DAIKIN

DAIKIN AIR CONDITIONER

3P579594-1 M19P022

INSTALLATION MANUAL

SAFETY PRECAUTIONS

	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 observe 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 withstand 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 instructions in this installation manual. Be sure to use a dedicated power supply circuit only. Insufficiency of power circuit capacity 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 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, be sure to bleed the refrigerant circuit to ensure it is free of air, and use only the specified refrigerant (R32). The presence of air or other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury.
- During installation, attach the refrigerant piping securely before running the compressor. If the refrigerant pipes are not attached and the stop valve is open when the compressor is run, 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 running 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 pump down when the refrigerant has leaked, otherwise the compressor may be damaged.

⚠ 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 piping to prevent condensation. Improper drain piping may result in indoor water leakage and property damage.
- Tighten the flare nut according to the specified method such as with a torque wrench. If the flare nut is too tight, it may crack after prolonged use, causing refrigerant leakage.
- Take adequate steps to prevent the outdoor unit being used as a shelter by small animals.
  Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- The temperature of refrigerant circuit will be high, please keep the inter-unit wires away from copper pipes that are not thermally insulated.

N002

ACCESSORIES Ⓐ~Ⓕ

Ⓐ Mounting plate	1	Ⓕ Operation/Installation manual	1
Ⓑ Mounting plate fixing screw M4 × 25L	6		
Ⓒ Wireless remote controller	1		
Ⓓ Dry battery (AAA)	2		
Ⓔ Indoor unit fixing screw M4 × 12L	2		

CHOOSING AN INSTALLATION SITE

- Before choosing the installation site, obtain user approval.

Indoor unit

The indoor unit should be sited in a place where:
- the restrictions on installation specified in the indoor unit installation drawings are met,
- both air intake and exhaust have clear paths of air,
- the unit is not in the path of direct sunlight,
- the unit is away from the source of heat or steam,
- there is no source of machine oil vapour (this may shorten indoor unit life),
- cool air is circulated throughout the room,
- the unit is away from electronic ignition type fluorescent lamps (inverter or rapid start type) as they may shorten the remote controller range,
- the unit is at least 1 metre away from any television or radio set (unit may cause interference with the picture or sound),
- install at the recommended height (1.8m).

Outdoor unit

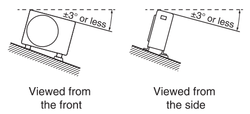
The outdoor unit should be sited in a place where:
- the restrictions on installation specified in the outdoor unit installation drawings are met,
- drain water causes no trouble or problem in particular,
- both air intake and exhaust have clear paths of air (they should be free of snow in snowy districts),
- the unit is in a clear path of air but not directly exposed to rain, strong winds, or direct sunlight,
- there is no fear of inflammable gas leakage,
- the unit is no directly exposed to salt, sulfidized gases, or machine oil vapour (they may shorten outdoor unit life),
- operating sound or hot airflow does not cause trouble to neighbours,
- the unit is at least 3 metres away from any television or radio antenna.

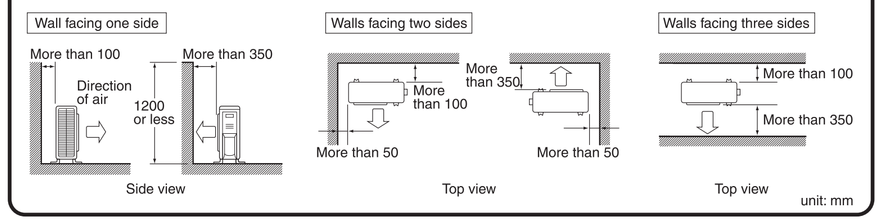
Outdoor Unit Installation Space Requirements

⚠ CAUTION

When carrying the outdoor unit during installation, wear gloves to avoid injury.

- Position the unit on a horizontal surface.
  Any tilt in the unit (front to back, right to left) should be 3° or less to the horizontal.
- Where a wall or other obstacle is in the path of the outdoor unit's intake or exhaust airflow, follow the installation space requirements below.
- For any of the below installation patterns, the wall height on the outlet side should be 1200mm or less.



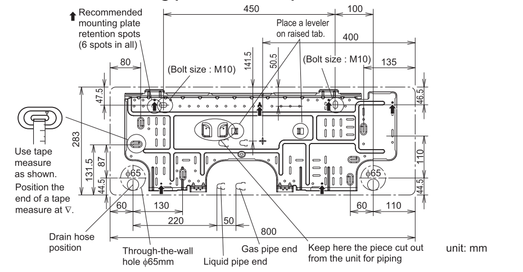


INDOOR UNIT

1 INSTALLING THE MOUNTING PLATE

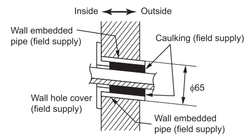
- The mounting plate should be installed on a wall which can support the weight of the indoor unit.
  1) Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the boring points on the wall.
  2) Secure the mounting plate to the wall with screws.

Recommended mounting-plate retention spots and Dimensions



2 BORING A WALL HOLE AND INSTALLING WALL EMBEDDED PIPE

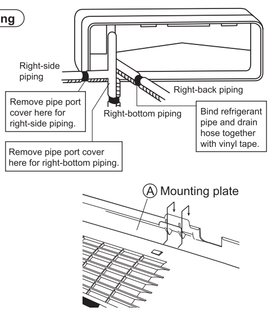
- For walls containing metal frame or metal board, be sure to use a wall embedded pipe and wall hole cover in the feed-through hole to prevent possible heat, electrical shock, or fire.
- Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.
  1) Bore a feed-through hole of 65mm in the wall so it has a down slope toward the outside.
  2) Insert a wall embedded pipe into the hole.
  3) Insert a wall hole cover into wall pipe.
  4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.



