

# SPLIT TYPE ROOM AIR CONDITIONER Cassette Type INSTALLATION MANUAL

(PART NO. 935992011-03)  
For authorized service personnel only.

- WARNING**
- For the room air conditioner to operate satisfactorily, install it as outlined in this installation manual.
  - Connect the indoor unit and outdoor unit with the correct piping and cable available from our standard parts. This installation manual describes the correct connections using the installation set available from our standard parts.
  - 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 completed.
  - 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.
  - 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.

Name and Shape	Qty	Application
Coupler heat insulation	2	For indoor unit pipe joint
Special nut A (large flange)	4	For installing indoor unit
Special nut B (small flange)	4	For installing indoor unit
Template	1	For cutting hole cutting
Remote control unit	1	Use for an air conditioner
Battery (powerless)	1	For remote control unit
Remote control unit holder	1	For mounting the remote control unit
Tapping screw M4 x 3	3	For remote control unit holder installation

## INDOOR UNIT ACCESSORIES

Name and Shape	Qty	Application
Reception wrench	1	For air purge
Plumbline	1	For outdoor unit drain piping work (Heat & Cool mode only)
Flexible tape	1	For outdoor unit drain piping work (Heat & Cool mode only)
Capitainer	2	For outdoor unit drain piping work (Heat & Cool mode only)

## GRILLE ACCESSORIES

Name and Shape	Qty	Application
Blank cap	4	For mounting grille
Washer	4	For mounting grille
Spring washer	4	For mounting grille
Blower cover insulation	2	For discharged air

**CAUTION**  
Since 3-way outlet as shown below causes performance problems, do not set it.

## CONNECTION PIPE REQUIREMENT

**Table 1**

Flange	Minimum length	Maximum length (indoor and outdoor)
Small	4.32 mm (1/8 in)	25 m (82 ft)
Large	12.7 mm (1/2 in)	8 m (26 ft)

- 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 3.04 MPa.

## ELECTRICAL PIPE REQUIREMENT

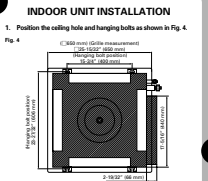
Electric wire size and fuse capacity:

POWER CORD	MAX	MIN	MAX	MIN
Indoor	3.0	2.5	3.0	2.5
Outdoor	3.0	3.0	3.0	2.5
Flame capacity (A)	15	20		

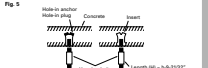
Always use H07RN-F or equivalent as the connection cord.  
Install the circuit breaker nearby the units. (Both indoor unit and outdoor unit)

## INSTALLATION PROCEDURE

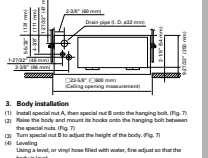
### 1. INDOOR UNIT INSTALLATION



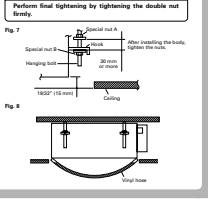
### 2. Hanging preparations



### 3. Body installation



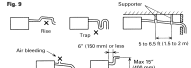
### 4. Final tightening



## INSTALLING DRAIN PIPE

Note: Install the drain pipe.

- Install the drain pipe with downward gradient (100 to 1,000) and so there are no rise or traps in the pipe.
- Use general hard polyurethane pipe (PVC) (outside diameter 1.91 (3/4) (20 mm) and connect it with adhesive (polyurethane) attached to the pipe as a hanging.
- When the pipe is long, install support.
- Do not perform air bleeding.
- Always fix bracket to the indoor side of the drain pipe.
- When setting a high drain pipe height, install it to 15° (400 mm) or less from the ceiling within a range of 9° (150 mm) from the body. A rise dimension over this range will cause leakage.

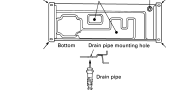


## OUTDOOR UNIT INSTALLATION

(1) When the outdoor unit will be exposed to strong wind, fasten it with bolts at the places indicated by the arrows. (Fig. 10)

(2) Since the drain water flows out of the outdoor unit during heating operation, install the drain pipe and connect it to an conventional 12 mm dia.

