

# Air Conditioners Кондиционеры

## SLZ-M15, M25, M35, M50, M60FA



### INSTALLATION MANUAL

For safe and correct use, please read this manual and the outdoor unit installation manual thoroughly before installing the air-conditioner unit.

**FOR INSTALLER****English**

### INSTALLATIONSHANDBUCH

Aus Sicherheitsgründen und zur richtigen Anwendung vor Installation der Klimaanlage die vorliegende Bedienungsanleitung und das Installationshandbuch gründlich durchlesen.

**FÜR INSTALLATEURE****Deutsch**

### MANUEL D'INSTALLATION

Avant d'installer le climatiseur, lire attentivement ce manuel, ainsi que le manuel d'installation de l'appareil extérieur pour une utilisation sûre et correcte.

**POUR L'INSTALLATEUR****Français**

### INSTALLATIEHANDLEIDING

Lees deze handleiding en de installatiehandleiding van het buitenapparaat zorgvuldig door voordat u met het installeren van de airconditioner begint.

**VOOR DE INSTALLATEUR****Nederlands**

### MANUAL DE INSTALACIÓN

Para un uso seguro y correcto, lea detalladamente este manual de instalación antes de montar la unidad de aire acondicionado.

**PARA EL INSTALADOR****Español**

### MANUALE DI INSTALLAZIONE

Per un uso sicuro e corretto, prima di installare il condizionatore d'aria leggere attentamente il presente manuale ed il manuale d'installazione dell'unità esterna.

**PER L'INSTALLATORE****Italiano**

### ΕΓΧΕΙΡΙΔΙΟ ΟΔΗΓΙΩΝ ΕΓΚΑΤΑΣΤΑΣΗΣ

Για σωστή και ασφαλή χρήση, διαβάστε προσεκτικά αυτό το εγχειρίδιο, καθώς και το εγχειρίδιο εγκατάστασης της εξωτερικής μονάδας, πριν από την εγκατάσταση της μονάδας κλιματιστικού.

**ΓΙΑ ΑΥΤΟΝ ΠΟΥ ΚΑΝΕΙ ΤΗΝ ΕΓΚΑΤΑΣΤΑΣΗ****Ελληνικά**

### MANUAL DE INSTALAÇÃO

Para uma utilização segura e correcta, leia atentamente este manual e o manual de instalação da unidade exterior antes de instalar o aparelho de ar condicionado.

**PARA O INSTALADOR****Português**

### INSTALLATIONS MANUAL

Læs af sikkerhedshensyn denne manual samt manualen til installation af udendørsenheden grundigt, før du installerer klimaanlægget.

**TIL INSTALLATØREN****Dansk**

### INSTALLATIONS MANUAL

Läs bruksanvisningen och utomhusenhetens installationshandbok noga innan luftkonditioneringen installeras så att den används på ett säkert och korrekt sätt.

**FÖR INSTALLATÖREN****Svenska**

### MONTAJ ELKİTABI

Emniyetli ve doğru kullanım için, klima cihazını monte etmeden önce bu kılavuzu ve dış ünite montaj kılavuzunu tamamiyla okuyun.

**MONTÖR İÇİN****Türkçe**

### РУКОВОДСТВО ПО УСТАНОВКЕ

Для обеспечения безопасной и надлежащей эксплуатации внимательно прочтите данное руководство и руководство по установке наружного прибора перед установкой кондиционера.

**ДЛЯ УСТАНОВИТЕЛЯ****Русский**

### INSTALLASJONSHÅNDBOK

For å sikre trygg og riktig bruk er det viktig å lese denne håndboken samt installasjonshåndboken for innendørsenheten, grundig før du installerer klimaanleggenheten.

**FOR MONTØR****Norsk**

### INSTRUKCJA MONTAŻU

Aby zapewnić bezpieczne i prawidłowe korzystanie z urządzenia, przed montażem klimatyzatora należy dokładnie zapoznać się z treścią niniejszej instrukcji oraz instrukcji montażu jednostki zewnętrznej.

**DLA INSTALATORA****Polski**

# Contents





1. Safety precautions .....	2	7. Electrical work .....	9
2. Selecting the installation location .....	3	8. Test run .....	16
3. Installation diagram .....	4	9. System control .....	18
4. Installing the indoor unit .....	4	10. Installing the grille .....	18
5. Refrigerant piping work .....	6	11. Easy maintenance function .....	21
6. Drainage piping work .....	8		

**Note:**  
The phrase “Wired remote controller” in this installation manual refers only to the PAR-33MAA. If you need any information for the other remote controller, please refer to either the installation manual or initial setting manual which are included in these boxes.


## 1. Safety precautions


- ▶ Before installing the unit, make sure you read all the “Safety Precautions”.
- ▶ The “Safety Precautions” provide very important points regarding safety. Make sure you follow them.
- ▶ Please report to your supply authority or obtain their consent before connecting this equipment to the power supply system.

### MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

	<b>WARNING</b> (Risk of fire)	This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit. In case that refrigerant type is R32, this unit uses a flammable refrigerant. If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.
	Read the OPERATION MANUAL carefully before operation.	
	Service personnel are required to carefully read the OPERATION MANUAL and INSTALLATION MANUAL before operation.	
	Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like.	

### Symbols used in the text



 **Warning:**  
Describes precautions that should be observed to prevent danger of injury or death to the user.

 **Caution:**  
Describes precautions that should be observed to prevent damage to the unit.

### Warning:

- Carefully read the labels affixed to the main unit.
- Ask a dealer or an authorized technician to install, relocate and repair the unit.
- The user should never attempt to repair the unit or transfer it to another location.
- Do not alter the unit.
- For installation and relocation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with refrigerant specified in the outdoor unit installation manual.
- The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.
- The unit must be securely installed on a structure that can sustain its weight.
- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- If the air conditioner is installed in a small room or closed room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.
- Keep gas-burning appliances, electric heaters, and other fire sources (ignition sources) away from the location where installation, repair, and other air conditioner work will be performed.  
If refrigerant comes into contact with a flame, poisonous gases will be released.
- Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.
- All electric work must be performed by a qualified technician according to local regulations and the instructions given in this manual.
- Use only specified cables for wiring. The wiring connections must be made securely with no tension applied on the terminal connections. Also, never splice the cables for wiring (unless otherwise indicated in this document). Failure to observe these instructions may result in overheating or a fire.
- When installing or relocating, or servicing the air conditioner, use only the specified refrigerant written on outdoor unit to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.  
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other

### Symbols used in the illustrations

-  : Indicates a part which must be grounded.
-  : Be sure not to do.

After installation work has been completed, explain the “Safety Precautions,” use, and maintenance of the unit to the customer according to the information in the Operation Manual and perform the test run to ensure normal operation. Both the Installation Manual and Operation Manual must be given to the user for keeping. These manuals must be passed on to subsequent users.

The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

- The appliance shall be installed in accordance with national wiring regulations.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- The terminal block cover panel of the unit must be firmly attached.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Use only accessories authorized by Mitsubishi Electric and ask a dealer or an authorized technician to install them.
- After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odour.
- Pipe-work shall be protected from physical damage.
- The installation of pipe-work shall be kept to a minimum.
- Compliance with national gas regulations shall be observed.
- Keep any required ventilation openings clear of obstruction.
- Do not use low temperature solder alloy in case of brazing the refrigerant pipes.
- When performing brazing work, be sure to ventilate the room sufficiently. Make sure that there are no hazardous or flammable materials nearby.  
When performing the work in a closed room, small room, or similar location, make sure that there are no refrigerant leaks before performing the work.  
If refrigerant leaks and accumulates, it may ignite or poisonous gases may

# 1. Safety precautions

## 1.1. Before installation (Environment)

### ⚠ Caution:

- Do not use the unit in an unusual environment. If the air conditioner is installed in areas exposed to steam, volatile oil (including machine oil), or sulfuric gas, areas exposed to high salt content such as the seaside, the performance can be significantly reduced and the internal parts can be damaged.
- Do not install the unit where combustible gases may leak, be produced, flow, or accumulate. If combustible gas accumulates around the unit, fire or explosion may result.
- Do not keep food, plants, caged pets, artwork, or precision instruments in the direct airflow of the indoor unit or too close to the unit, as these items can be damaged by temperature changes or dripping water.
- When the room humidity exceeds 80% or when the drainpipe is clogged, water may drip from the indoor unit. Do not install the indoor unit where such dripping can cause damage.
- When installing the unit in a hospital or communications office, be prepared for noise and electronic interference. Inverters, home appliances, high-frequency medical equipment, and radio communications equipment can cause the air conditioner to malfunction or breakdown. The air conditioner may also affect medical equipment, disturbing medical care, and communications equipment, harming the screen display quality.

## 1.2. Before installation or relocation

### ⚠ Caution:

- Be extremely careful when transporting the units. Two or more persons are needed to handle the unit, as it weighs 20 kg or more. Do not grasp the packaging bands. Wear protective gloves as you can injure your hands on the fins or other parts.
- Be sure to safely dispose of the packaging materials. Packaging materials, such as nails and other metal or wooden parts may cause stabs or other injuries.
- Thermal insulation of the refrigerant pipe is necessary to prevent condensation. If the refrigerant pipe is not properly insulated, condensation will be formed.
- Place thermal insulation on the pipes to prevent condensation. If the drainpipe is installed incorrectly, water leakage and damage to the ceiling, floor, furniture, or other possessions may result.
- Do not clean the air conditioner unit with water. Electric shock may result.
- Tighten all flare nuts to specification using a torque wrench. If tightened too much, the flare nut can break after an extended period.
- If the unit is run for long hours when the air above the ceiling is at high temperature/high humidity (dew point above 26 °C), dew condensation may be produced in the indoor unit or the ceiling materials. When operating the units in this condition, add insulation material (10-20 mm) to the entire surface of the unit and ceiling materials to avoid dew condensation.

## 1.3. Before electric work

### ⚠ Caution:

- Be sure to install circuit breakers. If not installed, electric shock may result.
- For the power lines, use standard cables of sufficient capacity. Otherwise, a short circuit, overheating, or fire may result.
- When installing the power lines, do not apply tension to the cables.
- Be sure to ground the unit. If the unit is not properly grounded, electric shock may result.
- Use circuit breakers (ground fault interrupter, isolating switch (+B fuse), and molded case circuit breaker) with the specified capacity. If the circuit breaker capacity is larger than the specified capacity, breakdown or fire may result.

## 1.4. Before starting the test run

### ⚠ Caution:

- Turn on the main power switch more than 12 hours before starting operation. Starting operation just after turning on the power switch can severely damage the internal parts.
- Before starting operation, check that all panels, guards and other protective parts are correctly installed. Rotating, hot, or high voltage parts can cause injuries.
- Do not operate the air conditioner without the air filter set in place. If the air filter is not installed, dust may accumulate and breakdown may result.
- Do not touch any switch with wet hands. Electric shock may result.
- Do not touch the refrigerant pipes with bare hands during operation.
- After stopping operation, be sure to wait at least five minutes before turning off the main power switch. Otherwise, water leakage or breakdown may result.

# 2. Selecting the installation location

## 2.1. Indoor unit

- Where airflow is not blocked.
- Where cool air spreads over the entire room.
- Where it is not exposed to direct sunshine.
- At a distance 1 m or more away from your TV and radio (to prevent picture from being distorted or noise from being generated).
- In a place as far away as possible from fluorescent and incandescent lights (so the infrared remote control can operate the air conditioner normally).
- Where the air filter can be removed and replaced easily.

### ⚠ Warning:

Mount the indoor unit into a ceiling strong enough to withstand the weight of the unit.

## 2.2. Wireless remote controller mounting (For SLP-2FAL\*)

- Place of mounting
  - Where it is easy to operate and easily visible.
  - Where children can not touch.
- Mounting

Select a position about 1.2 m above the floor, check that signals from the remote controller are surely received by the indoor unit from that position ('beep' or 'beep-beep' receiving tone sounds). After that, attach remote controller holder to a pillar or wall and set the wireless remote controller.

In rooms where inverter type fluorescent lamps are used, the signal from the wireless remote controller may not be received.

### 3. Installation diagram

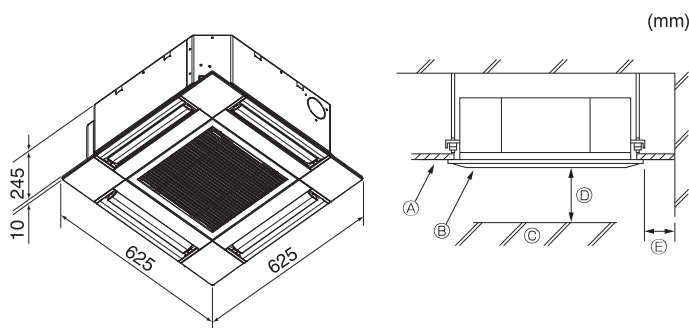


Fig. 3-1

#### 3.1. Indoor unit (Fig. 3-1)

- Ⓐ Ceiling
- Ⓑ Grille
- Ⓒ Obstacle
- Ⓓ Min. 1000 mm
- Ⓔ Min. 500 mm (Entire periphery)

If setting the maintenance space for Ⓔ, be sure to leave a minimum of 700 mm.