3-1 INSTALLING THE INDOOR UNIT

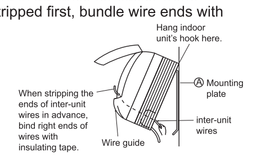
Right-Side, Right-Back, or Right-Bottom Piping

1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
2) Pass the drain hose and refrigerant pipes through the wall hole, then set the indoor unit on the mounting plate hooks.
3) Open the front grille, then open the service lid.
   (Refer to INSTALLATION TIPS.)



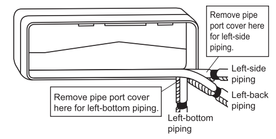
3-2 INSTALLING THE INDOOR UNIT

4) Pass the inter-unit wires 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 tie wires upward in advance for easier work.
   (If the inter-unit wire ends are to be stripped first, bundle wire ends with adhesive tape.)
5) Press the bottom frame of the indoor unit with both hands to set it on the mounting plate hooks. Make sure the wires do not catch on the edge of the indoor unit.

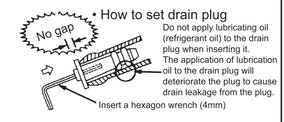


Left-Side, Left-Back, or Left Bottom Piping

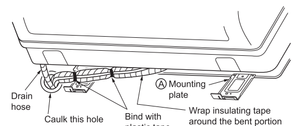
1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.

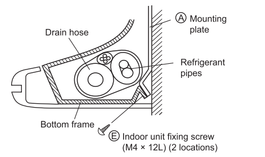


2) Be sure to connect the drain hose to the drain port in place of a drain plug.
3) Shape the refrigerant pipes.



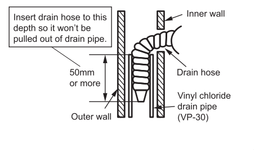
4) Pass drain hose and refrigerant pipes through the wall hole, then set the indoor unit on mounting plate hooks.
5) Pull in the inter-unit wires.
6) Connect the refrigerant pipes.
7) Wrap the refrigerant pipes and drain hose together with insulation tape (field supply) as right figure, in case of setting the drain hose through the back of the indoor unit.
8) While exercising care so that the inter-unit wires do not catch indoor unit, press the bottom edge of indoor unit with both hands until it is firmly caught by the mounting plate hooks. Secure indoor unit to the mounting plate with the screws (M4 × 12L).





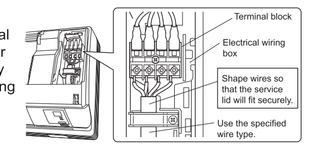
Wall Embedded Piping

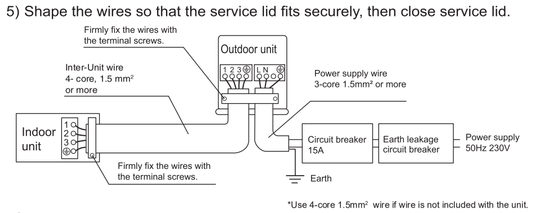
Follow the instructions given under Left-Side, Left-Back, or Left Bottom Piping.
- Insert the drain hose to this depth so it won't be pulled out of the drain pipe.



4 WIRING

1) Strip wire ends (15mm).
2) Match wire colours with terminal numbers on indoor and outdoor unit's terminal blocks and firmly screw wires to the corresponding terminals.
3) Connect the earth wires to the corresponding terminals.
   Attach the earth wire so that it is not connected to the fan motor connector.
4) Pull wires to make sure that they are securely latched up, then retain wires with wire retainer.
5) Shape the wires so that the service lid fits securely, then close service lid.



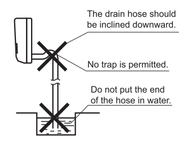


⚠ WARNING

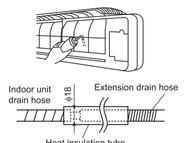
- Use a stabiliser if required by the voltage supply condition.
- Do not use tapped wires, extension cords, or starburst connections, as they may cause overheating, electrical shock, or fire.
- Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc., from the terminal block.) Doing so may cause electric shock or fire.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid hazard"

5 DRAIN PIPING

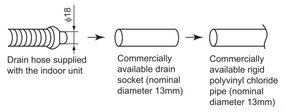
1) Connect the drain hose, as described right.



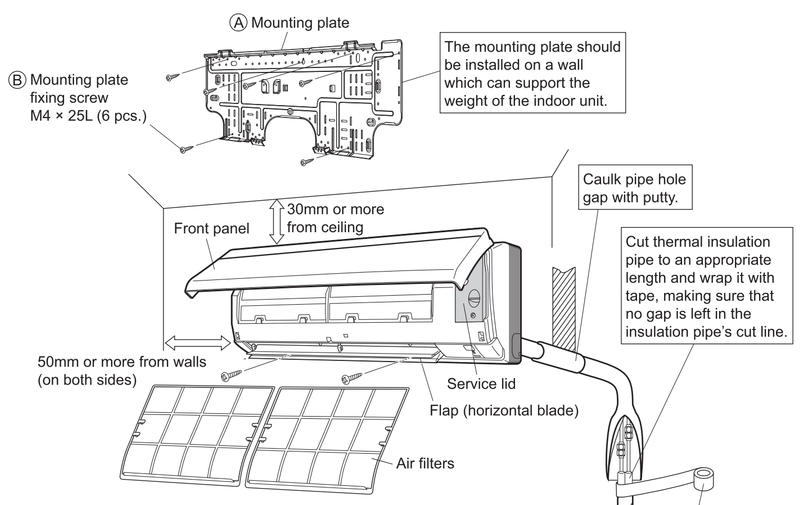
2) Remove the air filters and pour some water into the drain pan to check the water flows smoothly.
3) When drain hose requires extension, obtain an extension hose commercially available.
   Be sure to thermally insulate the indoor section of the extension hose.



