MITSUBISHI ELECTRIC

CITY MULTI

Air-Conditioners For Building Application
INDOOR UNIT

PKFY-NAMU-A
PKFY-NGMU-A
PKFY-NFMU-A

INSTALLATION MANUAL

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

Contents

1. Safety precautions 2
2. Installation location 3
3. Installing the indoor unit 4
4. Refrigerant pipe and drain pipe 12
5. Electrical work 16
6. Test run 20

⃠ : Indicates an action that must be avoided.

❗ : Indicates that important instructions must be followed.

⏚ : Indicates a part which must be grounded.

⚠ **Warning:**
Carefully read the labels affixed to the main unit.

1. Safety precautions

▶ **Before installing the unit, make sure you read all the "Safety precautions".**

⚠ **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:**
- **The unit should not be installed by the user. Must be installed by technician or dealer.**
- **Use only accessories authorized by Mitsubishi Electric and ask the dealer or an authorized technician to install them.**
- **Any structural alteration necessary for installation must comply with local building code requirements.**
- **The unit must be securely installed on a structure that can sustain its weight.**
- **Use only specified cables for wiring.**
- **Do not turn on the power until installation has been completed.**
- **All electric work must be performed by a licensed technician, according to local regulations and this installation manual.**
- **Use only the specified refrigerant (R-22) to charge the refrigerant circuit.**
- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage.**
- **Ventilate the room if refrigerant leaks during operation.**
- **Fasten a flare nut with a torque wrench When fastened too tight, a flare nut may crack afterwards and cause refrigerant leakage.**

⚠ **Caution:**
- **When the room humidity exceeds 80% or when the drain pipe is clogged, water may drip from the indoor unit. Do not install the indoor unit where such dripping could cause damage.**
- **This air conditioner should not be installed in areas exposed to thick steam, volatile oil (including machine oil) or sulphuric smoke, as this could significantly reduce its performance and damage the internal parts.**
- **Use only a fuse of specified capacity.**
- **Make sure to install an earth leakage breaker as this device helps reduce the risk of electric shocks.**
- **Make sure to install a grounding line.**
- **Place thermal insulation on the drain pipes to prevent condensation.**
- **Do not touch the refrigerant pipes with bare hands during operation.**
- **Turn on the main power switch more than twelve hours before starting operation.**
- **After stopping operation, be sure to wait for five minutes before turning off the main power switch.**

2. Installation location

2.1. Installation location

- Mount the indoor unit on a wall strong enough to withstand the weight of the unit.
- Select a location so that air can be blown into all corners of the room.
- Avoid locations exposed to outside air.
- Select a location free of obstructions to the airflow in and out of the unit.
- Avoid locations exposed to steam or oil vapour.
- Avoid locations where combustible gas may leak, settle or be generated.
- Avoid installation near machines emitting high-frequency waves (high-frequency welders, etc.)
- Avoid locations where the airflow is directed at a fire alarm sensor. (Hot air could trigger the alarm during the heating operation.)
- Avoid places where acidic solutions are frequently handled.
- Avoid places where sulphur-based or other sprays are frequently used.

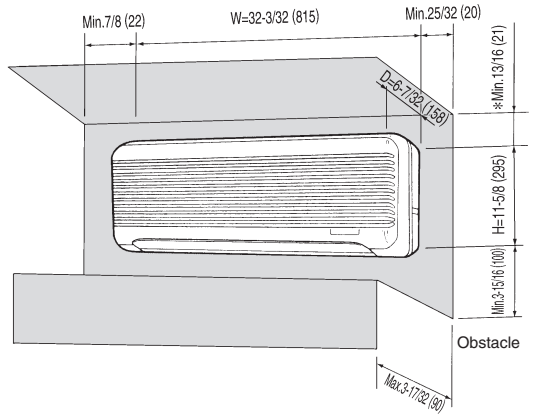
2.2. Outline dimensions and service space

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

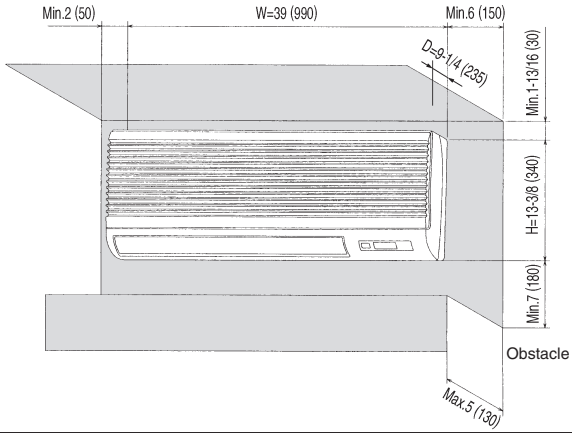
⚠ **Warning:**
Mount the indoor unit on a wall strong enough to withstand the weight of the unit.

∗ For PKFY-08NAMU-A
Leave a service space of 2-1/8 in. (54 mm) or more for left or left-rear piping.

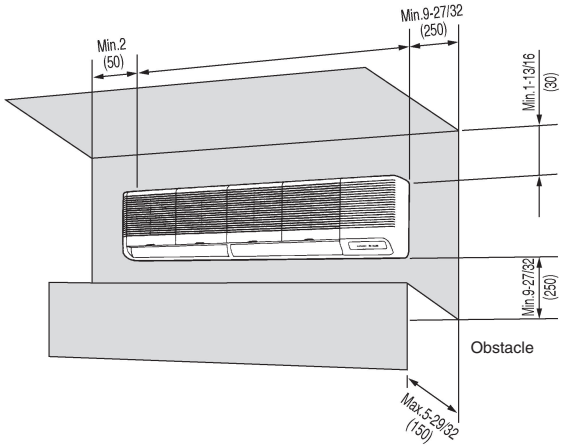
■ **PKFY-08NAMU-A** in.(mm)



■ **PKFY-12NGMU-A**



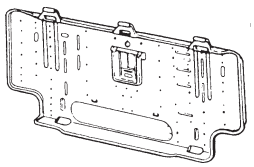
■ **PKFY-20/32NFMU-A**



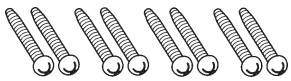
3. Installing the indoor unit

■ **PKFY-08NAMU-A**

1



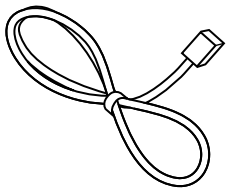
2



3

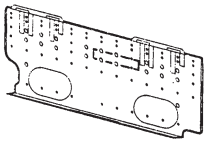


4



■ **PKFY-12NGMU-A**

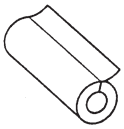
1



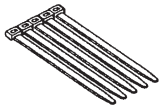
2



3



4



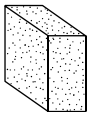
5



6

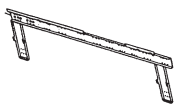


7



■ **PKFY-20/32NFMU-A**

1



2



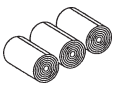
3



4



5



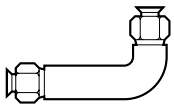
6



7



8



3.1. Check the indoor unit accessories and parts

The indoor unit comes with the following parts and accessories:

■ **PKFY-08NAMU-A**

PARTNUMBER	ACCESSORY	QUANTITY	LOCATION OF SETTING
1	Mount board	1	Fix at the back of the unit
2	Tapping screw 4 × 35	8	Set in packing material
3	Felt tape	1	
4	MA remote controller cable	1	

■ **PKFY-12NGMU-A**

PARTNUMBER	ACCESSORY	QUANTITY	LOCATION OF SETTING
1	Mount board	1	Fix at the back of the unit
2	Tapping screw 4 × 35	12	Set inside the unit
3	Pipe cover	1	
4	Band	5	
5	Felt tape	3	
6	Joint pipe	1	
7	Mount piece	1	Set in packing

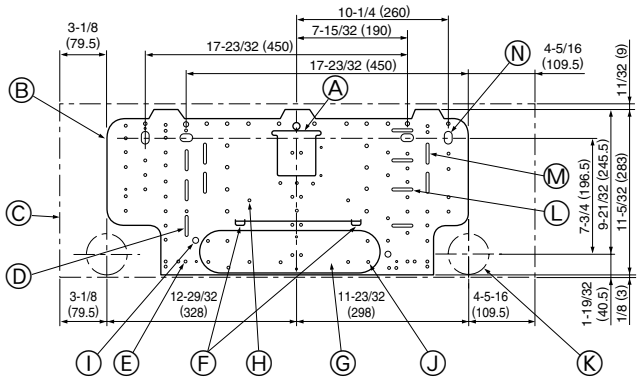
■ **PKFY-20/32NFMU-A**

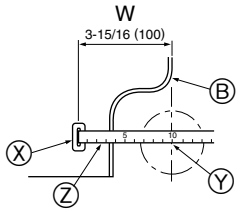
PARTNUMBER	ACCESSORY	QUANTITY	LOCATION OF SETTING
1	Wall-fixing bracket	1	Fix at the back of the unit
2	Tapping screw 4 × 35	12	Set inside the unit
3	Pipe cover	2	
4	Band	4 (large) + 5 (small)	
5	Felt tape	3	
6	Drain socket	1	
7	Joint pipe	1	
8	L-connector pipe (gas pipe)	1	

3. Installing the indoor unit

■ **PKFY-08NAMU-A**

in.(mm)





* The hole position on the left side is 5-1/8 inch (130 mm) from scale slot department.

3.2. Installing the mount board

1) Setting the mount board and piping positions

▶ **Using the mount board, 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.

