

SPLIT TYPE AIR CONDITIONER Cassette Type INSTALLATION INSTRUCTION SHEET (PART NO. 9369341014)

For authorized service personnel only.

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

WARNING	
①	For the 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 from our 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	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 turn on the power until all installation work is complete.

- 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 instruction sheet because it is used when the air conditioner is serviced or moved.
- The maximum length of the piping is shown in Table 1. If the units are further apart than this, correct operation cannot be guaranteed.

STANDARD PARTS

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

INDOOR UNIT ACCESSORIES

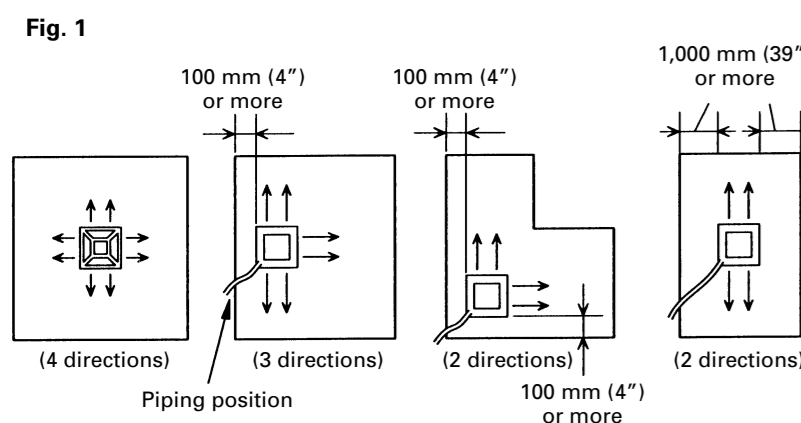
Name and Shape	Q'ty	Application
Remote control unit	1	Use for air conditioner operation
Battery (penlight)	4	For remote control unit
Remote control unit holder	1	For mounting the remote control unit
Special nut A (large flange)	4	For installing indoor unit
Special nut B (small flange)	4	For installing indoor unit
Coupler heat insulation	2	For indoor side pipe joint
Template	1	For ceiling hole cutting
Tapping screw (φ3 x 12)	3	For remote control unit holder installation
Blower cover insulation	2	For discharged air
Hook wire	2	For installing intake grille

OUTDOOR UNIT ACCESSORIES

Hexagon wrench	1	For opening the refrigerant valve on the outdoor unit
Drain pipe	1	For outdoor unit drain piping work (Heat & Cool (Reverse cycle) model only)
Drain cap	2	

SELECTING THE MOUNTING POSITION

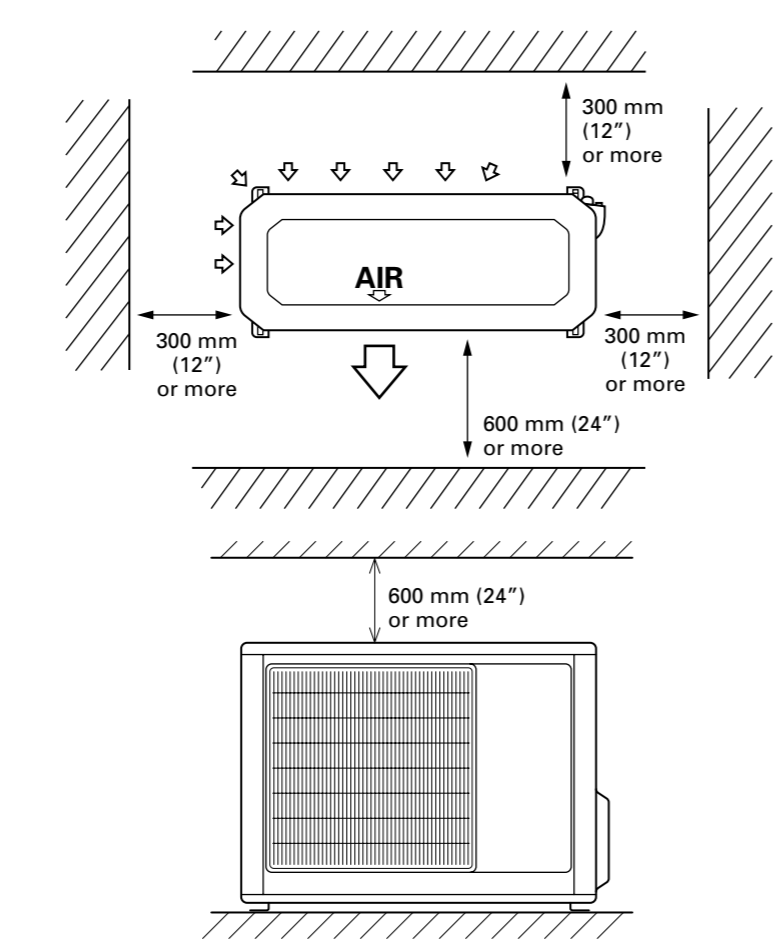
Especially, the installation place is very important for the split type air conditioner because it is very difficult to move from place to place after the first installation. Decide the mounting position together with the customer as follows: The discharge direction can be selected as shown below.



CAUTION

Since 2-way outlet as shown below causes performance problems, do not set it.

Fig. 4



CONNECTION PIPE REQUIREMENT

Table 1

Diameter	Maximum length	Maximum height (between indoor and outdoor)
Small		
9.53 mm (3/8")	25 m (82 ft)	15 m (50 ft)
Large		
15.88 mm (5/8")		

- 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

- Electric wire size and fuse/breaker capacity:

Table 2

Power supply cord (mm ²)	MAX	4.0
	MIN	3.5
Connection cord (mm ²)	MAX	2.5
	MIN	1.0
Fuse/Breaker capacity (A)		30

- Always use H07RN-F or equivalent to the connection cord.
- Install the disconnect 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:

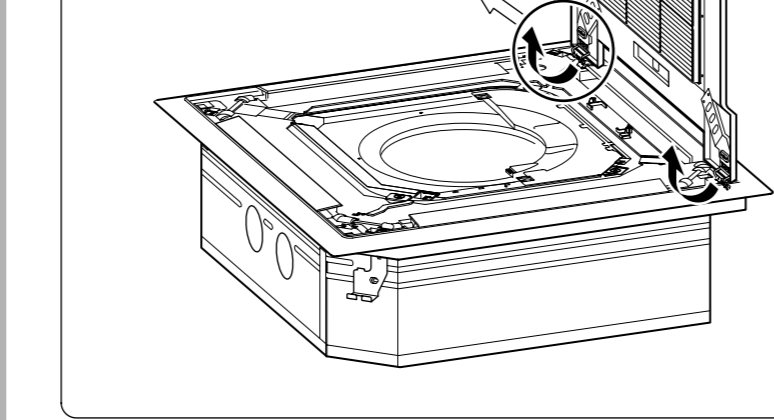
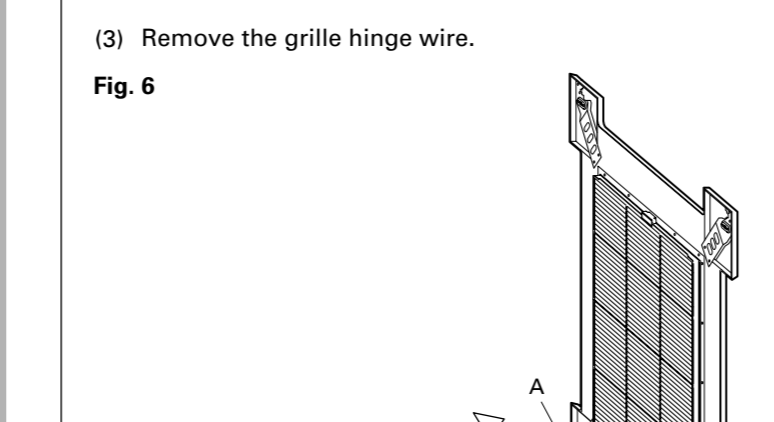
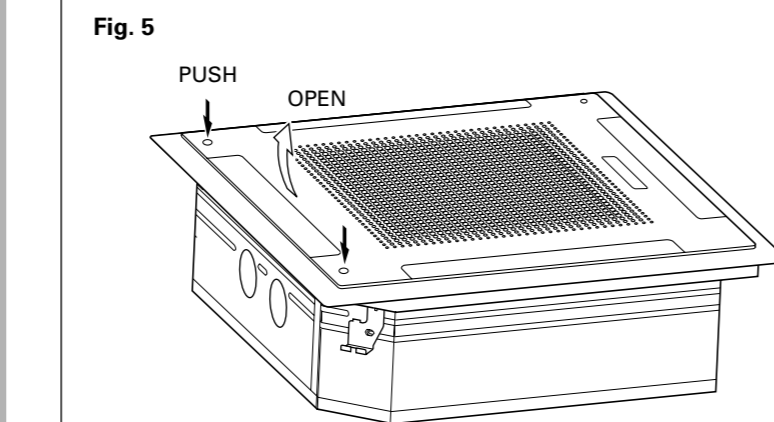
1. INDOOR UNIT INSTALLATION

WARNING

- Install the air conditioner in a location which can withstand a load do at least five times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- If the job is done with the panel frame only, there is a risk that the unit will come loose. Please take care.

