

**VRV SYSTEM****Air Conditioners**

## MODELS

## Ceiling-mounted cassette type (corner model)

<b>FXKQ25MVE</b>	<b>FXKQ25MAVE</b>	<b>FXKQ25MAVE9</b>
<b>FXKQ32MVE</b>	<b>FXKQ32MAVE</b>	<b>FXKQ32MAVE9</b>
<b>FXKQ40MVE</b>	<b>FXKQ40MAVE</b>	<b>FXKQ40MAVE9</b>
<b>FXKQ63MVE</b>	<b>FXKQ63MAVE</b>	<b>FXKQ63MAVE9</b>

CAREFULLY READ THESE INSTRUCTIONS BEFORE INSTALLATION.  
KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

LESEN SIE DIESE HINWEISE VOR DER INSTALLATION SORGFÄLTIG DURCH.  
BEWAHREN SIE DIESE ANLEITUNG AN EINEM LEICHT ZUGÄNGLICHEN ORT FÜR  
SPÄTERES NACHSCHLAGEN AUF.

VEUILLEZ LIRE ATTENTIVEMENT CES INSTRUCTIONS AVANT L'INSTALLATION.  
CONSERVEZ CE MANUEL EN LIEU SÛR POUR POUVOIR VOUS Y REPORTER ULTÉRI-  
EUREMENT.

LEA DETENIDAMENTE ESTAS INSTRUCCIONES ANTES DE LA INSTALACIÓN.  
CONSERVE ESTE MANUAL PARA POSIBLES CONSULTAS FUTURAS.

PRIMA DELL'INSTALLAZIONE, LEGGERE ATTENTAMENTE LE PRESENTI ISTRUZIONI.  
CONSERVARE IL PRESENTE MANUALE IN UN LUOGO FACILMENTE ACCESSIBILE PER  
RIFERIMENTO FUTURO.

ΔΙΑΒΑΣΤΕ ΠΡΟΣΕΚΤΙΚΑ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ ΠΡΙΝ ΤΗΝ ΕΓΚΑΤΑΣΤΑΣΗ.  
ΦΥΛΑΞΤΕ ΑΥΤΟ ΤΟ ΕΓΧΕΙΡΙΔΙΟ ΣΕ ΒΟΛΙΚΟ ΜΕΡΟΣ ΓΙΑ ΜΕΛΛΟΝΤΙΚΗ ΑΝΑΦΟΡΑ.

LEES DEZE INSTRUCTIES ZOGVULDIG DOOR VOORDAT MET DE INSTALLATIE WORDT  
BEGONNEN.

BEWAAR DEZE HANDLEIDING VOOR TOEKOMSTIG GEBRUIK OP EEN GESCHIKTE  
PLAATS ONDER HANDBEREIK.

LEIA ATENTAMENTE ESTAS INSTRUÇÕES ANTES DA INSTALAÇÃO.  
MANTENHA ESTE MANUAL NUM LOCAL DE FÁCIL ACESSO PARA CONSULTA.

ПЕРЕД УСТАНОВКОЙ ВНИМАТЕЛЬНО ПРОЧИТАЙТЕ ДАННЫЕ ИНСТРУКЦИИ.  
ХРАНИТЕ ДАННОЕ РУКОВОДСТВО В ЛЕГКО ДОСТУПНОМ МЕСТЕ ДЛЯ ЕГО  
ПОСЛЕДУЮЩЕГО ИСПОЛЬЗОВАНИЯ.

請在安裝前仔細閱讀本說明。閱後妥善保存，以便隨時參看。

请在安装前仔细阅读该说明。阅后妥善保存，以便随时参看。

English

Deutsch

Français

Español

Italiano

Ελληνικά

Nederlands

Português

Русский

中文  
(繁體)中文  
(簡體)

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The original instructions are written in English. All other languages are translations of the original instructions.

## 1. SAFETY PRECAUTIONS


Be sure to follow this "SAFETY PRECAUTIONS".


This product comes under the term "appliances not accessible to the general public".

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This manual classifies the precautions into WARNINGS and CAUTIONS.

Be sure to follow all the precautions below: They are all important for ensuring safety.

 **WARNING** ..... Indicates a potentially hazardous situation which, if not avoided, could 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.

- After the installation is completed, test the air conditioner and check if the air conditioner operates properly. Give the user adequate instructions concerning the use and cleaning of the indoor unit according to the Operation Manual. Ask the user to keep this manual and the Operation Manual together in a handy place for future reference.

### **WARNING**

- Ask your local dealer or qualified personnel to carry out installation work.  
Improper installation may result in water leakage, electric shocks or a fire.
- Perform installation work in accordance with this installation manual.  
Improper installation may result in water leakage, electric shocks or a fire.
- Consult your local dealer regarding what to do in case of refrigerant leakage.  
When the air conditioner is installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage.

Otherwise, this may lead to an accident due to oxygen deficiency.

- Be sure to use only the specified parts and accessories for installation work.

Failure to use the specified parts may result in the air conditioner falling down, water leakage, electric shocks, a fire, etc.

- Install the air conditioner on a foundation that can withstand its mass.

Insufficient strength may result in the air conditioner falling down and causing injury.

In addition, it may lead to vibration of indoor units and cause unpleasant chattering noise.

- Carry out the specified installation work in consideration of strong winds, typhoons, or earthquakes. Improper installation may result in an accident such as air conditioner falling.
- Make certain that all electrical work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit.

In addition, even if the wiring is short, make sure to use a wiring that has sufficient length and never connect additional wiring to make the length sufficient.

Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.

(note 1) applicable legislation means "All international, national and local directives, laws, regulations and/or codes which are relevant and applicable for a certain product or domain".

- Make sure that all wiring is secure, using the specified wiring and ensuring that external forces do not act on the terminal connections or wiring.  
Incomplete connection or fixing may cause an overheat or a fire.
- When wiring the remote controller wiring and transmission wiring, and wiring the power supply, form the wiring orderly so that the control box cover can be securely fastened.  
If the control box cover is not in place, overheat of the terminals, electric shocks or a fire may be caused.
- If refrigerant gas leaks during installation work, ventilate the area immediately.  
Toxic gas may be produced if refrigerant gas comes into contact with a fire.
- After completing the installation work, check to make sure that there is no leakage of refrigerant gas.  
Toxic gas may be produced if refrigerant gas leaks into the room and comes into contact with a source of a fire, such as a fan heater, stove or cooker.
- Disconnect the power supply before touching the electric components.  
If you touch the live part, you may get an electric shocks.
- Earth the air conditioner.  
Do not connect the earth wiring to gas or water piping, lighting conductor or telephone earth wiring.  
Incomplete earthing may cause electric shocks or a fire.  
A high surge current from lightning or other sources may cause damage to the air conditioner.
- Be sure to install an earth leakage circuit breaker.  
Failure to do so may cause electric shocks and a fire.

