MITSUBISHI ELECTRIC

Mr.SLIM

Air Conditioners
PKA-M·LAL Series

INSTALLATION MANUAL

FOR INSTALLER

English

Contents

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

Note:
The phrase "Wired remote controller" in this installation manual refers to the PAR-40MAA. If you need any information for other remote controller, please refer to the installation manual that is included with the optional remote controller.

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

	**WARNING** (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.	

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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.

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.**
- **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.**
- **Do not alter the unit. It may cause fire, electric shock, injury or water leakage.**
- **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.**
- **Do not use intermediate connection of the electric wires.**
- **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 authorized accessories and ask a dealer or an authorized technician to install them.**
  If accessories are incorrectly installed, water leakage, electric shock, or fire may result.
- **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.**

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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. Installation location

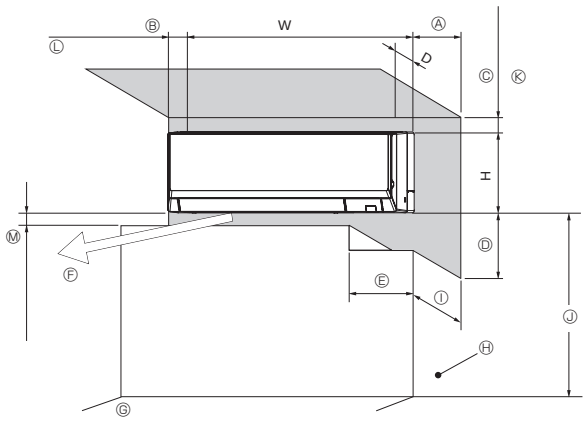


Fig. 2-1

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

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

(mm)

D	W	H	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
237	898	299	Min. 150	Min. 50	Min. 50	Min. 250	Min. 260

Ⓕ 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.

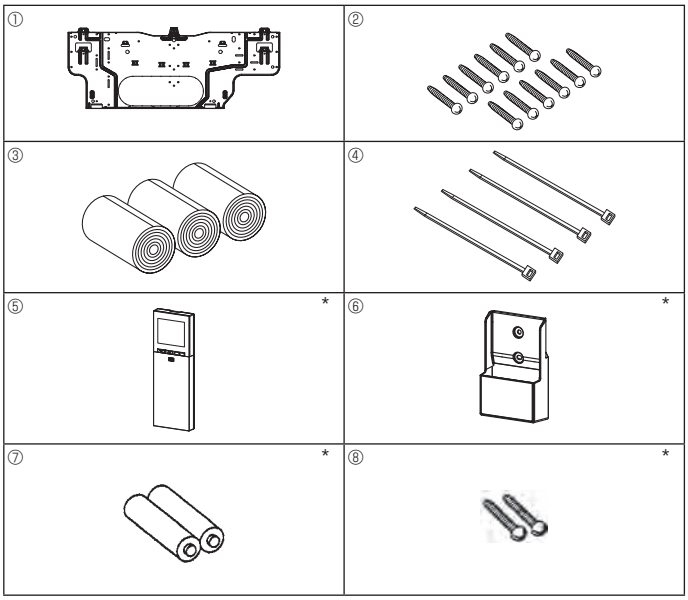
Ⓙ 1800 mm or greater from the floor surface (for high location mounting)

Ⓚ 75 mm or greater with left, rear left, or lower left piping, and optional drain pump installation. (Use the hook positioned on the lower part of the mount board when the dimension is 55 mm or greater and less than 75 mm (Less than 55 mm: NG). Refer to 3.5. for details.)

Ⓛ 350 mm or greater with optional drain pump installation

Ⓜ Minimum 7 mm: 250 mm or greater with optional drain pump installation

3. Installing the indoor unit



* PKA-M·LAL only

Fig. 3-1

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	12	
③	Felt tape	3	
④	Band	4	
⑤ *	Wireless remote controller	1	
⑥ *	Remote controller holder	1	
⑦ *	Alkali batteries (size AAA)	2	
⑧ *	Tapping screw 3.5 × 16	2	

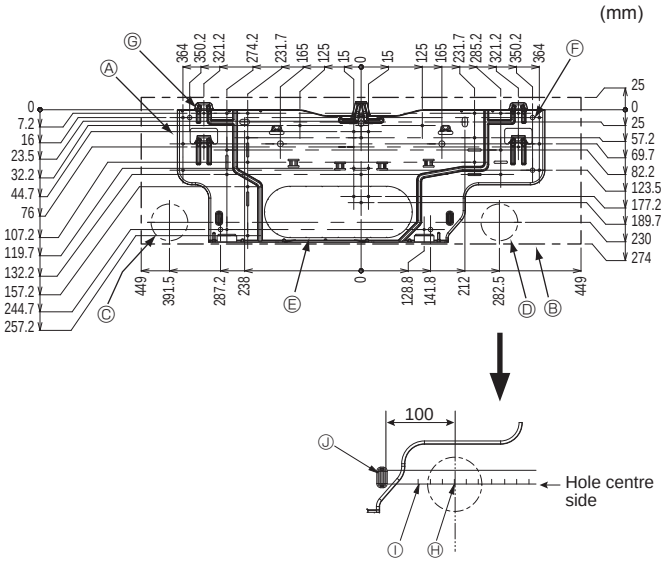
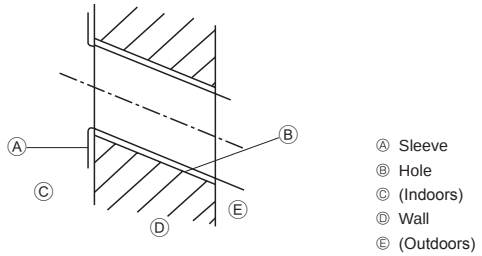


Fig. 3-2



Ⓐ Sleeve
Ⓑ Hole
Ⓒ (Indoors)
Ⓓ Wall
Ⓔ (Outdoors)

Fig. 3-3

3.2. Installing the wall mounting fixture

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.

