



# INSTALLATION MANUAL


## Refrigerant **R407C** **Floor Console / Under Ceiling Dual Type**

### **SPLIT TYPE AIR CONDITIONER** (PART NO. 9363073010)

**This air conditioner uses new refrigerant HFC (R407C).**

**For authorized service personnel only.**

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

 <b>WARNING</b>	
(1)	<b>For the air conditioner to operate satisfactorily, install it as outlined in this installation manual.</b>
(2)	<b>Connect the indoor unit and outdoor unit with the air conditioner piping and cords available standards parts.</b> <b>This installation manual describes the correct connections using the installation set available from our standard parts.</b>
(3)	<b>Installation work must be performed in accordance with national wiring standards by authorized personnel only.</b>
(4)	<b>If refrigerant leaks while work is being carried out, ventilate the area.</b> <b>If the refrigerant comes in contact with a flame, it produces a toxic gas.</b>
(5)	<b>Never cut the power cord, lengthen or shorten the cord, or change the plug.</b>
(6)	<b>Also, do not use an extension cord.</b>
(7)	<b>Plug in the power cord plug firmly. If the receptacle is loose, repair it before using the air conditioner.</b>
(8)	<b>Do not turn on the power until all installation work is complete.</b>

- Be careful not to scratch the air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
- Let the customer keep this installation manual because it is used when the 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 the unit near a source of heat, steam, or flammable gas.
- (3) If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

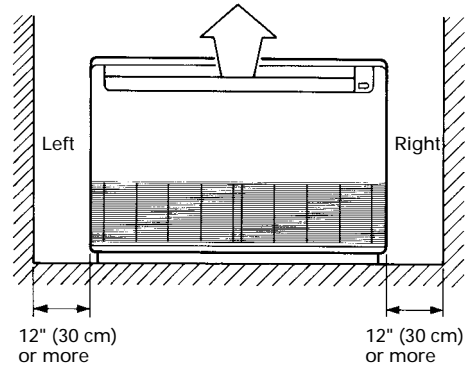
Decide the mounting position with the customer as follows:

### INDOOR UNIT

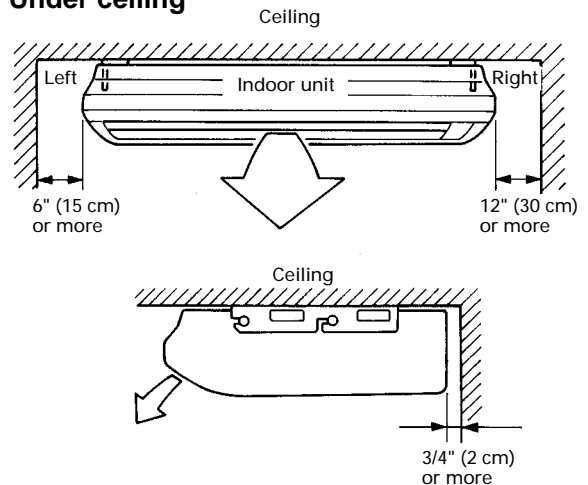
- (1) Install the indoor unit level on a strong wall, floor, ceiling which is not subject to vibration.
- (2) The inlet and outlet ports should not be obstructed : the air should be able to blow all over the room.
- (3) Install the unit near an electric outlet or special branch circuit.
- (4) Do not 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.

Fig. 1

#### • Floor console




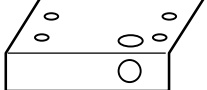
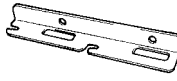
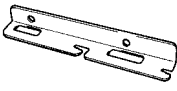
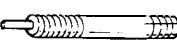


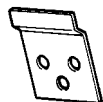
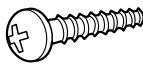

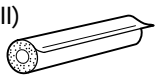


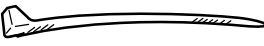
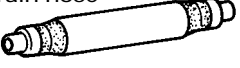
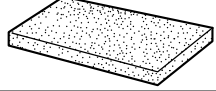

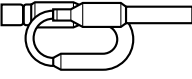
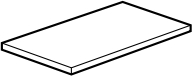
#### • Under ceiling




## STANDARD PARTS

The following installation parts are furnished.  
Use them as required.

INDOOR UNIT ACCESSORIES			
Description	Q'ty	Application	
Cover plate (left) 	1		
Cover plate (right) 	1		
Tapping screw (ø4 x 10) 	2		
Installation template 	1	For positioning the indoor unit For under ceiling type	
Bracket (left) 	1	For suspending the indoor unit from ceiling	
Bracket (right) 	1		
Anchor bolt (M12) 	4		
Spring washer 	4		
Special nut 	4		
Wall bracket 	2		For suspending the indoor unit on the wall
Tapping screw (ø4 x 20) 	6		For fixing the wall bracket
Coupler heat insulation (large) 	1	For indoor side pipe joint (large pipe)	
Coupler heat insulation (small) 	1	For indoor side pipe joint (small pipe)	

Name and Shape	Q'ty	Application
Nylon fastener 	1	For fixing the drain hose
Drain hose 	1	
Insulation (drain hose) 	1	Adhesive type 70 x 230
VT wire 	1	For fixing the drain hose L 280 mm
Indoor capillary tube 	1	
BR sheet 	2	65 x 130 x T5

## OPTIONAL PARTS FOR INDOOR UNIT

Description	Part No.	Application
Joint pipe-A 	9302812021	For indoor side pipe joint

## CONNECTION PIPE REQUIREMENT

Table 1

Diameter	
Small	Large
9.53 mm	15.88 mm

- Use 0.7 mm to 1.2 mm thick pipe.
- Use pipe with water-resistant heat insulation.
- Use pipe that can withstand a pressure of 3,040 kPa.