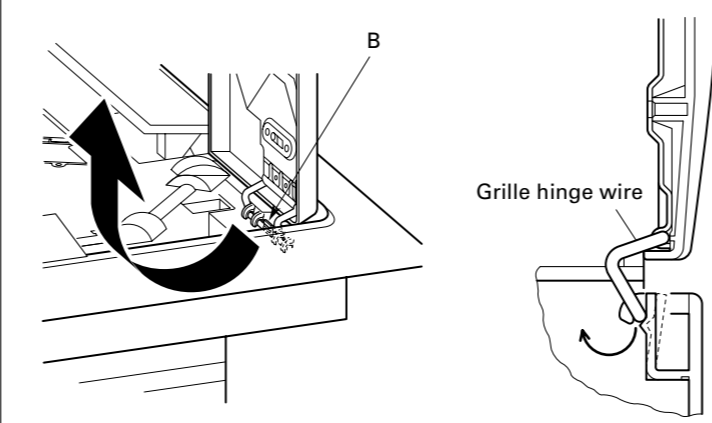
REMOVING THE INTAKE GRILLE

- Push the intake grille pushbuttons (two places).
- Open the intake grille.



- Pull up while pressing the B section (Fig. 7).

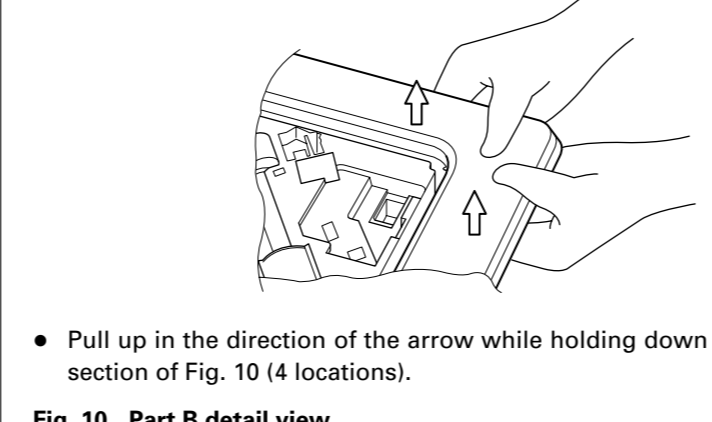
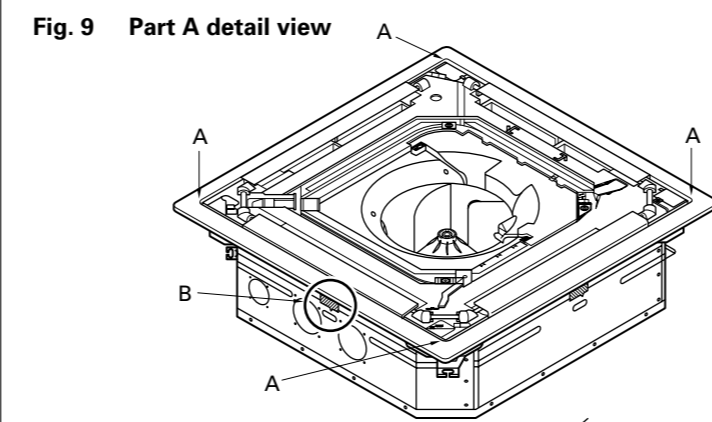
Fig. 7 Part A detail view Fig. 8 Part A section view



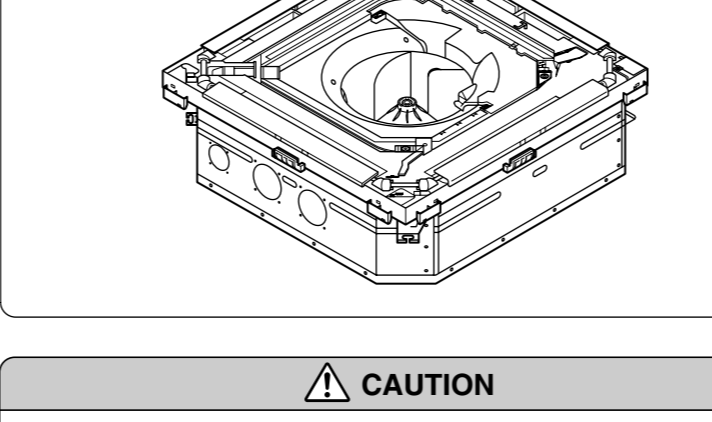
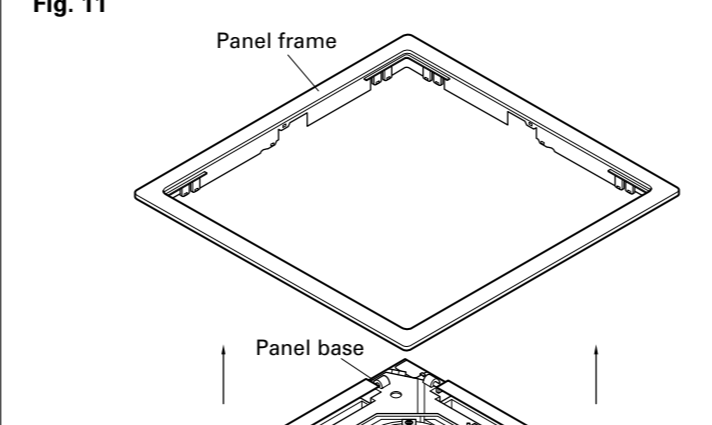
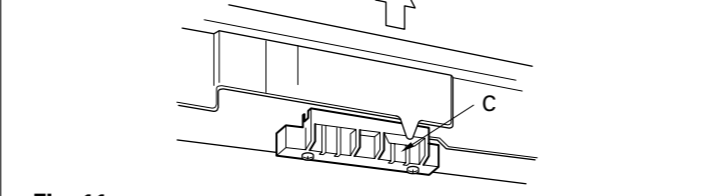
- Remove the intake grille.

REMOVING THE PANEL FRAME

- Pull up the corner sections (A) of the panel frame as shown in Fig. 9 (4 locations).



- Pull up in the direction of the arrow while holding down the C section of Fig. 10 (4 locations).

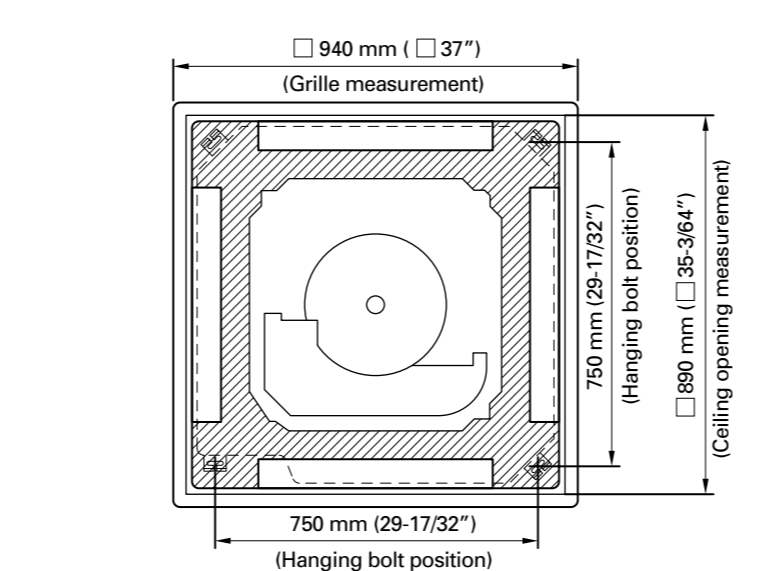


CAUTION

Always remove the panel frame after removing the intake grille.

1. POSITION THE CEILING HOLE AND HANGING BOLTS

Fig. 12



2. HANGING PREPARATIONS

- Firmly fasten the hanging bolts as shown in Fig. 13 or by another method.
- Install the hanging bolts at a place where they would be capable of holding a weight of at least 490 N (50 kgf) per bolt.

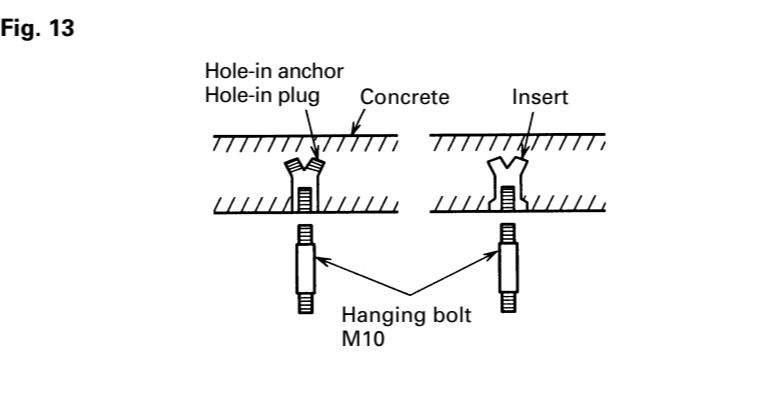
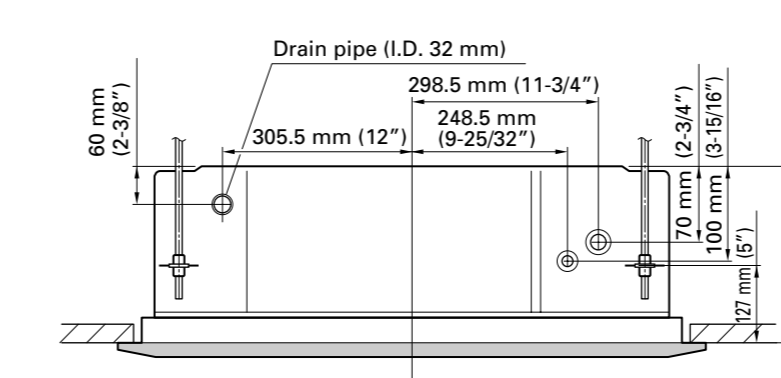
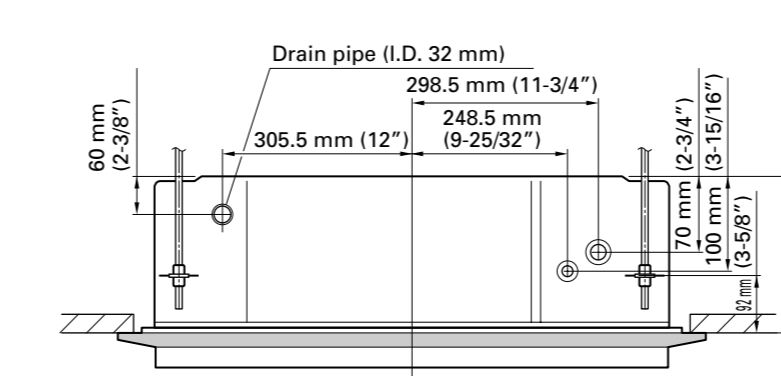