■ **PKFY-08NAMU-A**

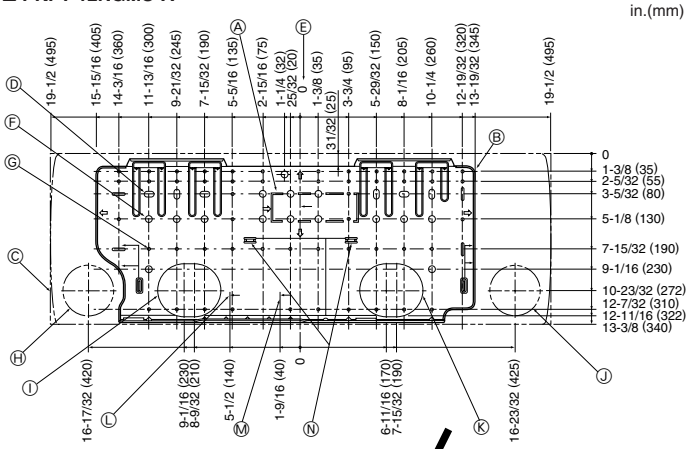
Ⓐ Supporting piece
Ⓑ Mount board [1]
Ⓒ Contour of the unit
Ⓓ Slot (4P-3/16" × 1-3/8" (4-4.5 × 35 mm))
Ⓔ Hole (8P-5/32" dia. (8-ø4.3 mm))
Ⓕ Level setting standard
Ⓖ Knockout hole
Ⓗ Hole (12P-1/8" dia. (12-ø2.8 mm))
Ⓘ Bolt hole (4P-11/32" dia. (4-ø9 mm))
Ⓙ Screw hole (87P-3/16" dia. (87-ø5.1 mm))
Ⓚ Piping hole (2-9/16" to 2-3/4" dia. (ø65-ø70 mm))
Ⓛ Slot (4P-3/16" × 1-9/16" (4-4.5 × 40 mm))
Ⓜ Slot (4P-3/16" × 1-15/32" (4-4.5 × 37 mm))
Ⓝ Slot (4P-7/16" × 25/32" (4-11 × 20 mm))

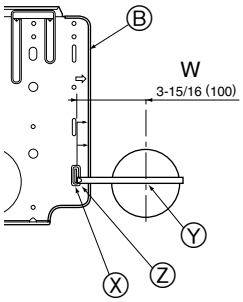
W: Location for wall holes

Ⓧ Insert scale.
Ⓨ Hole centre
Ⓩ Align the scale with the line.

■ **PKFY-12NGMU-A**

in.(mm)





■ **PKFY-12NGMU-A**

1) Setting the mount board and piping positions

▶ **Using the mount board, 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.

Ⓐ Supporting piece
Ⓑ Mount board [1]
Ⓒ Contour of the unit
Ⓓ Slot (6P-7/16" × 25/32" (6-11 × 20 mm))
Ⓔ Unit center
Ⓕ Bolt hole (14P-9/16" dia. (14-ø14 mm))
Ⓖ Screw hole (49P-3/16" dia. (49-ø5 mm))
Ⓗ Hole for left-rear piping (3-17/32" to 3-9/16" dia. (ø75 mm-ø90 mm))
Ⓘ Knockout hole for left-rear piping
Ⓙ Hole for right-rear piping (3-17/32" to 3-9/16" dia. (ø75 mm-ø90 mm))
Ⓚ Knockout hole for right-rear piping
Ⓛ Liquid pipe flare connection position
Ⓜ Gas pipe flare connection position
Ⓝ Level setting standard

W: Location for wall holes

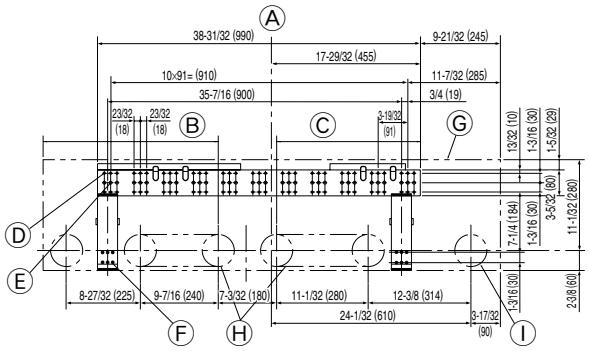
Ⓧ Insert scale.
Ⓨ Hole centre
Ⓩ Align the scale with the line.

3. Installing the indoor unit

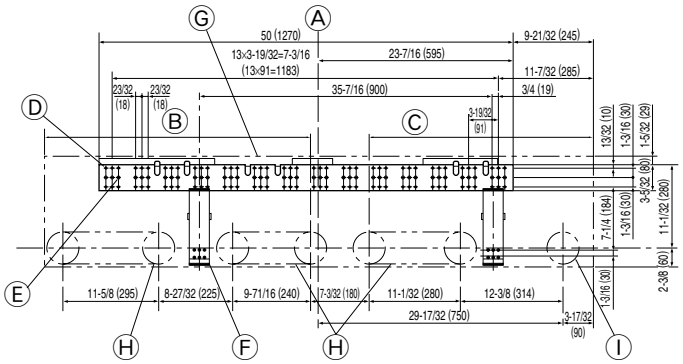
■ **PKFY-20/32NFMU-A**

■ **PKFY-20**

in.(mm)



■ **PKFY-32**



■**PKFY-20/32NFMU-A**

1) Setting the wall-fixing bracket and piping positions

▶ **Using the wall-fixing bracket , 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.

⚠ **Caution:**
The unit body must be mounted horizontally.

Ⓐ Indoor unit centre line
Ⓑ Left drain range
Ⓒ Right drain range
Ⓓ Screw hole
Ⓔ Bolt hole
Ⓕ Screw hole
Ⓖ Contour of the unit
Ⓗ Knockout hole for left-rear piping
Ⓘ Rear piping access hole (3-9/16 to 4 in. dia. (90 to 100 mm dia.))

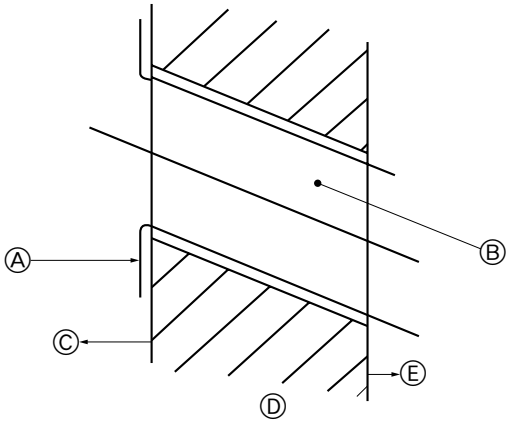
2) Drilling the piping hole

▶ **Use a core drill to make a hole of Ⓧ diameter in the wall in the piping direction, at the position shown in the diagram on page 5, 6.**
▶ **The hole should incline so that the outside opening is lower than the inside opening.**
▶ **Insert a sleeve (with a Ⓨ diameter and purchased locally) through the hole.**

in.(mm)

Models	Ⓧ	Ⓨ
PKFY-08	2-5/16 to 2-3/4 (65-70)	2-9/16 (65)
PKFY-12	2-15/16 to 3-5/32 (75-80)	2-15/16 (75)
PKFY-20/32	3-9/16 to 4 (90-100)	3-9/16 (90)

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

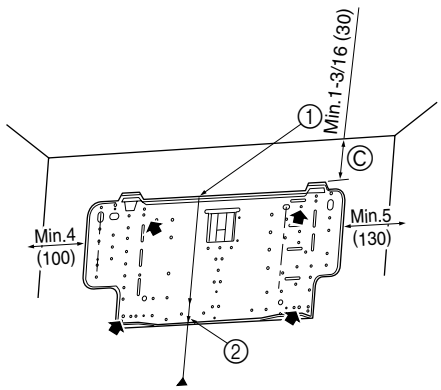


Ⓐ Sleeve
Ⓑ Hole
Ⓒ (Indoors)
Ⓓ Wall
Ⓔ (Outdoors)

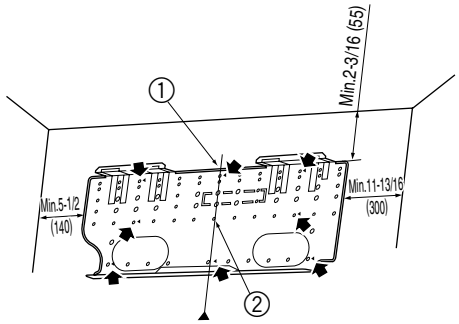
3. Installing the indoor unit

■ **PKFY-08NAMU-A**

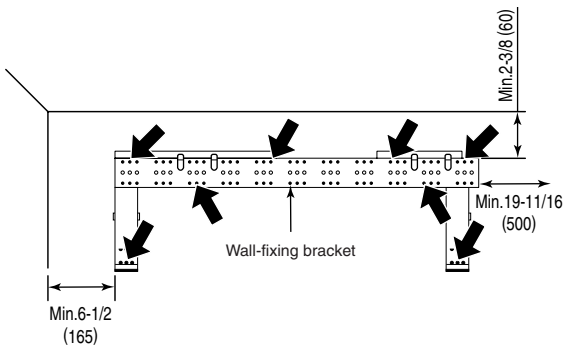
in.(mm)



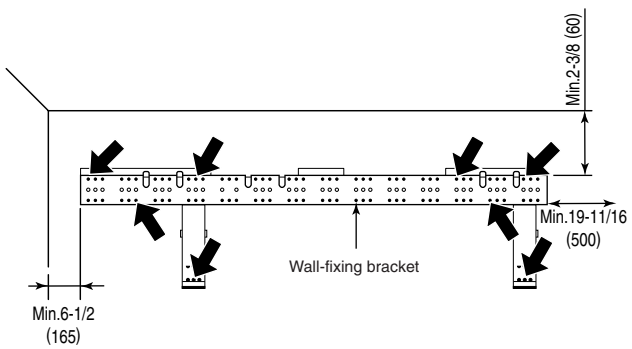
■ **PKFY-12NGMU-A**



■ **PKFY-20NFMU-A**



■ **PKFY-32NFMU-A**



3) Installing the mount board (the wall-fixing bracket)

- **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 mount board (the wall-fixing bracket) 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 indicated with a bold arrow.)
- **If securing the mount board with bolts, use commercially available M10 or W3/8 bolts (through bolts, anchor nuts, etc.).**
  - Make sure that the bolt tip does not protrude more that 5/8 in. (15 mm) from the wall surface.
  - Use at least two bolts for a concrete wall, and at least four bolts for a foamed concrete wall.
- **If securing the mount board with tapping screws, use the included accessory screws 2 or commercially available screw that are 5/32 in. (4 mm) in diameter and 1-3/8 in. (35 mm) or more in length.**
  - If securing the mount board to ferroconcrete, use concrete screws or commercially available anchor plugs.

