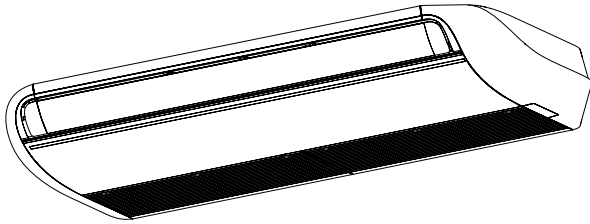


AIR CONDITIONER
Ceiling type



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NOTES: This manual describes how to install the air conditioner described above.
Handling and installation shall only be done by professionals as outlined in this manual.

INSTALLATION MANUAL



PART No. 9384330048-01

For authorized service personnel only.

- Installation must be performed in accordance with the requirement of NEC (National Electrical Code) and CEC (Canadian Electrical Code) by authorized personnel only.
- All products are manufactured to metric units and tolerances. United States customary units are provided for reference only. In cases where exact dimensions and tolerances are required, always refer to metric units.

1. SAFETY PRECAUTIONS

1. 1. IMPORTANT! Please read before starting

This air conditioning system meets strict safety and operating standards.

As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all danger, warning, and caution notices given in this manual.

WARNING:

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

CAUTION:

This symbol refers to a hazard or unsafe practice which can result in personal injury and the potential for product or property damage.

- Hazard alerting symbols



: Electrical



: Safety/alert

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

1. 2. Special precautions

When Wiring

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding (earthing) can cause accidental injury or death.
- Ground (Earth) the unit following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing...

...In a Ceiling or Wall

Make sure the ceiling/wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

...In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

...In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame.
Provide a suitable air baffle.

...In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow.

English

Français

Español

When Connecting Refrigerant Tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before opening the refrigerant valves.

When Servicing

- Turn the power OFF at the main circuit breaker panel before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.
- After installation, explain correct operation to the customer, using the operation manual.

WARNING

- Never touch electrical components immediately after the power supply has been turned off. Electrical shock may occur. After turning off the power, always wait 10 minutes or more before touching electrical components.

- Be sure to read this manual thoroughly before installation.
- The warnings and precautions indicated in this Manual contain important information pertaining to your safety. Be sure to observe them.
- Hand this Manual, together with the operation manual, to the customer. Request the customer to keep them on hand for future use, such as for relocating or repairing the unit.

WARNING

- Installation of this product must be done by experienced service technicians or professional installers only in accordance with this manual. Installation by non-professional or improper installation of the product might cause serious accidents such as injury, water leakage, electric shock, or fire. If the product is installed in disregard of the instructions in this manual, it will void the manufacturer's warranty.
- Do not turn on the power until all work has been completed. Turning on the power before the work is completed can cause serious accidents such as electric shock or fire.
- If refrigerant leaks when you are working, ventilate the area. If the leaking refrigerant is exposed to a direct flame, it may produce a toxic gas.
- Installation must be performed in accordance with regulations, codes, or standards for electrical wiring and equipment in each country, region, or the installation place.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- To avoid danger of suffocation, keep the plastic bag or thin film used as the packaging material away from young children.
- Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

CAUTION

- Read carefully all safety information written in this manual before you install or use the air conditioner.
- Install the product by following local codes and regulations in force at the place of installation, and the instructions provided by the manufacturer.
- This product is part of a set constituting an air conditioner. The product must not be installed alone or be installed with a device not authorized by the manufacturer.
- Always use a separate power supply line protected by a circuit breaker operating on all wires with a distance between contact of 1/8 in (3 mm) for this product.
- To protect the persons, ground (earth) the product correctly, and use the power cable combined with an Earth Leakage Circuit Breaker (ELCB).
- This product is not explosion proof, and therefore should not be installed in an explosive atmosphere.
- This product contains no user-serviceable parts. Always consult experienced service technicians for repairing.
- When moving or relocating the air conditioner, consult experienced service technicians for disconnection and reinstallation of the product.
- Do not touch the aluminum fins of heat exchanger built-in the indoor or outdoor unit to avoid personal injury when you install or maintain the unit.
- Do not place any other electrical products or household belongings under the product. Condensation dripping from the product might get them wet, and may cause damage or malfunction to the property.

- Be careful not to scratch the air conditioner when handling it.

2. PRODUCT SPECIFICATION

2. 1. Installation tools

Tool name	Change from R22 to R410A
Gauge manifold	Pressure is high and cannot be measured with a R22 gauge. To prevent erroneous mixing of other refrigerants, the diameter of each port has been changed. It is recommended to use gauge with seals -30 inHg to 768 psi (-0.1 to 5.3 MPa) for high pressure. -30 inHg to 551 psi (-0.1 to 3.8 MPa) for low pressure.
Charge hose	To increase pressure resistance, the hose material and base size were changed.
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter.
Gas leakage detector	Special gas leakage detector for HFC refrigerant R410A.

Copper pipes
It is necessary to use seamless copper pipes and it is desirable that the amount of residual oil is less than 0.004 oz/100 ft (40 mg/10 m). Do not use copper pipes having a collapsed, deformed or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants. As an air conditioner using R410A incurs pressure higher than when using R22, it is necessary to choose adequate materials.

WARNING

- Do not use the existing (for R22) piping and flare nuts. If the existing materials are used, the pressure inside the refrigerant cycle will rise and cause failure, injury, etc. (Use the special R410A materials.)
- Use (refill or replace with) specified refrigerant (R410A) only. Use of unspecified refrigerant can cause product malfunction, burst, or injury.
- Do not mix any gas or impurities except specified refrigerant (R410A). Inflow of air or application of unspecified material makes the internal pressure of the refrigerant cycle too high, and may cause product malfunction, burst of piping, or injury.
- For installation purposes, be sure to use the parts supplied by the manufacturer or other prescribed parts. The use of non-prescribed parts can cause serious accidents such as the unit falling, water leakage, electric shock, or fire.
- Do not turn on the power until all work has been completed.





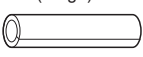
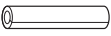
CAUTION

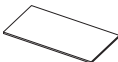
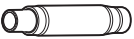







- This manual describes how to install the indoor unit only. To install the outdoor unit or branch box, (if any), refer to the installation manual included in each product.

2. 2. Accessories

WARNING

- For installation purposes, be sure to use the parts supplied by the manufacturer or other prescribed parts.
 - The use of non-prescribed parts can cause serious accidents such as the unit falling, water leakage, electric shock, or fire.
- The following installation parts are furnished. Use them as required.
- Keep the installation manual in a safe place and do not discard any other accessories until the installation work has been completed.

Name and Shape	Q'ty	Description
Installation manual 	1	(This book)
Operating manual 	1	—
Template 	1	For installing indoor unit
Washer 	8	For installing indoor unit
Coupler heat insulation (Large) 	1	For indoor side pipe joint (Gas pipe)
Coupler heat insulation (Small) 	1	For indoor side pipe joint (Liquid pipe)

Name and Shape	Q'ty	Description
Insulation 	1	For installing drain pipe
Drain hose 	1	For installing drain pipe (Ø 3/4 in [I.D.], Ø 1-1/16 in [O.D.])
Hose Band 	1	For installing drain hose
Cable tie (Large) 	4	For connection pipe fixing.
Cable tie (Small) 	1	For connection remote controller cable fixing.
Cable hole cap 	1	For attaching to the indoor unit body
Self-tapping screw (White) 	6	For the grille fixing
Casing guard 	24/30/36 Type 1	For left piping
Self-tapping screw 	3	For left piping

2. 3. Pipe requirement

CAUTION

- Refer to the installation manual of the outdoor unit for description of the length of connecting pipe or for difference of its elevation.

Model	Diameter [in (mm)]	
	Gas pipe	Liquid pipe
18	1/2 (12.70)	1/4 (6.35)
24/30/36	5/8 (15.88)	3/8 (9.52)

- Use pipe with water-resistant heat insulation.

CAUTION

Install heat insulation around both the gas and liquid pipes. Failure to do so may cause water leaks.

Use heat insulation with heat resistance above 248 °F (120 °C). (Reverse cycle model only)

In addition, if the humidity level at the installation location of the refrigerant piping is expected to exceed 70 %, install heat insulation around the refrigerant piping. If the expected humidity level is 70 to 80 %, use heat insulation that is 9/16 in (15 mm) or thicker and if the expected humidity exceeds 80 %, use heat insulation that is 13/16 in (20 mm) or thicker. If heat insulation is used that is not as thick as specified, condensation may form on the surface of the insulation. In addition, use heat insulation with heat conductivity of 0.045 W/(m·K) or less [at 68 °F (20 °C)].

2. 4. Electrical requirement

The indoor unit is powered from the outdoor unit. Do not power indoor unit from separate power source.

WARNING

Standard for electrical wiring and equipment differs in each country or region. Before you start electrical working, confirm related regulations, codes, or standards.

Cable	Conductor size (AWG)	Type	Remarks
Connection cable	AWG 14	Sheathed PVC cable	3Wire+Ground (Earth), 1Ø 208/230V

Max. Cable Length: Limit voltage drop to less than 2%. Increase cable gauge if voltage drop is 2% or more.

Cable	Conductor size (AWG)	Type	Remarks
Remote controller cable	AWG 22 to 16	Sheathed PVC cable	Non-polar 2 wire, twisted pair

2. 5. Optional parts

Parts name	Model No.	Application
Wired remote controller	UTY-RNR*Z*	For air conditioner operation
Simple remote controller	UTY-RSRY	For air conditioner operation
	UTY-RHRY	
IR receiver unit	UTY-LBTUH	For air conditioner operation
WLAN interface	UTY-TFSX**	For wireless LAN control
Thermostat convertor	UTY-TTRXZ*	For air conditioner operation
Drain pump unit	UTZ-PU1EBB	For installing the drain pump
Network convertor	UTY-VTGX UTY-VTGXV	For air conditioner operation
External switch controller	UTY-TERX	For control external switches
External input and output PCB	UTY-XCSX	For connecting external devices
External input and output PCB box	UTZ-GXEA	For installing the External input and output PCB
External connect kit	UTY-XWZXZG	For control output port
Auxiliary pipe assembly	UTP-FX24A [Liquid: 1/4 in (6.35 mm)] [Gas: 1/2 in (12.70 mm)]	For piping upward only
	UTP-FX35A [Liquid: 3/8 in (9.52 mm)] [Gas: 5/8 in (15.88 mm)]	
Modbus convertor	-	Only one communication convertor can be connected.
KNX convertor	-	

- Optional parts are subject to change without notice.

2. 6. Selecting the pipe material

CAUTION

- Do not use existing pipes from another refrigeration system or refrigerant.
- Use pipes that have clean external and internal sides without any contamination which may cause trouble during use, such as sulfur, oxide, dust, cutting waste, oil, or water.
- It is necessary to use seamless copper pipes.
Material : Phosphor deoxidized seamless copper pipes
It is desirable that the amount of residual oil is less than 0.04 oz/100 ft (40 mg/10 m).
- Do not use copper pipes that have a collapsed, deformed, or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants.
- Improper pipe selection will degrade performance. As an air conditioner using R410A incurs pressure higher than when using conventional (R22) refrigerant, it is necessary to choose adequate materials.