Fig. 14

(A) Standard setting



(B) Slender setting



3. BODY INSTALLATION

[The ceiling rear height is 235 mm (9-1/4") or more.] [Standard setting]

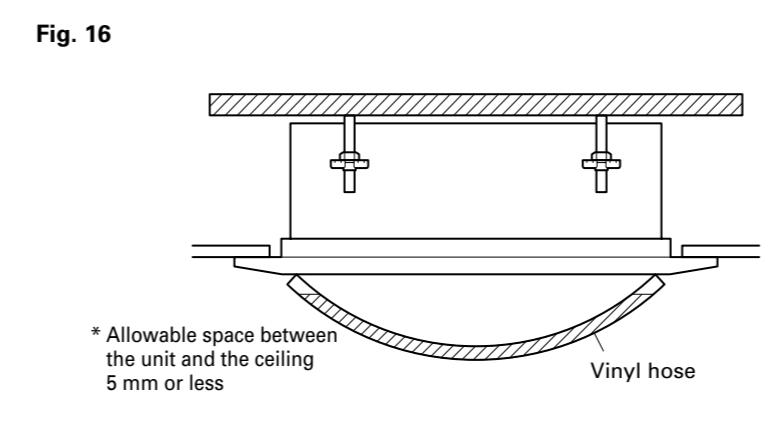
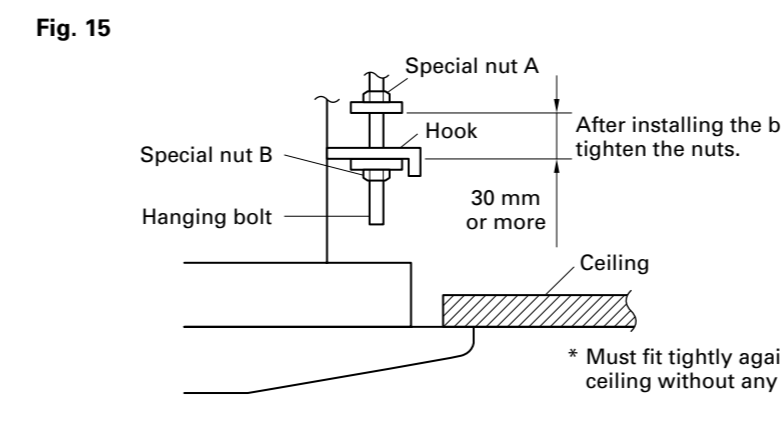
[The ceiling rear height is 200 mm (7-7/8") or more.] [Slender setting]

- Install special nut A, then special nut B onto the hanging bolt (Fig. 15).
- Raise the body and mount its hooks onto the hanging bolt between the special nuts (Fig. 15).
- Turn special nut B to adjust the height of the body (Fig. 15).
- Leveling

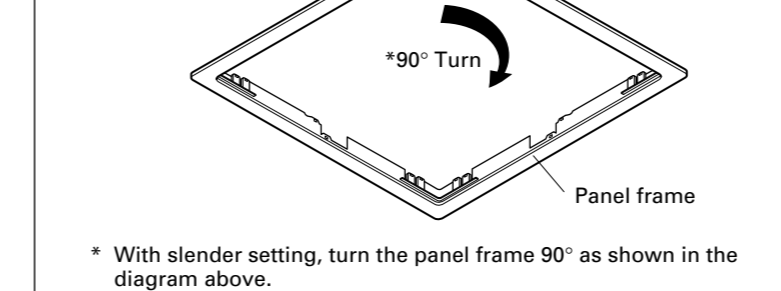
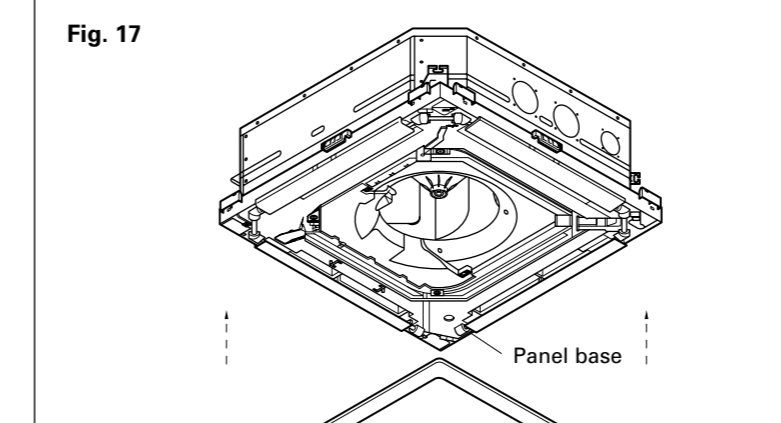
Using a level, or vinyl hose filled with water, fine adjust so that the body is level.

WARNING

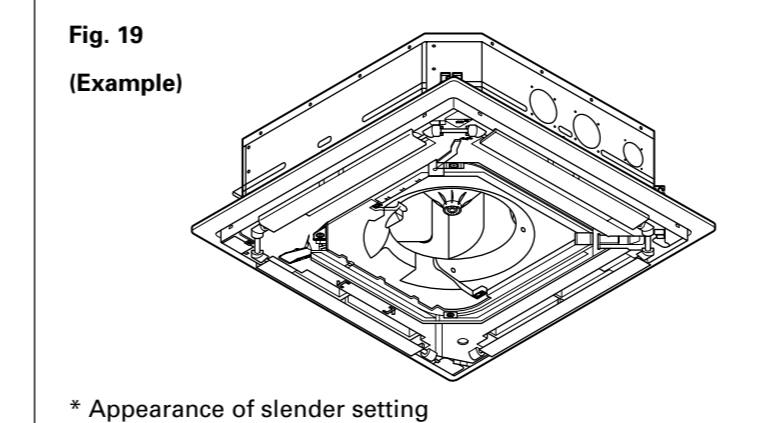
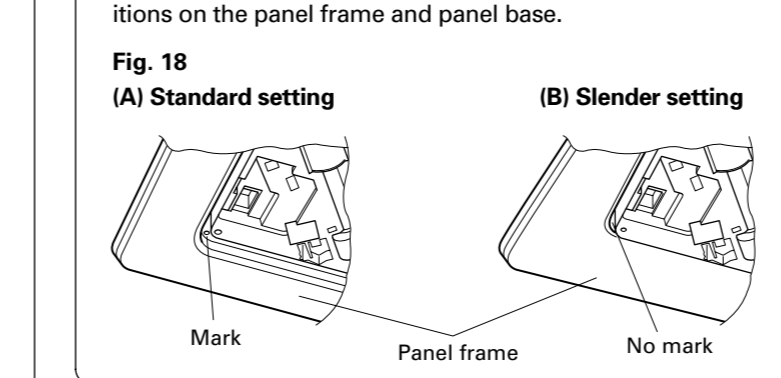
Perform final tightening by tightening the double nut firmly.



INSTALLING THE PANEL FRAME



Grille setting method has been changed at the marked positions on the panel frame and panel base.



2

INSTALLING DRAIN PIPE

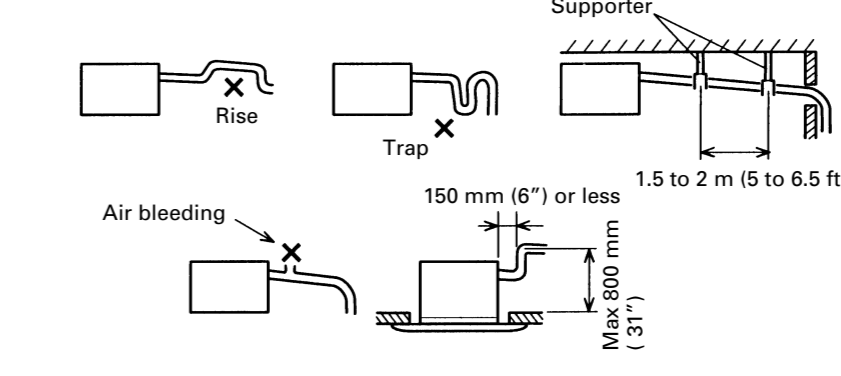
CAUTION

Install the drain pipe in accordance with the instructions in this installation instruction sheet and keep the area warm enough to prevent condensation. Problems with the piping may lead to water leaks.

