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VACUUM PROCESS

1. VACUUM

- Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve 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 : 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: 70 to 90 kgf-cm, 3-way valve: 100 to 120 kgf-cm).
- Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque (200 to 250 kgf-cm).

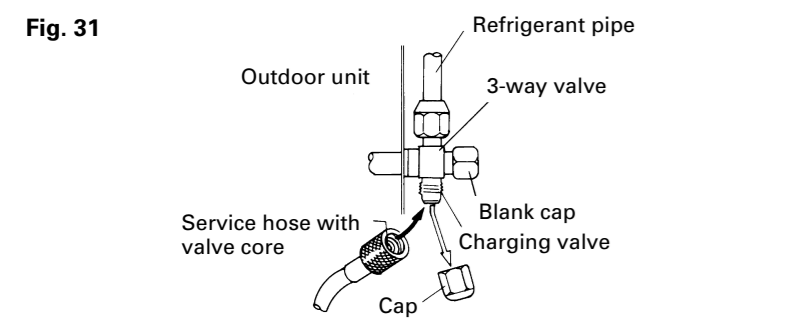


Fig. 31

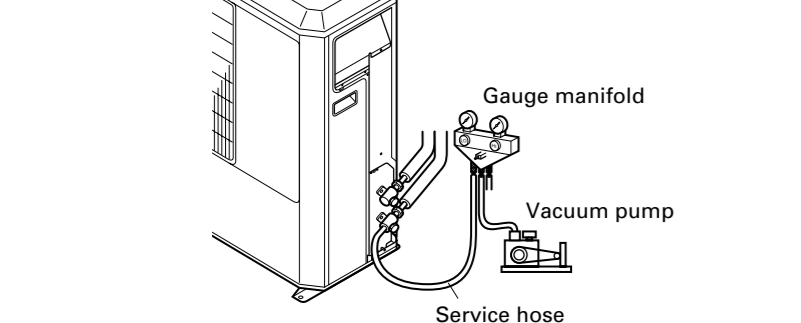


Fig. 32

2. ADDITIONAL CHARGE

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

Pipe length	Table 5					
	25 ft (7.5 m)	33 ft (10 m)	49 ft (15 m)	66 ft (20 m)	82 ft (25 m)	99 ft (30 m)
Additional refrigerant	Heat & Cool (Reverse cycle)	None	4.4 oz (125 g)	13.2oz (375 g)	22.0 oz (625 g)	30.9 oz (875 g)
	Cooling model	None	1.8 oz (50 g)	5.3 oz (150 g)	8.8 oz (250 g)	12.3 oz (350 g)

Between 7.5 m and 30 m, when using a connection pipe other than that in the table, charge additional refrigerant with 1.8 oz (50 g)/3.3 ft (1 m) (Reverse cycle model), 0.7 oz (20 g)/3.3 ft (1 m) (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.

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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.

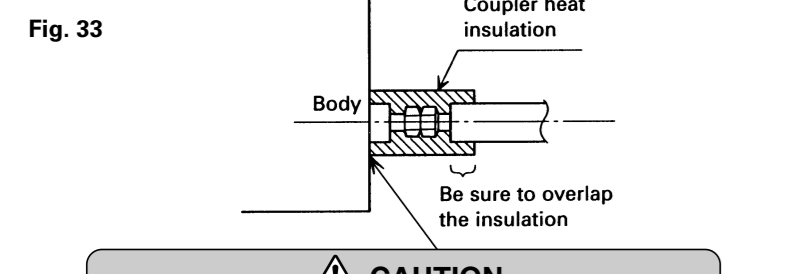


Fig. 33

CAUTION

Must fit tightly against body without any gap.



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ELECTRICAL WIRING

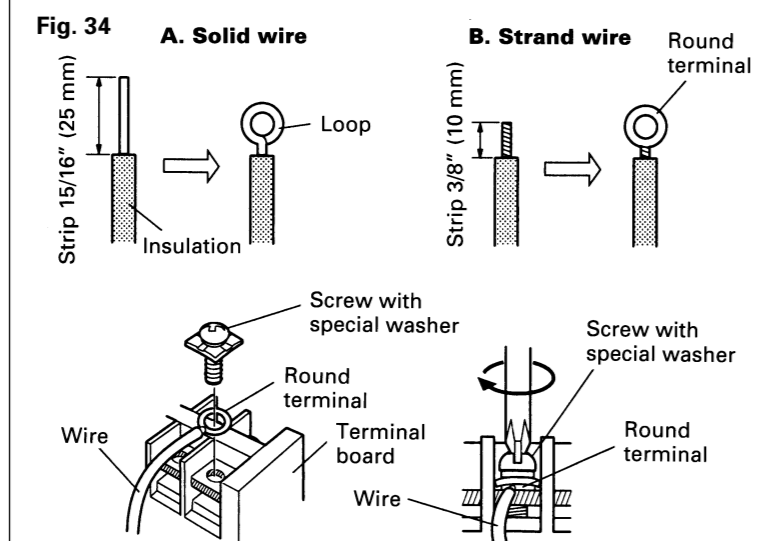
HOW TO CONNECT WIRING TO THE TERMINALS

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 15/16" (25 mm) to 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.

