

DAIKIN AIR CONDITIONER INSTALLATION MANUAL

The two-dimensional bar code is a manufacturing code.

Safety Precautions (1)

- Read the precautions in this manual carefully before operating the unit.**
- This appliance is filled with R32.**

- The precautions described herein are classified as WARNING and CAUTION. They both contain important information regarding safety. Be sure to observe all precautions without fail.
- Meaning of WARNING and CAUTION notices

- WARNING** Failure to follow these instructions properly may result in personal injury or loss of life.
- CAUTION** Failure to follow these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

- The safety marks shown in this manual have the following meanings:

- Be sure to follow the instructions.
- Be sure to establish an earth connection.
- Never attempt.

- After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual.

WARNING

- Ask your dealer or qualified personnel to carry out installation work.
- Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the air conditioner in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work. Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Install the air conditioner on a foundation strong enough to hold the weight of the unit.
- A foundation of insufficient strength may result in the equipment falling and causing injury.
- Electrical work must be performed in accordance with relevant local and national regulations and with the instructions in this installation manual. Be sure to use a dedicated power supply circuit only. Insufficient power supply and improper workmanship may result in electric shocks or fire.
- Use a cable of suitable length. Do not use tapped wires or an extension lead, as this may cause overheating, electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires. Improper connections or securing of wires may result in abnormal heat build-up or fire.

- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the control box lid can be securely fastened. Improper positioning of the control box lid may result in electric shocks, fire or overheating terminals.

- If refrigerant gas leaks during installation, ventilate the area immediately.

- Toxic gas may be produced if the refrigerant comes into contact with fire.

- After completing installation, check for refrigerant gas leakage. Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

- When installing or relocating the air conditioner, do not let any other substances besides R32, such as air, enter the refrigerant circuit. The presence of air or other foreign matter in the refrigerant circuit causes an abnormal pressure rise, which may result in equipment damage and even injury.

- During installation, attach the refrigerant piping securely before operating the compressor. If the refrigerant pipes are not attached and the stop valve is open when the compressor is operated, air will be sucked in, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.

- During pump down, stop the compressor before removing the refrigerant piping. If the compressor is still operating and the stop valve is open during pump down, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.

- Be sure to earth the air conditioner.
- Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks.

- Be sure to install an earth leakage circuit breaker. Failure to install an earth leakage circuit breaker may result in electric shocks or fire.

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

- The appliance must 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 odour.

- The appliance must be installed, operated and stored in a room with a floor area larger than 3.9m².

- Comply with national gas regulations.

Safety Precautions (2)

CAUTION

- Do not install the air conditioner at any place where there is a danger of flammable gas leakage. In the event of a gas leakage, build-up of gas near the air conditioner may cause a fire to break out.
- While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate the piping to prevent condensation. Improper drain piping may result in indoor water leakage and property damage.
- Tighten the flare nut as specified, such as with a torque wrench. If the flare nut is too tight, it may crack after prolonged use, causing refrigerant leakage.
- Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- This product is not designed for re-packing. In case of re-packing contact to Daikin dealer.**

N004

Accessories

A	Mounting plate	1	B	Mounting plate fixing screws M4 × 25L	9	C	Titanium apatite photocatalytic air-purifying filters	3
D	Wireless remote controller	1	E	Remote controller holder	1	F	Fixing screws for remote controller holder M3 × 20L	2
G	Dry batteries AAA, LR03 (alkaline)	2	H	Indoor unit fixing screws M4 × 12L	3	J	Insulation tape	1
K	Operation manual	1	L	Installation manual	1	M	Screw cover	3

Choosing an Installation Site

- Before choosing the installation site, obtain user approval.

- 1. Indoor unit**
- The indoor unit should be positioned in a place where:
 - the restrictions on the installation requirements specified in the indoor unit installation drawings are met,
 - both the air inlet and air outlet are unobstructed,
 - the unit is not exposed to direct sunlight,
 - the unit is away from sources of heat or steam,
 - there is no source of machine oil vapour (this may shorten the indoor unit service life),

- 2. Wireless remote controller**
- Turn on all the fluorescent lamps in the room, if any, and find a location where the remote controller signals are properly received by the indoor unit (within 7m),

Installation Tips (1)

1. Removing and installing the front panel

- Removal method**
- Hook fingers on the tabs on the left and right of the main body, and open until the panel stops. Slide the front panel sideways to disengage the front panel shaft. Then pull the front panel toward you to remove it.

- Installation method**
- Align the tabs of the front panel with the grooves, and push all the way in. Then close slowly. Push the centre of the lower panel surface firmly to engage the tabs.

2. Removing and installing the front grille

- Removal method**
- Remove the front panel to remove the air filter.
 - Remove 6 screws from the front grille.
 - In front of the $\bigcirc\bigcirc\bigcirc$ mark on the front grille, there are 4 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.

- <When there is insufficient work space because the unit is close to ceiling>**
- Place both hands under the centre of the front grille, and while pushing up, pull it toward you.

- Installation method**
- Install the front grille and firmly engage the upper hooks (4 locations).
 - Install 6 screws of the front grille.
 - Install the air filter and then mount the front panel.

CAUTION

Be sure to wear protection gloves.

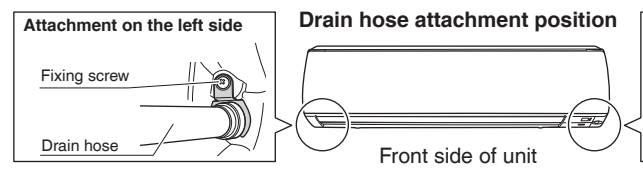
Indoor Unit Installation (2)

3-2. Left-side, left-back, or left-bottom piping

- Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- Be sure to connect the drain hose to the drain port in place of the drain plug.

How to set the drain hose.

- Insert drain hose and tighten fixing screw. Forgetting to attach this may cause water leakages. The drain hose is on the back of the unit.



How to set the drain plug.

- Do not apply lubricating oil (refrigerant oil) to the drain plug when inserting it. The application of lubrication oil to the drain plug will deteriorate the plug to cause drain leakage from the plug.

