DAIKIN

INSTALLATION MANUAL

SPLIT SYSTEM Air Conditioners

MODELS
(Ceiling mounted Multi flow Cassette type)

FFQ09LVJU
FFQ12LVJU
FFQ15LVJU
FFQ18LVJU

English
Français
Español

Read these instructions carefully before installation.
Keep this manual in a handy place for future reference.
This manual should be left with the equipment owner.

Lire soigneusement ces instructions avant l'installation.
Conserver ce manuel à portée de main pour référence ultérieure.
Ce manuel doit être donné au propriétaire de l'équipement.

Lea cuidadosamente estas instrucciones antes de instalar.
Guarde este manual en un lugar a mano para leer en caso de tener alguna duda.
Este manual debe permanecer con el propietario del equipo.

3P184443-11Q

CONTENTS

1. SAFETY CONSIDERATIONS

Read these **SAFETY CONSIDERATIONS** carefully before installing air conditioning equipment. After completing the installation, make sure that the unit operates properly during the startup operation. Instruct the customer on how to operate and maintain the unit. Inform customers that they should store this Installation Manual with the Operation Manual for future reference.
Always use a licensed installer or contractor to install this product. Improper installation can result in water or refrigerant leakage, electrical shock, fire, or explosion.
Meanings of **DANGER, WARNING, CAUTION,** and **NOTE** Symbols:

⚠ **DANGER** ..... Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **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.

⚠ **NOTE** ..... Indicates situations that may result in equipment or property-damage accidents only.

— ⚠ **DANGER** —

- **Refrigerant gas is heavier than air and replaces oxygen. A massive leak can lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur leading to serious injury or death.**
- **Do not ground units to water pipes, gas pipes, telephone wires, or lightning rods as incomplete grounding can cause a severe shock hazard resulting in severe injury or death. Additionally, grounding to gas pipes could cause a gas leak and potential explosion causing severe injury or death.**
- **If refrigerant gas leaks during installation, ventilate the area immediately. Refrigerant gas may produce toxic gas if it comes in contact with fire. Exposure to this gas could cause severe injury or death.**

- **After completing the installation work, check that the refrigerant gas does not leak throughout the system.**
- **Do not install unit in an area where flammable materials are present due to risk of explosions that can cause serious injury or death.**
- **Safely dispose all packing and transportation materials in accordance with federal/state/local laws or ordinances. Packing materials such as nails and other metal or wood parts, including plastic packing materials used for transportation may cause injuries or death by suffocation.**

⚠ WARNING

- **Only qualified personnel must carry out the installation work. Installation must be done in accordance with this installation manual. Improper installation may result in water leakage, electric shock, or fire.**
- **When installing the unit in a small room, take measures to keep the refrigerant concentration from exceeding allowable safety limits. Excessive refrigerant leaks, in the event of an accident in a closed ambient space, can lead to oxygen deficiency.**
- **Use only specified accessories and parts for installation work. Failure to use specified parts may result in water leakage, electric shocks, fire, or the unit falling.**
- **Install the air conditioner on a foundation strong enough that it can withstand the weight of the unit. A foundation of insufficient strength may result in the unit falling and causing injuries.**
- **Take into account strong winds, typhoons, or earthquakes when installing. Improper installation may result in the unit falling and causing 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, state and national regulations. An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.**
- **Make sure that all wiring is secured, that specified wires are used, and that no external forces act on the terminal connections or wires. Improper connections or installation may result in fire.**
- **When wiring, position the wires so that the control box cover can be securely fastened. Improper positioning of the control box cover may result in electric shocks, fire, or the terminals overheating.**
- **Before touching electrical parts, turn off the unit.**
- **Be sure to install a ground fault circuit interrupter if one is not already available. This helps prevent electrical shocks or fire.**
- **Securely fasten the outside unit terminal cover (panel). If the terminal cover/panel is not installed properly, dust or water may enter the outside unit causing fire or electric shock.**
- **When installing or relocating the system, keep the refrigerant circuit free from substances other than the specified refrigerant (R410A) such as air. Any presence of air or other foreign substance in the refrigerant circuit can cause an abnormal pressure rise or rupture, resulting in injury.**
- **Do not change the setting of the protection devices. If the pressure switch, thermal switch, or other protection device is shorted and operated forcibly, or parts other than those specified by Daikin are used, fire or explosion may occur.**

⚠ CAUTION

- **Do not touch the switch with wet fingers. Touching a switch with wet fingers can cause electric shock.**
- **Do not allow children to play on or around the unit to prevent injury.**
- **Do not touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear proper gloves.**
- **Heat exchanger fins are sharp enough to cut.**
  To avoid injury wear glove or cover the fins when working around them.
- **Install drain piping to proper drainage. Improper drain piping may result in water leakage and property damage.**
- **Insulate piping to prevent condensation.**
- **Be careful when transporting the product.**
- **Do not turn off the power supply immediately after stopping operation. Always wait for at least 5 minutes before turning off the power supply. Otherwise, water leakage may occur.**
- **Do not use a charging cylinder. Using a charging cylinder may cause the refrigerant to deteriorate.**
- **Refrigerant R410A in the system must be kept clean, dry, and tight.**
  (a) Clean and Dry -- Foreign materials (including mineral oils such as SUNISO oil or moisture) should be prevented from getting into the system.
  (b) Tight -- R410A does not contain any chlorine, does not destroy the ozone layer, and does not reduce the earth's protection again harmful ultraviolet radiation. R410A can contribute to the greenhouse effect if it is released. Therefore take proper measures to check for the tightness of the refrigerant piping installation. Read the chapter Refrigerant Piping and follow the procedures.
- **Since R410A is a blend, the required additional refrigerant must be charged in its liquid state. If the refrigerant is charged in a state of gas, its composition can change and the system will not work properly.**
- **The indoor unit is for R410A. See the catalog for indoor models that can be connected. Normal operation is not possible when connected to other units.**
- **Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types). Install the indoor unit far away from fluorescent lamps as much as possible.**
- **Indoor and outside units are for indoor installation only.**
- **Do not install the air conditioner in the following locations:**
  (a) Where a mineral oil mist or 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 cause the unit to malfunction.
  (d) Where flammable gas may leak, where there is carbon fiber, or ignitable dust suspension in the air, or where volatile flammables such as thinner or gasoline are handled. Operating the unit in such conditions can cause a fire.
- **Take adequate measures to prevent the outside unit from being used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke, or fire. Instruct the customer to keep the area around the unit clean.**

⚠ NOTE

- **Install the power supply and transmission wires for the indoor and outside units at least 3.5 feet away from televisions or radios to prevent image interference or noise. Depending on the radio waves, a distance of 3.5 feet may not be sufficient to eliminate the noise.**
- **Dismantling the unit, treatment of the refrigerant, oil and additional parts must be done in accordance with the relevant local, state, and national regulations.**
- **Do not use the following tools that are used with conventional refrigerants: gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, vacuum gauge, or refrigerant recovery equipment.**
- **If the conventional refrigerant and refrigerator oil are mixed in R410A, the refrigerant may deteriorate.**
- **This air conditioner is an appliance that should not be accessible to the general public.**
- **The wall thickness of field-installed pipes should be selected in accordance with the relevant local, state, and national regulations.**

2. BEFORE INSTALLATION

Do not exert pressure on the resin parts when opening the unit or when moving it after opening. Be sure to check the type of R410A refrigerant to be used before doing any work. (Using an incorrect refrigerant will prevent normal operation of the unit.)