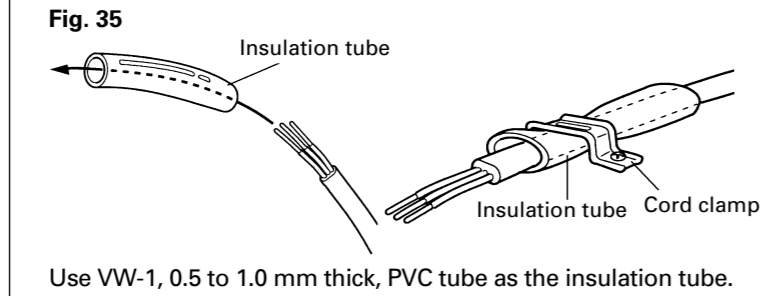
B. For strand wiring

- 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.
- 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.



HOW TO FIXED CONNECTION CORD AND POWER SUPPLY CORD AT THE CORD CLAMP

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



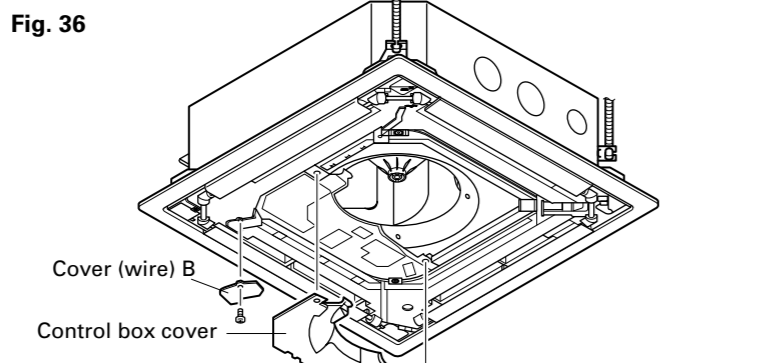
Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

1. INDOOR UNIT SIDE

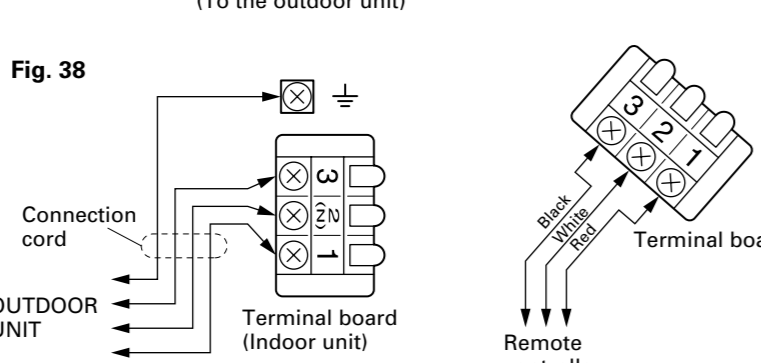
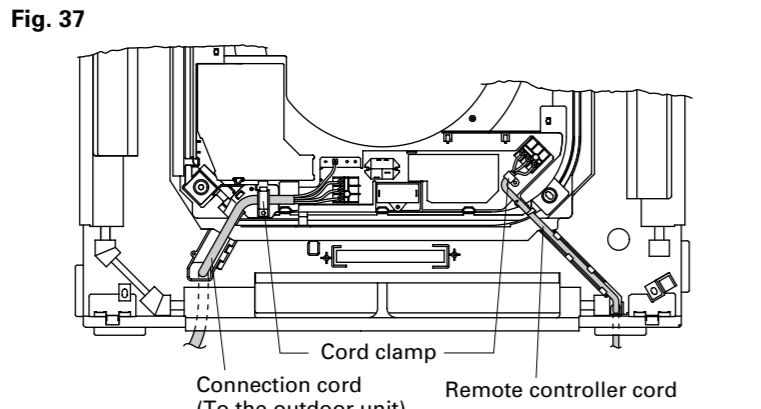
WARNING

- Before starting work, check that power is not being supplied to the indoor unit and outdoor 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.



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



Ceiling height setting

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

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

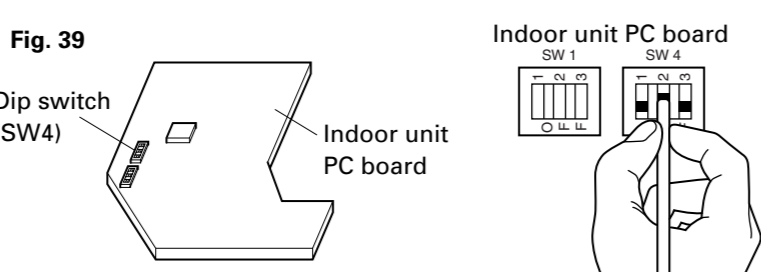


Fig. 39

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.