### **CAUTION**

- Install drain piping according to this installation manual to ensure good drainage, and insulate the piping to prevent condensation.  
Improper drain piping may cause water leakage, make the furniture get wet.

- Install the air conditioner, power supply wiring, remote controller wiring and transmission wiring at least 1 meter away from televisions or radios to prevent image interference or noise.  
(Depending on the radio waves, a distance of 1 meter may not be sufficient to eliminate the noise.)
- Install the indoor unit as far as possible from fluorescent lamps.  
If a wireless remote controller kit is installed, the transmission distance may be shorter in a room where an electronic lighting type (inverter or rapid start type) fluorescent lamp is installed.
- Do not install the air conditioner in places such as the following:
  1. Where there is mist of oil, oil spray or vapour for example a kitchen.  
Resin parts may deteriorate, and cause them to fall out or water to leak.
  2. Where corrosive gas, such as sulfurous acid gas, is produced.  
Corrosion of copper pipings or brazed parts may cause the refrigerant to leak.
  3. Where there is machinery which emits electromagnetic waves.  
Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
  4. Where flammable gases may leak, where carbon fibre or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled.  
If the gas should leak and remained around the air conditioner, it may cause ignition.
- The air conditioner is not intended for use in a potentially explosive atmosphere.

## 2. BEFORE INSTALLATION

- **When moving the unit while removing it from the carton box, be sure to lift it by holding on to the four lifting lugs without exerting any pressure on other parts, especially, the refrigerant piping, drain piping, and other resin parts.**
- Be sure to check the type of R410A refrigerant to be used before installing the unit. (Using an incorrect refrigerant will prevent normal operation of the unit.)
- The accessories needed for installation must be retained in your custody until the installation work is completed. Do not discard them!
- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Where unpacking is unavoidable, use a sling of soft material or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- When selecting installation site, refer to the paper pattern.
- For the installation of an outdoor unit, refer to the installation manual attached to the outdoor unit.
- Do not install or operate the unit in rooms mentioned below.
  - **Laden with mineral oil, or filled with oil vapor or spray like in kitchens. (Plastic parts may deteriorate which could eventually cause the unit to fall out of place, or could lead to leaks.)**
  - **Where corrosive gas like sulfurous gas exists. (Copper tubing and brazed spots may corrode which could eventually lead to refrigerant leaks.)**
  - **Where exposed to combustible gases and where volatile flammable gas like thinner or gasoline is used. (Gas in the vicinity of the unit could ignite.)**
  - **Where machines can generate electromagnetic waves. (Control system may malfunction.)**


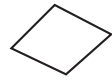

- **Where the air contains high levels of salt such as that near the ocean and where voltage fluctuates greatly such as that in factories. Also in vehicles or vessels.**
- This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment.  
If installed as a household appliance it could cause electromagnetic interference.

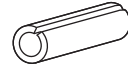

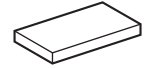
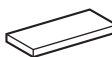
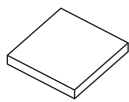
### 2-1 PRECAUTIONS



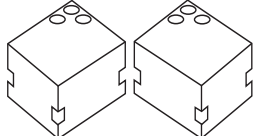
- Be sure to read this manual before installing the indoor unit.
- Entrust installation to the place of purchase or a qualified serviceman. Improper installation could lead to leaks and, in worse cases, electric shock or fire.
- Use only parts provided with the unit or parts satisfying required specifications. Unspecified parts could cause the unit to fall out of place, or could lead to leaks and, in worse cases, electric shock or fire.

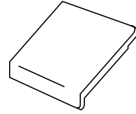
### 2-2 ACCESSORIES

Check the following accessories are included with your unit.

Name	Metal clamp	Paper pattern for installation	Drain hose
Quantity	1 pc.	1 pc.	1 pc.
Shape		 Corrugated cardboard	

Name	Insulation for fitting	Sealing pad	Insulation for hanger bracket
Quantity	1 each.	1 each.	4 pcs.
Shape	For gas pipe  For liquid pipe 	Large  Small 	

Name	Washer for hanging bracket	Clamp	Positioning jig for installation
Quantity	8 pcs.	8 pcs.	2 each.
Shape			 4 screws

Name	Air outlet blocking pad	(Other)
Quantity	1 pc.	
Shape		<ul style="list-style-type: none"> <li>• Operation manual</li> <li>• Installation manual</li> </ul>

- Screws for fixing panels are attached to decoration panel.

## 2-3 OPTIONAL ACCESSORIES

- The optional decoration panel and remote controller are required for this indoor unit. (Refer to Table 1, 2)

Table 1

Model	Min. height above ceiling	Decoration panel
		White
FXKQ25 · 32 · 40M(A)VE(9)	220 mm or more	BYK45FJW1
FXKQ63M(A)VE(9)		BYK71FJW1

- These are two types of remote controllers: wired and wireless. Select a remote controller from the Table 2 according to customer request and install in an appropriate place.

Table 2

Remote controller	
Wired type	
Wireless type	Heat pump type
	Cooling only type

### NOTE

- If you wish to use a remote controller that is not listed in Table 2 on page 3, select a suitable remote controller after consulting catalogs and technical materials.

## FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.

### a. Items to be checked after completion of work

Items to be checked	If not properly done, what is likely to occur	Check
Are the indoor and outdoor unit fixed firmly?	The unit may drop, vibrate or make noise.	
Is the gas leak test finished?	It may result in insufficient cooling.	
Is the unit fully insulated?	Condensate water may drip.	
Does drainage flow smoothly?	Condensate water may drip.	
Does the power supply voltage correspond to that shown on the name plate?	The unit may malfunction or the components burn out.	
Are wiring and piping correct?	The unit may malfunction or the components burn out.	
Is the unit safely grounded?	Dangerous at electric leakage.	
Is wiring size according to specifications?	The unit may malfunction or the components burn out.	
Is something blocking the air outlet or inlet of either the indoor or outdoor units?	It may result in insufficient cooling.	
Are refrigerant piping length and additional refrigerant charge noted down?	The refrigerant charge in the system is not clear.	

### b. Items to be checked at time of delivery

Also review the "SAFETY PRECAUTIONS"

Items to be checked	Check
Did you explain about operations while showing the instruction manual to your customer?	
Did you hand the instruction manual over to your customer?	

## c. Points for explanation about operations

The items with ⚠ WARNING and ⚠ CAUTION marks in the instruction manual are the items pertaining to possibilities for bodily injury and material damage in addition to the general usage of the product. Accordingly, it is necessary that you make a full explanation about the described contents and also ask your customers to read the instruction manual.

