SPLIT TYPE ROOM AIR CONDITIONER

INSTALLATION INSTRUCTION **SHEET**

(PART NO. 9369231018)

For authorized service personnel only.

This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of **↑** WARNING! **?** CAUTION!

This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.

↑ 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 standards 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) If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

(5) Do not use an extension cord.

(6) Do not turn on the power until all installation work is complete.

- Be careful not to scratch the room air conditioner when handling it.

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

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

(2) Do not install near heat sources.

- 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 air conditioner is serviced or moved.

↑ CAUTION

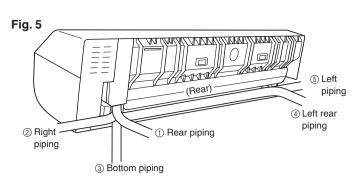
Fig. 3

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

INSTALLATION PROCEDURE

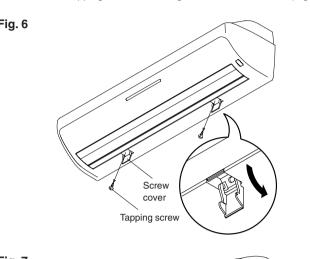
INDOOR UNIT INSTALLATION

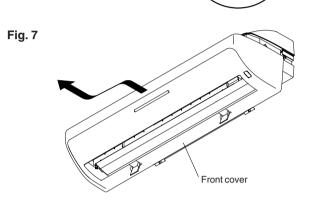
The piping can be connected in the five directions indicated by (1), (2), (3),

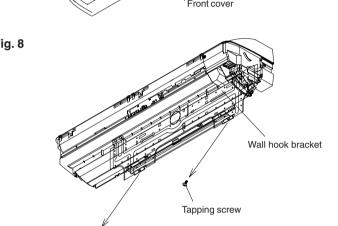


1. INSTALLING THE WALL HOOK BRACKET [Removing THE WALL HOOK BRACKET] Remove the wall hook bracket in the following order.

- Open the screw cover and remove the two screws. (Fig. 6)
- Pull off the front cover to the front. (Fig. 7) Remove the tapping screws securing the wall hook bracket. (Fig. 8)







[Installation directly to a wall]

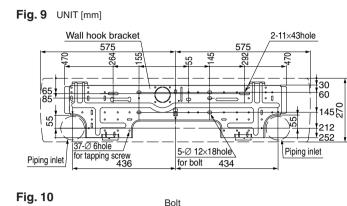
Before fastening the wall hook bracket to the wall with the screws, level it by tapping the hook at the center of bracket to the wall with the handle of

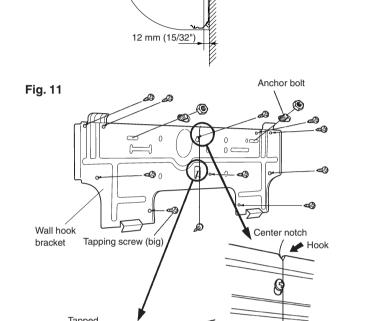
- Fasten the wall hook bracket to the wall with 6 or more screws and anchor bolts through the holes near the outer edge of the bracket. • Do not install the wall hook bracket at only one place or at an angle. For a concrete wall, embed anchor bolts (10 mm dia.) into the wall at the wall hook bracket holes (11 \times 43 mm dia.). Allow the anchor bolts to stick out at least 12 mm from the wall. (Fig. 10) 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 concrete wall. • Finally tighten the bolts and tapping screws after confirming, using the level indicator, that the clamp is horizontal.

! WARNING (1) Install the wall hook bracket so that it is correctly posi-

tioned 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 15 to 18 kg (33 to 40

lbs), 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.