2. OUTDOOR UNIT SIDE

WARNING

- Before starting work, check that power is not being supplied to the indoor unit and 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 valve cover and connect the power cord and the outdoor unit connection cord wired at the indoor unit.
- Fasten the power cord and connection cord with cable clip and binders as shown in (Fig. 41)

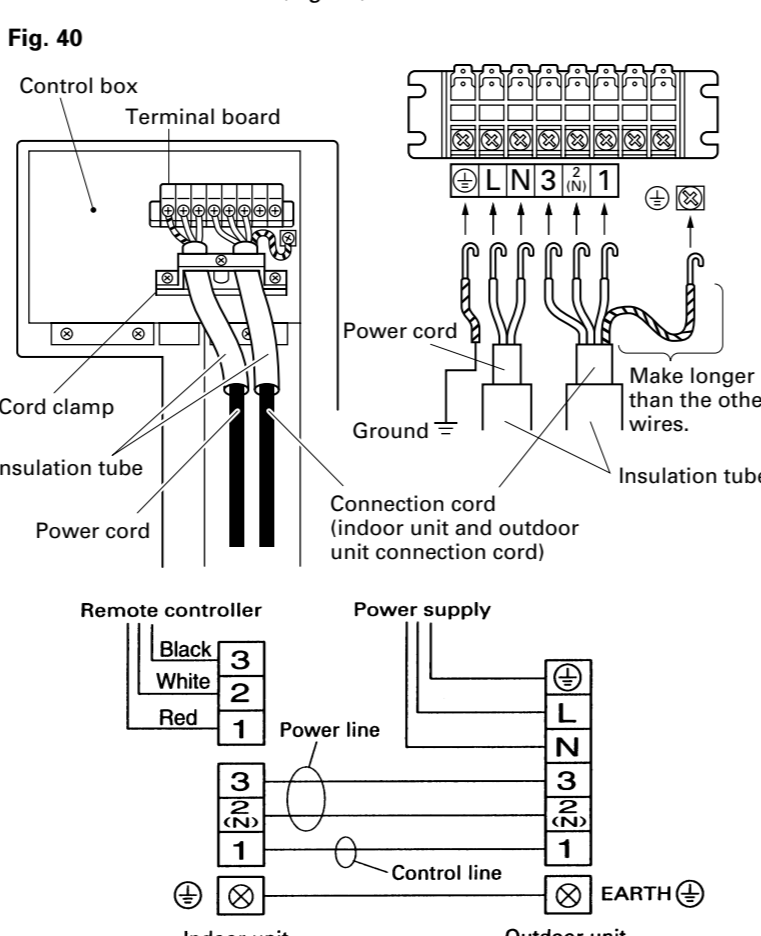


Fig. 40

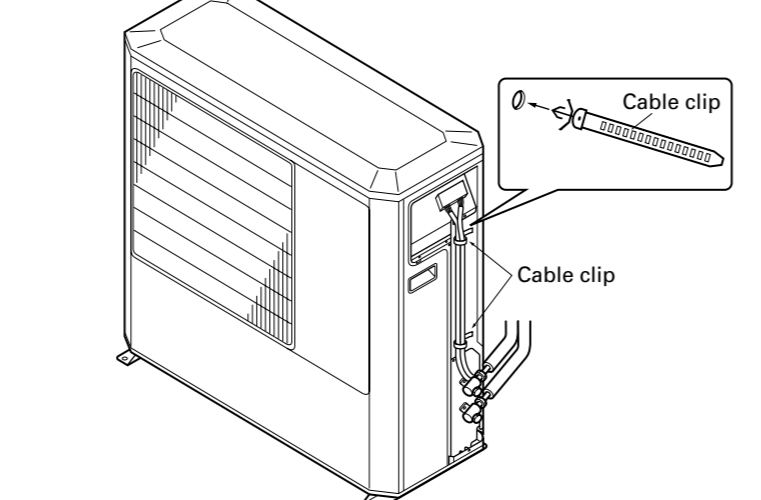


Fig. 41

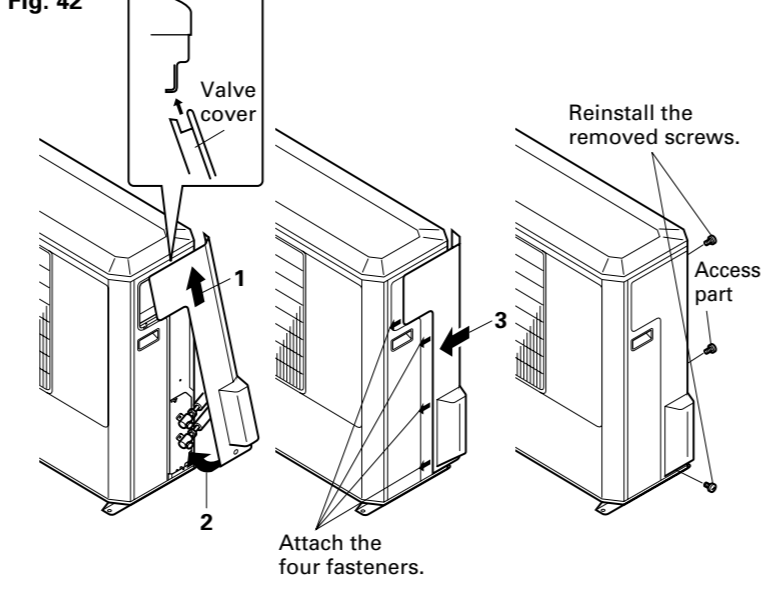


Fig. 42

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. 43. At this time, use the piping position as the criteria.