- Thicknesses of copper pipes used with R410A are as shown in the table.
- Never use copper pipes thinner than those indicated in the table even if they are available on the market.

Thicknesses of Annealed Copper Pipes (R410A)

Pipe outside diameter [in (mm)]	Thickness [in (mm)]
1/4 (6.35)	0.032 (0.80)
3/8 (9.52)	0.032 (0.80)
1/2 (12.70)	0.032 (0.80)
5/8 (15.88)	0.039 (1.00)
3/4 (19.05)	0.047 (1.20)

3. INSTALLATION WORK

WARNING

- Do not turn on the power until all installation work is complete.
- Carrying and installation of the unit should be performed by a sufficient number of people and with sufficient equipment that is adequate for the weight of the unit.
- Performing such work with an insufficient number of people or with inadequate equipment could result in dropping of the unit or personal injury.

CAUTION

For installation details, refer to the technical data.

3. 1. Selecting an installation location

Decide the mounting position together with the customer as follows.

WARNING

- Select installation locations that can properly support the weight of the indoor unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- Install the units securely so that they do not topple or fall.

CAUTION

- Do not install the indoor unit in the following areas:
 - Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fail or the unit to leak water.
 - Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen. It will deteriorate plastic parts, causing the parts to fail or the unit to leak water.
 - Area where is close to heat sources.
 - Area that generates substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
 - Area that can cause combustible gas to leak, contains suspended carbon fibers or flammable dust, or volatile in flammables such as paint thinner or gasoline.
 - If gas leaks and settles around the unit, it can cause a fire.
 - Area where animals may urinate on the unit or ammonia may be generated.
- Do not use the unit for special purposes, such as storing food, raising animals, growing plants, or preserving precision devices or art objects. It can degrade the quality of the preserved or stored objects.
- Do not install where there is the danger of combustible gas leakage.
- Do not install the unit near a source of heat, steam, or flammable gas.
- Install the unit where drainage does not cause any trouble.
- Install the indoor unit, outdoor unit, power supply cable, transmission cable, and remote control cable at least 40 in (1 m) away from a television or radio receivers. The purpose of this is to prevent TV reception interference or radio noise. (Even if they are installed more than 40 in (1 m) apart, you could still receive noise under some signal conditions.)

CAUTION

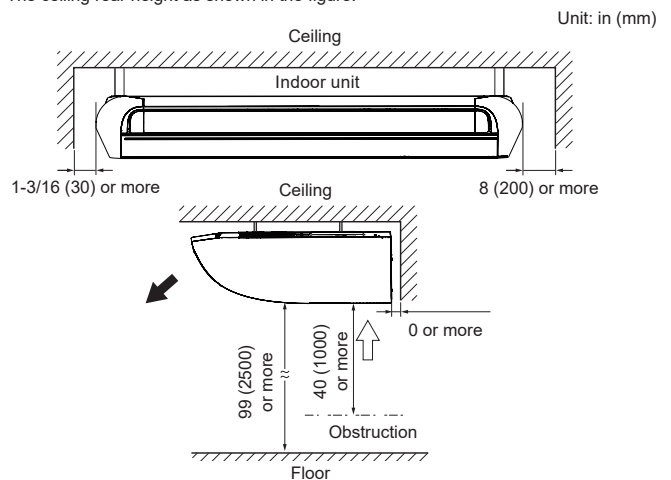
- Install the unit where ambient temperature does not reach 140 °F (60 °C) or more. Take a measure such as ventilation for an environment in which heat is retained.
- If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.
- Use the "Insulation kit for high humidity" (option), when the condition under the roof is over 80% in humidity and over 86 °F (30 °C) in temperature. Otherwise, there is a risk of condensation on the ceiling.

- Install the indoor unit on a place having a sufficient strength so that it withstands against the weight of the indoor unit.
- The inlet and outlet ports should not be obstructed; the air should be able to blow all over the room.
- Leave the space required to service the air conditioner.
- Install the unit where connection to the outdoor unit is easy.
- Install the unit where the connection pipe can be easily installed.
- Install the unit where the drain pipe can be easily installed.
- Install the unit where noise and vibrations are not amplified.
- Take servicing, etc., into consideration and leave the spaces. Also install the unit where the filter can be removed.
- Do not install the unit where it will be exposed to direct sunlight.

Correct initial installation location is important because it is difficult to move unit after it is installed.

3. 2. Installation dimension

- The ceiling rear height as shown in the figure.



3. 3. Installing the unit

WARNING

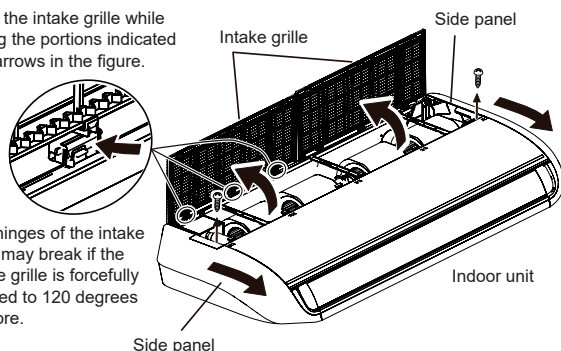
- Install the air conditioner in a location which can withstand a load of at least 5 times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- Carrying and installation of the unit should be performed by a sufficient number of people and with sufficient equipment that is adequate for the weight of the unit. Performing such work with an insufficient number of people or with inadequate equipment could result in dropping of the unit or personal injury.
- If the job is done with the panel frame only, there is a risk that the unit will come loose. Please take care.
- When fastening the hangers, make the bolt positions uniform.

3.3.1. Preparing indoor unit installation

Remove the intake grille and side panel

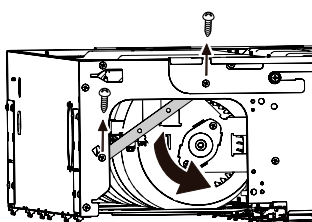
- (1) Remove the two Intake grilles.
- (2) Remove two screws from both side panels (one screw from each side).
- (3) Remove two side panels.

Pull out the intake grille while pressing the portions indicated by the arrows in the figure.



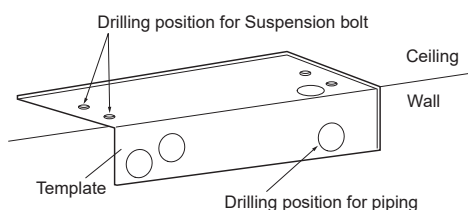
- Removing the casing guard

Remove two screws and remove the casing guard from the unit body. Remove both left and right casing guards in the same manner. These casing guards are attached when passing the connection pipe through the left side.

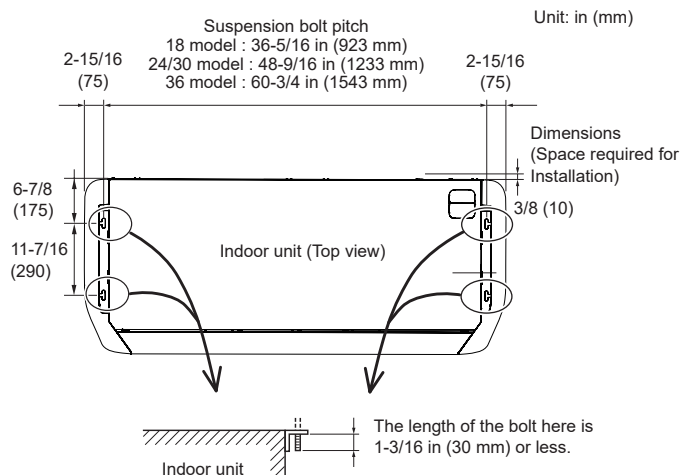


3.3.2. Indoor unit installation

- You can use the accessory template to help you install the indoor unit.
- The template helps you determine the appropriate locations for suspension bolts and pipe opening (drain pipe and connection cable).

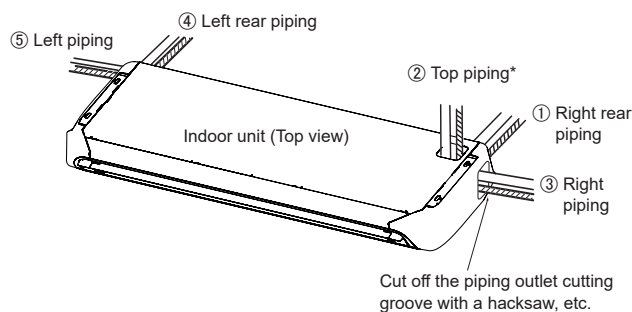


3.3.3. Location of ceiling suspension bolts



3.3.4. Select piping direction

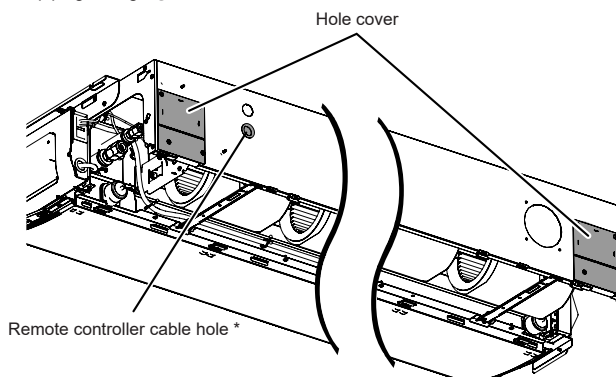
- Select connection piping and drain piping directions.
- The piping and drain piping can be arranged for piping through different positions from each other.



* ②, A Drain pump unit (Optional parts) and an Auxiliary pipe assembly (Optional parts) are required.

[FOR ① Right rear piping, ② Top piping, ③ Right piping, ④ Left rear piping, ⑤ Left piping]

- For piping through ②, an Auxiliary pipe assembly is required.
- (1) For piping through ① and ④, remove the hole covers and cut the piping and drain piping according to the piping location.
- (2) For piping through ③ and ⑤, cut the side panels.
- (3) For piping through ②, cut the knockout hole.



* When using a wired remote control, please pass through the remote controller cable hole.

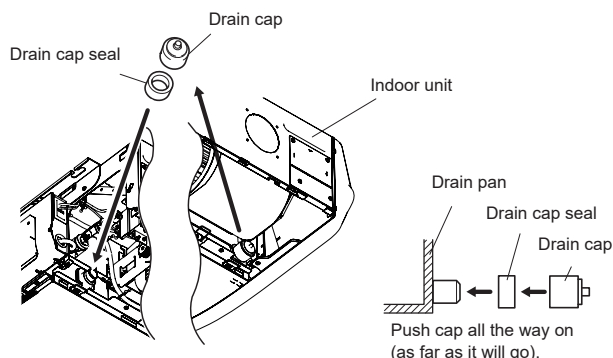
[FOR ② Top drain piping]

- When using a drain pump, the direction of the connection piping is also ② Top piping. A Drain pump unit (Optional parts) and an Auxiliary pipe assembly (Optional parts) are required.

