

# Packaged Air Conditioners

## PKA-M-KA

## PKA-M-KAL

### INSTALLATION MANUAL

**FOR INSTALLER**

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

### INSTALLATIONSHANDBUCH

**FÜR INSTALLATEUR**

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

### MANUEL D'INSTALLATION

**POUR L'INSTALLATEUR**

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.

### INSTALLATIEHANDLEIDING

**VOOR DE INSTALLATEUR**

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

### MANUAL DE INSTALACIÓN

**PARA EL INSTALADOR**

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

### MANUALE DI INSTALLAZIONE

**PER L'INSTALLATORE**

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.

### ΕΓΧΕΙΡΙΔΙΟ ΟΔΗΓΙΩΝ ΕΓΚΑΤΑΣΤΑΣΗΣ

**ΓΙΑ ΑΥΤΟΝ ΠΟΥ ΚΑΝΕΙ ΤΗΝ ΕΓΚΑΤΑΣΤΑΣΗ**

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.

### MANUAL DE INSTALAÇÃO

**PARA O INSTALADOR**

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.

### INSTALLATIONSMANUAL

**TIL INSTALLATØREN**

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

### INSTALLATIONSMANUAL

**FÖR INSTALLATÖREN**

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

### MONTAJ ELKİTABI

**MONTÖR İÇİN**

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

### INSTALLASJONSHÅNDBOK

**FOR MONTØR**

For sikkert og riktig bruk av klimaanlegget, vennligst les nøye gjennom denne bruksanvisningen før det installeres.

### INSTRUKCJA MONTAŻU

**DLA INSTALATORA**

Aby zapewnić bezpieczne i prawidłowe korzystanie z klimatyzatora, przed montażem należy uważnie przeczytać niniejszą instrukcję montażu.

### 安裝說明書

**安裝人員適用**

安裝空調機前，請先通讀本說明書和室外機組安裝說明書，以便安全正確地使用本機。

English

Deutsch

Français

Nederlands

Español

Italiano

Ελληνικά

Português

Dansk

Svenska

Türkçe

Norsk

Polski

繁體中文

# Contents





|  |   |                                    |    |
|--|---|------------------------------------|----|
| 1. Safety precautions.....                 | 2 | 5. Drainage piping work.....       | 9  |
| 2. Installation location.....              | 3 | 6. Electrical work .....           | 10 |
| 3. Installing the indoor unit .....        | 4 | 7. Test run.....                   | 16 |
| 4. Installing the refrigerant piping ..... | 7 | 8. Easy maintenance function ..... | 19 |

**Note:**  
The phrase "Wired remote controller" in this installation manual refers only to the PAR-32MAA.  
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 INDOOR UNIT AND/OR OUTDOOR UNIT

|   |                                  |   |
|---|----------------------------------|---|
|  | <b>WARNING</b><br>(Risk of fire) | This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit.<br>In case that refrigerant type is R32, this unit uses a flammable refrigerant.<br>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:**  
Describes precautions that must be observed to prevent danger of fire.

#### 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.

#### **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 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.
- 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 be released.

# 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.

## 1.3. Before electric work

**⚠ Caution:**

- Be sure to install molded case 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. Installation location

### ■ PKA-M60, 71, 100KA(L)

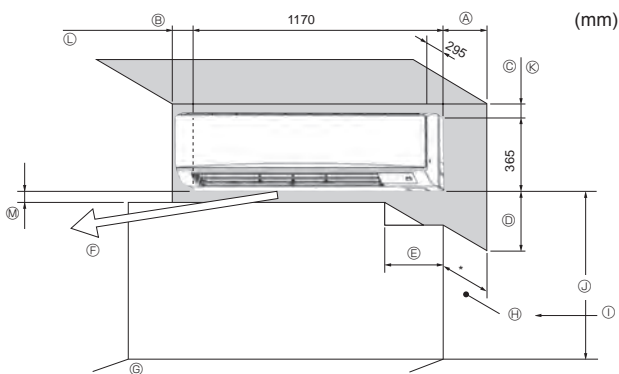


Fig. 2-1

## 2.1. Outline dimensions (Indoor unit) (Fig. 2-1)

Select a proper position allowing the following clearances for installation and maintenance.

### ■ PKA-M60, 71, 100KA(L)

(mm)

| A          | B         | C       | D        | E        |
|------------|-----------|---------|----------|----------|
| Min. 100.5 | Min. 52.3 | Min. 48 | Min. 250 | Min. 220 |

- Ⓕ Air outlet: Do not place an obstacle within 1500 mm of the air outlet.
- Ⓖ Floor surface
- Ⓗ Furnishing
- Ⓘ When the projection dimension of a curtain rail or the like from the wall exceeds 60 mm, extra distance should be taken because the fan air current may create a short cycle.
- Ⓝ 1800 mm or greater from the floor surface (for high location mounting)
- Ⓚ 108 mm or greater with left or rear left piping and optional drain pump installation
- Ⓛ 550 mm or greater with optional drain pump installation
- Ⓜ Minimum 7 mm: 265 mm or greater with optional drain pump installation

**⚠ Warning:**

- This unit should be installed in rooms which exceed the floor space specified in outdoor unit installation manual. Refer to outdoor unit installation manual.
- Install the indoor unit at least 1.8 m above floor or grade level. For appliances not accessible to the general public.
- Refrigerant pipes connection shall be accessible for maintenance purposes.

### 3. Installing the indoor unit

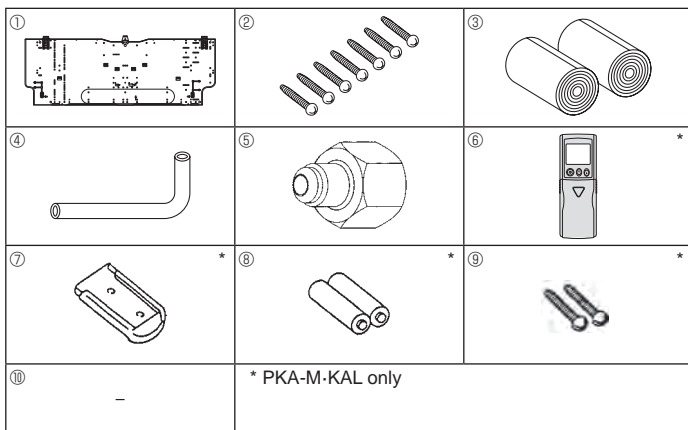


Fig. 3-1

#### ■ PKA-M60, 71, 100KA(L)

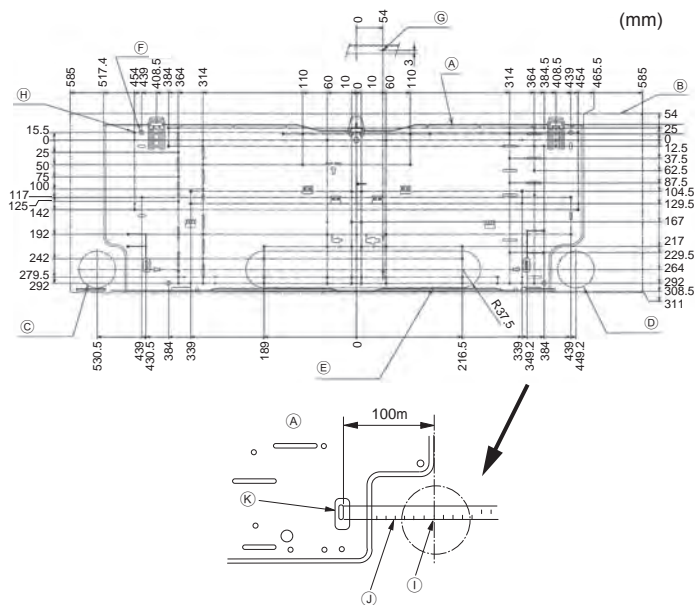


Fig. 3-2

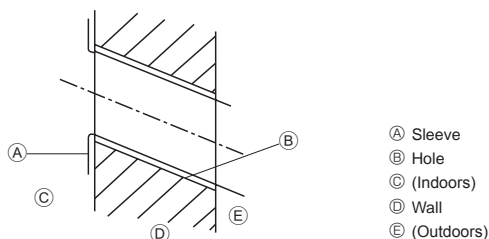


Fig. 3-3

#### 3.1. Check the indoor unit accessories (Fig. 3-1)

The indoor unit should be supplied with the following accessories.

| PART NUMBER | ACCESSORY                     | QUANTITY | LOCATION OF SETTING            |
|-------------|-------------------------------|----------|--------------------------------|
| ①           | Mount board                   | 1        | Fix at the back of the unit    |
| ②           | Tapping screw 4 × 25          | 7        |                                |
| ③           | Felt tape                     | 2        |                                |
| ④           | L-shaped connection pipe      | 1        |                                |
| ⑤           | Charge nut                    | 1        |                                |
| ⑥           | * Wireless remote controller  | 1        |                                |
| ⑦           | * Remote controller holder    | 1        |                                |
| ⑧           | * Alkali batteries (size AAA) | 2        |                                |
| ⑨           | * Tapping screw 3.5 × 16      | 2        |                                |
| ⑩           | Spacer                        | 1        | Make use of packaging material |

#### 3.2. Installing the wall mounting fixture (Fig. 3-2)

##### 3.2.1. Setting the wall mounting fixture and piping positions

▶ Using the wall mounting fixture, determine the unit's installation position and the locations of the piping holes to be drilled.