[Fig. 3-2]

- Ⓐ Mount board ①
- Ⓑ Indoor unit
- Ⓒ Bottom left rear pipe hole (ø75)
- Ⓓ Bottom right rear pipe hole (ø75)
- Ⓔ Knockout hole for left rear hole (105×300)
- Ⓕ Bolt hole (4-ø9 hole)
- Ⓖ Tapping hole (6-ø4.3 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. Installing the indoor unit

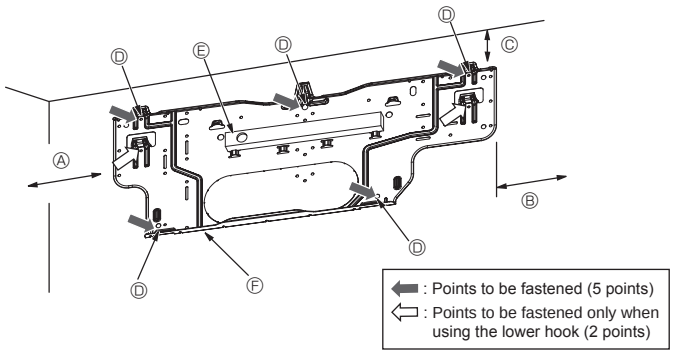


Fig. 3-4

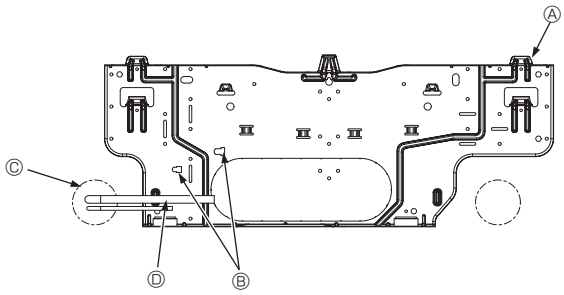


Fig. 3-5

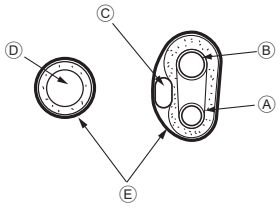


Fig. 3-6

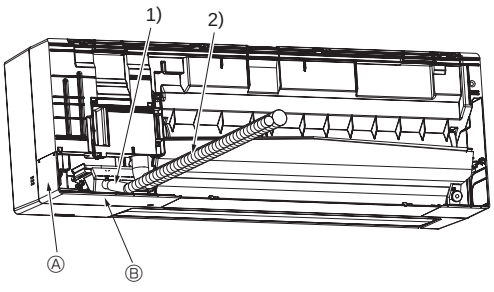


Fig. 3-7

3.2.3. Installing the wall mounting fixture

► Since the indoor unit weighs near 13 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 nonsymetrical 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 as shown by the arrows.**

(Fig. 3-4)

Ⓐ Min. 119 mm (669 mm or greater with optional drain pump installation)
Ⓑ Min. 224 mm
Ⓒ Min. 75 mm (Use the hook positioned on the lower part of the mount board when the dimension is less than 100 mm with left, rear left, or lower left piping, and optional drain pump installation. Refer to 3.5. for details.)
Ⓓ Fixing screws (4 × 25) ②
Ⓔ Level
Ⓕ 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.)
* Cut off outlet of the pipe depending on the exiting direction of the piping.

Extraction and processing of the piping and wiring (Fig. 3-6)

1. Connection of indoor/outdoor wiring → See page 8.
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.

   Ⓐ Liquid pipe
   Ⓑ Gas pipe
   Ⓒ Indoor/outdoor connection cable
   Ⓓ Drain hose
   Ⓔ Felt tape ③
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. 3-7)

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.

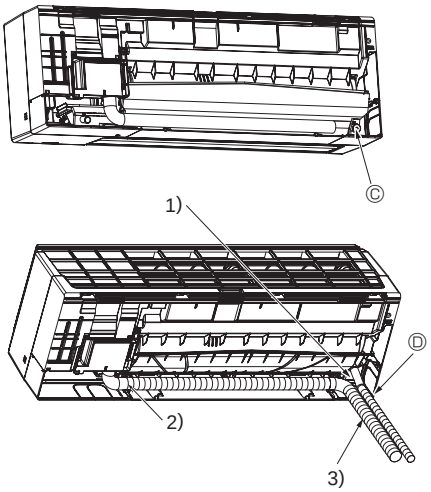


Fig. 3-8

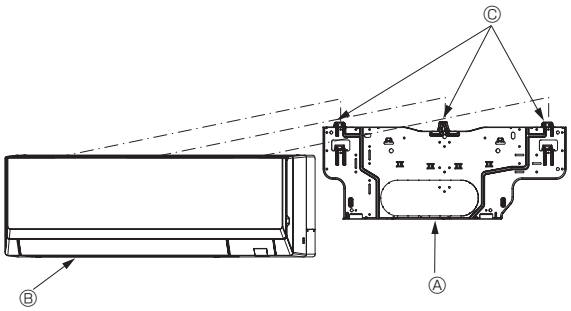


Fig. 3-9

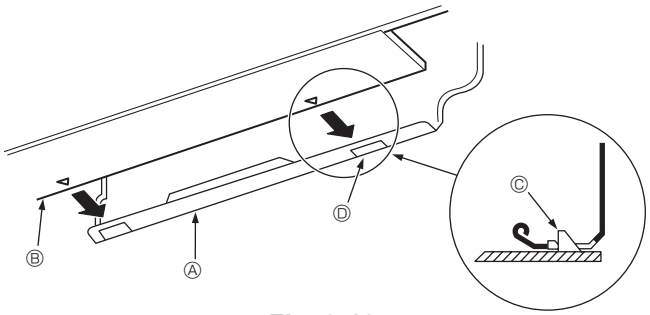


Fig. 3-10

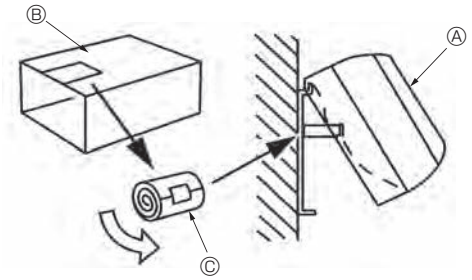


Fig. 3-11

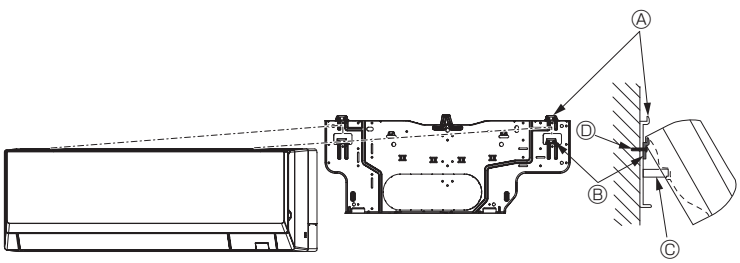


Fig. 3-12

Left and left rear piping (Fig. 3-8)

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.