4) 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.

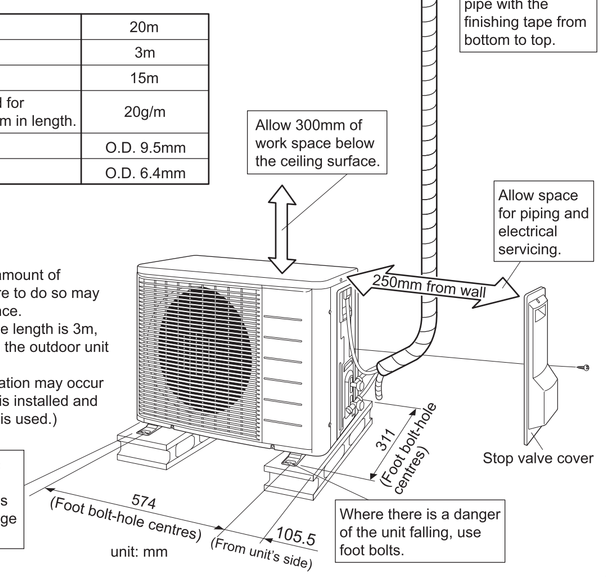


INDOOR/OUTDOOR UNIT INSTALLATION DRAWINGS



Max. allowable piping length	20m
** Min. allowable piping length	3m
Max. allowable piping height	15m
* Additional refrigerant required for refrigerant pipe exceeding 10m in length.	20g/m
Gas pipe	O.D. 9.5mm
Liquid pipe	O.D. 6.4mm

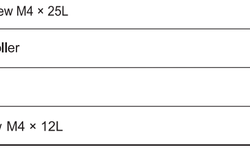
* Be sure to add the proper amount of additional refrigerant. Failure to do so may result in reduced performance.
** The suggested shortest pipe length is 3m, in order to avoid noise from the outdoor unit and vibration.
(Mechanical noise and vibration may occur depending on how the unit is installed and the environment in which it is used.)



INSTALLATION TIPS

■ Installing and Removing the indoor unit.

- **Installation method**
  Hook the claws of the bottom frame to the mounting plate. If the claws are difficult to hook, remove the front grille.
- **Removal method**
  Push up the marked area (at the lower part of the front grille) to release the claws. If it is difficult to release, remove the front grille.

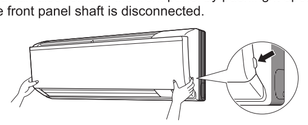


⚠ CAUTION

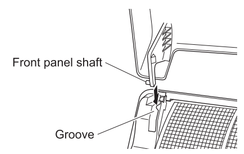
Do not hold the midsection of the bottom of the front grille when carrying the indoor unit.

■ Removing and installing the front panel.

- **Removal method**
  Hold the front panel by the indentations in the main unit and open the panel. Slide the front panel sideways to disengage the front panel shaft.
  Then pull the front panel toward you to remove it.
  You can also remove the front panel by pushing it open until the front panel shaft is disconnected.



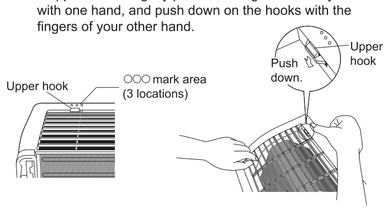
- **Installation method**
  Align the front panel shaft of the front panel with the grooves, and push all the way in. Then close slowly. Push the centre of the lower surface of the panel firmly.



Note:
Remove polythene film from front panel wherever appiled.

■ Removing and installing the front grille.

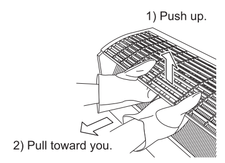
- **Removal method**
  1) Remove the front panel to remove the air filter.
  2) Remove the flap (horizontal blade).
  3) Remove the front grille. (2 screws)
  4) In front of the ○○○ mark of the front grille, there are 3 upper hooks. Lightly pull the front grille toward you with one hand, and push down on the hooks with the fingers of your other hand.



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

⚠ CAUTION

Be sure to wear protection gloves.



Place both hands under the centre of the front grille, and while pushing up, pull it toward you.

- **Installation method**
  1) Install the front grille and firmly engage the upper hooks (3 locations).
  2) Install 2 screws of the front grille.
  3) Install the air filter and then mount the front panel.

■ Opening the service lid.

The service lid is opening/closing type.
- **Opening method**
  1) Remove the service lid screws.
  2) Pull out the service lid diagonally down in the direction of the arrow.
  3) Pull down.

OUTDOOR UNIT

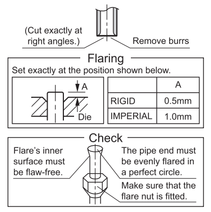
1 INSTALLING THE OUTDOOR UNIT

2 FLARING THE PIPE END

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

⚠ WARNING

- Incomplete flaring may cause refrigerant gas leakage.
- Use the flare nuts supplied with the air conditioner.



3 REFRIGERANT PIPING

1) To prevent gas leakage, apply refrigeration oil to the inner surface of the flare.
2) 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.
   - Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.