- Shape the refrigerant pipes along the pipe path marking on the mounting plate.
- Pass the drain hose and refrigerant pipes through the wall hole, then position the indoor unit on the mounting plate hooks, using the Δ markings at the top of the indoor unit as a guide.
- Pull in the inter-unit wire.
- Connect the refrigerant pipes.
- In case of pulling the drain hose through the back of the indoor unit, wrap the refrigerant pipes and drain hose together with $\bigcirc$ insulation tape as shown in the right figure.
- While exercising care so that the inter-unit wiring does not catch the indoor unit, press the bottom edge of the indoor unit with both hands until it is firmly caught by the mounting plate hooks. Secure the indoor unit to the mounting plate with the $\bigcirc$ indoor unit fixing screws (M4 × 12L).

3-3. Wall embedded piping

- Follow the instructions given under left-side, left-back, or left-bottom piping.
- Insert the drain hose to this depth so it won't be pulled out of the drain pipe.

4. Wiring

- Strip wire ends (20mm).
- Match wire colours with terminal numbers on the indoor and outdoor unit's terminal blocks and firmly secure the wires in the corresponding terminals with the screws.
- Connect the earth wires to the corresponding terminals.
- Pull the wires lightly to make sure they are securely connected, then secure them with the wire retainer.
- In case of connecting to an adapter system, run the remote controller cable and attach the S21.
- Shape the wires so that the service lid fits securely, then close the service lid.

WARNING

- Do not use tapped wires, extension cords, or starburst connections, as they may cause overheating, electrical shock, or fire.
- Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc., from the terminal block.) Doing so may cause electric shock or fire.
- Do not connect the power wire to the indoor unit. Doing so may cause electric shock or fire.

Indoor Unit Installation (3)

5. When connecting to an HA system

- Remove the front grille. (6 screws, 3 front grille fixtures)
- Remove the electrical wiring box. (1 screw)
- Remove the metal plate electrical wiring box cover. (4 tabs)(See Fig.1)
- Attach the connection cord to the S21 connector and pull the harness out through the notched part in the figure. (See Fig.2)
- Replace the electrical wiring box cover as it was, and pull the harness around, as shown in the figure. (See Fig.3)

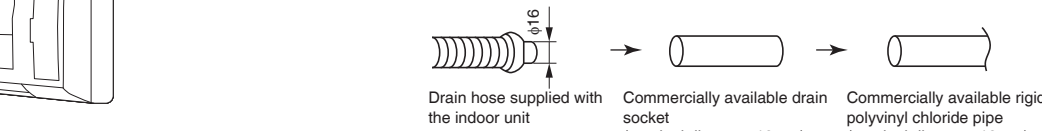
Fig.1

Fig.2

Fig.3

6. Drain piping

- Connect the drain hose, as described below.
 - The drain hose should be inclined downward.
 - No trap is permitted.
 - Do not put the end of the hose in water.
- Remove the air filters and pour some water into the drain pan to check the water flows smoothly.
- When drain hose requires extension, obtain an extension hose with an inner diameter of 16mm. Be sure to thermally insulate the indoor section of the extension hose.
- When connecting a rigid polyvinyl chloride pipe (nominal diameter 13mm) directly to the drain hose attached to the indoor unit as with embedded piping work, use any commercially available drain socket (nominal diameter 13mm) as a joint.



Refrigerant Piping Work (1)

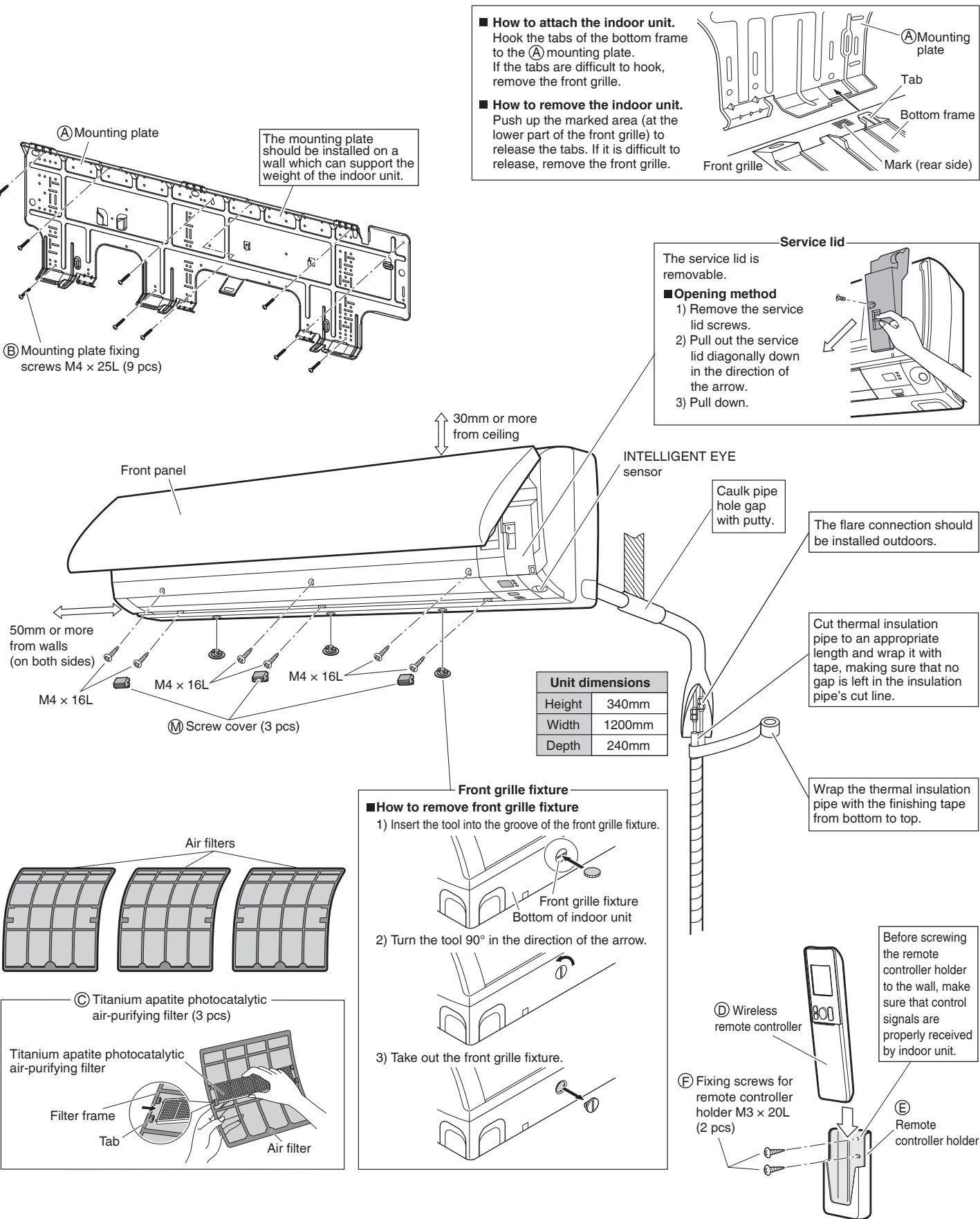
1. Flaring the pipe end

- Cut the pipe end with a pipe cutter.
- Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
- Put the flare nut on the pipe.
- Flare the pipe.
- Check that the flaring is properly made.