## 2-4 NOTE TO THE INSTALLER

Be sure to instruct customers how to properly operate the unit (especially cleaning filters, operating different functions, and adjusting the temperature) by having them carry out operations themselves while looking at the manual.

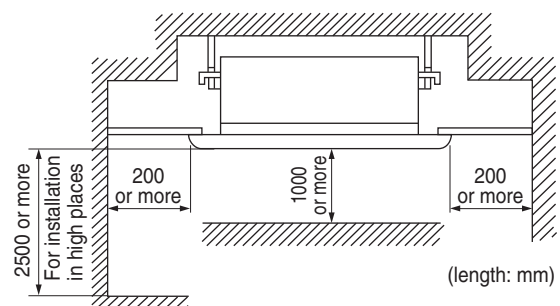
## 3. SELECTING INSTALLATION SITE

Please attach additional thermal insulation material to the unit body when it is believed that the relative humidity in the ceiling exceeds 80%. Use glass wool, polyethylene foam, or similar with a thickness of 10 mm or more as thermal insulation material.

- Select an installation site where the following conditions are satisfied and that meets with your customer's approval.
  - In the upper space (including the back of the ceiling) of the indoor unit where there is no possible dripping of water from the refrigerant pipe, drain pipe, water pipe, etc.
  - Where optimum air distribution can be ensured.
  - Where nothing blocks air passage.
  - Where condensate can be properly drained.
  - Where the ceiling is strong enough to bear the indoor unit weight.
  - Where the false ceiling is not noticeably on an incline.
  - Where sufficient clearance for installation and maintenance can be ensured.
  - Where there is no risk of flammable gas leakage.
  - Where piping between indoor and outdoor units is possible within the allowable limit. (Refer to the installation manual for the outdoor unit.)

### ⚠ CAUTION

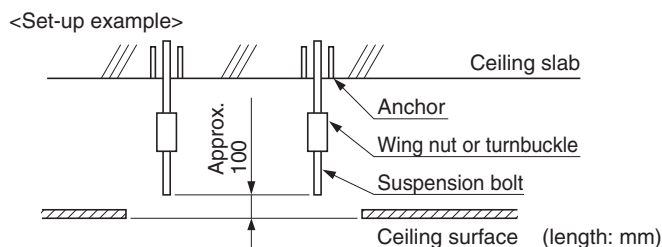
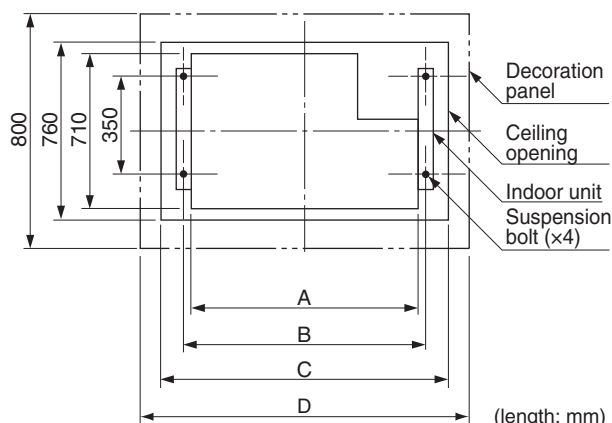
- Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise. (Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.)

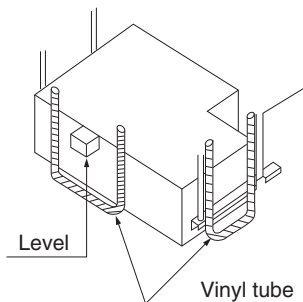


### (2) Ceiling height

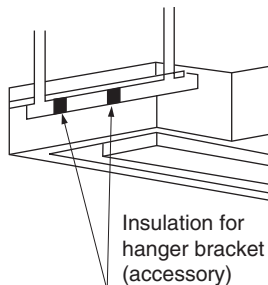
- Install this unit where the height of bottom panel is more than 2.5 m so that the user cannot easily touch.
- This unit can be installed in ceilings up to 3.8 meters high. If the ceiling height exceeds 2.7 meters, however, the connector of terminal board (A2P) must be replaced and an air outlet blocking pad must be installed. Refer to **HIGH CEILING INSTALLATION (P.9)**.

- 
- 1500 or more
- 20 or more
- 220 or more
- (Discharge side) (Suction side)
- (length: mm)





- (5) Tighten the upper nut.
- (6) Apply the insulation for hanger bracket to the hanger bracket installation bolts of the units. (4 locations). (See figure on right.)



- (7) After setting up the unit, be sure to remove the positioning jig for installation.

#### NOTE

- For a newly built ceiling, carry out the same procedure and be sure to establish thorough communication with those who are to do the ceiling work. The positioning jig for installation and paper pattern for installation have been adjusted to the dimensions of the ceiling opening.

## 6. REFRIGERANT PIPING WORK

- For the outdoor unit refrigerant piping, refer to the installation manual attached to the outdoor unit.
- Carry out insulation of both gas and liquid refrigerant piping securely. If not insulated, it may cause water leakage. For gas piping, use insulation material of which heat resistant temperature is not less than 120°C. For use under high humidity, strengthen the insulation material for refrigerant piping. If not strengthened, the surface of insulation material may sweat.
- Before installation work, make sure that the refrigerant is R410A. (Unless the refrigerant is R410A, the normal operation cannot be expected.)

#### CAUTION

**This air conditioner is a dedicated model for new refrigerant R410A. Make sure to meet the requirements shown below and carry out installation work.**

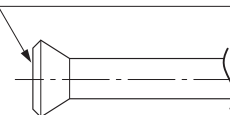
- Use dedicated piping cutters and flaring tools for R410A.
- When making a flare connection, coat the flared inner surface only with ether oil or ester oil.
- Use only the flare nuts attached to the air conditioner. If other flare nuts are used, it may cause refrigerant leakage.
- To prevent contamination or moisture from getting into the piping, take measures such as pinching or taping the pipings.

**Do not mix substance other than the specified refrigerant such as air into the refrigeration circuit.**

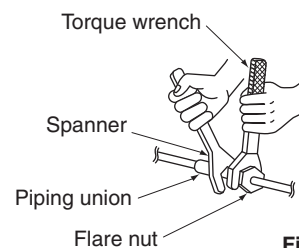
**If the refrigerant leaks during the work, ventilate the room.**

- The refrigerant is pre-charged in the outdoor unit.
- When connecting the pipings to the air conditioner, make sure to use a spanner and a torque wrench as shown in **Fig. 1**.
- For the dimension of flared part and the tightening torque, refer to the Table 3.
- When making a flare connection, coat the flared inner surface only with ether oil or ester oil. **(Refer to Fig. 2)**  
Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

Coat the flared inner surface only with ether oil or ester oil.



