

INSTALLATION MANUAL

SPLIT SYSTEM Air Conditioners

MODELS

Wall-mounted type

FAA18AAVJU

FAA24AAVJU

English

Français

Please visit <http://www.daikinac.com/content/resources/manuals> for the most current version of installation instructions and service manual. In the event of conflicting information, the online contents are to be used.

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1. SAFETY CONSIDERATIONS

Refer also to the General safety considerations attached to the outdoor unit.


	Read the safety considerations in this manual carefully before operating the unit.
	This appliance is filled with R32.


Read these **SAFETY CONSIDERATIONS for Installation** 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 and General Safety Considerations for future reference.


Always use a licensed installer or contractor to install this unit. Improper installation can result in water or refrigerant leakage, electric 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 of 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 injury 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 shock, fire or the unit falling.
- Install the air conditioner or heat pump 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 injury.
- 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 shock 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 shock, fire or the terminals overheating.
- Before touching electrical parts, turn off the unit.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.

- Comply with national gas regulations.
- This equipment can be installed with a Ground-Fault Circuit Interrupter (GFCI). Although this is a recognized measure for additional protection, with the grounding system in North America, a dedicated GFCI is not necessary.
- When installing or relocating the system, keep the refrigerant circuit free from substances other than the specified refrigerant (R32) 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.
- Do not install in a wet room such as a bathroom or laundry room due to a risk of fire or electric shock.
- That pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed;

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.
- The heat exchanger fins are sharp enough to cut. To avoid injury wear gloves 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 unit.
- 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 R32 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 - R32 does not contain any chlorine, does not destroy the ozone layer, and does not reduce the earth's protection against harmful ultraviolet radiation. R32 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 Work and follow the procedures.
- The indoor unit is for R32. See the catalog for indoor models that can be connected. Normal operation is not possible when connected to other units.
- Indoor units are for indoor installation only. Outdoor units can be installed either outdoors or indoors.

- Do not install the air conditioner or heat pump 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 fire.

NOTE

- Install the power supply and transmission wires for the indoor and outdoor units at least 3.5 ft. (1 m) away from televisions or radios to prevent image interference or noise. Depending on the radio waves, a distance of 3.5 ft. (1 m) 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.
 - Only use tools for R32, such as a 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 R32, the refrigerant may deteriorate.
 - This air conditioner or heat pump is an appliance that should not be accessible to the general public.
 - As design pressure is 580 psi (4.0 MPa), the wall thickness of field-installed pipes should be selected in accordance with the relevant local, state, and national regulations.
 - A refrigerant sensor is mounted in the indoor units. Do not use gas appliances using flammable gas (propane, butane, methane, etc.), sprays using flammable gas (LPG, etc.) such as insecticide or hair spray, smoke, medical agent and paint in the vicinity. If it reacts, a malfunction code is displayed and the operation may not be able to be performed.
 - Once the refrigerant sensor reacts, it needs to be replaced with a new one.
-

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 R32 refrigerant to be used before doing any work. (Using an incorrect refrigerant will prevent normal operation of the unit.)

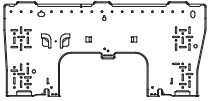

- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation 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.


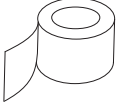

2-1 PRECAUTIONS


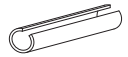
- Be sure to read this manual before installing the indoor unit.
- When selecting installation site, refer to the installation pattern.
- This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment. If installed as a household appliance it could cause electromagnetic interference.
- Entrust installation to the place of purchase or a qualified serviceman.
Improper installation could lead to leaks and, in worse cases, electric shock or fire.
- Use only parts provided with the unit or parts satisfying required specifications. Unspecified parts could cause the unit to fall out of place, or could lead to leaks and, in worse cases, electric shock or fire.
- Do not install or operate the unit in rooms mentioned below.
 - Laden with mineral oil, or filled with oil vapour or spray like in kitchens.
(Plastic parts may deteriorate which could eventually cause the unit to fall out of place, or could lead to leaks.)
 - Where corrosive gas like sulfurous gas exists.
(Copper tubing and brazed spots may corrode, which could eventually lead to refrigerant leaks.)
 - Where exposed to combustible gases and where volatile flammable gas like thinner or gasoline is used.
(Gas in the vicinity of the unit could ignite.)
 - Where machines can generate electromagnetic waves.
(Control system may malfunction.)
 - Where the air contains high levels of salt such as that near the ocean and where voltage fluctuates greatly such as that in factories.
Also in vehicles or vessels.


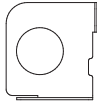
2-2 ACCESSORIES

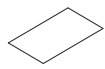
Check the following accessories are included with your unit.

Name	① Mounting plate	② Mounting plate fixing screw
Quantity	1 pc.	9 pcs.
Shape		 M4 × 1 in. (M4 × 25 mm)

Name	③ Screw cover	④ Insulating tape	⑤ Cable tie
Quantity	3 pcs.	1 pc.	Large 2 pcs. Small 2 pcs.
Shape			

Name	⑥ Indoor unit fixing screw	⑦ Insulation tube
Quantity	2 pcs.	1 pc.
Shape	 M4 × 1/2 in. (M4 × 12 mm)	

Name	⑧ Conduit mounting plate and fixing screw	
Quantity	1 pc. each	
Shape	 M4 × 5/8 in. (M4 × 16 mm)	

Name	⑨ Paper pattern for installation	(Other) • Operation Manual • Operation Manual (Regarding copyright) • Installation Manual • Warranty
Quantity	1 pc.	
Shape		

2-3 OPTIONAL ACCESSORIES

- **A remote controller is required for the indoor unit.**
- Install the remote controller to the place where the customer has given consent.
Refer to the catalogue for the applicable model.
(Refer to the installation manual attached to the remote controller for how to install)

CARRY OUT THE WORK GIVING CAUTION TO THE FOLLOWING ITEMS AND AFTER THE WORK IS COMPLETED, CHECK THEM AGAIN.

(1) Items to be checked after the installation work is completed



Items to be checked	In case of defective	✓
Are the indoor and outdoor units rigidly fixed?	Drop · vibration · noise	
Is the installation work of the outdoor and indoor units completed?	Does not operate · burnout	
Have you carried out air tight test with the test pressure specified in the outdoor unit installation manual?	Does not cool / Does not heat	
Is the insulation of refrigerant piping and drain piping completely carried out?	Water leakage	
Does the drain flow out smoothly?	Water leakage	
Is the power supply voltage identical to that stated in the name plate on the air conditioner?	Does not operate · burnout	
Are you sure that there is no wrong wiring or piping or no loose wiring?	Does not operate · burnout	
Is grounding completed?	Danger in case of leakage	
Are the sizes of electric wiring according to the specification?	Does not operate · burnout	
Is any of air outlets or inlets of the indoor and outdoor units blocked with obstacles? If so, it could cause the capacity to drop due to fan-speed drop or malfunction of equipment.	Does not cool / Does not heat	
Have you recorded the refrigerant piping length and the refrigerant charge added?	Refrigerant charge amount is not clear	

Make sure to recheck the items of **SAFETY CONSIDERATIONS**.