#### ⚠ Warning:

Mount the indoor unit on a ceiling strong enough to withstand the weight of the unit.

#### 3.2. Outdoor unit

Refer to the outdoor unit installation manual.

### 4. Installing the indoor unit

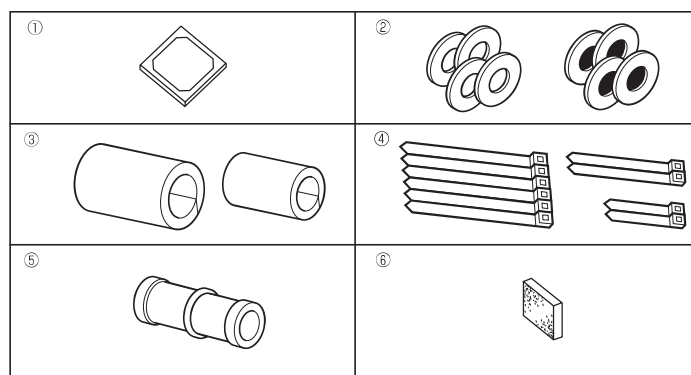


Fig. 4-1

#### 4.1. Check the indoor unit accessories (Fig. 4-1)

The indoor unit should be supplied with the following accessories.

	Accessory name	Q'ty
①	Installation template	1
②	Washers (with insulation)	4
	Washers (without insulation)	4
③	Pipe cover (for refrigerant piping joint)	
	small diameter (liquid)	1
	large diameter (gas)	1
④	Band (large)	6
	Band (middle)	2
	Band (small)	2
⑤	Drain socket	1
⑥	Insulation	1

#### 4.2. Ceiling openings and suspension bolt installation locations (Fig. 4-2)

#### ⚠ Caution:

Install the indoor unit at least 2.5 m above floor or grade level.  
For appliances not accessible to the general public.

- Using the installation template and the gauge (supplied as an accessory with the grille), make an opening in the ceiling so that the main unit can be installed as shown in the diagram. (The method for using the template and the gauge are shown.)
  - \* Before using, check the dimensions of template and gauge, because they change due to fluctuations of temperature and humidity.
  - \* The dimensions of ceiling opening can be regulated within the range shown in following diagram; so center the main unit against the opening of ceiling, ensuring that the respective opposite sides on all sides of the clearance between them becomes identical.
- Use M10 (3/8") suspension bolts.
  - \* Suspension bolts are to be procured at the field.
- Install securely, ensuring that there is no clearance between the ceiling panel & grille, and between the main unit & grille.

- Ⓐ Outer side of main unit
- Ⓑ Bolt pitch
- Ⓒ Ceiling opening
- Ⓓ Outer side of Grille
- Ⓔ Grille
- Ⓕ Ceiling
- Ⓖ Min. 500 mm (Entire periphery)
- Ⓗ If setting the maintenance space for Ⓔ, be sure to leave a minimum of 700 mm.
- Ⓘ Maintenance space
- Ⓛ Fresh air intake
- Ⓜ Angle
- Ⓨ Electric component box

\* Leave the maintenance space at the electric component box end.

\*1 When installing in an existing ceiling unit location or applying additional heat insulation, ensure a minimum space of 25 mm.

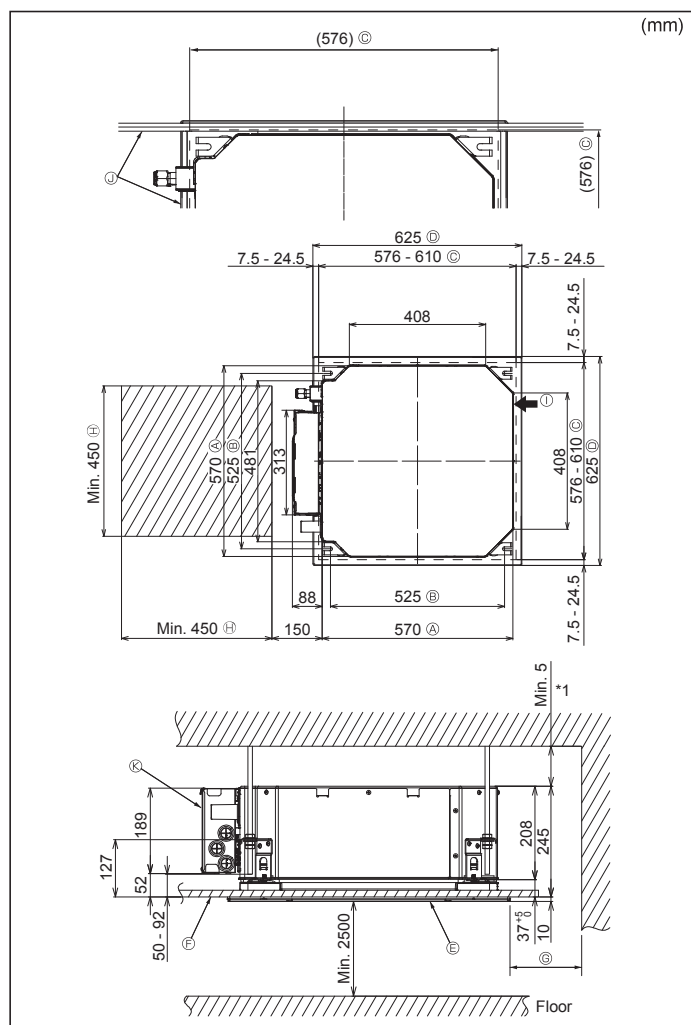


Fig. 4-2



## 4. Installing the indoor unit

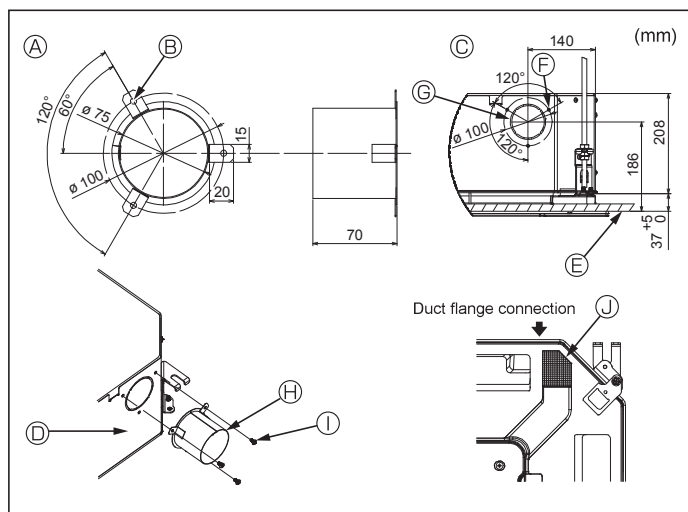


Fig. 4-3

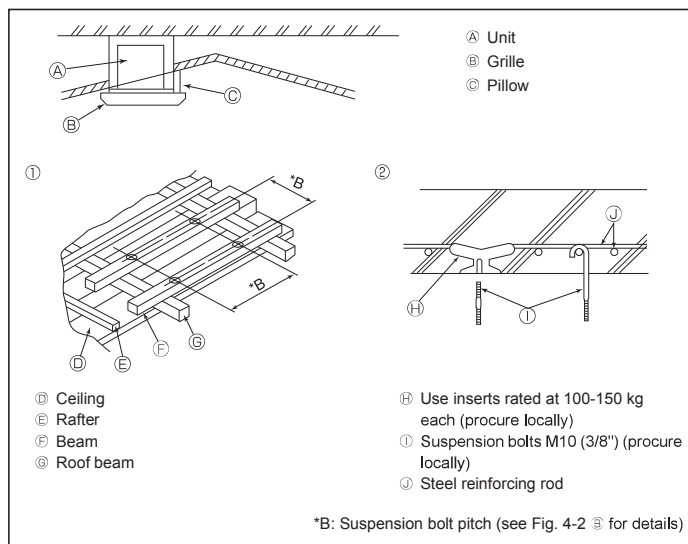


Fig. 4-4

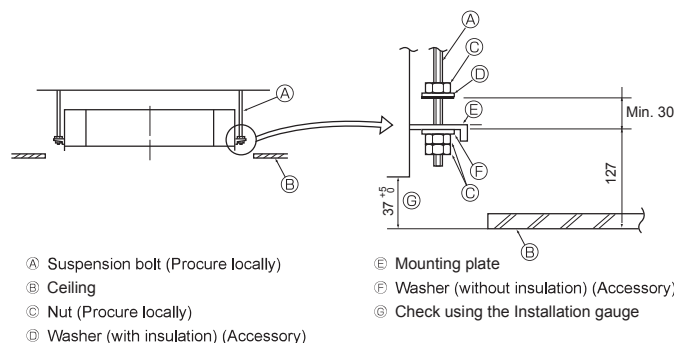


Fig. 4-5

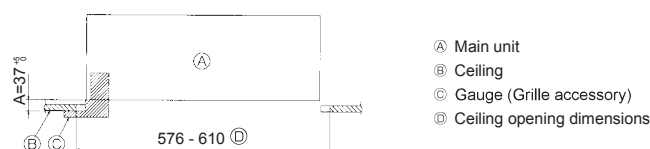


Fig. 4-6

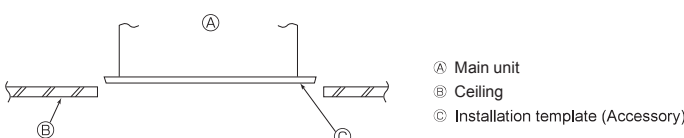


Fig. 4-7

### 4.3. Installation of duct (in case of fresh air intake) (Fig. 4-3)

#### ⚠ Caution:

Linkage of duct fan and air conditioner

In case that a duct fan is used, be sure to make it linked with the air conditioner when outside air is taken.

Do not run the duct fan only. It can cause dew drop.

#### Making a duct flange (prepared locally)

The shape of duct flange shown left is recommended.

#### Installation of duct flange

Cut out the cutout hole. Do not knock it out.

Install a duct flange to the cutout hole of the indoor unit with three 4 × 10 tapping screws which should be prepared locally.

#### Installation of duct (should be prepared locally)

Prepare a duct of which inner diameter fits into the outer diameter of the duct flange. In case that the environment above the ceiling is high temperature and high humidity, wrap the duct in a heat insulate to avoid causing dew drop on the wall.

#### Remove the drain pan insulation.

A Duct flange recommended shape (Thickness: 0.8 or more)

B 3-ø5 hole

C Detail drawing of fresh air intake

D Indoor unit

E Ceiling surface

F 3-Tapping screw hole

G ø73.4 cutout hole

H Duct flange (Prepared locally)

I 4 × 10 Tapping screw (Prepared locally)

J Insulation

### 4.4. Suspension structure (Give site of suspension strong structure) (Fig. 4-4)

The ceiling work differs according to the construction of the building. Building constructors and interior decorators should be consulted for details.

(1) Extent of ceiling removal: The ceiling must be kept completely horizontal and the ceiling foundation (framework: wooden slats and slat holders) must be reinforced in order to protect the ceiling from vibration.

(2) Cut and remove the ceiling foundation.

(3) Reinforce the ends of the ceiling foundation where it has been cut and add ceiling foundation for securing the ends of the ceiling board.

(4) When installing the unit on a slanting ceiling, interlock a pillow between the ceiling and the grille and set so that the unit is installed horizontally.

#### ① Wooden structures

Use tie beams (single-story houses) or second floor beams (two story houses) as reinforcing members.

Wooden beams for suspending air conditioners must be sturdy and their sides must be at least 6 cm long if the beams are separated by not more than 90 cm and their sides must be at least 9 cm long if the beams are separated by as much as 180 cm. The size of the suspension bolts should be ø10 (3/8"). (The bolts do not come with the unit.)

#### ② Ferroconcrete structures

Secure the suspension bolts using the method shown, or use steel or wooden hangers, etc. to install the suspension bolts.

### 4.5. Unit suspension procedures (Fig. 4-5)

Suspend the main unit as shown in the diagram.

1. In advance, set the parts onto the suspension bolts in the order of the washers (with insulation), washers (without insulation) and nuts (double).

Fit the washer with cushion so that the insulation faces downward.

In case of using upper washers to suspend the main unit, the lower washers (with insulation) and nuts (double) are to be set later.

2. Lift the unit to the proper height of the suspension bolts to insert the mounting plate between washers and then fasten it securely.