3.5. 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. 3-9)

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. 3-10)

* 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.
   Ⓐ Mount board ①
   Ⓑ Indoor unit
   Ⓒ Hook
   Ⓓ Square hole

Left and left rear piping (Fig. 3-11)

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.
   Cut part of the shipping box 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.
   Ⓐ Indoor unit
   Ⓑ Shipping box
   Ⓒ Spacer (Cut out a piece of card board from shipping box.)

Note:

- **When the indoor unit cannot be hanged and lifted up with the regular hook (the dimension of 2.1. Ⓚ (the clearance between the ceiling and the unit) is 75 mm or less), hang the unit on the lower hook for left piping. (Fig. 3-12)**
- **The lower hook is a temporary hook only for installation. When the installation is done, be sure to hang the indoor unit on the regular hook. The indoor unit cannot be operated while it is hanged on the lower hook.**

(Fig. 3-12)

Ⓐ Regular hook
Ⓑ Lower hook for left piping
Ⓒ Spacer
Ⓓ Fixing screw ②

* When using the lower hook, be sure to screw on the base of the lower hook with a fixing screw ②, otherwise the indoor unit will fall.

4. Installing the refrigerant piping

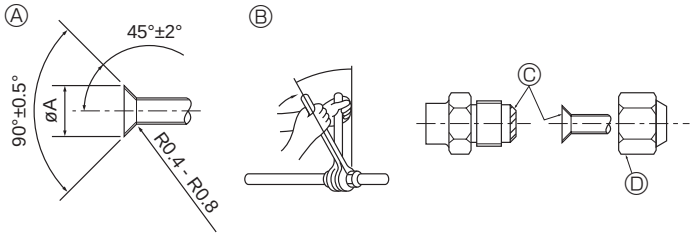


Fig. 4-1

Ⓐ Flare cutting dimensions

Copper pipe O.D. (mm)	Flare dimensions øA dimensions (mm)
ø6.35	8.7 - 9.1
ø12.7	16.2 - 16.6

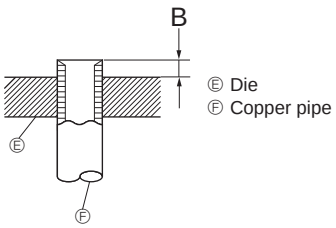


Fig. 4-2

Copper pipe O.D. (mm)	B (mm)
	Flare tool for R32/R410A
	Clutch type
ø6.35 (1/4")	0 - 0.5
ø12.7 (1/2")	0 - 0.5

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.

ø6.35 thickness 0.8 mm	ø9.52 thickness 0.8 mm
ø12.7 thickness 0.8 mm	ø15.88 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.
- 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. (mm)	Flare nut O.D. (mm)	Tightening torque (N·m)
ø6.35	17	14 - 18
ø12.7	28	49 - 61

Ⓒ 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.)

⚠ Warning:

When installing the unit, securely connect the refrigerant pipes before starting the compressor.

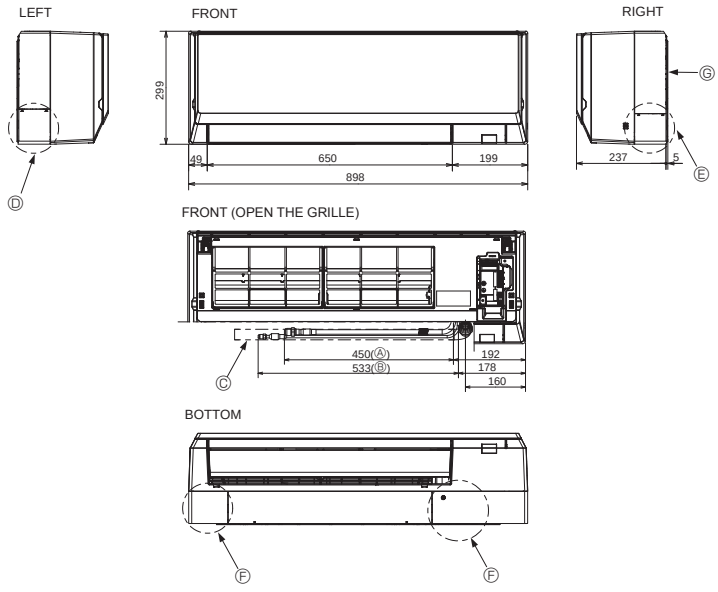


Fig. 4-3

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

Ⓐ Gas pipe * Indicates the condition with accessories mounted.
Ⓑ Liquid pipe
Ⓒ Drain hose (Effective length: 500)
Ⓓ Left-side piping knockout hole
Ⓔ Right-side piping knockout hole
Ⓕ Lower piping knockout hole
Ⓖ Mount board ①

en

4. Installing the refrigerant piping

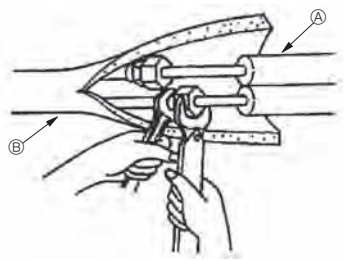


Fig. 4-4

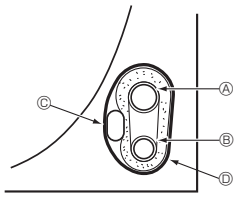


Fig. 4-5

4.4. 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 join 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

4.4.1. 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

en

5. Drainage piping work

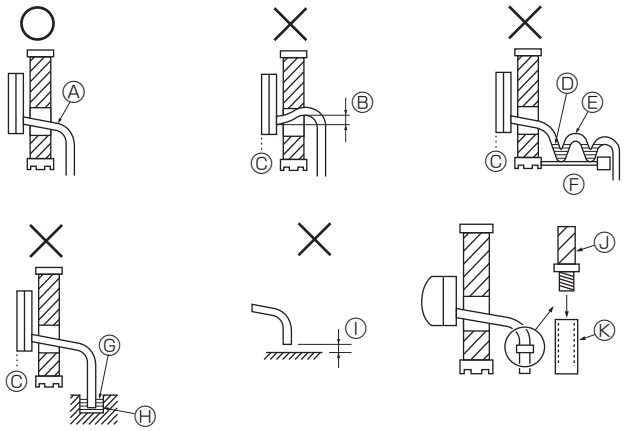


Fig. 5-1

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.