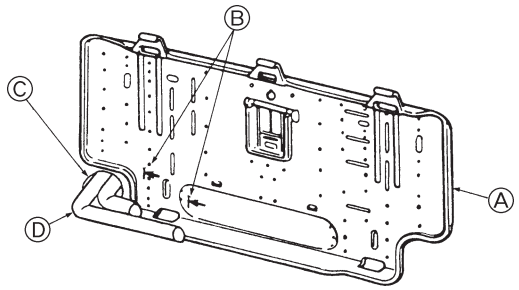
⚠ **Warning:**
If possible, secure the fixture at all positions indicated with a bold arrow.

⚠ **Caution:**
- **The unit body must be mounted horizontally.**
- **Fasten at the holes marked withe ⬆ as shown by the arrows.**

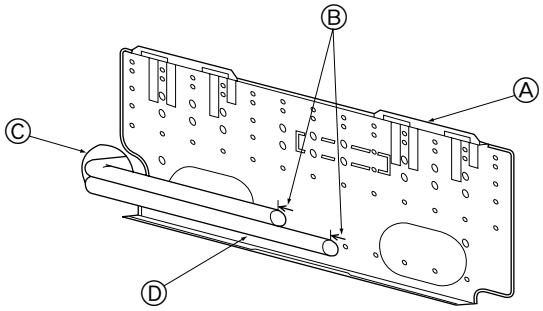
① Fasten a thread to the hole
② The level can be easily obtained by hanging a weight from the string and aligning the string with the mark.

3. Installing the indoor unit

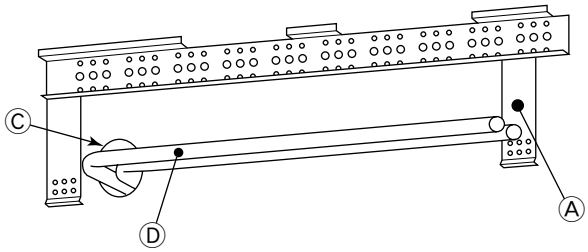
■ **PKFY-08NAMU-A**



■ **PKFY-12NGMU-A**



■ **PKFY-20/32NFMU-A**



3.3. When embedding pipes into the wall

- The pipes are on the bottom left.
- When the refrigerant 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 (wall-fixing bracket) 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 (wall-fixing bracket) 1

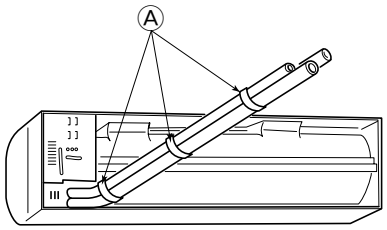
  Ⓑ Reference marking for flare connection

  Ⓒ Through hole

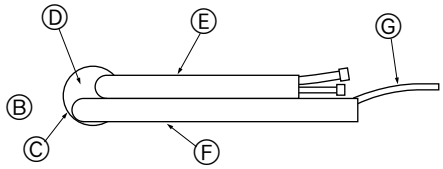
  Ⓓ Piping (Purchased locally)

3. Installing the indoor unit

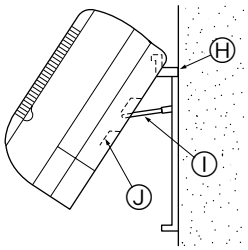
■ **PKFY-08NAMU-A**



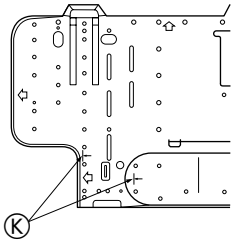
1



2



3



3.4. Preparation for piping connection

Rear, right and lower piping

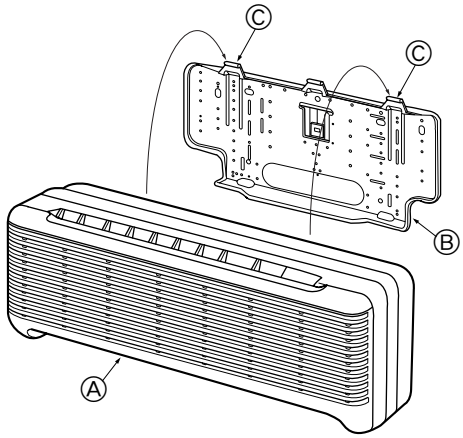
Bind the refrigerant pipes and drain pipe with vinyl tape at three or more points. This will facilitate passing the pipes through the wall.

Ⓐ Vinyl tape

Left and left-rear piping

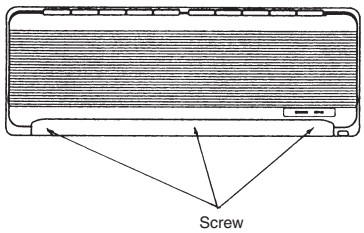
1. For left-rear piping, pull the pipes out the hole to determine their correct length, then bend them. The indoor unit should hang on the mount board.
   Ⓑ Wall
   Ⓒ Wall hole
   Ⓓ Bent section
   Ⓔ Refrigerant pipe
   Ⓕ Drain pipe
   Ⓖ Transmission cable
2. Lift the indoor unit by hooking the supporting piece (attached to the mount board) to the ribs on the back of the unit as shown.
   When piping work etc. is complete, replace the supporting piece on the mount board.
   (If the unit is not fixed securely, vibration may occur during operation.)
   Ⓗ Mount board 1
   Ⓘ Supporting piece
   Ⓙ Rib
3. If the flare pipe is to be embedded into the wall in advance:

• Determine the length of pipe to be embedded by marking on the mount board as a reference.
   Ⓚ Mark



3.5. Mounting the indoor unit

1. Securely place the hanging fixtures for the indoor unit over the catches on the mount board.
   Ⓐ Indoor unit
   Ⓑ Mount board 1
   Ⓒ Catch
2. When piping has been completed, install the indoor unit and mount board with fixing screws.



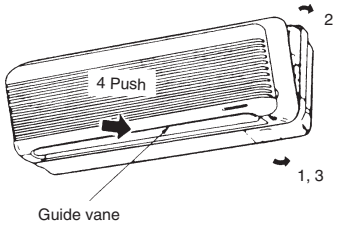
3.6. Remove the front panel

(Remove the front panel to check the electrical wiring connections and the drain for proper drainage.)

• Before removing the front panel, open the guide vane 13/16 to 1-3/16 in. (2-3 cm).

1. Remove the screw caps, then the screws.
2. Pull the left side of the front panel from the air conditioner, then the right side.
3. Pull the bottom of the front panel out, then the top of the front panel to remove the panel.

* Be sure not to remove the nozzle assembly when removing the front panel.

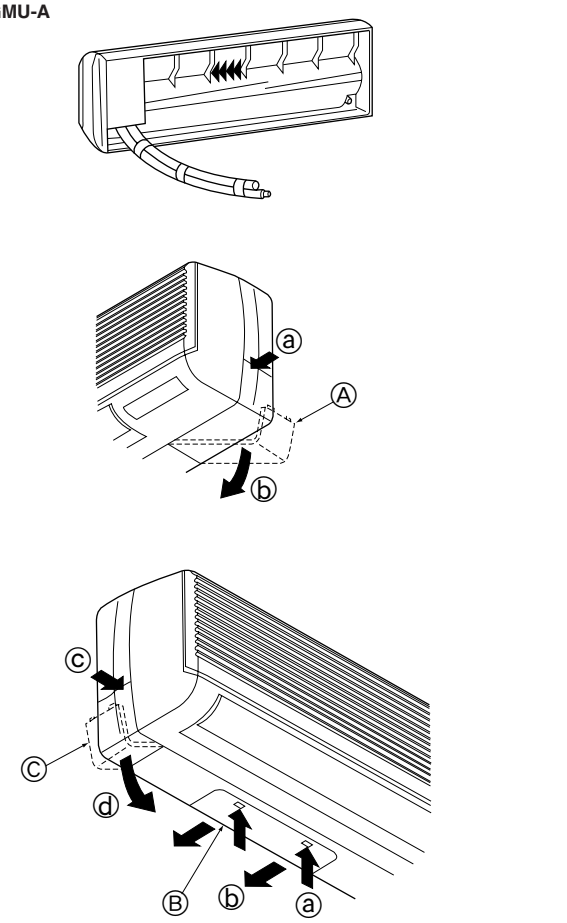


3.7. Installing the front panel

1. Insert the bottom of the front panel into the air conditioner under the guide vane.
2. Set the top of the front panel.
3. Set the bottom of the front panel, and then install the screws.
4. Push the front panel at the arrow marks to fix it to the air conditioner.
   Install the screw caps.

3. Installing the indoor unit

■ **PKFY-12NGMU-A**



3.8. Preparation for piping connection

Rear, right and lower piping

1. Bind the refrigerant pipe and drain pipe together.
- Bind the refrigerant pipes and drain pipe with vinyl tape at three or more points. This will facilitate passing the pipes through the wall.

2. Remove the corner box and knock out the knockout holes as necessary.
- Remove the corner box by pushing in a downward direction ⓑ, while at the same time, pressing in the upper side part of the corner box ⓐ.

Ⓐ Right corner box

Left and left rear piping

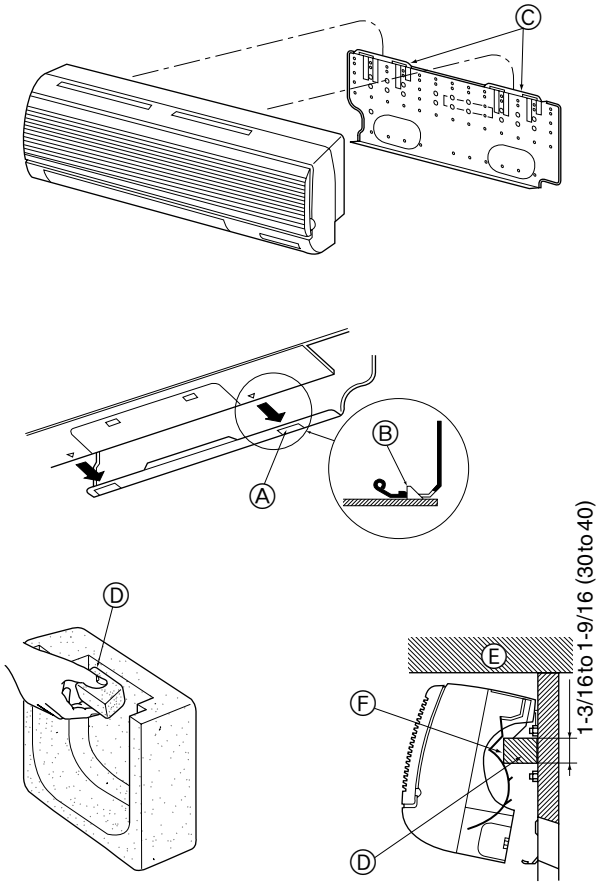
1. Remove the under cover.
- Remove the under cover by sliding it towards the rear of the unit ⓑ, while at the same time, pressing the two points marked by arrow heads ⓐ.

