TOSHIBA

Leading Innovation

AIR CONDITIONER (MULTI TYPE)

Installation Manual

HFC
R410A

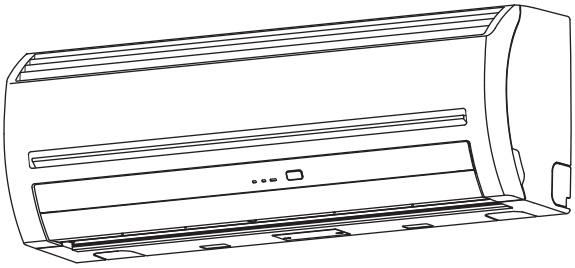
For commercial use

Indoor Unit

Model name:

High-Wall Type

MMK-AP0054MHP-E
MMK-AP0074MH-E
MMK-AP0094MH-E
MMK-AP0124MH-E
MMK-AP0054MHP-E1
MMK-AP0074MHP-E1
MMK-AP0094MHP-E1
MMK-AP0124MHP-E1



Please read this Installation Manual carefully before installing the Air Conditioner.
- This Manual describes the installation method of the indoor unit.
- For installation of the outdoor unit, follow the Installation Manual attached to the outdoor unit.

ADOPTION OF NEW REFRIGERANT

This Air Conditioner is a new type which adopts a new refrigerant HFC (R410A) instead of the conventional refrigerant R22 in order to prevent destruction of the ozone layer.

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Thank you for purchasing this Toshiba air conditioner.
Please read carefully through these instructions that contain important information which complies with the "Machinery" Directive (Directive 2006/42/EC), and ensure that you understand them.
After completing the installation work, hand over this Installation Manual as well as the Owner's Manual provided with the outdoor unit to the user, and ask the user to keep them in a safe place for future reference.

Generic Denomination: Air Conditioner

Definition of Qualified Installer or Qualified Service Person
The air conditioner must be installed, maintained, repaired and removed by a qualified installer or qualified service person. When any of these jobs is to be done, ask a qualified installer or qualified service person to do them for you.
A qualified installer or qualified service person is an agent who has the qualifications and knowledge described in the table below.

Agent	Qualifications and knowledge which the agent must have
Qualified installer	• The qualified installer is a person who installs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations. • The qualified installer who is allowed to do the electrical work involved in installation, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to do the refrigerant handling and piping work involved in installation, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.
Qualified service person	• The qualified service person is a person who installs, repairs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, repair, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations. • The qualified service person who is allowed to do the electrical work involved in installation, repair, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to do the refrigerant handling and piping work involved in installation, repair, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.

Definition of Protective Gear

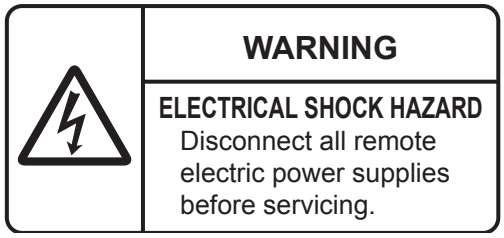
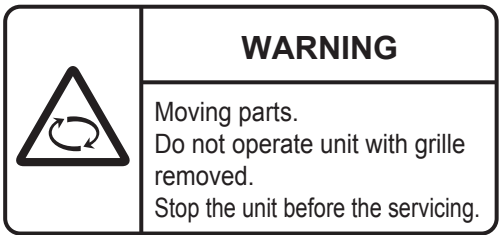
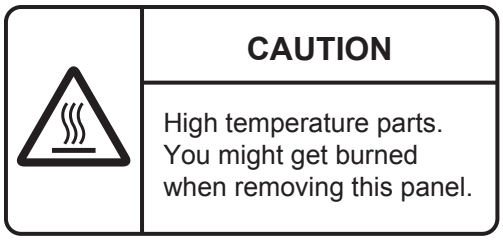
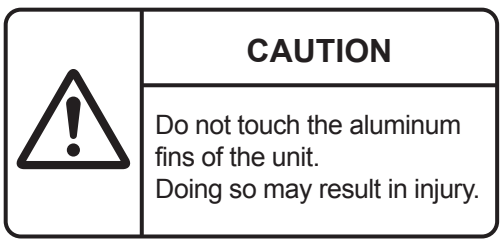
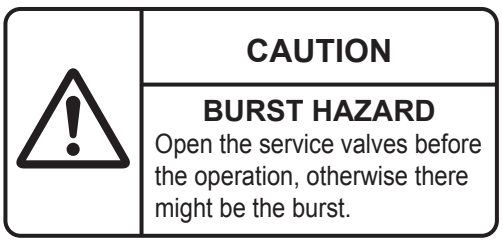
When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing.

