

SPLIT TYPE AIR CONDITIONER Ceiling Suspension Type INSTALLATION MANUAL

(PART NO. 9360461018-03)
For authorized service personnel only.

- WARNING**
- For the air conditioner to operate satisfactorily, install it as outlined in this installation manual.
 - Installation work must be performed in accordance with national wiring standards by authorized personnel only.
 - 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 manual because it is used when the air conditioner is serviced or moved.

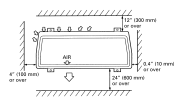
SELECTING THE MOUNTING POSITION

- WARNING**
- Install in a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not rattle or fall.
 - Do not install the unit near a source of heat, steam, or flammable gas.
 - If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

2. OUTDOOR UNIT

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

Fig. 4



1. INDOOR UNIT

- Install the indoor unit level on a strong wall which is not subject to vibration.
- The blind and grille parts should not be obstructed - the air should be able to blow all over the room.
- Do not install the unit where it will be exposed to direct sunlight.
- Install the unit where connection to the outdoor unit is easy.
- Install the unit where the drain pipe can be easily installed.
- Take venting, etc. into consideration and leave the space shown in Fig. 2 or 3. Also install the unit where the filter can be removed.

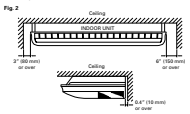


Fig. 1

FOR HALF CONCEALED INSTALLATION

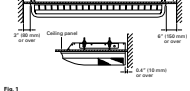


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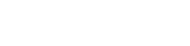


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VACUUMING AND ADDITIONAL CHARGE

1. VACUUM

- Vacuum inside the indoor unit and the piping to a pressure of 1.5 mmHg abs or less from the charging valve with a vacuum pump.
- After vacuuming inside the indoor unit and the piping, remove the cap of the two valves.
- Open the handle of the two valves from the closed state (Table 6).
- Tighten the cap of the two valves to the specified torque.

Table 5

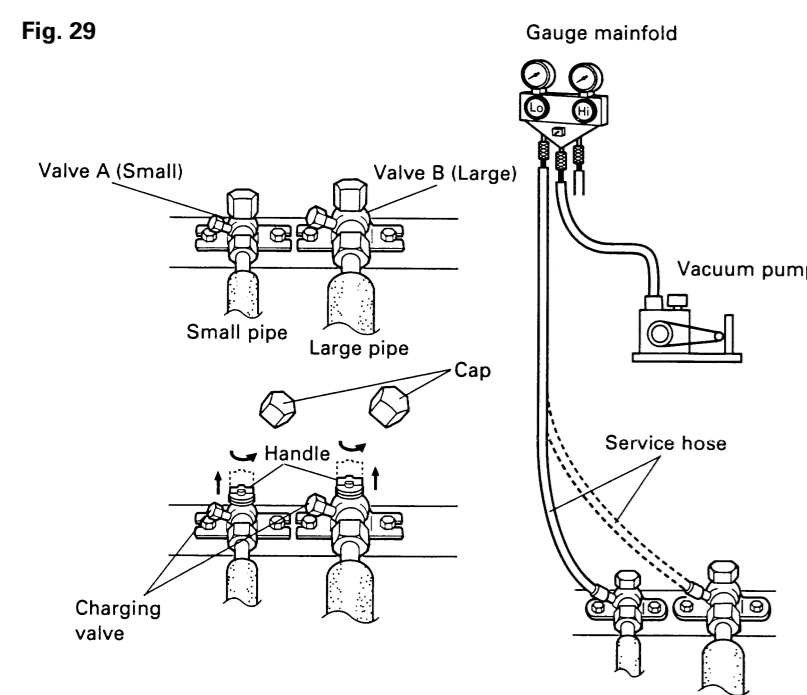
	Tightening torque	
	Large valve	Small valve
Handle	15 kgf·cm (1.47 N·m) or less	
Cap	150 to 200 kgf·cm (14.7 to 19.6 N·m)	

Table 6

Open valve state	Closed valve state

* If the handle is not fully open, performance will drop and an abnormal sound will be generated.

Fig. 29



2. ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 5 m [36,000 BTU class (Cooling model)] or 20 m for other models is charged in the outdoor unit at the factory. When the piping is longer than 5 m [36,000 BTU class (Cooling model)] or 20 m for other models, additional charging is necessary. For the additional amount, see the table below.