(2) Items to be checked at time of delivery

Items to be checked	✓
Have you carried out field setting? (if necessary)	
Are the control box cover, the service cover, the air filter, front grille and front panel attached?	
Is the cool air discharged during the cooling operation and the warm air discharged during the heating operation? Have you checked to make sure the indoor unit does not make unpleasant air-discharged sounds?	
Have you explained how to operate the air conditioner while showing the operation manual to the customer?	
Have you explained the description of cooling, heating, program dry and automatic (cooling/heating) while showing the operation manual to the customer?	
If you set the fan speed at thermostat OFF, did you explain the set fan speed to the customer?	
Have you handed the operation manual and the installation manual to the customer?	
Have you checked that there is no generation of abnormal noise (i.e., noise resulting from contamination or missing parts)?	
If an optional accessory is in use, did you check the operation of the optional accessory and make field settings as needed?	
Have you explained failure examples of 3. SELECTING INSTALLATION LOCATION?	

Points of the operation explanation

In addition to the general usage, since the items in the operation manual with the  WARNING and  CAUTION marks are likely to result in human bodily injuries and property damages, it is necessary not only to explain these items to the customer but also to have the customer read them. Furthermore, it is necessary to have the customer read through the troubleshooting items while explaining the above items.

2-4 NOTE TO THE INSTALLER

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

3. SELECTING INSTALLATION LOCATION

R32 refrigerant is a mildly flammable refrigerant. Do not install indoor or outdoor units in areas where, in the event of a refrigerant leakage, refrigerant concentrations could exceed flammable concentrations.

Do not exert pressure on the resin parts when opening the unit or when moving it after opening.

(1) Select the installation location that meets the following conditions and get approval from the customer.

- 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 hose, water pipe, etc.
- Where the cool and warm air spreads evenly in the room.
- Where there are no obstacles in the air passage.
- Where drainage can be ensured.
- Where the wall surface is not inclined.
- Where there is sufficient strength to withstand the weight of the indoor unit. If the strength is insufficient, the indoor unit may vibrate and get in contact with the wall and generate noise.
- Where a space sufficient for installation and service can be ensured. **(Refer to Fig. 1 and Fig. 2)**
- Where the piping length between the indoor and the outdoor units is ensured within the allowable length. Refer to the installation manual attached to the outdoor unit.
- Where there is no risk of flammable gas leak.

[Required installation space [in. (mm)]]

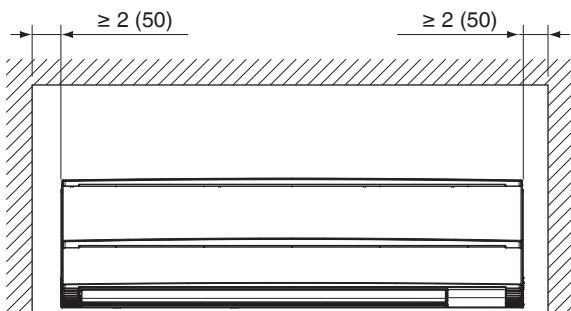


Fig. 1

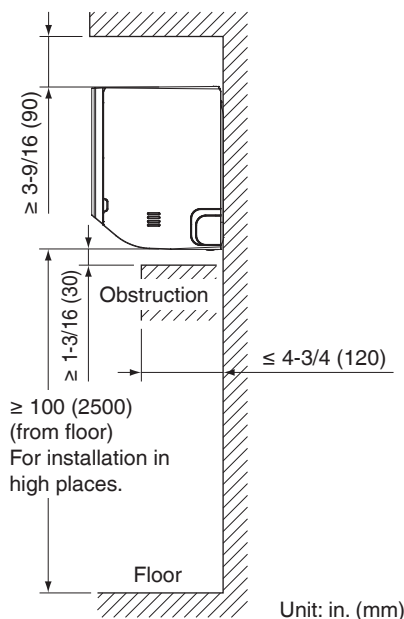


Fig. 2

Unit: in. (mm)

CAUTION

- The indoor and outdoor units and the power supply wiring and remote controller wiring must be installed at least 3.5 ft. (1 m) away from any televisions or radios. This is to prevent interference with picture and sound reception. (Interference may occur even at 3.5 ft. (1 m) away depending on the reception quality.)

- (2) Consider whether the place where the unit will be installed can support the full weight of the unit, and reinforce it with boards and beams, etc. if needed before proceeding with the installation. Also, reinforce the place to prevent vibration and noise before installing. (The installation pitch can be found on the paper pattern for installation ⑨, so refer to it when considering the necessity for reinforcing the location.)**
- (3) The indoor unit may not be directly installed on the wall. Use the attached mounting plate ① before installing the unit.**

4. PREPARATION BEFORE INSTALLATION

- (1) Open a through hole.**
- The refrigerant pipe and drain hose can be passed out in one of 5 directions: left, bottom-left, back-left, bottom-right, and back-right. **(Refer to Fig. 3)**
 - Using the paper pattern for installation ⑨, choose where to pass the piping out and open a through hole in the wall. Open the hole so that there is a downward slope for the drain piping. (See “7. DRAIN PIPING WORK”)
- (2) Remove the mounting plate ① from the unit and attach to the wall.**
(The mounting plate ① is temporarily attached to the unit with a screw.)
(Refer to Fig. 3)
- (a) Check the location for the hole using the included paper pattern for installation ⑨.
- Choose a location so that there is at least a 3-9/16 in. (90 mm) gap between the ceiling and the main unit.
- (b) Temporarily attach the mounting plate ① at the temporary-securing position on the paper pattern for installation ⑨ and use a level to make sure the drain hose is either level or tilted slightly downward.
- (c) Secure the mounting plate ① to the wall using the mounting plate fixing screw ②.
- If using the mounting plate fixing screw ②, attach using at least 4 screws on either side (for a total of 8 screws) of the recommended installation cleat position on the included paper pattern for installation ⑨.

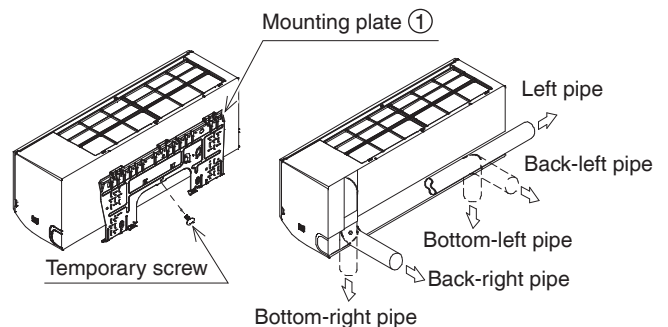


Fig. 3

- (3) If using the left, bottom-left, or bottom-right positions for the piping, cut out the through hole for the piping in the front grille. (Refer to Fig. 4)

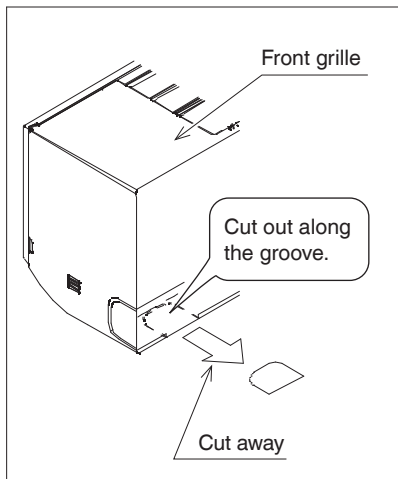


Fig. 4

- (4) If using the bottom-right or back-right for piping, support the root of pipe in bending work so as not to apply a force to the pipes inside the unit.