In addition to such normal protective gear, wear the protective gear described below when undertaking the special work detailed in the table below.

Failure to wear the proper protective gear is dangerous because you will be more susceptible to injury, burns, electric shocks and other injuries.

Work undertaken	Protective gear worn
All types of work	Protective gloves 'Safety' working clothing
Electrical-related work	Gloves to provide protection for electricians and from heat Insulating shoes Clothing to provide protection from electric shock
Work done at heights (50 cm or more)	Helmets for use in industry
Transportation of heavy objects	Shoes with additional protective toe cap
Repair of outdoor unit	Gloves to provide protection for electricians and from heat

■ Warning indications on the air conditioner unit

Warning indication	Description
	**WARNING** **ELECTRICAL SHOCK HAZARD** Disconnect all remote electric power supplies before servicing.
	**WARNING** Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.
	**CAUTION** High temperature parts. You might get burned when removing this panel.
	**CAUTION** Do not touch the aluminum fins of the unit. Doing so may result in injury.
	**CAUTION** **BURST HAZARD** Open the service valves before the operation, otherwise there might be the burst.

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1. Precautions for Safety

The manufacturer shall not assume any liability for the damage caused by not observing the description of this manual.

⚠ WARNING

General

- Before starting to install the air conditioner, read through the Installation Manual carefully, and follow its instructions to install the air conditioner.
- Only a qualified installer or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire.
- Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
- Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer(*1) or qualified service person(*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required.
- Before carrying out the installation, maintenance, repair or removal work, set the circuit breaker to the OFF position. Otherwise, electric shocks may result.
- Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
- Only a qualified installer(*1) or qualified service person(*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the intake grille of the indoor unit to undertake work.
- Wear protective gloves and safety work clothing during installation, servicing and removal.
- Do not touch the aluminium fin of the unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
- Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off of the outdoor unit and result in injury.
- When work is performed at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder’s instructions. Also wear a helmet for use in industry as protective gear to undertake the work.
- Before cleaning the filter or other parts of the outdoor unit, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work.
- Before working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below. While carrying out the work, wear a helmet for protection from falling objects.
- The refrigerant used by this air conditioner is the R410A.
- The air conditioner must be transported in stable condition. If any part of the product is broken, contact the dealer.
- When the air conditioner must be transported by hand, carry it by two or more people.
- Do not move or repair any unit by yourself. There is high voltage inside the unit. You may get electric shock when removing the cover and main unit.

Selection of installation location

- When the air conditioner is installed in a small room, provide appropriate measures to ensure that the concentration of refrigerant leakage occur in the room does not exceed the critical level.
- Do not install in a location where flammable gas leaks are possible. If the gas leak and accumulate around the unit, it may ignite and cause a fire.
- To transport the air conditioner, wear shoes with additional protective toe caps.
- To transport the air conditioner, do not take hold of the bands around the packing carton. You may injure yourself if the bands should break.
- Install the indoor unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.
- Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

Installation

- When the indoor unit is to be suspended, the designated hanging bolts (M10 or W3/8) and nuts (M10 or W3/8) must be used.
- Install the air conditioner securely in a location where the base can sustain the weight adequately. If the strength is not enough, the unit may fall down resulting in injury.
- Follow the instructions in the Installation Manual to install the air conditioner. Failure to follow these instructions may cause the product to fall down or topple over or give rise to noise, vibration, water leakage or other trouble.
- Carry out the specified installation work to guard against the possibility of high winds and earthquake. If the air conditioner is not installed appropriately, a unit may topple over or fall down, causing an accident.
- If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigerant gas comes in contact with fire, noxious gas may generate.
- Use forklift to carry in the air conditioner units and use winch or hoist at installation of them.

Refrigerant piping

- Install the refrigerant pipe securely during the installation work before operating the air conditioner. If the compressor is operated with the valve open and without refrigerant pipe, the compressor sucks air and the refrigeration cycles is over pressurized, which may cause a injury.
- Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
- After the installation work, confirm that refrigerant gas does not leak. If refrigerant gas leaks into the room and flows near a fire source, such as a cooking range, noxious gas may be generated.
- When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle. Failure to purge the air completely may cause the air conditioner to malfunction.
- Nitrogen gas must be used for the airtight test.
- The charge hose must be connected in such a way that it is not slack.