Table 7

Pipe length Model type	33 ft (10 m)		66 ft (20 m)		99 ft (30 m)		132 ft (40 m)		164 ft (50 m)		oz/ft (g/m)
	Cooling model	Reverse cycle model	Cooling model	Reverse cycle model	Cooling model	Reverse cycle model	Cooling model	Reverse cycle model	Cooling model	Reverse cycle model	
36,000 BTU class	4.8 oz (135 g)	None	14.3 oz (405 g)	23.8 oz (675 g)	33.3 oz (945 g)	42.9 oz (1215 g)	0.95oz/3.3 ft (27 g/m)				
45,000 BTU class	None	None	14.1 oz (400 g)	28.2 oz (800 g)	42.3oz (1200 g)		1.41oz/3.3 ft (40 g/m)				
54,000 BTU class	None	None	17.6 oz (500 g)	35.2 oz (1000 g)	52.8 oz (1500 g)		1.76oz/3.3 ft (50 g/m)				

CAUTION

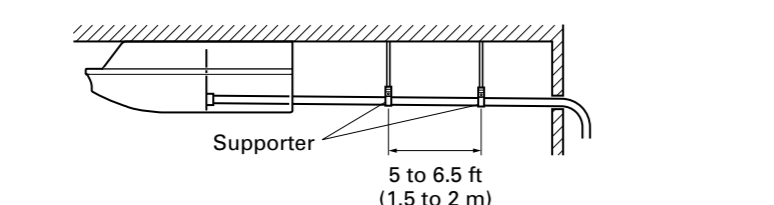
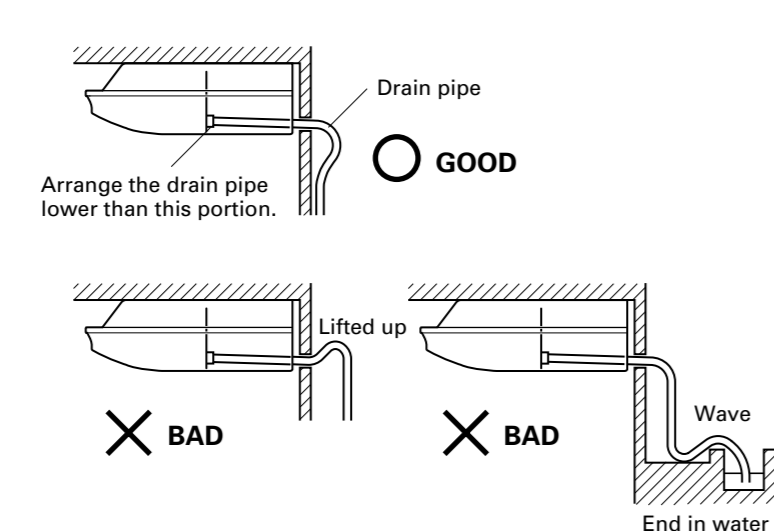
- When charging the refrigerant, always use a measuring cylinder.
- Add refrigerant from the charging valve after the completion of the work.

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DRAIN PIPING

- 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 38 mm].
- During installation of the drain pipe, be careful to avoid applying pressure to the drain port of the indoor unit.
- When the pipe is long, install supporters (Fig. 31).
- Do not perform air bleeding.
- Always heat insulate (8mm or over thick) the indoor side of the drain pipe.

Fig. 31



- Install insulation for the drain pipe. (See Figs. 32 and 33.) Cut the included insulation material to an appropriate size and adhere it to the pipe.