3. When the main unit can not be aligned against the mounting hole on the ceiling, it is adjustable owing to a slot provided on the mounting plate. (Fig. 4-6)

Make sure that step A is performed within 37-42 mm. Damage could result by failing to adhere to this range.

### 4.6. Confirming the position of main unit and tightening the suspension bolts (Fig. 4-7)

Using the gauge attached to the grille, ensure that the bottom of the main unit is properly aligned with the opening of the ceiling. Be sure to confirm this, otherwise condensation may form and drip due to air leakage etc.

Confirm that the main unit is horizontally levelled, using a level or a vinyl tube filled with water.

After checking the position of the main unit, tighten the nuts of the suspension bolts securely to fasten the main unit.

The installation template can be used as a protective sheet to prevent dust from entering the main unit when the grilles are left unattached for a while or when the ceiling materials are to be lined after installation of the unit is finished.

\* As for the details of fitting, refer to the instructions given on the Installation template.

## 5. Refrigerant piping work

### 5.1. Precautions

For devices that use R32/R410A refrigerant

- Use alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections.
- Use C1220 copper phosphorus for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Use refrigerant pipes with the thicknesses specified in the table below. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust.

#### ⚠ Warning:

When installing or relocating, or servicing the air conditioner, use only the specified refrigerant written on outdoor unit to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.

If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.

The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

### 5.2. Refrigerant pipe (Fig. 5-1)

#### Piping preparation

- Refrigerant pipes of 3, 5, 7, 10 and 15 m are available as optional items.

(1) Table below shows the specifications of pipes commercially available.

Model	Pipe	Outside diameter		Min. wall thickness	Insulation thickness	Insulation material
		mm	inch			
SLZ-M15	For liquid	6.35	1/4	0.8 mm	8 mm	Heat resisting foam plastic 0.045 specific gravity
SLZ-M25	For gas	9.52	3/8	0.8 mm	8 mm	
SLZ-M35	For gas	9.52	3/8	0.8 mm	8 mm	
SLZ-M50	For liquid	6.35	1/4	0.8 mm	8 mm	
	For gas	12.7	1/2	0.8 mm	8 mm	
SLZ-M60	For liquid	6.35	1/4	0.8 mm	8 mm	
	For gas	15.88	5/8	1.0 mm	8 mm	

(2) Ensure that the 2 refrigerant pipes are well insulated to prevent condensation.

(3) Refrigerant pipe bending radius must be 100 mm or more.

#### ⚠ Caution:

Using careful insulation of specified thickness. Excessive thickness prevents storage behind the indoor unit and smaller thickness causes dew drippage.

### 5.3. Flaring work

- Main cause of gas leakage is defect in flaring work.
- Carry out correct flaring work in the following procedure.

#### 5.3.1. Pipe cutting (Fig. 5-2)

- Using a pipe cutter cut the copper tube correctly.

#### 5.3.2. Burrs removal (Fig. 5-3)

- Completely remove all burrs from the cut cross section of pipe/tube.
- Put the end of the copper tube/pipe to downward direction as you remove burrs in order to avoid burrs drop in the tubing.

#### 5.3.3. Putting nut on (Fig. 5-4)

- Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.
- (not possible to put them on after flaring work)

#### 5.3.4. Flaring work (Fig. 5-5)

- Carry out flaring work using flaring tool as shown at the right.

Pipe diameter (mm)	Dimension	
	A (mm)	B $^{+0}_{-0.4}$ (mm)
	When the tool for R32/R410A is used	
	Clutch type	
6.35	0 - 0.5	9.1
9.52	0 - 0.5	13.2
12.7	0 - 0.5	16.6
15.88	0 - 0.5	19.7

Firmly hold copper tube in a die in the dimension shown in the table at above.

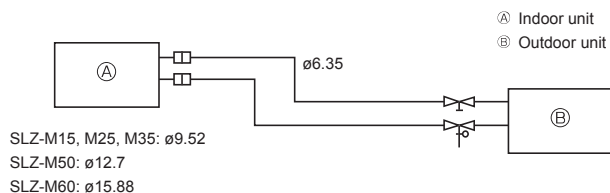


Fig. 5-1

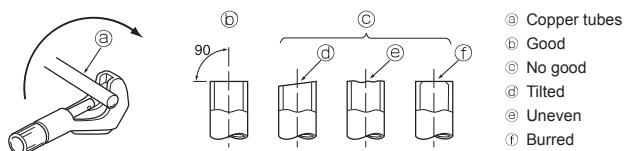


Fig. 5-2

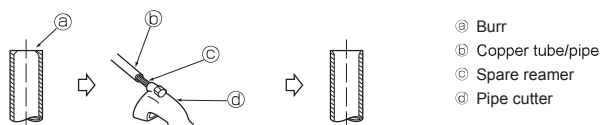


Fig. 5-3



Fig. 5-4

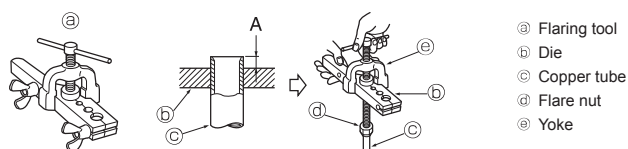


Fig. 5-5

## 5. Refrigerant piping work

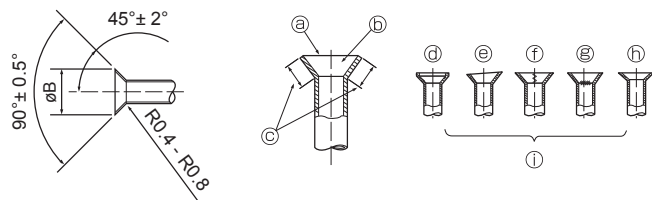


Fig. 5-6

### 5.3.5. Check (Fig. 5-6)

- Compare the flared work with a figure in right side hand.
- If flare is noted to be defective, cut off the flared section and do flaring work again.
  - Smooth all around
  - Inside is shining without any scratches
  - Even length all around
  - Too much
  - Tilted
  - Scratch on flared plane
  - Cracked
  - Uneven
  - Bad examples

### 5.4. Refrigerant and drainage piping locations (Fig.5-7)

- Drain pipe
- Ceiling
- Grille
- Refrigerant pipe (liquid)
- Refrigerant pipe (gas)
- Main unit

Model	Dimension	
	A (liquid)	B (gas)
SLZ-M15 SLZ-M25 SLZ-M35	63 mm	72 mm
SLZ-M50 SLZ-M60	63 mm	78 mm

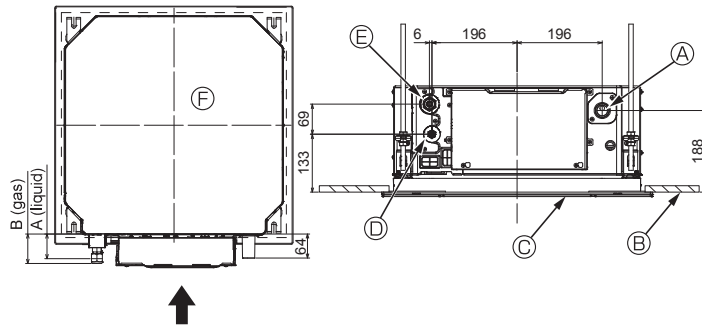


Fig. 5-7

### 5.5. Pipe connection (Fig. 5-8)

#### Indoor unit

#### 1) When using commercially available copper pipes:

- Apply thin layer of refrigerant oil to pipe and joint seating surface before tightening flare nut.
- Use two wrenches to tighten piping connections.
- Air-purge the refrigerant piping using your own refrigerant gas (don't air-purge the refrigerant charged in the outdoor unit).
- Use leak detector or soapy water to check for gas leaks after connections are completed.
- Use flared nut installed to this indoor unit.
- In case of reconnecting the refrigerant pipes after detaching, make the flared part of pipe re-fabricated.
- Use refrigerant piping insulation provided to insulate indoor unit connections. Insulate carefully following shown below.

#### 2) Heat insulation for refrigerant pipes:

- Wrap the enclosed large-sized pipe cover around the gas pipe, making sure that the end of the pipe cover touches the side of the unit.
- Wrap the enclosed small-sized pipe cover around the liquid pipe, making sure that the end of the pipe cover touches the side of the unit.
- Secure both ends of each pipe cover with the enclosed bands. (Attach the bands 20 mm from the ends of the pipe cover.)

Make sure that the slit in the pipe cover is facing upward when it is installed.

See that stop valve on outdoor unit is fully shut (unit is shipped with valve shut). After all piping connections between indoor and outdoor unit have been completed, vacuum-purge air from system through the service port for the stop valve on the outdoor unit. After completing procedures above, open outdoor unit stop valves stem fully. This completes connection of refrigerant circuit between indoor and outdoor units. Stop valve instructions are marked on outdoor unit.

#### Flare nut tightening

- Apply a thin coat of refrigeration oil on the seat surface of pipe.
- For connection first align the center, then tighten the first 3 to 4 turns of flare nut.
- Use tightening torque table below as a guideline for indoor unit side union joint section, and tighten using two wrenches. Excessive tightening damages the flare section.

- Apply refrigerating machine oil over the entire flare seat surface.
- Use correct flare nuts meeting the pipe size of the outdoor unit.
- Flare nut tightening torque

Copper pipe O.D. (mm)	Flare nut O.D. (mm)	Tightening torque (N·m)
ø6.35	17	14 - 18
ø9.52	22	34 - 42
ø12.7	26	49 - 61
ø15.88	29	68 - 82

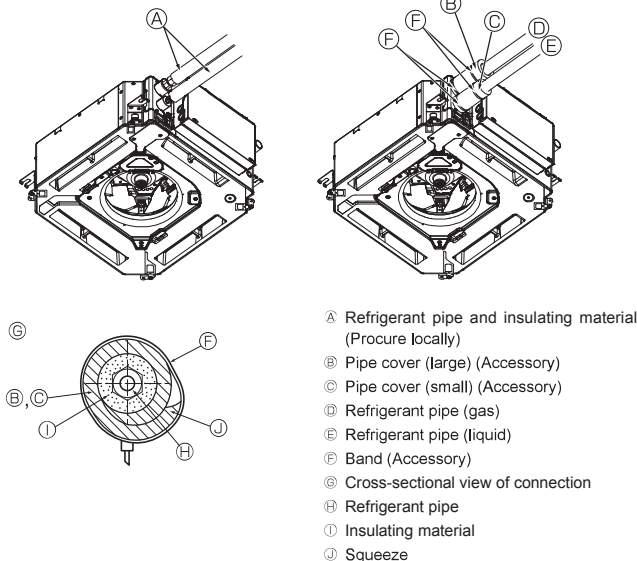


Fig. 5-8

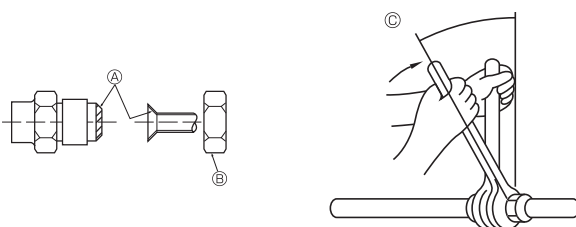


Fig. 5-9

## 6. Drainage piping work

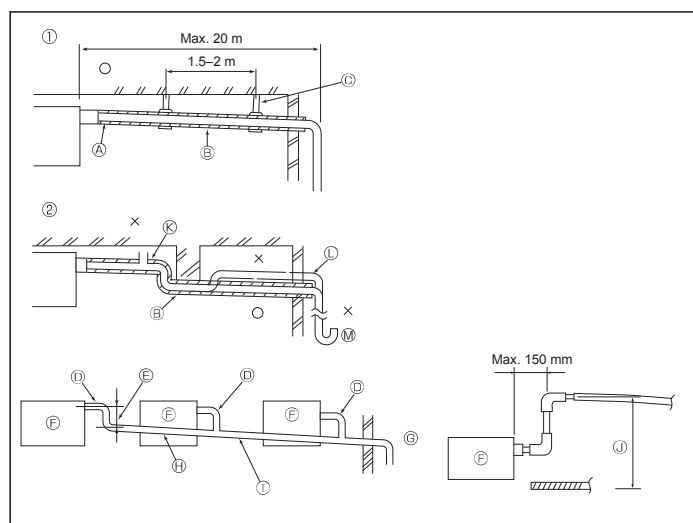


Fig. 6-1

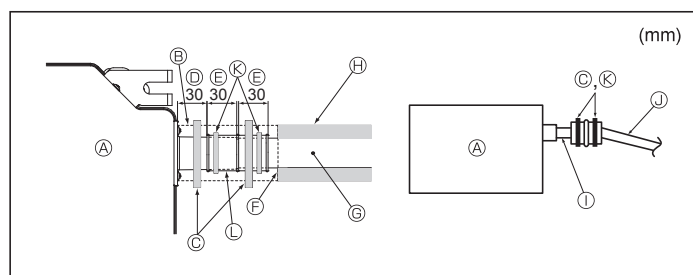


Fig. 6-2

### 6.1. Drainage piping work (Fig. 6-1)

- Use VP25 (O. D. ø32 PVC TUBE) for drain piping and provide 1/100 or more downward slope.
- Be sure to connect the piping joints using a polyvinyl type adhesive.
- Observe the figure for piping work.
- Use the included drain hose to change the extraction direction.