5. INDOOR UNIT INSTALLATION

- Use only accessories and parts which are of the designated specification when installing.

CAUTION

- Install so that the unit does not tilt to either side or forward.
- Do not hold the unit by the horizontal flaps when lifting it. (This may damage the horizontal flaps.)

5-1 REMOVING AND INSTALLING FRONT PANEL

Removal method (Refer to Fig. 5)

- Place your fingers in the indentations on the unit (one each on the left and right sides).
- While pushing the left side front panel shaft outward, push up the front panel and remove it. (Remove the right side front panel shaft in the same manner.)
- After removing both front panel shafts, pull the front panel toward yourself and remove it.

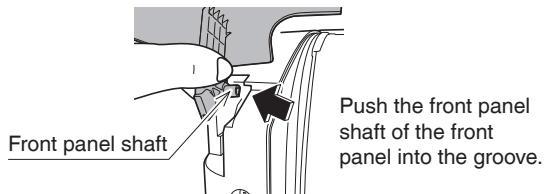


Fig. 5

Installation method

Align the tabs of the front panel with the grooves, and push all the way in, then close slowly. Push the center of the lower panel surface firmly to engage the tabs.

5-2 REMOVING AND INSTALLING FRONT GRILLE

Removal method

- Remove the front panel and the air filter.
- Remove the lower flap. (Refer to Fig. 6)

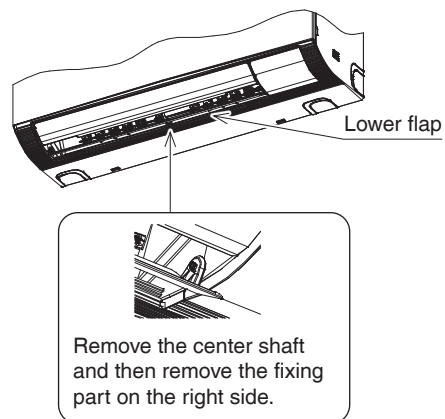


Fig. 6

- Remove screw covers ③. (Refer to Fig. 7)
- Remove the front grille fixing screws. (Refer to Fig. 7)

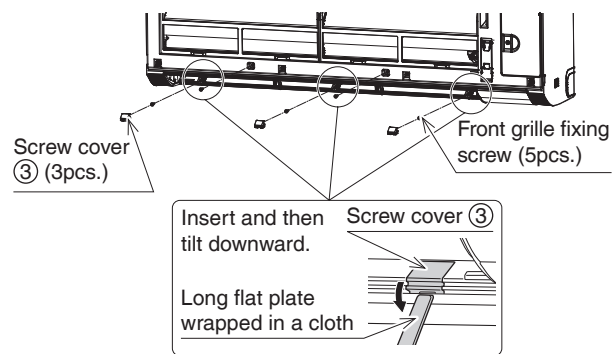


Fig. 7

- Remove fixing screw (1 pc.) and the service cover. (Refer to Fig. 8)

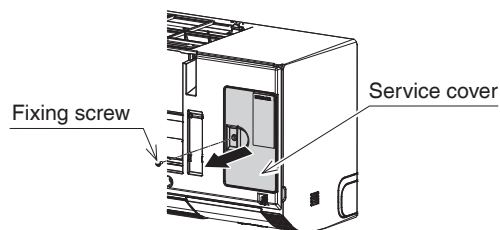


Fig. 8

- In front of the ○○○ mark of the front grille, there are 3 upper hooks. Lightly pull the front grille toward you with one hand, and push down on the hooks with the fingers of your other hand. (Refer to Fig. 9)

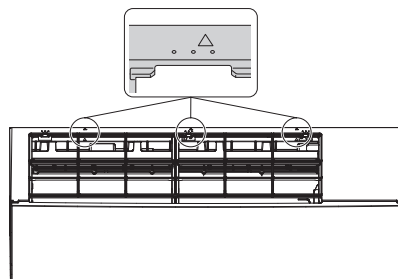


Fig. 9

<When there is no work space because the unit is close to ceiling>

CAUTION
Be sure to wear protection gloves.

Place both hands under the center of the front grille, and while pushing up, pull it toward you. **(Refer to Fig. 10)**

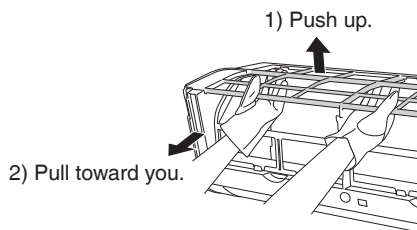


Fig. 10

Installation method

- 1) Install the front grille and firmly engage the upper hooks (3 locations).
- 2) Install the screws of the front grille and screw covers as the Fig. 7.
- 3) Install the service cover and the fixing screw (1 pc.).
- 4) Install the air filter and then mount the front panel.

5-3 BORING A THROUGH HOLE AND INSTALLING WALL SLEEVE

CAUTION
For walls containing metal frame or metal board, be sure to use a wall sleeve and wall hole cover in the through hole to prevent possible heat, electrical shock, or fire.

- Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage. **(Refer to Fig. 11)**
- 1) Bore a through hole of 3-1/8 in. (80 mm) or more in the wall so it has a down slope toward the outside.
 - 2) Insert a wall sleeve into the hole.
 - 3) Insert a wall hole cover into the sleeve.
 - 4) After completing refrigerant piping, wiring, and drain piping, caulk the hole gap with putty.

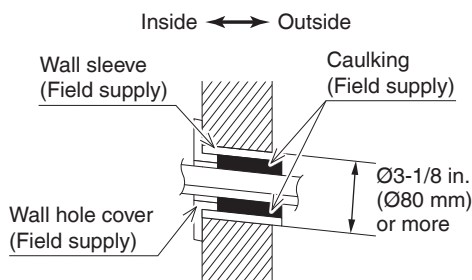


Fig. 11

5-4 INSTALLING INDOOR UNIT

In the case of bending of curing refrigerant pipes, keep the following precautions in mind. Abnormal sound may be generated if improper work is conducted.

- Do not strongly press the refrigerant pipes onto the bottom frame.
- Do not strongly press the refrigerant pipes on the front grille, either.
- The refrigerant pipe and drain hose can be passed out in one of 5 directions: left, bottom-left, back-left, bottom-right, and back-right. **(Refer to Fig. 3)**

(1) Back-right, or bottom-right piping.