2. Remove the corner box and knock out the knockout holes as necessary.
- Remove the corner box by pushing in a downward direction ⓓ, while at the same time, pressing in the upper side part of the corner box ⓒ.

Ⓑ Under cover
Ⓒ Left corner box

* The drain hose can be connected at two different positions. Use the most convenient position and, if necessary, exchange the position of the drain pan, rubber plug and the drain hose. (For connecting instructions, refer to page 15.)

in.(mm)



3.9. Mounting the indoor unit

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

Ⓐ Square hole
Ⓑ Hooks
Ⓒ Catch

Rear, right and lower piping

3. Affix the indoor unit.
4. After connecting the pipes, put the corner box back to where it was (follow the removal steps backwards).

Left and left rear piping

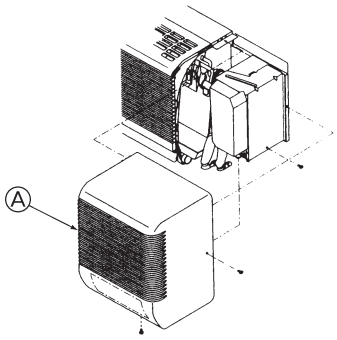
3. Cut out a mounting piece from the packaging material.
4. Pull the indoor unit up towards yourself as shown in the figure below and slide the mounting piece in to the mount board using the mounting piece setting marks as reference.
5. After connecting the pipes and wiring, put the under cover back to where it was, and remove the mounting piece and affix the indoor unit as shown in the left figure.
6. Put the corner box back to where it was.

Ⓓ Mounting piece 6
Ⓔ Ceiling
Ⓕ Rib

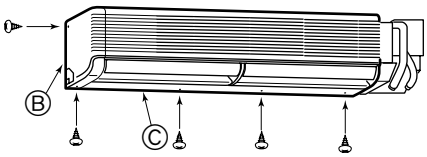
3. Installing the indoor unit

■ **PKFY-20/32NFMU-A**

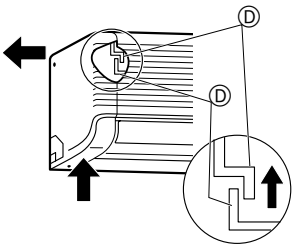
①

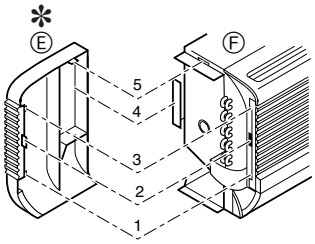


②



③





3.10. Preparation for piping connection

Remove the vinyl band that holds the drain piping.

- This vinyl band can be used to temporarily attach the pipes to the mount board while connecting the left pipe.

Rear, right and lower piping

① Remove the right side panel.

Left and left rear piping

① Remove the right and left side panels.
② Remove the five screws indicated by the arrows in the diagram.
③ Remove the left side panel, then the lower panel.

- While pushing up the front lower portion of the side panel (to disengage the side panel catch from the unit catch), slide the upper portion of the side panel to the left.
- When the indoor unit is already mounted, be sure the unit does not fall from the mount board.
- For reassembly, put the catch at the front lower portion of the side panel over the unit body and push it to the right.

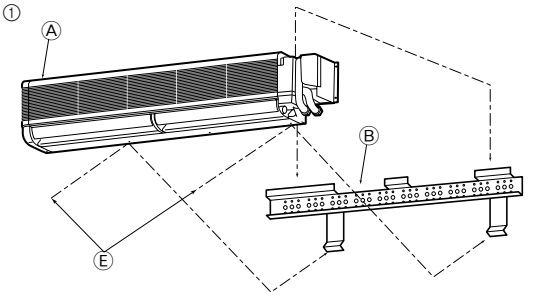
＊ Structure of the side panel and the unit body

1. Panel catch engages the unit body catch.
2. Panel catch is put in the unit body hole.
3. Panel catch engages the unit body catch.
4. Sheet metal of the unit body enters the panel.
5. Panel catch enters the unit body hole.

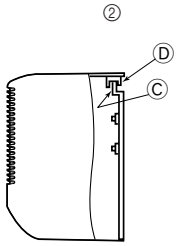
④ The drain hose can be connected at two different positions. Use the most convenient position and, if necessary, exchange the position of the drain pan, rubber plug and the drain hose. (For connecting instructions, refer to page 15.)

Ⓐ Right side panel
Ⓑ Left side panel
Ⓒ Lower panel
Ⓓ Catch
Ⓔ Side panel
Ⓕ Unit body

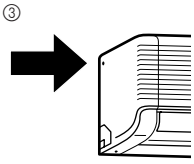
①



②



③



3.11. Mounting the indoor unit

① Make sure to hang the metal catches of the indoor unit over the hooks of the mount board.
② When the piping has been completed, use the securing screws to fix the indoor unit on the mount board.

Note:
Check that the catches of the indoor unit securely fit over the hooks of the mount board.

③ The screw indicated by the bold arrow is used only during transportation and should be removed. Remove the screw before installation if there is not enough space at the left side to remove it once the unit has been installed.

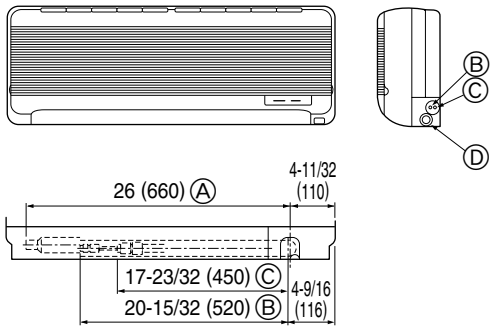
Ⓐ Indoor unit
Ⓑ Wall fixing bracket 1
Ⓒ Hook
Ⓓ Metal catch of the indoor unit
Ⓔ Securing screws

4. Refrigerant pipe and drain pipe

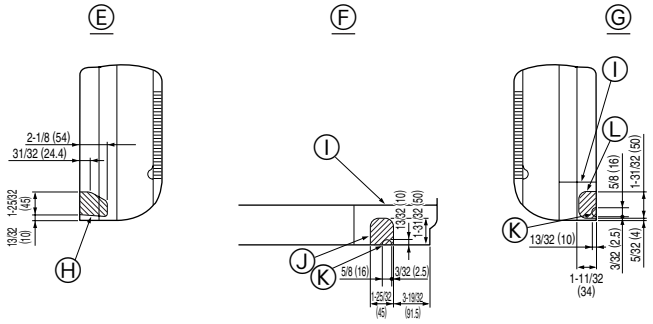
■ **PKFY-08NAMU-A**

①

in.(mm)



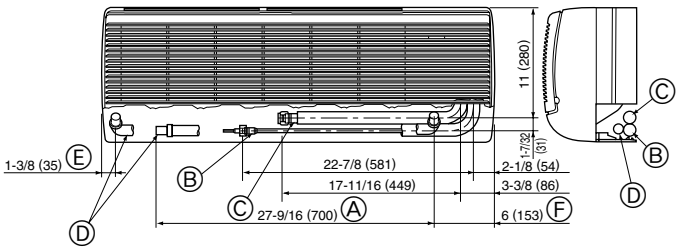
②



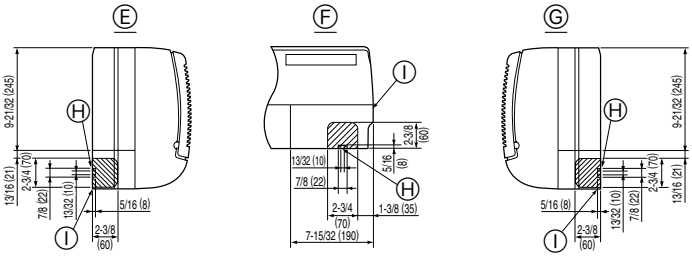
■ **PKFY-12NGMU-A**

①

in.(mm)



②



Notes:

- **Refrigerant pipes are available as an option. Read the manual before beginning their installation.**
- **Place insulation materials over refrigerant pipes and drain pipes to prevent condensation.**
- **If commercially available copper pipes are used, wrap liquid and gas pipes with commercially available insulation materials (heat-resistant to 212 °F (100 °C) or more, thickness of 1/2 in. (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 1/2 in. (12 mm) or more).**

4.1. Refrigerant and drainage pipe sizes

Item \ Model		PKFY-08NAMU-A	PKFY-12NGMU-A	PKFY-20/32NFMU-A
Refrigerant piping	Liquid	ODø6.35 (1/4")	ODø6.35 (1/4")	ODø9.52 (3/8")
	Gas	ODø12.7 (1/2")	ODø12.7 (1/2")	ODø15.88 (5/8")
Unit drain pipe		OD 5/8"	ID 7/8" or 1-1/16"	ID 7/8" or 1-1/16"

4.2. Positioning refrigerant and drain piping

① Position of refrigerant and drain piping

- The drain pipe can be cut midway to meet the on-site conditions.
  - Ⓐ (Total length of flexible hose)
  - Ⓑ Liquid pipe
  - Ⓒ Gas pipe
  - Ⓓ Drain hose

② Determine the position of the knockout holes on the unit body.

▶ **Cut the knockout holes using a saw blade or an adequate knife.**
Take care not to damage other parts of the unit.