(3) When handling the drain pipe, plug at the bottom holes at two places other than the drain pipe mounting hole in the bottom of the outdoor unit with a plug so as not to cause leakage. (Fig. 10)



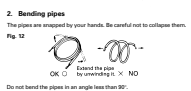
## CONNECTING THE PIPING

- Flare processing**
  - 1) Cut the connection pipe with pipe cutters so that the pipe is not deformed.
  - 2) Holding the pipe downward so that cutting cannot enter the pipe, remove the burrs.
  - 3) Remove the burrs from the indoor unit pipe and outdoor unit and assemble as shown in (Table 2) and insert the flare nut onto the pipe and secure it by turning.
  - 4) Check if the flare nut is "1" (Fig. 11) in spread uniformly and that there are no cracks.

**Table 2**

Flare nut	Flare nut
Small pipe	Small (width across flats: 17 mm)
Large pipe	Large (width across flats: 24 mm)

### 2. Bending pipes



### 3. Air purge

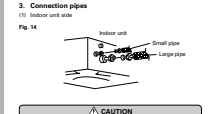
- Air purge**
  - 1) Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve to the service hose.
  - 2) Vacuum the indoor unit and the connection pipes until the pressure in them drops to below 1.5 mmHg.
  - 3) Disconnect the service hose and fit the cap to the charging valve (tightening torque: 15 to 20 kgf-cm).
  - 4) Remove the blank caps, and fully open the apertures of the 2-way and 3-way valves with a hexagon wrench (Torque: 2-way valve: 10 to 20 kgf-cm, 3-way valve: 10 to 120 kgf-cm).
  - 5) Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque (200 to 250 kgf-cm).

## GRILLE INSTALLATION

- Blower cover insulation**
  - 1) Install the blower cover insulation only when the outlet direction is not downward.
  - 2) Pack the blower cover insulation at the other positions shown in Fig. 24. At the time, use the piping position as the criteria.



## 3. Connection pipes



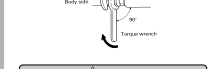
### CAUTION

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

The nut removes the flare nut from the indoor unit pipe unit immediately before connecting the connection pipe.

### CAUTION

When the flare nut is tightened properly by your hand, hold the body side coupling with a separate wrench, then tighten with a torque wrench. (Fig. 15)



### CAUTION

Hold the torque wrench at its grip, keeping it in the right angle with the pipe as shown in Fig. 15, in order to tighten the flare nut correctly.

**Table 4** Flare nut tightening torque

Flare nut	Tightening torque
Small pipe (4.32 mm dia.)	10 to 20 kgf-cm
Large pipe (12.7 mm dia.)	40 to 55 kgf-cm

### CAUTION

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

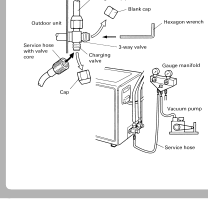
- Indoor unit side**
  - 1) Tighten the flare nut of the connection pipe at the outdoor unit valve connector. The tightening method is the same as that as at the indoor side.

## AIR PURGE

### 1. Air purge

- Air purge**
  - 1) Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve to the service hose.
  - 2) Vacuum the indoor unit and the connection pipes until the pressure in them drops to below 1.5 mmHg.
  - 3) Disconnect the service hose and fit the cap to the charging valve (tightening torque: 15 to 20 kgf-cm).
  - 4) Remove the blank caps, and fully open the apertures of the 2-way and 3-way valves with a hexagon wrench (Torque: 2-way valve: 10 to 20 kgf-cm, 3-way valve: 10 to 120 kgf-cm).
  - 5) Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque (200 to 250 kgf-cm).

### 2. Final wiring



## INDOOR UNIT SIDE

- Indoor unit side**
  - 1) Remove the correct box cover and install the connection cord. (Fig. 20 and 21)



## 2. Additional charge

Refrigerant capacity for a piping length of 6 m is charged in the outdoor unit of the factory. If the mounting is improper, additional charging is necessary. For the additional amount, see the table below.

**Table 5**

Refrigerant	10 m	20 m	30 m	40 m	50 m	60 m
Capacity (kg)	0.02	0.04	0.06	0.08	0.10	0.12

### CAUTION

When recharging and installing the air conditioner, do not mix gas other than the specified refrigerant (R32) inside the refrigerant cycle.

When adding refrigerant, add the refrigerant from the charging valve at the connection of work.

The maximum length of the piping is 20 m. If the units are further apart than this, correct operation cannot be guaranteed.

## 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.



### CAUTION

Must fit tightly against body without any gap.