##### ⚠ Warning:

Before drilling a hole in the wall, you must consult the building contractor.

#### ■ PKA-M60, 71, 100KA(L)

- Ⓐ Mount board ①
- Ⓑ Indoor unit
- Ⓒ Bottom left rear pipe hole (ø75-ø80)
- Ⓓ Bottom right rear pipe hole (ø75-ø80)
- Ⓔ Knockout hole for left rear hole (75 × 480)
- Ⓕ Bolt hole (4-ø9 hole)
- Ⓖ Center measurement hole (ø2.5 hole)
- Ⓗ Tapping hole (75-ø5.1 hole)
- Ⓘ Hole centre
- Ⓚ Align the scale with the line.
- Ⓛ Insert scale.

##### 3.2.2. Drilling the piping hole (Fig. 3-3)

- ▶ Use a core drill to make a hole of 75-80 mm diameter in the wall in the piping direction, at the position shown in the diagram to the left.
- ▶ The hole should incline so that the outside opening is lower than the inside opening.
- ▶ Insert a sleeve (with a 75 mm diameter and purchased locally) through the hole.

##### Note:

The purpose of the hole's inclination is to promote drain flow.

##### 3.2.3. Installing the wall mounting fixture

- ▶ Since the indoor unit weighs near 21 kg, selection of the mounting location requires thorough consideration. If the wall does not seem to be strong enough, reinforce it with boards or beams before installation.
- ▶ The mounting fixture must be secured at both ends and at the centre, if possible. Never fix it at a single spot or in any nonsymmetrical way. (If possible, secure the fixture at all the positions marked with a bold arrow.)

##### ⚠ Warning:

If possible, secure the fixture at all positions indicated with a bold arrow.

##### ⚠ Caution:

- The unit body must be mounted horizontally.
- Fasten at the holes marked with ▲ as shown by the arrows.

### 3. Installing the indoor unit

#### ■ PKA-M60, 71, 100KA(L)

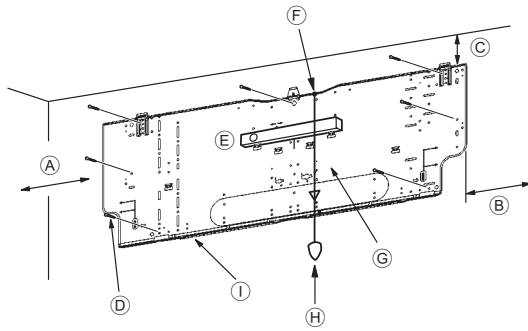


Fig. 3-4

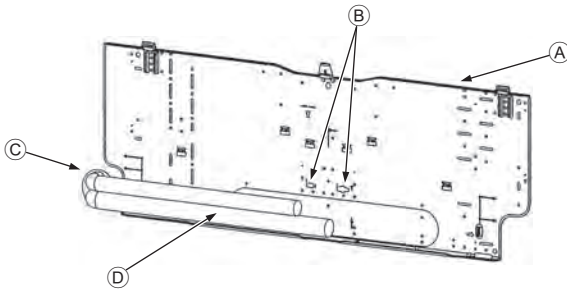


Fig. 3-5

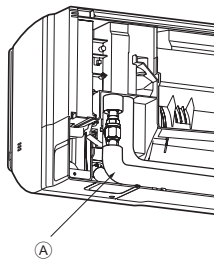


Fig. 3-6

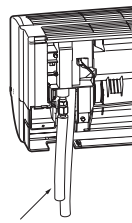


Fig. 3-7



Fig. 3-8

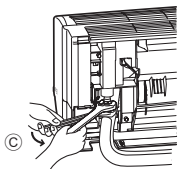


Fig. 3-9

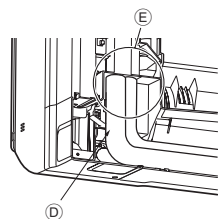


Fig. 3-10

#### ■ PKA-M60, 71, 100KA(L) (Fig. 3-4)

- Ⓐ Min. 120 mm (617.6 mm or greater with optional drain pump installation)
- Ⓑ Min. 220 mm
- Ⓒ Min. 70 mm (130 mm or greater with left, rear left, or lower left piping, and optional drain pump installation)
- Ⓓ Fixing screws (4 × 25) ②
- Ⓔ Level
- Ⓕ Fasten a thread to the hole.
- Ⓖ Place the level against the horizontal reference line of the mount board and mount so that it is level. Hang a weight from the thread and align with ▽ EPK of the mount board to permit leveling.
- Ⓗ Weight
- Ⓘ Mount board ①

#### 3.3. When embedding pipes into the wall (Fig. 3-5)

- The pipes are on the bottom left.
- When the cooling pipe, drain pipes internal/external connection lines etc are to be embedded into the wall in advance, the extruding pipes etc, may have to be bent and have their length modified to suit the unit.
- Use marking on the mount board as a reference when adjusting the length of the embedded cooling pipe.
- During construction, give the length of the extruding pipes etc some leeway.
- Ⓐ Mount board ①
- Ⓑ Reference marking for flare connection
- Ⓒ Through hole
- Ⓓ On-site piping

#### 3.4. Preparing the indoor unit

- \* Check beforehand because the preparatory work will differ depending on the exiting direction of the piping.
- \* When bending the piping, bend gradually while maintaining the base of the piping exiting portion. (Abrupt bending will cause misshaping of the piping.)

#### ■ PKA-M60, 71, 100KA(L)

##### Attachment of L-shaped connection pipe ④

##### Right, left and rear piping (Fig. 3-6)

1. Remove the flare nut and cap of the indoor unit. (Gas pipe only)
  2. Apply refrigerating machine oil to the flare sheet surface. (Preparation on location)
  3. Facing the direction in which the L-shaped connection pipe ④ will be removed, make a quick connection to the indoor unit flare connection opening.
  4. Tighten the flare nut using a double open-end wrench. (Fig. 3-9)  
Tightening force: 68 to 82 N•m
  5. Attach the charge nut ⑤ to the liquid pipe side joint portion, and check for leakage of the L-shaped connection pipe ④ connection portion. Remove the charge nut ⑤ after completion of the work.  
Tightening force: 34 to 42 N•m
  6. Cover the flare connection portion with the pipe cover of the L-shaped connection pipe ④ so that it is not exposed. (Fig. 3-10)
- Ⓐ L-shaped connection pipe ④
  - Ⓑ Cut-off position (Straight pipe portion)
  - Ⓒ Tightening direction
  - Ⓓ Cover with pipe cover
  - Ⓔ Cover the flare nut connection portion with the pipe cover.

##### Lower piping (Fig. 3-7)

1. Cut L-shaped connection pipe ④ at the position indicated in (Fig. 3-8).
2. Insert the flare nut that was removed earlier onto the straight pipe side of the cut L-shaped connection pipe ④ and then flare the end of the pipe.
3. Remove the flare nut and cap of the indoor unit. (Gas pipe only)
4. Apply refrigerating machine oil to the flare sheet surface. (Preparation on location)
5. Quickly connect the L-shaped connection pipe ④ that has been processed as described in part 2) to the indoor unit flare connection opening.
6. Tighten the flare nut using a double open-end wrench. (Fig. 3-9)  
Tightening force: 68 to 82 N•m
7. Attach the charge nut ⑤ to the liquid pipe side joint portion, and check for leakage of the L-shaped connection pipe ④ connection portion. Remove the charge nut ⑤ after completion of the work.  
Tightening force: 34 to 42 N•m
8. Cover the flare connection portion with the pipe cover of the L-shaped connection pipe ④ so that it is not exposed. (Fig. 3-10)



### 3. Installing the indoor unit

#### Leakage check of the L-shaped connection pipe connection portion

1. Attach the charge nut ⑤ to the liquid pipe side joint portion.  
Tightening force: 34 to 42 N·m
2. Pressurize by filling with nitrogen gas from the charge nut.  
Do not pressurize to the current constant pressure all at once. Pressurize gradually.
  - 1) Pressurize to 0.5 MPa, wait five minutes, and make sure the pressure does not decrease.
  - 2) Pressurize to 1.5 MPa, wait five minutes, and make sure the pressure does not decrease.
  - 3) Pressurize to 4.15 MPa and measure the surrounding temperature and refrigerant pressure.
3. If the specified pressure holds for about one day and does not decrease, the pipes have passed the test and there are no leaks.
  - If the surrounding temperature changes by 1°C, the pressure will change by about 0.01 MPa. Make the necessary corrections.
4. If the pressure decreases in steps (2) or (3), there is a gas leak. Look for the source of the gas leak.

