
VRV SYSTEM Inverter Air Conditioners

MODELS**(Ceiling-mounted Multi flow cassette type)****FXZQ20MVE
FXZQ25MVE
FXZQ32MVE
FXZQ40MVE
FXZQ50MVE**

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

LESEN SIE DIESE ANWEISUNGEN VOR DER INSTALLATION SORGFÄLTIG DURCH.
BEWAHREN SIE DIESE ANLEITUNG FÜR SPÄTERE BEZUGNAHME GRIFFBEREIT AUF.

LIRE SOIGNEUSEMENT CES INSTRUCTIONS AVANT L'INSTALLATION.
CONSERVER CE MANUEL A PORTEE DE MAIN POUR REFERENCE ULTERIEURE.

LEA CUIDADOSAMENTE ESTAS INSTRUCCIONES ANTES DE INSTALAR.
GUARDE ESTE MANUAL EN UN LUGAR A MANO PARA LEER EN CASO DE TENER
ALGUNA DUDA.

PRIMA DELL'INSTALLAZIONE LEGGERE ATTENTAMENTE QUESTE ISTRUZIONI.
TENERE QUESTO MANUALE A PORTATA DI MANO PER RIFERIMENTI FUTURI.

ΔΙΑΒΑΣΤΕ ΠΡΟΣΕΚΤΙΚΑ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ ΠΡΙΝ ΑΠΟ ΤΗΝ ΕΓΚΑΤΑΣΤΑΣΗ ΕΧΕΤΕ ΑΥΤΟ
ΤΟ ΕΓΧΕΙΡΙΔΙΟ ΕΥΚΑΙΡΟ ΓΙΑ ΝΑ ΤΟ ΣΥΜΒΟΥΛΕΥΕΣΤΕ ΣΤΟ ΜΕΛΛΟΝ.

LEES DEZE INSTRUCTIES ZORGVULDIG DOOR VOOR INSTALLATIE. BEWAAR DEZE HAN-
DLEINDING WAAR U HEM KUNT TERUGVINDEN VOOR LATERE NASLAG.

LEIA COM ATENÇÃO ESTAS INSTRUÇÕES ANTES DE REALIZAR A INSTALAÇÃO.
MANTENHA ESTE MANUAL AO SEU ALCANCE PARA FUTURAS CONSULTAS.

ПЕРЕД НАЧАЛОМ МОНТАЖА ВНИМАТЕЛЬНО ОЗНАКОМЬТЕСЬ С ДАННЫМИ
ИНСТРУКЦИЯМИ. СОХРАНИТЕ ДАННОЕ РУКОВОДСТВО В МЕСТЕ, УДОБНОМ ДЛЯ
ОБРАЩЕНИЯ В БУДУЩЕМ.

English

Deutsch

Français

Español

Italiano

Ελληνικά

Nederlands

Portugues

Russian



FXZQ20MVE
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Installation manual

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1. SAFETY CONSIDERATIONS

Please read these “SAFETY CONSIDERATIONS” carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the operation manual for future reference.

This air conditioner comes under the term “appliances not accesible to the general public”.

Meaning of warning and caution symbols

 **WARNING** Failure to observe a warning may result in death.

 **CAUTION** Failure to observe a caution may result in injury or damage to the equipment.

WARNING

- Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine yourself.
Improper installation may result in water leakage, electric shocks or fire.
- Perform installation work in accordance with this installation manual.
Improper installation may result in water leakage, electric shocks or fire.
- When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage. Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.
- Be sure to use only the specified accessories and parts for installation work.
Failure to use the specified parts may result in water leakage, electric shocks, fire or the unit falling.
- Install the air conditioner on a foundation strong enough to withstand the weight of the unit.
A foundation of insufficient strength may result in the equipment falling and causing injuries.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.
Improper installation work may result in the equipment falling and accidents.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.

- Make sure that all wiring is secured, the specified wires are used, and no external forces act on the terminal connections or wires.
Improper connections or installation may result in fire.
 - When wiring the power supply and connecting the remote controller wiring and transmission wiring, position the wires so that the control box lid can be securely fastened.
Improper positioning of the control box lid may result in electric shocks, fire or the terminals overheating.
 - If the refrigerant gas leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant gas comes into contact with fire.
 - After completing the installation work, check that the refrigerant gas does not leak.
Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.
 - Before touching electrical parts, turn off the unit.
-

CAUTION

- Ground the air conditioner.
 - Do not connect the ground wire to gas or water pipes, lightning rods or telephone ground wires. Incomplete grounding may result in electric shocks.
 - Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks.
 - While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.
Improper drain piping may result in water leakage and property damage.
 - Install the indoor and outdoor units, power cord 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.)
 - Remote controller (wireless kit) transmitting distance can result shorter than expected in rooms with electronic fluorescent lamps. (inverter or rapid start types)
Install the indoor unit as far away from fluorescent lamps as possible.
 - Do not install the air conditioner in the following locations:
 - (a) where a mineral oil mist or an oil spray or vapor is produced, for example in a kitchen
Plastic parts may deteriorate and fall off or result in water leakage.
 - (b) where corrosive gas, such as sulfurous acid gas, is produced
Corroding copper pipes or soldered parts may result in refrigerant leakage.
 - (c) near machinery emitting electromagnetic waves
Electromagnetic waves may disturb the operation of the control system and result in a malfunction of the equipment.
 - (d) where flammable gases may leak, where there are carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as thinner or gasoline are handled.
Operating the unit in such conditions may result in fire.
-







2. BEFORE INSTALLATION

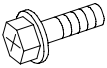
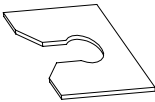
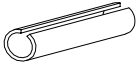
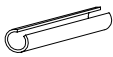
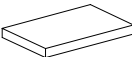

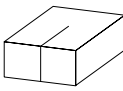
- **When moving the unit while removing it from the carton box, be sure to lift it by holding on to the four lifting lugs without exerting any pressure on other parts, especially, the refrigerant piping, drain piping, and other resin parts.**
- Be sure to check the type of R410A refrigerant to be used 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.
- **Especially, do not unfasten packing case(top) guarding the control box until suspending 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.)
 - Where corrosive gas like sulfurous gas exists. (Copper tubing and brazed spots may corrode.)
 - Where volatile flammable gas like thinner or gasoline is used.
 - 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 ACCESSORIES

Check the following accessories are included with your unit.

Name	(1) Drain hose	(2) Clamp	(3) Washer for hanging bracket	(4) Clamp		(5) Paper pattern for installation
Quantity	1 pc.	1 pc.	8 pcs.	(Big) 6 pcs.	(Small) 1 pc.	1 pc.
Shape						Also used as packing material 

Name	(6) Screws (M5)	(7) Washer fixing plate	Insulation for fitting	Sealing pad	(12) Sealing material	(Other)
Quantity	4 pcs.	4 pcs.	1 each.	1 each.	2 pcs.	<ul style="list-style-type: none"> • Operation manual • Installation manual
Shape	For paper pattern for installation 		(8) For gas pipe  (9) For liquid pipe 	(10) Large  (11) Small 		

2-2 OPTIONAL ACCESSORIES

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

Table 1

Unit model	Optional decoration panel
FXZQ20·25·32·40·50MVE	BYFQ60BW1
	Colour : White

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

Table 2

Remote controller type	European market		Australian market	
	Cooling only type	Heat Pump type	Cooling only type	Heat Pump type
Wired type	BRC1C517		BRC1A61	
Wireless type	BRC7E531W	BRC7E530W	BRC7E531W	BRC7E530W

NOTE

- If you wish to use a remote controller that is not listed in Table 2, 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 units 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.	
Dose drainage flow smoothly?	Condensate water may drip.	
Dose 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 CONSIDERATIONS"

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.