For piping through ②, cut the knockout hole

[FOR ④ Left rear drain piping, ⑤ Left drain piping]

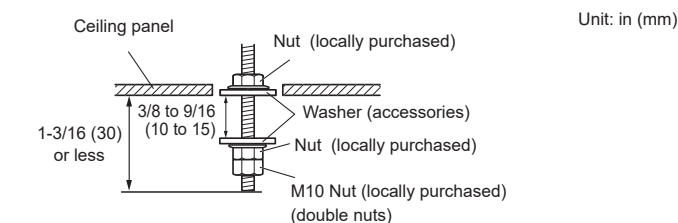
- Transfer the Drain cap and Drain cap seal.



3.3.5. Drilling the holes and attaching the suspension bolts

- (1) Drill $\phi 1$ in (25 mm) holes at the suspension-bolt locations.
- (2) Install the bolts, then temporarily attach Special nuts A and B and a normal M10 nut to each bolt. (The two special nuts are provided with the unit. The M10 nut must be obtained locally.) Refer to the figure.
- (3) Ensure that the lengths of the lower sides of the suspension bolts are less than 1-3/16 in (30 mm).

Bolt Strength [ibf (ozf)]	220 to 330 (3525 to 5288)
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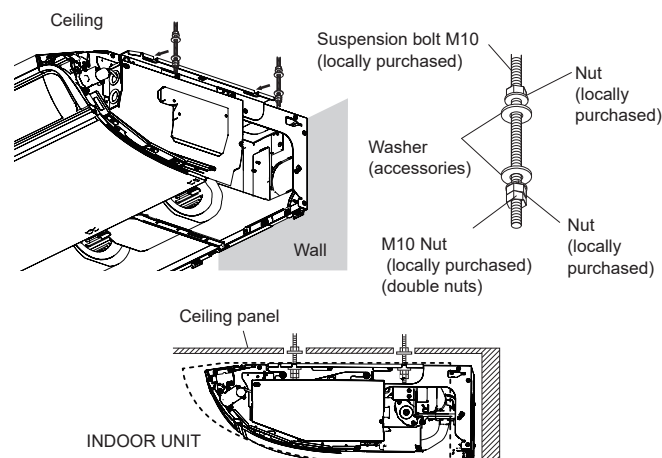


3.3.6. Installing the indoor unit

The indoor unit can be installed by using either of two procedures. Use a suitable procedure for the actual situation.

[To install the indoor unit with the suspension fittings attached]

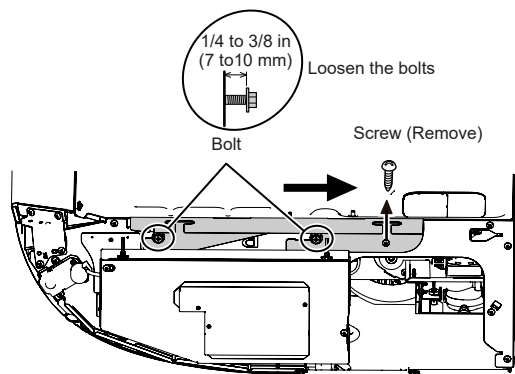
- (1) Lift unit so that suspension bolts pass through the suspension fittings at the sides (four places), and slide the unit back.



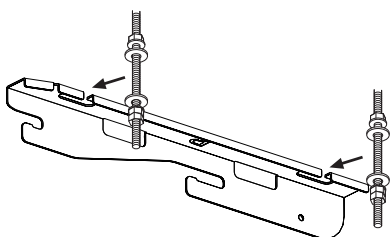
- (2) Fasten the indoor unit into place by tightening-up the special "B" bolts and the M10 nuts. Make sure that unit is secure and will not shift back and forth.

[To install the indoor unit with the suspension fittings removed]

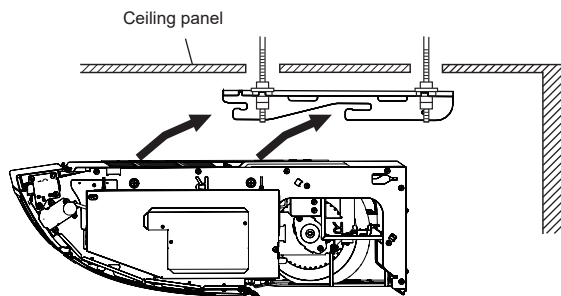
- (1) Remove one screw and loosen two bolts to remove the suspension fittings. Repeat this step for the left side and the right side.



- (2) Fix the removed suspension fittings with two suspension bolts.



- (3) Attach the unit body to the fixed suspension fittings, tighten two bolts on each side.



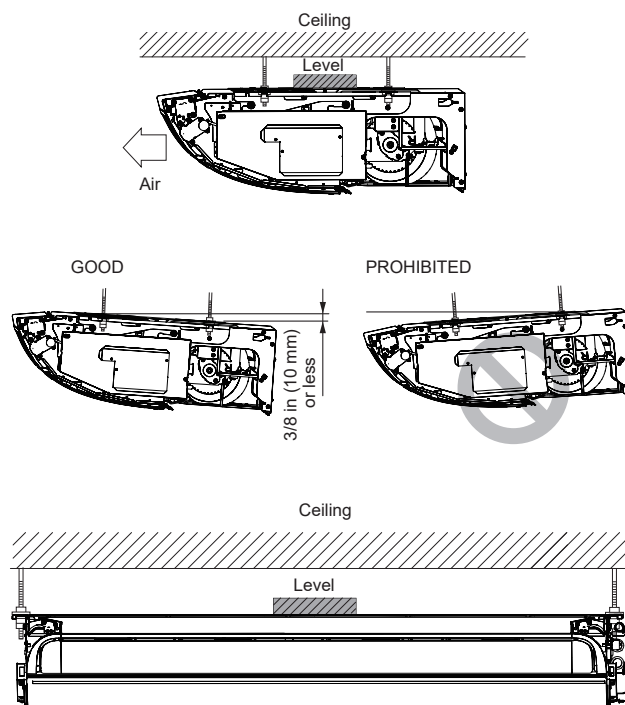
- (4) Make sure that the unit is securely fixed.

CAUTION

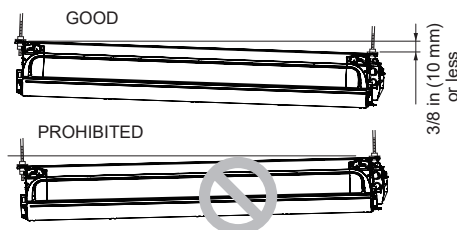
- In order to check the drainage, be sure to use a level during installation of the indoor unit. If the installation site of the indoor unit is not level, water leakage may occur.

3.3.7. Leveling

Base horizontal direction leveling on top of the unit.



- (1) For draining to the right side



- (2) For draining to the left side



3. 4. Pipe installation

⚠ WARNING

- During installation, make sure that the refrigerant pipe is attached firmly before you run the compressor.
- Do not operate the compressor under the condition of refrigerant piping not attached properly with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.
- During the pump-down operation, make sure that the compressor is turned off before you remove the refrigerant piping.
- Do not remove the connection pipe while the compressor is in operation with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.
- When installing and relocating the air conditioner, do not mix gases other than the specified refrigerant R410A to enter the refrigerant cycle.
- If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.
- If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

⚠ CAUTION

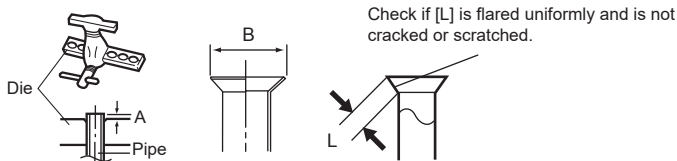
- Be more careful so that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant R410A models. Also, when storing the piping, securely seal the openings by pinching, taping, etc.
- While brazing the pipes, be sure to purge with dry nitrogen gas.

3.4.1. Pipe connection

■ Flaring

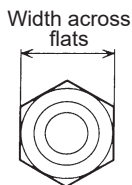
Use special pipe cutter and flare tool designed for R410A pipework.

- (1) Cut the connection pipe to the necessary length with a pipe cutter.
- (2) Hold the pipe downward so that cuttings will not enter the pipe and remove any burrs.
- (3) Insert the flare nut (always use the flare nut attached to the indoor unit(s) and outdoor unit or branch box respectively) onto the pipe and perform the flare processing with a flare tool. Use the special R410A flare tool, or the conventional flare tool. Leakage of refrigerant may result if other flare nuts are used.
- (4) Protect the pipes by pinching them or with tape to prevent dust, dirt, or water from entering the pipes.



Pipe outside diameter [in (mm)]	Dimensions A [in (mm)]	Dimensions B ^{0.10} / _{-0.015 (-0.4)} [in (mm)]
	Flare tool for R410A, clutch type	
1/4 (6.35)	0 to 0.020 (0 to 0.5)	3/8 (9.1)
3/8 (9.52)		1/2 (13.2)
1/2 (12.70)		5/8 (16.6)
5/8 (15.88)		3/4 (19.7)
3/4 (19.05)		15/16 (24.0)

When using conventional (R22) flare tools to flare R410A pipes, the dimensions A should be approximately 0.020 in (0.5 mm) more than indicated in the table (for flaring with R410A flare tools) to achieve the specified flaring. Use a thickness gauge to measure the dimensions A. It is recommended that a R410A flaring tool is used.



Pipe outside diameter [in (mm)]	Width across flats of Flare nut [in (mm)]
1/4 (6.35)	11/16 (17)
3/8 (9.52)	7/8 (22)
1/2 (12.70)	1 (26)
5/8 (15.88)	1-1/8 (29)
3/4 (19.05)	1-7/16 (36)

NOTES: The flare nut specification is compliant with ISO14903.

■ Bending pipes

- If pipes are shaped by hand, be careful not to collapse them.
- Do not bend the pipes at an angle more than 90°.
- When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more.
- Do not bend or stretch the pipes more than 3 times.

⚠ CAUTION

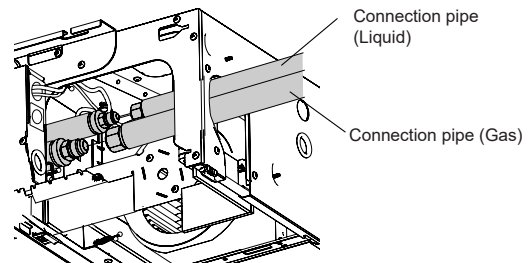
- To prevent breaking of the pipe, avoid sharp bends.
- If the pipe is bent repeatedly at the same place, it will break.

■ Flare connection

⚠ CAUTION

- Be sure to connect the pipe against the port on the indoor unit and the outdoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.
- Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.
- Do not use mineral oil on flared part. Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.

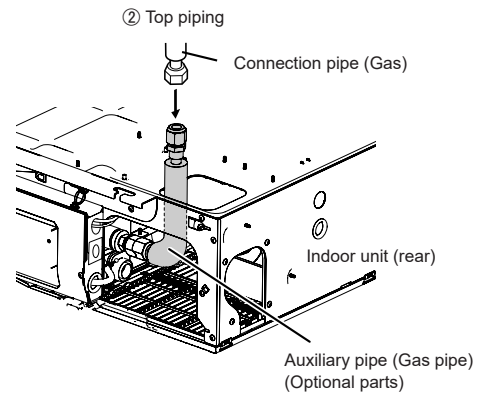
- (1) Detach the caps and plugs from the pipes.
- (2) Center the pipe against the port on the indoor unit, and then turn the flare nut by hand.