NOTE: Install the drain pipe.

- Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
- Use general hard polyvinyl chloride pipe (VP25) (outside diameter 32 mm (1-1/4")) and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- When the pipe is long, install supporters.
- Do not perform air bleeding.
- Always heat insulate the indoor side of the drain pipe.
- When desiring a high drain pipe height, raise it up to 800 mm (31") or less from the ceiling within a range of 150 mm (6") from the body. A rise dimension over this range will cause leakage.

Fig. 20



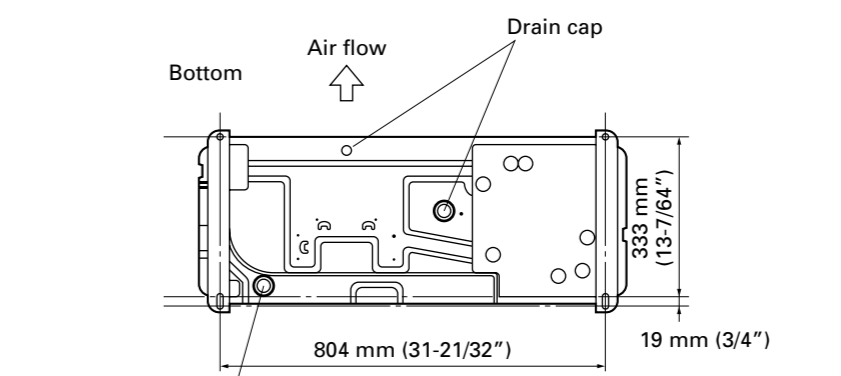
3

OUTDOOR UNIT INSTALLATION

1. OUTDOOR UNIT PROCESSING

When the outdoor unit will be exposed to strong wind, fasten it with bolts at the four places indicated by the arrows (Fig. 21).

Fig. 21



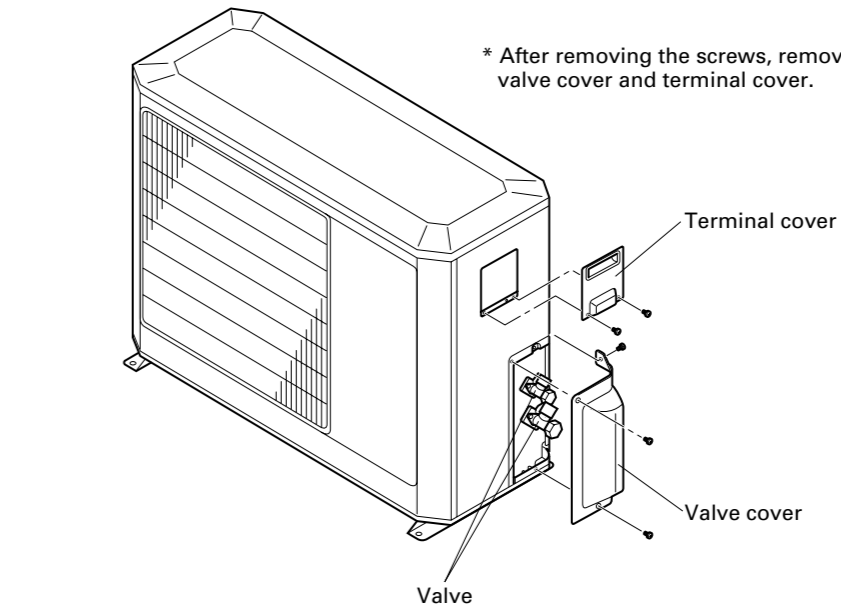
CAUTION

If this product is used in an area where the temperature falls below freezing for long periods of time, do not connect the drain pipe. Instead, allow the water to drain into a drain pan.

2. OUTDOOR UNIT CONNECTION CORD AND PIPE CONNECTION PREPARATIONS

- Remove outdoor unit valve cover and terminal cover.

Fig. 22



- Connect the piping, connection cord and power supply cord.

4

CONNECTING THE PIPING

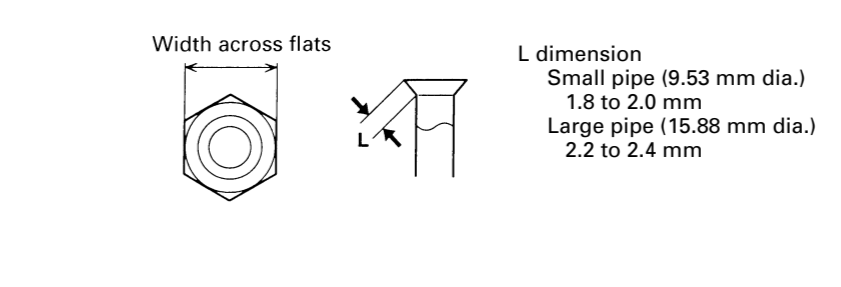
1. FLARE PROCESSING

- Cut the connection pipe with pipe cutters so that the pipe is not deformed.
- Holding the pipe downward so that cuttings cannot enter the pipe and remove the burrs.
- 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.
- Check if the flared part "L" (Fig. 23) 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 27 mm)

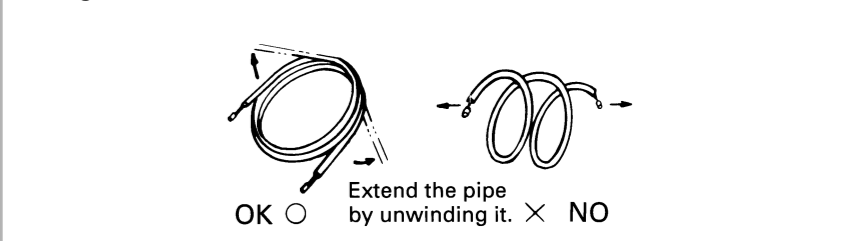
Fig. 23



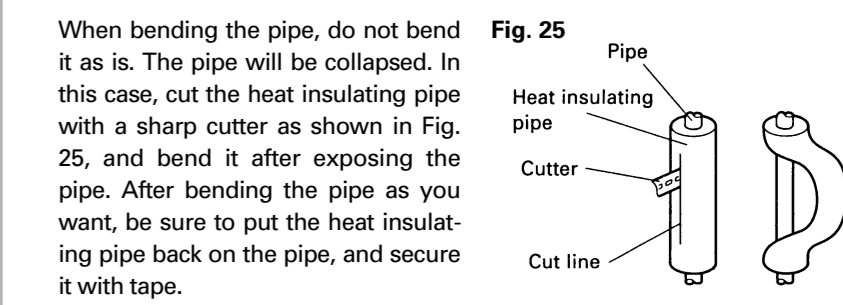
2. BENDING PIPES

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

Fig. 24



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.



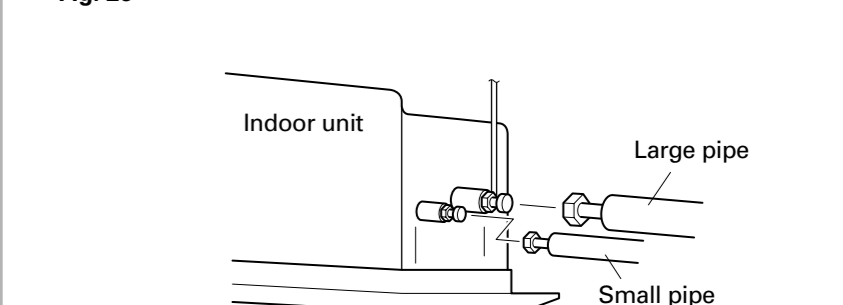
CAUTION

- To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 150 mm or over.
- If the pipe is bent repeatedly at the same place, it will break.

3. CONNECTION PIPES

- Indoor unit side

Fig. 26

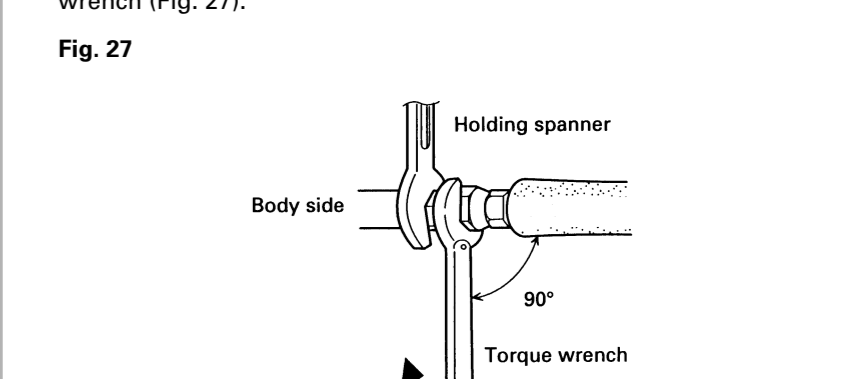


CAUTION

- 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.
- Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.

When the flare nut is tightened properly by your hand, hold the body side coupling with a separate spanner, then tighten with a torque wrench (Fig. 27).