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

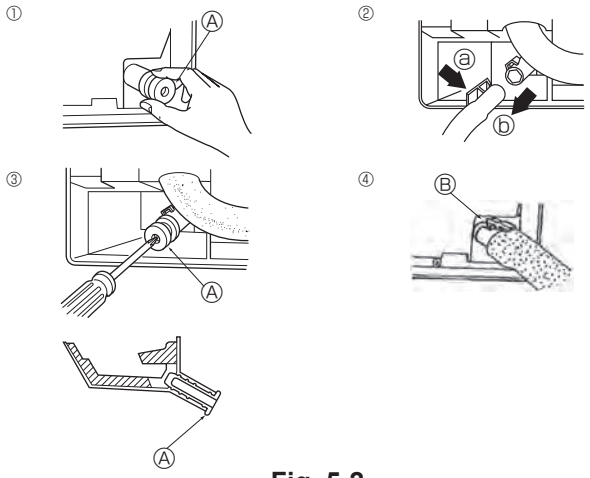


Fig. 5-2

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

① Remove the drain cap.
- Remove the drain cap by holding the bit that sticks out at the end of the pipe and pulling.

Ⓐ Drain cap

② Remove the drain hose.
- Remove the drain hose by holding on to the base of the hose ⓐ (shown by arrow) and pulling towards yourself ⓑ.

③ 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.

④ 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.

Ⓑ Hooks

5. Drainage piping work

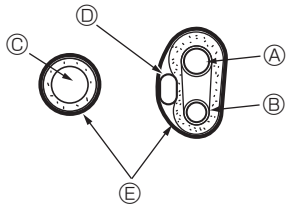


Fig. 5-3

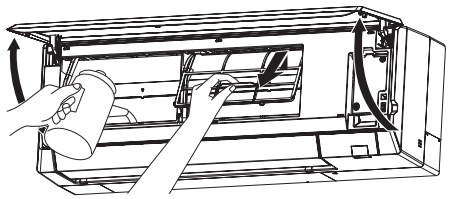


Fig. 5-4

♦ **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 ③.
* Overlap the felt tape ③ at one-half of the tape width.
* Fasten the end portion of the wrapping with vinyl tape, etc.

Ⓐ Gas pipe
Ⓑ Liquid pipe
Ⓒ Drain hose
Ⓓ Indoor/outdoor connection wiring
Ⓔ Felt tape ③

♦ **Check of drainage (Fig. 5-4)**

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

en

6. Electrical work

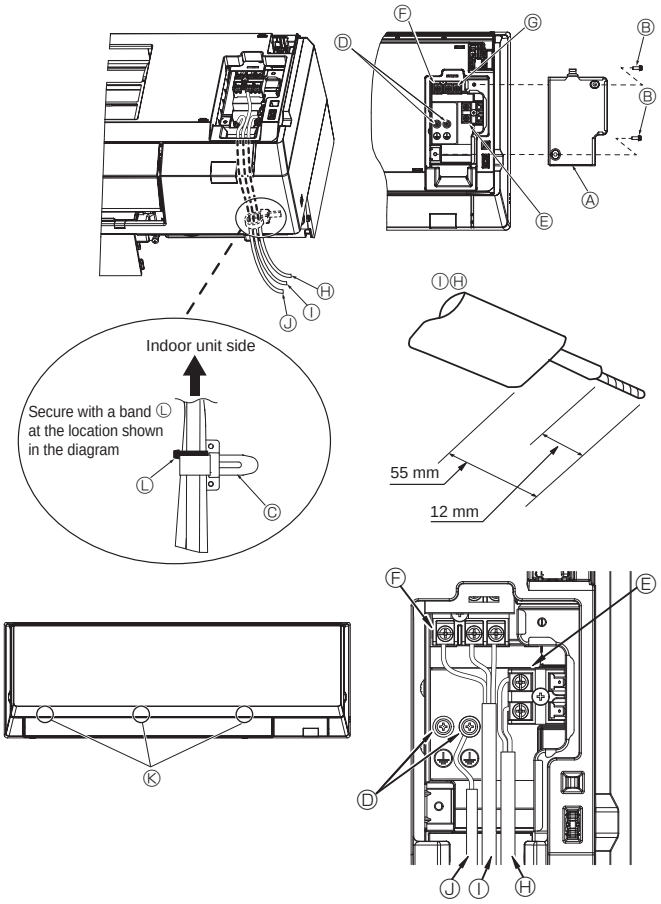


Fig. 6-1

6.1. Electric wiring

[Fig. 6-1]

Connection can be made without removing the front panel.

1. Open the front grille, remove the screw (2 pieces), and remove the electrical box cover.

* Electrical work can be conducted more effectively with the panel removed. When attaching the panel, check that the hooks Ⓚ at three locations on the air outlet side are connected securely.

2. Securely connect each wire to the terminal block.

* 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
Ⓔ MA remote control terminal block: (1, 2) do not have polarity
Ⓕ Terminal block for indoor and outdoor units connection: S1, S2 and S3, have polarity
Ⓖ Terminal screw
Ⓗ Remote control cable
Ⓘ Indoor-outdoor connection cable
Ⓙ Ground wire
Ⓚ Hook
Ⓛ Band

⚠ Caution:

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.

<When wiring two indoor-outdoor connection cables>

- If the cables have the same diameter, insert them into the cut outs on both sides.
- If the cables have different diameters, insert them on one side into separate spaces with one cable positioned above the other.

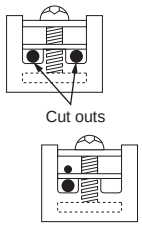
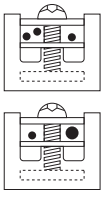


Fig. 6-2

WARNING



- Connecting two wires on one side is prohibited.
- Connecting three wires or more to the same terminal is prohibited.
- Connecting wires with different diameters is prohibited.