Electrical wiring

- Only a qualified installer(*1) or qualified service person(*1) is allowed to carry out the electrical work of the air conditioner. Under no circumstances must this work be done by an unqualified individual since failure to carry out the work properly may result in electric shocks and / or electrical leaks.
- To connect the electrical wires, repair the electrical parts or undertake other electrical jobs, wear gloves to provide protection for electricians and from heat, insulating shoes and clothing to provide protection from electric shocks. Failure to wear this protective gear may result in electric shocks.
- Use wiring that meets the specifications in the Installation Manual and the stipulations in the local regulations and laws. Use of wiring which does not meet the specifications may give rise to electric shocks, electrical leakage, smoking and / or a fire.
- Connect earth wire. (Grounding work)
  Incomplete grounding causes an electric shock.
- Do not connect earth wires to gas pipes, water pipes, and lightning conductor or telephone earth wires.
- After completing the repair or relocation work, check that the earth wires are connected properly.
- Install a circuit breaker that meets the specifications in the installation manual and the stipulations in the local regulations and laws.
- Install the circuit breaker where it can be easily accessed by the agent.
- When installing the circuit breaker outdoors, install one which is designed to be used outdoors.
- Under no circumstances the power wire must not be extended. Connection trouble in the places where the wire is extended may give rise to smoking and / or a fire.
- Electrical wiring work shall be conducted according to law and regulation in the community and installation manual.
  Failure to do so may result in electrocution or short circuit.

Test run

- Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the indoor unit and service panel of the outdoor unit are closed, and set the circuit breaker to the ON position. You may receive an electric shock if the power is turned on without first conducting these checks.
- If there is any kind of trouble (such as an error display has appeared, smell of burning, abnormal sounds, the air conditioner fails to cool or heat or water is leaking) has occurred in the air conditioner, do not touch the air conditioner yourself but set the circuit breaker to the OFF position, and contact a qualified service person. Take steps to ensure that the power will not be turned on (by marking “out of service” near the circuit breaker, for instance) until qualified service person arrives. Continuing to use the air conditioner in the trouble status may cause mechanical problems to escalate or result in electric shocks or other trouble.
- After the work has finished, use an insulation tester set (500 V Megger) to check the resistance is 1 MΩ or more between the charge section and the non-charge metal section (Earth section). If the resistance value is low, a disaster such as a leak or electric shock is caused at user’s side.
- Upon completion of the installation work, check for refrigerant leaks and check the insulation resistance and water drainage. Then conduct a test run to check that the air conditioner is operating properly.

Explanations given to user

- Upon completion of the installation work, tell the user where the circuit breaker is located. If the user does not know where the circuit breaker is, he or she will not be able to turn it off in the event that trouble has occurred in the air conditioner.
- If the fan grille is damaged, do not approach the outdoor unit but set the circuit breaker to the OFF position, and contact a qualified service person(*1) to have the repairs done. Do not set the circuit breaker to the ON position until the repairs are completed.
- After the installation work, follow the Owner’s Manual to explain to the customer how to use and maintain the unit.

Relocation

- Only a qualified installer(*1) or qualified service person(*1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
- When carrying out the pump-down work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air or other gas to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury or other trouble.

⚠ CAUTION

New Refrigerant Air Conditioner Installation

- **THIS AIR CONDITIONER ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER.**
- The characteristics of R410A refrigerant are; easy to absorb water, oxidizing membrane or oil, and its pressure is approx. 1.6 times higher than that of refrigerant R22. Accompanied with the new refrigerant, refrigerating oil has also been changed. Therefore, do not let water, dust, former refrigerant, or refrigerating oil enter the refrigerating cycle during installation work.
- To prevent charging an incorrect refrigerant and refrigerating oil, the sizes of connecting sections of charging port of the main unit and installation tools are changed from those for the conventional refrigerant.
- Accordingly the exclusive tools are required for the new refrigerant (R410A).
- For connecting pipes, use new and clean piping designed for R410A, and please care so that water or dust does not enter.

To Disconnect the Appliance from Main Power Supply.

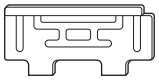
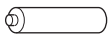
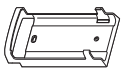
- This appliance must be connected to the main power supply by means of a switch with a contact separation of at least 3 mm.

The installation fuse (all types can be used) must be used for the power supply line of this conditioner.

(*1) Refer to the “Definition of Qualified Installer or Qualified Service Person.”

2. Accessory Parts

■ Accessory parts

Part name	Q'ty	Shape
Installation plate	1	
Wireless remote controller	1	
Battery	2	
Remote control holder	1	
Mounting screw Ø4 × 25 ℓ	6	
Pan head wood screw Ø3.1 × 16 ℓ	2	

<Others>

Name
Owner's manual
Installation manual
Paper pattern

3. Selection of Installation Place

⚠ WARNING

- **Install the air conditioner at enough strong place to withstand the weight of the unit.**
  If the strength is not enough, the unit may fall down resulting in injury.

