SPLIT TYPE ROOM AIR CONDITIONER

INSTALLATION INSTRUCTION SHEET

(PART NO. 9360500038)

For authorized service personnel only.

⚠ WARNING

(1) For the room air conditioner to operate satisfactorily, install it as outlined in this installation instruction sheet.

- (2) 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.
- (3) Installation work must be performed in accordance with national wiring standards by authorized personnel only.
- (4) Never cut the power cord, lengthen or shorten the cord, or change the plug.
- (5) Also, do not use an extension cord.
- (6) Plug in the power cord plug firmly. If the receptacle is loose, repair it before using the room air conditioner.
- (7) Do not turn on the power until all installation work is complete.
- 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.

SELECTING THE MOUNTING POSITION

! WARNING

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.

! CAUTION

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

(2) Do not install near heat sources.

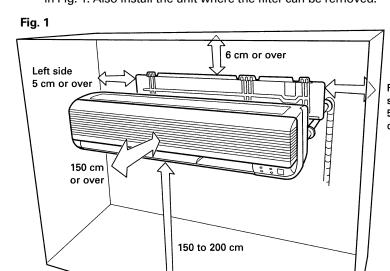
(3) If children under 10 years old may approach the unit, take preventive measures so that they cannot reach

Decide the mounting position with the customer as follows:

1. INDOOR UNIT

Fig. 3

- (1) Install the indoor unit level on a strong wall which is not subject to
- (2) The inlet and outlet ports should not be obstructed: the air should
- be able to blow all over the room. (3) Install the unit near an electric outlet or special branch circuit.
- (4) Do not install the unit where it will be exposed to direct sunlight.
- (5) Install the unit where connection to the outdoor unit is easy.
- (6) Install the unit where the drain pipe can be easily installed.
- (7) Take servicing, etc. into consideration and leave the spaces shown in Fig. 1. Also install the unit where the filter can be removed.



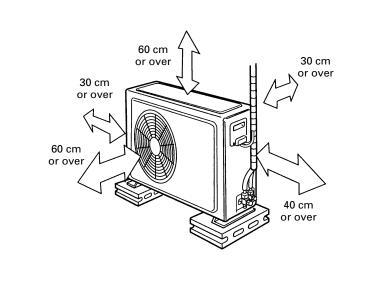
OUTDOOR UNIT

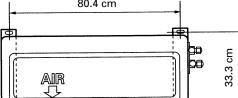
INDOOR UNIT

2. OUTDOOR UNIT

- (1) If possible, do not install the unit where it will be exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)
- (2) Do not install the unit where a strong wind blows or where it is
- (3) Do not install the unit where people pass.
- (4) Take your neighbors into consideration so that they are not disturbed by air blowing into their windows or by noise.
- (5) Provide the space shown in Fig. 2 so that the air flow is not blocked. Also for efficient operation, leave open three of the four directions front, rear, and both sides.

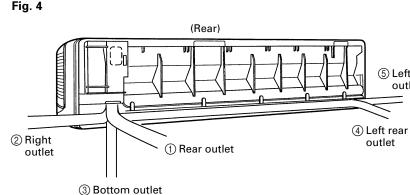
Fig. 2





INSTALLATION PROCEDURE

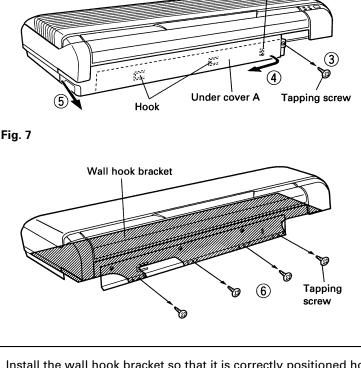
The piping can be connected in the five directions indicated by ①, ②, ③, ④, and ⑤ in Fig. 4. When the piping is connected in direction ② or ⑤, cut along the piping groove in the side of the under cover with a hacksaw. When connecting the piping in direction 3, cut a notch in