- (3) When the flare nut is tightened properly by your hand, hold the body side coupling with a separate spanner, then tighten with a torque wrench. (See the table below for the flare nut tightening torques.)

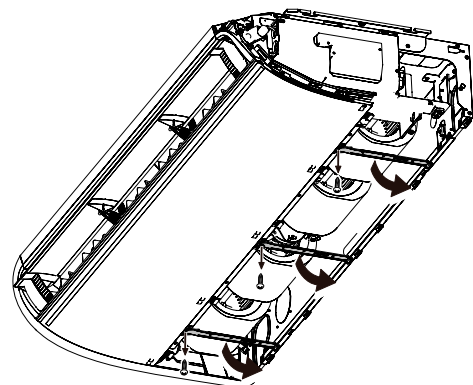
- (4) For ② Top piping connections, use the Auxiliary pipe (Optional parts).

- When the connection pipe for gas is attached (attach the liquid pipe in the same manner)



- (5) For ④ Left rear piping and ⑤ Left piping, use the following procedure to install the connection pipe and attach the casing guard so that the fan motor and the casing do not contact the connection pipe.

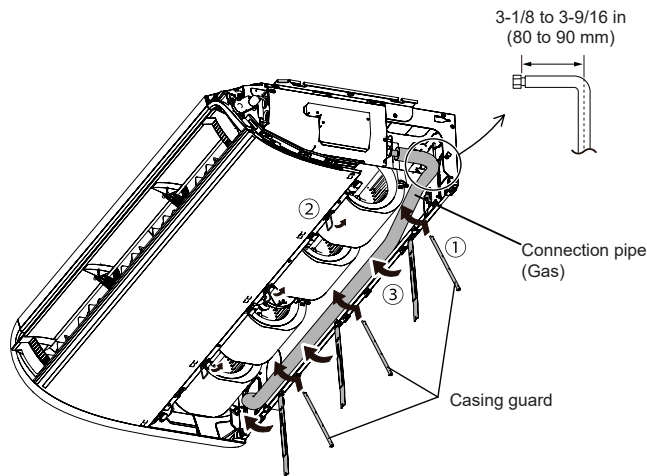
First, remove the screws and lower the plate.



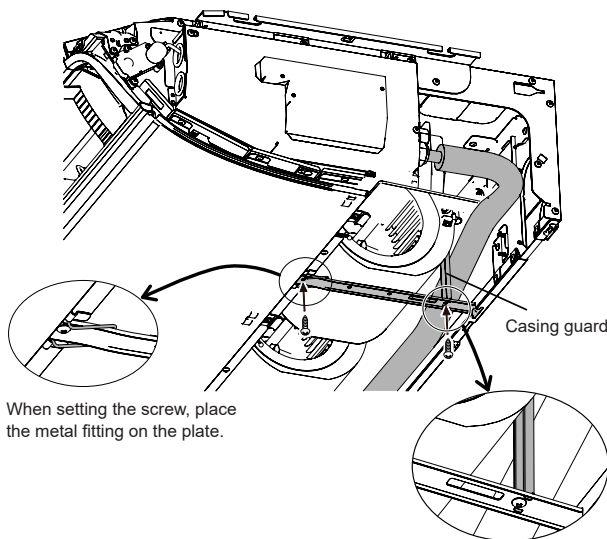
Install the connection pipe and fix it with the following order.

Perform this step on two positions for 18 Type, or three positions for 24/30/36 Type.

For the casing guard, use the one removed in 3. 3. Installing the unit for 18 Type, and the accessory and the one removed for 24/30/36 Type.



Finally, fix two positions using the screw removed in the previous step and the accessory self-tapping screw.

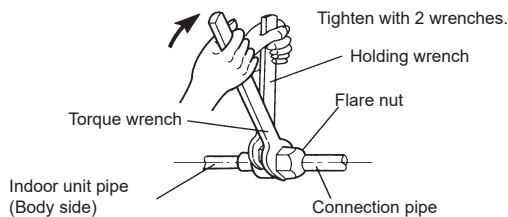


When setting the screw, place the metal fitting on the plate.

Insert into the upper and lower slits.

CAUTION

- Hold the torque wrench at its grip, keeping it in the right angle with the pipe, in order to tighten the flare nut correctly.
- Tighten the flare nuts with a torque wrench using the specified tightening method. Otherwise, the flare nuts could break after a prolonged period, causing refrigerant to leak and generate a hazardous gas if the refrigerant comes into contact with a flame.



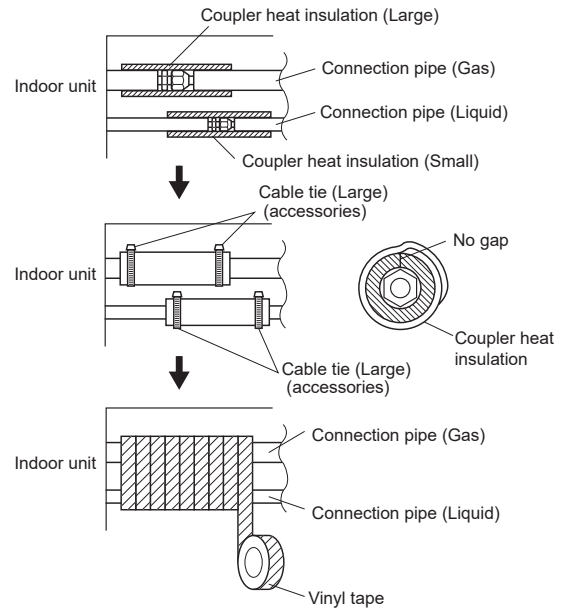
Flare nut [in (mm)]	Tightening torque [ft·lb (N·m)]
1/4 (6.35) dia.	12 to 13 (16 to 18)
3/8 (9.52) dia.	24 to 31 (32 to 42)
1/2 (12.70) dia.	36 to 45 (49 to 61)
5/8 (15.88) dia.	46 to 55 (63 to 75)
3/4 (19.05) dia.	66 to 81 (90 to 110)

Installing heat insulation

CAUTION

- After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section.
- Install heat insulation around both the large (gas) and small (liquid) pipes. Failure to do so may cause water leaks.

- After checking for gas leaks, insulate by wrapping insulation around the 2 parts (Gas and Liquid) of the indoor unit coupling, using the coupler heat insulation.
- After installing the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap.
- Secure both ends of the heat insulation material using cable tie.
- And finally fix connection pipe (Liquid) to connection pipe (Gas) by rolling vinyl tape over coupler heat insulation (Gas) and coupler heat insulation (Liquid).



- When using an auxiliary pipe, make sure that the cable tie used is insulated in the same way.

CAUTION

- There should be no gaps between the insulation and the unit.

3. 5. Drain installation

WARNING

- Do not insert the drain piping into the sewer where sulfurous gas occurs. (Heat exchange erosion may occur.)
- Insulate the parts properly so that water will not drip from the connection parts.
- Check for proper drainage after the construction by using the visible portion of transparent drain port and the drain piping final outlet on the body.

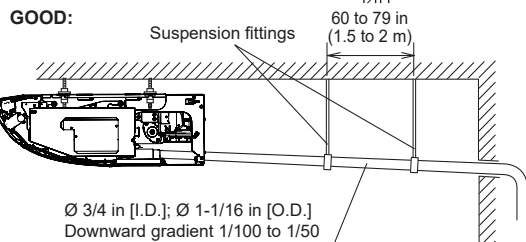
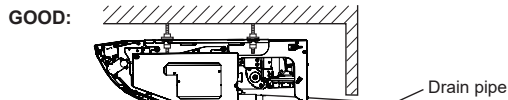
CAUTION

- Do not apply adhesive agent on the drain port of the body. (Use the attached drain hose and connect the drain piping.)

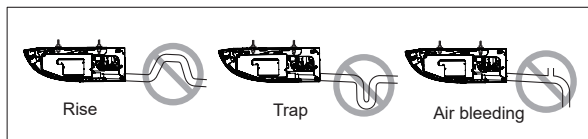
3.5.1. Installing the drain pipe:

- Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
- Use general hard polyvinyl chloride pipe (Ø 3/4 in [I.D.]; Ø 1-1/16 in [O.D.]) and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- During installation of the drain pipe, be careful to avoid applying pressure to the drain port of the indoor unit.
- When the pipe is long, install supporters.
- Do not perform air bleeding.
- Always heat insulate [5/16 in (8 mm) or over thick] the indoor side of the drain pipe.
- If it is impossible to have sufficient gradient of pipe, perform drain lift-up.

	Pipe size
Drain pipe	Ø 3/4 in [I.D.]; Ø 1-1/16 in [O.D.]

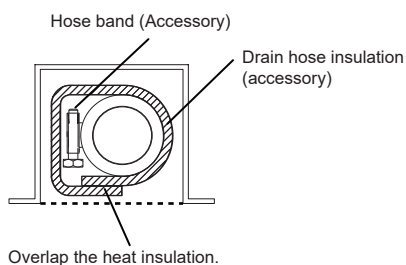
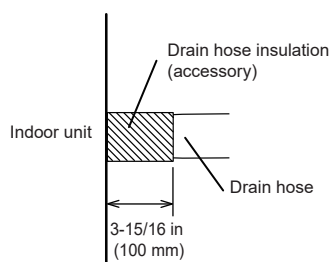
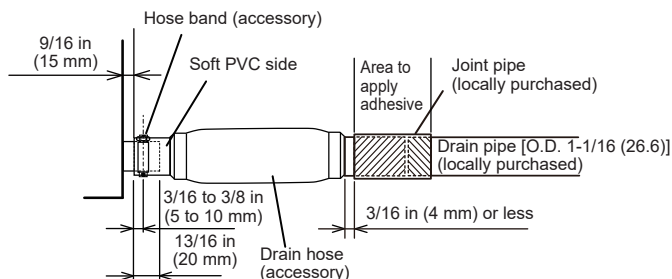


PROHIBITED:



• How to install the drain hose

- (1) Install the drain hose (accessory) to the drain port of the indoor unit. Attach the hose band around the hose within the dimension shown. Secure firmly with the hose band.
- (2) Attach the drain pipe (locally purchased). Use general hard polyvinyl chloride pipe (PVC pipe Ø 3/4 in [I.D.]; Ø 1-1/16 in [O.D.]) and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- (3) Check the drainage.
- (4) Wrap the drain hose insulation around the drain hose connection.