- Remove the corner box and drill a knockout hole. If a hole is made without removing the box, the drain hose could be damaged.
  - Ⓔ Left-side piping
  - Ⓕ Lower piping
  - Ⓖ Right-side piping
  - Ⓗ Knockout hole for left-side piping
  - Ⓘ Corner box
  - Ⓙ Knockout hole for lower piping
  - Ⓚ Through hole for the remote controller's cable
  - Ⓛ Knockout hole for right-side piping

① Position of refrigerant and drain piping

- The drain pipe can be cut midway to meet the on-site conditions.
  - Ⓐ (Total length of flexible hose)
  - Ⓑ Liquid pipe
  - Ⓒ Gas pipe
  - Ⓓ Drain hose
  - Ⓔ Left-side piping
  - Ⓕ Right-side piping

② Determine the position of the knockout holes on the unit body.

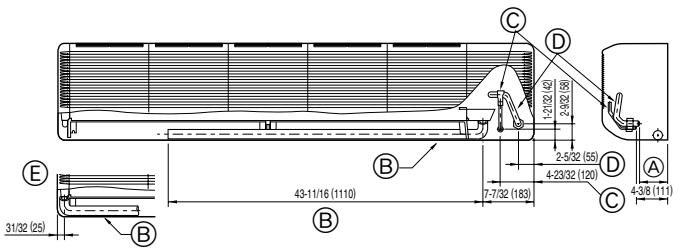
▶ **Cut the knockout holes using a saw blade or an adequate knife.**
Take care not to damage other parts of the unit.

- Remove the corner box and drill a knockout hole. If a hole is made without removing the box, the drain hose could be damaged.
  - Ⓔ Left-side piping
  - Ⓕ Lower piping
  - Ⓖ Right-side piping
  - Ⓗ Remote controller cable through hole
  - Ⓘ Corner box

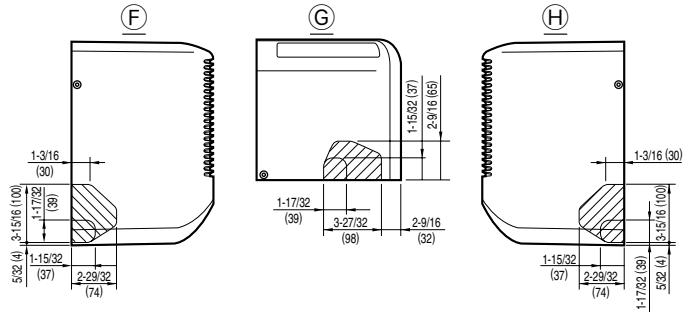
4. Refrigerant pipe and drain pipe

■ **PKFY-20/32NFMU-A**

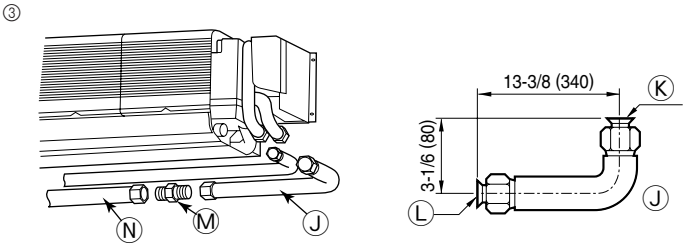
① in.(mm)

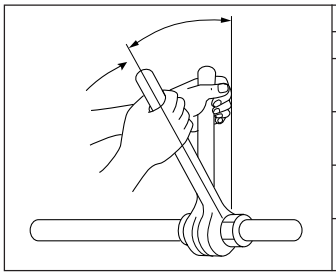


②



③





Pipe diameter		Tightening torque ft • lbs (kgf • cm)
mm	inch	
9.52	3/8	25 - 30 (350 - 420)
12.7	1/2	36 - 42 (500 - 575)
15.88	5/8	54 - 58 (750 - 800)
19.05	3/4	72 - 101 (1000 - 1400)

① **Position of refrigerant and drain piping**

in.(mm)

Models	Ⓐ
PKFY-20NFMU-A	4-7/32 (107)
PKFY-32NFMU-A	4-1/32 (102)

Ⓑ Drain hose
Ⓒ Liquid pipe
Ⓓ Gas pipe
Ⓔ Drain hose in left-side piping

- The drain pipe can be cut midway to meet the on-site conditions.

② **Determine the position of the knockout holes on the unit body.**

Ⓕ For left-side piping
Ⓖ For lower-side piping
Ⓗ For right-side piping

- Make the knockout holes using a saw blade or an adequate knife.

⚠ **Caution:**
The side panel must be removed before drilling a knockout hole in it.
If a hole is made with the side panel in place, the refrigerant pipe within the unit could be damaged.

③ **L-shaped connection pipe (for gas piping)**

Ⓙ L-shaped connection pipe [8]
Ⓚ Unit side
Ⓛ On-site piping side
Ⓜ Nipple (purchased locally)
Ⓝ Piping (purchased locally)

⚠ **Caution:**
These items are used for right, lower or left side piping.

4.3. Refrigerant piping

⚠ **Caution:**
Before connecting right, lower, left or left rear piping, connect the supplied L-shaped connection pipe to the on-site piping.

When using commercially available copper pipes:

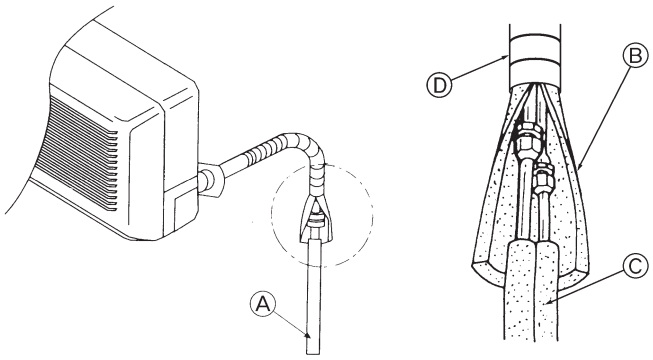
⚠ **(Attention!)**

- **Before tightening the flare nut, apply a small amount of the refrigerating machine oil to the fitting seat surface.**
- **Two spanners must be used for each piping connection.**
- **When pipe connections have been made, use a leak detector or a soap solution to check for gas leakage.**
- **When pipe brazing, use only oxygen-free brazing techniques.**
- **Use the supplied insulation material on the indoor connections, and make sure it is neatly insulated as shown in the diagram. Protruding insulation material should be sealed with tape.**

Note:
Fasten a flare nut with a torque wrench as specified in the table to the left.
When fastened too tight, a flare nut using two wrenches. Excessive tightening damages the flare section.

4. Refrigerant pipe and drain pipe

■ **PKFY-08NAMU-A**

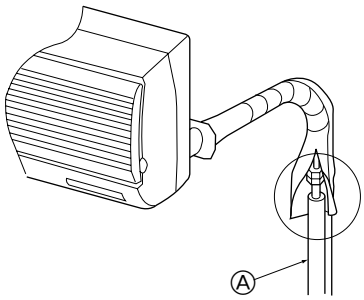


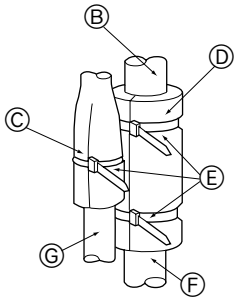
Working process

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 pipes to the unit.
4. Wrap the pipe cover of the unit and make sure that it covers the insulation material of the on site liquid pipe.
5. Insulating material of combining it department is covered with the vinyl tape.

Ⓐ Refrigerant piping and insulation (purchased locally)
Ⓑ Unit's refrigerant piping
Ⓒ On-site refrigerant piping
Ⓓ Vinyl tape

■ **PKFY-12NGMU-A**



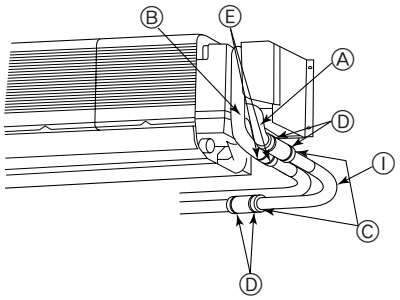


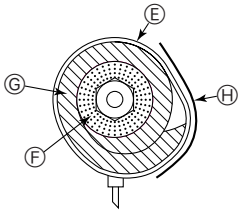
Working process

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 pipes to the unit.
4. Wrap the pipe cover [3] 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. Use the bands [4] that are provided to tighten both ends (3/4 in. (20 mm)) of each pipe cover [3].

Ⓐ On site pipe and insulation (available from local supplier)
Ⓑ Unit's gas pipe
Ⓒ Unit's liquid pipe
Ⓓ Pipe cover [3]
Ⓔ Bands [4]
Ⓕ On site gas pipe
Ⓖ On site liquid pipe

■ **PKFY-20/32NFMU-A**



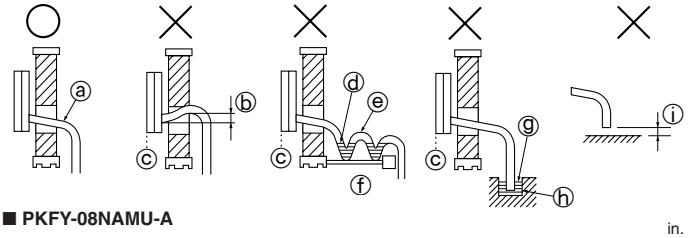


Working process

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 pipes to the unit.
4. Wrap the pipe cover [3] 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. Use the bands [4] that are provided to tighten both ends (3/4 in. (20 mm)) of each pipe cover [3].