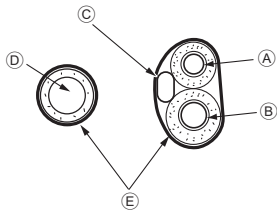


Fig. 3-11

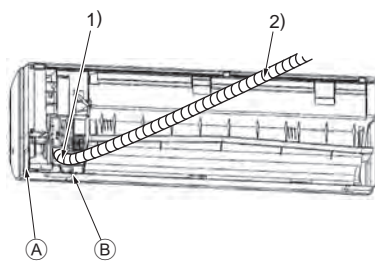


Fig. 3-12

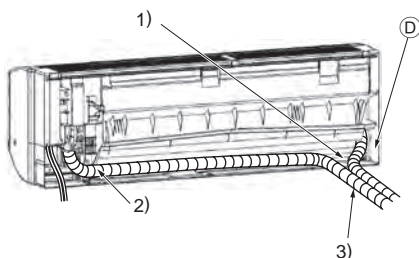
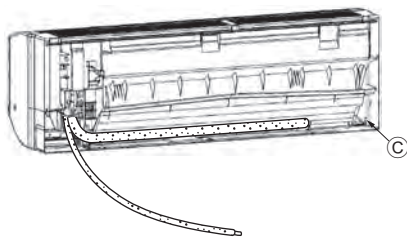


Fig. 3-13

#### Extraction and processing of the piping and wiring (Fig. 3-11)

1. Connection of indoor/outdoor wiring → See page 10.
2. Wrap the felt tape ③ in the range of the refrigerant piping and drain hose which will be housed within the piping space of the indoor unit.
  - Wrap the felt tape ③ securely from the base for each of the refrigerant piping and the drain hose.
  - Overlap the felt tape ③ at one-half of the tape width.
  - Fasten the end portion of the wrapping with vinyl tape.
3. Be careful that the drain hose is not raised, and that contact is not made with the indoor unit box body.  
Do not pull the drain hose forcefully because it might come out.

#### Rear, right and lower piping (Fig. 3-12)

- 1) Be careful that the drain hose is not raised, and that contact is not made with the indoor unit box body.  
Arrange the drain hose at the underside of the piping and wrap it with felt tape ③.
- 2) Securely wrap the felt tape ③ starting from the base. (Overlap the felt tape at one-half of the tape width.)
  - Ⓐ Cut off for right piping.
  - Ⓑ Cut off for lower piping.

#### Left and left rear piping (Fig. 3-13)

4. Drain hose replacement → See 5. Drainage piping work  
Be sure to replace the drain hose and the drain cap for the left and rear left piping. Dripping may occur if you forget to install or fail to replace these parts.
  - Ⓒ Drain cap
- 1) Be careful that the drain hose is not raised, and that contact is not made with the indoor unit box body.
- 2) Securely wrap the felt tape ③ starting from the base. (Overlap the felt tape at one-half of the tape width.)
- 3) Fasten the end portion of the felt tape ③ with vinyl tape.
  - Ⓓ Cut off for left piping.

### 3. Installing the indoor unit

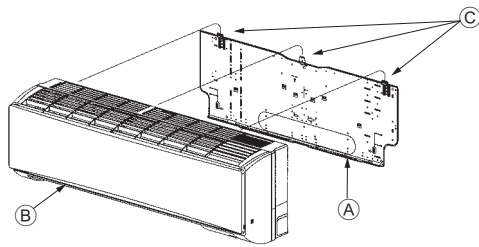


Fig. 3-14

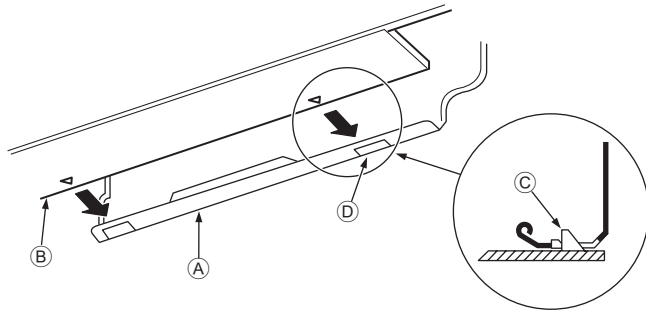


Fig. 3-15

#### ■ PKA-M60, 71, 100KA(L)

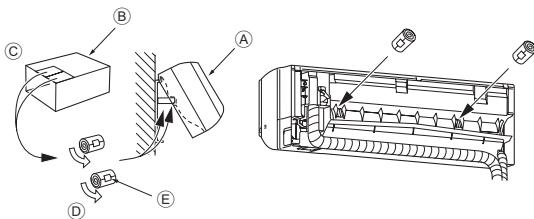


Fig. 3-16

### 4. Installing the refrigerant piping

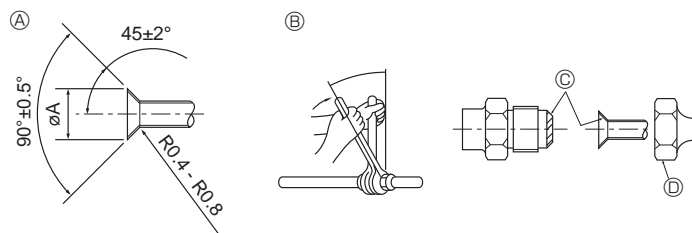


Fig. 4-1

#### ① Flare cutting dimensions

| Copper pipe O.D. (mm) | Flare dimensions $\phi A$ dimensions (mm) |
|-----------------------|---|
| $\phi 9.52$           | 12.8 - 13.2                               |
| $\phi 15.88$          | 19.3 - 19.7                               |

### 3.5. Mounting the indoor unit

1. Affix the mount board ① to the wall.
2. Hang the indoor unit on the hook positioned on the upper part of the mount board.

#### Rear, right and lower piping (Fig. 3-14)

3. While inserting the refrigerant piping and drain hose into the wall penetration hole (penetration sleeve), hang the top of the indoor unit to the mount board ①.
  4. Move the indoor unit to the left and right, and verify that the indoor unit is hung securely.
  5. Fasten by pushing the bottom part of the indoor unit onto the mount board ①. (Fig. 3-15)
- \* Check that the knobs on the bottom of the indoor unit are securely hooked into the mount board ①.
6. After installation, be sure to check that the indoor unit is installed level.
- ① Mount board ①  
 ② Indoor unit  
 ③ Hook  
 ④ square hole

#### Left and left rear piping (Fig. 3-16)

3. While inserting the drain hose into the wall penetration hole (penetration sleeve), hang the top of the indoor unit to the mount board ①. Giving consideration to the piping storage, move the unit all the way to the left side, then cut part of the packaging carton and wrap into a cylindrical form as illustrated in the diagram. Hook this to the rear surface rib as a spacer, and raise the indoor unit.
  4. Connect the refrigerant piping with the site-side refrigerant piping.
  5. Fasten by pushing the bottom part of the indoor unit onto the mount board ①.
- \* Check that the knobs on the bottom of the indoor unit are securely hooked into the mount board ①.
6. After installation, be sure to check that the indoor unit is installed level.
- ① Indoor unit  
 ② Packaging carton  
 ③ Cut off  
 ④ Wrap into a cylindrical form  
 ⑤ Fasten with tape

### 4.1. 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.

|                               |
|-------------------------------|
| $\phi 9.52$ thickness 0.8 mm  |
| $\phi 15.88$ thickness 1.0 mm |

- Do not use pipes thinner than those specified above.

### 4.2. Connecting pipes (Fig. 4-1)

- When commercially available copper pipes are used, wrap liquid and gas pipes with commercially available insulation materials (heat-resistant to 100 °C or more, thickness of 12 mm or more).
- The indoor parts of the drain pipe should be wrapped with polyethylene foam insulation materials (specific gravity of 0.03, thickness of 9 mm or more).
- Apply thin layer of refrigerant oil to pipe and joint seating surface before tightening flare nut.
- Use two wrenches to tighten piping connections.
- Use refrigerant piping insulation provided to insulate indoor unit connections. Insulate carefully.

## 4. Installing the refrigerant piping

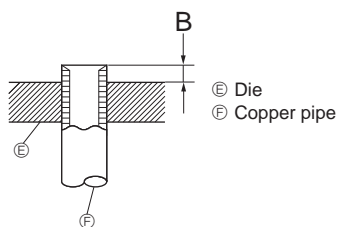


Fig. 4-2

| Copper pipe O.D.<br>(mm) | B (mm)                   |  |
|--------------------------|--------------------------|--|
|                          | Flare tool for R32/R410A |  |
|                          | Clutch type              |  |
| ø9.52 (3/8")             | 0 - 0.5                  |  |
| ø15.88 (5/8")            | 0 - 0.5                  |  |

- After connecting the refrigerant piping to the indoor unit, be sure to test the pipe connections for gas leakage with nitrogen gas. (Check that there is no refrigerant leakage from the refrigerant piping to the indoor unit.)
- 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.

### Ⓑ Flare nut tightening torque

| Copper pipe O.D.<br>(mm) | Flare nut O.D.<br>(mm) | Tightening torque<br>(N·m) |
|--------------------------|------------------------|----------------------------|
| ø9.52                    | 22                     | 34 - 42                    |
| ø15.88                   | 29                     | 68 - 82                    |

- Ⓒ Apply refrigerating machine oil over the entire flare seat surface. Do not apply refrigerating machine oil to the screw portions. (This will make the flare nuts more apt to loosen.)
- Ⓓ Be certain to use the flare nuts that are attached to the main unit. (Use of commercially-available products may result in cracking.)