1. INSTALLING THE WALL HOOK BRACKET

Removing the wall hook bracket

- Remove one side of under cover B by pulling it forward (arrow direction in Fig. 5).
- Remove the other side of under cover B by pulling it forward
- Remove the tapping screw installed to under cover A. (Fig. 6) While pulling the right side of under cover A forward (releas-
- Next, remove under cover A by pulling the left side forward
- (arrow direction in Fig. 6). Remove the four tapping screws holding the wall hook brack-
- et. (Fig. 7)



- (1) Install the wall hook bracket so that it is correctly positioned horizontally and vertically. If the wall hook bracket is tilted, water will drip to the floor.
- (2) As the weight of the indoor unit is 37 to 44 lbs (17 to 20 kg), it should be installed after properly examining the place where it is intended to be installed. If the place is not strong enough, a plank or girder should be used to make the place sufficiently strong so that the wall can support the weight.

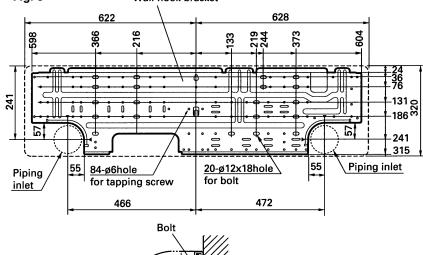
[Installation directly to a wall]

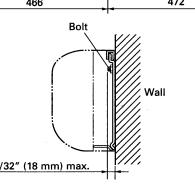
Before fastening the wall hook bracket to the wall with the screws, level it by tapping the hook at the center of bracket to the wall with the handle of a screwdriver.

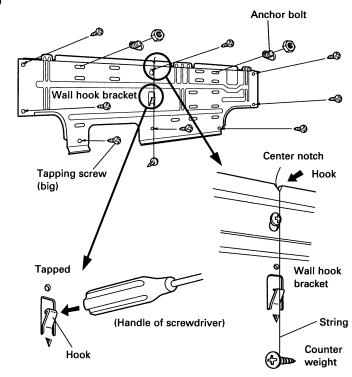
- Fasten the wall hook bracket to the wall with 6 or more screws and anchor bolts through the holes near the outer edge of the
- Do not install the wall hook bracket at only one place or at an angle. For a concrete wall, embed anchor bolts (10 mm dia.) into the wall at the wall hook bracket holes (12 \times 18 mm dia.). Allow the anchor bolts to stick out at least 18 mm from the wall.(Fig.8) Install the unit to the anchor bolts with nuts through the wall hook bracket. Use 2 bolts for concrete wall and 4 bolts for blister con-
- Finally tighten the bolts and wood screws after confirming, using the level indicator, that the clamp is horizontal.

!\ CAUTION

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





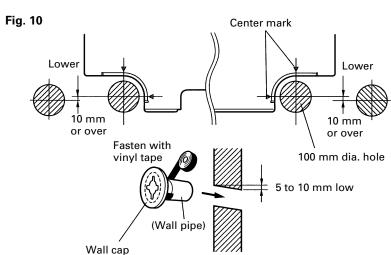


2. CUTTING THE HOLE IN THE WALL FOR THE **CONNECTING PIPING**

!\ WARNING

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

- (1) Cut a 100 mm diameter hole in the wall at the position shown in Fig. 10.
- (2) When cutting the wall hole at the inside of the installation frame, cut the hole to a point of intersection of center marks. When cutting the wall hole at the outside of the installation
- frame, cut the hole at least 10 mm below less. (3) Cut the hole so that the outside end is lower (5 to 10 mm) than the inside end.
- (4) Always align the center of the wall hole. If misaligned, water leakage will occur.
- (5) Cut the wall pipe to match the wall thickness, stick it into the wall cap, fasten the cap with vinyl tape, and stick the pipe through the hole. (The connection pipe is supplied in the installation set.) (Fig. 10)

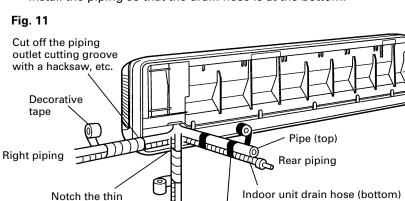


- (6) For ⑤ left piping and ② right piping, cut the hole a little lower so that drain water will flow freely. (Fig. 10)
- 3. FORMING THE DRAIN HOSE AND PIPE