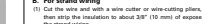
## 7. ELECTRICAL WIRING

### HOW TO CONNECT WIRING TO THE TERMINALS

- A. For solid core wiring (or F-cable)**
  - 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 15 mm (3/4 in) of space of the terminal board.
  - 2) Using a screwdriver, remove the terminal screw on the terminal board.
  - 3) Using pliers, bend the solid wire to form a loop suitable for the terminal board.
  - 4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

### B. For stranded wiring

- For stranded wiring**
  - 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 30 mm (1 1/4 in) of space on the terminal board.
  - 2) Using a screwdriver, remove the terminal screw on the terminal board.
  - 3) Using a strand removal tool or pliers, securely remove a round terminal to each stripe wire end.
  - 4) Position the round terminal wire, and remove and tighten the terminal screw using a screwdriver.

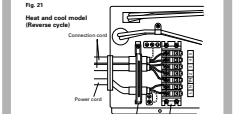


## 8. GRILLE INSTALLATION

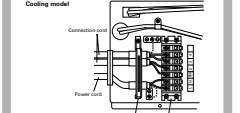
- Blower cover insulation**
  - 1) Install the blower cover insulation only when the outlet direction is not downward.
  - 2) Pack the blower cover insulation at the other positions shown in Fig. 24. At the time, use the piping position as the criteria.



## Heat and cool mode (Reverse cycle)



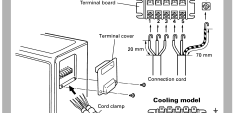
## Cooling mode



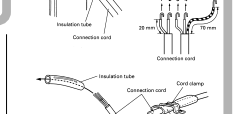
## 2. Outdoor unit side

- Outdoor unit side**
  - 1) Remove the terminal cover of the outdoor unit, and insert the end of the connection cord and the power cord into the terminal board.
  - 2) Fasten the connection cord with the cord clamp, and install the terminal cover.

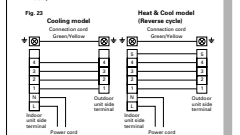
### Heat & Cool mode (Reverse cycle)



### Cooling mode

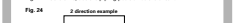


### Heat & Cool mode (Reverse cycle)



## 8. GRILLE INSTALLATION

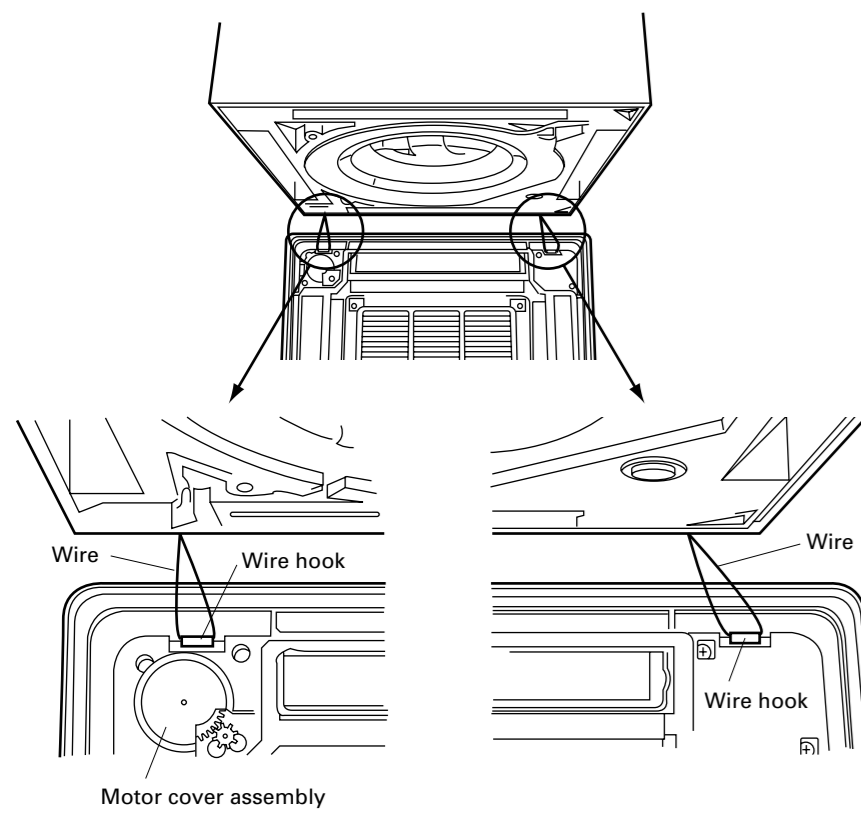
- Blower cover insulation**
  - 1) Install the blower cover insulation only when the outlet direction is not downward.
  - 2) Pack the blower cover insulation at the other positions shown in Fig. 24. At the time, use the piping position as the criteria.