Fig. 32

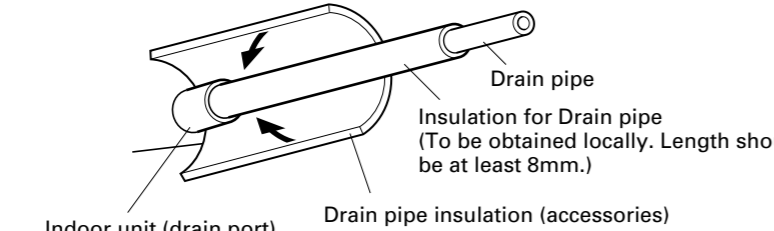


Fig. 33

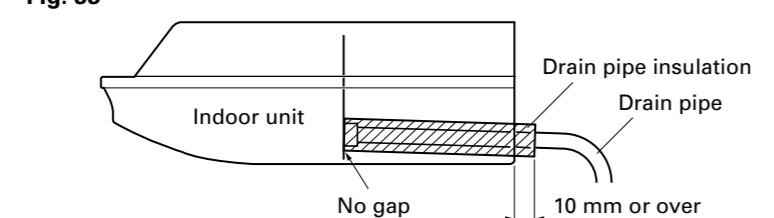
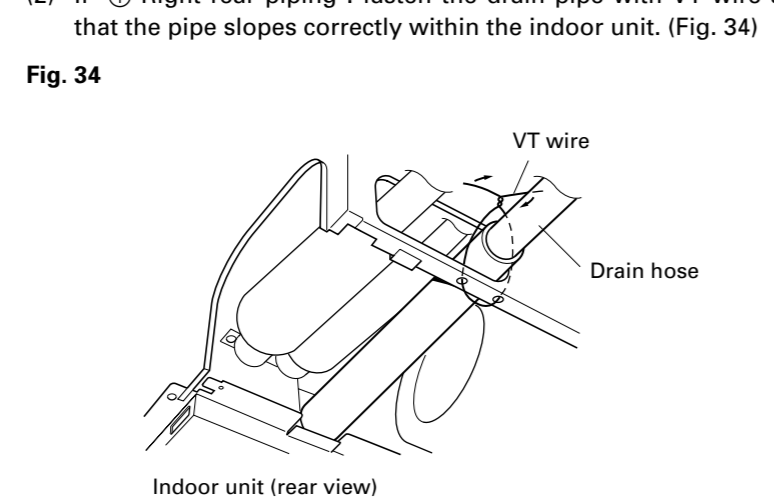


Fig. 34



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ELECTRICAL WIRING

HOW TO CONNECT WIRING TO THE TERMINALS

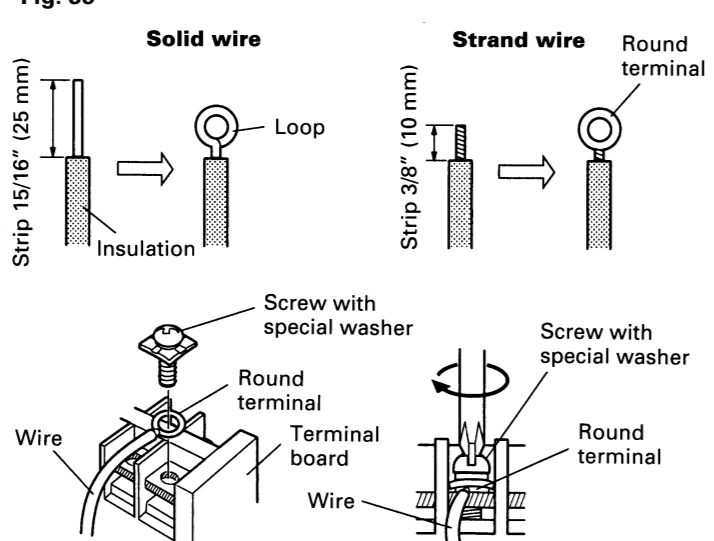
A. For solid core wiring (or F-cable)

- Cut the wire and with a wire cutter or wire-cutting pliers, then strip the insulation to about 15/16" (25 mm) 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.

B. For strand wiring

- Cut the wire and with a wire cutter or wire-cutting pliers, then strip the insulation to about 3/8" (10 mm) 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.

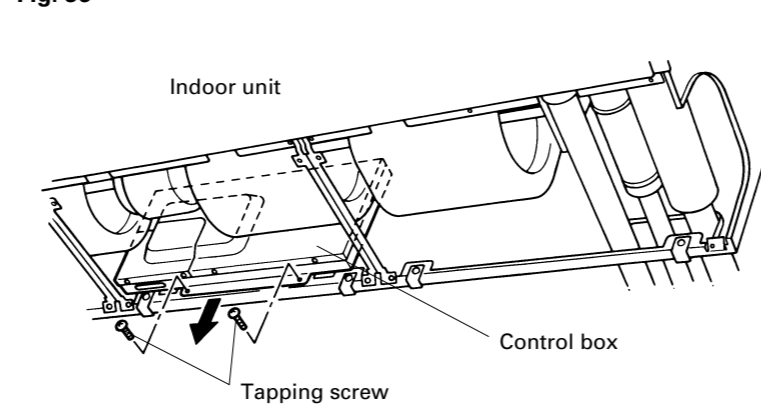
Fig. 35



1. INDOOR UNIT SIDE

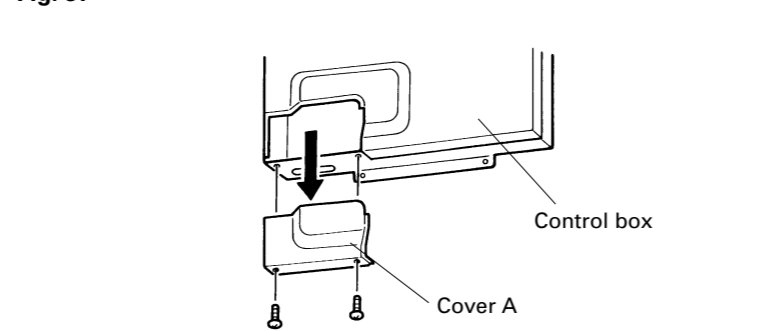
- Remove the two tapping screws and pull the control box downward. (Fig. 36)