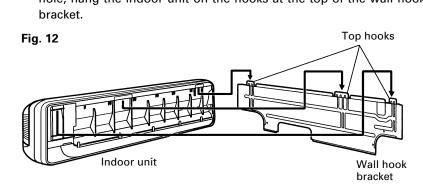
! CAUTION

- (1) Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection
- (2) To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 100 mm or
- (3) If the pipe is bent repeatedly at the same place, it will

- Install the indoor unit piping in the direction of the wall hole and bind the drain hose and pipe together with vinyl tape. (Fig. 11)



- part of under Bottom piping Bind with vinyl tape
- Wrap the pipes of the indoor unit that are visible from the outside with decorative tape.
- After passing the indoor piping and drain hose through the wall hole, hang the indoor unit on the hooks at the top of the wall hook



[For 4 Left rear piping, 5 Left piping]

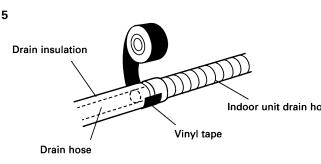
the pipe bracket.

Removing the pipe bracket Remove the three tapping screws holding the pipe bracket as shown below.

- dimensions shown in Fig. 14 from the mark on the wall hook brack-
- Bend the connection piping at a bend radius of at least 100 mm and position it no more than 50 mm from the wall.

Connection pipe Connection pipe (9.53 mm dia.) (15.88 mm dia.) Bend (R100) with

sory drain insulation.

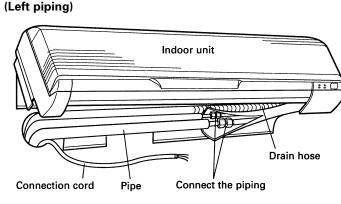


Place the indoor unit drain hose behind the piping.

[Installing the indoor unit]

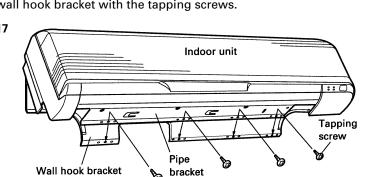
• Piping work can be made easier by laying out, shaping, and temporarily fastening the connection pipe, drain hose, and connection cord as shown in Fig. 16 beforehand.

Fig. 16 (Left piping)



4. INSTALLING THE INDOOR UNIT

After connecting the piping, fasten the bottom of the indoor unit and the wall hook bracket with the tapping screws.



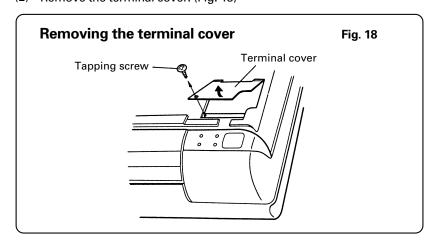
INDOOR UNIT WIRING

!\ CAUTION (1) Match the terminal block numbers and connection cord col-

- ors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- (2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
- (3) Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)

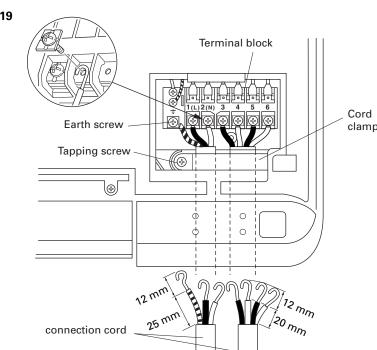
(4) Always connect the ground wire.

(1) Remove the intake grille. (2) Remove the terminal cover. (Fig. 18)



[Heat & Cool model (Reverse cycle)]

- (3) Remove the cord clamp. (4) Process the end of the connection cords to the dimensions shown in
- (5) Connect the end of the connection cord fully into the terminal block.



(6) Fasten the connection cord with a cord clamp.