## 2. Installing grille assembly to body

Hang the grille assembly on the wires attached to the indoor unit as shown in Fig. 25.

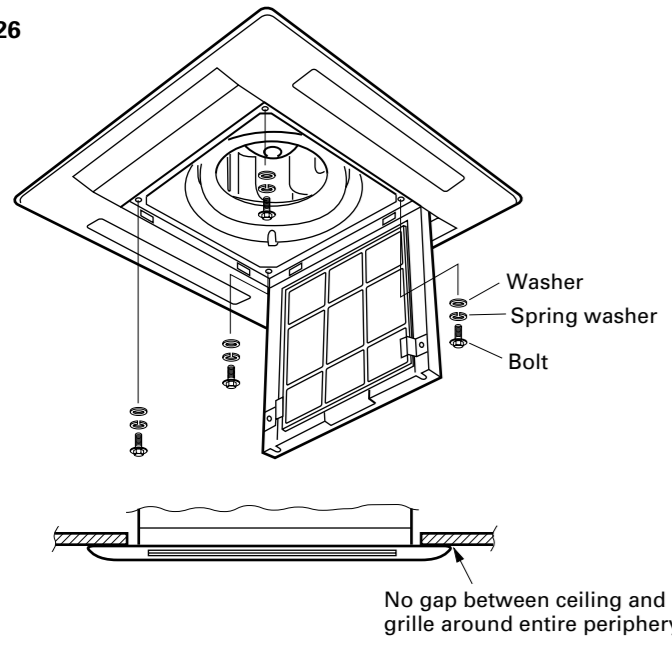
Fig. 25



### Bolting the grille assembly to the body

Install the grille assembly to the body with the four bolts, spring washers, and washers.

Fig. 26



### Wireless unit connection wire wiring

Connect the connector in accordance part A detail view. Then clamp the lead wire with clamp so that it does not touch the rotating parts.

Fig. 27

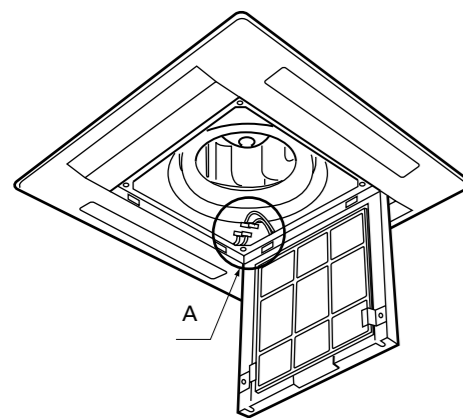
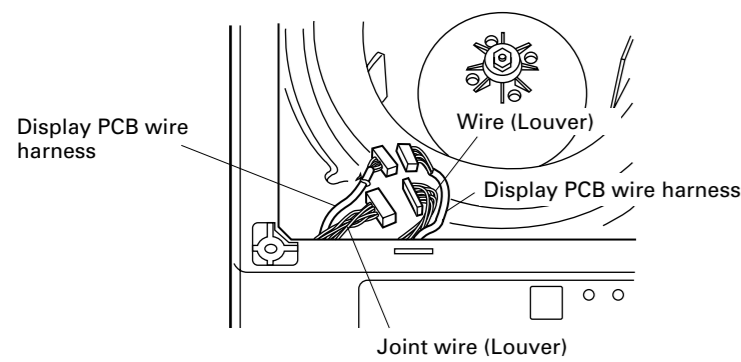