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

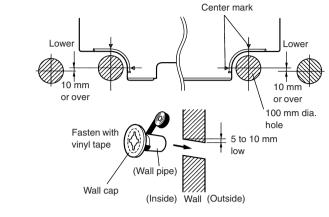
. WARNING If the wall pipe is not used, the cord interconnecting the

(1) Cut a 100 mm diameter hole in the wall at the position shown in Fig.

indoor and outdoor units may touch metal and cause elec-

- (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
- (4) Always align the center of the wall hole. If misaligned, water leakage
- (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. 12).
- (6) For ⑤ left piping and ② right piping, cut the hole a little lower so that drain water will flow freely (Fig. 12).

Fig. 12

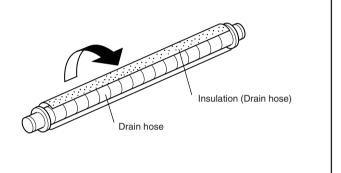


3. ATTACH THE DRAIN HOSE.

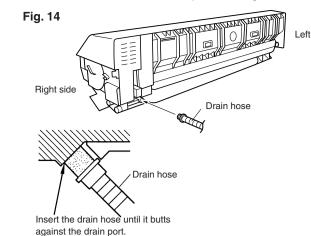
↑ CAUTION

Insert the drain hose and drain cap into the drain port. making sure that it comes in contact with the back of the drain port, and then mount it. If the drain hose is not connected properly, leaking will occur.

• Attach the Insulation (Drain hose) to the drain hose. Fig. 13

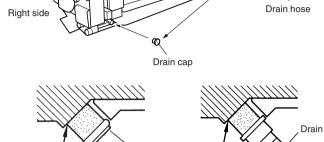


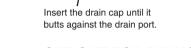
[For ① Rear piping, ② Right piping, ③ Bottom piping] • Mount the drain hose to the drain port on the right side.



[For 4 Left rear piping, 5 Left piping]

• Remove the drain cap and mount to the drain port on the right side. • Mount the drain hose to the drain port on the left side.





4. CUT-OUT FOR PIPING ON FRONT COVER

[For ② Right piping, ③ Bottom piping, ⑤ Left piping] • Use a metal shears or other cutting tool to cut along the groove in the thin metal for the piping that will coming out of the front cover.

Insert the drain hose until it



5. FORMING THE DRAIN HOSE AND PIPE

Z. CAUTION			
(1) Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.			

(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

[For ① Rear piping, ② Right piping, ③ Bottom piping] • Install the indoor unit piping in the direction of the wall hole and bind the drain hose and pipe together with vinyl tape (Fig. 17).

③ Bottom piping

Fig. 18 Bad Example

Indoor unit

removing the pipe bracket.

Removing the pipe bracket:

[For 4 Left rear piping, 5 Left piping]

CAUTION

Do not wrap the tape too tightly on drain hose. If the tape

is too tight (as shown in the Figure below) the insulation

effect will be lost and the moisture from condensation may

Perform "5 ELECTRICAL WIRING" before performing this piping.

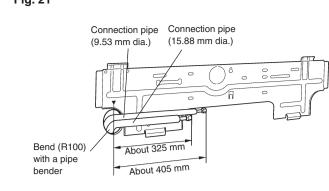
• Wrap the pipes of the indoor unit that are visible from the outside with

· 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 bracket.

• For 4 Left rear piping and 5 Left piping can be easily installed by

Remove the two tapping screws holding the pipe bracket (Fig. 20).

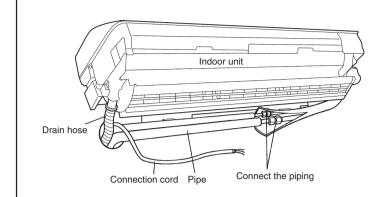
the dimensions shown in Fig. 21 and form the connection pipe. Bend the connection piping at a bend radius of at least 100 mm and position it no more than 50 mm from the wall. • Install the piping so that the drain hose is at the bottom



• For 4 Left rear piping and 5 Left piping, preset the end of the pipe to

• Piping work can be made easier by laying out, shaping, and temporarily fastening the connection pipe and connection cord as shown in Fig. 22 beforehand.