3. 6. Electrical wiring

⚠ WARNING

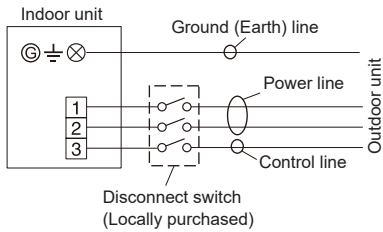
- Electrical work must be performed in accordance with this Manual by a person certified under the national or regional regulations. Be sure to use a dedicated circuit for the unit.
An insufficient power supply circuit or improperly performed electrical work can cause serious accidents such as electric shock or fire.
- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
- Use the included connection cables and power cables or ones specified by the manufacturer. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.
- For wiring, use the prescribed type of cables, connect them securely, making sure that there are no external forces of the cables applied to the terminal connections. Improperly connected or secured cables can cause serious accidents such as overheating the terminals, electric shock, or fire.
- Do not modify the power cables, use extension cables, or use any branches in the wiring. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.
- Match the terminal board numbers and connection cable colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Securely connect the connection cables to the terminal board. In addition, secure the cables with wiring holders. Improper connections, either in the wiring or at the ends of the wiring, can cause a malfunction, electric shock, or fire.
- Always fasten the outside covering of the connection cable with the cable clamp. (If the insulator is chafed, electric leakage may occur.)
- Securely install the electrical box cover on the unit. An improperly installed electrical box cover can cause serious accidents such as electric shock or fire through exposure to dust or water.
- Install sleeves into any holes made in the walls for wiring. Otherwise, a short circuit could result.
- Install a ground (earth) leakage breaker. In addition, install the ground (earth) leakage breaker so that the entire AC main power supply is cut off at the same time. Otherwise, electric shock or fire could result.
- Always connect the ground (earth) cable. Improper grounding (earthing) work can cause electric shocks.
- Install the remote controller cables so as not to be touched directly with your hand.
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Unit shall be grounding (earthing) in compliance with the applicable local and national codes.

⚠ CAUTION

- If the indoor unit connection cable and power supply are wired incorrectly, the air conditioner may be damaged or cause malfunction.
- Ground the unit.
Do not connect the ground (earth) cable to a gas pipe, water pipe, lightning rod, or a telephone ground (earth) cable.
Improper grounding (earthing) may cause electric shock.
- Do not connect power supply cables to the transmission or remote controller terminals, as this will damage the product.
- Never bundle the power supply cable and transmission cable together. Bundling these cables together will cause miss operation.
- When handling PCB, static electricity charged in the body may cause malfunction of the PCB. Follow the cautions below:
 - Establish a ground for the indoor and outdoor units and peripheral devices.
 - Cut power (breaker) off.
 - Touch metal part of the indoor and outdoor units for more than 10 seconds to discharge static electricity charged in the body.
 - Do not touch terminals of parts and patterns implemented on PCB.
- Be careful not to generate a spark as follows for using a flammable refrigerant.
 - Do not remove the fuse while power is on.
 - Do not disconnect plug from the wall outlet and the wiring while the power is on.
 - It is recommended to position the outlet connection in a high position. Place the cords so that they do not get tangled.

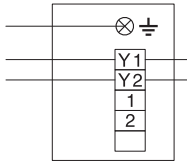
3.6.1. Wiring system diagram

Connection cable to outdoor unit



NOTES: Disconnect Switch - Field supplied if required by local code. Select the correct capacity of disconnect switch according to the load.

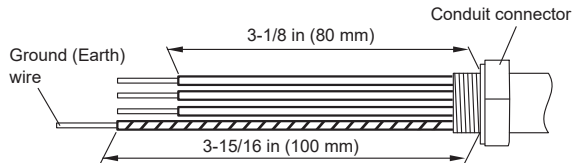
Wired remote controller cable



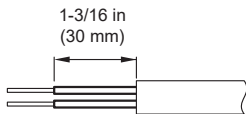
3.6.2. Connection cable preparation

■ Connection cable

Keep the ground (earth) wire longer than the other wires.

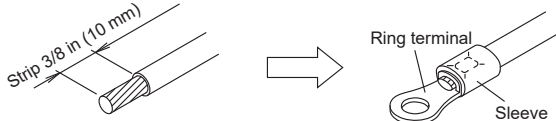


■ Remote controller cable



3.6.3. How to connect wiring to the terminals.

- (1) Use ring terminals with insulating sleeves as shown in the figure below to connect to the terminal block.
- (2) Securely crimp the ring terminals to the wires using an appropriate tool so that the wires do not come loose.

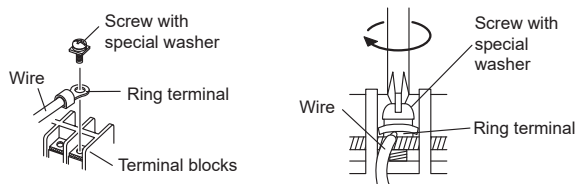


- (3) Use the specified wires, connect them securely, and fasten them so that there is no stress placed on the terminals.
- (4) Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
- (5) Do not tighten the terminal screws too much, otherwise, the screws may break.
- (6) See the table below for the terminal screw tightening torques.

⚠ WARNING

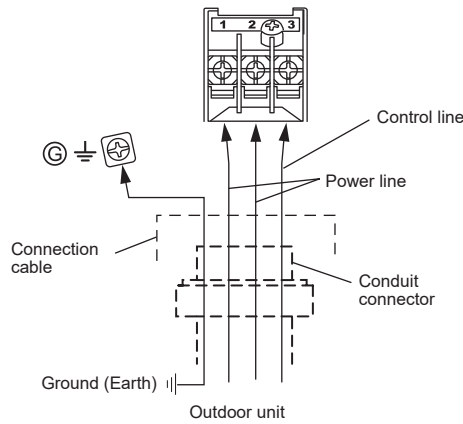
- Use ring terminals and tighten the terminal screws to the specified torques, otherwise, it may cause abnormal overheating and possibly cause serious damage inside the unit.

Tightening torque [lbf·in (N·m)]	
M3.5 screw	7 to 9 (0.8 to 1.0)
M4 screw	11 to 16 (1.2 to 1.8)

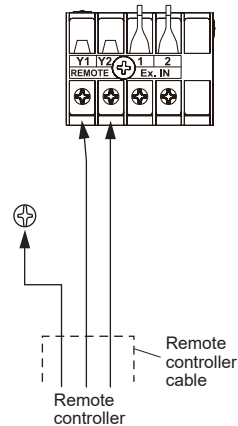


3.6.4. Wiring procedure

■ Connection cable



■ Remote controller cable



*Ground (Earth) the remote controller if it has a ground (earth) wire.

⚠ CAUTION

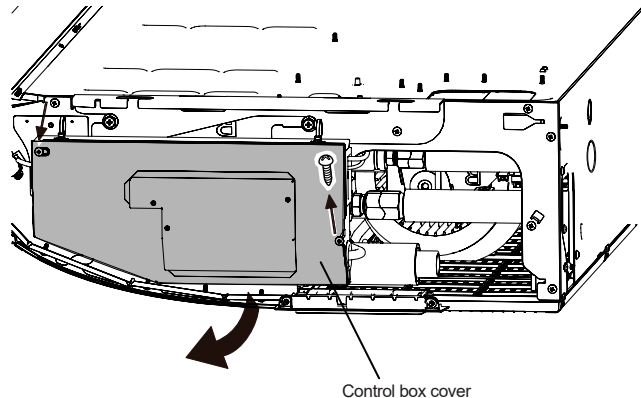
- Tighten the indoor unit connection wire and power supply indoor and outdoor unit, terminal board connections firmly with the terminal board screws. Faulty connection may cause a fire.
- Connect the indoor unit connection wire by matching the numbers of the outdoor and indoor units terminal board numbers as shown in terminal label.
- Be sure to refer to the connection diagram for the correct field wiring. Wrong wiring causes malfunction of the unit.

3.6.5. Connection wiring

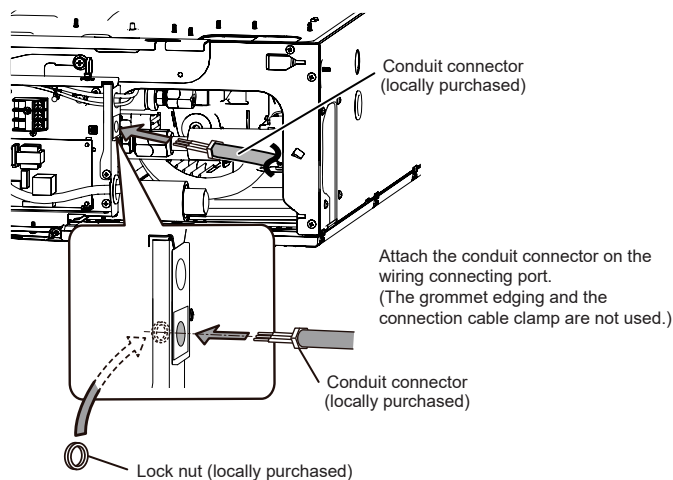
⚠ CAUTION

- Be careful not to mistake the power supply cable and connection wires when installing.
- Install so that the wires for the remote controller will not come in contact with other connection wires.

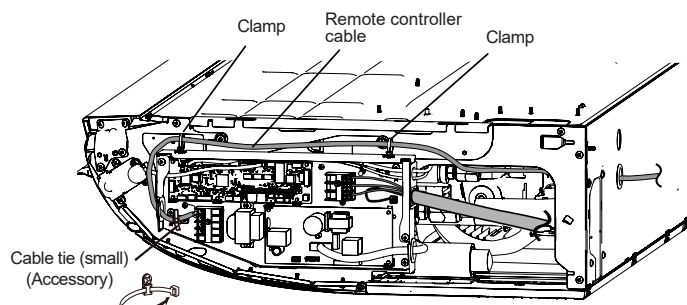
- (1) Remove one screw and loosen another screw to slide down the control box cover.



(2) Thread each cable through the holes or indents of the cabinet and connect the wires.

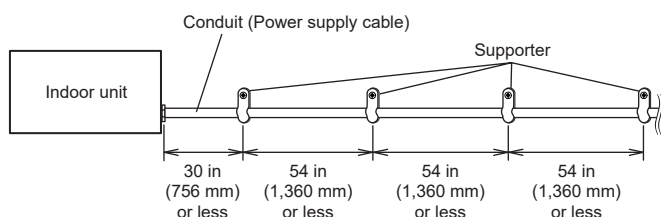


(3) Pass the remote controller cable through the hole, and fix the cable with the cable tie.



(4) Replace the Control box cover. Securely tighten the screws.

(5) Fix the conduit with the supporters as shown below.



※ Cure the wiring connecting port and remote controller connecting port with paste or heat insulation so that insects or dust will not enter the unit

CAUTION

- Do not bundle the remote controller cable, or wire the remote controller cable in parallel, with the indoor unit connection wire (to the outdoor unit) and the power supply cable. It may cause erroneous operation.

3. 7. Remote controller installation

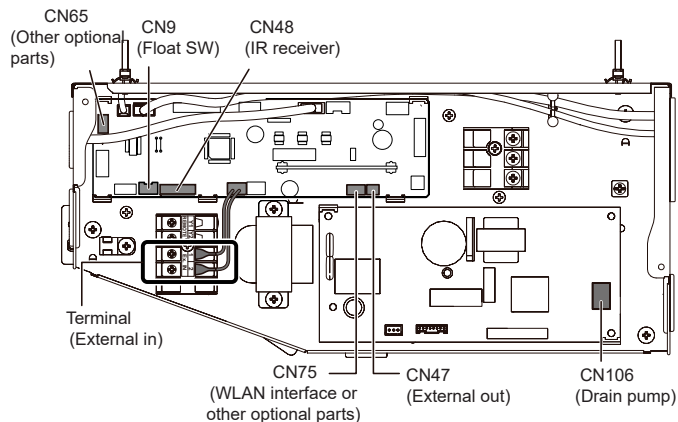
- Install according to the installation manual for remote controller.