### ■ PKA-M60, 71, 100KA(L)

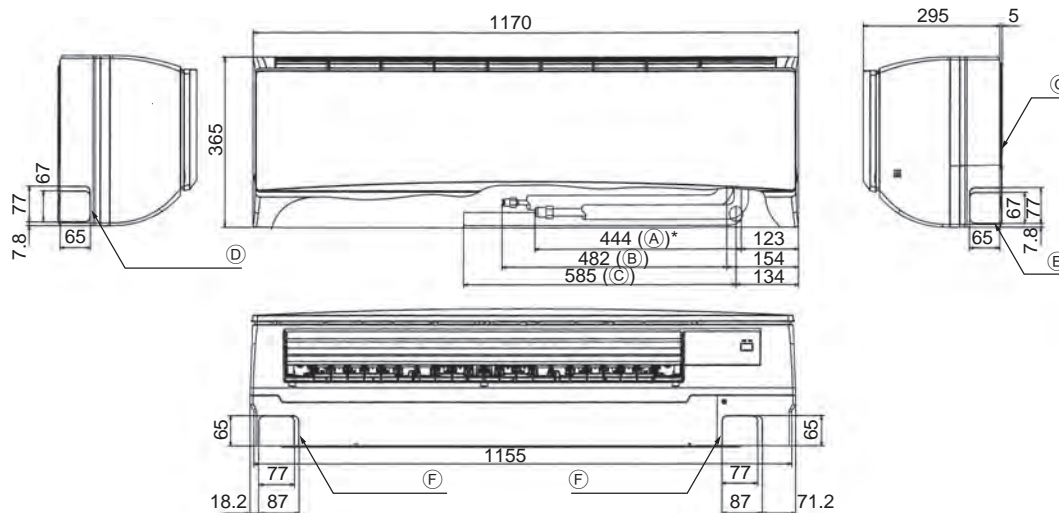


Fig. 4-3

### 4.3. Indoor unit

| Refrigerant and Drainage Piping Sizes |        |                       |
|---------------------------------------|--------|-----------------------|
| Item                                  | Model  | PKA-M60, 71, 100KA(L) |
| Refrigerant piping                    | Liquid | ODø9.52 (3/8")        |
|                                       | Gas    | ODø15.88 (5/8")       |
| Drainage piping                       |        | ODø16                 |

### 4.4. Positioning refrigerant and drain piping (Fig. 4-3)

#### ■ PKA-M60, 71, 100KA(L)

- Ⓐ Gas pipe
  - Ⓑ Liquid pipe
  - Ⓒ Drain hose
  - Ⓓ Left-side piping knockout hole
  - Ⓔ Right-side piping knockout hole
  - Ⓕ Lower piping knockout hole
  - Ⓖ Mount board ①
- \* Indicates the condition with accessories mounted.

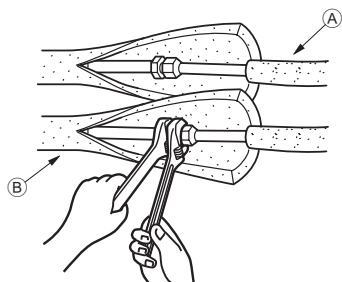


Fig. 4-4

### ■ PKA-M60, 71, 100KA(L)

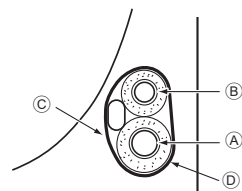


Fig. 4-5

### 4.5. Refrigerant piping (Fig. 4-4)

#### Indoor unit

1. Remove the flare nut and cap of the indoor unit.
2. Make a flare for the liquid pipe and gas pipe and apply refrigerating machine oil (available from your local supplier) to the flare sheet surface.
3. Quickly connect the on site cooling pipes to the unit.
4. Wrap the pipe cover that is attached to the gas pipe and make sure that the connection joint is not visible.
5. Wrap the pipe cover of the unit's liquid pipe and make sure that it covers the insulation material of the on site liquid pipe.
6. The portion where the insulation material is joined is sealed by taping.
  - Ⓐ Site-side refrigerant piping
  - Ⓑ Unit side refrigerant piping

#### 4.5.1. Storing in the piping space of the unit (Fig.4-5)

1. Wrap the supplied felt tape in the range of the refrigerant piping which will be housed within the piping space of the unit to prevent dripping.
2. Overlap the felt tape at one-half of the tape width.
3. Fasten the end portion of the wrapping with vinyl tape, etc.
  - Ⓐ Gas pipe
  - Ⓑ Liquid pipe
  - Ⓒ Indoor/outdoor connection cable
  - Ⓓ Felt tape ③



## 5. Drainage piping work

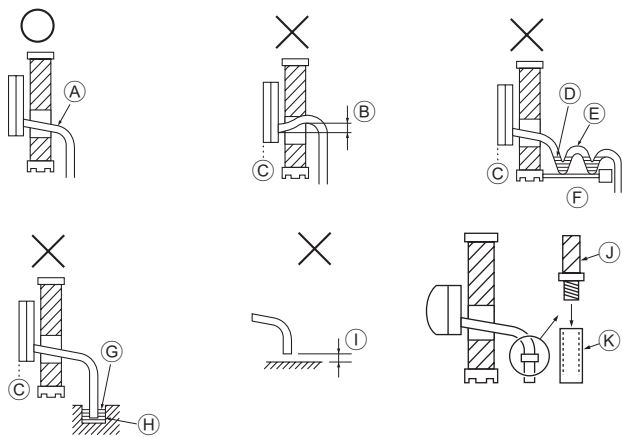


Fig. 5-1

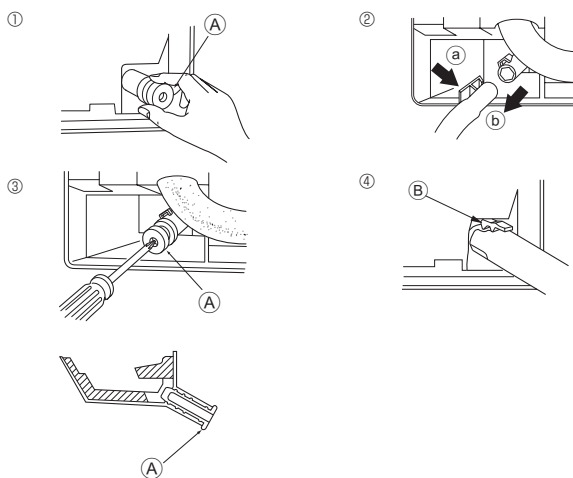


Fig. 5-2

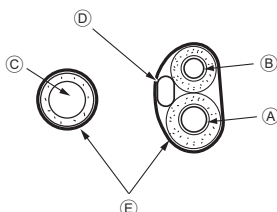


Fig. 5-3

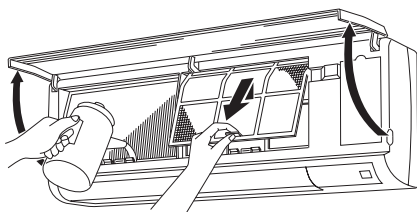


Fig. 5-4

### 5.1. Drainage piping work (Fig. 5-1)

- Drain pipes should have an inclination of 1/100 or more.
- For extension of the drain pipe, use a soft hose (inner dia. 15 mm) available on the market or hard vinyl chloride pipe (VP-16/O.D. ø22 PVC TUBE). Make sure that there is no water leakage from the connections.
- Do not put the drain piping directly in a drainage ditch where sulphuric gas may be generated.
- When piping has been completed, check that water flows from the end of the drain pipe.

#### ⚠ Caution:

The drain pipe should be installed according to this Installation Manual to ensure correct drainage. Thermal insulation of the drain pipes is necessary to prevent condensation. If the drain pipes are not properly installed and insulated, condensation may drip on the ceiling, floor or other possessions.

- (A) Inclined downwards
- (B) Must be lower than outlet point
- (C) Water leakage
- (D) Trapped drainage
- (E) Air
- (F) Wavy
- (G) The end of drain pipe is under water.
- (H) Drainage ditch
- (I) 5 cm or less between the end of drain pipe and the ground.
- (J) Drain hose
- (K) Soft PVC hose (Inside diameter 15 mm)  
or  
Hard PVC pipe (VP-16)  
\* Bond with PVC type adhesive

### Preparing left and left rear piping (Fig. 5-2)

- Remove the drain cap.
  - Remove the drain cap by holding the bit that sticks out at the end of the pipe and pulling.
    - (A) Drain cap
- Remove the drain hose.
  - Remove the drain hose by holding on to the base of the hose (a) (shown by arrow) and pulling towards yourself (b).
- Insert the drain cap.
  - Insert a screwdriver etc into the hole at the end of the pipe and be sure to push to the base of the drain cap.
- Insert the drain hose.
  - Push the drain hose until it is at the base of the drain box connection outlet.
  - Please make sure the drain hose hook is fastened properly over the extruding drain box connection outlet.
    - (B) Hooks

### ◆ Storing in the piping space of the indoor unit (Fig. 5-3)

- \* When the drain hose will be routed indoors, be sure to wrap it with commercially available insulation.
- \* Gather the drain hose and the refrigerant piping together and wrap them with the supplied felt tape (E).
- \* Overlap the felt tape (E) at one-half of the tape width.
- \* Fasten the end portion of the wrapping with vinyl tape, etc.

- (A) Gas pipe
- (B) Liquid pipe
- (C) Drain hose
- (D) Indoor/outdoor connection wiring
- (E) Felt tape (E)

### ◆ Check of drainage (Fig. 5-4)

- Open the front grille and remove the filter.
- Facing the fins of the heat exchanger, slowly fill with water.
- After the drainage check, attach the filter and close the grille.