- 1) Attach the drain hose to the underside of the refrigerant pipes and wrap the refrigerant pipes and drain hose together with an insulating tape ④. **(Refer to Fig. 12)**

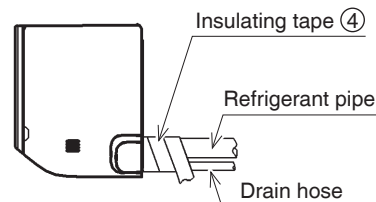


Fig. 12

- 2) Pass the drain hose and refrigerant pipes through the hole, then set the indoor unit hooks on the mounting plate by using the Δ markings at the top of the indoor unit as a guide. **(Refer to Fig. 13)**

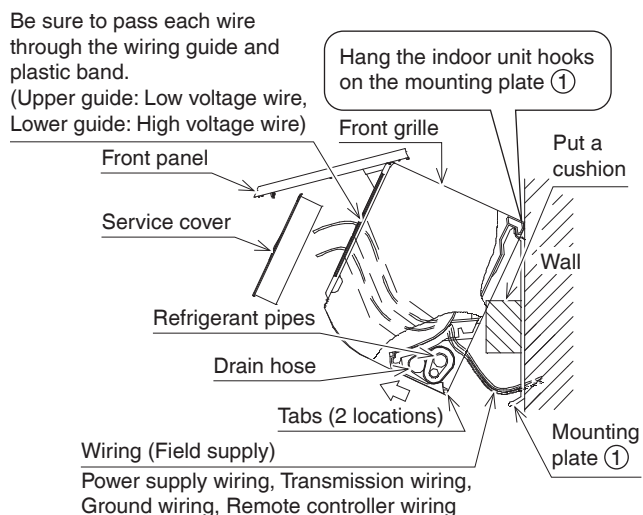


Fig. 13

- 3) Open the front panel, then open the service cover. **(Refer to 5-1 REMOVING AND INSTALLING FRONT PANEL)**
- 4) Pass field wires through the hole and then through the back of the indoor unit. Pull them through the front side.
- 5) Connect the field piping.

- While exercising care so that the field wires do not catch indoor unit, press the bottom edge of indoor unit with both hands until it is firmly caught by the mounting plate hooks. Secure indoor unit to the mounting plate with the indoor unit fixing screw ⑥ as shown in **Fig. 14**.

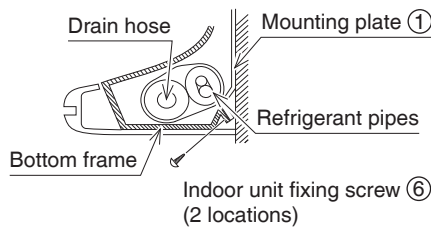


Fig. 14

(2) Left, back-left, or bottom-left piping

- Remove the front grille.
- Be sure to connect the drain hose to the drain port in place of the drain plug.
 - How to switch around the drain plug and drain hose
 - Remove the fixing screw and pull out the drain hose. (Refer to **Fig. 15**)
 - Pull out the drain plug and insulating tube. (Refer to **Fig. 15**)

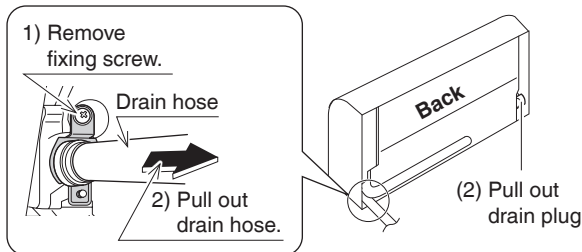


Fig. 15

- Switch around the drain hose and drain plug. (Refer to **Fig. 16**)

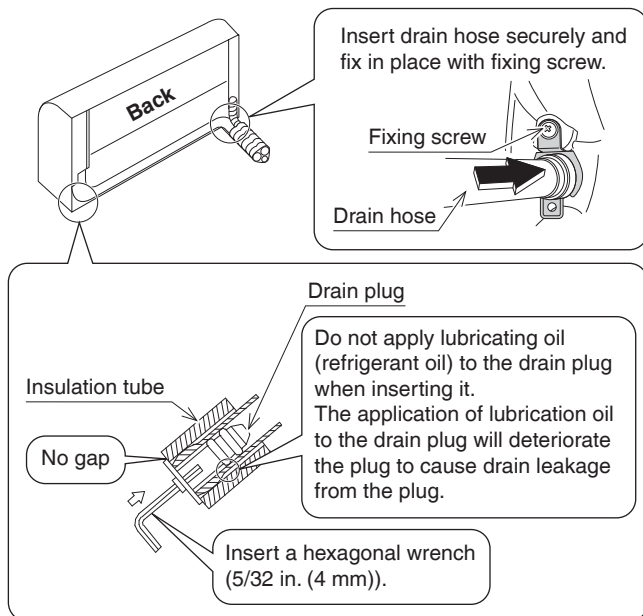


Fig. 16

- Shape the refrigerant pipes along the pipe path marking on the mounting plate ①.
- Pass the drain hose and refrigerant pipes through the hole, then set the indoor unit on mounting plate hooks, using the Δ markings at the top of indoor unit as a guide. (Refer to **Fig. 13**)
- Open the front panel, then open the service cover. (Refer to **5-1 REMOVING AND INSTALLING FRONT PANEL**)
- Pass field wires through the hole and then through the back of the indoor unit. Pull them through the front side.
- Connect the field piping.
- Wrap the refrigerant pipes and drain hose together with insulating tape ④ as shown in **Fig. 17**.

Wrap insulating tape ④ around the bent portion of refrigerant pipe. Overlap at least half the width of the tape with each turn.

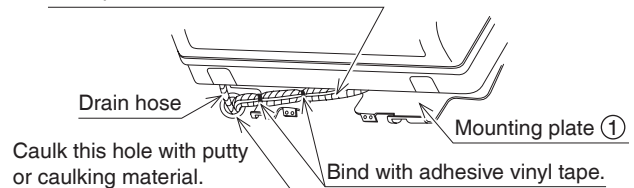


Fig. 17

- While exercising care so that the field wires do not catch indoor unit, press the bottom edge of indoor unit with both hands until it is firmly caught by the mounting plate hooks. Secure indoor unit to the mounting plate with the indoor unit fixing screw ⑥ as shown in **Fig. 14**.

6. REFRIGERANT PIPING WORK

- For the outdoor unit refrigerant piping, refer to the installation manual attached to the outdoor unit.
- Carry out insulation of both gas and liquid refrigerant piping securely. If not insulated, it may cause water leakage. For gas piping, use insulation material of which heat resistant temperature is not less than 250°F (120°C). For use under high humidity, strengthen the insulation material for refrigerant piping. If not strengthened, the surface of insulation material may sweat.
- Before installation work, make sure that the refrigerant is R32 or operation will malfunction. (Unless the refrigerant is R32, the normal operation cannot be expected.)

⚠ CAUTION

This air conditioner is a dedicated model for refrigerant R32. Make sure to meet the requirements shown below and carry out installation work.

- Use dedicated piping cutters and flaring tools for R32.
- When making a flare connection, coat only the flared inner surface with ether oil or ester oil.
- Use only the flare nuts attached to the indoor unit. If other flare nuts are used, it may cause refrigerant leakage.
- To prevent contamination or moisture from getting into the piping, take measures such as pinching or taping the piping.

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

If the refrigerant leaks during the work, ventilate the room. Maintain good ventilation while carrying out work and ensure that there are no open flames in the vicinity.

- The refrigerant is pre-charged in the outdoor unit.
- When connecting the piping to the air conditioner, make sure to use a spanner and a torque wrench as shown in **Fig. 18**.
- Using a tool other than a spanner may destroy the flare nut thread, resulting in refrigerant leakage due to poor tightening.
- For the dimension of flared part and the tightening torque, refer to the Table 1.
- Use the flare nuts attached to the piping of indoor unit.
- When making a flare connection, coat only the flared inner surface with ether oil or ester oil.