**Fig. 1**



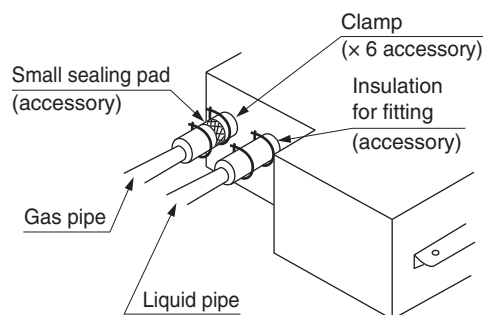
**Fig. 2**

#### CAUTION

Over-tightening may damage the flare and cause a refrigerant leakage.

Use "Table 4" as a reference if a torque wrench is not available. Once work is complete, make sure there is no gas leaking. As the flare nut is tightened with the wrench, the torque will suddenly increase. From that position, tighten the nut to the angle shown on "Table 4".

- Make absolutely sure to execute heat insulation works on the pipe-connecting section after checking gas leakage by thoroughly studying the following figure and using the attached heat insulating materials for fitting. (Fasten both ends with the clamps (accessory).)
- Wrap the sealing pad (accessory) only around the insulation for the joints on the gas piping side.



#### CAUTION

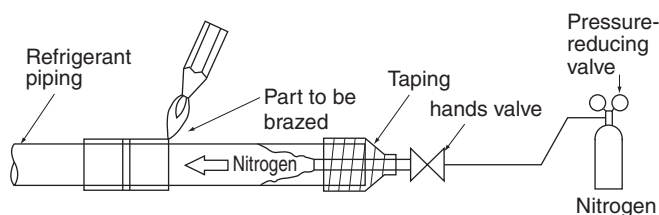
Be sure to insulate any field piping all the way to the piping connection inside the unit. Any exposed piping may cause condensation or burns if touched.

## CAUTION

### CAUTION TO BE TAKEN WHEN BRAZING REFRIGERANT PIPING

Do not use flux when brazing refrigerant piping. Therefore, use the phosphor copper brazing filler metal (BCuP-2: JIS Z 3264/ B-Cu93P-710/795: ISO 3677) which does not require flux. (Flux has extremely harmful influence on refrigerant piping systems. For instance, if the chlorine based flux is used, it will cause pipe corrosion or, in particular, if the flux contains fluorine, it will damage the refrigerant oil.)

- Before brazing local refrigerant piping, nitrogen gas shall be blown through the piping to expel air from the piping. If your brazing is done without nitrogen gas blowing, a large amount of oxide film develops inside the piping, and could cause system malfunction.
- When brazing the refrigerant piping, only begin brazing after having carried out nitrogen substitution or while inserting nitrogen into the refrigerant piping. Once this is done, connect the indoor unit with a flared or a flanged connection.
- Nitrogen should be set to 0.02 MPa with a pressure-reducing valve if brazing while inserting nitrogen into the piping.



## NOTE

The flare nuts used must be those included with the main body.

- Refer to Table 3 for tightening torque.

Table 3

Pipe size	Tightening torque (N·m)	Flare dimensions A (mm)	Flare
φ 6.4 (1/4")	15.7 ± 1.5	8.9 ± 0.2	
φ 9.5 (3/8")	36.3 ± 3.6	13.0 ± 0.2	
φ 12.7 (1/2")	54.9 ± 5.4	16.4 ± 0.2	
φ 15.9 (5/8")	68.6 ± 6.8	19.5 ± 0.2	

### Not recommendable but in case of emergency

You must use a torque wrench but if you are obliged to install the unit without a torque wrench, you may follow the installation method mentioned below.

After the work is finished, make sure to check that there is no gas leak.

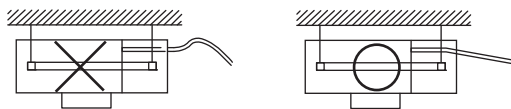
When you keep on tightening the flare nut with a spanner, there is a point where the tightening torque suddenly increases. From that position, further tighten the flare nut the angle shown below:

Table 4

Pipe size	Further tightening angle	Recommended arm length of tool
φ 6.4 (1/4")	60 to 90 degrees	Approx. 150mm
φ 9.5 (3/8")	60 to 90 degrees	Approx. 200mm
φ 12.7 (1/2")	30 to 60 degrees	Approx. 250mm
φ 15.9 (5/8")	30 to 60 degrees	Approx. 300mm

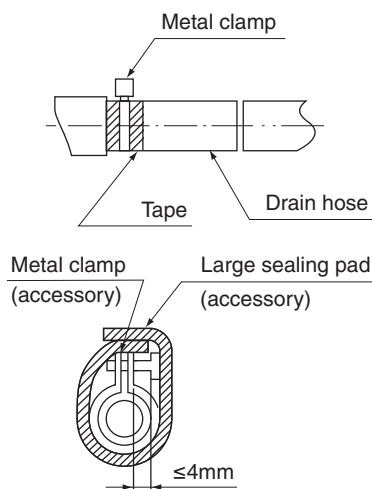
## 7. DRAIN PIPING WORK

<<Rig the drain pipe as shown below and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.>>



### (1) Carry out the drain piping

- Keep piping as short as possible and slope it downwards so that air may not remain trapped inside the pipe.
- The diameter of the drain pipe should be greater than or equal to the diameter of the connecting pipe (vinyl tube; pipe size: 25 mm; outer dimension: 32 mm).
- Use the drain hose and metal clamp. Insert the drain hose into the drain socket, up to the white tape. Tighten the metal clamp until the screw head is less than 4 mm from the hose.



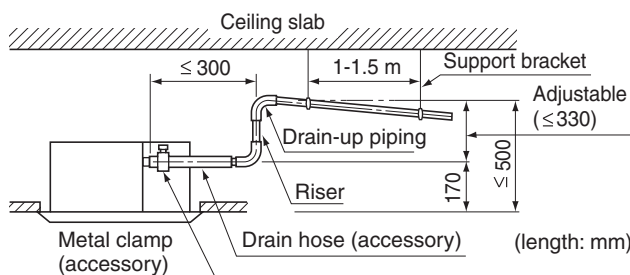
## CAUTION

Setting the unit at an angle opposite to the drain piping might cause leaks.