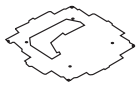
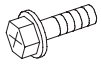
- When opening the unit or moving it after opening, be sure to lift it by holding on to the hanger brackets without exerting any pressure on other parts, especially, drain piping, and other resin parts.
- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a sling 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.**
- Refer to the installation manual of the outdoor unit for items not described in this manual.
- Do not dispose of any parts necessary for installation until the installation is complete.

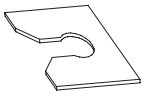
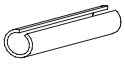
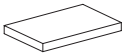
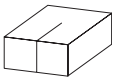
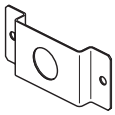
2-1 SAFETY PRECAUTIONS

- Be sure to read this manual before installing the indoor unit.
- When selecting installation site, refer to the paper pattern.
- This unit is suitable for installation in a household, commercial and light industrial environment.
- 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.

2-2 ACCESSORIES

Check the following accessories are included with your unit.

Name	(1) Drain hose	(2) Metal clamp	(3) Washer for hanger bracket	(4) Clamp		(5) Paper pattern for installation	(6) Screws (M5)
Quantity	1 pc.	1 pc.	8 pcs.	(Big) 6 pcs.	(Small) 1 pc.	1 pc.	4 pcs.
Shape						Also used as packing material 	For paper pattern for installation 

Name	(7) Washer fixing plate	Insulation for fitting	Sealing pad	(12) Sealing material	(13) Conduit mounting plate	(14) Screws (M4)	(Other)
Quantity	4 pcs.	1 each	1 each	2 pcs.	1pc.	2pcs.	• Operation manual • Installation manual
Shape		(8) For gas pipe  (9) For liquid pipe 	(10) Large  (11) Small 				

2-3 OPTIONAL ACCESSORIES

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

Table 1

Model	Optional decoration panel
FFQ09·12·15·18LVJU	BYFQ60B8W1U
	Color : 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	Heat Pump type
Wired type	BRC1E71·72
Wireless type	BRC7E830

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 outdoor unit fully installed?	The unit may malfunction or the components burn out.	
Is the gas leak test finished?	It may result in insufficient cooling and heating.	
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 and heating.	
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
Are the control box cover, air filter, suction grille attached?	
Did you explain about operations while showing the operation manual to your customer?	
Did you hand the operation manual over to your customer?	

c. Points for explanation about operations

The items with ⚠ WARNING and ⚠ CAUTION marks in the operation 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 operation manual.

2-4 NOTE TO THE INSTALLER

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

3. SELECTING INSTALLATION SITE

<Hold the unit by the 4 hanger brackets when opening the box and moving it, and do not exert pressure on to any other part, piping (refrigerant, drain, etc.), or plastic parts.
If the temperature or humidity inside the ceiling might rise above 86°F or RH 80%, respectively, add extra insulation to the main unit body.
Use glass wool or polyethylene foam as insulation and make sure it is at least 3/8 in. thick and fits inside the ceiling opening.>

The direction this product directs air can be selected. However, a separately sold sealing material kit is needed in order to make the unit direct air in two, three, or four (corner shut-off) directions.

(1) Select an installation location with the customer's approval which matches the following conditions.

- A location from which cool (warm) air will reach the whole room.
- A location with no objects blocking the air passage.
- A location where drainage can be done with no problem.
- A location strong enough to support the weight of the indoor unit.
- A location where the wall is not significantly tilted.
- A location which leaves enough room for installation and service work.
- A location where there is no risk of flammable gas leaking.
- A location where the length of the indoor-outdoor piping is no longer than the tolerated length (see the installation manual that came with the outdoor unit for details).

[Space required for installation] (in.)

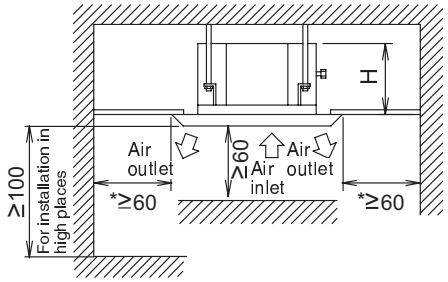


Fig. 1

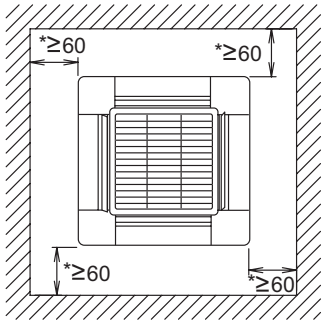


Fig. 2

NOTE

- Leave 8 in. or more space where marked with the *, on sides where the air outlet is closed.

Model	H
FFQ09·12·15·18LVJU	11-1/4(Confirm the space of 11-5/8 or more)

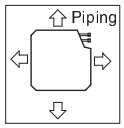
⚠ CAUTION

- Install the indoor and outdoor units, power supply and transmission wiring at least 40 in. away from televisions or radios in order to prevent image interference or noise.
  (Depending on the radio waves, a distance of 40 in. may not be sufficient enough to eliminate the noise.)

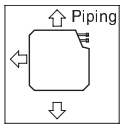
(2) Air flow direction

The air direction shown is an example.
Select the appropriate number of directions according to the shape of the room and the location of the unit. (Field settings have to be made using the remote controller and the outlet vents have to be shut off if two, three, or four (corner shut-off) directions are selected. See the sealing materials (sold separately) installation manual for details.)

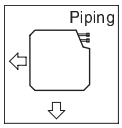
[Air flow direction] (Example)



Air outlet in 4 directions



Air outlet in 3 directions



Air outlet in 2 directions

(3) 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 marked 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.

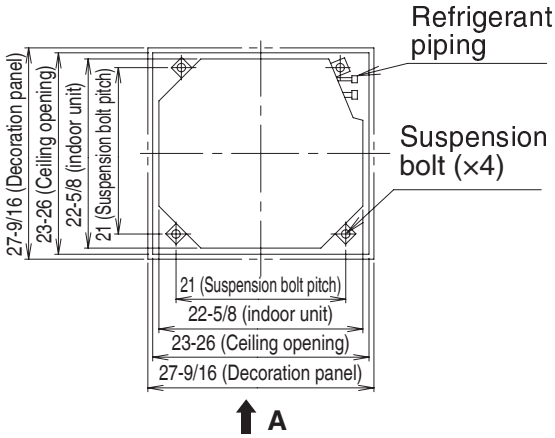


Fig. 3

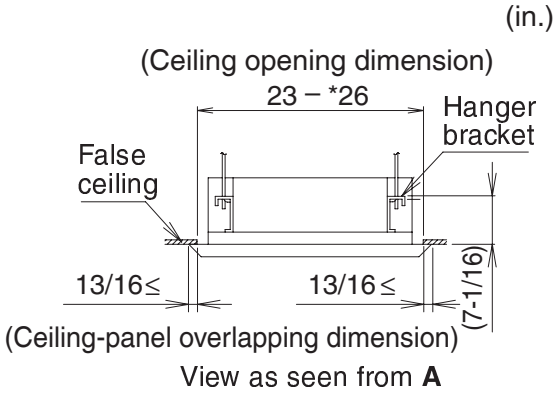


Fig. 4

NOTE

- Installation is possible with a ceiling dimension of 26 in. (marked with *). However, to achieve a ceiling-panel overlapping dimension of 13/16 in., the spacing between the ceiling and the unit should be 1-3/4 in. or less. If the spacing between ceiling and the unit is over 1-3/4 in., attach ceiling material to ■ part or recover the ceiling.