Fig. 28 Part A detail view

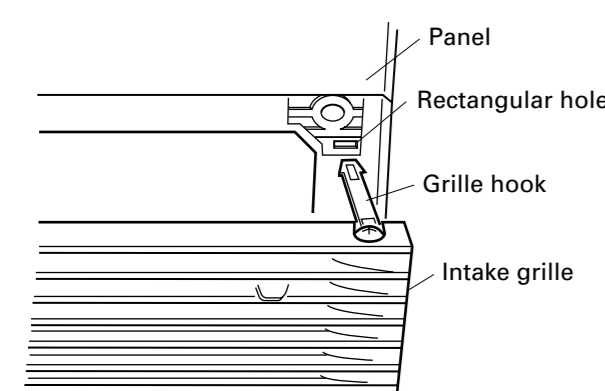


## INSTALLING/REMOVING THE INTAKE GRILLE

### 1. Installing the intake grille

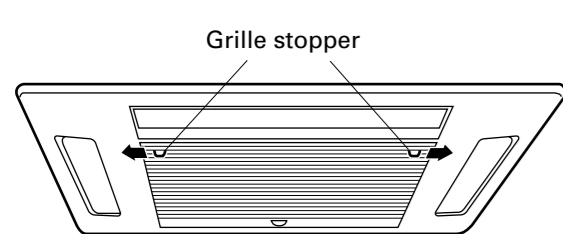
(1) Fully insert the intake grille hooks into the rectangular holes in the panel.

Fig. 29



(2) Close the intake grille, then slide the two grille stoppers outward.

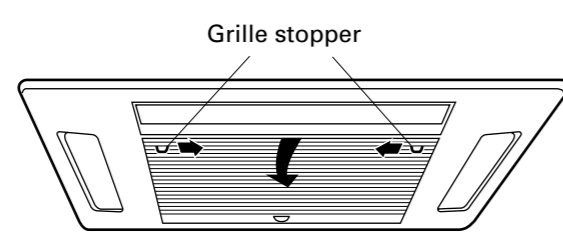
Fig. 30



## 2. Removing the intake grille

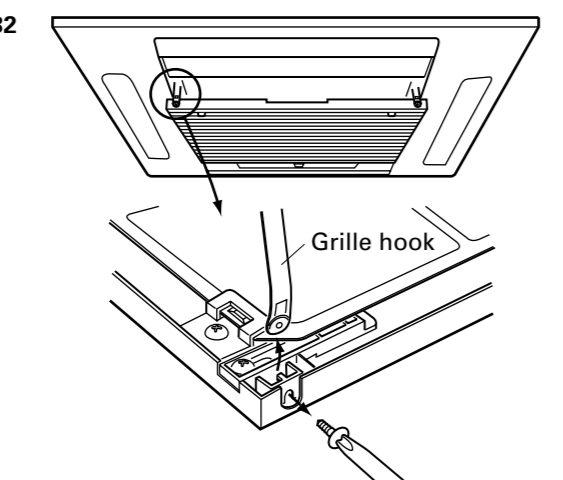
(1) Slide the two grille stoppers inward, then open the intake grille.

Fig. 31



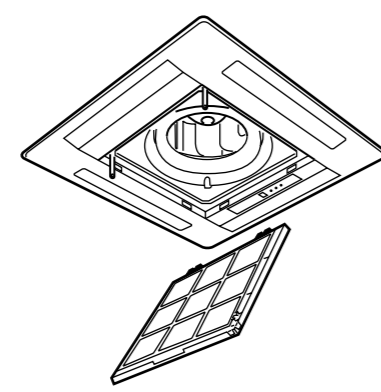
(2) Remove the grille hook screws, then open the intake grille.

Fig. 32



(3) Open the intake grille so that it is at an angle of 20° to 40°, then remove the grille.