Fig. 22 (Left rear piping)

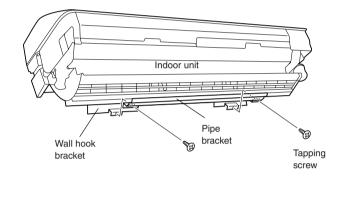


6. INSTALLING THE INDOOR UNIT

After connecting the piping, fasten the bottom of the indoor unit and the wall hook bracket with the tapping screws. • If the unit has 4 left rear piping and 5 left piping, use the process shown in "6 FINISHING" following for securing the indoor unit.

Fig. 23

Wall hook bracket



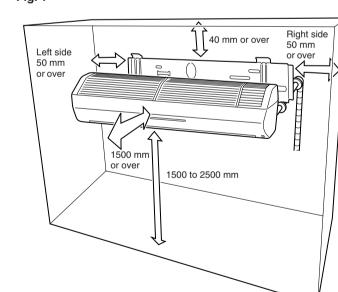
Decide the mounting position with the customer as follows:

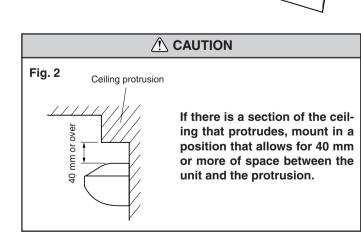
- 1. INDOOR UNIT
- (1) Install the indoor unit level on a strong wall which is not subject to
- (2) The inlet and outlet ports should not be obstructed: the air should be able to blow all over the room.

Fig. 1. Also install the unit where the filter can be removed.

(3) Do not install the unit where it will be exposed to direct sunlight. (4) Install the unit where connection to the outdoor unit is easy. (5) Install the unit where the drain pipe can be easily installed.

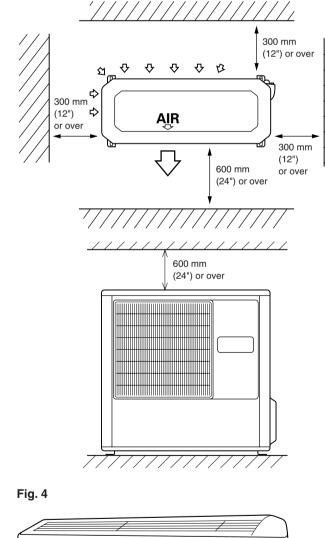
(6) Take servicing, etc. into consideration and leave the spaces shown in





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 (2) Do not install the unit where a strong wind blows or where it is very
- (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. 3 so that the air flow is not blocked. Also for efficient operation, leave open three of the four directions front, rear, and both sides.



_ 15.88 mm (5/8") dia. - 9.52 mm

OUTDOOR UNIT

STANDARD ACCESSORIES

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

INDOOR UNIT ACCESSORIES					
Name and Shape	Q'ty	Use			
Wall hook bracket	1	For indoor unit installation			
Remote control unit	1	Use for air conditioner operation			
Battery (penlight)	2	For remote control unit			
Remote control unit holder	1	Use as remote control unit holder			
Drain hose	1	For indoor unit installation			
Insulation (Drain hose)	1	For drain hose installation			
Tapping screw (big) (Ø4 × 20)	12	For wall hook bracket installation			
Tapping screw (small) (ø3 × 12)	2	For remote control unit holder installation			

OUT

TDOOR UNIT ACCESSORIES					
ench ench	1	For opening the refrigerant valve on the outdoor unit			
ble clip	2	For power supply cord binding			
pping screw ainted)	1	For fixing the valve cover			
ain pipe	1	For outdoor unit drain piping work [Heat & Cool model			
ain cap	2	(Reverse cycle) only]			

CONNECTION PIPE REQUIREMENT

30 m (98 ft)

Handle of screwdriver)

bracket

15 m (49 ft)

Model type	Diameter		Maximum	Maximum Heigh	
woder type	Small	Large	length	(between indoor and outdoor)	
Heat&Cool model	9.52 mm	15.88 mm	25 m (82 ft)	15 m (49 ft)	

(3/8 in.) (5/8 in.) Use 0.7 mm to 1.2 mm thick pipe

(Reverse cycle) (3/8 in.) (5/8 in.)