2-3 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.

For this unit, you are able to select air flow direction.

To enable the discharge of air in 2 or 3 directions, it is necessary to purchase the sealing member of air discharge outlet.

(1) Select an installation site where the following conditions are fulfilled and that meets 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 maintenance and service 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.)

[Space required for installation] (mm)

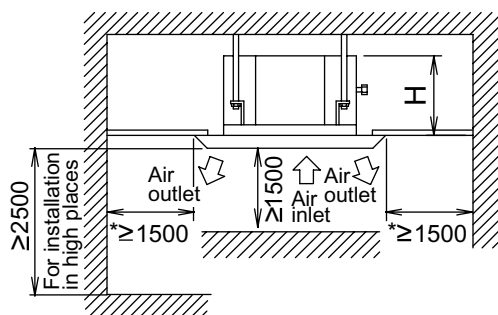


Fig. 1

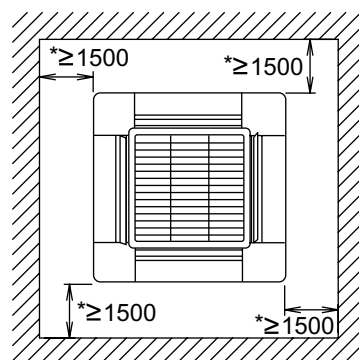


Fig. 2

NOTE

- Leave 200 mm or more space where marked with the *, on sides where the air outlet is closed.

Model	H
FXZQ20-25-32-40-50	285 (Confirm the space of 295 or more)

CAUTION

- Any vents, light fixtures, or other appliances which may disturb the airflow might cause the top side to become dirty if located too nearby, so follow the figure below when installing.
- Install the indoor and outdoor units, power cord 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.)

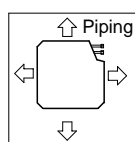
(2) Ceiling height

- Install this unit where the height of bottom panel is more than 2.5 m so that the user cannot easily touch.

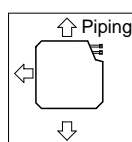
(3) Air flow direction

Select the air flow directions best suited to the room and point of installation. (For air outlet in 2 or 3 directions, it is necessary to make field settings by remote controller and to close the air outlet(s). Refer to the installation manual of the sealing member of air discharge outlet and the section entitled 10. FIELD SETTINGS)

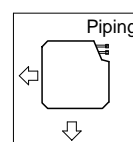
[Air flow direction] (Example)



Air outlet in 4 directions



Air outlet in 3 directions

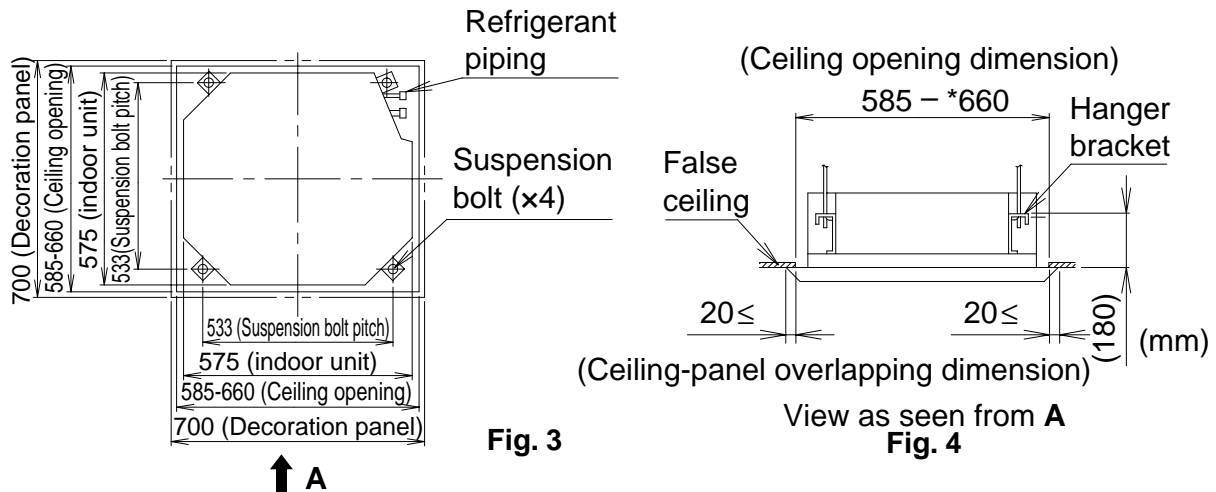


Air outlet in 2 directions

- (4) Use suspension bolts for installation. Check whether the ceiling is strong enough to support the weight of the unit or not. If there is a risk, reinforce the ceiling before installing the unit.**
(Installation pitch is made on the paper pattern for installation. Refer to it to check for points requiring reinforcing.)

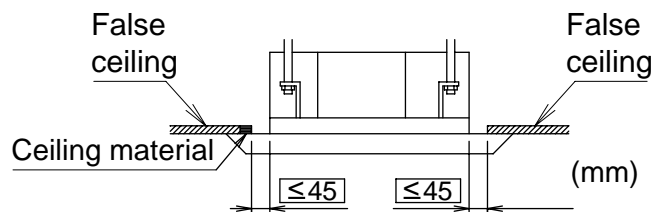
4. PREPARATIONS BEFORE INSTALLATION

(1) Relation of ceiling opening to unit and suspension bolt position.



NOTE

- Installation is possible with a ceiling dimension of 660 mm (marked with *). However, to achieve a ceiling-panel overlapping dimension of 20 mm, the spacing between the ceiling and the unit should be 45 mm or less. If the spacing between ceiling and the unit is over 45 mm, attach ceiling material to ■ part or recover the ceiling.



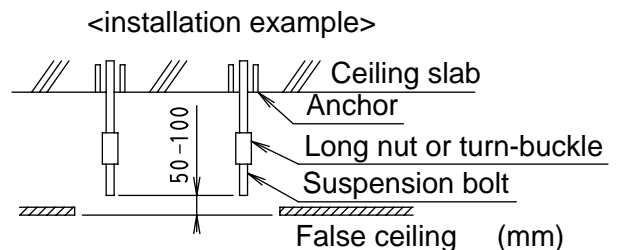
(2) Make the ceiling opening needed for installation where applicable. (For existing ceilings)

- Refer to the paper pattern for installation (5) for ceiling opening dimensions.
- Create the ceiling opening required for installation. From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type) and wiring between units. Refer to each PIPING or WIRING section.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

(3) Install the suspension bolts.

(Use either a M8 ~ M10 size bolt) Use a hole-in anchor for existing ceilings, and a sunken insert, sunken anchor or other field supplied parts for new ceilings to reinforce the ceiling to bear the weight of the unit.

Adjust clearance (50 – 100 mm) from the ceiling before proceeding further.



NOTE

- All the above parts are field supplied.

5. INDOOR UNIT INSTALLATION

Installing optional accessories (except for the decoration panel) before installing the indoor unit is easier. However, for existing ceilings, install fresh air intake kit and branch duct before installing the unit.

As for the parts to be used for installation work, be sure to use the provided accessories and specified parts designated by our company.

(1) For new ceilings

(1-1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer (3) from the upper and lower sides of the hanger bracket. The washer fixing plate (7) will prevent the washer from falling.