Fig. 36



- Remove the Cover A and install the Connection cord (Fig.37)
- After wiring is complete, clamp the Connection cord with the Cord clamp (Fig.38)
- Reattach Cover A. Then fasten the control box back into its original position using the two tapping screws.
- Attach the connection cord and cable clips. Make sure that they are positioned so that they will not interfere with opening and closing of the intake grille or with removal and installation of the air filters. (Fig. 38)

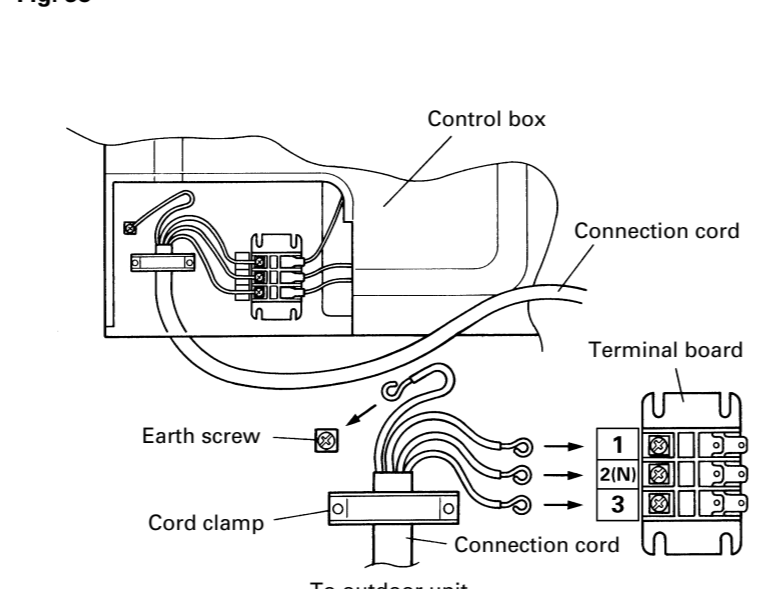
Fig. 37



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 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.

Fig. 38



2. OUTDOOR UNIT SIDE

- Remove outdoor unit cabinet A 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. 40)

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 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.