WARNING

- 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.
- Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- Never install a drier to this R32 unit in order to guarantee it's lifetime.
- The drying material may dissolve and damage the system.
- Incomplete flaring may cause refrigerant gas leakage.

Indoor Unit Installation Drawings



INTELLIGENT EYE sensor

CAUTION

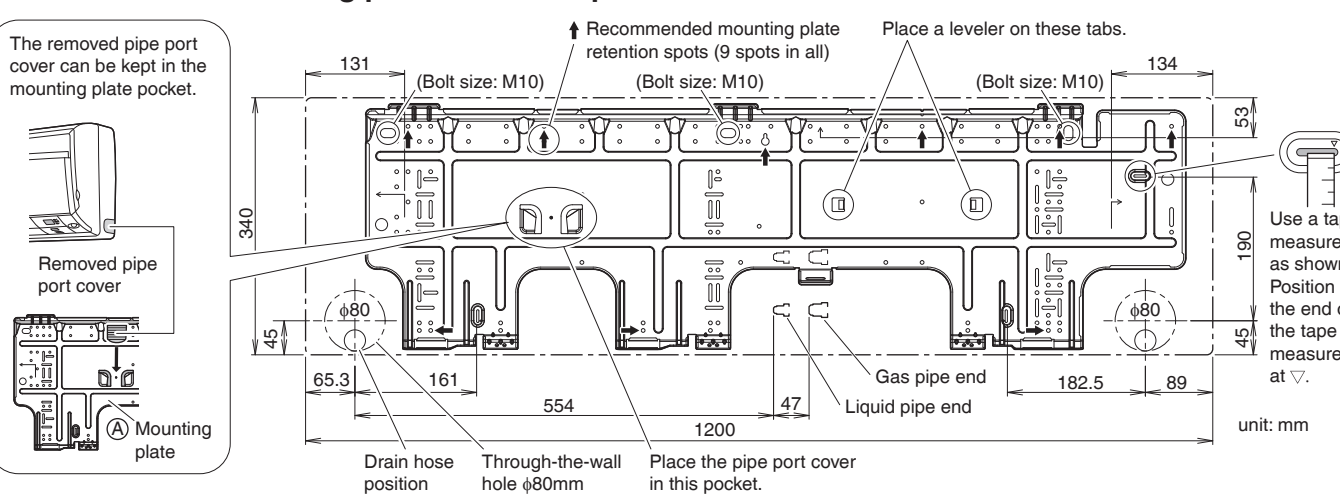
- Do not hit or forcefully push the intelligent-eye sensor. This can lead to damage and malfunction.
- Do not place large objects near the sensor. Also keep heating units or humidifiers outside the sensor's detection area.

Indoor Unit Installation (1)

1. Installing the mounting plate

- The mounting plate should be installed on a wall which can support the weight of the indoor unit.
 - Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the boring points on the wall.
 - Secure the mounting plate to the wall with screws.

Recommended mounting plate retention spots and dimensions



2. Drilling a wall hole and installing wall embedded pipe

- For metal frame or metal board walls, be sure to use a wall embedded pipe and wall hole cover in the feed-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.
- Drill a feed-through hole with a 80mm diameter through the wall at a downward angle toward the outside.
- Insert a wall embedded pipe into the hole.
- After completing refrigerant piping, wiring, and drain piping, caulk the pipe hole gap with putty.

3. Installing the indoor unit

3-1. Right-side, right-back, or right-bottom piping

- Attach the drain hose to the underside of the refrigerant pipes with an adhesive vinyl tape.
- Wrap the refrigerant pipes and drain hose together with $\bigcirc$ insulation tape.
- Pass the drain hose and refrigerant pipes through the wall hole, then set the indoor unit on the mounting plate hooks by using the Δ markings at the top of the indoor unit as a guide.
- Open the front panel, then open the service lid. (Refer to Installation Tips.)
- Pass the inter-unit wire from the outdoor unit through the feed-through wall hole and then through the back of the indoor unit. Pull them through the front side. Bend the ends of cable tie wires upward for easier work in advance. (If the inter-unit wire ends are to be stripped first, bundle the wire lead ends with adhesive tape.)
- Press the bottom frame of the indoor unit with both hands to set it on the mounting plate hooks. Make sure that the wire leads do not catch on the edge of the indoor unit.

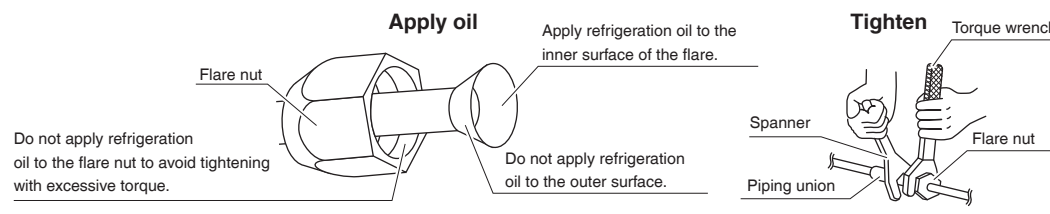
Refrigerant Piping Work (2)

2. Refrigerant piping

CAUTION

- Use the flare nut fixed to the main unit. (This is to prevent cracking of the flare nut as a result of deterioration over time.)
- To prevent gas leakage, apply refrigeration oil only to the inner surface of the flare. (Use refrigeration oil for R32.)
- Use a torque wrench when tightening the flare nuts to prevent damage to the flare nuts and gas leakage.

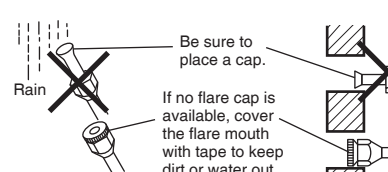
- Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.
- Refrigerant oil for R410A can also be used for application to the inner flare.