Fig. 27



CAUTION

Hold the torque wrench at its grip, keeping it in the right angle with the pipe as shown in Fig. 27, in order to tighten the flare nut correctly.

Table 4: Flare nut tightening torque

Pipe	Tightening torque
Small pipe	30.4 to 34.3 N·m (310 to 350 kgf·cm)
Large pipe	73.5 to 78.4 N·m (750 to 800 kgf·cm)

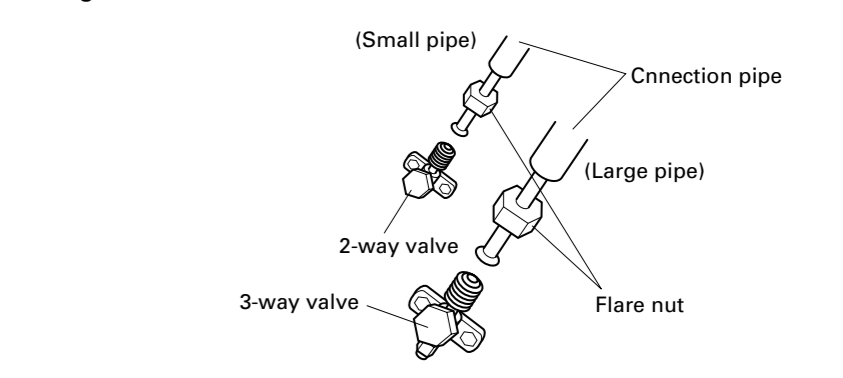
CAUTION

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

- Outdoor unit side

Tighten the flare nut of the connection pipe at the outdoor unit valve connector. The tightening method is the same as that as the indoor side.

Fig. 28



5

VACUUM PROCESS

1. VACUUM

- Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
- Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5 mmHg.
- Disconnect the service hoses and fit the cap to the charging valve (Tightening torque : 6.87 to 8.83 N·m (70 to 90 kgf·cm)).
- 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: 6.87 to 8.83 N·m (70 to 90 kgf·cm), 3-way valve: 9.81 to 11.77 N·m (100 to 120 kgf·cm)).
- Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque (19.62 to 24.53 N·m (200 to 250 kgf·cm)).

Fig. 29

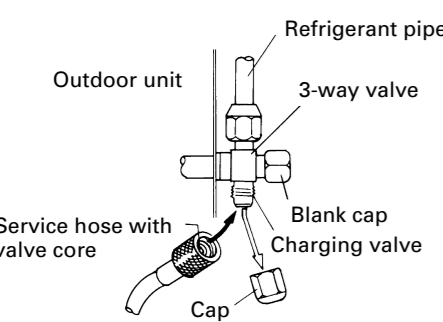
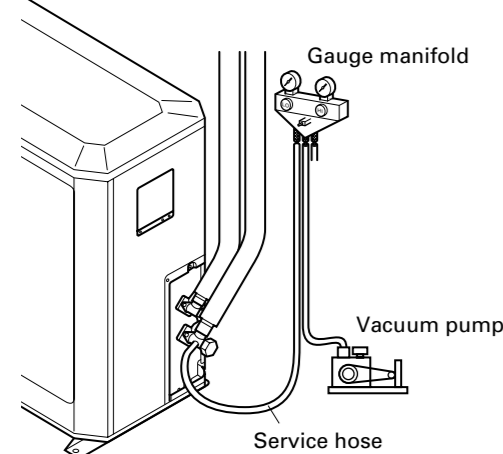


Fig. 30



2. ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 5 m is charged in the outdoor unit at the factory.
When the piping is longer than 5 m, additional charging is necessary. For the additional amount, see the table below.

Table 5

Pipe length	5 m (16 ft)	10 m (33 ft)	15 m (49 ft)	20 m (66 ft)	25 m (82 ft)	Additional refrigerant	
						Heat & Cool (Reverse cycle)	Cooling model
	None	250 g (8.8 oz)	500 g (17.6 oz)	750 g (26.5 oz)	1,000 g (35.3 oz)		
	None	60 g (2.1 oz)	120 g (4.2 oz)	180 g (6.4 oz)	240 g (8.5 oz)		

Between 5 m and 25 m, when using a connection pipe other than in the table, charge additional refrigerant with 50 g (1.8 oz)/1 m (3.3 ft) (Reverse cycle model), 12 g (0.4 oz)/1 m (3.3 ft) (Cooling model) as the criteria.

CAUTION

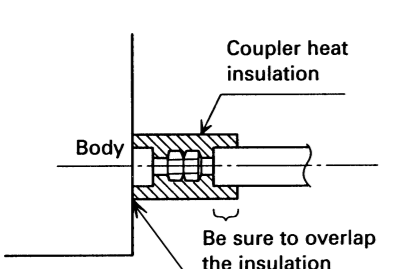
- When charging the refrigerant, always use a measuring cylinder.
- Add refrigerant from the charging valve after the completion of the work.

6

INSTALLING THE COUPLER HEAT INSULATION

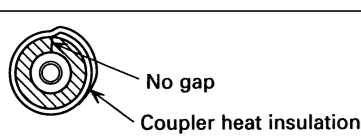
After checking for gas leaks, insulate by wrapping insulation around the two parts (large and small) of the indoor unit coupling, using the coupler heat insulation.
After installing the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap.

Fig. 31



CAUTION

Must fit tightly against body without any gap.



7

ELECTRICAL WIRING

HOW TO CONNECT WIRING TO THE TERMINALS

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

- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm (1 5/16") of expose the solid wire.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

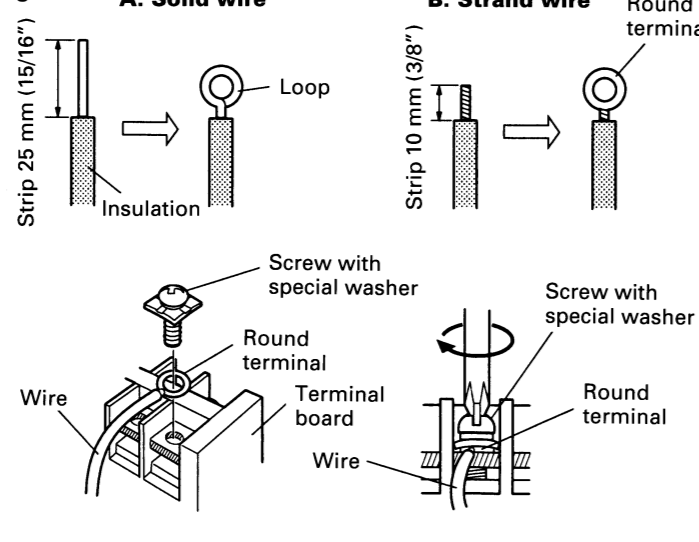
CAUTION

- If the setting for a low ceiling is selected, the capacity of the air conditioner decreases slightly.
- Do not set any switches other than those specified in this sheet or the remote controller installation instruction sheet. The air conditioner may not operate correctly if any switches other than those specified are changed.

B. For strand wiring

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

Fig. 32



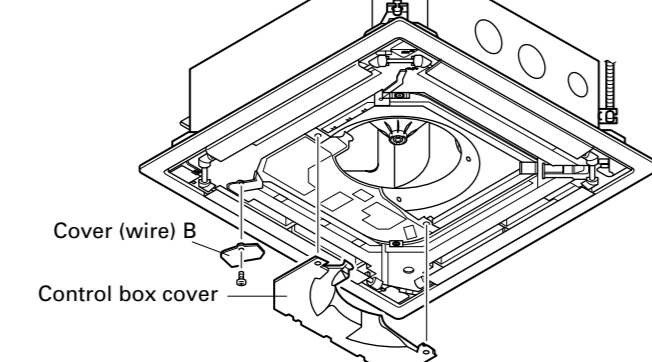
1. INDOOR UNIT SIDE

WARNING

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

- Remove the control box cover and cover (wire) B and install the connection cord.

Fig. 33



- After wiring is complete, clamp the connection cord with the cord clamp.
- Install the control box cover and cover (wire) B.

Fig. 34

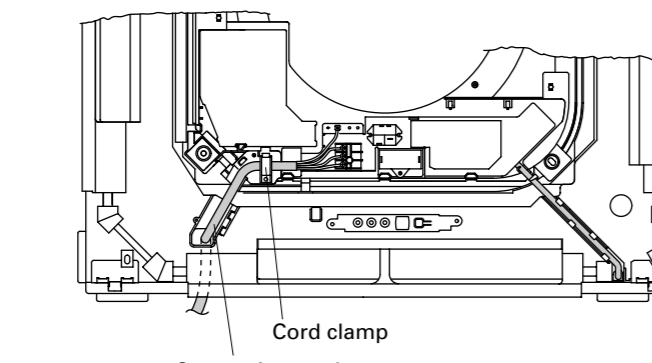
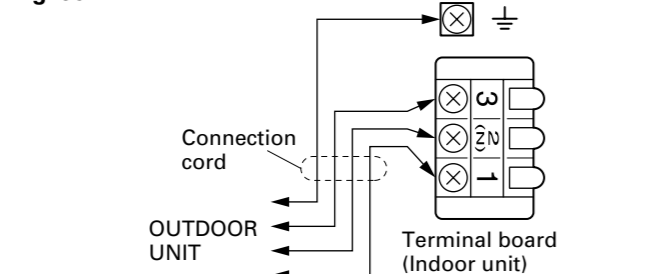


Fig. 35



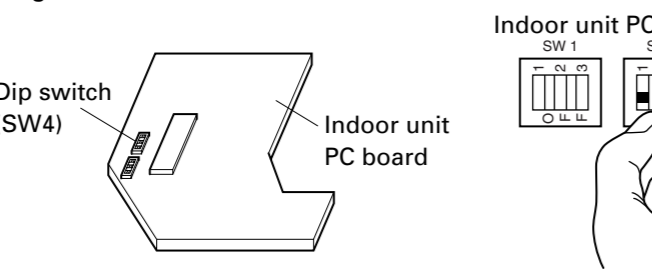
Ceiling height setting

Set the DIP switch for the ceiling height according to the table below.