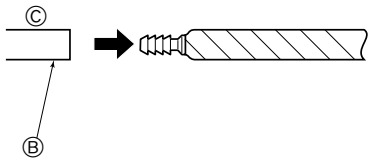
Ⓐ Gas pipe
Ⓑ Liquid pipe
Ⓒ Pipe cover [3]
Ⓓ Band (large) [4]
Ⓔ Band (small) [4]
Ⓕ On site pipe and insulation (available from local supplier)
Ⓖ Thermal insulating material for liquid pipe
Ⓗ Vinyl tape (Purchased locally)
Ⓘ L-connection pipe (gas pipe) [8]

4. Refrigerant pipe and drain pipe

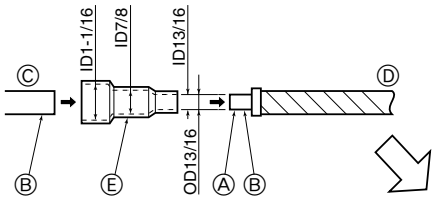


■ **PKFY-08NAMU-A**

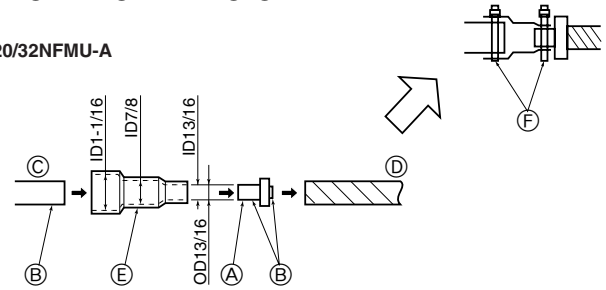
in.



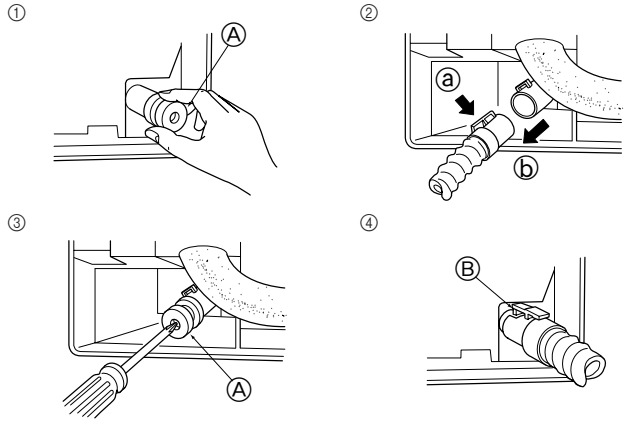
■ **PKFY-12NGMU-A**



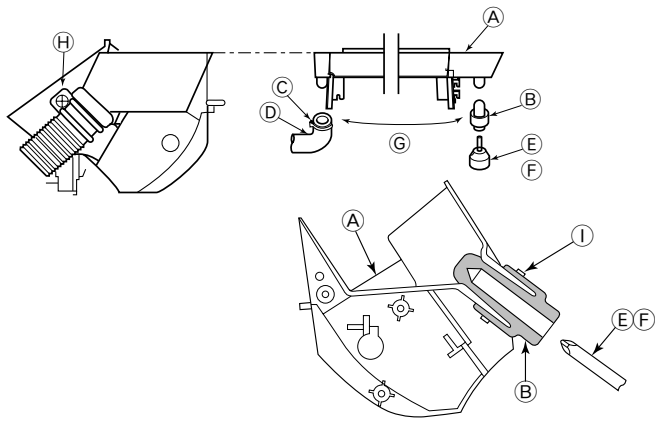
■ **PKFY-20/32NFMU-A**



■ **PKFY-12NGMU-A**



■ **PKFY-20/32NFMU-A**



4.4. Drain piping

- Drain pipes should have an inclination of 1/100 or more.
- Use PVC pipe for drain piping.
- Drain pipes can be cut with a knife at the connection point according to the on-site conditions.
- When connecting the PVC pipe, use adhesive to attach the supplied drain socket.
- Do not put the drain pipes directly in a drainage ditch where sulphuric gas may be generated.
- Confirm that water is not leaking at the drain pipe connections.
- When piping has been completed, check to make sure that water flows from the end of the drain pipe.
  - ⓐ Inclined downwards
  - ⓑ Must be lower than outlet point
  - ⓒ Water leakage
  - ⓓ Trapped drainage
  - ⓔ Air
  - ⓕ Wavy
  - ⓖ The end of drain pipe is under water.
  - ⓗ Drainage ditch
  - ⓘ 2 in. (5 cm) or less between the end of drain pipe and the ground

⚠ **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.

Drain pipe connection

- Ⓐ Drain socket 6
- Ⓑ Apply PVC adhesive (purchased locally) here for bonding
- Ⓒ On-site drain pipe
- Ⓓ Unit's drain pipe (drain hose)
- Ⓔ Joint pipe 7 (for use when the size of on-site piping does not fit)
- Ⓕ Band 4

Preparing left and left rear piping

The drain hose can be connected at two different positions. Use the most convenient position and, if necessary, exchange the position of the drain pan, rubber plug and the drain hose.

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

The drain hose can be connected at two different positions. Use the most convenient position and, if necessary, exchange the position of the drain pan, rubber plug and the drain hose.

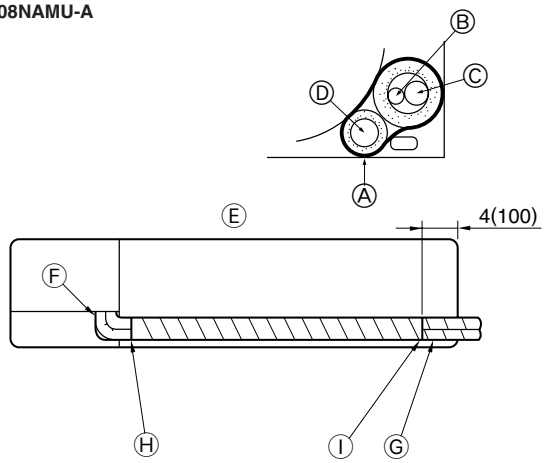
- Ⓐ Drain pan
- Ⓑ Rubber plug
- Ⓒ Metal band
- Ⓓ Drain hose
- Ⓔ Screwdriver
- Ⓕ Insert the screwdriver into the hole of the rubber plug and push.
- Ⓖ Exchange if necessary.
- Ⓗ The screw of the metal clamp should be positioned facing the wall.
- Ⓘ Band (small) 4

- Remove the drain hose after loosening the screw on the metal band used to mount it.
- Securely insert both the rubber plug and drain hose into the drain outlets.
- Install the metal band around the drain hose and the small enclosed band around the rubber plug. Be sure the bands are securely fastened so that there is no leakage.

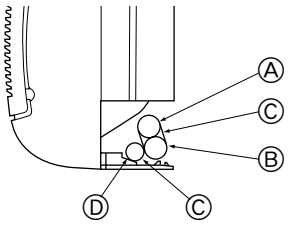
4. Refrigerant pipe and drain pipe

■ **PKFY-08NAMU-A**

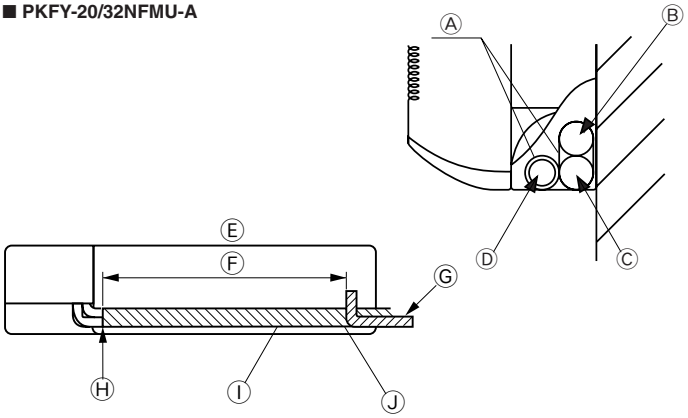
in.(mm)



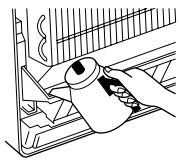
■ **PKFY-12NGMU-A**



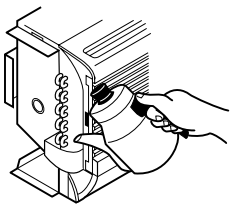
■ **PKFY-20/32NFMU-A**



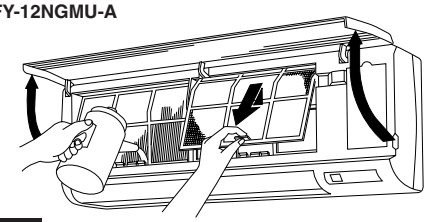
■ **PKFY-08NAMU-A**



■ **PKFY-20/32NFMU-A**



■ **PKFY-12NGMU-A**



4.5. Completing the piping

Using the unit's pipe storage space (for left and left rear piping)

- To prevent condensation from dripping, put felt tape over the insulation materials on the refrigerant and drain pipes within the unit as shown in the diagram.
- Arrange the drain hose so that it goes to the bottom of the unit.
- The overlapping width of felt tape is one half of the tape width.

Ⓐ Felt tape [3]
Ⓑ Liquid pipe
Ⓒ Gas pipe
Ⓓ Drain pipe
Ⓔ Viewed from the back
Ⓕ Take care that the middle of the drain hose is not raised.
Ⓖ In the case of left piping, the refrigerant pipes and the drain pipe should be taped separately.
Ⓗ Wrap together the refrigerant pipes and the drain pipe with felt tape so that white felt overlaps by 20 mm or more.
* The pipes should be wrapped so that they are housed behind the unit.
Ⓘ Fix the end of the felt tape with a bandage fixture.

Using the unit's pipe storage space (for left and left rear piping)

- To prevent cooling pipes from gathering moisture, wrap the pipes that are in the unit's pipe storage space with the felt tape provided.
- When wrapping with the felt tape, be sure to double over by no more than half the width of the tape.
- Use a bandage clip etc to fasten the end to the felt tape.

Ⓐ Gas pipe
Ⓑ Liquid pipe
Ⓒ Felt tape [5]
Ⓓ Drain pipe

Using the unit's pipe storage space (for left and left rear piping)

- To prevent dripping condensation, put felt tape over the insulation materials on the refrigerant and drain pipes within the unit as shown in the diagram.
- Arrange the drain hose so that it goes to the bottom of the unit. Take care that the middle of the drain hose is not raised.

Ⓐ Felt tape [5]
Ⓑ Liquid pipe
Ⓒ Gas pipe
Ⓓ Drain pipe
Ⓔ Viewed from the back
Ⓕ Two refrigerant pipes are wrapped together.
Ⓖ A single drain hose is wrapped with felt tape.
Ⓗ Two refrigerant pipes are wrapped with felt tape from the end of the bent section.
Ⓘ Overlapping width of felt tape is one half of the tape width or less.
Ⓙ Secure the end of the felt tape with a bandage fixture.