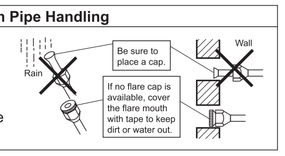
Flare nut tightening torque	
Gas side	Liquid side
O.D. 9.5mm	O.D. 6.4mm
25-31N•m (255-316kgf•cm)	15-19N•m (153-194kgf•cm)

Valve cap tightening torque	
Gas side	Liquid side
O.D. 9.5mm	O.D. 6.4mm
21-25N•m (214-255kgf•cm)	21-25N•m (214-255kgf•cm)

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

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. (Bending radius should be 30 to 40mm or larger.)

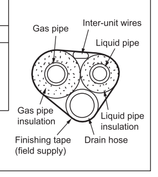


Selection of Copper and Heat Insulation materials

When using commercial copper pipes and fittings, observe the following:
- Insulation material : Polyethylene foam
  Heat transfer rate : 0.041 to 0.052W/m²K (0.035 to 0.045kcal/m²h°C)
- Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

Gas side	Liquid side	Gas pipe thermal insulation	Liquid pipe thermal insulation
O.D.9.5mm	O.D. 6.4mm	I.D. 12-15mm	I.D. 8-10mm
Minimum bend radius		6.5 mm or more thickness till 3 m Cu Pipe Length & over 3 m Cu Pipe Length use 10mm thickness	
30mm or more			
Thickness 0.7 mm or more (C1220T-O)			

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

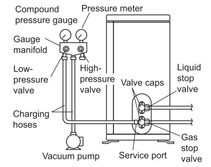


4 PURGING AIR AND CHECKING GAS LEAKAGE

⚠ WARNING

- Do not mix any substance other than the specified refrigerant (R32) into the refrigeration cycle.
- When refrigerant gas leaks occur, ventilate the room as soon and as much as possible.
- To prevent air pollution, a vacuum pump should be used for air purging wherever possible.

- If using additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.
- Use a hexagonal wrench to operate the stop valve rod.
- All refrigerant pipe joints should be tightened with a torque wrench at the specified tightening torque.



1) Connect projection side (on which pin is pressed) of charging hose (which comes from gauge manifold) to gas stop valve's service port.
2) Fully open gauge manifold's low-pressure valve (Lo) and completely close its high-pressure valve (Hi).
   (High-pressure valve subsequently requires no operation.)
3) Do vacuum pumping and make sure that the compound pressure gauge reads –0.1MPa (–76cmHg) *1.
4) 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.
5) Remove covers from liquid stop value and gas stop valve.
6) Turn the liquid stop valve's rod 90 degrees counterclockwise with a hexagonal wrench to open 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.
7) 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.)
8) Tighten valve caps and service port caps for the liquid and gas stop valves with a torque wrench at the specified torques.

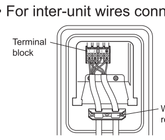
*1. Pipe length vs. vacuum pump run time

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 exists. Check all pipe joints and retighten nuts as needed, then repeat steps 2) through 4).

5 WIRING

- For inter-unit wires connections, see INDOOR UNIT , 4 WIRING .

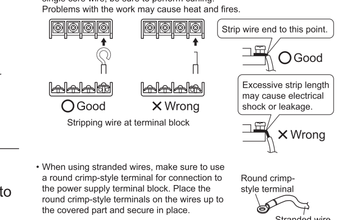


- Regarding the interconnecting and power cables.

⚠ WARNING

Never use short cables for connecting end of conductor to each other.

- When connecting the connection wires to the terminal block using a single core wire, be sure to perform curling.
  Problems with the work may cause heat and fires.



- 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.

6 DRAIN WORK

- 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.

TRIAL OPERATION AND TESTING

Trial Operation and Testing

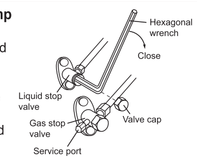
1) Check that the inter-unit wires are correctly connected.
2) Measure the supply voltage and make sure that it falls in the specified range.
3) Trial operation should be carried out in cooling mode.
   Select the lowest programmable temperature.
   - Trial operation in cooling mode may be disabled depending on the room temperature.
   - After trial operation is complete, set the temperature to a normal level (26°C to 28°C).
   - For protection, the unit disables restart operation for 3 minutes after it is turned off.
4) Carry out the test operation in accordance with the operation manual to ensure that all functions and parts, such as louver movement, are working properly.
   - The air conditioner requires 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.

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 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 wire connections.	Inoperative or burn damage	
Indoor or outdoor unit's air intake or exhaust has clear path of air.	Incomplete cooling function	
Stop valves are opened.	Incomplete cooling function	
Indoor unit properly receives remote controller commands.	Inoperative	

PUMP DOWN OPERATION

In order to protect the environment, be sure to pump down when relocating or disposing of the unit.
1) Remove the valve caps from liquid stop valve and gas stop valve.
2) Carry out forced cooling operation.
3) After about 5 minutes, close the liquid stop valve with a hexagonal wrench.
4) After 2 to 3 minutes, 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 10 minutes.
  To stop the operation, press the indoor unit ON/OFF switch.

⚠ WARNING

Do not pump down when the refrigerant has leaked, otherwise the compressor may be damaged.

DAIKIN

DAIKIN AIR CONDITIONER 3P579594-2 M19P024

INSTALLATION MANUAL

R32 Split Series

SAFETY PRECAUTIONS

	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 user 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 shock or fire.
- Install the air conditioner in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shock 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 shock 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 shock or fire.
- Use a cable of suitable length. Do not use tapped wires or an extension lead, as this may cause overheating, electric shock 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 electrical wiring box cover can be securely fastened. Improper positioning of the electrical wiring box cover may result in electric shock, 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 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 shock.
- Be sure to install an earth leakage circuit breaker. Failure to install an earth leakage circuit breaker may result in electric shock or fire.
- Do not pump down when the refrigerant has leaked, otherwise the compressor may be damaged. ❗

⚠ 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.
- Take adequate steps to prevent the outdoor unit being used as a shelter by small animals.
  If small animals or birds come into contact with electrical parts, this can cause malfunctions, smoke or fire. Please instruct the customer to always keep the area around the unit clean.
- The refrigerant circuit temperature will be high, therefore the inter-unit wire must be kept away from copper pipes that are not thermally insulated.