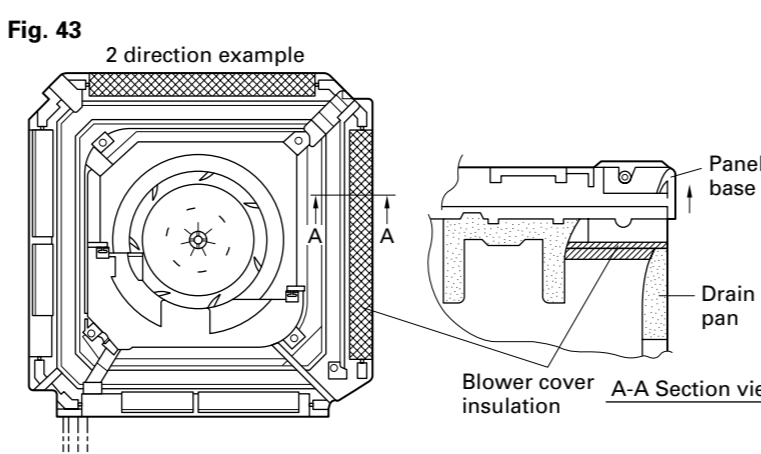


Fig. 43

INSTALLING THE INTAKE GRILLE

- Mount the grille hinge wire to the hook shaft as shown in Fig. 44.