Flare nut tightening torque			
Gas side		Liquid side	
15.9mm		6.4mm	
61.8-75.4N • m (630-770kgf • cm)		14.2-17.2N • m (144-175kgf • cm)	

2-1. Caution on piping handling

- Protect the open end of the pipe against dust and moisture.
- All pipe bends should be as gentle as possible. Use a pipe bender for bending.

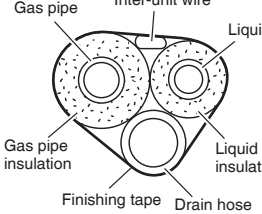


2-2. Selection of copper and heat insulation materials

- When using commercial copper pipes and fittings, observe the following:
 - Insulation material: Polyethylene foam
 - Heat transfer rate: 0.041 to 0.052W/mK (0.035 to 0.045kcal/mh°C)
 - Refrigerant gas pipe's surface temperature reaches 110°C max. Choose heat insulation materials that will withstand this temperature.
 - Be sure to insulate both the gas and liquid piping and observe the insulation dimensions as below.

	Piping size	Minimum bend radius	Piping thickness	Thermal insulation size	Thermal insulation thickness
Gas side	O.D. 15.9mm	50mm or more	1.0mm (C1220T-O)	I.D. 16-20mm	10mm Min.
Liquid side	O.D. 6.4mm	30mm or more	0.8mm (C1220T-O)	I.D. 8-10mm	

- Use separate thermal insulation pipes for gas and liquid refrigerant pipes.



Trial Operation and Testing

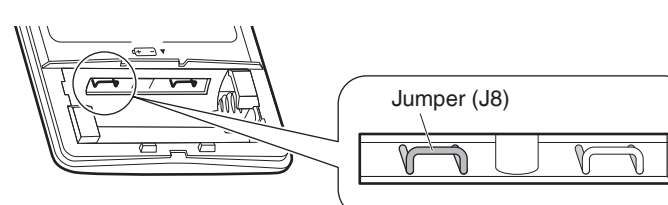
1. Trial operation and testing

- Trial operation should be carried out in either COOL or HEAT operation.
 - 1-1 Measure the supply voltage and make sure that it is within the specified range.
 - 1-2 In COOL operation, select the lowest programmable temperature; in HEAT operation, select the highest programmable temperature.
 - 1-3 Carry out the trial operation in accordance with the operation manual to ensure that all functions and parts, such as louvers movement, are working properly.
 - For protection, the system disables restart operation for 3 minutes after it is turned off.
 - When trial operation is conducted in the HEAT operation directly after the circuit breaker is turned on, in some cases no air will be output for about 10 minutes in order to protect the air conditioner.
 - 1-4 After trial operation is complete, set the temperature to a normal level (26°C to 28°C in COOL operation, 20°C to 24°C in HEAT operation).
- When operating the air conditioner in COOL operation in winter, or HEAT operation in summer, set it to the trial operation mode using the following method.
 - Press $\left[\text{mode} \right]$ and select the trial operation (COOL or HEAT).
 - Press $\left[\text{power} \right]$ to turn on the system.
 - Press both of $\left[\text{mode} \right]$ and $\left[\text{power} \right]$ at the same time.
 - Press $\left[\text{mode} \right]$, select "J", and press $\left[\text{mode} \right]$ for confirmation.
- Trial operation will stop automatically after about 30 minutes.
 - To stop the operation, press $\left[\text{power} \right]$.
- Some of the functions cannot be used in the trial operation mode.
- The air conditioner draws a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
- If the circuit breaker trips to shut off the power to the air conditioner, the system will restore the original operation mode when the circuit breaker is opened again.

2. Test items

Test items	Symptom	Check
Indoor and outdoor units are installed properly on solid bases.	Fall, vibration, noise	
No refrigerant gas leaks.	Incomplete cooling/heating function	
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage	
Draining line is properly installed.	Water leakage	
System is properly earthed.	Electrical leakage	
The specified wires are used for inter-unit wiring connections.	No operation or burn damage	
Indoor or outdoor unit's air inlet or air outlet are unobstructed.	Incomplete cooling/heating function	
Stop valves are opened.	Incomplete cooling/heating function	
Indoor unit properly receives remote controller commands.	No operation	
$\odot$ will appear when the MODE button is pressed.*	No heating	

* Check that the jumper (J8) has not been cut. If it has been cut, contact the service shop.



DAIKIN AIR CONDITIONER INSTALLATION MANUAL

Two-dimensional bar code
is a manufacturing code.

Safety Precautions (1)

- Read the precautions in this manual carefully before operating the unit.**
- This appliance is filled with R32.**

- The precautions described herein are classified as WARNING and CAUTION. They both contain important information regarding safety. Be sure to observe all precautions without fail.
- Meaning of WARNING and CAUTION notices

- WARNING** Failure to follow these instructions properly may result in personal injury or loss of life.
- CAUTION** Failure to follow these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

- The safety marks shown in this manual have the following meanings:

- Be sure to follow the instructions.
- Be sure to establish an earth connection.
- Never attempt.

- After completing installation, conduct a trial operation to check for faults and explain to the customer how to operate the air conditioner and take care of it with the aid of the operation manual.

- WARNING**

- Ask your dealer or qualified personnel to carry out installation work.
- Do not attempt to install the air conditioner yourself. Improper installation may result in water leakage, electric shocks or fire.
- Install the air conditioner in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work. Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Install the air conditioner on a foundation strong enough to hold the weight of the unit.

- A foundation of insufficient strength may result in the equipment falling and causing injury.

- Electrical work must be performed in accordance with relevant local and national regulations and with the instructions in this installation manual.

- Be sure to use a dedicated power supply circuit only. Insufficient power supply and improper workmanship may result in electric shocks or fire.

- Use a cable of suitable length. Do not use tapped wires or an extension lead, as this may cause overheating, electric shocks or fire.

- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.

- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the control box lid can be securely fastened. Improper positioning of the control box lid may result in electric shocks, fire or over heating terminals.

- If refrigerant gas leaks during installation, ventilate the area immediately.

- Toxic gas may be produced if the refrigerant comes into contact with fire.

- After completing installation, check for refrigerant gas leakage. Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

- When installing or relocating the air conditioner, do not let any other substances besides R32, such as air, enter the refrigerant circuit.