- |                                  |                 |
|----------------------------------|-----------------|
| ① Correct piping                 | Ⓒ Support metal |
| ② Wrong piping                   | Ⓚ Air bleeder   |
| Ⓐ Insulation (9 mm or more)      | Ⓛ Raised        |
| Ⓑ Downward slope (1/100 or more) | Ⓜ Odor trap     |

#### Grouped piping

- Ⓓ O. D. ø32 PVC TUBE
- Ⓔ Make it as large as possible
- Ⓕ Indoor unit
- Ⓖ Make the piping size large for grouped piping.
- Ⓗ Downward slope (1/100 or more)
- ① O. D. ø38 PVC TUBE for grouped piping (9 mm or more insulation)
- Ⓙ Up to 850 mm

1. Connect the drain socket (supplied with the unit) to the drain port. (Fig. 6-2)  
(Affix the tube using PVC adhesive then secure it with a band.)
  2. Install a locally purchased drain pipe (PVC pipe, O.D. ø32).  
(Affix the pipe using PVC adhesive then secure it with a band.)
  3. Insulate the tube and pipe. (PVC pipe, O.D. ø32 and socket)
  4. Check that drain flows smoothly.
  5. Insulate the drain port with insulating material, then secure the material with a band. (Both insulating material and band are supplied with the unit.)
- |                            |   |
|----------------------------|---|
| Ⓐ Main unit                | Ⓔ Drain pipe (O.D. ø32 PVC TUBE)          |
| Ⓑ Insulating material      | Ⓖ Insulating material (purchased locally) |
| Ⓒ Band (large)             | ① Transparent PVC pipe                    |
| Ⓓ Drain port (transparent) | Ⓙ O.D. ø32 PVC TUBE (Slope 1/100 or more) |
| Ⓔ Insertion margin         | Ⓚ Band (middle)                           |
| Ⓕ Matching                 | Ⓛ Drain socket                            |



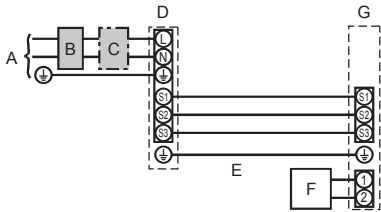
## 7. Electrical work

### 7.1. Indoor unit power supplied from outdoor unit

The following connection patterns are available.

The outdoor unit power supply patterns vary on models.

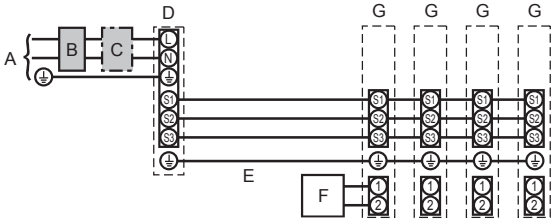
#### 1:1 System



- A Outdoor unit power supply
- B Earth leakage breaker
- C Wiring circuit breaker or isolating switch
- D Outdoor unit
- E Indoor unit/outdoor unit connecting cables
- F Remote controller
- G Indoor unit

\* Affix label A that is included with the manuals near each wiring diagram for the indoor and outdoor units.

#### Simultaneous twin/triple/quadruple system



- A Outdoor unit power supply
- B Earth leakage breaker
- C Wiring circuit breaker or isolating switch
- D Outdoor unit
- E Indoor unit/outdoor unit connecting cables
- F Remote controller
- G Indoor unit

\* Affix label A that is included with the manuals near each wiring diagram for the indoor and outdoor units.

**Note:**

Some units cannot be used in a simultaneous twin/triple/quadruple system. Refer to the outdoor unit installation manual for details.

Indoor unit model		SLZ-M
Wiring Wire No. × size (mm <sup>2</sup> )	Indoor unit-Outdoor unit	*1 3 × 1.5 (polar)
	Indoor unit-Outdoor unit earth	*1 1 × Min. 1.5
	Indoor unit earth	1 × Min. 1.5
	Remote controller-Indoor unit	*2 2 × 0.3 (Non-polar)
Circuit rating	Indoor unit (Heater) L-N	*3 —
	Indoor unit-Outdoor unit S1-S2	*3 230 VAC
	Indoor unit-Outdoor unit S2-S3	*3 24 VDC
	Remote controller-Indoor unit	*3 12 VDC

\*1. Max. 45 m

If 2.5 mm<sup>2</sup> used, Max. 50 m

If 2.5 mm<sup>2</sup> used and S3 separated, Max. 80 m

\*2. Max. 500 m

(When using 2 remote controllers, the maximum wiring length for the remote controller cables is 200 m.)

\*3. The figures are NOT always against the ground.

S3 terminal has 24 VDC against S2 terminal. However between S3 and S1, these terminals are not electrically insulated by the transformer or other device.

**Notes:** 1. Wiring size must comply with the applicable local and national code.

2. Power supply cords and indoor unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)

3. Install an earth longer than other cables.

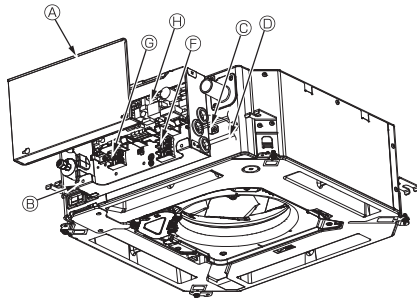
4. Indoor and outdoor connecting wires have polarities. Make sure to match the terminal number (S1, S2, S3) for correct wirings.

5. Wiring for remote controller cable shall be apart (5 cm or more) from power source wiring so that it is not influenced by electric noise from power source wiring.

**Warning:**

Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

## 7. Electrical work



- |   |   |
|---|---|
| A Electric component cover                  | F Indoor/Outdoor unit connecting terminal |
| B Electric component box                    | G Wired remote controller terminal        |
| C Entry for Indoor-Outdoor connecting cable | H Indoor controller                       |
| D Entry for wired remote controller cable   | I Earth cable                             |
| E Cable clamp                               | J Cable strap                             |

Fig. 7-1

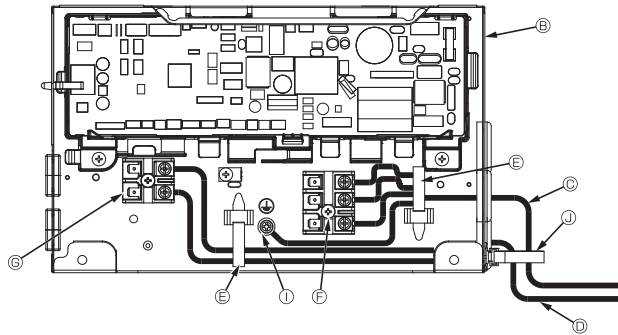


Fig. 7-2

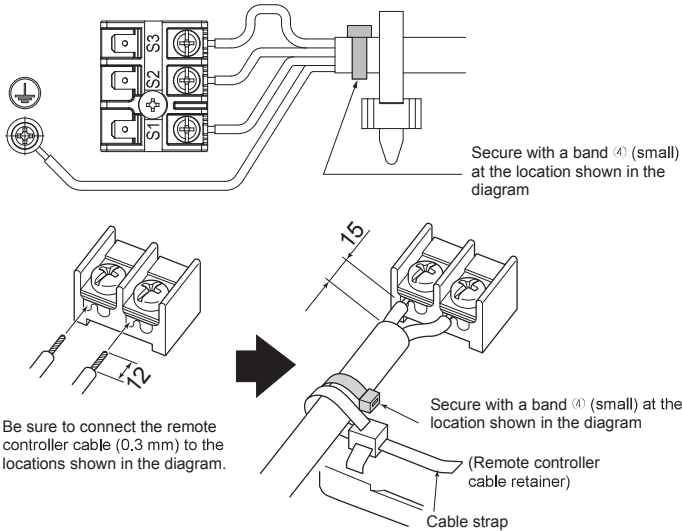


Fig. 7-3

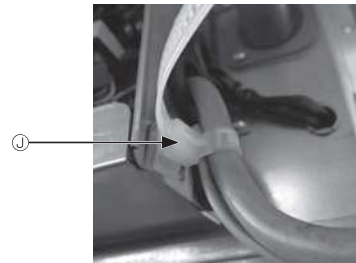
### 7.2. Indoor unit (Fig. 7-1) (Fig. 7-2) (Fig. 7-3)

#### Work procedure

- Loosen the two screws securing the electric component cover, and then slide and remove the cover.
- Route the wires along the wiring routes and through the wire inlets in the electric component box.  
(Procure the power supply cord and indoor/outdoor unit connecting cable locally.)
- Securely connect the power supply cord and the indoor/outdoor unit connecting cable to the terminal block.
- Secure the wires with the cable straps inside the electric component box.  
Secure the wires with cable straps as cushioning components so that no stress is applied to the connecting sections of the terminal block when tension is generated.
- Install the electric component cover.  
Make sure that the wires do not get pinched.
- Secure the wires with the cable straps outside the electric component box.

#### Warning:

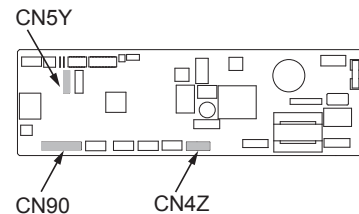
- Insert hook the electric component cover into the bent support on the electric component box and attach the cover securely. If it is attached incorrectly, it could result in a fire, electric shock due to dust, water, etc.
- Use the specified indoor/outdoor unit connecting cable to connect the indoor and outdoor units and fix the cable to the terminal block securely so that no stress is applied to the connecting section of the terminal block. Incomplete connection or fixing of the cable could result in a fire.
- Secure all of the indoor/outdoor unit connecting cables with the cable strap on the side of the electric component box.



#### Caution:

- Before installing the grille, make sure that the junction wire is connected.
- If the grille has signal receiver or i-See sensor, the pack of grille includes junction wire.

Signal receiver: CN90  
3D i-See sensor: CN5Y  
3D i-See sensor motor: CN4Z



## 7. Electrical work

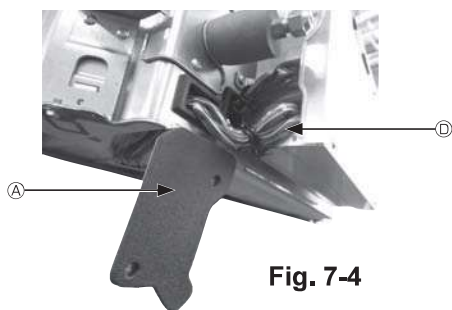


Fig. 7-4

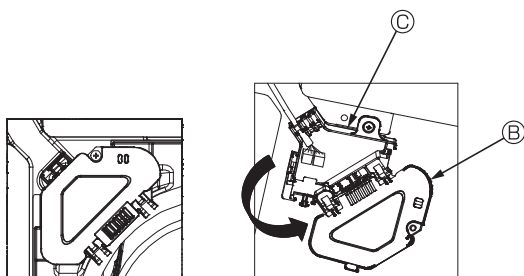


Fig. 7-5

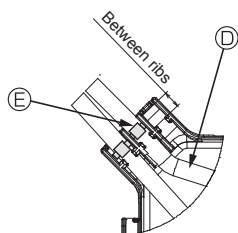


Fig. 7-6

### 7.2.1. Installing the i-See sensor and signal receiver

Before installing the grille, connect the junction wires included with the grille accessories and place them in the connector box.

- ① Remove the two screws securing the wire cover of the main unit, and then open the cover.
- ② Route the wires of the i-See sensor and signal receiver through the wire inlets in the electric component box as shown in the diagram and around the bushings on the side of the main unit. (Fig. 7-4)  
When routing the wires, open the clamp securing the grille junction wire, and then secure the grille junction wire and the wires of the i-See sensor and signal receiver with the clamp.
- ③ Remove the one screw securing the connector box cover, and then open the cover. (Fig. 7-5)
- ④ Place the junction wire connector in the connector box.
- ⑤ Install the wire cover and connector box cover.