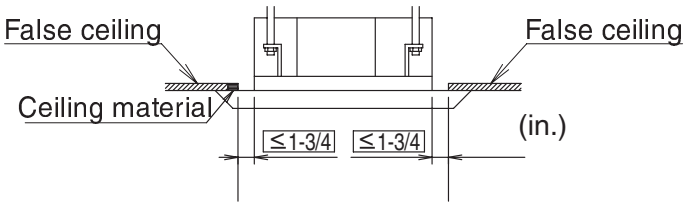


Fig. 5

(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 or the equivalent)
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 (2 - 4 in.) from the ceiling before proceeding further.

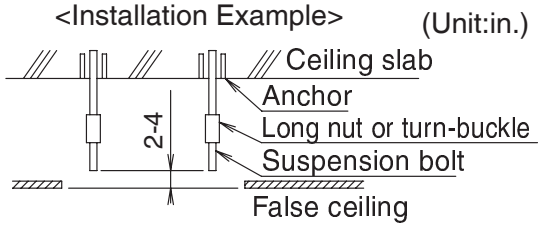


Fig. 6

NOTE

- All the above parts are field supplied.

5. INDOOR UNIT INSTALLATION

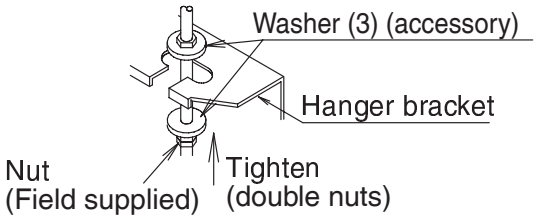
Installing optional accessories (except for the decoration panel) before installing the indoor unit is easier. However, for existing ceilings, install Fresh air intake kit and branch duct before installing the unit.

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

(1) For new ceilings

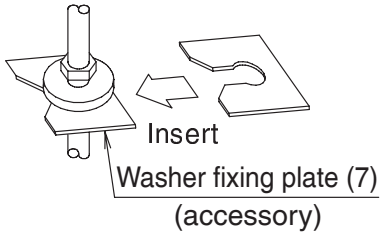
(1-1) Install the indoor unit temporarily.

- 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.



[Securing the hanger bracket]

Fig. 7

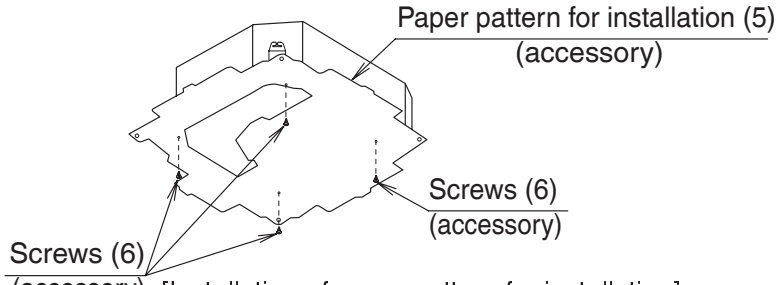


[Securing the washer]

Fig. 8

(1-2) Refer to the paper pattern for installation (5) for ceilling 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).
- Ceiling height is shown on the side of the paper pattern for installation (5). Adjust the height of the unit according to this indication.



[Installation of paper pattern for installation]

Fig. 9

<Ceiling work>

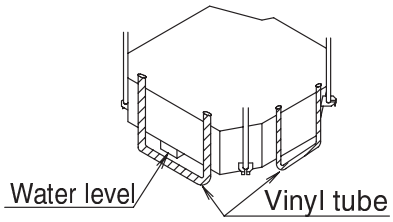
(1-3) Adjust the unit to the right position for installation.
(Refer to **4.PREPARATIONS BEFORE INSTALLATION-(1)**.)

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

- 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 water-filled vinyl tube.

— ⚠ CAUTION —
If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.

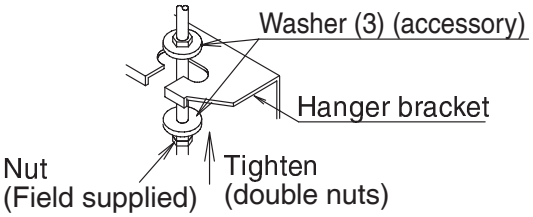
(1-5) Remove the washer fixing plate (7) used for preventing the washer from falling and tighten the upper nut.
(1-6) Remove the paper pattern for installation (5).



[Maintaining horizontality]

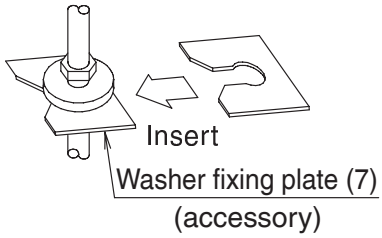
Fig. 10

(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 hanger bracket. The washer fixing plate (7) will prevent the washer from falling.



[Securing the hanger bracket]

Fig. 11



[Securing the washer]

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 thermal insulation work completely on both sides of the gas and the liquid piping. Otherwise, a water leakage can result sometimes.>
Be sure to use insulation designed for use with HVAC systems.
<Also, in cases where the temperature and humidity of the refrigerant piping sections might exceed 86°F or RH80%, reinforce the refrigerant insulation. (13/16 in. 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 inside the flare portions before connectiong.**
- **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. If any refrigerant gas leaks while working on the unit, thoroughly ventilate the room immediately.**

- 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 (only inside) with ester oil or ether oil, rotate three or four times first, then screw in. **(Refer to Fig. 14)**

— ⚠ CAUTION —

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

NOTE

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

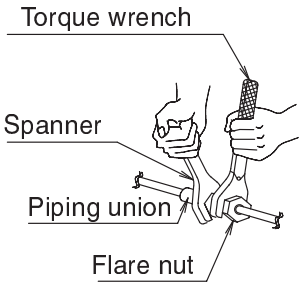


Fig. 13

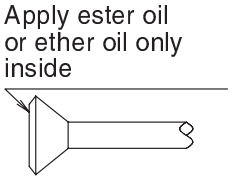
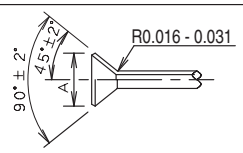


Fig. 14

Table 3

Pipe size	Tightening torque	Flare dimensions A (in.)	Flare
ø1/4	10.4 - 12.7 ft-lbf	0.342 - 0.358	
ø3/8	24.1 - 29.4 ft-lbf	0.504 - 0.520	
ø1/2	36.5 - 44.5 ft-lbf	0.638 - 0.654	

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

— Not recommended but in case of emergency:

You must use a torque wrench but if one is not available, you may follow the installation method described below.