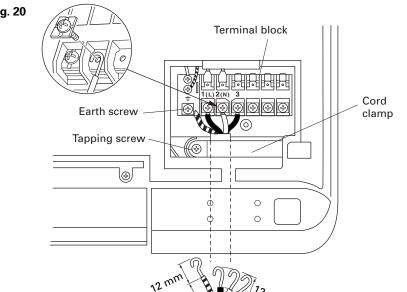
(6) Fasten the connection cord with a cord clamp.

(7) Fasten the terminal cover with the screw.

(7) Fasten the terminal cover with the screw. [Cooling model]

(3) Remove the cord clamp.

- (4) Process the end of the connection cords to the dimensions shown in
- (5) Connect the end of the connection cord fully into the terminal block.



OUTDOOR UNIT INSTALLATION

! WARNING

(1) Install the unit where it will not be tilted by more than 5°. (2) When installing the outdoor unit where it may exposed to strong wind, fasten it securely.

- Set the unit on a strong stand, such as one made of concrete blocks to minimize shock and vibration.
- Do not set the unit directly on the ground because it will cause

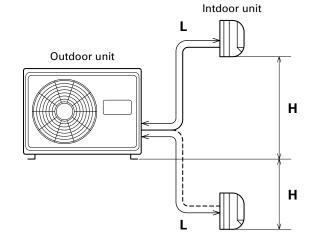
CONNECTING THE PIPING

! CAUTION

The maximum lengths of this product are shown in table 2. If the units are further apart than this, correct operation can not be guaranteed.

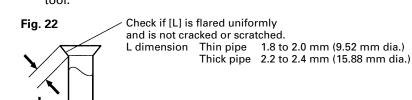
1. LIMITATION OF REFRIGERANT PIPING LENGTH

Max length (L)	20 m (66 ft)
Max height difference (H)	8 m (26 ft)



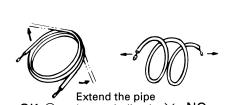
2. FLARING

- (1) Cut the connection pipe to the necessary length with a pipe cutter. (2) Hold the pipe downward so that cuttings will not enter the pipe
- (3) Insert the flare nut onto the pipe and flare the pipe with a flaring



3. BENDING PIPES

The pipes are shaped by your hands. Be careful not to collapse them.



Do not bend the pipes in an angle more than 90°. When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.

4. CONNECTION

(1) Install the outdoor unit wall cap (supplied with the optional

nut hand tight, tighten the nut to the specified tightening torque

with a torque wrench. (Tighten the flare nut of the outdoor unit

- installation set or procured at the site) to the wall pipe. (2) Connect the outdoor unit and indoor unit piping. (3) After matching the center of the flare surface and tightening the
- 3-way valve after air purging.)

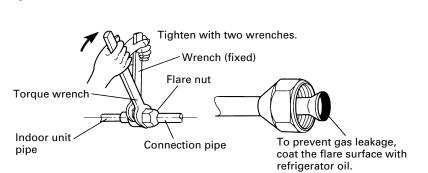


Table 3 Flare nut tightening torque

Flare nut	Tightening torque
9.52 mm dia.	30.4 to 34.3 N·m (310 to 350 kgf·cm)
15.88 mm dia.	73.6 to 78.5 N·m (750 to 800 kgf·cm)

Do not remove the cap from the connection pipe before connecting



!\ CAUTION (1) When moving and installing the room air conditioner, do not mix gas other than the specified refrigerant (R22) inside the refrigerant cycle.

(2) Charging of additional refrigerant (R22) according to the piping length is unnecessary.

- Continued on back -

For remote control unit

	Use as remote control unit holder
1	

For indoor unit installation

Use for air conditioner

operation

Tapping screw (big) (ø4 x 20)	12	For wall hook bracket installation
Tapping screw (small)		For remote control unit

OUTDOOR UNIT ACCESSORIES

STANDARD ACCESSORIES

INDOOR UNIT ACCESSORIES

Name and Shape

Wall hook bracket

Remote control

Battery (penlight)

Remote control

unit holder

 $(ø3 \times 12)$

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

Hexagon wrench		1	For air purge
Drain pipe	Ħ	1	
Flexible tube		1	For outdoor unit drain piping work (Heat & Cool model (Reverse cycle) only)
Drain cap		2	