#### ⚠ Caution:

When installing the covers, make sure that the wires do not get pinched. Fit the band securing the junction wires between the ribs on the connector box as shown in the diagram. (Fig. 7-6)

- Ⓐ Wire cover
- Ⓑ Connector box cover
- Ⓒ Connector box
- Ⓓ i-See sensor or signal receiver lead wire (Grille accessory)
- Ⓔ Band

## 7. Electrical work

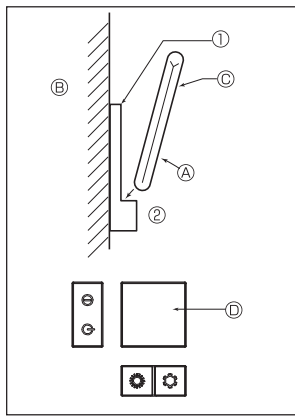


Fig. 7-7

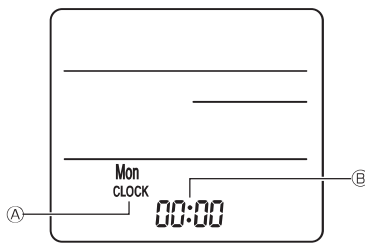


Fig. 7-8

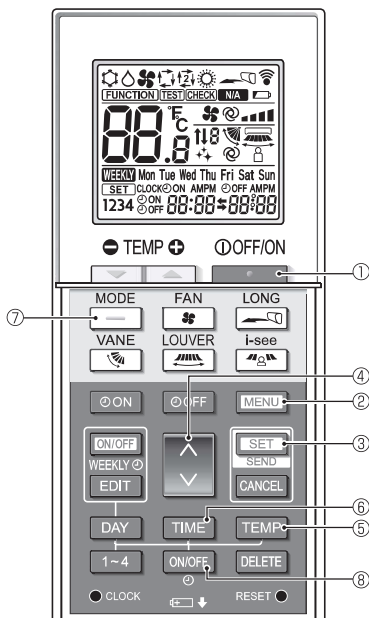


Fig. 7-9

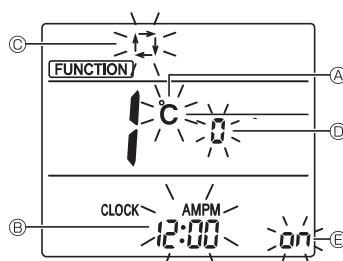


Fig. 7-10

### 7.3. Remote controller

#### 7.3.1. Wired remote controller

##### 1) Installing procedures

Refer to the installation manual that comes with each remote controller for details.

##### 2) Function selection of remote controller

If two remote controllers are connected, set one to "Main" and the other to "Sub". For setting procedures, refer to "Function selection of remote controller" in the operation manual for the indoor unit.

#### 7.3.2. For wireless remote controller

##### 1) Installation area

- Area in which the remote controller is not exposed to direct sunshine.
- Area in which there is no nearby heating source.
- Area in which the remote controller is not exposed to cold (or hot) winds.
- Area in which the remote controller can be operated easily.
- Area in which the remote controller is beyond the reach of children.

##### 2) Installation method (Fig. 7-7)

- ① Attach the remote controller holder to the desired location using 2 tapping screws.
- ② Place the lower end of the controller into the holder.

① Remote controller ② Wall ③ Display panel ④ Receiver

- The signal can travel up to approximately 7 meters (in a straight line) within 45 degrees to both right and left of the center line of the receiver.

##### 3) Setting (Clock setting) (Fig. 7-8)

- ① Insert batteries or press the **CLOCK** button with something sharp.

[CLOCK] ① and [.] ② blinks.

- ② Press the **RESET** button with something sharp.

- ③ Press the **UP/DOWN** button to set the time.

Press the **DAY** button to set the Day.

- ④ Press the **CLOCK** button with something sharp at the end.

[CLOCK] and [.] lighted.

##### 4) Initial setting

The following settings can be made in the initial setting mode.

Item	Setting	Fig. 7-10
Temperature unit	°C/°F	①
Time display	12-hour format/24-hour format	②
AUTO mode	Single set point/Dual set point	③
Pair No.	0-3	④
Backlight	On/Off	⑤

#### 4-1. Switching to the initial setting mode

1. Press the **STOP** button ① to stop the air conditioner.

2. Press the **MENU** button ②.

The Function setting screen will be displayed and the function No. ① will blink. (Fig. 7-9)

Press the **UP/DOWN** button ④ to change the function No.

3. Check that function No. "1" is displayed, and then press the **SET** button ③.

The display setting screen will be displayed. (Fig. 7-10)

#### 4-2. Changing the temperature unit ①

Press the **TEMP** button ⑤.

Each time the **TEMP** button ⑤ is pressed, the setting switches between °C and °F.

°C : The temperature is displayed in degrees Celsius.

°F : The temperature is displayed in degrees Fahrenheit.

#### 4-3. Changing the time display ②

Press the **TIME** button ⑥.

Each time the **TIME** button ⑥ is pressed, the setting switches between 12:00<sup>AM/PM</sup> and 24:00.

12:00<sup>AM/PM</sup> : The time is displayed in the 12-hour format.

24:00 : The time is displayed in the 24-hour format.

#### 4-4. Changing the AUTO mode ③

Press the **MODE** button ⑦.

Each time the **MODE** button ⑦ is pressed, the setting switches between and .

: The AUTO mode operates as the usual automatic mode.

: The AUTO mode operates using dual set points.

#### 4-5. Changing the pair No. ④

Press the **UP/DOWN** button ④.

Each time the **UP/DOWN** button ④ is pressed, the pair No. 0-3 changes.

Pair No. of wireless remote controller	Indoor PC board
0	Initial setting
1	Cut J41
2	Cut J42
3	Cut J41, J42

#### 4-6. Changing the backlight setting ⑤

Press the **ON/OFF** button ⑧.

Each time the **ON/OFF** button ⑧ is pressed, the setting switches between **on** and **off**.

**on** : The backlight comes on when a button is pressed.

**off** : The backlight does not come on when a button is pressed.

## 7. Electrical work

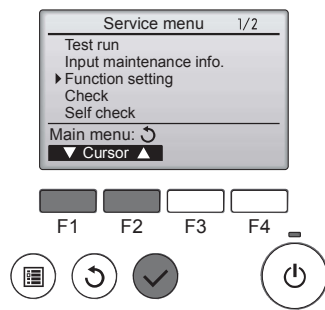


Fig. 7-11

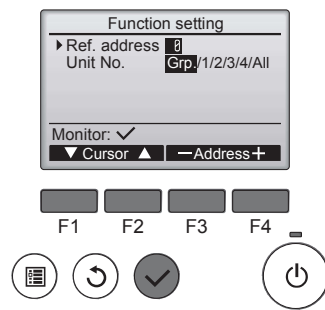


Fig. 7-12

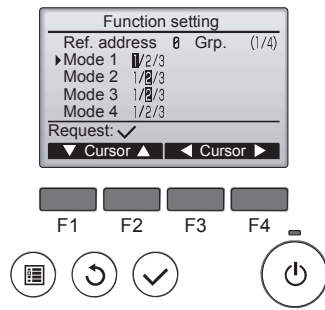


Fig. 7-13

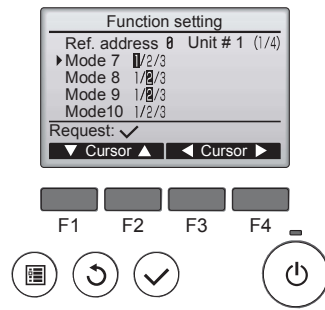


Fig. 7-14

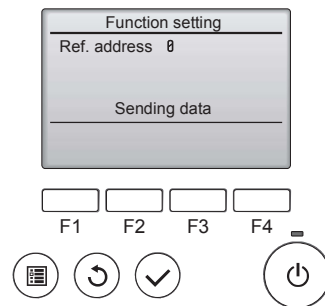


Fig. 7-15

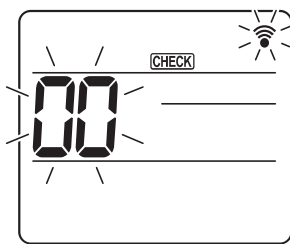


Fig. 7-16

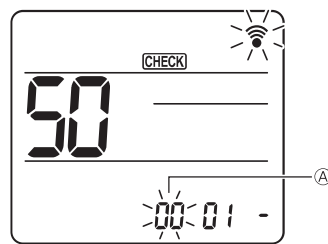


Fig. 7-17

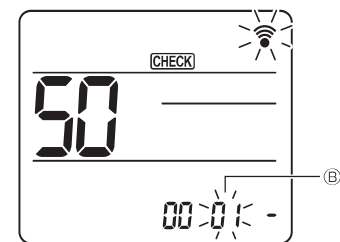


Fig. 7-18

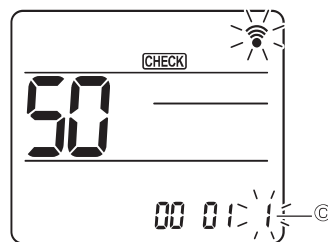


Fig. 7-19

### 7.4. Function settings

#### 7.4.1. By wired remote controller

① (Fig. 7-11)

- Select "Service" from the Main menu, and press the [SELECT] button.
- Select "Function setting" with the [F1] or [F2] button, and press the [SELECT] button.

② (Fig. 7-12)

- Set the indoor unit refrigerant addresses and unit numbers with the [F1] through [F4] buttons, and then press the [SELECT] button to confirm the current setting.

#### <Checking the Indoor unit No.>

When the [SELECT] button is pressed, the target indoor unit will start fan operation. If the unit is common or when running all units, all indoor units for the selected refrigerant address will start fan operation.

③ (Fig. 7-13)

- When data collection from the indoor units is completed, the current settings appears highlighted. Non-highlighted items indicate that no function settings are made. Screen appearance varies depending on the "Unit No." setting.

④ (Fig. 7-14)

- Use the [F1] or [F2] button to move the cursor to select the mode number, and change the setting number with the [F3] or [F4] button.

⑤ (Fig. 7-15)

- When the settings are completed, press the [SELECT] button to send the setting data from the remote controller to the indoor units.
- When the transmission is successfully completed, the screen will return to the Function setting screen.

#### 7.4.2. By wireless remote controller (Fig. 7-16, Fig. 7-17, Fig. 7-18, Fig. 7-19)

① Going to the function select mode

Press the [MENU] button between of 5 seconds.

(Start this operation from the status of remote controller display turned off.) [CHECK] is lighted and "00" blinks. (Fig. 7-16)

Press the [SET] button to set the "50".

Direct the wireless remote controller toward the receiver of the indoor unit and press the [SET] button.

② Setting the unit number

Press the [SET] button to set unit number A. (Fig. 7-17)

Direct the wireless remote controller toward the receiver of the indoor unit and press the [SET] button.

③ Select a mode

Press the [SET] button to set Mode number B. (Fig. 7-18)

Direct the wireless remote controller toward the receiver of the indoor unit and press the [SET] button.

Current setting number:

- 1=1 beep (1 second)
- 2=2 beep (1 second each)
- 3=3 beep (1 second each)

④ Selecting the setting number

Use the [SET] button to change the Setting number C. (Fig. 7-19)

Direct the wireless remote controller toward the receiver of the indoor unit and press the [SET] button.

⑤ To select multiple functions continuously

Repeat select ③ and ④ to change multiple function settings continuously.

⑥ Complete function selection

Direct the wireless remote controller toward the sensor of the indoor unit and press the [OFF/ON] button.

#### Note:

Make the above settings on Mr. Slim units as necessary.

• Table 1 summarizes the setting options for each mode number.

• Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.



## 7. Electrical work

### Function table

Select unit number 00 [table 1]

Mode	Settings	Mode no.	Setting no.	Initial setting	setting
Power failure automatic recovery	Not available	01	1		
	Available *1		2	0 *2	
Indoor temperature detecting	Indoor unit operating average	02	1	0	
	Set by indoor unit's remote controller		2		
	Remote controller's internal sensor		3		

Select unit numbers 01 to 03 or all units (AL [wired remote controller]/07 [wireless remote controller])

Mode	Settings	Mode no.	Setting no.	Initial setting	setting
Filter sign	100Hr	07	1		
	2500Hr		2	0	
	No filter sign indicator		3		
Fan speed	Silent	08	1		
	Standard		2	0	
	High ceiling		3		
Up/down vane setting	Not setting	11	1		
	Draft-less setting (vanes angle setup ①)		2	0	
	Downward setting (vanes angle setup ②)		3		
3D i-See sensor positioning *3	Position ① ("□" stamp position, page 20)	12	1		
	(Position ①)		2		
	Position ③ ("○" stamp position, page 20)		3	0	
Fan speed during the cooling thermostat is OFF	Setting fan speed	27	1		
	Stop		2		
	Extra low		3	0	

\*1 When the power supply returns, the air conditioner will start 3 minutes later.

\*2 Power failure automatic recovery initial setting depends on the connecting outdoor unit.