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

When you keep 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 at the angle shown below:

Pipe size	Further tightening angle	Recommended arm length of tool
ø1/4	60 – 90 degrees	Approx. 6 in.
ø3/8	60 – 90 degrees	Approx. 8 in.
ø1/2	30 – 60 degrees	Approx. 10 in.

— ⚠ 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 (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 field refrigerant piping, nitrogen gas shall be blown through the piping to expel air from the piping.
  If 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 connection.
- Nitrogen should be set to 2.9 psig with a pressure-reducing valve if brazing while inserting nitrogen into the piping. **(Refer to Fig.15)**

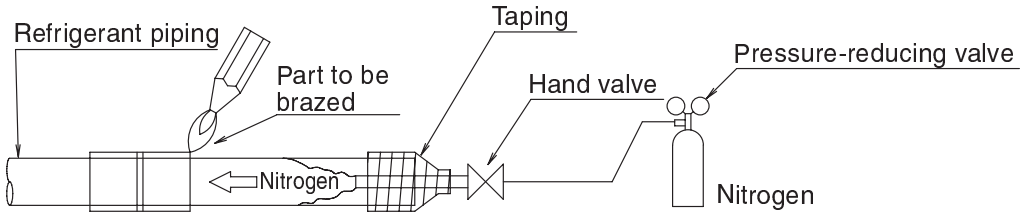


Fig. 15

- Make absolutely sure to execute thermal insulation works on the pipe-connecting section after checking gas leakage by thoroughly studying the following figure and using the attached thermal 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)**

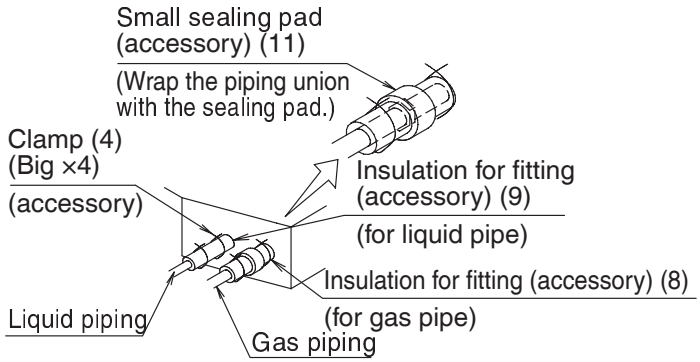


Fig. 16

⚠ 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 properly to ensure that drainage can occur without 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 1 in., outside diameter 1-1/4 in.).
- To 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 13.
- To keep the drain hose from sagging, space hanger bracket every 40 to 60 in..

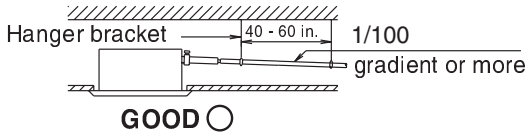


Fig. 17

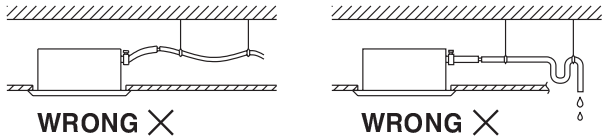


Fig. 18

— ⚠ CAUTION —

Water pooling in the drainage piping can cause the drain to clog.

- Use the attached drain hose (1) and metal 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 5/32 in. from the hose.
- Make sure that thermal insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
  - Indoor drain pipe
  - Drain socket
- Wrap the attached sealing pad (10) over the metal clamp (2) and drain hose to insulate.

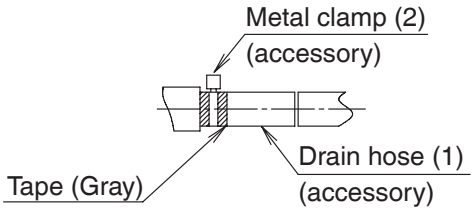


Fig. 19

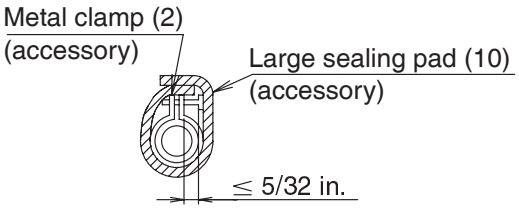
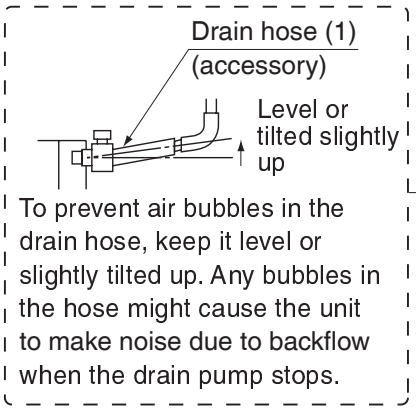


Fig. 20

<PRECAUTIONS FOR DRAIN RAISING PIPING>

- Install the drain raising pipes at a height of less than 21-7/16 in..
- Install the drain raising pipes at a right angle to the indoor unit and no more than 11-3/4 in. from the unit.



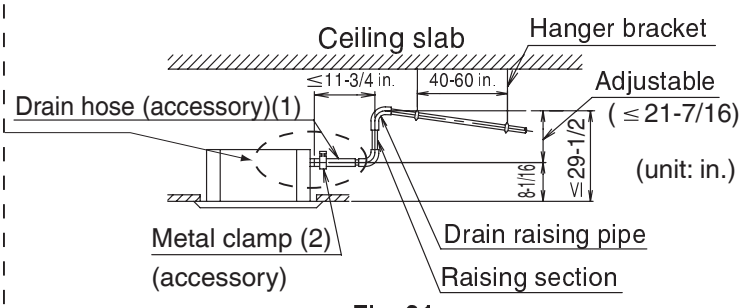
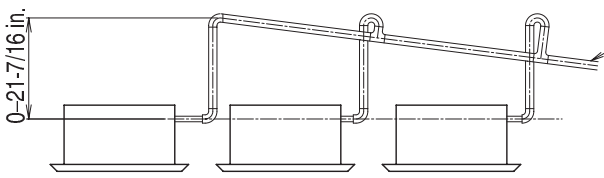


Fig. 21

NOTE

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



Central drain pipe

The drain pipe should have a downward slope of at least 1/100 to prevent air pockets from forming.

Water accumulating in the drain piping can cause the drain to clog.

Fig. 22

Select converging drain pipes with gauges is suitable for the operating capacity of the unit.

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

- Add approximately 1/4 gal of water slowly from the air outlet and check drainage flow.

WHEN ELECTRIC WIRING WORK IS FINISHED

- Check drainage flow during cooling operation, explained in HOW TO TEST RUN on page 23.

WHEN ELECTRIC WIRING WORK IS NOT FINISHED

⚠ CAUTION

- Electrical wiring work should be done by a certified electrician.
- If someone who does not have the proper qualifications performs the work, perform the following actions after the test run is complete.

