocked. Also, provide the space shown in Fig. 4 so that the air flow is not blocked. Also, provide the space shown in Fig. 5 so that the air flow is not blocked.
- Install the unit where it will be exposed to direct sunlight.



INDOOR UNITS-OUTDOOR UNIT CONNECTIONS

Fig. 3



2 FRONT PANEL AND UNDER COVER REMOVAL

FRONT PANEL REMOVAL AND INSTALLATION

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

Remove the intake grille.

THE FRONT PANEL INSTALLATION

Turn the front panel to the right side so that the front panel is in the original position.

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3 INDOOR UNIT WIRING

Remove the under cover and pull off the drain hose.

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4 OUTDOOR UNIT INSTALLATION

Install the unit where it will not be tilted by more than 5°.

When installing the outdoor unit where it may be exposed to strong wind, install it securely.

Get the unit on a strong stand, such as one made of concrete blocks to improve shock and vibration.

Do not set the unit directly on the ground because it causes trouble.

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5 CONNECTING THE PIPING

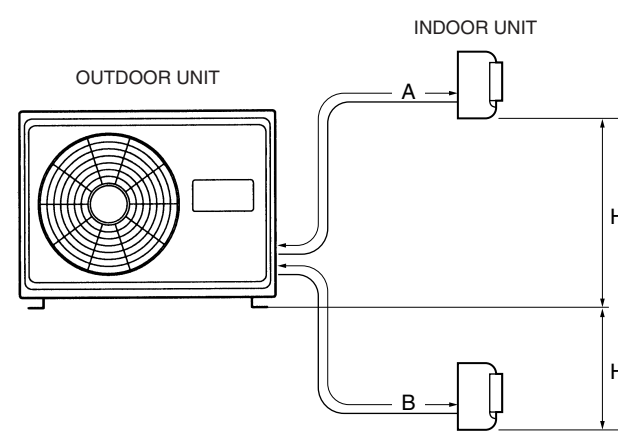
CAUTION

The maximum lengths of this product are shown in Table 5-1. If the units are further apart than this, correct operation can not be guaranteed.

1. LIMITATION OF REFRIGERANT PIPING LENGTH

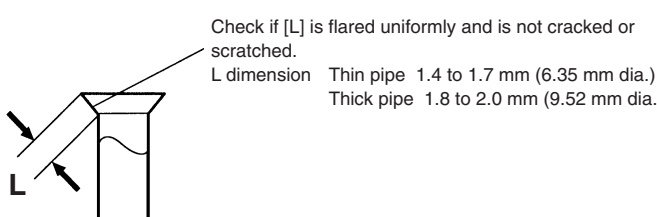
Table 5-1

Total max length (A+B)	30 m (98 ft)
Max length for each indoor unit (A or B)	15 m (49 ft)
Max height difference (H)	8 m (26 ft)



2. FLARING

- Cut the connection pipe to the necessary length with a pipe cutter.
- Hold the pipe downward so that cuttings will not enter the pipe and remove the burrs.
- Insert the flare nut (always use the flare nut attached to the indoor and outdoor units respectively) onto the pipe and perform the flare processing with a flare tool.



3. BENDING

- When bending the pipe, be careful not to crush it.
- To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 70 mm or over.
- If the copper pipe is bent or pulled to often, it will become stiff. Do not bend the pipe more than three times at one place.

4. CONNECTION

- Install the outdoor unit wall cap (supplied with the optional installation set or procured at the site) to the wall pipe.
- Connect the outdoor unit and indoor unit piping.
- After matching the center of the flare surface and tightening the nut hand tight, tighten the nut to the specified tightening torque with a torque wrench. (Tighten the flare nut of the outdoor unit 3-way valve after air purging.)