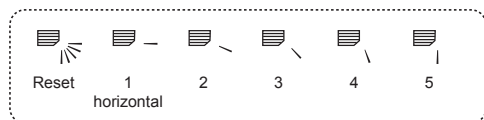
\*3 When the 3D i-See sensor corner panel position changed, change this mode. Refer to page 20.

### 7.4.3. How to set the fixed up/down air direction

- Only the particular outlet can be fixed to certain direction with the procedures below. Once fixed, only the set outlet is fixed every time air conditioner is turned on. (Other outlets follow UP/DOWN air direction setting of the remote controller.)

#### ■ Explanation of word

- "Refrigerant address No." and "Unit No." are the numbers given to each air conditioner.
- "Outlet No." is the number given to each outlet of air conditioner. (Refer to the right.)
- "Up/Down air direction" is the direction (angle) to fix.



Horizontal airflow



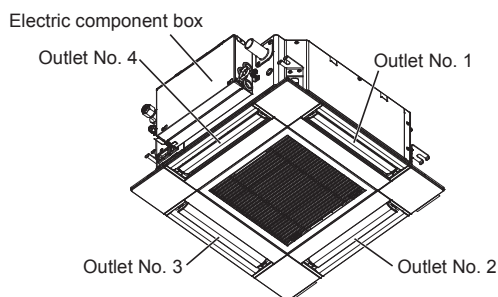
#### Remote controller setting

The airflow direction of this outlet is controlled by the airflow direction setting of remote controller.

#### Fixed setting

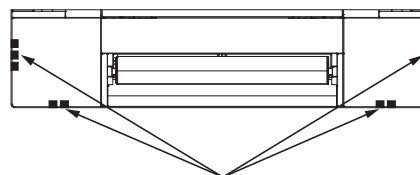
The airflow direction of this outlet is fixed in particular direction.

- \* When it is cold because of direct airflow, the airflow direction can be fixed horizontally to avoid direct airflow.



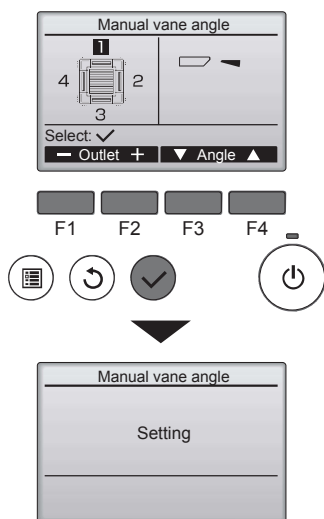
#### Note:


The outlet No. is indicated by the number of grooves on both ends of each air outlet. Set the air direction while checking the information shown on the remote controller display.



Air outlet identification marks

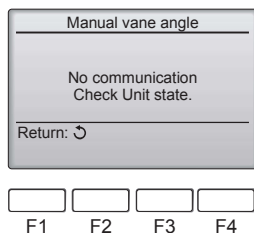
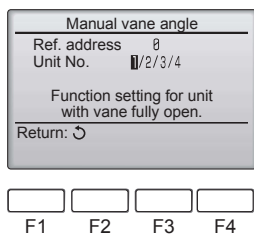
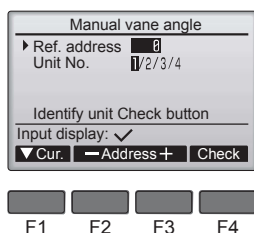
## 7. Electrical work



If all outlets are selected,  will be displayed the next time the unit goes into operation.

Navigating through the screens

- To go back to the Main menu .....[MENU] button
- To return to the previous screen .....[RETURN] button



The current vane setting will appear.

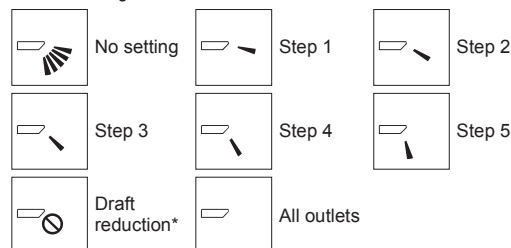
Select the desired outlets from 1 through 4 with the [F1] or [F2] button.

- Outlet: "1", "2", "3", "4", and "1, 2, 3, 4, (all outlets)"

Press the [F3] or [F4] button to go through the option in the order of "No setting (re-set)", "Step 1", "Step 2", "Step 3", "Step 4", "Step 5", and "Draft reduction".

Select the desired setting.

### ■ Vane setting



### \* Draft reduction

The airflow direction for this setting is more horizontal than the airflow direction for the "Step 1" setting in order to reduce a drafty feeling. The draft reduction can be set for only 1 vane.

Press the [SELECT] button to save the settings.

A screen will appear that indicates the setting information is being transmitted.

The setting changes will be made to the selected outlet.

The screen will automatically return to the one shown above (step 4) when the transmission is completed.

Make the settings for other outlets, following the same procedures.

### Confirmation procedure

① First, confirm by setting "Ref. address" to 0 and "Unit No." to 1.

- Move the cursor to "Ref. address" or "Unit No." with the [F1] button to select.
- Select the refrigerant address and the unit number for the units to whose vanes are to be fixed, with the [F2] or [F3] button, and press the [SELECT] button.
- Ref. address: Refrigerant address
- Unit No.: 1, 2, 3, 4

Press the [F4] button to confirm the unit.

② Change the "Unit No." in order and check each unit.

- Press the [F1] button to select "Unit No.".
- Press the [F2] or [F3] button to change the "Unit No." to the unit that you want to check, and then press the [F4] button.
- After pressing the [F4] button, wait approximately 15 seconds, and then check the current state of the air conditioner.
  - The vane is pointing downward. → This air conditioner is displayed on the remote controller.
  - All outlets are closed. → Press the [RETURN] button and continue the operation from the beginning.
  - The messages shown to the left are displayed. → The target device does not exist at this refrigerant address.
- Press the [RETURN] button to return to the initial screen.

③ Change the "Ref. address" to the next number.

- Refer to step ① to change the "Ref. address" and continue with the confirmation.

## 8. Test run

### 8.1. Before test run

- ▶ After completing installation and the wiring and piping of the indoor and outdoor units, check for refrigerant leakage, looseness in the power supply or control wiring, wrong polarity, and no disconnection of one phase in the supply.
- ▶ Use a 500-volt megohmmeter to check that the resistance between the power supply terminals and ground is at least 1.0 MΩ.

▶ Do not carry out this test on the control wiring (low voltage circuit) terminals.

⚠ Warning:

Do not use the air conditioner if the insulation resistance is less than 1.0 MΩ.

### 8.2. Test run

#### 8.2.1. Using wired remote controller

- Make sure to read operation manual before test run. (Especially items to secure safety)

##### Step 1 Turn on the power.

- Remote controller: The system will go into startup mode, and the remote controller power lamp (green) and "PLEASE WAIT" will blink. While the lamp and message are blinking, the remote controller cannot be operated. Wait until "PLEASE WAIT" is not displayed before operating the remote controller. After the power is turned on, "PLEASE WAIT" will be displayed for approximately 2 minutes.
  - Indoor controller board: LED 1 will be lit up, LED 2 will be lit up (if the address is 0) or off (if the address is not 0), and LED 3 will blink.
  - Outdoor controller board: LED 1 (green) and LED 2 (red) will be lit up. (After the startup mode of the system finishes, LED 2 will be turned off.) If the outdoor controller board uses a digital display, [-] and [-] will be displayed alternately every second.
- If the operations do not function correctly after the procedures in step 2 and thereafter are performed, the following causes should be considered and eliminated if they are found.
- (The symptoms below occur during the test run mode. "Startup" in the table means the LED display written above.)

Symptoms in test run mode		Cause
Remote Controller Display	OUTDOOR BOARD LED Display < > indicates digital display.	
Remote controller displays "PLEASE WAIT", and cannot be operated.	After "startup" is displayed, only green lights up. <00>	• After power is turned on, "PLEASE WAIT" is displayed for 2 minutes during system startup. (Normal)
After power is turned on, "PLEASE WAIT" is displayed for 3 minutes, then error code is displayed.	After "startup" is displayed, green(once) and red(once) blink alternately. <F1>	• Incorrect connection of outdoor terminal block (R, S, T and S <sub>1</sub> , S <sub>2</sub> , S <sub>3</sub> .)
	After "startup" is displayed, green(once) and red(twice) blink alternately. <F3, F5, F9>	• Outdoor unit's protection device connector is open.
No display appears even when remote controller operation switch is turned on. (Operation lamp does not light up.)	After "startup" is displayed, green(twice) and red(once) blink alternately. <EA, Eb>	• Incorrect wiring between the indoor and outdoor unit (Polarity is wrong for S <sub>1</sub> , S <sub>2</sub> , S <sub>3</sub> .)
	After "startup" is displayed, only green lights up. <00>	• Remote controller transmission wire short.
Display appears but soon disappears even when remote controller is operated.	After "startup" is displayed, only green lights up. <00>	• There is no outdoor unit of address 0. (Address is other than 0.)
		• Remote controller transmission wire open.
		• After canceling function selection, operation is not possible for about 30 seconds. (Normal)

##### Step 2 Switch the remote controller to "Test run".

- ① Select "Test run" from the Service menu, and press the [SELECT] button. (Fig. 8-1)
- ② Select "Test run" from the Test run menu, and press the [SELECT] button. (Fig. 8-2)
- ③ The test run operation starts, and the Test run operation screen is displayed.

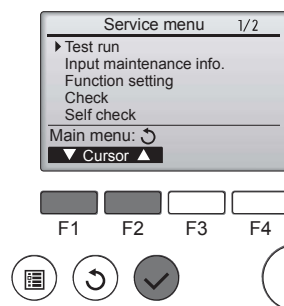


Fig. 8-1

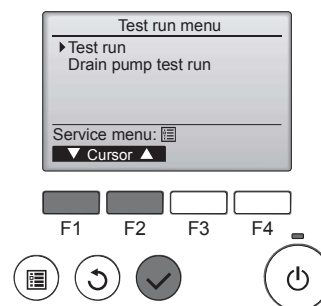


Fig. 8-2

##### Step 3 Perform the test run and check the airflow temperature and auto vane.

- ① Press the [F1] button to change the operation mode. (Fig. 8-3)  
Cooling mode: Check that cool air blows from the unit.  
Heating mode: Check that warm air blows from the unit.
- ② Press the [SELECT] button to display the Vane operation screen, and then press the [F1] and [F2] buttons to check the auto vane. (Fig. 8-4)  
Press the [RETURN] button to return to the Test run operation screen.  
If the vanes do not move, check that the junction wire connectors are connected securely and the connector colors match.

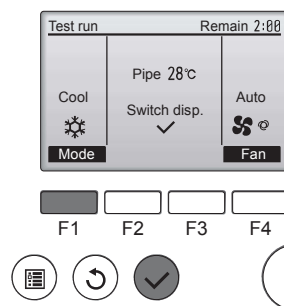


Fig. 8-3

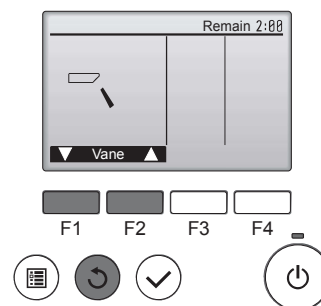


Fig. 8-4

##### Step 4 Confirm the operation of the outdoor unit fan.

The speed of the outdoor unit fan is controlled in order to control the performance of the unit. Depending on the ambient air, the fan will rotate at a slow speed and will keep rotating at that speed unless the performance is insufficient. Therefore, the outdoor wind may cause the fan to stop rotating or to rotate in the opposite direction, but this is not a problem.

## 8. Test run

### Step 5 Stop the test run.

① Press the [ON/OFF] button to stop the test run. (The Test run menu will appear.)

Note: If an error is displayed on the remote controller, see the table below.