⚠ CAUTION

- **Do not install the air conditioner in a location subject to a risk of exposure to a combustible gas.**
  If a combustible gas leaks and stays around the unit, a fire may occur.

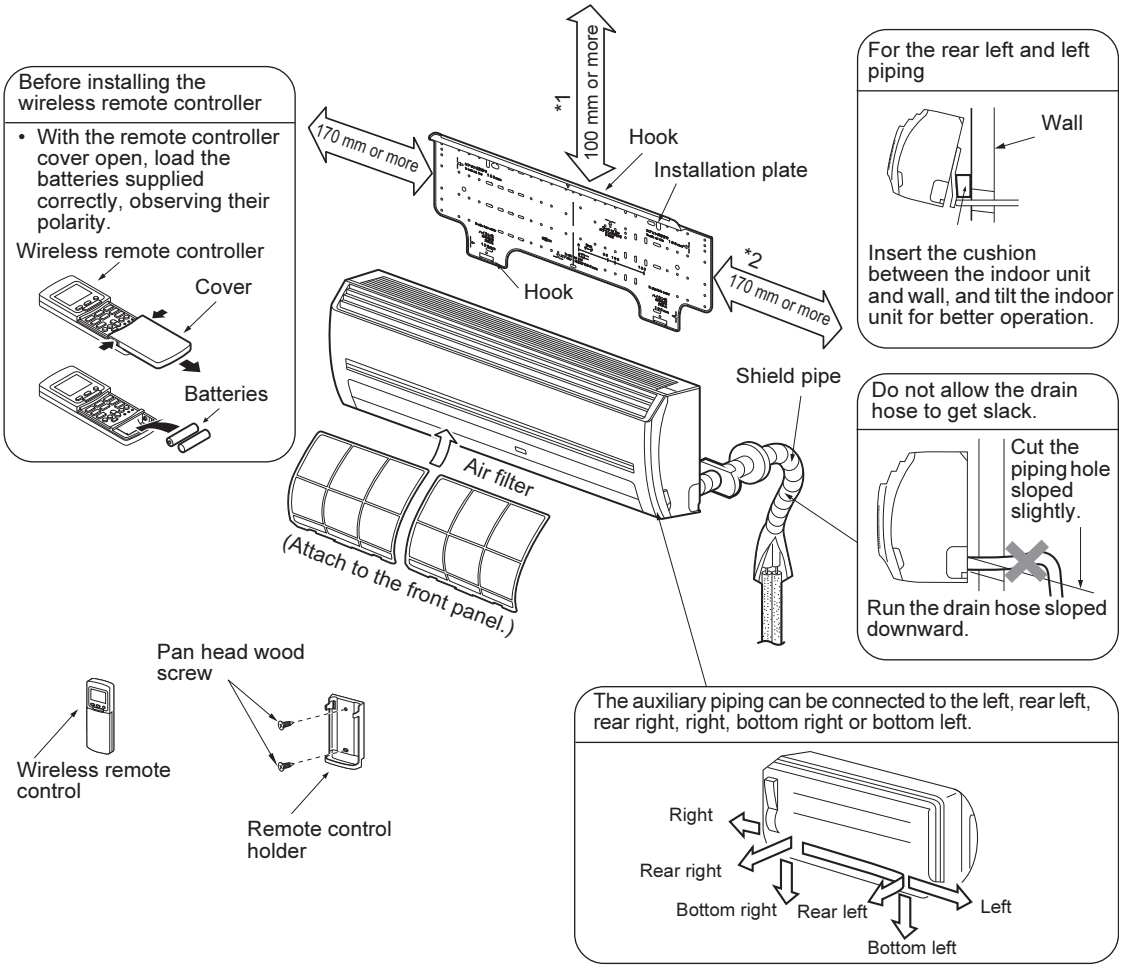
Upon approval of the customer, install the air conditioner in a place that satisfies the following conditions.

- Place where the unit can be installed horizontally.
- Place where a sufficient servicing space can be ensured for safety maintenance and check.
- Place where drained water will not cause any problem.

Avoid installing in the following places.