## ELECTRICAL REQUIREMENT

Table 2

Connection cord (mm <sup>2</sup> )	MAX	2.5
	MIN	1.5

- Always use H07RN-F or equivalent as the connection cord.
- Install the disconnection device with a contact gap of at least 3 mm nearby the units. (Both indoor unit and outdoor unit)

# INSTALLATION PROCEDURE

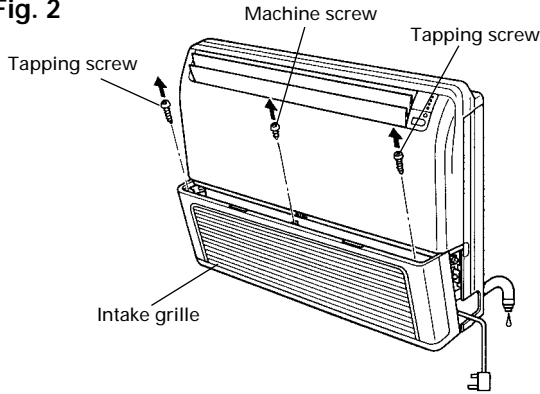
Install the air conditioner as follows:

## 1. PREPARING INDOOR UNIT INSTALLATION

### REMOVE THE INTAKE GRILLE

Open the intake grille and remove the three screws (Fig. 2).

Fig. 2



**Remark :** The main unit can be wired before the indoor unit is installed. Select the most appropriate installation order.

## 2. INDOOR UNIT INSTALLATION

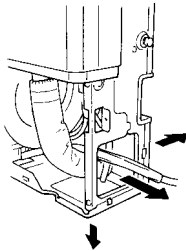
### A. FLOOR CONSOLE TYPE

#### 1. DRILLING FOR PIPING

Select piping and drain directions (Fig. 3).

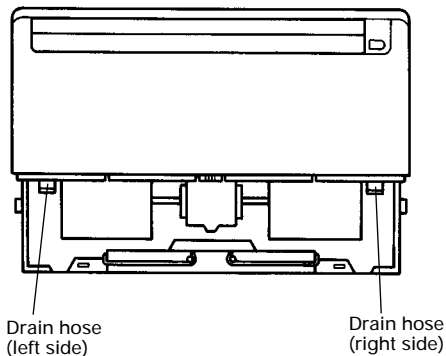
The piping and drain can be made in three directions as shown below.

Fig. 3



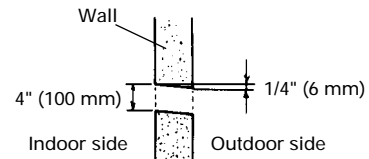
The drain hose can be connected to either the left or right side (Fig. 4).

Fig. 4



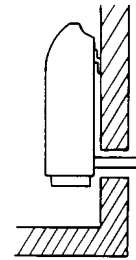
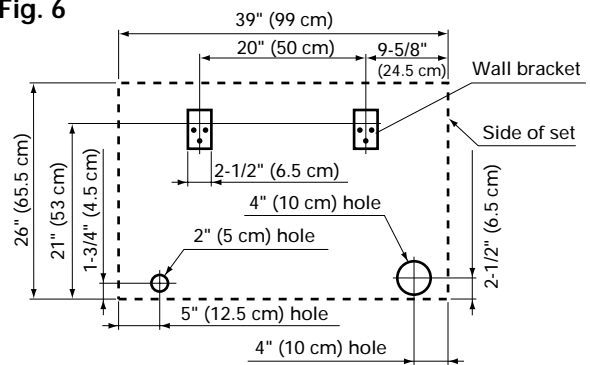
When the directions are selected, drill a 4" (10 cm) dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole in Fig. 5, at the position shown.

Fig. 5



When installing set to wall install the accessory wall bracket at the position shown in Fig. 6, and mount the set to it.

Fig. 6



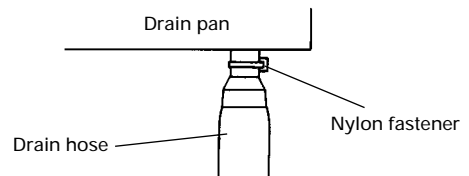
#### 2. INSTALLING DRAIN HOSE

##### INSTALL THE DRAIN HOSE

Select whether the drain hose will be connected to the left or right side (Fig. 4).

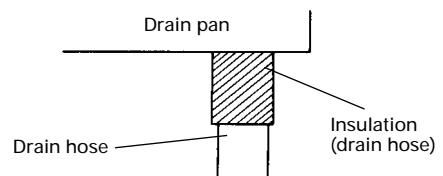
Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener (Fig. 7).

Fig. 7



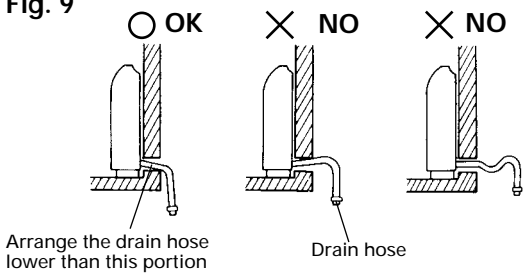
Wrap the insulation (drain hose) around the drain hose connection (Fig. 8).

Fig. 8



Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.

Fig. 9

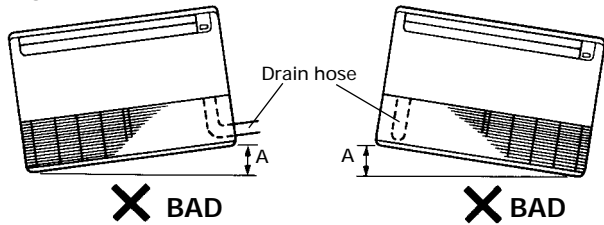


Arrange the drain hose lower than this portion

Drain hose

**CAUTION**  
Do not install the unit so that the drain hose side is too high. Height A should be less than 5 mm (Fig. 10).

Fig. 10



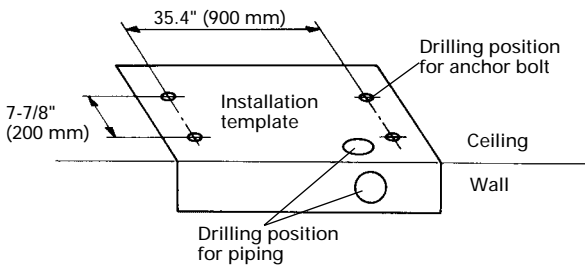
**X BAD**

**X BAD**

**B. UNDER CEILING TYPE**

Using the installation template, drill holes for piping and anchor bolts (for holes) (Fig. 11).