[Output pattern A] Errors detected by indoor unit

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Check code		
1	P1	Intake sensor error	
2	P2	Pipe (TH2) sensor error	
	P9	Pipe (TH5) sensor error	
3	E6, E7	Indoor/outdoor unit communication error	
4	P4	Drain sensor error / Float switch connector open	
5	P5	Drain pump error	
	PA	Forced compressor error	
6	P6	Freezing/Overheating protection operation	
7	EE	Communication error between indoor and outdoor units	
8	P8	Pipe temperature error	
9	E4	Remote controller signal receiving error	
10	—	—	
11	PB (Pb)	Indoor unit fan motor error	
12	FB (Fb)	Indoor unit control system error (memory error, etc.)	
14	PL	Refrigerant circuit abnormal	
No sound	E0, E3	Remote controller transmission error	
No sound	E1, E2	Remote controller control board error	
No sound	— — — —	No corresponding	

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Check code		
1	E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	For details, check the LED display of the outdoor controller board.
2	UP	Compressor overcurrent interruption	
3	U3, U4	Open/short of outdoor unit thermistors	
14	PL or Others	Abnormality of refrigerant circuit or other errors	

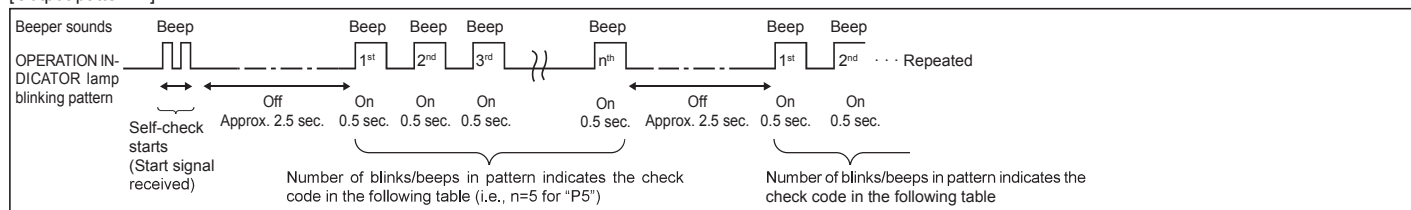
\*1 If the beeper does not sound again after the initial 2 beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.

\*2 If the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)" after the initial 2 beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.

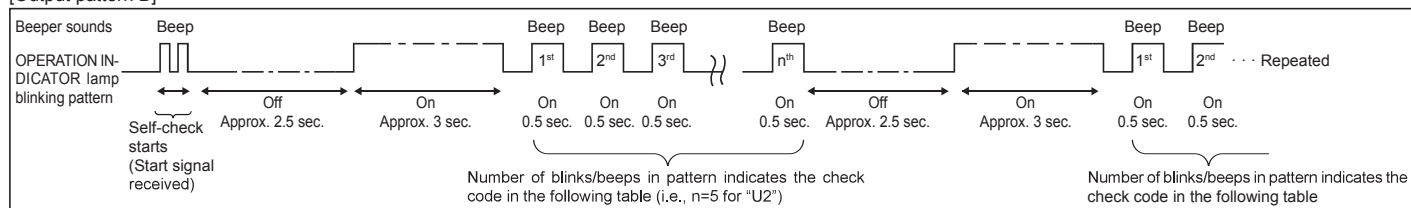
- On wireless remote controller  
The continuous buzzer sounds from receiving section of indoor unit.  
Blink of operation lamp
- On wired remote controller  
Check code displayed in the LCD.

- Refer to the following tables for details on the check codes. (Wireless remote controller)

[Output pattern A]



[Output pattern B]



See the table below for the details of the LED display (LED 1, 2, and 3) on the indoor controller board.

LED 1 (microcomputer power supply)	Indicates whether control power is supplied. Make sure that this LED is always lit.
LED 2 (remote controller power supply)	Indicates whether power is supplied to the wired remote controller. The LED is lit only for the indoor unit that is connected to the outdoor unit that has an address of 0.
LED 3 (indoor/outdoor unit communication)	Indicates whether the indoor and outdoor units are communicating. Make sure that this LED is always blinking.

Note:

## 8. Test run

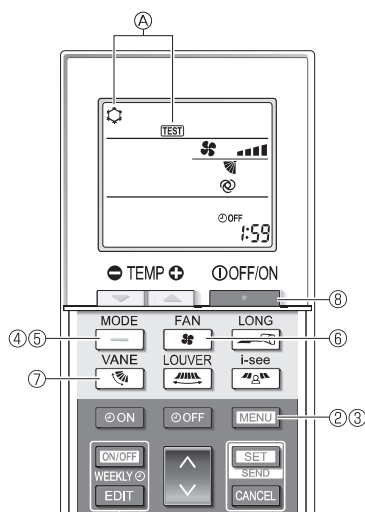


Fig. 8-5

### 8.2.2. Using the wireless remote controller

- ① Turn on the power to the unit at least 12 hours before the test run.
- ② Press the **MENU** button for 5 seconds. (Fig. 8-5)  
(Perform this operation when the remote controller display is turned off.)
- ③ Press the **MENU** button.  
④ **TEST** and the current operation mode are displayed. (Fig. 8-5)
- ④ Press the **—** button to activate cool mode, then check whether cool air is blown out from the unit.
- ⑤ Press the **—** button to activate heat mode, then check whether warm air is blown out from the unit.
- ⑥ Press the **—** button and check whether the fan speed changes.
- ⑦ Press the **—** button and check whether the auto vane operates properly.
- ⑧ Press the **—** button to stop the test run.  
(After two hours, a signal will be sent to stop the test run.)

#### Note:

- Point the remote controller towards the indoor unit receiver while following steps ③ to ⑧.
- It is not possible to perform the test run in FAN, DRY, or AUTO mode.

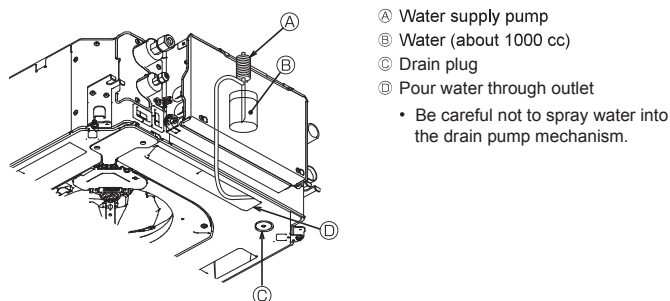


Fig. 8-6

## 8.3. Self-check

- Refer to the installation manual that comes with each remote controller for details.

## 8.4. Check of drainage (Fig. 8-6)

- Ensure that the water is being properly drained out and that no water is leaking from joints.

#### When electric work is completed.

- Pour water during cooling operation and check.

#### When electric work is not completed.

- Pour water during emergency operation and check.

\* Drain pump and fan are activated simultaneously when single phase 230 V is turned on to S1 and S2 on terminal block after the connector (SWE) on controller board in the electrical component box is set to ON.

Be sure to turn it back to the former state after work.

## 9. System control

Refer to the outdoor unit installation manual.

## 10. Installing the grille

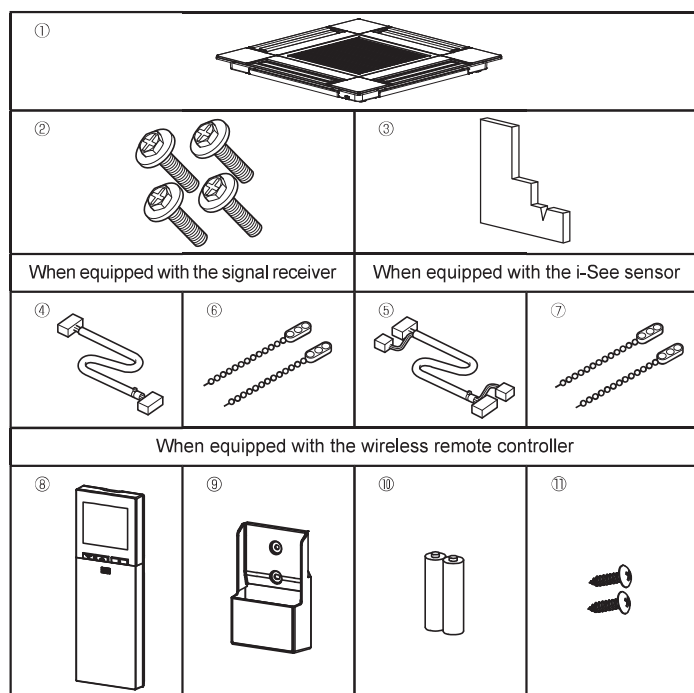


Fig. 10-1

### 10.1. Check the grille accessories (Fig. 10-1)

- The grille should be supplied with the following accessories.

	Accessory name	Q'ty	Remark
①	Grille	1	625 × 625 (mm)
②	Screw with washer	4	M5 × 0.8 × 25 (mm)
③	Gauge	1	
④	Junction wire for signal receiver	1	Included when equipped with the signal receiver.
⑤	Junction wire for i-See sensor	1	Included when equipped with the i-See sensor.
⑥	Fastener	2	Included when equipped with the signal receiver.
⑦	Fastener	2	Included when equipped with the i-See sensor.
⑧	Wireless remote controller	1	Included when equipped with the wireless remote controller.
⑨	Remote controller holder	1	Included when equipped with the wireless remote controller.
⑩	LR6 AA batteries	2	Included when equipped with the wireless remote controller.
⑪	3.5 × 16 tapping screws	2	Included when equipped with the wireless remote controller.



## 10. Installing the grille

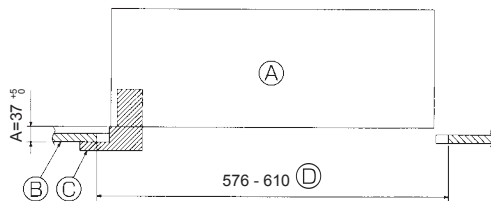


Fig. 10-2

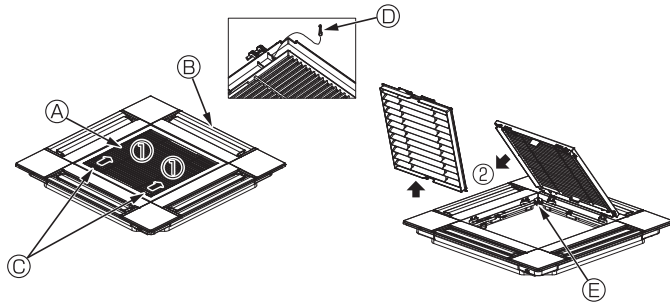


Fig. 10-3

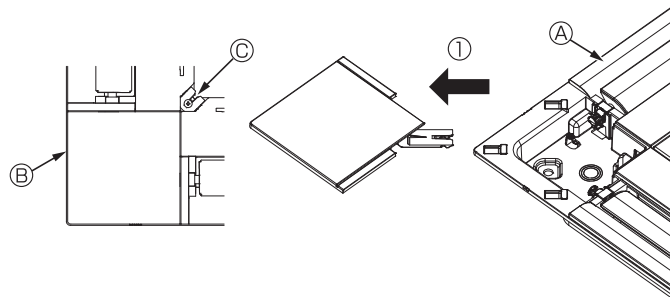
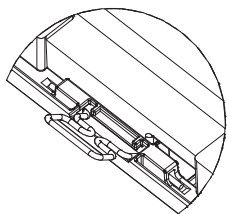
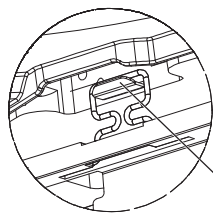


Fig. 10-4

<Hook is in the raised position>



<Grille hook>



Main unit hook

Fig. 10-5

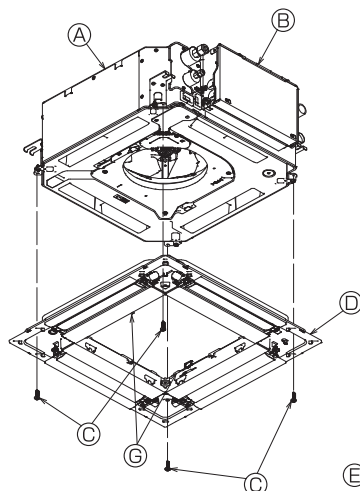


Fig. 10-6

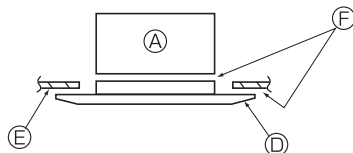


Fig. 10-7

### 10.2. Preparing to attach the grille (Fig. 10-2)

- With the gauge supplied with this kit, adjust and check the positioning of the unit relative to the ceiling. If the unit is not properly positioned in the ceiling, there may be air leaks, condensation may form, or the up/down vanes may not operate correctly.
- Make sure that the opening in the ceiling is within the following tolerances:  
576 × 576 - 610 × 610
- Make sure that step A is performed within 37-42 mm. Damage could result by failing to adhere to this range.

- (A) Main unit
- (B) Ceiling
- (C) Gauge (Accessory)
- (D) Ceiling opening dimensions

#### 10.2.1. Removing the intake grille (Fig. 10-3)

- Slide the levers in the direction indicated by the arrow ① to open the intake grille.
- Unlatch the hook that secures the grille.  
\* Do not unlatch the hook for the intake grille.
- With the intake grille in the "open" position, remove the hinge of the intake grille from the grille as indicated by the arrow ②.

- (A) Intake grille
- (B) Grille
- (C) Intake grille levers
- (D) Grille hook
- (E) Hole for the grille's hook

#### 10.2.2. Removing the corner panel (Fig. 10-4)

- Loosen the screw from the corner of the corner panel. Slide the corner panel as indicated by the arrow ① to remove the corner panel.