## 6. Electrical work

### ■ PKA-M60, 71, 100KA(L)

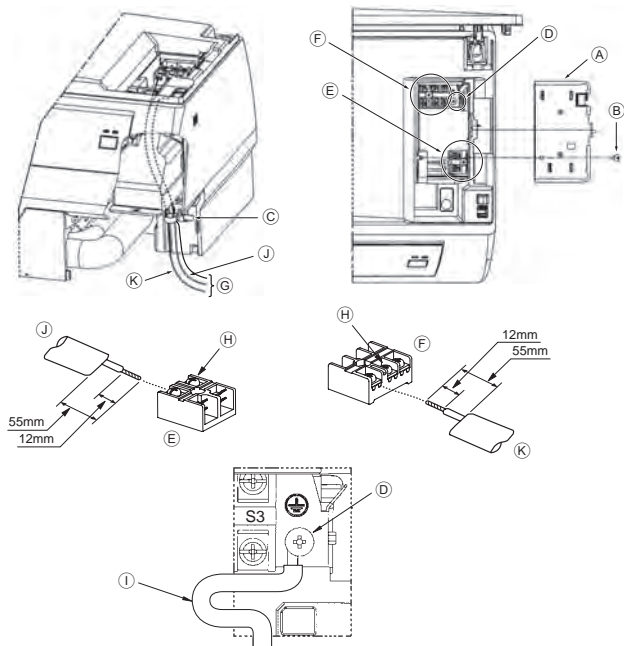


Fig. 6-1

### 6.1. Indoor unit

#### ■ PKA-M60, 71, 100KA(L) (Fig. 6-1)

Connection can be made without removing the front panel.

1. Open the front grille, remove the screw (1 piece), and remove the electrical parts cover.
  2. Securely connect each wire to the terminal board.
- \* In consideration of servicing, provide extra length for each of the wires.  
\* Take care when using strand wires, because beards may cause the wiring to short out.
3. Install the parts that were removed back to their original condition.
  4. Fasten each of the wires with the clamp under the electrical parts box.

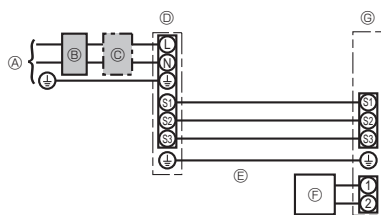
- Ⓐ Electrical box cover
- Ⓑ Fixing screw
- Ⓒ Clamp
- Ⓓ Ground wire connection portion
- Ⓔ Wired remote control terminal board (PKA-M-KAL: optional parts): 1 and 2, do not have polarity
- Ⓕ Indoor/outdoor connection terminal board: S1, S2, and S3, have polarity
- Ⓖ Lead
- Ⓗ Terminal screw
- Ⓘ Ground wire: Connect the ground wire in the direction illustrated in the diagram.
- ⓵ Wired remote control cord
- ⓶ Indoor/outdoor connection cord

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

The following connection patterns are available.

The outdoor unit power supply patterns vary on models.

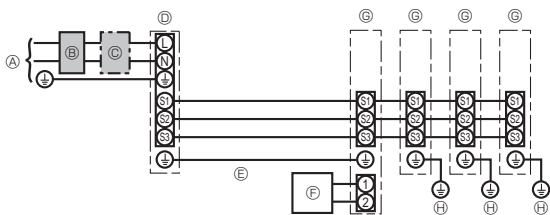
#### 1:1 System



- Ⓐ Outdoor unit power supply
- Ⓑ Earth leakage breaker
- Ⓒ Wiring circuit breaker or isolating switch
- Ⓓ Outdoor unit
- Ⓔ Indoor/outdoor unit connecting cords
- Ⓕ Wired remote controller (option)
- Ⓖ Indoor unit

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

#### Simultaneous twin/triple/four system



- Ⓐ Outdoor unit power supply
- Ⓑ Earth leakage breaker
- Ⓒ Wiring circuit breaker or isolating switch
- Ⓓ Outdoor unit
- Ⓔ Indoor/outdoor unit connecting cords
- Ⓕ Wired remote controller (option)
- Ⓖ Indoor unit
- Ⓗ Indoor unit earth

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

## 6. Electrical work

| Indoor unit model                               |  | PKA-M-KA(L) |                 |
|---|--|-------------|-----------------|
| Wiring Wire<br>No. x size<br>(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    |
| Circuit<br>rating                               | Wired remote controller (option) Indoor unit | *2          | 2 × Min. 0.3    |
|   | Indoor unit L-N                              | *3          | –               |
|   | Indoor unit-Outdoor unit S1-S2               | *3          | 230V AC         |
|   | Indoor unit-Outdoor unit S2-S3               | *3          | 24V DC          |
|   | Wired remote controller (option) Indoor unit | *3          | 12V DC          |

\*1. <For 25-140 outdoor unit application>

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

For PUHZ-RP100/125/140 YHA application, use shield wires. The shield part must be grounded with the indoor unit OR the outdoor unit, NOT with both.

<For 200/250 outdoor unit application>

Max. 18 m

If 2.5 mm<sup>2</sup> used, Max. 30 m

If 4 mm<sup>2</sup> used and S3 separated, Max. 50 m

If 6 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 DC 24 V 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 cords.**

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.**

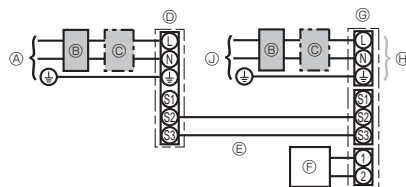
### 6.1.2. Separate indoor unit/outdoor unit power supplies (For PUHZ/PUZ-ZM application)

The following connection patterns are available.

The outdoor unit power supply patterns vary on models.

#### 1:1 System

\* The optional wiring replacement kit is required.

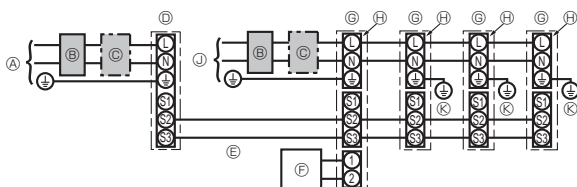


- Ⓐ Outdoor unit power supply
- Ⓑ Earth leakage breaker
- Ⓒ Wiring circuit breaker or isolating switch
- Ⓓ Outdoor unit
- Ⓔ Indoor/outdoor unit connecting cords
- Ⓕ Wired remote controller (option)
- Ⓖ Indoor unit
- Ⓗ Option
- Ⓙ Indoor unit power supply

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

#### Simultaneous twin/triple/four system

\* The optional wiring replacement kits are required.



- Ⓐ Outdoor unit power supply
- Ⓑ Earth leakage breaker
- Ⓒ Wiring circuit breaker or isolating switch
- Ⓓ Outdoor unit
- Ⓔ Indoor/outdoor unit connecting cords
- Ⓕ Wired remote controller (option)
- Ⓖ Indoor unit
- Ⓗ Option
- Ⓙ Indoor unit power supply
- Ⓚ Indoor unit earth

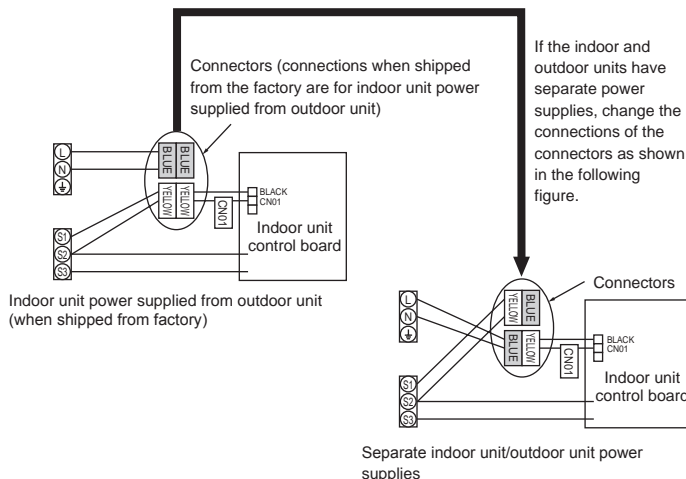
\* Affix a label B that is included with the manuals near each wiring diagram for the indoor and outdoor units.

## 6. Electrical work

If the indoor and outdoor units have separate power supplies, refer to the table at the below. If the optional wiring replacement kit is used, change the indoor unit electrical box connector connection change referring to the figure in the right and the DIP switch settings of the outdoor unit control board.

|   | Indoor unit specifications  |    |   |  |   |     |   |   |  |
|---|---|----|---|--|---|-----|---|---|--|
| Indoor power supply terminal kit (option)   | Required  |    |   |  |   |     |   |   |  |
| Indoor unit electrical box connector connection change  | Required  |    |   |  |   |     |   |   |  |
| Label affixed near each wiring diagram for the indoor and outdoor units                             | Required  |    |   |  |   |     |   |   |  |
| Outdoor unit DIP switch settings (when using separate indoor unit/outdoor unit power supplies only) | <table border="1"> <tr> <td>ON</td> <td></td> <td></td> <td>3</td> </tr> <tr> <td>OFF</td> <td>1</td> <td>2</td> <td></td> </tr> </table> (SW8) | ON |   |  | 3 | OFF | 1 | 2 |  |
| ON  |   |    | 3 |  |   |     |   |   |  |
| OFF   | 1   | 2  |   |  |   |     |   |   |  |

\* There are three types of labels (labels A, B, and C). Affix the appropriate labels to the units according to the wiring method.



|   |  |              |                          |
|---|--|--------------|--------------------------|
| Indoor unit model                               | PKA-M-KA(L)                                  |              |                          |
| Indoor unit power supply                        | ~N (single), 50 Hz, 230 V                    |              |                          |
| Indoor unit input capacity                      | *1   | 16 A         |                          |
| Main power switch (Breaker)                     |  |              |                          |
| Wiring<br>Wire No. x size<br>(mm <sup>2</sup> ) | Indoor unit power supply & earth             | 3 × Min. 1.5 |                          |
|   | Indoor unit earth                            | 1 × Min. 1.5 |                          |
|   | Indoor unit-Outdoor unit                     | *2           | 2 × Min. 0.3             |
|   | Indoor unit-Outdoor unit earth               |              | -                        |
| Circuit<br>rating                               | Wired remote controller (option) Indoor unit | *3           | 2 × Min. 0.3 (Non-polar) |
|   | Indoor unit L-N                              | *4           | AC 230 V                 |
|   | Indoor unit-Outdoor unit S1-S2               | *4           | -                        |
|   | Indoor unit-Outdoor unit S2-S3               | *4           | DC 24 V                  |
|   | Wired remote controller (option) Indoor unit | *4           | DC 12 V                  |

\*1. A breaker with at least 3 mm contact separation in each pole shall be provided. Use non-fuse breaker (NF) or earth leakage breaker (NV).