RN602

ACCESSORIES Ⓐ~Ⓕ

Ⓐ Mounting plate	1	Ⓕ Operation/Installation manual	1
Ⓑ Mounting plate fixing screw M4 × 25L	7		
Ⓒ Wireless remote controller	1		
Ⓓ Dry battery (AAA)	2		
Ⓔ Indoor unit fixing screw M4 × 12L	2		

Precautions for Selecting a Location

- Before choosing the installation site, obtain user approval.

Indoor unit

The indoor unit should be positioned in a place where:
1) the restrictions on the installation requirements specified in **"Indoor/Outdoor Installation Diagram"** are met,
2) both the air inlet and air outlet are unobstructed,
3) the unit is not exposed to direct sunlight,
4) the unit is away from sources of heat or steam,
5) there is no source of machine oil vapour (this may shorten the indoor unit service life),
6) cool air is circulated throughout the room,
7) the unit is away from electronic ignition type fluorescent lamps (inverter or rapid start type) as they may affect the remote controller range,
8) the unit is at least 1m away from any television or radio set (the unit may cause interference with the picture or sound),
9) the unit can be installed at the recommended height (1.8m),
10) no laundry equipment is nearby.

Outdoor unit

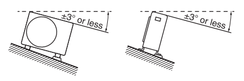
The outdoor unit should be positioned in a place where:
1) the restrictions on installation specified in **"Outdoor Unit Installation Diagram"** are met,
2) drain water causes no trouble or problem in particular,
3) both air inlet and outlet have clear paths of air (they should be free of snow in snowy districts),
4) the unit is in a clear path of air but not directly exposed to rain, strong winds, or direct sunlight,
5) there is no fear of inflammable gas leakage,
6) the unit is not directly exposed to salt, sulfidized gases, or machine oil vapour (these may shorten the service life of the outdoor unit),
7) operating sound or hot airflow does not cause trouble to neighbours,
8) the unit is at least 3m away from any television or radio antenna.

Outdoor Unit Installation Space Requirements

⚠ CAUTION

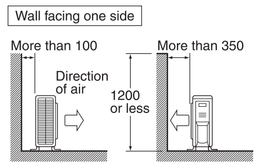
When carrying the outdoor unit during installation, wear gloves to avoid injury.

- Position the unit on a horizontal surface.
  Any tilt in the unit (front to back, right to left) should be 3° or less to the horizontal.
- Where a wall or other obstacle is in the path of the outdoor unit's intake or exhaust airflow, follow the installation space requirements below.
- For any of the below installation patterns, the wall height on the outlet side should be 1200mm or less.



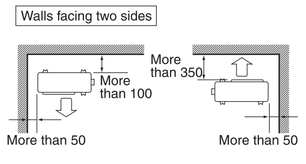
Viewed from the front — Viewed from the side

Wall facing one side



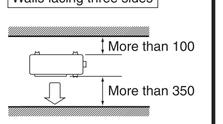
Side view

Walls facing two sides



Top view

Walls facing three sides



Top view

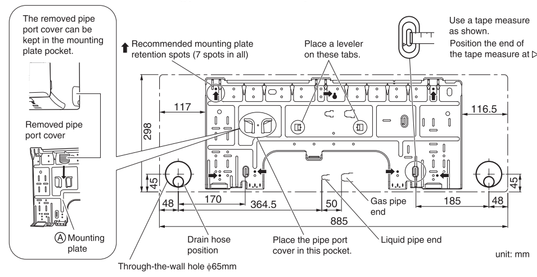
unit: mm

Indoor Unit

1. Installing the mounting plate

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

Recommended mountingplate retention spots and dimensions

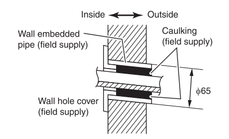


2. Drilling a wall hole and installing wall embedded pipe

⚠ WARNING

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.

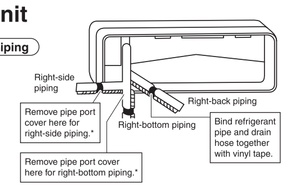
- Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.
  1) Drill a feed-through hole with a 65mm diameter through the wall at a downward angle toward the outside.
  2) Insert a wall embedded pipe into the hole.
  3) Insert a wall hole cover into wall pipe.
  4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.

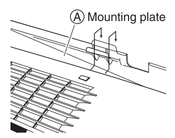


3. Installing the indoor unit

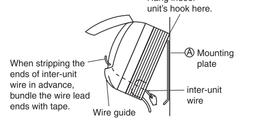
Right-Side, Right-Back, or Right-Bottom Piping

1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
   * Caulk the gap between the pipe and the front grille with putty.
2) Pass the drain hose and refrigerant pipes through the wall hole, then set the indoor unit on the Ⓐ mounting plate hooks.
3) Open the front grille, then open the service lid. (Refer to Installation Tips.)



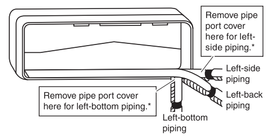


4) Pass the inter-unit wire from the outdoor unit through the feed-through wall hole and then through the back of the indoor unit. Pull them through the front side. Bend the ends of cable tie wires upward for easier work in advance. (If the inter-unit wire ends are to be stripped first, bundle the wire lead ends with adhesive tape.)
5) Press the bottom frame of the indoor unit with both hands to set it on the Ⓐ mounting plate hooks. Make sure the wire leads do not catch on the edge of the indoor unit.