4. OPTIONAL INSTALLATION WORK

4. 1. Optional kit installation

WARNING

Regulation of cable differs from each locality, refer in accordance with local rules.



This air conditioner can be connected with the following optional kits. For details on how to install optional parts, refer to the installation manual included in each item.

Connector No.		Option type
CN48		IR Receiver (UTY-LBT*H)
CN47*1		Connect wire (UTY-XWZXZG)
CN47*1	(UTY-XCSX)*2	Fresh air intake
CN65		Other optional parts (External input and output PCB, Modbus converter, KNX convertor, WLAN interface *3 etc.) may be connectable.
CN75		
CN106		Drain pump (UTZ-PU1EBB)
CN9		Float SW (UTZ-PU1EBB)

*1: For external output terminal setting, refer to Function No.60 in "6. FUNCTION SETTING".

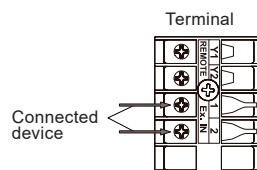
*2: Refer to the installation manual of the External input and output PCB.

*3: Be sure to connect the WLAN interface to CN75.

4. 2. External input and output

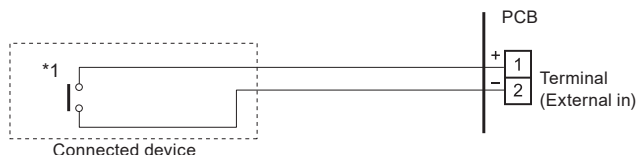
4.2.1. External input

- Indoor unit functions such as Operation/Stop or Forced stop can be done by using indoor unit terminals.
- "Operation/Stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.
- A twisted pair cable (22 AWG) should be used. Maximum length of cable is 492 ft (150 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.



• Dry contact terminal

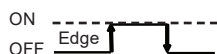
When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal.



*1: The switch can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

■ Operation behavior

● Input signal type



When function setting is "Operation/Stop" mode 1.

Input signal	Command
OFF → ON	Operation
ON → OFF	Stop

When function setting is "Forced stop" mode.

Input signal	Command
OFF → ON	Forced stop
ON → OFF	Normal

* When the forced stop is triggered, indoor unit stops and Operation/Stop operation by a remote controller is restricted.

When function setting is "Operation/Stop" mode 2.

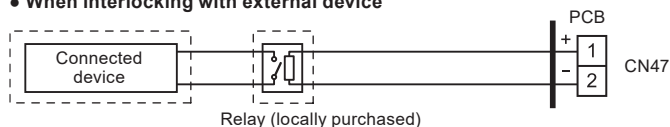
Input signal	Command
OFF → ON	Operation
ON → OFF	Stop (R.C. disabled)

4.2.2. External output

- A twisted pair cable (22AWG) should be used. Maximum length of cable is 82 ft (25 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- Output voltage: Hi DC12V±2V, Lo 0V.
- Permissible current: 50mA

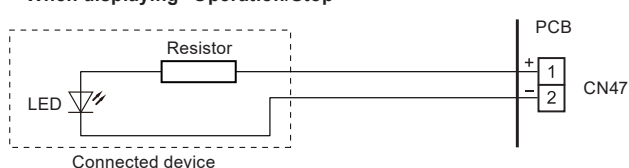
■ Output select

● When interlocking with external device



or

● When displaying "Operation/Stop"



■ Operation behavior

Functions of the external output terminal can be switched.

(◆... Factory setting)

Function setting	Status	Output voltage
60	00	Stop
		0 V
	01 - 04	Operation
		DC 12 V
	05	OFF
		0 V
	06	Cooling thermostat ON
		DC 12 V
	07 - 08	OFF
		0 V
	09	Heating operation ON
		DC 12 V
	10	Stop
		0 V
	11	Operation
		DC 12 V
	12	OFF
		0 V
	13	Cooling thermostat ON
		DC 12 V
	14	Normal
		0 V
	15	Error
		DC 12 V
	16	Indoor unit fan stop
		0 V
	17	Indoor unit fan operation
		DC 12 V
	18	External heater OFF
		0 V
	19	External heater ON
		DC 12 V

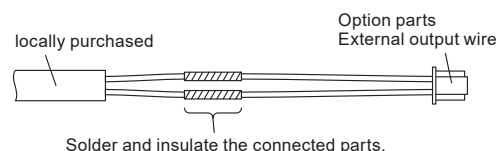
Refer to the Design & technical manual.

4.2.3. Connection methods

Wire modification

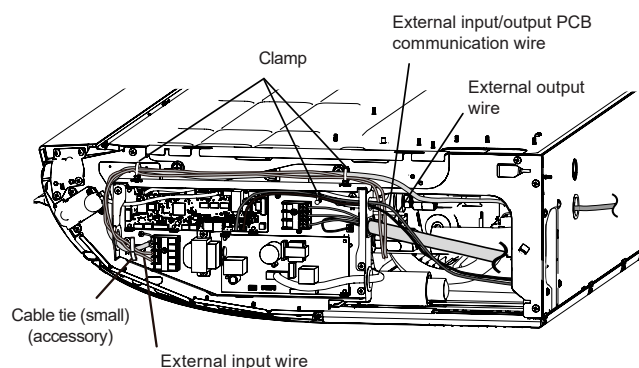
- Remove insulation from wire attached to wire kit connector.
- Remove insulation from locally purchased cable. Use crimp type insulated butt connector to join field cable and wire kit wire.
- Connect the wire with connecting wire with solder.

IMPORTANT: Be sure to insulate the connection between the wires.



- Connecting wires to the terminals.
Use ring terminals with insulating sleeves to connect to the terminal block.
- Connection terminals and wiring arrangement

In following figure, all the possible connections are done for description. In actual installation, connections will differ according to each installation requirements.



5. REMOTE CONTROL INSTALLATION

⚠ CAUTION

- Be sure to turn off the electrical breaker before making settings.
- Do not set the DIP switch or rotary switch of this unit except as specified in this manual or the operating manual supplied with the air conditioner.
- Setting the switches other than specified will cause an accident or trouble.
- Do not touch the circuit board and circuit board parts directly with your hands. Otherwise, injury or electric shock could result.
- Use an insulated screwdriver to set the dip switches.

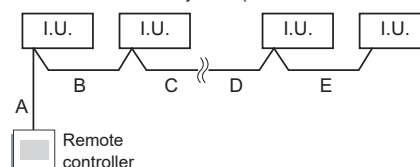
5. 1. Group control

⚠ CAUTION

- Group control is only possible between units with remote controllers of the same type. To confirm the type of remote controller, see the back of the remote controller or "2. 5. Optional parts".

A number of indoor units can be operated at the same time using a single remote controller.

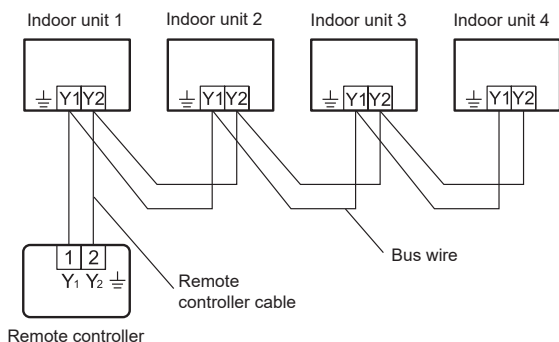
(1) Connect up to 16 indoor units in a system. (indoor unit to remote controller)



A, B, C, D, E : Remote controller cable. (Refer to "2. 4. Electrical requirement")

A+B+C+D+E ≤ 1640 ft (500 m).

Example of wiring method



(2) Set the R.C. address

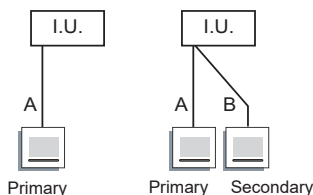
DIP switch (RC AD SW)...Factory setting "00"

Since the remote controller address settings are automatically configured, you do not need to configure them.

If configuring manually, it is necessary to configure both the indoor unit and the remote controller. For details, please refer to the remote controller installation manual.

5. 2. Multiple remote control

Up to 2 remote controllers can be used to operate the indoor units.



A, B : Remote controller cable. (Refer to "2. 4. Electrical requirement".)

A ≤ 1640 ft (500 m), A+B ≤ 1640 ft (500 m)

6. FUNCTION SETTING

Refer to the installation manual of remote controller for setting method.

6. 1. Function details

■ Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.

If the indication is not required, select "No indication" (03).

(♦... Factory setting)

Function number	Setting value	Setting description
11	00	Standard (2500 hours)
	01	Long interval (4400 hours)
	02	Short interval (1250 hours)
	03	No indication ♦

■ Ceiling height

Select the appropriate ceiling height according to the place of installation.

(♦... Factory setting)

Function number	Setting value	Setting description
20	00	Standard [107 in (2.7 m) : 18/24/30 type] ♦
	01	High ceiling [138 in (3.5 m): 18/24/30 type] [170 in (4.3 m): 36 type]

■ Horizontal louver direction switching for dew condensation prevention

Automatically switches the position of the horizontal louver if the airflow direction is set at lower than the dew condensation limit position in cooling or drying operation.

Select suitable adjustment position according to the customer's preference.

(♦... Factory setting)

Function number	Setting value	Setting description
28	00	Adjust to dew condensation limit position ♦
	01	Adjust to cooling standard position

■ Room temperature control for indoor unit sensor

Depending on the installed environment, correction of the room temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

The temperature correction values show the difference from the Standard setting "00" (manufacturer's recommended value).

(♦... Factory setting)

Function number	Setting value	Setting description
30 (For cooling)	31 (For heating)	00 Standard setting ♦
		01 No correction 0 °F (0.0 °C)
		02 -1 °F (-0.5 °C)
		03 -2 °F (-1.0 °C)
		04 -3 °F (-1.5 °C)
		05 -4 °F (-2.0 °C)
		06 -5 °F (-2.5 °C)
		07 -6 °F (-3.0 °C)
		08 -7 °F (-3.5 °C)
		09 -8 °F (-4.0 °C)
		10 +1 °F (+0.5 °C)
		11 +2 °F (+1.0 °C)
		12 +3 °F (+1.5 °C)
		13 +4 °F (+2.0 °C)
		14 +5 °F (+2.5 °C)
		15 +6 °F (+3.0 °C)
		16 +7 °F (+3.5 °C)
		17 +8 °F (+4.0 °C)

■ Room temperature control for wired remote controller sensor

Depending on the installed environment, correction of the wire remote temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

To change this setting, set Function 42 to Both "01".

Ensure that the Thermo Sensor icon is displayed on the remote controller screen.