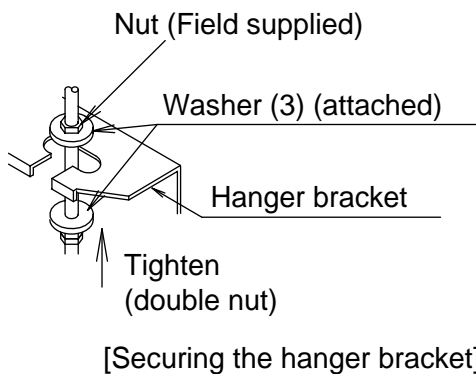


Fig. 7

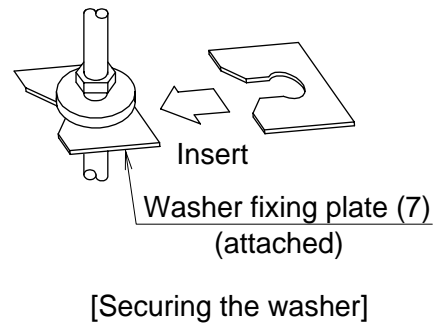


Fig. 8

(1-2) Refer to the paper pattern for installation (5) for ceiling opening dimension.

Consult the builder or carpenter for details.

- The center of the ceiling opening is indicated on the paper pattern for installation.
- The center of the unit is indicated on the paper pattern for installation.
- Fix the paper pattern to the unit with screws (6) (×4).

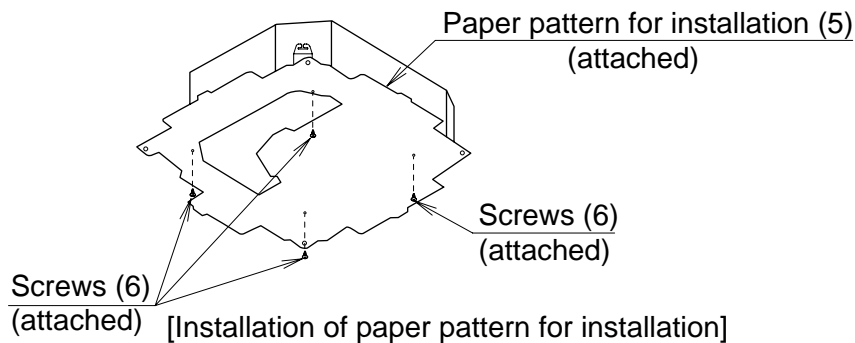


Fig. 9

<Ceiling work>

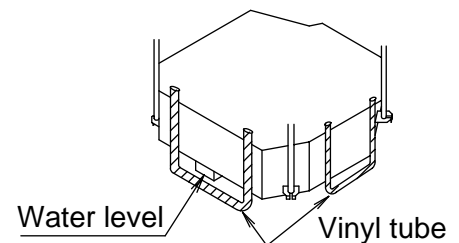
(1-3) Adjust the unit to the right position for installation.

(Refer to 4.PREPARATIONS BEFORE INSTALLATION-(1))

(1-4) Check the unit is horizontally level.

— **CAUTION** —

- The indoor unit is equipped with a built-in drain pump and float switch. Verify that it is level by using a water level or a waterfilled vinyl tube. (If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.)



[Maintaining horizontality]

Fig. 10

(1-5) Remove the washer fixing plate (7) used for preventing the washer from falling and tighten the upper nut.

(1-6) Remove the paper pattern for installation (5).

(2) For existing ceilings

(2-1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer (3) from the upper and lower sides of the hanger bracket. The washer fixing plate (7) will prevent the washer from falling.

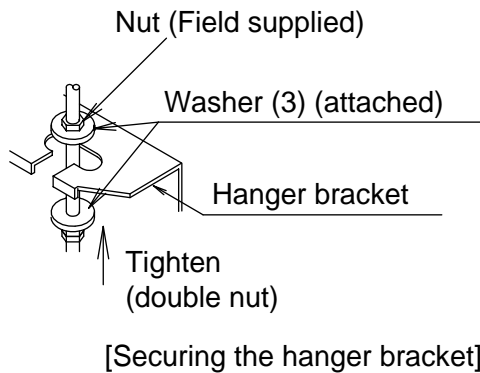


Fig. 11

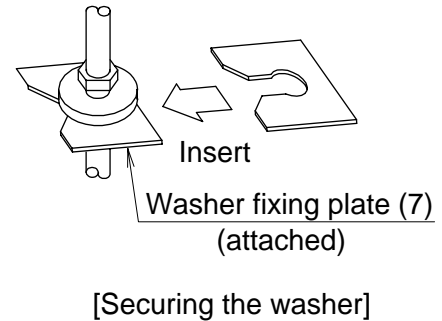


Fig. 12

(2-2) Adjust the height and position of the unit.

(Refer to 4. PREPARATIONS BEFORE INSTALLATION-(1).)

(2-3) Perform steps (1-4), (1-5) in (1) For new ceilings.

6. REFRIGERANT PIPING WORK

<For refrigerant piping of outdoor units, see the installation manual attached to the outdoor unit.>

<Execute heat insulation work completely on both sides of the gas piping and the liquid piping.

Otherwise, a water leakage can result sometimes.>

(When using a heat pump, the temperature of the gas piping can reach up to approximately 120°C, so use insulation which is sufficiently resistant.)

<Also, in cases where the temperature and humidity of the refrigerant piping sections might exceed 30°C or RH80%, reinforce the refrigerant insulation. (20 mm or thicker) Condensation may form on the surface of the insulating material.>

<Before refrigerant piping work, check which type of refrigerant is used. Proper operation is not possible if the types of refrigerant are not the same.>

⚠ CAUTION

- Use a pipe cutter and flare suitable for the type of refrigerant.
- Apply ester oil or ether oil around the flare portions before connecting.
- To prevent dust, moisture or other foreign matter from infiltrating the tube, either pinch the end or cover it with tape.
- Do not allow anything other than the designated refrigerant to get mixed into the refrigerant circuit, such as air, etc. If any refrigerant gas leaks while working on the unit, ventilate the room thoroughly right away.

- The outdoor unit is charged with refrigerant.
- Be sure to use both a spanner and torque wrench together, as shown in the drawing, when connecting or disconnecting pipes to/from the unit. (Refer to Fig. 13)
- Refer to Table 3 for the dimensions of flare nut spaces.
- When connecting the flare nut, coat the flare section (both inside and outside) with ester oil or ether oil, rotate three or four times first, then screw in. (Refer to Fig. 14)

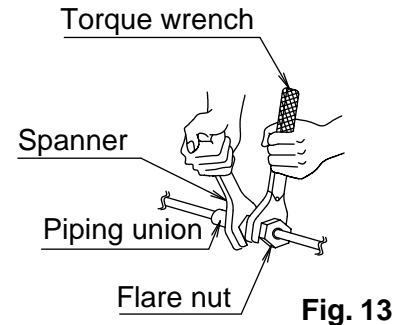


Fig. 13

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

NOTE

- Use the flare nut included with the unit main body.

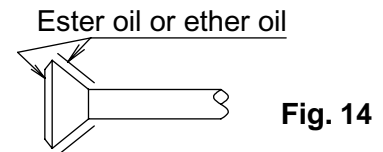


Fig. 14

Pipe size	Tightening torque	Flare dimensions A (mm)	Flare
ø6.4(1/4")	14.2 - 17.2 N·m (144 - 175 kgf·cm)	8.7-9.1	
ø12.7(1/2")	49.5 - 60.3 N·m (505 - 615 kgf·cm)	16.2 - 16.6	

- Refer to "Table 3" to determine the proper tightening torque.