Table 6

Ceiling height (m)		DIP-SW4		
		1	2	3
2.5 - 3.0	Normal	—	OFF	OFF
3.0 - 3.5	High ceiling 1	—	ON	OFF
More than 3.5	High ceiling 2	—	OFF	ON
Less than 2.5	Low ceiling	—	ON	ON

Fig. 36



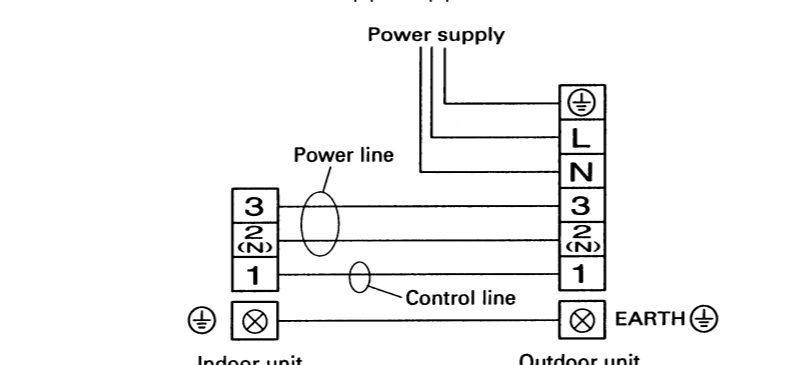
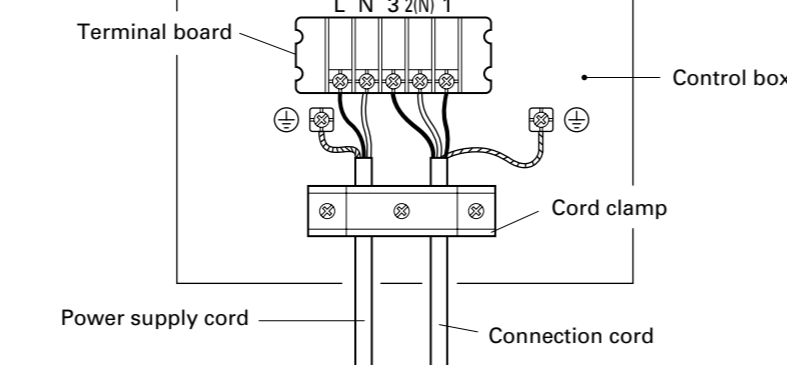
2. OUTDOOR UNIT SIDE

WARNING

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

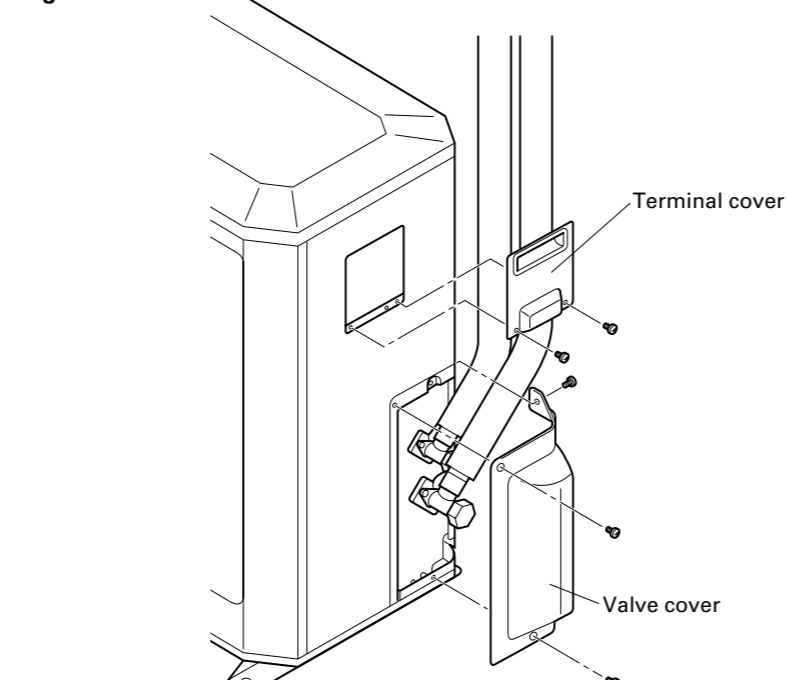
- Remove outdoor unit terminal cover and connect the power supply cord and the outdoor unit connection cord wired at the indoor unit.
- Fasten the power supply cord and connection cord with cord clamp as shown in (Fig. 37).

Fig. 37



- Install the terminal cover and valve cover.

Fig. 38



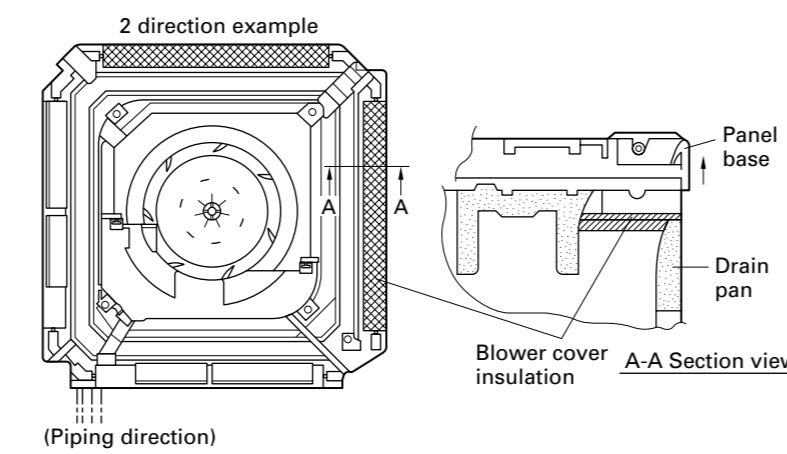
8

GRILLE INSTALLATION

BLOWER COVER INSULATION

Install the blower cover insulation only when the outlet direction is not specified.
Two blower cover insulations are packed with the indoor unit. Install the blower cover insulation at the diffuser position shown in Fig. 39. At this time, use the piping position as the criteria.

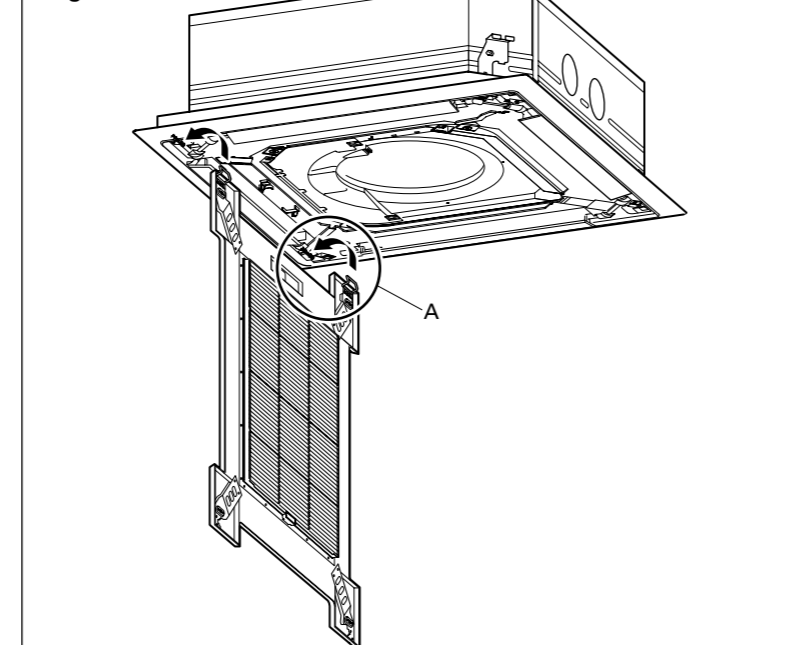
Fig. 39



INSTALLING THE INTAKE GRILLE

- Mount the grille hinge wire to the hook shaft as shown in Fig. 40.

Fig. 40



9

POWER

WARNING

- The rated voltage of this product is 220-240 V 50 Hz.
- Before turning on verify that the voltage is within the 198 to 264 V range.
- Always use a special branch circuit and install a special receptacle to supply power to the air conditioner.
- Use a special branch circuit breaker and receptacle matched to the capacity of the air conditioner. (Install in accordance with standard.)
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Install a leakage special branch circuit breaker in accordance with the related laws and regulations and electric company standards.