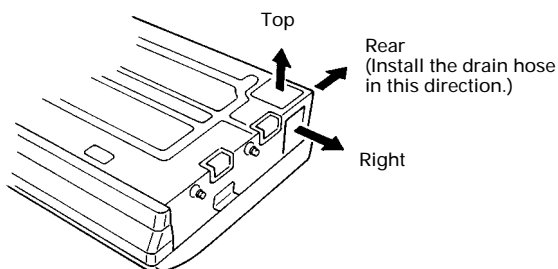
Fig.11



**1. DRILLING FOR PIPING**

Select piping and drain directions (Fig. 12).

Fig.12

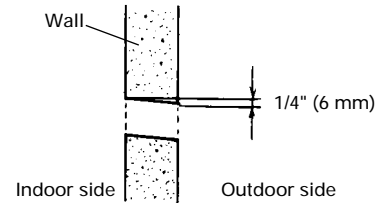


**CAUTION**

**Install the drain hose at the rear; it should not be installed on the top or right side.**

When the directions are selected, drill 3-1/8" (80 mm) and 2" (50 mm) or 6" (150 mm) dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.

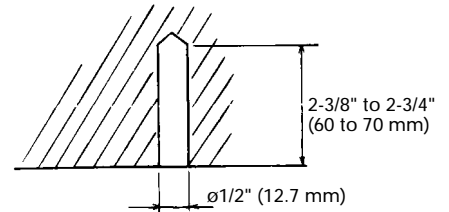
Fig.13



**2. DRILLING HOLES FOR ANCHOR BOLTS AND INSTALLING THE ANCHOR BOLTS**

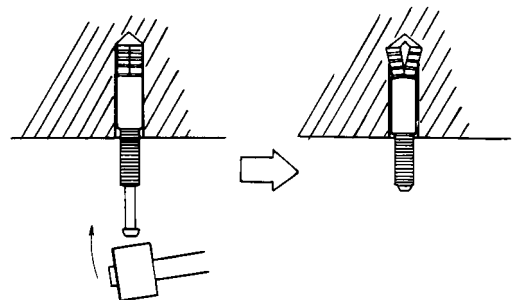
With a concrete drill, drill four 1/2" (12.7 mm) dia. holes (Fig. 14).

Fig.14



Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer (Fig. 15).

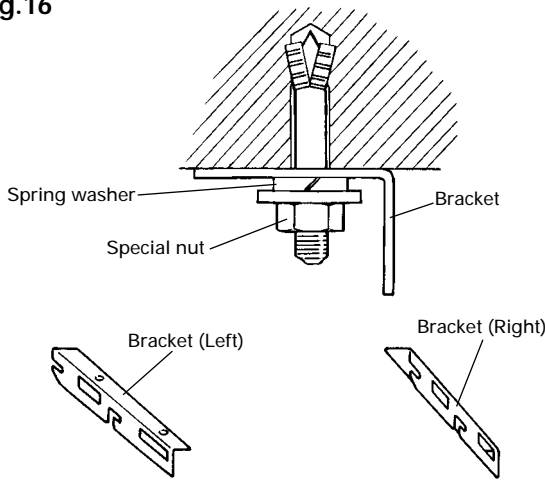
Fig.15



### 3. INSTALLING BRACKETS

Install the brackets with nuts, washers and spring washers (Fig. 16).

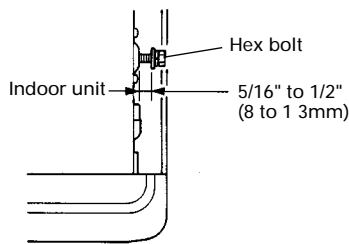
Fig.16



### 4. INSTALLING INDOOR UNIT

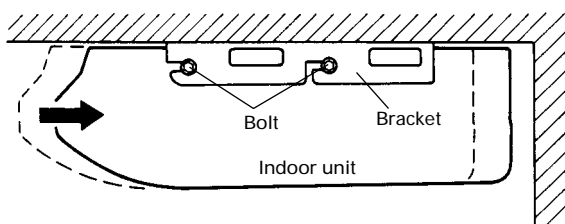
Reset the hex bolts as shown in Fig. 17.

Fig.17



Apply the indoor unit to the brackets (Fig. 18).

Fig.18



Now, securely tighten the hex bolts in both sides.

### 5. INSTALL THE DRAIN HOSE

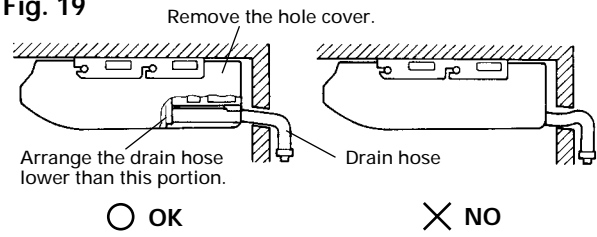
Select whether the drain hose will be connected to the left or right side (Fig. 4).

Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener (Fig. 7).

Wrap the insulation (drain hose) around the drain hose connection (Fig. 8).

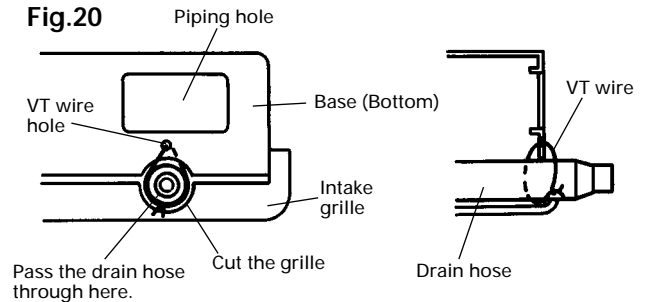
Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit (Fig. 19).

Fig. 19



When drain hose is arranged backward. Secure the drain hose with the VT wire (Fig.20).

Fig.20



### 3. CONNECTING THE PIPING

#### CAUTION

- (1) Do not use mineral oil on flared part. Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- (2) Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- (3) While welding the pipes, be sure to blow dry nitrogen gas through them.