When using a single cable, a round crimped terminal or other terminal work is prohibited.

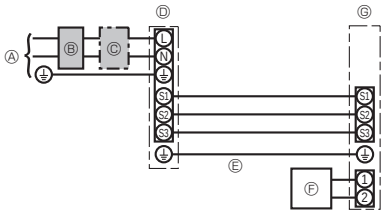
Fig. 6-3

6. Electrical work

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.

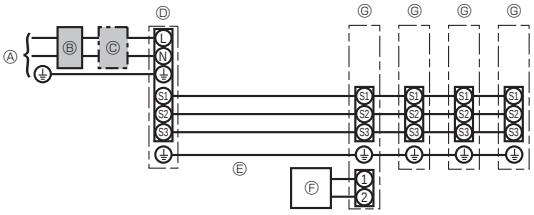
1:1 System



Ⓐ 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/quadruple 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.

Indoor unit model			PKA-M·LA(L) Series
Wiring Wire No. × size (mm²)	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
	Wired remote controller (option) Indoor unit	*2	2 × Min. 0.3
Circuit rating	Indoor unit L-N	*3	–
	Indoor unit-Outdoor unit S1-S2	*3	230 V AC
	Indoor unit-Outdoor unit S2-S3	*3 *4	24 V DC / 28 V DC
	Wired remote controller (option) Indoor unit	*3	12 V DC

*1. <For 35-140 outdoor unit application>
Max. 45 m
If 2.5 mm² used, Max. 50 m
If 2.5 mm² used and S3 separated, Max. 80 m
<For 200/250 outdoor unit application>
Max. 18 m
If 2.5 mm² used, Max. 30 m
If 4 mm² used and S3 separated, Max. 50 m
If 6 mm² 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 V DC / 28 V DC against S2 terminal. However between S3 and S1, these terminals are not electrically insulated by the transformer or other device.
*4. It depends on the outdoor unit.

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 (50 mm or more) from power source wiring so that it is not influenced by electric noise from power source wiring.**

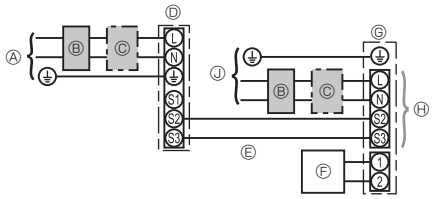
6. Electrical work

6.1.2. Separate indoor unit/outdoor unit power supplies (For PUHZ/PUZ application only)

The following connection patterns are available.
The outdoor unit power supply patterns vary on models.

1:1 System

* The indoor power supply terminal kit is required.

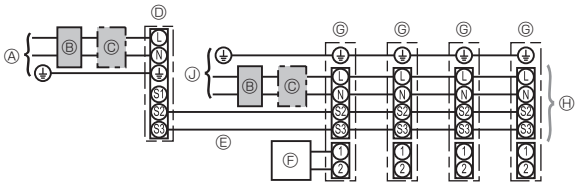


Ⓐ Outdoor unit power supply
Ⓑ Earth leakage breaker
Ⓒ Wiring circuit breaker or isolating switch
Ⓓ Outdoor unit
Ⓔ Indoor unit/outdoor unit connecting cables
Ⓕ Remote controller
Ⓖ Indoor unit
Ⓗ Option
Ⓙ Indoor unit power supply

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

Simultaneous twin/triple/quadruple system

* The indoor power supply terminal kits are required.



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

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

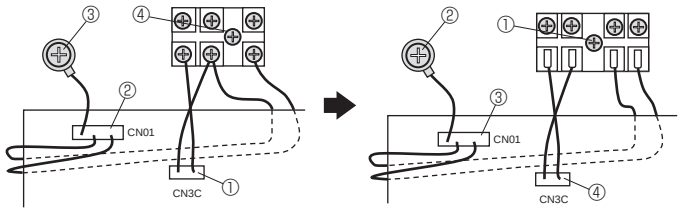
Note:
Some units cannot be used in a simultaneous twin/triple/quadruple system. Refer to the outdoor unit installation manual for details.

If the indoor and outdoor units have separate power supplies, refer to the table below. If the indoor power supply terminal kit is used, change the indoor unit electrical box wiring refering to the figure in the right and the DIP switch settings of the outdoor unit control board.
Refer to the installation manual for the Power supply terminal kit.

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)	ON: 3 / OFF: 1, 2 (SW8) Set the SW8-3 to ON.

* There are 3 types of labels (labels A, B and C). Affix the appropriate labels to the units according to the wiring method.

<Replacing the indoor unit terminal block>



① Disconnect connector CN3C (blue) from the indoor controller board.
② Disconnect connector CN01 (black) from the indoor controller board.
③ Remove the screw.
④ Remove the screw from the terminal block.

Install the optional Power supply terminal kit. Refer to the installation manual that comes with the optional Power supply terminal kit for details.
① Secure the terminal block with the screw.
② Fix the round terminal with the screw.
③ Connect connector CN01 (black) to the indoor controller board.
④ Connect connector CN3C (blue) to the indoor controller board.

Indoor unit model			PKA-M·LA(L) Series
Indoor unit power supply			~/N (single), 50 Hz, 230 V
Indoor unit input capacity Main power switch (Breaker)		*1	16 A
Wiring Wire No. × size (mm²)	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		–
	Wired remote controller (option) Indoor unit	*3	2 × Min. 0.3 (Non-polar)
Circuit rating	Indoor unit L-N	*4	230 V AC
	Indoor unit-Outdoor unit S1-S2	*4	–
	Indoor unit-Outdoor unit S2-S3	*4 *5	24 V DC / 28 V DC
	Wired remote controller (option) Indoor unit	*4	12 V DC

*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
*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.
*5. It depends on the outdoor unit.

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 (50 mm 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.