CAUTION

When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

10

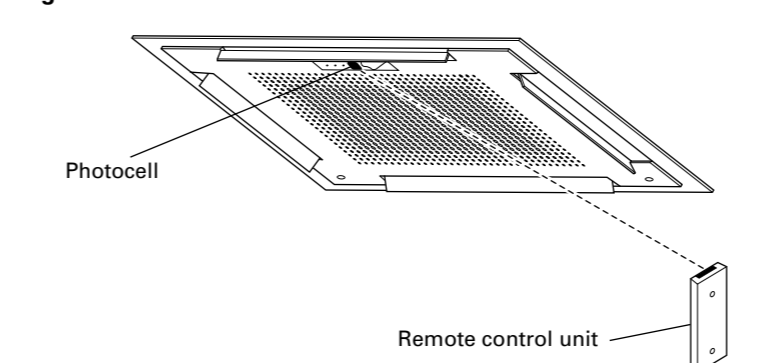
REMOTE CONTROL UNIT INSTALLATION

CAUTION

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

- Install the remote control unit so that the front is facing the photocell. (Fig. 47)

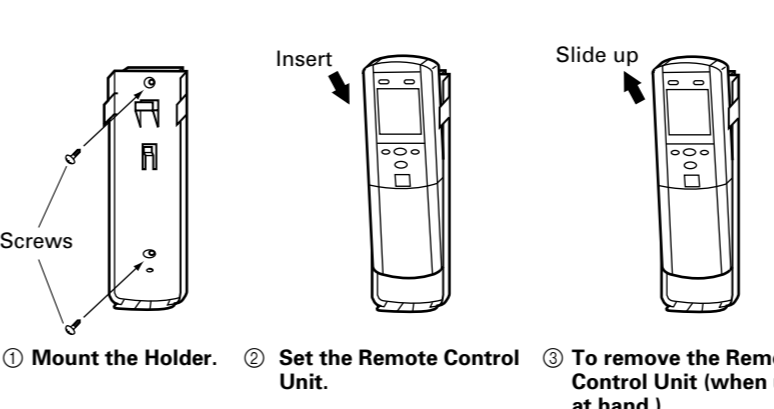
Fig. 47



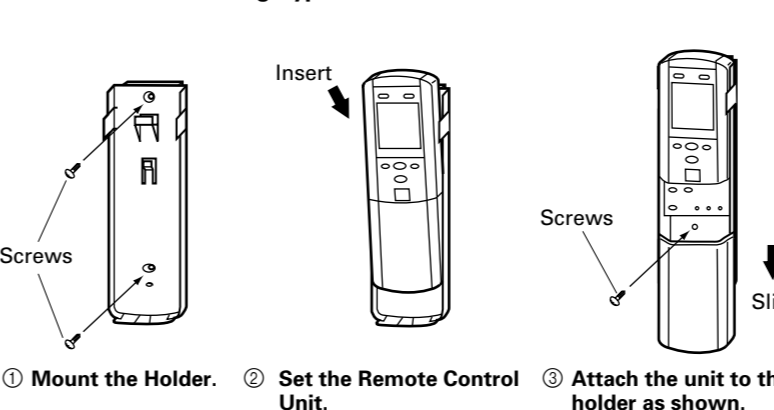
- Install the remote control unit with a distance of 7 m between the remote control unit and the grille photocell as the criteria. However, when installing the remote control unit, check that it operates positively.
- Install the remote control unit holder to a wall, pillar, etc. with the tapping screw (Fig. 48).

Fig. 48

For use as Handy Type



For use as Wall Fixing Type



Remote control unit code switching.

Fig. 49

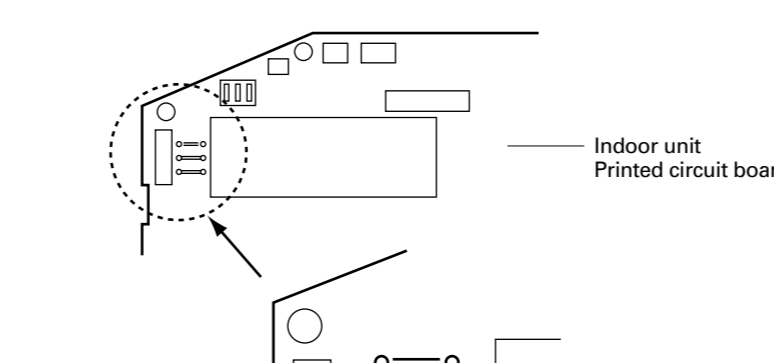
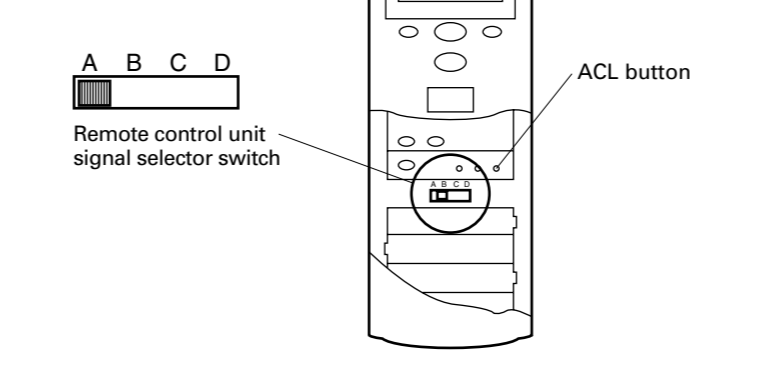
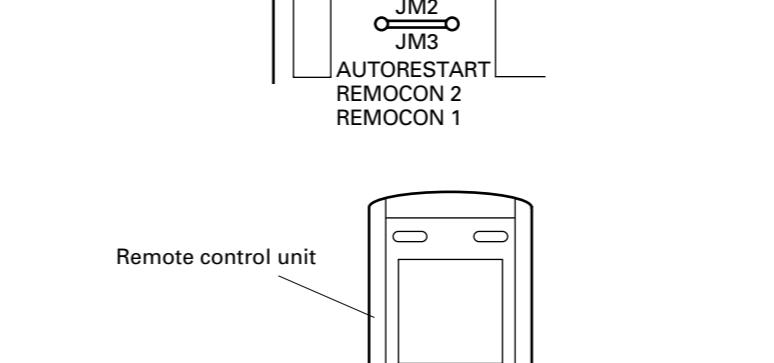


Fig. 49



Confirm the remote control unit signal selector switch selection and printed circuit board setting.
If these are not confirmed, the remote control unit cannot be operated for the air conditioner.

Table 7

Jumper wire	Remote control unit signal selector switch
JM 2	JM 3
Connect	Connect
Disconnect	Disconnect
Connect	Connect
Disconnect	Disconnect

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

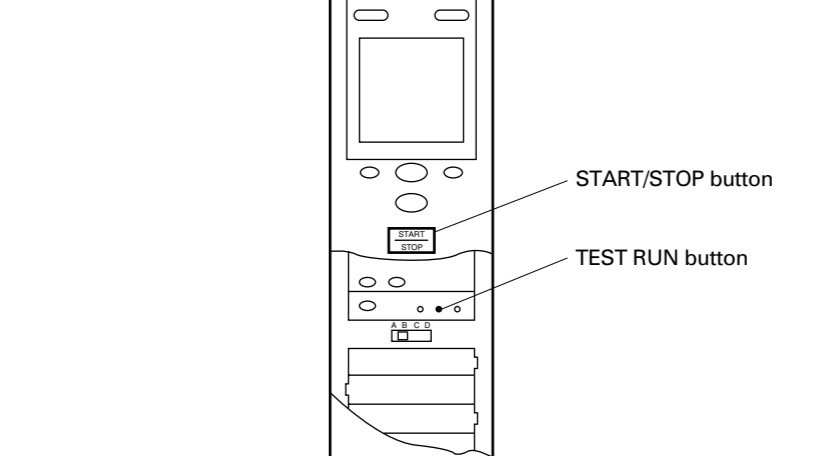
11

TEST RUNNING

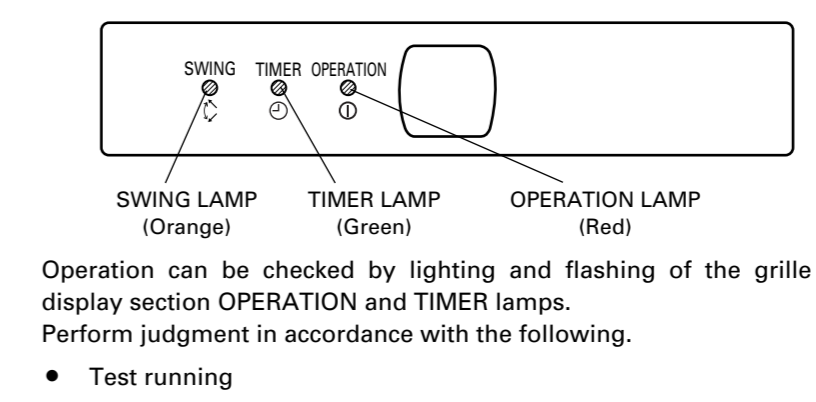
1. INDOOR UNIT

- 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 stop button. (Fig. 50)

Fig. 50



- Run the air conditioner in accordance with the operating manual.



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

- Test running
- Error

The OPERATION, TIMER and SWING lamps operate as follows (Table 8) according to the error contents.