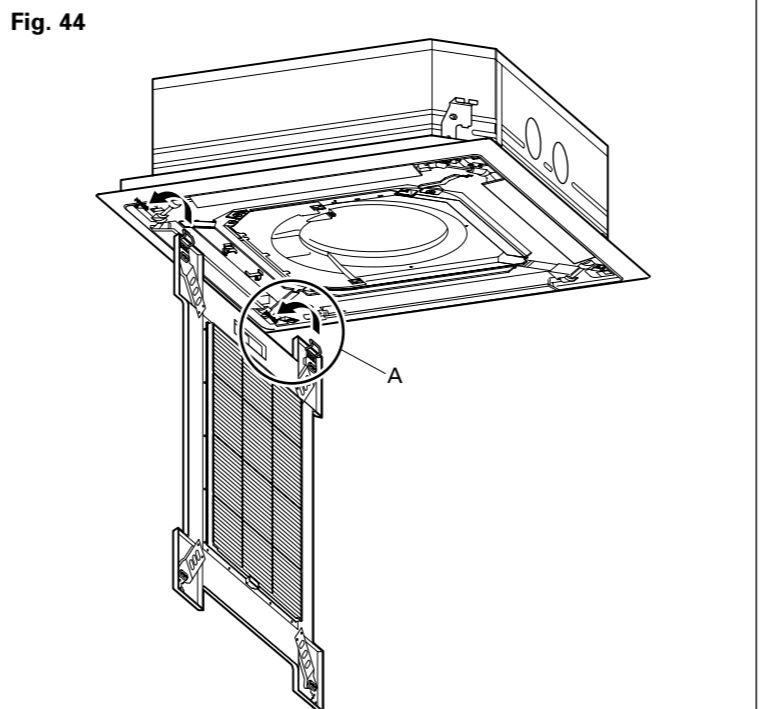


Fig. 44

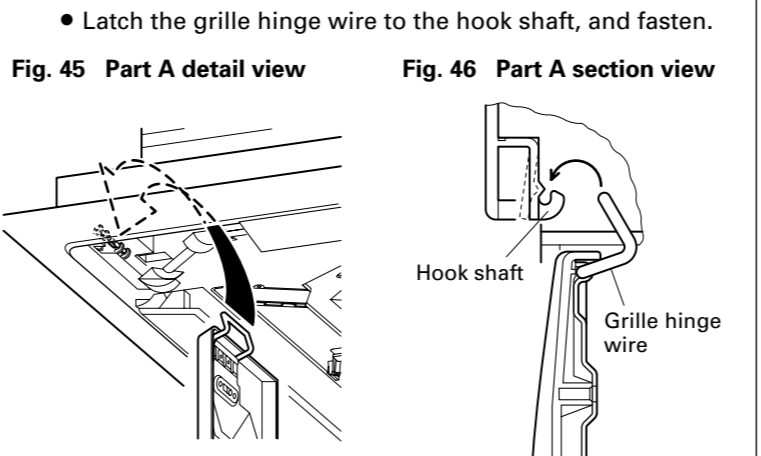


Fig. 45 Part A detail view

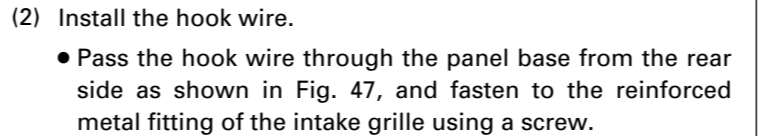


Fig. 46 Part A section view

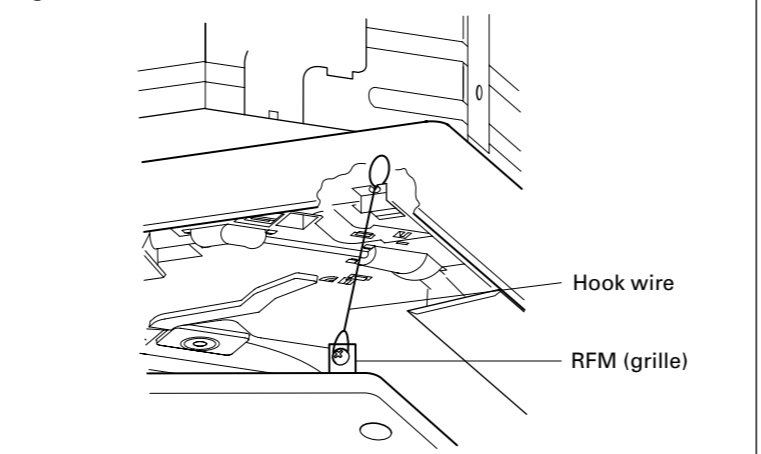


Fig. 47

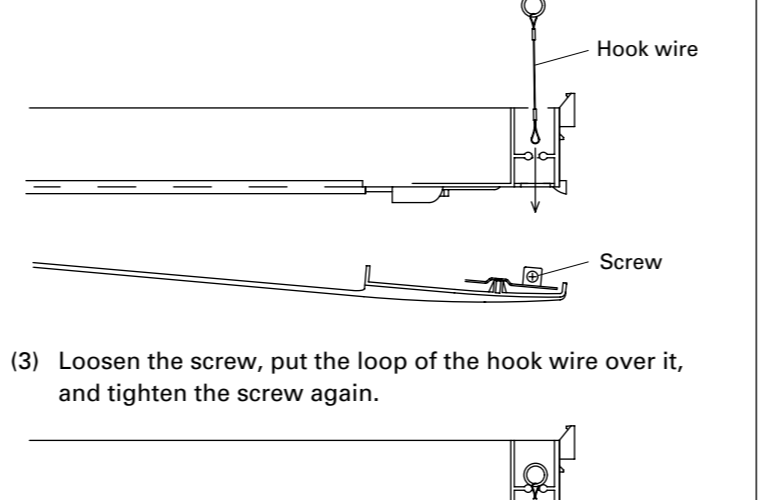


Fig. 48 Section view

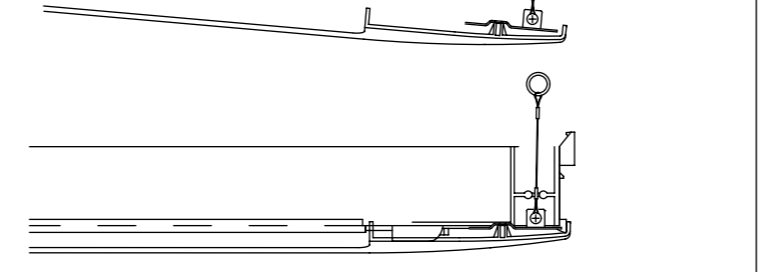


Fig. 49

CAUTION

Install the intake grille hook wire to the grille assembly. If it falls, it may cause injuries.

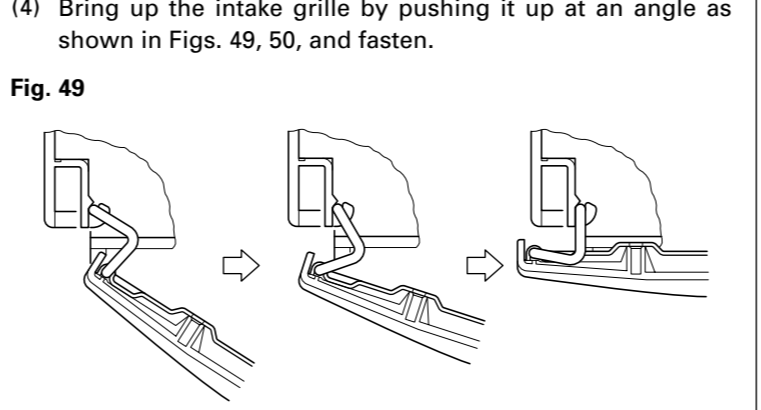


Fig. 50

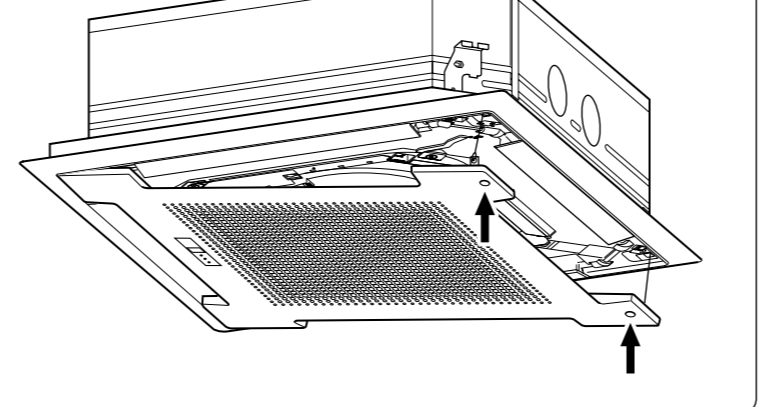


Fig. 51

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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.