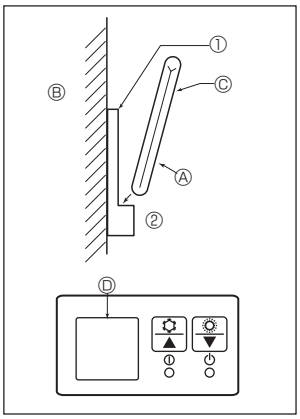


Fig. 6-4

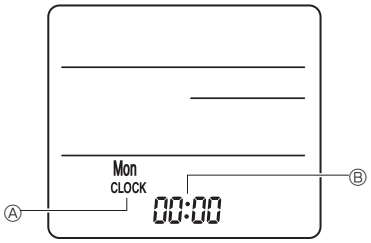
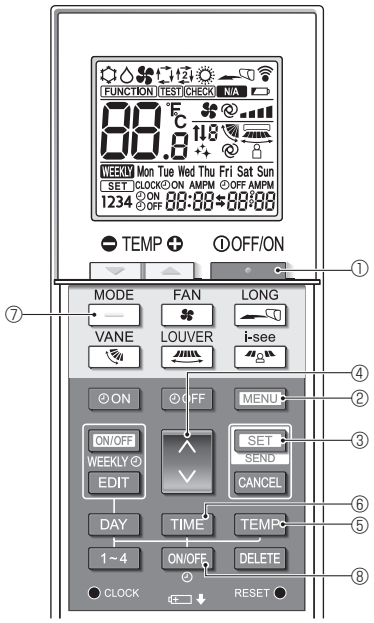


Fig. 6-5



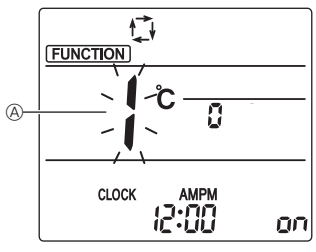


Fig. 6-6

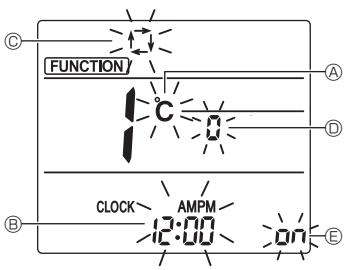


Fig. 6-7

6.2. Remote controller

6.2.1. For wired remote controller

1) 2 remote controllers setting

If 2 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 installation manual for the remote controller.

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. 6-4)

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.
Ⓐ 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 (Clock setting) (Fig. 6-5)

① Insert batteries or press the ● CLOCK button with something sharp.
[CLOCK] Ⓐ and [:] Ⓑ blinks.

② Press the RESET ● button with something sharp.

③ Press the ^ v 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. 6-7
Temperature unit	ºC/ºF	Ⓐ
Time display	12-hour format/24-hour format	Ⓑ
AUTO mode	Single set point/Dual set point	Ⓒ
Pair No.	0–3	Ⓓ
Backlight	On/Off	Ⓔ

4-1. Switching to the initial setting mode

1. Press the [ ] button ① to stop the air conditioner.
2. Press the MENU button ②.
   The Function setting screen will be displayed and the function No. Ⓐ will blink. (Fig. 6-6)
   Press the ^ v 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. 6-7)

4-2. Changing the temperature unit Ⓐ

Press the TEMP button ⑤.

Each time the TEMP button ⑤ is pressed, the setting switches between ℃ and ℉.
℃ : The temperature is displayed in degrees Celsius.
℉ : The temperature is displayed in degrees Fahrenheit.

4-3. Changing the time display Ⓑ

Press the TIME button ⑥.

Each time the TIME button ⑥ is pressed, the setting switches between AMPM 12:00 and 24:00.
AMPM 12:00 : 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 Ⓒ

Press the [—] button ⑦.

Each time the [—] button ⑦ is pressed, the setting switches between ⟳ and ⟳2.
⟳ : The AUTO mode operates as the usual automatic mode.
⟳2 : The AUTO mode operates using dual set points.

4-5. Changing the pair No. Ⓓ

Press the ^ v button ④.

Each time the ^ v 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 Ⓔ

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.