Fig. 33

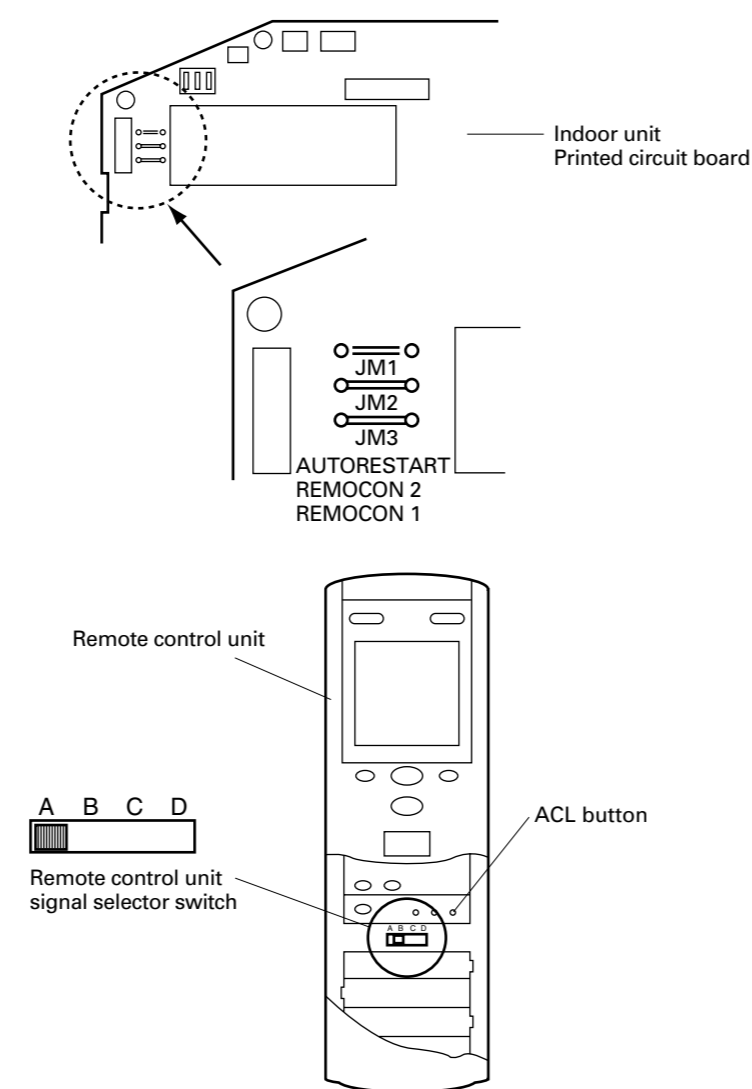


### CAUTION

- ① The louver angle cannot be changed if the power is not on, (if moved by hand, it may be damaged.)
- ② The grille assembly is directional relative to the air conditioner body.
- ③ Install so that there is no gap between the grille assembly and the air conditioner body.

## Remote control unit code switching.

Fig. 36



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

Table 6

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

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

Table 7

Error display	Error contents
OPERATION LAMP ON: 0.5 sec OFF: 5 sec Two quick flashes repeated	Room temperature thermostat abnormal temperature detected
TIMER LAMP ON: 0.1 sec OFF: 0.1 sec 0.1 sec ON/OFF repeated	Piping thermistor abnormal temperature detected
OPERATION LAMP ON: 0.5 sec OFF: 5 sec Three quick flashes repeated	Float switch ON for 3 minutes or longer
TIMER LAMP ON: 0.1 sec OFF: 0.1 sec 0.1 sec ON/OFF repeated	

## CHECK ITEMS

### (1) INDOOR UNIT

- (1) Is operation of each button on the remote control unit normal?
- (2) Does each lamp light normally?
- (3) Do not air flow direction louvers operate normally?
- (4) Is the drain normal?
- (5) Is there any abnormal noise and vibration during operation?

### (2) OUTDOOR UNIT

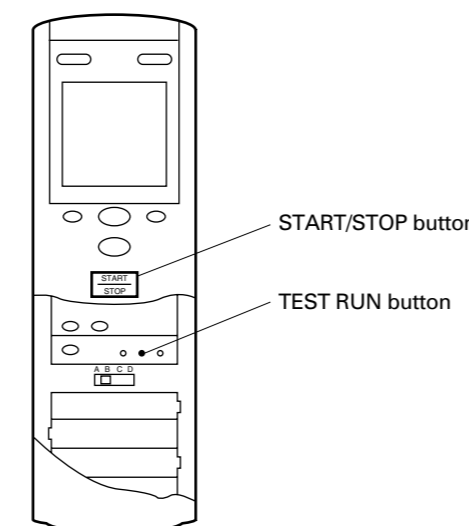
- (1) Is there any abnormal noise and vibration during operation?
  - (2) Will noise, wind or drain water from the unit disturb the neighbors?
  - (3) Is there any gas leakage?
- Do not operate the air conditioner in the test running state for a long time.
  - For the operation method, refer to the operating manual and perform operation check.

## 10

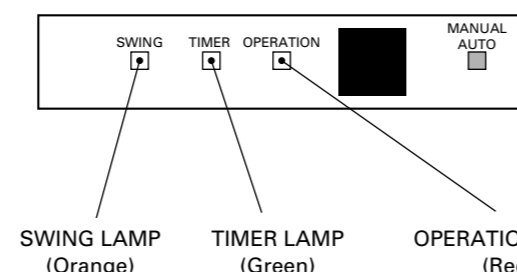
## TEST RUNNING

- 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 start-stop button. (Fig. 37)

Fig. 37



- 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

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

### • Error

The OPERATION and TIMER lamps operate as follows (Table 7) according to the error contents.