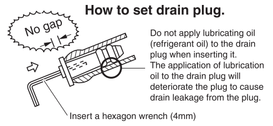
Left-Side, Left-Back, or Left Bottom Piping

1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
   * Caulk the gap between the pipe and the front grille with putty.



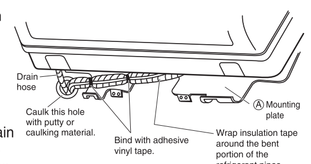
2) Be sure to connect the drain hose to the drain port in place of a drain plug.
3) Shape the refrigerant pipes.

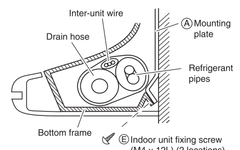
How to set drain plug.



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.

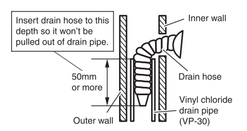
4) Pass drain hose and refrigerant pipes through the wall hole, then position the indoor unit on the Ⓐ mounting plate hooks.
5) Pull in the inter-unit wire.
6) Connect the refrigerant pipes.
7) Wrap the refrigerant pipes and drain hose together with insulation tape (field supply) as shown in the figure, in case of setting the drain hose through the back of the indoor unit.
8) While exercising care so that the inter-unit wire does not catch 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 Ⓔ indoor unit fixing screws (M4 × 12L).





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.

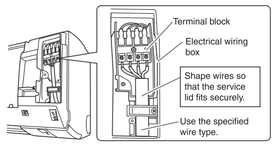


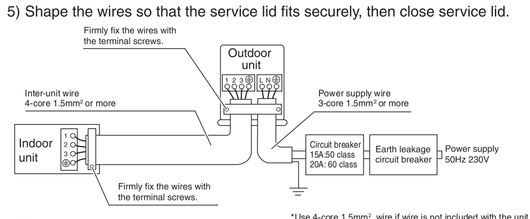
4. Wiring

⚠ 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.
- If the supply cord is damaged , it must be replaced by the manufacturer ,its service agent or similarly qualified persons in order to avoid hazard"

1) Strip wire ends (15mm).
2) 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.
3) Connect the earth wire to the corresponding terminals. Attach the earth wire so that it is not connected to the fan motor connector.
4) Pull the wires lightly to make sure they are securely connected, then secure them with the wire retainer.
5) Shape the wires so that the service lid fits securely, then close service lid.

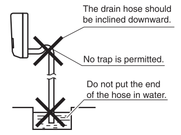




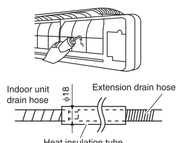
*Use 4-core 1.5mm² wire if wire is not included with the unit.

5. Drain piping

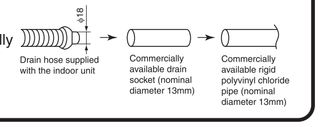
1) Connect the drain hose, as described right.



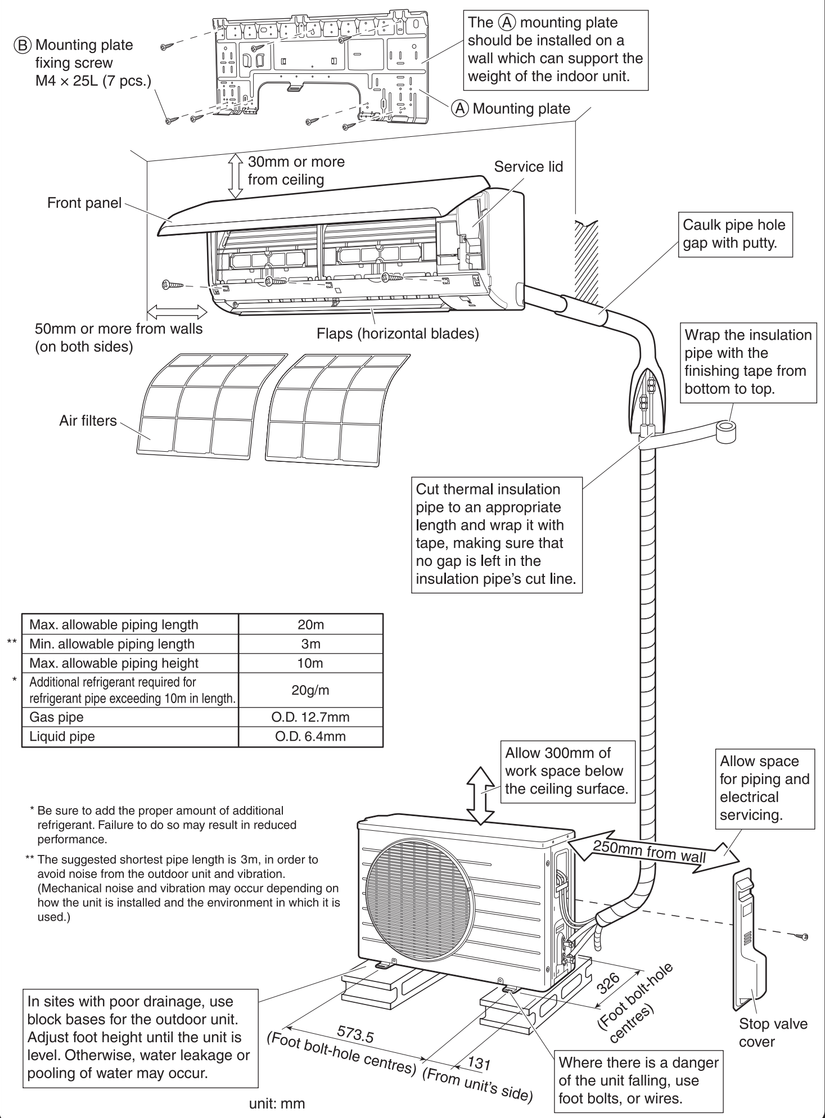
2) Remove the air filters and pour some water into the drain pan to check the water flows smoothly.
3) When drain hose requires extension, obtain an extension hose commercially available. Be sure to thermally insulate the indoor section of the extension hose.