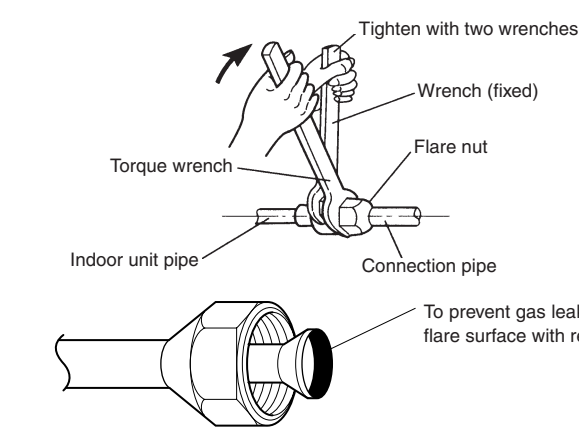


Table 5-2 Flare nut tightening torque

Flare nut	Tightening torque	Tightening torque standard (using a 20 cm wrench)
6.35 mm dia.	16 to 18 N·m (160 to 180 kgf·cm)	Wrist strength
9.52 mm dia.	30 to 42 N·m (300 to 420 kgf·cm)	Arm strength

Do not remove the cap from the connection pipe before connecting the pipe.

6 VACUUM PROCESS

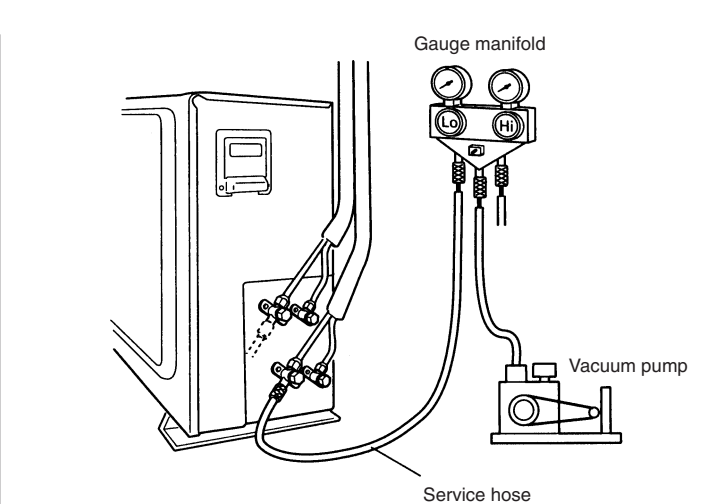
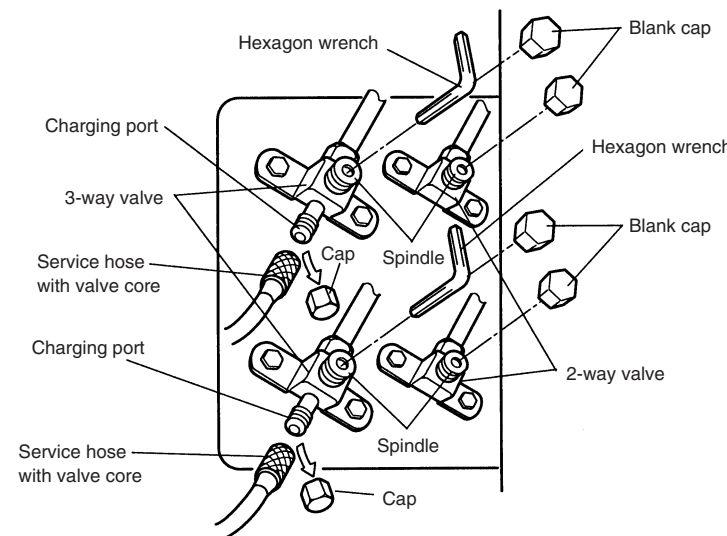
CAUTION

- Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for air purging!
- When moving and installing the room air conditioner, do not mix gas other than the specified refrigerant (R22) inside the refrigerant cycle.
- Charging of additional refrigerant (R22) according to the piping length is unnecessary.

1. VACUUM

- Remove the cap, and connect the gauge manifold and the vacuum pump to the charging port by the service hoses.
- Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5 mmHg.
- Disconnect the service hoses and fit the cap to the charging port to the specified torque.
- Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench (Torque: 6 to 7 N·m (60 to 70 kgf·cm)).
- Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque.

	Tightening torque
Blank cap	20 to 25 N·m (200 to 250 kgf·cm)
Charging port cap	7 to 9 N·m (70 to 90 kgf·cm)



7 GAS LEAKAGE INSPECTION

CAUTION

After connecting the piping, check the joints for gas leakage with gas leak detector.