 Use pipe with water-resistant heat insulation. Use pipe that can withstand a pressure of 3,040 kPa.

9.52 mm | 15.88 mm

ELECTRICAL REQUIREMENT

• Electric wire size and fuse capacity:

Table 2				
Power supply cord (mm²)	MAX.	4.0		
	MIN.	3.5		
Connection cord (mm²)	MAX.	2.5		
	MIN.	1.5		
Fuse capacity (A)		30		
Install the disconnect device with a contact gap of at least 3 mm nearby the units (Both indeer unit and outdoor unit)				

- the units. (Both indoor unit and outdoor unit)
- Always make the air conditioner power supply a special branch circuit
- Always use H07RN-F or equivalent as the power supply cord and the

OUTDOOR UNIT INSTALLATION

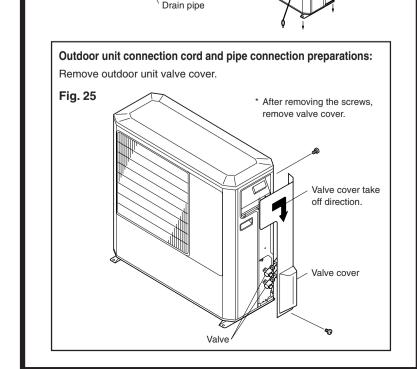
! WARNING (1) Install the unit where it will not be tilted by more than 5°. (2) When installing the outdoor unit where it may exposed to strong wind, fasten it securely.

- · 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 trouble. • Since the drain water flows out of the outdoor unit during heating operation, install the drain pipe sold separately and connect it to an com-

model (Reverse cycle) only) **↑** CAUTION Installation in cold regions. Do not use the accessory drain (If the drain pipe is used, the drain water in the pipe may

Fig. 24 Drain pipe mounting hole

freeze in extremely cold weather.)



CONNECTING THE PIPING

⚠ CAUTION The maximum lengths of this product are shown in Table 1. If the units are further apart than this, correct operation

1. 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 and

can not be guaranteed.

mercial 16 mm hose. (Heat & Cool model (Reverse cycle) only) When installing the drain pipe, plug all the holes (• holes at two places) other than the drain pipe mounting hole in the bottom of the outdoor unit with putty so there is no water leakage. (Fig. 24) (Heat & Cool

Check if [L] is flared uniformly and Table 3 Pipe L dimension 9.52 mm dia. 1.8 to 2.0 mm 15.88 mm dia. 2.2 to 2.4 mm

2. BENDING PIPES

(1) When bending the pipe, be careful not to crush it.

(3) Insert the flare nut onto the pipe and flare the pipe with a flaring tool.

(2) To prevent crushing of the pipe, do not bend the pipe at a radius curvature of 100 mm or over. (3) If the copper pipe is bend the pipe or pulled to often, it will become stiff. Do not bend the pipes more than three times at one place.

3. CONNECTION

(1) Install the outdoor unit wall cap (supplied with the optional installation set or procured at the site) to the wall hole pipe. (2) Connect the outdoor unit and indoor unit piping. (3) After matching the center of the flare surface and tightening the nut

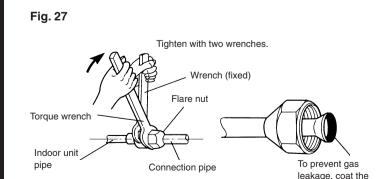


Table 4 Flare nut tightening torque

flare surface with

refrigerator oil.