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REMOTE CONTROLLER INSTALLATION

When mounting the remote controller, refer to the enclosed REMOTE CONTROLLER INSTALLATION INSTRUCTION SHEET. Then, make the necessary settings on both the remote controller and the main unit.

- 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.

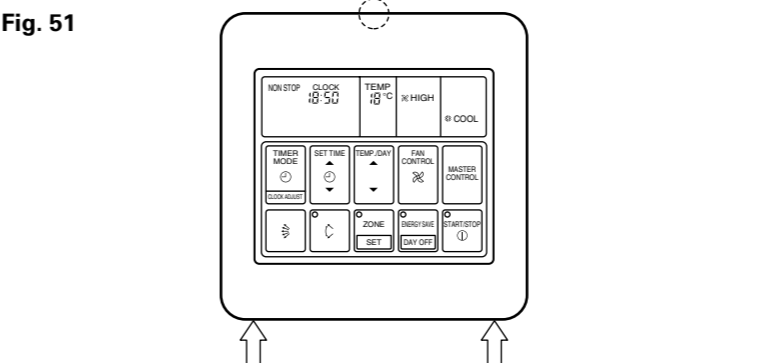


Fig. 52

- When remote controller exposed
- Make a notch in the thin part (C) part of Fig. 51) at the remote controller case top and bottom with nippers, file, etc.
- Pass the remote controller cord through the hole at the remote controller case bottom and install the cord to the box (Fig. 54).
- Connect the remote controller cord to the remote controller terminal board specified in (Fig. 52).
- Clamp the remote controller cord sheath with the binder (small) as shown in (Fig. 52).
- Cut off the excess binder.
- Clamp the remote controller cord to a wall, etc. with the remote controller cord clamp furnished (Fig. 53).

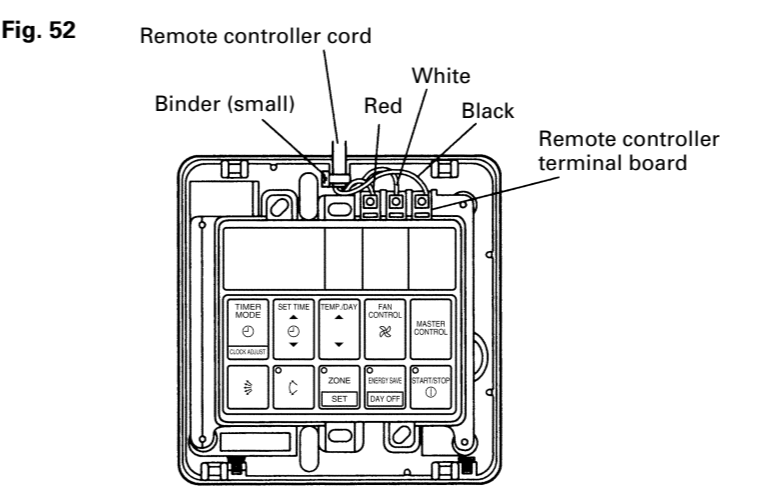


Fig. 53

- When remote controller cord embedded
- Embed the remote controller cord and box.
- Pass the remote controller cord through the hole at the remote controller case bottom and install the cord to the box (Fig. 54).
- Connect the remote controller cord to the remote controller terminal board specified in (Fig. 52).

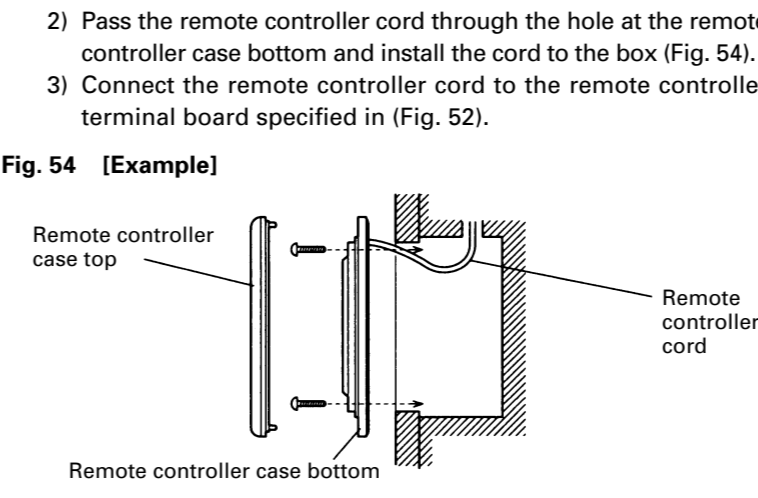


Fig. 54 [Example]

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

CAUTION

- 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.
- 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.
- Do not touch the remote controller PC board and PC board parts directly with your hands.

11

TEST RUNNING

1. 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. 55).

