

DRAIN PAN HEATER INSTALLATION MANUAL




Two-dimensional bar code
is a code for manufacturing.

MODELS: KEH041A42, KEH041A47, KEH041A48

Safety Considerations for Installation of Drain Pan Heater

Read these **SAFETY CONSIDERATIONS** carefully before installing the drain pan heater. After completing the installation, check if the unit operates properly during the start-up operation.

Meaning of **DANGER**, **WARNING** and **CAUTION** symbols.

 DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.	 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.		

- Inform customers that they should store this Installation Manual for future reference.
- After completing the installation, make sure that the unit operates properly during the startup operation.
- All phases of the field-installation, including, but not limited to, electrical, piping, and safety, must be done in accordance with manufacturer's instructions and must comply with national, state, provincial, and local codes.
- This product is a heater designed to melt snow that is blown into the product from the outside to prevent the drain pan of the outdoor unit from freezing.
- Install the product with a snow-break hood on a high stand if this product is used in heavy snow areas.

DANGER

- **Do not touch the heater unit without wearing gloves.**

The temperature of the heater unit will become high when the heater is turned on.
Touching the heater unit with bare hands will result in burns or injury.

WARNING

- **Request the dealer or an authorized technician to install the product.**

Improper installation of the product could result in water leakage, an electrical shock, or fire.

- **The product must be installed according to the instructions given in this manual.**

The Incomplete installation of the product could result in water leakage, an electrical shock, or fire.

- **Use the supplied or specified installation parts.**

Use of other parts could result in the unit becoming loose and falling, water leakage, electrical shocks, or fire.

- **Turn OFF the power supply at the time of installation.**

Touching any electrical parts may with the power supply turned on could result in electrical shocks.

- **Use specified wires. Connect and fix the wires so that the wires will not put improper force on the terminal junctions.**

Wires connected or fixed improperly could result in terminal overheating, an electrical shock, or fire.

- **When wiring and connecting the indoor and outdoor units, carefully arrange the wiring so that they will not put improper force on the structures.**

Install covers over the wires. Incomplete cover installation could result in terminal overheating, an electrical shock, or fire.

CAUTION

- **Wear protective gloves at the time of installation.**

Touching the suction mouth or aluminum fin of the outdoor unit may result in injury.

- **Do not install the product in places where there is danger of exposure to inflammable gas leakage.**

If the gas leaks and builds up around the unit, it may catch fire.

- **Do not grab the top plate of the outdoor unit carelessly when removing the top plate.**

The sharp edge of the top plate may cause injury.

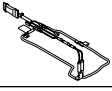



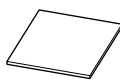
- **Do not install the outdoor unit in places where small animals may nest in the outdoor unit.**




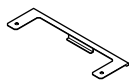
If small animals intrude and touch the internal parts of the outdoor unit, the outdoor unit may malfunction, generate smoke, or ignite.
Advise the user to keep the place clean.

- **Do not touch the heater unit with bare hands.**

The temperature of the heater unit will become high when the heater is turned on.
Touching the heater unit with bare hands may result in burns or injury.

Accessories

	KEH041A42	KEH041A47	KEH041A48
Ⓐ Drain pan heater 	1	1	1
Ⓑ Piercing screw 	7	4	7
Ⓓ Binding band 	2	2	2
Ⓔ Sealing material (long) 	1	1	
Ⓕ Sealing material (square) 	2	2	2

	KEH041A42	KEH041A47	KEH041A48
Ⓒ Installation manual 	1	1	1
Ⓗ Electric wiring diagram label 	1	1	1
Ⓙ Information label 	1	1	1
Ⓚ Fixing plate 	1		1

Appearance of Ⓐ drain pan heater and Ⓚ fixing plate may differ from some models.

Tools Required for Installation

- Electric drill
- $\phi 5/32"$ ($\phi 4\text{mm}$) drill
- Nippers
- $\phi 1/8"$ ($\phi 3.2\text{mm}$) drill
- Phillips screwdriver

Installation Procedure (1)

⚠ WARNING

- Be sure to check that the power supply of the product is turned off.

1. Remove each component of the outdoor unit.

1) Remove the stop valve cover.