4.6. Drain check

Pour water in the drainpan and check that it comes out the drain pipe end, after confirmation, reinstall the panel.

5. Electrical work

5.1. Precautions

⚠ **Warning:**

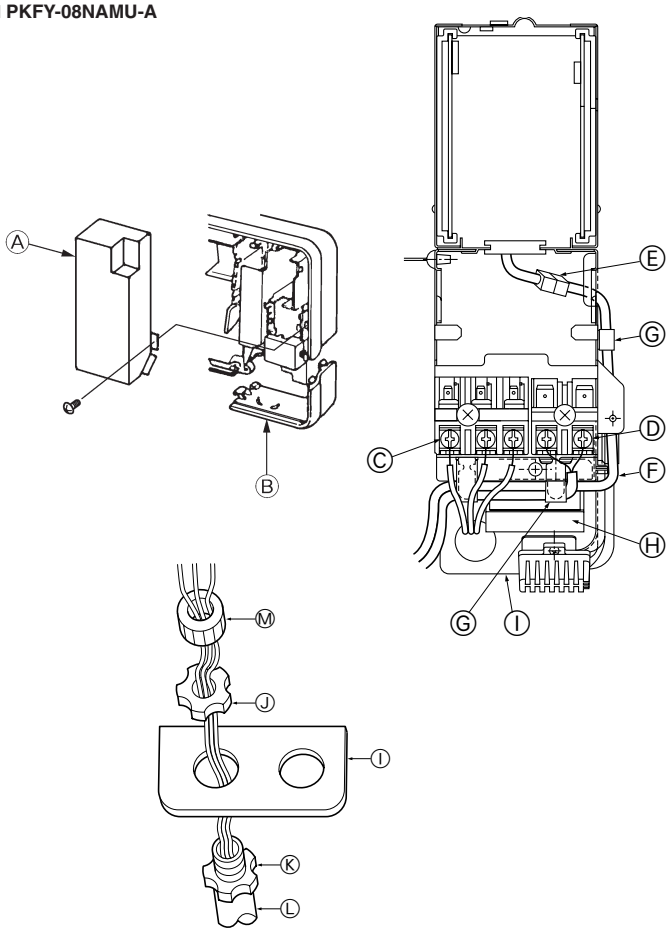
Electrical work should be done by qualified electrical engineers in accordance with "Engineering Standards For Electrical Installation" and supplied installation manuals. Special circuits should also be used. If the power circuit lacks capacity or has an installation failure, it may cause a risk of electric shock or fire.

1. Be sure to take power from the special branch circuit.
2. Be sure to install an earth leakage breaker to the power.
3. Install the unit to prevent that any of the control circuit cables (remote controller, transmission cables) is brought in direct contact with the power cable outside the unit.
4. Ensure that there is no slack on all wire connections.
5. Some cables (power, remote controller, transmission cables) above the ceiling may be bitten by mouses. Use as many metal pipes as possible to insert the cables into them for protection.
6. Never connect the power cable to leads for the transmission cables. Otherwise the cables would be broken.
7. Be sure to connect control cables to the indoor unit, remote controller, and the outdoor unit.
8. Put the unit to the ground on the indoor unit side.
9. Select control cables from the conditions given in "Types of control cable".

⚠ **Caution:**

Be sure to put the unit to the ground on the indoor unit side also. Do not connect the earth cable to any gas pipe, water pipe, lightening rod, or telephone earth cable. Incomplete grounding may cause a risk of electric shock.

■ **PKFY-08NAMU-A**



Working process

1. Remove the front panel, then remove the corner box from the lower right corner of the indoor unit.
2. Install each wire into the unit.
3. Remove the tapping screw (1), and then remove the electric parts cover.
4. Connect each wire properly to the terminal block.
   - In consideration of future servicing, please leave some leeway for the wiring length.
   - Route the wires as shown in the illustration.
     (Do not route the wires in front of the address board cover.)
   - If using the MA remote controller, connect it to the connector for the accessory remote controller cable 4.
5. Put all the parts back the way they were.
6. Use a clamp from the bottom of the electric parts box to fasten each wire.

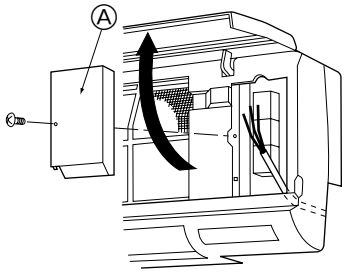
▶ **Fix power source wiring to control box using buffer bushing for tensile force. (PG connection or the like.)**

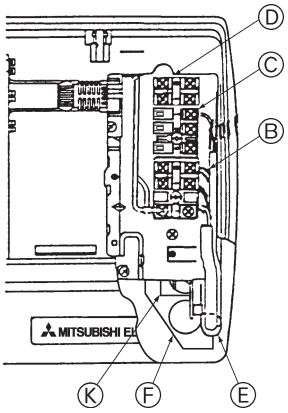
Ⓐ Electric parts cover
Ⓑ Corner box
Ⓒ Terminal block for power supply
Ⓓ Terminal block for transmission cable (Shared with the M-NET remote controller)
Ⓔ Connector for MA remote controller
Ⓕ MA remote controller cable 4
Ⓖ Cable clamp
Ⓗ Address board
Ⓘ Conduit plate
Ⓙ Lock nut (Purchased locally)
Ⓚ Connector (Purchased locally)
Ⓛ Conduit (Purchased locally)
Ⓜ Bush (Purchased locally)

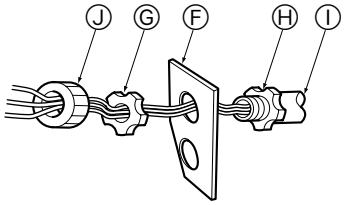
A means for the disconnection of the supply with an isolation switch, or similar device, in all active conductors shall be incorporated in the fixed wiring.

5. Electrical work

■**PKFY-12NGMU-A**







Working process

1. Remove the corner box.
2. Install each wire into the unit.
3. Open the front grill, remove the tapping screw (1), and then remove the terminal block cover.
4. Connect each wire properly to the terminal block.
   - In consideration of future servicing, please leave some leeway for the wiring length.
5. Put all the parts back the way they were.
6. Use a clamp from the bottom of the electric parts box to fasten each wire.

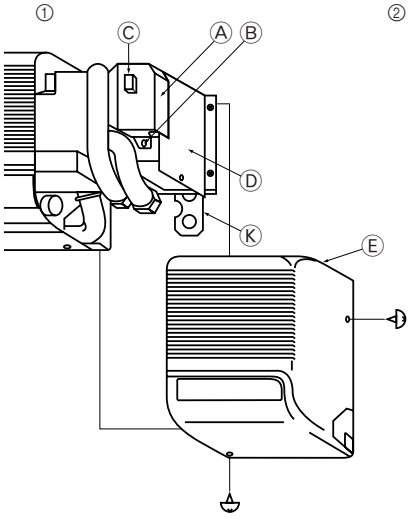
▶ **Fix power source wiring to control box using buffer bushing for tensile force. (PG connection or the like.)**

Ⓐ Terminal block cover
Ⓑ Terminal block for power supply
Ⓒ Terminal block for transmission line and M-NET remote controller
Ⓓ Terminal block for MA remote controller
Ⓔ Cable clamp
Ⓕ Conduit plate
Ⓖ Lock nut (Purchased locally)
Ⓗ Conector (Purchased locally)
Ⓘ Conduit (Purchased locally)
Ⓙ Bush (Purchased locally)
Ⓚ Address board

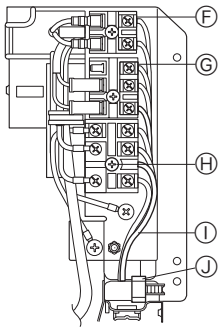
A means for the disconnection of the supply with an isolation switch, or similar device, in all active conductors shall be incorporated in the fixed wiring.

■**PKFY-20/32NFMU-A**

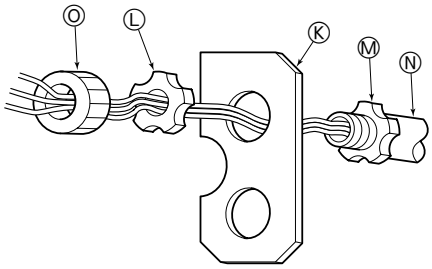
①



②



③



Working process

1. Remove the right-side panel.
2. Install each wire into the unit.
3. Remove the tapping screw (1), and then remove the terminal block cover by sliding it to the right and up.
4. Connect each wire properly to the terminal block.
   - In consideration of future servicing, please leave some leeway for the wiring length.
5. Put all the parts back the way they were.
6. Use a clamp from the bottom of the electric parts box to fasten each wire.

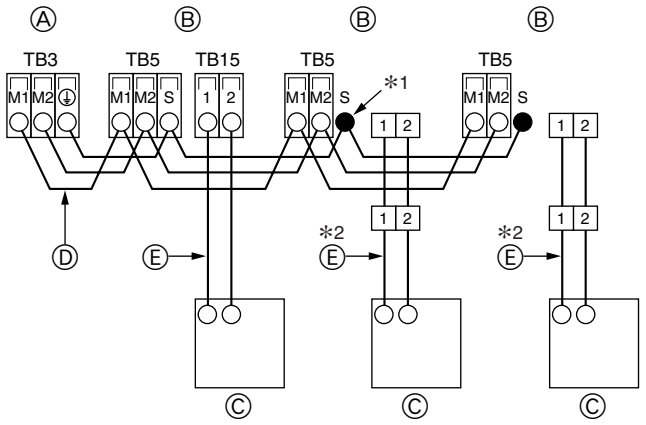
▶ **Fix power source wiring to control box using buffer bushing for tensile force. (PG connection or the like.)**

Ⓐ Terminal block cover
Ⓑ Securing screw on the terminal block cover
Ⓒ Address board
Ⓓ Printed circuit board cover
Ⓔ Right side panel
Ⓕ Terminal block for MA remote controller
Ⓖ Terminal block for transmission line and M-NET remote controller
Ⓗ Terminal block for power supply
Ⓘ Power supply wiring & connection wiring
Ⓙ Cable clamp
Ⓚ Conduit plate
Ⓛ Lock nut (Purchased locally)
Ⓜ Connector (Purchased locally)
Ⓝ Conduit (Purchased locally)
Ⓞ Bush (Purchased locally)

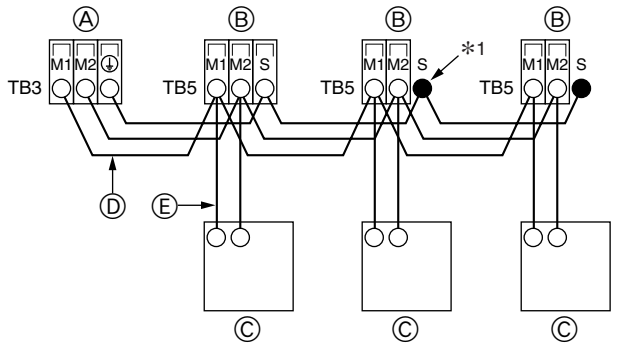
⚠ **Warning:**
Wiring should be done so that the power lines are not subject to tension. Otherwise, heat may be generated or fire may occur.