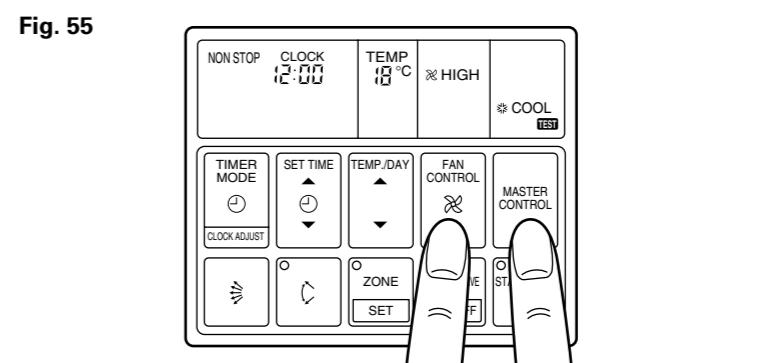


Fig. 55

- When EEEE 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. 56). When the operation lamp lights, press the START/STOP button and after operation lamp goes off, perform the same operation (Fig. 56). Process the error contents by referring to (Table 7).

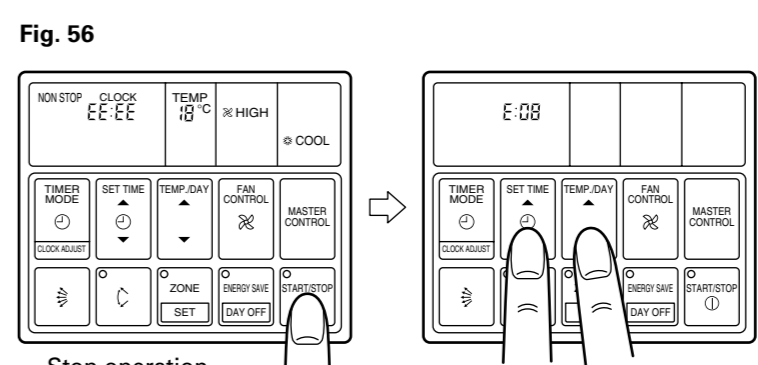


Fig. 56

Table 7

Error code	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 shortcircuited
E-04	Indoor heat exchanger temperature sensor open
E-05	Indoor heat exchanger temperature sensor shortcircuited
E-06	Outdoor heat exchanger temperature sensor open
E-07	Outdoor heat exchanger temperature sensor shortcircuited
E-08	Power source connection error
E-09	Float switch operated
E-0A	Outdoor temperature sensor open
E-0B	Outdoor temperature sensor shortcircuited
E-0C	Discharge pipe temperature sensor open
E-0D	Discharge pipe temperature sensor shortcircuited
E-0E	Outdoor high 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

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 8) according to the error contents.

Table 8		Error contents
LED1	LED2	
ON 0.1 sec. OFF 0.1 sec.	ON 0.1 sec. OFF 0.1 sec.	Model abnormal or EEPROM abnormal
Quick flash continued	Quick flash continued	Power source connection error
1 quick flash repeated	Lighting continued	Discharge temperature sensor error
2 quick flash repeated	Lighting continued	Outdoor heat exchanger temperature sensor error
3 quick flash repeated	Lighting continued	Outdoor temperature sensor error
4 quick flash repeated	Lighting continued	Communication signal error
5 quick flash repeated	Lighting continued	Indoor unit error
6 quick flash repeated	Lighting continued	Discharge temperature abnormal
7 quick flash repeated	Lighting continued	High pressure abnormal
8 quick flash repeated	Lighting continued	

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. 57. The drain pump operates when operating in the cooling mode.