Fig. 39

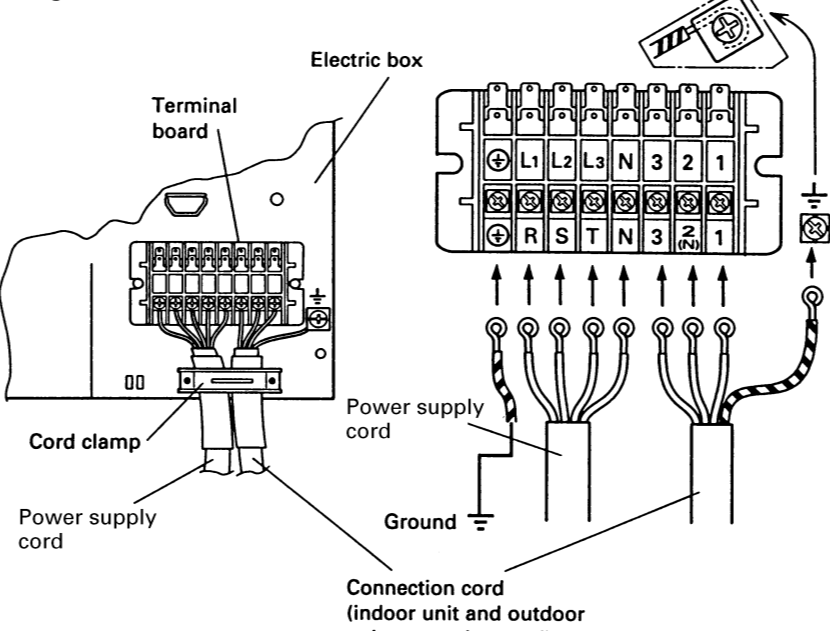


Fig. 40

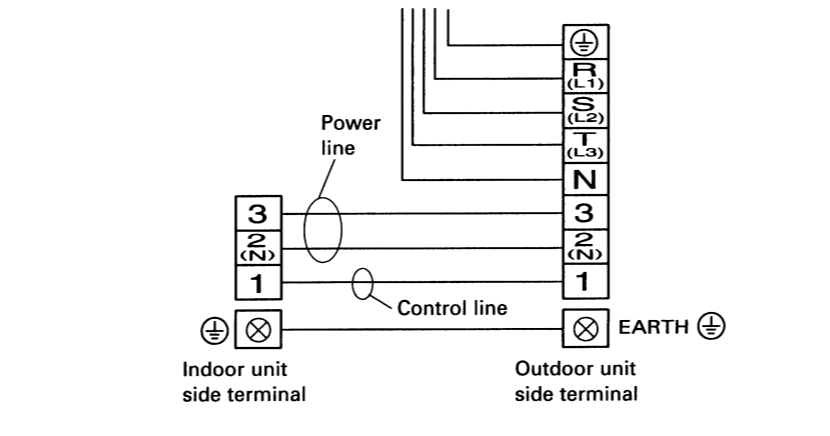
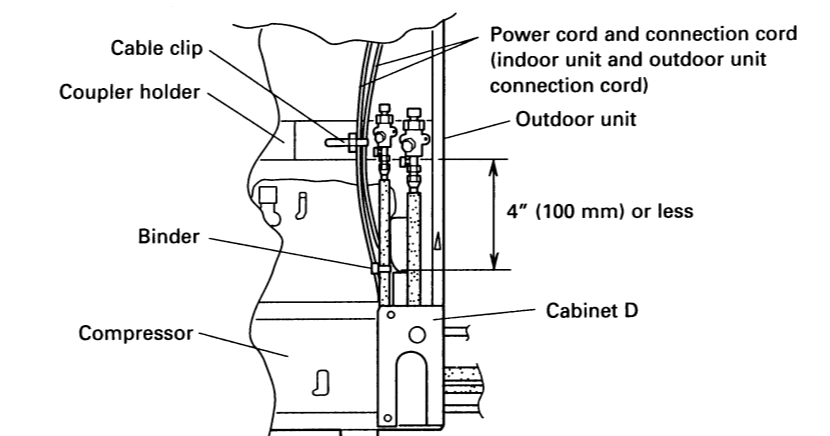


Fig. 41



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POWER

WARNING

- The rated voltage of this product is 3ø4W 380-415V 50Hz.
- Before turning on verify that the voltage is within the 342V to 457V 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. (Fuse/Breaker capacity : 20 A)
- The special branch circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.
- 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

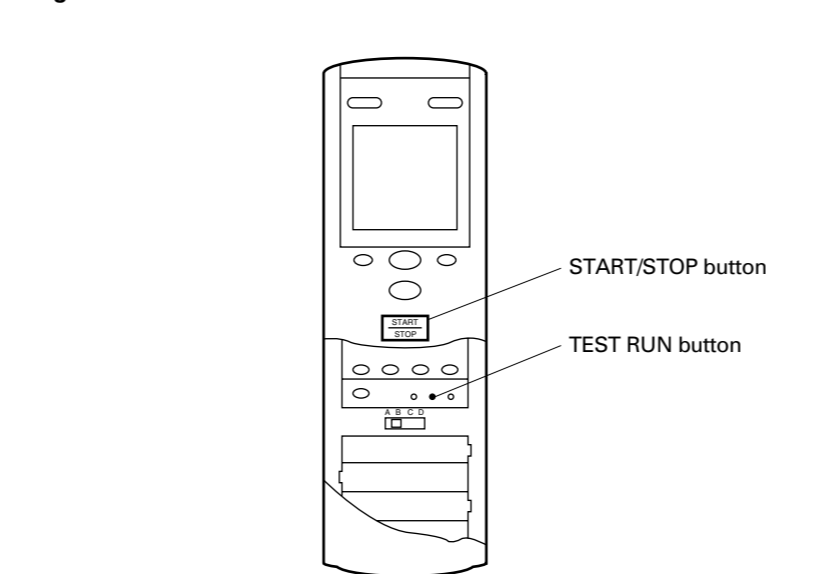
When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

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TEST RUNNING

- Perform test operation and check items 1 and 2 below.
- For the operation method, refer to the operating manual.
- The outdoor unit may not run, depending on the room temperature. In this case, press the TEST RUN button while the air conditioner is running. (With the transmit section of the remote control unit facing the power, press the TEST RUN button with the tip of a ball point pen.)

Fig. 41



- To end test operation, press the remote control unit START/STOP button. (When the air conditioner is run by pressing the remote control unit TEST RUN button, the OPERATION and TIMER lamps will simultaneously flash slowly.)