- Affix Ⓙ information label near the manufacture's label. *I

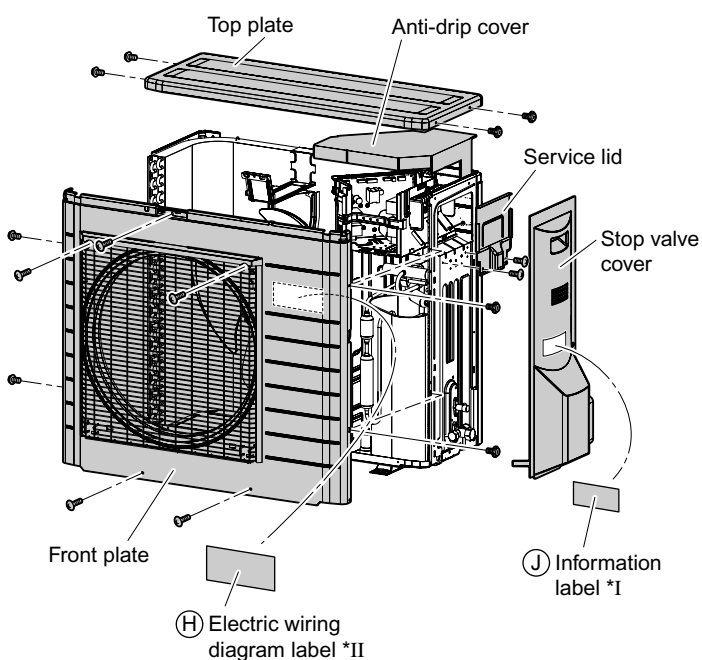
2) Remove the service lid.

3) Remove the top plate.

4) Remove the anti-drip cover, if included.

5) Remove the front plate.

- Affix Ⓗ electric wiring diagram label where there is enough space available on the back of the front plate. *II



	Number and type of screws to be removed					
Parts name	KEH041A42		KEH041A47		KEH041A48	
Stop valve cover	1	*1	1	*1	2	*1
Service lid	2	*1	2	*2	2	*1
Top plate	4	*2	3	*2	4	*2
Anti-drip cover	—	—	—	—	—	—
Front plate	6	*1×1 *2×5	7	*2	5	*2

*1 Truss head tapping screw.

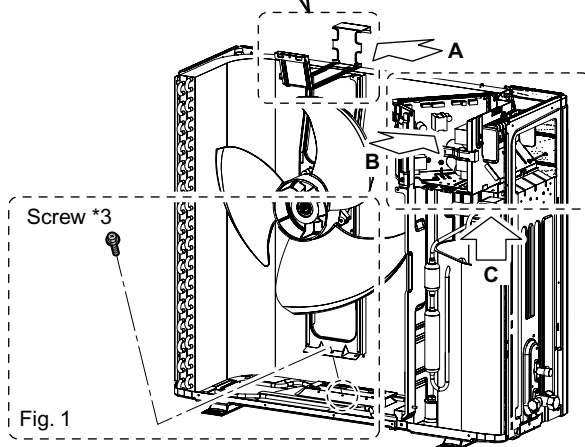
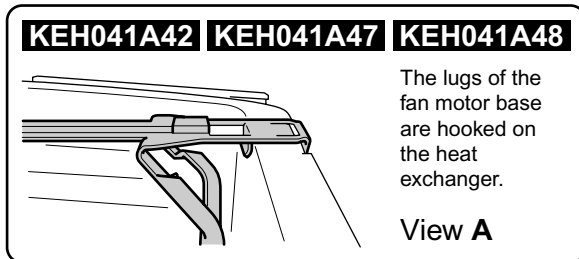
*2 Hexagon tapping screw.

- The appearance of the outdoor unit and the number of screws may differ from some models.