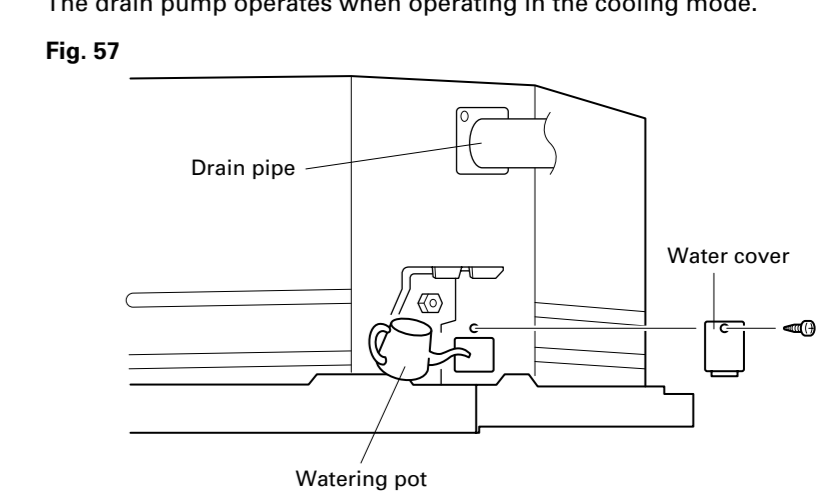


Fig. 57

OPENING THE DUCT CONNECTION HOLE

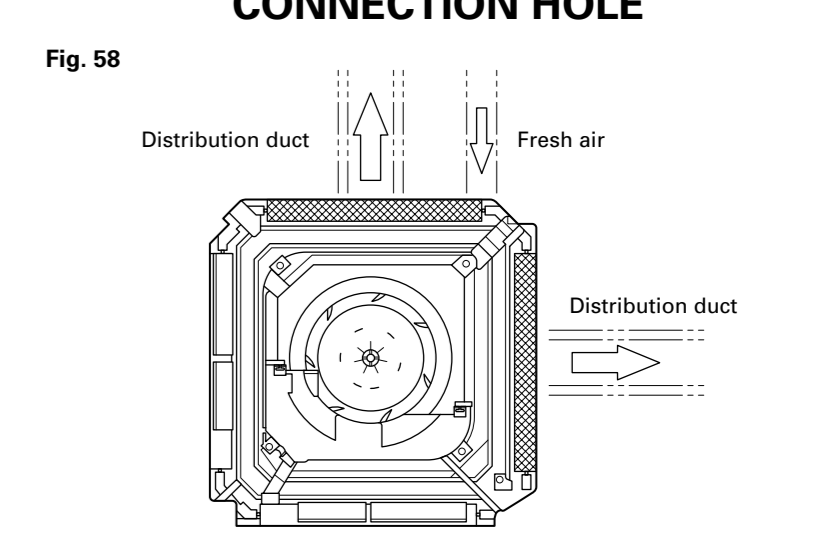


Fig. 58

- 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. 58. For the blocking direction, refer to Fig. 43.

1. DIMENSION

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

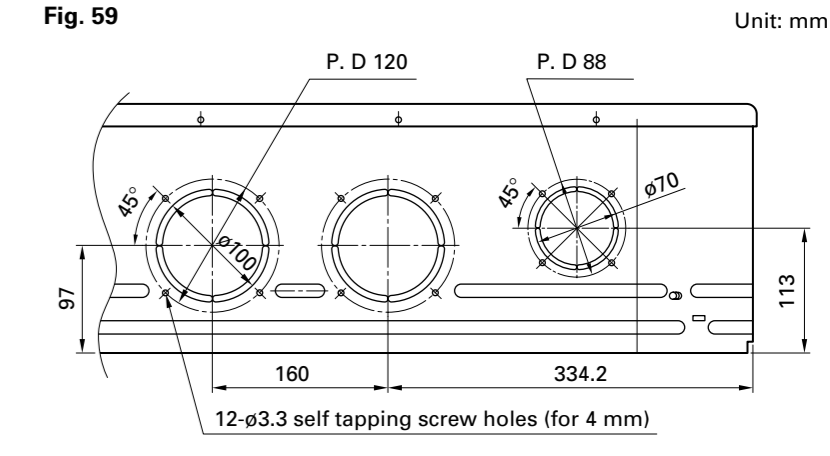


Fig. 59

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.

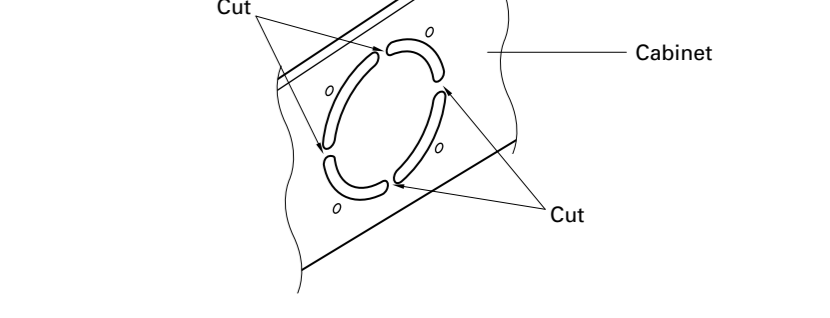


Fig. 60

- Cut off the part (Cabinet) indicated by the arrow in the Fig. 60 with nippers, needle nose pliers, etc.

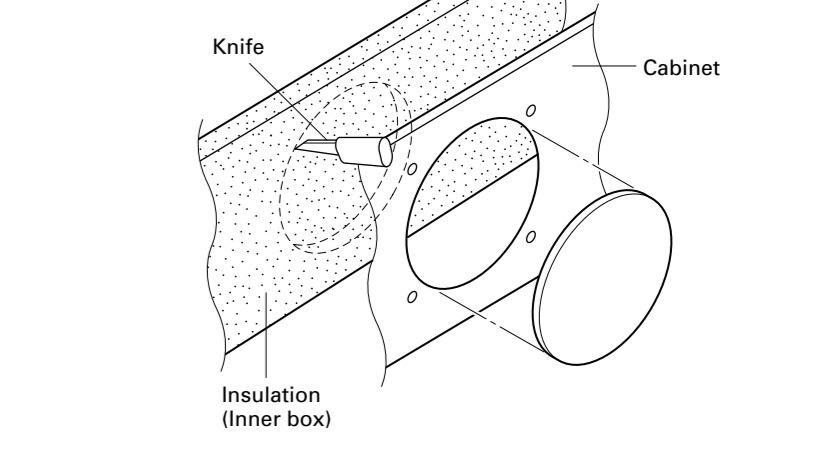


Fig. 61

- 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.