(Refer to Fig. 19)

Then, turn the flare nut 3 to 4 times with your hand and screw in the nut.

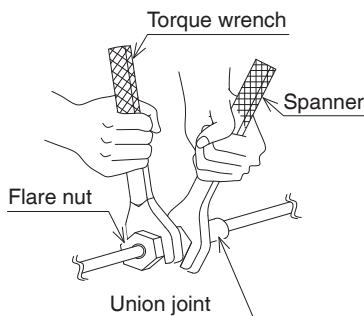


Fig. 18

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

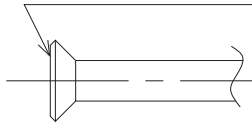


Fig. 19

Table 1

Piping size [in. (mm)]	Tightening torque [lbf-ft. (N-m)]	Dimension for processing flare A [in. (mm)]	Flare shape [in. (mm)]
Ø3/8 (9.5)	24.1 – 29.4 (36.3±3.6)	0.504 – 0.520 (13.0±0.2)	
Ø5/8 (15.9)	45.6 – 55.6 (68.6±6.8)	0.760 – 0.776 (19.5±0.2)	

CAUTION

Do not let oil adhere to the screw fixing part of resin parts.
If oil adheres, it may weaken the strength of screwed part.

Do not tighten flare nuts too much.

If a flare nut cracks, the refrigerant may leak.

- If there is no torque wrench, use Table 2 as a rule of thumb. When tightening the flare nut with a spanner harder and harder, there is a point where the tightening torque suddenly increases. From that position, tighten the nut additionally the angle shown in Table 2. After the work is finished, check securely that there is no gas leak. If the nut is not tightened as instructed, it may cause slow refrigerant leak and result in malfunction (such as does not cool or heat).

Table 2

Piping size [in. (mm)]	Tightening angle	Recommended arm length of tool used [in. (mm)]
φ 3/8 (9.5)	60° – 90°	Approx. 8 (200)
φ 5/8 (15.9)	30° – 60°	Approx. 12 (300)

CAUTION

Insulation of field piping must be carried out up to the connection inside the flare nut of the air conditioner.

If the piping is exposed to the atmosphere, it may cause sweating, burn due to touching the piping, electric shock or fire due to the wiring touching the piping.

- After leak test, referring to **Fig. 20**, insulate both the gas and liquid piping connection with the attached joint insulation tube ⑦ to prevent the piping from getting exposed. Then, tighten the both ends of insulating material with the cable tie (Large) ⑤.

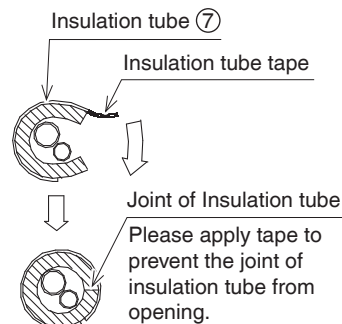
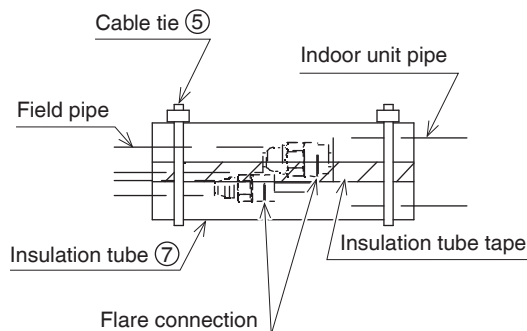


Fig. 20

- Wrap the insulating tape ④ around the insulation tube ⑦ (flare nut section), both the gas and liquid piping.
- Wrap the insulating tape ④ from the bending point of refrigerant pipe to the inside indoor unit. (**Fig. 21**)

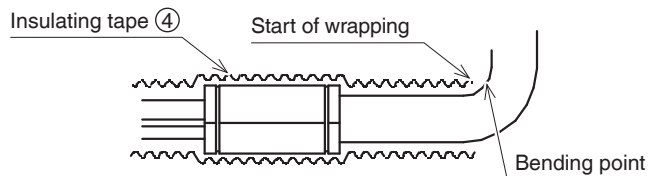


Fig. 21

- Before brazing refrigerant piping, have nitrogen flow through the refrigerant piping and substitute air with nitrogen (NOTE 1) (Refer to Fig. 22). Then, carry out brazing (NOTE 2). After all the brazing works are finished, carry out flare connection with the indoor unit.

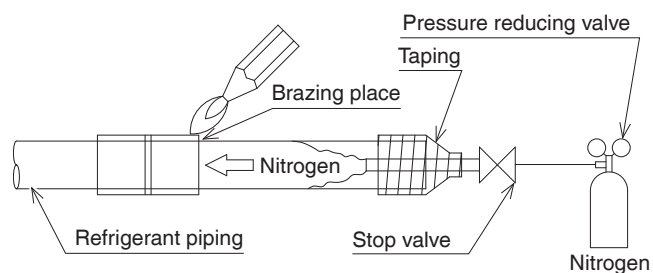


Fig. 22

CAUTION

- Nitrogen, not R32 refrigerant gas, must be used for gas displacement in the piping before brazing work. (Non-compliance may result in fire.)
- When using a brazing torch, check that there are no refrigerant leaks using a refrigerant leak detector.
- In the event of a refrigerant leakage during brazing work, immediately turn off the torch and any other sources of fire.

NOTE

1. The proper pressure for having nitrogen flow through the piping is approximately 2.9 psi (0.02 MPa), a pressure that makes one feel like breeze and can be obtained through a pressure reducing valve.
2. Do not use flux when brazing refrigerant piping. Use phosphor copper brazing filler metal (BCuP-2: B-Cu93P-710/795: ISO 3677) that does not require flux. (If chlorinated flux is used, the piping will be corroded and, in addition if fluorine is contained, the refrigerant oil will be deteriorated and the refrigerant circuit will be affected badly.)
3. When carrying out leak test of refrigerant piping and the indoor unit after the installation of indoor unit is finished, confirm the connecting outdoor unit installation manual for test pressure. Refer to the outdoor unit installation manual for refrigerant piping.
4. In case of refrigerant shortage due to forgetting additional refrigerant charge etc., it will result in malfunctions such as not cooling or heating. Refer to the outdoor unit installation manual for refrigerant piping.

CAUTION

Do not use antioxidant when brazing piping. It may result in malfunction of components and clogging of piping due to residue.

7. DRAIN PIPING WORK

- 1) Connect the drain hose, as described in Fig. 23.