\*2. Max. 120 m

For PUHZ-RP/PUZ-ZM100/125/140 YHA application, use shield wires. The shield part must be grounded with the indoor unit OR the outdoor unit, NOT with both.

\*3. Max. 500 m

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

\*4. The figures are NOT always against the ground.

**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. 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.

## 6. Electrical work

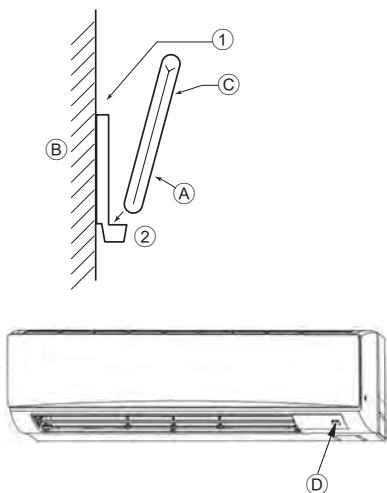


Fig. 6-2

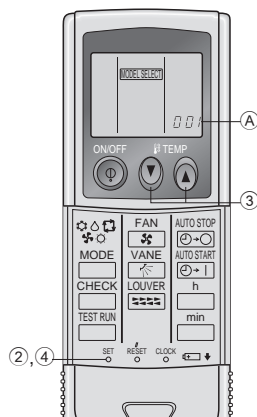


Fig. 6-3

### 6.2. Remote controller

#### 6.2.1. For wired remote controller

##### 1) Two remote controllers setting

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.

#### 6.2.2. 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. 6-2)

① Attach the remote controller holder to the desired location using two tapping screws.

② Place the lower end of the controller into the holder.

- Ⓐ Remote controller
- Ⓑ Wall
- Ⓒ Display panel
- Ⓓ 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 (Fig. 6-3)

① Insert batteries.

② Press the SET button with something sharp at the end.

MODEL SELECT blinks and Model No. is lit.

③ Press the temp (▲/▼) button to set the Model No.

④ Press the SET button with something sharp at the end.

MODEL SELECT and Model No. are lit for three seconds, then turned off.

| Indoor            | Outdoor   | Ⓐ Model No. |
|-------------------|-----------|-------------|
| PKA (60, 71, 100) | PUZ, PUHZ | 002         |

##### 4) Assigning a remote controller to each unit (Fig. 6-4)

Each unit can be operated only by the assigned remote controller.

Make sure each pair of an indoor unit PC board and a remote controller is assigned to the same pair No.

##### 5) Wireless remote controller pair number setting operation

① Press the SET button with something sharp at the end.

Start this operation from the status of remote controller display turned off.

MODEL SELECT blinks and Model No. is lit.

② Press the <sup>min</sup> button twice continuously.

Pair No. "0" blinks.

③ Press the temp (▲/▼) button to set the pair number you want to set.

④ Press the SET button with something sharp at the end.

Set pair number is lit for three seconds then turned off.

| Ⓐ Pair No. of wireless remote controller | Indoor PC board |
|--|-----------------|
| 0  | Factory setting |
| 1  | Cut J41         |
| 2  | Cut J42         |
| 3-9                                      | Cut J41, J42    |

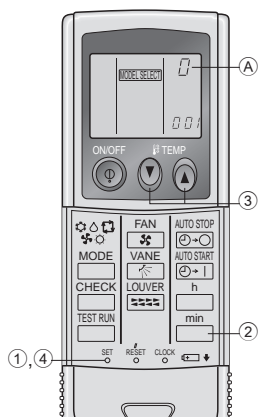


Fig. 6-4



## 6. Electrical work

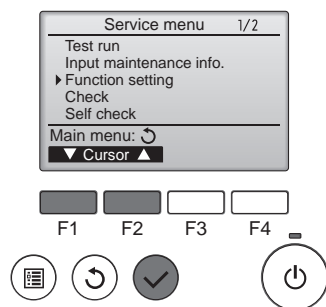


Fig. 6-5

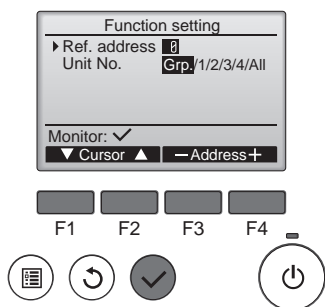


Fig. 6-6

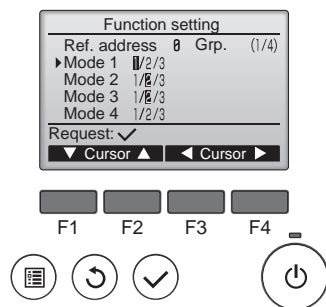


Fig. 6-7

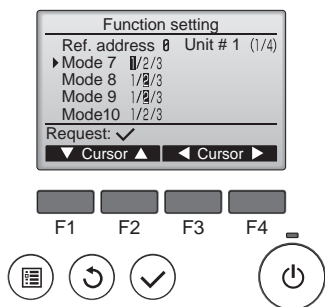


Fig. 6-8

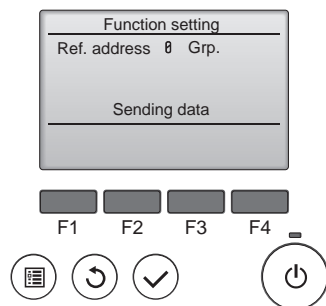


Fig. 6-9

### Note:

- Make the above settings on Mr. Slim units as necessary.
- Table 1 summarizes the setting options for each mode number. Refer to the indoor unit Installation Manual for the detailed information about initial settings, mode numbers, and setting numbers for the indoor units.
- 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.

Table1. Function setting options

| Mode No. | Mode  | Settings  | Setting No. | Unit numbers  |
|----------|---|---|-------------|---|
| 01       | Automatic recovery after power failure              | Disable   | 1           | Set "1, 2, 3, 4, or All" for the Unit number. These settings apply to each indoor unit.<br>• If "1, 2, 3, or 4" is set for the Unit number, the settings apply only to the specified indoor unit regardless of the number of connected indoor units (one through four units).<br>• If "All" is set for the Unit number, the settings apply to all the connected indoor units regardless of the number of connected indoor units (one through four units). |
|          |   | Enable (Four minutes of standby time is required after the restoration of power.) | 2           |   |
| 02       | Thermistor selection (indoor temperature detection) | Average temperature reading of the indoor units in operation                      | 1           |   |
|          |   | Thermistor on the indoor unit to which the remote controller is connected (fixed) | 2           |   |
|          |   | Built-in sensor on the remote controller  | 3           |   |
| 03       | LOSSNAY connection                                  | Not connected   | 1           |   |
|          |   | Connected (without outdoor air intake by the indoor units)                        | 2           |   |
|          |   | Connected (with outdoor air intake by the indoor units)                           | 3           |   |
| 04       | Power voltage                                       | 240 V   | 1           |   |
|          |   | 220 V, 230 V  | 2           |   |
| 07       | Filter sign   | 100 hours   | 1           |   |
|          |   | 2500 hours  | 2           |   |
|          |   | Not displayed   | 3           |   |
| 08       | Fan speed   | Silent mode (or standard)   | 1           |   |
|          |   | Standard (or High ceiling 1)  | 2           |   |
|          |   | High ceiling (or High ceiling 2)  | 3           |   |
| 09       | Outlet  | 4 directional   | 1           |   |
|          |   | 3 directional   | 2           |   |
|          |   | 2 directional   | 3           |   |
| 10       | Optional parts (High-efficiency filter)             | No  | 1           |   |
|          |   | Yes   | 2           |   |
| 11       | Vane  | No vanes (or the vane setting No.3 is effective.)                                 | 1           |   |
|          |   | Equipped with vanes (The vane setting No.1 is effective.)                         | 2           |   |
|          |   | Equipped with vanes (The vane setting No.2 is effective.)                         | 3           |   |

## 6.3. Function settings

### 6.3.1. Function setting on the unit (Selecting the unit functions)

#### 1) For wired remote controller

- (Fig. 6-5)
  - Select "Service" from the Main menu, and press the [SELECT] button.
  - Select "Function settings" with the [F1] or [F2] button, and press the [SELECT] button.

- (Fig. 6-6)
  - 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.

- (Fig. 6-7)
  - 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.
- (Fig. 6-8)
  - 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.
- (Fig. 6-9)
  - 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.