- Wrap the sealing pad over the clamp and drain hose to insulate.
- Insulate the drain hose inside the building. While referring to the figure on the right, insulate the clamp and drain hose with the large sealing pad.
- If the drain hose cannot be sufficiently set on a slope, execute the drain raising piping.
- Secure a downward gradient of 1/100 or more for the drain pipe. To accomplish this, mount supporting brackets at an interval of 1 - 1.5 m.

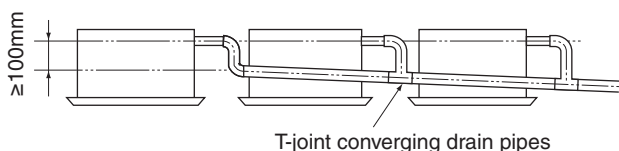
### <Precautions when doing drain-up piping work.>

- Make sure the drain-up piping is at most 330 mm high.
- Stand the drain-up piping horizontally, and make sure it is not further than 300 mm from the base of the drain socket.



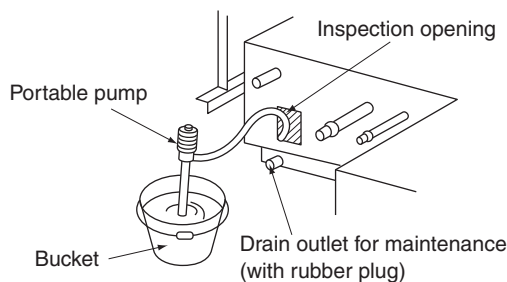
- Use the following outline if laying concentrated drain piping.

- If converging multiple drain pipes, install according to the procedure shown below.



Select converging drain pipes whose gauge is suitable for the operating capacity of the unit.

- (2) After piping work is finished, check drainage flows smoothly.
- Open the inspection opening, add approximately 1liter of water slowly into the drain pan and check drainage flow.



#### NOTE

- Use the drain outlet for maintenance to drain water from the drain pan.

#### WHEN ELECTRIC WIRING WORK IS FINISHED

- Check drainage flow during COOL running, explained under "TEST OPERATION".

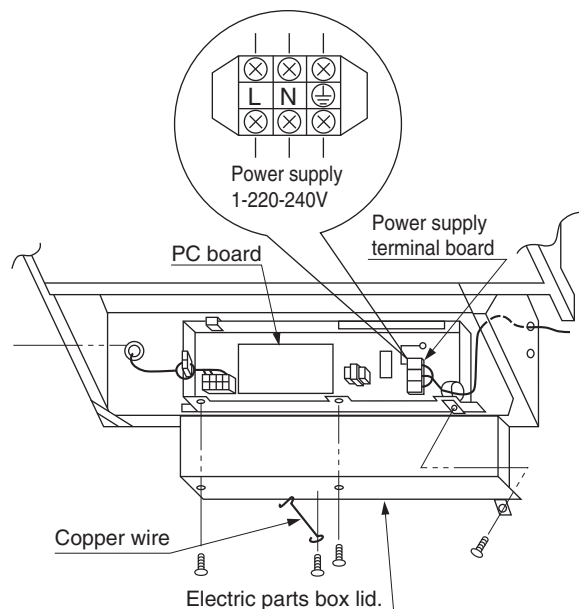
#### WHEN ELECTRIC WIRING WORK IS NOT FINISHED

- Remove the electric parts box lid, connect a power supply and remote controller to the terminals.

(Refer to the **HOW TO CONNECT WIRINGS (P.8)**)

Be sure attach the electric parts box lid before turning on the power.

Next, press the inspection/test operation button "TEST" on the remote controller. The unit will engage the test operation mode. Press the operation mode selector button "FAN" until selecting FAN OPERATION "FAN". Then, press the ON/OFF button "ON". The indoor unit fan and drain pump will start up. Check that the water has drained from the unit. Press "TEST" to go back to the first mode.



#### CAUTION

- Drain piping connections  
Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.
- Keep in mind that it will become the cause of getting drain pipe blocked if water collects on drain pipe.

## 8. ELECTRIC WIRING WORK

### 8-1 GENERAL INSTRUCTIONS

- All field supplied parts and materials and electric works must conform to local codes.
- Use copper wire only.
- For electric wiring work, refer to also "Wiring diagram label" attached to the electric parts box lid.
- For remote controller wiring details, refer to the installation manual attached to the remote controller.
- All wiring must be performed by an authorized electrician.
- This system consists of multiple indoor units. Mark each indoor unit as unit A, unit B . . . , and be sure the terminal board wiring to the outdoor unit and BS unit are properly matched. If wiring and piping between the outdoor unit and an indoor unit are mismatched, the system may cause a malfunction.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Be sure to ground the air conditioner.
- Do not connect the ground wire to gas and water pipes, lightning rods, or telephone ground wires.
  - Gas pipes : might cause explosions or fire if gas leaks.
  - Water pipes : no grounding effect if hard vinyl piping is used.
  - A circuit breaker capable of shutting down the power supply to the entire system must be installed.

## 8-2 ELECTRICAL CHARACTERISTICS

Units				Power supply		Fan motor	
Model	Hz	Volts	Voltage range	MCA	MFA	kW	FLA
FXKQ25 · 32M(A)VE(9)	50	220-240	Max. 264 Min. 198	0.3	15	0.015	0.2
FXKQ40M(A)VE(9)				0.3	15	0.020	0.2
FXKQ63M(A)VE(9)				0.5	15	0.045	0.4
FXKQ25 · 32M(A)VE(9)	60	220	Max. 242 Min. 198	0.4	15	0.015	0.3
FXKQ40M(A)VE(9)				0.5	15	0.020	0.4
FXKQ63M(A)VE(9)				0.6	15	0.045	0.5

MCA: Min. Circuit Amps (A); MFA: Max. Fuse Amps (A)  
kW: Fan Motor Rated Output (kW); FLA: Full Load Amps (A)

## 8-3 SPECIFICATIONS FOR FIELD SUPPLIED FUSES AND WIRE

Model	Power supply wiring			Remote controller wiring Transmission wiring	
	Field fuses	Wire	Size	Wire	Size
FXKQ25 · 32M(A)VE(9)	15A	H05V V-U3G NOTE 1)	Wiring size and length must comply with local codes.	Sheathed wire (2 wire) NOTE 2)	0.75
FXKQ40M(A)VE(9)					-
FXKQ63M(A)VE(9)					1.25 mm <sup>2</sup>

Allowable length of transmission wiring between indoor/outdoor units and between the indoor unit and the remote controller is as follows.