1. INDOOR UNIT

- Is operation of each button on the remote control unit normal?
- Does each lamp light normally?
- Do not air flow direction flap and louvers operate normally?
- Is the drain normal?

2. OUTDOOR UNIT

- Is there any abnormal noise and vibration during operation?
- Will noise, wind, or drain water from the unit disturb the neighbors?
- Is there any gas leakage?

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FINISHING

- Install the filter guide.
- Install the intake grills.
- Install side covers A and B (if the unit is installed in a half-concealed orientation, only install side cover A).
- Install the air filters.

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CUSTOMER GUIDANCE

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

- Starting and stopping method, operation switching, temperature adjustment, timer, air flow adjustment, and other remote control unit operations.
- Air filter removal and cleaning.
- Give the operating and installation manuals to the customer.

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REMOTE CONTROL UNIT INSTALLATION

CAUTION

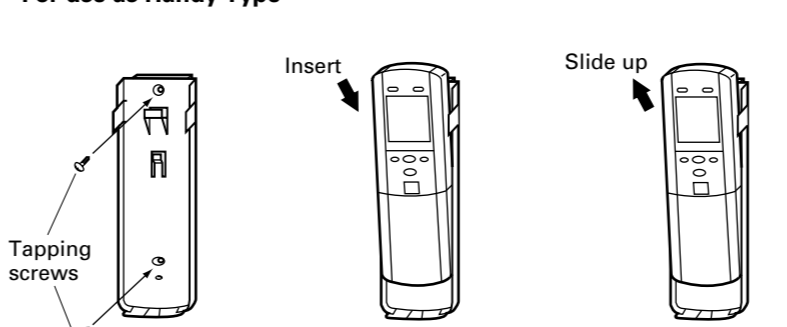
- Check that the indoor unit correctly receives the signal from the remote control unit, then install the remote control unit holder.
- Select the remote control unit holder selection site by paying careful attention to the following: Avoid places in direct sunlight. Select a place that will not be affected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

1. REMOTE CONTROL UNIT HOLDER INSTALLATION

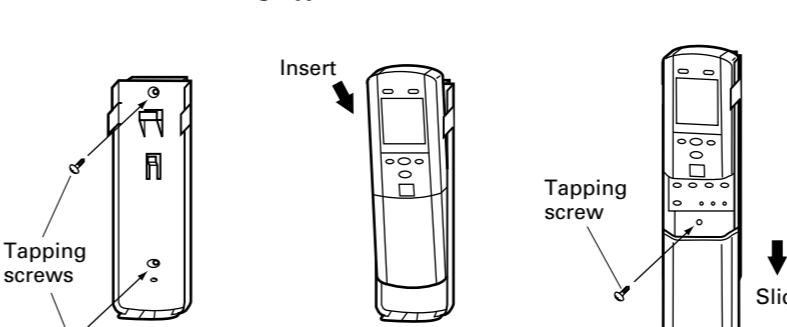
Install the remote control unit holder to a wall or pillar with the tapping screws.

Fig. 42

For use as Handy Type



For use as Wall Fixing Type



2. REMOTE CONTROL UNIT CODE SWITCHING

Fig. 43

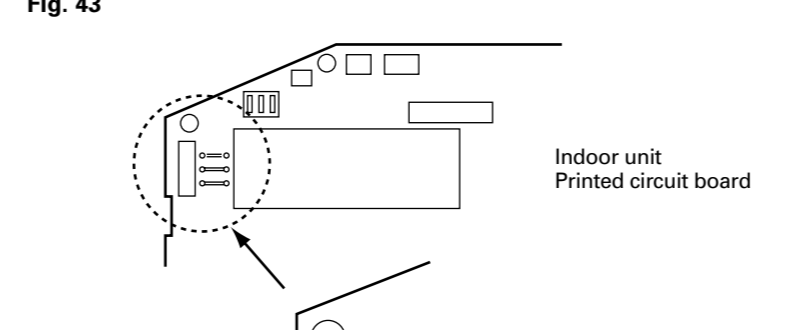
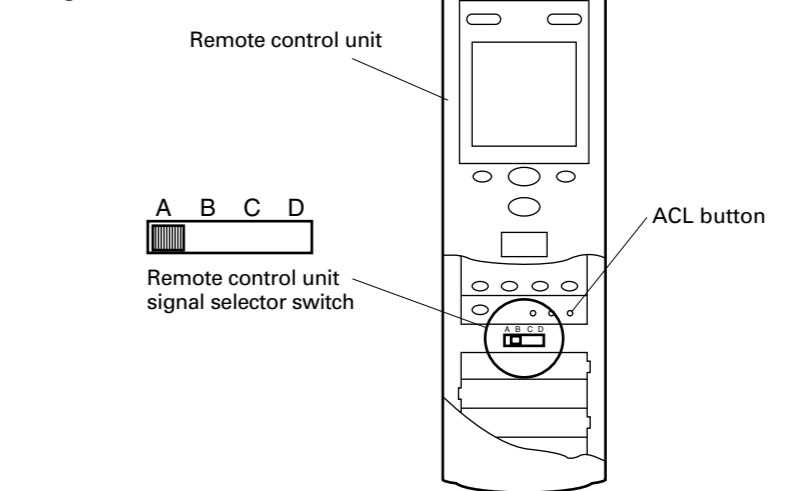