- The presence of air or other foreign matter in the refrigerant circuit causes an abnormal pressure rise, which may result in equipment damage and even injury.

- During installation, attach the refrigerant piping securely before operating the compressor. If the refrigerant pipes are not attached and the stop valve is open when the compressor is operated, air will be sucked in, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.

- During pump down, stop the compressor before removing the refrigerant piping. If the compressor is still operating and the stop valve is open during pump down, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.

- Be sure to earth the air conditioner.

- Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks.

- Be sure to install an earth leakage circuit breaker. Failure to install an earth leakage circuit breaker may result in electric shocks or fire.

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

- The appliance must 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 odour.

- The appliance must be installed, operated and stored in a room with a floor area larger than 3.9m².

- Comply with national gas regulations.

Safety Precautions (2)

- CAUTION**
- Do not install the air conditioner at any place where there is a danger of flammable gas leakage. In the event of a gas leakage, build-up of gas near the air conditioner may cause a fire to break out.
 - While following the instructions in this installation manual, install drain piping to ensure proper drainage and insulate the piping to prevent condensation. Improper drain piping may result in indoor water leakage and property damage.
 - Tighten the flare nut as specified, such as with a torque wrench. If the flare nut is too tight, it may crack after prolonged use, causing refrigerant leakage.
 - The temperature of refrigerant circuit will be high, please keep the inter-unit wires away from copper pipes that are not thermally insulated.
 - Only qualified personnel can handle, fill, purge and dispose of the refrigerant.
- This product is not designed for re-packing. In case of re-packing contact to Daikin dealer.

Accessories

Accessories supplied with the outdoor unit:			
Ⓐ Installation manual	1	Ⓑ Drain socket (Only heat pump models)	1
There is on the bottom packing case.			

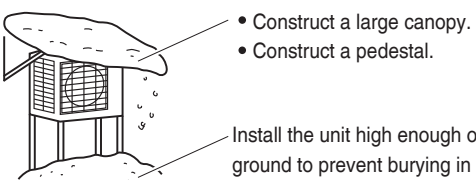
Precautions for Selecting the Location

- Choose a place solid enough to bear the weight and vibration of the unit, where the operating sound will not be amplified.
- Choose a location where the hot air discharged from the unit or the operating sound will not cause a nuisance to the neighbours of the user.
- Avoid places near a bedroom and the like, so that the operating sound will cause no trouble.
- There must be sufficient spaces for carrying the unit into and out of the site.
- There must be sufficient space for air passage and no obstructions around the air inlet and the air outlet.
- The site must be free from the possibility of flammable gas leakage in a nearby place.
- Install units, power cords and inter-unit wire at least 3m away from television and radio sets. This is to prevent interference to images and sounds. (Noise may be experienced even if they are more than 3m away depending on radio wave conditions.)
- In coastal areas or other places with a salty atmosphere or one containing sulphate gas, corrosion may shorten the life of the air conditioner.
- Since water will flow from the drain of the outdoor unit, do not place under the unit anything which must be kept away from moisture.

NOTE
Cannot be installed suspended from ceiling or stacked.

- CAUTION**

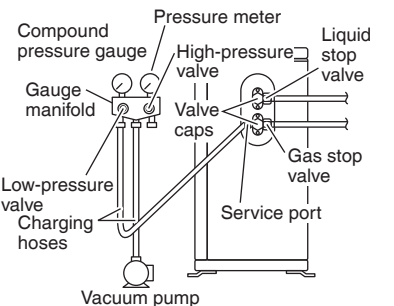
- When operating the air conditioner in a low outdoor ambient temperature, be sure to follow the instructions described below.
- To prevent exposure to wind, install the outdoor unit with its suction side facing the wall.
 - Never install the outdoor unit at a site where the suction side may be exposed directly to wind.
 - To prevent exposure to wind, it is recommended to install a baffle plate on the air discharge side of the outdoor unit.
 - In heavy snowfall areas, select an installation site where the snow will not affect the unit.



Outdoor Unit Installation (2)

5. Evacuating the air with a vacuum pump and checking for gas leakage

- WARNING**
- Do not mix any substance other than the specified refrigerant (R32) into the refrigeration cycle.
 - If refrigerant gas leaks should occur, ventilate the room as soon and as much as possible.
 - R32, as well as other refrigerants, should always be recovered and never be released directly into the environment.
 - Use a vacuum pump for R32 or R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.
 - Use tools for R32 or R410A (such as the gauge manifold, charging hose, or vacuum pump adapter).



- Connect projection side of charging hose (which comes from gauge manifold) to gas stop valve's service port.
- Fully open gauge manifold's low-pressure valve (Lo) and completely close its high-pressure valve (Hi). (High-pressure valve subsequently requires no operation.)
- Perform vacuum pumping and make sure that the compound pressure gauge reads −0.1MPa (−76cmHg).*1
- Close gauge manifold's low-pressure valve (Lo) and stop vacuum pump. (Keep this state for a few minutes to make sure that the compound pressure gauge pointer does not swing back.)*2
- Remove valve caps from liquid stop valve and gas stop valve.

- Turn the liquid stop valve's rod 90° counter-clockwise with a hexagonal wrench to open the valve. Close it after 5 seconds, and check for gas leakage. Using soapy water, check for gas leakage from indoor unit's flare and outdoor unit's flare and valve rods. After the check is complete, wipe all soapy water off.

- Disconnect charging hose from gas stop valve's service port, then fully open liquid and gas stop valves. (Do not attempt to turn valve rod beyond its stop.)

- Tighten valve caps and service port cap for the liquid and gas stop valves with a torque wrench to the specified torques.

*1. Pipe length vs. vacuum pump run time

Pipe length	Up to 15m	More than 15m
Run time	Not less than 10 min.	Not less than 15 min.

*2. If the compound pressure gauge pointer swings back, refrigerant may have water content or a loose pipe joint may exist. Check all pipe joints and retighten nuts as needed, then repeat steps 2) through 4).

Outdoor Unit Installation (3)

6. Refrigerant piping work

6-1 Cautions on pipe handling

- Protect the open end of the pipe against dust and moisture.
- All pipe bends should be as gentle as possible. Use a pipe bender for bending.