- (1) Outdoor unit – Indoor unit:  
Max. 1000 m (Total wiring length: 2000 m)
- (2) Indoor unit – Remote controller:  
Max. 500 m

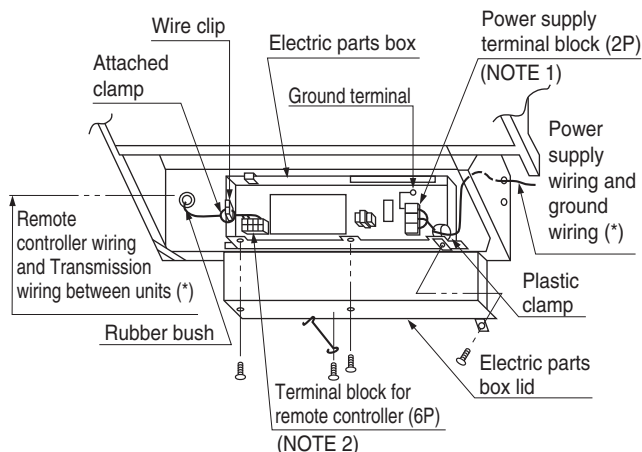
### NOTE

1. Shows only in case of protected piping. Use H07RN-F in case of no protection.
2. Vinyl cord with sheath or cable (Insulated thickness : 1mm or more)

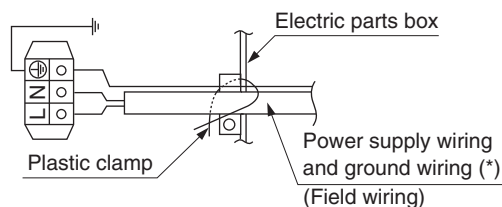
## 9. WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

### 9-1 HOW TO CONNECT WIRINGS

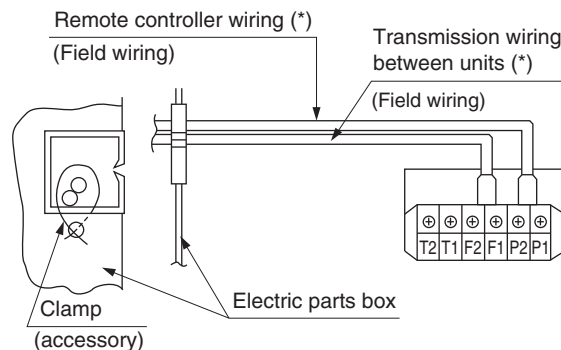
- Refer to the figure below when connecting the remote controller wiring with transmission wiring and power supply wiring.



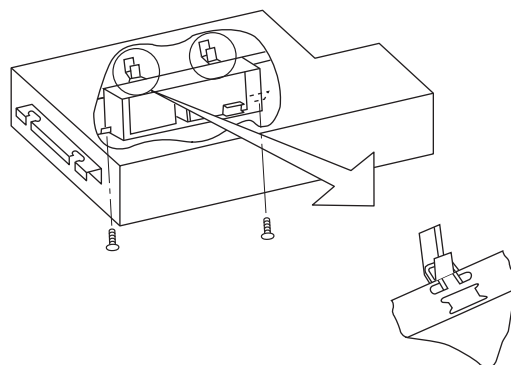
NOTE 1: Details of terminal block for power supply



NOTE 2: Details of terminal block for unit transmission wirings



- You can temporarily hang the electric parts box of the unit from the position shown in the figure below. Use according to the type of work.



### CAUTION

- Be sure to attach the sealing material or putty (field supplied) to hole of wiring to prevent the infiltration of water as well as any insects and other small creatures from outside. Otherwise a short-circuit may occur inside the electric parts box.
- When clamping the wires, be sure no pressure is applied to the wire connections by using the included clamping material to make appropriate clamps. Also, when wiring, make sure the lid on the electric parts box lid fits snugly by arranging the wires neatly and attaching the electric parts box lid firmly. When attaching the electric parts box lid, make sure no wires get caught in the edges. Pass wiring through the wiring through holes to prevent damage to them.
- Make sure the remote controller wiring, the wiring between the units, and other electrical wiring do not pass through the same locations outside of the unit, separating them by at least 50mm, otherwise electrical noise (external static) could cause mistaken operation or breakage.

## ⚠ CAUTION FOR WIRING

- For connection to the terminal block, use ring type crimp style terminals with insulation sleeve or insulate the wirings properly.

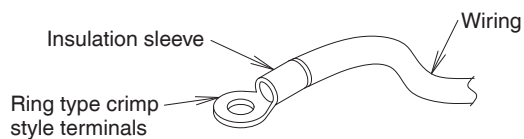
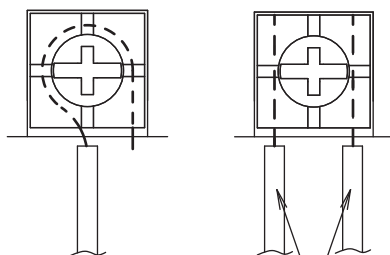


Fig. 3

- Connect the terminal as shown in Fig. 4.
- Do not carry out soldering finish when stranded wires are used. (Otherwise, the loosening of wires may result in abnormal heat radiation.)



Use wires the same in size  
(if the air conditioner is  
in simultaneous multi operation)

Fig. 4

(Abnormal heating may occur if the wirings are not tightened securely.)

- Use the required wirings, connect them securely and fix these wirings securely so that external force may not apply to the terminals.
- Use a proper screw driver for tightening the terminal screws. If an improper screw driver is used, it may damage the screw head and a proper tightening cannot be carried out.
- If a terminal is over tightened, it may be damaged. Refer to the table shown below for tightening torque of terminals.

Table 5

	Tightening torque (N · m)
Terminal block for remote controller and transmission wiring	0.88 ± 0.08
Terminal for power supply	1.47 ± 0.14
Earth terminal	1.47 ± 0.14

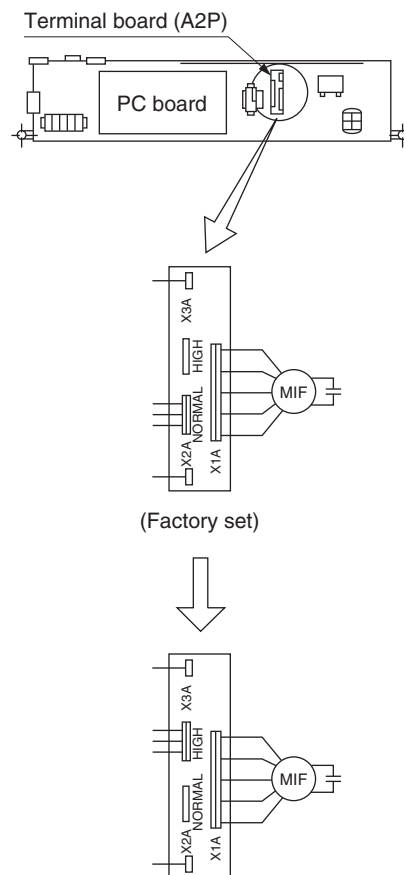
- Do not carry out soldering finish when stranded wirings are used.