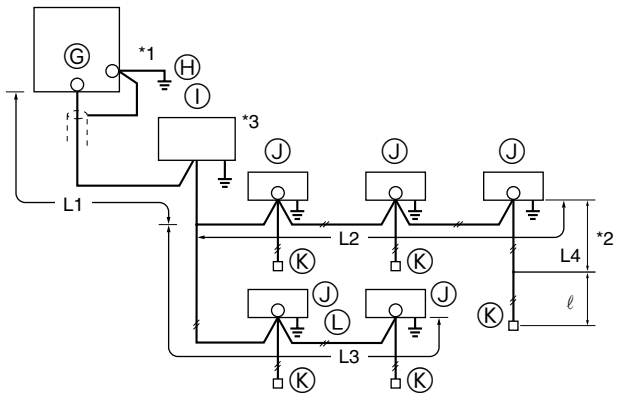
5. Electrical work

①



②





5.2. Connecting remote controller, indoor and outdoor transmission cables

- Connect indoor unit TB5 and outdoor unit TB3. (Non-polarized 2-wire)
  The "S" on indoor unit TB5 is a shielding wire connection. For specifications about the connecting cables, refer to the outdoor unit installation manual.

*1 Because the terminal block TB5 for the PKFY-08NAMU-A model does not have the "S" terminal, connect all of the wiring directly.

- Install a remote controller following the manual supplied with the remote controller.
- Connect the remote controller's transmission cable within 33 ft (10 m) using a 0.75 mm² (AWG18) core cable. If the distance is more than 33 ft (10 m), use a 1.25 mm² (AWG16) junction cable.

① MA Remote controller

- Connect the "1" and "2" on indoor unit TB15 to a MA remote controller or connect the connector for MA remote controller. (Non-polarized 2-wire)
- DC 9 to 13 V between 1 and 2 (MA remote controller)

② M-NET Remote controller

- Connect the "M1" and "M2" on indoor unit TB5 to a M-NET remote controller. (Non-polarized 2-wire)
- DC 24 to 30 V between M1 and M2 (M-NET remote controller)

Ⓐ Terminal block for outdoor unit
Ⓑ Terminal block for indoor unit
Ⓒ Remote controller
Ⓓ Transmission cables (Purchased locally)
Ⓔ Remote control cables (Purchased locally)

*2 Only the PKFY-08NAMU-A model has a remote control transmission cable attached to the unit for relay connections.

Constraints on transmission cable

Longest wiring length ($L_1+L_2+L_4$ or L_1+L_3 or $L_2+L_3+L_4$): less than 656 ft (200 m)
Length between indoor unit and remote controller (ℓ): within 33 ft (10 m)

Ⓖ Outdoor unit
Ⓗ Ground
Ⓘ BC controller
Ⓙ Indoor unit
Ⓚ M-NET Remote controller
Ⓛ Non-polarized 2-wire

Note:

***1 Put the transmission cable earth via the outdoor unit's earth terminal ⏚ to the ground.**

***2 If the remote controller cable exceeds 33 ft (10 m), use a 1.25 mm² (AWG16) diameter cable over the exceeded portion, and add that exceeded portion to within 656 ft (200 m).**

***3 The BC controller is required only for simultaneous cooling and heating series R2.**

Types of control cables

1. Wiring transmission cables: Shielding wire CVVS or CPEVS

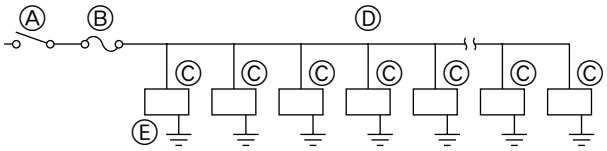
- Cable diameter: More than 1.25 mm² (AWG16)

2. M-NET Remote control cables

Kind of remote control cable	2-core cable (unshielded)
Cable diameter	More than 0.5 (AWG20) to 0.75 mm² (AWG18)
Remarks	When 33 ft. (10 m) is exceeded, use cable with the same specifications as transmission line wiring (shielding portion is more than 1.25 mm² (AWG16))

3. MA Remote control cables

Kind of remote control cable	2-core cable (unshielded)
Cable diameter	0.3 mm² (AWG22) to 1.25 mm² (AWG16)



Ⓐ Switch 15 A
Ⓑ Overcurrent protection 15 A
Ⓒ Indoor unit
Ⓓ Total operating current be less than 15 A
Ⓔ Ground

5.3. Power supply wiring

Power cable size (diameter) : more than 1.6 mm (AWG14)
Ground cable size (diameter) : 1.6 mm (AWG14)
*** Use copper supply wires.**

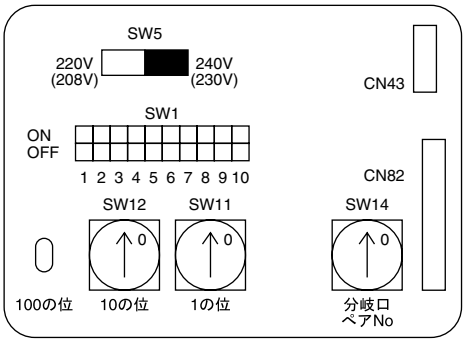
[Selecting non-fuse breaker (NF) or earth leakage breaker (NV)]
To select NF or NV instead of a combination of Class B fuse with switch, use the following:

- In the case of Class B fuse rated 15 A or 20 A,
  NF model name (MITSUBISHI): NF30-CS (15 A) (20 A)
  NV model name (MITSUBISHI): NV30-CA (15 A) (20 A)

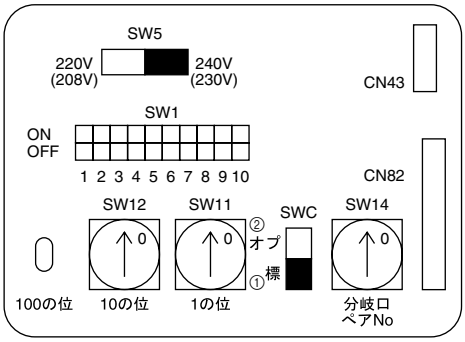
Use an earth leakage breaker with a sensitivity of less than 30 mA 0.1 sec.

⚠ Caution:
Do not use anything other than the correct capacity breaker and fuse. Using fuse, wire or copper wire with too large capacity may cause a risk of malfunction or fire.

■ PKFY-08NAMU-A



■ PKFY-12NGMU-A
■ PKFY-20/32NFMU-A



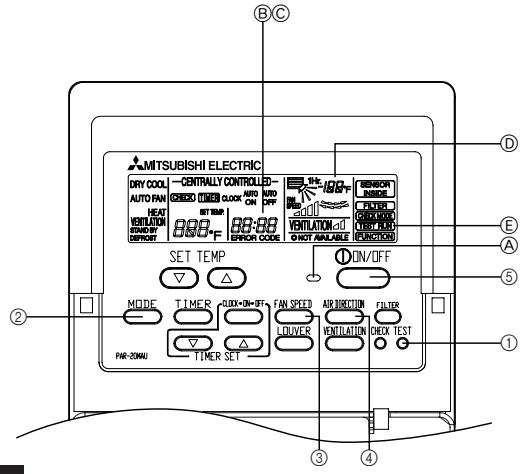
5.4. Setting addresses

Be sure to operate with the main power turned OFF.

- There are two types of rotary switch setting available: setting addresses 1 to 9 and over 10, and setting branch numbers.
  ① How to set addresses
  Example: If Address is "3", remain SW12 (for over 10) at "0", and match SW11 (for 1 to 9) with "3".
  ② How to set branch numbers (Series R2 only)
  Match the indoor unit's refrigerant pipe with the BC controller's end connection number. Remain SW14 other than R2 at "0".
- The rotary switches are all set to "0" when shipped from the factory. These switches can be used to set unit addresses and branch numbers at will.
- The determination of indoor unit addresses varies with the system at site. Set them referring to technical data.

Note:
Please set the switch SW5 according to the power supply voltage.

- **Set SW5 to 230 V side when the power supply is 230 volts.**
- **When the power supply is 208 volts, set SW5 to 208 V side.**



6.1. Test run procedures

① Press [TEST RUN] button twice → displaying [TEST RUN] on the screen
② Press [Selecting operation] button → Check that wind is blowing out
③ Press [Fan speed adjustment] button → Check that the wind speed is changed
④ Press [Up/down airflow selection] button to change wind direction.
⑤ Press [ON/OFF] button to clear test run → Test run stops

Ⓐ Lighting in operation
Ⓑ Displaying inspection code
Ⓒ Displaying remaining test run time
Ⓓ Displaying indoor unit's liquid pipe temperature
Ⓔ Displaying test run

Note:

- **The 2-hour-set timer is activated to automatically stop test run after two hours.**
- **The remote controller displays the temperature of the indoor unit's liquid pipe on the temperature display section during test run.**

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

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

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: MITSUBISHI DENKI BLDG., 2-2-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

BG79S716H01

Printed in Japan