6-2 Selection of copper and heat insulation materials

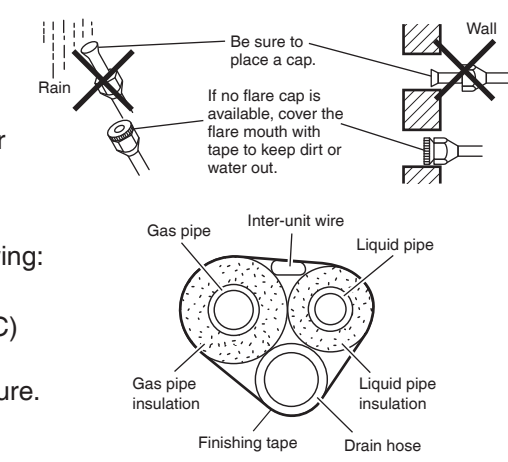
When using commercial copper pipes and fittings, observe the following:

- Insulation material: Polyethylene foam
Heat transfer rate: 0.041 to 0.052W/mK (0.035 to 0.045kcal/mh°C)
Refrigerant gas pipe's surface temperature reaches 110°C max. Choose heat insulation materials that will withstand this temperature.

- Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

	Piping size	Minimum bend radius	Piping thickness	Thermal insulation size	Thermal insulation thickness
Gas side	O.D. 12.7mm	40mm or more	0.8mm (C1220T-O)	I.D. 14-16mm	10mm Min.
	O.D. 15.9mm	50mm or more	1.0mm (C1220T-O)	I.D. 16-20mm	
Liquid side	O.D. 6.4mm	30mm or more	0.8mm (C1220T-O)	I.D. 8-10mm	

- Use separate thermal insulation pipes for gas and liquid refrigerant pipes.

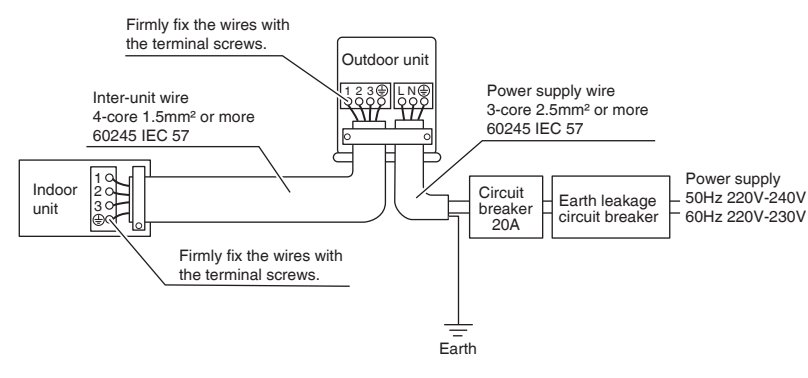


Wiring (1)

- WARNING**

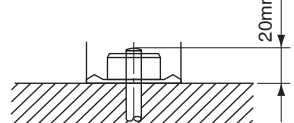
- Do not use tapped wires, extension cords, or starburst connections, as they may cause overheating, electrical shock, or fire.
- Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc., from the terminal block.) Doing so may cause electric shock or fire.
- Be sure to install an earth leak detector. (One that can handle higher harmonics.) (This unit uses an inverter, which means that an earth leak detector capable of handling harmonics must be used in order to prevent any malfunction of the earth leak detector itself.)
- Use an all-pole disconnection type circuit breaker with at least 3mm between the contact point gaps.
- Do not connect the power wire to the indoor unit. Doing so may cause electric shock or fire.

- Do not turn on the circuit breaker until all work is completed.
- Strip the insulation from the wire (20mm).
- Connect the inter-unit wire between the indoor and outdoor units so that the terminal numbers match. Tighten the terminal screws securely. We recommend a flathead screwdriver be used to tighten the screws.



Precautions on Installation

- Check the strength and level of the installation surface so that the unit does not cause any operating vibration or noise after installation.
- In accordance with the foundation drawing, fix the unit securely by means of the foundation bolts. (Prepare 4 sets of M8 or M10 foundation bolts, nuts and washers; all separately available.)
- It is best to screw in the foundation bolts until their ends are 20mm from the foundation surface.



Outdoor Unit Installation Drawings

Max. allowable piping length 30m
Min. allowable piping length 1.5m
Max. allowable piping height 20m

Additional refrigerant required for refrigerant pipe exceeding 10m in length: 20g/m

Gas pipe: O.D. 12.7mm (O.D. 15.9mm)
Liquid pipe: O.D. 6.4mm
Max. allowable refrigerant charge amount: ...

Refrigerant piping must be kept to a minimum.

- Be sure to add the proper amount of additional refrigerant.
- Failure to do so may result in reduced performance.
- The suggested shortest pipe length is 1.5m, in order to avoid noise from the outdoor unit and vibration.
- (Mechanical noise and vibration may occur depending on how the unit is installed and the environment in which it is used.)

Unit dimensions:
Height: 695mm
Width: 930mm
Depth: 350mm

Refrigerant piping must be protected from physical damage. Install a plastic cover or equivalent.

CAUTION: Keep the piping length between 1.5m and 30m.

Allow 300mm of work space below the ceiling surface.

Wrap the insulation pipe with finishing tape from bottom to top.

Connect the flare from the indoor unit side.

Service lid

Stop valve cover

250mm from wall

Allow space for piping and electrical servicing.

Where there is a danger of the unit falling, use foot bolts, or wires.

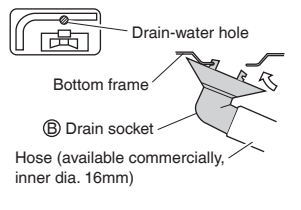
In sites with poor drainage, use block bases for the outdoor unit. Adjust foot height until the unit is level. Otherwise, water leakage or pooling of water may occur.

610mm (Foot bolt-hole centres)
175mm (From unit's side)

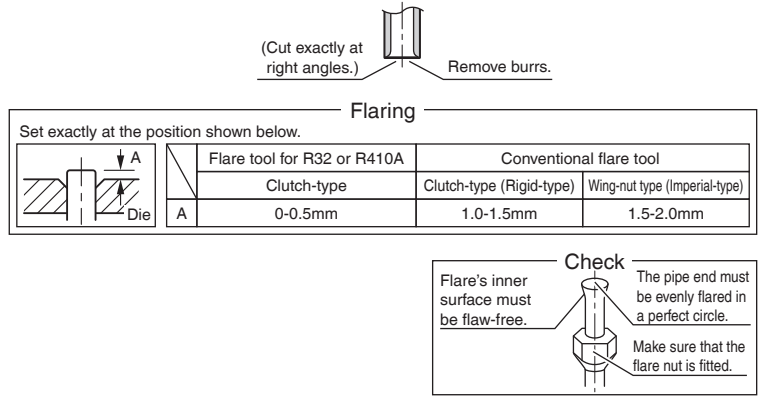
Outdoor Unit Installation (1)

- Installing the outdoor unit**
 - When installing the outdoor unit, refer to "Precautions for Selecting the Location" and the "Outdoor Unit Installation Drawings".
 - If drain work is necessary, follow the procedures below.