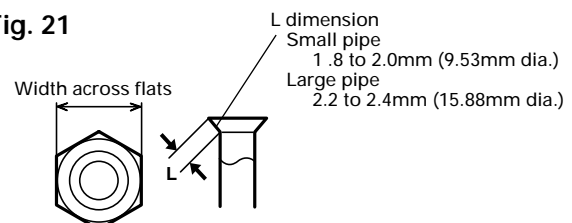
#### 1. FLARE PROCESSING

- (1) Cut the connection pipe with pipe cutters so that the pipe is not deformed.
- (2) Hold the pipe downwards so that cuttings cannot enter the pipe, remove the burrs.
- (3) Remove the flare nut from the indoor unit pipe and outdoor unit and assemble as shown in (Table 3) and insert the flare nut onto the pipe, and flare with a flaring tool.
- (4) Check if the flared part "L" (Fig. 21) is spread uniformly and that there are no cracks.

Table 3

Pipe	Flare nut
Small pipe	Small (width across flats 22 mm)
Large pipe	Large (width across flats 24 mm)

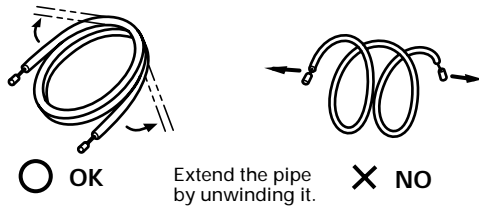
Fig. 21



## 2. BENDING PIPES

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

Fig. 22

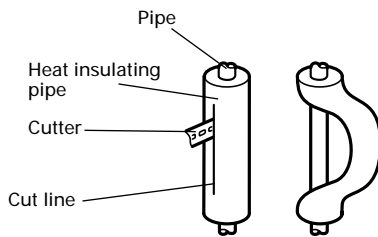


Do not bend the pipes in an angle more than 90°.

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.

When bending the pipe, do not bend it as is. The pipe will be collapsed. In this case, cut the heat insulating pipe with a sharp cutter as shown in Fig. 23, and bend it after exposing the pipe. After bending the pipe as you want, be sure to put the heat insulating pipe back on the pipe, and secure it with tape.

Fig. 23

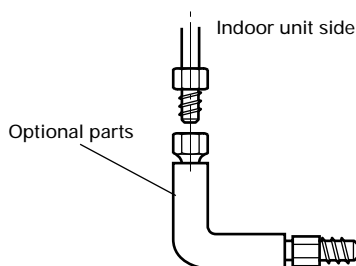


## 3. CONNECTION PIPES

Centering the pipe against port on the indoor unit, turn the flare nut with your hand (Fig. 24).

Be sure that the small pipe is completely installed before connecting the large pipe.

Fig. 24



### CAUTION

Be sure to apply the pipe against the port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.

When the flare nut is tightened properly by your hand, use a torque wrench to finally tighten it.

Fig. 25

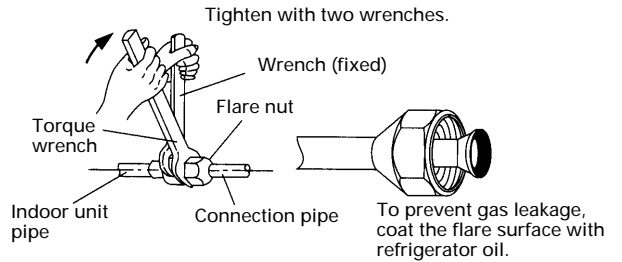


Table 4 : Flare nut tightening torque

Flare nut	Tightening torque
Small pipe 9.53 mm dia.	30.4 to 34.3 N · m (310 to 350 kgf · cm)
Large pipe 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 the pipe.

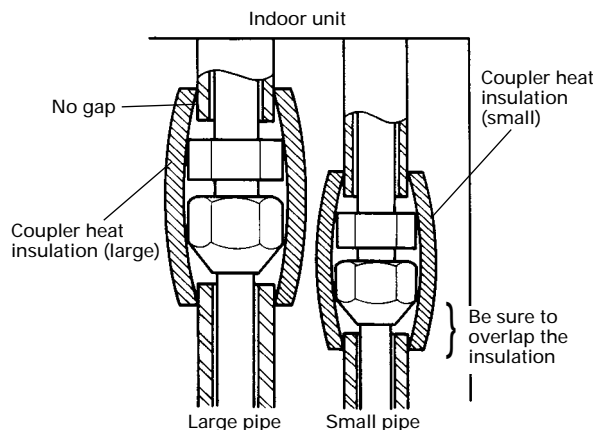
### CAUTION

Be sure to connect the large pipe after connecting the small pipe completely.

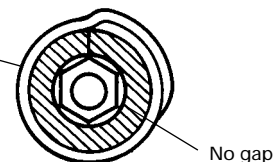
## 4. HEAT INSULATION ON THE PIPE JOINTS (INDOOR SIDE ONLY)

Put coupler heat insulation on the joints (indoor side only) (Fig. 26).

Fig. 26



Coupler heat insulation



## 5. CONNECTING AN INDOOR CAPILLARY TUBE

### Installation Procedure

- (1) Braze each part (connection pipe, indoor capillary tube, and branch liquid pipe) as shown in Fig. 27.
- (2) Wrap the two BR sheets around the indoor capillary tube as shown in Fig. 28.
- (3) Cover the indoor capillary tube and the branch liquid pipe with insulation (Fig. 29) and affix the insulation with tape.
- (4) Secure the insulation using the binders (Fig. 30).
  - If the joint pipe must be installed, refer to the installation manual for the outdoor unit for details.