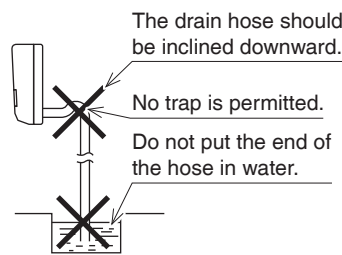


Fig. 23

- 2) Remove the air filters and pour some water into the drain pan to check the water flows smoothly. (Refer to Fig. 24)

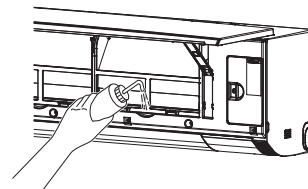


Fig. 24

- 3) When drain hose requires extension, obtain an extension hose commercially available. Be sure to thermally insulate the indoor section of the extension hose. (Refer to Fig. 25)

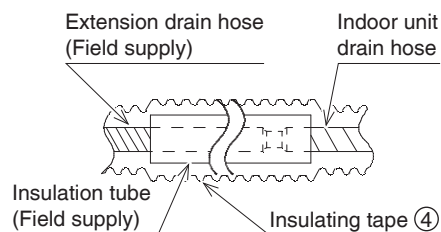


Fig. 25

- 4) When connecting a rigid polyvinyl chloride pipe (diameter 5/8 in. (16 mm)) directly to the drain hose attached to the indoor unit as with embedded piping work, use any commercially available drain socket (inside diameter 5/8 in. (16 mm)) as a joint. (Refer to Fig. 26)

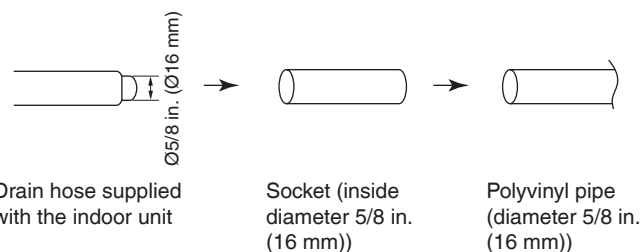


Fig. 26

CAUTION

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

CAUTION

- Do not apply excessive force to the attached drain hose with indoor unit by bending or twisting it. This could cause water leakage.
- In case of centralized drain piping, carry out piping work according to the procedure shown in the following Fig. 27.

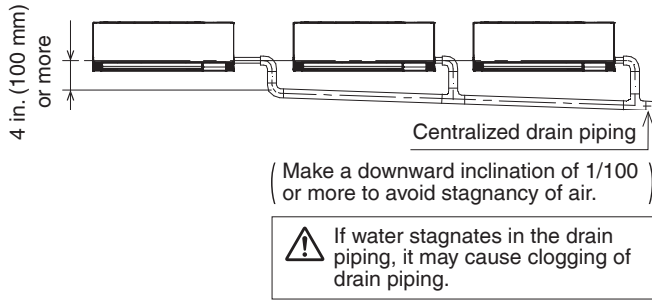


Fig. 27

- Select a size for the centralized drain piping that meets the capacity of indoor units to be connected. Refer to the technical document.

8. ELECTRIC WIRING WORK

8-1 GENERAL INSTRUCTIONS

- Make sure that all electric wiring work is carried out by qualified personnel according to the applicable legislation and this installation manual, using a separate dedicated circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shock or a fire.
- Means for full disconnection under overvoltage category III conditions must be incorporated in the fixed wiring according to national wiring rules.
- Do not turn on the power supply (branch switch, branch over-current circuit breaker) until all the works are finished.
- Make sure to ground the air conditioner. Grounding resistance should be according to applicable legislation.
- Do not connect the ground wiring to gas or water piping, lightning conductor or telephone ground wiring.
 - Gas piping ... Ignition or explosion may occur if gas leaks.
 - Water piping... Hard vinyl tubes are not effective ground.
 - Lightning conductor or telephone ground wiring... Electric potential may rise abnormally if struck by a lightning bolt.
- For electric wiring work, refer to also the WIRING DIAGRAM attached to the inside of front grill.
- Carry out installation and wiring of the remote controller according to the installation manual attached to the remote controller.
- Do not touch the printed circuit board assemblies. It may cause malfunction.

8-2 ELECTRICAL CHARACTERISTICS

Table 3

Model	Units			Power supply		Fan motor	
	Hz	Volts	Voltage range	MCA	MOP	HP	IDI
FAA18AAVJU	60	208/230 V	Max. 253 V	0.5	15	0.08 (58)	0.4
FAA24AAVJU			Min. 187 V	0.6	15	0.08 (58)	0.5

MCA: Minimum Circuit Ampacity (A)
 MOP: Maximum Overcurrent Protective Device (A)
 HP: Fan Motor Rated Output (HP (W))
 IDI: Inverter Drive Input (A)

8-3 SPECIFICATION FOR FIELD SUPPLY FUSES AND WIRING

Table 4

Power supply wiring		Remote controller wiring Transmission wiring	
MOP	Size	Wiring	Size
15A	Wiring size and length must comply with local codes.	2-conductor, stranded nonshielded copper cable PVC/vinyl jacket (NOTE 1)	AWG 18-16 (0.75-1.25 mm ²)

Allowable lengths of remote controller wiring and transmission wiring are as follows:

- Remote controller wiring
 - Length between indoor unit and remote controller Max. 1,640 ft. (500 m)
- Transmission wiring
 - Total length Max. 6,560 ft. (2,000 m)
 - Length between units Max. 656 ft. (200 m)
 - Farthest length*¹ (10 systems*² or less) Max. 3,280 ft. (1,000 m)
 - Farthest length*¹ (more than 10 systems*²) Max. 2,296 ft. (700 m)

*¹ Length from outdoor unit to farthest unit
 *² System : A set of units connected in the same refrigerant circuit

NOTE

- Vinyl cord with sheath or cable (Insulated thickness : 1/16 in. (1 mm) or more)

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 and transmission wiring together with power supply wiring. Doing so may cause malfunction.
- Remote controller wiring and transmission wiring should be located at least 2 in. (50 mm) from power supply wiring. Not following this guideline may result in malfunction due to electrical noise.

8-4 WIRING CONNECTION METHOD

⚠ CAUTION FOR POWER SUPPLY WIRING AND GROUND WIRING

- For connection to the terminal block, use ring type crimp style terminals with insulation sleeve or insulate the wirings properly.
- Be sure to peel off the sheath of power supply wiring more than 1-9/16 in. (40 mm). (Refer to Fig. 28)

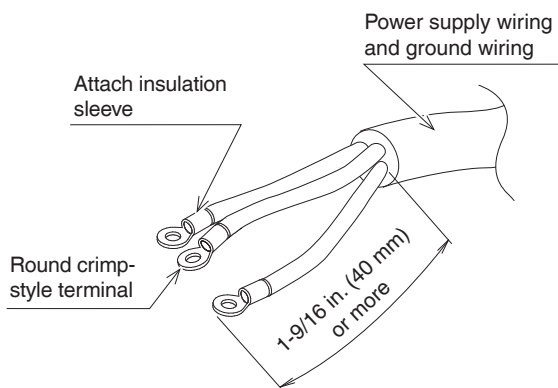


Fig. 28

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

Table 5

	Tightening torque [lb-ft. (N·m)]
Terminal block for remote controller and transmission wiring	0.65 ± 0.06 (0.88 ± 0.08)
Terminal for power supply wiring	1.08 ± 0.10 (1.47 ± 0.14)
Ground terminal	

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

⚠ WARNING

- When wiring, form the wiring orderly to prevent it from being sandwiched by the service cover and fasten the cover securely. Improper position of the service cover may result in electric shock or fire.