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

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:

Pipe size	Further tightening angle	Recommended arm length of tool
ø6.4 (1/4")	60 to 90 degrees	Approx. 150mm
ø12.7 (1/2")	30 to 60 degrees	Approx. 250mm

CAUTION

CAUTION TO BE TAKEN WHEN BRAZING REFRIGERANT PIPING

Do not use flux when brazing refrigerant piping. Therefore, use the phosphor copper brazing filter metal (BCuP) 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 (0.2 kg/cm²) with a pressure-reducing valve if brazing while inserting nitrogen into the piping. (Refer to Fig.15)

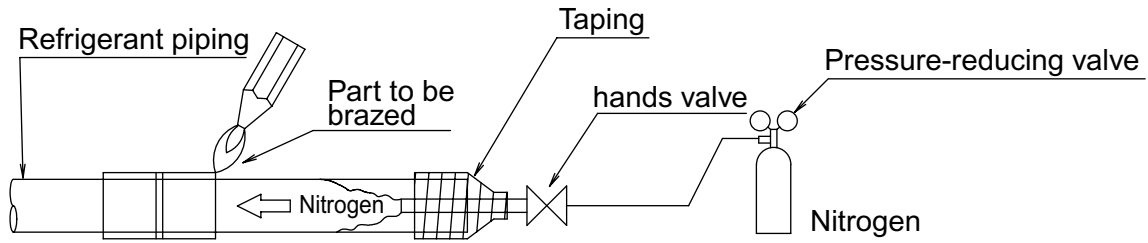


Fig. 15

- 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 (8) and (9). (Fasten both ends with the clamps (4).) (Refer to Fig. 16)
- Wrap the sealing pad (11) only around the insulation for the joints on the gas piping side. (Refer to Fig. 16)

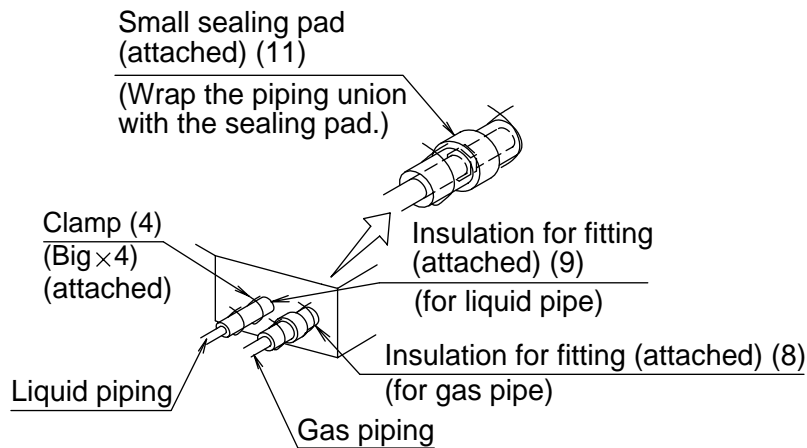


Fig. 16

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.

7. DRAIN PIPING WORK

(1) Carry out the drain piping

- Lay pipes so as to ensure that drainage can occur with no problems.
- Employ a pipe with either the same diameter or with the diameter larger (excluding the raising section) than that of the connecting pipe (PVC pipe, nominal diameter 20 mm, outside diameter 26 mm).
- keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air pockets from forming.
- If the drain hose cannot be sufficiently set on a slope, refer to PRECAUTIONS FOR DRAIN RAISING PIPING on page 11.
- To keep the drain hose from sagging, space hanger bracket every 1 to 1.5 m.

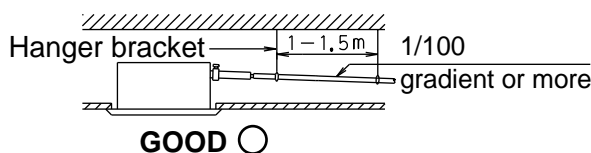


Fig. 17

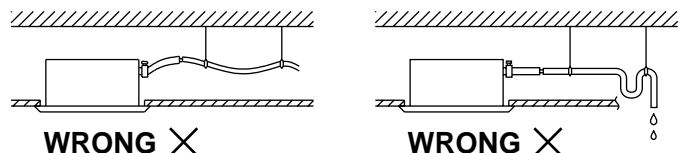


Fig. 18

- Use the attached drain hose (1) and clamp (2).
- Insert the drain hose into the drain socket up to the base, and tighten the clamp securely within the portion of a gray tape of the hose-inserted tip. Tighten the clamp until the screw head is less than 4 mm from the hose.
- Wrap the attached large sealing pad (10) over the clamp and drain hose to insulate.
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
 - Indoor drain pipe
 - Drain socket

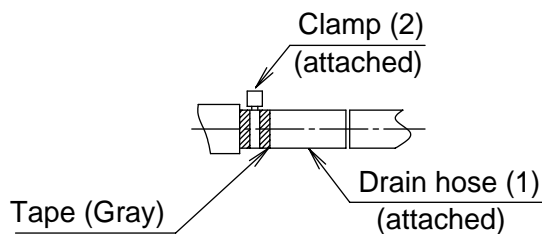


Fig. 19

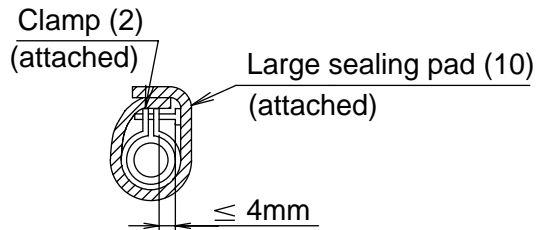


Fig. 20

<PRECAUTIONS FOR DRAIN RAISING PIPING>

- Install the drain raising pipes at a height of less than 545 mm.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.

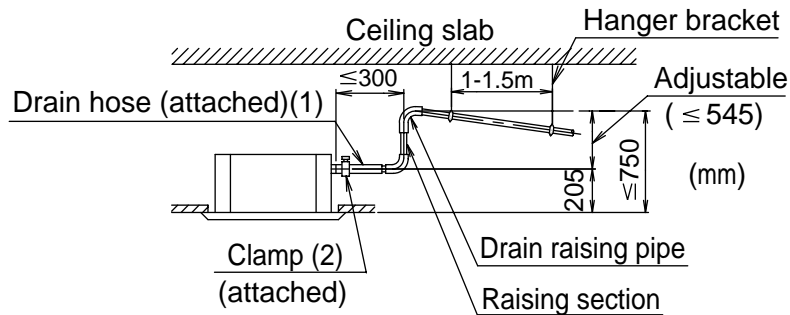


Fig. 21

NOTE

- To ensure no excessive pressure is applied to the included drain hose (1), do not bend or twist when installing. (This may cause leakage.)
- If converging multiple drain pipes, install according to the procedure shown below.

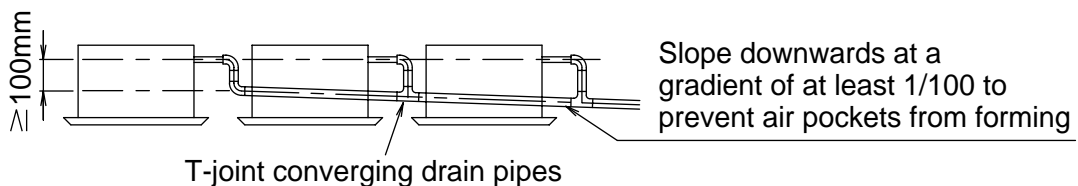


Fig. 22

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






(2) After piping work is finished, check if drainage flows smoothly.