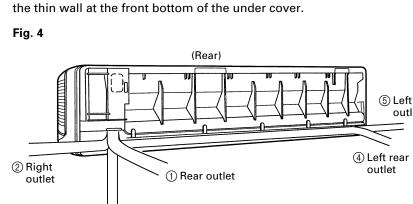
ELECTRICAL REQUIREMENT • Electric wire size and fuse capacity:

Table 1			
Power cord (mm²)	MAX	3.5	
	MIN	3.0	
Connection cord (mm²)	MAX	1.5	
	MIN	1.0	
Fuse canacity (A)		30	

• Install the disconnect device with a contact gap of at least 3 mm nearby the units. (Both indoor unit and outdoor unit)

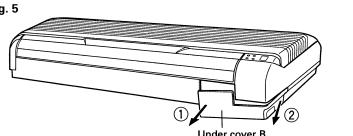
• Always use H07RN-F or equivalent as the connection cord.

INDOOR UNIT INSTALLATION

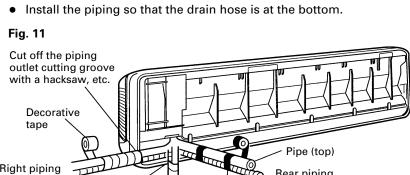


Remove the wall hook bracket in the following order:

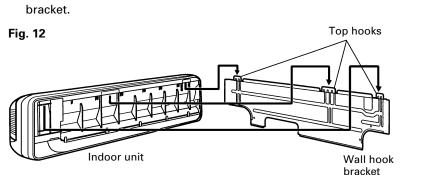
- (arrow direction in Fig. 5).
- ing the inside stopper), slide under cover A to the left and unhook the two inside hooks. (Fig. 6)



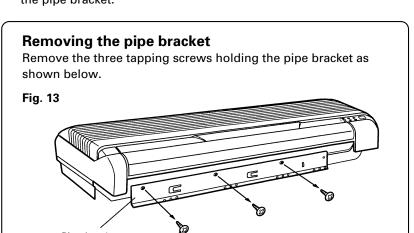
[① Rear piping, ② Right piping, ③ Bottom piping]



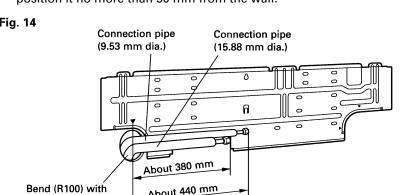
- Perform "2 INDOOR UNIT WIRING" before performing this piping.



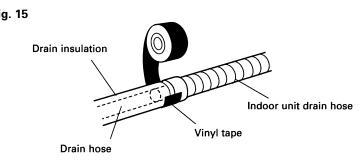
Left piping and left rear piping can be easily installed by removing



- For left piping and left rear piping, preset the end of the pipe to the
- et and form the connection pipe.



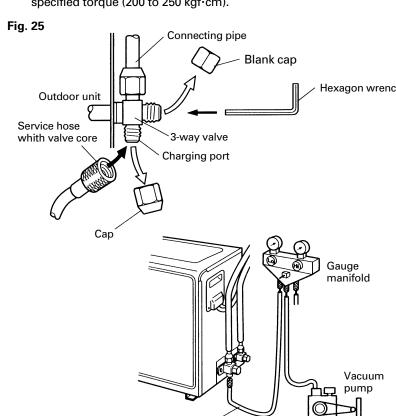
When extending the drain hose at the indoor unit, install the acces-



1. VACUUM

(1) Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.

- (2) Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5 mmHg.
- (3) Disconnect the service hoses and fit the cap to the charging valve (Tightening torque: 70 to 90 kgf·cm).
- (4) Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench (Torque: 2-way valve: 70 to 90 kgf·cm, 3-way valve: 100 to 120 kgf·cm).
- (5) Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque (200 to 250 kgf·cm).