Installation Procedure (2)

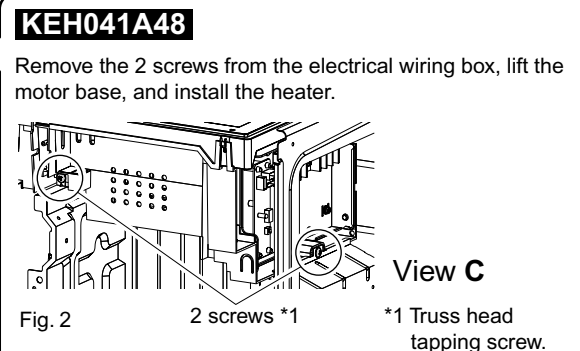
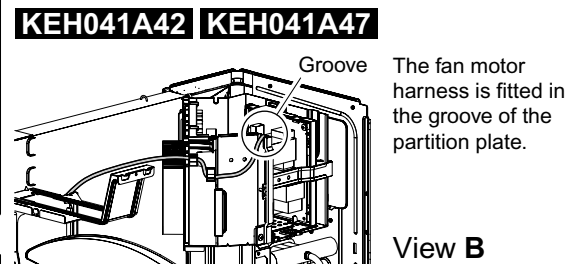
2. Remove the fan motor base.

- 1) Remove the fixing screw at the lower section of the fan motor base, and remove the fan motor base together with the propeller fan. See Fig.1.
 - For **KEH041A48**, the motor base cannot be removed. Remove the 2 screws from the electrical wiring box, lift the motor base, and install the heater. See Fig.2
 - Do not remove the fan motor harness.
 - Be careful so that the fan motor harness does not come into contact with the edges of the heat exchanger or other components.
 - Place the removed fan motor base so that stress is not applied on the propeller fan.



*3 Screw type	Number and type of screws to be removed					
	KEH041A42		KEH041A47		KEH041A48	
SPLIT	2	*1	1	*2	1	*1
MULTI SPLIT	—	—	—	—	2	*1

Condition of fan motor harness installation



- *1 Truss head tapping screw.
- *2 Hexagon tapping screw.

Appearance of the outdoor unit may differ from some models.

3. Installation of the drain pan heater.

CAUTION

- When drilling a hole, be careful not to damage the soundproofing material and other components on the back side.
- Make the ground plate closely adhere to the partition.
- Install the drain pan heater in a position where it does not come into contact with the fan motor base.
 - 1) To fix the drain pan heater, drill $\phi 1/8"$ ($\phi 3.2\text{mm}$) holes in the bottom frame and the partition plate. (Refer to **Installation Procedure (3)** for the parts for drilling and the number of holes.)
 - Place the actual components to ensure positioning is correct before drilling holes.
 - The hole can be made with the included piercing-screw as well.
 - 2) Install the drain pan heater.
 - Insert the plate under the heat exchanger.
 - For **KEH041A42** and **KEH041A48**, place (K) fixing plate.
 - 3) Fix the drain pan heater with (B) piercing screw.

Installation Procedure (3)

KEH041A42 KEH041A48

Fix the fixing plate by putting it into contact with the heat exchanger.

Heat exchanger

(K) Fixing plate

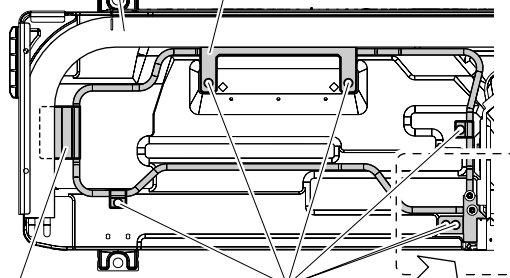
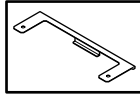
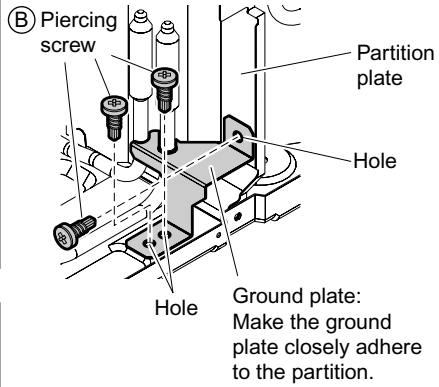


Plate:
Insert the plates
under the heat
exchanger.

Hole:
Fix with
(B) piercing screw.

View D



Ground plate:
Make the ground
plate closely adhere
to the partition.

Parts for drilling and
number of $\phi 1/8"$
($\phi 3.2\text{mm}$) holes

Bottom frame	6
Partition plate	1
Total	7

KEH041A47

Heat exchanger

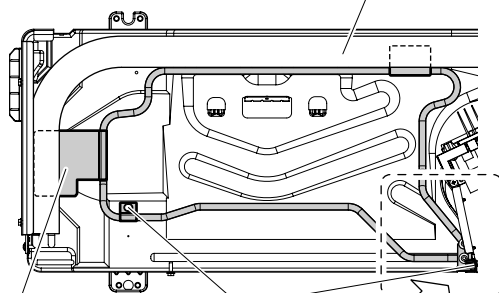
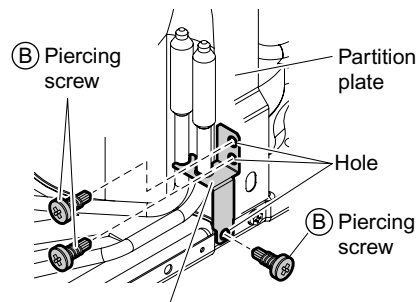


Plate:
Insert the plates
under the heat
exchanger.

Hole:
Fix with
(B) piercing screw.

View D



Ground plate:
Make the ground
plate closely adhere
to the partition.

Parts for drilling and
number of $\phi 1/8"$
($\phi 3.2\text{mm}$) holes

Bottom frame	2
Partition plate	2
Total	4

Installation Procedure (4)

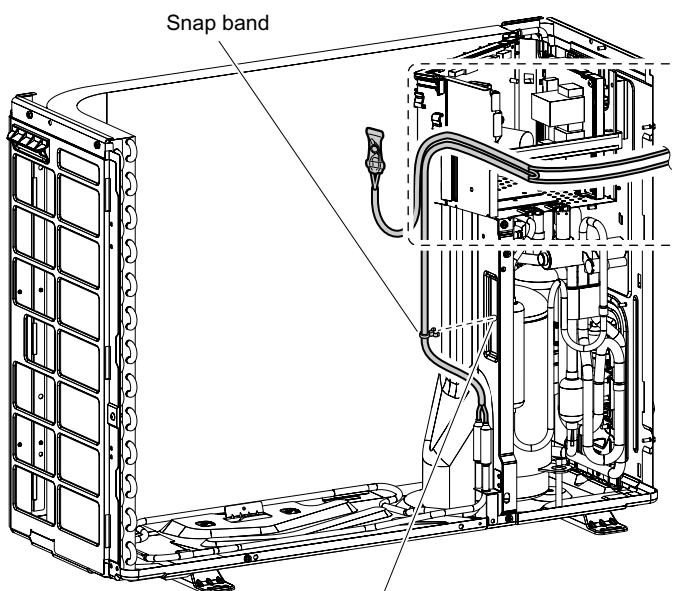
4. Route the harnesses.

WARNING

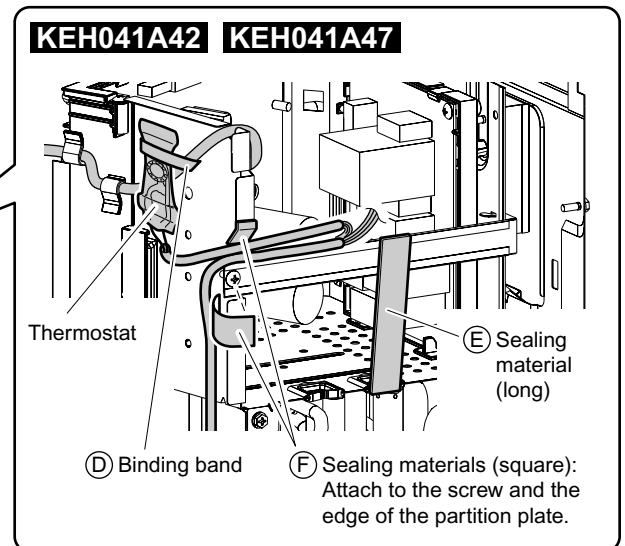
- When drilling a hole, be careful not to damage the soundproofing material and other components on the back side.
- When drilling a hole in the partition plate, be careful not to let chippings drop on the electrical components (particularly the reactor).
Operating the unit with chippings attached on the reactor may cause electrical shock or fire.

KEH041A42 KEH041A47

- 1) Drill a $\varnothing 5/32$ " ($\varnothing 4\text{mm}$) hole in the partition plate for installing the snap band. (1 location)
- 2) Remove the sealing material from the partition plate.
 - **KEH041A47** only
 - Dispose of the removed sealing material.
- 3) Install the fan motor base.
 - Be careful not to confuse screw types. See **Installation Procedure (2)**.
- 4) Insert the snap band into the drilled hole.
- 5) Affix (F) sealing materials (square) at 2 positions to protect the harness.
- 6) Place the harness and affix the (E) sealing material (long) to fix it.
- 7) Bind the fan motor harness and the thermostat with the (D) binding band. (1 location)
 - Cut the tip of binding band.



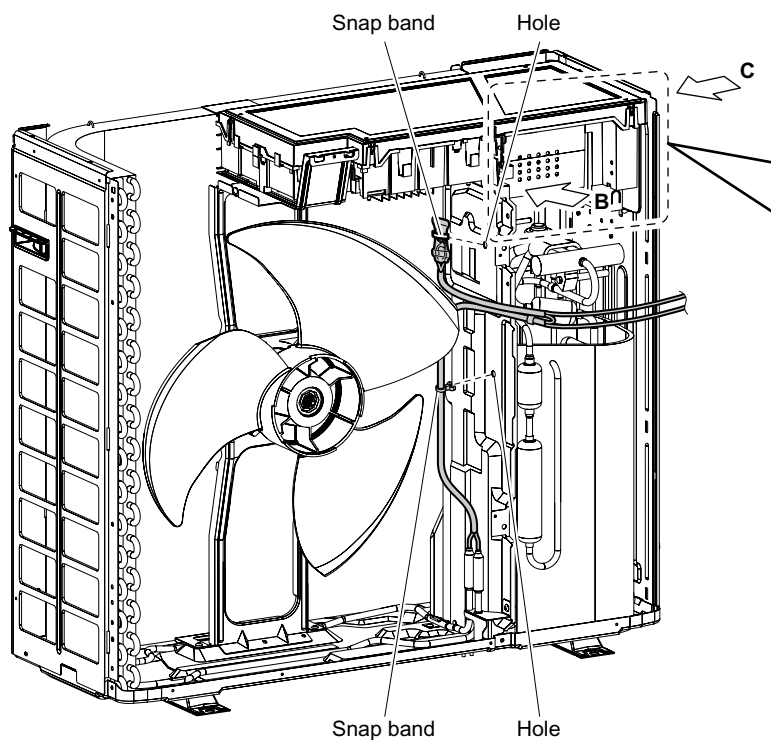
Hole:
Drill a hole in alignment with the actual component and at a position where the harness will not become loose or too tense.



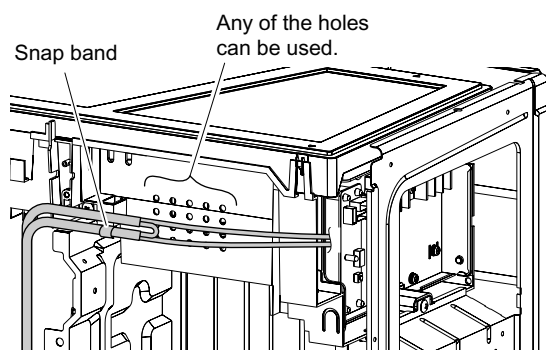
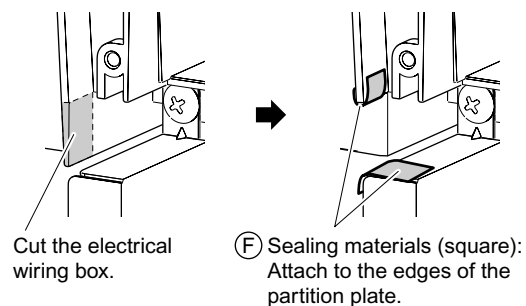
Installation Procedure (5)

KEH041A48

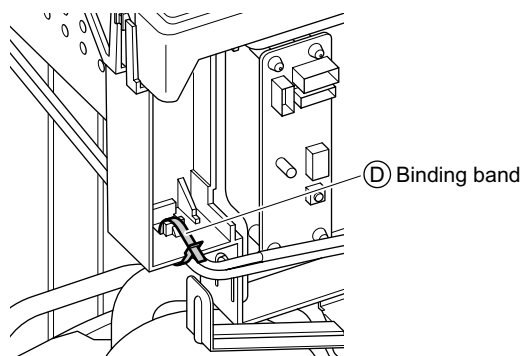
- 1) Drill $\phi 5/32$ " ($\phi 4\text{mm}$) holes in the partition plate for installing the snap bands. (2 locations)
- 2) Insert the snap bands into the drilled holes.
- 3) Cut off the electrical wiring box and affix (F) sealing materials (square) at 2 positions to protect the harness.
- 4) Insert the snap band into the hole in the electrical wiring box to fix it.
 - Any of the holes can be used.
- 5) Fix the harness on the electrical wiring box with the (D) binding band.
 - Cut the tip of binding band.



View B



View C

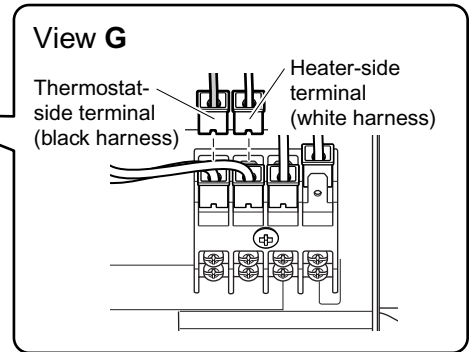
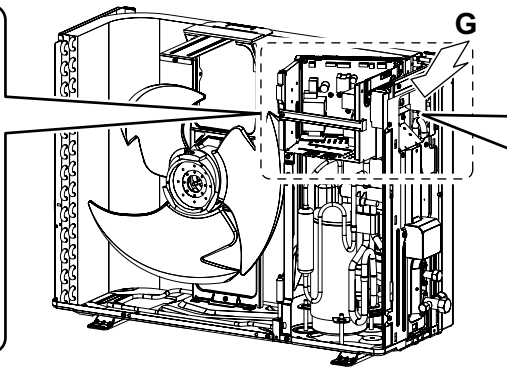
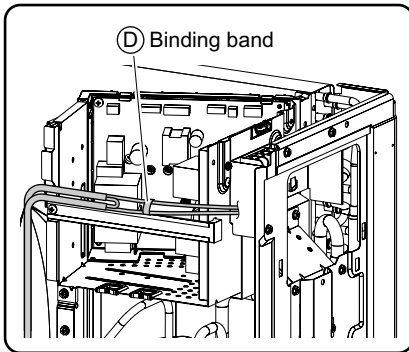


Installation Procedure (6)

5. Connect the FastOn terminals of the drain pan heater to the terminal block of the outdoor unit.

KEH041A42 KEH041A47

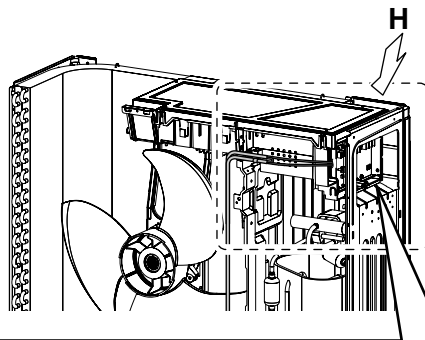
- 1) Connect the thermostat-side terminal (black harness) to the leftmost terminal and the heater-side terminal (white harness) to the second leftmost terminal.
- 2) Install the fan motor base.
 - Be careful not to confuse screw types. See **Installation Procedure (2)**.
- 3) Bind the harnesses with the (D) binding band. (1 location)
 - Cut the tip of binding band.



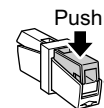
• The shape may slightly differ depending on the model.

KEH041A48

- 1) Remove the connecting cable for the indoor unit from Terminals (1) and (2), cut off the round terminal, and remove the sheath. (11/32"-7/16" (9-11mm))
- 2) Connect the cut connecting cable to the relay connector for the drain pan heater.
- 3) Fix the round terminal for the drain pan heater to the terminal board with the screw.
 - Connect the thermostat-side terminal (black harness) to the leftmost terminal and the heater-side terminal (white harness) to the second leftmost terminal.
- 4) Fix the extra portion of the harness and the fuse holder with the (D) binding band. (1 location)
 - Cut the tip of binding band.

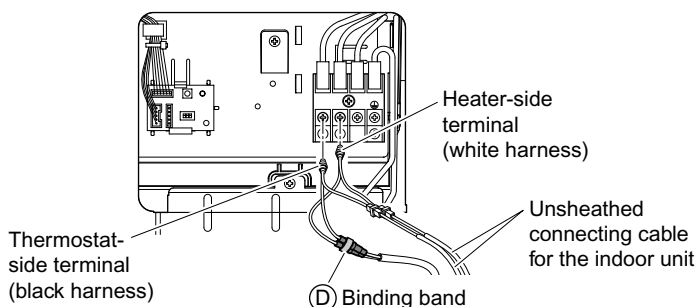


How to connect to the relay connector

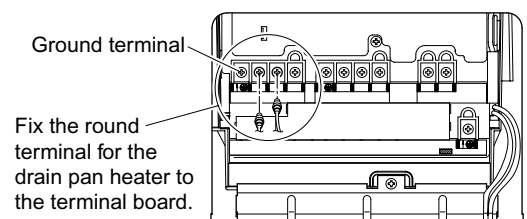


- After inserting the cable, release your hand to close and fix the connection.

View H



In the case of installation to the multi outdoor unit



Installation Procedure (7)

6. Install each component to the original position.

- Be careful not to confuse screw types. See **Installation Procedure (1)**.
- 1) Install the front plate.
- 2) Install the anti-drip cover, if provided.
- 3) Install the top plate.

Installation Check (electrical test of the outdoor unit)

⚠ CAUTION

- The drain pan heater is hot; do not touch it with bare hands.

1. Check the following before powering on the unit.

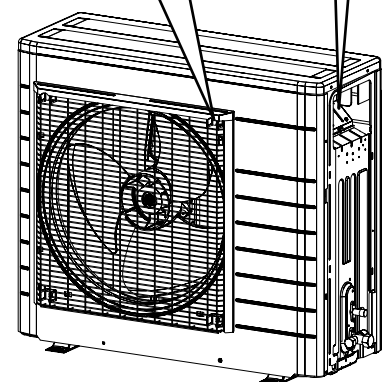
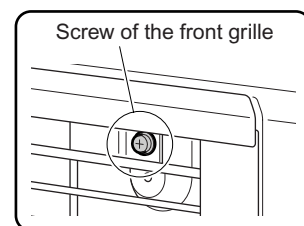
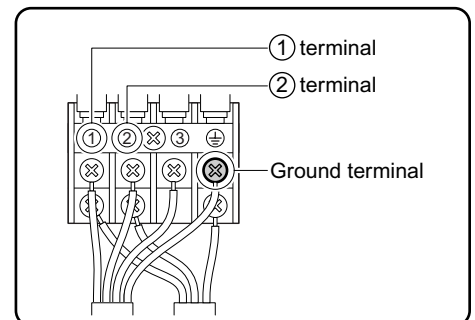
- 1) Check whether the drain pan heater has been properly installed, wiring has been properly performed, and the removed components have been returned to the original positions.
- 2) Check the insulation resistance of the drain pan heater.
 - Use the tester (500 VDC) to check that the insulation resistance between ① terminal and the ground terminal and between ② terminal and the ground terminal is equal to or higher than 1MΩ.
- 3) Check the continuity of the outdoor unit.
 - Use the tester to check that the continuity between the screw on the front grille and the ground terminal reads 0Ω.
 - When there is no continuity, retighten the screws securing the front plate and the bottom frame to increase the area of contact with the screw. Then, carry out the continuity test again.

2. Check the following after powering on the unit.

- Turn on the power supply and check that the temperature of the drain pan heater will rise.
 - Touch the bottom of the outdoor unit by hand and check the temperature rise.
 - If the outdoor temperature is high, the heater will not be energized which is not a failure.
(Operation of thermo sensor: Turned on at 23°F (−5°C) and off at 34°F (1°C).)

3. Install the remaining components to the original positions.

- Be careful not to confuse screw types. See **Installation Procedure (1)**.
- 1) Install the service lid.
- 2) Install the stop valve cover.



Appearance of the outdoor unit may differ from some models.