(♦... Factory setting)

Function number	Setting value	Setting description
35 (For cooling)	36 (For heating)	00 No correction ♦
		01 No correction 0 °F (0.0 °C)
		02 -1 °F (-0.5 °C)
		03 -2 °F (-1.0 °C)
		04 -3 °F (-1.5 °C)
		05 -4 °F (-2.0 °C)
		06 -5 °F (-2.5 °C)
		07 -6 °F (-3.0 °C)
		08 -7 °F (-3.5 °C)
		09 -8 °F (-4.0 °C)
		10 +1 °F (+0.5 °C)
		11 +2 °F (+1.0 °C)
		12 +3 °F (+1.5 °C)
		13 +4 °F (+2.0 °C)
		14 +5 °F (+2.5 °C)
		15 +6 °F (+3.0 °C)
		16 +7 °F (+3.5 °C)
		17 +8 °F (+4.0 °C)

■ Auto restart

Enable or disable automatic restart after a power interruption.

(♦... Factory setting)

Function number	Setting value	Setting description
40	00	Enable ♦
	01	Disable

* Auto restart is an emergency function such as for power outage etc. Do not attempt to use this function in normal operation. Be sure to operate the unit by remote controller or external device.

Room temperature sensor switching

(Only for wireless remote controller)
When using the Wired remote controller temperature sensor, change the setting to "Both" (01).

(Factory setting)

Function number	Setting value	Setting description
42	00	Indoor unit
	01	Both

00: Sensor on the indoor unit is active.
01: Sensors on both indoor unit and wired remote controller are active.
* Remote controller sensor must be turned on by using the remote controller

Remote controller custom code

(Only for wireless remote controller)
The indoor unit custom code can be changed.
Select the appropriate custom code.

(Factory setting)

Function number	Setting value	Setting description
44	00	A
	01	B
	02	C
	03	D

External input control

"Operation/Stop" mode or "Forced stop" mode can be selected.
(Factory setting)

Function number	Setting value	Setting description
46	00	Operation/Stop mode 1
	01	(Setting prohibited)
	02	Forced stop mode
	03	Operation/Stop mode 2

Room temperature sensor switching (Aux.)

To use the temperature sensor on the wired remote controller only, change the setting to "Wired remote controller" (01). This function will only work if the function setting 42 is set at "Both" (01)

(Factory setting)

Function number	Setting value	Setting description
48	00	Both
	01	Wired remote controller

Indoor unit fan control for energy saving for cooling

Enables or disables the power-saving function by controlling the indoor unit fan rotation when the outdoor unit is stopped during cooling operation.

(Factory setting)

Function number	Setting value	Setting description
49	00	Disable
	01	Enable
	02	Remote controller

00: When the outdoor unit is stopped, the indoor unit fan operates continuously following the setting on the remote controller.
01: When the outdoor unit is stopped, the indoor unit fan operates intermittently at a very low speed.
02: Enable or disable this function by remote controller setting.

Set to "00" or "01" when connecting a remote controller that cannot set the Fan control for energy saving function or connecting a network converter.

To confirm if the remote controller has this setting, refer to the operating manual of each remote controller.

Switching functions for external output terminal

Functions of the external output terminal can be switched.
(Factory setting)

Function number	Setting value	Setting description
60	00	Operation status
	01-04	Cooling thermostat status
	05	Heating operation status
	06	Operation status
	07-08	Cooling thermostat status
	09	Error status
	10	Fresh air control
	11	Auxiliary heater

Refer to the Design & technical manual.

Control switching of external heaters

Sets the control method for the external heater being used.
For details of the control method, see the Design & Technical Manual.

(Factory setting)

Function number	Setting value	Setting description
61	00	Auxiliary heater control 1
	01	Auxiliary heater control 2
	02	Heat pump prohibition control
	03	Heater selection control using outdoor temperature 1
	04	Heater selection control using outdoor temperature 2
	05	Auxiliary heater control by outdoor temperature 3
	06	Auxiliary heat pump control
	07	Auxiliary heat pump control by outdoor temperature 1
	08	Auxiliary heat pump control by outdoor temperature 2
	09	Auxiliary heat pump control by outdoor temperature 3

Operating temperature switching of external heaters

- Sets the temperature conditions when the external heater is ON.
- For the temperature conditions, see "Temperature conditions when the external heater is ON". For a more detailed explanation, see the Design & Technical Manual.

(Factory setting)

Function number	Setting value	Setting description
62	00	Setting 0
	01	Setting 1
	02	Setting 2
	03	Setting 3
	04	Setting 4
	05	Setting 5
	06	Setting 6
	07	Setting 7
	08	Setting 8
	09	Setting 9
	10	Setting 10
	11	Setting 11
	12	Setting 12
	13	Setting 13
	14	Setting 14
	15	Setting 15
	16	Setting 16
	17	Setting 17

Temperature conditions when the external heater is ON/OFF

Temperature (t) = Room temperature - set temperature

		Set value of function: 61			
		00		01 to 09	
		ON	OFF	ON	OFF
Set value of function: 62	00	t < -5.4°F (-3°C)	t ≥ -1.8°F (-1°C)	t ≤ -0.9°F (-0.5°C)	t ≥ +0.9°F (+0.5°C)
	01	t < -3.6°F (-2°C)	t ≥ -1.8°F (-1°C)	t ≤ -1.8°F (-1°C)	t ≥ +0.9°F (+0.5°C)
	02	t < -3.6°F (-2°C)	t ≥ -1.8°F (-1°C)	t ≤ -3.6°F (-2°C)	t ≥ +0.9°F (+0.5°C)
	03	t < -5.4°F (-3°C)	t ≥ -1.8°F (-1°C)	t ≤ -5.4°F (-3°C)	t ≥ +0.9°F (+0.5°C)
	04	t < -7.2°F (-4°C)	t ≥ -1.8°F (-1°C)	t ≤ -7.2°F (-4°C)	t ≥ +0.9°F (+0.5°C)
	05	t < -9.0°F (-5°C)	t ≥ -1.8°F (-1°C)	t ≤ -9.0°F (-5°C)	t ≥ +0.9°F (+0.5°C)
	06	t < -5.4°F (-3°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -0.9°F (-0.5°C)	t ≥ 0°F (0°C)
	07	t < -3.6°F (-2°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -1.8°F (-1°C)	t ≥ 0°F (0°C)
	08	t < -3.6°F (-2°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -3.6°F (-2°C)	t ≥ 0°F (0°C)
	09	t < -5.4°F (-3°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -5.4°F (-3°C)	t ≥ 0°F (0°C)
	10	t < -7.2°F (-4°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -7.2°F (-4°C)	t ≥ 0°F (0°C)
	11	t < -9.0°F (-5°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -9.0°F (-5°C)	t ≥ 0°F (0°C)
	12	t < -5.4°F (-3°C)	t ≥ 0°F (0°C)	t ≤ -0.9°F (-0.5°C)	t ≥ -0.9°F (-0.5°C)
	13	t < -3.6°F (-2°C)	t ≥ 0°F (0°C)	t ≤ -1.8°F (-1°C)	t ≥ -0.9°F (-0.5°C)
	14	t < -3.6°F (-2°C)	t ≥ 0°F (0°C)	t ≤ -3.6°F (-2°C)	t ≥ -0.9°F (-0.5°C)
	15	t < -5.4°F (-3°C)	t ≥ 0°F (0°C)	t ≤ -5.4°F (-3°C)	t ≥ -0.9°F (-0.5°C)
	16	t < -7.2°F (-4°C)	t ≥ 0°F (0°C)	t ≤ -7.2°F (-4°C)	t ≥ -0.9°F (-0.5°C)
	17	t < -9.0°F (-5°C)	t ≥ 0°F (0°C)	t ≤ -9.0°F (-5°C)	t ≥ -0.9°F (-0.5°C)

■ Outdoor temperature zone boundary temperature A

Setting required if changing of the outdoor temperature setting for heat pump prohibition zone is required when auxiliary heater control by outdoor temperature 1 and 2 are performed on the indoor unit.

For details of the control method, see the Design & Technical Manual.

(♦... Factory setting)

Function number	Setting value	Setting description
66	00	-4.0 °F (-20 °C)
	01	-0.4 °F (-18 °C)
	02	3.2 °F (-16 °C)
	03	6.8 °F (-14 °C)
	04	10.4 °F (-12 °C)
	05	14.0 °F (-10 °C)
	06	17.6 °F (-8 °C)
	07	21.2 °F (-6 °C)
	08	24.8 °F (-4 °C)

■ Outdoor temperature zone boundary temperature B

Setting required if changing of the outdoor temperature setting for heat pump only zone is required when auxiliary heater control by outdoor temperature 1 is performed on the indoor unit.

For details of the control method, see the Design & Technical Manual.

(♦... Factory setting)

Function number	Setting value	Setting description
67	00	42.8 °F (6 °C)
	01	14.0 °F (-10 °C)
	02	17.6 °F (-8 °C)
	03	21.2 °F (-6 °C)
	04	24.8 °F (-4 °C)
	05	28.4 °F (-2 °C)
	06	32.0 °F (0 °C)
	07	35.6 °F (2 °C)
	08	39.2 °F (4 °C)
	09	42.8 °F (6 °C)
	10	46.4 °F (8 °C)
	11	50.0 °F (10 °C)
	12	53.6 °F (12 °C)
	13	57.2 °F (14 °C)
	14	60.8 °F (16 °C)
	15	64.4 °F (18 °C)

■ Standby time for auxiliary equipment operation

Sets the standby time until the auxiliary equipment operation starts during primary equipment operation.

(♦... Factory setting)

Function number	Setting value	Setting description
71	00	Disable
	01	1 minutes
	02	2 minutes
	⋮	⋮
	98	98 minutes
	99	99 minutes

■ Heat pump backup setting

Enables or disables the heat pump backup instruction from the outdoor unit. This function will be usable provided that the corresponding outdoor unit is connected.

(♦... Factory setting)

Function number	Setting value	Setting description
72	00	Disable
	01	Enable

■ Emergency heat for external output terminal

Enables or disables emergency heat input.

To use this function, select "External heater output" after entering "Function Number 60". For more information, please refer to the Design & technical manual.

(♦... Factory setting)

Function number	Setting value	Setting description
73	00	Disable
	01	Enable

■ Fan delay time

Sets the fan delay time when the heater is turned off.

(♦... Factory setting)

Function number	Setting value	Setting description
74	00	1 minutes
	01	50 seconds
	02	40 seconds
	03	30 seconds

■ External heater use in defrosting

Enables or disables the external heater use in defrosting.

When using function, inappropriate heater selection may cause cold air in defrosting.

(♦... Factory setting)

Function number	Setting value	Setting description
75	00	Disable
	01	Enable

■ Setting record

Record any changes to the settings in the following table.

Function number	Setting	Setting value
11	Filter sign	
20	Ceiling height	
28	Horizontal louver direction switching for dew condensation prevention	
30	Room temperature control for indoor unit sensor	Cooling
31		Heating
35	Room temperature control for wired remote controller sensor	Cooling
36		Heating
40	Auto restart	
42	Room temperature sensor switching	
44	Remote controller custom code	
46	External input control	
48	Room temperature sensor switching (Aux.)	
49	Indoor unit fan control for energy saving for cooling	
60	Switching function for external outlet terminal	
61	Control switching of external heaters	
62	Operating temperature switching of external heaters	
66	Outdoor temperature zone boundary temperature A	
67	Outdoor temperature zone boundary temperature B	
71	Standby time for auxiliary equipment operation	
72	Heat pump backup setting	
73	Emergency heat for external output terminal	
74	Fan delay time	
75	External heater use in defrosting	

After completing the function setting, be sure to turn off the power and turn it on again.