Fig. 44



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 8

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

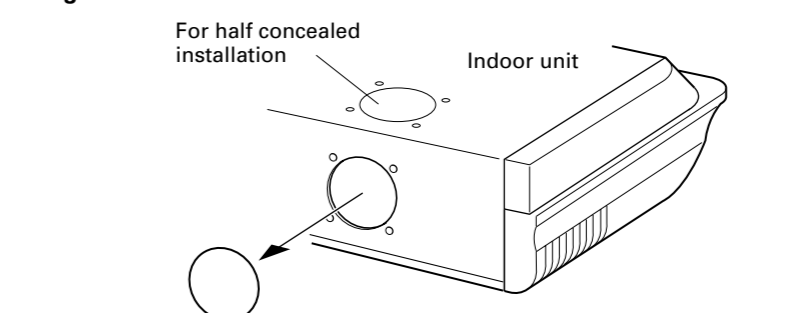
After setting the remote control unit signal selector switch, press the ACL button.

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FRESH-AIR INTAKE

- Open up the knockout hole for the fresh-air intake, as shown in Fig. 45. (If using half-concealed installation, open up the top knockout hole instead.)

Fig. 45

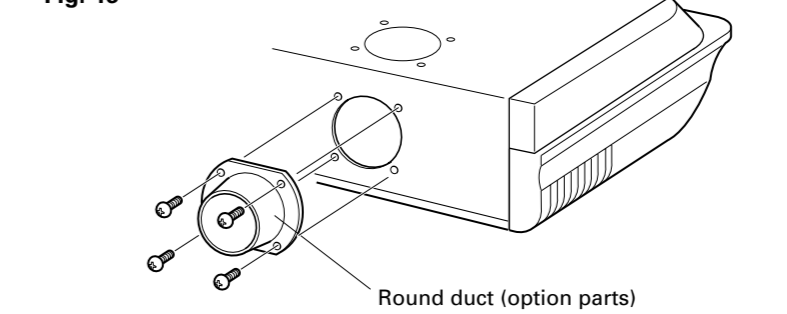


CAUTION

- When removing the cabinet (iron plate), be careful not to damage the indoor unit internal parts and surrounding area (outer case).
- When processing the cabinet (iron plate), be careful not to injure yourself with burrs, etc.

- Fasten the round flange (optional) to the fresh-air intake, as shown in Fig. 46. (If using half-concealed installation, attach to the top.)

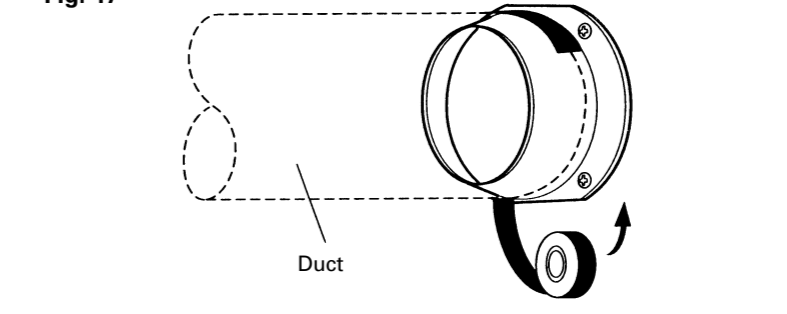
Fig. 46



[After completing "INDOOR UNIT INSTALLATION"...]

- Connect the duct to the round flange.
- Seal with a band and vinyl tape, etc. so that air does not leak from the connection.