- (A) Grille
- (B) Corner panel
- (C) Screw

### 10.3. Installing the grille

- Please pay attention because there is a restriction in the attachment position of the grille.

#### 10.3.1. Temporarily installing the grille

- Align the screw holes in the corners of the grille with the screw mounting holes in the corners of the main unit, latch the two hooks on the grille onto the drain pan projections on the main unit, and temporarily hang the grille. (Fig. 10-5)

#### ⚠ Caution:

When installing the i-See sensor and signal receiver, place the junction wires in the connector box before temporarily hanging the grille. Refer to 7.2.1. on page 11 to route the junction wires.

#### 10.3.2. Securing the grille

- Secure the grille by tightening the four screws. (Fig. 10-6)
- \* Make sure that there are no gaps between the main unit and the panel or the panel and the ceiling. (Fig. 10-7)

- (A) Main unit
- (B) Electric component box
- (C) Screw with washer (Accessory)
- (D) Grille
- (E) Ceiling
- (F) Make sure that there are no gaps.
- (G) Temporarily hanging hooks on the panel

#### ⚠ Caution:

- When tightening the screw with captive washer (C), tighten it at a torque of 4.8 N·m or less. Never use an impact screwdriver. It may result in parts damage.
- After tightening the screw, confirm that the two grille hooks (Fig. 10-5) are latched onto the hooks on the main unit.

## 10. Installing the grille

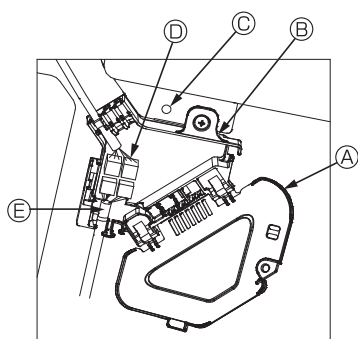


Fig. 10-8

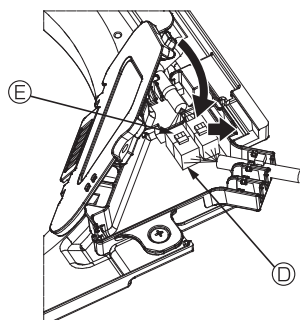


Fig. 10-9

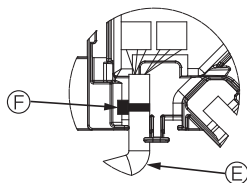


Fig. 10-10

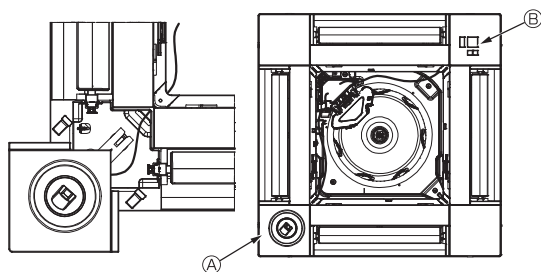


Fig. 10-11

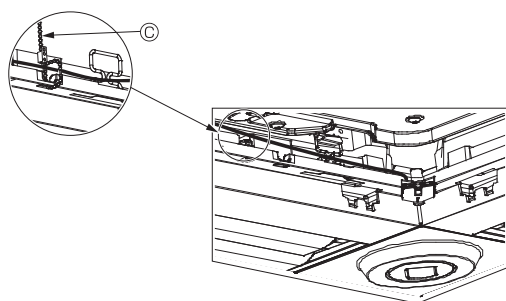


Fig. 10-12

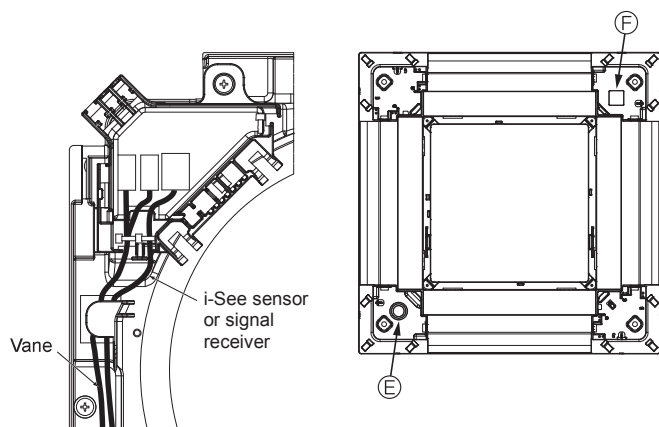


Fig. 10-13

### 10.3.3. Connecting the wires

- ① Remove the one screw securing the connector box cover, and then open the cover.
- ② Securely connect the junction wire connector of the vane motor and the panel vane motor wire connector in the connector box. (Fig. 10-8)  
There are two vane motor connectors: one blue connector and one orange connector. Make sure that the connector colors match when connecting them.
- ③ Close the connector box cover.

When closing the connector box cover, slide the cover in the direction indicated by the arrow and make sure that the projection is firmly inserted. (Fig. 10-9)

- Ⓐ Connector box cover
- Ⓑ Connector box
- Ⓒ Securing screw
- Ⓓ Junction connector
- Ⓔ Wire connector for the vane motor
- Ⓕ Band

### ⚠ Caution:

- Place the band securing the panel vane motor wire in the connector box as shown in the diagram. (Fig. 10-10)
- When closing the connector box cover, make sure that the wires do not get pinched.

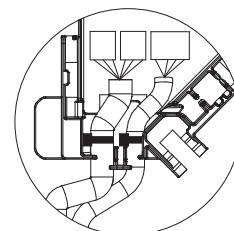
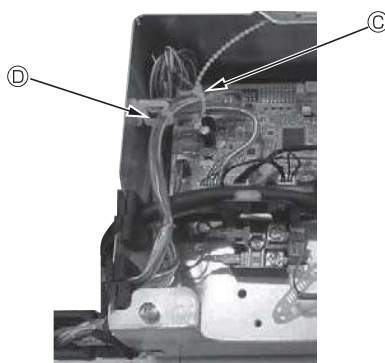
### 10.3.4. Wiring the i-See sensor corner panel and signal receiver

- Install the i-See sensor and signal receiver at the corners of the panel at the locations stamped with "○" or "□". (The positions may be reversed.)
- Route the i-See sensor and signal receiver wires through the square holes at the corners of the panel and install them.
- Connect the junction wire connector and the wire connectors of the i-See sensor and signal receiver in the connector box.
- Close the connector box cover.
- Secure the i-See sensor and signal receiver wires to the panel with the fastener as shown in the diagram so that there is no slack in the wires, and then cut off the excess end of the fastener. (Fig. 10-12)
- Place the i-See sensor and signal receiver wires to the inside of the flange on the panel.
- If the position of the i-See sensor was changed from the "○" position (E) to the "□" position (F), change the function settings. (Refer to page 14.)

### ⚠ Caution:

- Route the i-See sensor and signal receiver wires as shown in Fig. 10-13.
- Place the excess portions of the i-See sensor and signal receiver junction wires in the electric component box in the wire clip as shown in the diagram, and secure the wires together with the fastener. (Fig. 10-14)  
Make sure that the band securing the i-See sensor and signal receiver junction wires is positioned inside the connector box. (Fig. 10-15)
- If the vane motor connectors and signal receiver connector are connected incorrectly, the vanes will not move or communication with the remote controller will not be possible.

- Ⓐ i-See sensor
- Ⓑ Signal receiver
- Ⓒ Fastener
- Ⓓ Wire clip
- Ⓔ "○" stamp : default i-See sensor position
- Ⓕ "□" stamp : default signal receiver position



## 10. Installing the grille

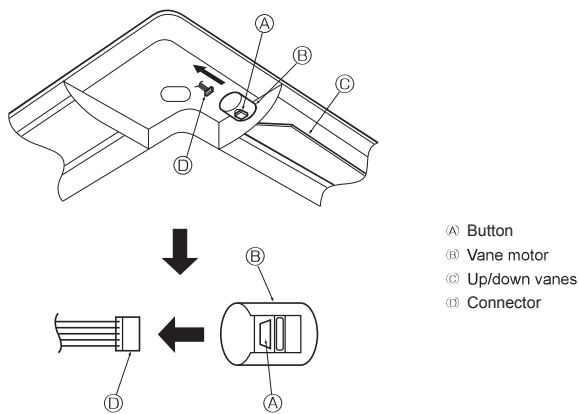


Fig. 10-16

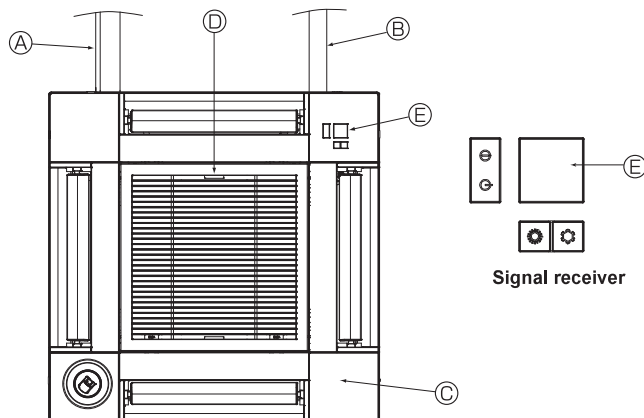


Fig. 10-17

### 10.4. Locking the up/down airflow direction (Fig. 10-16)

The vanes of the unit can be set and locked in on up or down orientation depending upon the environment of use.

- Set according to the preference of the customer.

The operation of the fixed up/down vanes and all automatic controls cannot be performed using the remote controller. In addition, the actual position of the vanes may differ from the position indicated on the remote controller.

- ① Turn off the main power switch.

Injuries and or an electrical shock may occur while the fan of the unit is rotating.

- ② Disconnect the connector for the vane motor of the vent that you want to lock. (While pressing the button, remove the connector in the direction indicated by the arrow as shown in the diagram.) After removing the connector, insulate it with tape.

### 10.5. Installing the intake grille (Fig. 10-17)

- Perform the procedure that is described in "10.2. Preparing to attach the grille" in reverse order to install the intake grille and the corner panel.

(A) Refrigerant piping of the main unit

(B) Drain piping of the main unit

(C) Corner panel

(D) Position of the levers on the intake grille when sent from the factory.

\* Although the clips can be installed in any of four positions.

(E) Receiver

### 10.6. Check

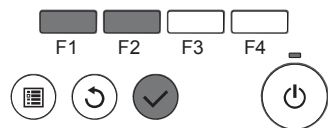
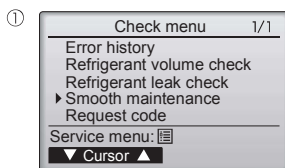
- Make sure that there is no gap between the unit and the grille, or between the grille and the surface of the ceiling. If there is any gap between the unit and the grille, or between the grille and the surface of the ceiling, it may cause dew to collect.
- Make sure that the wires have been securely connected.
- Check that all four vanes move. If two or four vanes do not move, refer to 10.3. and check the connections.
- For 3D i-See sensor corner panel, check the rotating movement. If the 3D i-See sensor does not rotate, review the procedure in "10.3. Installing the grille".

## 11. Easy maintenance function

Maintenance data, such as the indoor/outdoor unit's heat exchanger temperature and compressor operation current can be displayed with "Smooth maintenance".

\* This cannot be executed during test operation.

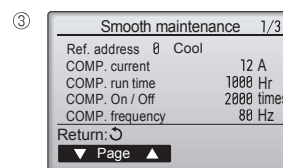
\* Depending on the combination with the outdoor unit, this may not be supported by some models.



- Select "Service" from the Main menu, and press the [SELECT] button.

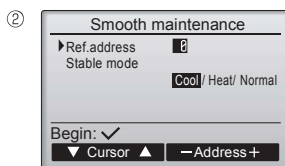
- Select "Check" with the [F1] or [F2] button, and press the [SELECT] button.

- Select "Smooth maintenance" with the [F1] or [F2] button, and press the [SELECT] button.



The operation data will appear.

The Compressor-Accumulated operating (COMP. run) time is 10-hour unit, and the Compressor-Number of operation times (COMP. On/Off) is a 100-time unit (fractions discarded)



Select each item.

- Select the item to be changed with the [F1] or [F2] button.

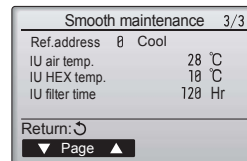
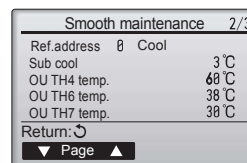
- Select the required setting with the [F3] or [F4] button.

"Ref. address" setting ..... "0" - "15"

"Stable mode" setting ..... "Cool" / "Heat" / "Normal"

- Press the [SELECT] button, fixed operation will start.

\* "Stable mode" will take approx. 20 minutes.



#### Navigating through the screens

- To go back to the Main menu.....[MENU] button
- To return to the previous screen ..... [RETURN] button