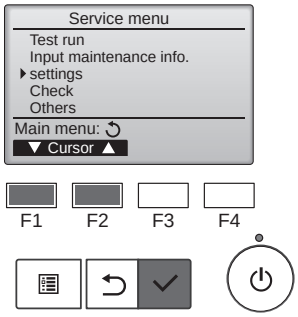


Fig. 6-8

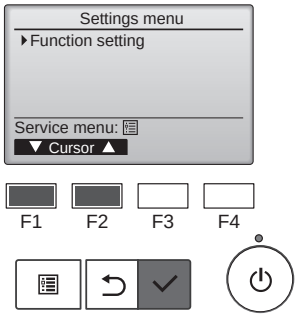


Fig. 6-9

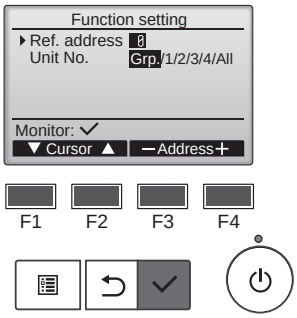


Fig. 6-10

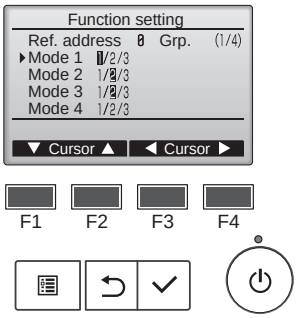


Fig. 6-11

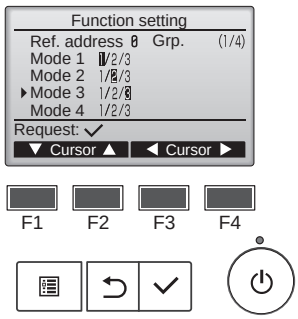


Fig. 6-12

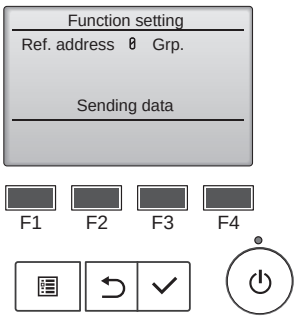


Fig. 6-13

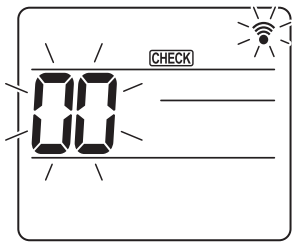


Fig. 6-14

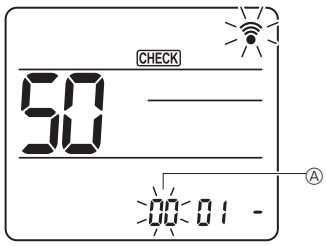


Fig. 6-15

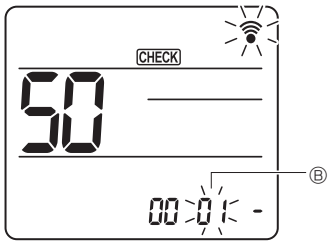


Fig. 6-16

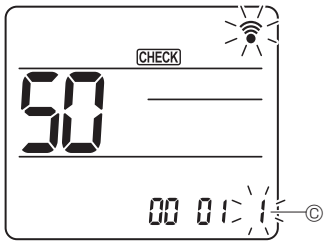


Fig. 6-17

6.3. Function settings

6.3.1. By wired remote controller

① (Fig. 6-8)
- Select “Service” from the Main menu, and press the [SELECT] button.
- Select “Settings” from the Service menu, and press the [SELECT] button.

② (Fig. 6-9)
- Select “Function settings” with the [SELECT] button.

③ (Fig. 6-10)
- 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.

④ (Fig. 6-11)
- 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.

⑤ (Fig. 6-12)
- 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.

⑥ (Fig. 6-13)
- 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.

6.3.2. By wireless remote controller

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. 6-14)
Press the ▲▼ 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 ▲▼ button to set unit number Ⓐ. (Fig. 6-15)
Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

③ Select a mode
Press the ▲▼ button to set Mode number Ⓑ. (Fig. 6-16)
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 ▲▼ button to change the Setting number Ⓒ. (Fig. 6-17)
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.**

6. Electrical work

Function table

Select unit number “Grp.”

Mode	Settings	Mode no.	Setting no.	Initial setting	setting
Power failure automatic recovery	Not available	01	1		
	Available *1		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 intake)		2		
	Supported (indoor unit is equipped with outdoor-air intake)		3		
Power voltage	240 V	04	1		
	220 V, 230 V		2	○	

Select unit numbers 1 to 4 or “All”

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 3 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 3 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 (L, N and S1, S2, S3.)
	After “startup” is displayed, green (once) and red (twice) blink alternately. <F3, F5, F9>	• Outdoor unit’s protection devise 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 S1, S2, S3.) • 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.) • 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.

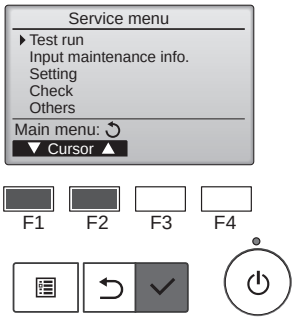


Fig. 7-1

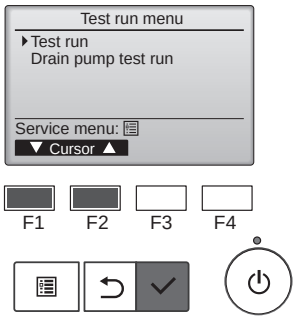


Fig. 7-2

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.

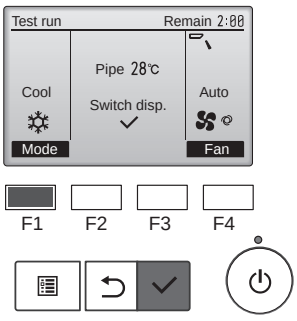


Fig. 7-3

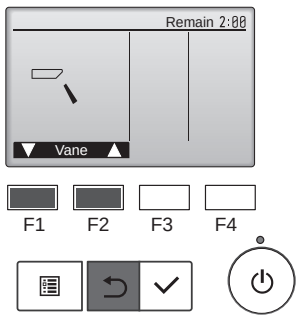


Fig. 7-4

7. Test run

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.

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		
		PL	Refrigerant circuit abnormal		
P5	Drain overflow protection operation	FB	Indoor controller board error	E6 – EF	Communication error between the indoor unit and the outdoor unit
P6	Freezing/overheating protection operation	U*, F* (* indicates an alphanumeric character excluding FB.)	Outdoor unit malfunction Refer to the wiring diagram for the outdoor unit.		
P8	Pipe temperature error				

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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.

7.2.2. Using wireless remote controller

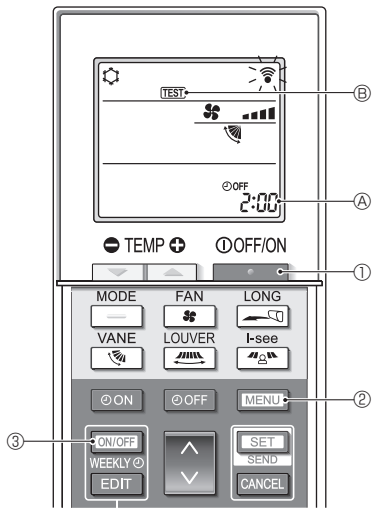


Fig. 7-5

■ **Test run (Fig. 7-5)**

1. Press the [ ] button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the [ON/OFF WEEKLY] button ③ to disable it (WEEKLY is off).
2. Press the [MENU] button ② for 5 seconds.
   - CHECK comes on and the unit enters the service mode.
3. Press the [MENU] button ②.
   - TEST Ⓑ comes on and the unit enters the test run mode.
4. Press the following buttons to start the test run.
   - [ ] : Switch the operation mode between cooling and heating and start the test run.
   - [ ] : Switch the fan speed and start the test run.
   - [ ] : Switch the airflow direction and start the test run.
   - [ ] : Switch the louver and start the test run.
   - [SET] : Start the test run.
5. Stop the test run.
   - Press the [ ] button ① to stop the test run.
   - After 2 hours, the stop signal is transmitted.