4) 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.



Indoor/Outdoor Unit Installation Diagram



Max. allowable piping length	20m
** Min. allowable piping length	3m
Max. allowable piping height	10m
* Additional refrigerant required for refrigerant pipe exceeding 10m in length.	20g/m
Gas pipe	O.D. 12.7mm
Liquid pipe	O.D. 6.4mm

* 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 3m, 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.)

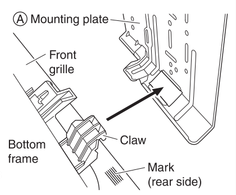
Installation Tips

■ Installing and Removing the indoor unit.

⚠ CAUTION

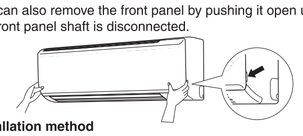
Do not hold the midsection of the bottom of the front grille when carrying the indoor unit.

- **Installation method**
  Hook the claws of the bottom frame to the Ⓐ mounting plate. If the claws are difficult to hook, remove the front grille.
- **Removal method**
  Push up the marked area (at the lower part of the front grille) to release the claws. If it is difficult to release, remove the front grille.

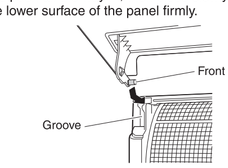


■ Removing and installing the front panel.

- **Removal method**
  Hold the front panel by the indentations in the main unit and open the panel. Slide the front panel sideways to disengage the front panel shaft.
  Then pull the front panel toward you to remove it.
  You can also remove the front panel by pushing it open until the front panel shaft is disconnected.

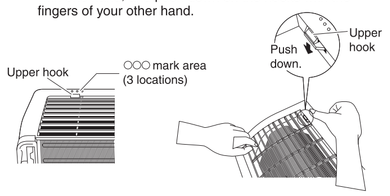


- **Installation method**
  Align the front panel shaft of the front panel with the grooves, and push all the way in, then close slowly. Push the centre of the lower surface of the panel firmly.



■ Removing and installing the front grille.

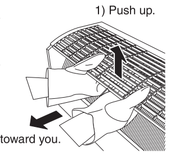
- **Removal method**
  1) Remove the front panel and air filters.
  2) Remove the flap (horizontal blade).
  3) Remove the 3 screws from the front grille.
  4) In front of the ○○○ mark of the front grille, there are 3 upper hooks. Lightly pull the front grille toward you with one hand, and push down on the hooks with the fingers of your other hand.



When there is insufficient work space because the unit is close to ceiling

⚠ CAUTION

Be sure to wear protection gloves.



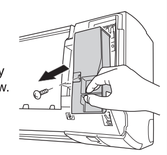
Place both hands under the centre of the front grille, and while pushing up, pull it toward you.

- **Installation method**
  1) Install the front grille and firmly engage the upper hooks (3 locations).
  2) Install 3 screws of the front grille.
  3) Install the air filters and then mount the front panel.

■ Opening the service lid.

The service lid is removable.

- **Opening method**
  1) Remove the service lid screw.
  2) Pull out the service lid diagonally down in the direction of the arrow.
  3) Pull down.



Note:
Remove polythene film from front panel wherever applied.

Outdoor Unit

1. Installing the outdoor unit

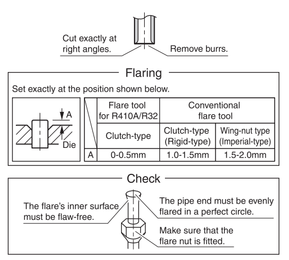
- When installing the outdoor unit, refer to **"Precautions for Selecting a Location"** and the **"Outdoor Unit Installation Diagram"**.

2. Flaring the pipe end

⚠ WARNING

Incomplete flaring may result refrigerant gas leakage.

1) Cut the pipe end with a pipe cutter.
2) Remove burrs with the cut surface facing downward, so that the fillings do not enter the pipe.
3) Put the flare nut on the pipe.
4) Flare the pipe.
5) Check that the flaring has been done correctly.



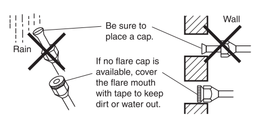
3. Refrigerant piping

1) To prevent gas leakage, apply refrigeration oil to the inner surface of the flare.
2) 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.
   - Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.