- Add approximately 1000 cc of water slowly from the air outlet and check drainage flow.

WHEN ELECTRIC WIRING WORK IS FINISHED

- Check drainage flow during cooling operation.

WHEN ELECTRIC WIRING WORK IS NOT FINISHED

- Remove the control box lid, connect a power supply (SINGLE PHASE 50Hz 220-240V or 60Hz 220V) to connections L and N on the power supply terminal block and remote controller to terminal block for remote controller. When carrying out wiring work around the control box, make sure none of the connectors come undone. Be sure to attach the control box lid before turning on the power. Next, press the inspection/test operation button “” on the remote controller. The unit will engage the test operation mode. Press the operation mode selector button “” until selecting FAN OPERATION “”. Then, press the ON/OFF button “”. The indoor unit fan and drain pump will start up. After confirming drainage (Fig. 23, Fig. 24), turn off the power and remove the power supply. Press “” to go back to the first mode.
- Note that the fan also starts rotating.**
- Attach the control box lid as before.

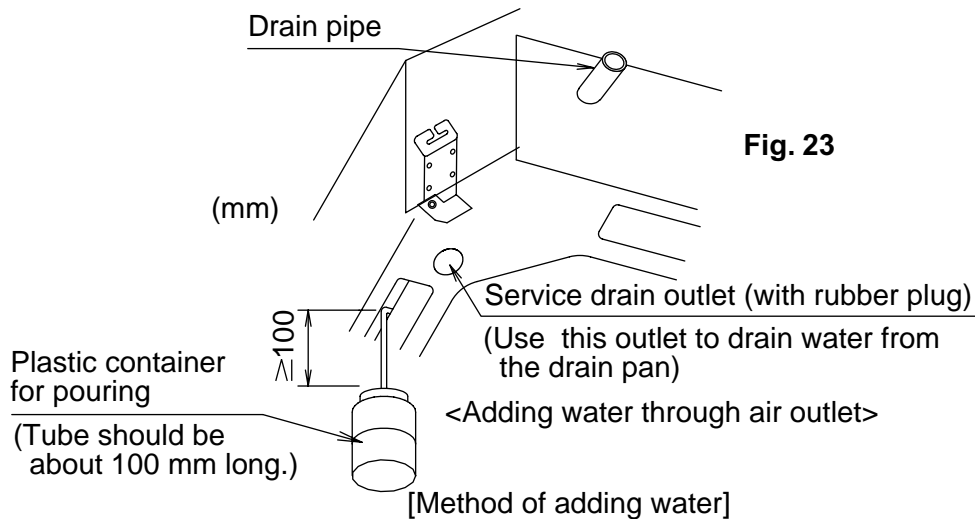


Fig. 23

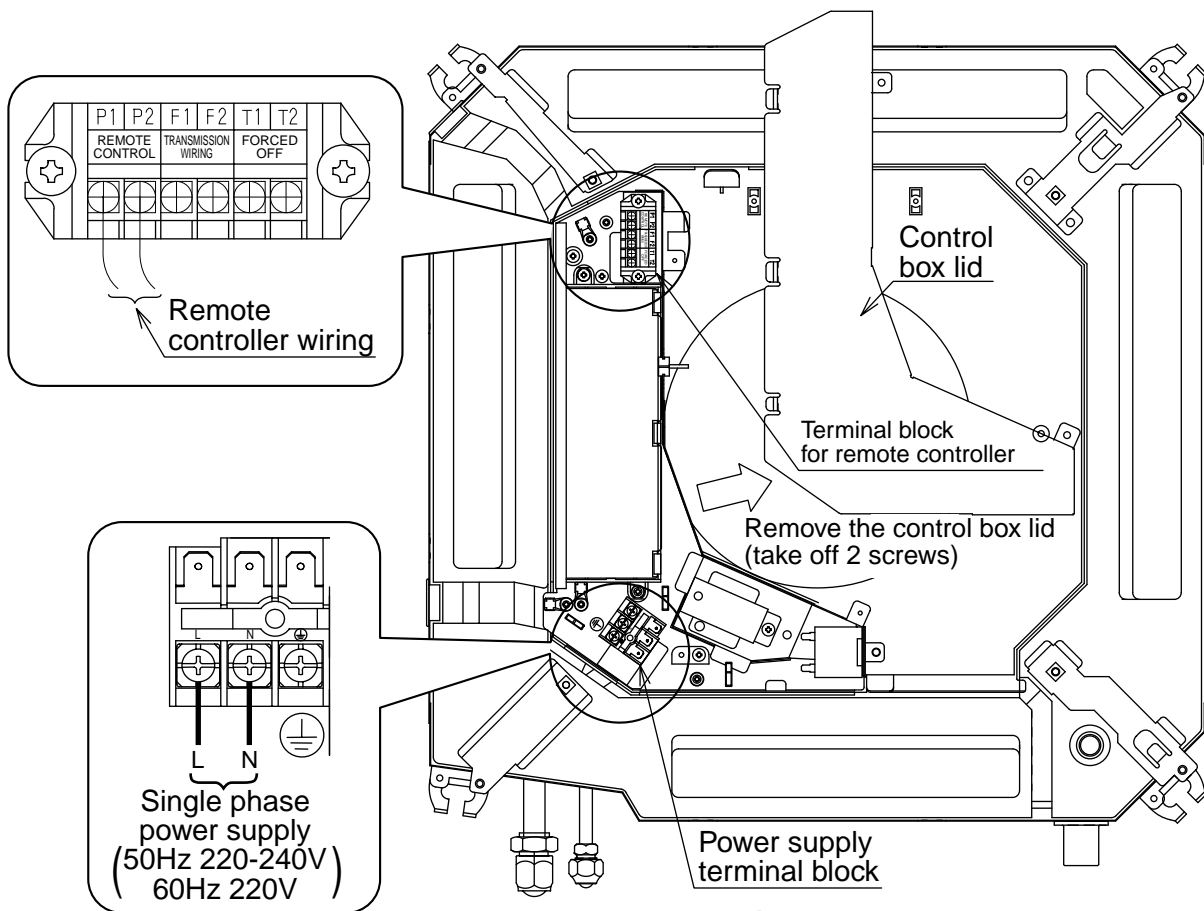


Fig. 24

⚠ 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 control 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 wiring 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.
 - Telephone ground wires or lightning rods : might cause abnormally high electric potential in the ground during lightning storms.

8-2 ELECTRICAL CHARACTERISTICS

Units				Power supply		Fan motor	
Model	Hz	Volts	Voltage range	MCA	MFA	kW	FLA
FXZQ20MVE	50	220-240	Max. 264 Min. 198	0.8	15	0.055	0.6
FXZQ25MVE				0.8	15	0.055	0.6
FXZQ32MVE				0.8	15	0.055	0.6
FXZQ40MVE				0.8	15	0.055	0.6
FXZQ50MVE				0.9	15	0.055	0.7
FXZQ20MVE	60	220	Max. 242 Min. 198	0.8	15	0.055	0.6
FXZQ25MVE				0.8	15	0.055	0.6
FXZQ32MVE				0.8	15	0.055	0.6
FXZQ40MVE				0.8	15	0.055	0.6
FXZQ50MVE				0.9	15	0.055	0.7

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, Length	Wire	Size
FXZQ20-25-32-40-50 MVE	15A	H05VV-U3G	Wire size and length must comply with local codes.	Sheathed wire (2 wire)	0.75-1.25 mm ²

Allowable length of transmission wirings and remote controller wiring are as follows.