Flare nut	Tightening torque
9.52 mm (3/8 in.) dia.	30.4 to 34.3 N · m (310 to 350 kgf · cm)
15.88 mm (5/8 in.) dia.	73.6 to 78.5 N · m (750 to 800 kgf · cm)

Do not remove the cap from the connection pipe before connecting

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

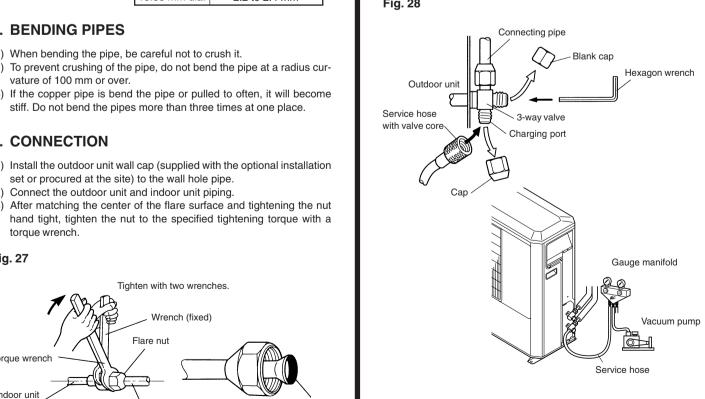
(2) Charging of additional refrigerant (R22) according to the piping length is unnecessary.

VACUUM PROCESS

A CAUTION

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

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

Table 5 - (1)

Pipe length		7.5 m (25 ft)	10 m (33 ft)	15 m (49 ft)	20 m (66 ft)
Additional	Heat&Cool model (Reverse cycle)	None	100 g (3.5 oz)	300 g (10.6 oz)	500 g (17.7 oz)
refrigerant	Cooling model	None	50 g	150 g	250 g

Table 5 - (2)

Pipe length		25 m (82 ft)	30 m (99 ft)	
Additional efrigerant	Heat&Cool model (Reverse cycle)	700 g (24.7 oz)		40 g/1 m (1.41 oz/3.3 ft)
	Cooling model	350 g (12.3 oz)	450 g (15.9 oz)	20 g/1 m (0.71 oz/3.3 ft)

Between 7.5 m and 30 m, when using a connection pipe other than that in

the table, charge additional refrigerant with 40 g (1.41 oz) / 1 m (3.3 ft) (Heat & Cool model (Reverse cycle)), 20 g (0.71 oz) / 1 m (3.3 ft) (Cooling model) as the criteria.

3. GAS LEAKAGE INSPECTION

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

- Continuted on back -

ELECTRICAL 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 of the indoor unit and the outdoor unit. Erroneous wiring may cause burning of the electric parts. (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 the cord clamp. (If the insulator is chafed, electric leakage may occur.)
- (5) Always connect the ground wire.

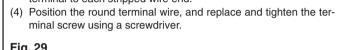
HOW TO CONNECT WIRING TO THE TERMINALS

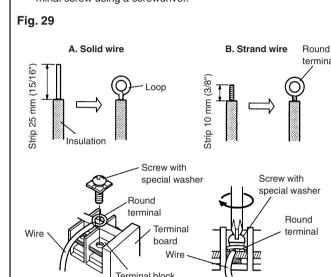
A. For solid core wiring (or F-cable)

- (1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm (15/16") to expose the solid wire.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal (3) Using pliers, bend the solid wire to form a loop suitable for the
- terminal screw. (4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

B. For strand wiring

- (1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 10 mm (3/8") to expose the strand wiring. 2) Using a screwdriver, remove the terminal screw(s) on the terminal
- (3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.

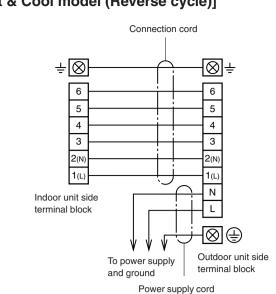




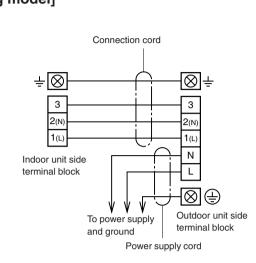
1. CONNECTION DIAGRAM

Fig. 30

[Heat & Cool model (Reverse cycle)]