Connecting method for power supply wiring, ground wiring, remote controller wiring and transmission wiring

- **Power supply wiring and ground wiring**
Unscrew and remove the service cover. Connect the power supply wiring and ground wiring to the power supply terminal block (X2M). Then firmly secure the power supply wiring and the ground wiring the included cable tie (small) ⑤.
- **Transmission wiring and remote controller wiring**
Connect the remote controller wiring and the transmission wiring to the terminal block (X1M). Then firmly secure the remote controller wiring and the transmission wiring using the included cable tie (small) ⑤.

⚠ CAUTION

- Never connect the power supply wiring to the terminal block for remote controller/transmission wiring (X1M). If may damage the total system.
- Do not connect the remote controller/transmission wiring to the wrong terminal block.

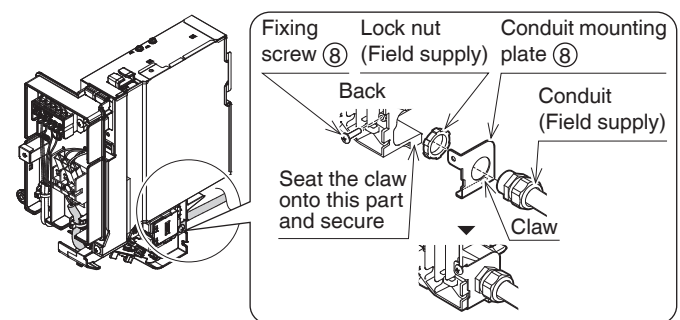
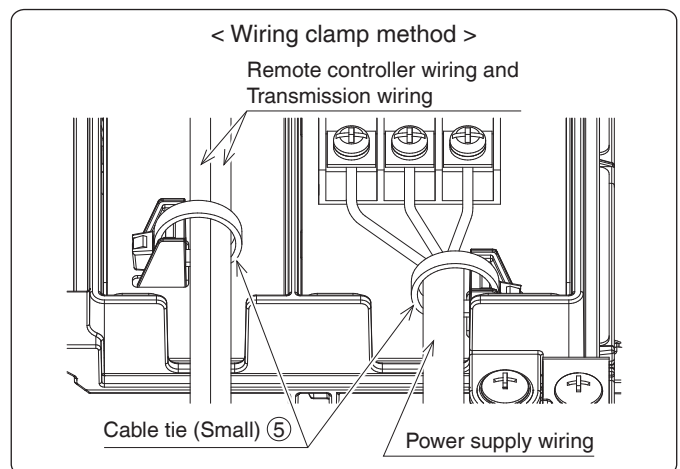
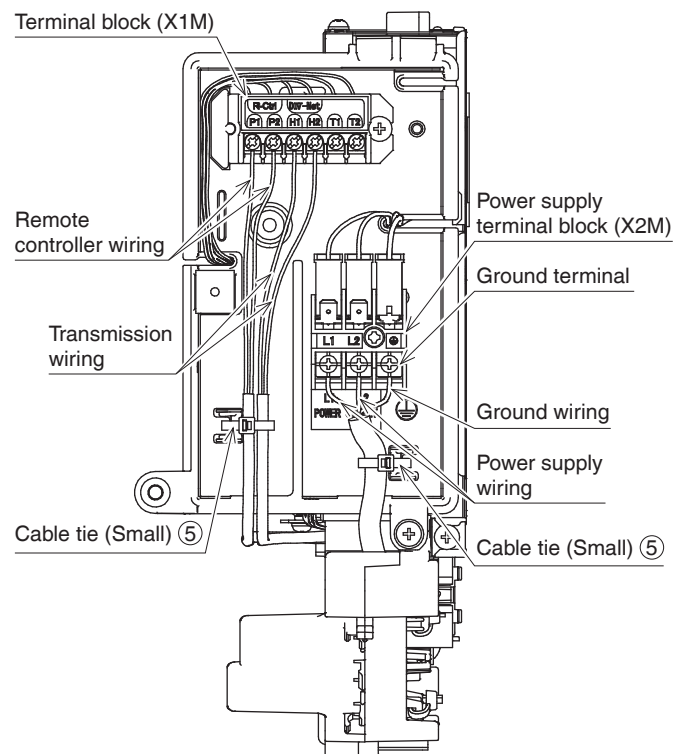


Fig. 29

CAUTION

- Be sure to attach the sealing material and putty (field supplied) to hole of wiring to prevent the infiltration of water as well as any insects and other small creatures from outside. Otherwise a short-circuit may occur inside the control box.
- When clamping the wiring, be sure no pressure is applied to the wire connections by using the included cable ties to make appropriate clamps. Also, when wiring, make sure the cover on the control box fits snugly by arranging the wiring neatly and attaching the service cover firmly. When attaching the service cover, make sure no wiring get caught in the edges. Pass wiring through the wiring through holes to prevent damage to them.

8-5 EXAMPLE OF WIRING

- The power supply wiring should be installed to meet local and national code.

1. When using 1 remote controller (Normal operation)

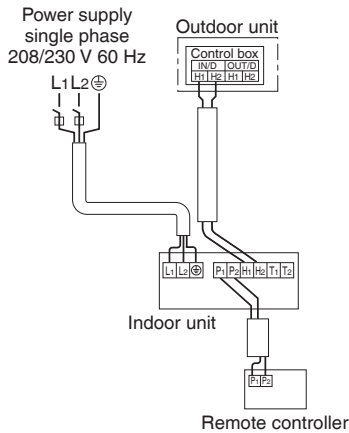


Fig. 30

2. When using 2 remote controllers

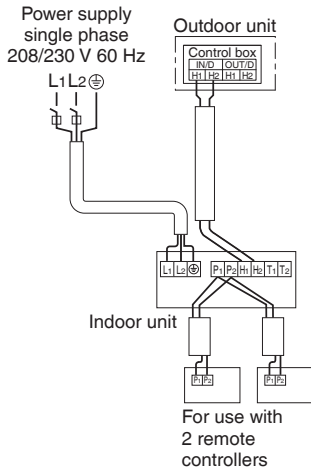


Fig. 31

[PRECAUTIONS]

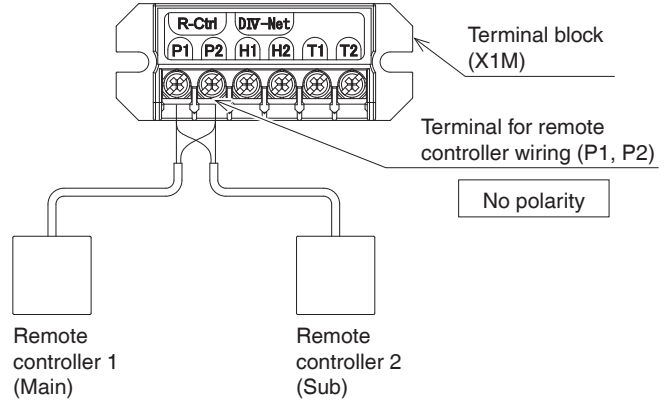
1. Do not ground the equipment on gas pipes, water pipes or lightning rods, or crossground with telephones. Improper grounding could result in electric shock.