	Piping size	Flare nut tightening torque	Valve cap tightening torque	Service port cap tightening torque
Gas side	O. D.12.7mm	35-43N•m (357-439kgf•cm)	25-31N•m (255-316kgf•cm)	10.8-14.7N•m (110-150kgf•cm)
Liquid side	O. D.6.4mm	15-19N•m (153-194kgf•cm)	21-25N•m (214-255kgf•cm)	

Cautions on Pipe Handling

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

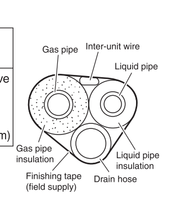


Selection of Copper and Heat Insulation materials

When using commercial copper pipes and fittings, observe the following:
1) Insulation material : Polyethylene foam
   Heat transfer rate : 0.041 to 0.052W/m²K (0.035 to 0.045kcal/m²h°C)
2) 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	Thickness 0.7mm (C1220T-O)	I.D. 14-16mm	6.5mm or above (pipe length 3.5m or less)
Liquid side	O.D. 6.4mm	30mm or more		I.D. 8-10mm	10mm (pipe length over 3.5m)

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

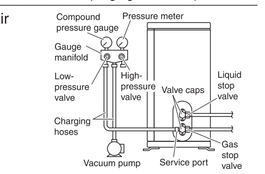


4. Purging air and checking gas leakage

⚠ WARNING

- Make sure that air or any matter other than refrigerant (R32) does not get into the refrigeration cycle.
- If refrigerant gas leaks occur, ventilate the room as soon and as much as possible.
- To prevent air pollution, a vacuum pump should be used for air purging wherever possible.

- If using additional refrigerant, purge the air from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.
- Use a hexagonal wrench to operate the stop valve rod.
- All refrigerant pipe joints should be tightened with a torque wrench to the specified tightening torque.



1) Connect projection side (on which pin is pressed) of charging hose (which comes from gauge manifold) to gas stop valve's service port.
2) Fully open gauge manifold's low-pressure valve (Lo) and completely close its high-pressure valve (Hi). (High-pressure valve will require no further operation.)
3) Begin vacuum pumping and make sure that the compound pressure gauge reads −0.1MPa (−76cmHg) *1.
4) Close the gauge manifold's low-pressure valve (Lo) and stop vacuum pumping. (Maintain this condition for a few minutes to make sure that the compound pressure gauge pointer does not swing back.) *2.
5) Remove the valve caps from the liquid stop value and gas stop valve.
6) Turn the liquid stop valve's rod 90° counter-clockwise with a hexagonal wrench to open 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.
7) Disconnect charging hose from the gas stop valve's service port, then fully open the liquid and gas stop valves. (Do not attempt to turn the valve rod further than it can go.)
8) Tighten the valve caps and service port caps 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	At least 10 min.	At least 15 min.

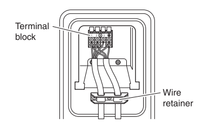
*2. If the compound pressure gauge pointer swings back, the refrigerant may have water content or there may be a loose pipe joint. Check all pipe joints and retighten nuts as needed, then repeat steps 2) through 4).

5. Wiring

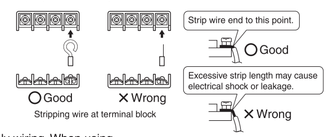
⚠ WARNING

Never use short cables for connecting end of conductor to each other.

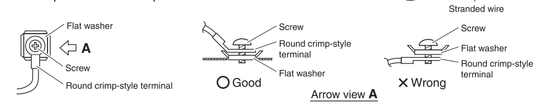
- For inter-unit wiring, refer to **"4. Wiring"** in the section **"Indoor Unit"**.
- Regarding the inter-unit wire and power supply wire.



- 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 fire.



- Precautions to be taken for power supply wiring. When using stranded wires, make sure to use the 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.



6. Drain work

- 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.

Trial Operation and Testing

1. Trial operation and testing

- Check that the inter-unit wire is correctly connected.
- Trial operation should be carried out in COOL operation.

1-1 Measure the supply voltage and make sure that it is within the specified range.
1-2 Select the lowest programmable temperature.
1-3 Carry out the trial operation following the instructions in the operation manual to ensure that all functions and parts, such as the movement of the flaps, are working properly.
- To protect the air conditioner, restart operation is disabled for 3 minutes after the system has been turned off.

1-4 After trial operation is complete, set the temperature to a normal level (26°C to 28°C).
- When operating the air conditioner in COOL operation in winter, set it to the trial operation mode using the following method.
  1) Press "ON/OFF" button to turn on the system.
  2) Press both of "TEMP" button and "MODE" button at the same time.
  3) Press "TEMP" button, select " ᵀ ", and press "MODE" button for confirmation.
  - Trial operation will stop automatically after about 30 minutes. To stop the operation, press "ON/OFF" button.
  - 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 turned on again.

2. Items to Check

Test Items	Symptom	Check
Indoor and outdoor units are installed securely.	Fall, vibration, noise	
No refrigerant gas leaks.	Incomplete cooling 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	
Only specified wires are used for all wiring, and all wires are connected correctly.	No operation or burn damage	
Indoor or outdoor unit's air intake or exhaust has clear path of air.	Incomplete cooling function	
Stop valves are opened.	Incomplete cooling function	
Indoor unit properly receives remote controller commands.	No operation	

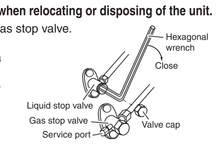
Pump Down Operation

⚠ WARNING

- **Make sure that air or any matter other than refrigerant (R32) does not get into the refrigeration cycle.**
- **When performing a pump down, turn off the compressor before detaching the refrigerant pipes. (If the refrigerant pipes are detached when the compressor is operating and the stop valves are open, air will be drawn in leading to abnormally high pressure in the refrigeration cycle. This may result in rupturing and bodily injury.)**

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

1) Remove the valve cap from the liquid stop valve and gas stop valve.
2) Begin forced cooling operation.
3) After 5 to 10 minutes, close the liquid stop valve with a hexagonal wrench.
4) After 2 to 3 minutes, close the gas stop valve and stop forced cooling operation.
5) Attach the valve cap once procedures are complete.



Forced cooling operation

■ **Using the indoor unit ON/OFF switch**
Press and hold 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.