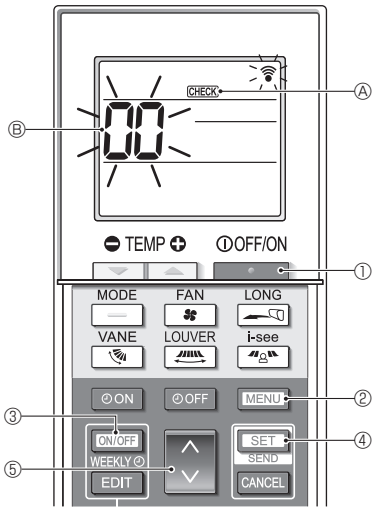


Fig. 7-6

■ **Self-check (Fig. 7-6)**

1. Press the [ ] button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the [ON/OFF WEEKLY] button ③ to disable it (WEEKLY is off).
2. Press the [MENU] button ② for 5 seconds.
   - CHECK Ⓐ comes on and the unit enters the self-check mode.
3. Press the [ ] button ⑤ to select the refrigerant address (M-NET address) Ⓑ of the indoor unit for which you want to perform the self-check.
4. Press the [SET] button ④.
   - If an error is detected, the check code is indicated by the number of beeps from the indoor unit and the number of blinks of the OPERATION INDICATOR lamp.
5. Press the [ ] button ①.
   - CHECK Ⓐ and the refrigerant address (M-NET address) Ⓑ go off and the self-check is completed.

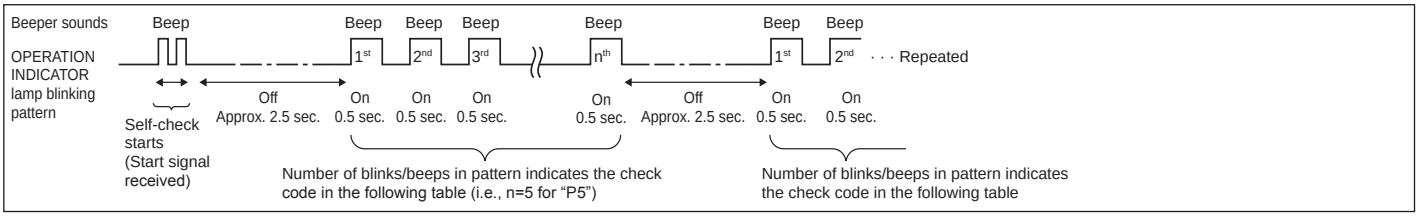
7. Test run

7.3. Self-check

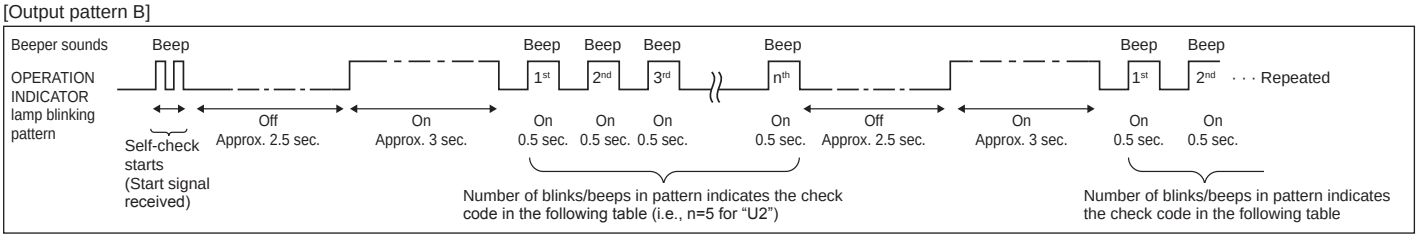
■ Refer to the installation manual that comes with each remote controller for details.

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

[Output pattern A]



[Output pattern B]



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[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	Indoor unit fan motor error	
12	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	

7. Test run

[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	
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 protection operation	
7	U5	Abnormal temperature of heat sink	
8	U8	Outdoor unit fan protection 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.)	

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*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.

- If the unit cannot be operated properly after test run, refer to the following table to find the cause.

Symptom			Cause
Wired remote controller		LED 1, 2 (PCB in outdoor unit)	
Please Wait	For about 3 minutes after power-on	After LED 1, 2 are lighted, LED 2 is turned off, then only LED 1 is lighted. (Correct operation)	•For about 3 minutes after power-on, operation of the remote controller is not possible due to system start-up. (Correct operation)
Please Wait → Error code	Subsequent to about 3 minutes after power-on	Only LED 1 is lighted. → LED 1, 2 blink.	•Connector for the outdoor unit’s protection device is not connected. Reverse or open phase wiring for the outdoor unit’s power terminal block (L1, L2, L3)
Display messages do not appear even when operation switch is turned ON (operation lamp does not light up).		Only LED 1 is lighted. → LED 1 blinks twice, LED 2 blinks once.	•Incorrect wiring between indoor and outdoor units (incorrect polarity of S1, S2, S3) •Remote controller wire short

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

- No signals from the remote controller are accepted.
- Operation lamp is blinking.
- The buzzer makes a short ping 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 page 15.

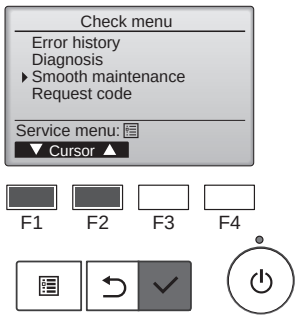
8. Easy maintenance function

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.**

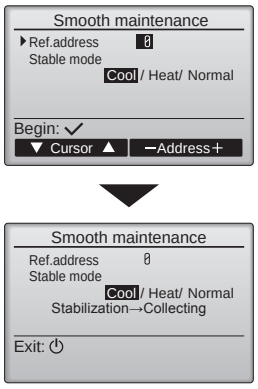
*** Depending on the combination with the outdoor unit, this may not be supported by some models.**

①



- 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.

②



Select each item.

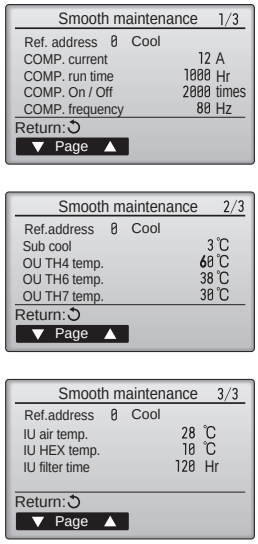
- Select the item to be changed with the [F1] or [F2] button.
- Select the required setting with the [F3] or [F4] button.

  "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.

③



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 Service menu.....[MENU] button
- To return to the previous screen ..... [RETURN] button

en

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

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

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