Fig. 27

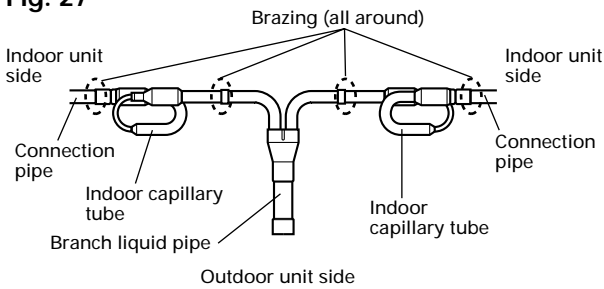


Fig. 28

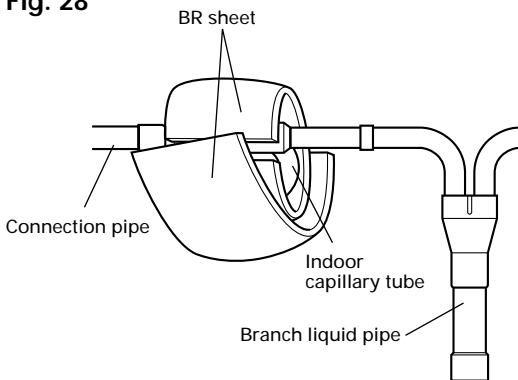


Fig. 29

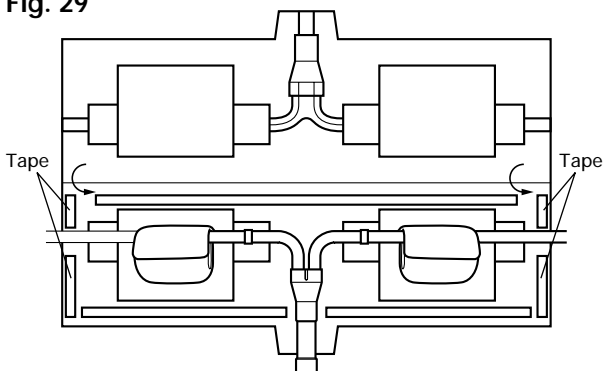
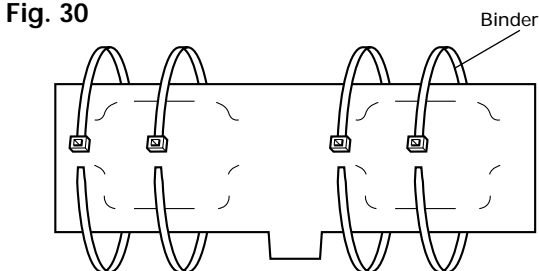


Fig. 30



## 4. GAS LEAKAGE INSPECTION



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

## 5. HOW TO CONNECT WIRING TO THE TERMINALS

### 1. IF ONE WIRE IS CONNECTED TO ONE TERMINAL BLOCK.

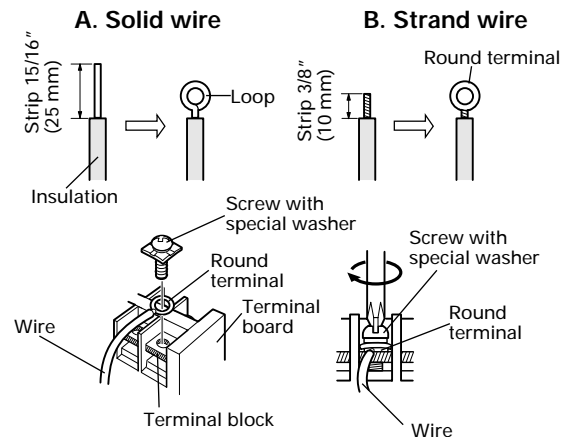
#### A. For solid core wiring (or F-cable)

- (1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 15/16" (25 mm) to expose the solid wire.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (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 3/8" (10 mm) to expose the strand wiring.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- (4) Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.

Fig. 31



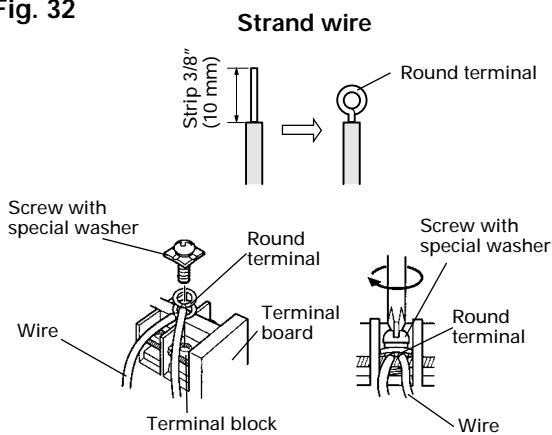


## 2. IF TWO WIRES ARE CONNECTED TO ONE TERMINAL BLOCK.

### A. As a rule, round terminal should be used to connect to the terminal block.

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

Fig. 32

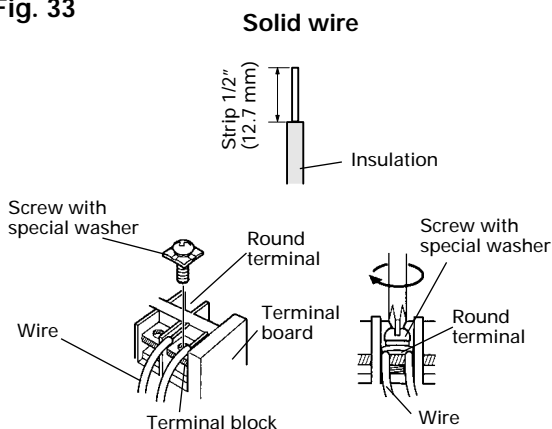


### B. If round terminal cannot be used, the following items should be followed.

#### 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 1/2" (12.7 mm) to expose the solid wire.
- (2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Wires with the same diameter should be connected on both sides as shown in Fig. 33. Since connecting wires with different diameters causes the wires to heat up due to loose connections, this method should not be used.

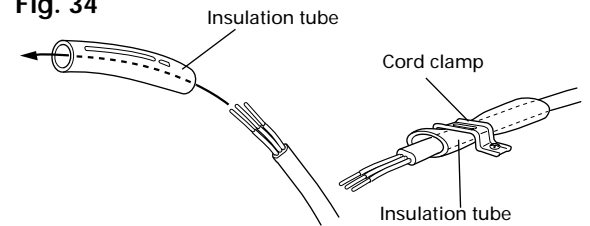
Fig. 33



## HOW TO FIX THE CONNECTION CORD

After passing the connection cord through the insulation tube, fasten it with the cord clamp.