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

⚠ CAUTION

- Arrange the wires and fix a lid firmly so that the lid does not float during wiring work.
- Do not clamp remote controller wiring and transmission wiring together with power supply wiring. Doing so may cause malfunction.
- Remote controller wiring and transmission wiring should be located at least 50 mm from power supply wiring. Not following this guideline may result in malfunction due to electrical noise.

9. WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

1. HOW TO CONNECT WIRINGS

Methods of wiring power supply, connecting transmission and remote controller wiring

- Power supply wiring and ground wire
Remove the control box lid and connect wires to the power supply terminal block (3P) inside. And connect the ground wire to the terminal block. In doing this, pull the wires inside through the hole and fix the wires securely with the included clamp (4).
Give enough slack to the wires between the clamp (4) and power supply terminal block. (Use Fig. 25 as a guide and allow at least 80 mm for removing the sheath.)
- Transmission wiring and remote controller wiring
Remove the control box lid and pull the wires inside through the hole and connect to the terminal block for remote controller (6P). (no polarity) Securely fix the remote controller wiring and the transmission wiring with the included clamp (4).
Give enough slack to the wires between the clamp (4) and the terminal block for the remote controller.
- After connection, attach sealing material (12)
- Be sure to attach it to prevent the infiltration of water as well as any insects and other small creatures from the outside. Otherwise a short-circuit may occur inside the control box.

[PRECAUTIONS]

Observe the notes mentioned below when wiring to the power supply terminal block and terminal block for remote controller.

Tightening torque for the terminal blocks.

- Use the correct screwdriver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged.
- Refer to the table below for the tightening torque of the terminal screws.

	Tightening torque
Terminal block for remote controller (6P)	0.79 - 0.97 N·m
Power supply terminal block (3P)	1.18 - 1.44 N·m

Precautions to be taken for power supply wiring

Use a round crimp-style terminal for connection to the power supply terminal block. In case it cannot be used due to unavoidable reasons, be sure to observe the following instructions.

Be sure to peel off the sheath of power supply wiring more than 80 mm.

(Refer to Fig. 25)

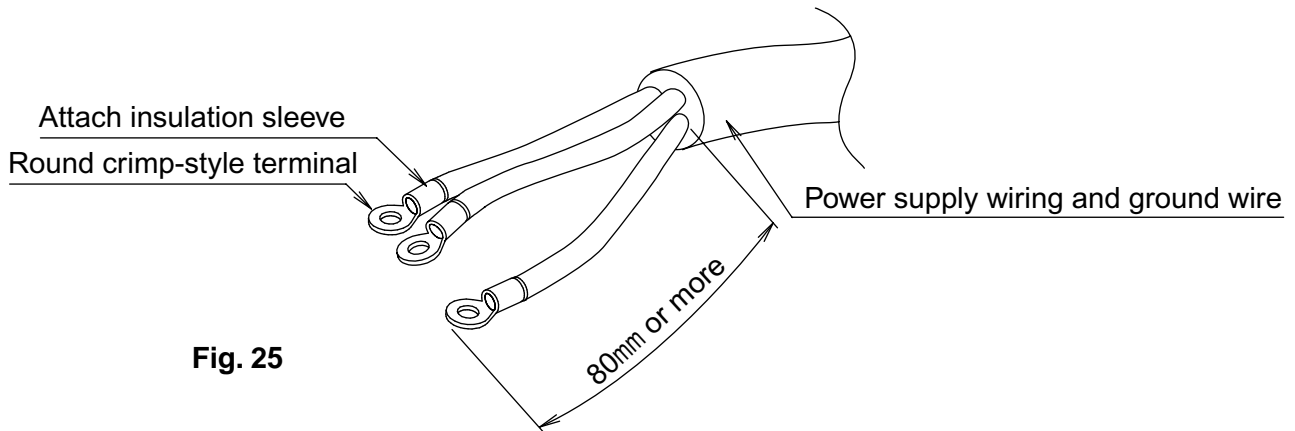


Fig. 25

- For remote controller wiring, refer to the “INSTALLATION MANUAL OF REMOTE CONTROLLER.” attached to the remote controller.
- **Never connect power supply wiring to the terminal block for remote controller. A mistake of the sort could damage the entire system.**
- Use only specified wire and tightly connect wires to terminals. Be careful wires do not place external stress on terminals. Keep wiring in neat order and so as not to obstruct other equipment such as popping open the control box lid. Make sure the lid closes tight. Incomplete connections could result in overheating, and in worse case, electric shock or fire.