## 6. Electrical work

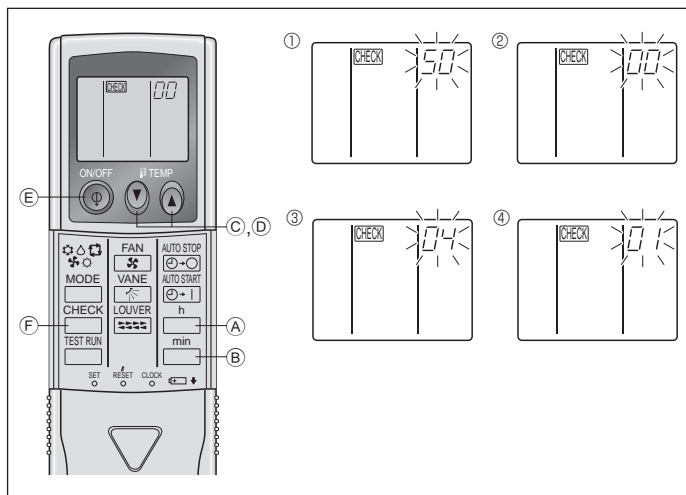


Fig. 6-10

### 2) For wireless remote controller (Fig. 6-10)

#### Changing the power voltage setting

- Be sure to change the power voltage setting depending on the voltage used.

① Go to the function select mode

Press the **CHECK** button **F** twice continuously.

(Start this operation from the status of remote controller display turned off.)

**CHECK** is lit and "00" blinks.

Press the temp **DOWN** button **C** once to set "50". Direct the wireless remote controller toward the receiver of the indoor unit and press the **h** button **A**.

② Setting the unit number

Press the temp **DOWN** button **C** and **UP** button **D** to set the unit number "00". Direct the wireless remote controller toward the receiver of the indoor unit and press the **min** button **B**.

③ Selecting a mode

Enter 04 to change the power voltage setting using the **DOWN** button **C** and **UP** button **D**.

Direct the wireless remote controller toward the receiver of the indoor unit and press the **h** button **A**.

Current setting number:

1 = 1 beep (one second)

2 = 2 beeps (one second each)

3 = 3 beeps (one second each)

④ Selecting the setting number

Use the **DOWN** button **C** and **UP** button **D** to change the power voltage setting to 01 (240 V).

Direct the wireless remote controller toward the sensor of the indoor unit and press the **h** button **A**.

⑤ To select multiple functions continuously

Repeat steps 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 **ON/OFF** button **E**.

#### Note:

Whenever changes are made to the function settings after installation or maintenance, be sure to record the changes with a mark in the "Setting" column of the Function table.

### 6.3.2. Function setting on the remote controller

Refer to the indoor unit operation manual.

#### Function table

Select unit number 00

| Mode                             | Settings   | Mode no. | Setting no. | Initial setting | setting |
|----------------------------------|--|----------|-------------|-----------------|---------|
| Power failure automatic recovery | Not available  | 01       | 1           | *2              |         |
|                                  | Available  |          | 2           | *2              |         |
| Indoor temperature detecting     | Indoor unit operating average                                  | 02       | 1           | ○               |         |
|                                  | Set by indoor unit's remote controller                         |          | 2           |                 |         |
|                                  | Remote controller's internal sensor                            |          | 3           |                 |         |
| LOSSNAY connectivity             | Not Supported  | 03       | 1           | ○               |         |
|                                  | Supported (indoor unit is not equipped with outdoor-air inlet) |          | 2           |                 |         |
|                                  | Supported (indoor unit is equipped with outdoor-air inlet)     |          | 3           |                 |         |
| Power voltage                    | 240 V  | 04       | 1           |                 |         |
|                                  | 220 V, 230 V   |          | 2           | ○               |         |

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                                    | 100 Hr                   | 07       | 1           | ○               |         |
|  | 2500 Hr                  |          | 2           |                 |         |
|  | No filter sign indicator |          | 3           |                 |         |
| Fan speed                                      | Silent                   | 08       | 1           |                 |         |
|  | Standard                 |          | 2           | ○               |         |
|  | High ceiling             |          | 3           | -               |         |
| Fan speed during the cooling thermostat is OFF | Setting fan speed        | 27       | 1           |                 |         |
|  | Stop                     |          | 2           |                 |         |
|  | Extra low                |          | 3           | ○               |         |

\*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.

## 7. Test run

### 7.1. 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.

### 7.2. Test run

#### 7.2.1. 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<br>< > 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> .)<br>• Remote controller transmission wire short. |
|   | After "startup" is displayed, only green lights up. <00>                                   | • There is no outdoor unit of address 0. (Address is other than 0.)<br>• Remote controller transmission wire open.  |
| Display appears but soon disappears even when remote controller is operated.                                      | After "startup" is displayed, only green lights up. <00>                                   | • 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. 7-1)
- ② Select "Test run" from the Test run menu, and press the [SELECT] button. (Fig. 7-2)
- ③ The test run operation starts, and the Test run operation screen is displayed.

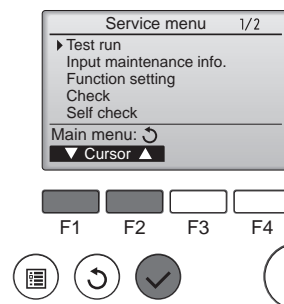


Fig. 7-1

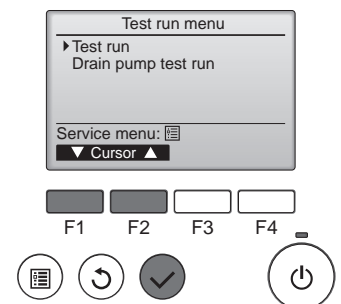


Fig. 7-2

##### 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. 7-3)  
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. 7-4)  
Press the [RETURN] button to return to the Test run operation screen.

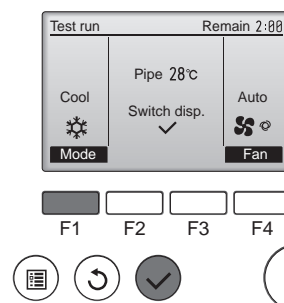


Fig. 7-3

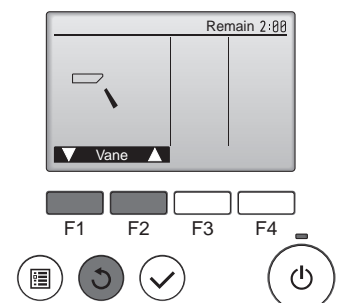


Fig. 7-4

##### 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.

## 7. 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.

| LCD | Description of malfunction                       | LCD   | Description of malfunction  | LCD     | Description of malfunction  |
|-----|--|---|---|---------|---|
| P1  | Intake sensor error                              | P9  | Pipe sensor error (dual-wall pipe)  | E0 ~ E5 | Communication error between the remote controller and the indoor unit |
| P2  | Pipe sensor error (liquid pipe)                  | PA  | Leakage error (refrigerant system)  |         |   |
| P4  | Drain float switch connector disconnected (CN4F) | Pb  | Indoor unit fan motor error   |         |   |
| P5  | Drain overflow protection operation              | PL  | Refrigerant circuit abnormal  | E6 ~ EF | Communication error between the indoor unit and the outdoor unit      |
| P6  | Freezing/overheating protection operation        | FB  | Indoor controller board error   |         |   |
| P8  | Pipe temperature error                           | U*, F*<br>(* indicates an alphanumeric character excluding FB.) | Outdoor unit malfunction<br>Refer to the wiring diagram for the outdoor unit. |         |   |

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.   |

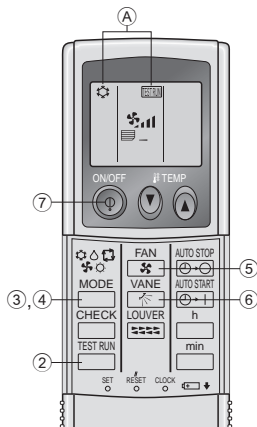


Fig. 7-5

### 7.2.2. Using wireless remote controller (Fig. 7-5)

① Turn on the power to the unit at least 12 hours before the test run.

② Press the **TEST RUN** button twice continuously.

(Start this operation from the status of remote controller display turned off.)

Ⓐ **TEST RUN** and current operation mode are displayed.

③ Press the **MODE** button (cool mode icon) to activate **COOL** mode, then check whether cool air is blown out from the unit.

④ Press the **MODE** button (heat mode icon) to activate **HEAT** mode, then check whether warm air is blown out from the unit.

⑤ Press the **FAN VANE** button and check whether fan speed changes.

⑥ Press the **LAMPS** button and check whether the auto vane operates properly.

⑦ Press the **ON/OFF** button to stop the test run.

#### Note:

- Point the remote controller towards the indoor unit receiver while following steps ② to ⑦.
- It is not possible to run the in **FAN, DRY or AUTO** mode.

### 7.2.3. Using SW4 in outdoor unit

Refer to the outdoor unit installation manual.

## 7.3. Self-check

### 7.3.1. Wired remote controller

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

### 7.3.2. Wireless remote controller (Fig. 7-6)

① Turn on the power.

② Press the **CHECK** button twice.

(Start this operation from the status of remote controller display turned off.)

Ⓐ **CHECK** begins to light.

Ⓑ "00" begins to blink.

③ While pointing the remote controller toward the unit's receiver, press the **LAMPS** button. The check code will be indicated by the number of times that the buzzer sounds from the receiver section and the number of blinks of the operation lamp.