## ⚠ WARNING

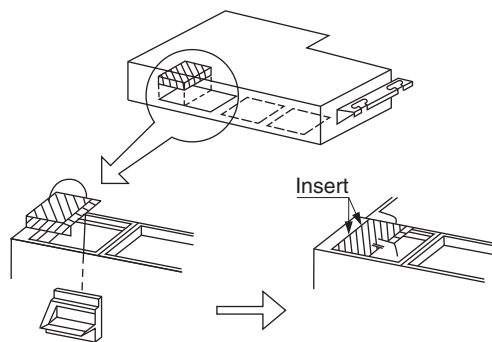
- When wiring, form the wirings orderly so that the control box lid can be securely fastened. If the control box lid is not in place, the wirings may come out or be sandwiched by the box and the lid and cause electric shocks or a fire.

## 9-2 HIGH CEILING INSTALLATION

- This unit can be installed in ceilings up to 3.8 meters high. If the ceiling height exceeds 2.7 meters, however, connect the connector on the terminal board (A2P) of indoor units as shown in the figure below.

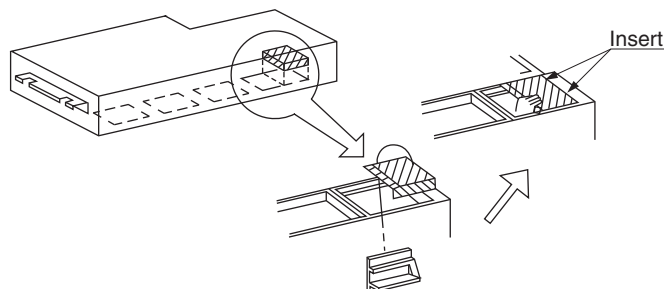


- Match with setting of (1) and apply air outlet blocking pad. For FXKQ25 · 32 · 40M(A)VE(9)
  - Apply to the left side drain pan opening (3 locations) as shown in the figure.



For FXKQ63M(A)VE(9)

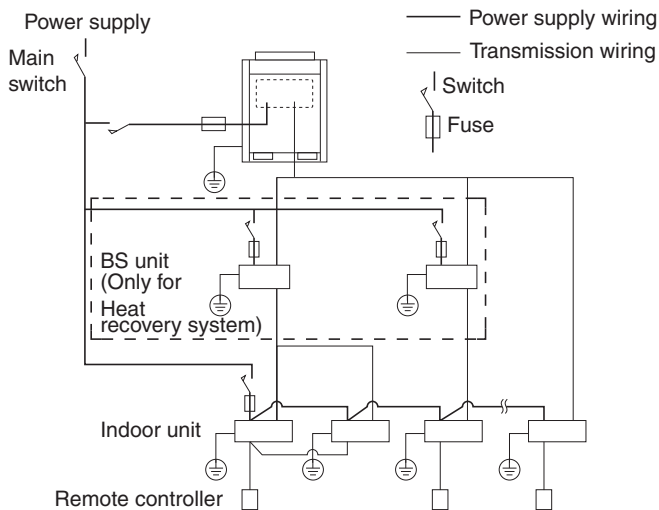
- Apply to the right side drain pan opening (3 locations) as shown in the figure.



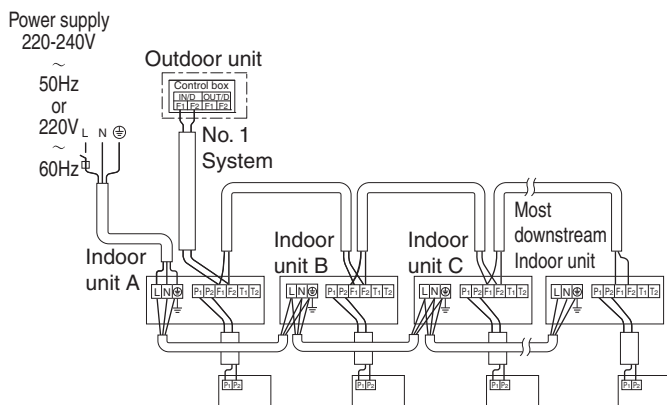
### 9-3 WIRING EXAMPLE

- Fit the power supply wiring of each unit with a switch and fuse as shown in the drawing.

#### COMPLETE SYSTEM EXAMPLE (3 systems)



#### 1. When using 1 remote controller for 1 indoor unit. (Normal operation)



#### 2. For group control or use with 2 remote controllers

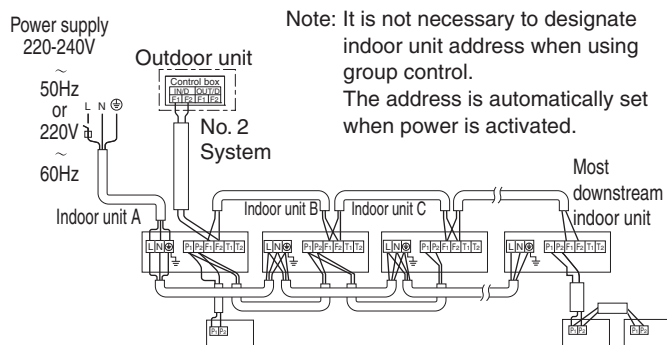
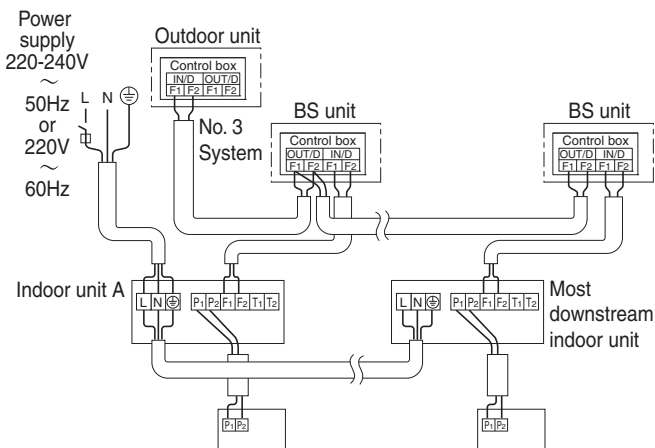


Fig. 5

For use with 2 remote controllers

### 3. When including BS unit



#### [ PRECAUTIONS ]

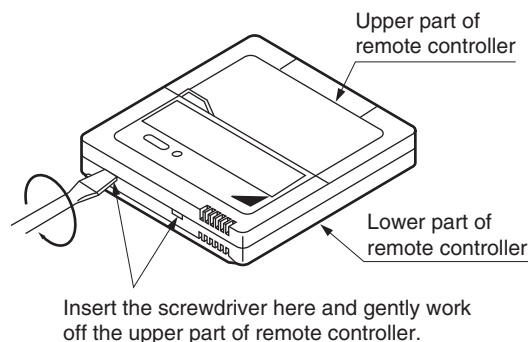
- A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- Do not ground the equipment on gas pipes, water pipes or lightning rods, or crossground with telephones. Improper grounding could result in electric shock.