Fig. 34



Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

## 6. ELECTRICAL WIRING

### ⚠ WARNING

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

## 1. REMOVE THE ELECTRIC COMPONENT BOX

Fig.35

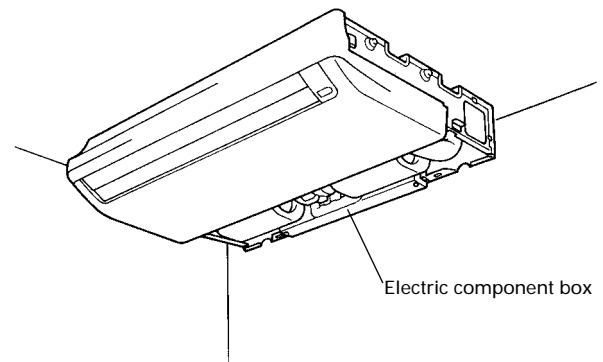
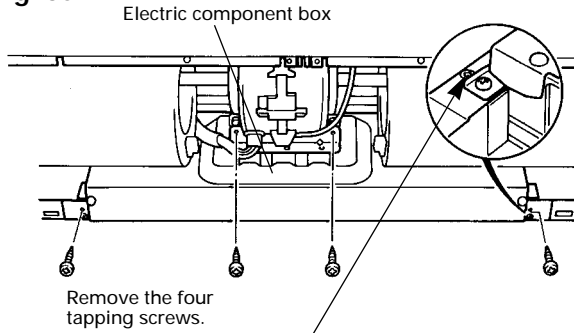


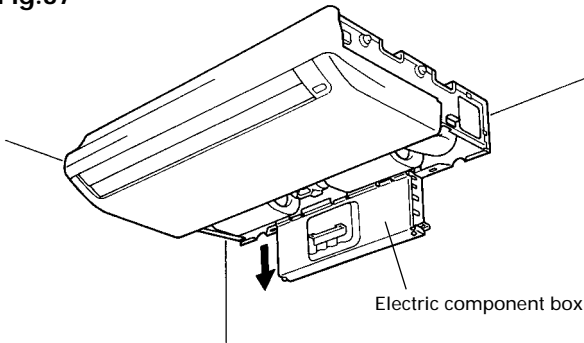
Fig. 36



**CAUTION**  
Do not remove the screws. If the stays are removed, the electric component box will fall.

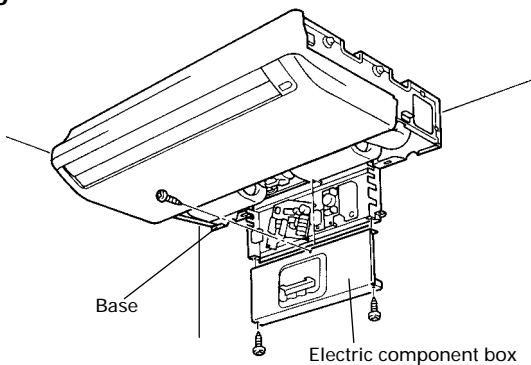
2. PULL OUT THE ELECTRIC COMPONENT BOX

Fig.37



3. REMOVE THE ELECTRIC COMPONENT BOX COVER

Fig.38



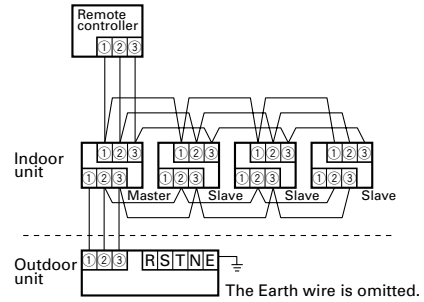
Remove the three tapping screws.

**CAUTION**  
Be careful not to pinch the lead wires between the electric component box and base.

4. WIRING

A. Simultaneous operation for buildings

Fig. 39



**CAUTION**

(1) Connect a maximum of 2 wires on a single terminal block. (If 3 or more wires are connected, they could become loose and cause heating.)

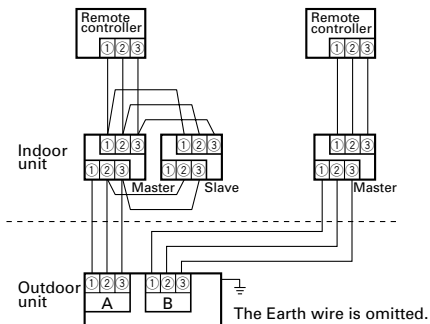
Fig. 40

(2) Crossovers as in (1) should not be connected when connecting wires between the master unit and slave units, and from slave unit to slave unit. (The system will not operate correctly.)

Fig. 41

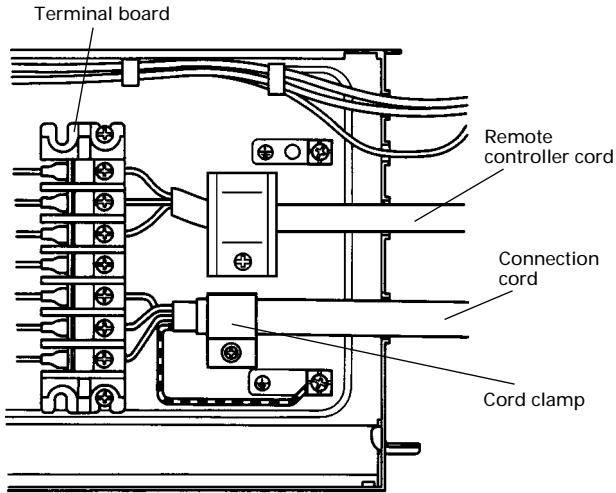
B. Individual operation for buildings

Fig. 42



- (1) Remove the cord clamp.
- (2) Process the end of the connection cords to the dimensions shown in Fig. 43.
- (3) Connect the end of the connection cord fully into the terminal board.