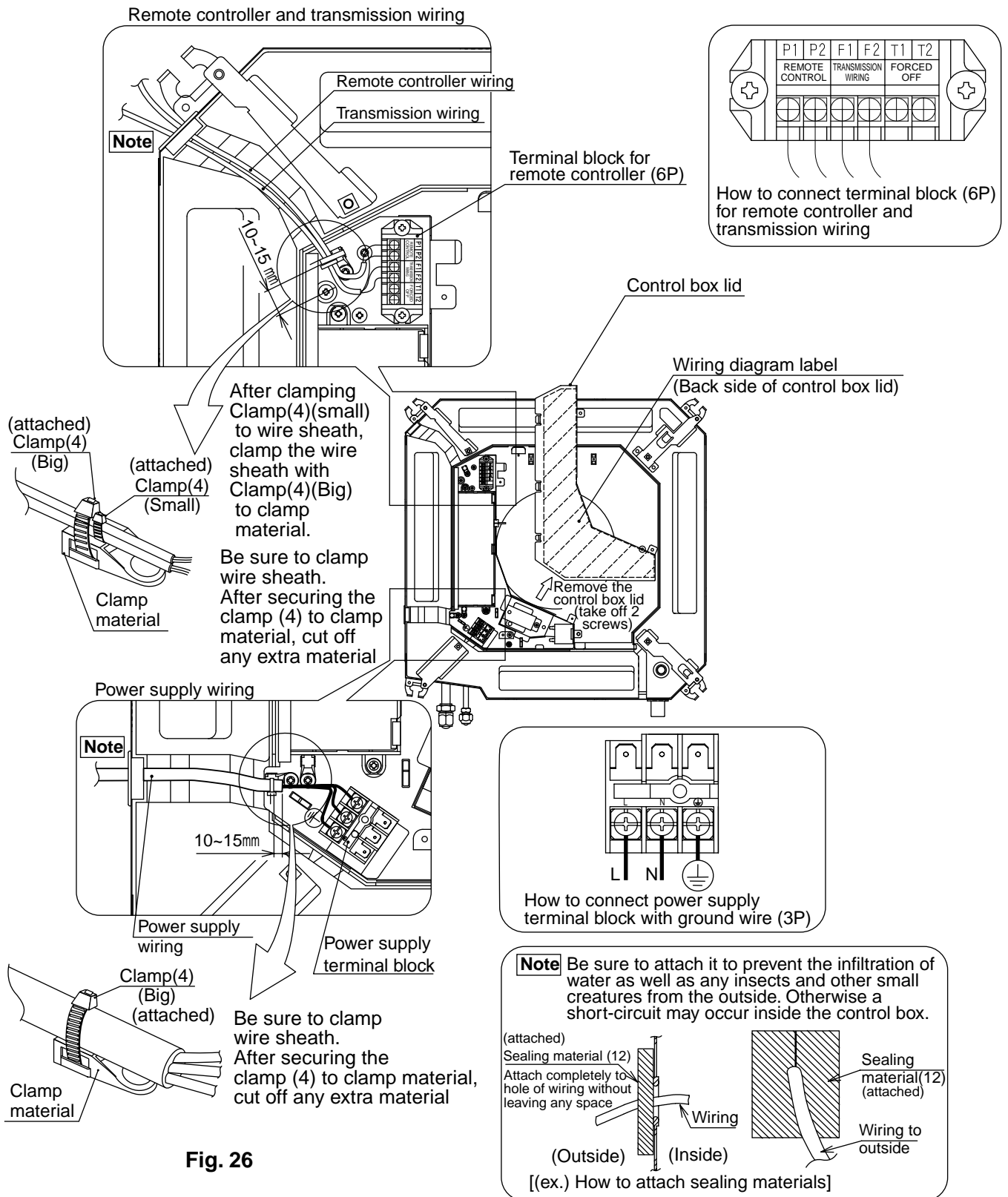


Fig. 26

CAUTION

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 control box fits snugly by arranging the wires neatly and attaching the control box lid firmly. When attaching the control box lid, make sure no wires get caught in the edges. Pass wiring through the wiring through holes to prevent damage to them.

Remote controller wiring and transmission wiring should be located at least 50 mm from power supply wiring. Not following this guideline may result in malfunction due to electrical noise.

2. 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)