### 9-4 CONTROL BY 2 REMOTE CONTROLLERS (Controlling 1 indoor unit by 2 remote controllers)

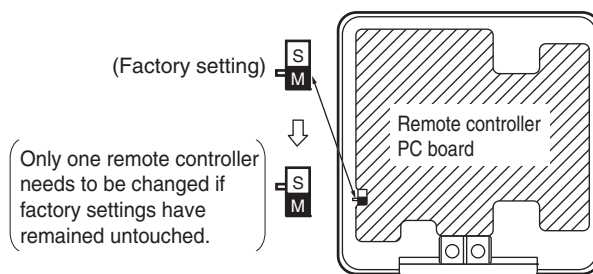
- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

#### MAIN/SUB CHANGEOVER

- Insert a  $\ominus$  screw driver into the recess between the upper and lower part of remote controller and, working from the 2 positions, pry off the upper part. The remote controller PC board is attached to the upper part of remote controller.



- Turn the MAIN/SUB changeover switch on one of the two remote controller PC boards to "S". (Leave the switch of the other remote controller set to "M".)

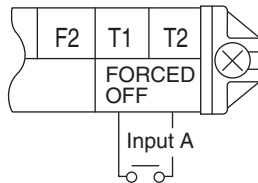


### Wiring Method (See "ELECTRIC WIRING WORK")

- (3) Remove the electric parts box lid.
- (4) Add remote control 2 (slave) to the terminal block for remote controller (P1, P2) in the electric parts box. (There is no polarity.) (Refer to Fig. 5 and 8-3.)

### 9-5 COMPUTERISED CONTROL (FORCED OFF AND ON/OFF OPERATION)

- (1) Wire specifications and how to perform wiring
  - Connect input from outside to terminals T1 and T2 of the terminal block for remote controller.



Wire specification	Sheathed vinyl cord or cable (2 wire)
Gauge	0.75 - 1.25 mm <sup>2</sup>
Length	Max. 100 m
External terminal	Contact that can ensure the minimum applicable load of 15 V DC, 1 mA.

- (2) Actuation
  - The following table explains FORCED OFF and ON/OFF OPERATIONS in response to Input A.

FORCED OFF	ON/OFF OPERATION
Input "ON" stops operation (impossible by remote controllers).	Input "OFF" → "ON" turns ON unit.
Input "OFF" enables control by remote controller.	Input "ON" → "OFF" turns OFF unit.

- (3) How to select FORCED OFF and ON/OFF OPERATION
  - Turn the power on and then use the remote controller to select operation.

### 9-6 CENTRALIZED CONTROL

- For centralized control, it is necessary to designate the group No. For details, refer to the manual of each optional controllers for centralized control.

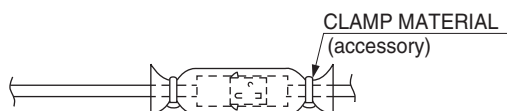
## 10. DECORATION PANEL INSTALLATION

Refer to the installation manual of the panels.

### [ PRECAUTIONS ]

#### • SWING FLAP MOTOR WIRING METHOD

- (1) CONNECT TWO LEAD WIRES OF SWING FLAP MOTOR MOUNTED ON THE DECORATION PANEL TO THE CONNECTORS OF MAIN BODY.
- (2) SLIDE THE INSULATION TUBE ACCORDING TO THE ARROW AS SHOWN IN FIG. SO THAT THE CONNECTOR CAN BE COMPLETELY COVERED.
- (3) BIND THE OPENING OF INSULATION TUBE WITH THE ATTACHED CLAMP MATERIAL.

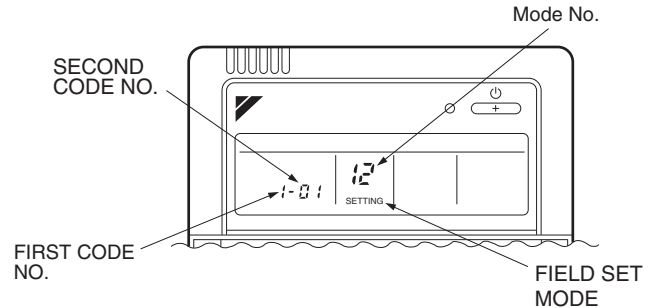


## 11. FIELD SETTING

Make sure the terminal box lids are closed on the indoor and outdoor units.

Field setting must be made from the remote controller in accordance with the installation condition.

- Setting can be made by changing the "Mode No.", "FIRST CODE NO.", and "SECOND CODE NO."
- For setting and operation, refer to the "FIELD SETTING" in the installation manual of the remote controller.



- Set the remote controller to the field set mode. For details, refer to the "HOW TO SET IN THE FIELD", in the remote controller manual.
- When in the field set mode, select mode No. 12, then set the first code (switch) No. to "1". Then set second code (position) No. to "01" for FORCED OFF and "02" for ON/OFF OPERATION. (FORCED OFF at factory set)

## 12. TEST OPERATION

Refer to the installation manual of the outdoor unit.

- The operation lamp of the remote controller will flash when a malfunction occurs. Check the malfunction code on the liquid crystal display to identify the point of trouble. An explanation of malfunction codes and the corresponding trouble is provided in "CAUTION FOR SERVICING" of the indoor unit. If any of the items in Table 6 are displayed, there may be a problem with the wiring or power, so check the wiring again.

Table 6

Remote control display	Content
"Concentrated Management" is lit up	<ul style="list-style-type: none"> <li>There is a short circuit at the FORCED OFF terminals (T1, T2).</li> </ul>
"U4" is lit up "UH" is lit up	<ul style="list-style-type: none"> <li>The power on the outdoor unit is off.</li> <li>The outdoor unit has not been wired for power supply.</li> <li>Incorrect wiring for the transmission wiring and / or FORCED OFF wiring.</li> </ul>
No display	<ul style="list-style-type: none"> <li>The power on the indoor unit is off.</li> <li>The indoor unit has not been wired for power supply.</li> <li>Incorrect wiring for the remote controller wiring, the transmission wiring, and / or the FORCED OFF wiring.</li> </ul>