- Drain work**
 - Use the Ⓑ drain socket for drainage.
 - When attaching the Ⓑ drain socket to the bottom frame make sure to first connect the drain hose to the drain socket.
 - If the drain port is covered by a mounting base or floor surface, place additional foot bases of at least 30mm in height under the outdoor unit's feet.
 - In cold areas, do not use a drain hose with the outdoor unit. (Otherwise, the drain water may freeze, impairing heating performance.)



- Flaring the pipe end**
 - Cut the pipe end with a pipe cutter.
 - Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
 - Put the flare nut on the pipe.
 - Flare the pipe.
 - Check that the flaring is properly made.



- WARNING**

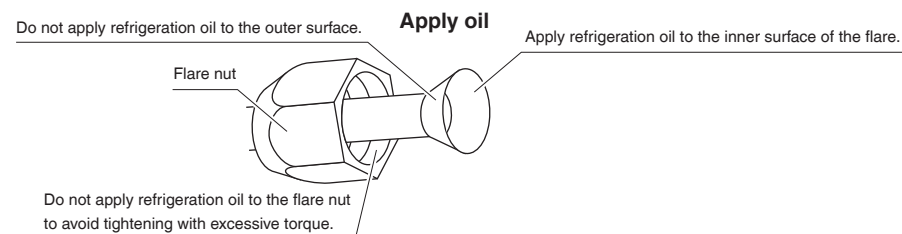
- Do not use mineral oil on flared part.
- Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- Never install a drier to this R32 unit in order to guarantee its lifetime.
- The drying material may dissolve and damage the system.
- Incomplete flaring may cause refrigerant gas leakage.

4. Refrigerant piping

- CAUTION**

- Use the flare nut fixed to the main unit. (This is to prevent cracking of the flare nut as a result of deterioration over time.)
- To prevent gas leakage, apply refrigeration oil only to the inner surface of the flare. (Use refrigeration oil for R32.)
- Use a torque wrench when tightening the flare nuts to prevent damage to the flare nuts and gas leakage.

- Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with a spanner and a torque wrench.
- Refrigerant oil for R410A can also be used for application to the inner flare.

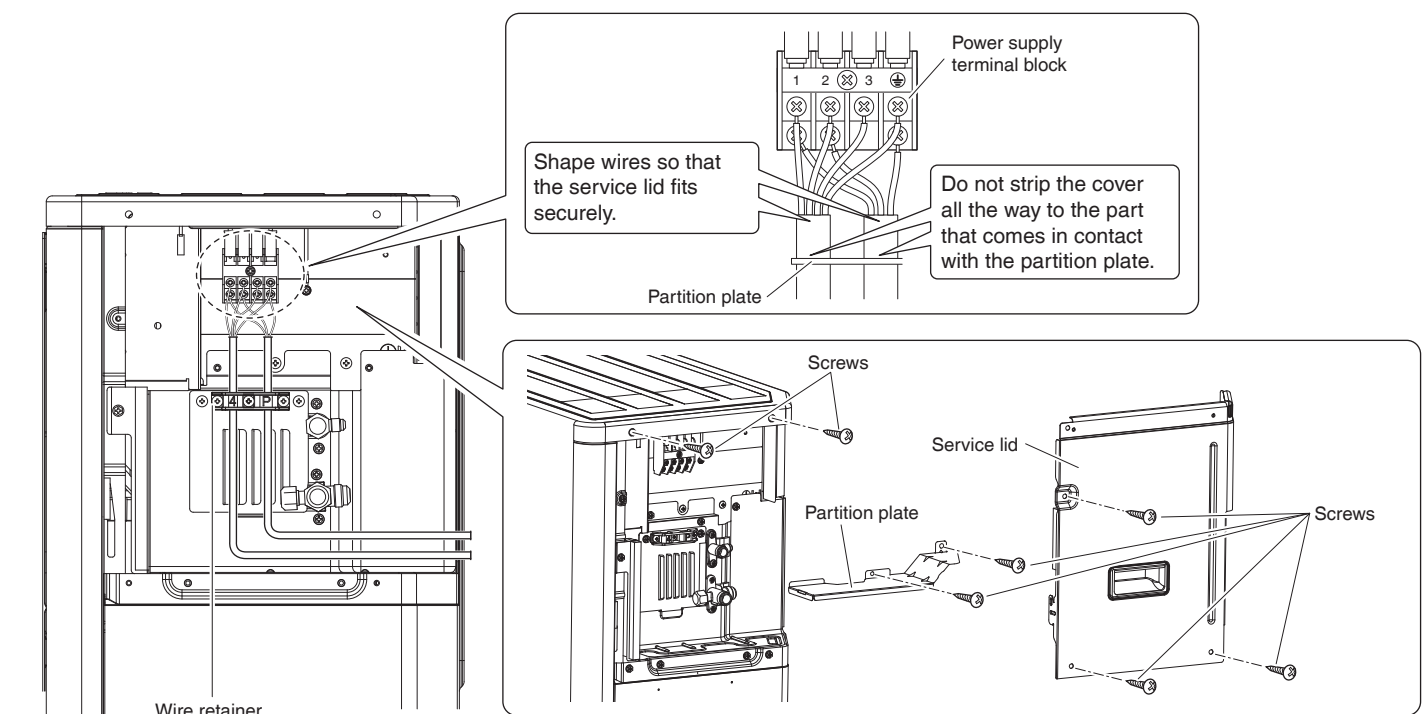


Flare nut tightening torque			
Gas side		Liquid side	
12.7mm	15.9mm	6.4mm	
49.5-60.3N • m (505-615kgf • cm)	61.8-75.4N • m (630-770kgf • cm)	14.2-17.2N • m (144-175kgf • cm)	