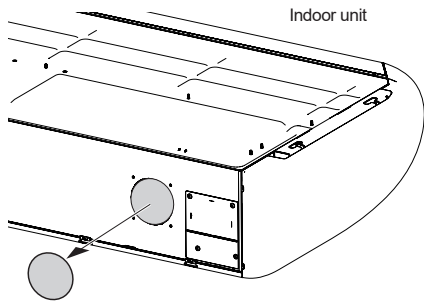
7. CHECK LIST

Pay special attention to the check items below when installing the indoor unit(s). After installation is complete, be sure to check the following check items again.

CHECK ITEMS	If not performed correctly	CHECK BOX
Has the indoor unit been installed correctly?	Vibration, noise, indoor unit may drop	
Has there been a check for gas leaks (refrigerant pipes)?	No cooling, No heating	
Has heat insulation work been completed?	Water leakage	
Does water drain easily from the indoor units?	Water leakage	
Are the wires and pipes all connected completely?	No operation, heat or burn damage	
Is the connection cable the specified thickness?	No operation, heat or burn damage	
Are the inlets and outlets free of any obstacles?	No cooling, No heating	
After installation is completed, has the proper operation and handling been explained to the user?		

8. FRESH-AIR INTAKE

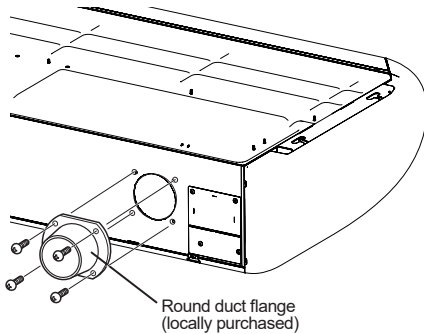
- (1) Open up the knockout hole for the fresh-air intake, as shown in the figure.



CAUTION

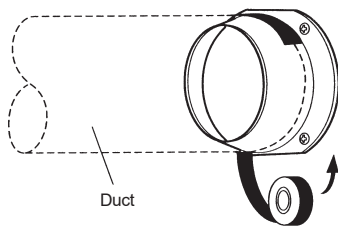
- When removing the cabinet (iron plate), be careful not to damage the indoor unit internal parts and surrounding area (outer case).
- When processing the cabinet (iron plate), be careful not to injure yourself with burrs, etc.

- (2) Fasten the round duct flange (locally purchased) to the fresh-air intake, as shown in the figure. (If using half-concealed installation, attach to the top.)



[After completing "3. INSTALLATION WORK"]

- (3) Connect the duct to the round duct flange.
 (4) Seal with a band and vinyl tape, etc. so that air does not leak from the connection.



9. TEST RUN

Check items

- (1) Is operation of each button on the remote control unit normal?
- (2) Do airflow direction louvers operate normally?
- (3) Is the drain normal?
- (4) Do not have an abnormal noise and vibration during operation?

Do not operate the air conditioner in test run for a long time.

[Operation method]

Depending on your installation, choose from the following:

By the wireless remote controller (with [TEST RUN] button)

- To start test run, press the [START/STOP] button and the [TEST RUN] button on the remote controller.
- To end test run, press the remote controller [START/STOP] button.

By the indoor unit or IR receiver unit

- To start test run, press the [MANUAL AUTO] button of the unit for more than 10 seconds (forced cooling).
- To end test run, press the [MANUAL AUTO] button for more than 3 seconds or press the remote controller [START/STOP] button.

By the wired remote controller

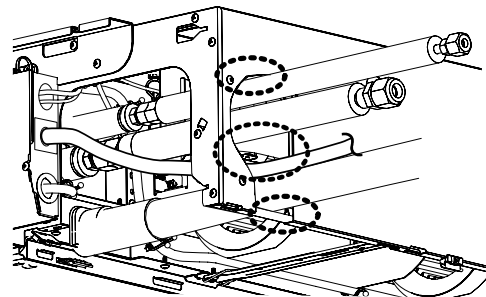
- For the operation method, refer to the installation manual and the operating manual of the wired remote controller.

Heating test run will begin in a few minutes when HEAT is selected by the remote controller [reverse cycle model only].

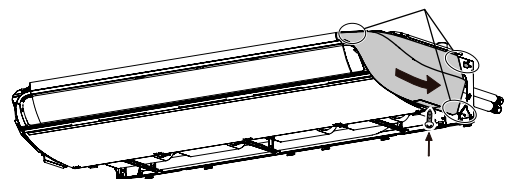
10. FINISHING

When all installation procedures complete, fill the gap around the pipe/drain with the putty, attach the side panels, then fix the grilles and the screws.

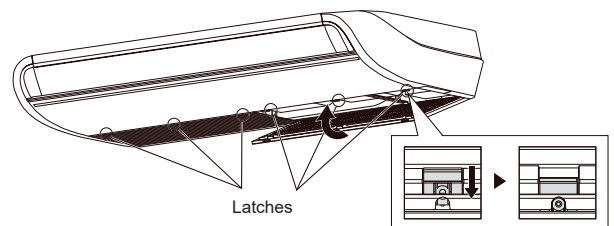
- (1) Putty the pipe/drain gaps



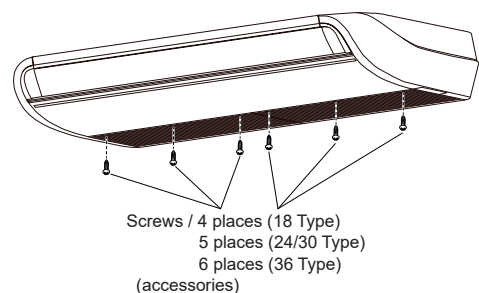
- (2) Align three hooks of the side panel, and fix it to the backward. Then, fix it with the screw.
 Attach both left and right side panels.



- (3) Attach the grille and lock it with the latches.



- (4) Finally, fix the grille with the accessory self-tapping screws.



11. CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

- (1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote controller unit operations.
 - (2) Cleaning and maintenance of the product, and other items such as air filters and air louvers if applicable.
 - (3) Give the operating and installation manuals to the customer.
 - (4) If the signal code is changed, explain to the customer how it changed (the system returns to signal code A when the batteries in the remote controller unit are replaced).
- * (4) is applicable to using wireless remote controller.

12. ERROR CODES

If you use a wired type remote controller, error codes will appear on the remote controller display. For more information, refer to the installation manual of the remote controller. If you use a wireless remote controller, the lamps on the IR receiver unit will output error codes by way of blinking patterns. See the lamp blinking patterns and error codes in the table below. An error display is displayed only during operation.

The error code table contains errors irrelevant to this product as well.

Error display			Wired remote controller Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(1)	●(1)	◇	11	Serial communication error
●(1)	●(2)	◇	12	Wired remote controller communication error
●(1)	●(5)	◇	15	Check run unfinished Automatic airflow adjustment error
●(1)	●(6)	◇	16	Peripheral unit transmission PCB connection error
●(1)	●(8)	◇	18	External communication error
●(2)	●(1)	◇	21	Unit number or Refrigerant circuit address setting error simultaneous multi-split type
●(2)	●(2)	◇	22	Indoor unit capacity error
●(2)	●(3)	◇	23	Combination error
●(2)	●(4)	◇	24	• Connection unit number error (indoor secondary unit) simultaneous multi-split type • Connection unit number error (indoor unit or branch unit) flexible multi-split type
●(2)	●(6)	◇	26	Indoor unit address setting error
●(2)	●(7)	◇	27	Primary unit, secondary unit setup error simultaneous multi-split type
●(2)	●(9)	◇	29	Connection unit number error in wired remote controller system
●(3)	●(1)	◇	31	Power supply interruption error
●(3)	●(2)	◇	32	Indoor unit PCB model information error
●(3)	●(3)	◇	33	Indoor unit motor electricity consumption detection error
●(3)	●(5)	◇	35	Manual auto switch error
●(3)	●(9)	◇	39	Indoor unit power supply error for fan motor
●(3)	●(10)	◇	3A	Indoor unit communication circuit (wired remote controller) error
●(4)	●(1)	◇	41	Room temp. sensor error
●(4)	●(2)	◇	42	Indoor unit heat ex. middle temp. sensor error
●(4)	●(4)	◇	44	Occupancy sensor error
●(5)	●(1)	◇	51	Indoor unit fan motor error
●(5)	●(3)	◇	53	Drain pump error
●(5)	●(7)	◇	57	Damper error
●(5)	●(15)	◇	5U	Indoor unit error

Error display			Wired remote controller Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(6)	●(1)	◇	61	Outdoor unit reverse/missing phase and wiring error
●(6)	●(2)	◇	62	Outdoor unit main PCB model information error or communication error
●(6)	●(3)	◇	63	Inverter error
●(6)	●(4)	◇	64	Active filter error, PFC circuit error
●(6)	●(5)	◇	65	Trip terminal L error IPM temp. error
●(6)	●(8)	◇	68	Outdoor unit rush current limiting resistor temp. rise error
●(6)	●(10)	◇	6A	Display PCB microcomputers communication error
●(7)	●(1)	◇	71	Discharge temp. sensor error
●(7)	●(2)	◇	72	Compressor temp. sensor error
●(7)	●(3)	◇	73	Outdoor unit Heat Ex. liquid temp. sensor error
●(7)	●(4)	◇	74	Outdoor temp. sensor error
●(7)	●(5)	◇	75	Suction Gas temp. sensor error
●(7)	●(6)	◇	76	• 2-way valve temp. sensor error • 3-way valve temp. sensor error
●(7)	●(7)	◇	77	Heat sink temp. sensor error
●(8)	●(2)	◇	82	• Sub-cool Heat Ex. gas inlet temp. sensor error • Sub-cool Heat Ex. gas outlet temp. sensor error
●(8)	●(3)	◇	83	Liquid pipe temp. sensor error
●(8)	●(4)	◇	84	Current sensor error
●(8)	●(6)	◇	86	• Discharge pressure sensor error • Suction pressure sensor error • High pressure switch error
●(9)	●(4)	◇	94	Trip detection
●(9)	●(5)	◇	95	Compressor rotor position detection error (permanent stop)
●(9)	●(7)	◇	97	Outdoor unit fan motor 1 error
●(9)	●(8)	◇	98	Outdoor unit fan motor 2 error
●(9)	●(9)	◇	99	4-way valve error
●(9)	●(10)	◇	9A	Coil (expansion valve) error
●(10)	●(1)	◇	A1	Discharge temp. error
●(10)	●(3)	◇	A3	Compressor temp. error
●(10)	●(4)	◇	A4	High pressure error
●(10)	●(5)	◇	A5	Low pressure error
●(10)	●(11)	◇	AC	Heat sink temp. error
●(13)	●(2)	◇	J2	Branch boxes error flexible multi-split type

Display mode ● : 0.5s ON / 0.5s OFF

◇ : 0.1s ON / 0.1s OFF

() : Number of flashing