2. ADDITIONAL CHARGE

6

- Refrigerant suitable for a piping length of 7.5 m is charged in the outdoor unit at the factory. When the piping is longer than 7.5 m, additional charging is necessary.
- For the additional amount, see the table below. Table 4

Pipe I	ength	16 ft (7.5 m)	33 ft (10 m)	49 ft (15 m)	66 ft (20 m)
Additional refrigerant	Cooling model	None	1.8 oz (50 g)	5.3 oz (150 g)	8.8 oz (250 g)

Between 7.5 m and 20 m, when using a connection pipe other than that in the table, charge additional refrigerant with 0.71 oz (20 g) / 3.3 ft (1 m) (Cooling model) as the criteria.

GAS LEAKAGE INSPECTION

!\ CAUTION

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

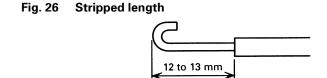
OUTDOOR UNIT WIRING

/ WARNING

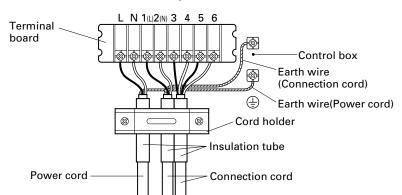
- (1) Before starting work, check that power is not being supplied to indoor unit and the outdoor unit.
- (2) Match the terminal block numbers and connection cord colors with those of the indoor unit side. Erroneous wiring may cause burning of the electric
- (3) Connect the connection cords firmly to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

(CAUTION

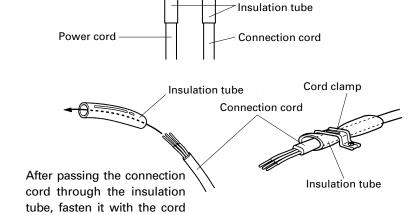
- (1) The power cord is not supplied with the outdoor unit. Use 2.5 mm² to 3.5 mm² H07RN-F or equivalent as the connection cord.
- (2) Use VW-1, 12 mm diameter, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.
- (1) Remove the outdoor unit terminal cover. (2) Process the end of the connection cords to the dimensions shown
- in Fig. 27 and bend the end of each cord as shown in Fig. 26.
- (3) Connect the end of the connection cord fully into the terminal block and fasten with the screws.
- (4) Fasten the sheath with a cord clamp. (5) Install the terminal cover.



Heat & Cool model (Reverse cycle)



Cooling model



— Control box

(Connection cord)

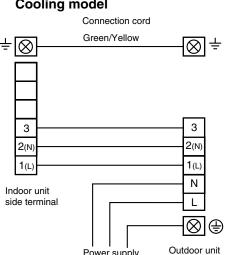
Earth wire(Power cord)

Earth wire

Cord holder

1. CONNECTION DIAGRAM

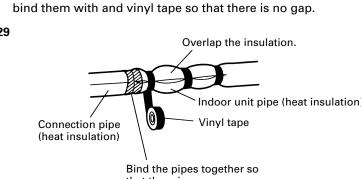
Heat & Cool model Connection cord Green/Yellow Indoor unit side terminal Outdoor unit



FINISHING

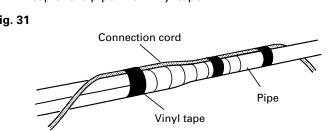
(1) Insulate between pipes.

- 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

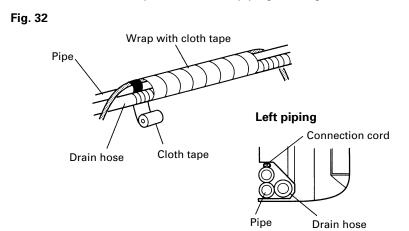


• For left and left rear piping, wrap the area which accommodates the rear piping housing section with cloth tape.

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

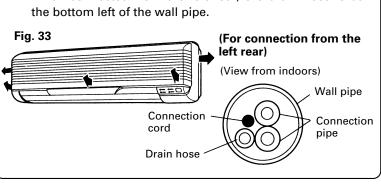


 For left and left rear piping, bundle the piping and drain hose together by wrapping them with cloth tape over the range within which they fit into the rear piping housing section.