- Remove the control box cover. Connect the single phase power supply (SINGLE PHASE 60 Hz 208/230V) to connections No.1 and No.2 on the power supply terminal block. Do not connect to No.3 of the power supply terminal block or the drain pump will not operate. When carrying out wiring work around the control box, make sure none of the connectors come undone. Be sure to attach the control box cover before turning on the power.
- After confirming drainage **(Fig.23, Fig.24)**, turn off the power supply and remove the power supply wiring.
- Attach the control box cover as before.

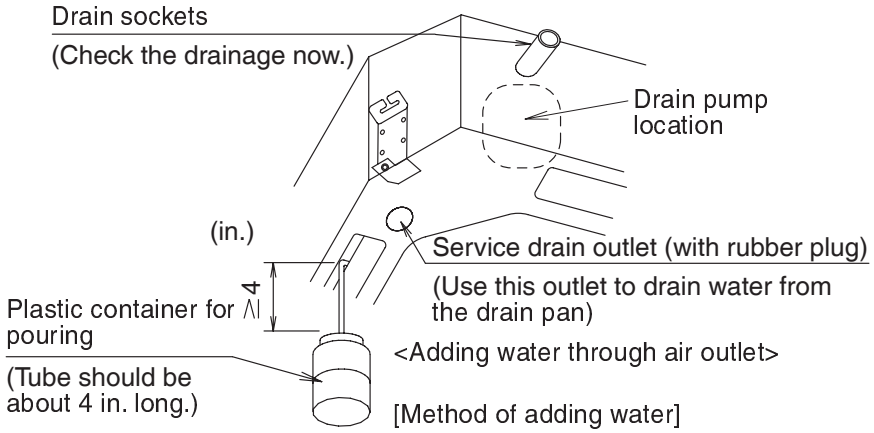


Fig. 23

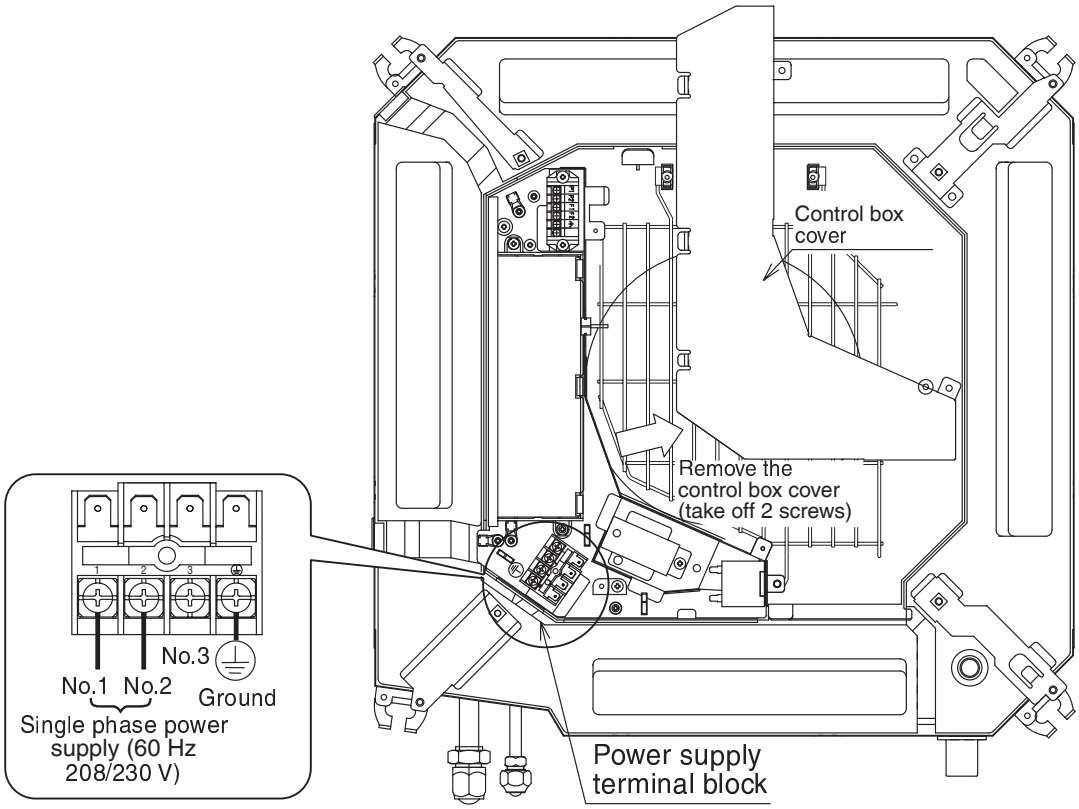


Fig. 24

⚠ 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 the drain pipe becomes blocked if water collects on it.**

8. WIRING EXAMPLE

For the wiring of outdoor units, refer to the installation manual attached to the outdoor units.
Confirm the system type.

- **Multi system:** 1 through 4 indoor units connect to 1 outdoor unit. The indoor unit is controlled by remote controller connected to each indoor unit. **(Refer to Fig. 25)**
  However, the group control is not expected.
- **Group control:** 1 remote controller controls up to 16 indoor units. (All indoor units operate according to the remote controller) **(Refer to Fig. 26)**
- **2 remote controllers control:** 2 remote controllers control 1 indoor unit. **(Refer to Fig. 27)**