Table 8

Error contents	OPERATION lamp (RED)	TIMER lamp (GREEN)	SWING lamp (ORANGE)
Indoor EEPROM abnormal	○	○	×
Outdoor EEPROM abnormal	○	○	○
Indoor room temperature sensor open	(2 times) ●	○	×
Indoor room temperature sensor shortcircuited	(2 times) ●	○	○
Indoor heat exchanger temperature sensor open	(3 times) ●	○	×
Indoor heat exchanger temperature sensor shortcircuited	(3 times) ●	○	○
Float switch operated	(4 times) ●	○	×
Indoor signal abnormal	(5 times) ●	○	○
Outdoor signal abnormal	(5 times) ●	○	○
Indoor fan abnormal	(6 times) ●	○	×
Outdoor power source connection abnormal	○	(2 times) ●	×
Outdoor heat exchanger temperature sensor open	○	(3 times) ●	×
Outdoor heat exchanger temperature sensor shortcircuited	○	(3 times) ●	○
Outdoor temperature sensor open	○	(4 times) ●	×
Outdoor temperature sensor shortcircuited	○	(4 times) ●	○
Outdoor discharge pipe temperature sensor open	○	(5 times) ●	×
Outdoor discharge pipe temperature sensor shortcircuited	○	(5 times) ●	○
Outdoor high pressure abnormal	○	(6 times) ●	×
Outdoor discharge pipe temperature abnormal	○	(7 times) ●	×

○ : 0.1s ON/0.1s OFF (flash) × : OFF
● : 0.5s ON/0.5s OFF (flash)

2. OUTDOOR UNIT

When the outdoor temperature drops, the outdoor unit's fans may switch to low speed.

ERROR : HEAT & COOL MODEL (REVERSE CYCLE) ONLY

The LED lamps operate as follows (Table 9) according to the error contents.

Table 9

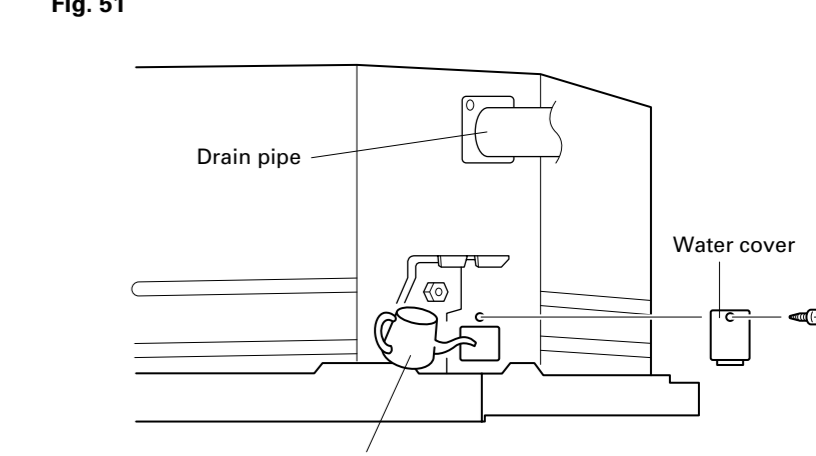
Error display	Error contents
ON OFF	Lighting continued
ON OFF	Single quick flashes repeated
ON OFF	Two quick flashes repeated
ON OFF	Three quick flashes repeated
ON OFF	Lighting continue

When the fault is cleared, the LED lamp goes off. However, for discharge pipe temperature abnormal and high pressure abnormal, the LED lamp lights continuously for 24 hours, as long as the power is not turned off.

3. CHECKING DRAINAGE

To check the drain, remove the water cover and fill with 2 to 3 l of water as shown in Fig. 51.
The drain pump operates when operating in the cooling mode.

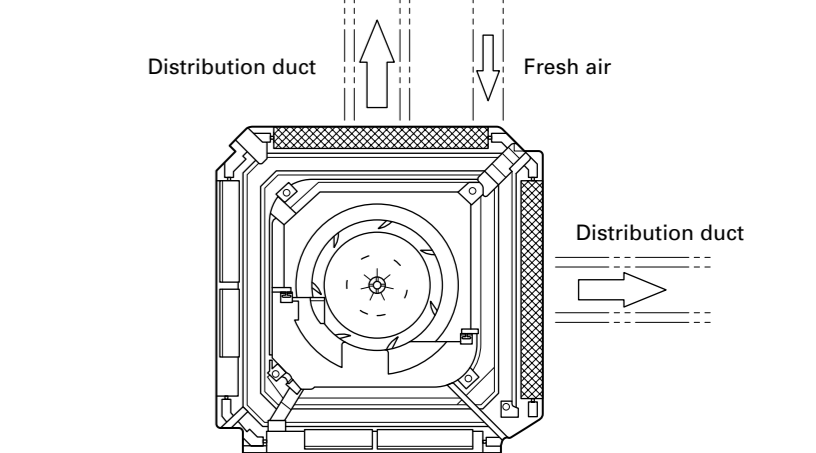
Fig. 51



12

OPENING THE DUCT CONNECTION HOLE

Fig. 52



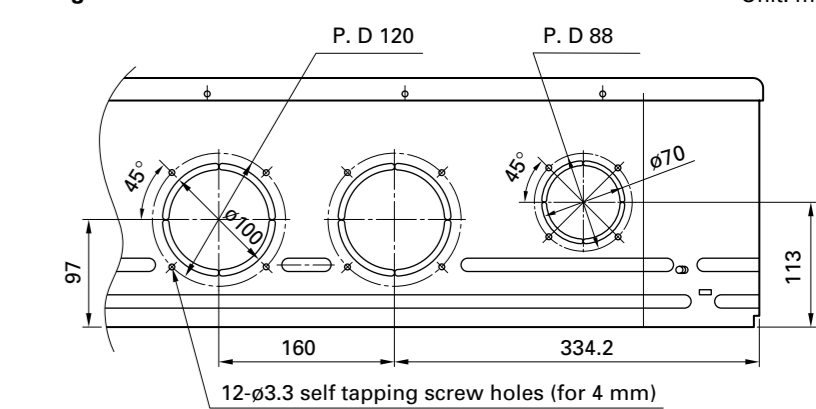
CAUTION

- When performing hole opening work, be careful not to damage the drain pan.
- When connecting the distribution duct, to make the air flow easily, block the outlet port with the blower cover insulation as shown by the hatched lines in Fig. 52. For the blocking direction, refer to Fig. 39.

1. DIMENSION

Screw position and connection hole which are fresh air duct and distribution duct.

Fig. 53



2. DISTRIBUTION DUCT AND FRESH AIR DUCT HOLE PROCESSING

Use the distribution duct hole and fresh air duct hole by removing the insulation material as shown below.

Fig. 54

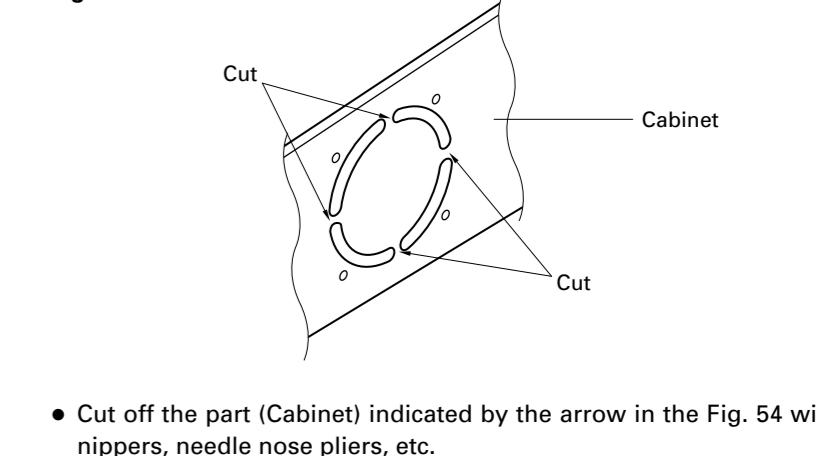
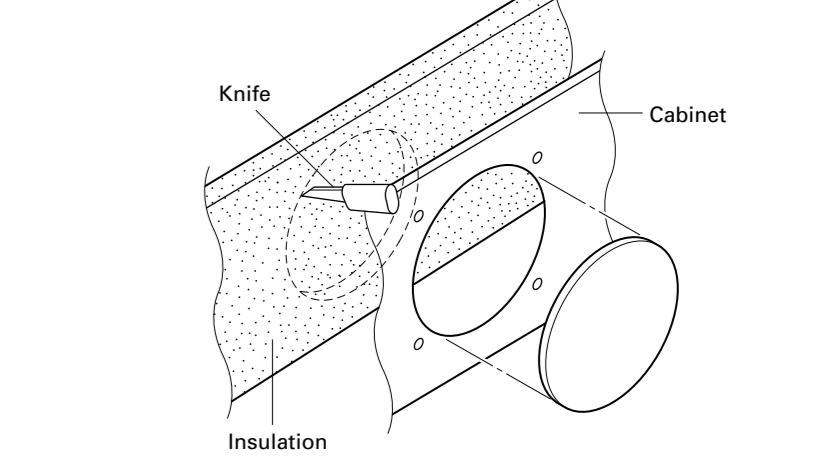


Fig. 55



- Open the holes and cut the insulation with a knife.
- Be careful not to damage the internal parts.
- Be careful not to cut yourself on the cutout in the metal plate.
- Please remove the insulation (inner box) left over after cutting.
- Connect the distribution duct.
- When mounting the duct, block the gap so that there is no cold air leakage.
- Insulate the duct and cut connection.

CAUTION

The air conditioner cannot take in fresh air by itself. When connecting a fresh air duct, always use a duct fan.