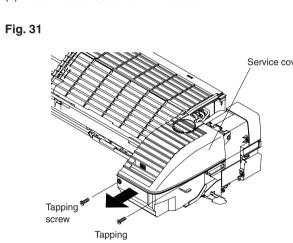
[Cooling model]



2. INDOOR UNIT SIDE

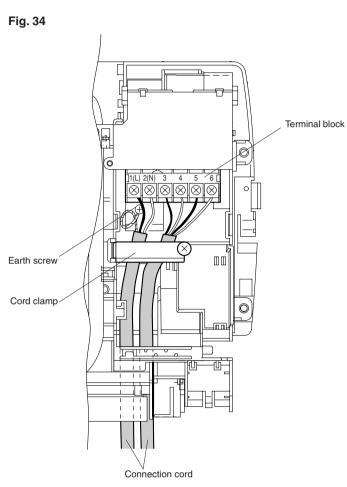
(1) Remove the service cover (Fig. 31).

(3) Connect the end of the connection cord fully into the terminal block. (4) Fasten the connection cord with a cord clamp. (5) Install the service cover with the screw.



Mount to position high on the wall: Use the table below to set the wall mounting position. Indoor unit / circuit board Mounting height Jumper wire (JM1) 1.5 m - 2.0 m Connect (primary setting) 2.0 m - 2.5 m Disconnect

[Heat & Cool model (Reverse cycle)]



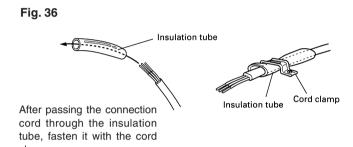
[Cooling model] Fig. 35 Terminal block Earth screw Cord clamp 1

3. OUTDOOR UNIT SIDE

⚠ CAUTION tion PVC tube as the insulation tube.

- (1) Process the end of the connection cords to the dimensions shown in (2) Connect the end of the connection cord fully into the terminal block
- and fasten with the screws. (3) Fasten the sheath with a cord clamp. (Fig. 36)
- (4) Fasten the power supply cord and connection cord with a cable clip.
- (5) Install the valve cover. (Fig. 39)

Fig. 36



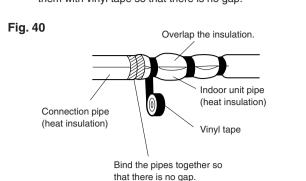
Connection cord Insulation tube Fig. 38

Installing the valve cover: Reinstall the removed screws

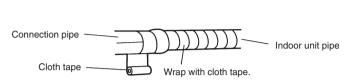
FINISHING

1. CONNECTION PIPE, CORD AND DRAIN HOSE

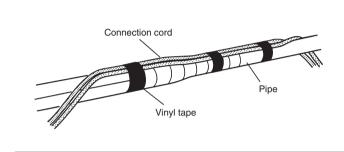
- Insulate between pipes
- For ① Rear, ② Right, and ③ Bottom piping, overlap the connection pipe heat insulation and indoor unit pipe heat insulation and bind
- them with vinyl tape so that there is no gap.
- For 4 Left rear and 5 Left piping, butt the connection pipe heat insulation and indoor unit pipe heat insulation together and bind them with vinyl tape so that there is no gap.



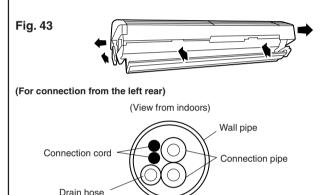
• For ④ Left rear and ⑤ Left piping, wrap the area which accommodates the rear piping housing section with cloth tape.



• For ④ Left rear and ⑤ Left piping, bind the connection cord to the top



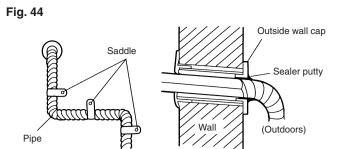
The top and bottom hooks are hooked firmly and the indoor uni does not move to the front and rear or left and right. The indoor unit is accurately positioned horizontally and vertically. When connected from the left rear, the drain hose is at the bottom



(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

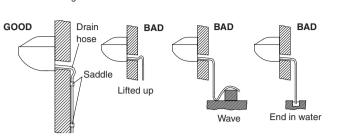
Fig. 47

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 with sealer so that rain water and wind cannot blow in.