Fig. 47



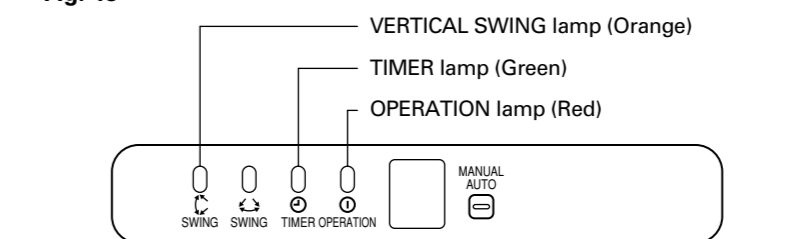
16

A ERROR DISPLAY

1. INDOOR UNIT

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

Fig. 48



Test running

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

Error

The OPERATION, TIMER and VERTICAL SWING lamps operate as follows (Table 9) according to the error contents.

Table 9

OPERATION lamp	TIMER lamp	VERTICAL SWING lamp	Error contents
Blinks	Blinks	Goes off	Model information abnormal (permanent type)
Pulses 4 times	Blinks	Goes off	Drain abnormal (permanent type)
Pulses 6 times	Blinks	Goes off	Indoor fan abnormal
Pulses 2 times	Blinks	Goes off	Room air temperature thermistor open circuit
Pulses 3 times	Blinks	Blinks	Room air temperature thermistor short circuit
Pulses 5 times	Blinks	Goes off	Piping thermistor open circuit
Blinks	Pulses 2 times	Goes off	Piping thermistor short circuit
Blinks	Pulses 3 times	Goes off	Serial communications abnormal
Blinks	Pulses 5 times	Goes off	Reverse phase wire connection abnormal
Blinks	Pulses 6 times	Goes off	Outdoor heat exchange thermistor open circuit
Blinks	Pulses 7 times	Goes off	Outdoor heat exchange thermistor short circuit
Blinks	Pulses 4 times	Blinks	High pressure abnormal
Blinks	Pulses 5 times	Goes off	Outdoor discharge thermistor open circuit
Blinks	Pulses 6 times	Goes off	Outdoor discharge thermistor short circuit
Blinks	Pulses 7 times	Goes off	Discharge temperature abnormal
Blinks	Pulses 8 times	Goes off	Outdoor air temperature thermistor open circuit
Blinks	Pulses 9 times	Goes off	Outdoor air temperature thermistor short circuit

2. OUTDOOR UNIT

Error

The LED lamps operate as follows (Table 10) according to the error contents.

Table 10

Error display	Error contents
ON OFF Lighting continue	Discharge pipe temperature abnormal
ON 0.5 sec OFF 5 sec Puls 1 time repeated	Outdoor heat exchanger temperature sensor abnormal
ON 0.5 sec OFF 5 sec Pulses 2 times repeated	Outdoor temperature sensor abnormal
ON 0.5 sec OFF 5 sec Pulses 3 times repeated	Discharge pipe temperature sensor abnormal
ON OFF Lighting continue	High pressure abnormal

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.

6

GAS LEAKAGE INSPECTION

CAUTION

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

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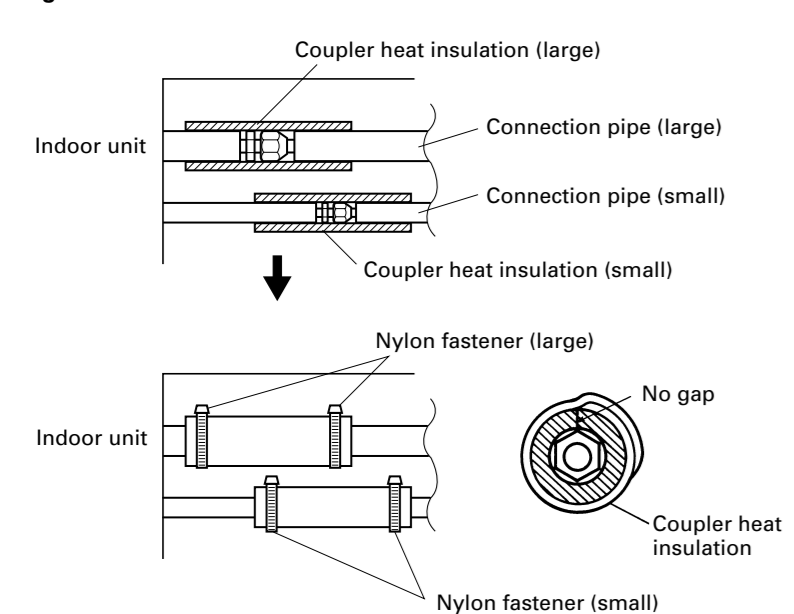
INSTALLING THE COUPLER HEAT INSULATION

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.

Secure both ends of the heat insulation material using nylon fasteners.

Fig. 30



- When using an auxiliary pipe, make sure that the fastener used is insulated in the same way.