Fig. 43



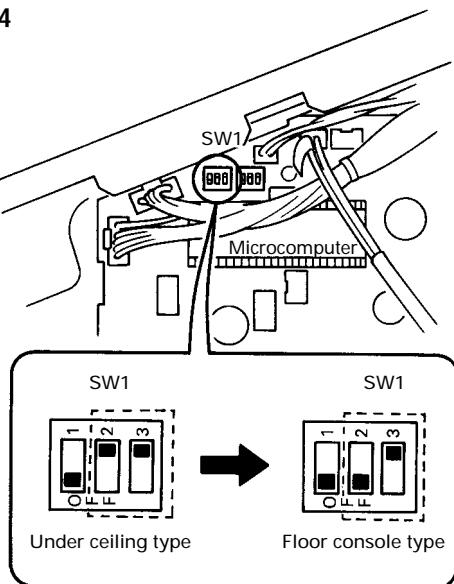
- (4) Fasten the connection cord with a cord clamp.
- (5) Fasten the end of the connection cord with the screw.

## 7. PRINTED CIRCUIT BOARD SETTING

### 1. FLOOR CONSOLE / UNDER CEILING SELECT SWITCH

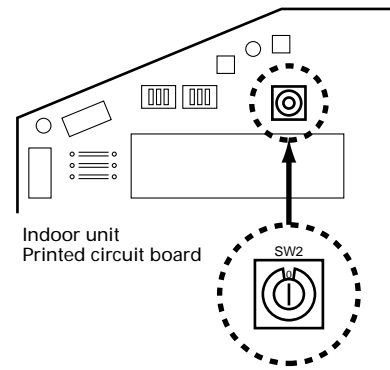
- (1) The electrical circuits for this were set for use as a ceiling type at the factory.
- (2) The following changes must be made to the settings if the unit is to be used as a floor type.
- (3) Changing the settings for the electrical circuits.  
Switch 1 (SW1) on the printed circuit board inside the electric component box must be set as follows.

Fig. 44



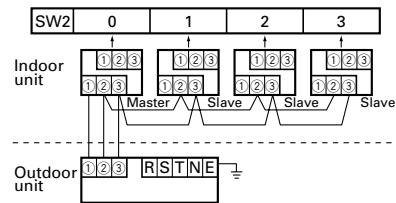
## 2. MASTER/SLAVE SELECT SWITCH

Fig. 45



- For the master unit, set SW2 on "0". For a slave unit, set SW2 on "1-3".

Fig. 46 [Example]

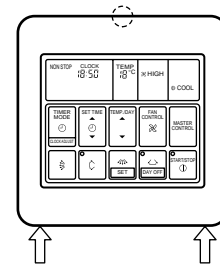


- A master unit is an indoor unit with the power line connected directly from the outdoor unit.

## 8. REMOTE CONTROLLER INSTALLATION

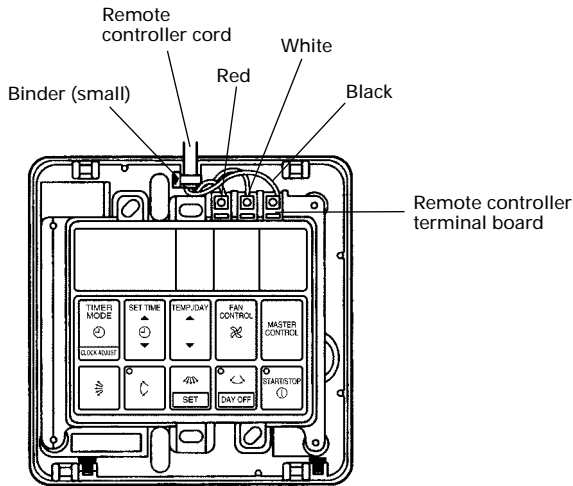
- Insert the end of a flat blade screwdriver at the arrow parts of the groove at the side of the remote controller case and remove the remote controller case top by turning the screwdriver.
- Disconnect the remote controller cord from the remote controller terminal board.

Fig. 47



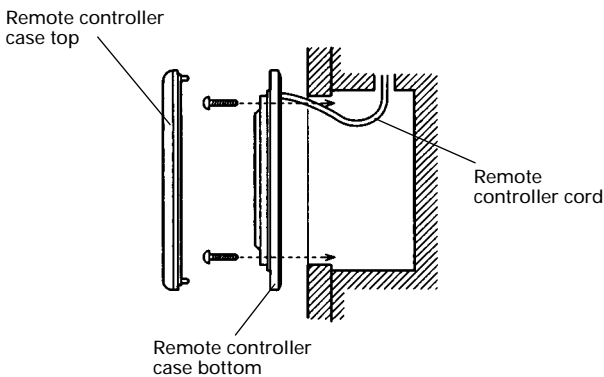
- (1) When remote controller exposed
  - 1) Make a notch in the thin part (○ part of Fig. 47) at the remote controller case top and bottom with nippers, file, etc.
  - 2) Connect the remote controller cord to the remote controller terminal board specified in (Fig. 48).
  - 3) Clamp the remote controller cord sheath with the binder (small) as shown in Fig. 48.
  - 4) Cut off the excess binder.

Fig. 48



- (2) When remote controller cord embedded
  - 1) Embed the remote controller cord and box.
  - 2) Pass the remote controller cord through the hole at the remote controller case bottom and install the cord to the box (Fig. 49).
  - 3) Connect the remote controller cord to the remote controller terminal board specified in (Fig. 48).

Fig. 49 [Example]



- After wiring work is complete, return the remote controller case top to its original state.

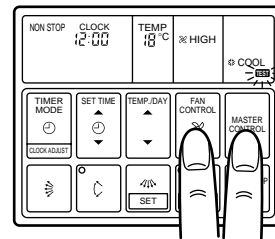
<b>⚠ CAUTION</b>
<p>(1) Do not bundle the remote controller cord, or wire the remote controller cord in parallel, with the indoor unit connection wire (to the outdoor unit) and the power supply cord. It may cause erroneous operation.</p>
<p>(2) When installing the remote controller and cord near a source of electromagnetic waves, separate the remote controller from the source of the electromagnetic waves and use shielded cord.</p>
<p>(3) Do not touch the remote controller PC board and PC board parts directly with your hands.</p>

## 9. TEST RUNNING

### REMOTE CONTROLLER

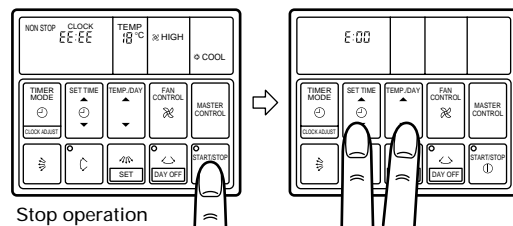
- Supply power to the crankcase heater 12 hours before the start of operation in the winter.
- For test running, when the remote controller FAN CONTROL button and MASTER CONTROL button are pressed simultaneously for more than three seconds when the air conditioner is not running, the air conditioner starts and TEST is displayed on the remote controller display. However, the SET TEMP./DAY setting button does not function, but all other buttons, displays, and protection functions operate (Fig. 50).