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

Fig. 45 Check the following:



2. INSTALLING FRONT COVER

(2 places)

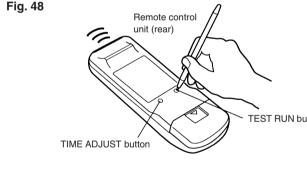
- Carefully attach the front cover to the diffuser on the front of the body of the indoor unit.
- room air conditioner. (Install in accordance with stand-• Secure the lower section of the front cover with tapping screws in
- two locations and close the screw cover.
 - - (6) Perform wiring work in accordance with standards so
 -) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company

⚠ CAUTION

- air conditioner current and the current of other electriis 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

- 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.

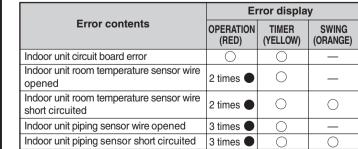
When the air conditioner is run by pressing the remote control unit test run button, the OPERATION and TIMER lamps flash slowly at the same time.

: Slow flashing

Test running

The OPERATION, TIMER and SWING lamps operate as follows (Table 6) according to the error contents.

: Fast flashing



6 times

CHECK ITEMS

Indoor unit fan error

(1) INDOOR UNIT

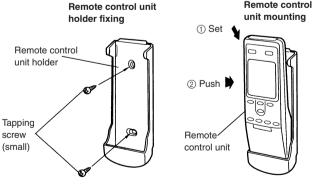
(2) OUTDOOR UNIT

(3) Is there any gas leakage?

- (1) Is operation of each button on the remote control unit normal? (2) Does each lamp light normally? (3) Do not air flow direction louvers operate normally?
- (4) Is the drain normal? (5) Is there any abnormal noise and vibration during operation?
- (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 long
- For the operation method, refer to the operating manual and perform operation check.

- 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.

ping screw (Fig. 49).



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

(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit op-(2) Air filter removal and cleaning, and how to use the air louvers. (3) Give the operating manual and installation instruction sheet to the customer.

REMOTE CONTROL UNIT **INSTALLATION**

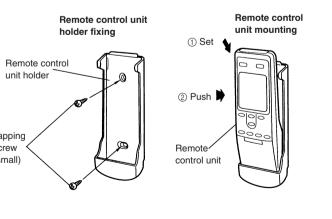
⚠ CAUTION

(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

1. REMOTE CONTROL UNIT HOLDER INSTALLA-

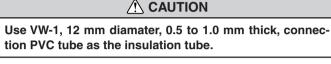
• Install the remote control unit with a distance of 7 m between the remote control unit and the photocell as the criteria. However, when installing the remote control unit, check that it operates positively. • Install the remote control unit holder to a wall, pillar, etc. with the tap-

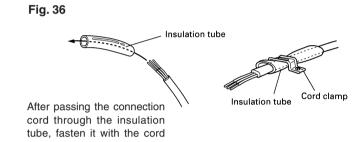


CUSTOMER GUIDANCE

PART NO. 9369231018

Fig. 37 [Heat & Cool model (Reverse cycle)] Terminal block Insulation tube [Cooling model] Power supply cord





Attach the four fasteners

of the pipe with vinyl tape. Fig. 42 Check that: left of the wall pipe.

• Push in the following hooks from the outside: front hook, 3 locations; side hook, 2 locations; under hook, 1 location. • The last step is to push in the hook above the blower outlet.

POWER

⚠ WARNING (1) The rated voltage of this product is 220-240 V A.C.

(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 breaker to supply power to the room air conditioner.

(4) Use a circuit breaker matched to the capacity of the

(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.

that the room air conditioner can be operated safely and positively.

standards.

(1) The power source capacity must be the sum of the room

cal appliances. When the current contracted capacity