Valve cap tightening torque			
Gas side		Liquid side	
12.7mm	15.9mm	6.4mm	
48.1-59.7N • m (490-610kgf • cm)		21.6-27.4N • m (220-280kgf • cm)	

Service port cap tightening torque	
10.8-14.7N • m (110-150kgf • cm)	

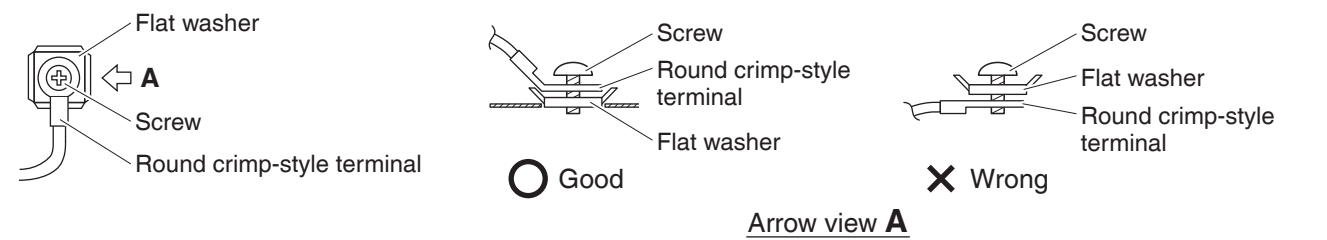
Wiring (2)



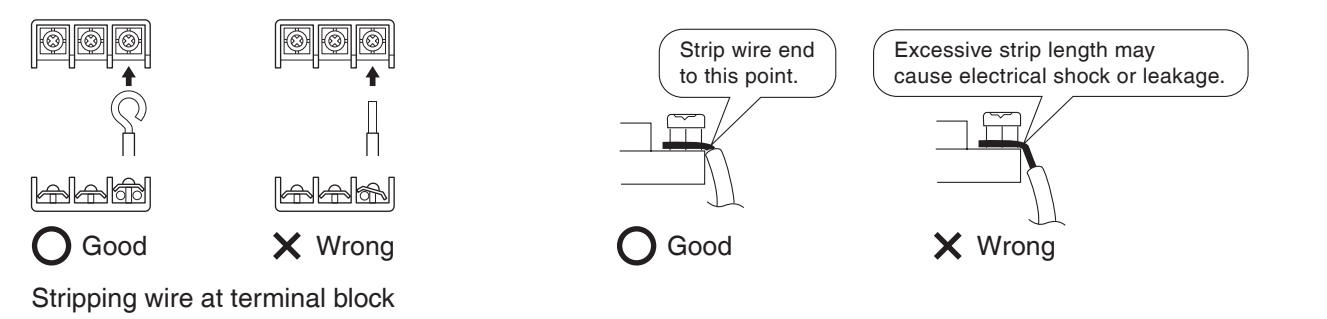
- CAUTION**

- Precautions to be taken for power supply wiring. When using stranded wires, make sure to use a round crimp-style terminal for connection to the power supply terminal block. Place the round crimp-style terminals on the wires up to the covered part and secure in place.

- Use the following method when installing a round crimp-style terminal.



- When connecting the inter-unit wire to the terminal block using a single core wire, be sure to curl the end of the lead. Improper work may cause heat and fires.



- Pull the wire lightly to make sure that it does not disconnect. Then fix the wire in place with a wire stop.

Pump Down Operation

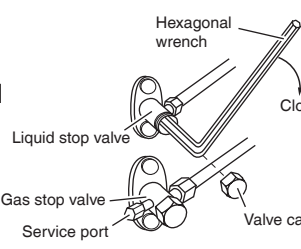
In order to protect the environment, be sure to pump down when relocating or disposing of the unit.

- Remove the valve caps from the liquid stop valve and gas stop valve.
- Carry out forced cooling operation.
- After 3 to 4 minutes, close the liquid stop valve with a hexagonal wrench.
- 5 to 6 minutes after closing the liquid stop valve, close the gas stop valve and stop forced cooling operation.

- Forced cooling operation**
- Using the indoor unit ON/OFF switch**
Press the indoor unit ON/OFF switch for at least 5 seconds. (The operation will start.)
Forced cooling operation will stop automatically after about 15 minutes.
To stop the operation, press the indoor unit ON/OFF switch.
 - Using the indoor unit's remote controller**
 - Press and select the COOL operation.
 - Press to turn on the system.
 - Press both and at the same time.
 - Press , select "F", and press for confirmation.

- Forced cooling operation will stop automatically after about 30 minutes. To stop the operation, press .

CAUTION
When pressing the switch, do not touch the terminal block. It has a high voltage, and touching it could cause electric shock.



Trial Operation and Testing

1. Trial operation and testing

- Trial operation should be carried out in either COOL or HEAT operation. (RKM models are operable in COOL operation only)
- 1-1 Measure the supply voltage and make sure that it is within the specified range.**
- 1-2 In COOL operation, select the lowest programmable temperature; in HEAT operation, select the highest programmable temperature.**
- 1-3 Carry out the trial operation in accordance with the operation manual to ensure that all functions and parts, such as louvers movement, are working properly.**
 - For protection, the system disables restart operation for 3 minutes after it is turned off.
 - When trial operation is conducted in the HEAT operation directly after the circuit breaker is turned on, in some cases no air will be output for about 10 minutes in order to protect the air conditioner.

1-4 After trial operation is complete, set the temperature to a normal level (26°C to 28°C in COOL operation, 20°C to 24°C in HEAT operation).

- When operating the air conditioner in COOL operation in winter, or HEAT operation in summer, set it to the trial operation mode (See the installation manual for the indoor unit).
- The air conditioner draws a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
- If the circuit breaker trips to shut off the power to the air conditioner, the system will restore the original operation mode when the circuit breaker is opened again.

2. Test items

Test items	Symptom	Check
Indoor and outdoor units are installed properly on solid bases.	Fall, vibration, noise	
No refrigerant gas leaks.	Incomplete cooling/heating function	
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage	
Draining line is properly installed.	Water leakage	
System is properly earthed.	Electrical leakage	
The specified wires are used for inter-unit wiring.	No operation or burn damage	
Indoor or outdoor unit's air inlet or air outlet are unobstructed.	Incomplete cooling/heating function	
Stop valves are opened.	Incomplete cooling/heating function	
Indoor unit properly receives remote control commands.	No operation	