8-6 FOR CONTROL WITH 2 REMOTE CONTROLLERS (TO CONTROL 1 INDOOR UNIT WITH 2 REMOTE CONTROLLERS)

- For control with 2 remote controllers, set one remote controller as Main and the other remote controller as Sub.
- < Changeover method from Main to Sub and vice versa >**
Refer to the installation manual attached to the remote controller.

< Wiring method >

- (1) Remove the service cover.
- (2) Carry out additional wiring from the remote controller 2 (Sub) to the terminals (P1, P2) for remote controller wiring on the terminal block (X1M) in the control box.



8-7 FOR CENTRALIZED CONTROL

- When centralized equipment (such as centralized controller) is used for control, it is required to set the group No. or label on the remote controller. For details, refer to the manuals attached to the centralized equipment.

8-8 FOR REMOTE CONTROL (FORCED OFF OR ON / OFF OPERATION)

(1) Wiring method and specification

- Remote control is available by connecting the external input to the terminal T1 and T2 on the terminal block for remote controller and transmission wiring (X1M).

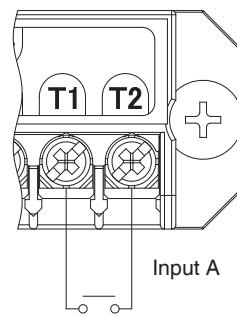


Table 6

Wiring specification	Sheathed vinyl cord or 2 core cable
Gauge	AWG18-16 (0.75 – 1.25 mm ²)
Wiring length	Max. 328 ft. (100 m)
External contact spec	Contact that can make and break the min. load of 15 V DC, 1 mA

(2) Actuation

- Input A of FORCED OFF and ON/OFF OPERATION will be as the table shown below.

	Input A = ON	Input A = OFF
In case of FORCED OFF	FORCED OFF (Remote controller prohibited)	Remote controller permitted
In case of ON/OFF OPERATION	Operation	Stop

(3) How to choose FORCED OFF or ON/OFF OPERATION

- For choosing FORCED OFF or ON/OFF OPERATION, setting by remote controller is required. (Refer to 9. FIELD SETTING and 10. TEST OPERATION.)

9. FIELD SETTING

<<Refer to also the installation manual attached to the outdoor unit.>>

⚠ CAUTION

Before carrying out field setting, check the items mentioned in Clause 2: **(1) Items to be checked after the installation work is completed** on page 4. Check if all the installation and piping works for the air conditioner are completed.

- Check if the service cover of the air conditioner is closed.

< FIELD SETTING >

<<After turn on the power supply, carry out field setting from the remote controller according to the installation state.>>

- Carry out setting at 3 places, MODE NO., FIRST CODE NO. and SECOND CODE NO.
- The settings shown by in the table indicate those when shipped from the factory.
- The method of setting procedure and operation is shown in the installation manual attached to the remote controller. (Note) Though setting of MODE NO. is carried out as a group, if you intend to carry out individual setting by each indoor unit or confirmation after setting, carry out setting with the MODE NO. shown in the parenthesis ().
- In case of remote control, for changeover of input to FORCED OFF or to ON/OFF OPERATION.
 - [1] Enter into the field setting mode with the remote controller.
 - [2] Select MODE NO. 12.
 - [3] Set the FIRST CODE NO. to 1.
 - [4-1] For FORCE OFF, set the SECOND CODE NO. to 01.
 - [4-2] For ON/OFF OPERATION, set the SECOND CODE NO. to 02.
 (It is set to FORCE OFF when shipped from the factory.)
- Ask your customer to keep the manual attached to the remote controller together with the operation manual.
- Do not carry out settings other than those shown in the table.

9-1 SETTING AIR FILTER SIGN

- A message to inform the air filter cleaning time will be indicated on the remote controller.
- Change the SECOND CODE NO. according to Table 7 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 7

Setting	Spacing time of display air filter sign	Mode No.	FIRST CODE NO.	SECOND CODE NO.
Air filter contamination-light	Approx. 200 hrs	10(20)	0	01
Air filter contamination-heavy	Approx. 100 hrs			02

9-2 SETTING WHEN AN OPTIONAL ACCESSORY IS ATTACHED

- For setting when attaching an optional accessory, refer to the installation manual attached to the optional accessory.

9-3 SETTING FAN SPEED DURING THERMOSTAT OFF

- Set the fan speed according to the using environment after consultation with your customer.
- When the fan speed is changed, explain the set fan speed to your customer.

Table 8

Setting		MODE NO.	FIRST CODE NO.	SECOND CODE NO.
Fan speed during cooling thermostat OFF	LL (Extra low) Setting	12 (22)	6	01
				02
Fan speed during heating thermostat OFF	LL (Extra low) Setting	12 (22)	3	01
				02

9-4 SETTING THERMOSTAT DIFFERENTIAL

- For setting when remote sensor is used, change over thermostat differential.

Table 9

Differential	MODE NO.	FIRST CODE NO.	SECOND CODE NO.
1.8°F (1°C)	12 (22)	2	01
0.9°F (0.5°C)			02

9-5 DRY MODE SETTING

Table 10

Setting		MODE NO.	FIRST CODE NO.	SECOND CODE NO.
Dry mode set temperature	Room temperature	11 (21)	12	01
	Same as cooling mode set temperature			02

10. TEST OPERATION

- After cleaning the indoor unit inside, carry out test operation according to installation manual attached to the outdoor unit.
- If no malfunction codes are displayed on the remote controller when test operation completes, the system is ready to engage safety measures if the built-in refrigerant sensor detects refrigerant.
- When the remote controller operation lamp flashes, it shows that something is abnormal.

Check the malfunction codes on the remote controller.

The relation between the malfunction codes and malfunction details is described in the operation manual attached to the outdoor unit.

Particularly, if the indication is one of those shown in the Table 8, it may be an error in the electrical wiring or the power supply is disconnected. Therefore, recheck wiring.

Table 11

Remote controller indication	Details
Though the centralized control is not carried out, the indicating the central control turns on.	<ul style="list-style-type: none"> • The terminals (T1 · T2) for FORCED OFF on the indoor unit transmission terminal block is short circuited.
[U4] displays. [UH] displays.	<ul style="list-style-type: none"> • The power supply to the outdoor unit is not made. • The power supply work to the outdoor unit is not carried out. • The transmission wiring and the remote controller wiring and FORCED OFF wiring are connected incorrectly. • The transmission wiring is disconnected.
No indication	<ul style="list-style-type: none"> • The power supply to the indoor unit is not made. • The power supply work to the indoor unit is not carried out. • The remote controller wiring and the transmission wiring and FORCED OFF wiring are connected incorrectly. • The remote controller wiring is disconnected.



CAUTION

After test operation is completed, check the items mentioned in Clause 2: **(2) Items to be checked at time of delivery** on page 4.

If the interior finish work is not completed when the test operation is finished, for protection of the air conditioner, ask the customer not to operate the air conditioner until the interior finish work is completed.

If the air conditioner is operated, the inside of the indoor units may be polluted by substances generated from the coating and adhesives used for the interior finish work and cause water splash and leakage.



To the operator carrying out test operation

After test operation is completed, before delivering the air conditioner to the customer, confirm that the control box cover, service cover, the air filter, front grille and front panel are attached.

In addition, explain the power supply status (power supply ON/OFF) to the customer.

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