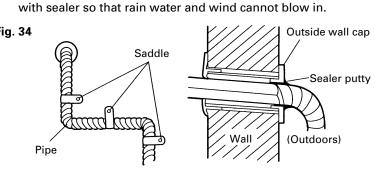


Check that:

- 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
- When connected from the left rear, the drain hose is at



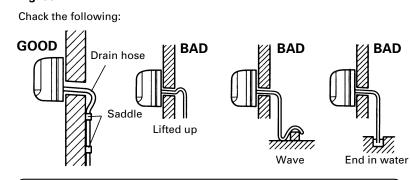
(2) Temporarily fasten the connection cord along the connection pipe with vinyl tape. (Wrap to about 1/3 the width of the tape from the bottom of the pipe so that water does not enter.) (3) Fasten the connection pipe to the outside wall with a saddle, etc.



(4) Fill the gap between the outside wall pipe hole and the pipe

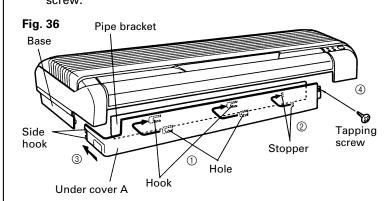
(5) Fasten the drain hose to the outside wall, etc.

Fig. 35

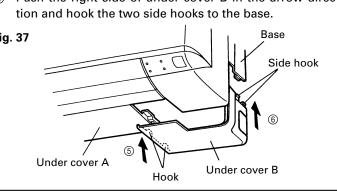


Installing the under covers

- (1) Installing under cover A (Fig. 36)
- ① Hook the two pipe bracket hooks to the two holes in the back of under cover A. While pulling the left side of under cover A forward
- about 1 cm (at this time, hole hook ① so that it does not come unhooked), slide under cover A to the right and hook the hook.
- 3 Push the left side of under cover A in the arrow direction and hook the two side hooks to the base. ④ Install under cover A to the pipe bracket with the tapping



- (2) Installing under cover B (Fig. 37)
- ⑤ Push the left side of under cover B in the arrow direction and hook the two hooks to under cover A.
- (6) Push the right side of under cover B in the arrow direction and hook the two side hooks to the base.



POWER

! WARNING

- (1) The rated voltage of this product is 220-240 V A.C. 50 Hz. (2) Before turning on the verify that the voltage is within the 198 V to 264 V range.
- (3) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- (4) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner. (Install in accor-

dance with standard)

- (5) 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 3 mm between the contacts of each pole.
- (6) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.
- (7) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

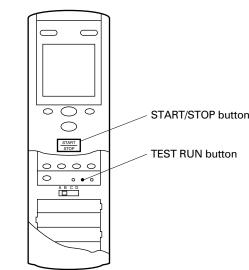
!\ CAUTION

- (1) 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.
- (2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage

TEST RUNNING

- Press the remote control unit test run button while the air
- conditioner is running. • At the end of test running, press the remote control unit start-

stop button. (Fig. 38)



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.

The OPERATION and TIMER lamps operate as follows (Table 5) according to the error contents.

Table 5

quick sted Room temperature thermistor abnormal temperature detected
ed
quick sted Piping thermistor abnormal temperature detected
9

CHECK ITEMS

(1) INDOOR UNIT

- (1) Is operation of each button on the remote control unit nor-
- (2) Does each lamp light normally?
- (3) Do not air flow direction louvers operate normally?
- (5) Is there any abnormal noise and vibration during operation?

(2) OUTDOOR UNIT

(3) Is there any gas leakage?

- (1) Is there any abnormal noise and vibration during operation? (2) Will noise, wind, or drain water from the unit disturb the neighbors?
- Do not operate the air conditioner in the test running state for a
- For the operation method, refer to the operating manual and perform operation check.

CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating

(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control

(2) Air filter removal and cleaning, and how to use the air louvers. (3) Give the operating and installation manuals to the customer.

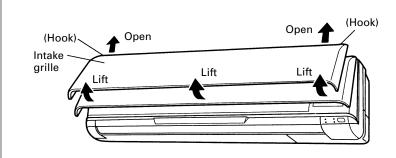
FRONT PANEL REMOVAL

!\ CAUTION

Install the front panel and intake grille securely. If installation is imperfect, the front panel or intake grille may fall off and cause injury.