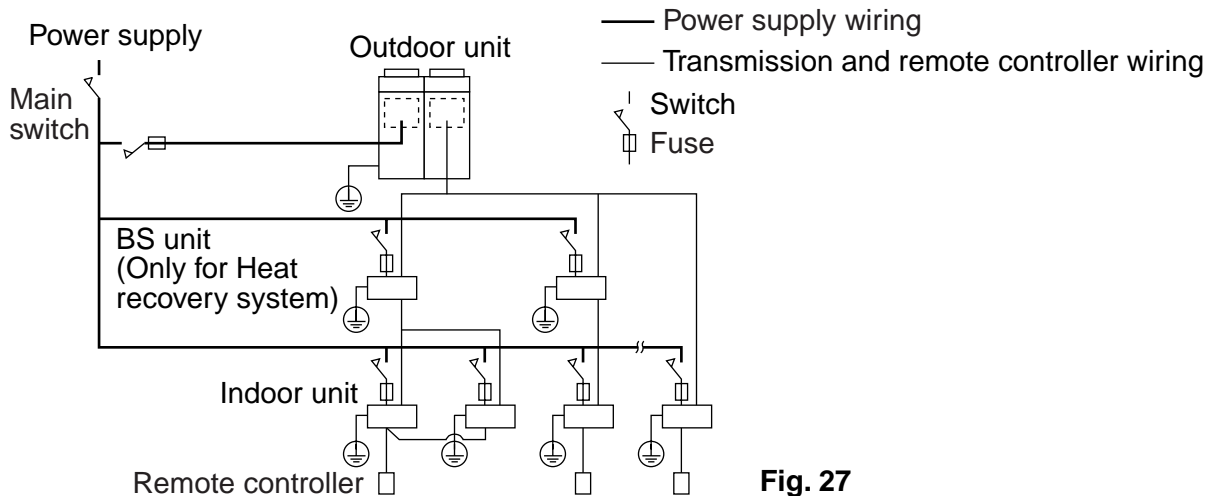


Fig. 27

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

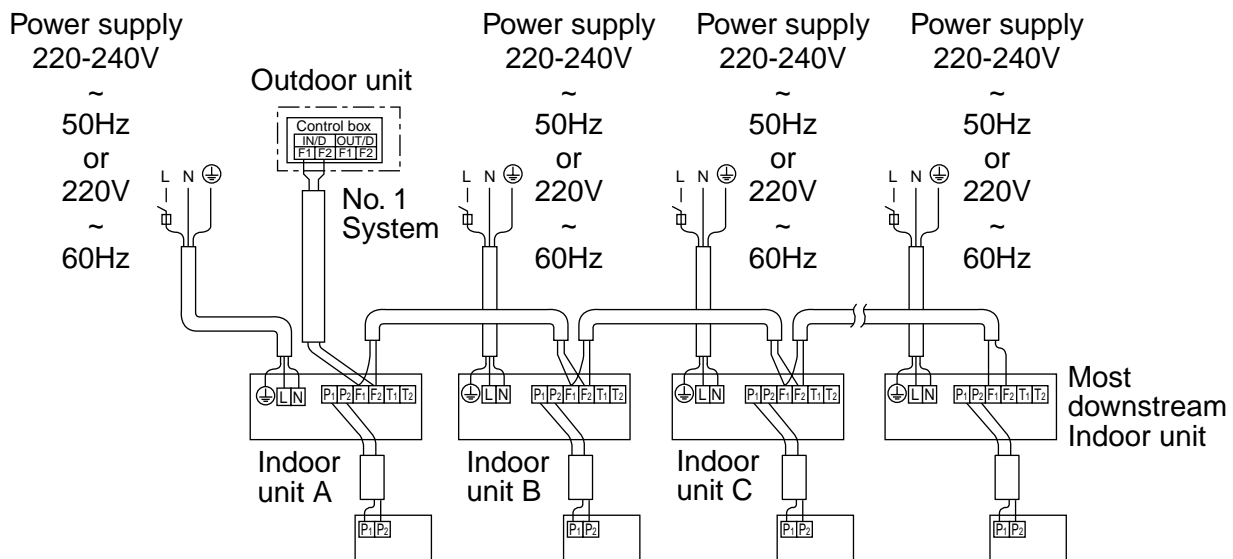


Fig. 28

2. For group control or use with 2 remote controllers

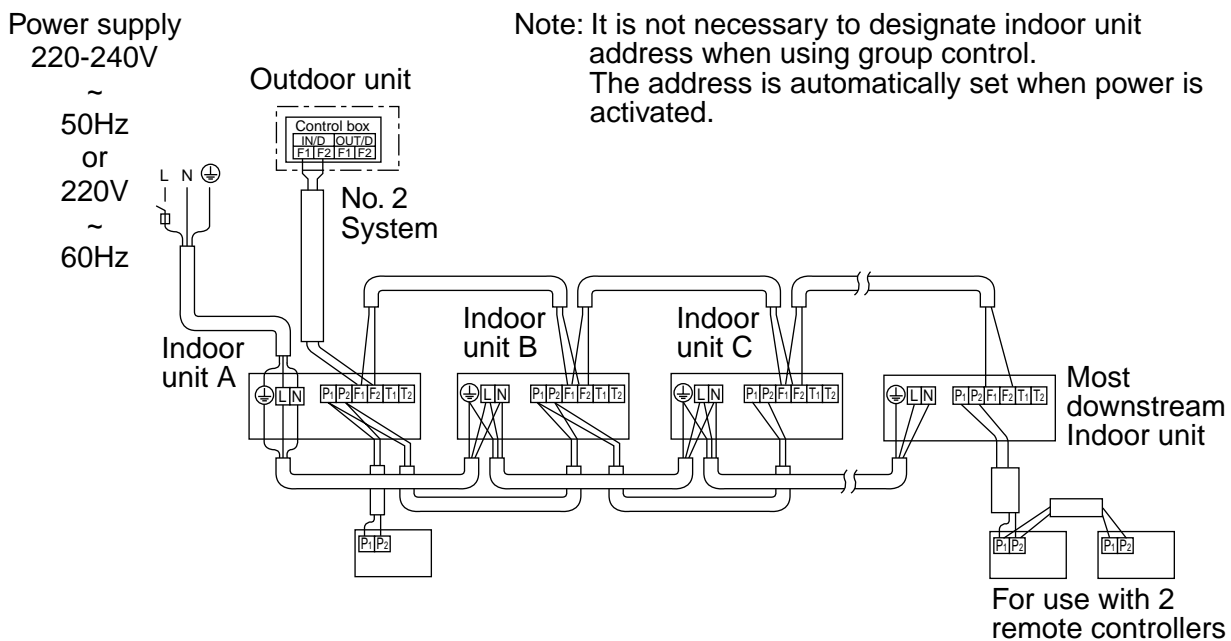
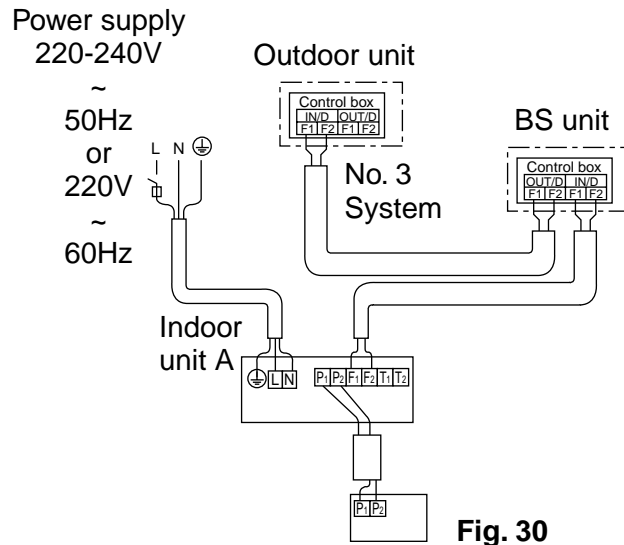


Fig. 29

3. When including BS unit



[PRECAUTIONS]

1. All transmission wiring except for the remote controller wires is polarized and must match the terminal symbol.
2. A single switch can be used to supply power to units on the same system. However, branch switched and branch circuit breakers must be selected carefully.
3. Do not connect the ground wire to gas or water pipes, lightning rods or telephone ground wires. Incomplete grounding may result in electric shocks.

10. FIELD SETTINGS

(1) Make sure the control box lids are closed on the indoor and outdoor units.

(2) Field settings must be made from the remote controller and in accordance with installation conditions.

- Settings can be made by changing the “Mode No.,” “FIRST CODE NO.” and “SECOND CODE NO.”.
- The “Field Settings” included with the remote control lists the order of the settings and method of operation.

Setting is made in all units in a group. To set for individual indoor units or to check the setting, use the mode No. (with “2” in upper digit) in parentheses ().

10-1 SETTING AIR OUTLET DIRECTION

- For changing air outlet direction (2 or 3 directions), refer to the optional installation manual of the sealing material of air discharge outlet kit or the service manual.
(SECOND CODE NO. is factory set to “01” for air outlet in 4 directions.)

10-2 SETTING FOR OPTIONS

- For settings for options, see the installation instructions provided with the option.

10-3 SETTING AIR FILTER SIGN

- Remote controllers are equipped with liquid crystal display air filter signs to display the time to clean air filters.
- Change the SECOND CODE NO. according to “Table 4” depending on the amount of dirt or dust in the room.
(SECOND CODE NO. is factory set to “01” for air filter contamination-light.)

Table 4

Setting	Spacing time of display air filter sign (long life type)	Mode No.	FIRST CODE NO.	SECOND CODE NO.
Air filter contamination-light	Approx. 2500 hrs	10 (20)	0	01
Air filter contamination-heavy	Approx. 1250 hrs			02

When using wireless remote controllers

- When using wireless remote controllers, wireless remote controller address setting is necessary. Refer to the installation manual attached to the wireless remote controller for setting instructions.

10-4 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

- (1) Insert a ⊖ screwdriver 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.) (Refer to Fig. 31)
- (2) 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”.) (Refer to Fig. 32)

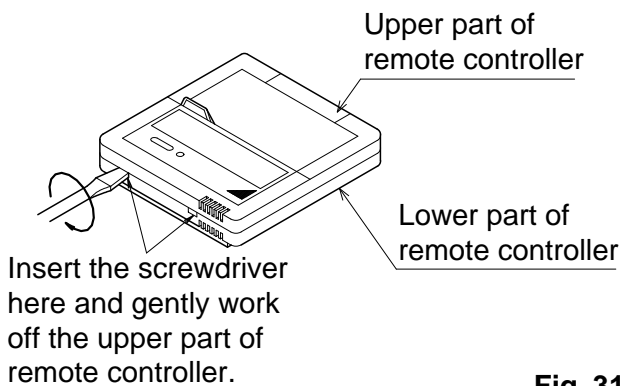


Fig. 31

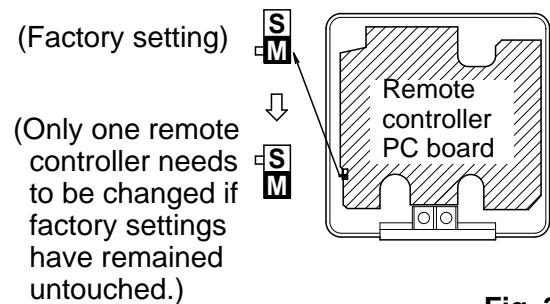


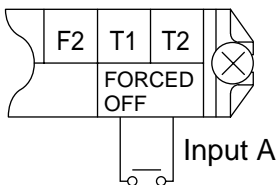
Fig. 32

Wiring Method (See “ELECTRIC WIRING WORK”)

- (3) Remove the control box lid.
- (4) Add remote controller 2 to the terminal block for remote controller (P₁, P₂) in the control box. (There is no polarity.) (Refer to Fig. 29 and table 8-3)

10-5 COMPUTERISED CONTROL (FORCED OFF AND ON/OFF OPERATION)

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



Wire specification	Sheathed vinyl cord or cable (2 wire)
Gauge	0.75–1.25 mm ²
Length	Max. 100 m
External terminal	Contact that can ensure the minimum applicable load of 15V DC, 10 mA

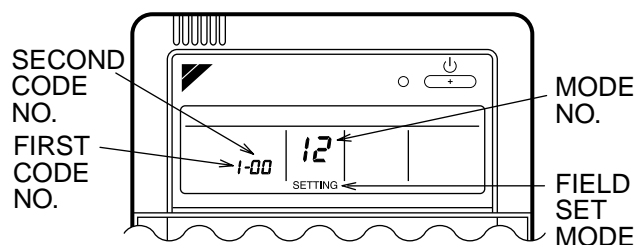
(2) Actuation

- 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.
- 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)



10-6 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.

11. INSTALLATION OF THE DECORATION PANEL

<Read "12. TEST OPERATION" before making a test run without attaching the decorated panels.>

Refer to the installation manual attached to the decoration panel.

After installing the decoration panel, ensure that there is no space between the unit body and decoration panel.

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 error 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 outdoor unit. If any of the items in table 5 are displayed, there may be a problem with the wiring or power, so check the wiring again.

Table 5

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