8 OUTDOOR UNIT WIRING

WARNING

- Before starting work, check that power is not being supplied to the outdoor unit.
- Match the terminal block numbers and connection cord colors with those of the indoor unit side. Erroneous wiring may cause burning of the electric parts.
- Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with cord clamps. (If the insulator is clamped, electric leakage may occur.)
- Always connect the ground wire.

CAUTION

- The power cord is not supplied with the outdoor unit. Use 2.5 mm² to 3.5 mm² H07RN-F or equivalent as the connection cord.
- Select power cable matched to the fuse capacity. (Install in accordance with standard.)

- Remove the outdoor unit terminal cover.
- Process the end of the connection cords to the dimensions shown in (Fig. 8-2) and bend the end of each cord as shown in (Fig. 8-1).
- Connect the end of the connection cord fully into the terminal block and fasten with the screws.
- Fasten the sheath with a cord clamp.
- Install the terminal cover.

Fig. 8-1 Stripped length

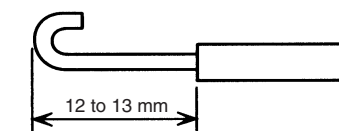


Fig. 8-2

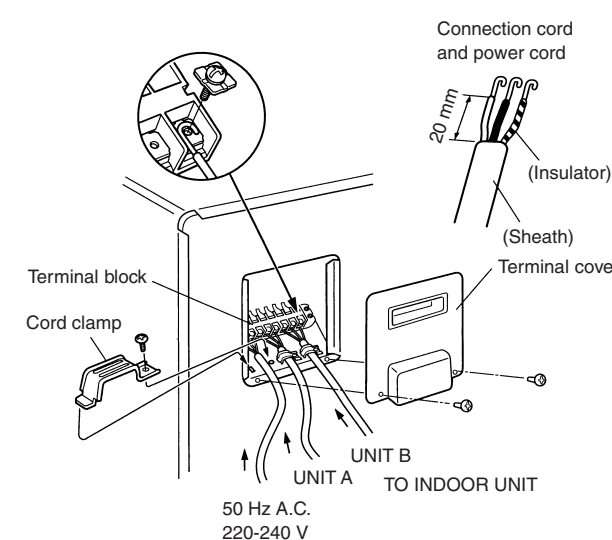
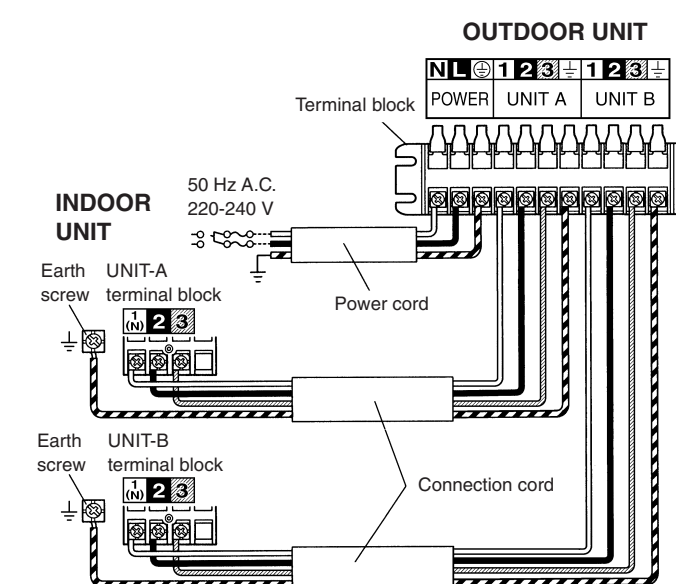
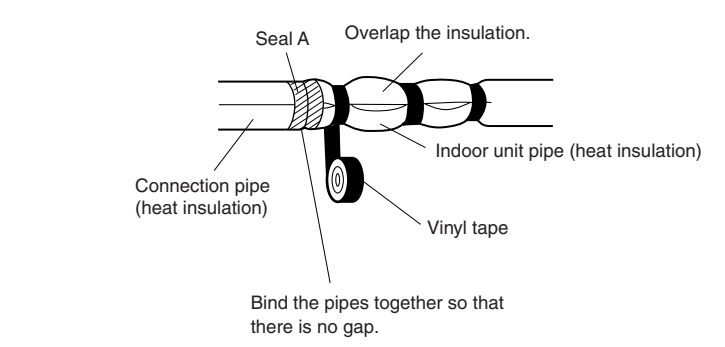


Fig. 8-3

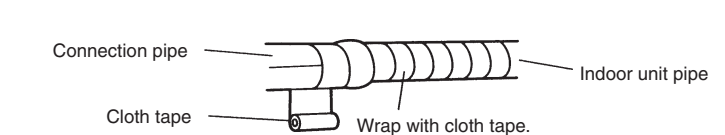


9 FINISHING

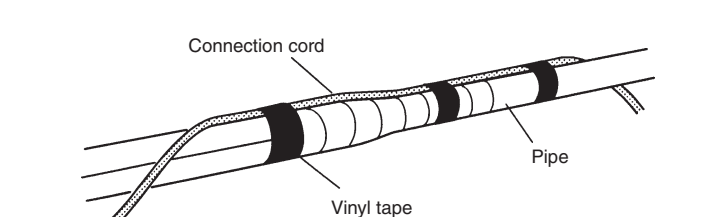
- Insulate between pipes.
 - For rear, right, and bottom piping, overlap the connection pipe heat insulation and indoor unit pipe heat insulation and bind them with vinyl tape so that there is no gap.
 - For left and left rear piping, butt the connection pipe heat insulation and indoor unit pipe heat insulation together and bind them with seal A and vinyl tape so that there is no gap.



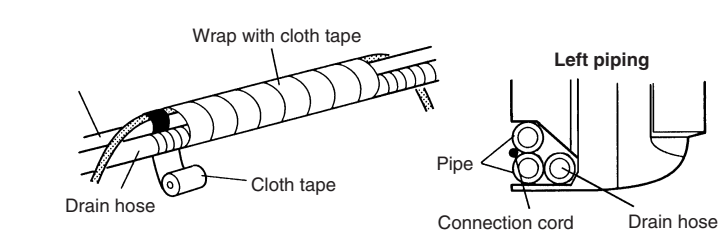
- For left and left rear piping, wrap the area which accommodates the rear piping housing section with cloth tape.



- For left and left rear piping, bind the connection cord to the top of the pipe with vinyl tape.

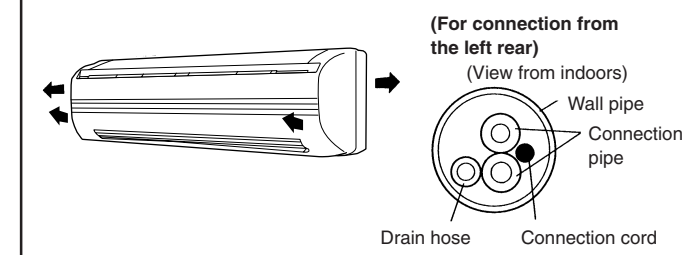


- For left and left rear piping, bundle the piping and drain hose together by wrapping them with cloth tape over the range within which they fit into the rear piping housing section.

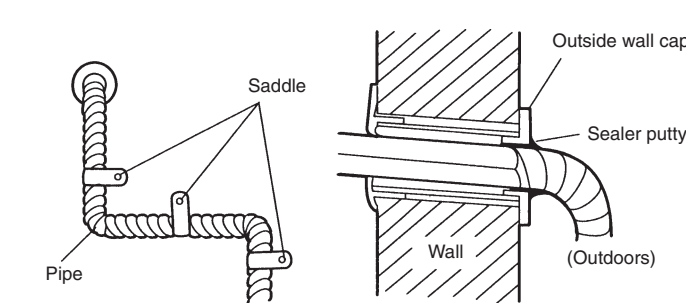


Check that:

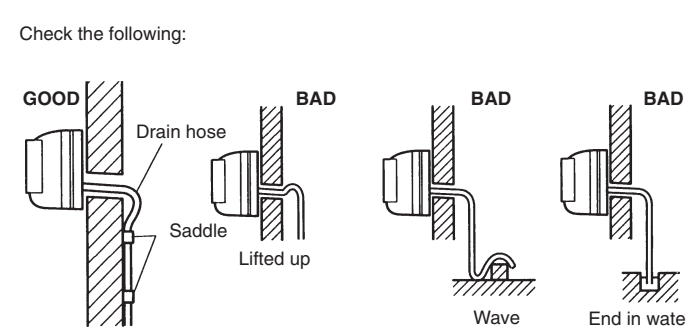
- The top and bottom hooks are hooked firmly and the indoor unit does not move to the front and rear or left and right.
- The indoor unit is accurately positioned horizontally and vertically.
- When connected from the left rear, the drain hose is at the bottom left of the wall pipe.



- Temporarily fasten the connection cord along the connection pipe with vinyl tape. (Wrap to about 1/3 the width of the tape from the bottom of the pipe so that water does not enter.)
- Fasten the connection pipe to the outside wall with a saddle, etc.
- Fill the gap between the outside wall pipe hole and the pipe with sealer so that rain water and wind cannot blow in.



- Fasten the drain hose to the outside wall, etc.



Check the following:

10 POWER

WARNING

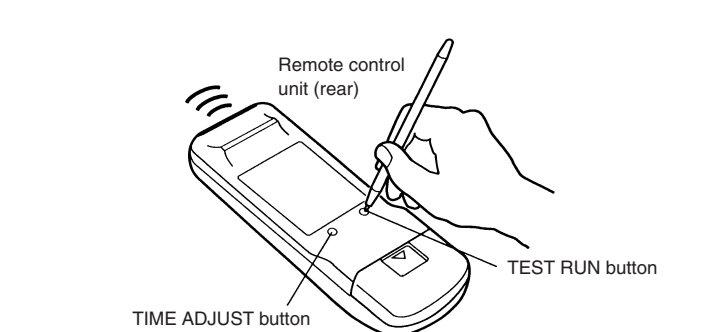
- The rated voltage of this product is 220-240 V A.C. 50 Hz.
- Before turning on the verify that the voltage is within the 198 V to 264 V range.
- Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- Use a circuit breaker and receptacle matched to the capacity of the room air conditioner. (Fuse • breaker rating: 20 A)
- The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.
- Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
- Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

CAUTION

- The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- When the voltage is low and the air conditioner is difficult to start, contact the power company to have the voltage raised.

11 TEST RUNNING

- Perform test operation and check items 1 and 2 below.
- For the operation method, refer to the operating manual.
- The outdoor unit may not run, depending on the room temperature. In this case, press the test run button at the back of the remote control unit while the room air conditioner is running. (With the transmit section of the remote control unit facing the body, press the TEST RUN button with the tip of a ball point pen.)



Operation can be checked by lighting and flashing of the display section OPERATION and TIMER lamps. Perform judgement in accordance with the following.

- Test running
 - When the air conditioner is run by pressing the remote control unit test run button, the OPERATION and TIMER lamps flash slowly at the same time. To end test operation, press the remote control unit START/STOP button.
- Error
 - The OPERATION, TIMER and SWING lamps operate as follows according to the error contents.

Error contents	Error display		
	OPERATION (RED)	TIMER (GREEN)	SWING (ORANGE)
Room temperature thermistor or piping thermistor error (wire disconnected or broken)	2 times ●	○	—
Indoor unit control error	4 times ●	○	—
Indoor fan error	6 times ●	○	—

○ : Fast flashing ● : Slow flashing — : Off

CHECK ITEMS

(1) INDOOR UNIT

- Is operation of each button on the remote control unit normal?
- Does each lamp light normally?
- Do not air flow direction louvers operate normally?
- Is the drain normal?
- Is there any abnormal noise and vibration during operation?

(2) OUTDOOR UNIT

- Is there any abnormal noise and vibration during operation?
 - Will noise, wind, or drain water from the unit disturb the neighbors?
 - Is there any gas leakage?
- Do not operate the air conditioner in the test running state for a long time.
 - For the operation method, refer to the operating manual and perform operation check.

12 CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

- Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
- Air filter removal and cleaning, and how to use the air louvers.
- Give the operating and installation instruction sheets to the customer.

13 REMOTE CONTROL UNIT HOLDER INSTALLATION

CAUTION

- Check that the indoor unit correctly receives the signal from the remote control unit, then install the remote control unit holder.
- Select the remote control unit holder selection site by paying careful attention to the following: Avoid places in direct sunlight. Select a place that will not be affected by the heat from a stove, etc.

Install the remote control unit holder to a wall or pillar with the tapping screws.