1. INTAKE GRILLE REMOVAL

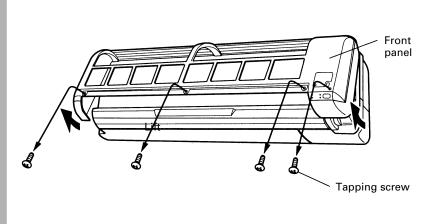
(1) Open the intake grille. (2) Open the intake grille and lift the intake grille upward until the hook at the top of the intake grille is unhooked. Fig. 39



2. FRONT PANEL REMOVAL

- (1) Remove the four tapping screws. (2) Remove the front panel by lifting the bottom of the front panel

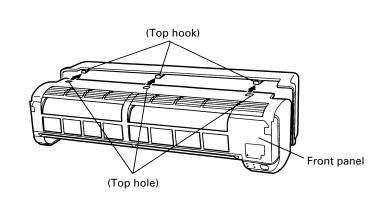
Fig. 40



3. FRONT PANEL INSTALLATION

- (1) Hook the top hole of the front panel to the hook of the base.
- (2) Fasten the front panel with the screw.

Fig. 41



Be sure that the top hole of the front panel is hooked securely to the hook of the base.

REMOTE CONTROL UNIT

Avoid places in direct sunlight.

from a stove, etc.

!\ CAUTION

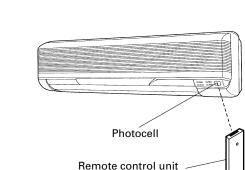
INSTALLATION

- (1) Check that the indoor unit correctly receives the signal from the remote control unit, then install the remote control unit holder.
- (2) Select the remote control unit holder selection site by paying careful attention to the following:

Select a place that will not be affected by the heat

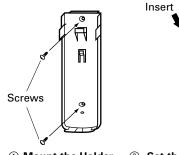
1. REMOTE CONTROL UNIT HOLDER INSTALLATION • Install the remote control unit so that the front is facing the pho-

tocell.(Fig. 42) Fig. 42



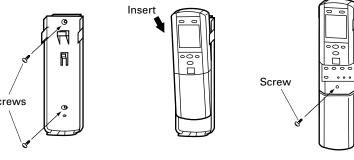
- Install the remote control unit with a distance of 7 m between the remote control unit and the photocell as the criteria. Howev-
- er, when installing the remote control unit, check that it operates positively. • Install the remote control unit holder to a wall, pillar, etc. with the tapping screw (Fig. 43).

For use as Handy Type



① Mount the Holder.

For use as Wall Fixing Type



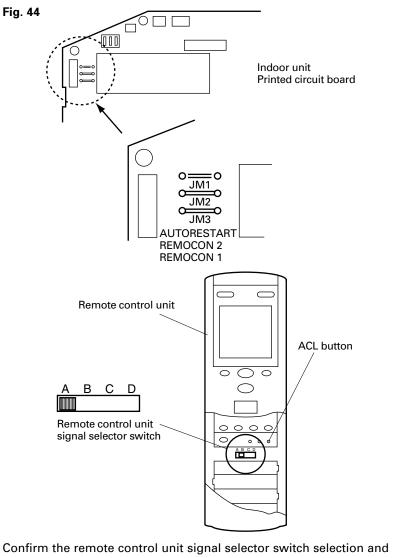
② Set the Remote Control ③ Attach the unit to the

3 To remove the Remote

at hand.)

Control Unit (when use

2. REMOTE CONTROL UNIT CODE SWITCHING



the printed circuit board setting. If these are not set to the same setting, the remote control unit can-

not be used to operate for the air conditioner. Table 6

Jumper wire		Remote control unit	
JM 2	JM 3	signal selector switch	
Connect	Connect	A (Primary setting)	
Connect	Disconnect	В	
Disconnect	Connect	С	
Disconnect	Disconnect	D	

After setting the remote control unit signal selector switch, press the ACL button.