④ Press the **ON/OFF** button to stop the self-check.

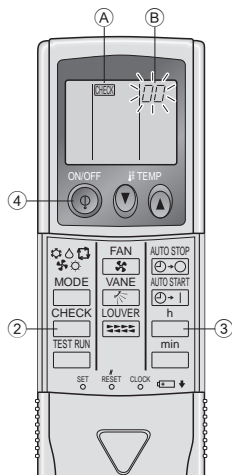
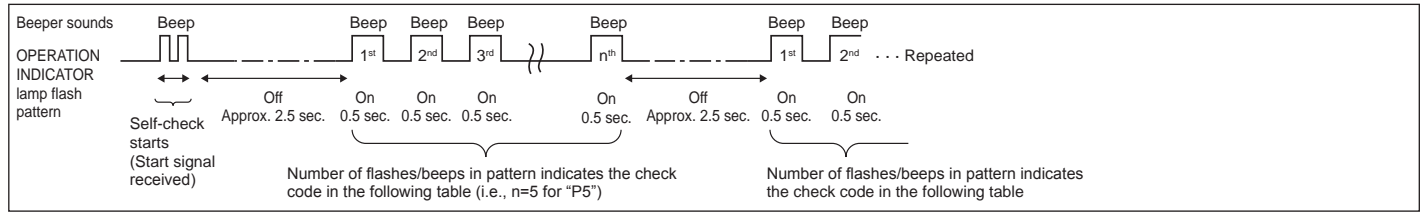


Fig. 7-6

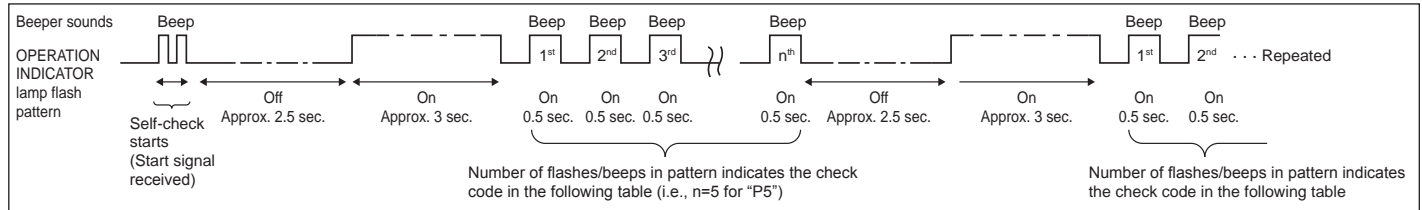
## 7. Test run

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

[Output pattern A]



[Output pattern B]



[Output pattern A] Errors detected by indoor unit

| Wireless remote controller                                       | Wired remote controller | Symptom   | Remark |
|--|-------------------------|---|--------|
| Beeper sounds/OPERATION INDICATOR lamp flashes (Number of times) | Check code              |   |        |
| 1  | P1                      | Inlet 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                                     |        |
| 6  | P6                      | Freezing/Overheating safeguard 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                      | Indoor unit fan motor error                           |        |
| 12   | Fb                      | Indoor unit control system error (memory error, etc.) |        |
| 14   | PL                      | Refrigerant circuit abnormal                          |        |
| No sound   | E0, E3                  | Wired remote controller transmission error            |        |
| No sound   | E1, E2                  | Wired 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 flashes (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   |   |
| 4  | UF                      | Compressor overcurrent interruption (When compressor locked)   |   |
| 5  | U2                      | Abnormal high discharging temperature/49C worked/insufficient refrigerant  |   |
| 6  | U1, Ud                  | Abnormal high pressure (63H worked)/Overheating safeguard operation  |   |
| 7  | U5                      | Abnormal temperature of heat sink  |   |
| 8  | U8                      | Outdoor unit fan safeguard stop  |   |
| 9  | U6                      | Compressor overcurrent interruption/Abnormal of power module   |   |
| 10   | U7                      | Abnormality of super heat due to low discharge temperature   |   |
| 11   | U9, UH                  | Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit/Current sensor error |   |
| 12   | -                       | -  |   |
| 13   | -                       | -  |   |
| 14   | Others                  | Other errors (Refer to the technical manual for the outdoor unit.)   |   |

\*1 If the beeper does not sound again after the initial two 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 three times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)" after the initial two beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.



## 7. Test run

- 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.
- If the unit cannot be operated properly after the above test run has been performed, refer to the following table to remove the cause.

| Symptom  |  | Cause  |
|--|--|--|
| Wired remote controller  | LED 1, 2 (PCB in outdoor unit)                       |  |
| PLEASE WAIT  | For about 2 minutes following power-on               | After LED 1, 2 are lit, LED 2 is turned off, then only LED 1 is lit. (Correct operation) |
| PLEASE WAIT → Error code   | After about 2 minutes has expired following power-on | Only LED 1 is lit. → LED 1, 2 blink.   |
| Display messages do not appear even when operation switch is turned ON (operation lamp does not light up). |  | Only LED 1 is lit. → LED 1 blinks twice, LED 2 blinks once.                              |

On the wireless remote controller with condition above, following phenomena takes place.

- No signals from the remote controller are accepted.
- OPE lamp is blinking.
- The buzzer makes a short piping sound.

### Note:

**Operation is not possible for about 30 seconds after cancellation of function selection. (Correct operation)**

For description of each LED (LED 1, 2, 3) provided on the indoor controller, refer to the following table.

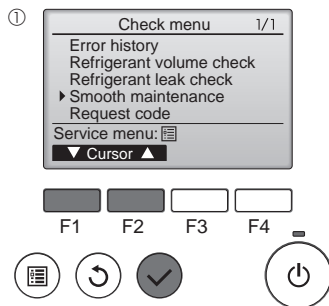
|  |   |
|--|---|
| LED 1 (power for microcomputer)                        | Indicates whether control power is supplied. Make sure that this LED is always lit.   |
| LED 2 (power for remote controller)                    | Indicates whether power is supplied to the remote controller. This LED lights only in the case of the indoor unit which is connected to the outdoor unit refrigerant address "0". |
| LED 3 (communication between indoor and outdoor units) | Indicates state of communication between the indoor and outdoor units. Make sure that this LED is always blinking.  |

## 8. Easy maintenance function

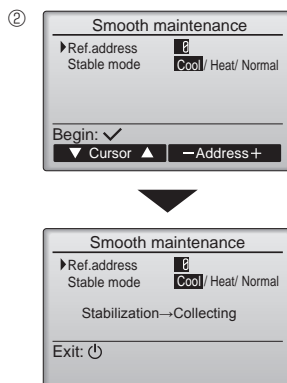
Maintenance data, such as the indoor/outdoor unit's heat exchanger temperature and compressor operation current can be displayed with "Smooth maintenance".

\* **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.



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.

## 8. Easy maintenance function

③

| Smooth maintenance 1/3 |            |
|------------------------|------------|
| Ref. address           | Ø Cool     |
| COMP. current          | 12 A       |
| COMP. run time         | 1000 Hr    |
| COMP. On / Off         | 2000 times |
| COMP. frequency        | 80 Hz      |

Return: ⏪

▼ Page ▲

| Smooth maintenance 2/3 |        |
|------------------------|--------|
| Ref. address           | Ø Cool |
| Sub cool               | 3 °C   |
| OU TH4 temp.           | 60 °C  |
| OU TH6 temp.           | 38 °C  |
| OU TH7 temp.           | 38 °C  |

Return: ⏪

▼ Page ▲

| Smooth maintenance 3/3 |        |
|------------------------|--------|
| Ref. address           | Ø Cool |
| IU air temp.           | 28 °C  |
| IU HEX temp.           | 18 °C  |
| IU filter time         | 120 Hr |

Return: ⏪

▼ Page ▲

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)

### Navigating through the screens

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

This product is designed and intended for use in the residential,  
commercial and light-industrial environment.

**Importer:**

Mitsubishi Electric Europe B.V.  
Capronilaan 46, 1119 NS, Schiphol Rijk, The Netherlands

French Branch  
25, Boulevard des Bouvets, 92741 Nanterre Cedex, France

German Branch  
Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany

Belgian Branch  
Autobaan 2, 8210 Loppem, Belgium

Irish Branch  
Westgate Business Park, Ballymount, Dublin 24, Ireland

Italian Branch  
Centro Direzionale Colleoni, Palazzo Sirio-Ingresso 1 Viale Colleoni 7, 20864 Agrate Brianza  
(MB), Italy

Norwegian Branch  
Gneisveien 2D, 1914 Ytre Enebakk, Norway

Portuguese Branch  
Avda. do Forte, 10, 2799-514, Carnaxide, Lisbon, Portugal

Spanish Branch  
Carretera de Rubi 76-80 - Apdo. 420 08173 Sant Cugat del Valles (Barcelona), Spain

Scandinavian Branch  
Hammarbacken 14, P.O. Box 750 SE-19127, Sollentuna, Sweden

UK Branch  
Travellers Lane, Hatfield, Herts., AL10 8XB, England, U.K.

Polish Branch  
Krakowska 50, PL-32-083 Balice, Poland

MITSUBISHI ELECTRIC TURKEY ELEKTRİK ÜRÜNLERİ A.Ş.  
Şerifali Mah. Kale Sok. No: 41 34775 Ümraniye, İstanbul / Turkey

Please be sure to put the contact address/telephone number on  
this manual before handing it to the customer.

**MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN