

AIR CONDITIONER (SPLIT TYPE)
Installation Manual

Drain Pump Kit

Model name :

TCB-DP22CUL

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Please read this Installation Manual carefully before installing the Air Conditioner.

- This Manual describes the installation method of the DRAIN PUMP KIT.
- For installation of the outdoor unit, follow the Installation Manual attached to the outdoor unit.



WARNING

For this Drain Pump Kit, please use the Elbow Piping Kit (MODEL: TCB-KP12CUL, TCB-KP22CUL) sold separately. If using a piping kit procured locally, it may cause a water leak or so on.

ADOPTION OF NEW REFRIGERANT

This Air Conditioner is a new type which adopts a new refrigerant HFC (R410A) instead of the conventional refrigerant R22 in order to prevent destruction of the ozone layer.

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Accessory parts and Parts to be procured locally

□ Accessory parts

Part name	Q'ty	Shape	Usage
Drain Pump Kit	1		—
Drain Pump Kit fixture	1		For mounting Drain Pump Kit
Drain hose	1		For connecting vinyl chloride pipe of Dain Pump kit
Thermal insulating pipe	1		For thermal insulation of drain hose
Installation Manual	1	This manual	Be sure to hand to users.
Drain hose fixing band	2		For fixing drain hose
Thermal insulator for drain connecting section	2		For thermal insulation of drain hose connecting section
Thermal insulator of ceiling panel	1		For sealing upper piping hole of indoor unit
Screw	4		For fixing Drain Pump Kit For fixing fixture of Drain Pump Kit
Banding band	2		For fixing wires

□ Specification

Drain Pump Kit model name	Height of drain up
TCB-DP22CUL	23.6" (600mm) or lower from top face of the set

1 PRECAUTIONS FOR SAFETY

- Ensure that all Local, National and International regulations are satisfied.
- Read this “PRECAUTIONS FOR SAFETY” carefully before Installation.
- The precautions described below include the important items regarding safety. Observe them without fail.
- After the installation work, perform a trial operation to check for any problem.
Follow the Owner's Manual to explain how to use and maintain the unit to the customer.
- Turn off the main power supply switch (or breaker) before the unit maintenance.
- Ask the customer to keep the Installation Manual together with the Owner's Manual.



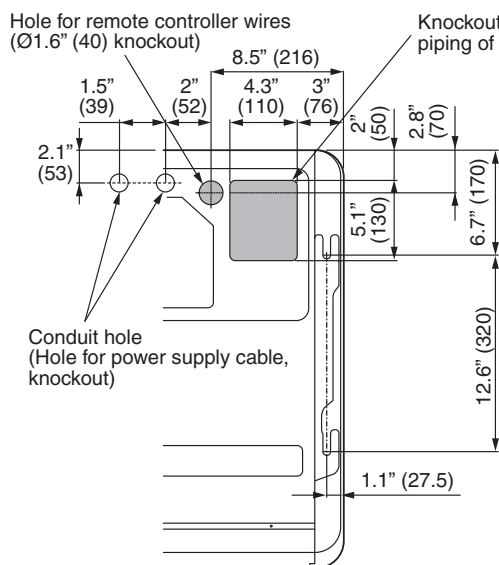
WARNINGS

- **Ask an authorized dealer or qualified installation professional to install/maintain the air conditioner.**
Inappropriate installation may result in water leakage, electric shock or fire.
- **Turn off the main power supply switch or breaker before attempting any electrical work.**
Make sure all power switches are off. Failure to do so may cause electric shock.
- **Connect the connecting cable correctly.**
If the connecting cable is connected in a wrong way, electric parts may be damaged.
- **When moving the air conditioner for the installation into another place, be very careful not to enter any gaseous matter other than the specified refrigerant into the refrigeration cycle.**
If air or any other gas is mixed in the refrigerant, the gas pressure in the refrigeration cycle becomes abnormally high and it resultingly causes pipe burst and injuries on persons.
- **Do not modify this unit by removing any of the safety guards or by by-passing any of the safety interlock switches.**
- **Exposure of unit to water or other moisture before installation may cause a short-circuit of electrical parts.**
Do not store it in a wet basement or expose to rain or water.
- **After unpacking the unit, examine it carefully if there are possible damage.**
- **To avoid personal injury (with sharp edges), be careful when handling parts.**
- **Perform installation work properly according to the Installation Manual.**
Inappropriate installation may result in water leakage, electric shock or fire.
- **Electrical work must be performed by a qualified electrician in accordance with the Installation Manual.**
An insufficient power supply capacity or inappropriate installation may cause fire.

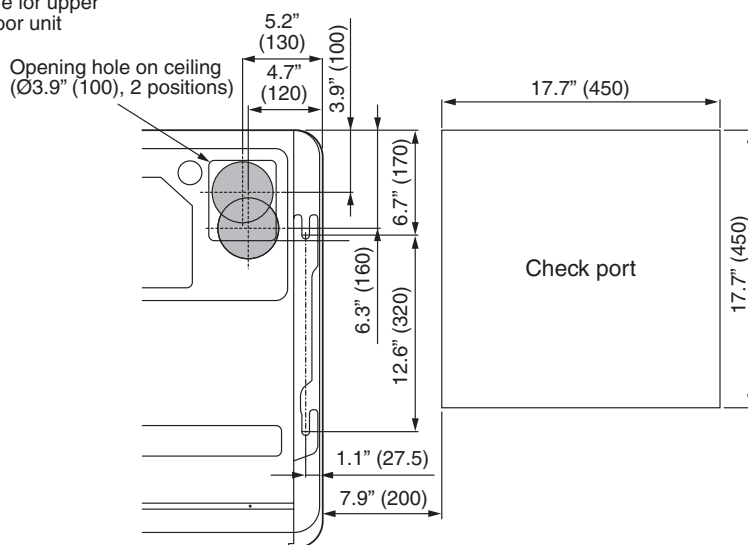
2 PREPARATION FOR INSTALLATION OF DRAIN PUMP KIT

■ Cautions on installation

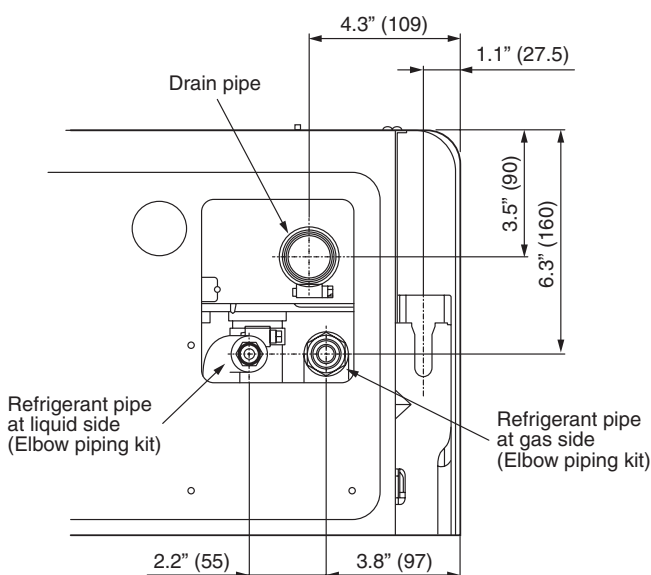
- In the installation work of the Drain Pump Kit, the pipe cannot be drawn out from other side than the upper side.
- Apply thermal insulation for all the drain pipes.
- Open two opening holes (Ø3.9" (100mm), 2 positions) on the ceiling surface to be installed in order to pass refrigerant pipe and drain pipe.
- Set a 17.7" (450mm-square) check port on the ceiling surface to be installed.



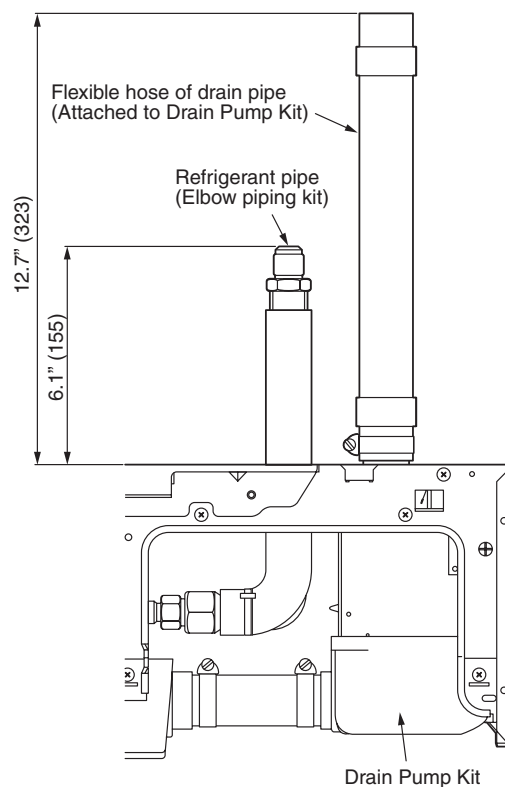
Knockout positions at the upper part of indoor unit (Unit: in (mm))



Opening hole positions on ceiling (Unit: in (mm))



Refrigerant pipe and drain pipe positions (Unit: in (mm))



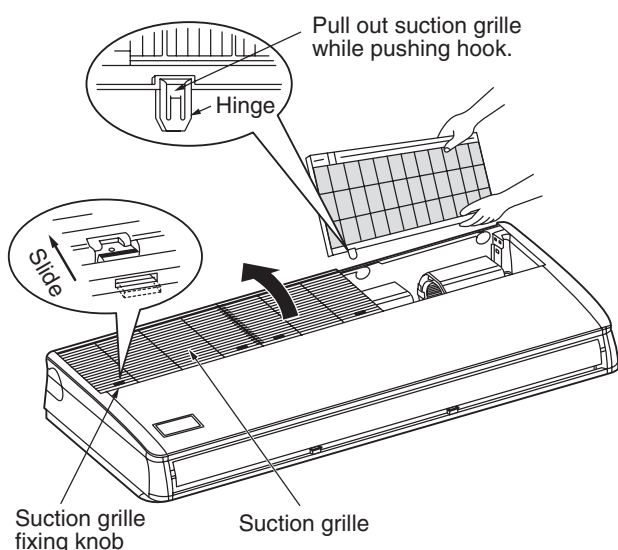
3 INSTALLATION PROCEDURE OF DRAIN PUMP KIT

■ Before installation

1. Removal of suction grille

Slide the suction grille fixing knobs (2 positions) toward the arrow direction, and then open the suction grille.

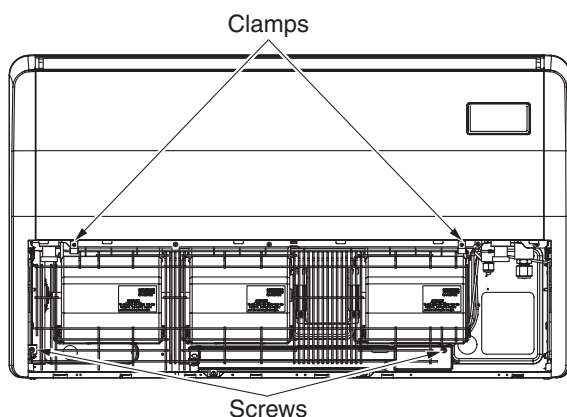
Under the condition of suction grille opened, push the hook section of hinges (2 positions) at the rear side, and then pull out the suction grille.



2. Wire guard open

Remove the screws (2 pcs.) which are fixing the wire guard. Using clamps mounted to the wire guard, hang up the wire guard.

- Do not remove the fixing screws of clamps of the indoor unit.



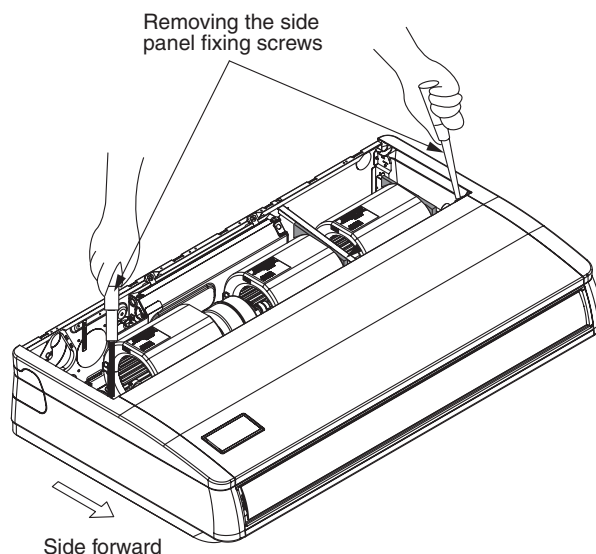
NOTE

After installation of the Drain Pump Kit, be sure to mount the wire guard as original.

Do maintenance work after removing the screws which are fixing the wire guard and hanging up the wire guard with the clamps.

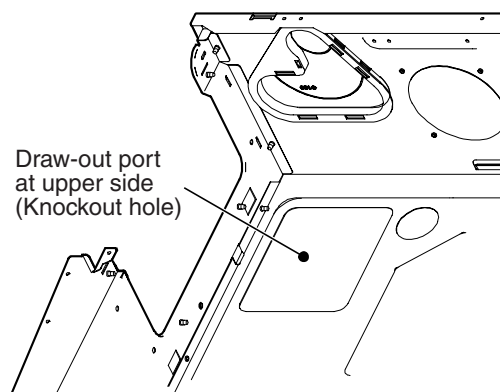
3. Removal of side panel

After removing the side panel fixing screws (1 each at right and left), slide the side panel forward and then remove it.



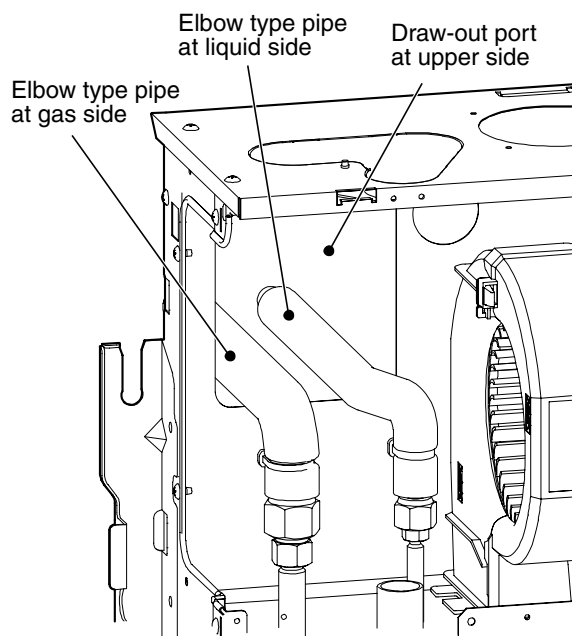
■ Knockout hole

Open the draw-out port (Knockout hole) at upper side.



■ Connection of ELBOW PIPING KIT

Connect "ELBOW PIPING KIT" sold separately to the indoor unit.



◆ Tightening connection



CAUTION

- Do not apply excessive torque. Otherwise, the nut may crack depending on the conditions.

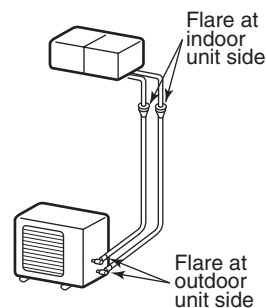
Unit : ft lbs (N•m)

Outer diam. of copper pipe	Tightening torque
1/4" (6.4 mm) (diam.)	10.3" to 13.3" (14 to 18)
3/8" (9.5 mm) (diam.)	24.3" to 31.0" (33 to 42)
1/2" (12.7 mm) (diam.)	36.9" to 45.7" (50 to 62)
5/8" (15.9 mm) (diam.)	50.2" to 60.5" (68 to 82)

• Tightening torque of flare pipe connections

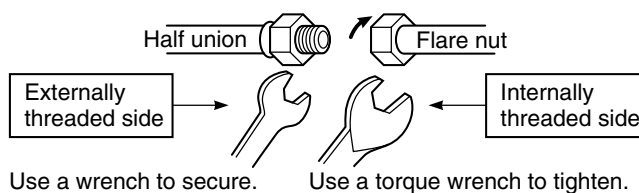
Pressure of R410A is higher than that of R22. (Approx. 1.6 times) Therefore, using a torque wrench, tighten the flare pipe connecting sections which connect the indoor and outdoor units of the specified tightening torque.

Incorrect connections may cause not only a gas leak, but also a trouble of the refrigeration cycle.



Align the centers of the connecting pipes and tighten the flare nut as far as possible with your fingers.

Then tighten the nut with a spanner and torque wrench as shown in the figure.



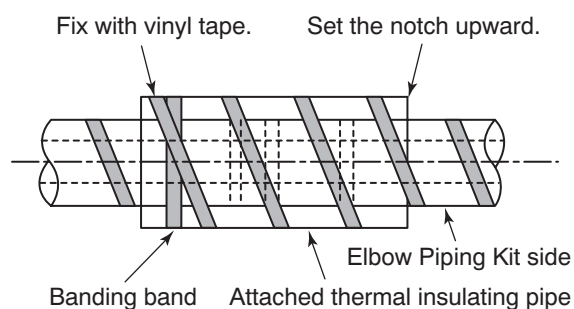
■ Thermal insulating process

Apply thermal insulation to pipes at liquid and gas sides separately.

- Be sure to use thermal insulator with heat resisting temperature 248°F (120°C) or more for pipes at gas side.
- Using thermal insulators attached to the indoor unit and Elbow Piping Kit, apply thermal insulating process surely to pipe connecting section without clearance.
- When fixing insulator to the elbow type pipe temporarily with the banding band attached to the Elbow Piping Kit, wrap the insulator using vinyl tape so that there is no clearance.

CAUTION

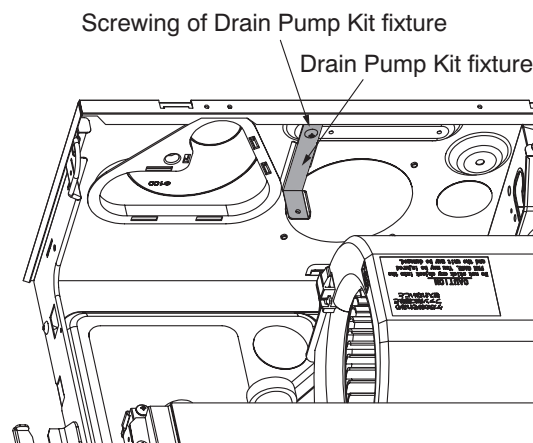
**Apply thermal insulating process surely so that no exposure cannot be found up to the end of the pipe connecting section of the indoor unit.
(If a part of the pipe is exposed, leakage may be caused.)**



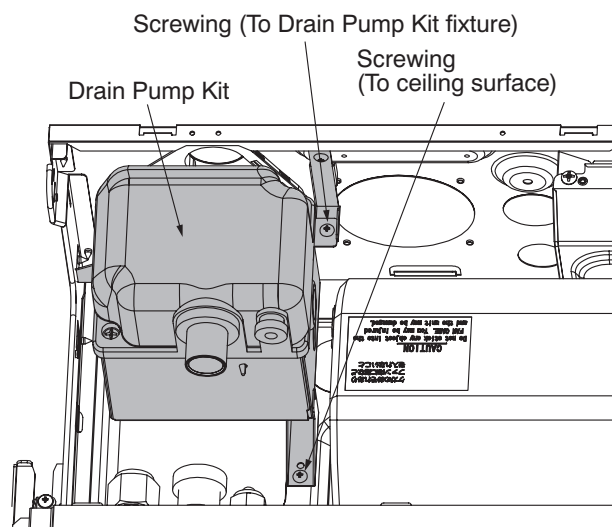
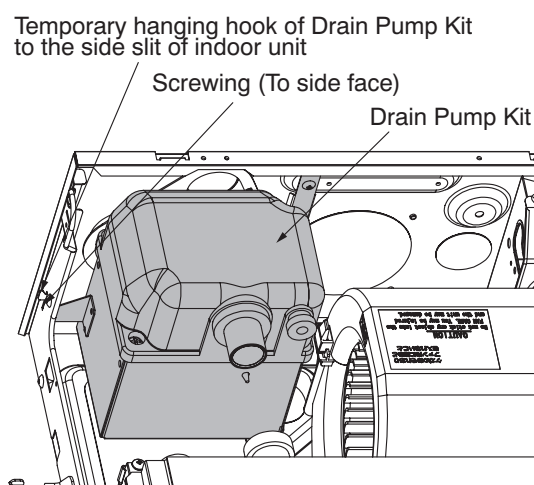
For the connection of refrigerant pipe and thermal insulating process after hanging down the indoor unit, refer to the Installation Manual attached to the indoor unit.

■ How to install Drain Pump Kit

1. Mount the Drain Pump Kit fixture to the rear side inside of the indoor unit. (1 screw)



2. Hang the temporary hanging hook of the Drain Pump Kit to the side slit of the indoor unit from inner side. Screw the Drain Pump Kit to the indoor unit. (3 screws: Ceiling surface, side face, and Drain Pump Kit fixture)



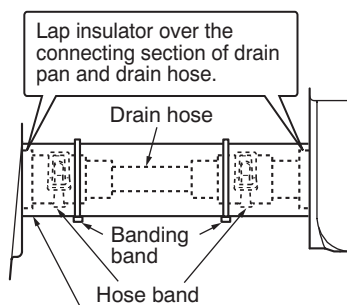
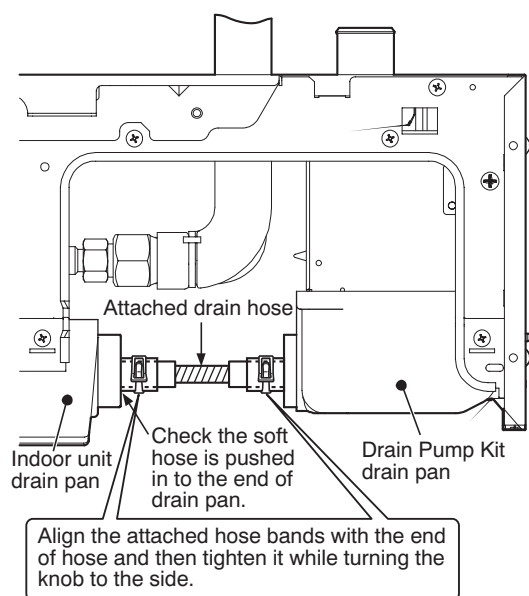
■ Connection of drain hose at indoor unit side

1. Insert the drain hose attached to the indoor unit into the drain pipe connecting port of the indoor unit's and into the drain pipe connecting port of the Drain Pump Kit's drain pan.

In this time, insert the drain hose until it strikes on the connecting port of the drain pipe.

2. Align the hose band attached to the indoor unit with the end of pipe connecting port, and then tighten it firmly.
3. Cut off to 6.3" × 7.9" (160mm × 200mm) the thermal insulator 7.9" × 7.9" (200mm × 200mm) for drain hose attached to the indoor unit.

Using it, lap the connecting section of drain pan and drain hose without clearance, and then tighten it with two banding bands attached to the indoor unit so that thermal insulator does not open.



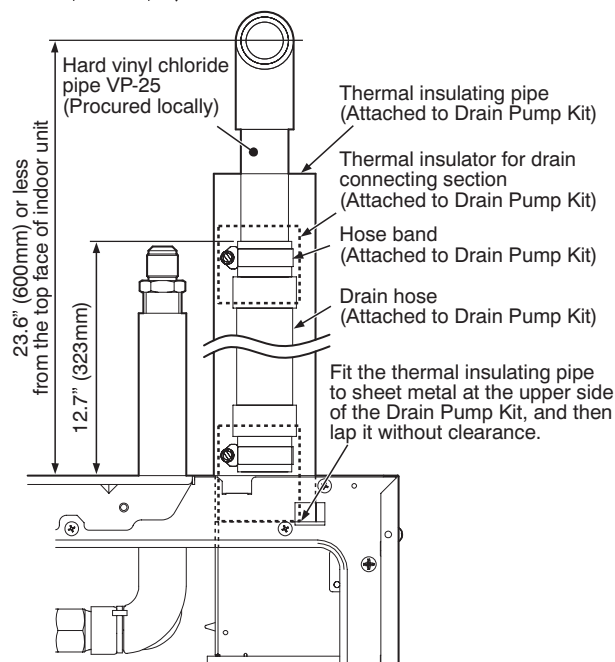
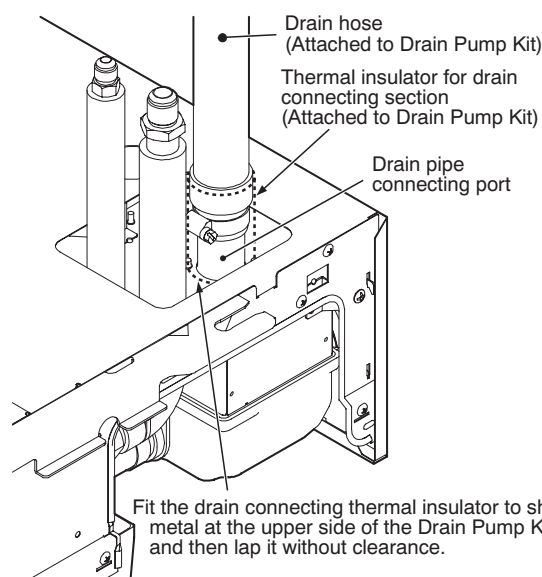
Thermal insulator attached to indoor unit (Cut to 6.3" × 7.9" (160mm × 200mm))



Lap the one side of the attached thermal insulator on the other side at the upper side.

■ Connection of drain hose at Drain Pump Kit side

1. Insert the drain hose attached to the Drain Pump Kit into the connecting port of drain pipes at the upper side of the Drain Pump Kit.
2. Align the hose band attached to the Drain Pump Kit with the end of pipe connecting port, and then tighten it firmly.
3. Fit the drain connecting thermal insulator attached to the Drain Pump Kit to sheet metal at the upper side of the Drain Pump Kit, and then lap it covering the drain hose without clearance.



* When using the drain hose within 5.9" (150mm) or less from the top face of the indoor unit, do not use an elbow but connect the attached drain hose directly, which was bent (with larger round as possible as you can).

4 DRAIN PIPING WORK

⚠ CAUTION

- Following the Installation Manual, perform the drain piping work so that water is properly drained, and apply a heat insulation so as not to cause a dew. Inappropriate piping work may result in water leakage in the room and wet of furniture.

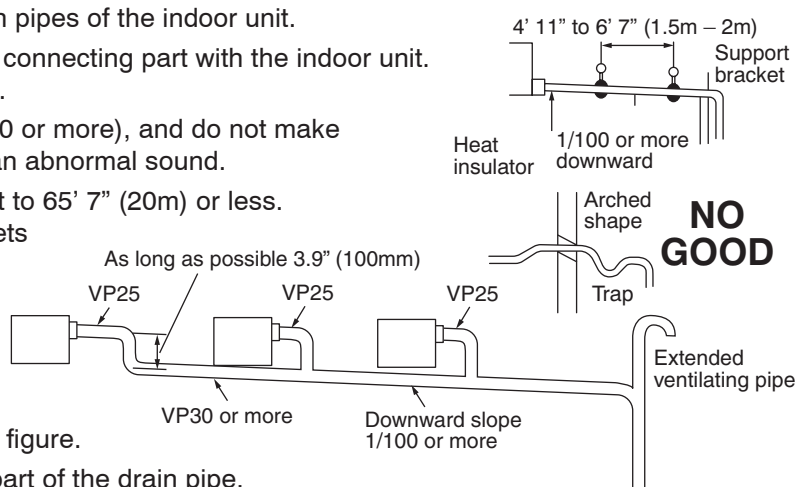
■ Piping/Heat insulating material

Require the following materials for piping and heat insulating at site.

Piping	Hard vinyl chloride pipe VP25 (Outer dia. : $\varnothing 1.3"$ ($\varnothing 32\text{mm}$))
Heat insulator	Foam polyethylene : Thickness 0.4" (10mm) or more

REQUIREMENT

- Be sure to perform heat insulation of the drain pipes of the indoor unit.
- Never forget to perform heat insulation of the connecting part with the indoor unit. An incomplete heat insulation causes dewing.
- Set the drain pipe with downward slope (1/100 or more), and do not make swelling or trap on the piping. It may cause an abnormal sound.
- For length of the traversing drain pipe, restrict to 65' 7" (20m) or less. In case of a long pipe, provide support brackets with interval of 4' 11" to 6' 7" (1.5m – 2m) in order to prevent waving.
- Set the collective piping as shown in the right figure.
- Be sure not to apply force to the connecting part of the drain pipe.
- The hard vinyl-chloride pipe cannot be directly connected to the drain pipe connecting port of the indoor unit. For connection with the drain pipe connecting port, be sure to use/fix the attached flexible hose with the hose band, otherwise a damage or water leak is caused on the drain pipe connecting port.



Adhesive inhibited :

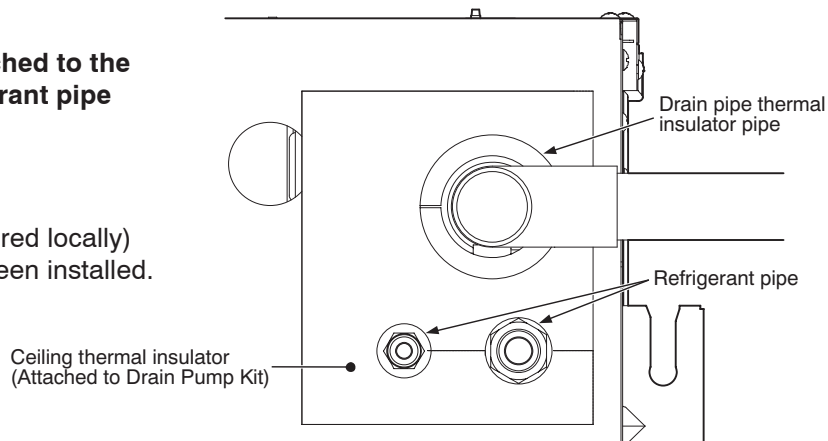
Use the attached flexible hose and hose band for connecting the drain hose to the drain piping connecting part. If applying the adhesive, socket will be damaged and cause water leakage.

5 THERMAL INSULATOR FOR CEILING PLATE

Adhere the ceiling thermal insulator attached to the Drain Pump Kit to positions of the refrigerant pipe and the drain pipe.

■ Connection of drain pipe

- Connect hard vinyl chloride pipe (procured locally) to the attached drain hose which has been installed.



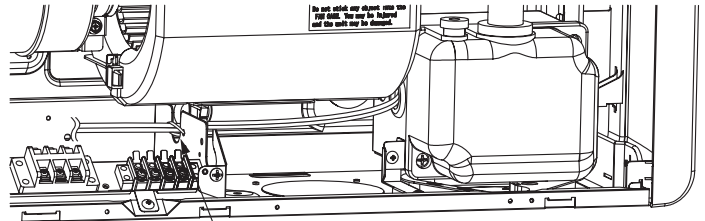
6 CABLE CONNECTION

1. Loosen the mounting screws (2 positions) of the cover of the electric parts box, and then remove the cover.
2. In the Drain Pump Kit, connect the connector (Blue 3P) for drain pump to P.C. board CN68 (Blue 3P) of the indoor unit, and the connector (Red 3P) for float switch to P.C. board CN34 (Red 3P) of the indoor unit respectively.

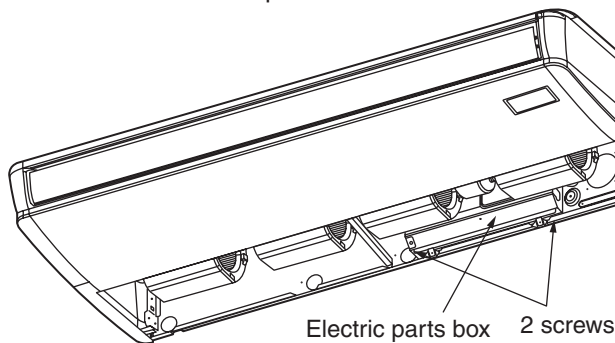
In this time, remove 3P connector (Red 3P) for short-circuit of CN34 (Red 3P).

3. Using one of two banding bands attached to the electric parts box, fix the wires.

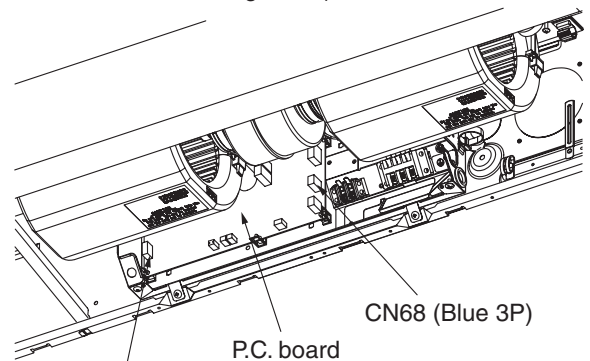
* Use the other banding band to bind the wires so that they are not caught in the cover of electric parts box.



Pass connecting cable through the slot at this side of the electric parts box. (Fix the wires with banding band.)



Electric parts box 2 screws



CN34 (Red 3P)
(Connect white removing 3P connector for short-circuit.)

7 TEST RUN

■ Check the draining

In the test run, check that water drain is properly performed and water does not leak from the connecting part of the pipes. Be sure to check draining also when installed in heating period.

Using a pitcher or hose, pour water 0.3 gallon (1200cc) into the discharge port before installation of the ceiling panel. Pour water gradually so that water does not spread on the motor of the drain pump.

- After the electric work has finished, pour water during COOL mode operation.
- If the electric work has not yet finished, pull out the float switch connector (CN34: Red) from the electric parts box, and check draining by plugging the single phase 208/230V power to the terminal blocks ① and ②. If doing so, the drain pump motor operates.
- Test water drain while checking the operation sound of the drain pump motor.
(If the operation sound changes from continuous sound to intermittent sound, water is normally drained.)

After the check, the drain pump motor runs, connecting the float switch connector.
(In case of check by pulling out the float switch connector, be sure to return the connector to the original position.)