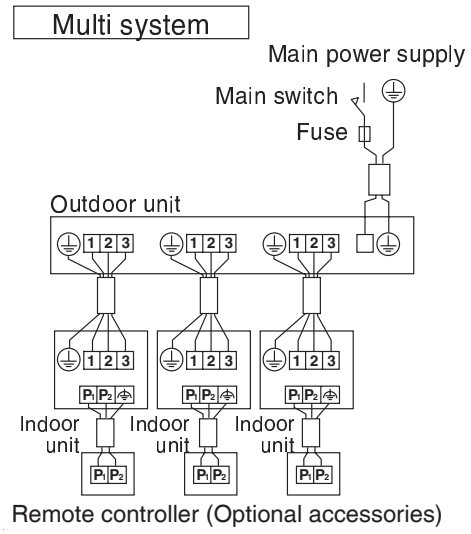


Fig. 25

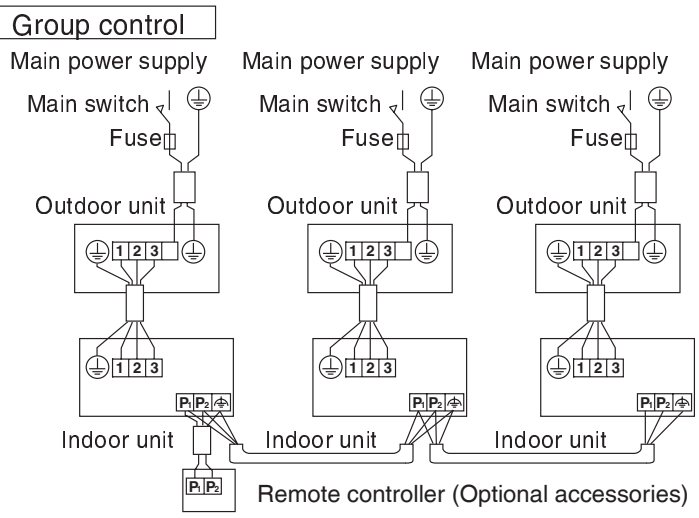


Fig. 26

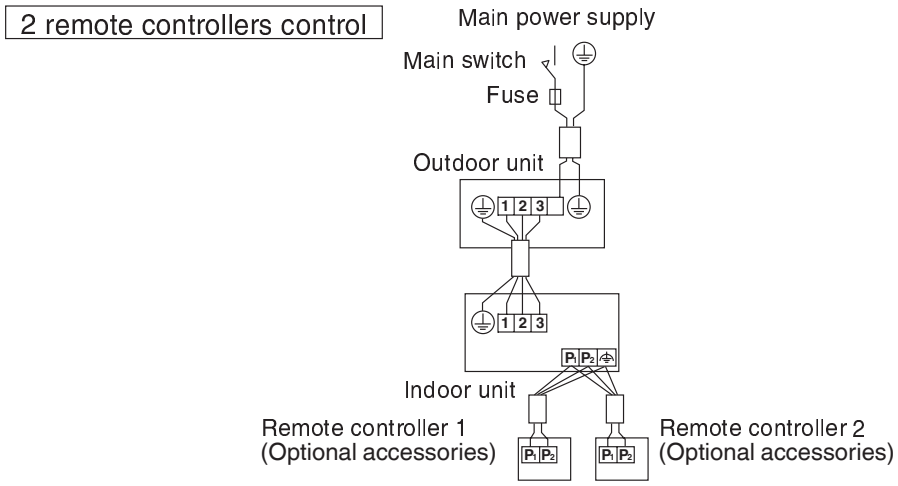


Fig. 27

NOTE

1. All transmission wiring, except for the remote controller wires, is polarized and must match the terminal symbol.
2. In case a shielding wire is to be used, connect a shielded portion with the ⏚ of a remote controller terminal board. Also, connect the ground for the remote controller to a grounded metal part.
3. For group control remote controller, choose the remote controller that suits the indoor unit which has the most functions (as attached swing flap).
4. When controlling the simultaneous operation system with 2 remote controllers, connect it to the master unit (wiring to the slave unit is unnecessary).

9. ELECTRIC WIRING WORK

- 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 cover.
- For remote controller wiring details, refer to the installation manual attached to the remote controller.
- All wiring must be performed by an authorized electrician.
- 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 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.
  - Telephone ground wires or lightning rods : might cause abnormally high electric potential in the ground during lightning storms.

- **Specifications for field wire**

The remote controller wiring should be procured locally. Refer to the **Table 4** when preparing one.

Table 4

	Wire	Size	Length (ft.)
Wiring between units	Wire size and length must comply with local codes.	–	–
Remote controller wiring	Sheathed (2 wire)	AWG 18 - 16	Max.1640*
Wiring to ground terminal	Wire size and length must comply with local codes.	–	–

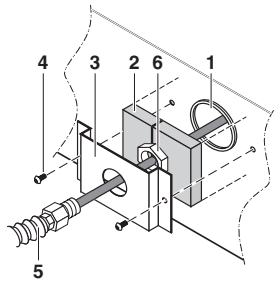
* This will be the total extended length in the system when doing group control.

⚠ CAUTION

- Arrange the wires and fix a cover firmly so that the cover does not float during wiring work.
- Do not clamp remote controller wiring together with wiring between units together. Doing so may cause malfunction.
- Remote controller wiring and wiring between units should be located at least 2 in. from other electric wires. Not following this guideline may result in malfunction due to electrical noise.

Connection of wiring between units, ground wire and remote controller wiring (Refer to Fig. 29)

- Wiring between units and ground wire
  Remove the control box cover. Connect wires of matching number to the power supply terminal block (4P) inside and the ground wire to the terminal block. Then, fasten a conduit to the conduit mounting plate (13) with a locknut securely. 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. 30 as a guide and allow at least 3-1/4 in. for removing the sheath.
- After connection, attach the sealing material. **(Refer to Fig. 28)**. Be sure to attach it to prevent infiltration of water from the outside. Make sure that the slit in the sealing material is positioned vertically.
  After attaching the sealing, screw the conduit mounting plate (13) using the 2 delivered screws (M4) (14) to the side of the unit where the power supply cables enter the unit. **(Refer to Fig. 28)**.



1. Hole in the side plate of the unit
2. Sealing material
3. Conduit mounting plate
4. Screw (M4)
5. Conduit (Field supply)
6. Lock nut (Field supply)

Fig. 28

- Remove the control box cover 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 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.