Fig. 50



- When EE : EE blinks at the current time display, there is an error inside the air conditioner. If the SET TIME button (▼) and SET TEMP./DAY button (▼) are pressed simultaneously for more than three seconds, the self diagnosis check will start and the error contents will be displayed at the current time display (Fig. 51). When the operation lamp lights, press the START/STOP button and after operation lamp goes off, perform the same operation (Fig. 51). Process the error contents by referring to (Table 5).

Fig. 51



**Table 5**

Error cord	Error contents
E:00	Communication error (indoor unit ↔ remote controller)
E:01	Communication error (indoor unit ↔ outdoor unit)
E:02	Room temperature sensor open
E:03	Room temperature sensor shorted
E:04	Indoor heat exchanger temperature sensor open
E:05	Indoor heat exchanger temperature sensor shorted
E:06	Outdoor heat exchanger temperature sensor open
E:07	Outdoor heat exchanger temperature sensor shorted
E:08	Power source connection error
E:09	Float switch operated
E:0A	Outdoor temperature sensor open
E:0B	Outdoor temperature sensor shorted
E:0C	Discharge pipe temperature sensor open
E:0D	Discharge pipe temperature sensor shorted
E:0E	Outdoor low pressure abnormal
E:0F	Discharge pipe temperature abnormal
E:11	Model abnormal
E:12	Indoor fan abnormal
E:13	Outdoor signal abnormal
E:14	Outdoor EEPROM abnormal

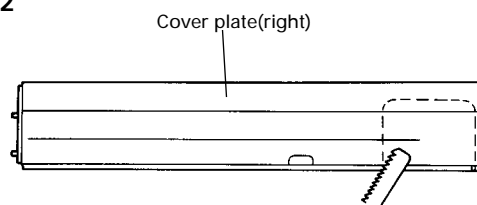
- To stop test running, press the START/STOP button.
- For the operation method, refer to the operating manual and perform operation check.
- Check that there are no abnormal sounds or vibration sounds during test running.

## 10. MOUNT THE COVER PLATE AND THE INTAKE GRILLE

### 1. MOUNT THE COVER PLATE (RIGHT)

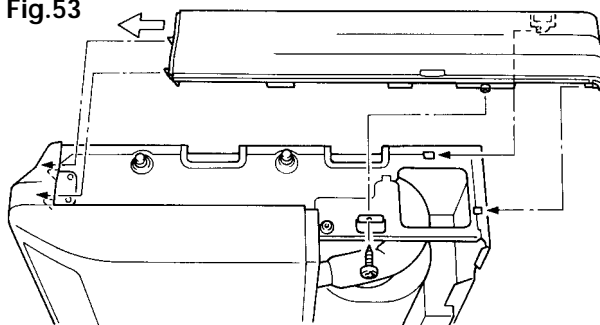
- (1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side. (This operation is not required when the protrusion is on the top or rear.)

**Fig.52**



- (2) Join the cover plates (right) and mount with screws (Fig.53).

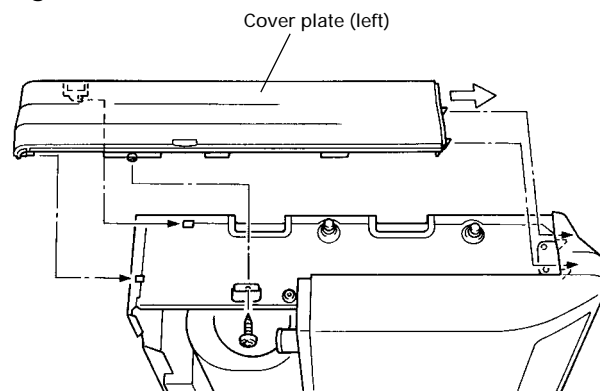
**Fig.53**



### 2. MOUNT THE COVER PLATE (LEFT)

- (1) Join the cover plates (left) and mount with screws.

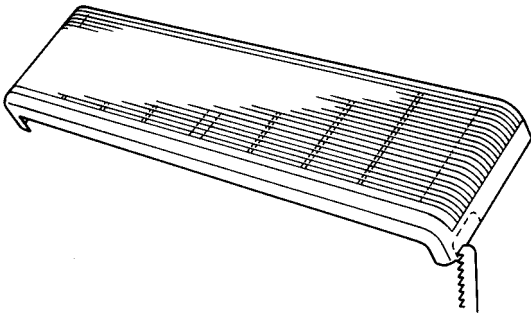
**Fig.54**



### 3. MOUNT THE INTAKE GRILLE

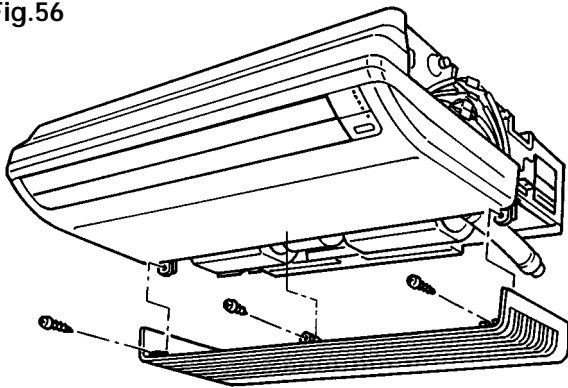
- (1) Cut the right side of the intake grille. This is only when the pipe exits from the right side (Fig. 55).

Fig.55



- (2) Insert the hinges on the bottom of the intake grille into the holes in the base assembly. Then mount the arms to the three areas on the top of the intake grille (Fig. 56).

Fig.56



## 11. CUSTOMER GUIDANCE

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