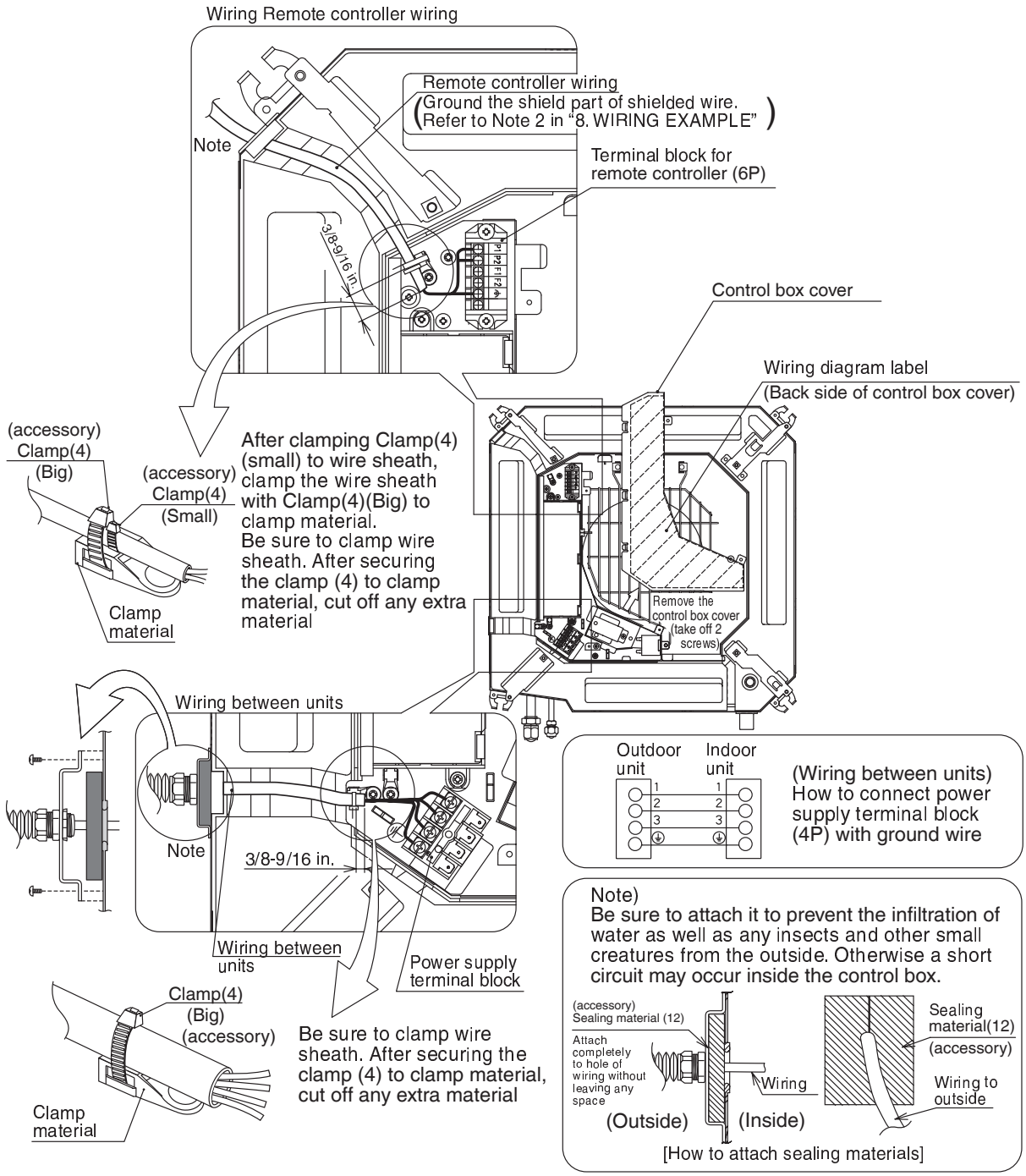


Fig. 29

Observe the notes mentioned below when wiring to the power supply terminal block.

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 (ft-lbf)
Terminal block for remote controller (6P)	0.58 - 0.72
Power supply terminal block (4P)	0.87 - 1.06

Precautions to be taken for power supply wiring

Use a round crimp-style terminal for connection to the power supply terminal block. If it cannot be used due to unavoidable reasons, be sure to observe the following instructions:
Be sure to peel off the sheath of wiring between units more than 3-1/4 in..
(Refer to Fig. 30)

- In wiring, make certain that prescribed wires are used, carry out complete connections, and fix the wires so that external forces are not applied to the terminals.

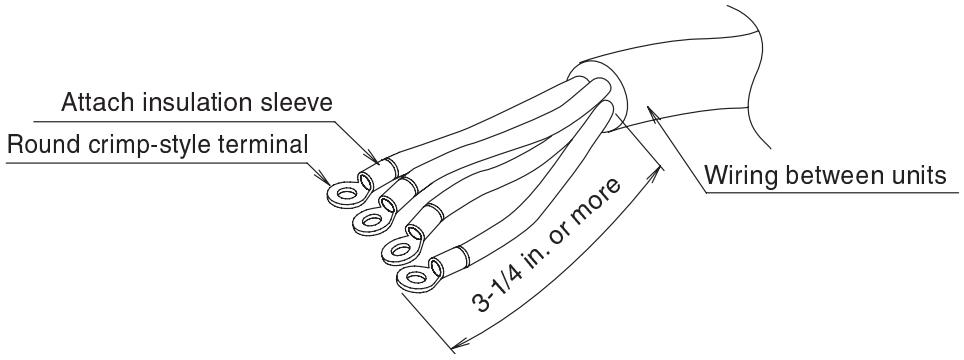
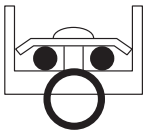
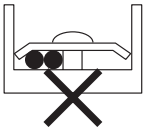
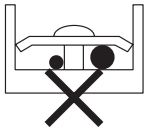


Fig. 30

When none is available, follow the instructions below

- Do not connect wires of different gauge to the same power supply terminal.

Connect wires of the same gauge to each side.	Do not connect wires of the same gauge to one side.	Do not connect wires of different gauges.
		

(Looseness in the connection may cause overheating.)

⚠ CAUTION

- When clamping wiring, use the included clamping material to prevent outside pressure being exerted on the wiring connections and clamp firmly. When doing the wiring, make sure the wiring is neat and does not cause the control box cover to stick up, then close the cover firmly.
- When attaching the control box cover, make sure you do not pinch any wires.
- After all the wiring connections are done, fill in any gaps in the through holes with putty or insulation (procured locally) to prevent small animals and insects from entering the unit from outside. (If any gets in, they could cause short circuits in the control box.)
- Outside the unit, separate the low voltage wiring (remote controller wiring) and high voltage wiring (wiring between units, ground, and other power wiring) at least 2 in. so that they do not pass through the same place together. Proximity may cause electrical interference, malfunctions, and breakage.

10. INSTALLATION OF THE DECORATION PANEL

Caution:
With the wireless remote controller, field setting and test run cannot be performed without attaching the decoration panel.
<Read "12. TEST RUN" before making a test run without attaching the decoration panel.>
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.

11. FIELD SETTINGS

⚠ CAUTION
When performing field setting or test run without attaching the decoration panel, do not touch the drain pump. This may cause electric shock.

(1) Make sure the control box cover is closed on the indoor and outdoor units.

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

- Setting 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.

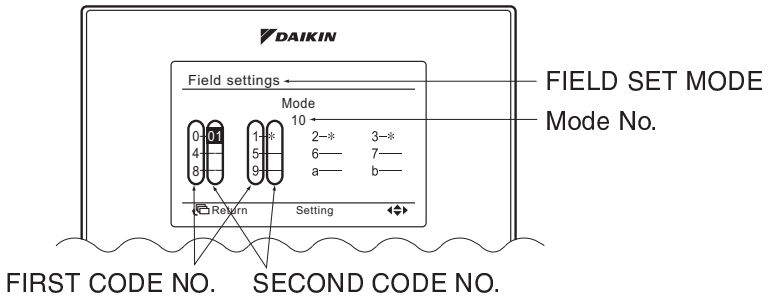


Fig. 31

11-1 SETTING AIR OUTLET DIRECTION

- For changing air outlet direction (2 or 3 directions), refer to the installation manual attached to 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.)

11-2 SETTING FOR OPTIONS

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

11-3 SETTING AIR FILTER SIGN

- Remote controllers are equiped with liquid crystal display air filter signs to display the time to clean air filters.
- Change the SECOND CODE NO. according to Table 5 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 5

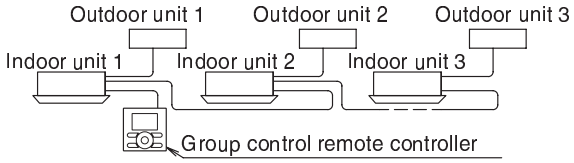
Setting	Spacing time of display air filter sign (long life type)	Mode No.	FIRST CODE NO.	SECOND CODE NO.
Air filter contamination-light	Approx. 2500 hrs	10 (20)	0	01
Air filter contamination-heavy	Approx. 1250 hrs			02

When using wireless remote controllers

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

11-4 WHEN IMPLEMENTING GROUP CONTROL

- When using as a pair unit, you may control up to 16 units with the remote controller.
- In this case, all the indoor units in the group will operate in accordance with the group control remote controller.
- Select a remote controller which matches as many of the functions (swing flap, etc) in the group as possible.



Wiring Method (See 9. ELECTRIC WIRING WORK on page 17.)

(1) Remove the control box cover.

(2) Cross-wire the remote control terminal block (P_1, P_2) inside the control box. (There is no polarity.)
(Refer to Fig. 26 on page 16 and Table 4 on page 17)

11-5 TWO 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”.

Wiring Method (See 9. ELECTRIC WIRING WORK on page 17.)

(1) Remove the control box cover.

(2) Add remote controller 2 to the remote control terminal block (P_1, P_2) in the control box. (There is no polarity.) (Refer to Fig. 27 on page 16 and Table 4 on page 17)

12. TEST RUN

⚠ CAUTION

When performing field settings or test run without attaching the decoration panel, do not touch the drain pump. This may cause electric shock.

Refer to the section of FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED on page 6.

- After finishing the construction of refrigerant piping, drain piping, and electric wiring, conduct test run accordingly to protect the unit.

12-1 HOW TO TEST RUN

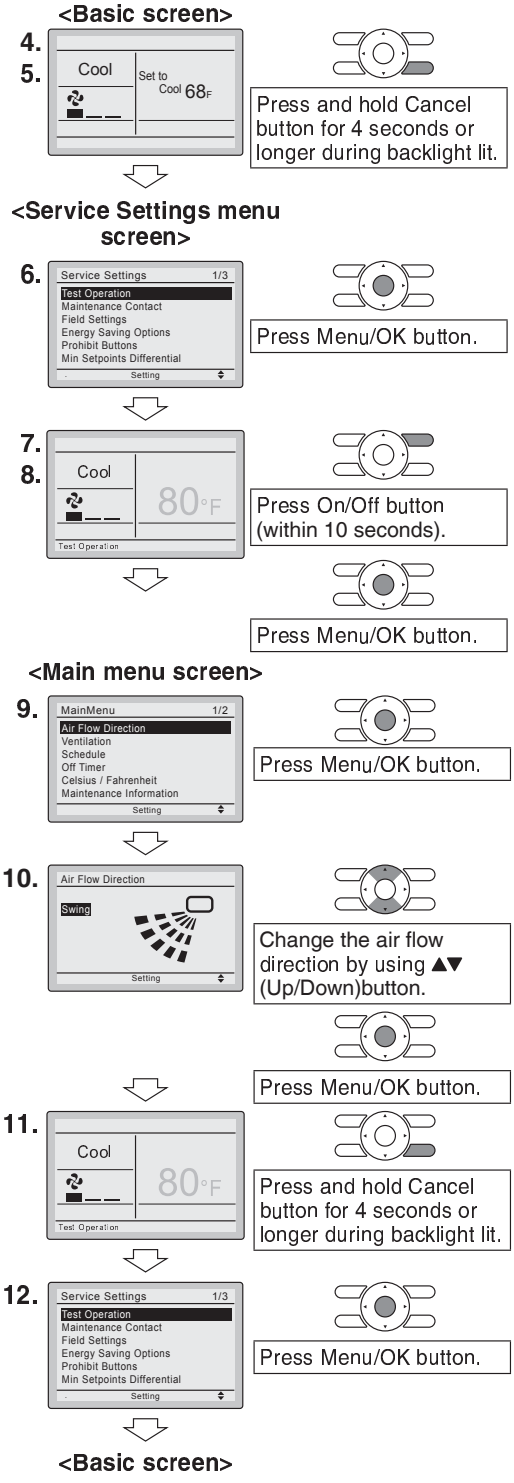
1. Open the gas side stop valve.
2. Open the liquid side stop valve.
3. Turn on power supply for 6 hours.
4. Set the operation mode to cooling by using the remote controller.
5. Press and hold Cancel button for 4 seconds or longer. Service settings menu is displayed.
6. Select Test Operation in the service settings menu, and press Menu/OK button. Basic screen returns and “Test Operation” is displayed at the bottom.
7. Press On/Off button within 10 seconds, and the test operation starts.
   Monitor the operation of the indoor unit for a minimum of 10 minutes. During test operation, the indoor unit will continue to cool regardless of the temperature setpoint and room temperature.

   NOTE
   - In the case of above-mentioned procedures **6** and **7** in reverse order, test operation can start as well.
8. Press Menu/OK button in the basic screen. Main menu is displayed.
9. Select Air Flow Direction in the main menu and check that air flow direction is actuated according to the setting.
   For operation of air flow direction setting, see the operation manual.
10. After the operation of air flow direction is confirmed, press Menu/OK button. Basic screen returns.
11. Press and hold Cancel button for 4 seconds or longer in the basic screen.
    Service settings menu is displayed.
12. Select Test Operation in the service settings menu, and press Menu/OK button. Basic screen returns and normal operation is conducted.

    NOTE
    - The test operation will automatically finish in 30 minuites.
13. Confirm function of unit according to the operation manual of the remote controller.
14. If the decoration panel has not been installed, turn off the power after the test run.

PRECAUTIONS

1. Refer to “12-2 HOW TO DIAGNOSE FOR MALFUNCTION” if the unit does not operate properly.



12-2 HOW TO DIAGNOSE FOR MALFUNCTION

- If the air conditioner does not operate normally after installing the air conditioner, a malfunction shown in the table below may happen.

Remote controller display	Description
No display	• Power outage, power voltage error or open-phase • Incorrect wiring (between indoor and outdoor units) • Indoor PC-board assembly failure • Remote controller wiring not connected • Remote controller failure • Open fuse or tripped circuit breaker (outdoor unit)
"Checking the connection. Please stand by." *	• Indoor PC-board assembly failure • Wrong wiring (between indoor and outdoor units)

* "Checking the connection. Please stand by" will be displayed for up to 90 seconds following the application of power to the indoor unit. This is normal and does not indicate a malfunction.

■ Diagnose with the display on the liquid crystal display remote controller.

1. With the wired remote controller.
When the operation stops due to a mulfunction, operation lamp flashes, and the malfunction code is indicated on the liquid crystal display. In such a case, diagnose the fault contents by referring to Error History in the service settings menu in case of group control, the unit No. is displayed so that the indoor unit No. with the trouble can be recognized.

2. With the wireless remote controller.
(Refer also to the operation manual attached to the wireless remote controller)
When the operation stops due to a mulfunction the display on the indoor unit flashes. In such a case, diagnose the fault contents with the error code which can be found by following procedures.

(1) Press the INSPECTION/TEST RUN button, " " is displayed and " 0 " flashes.

(2) Press the PROGRAMMING TIME button and find the unit No. which stopped due to trouble.

Number of beeps	3 short beeps.....	Perform all the following operations
	1 short beep	Perform (3) and (6)
	1 long beep.....	No trouble

(3) Press the OPERATION MODE SELECTOR button and upper figure of the error code flashes.

(4) Continue pressing the PROGRAMMING TIME button until it makes 2 short beeps and find the upper code.

(5) Press the OPERATION MODE SELECTOR button and lower figure of the error code flashes.

(6) Continue pressing the PROGRAMMING TIME button until it makes a long beep and find the lower code.

- A long beep indicate the error code.

NOTE

- Check the items in "b. Items to be checked at time of delivery" on page 6 after a test run.

DAIKIN AC (AMERICAS), INC.
1645 Wallace Drive, Suite 110
Carrollton, TX 75006

info@daikinac.com
www.daikinac.com

DAIKIN INDUSTRIES, LTD.
Head office:
Umeda Center Bldg., 2-4-12, Nakazaki-Nishi,
Kita-ku, Osaka, 530-8323 Japan

Tokyo office:
JR Shinagawa East Bldg., 2-18-1, Konan,
Minato-ku, Tokyo, 108-0075 Japan

3P184443-11Q EM12A028A (1211) DE