- Place exposed to air with high salt content (seaside area), or place exposed to large quantities of sulfide gas (hot spring).
  (Should the unit be used in these places, special protective measures are needed.)
- A restaurant kitchen where a lot of oil is used or place near machines in a factory (Oil adhering to the heat exchanger and resin part (cross flow fan) in the indoor unit may reduce the performance, generate mist or dew drop, or deform or damage resin parts.)
- Place where organic solvent is used nearby.
- Place close to a machine generating high frequency.
- Place where the discharged air blows directly into the window of the neighbour house. (Outdoor unit)
- Place where noise of the outdoor unit is easily transmitted.
  (When install the outdoor unit on the boundary with the neighbour, pay due attention to the level of noise.)
- Place with poor ventilation.
- Do not use the air conditioner for special purposes such as preserving food, precision instruments, or art objects, or where breeding animals or growing plants are kept. (This may degrade the quality of preserved materials.)
- Place where any of high-frequency appliances (including inverter devices, private power generators, medical equipment, and communication equipment) and inverter-type fluorescent light is installed.
  (A malfunction of the air conditioner, abnormal control, or problems due to noise to such appliances / equipment may occur.)
- When the wireless remote controller is used in a room equipped with an inverter-type fluorescent light or at a place exposed to direct sunlight, signals from the remote controller may not be received correctly.
- Place where organic solvent is used.
- Place near a door or window exposed to humid outside air (Dew dropping may form.).
- Place where special spray is used frequently.

■ Installation diagram of Indoor and outdoor units



■ Installation space

The indoor unit shall be installed so that its top surface comes at a height of 2 m or more.
Also it must be avoided to put anything on top of the indoor unit.

*1 Reserve space required to install the indoor unit and for service work.
Keep 100 mm or more for clearance between top plate of the indoor unit and the ceiling surface.

*2 Keep a space more than 300 mm for wiring work at installation of the Flow Selector Unit (FS Unit).

■ Installation place

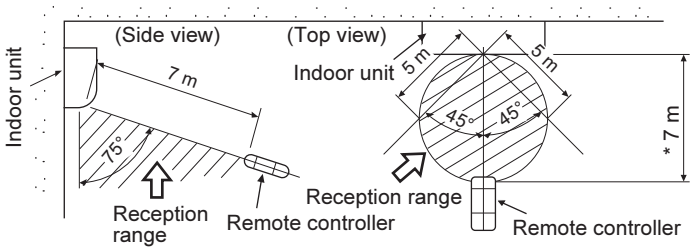
- A place which provides the spaces around the indoor unit as shown in the above diagram.
- A place where there is no obstacle near the air intake and discharge.
- A place that allows easy installation of the piping to the outdoor unit.
- A place which allows the front panel to be opened.

⚠ CAUTION

- Direct sunlight to the indoor unit's wireless receiver should be avoided.
- The microprocessor in the indoor unit should not be too close to RF noise sources. (For details, see the owner's manual.)

■ Wireless remote controller

- A place where there are no obstacles such as a curtain that may block the signal from the indoor unit.
- Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove.
- Keep the remote controller at least 1 m apart from the nearest TV set or stereo equipment. (This is necessary to prevent image disturb-bounces or noise interference.)
- The location of the remote controller should be determined as shown below.



* : Axial distance

4. Installation of Indoor Unit

⚠ WARNING

Install the air conditioner certainly to sufficiently withstand the weight.
If the strength is insufficient, the unit may fall down resulting in human injury.
Perform a specified installation work to guard against strong wind or earthquake.
An incomplete installation can cause accidents by the units falling and dropping.

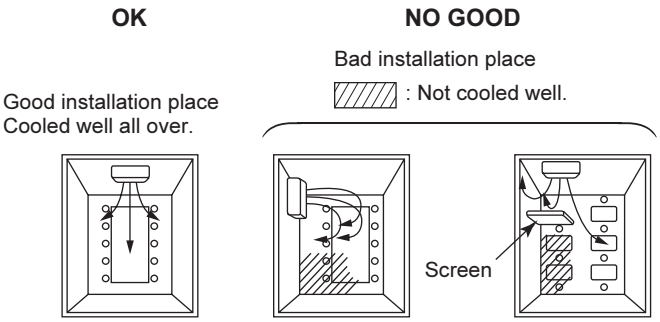
REQUIREMENT

Strictly comply with the following rules to prevent damage of the indoor units and human injury.

- Do not put a heavy article on the indoor unit. (Even units are packaged)
- Carry in the indoor unit as it is packaged if possible. If carrying in the indoor unit unpacked by necessity, buse buffering cloth or other material to not damage the unit.
- To move the indoor unit, do not apply force to the refrigerant pipe, drain pan, foamed parts, or resin parts or other parts.
- Carry the package by two or more persons, and do not bundle it with plastic band at positions other than specified.

Be careful to the following items at installation of the unit.

- Considering air discharge direction, select an installation place where discharge air can circulate evenly in a room. Avoid to install the unit at place with "**NO GOOD**" mark in the right figure.

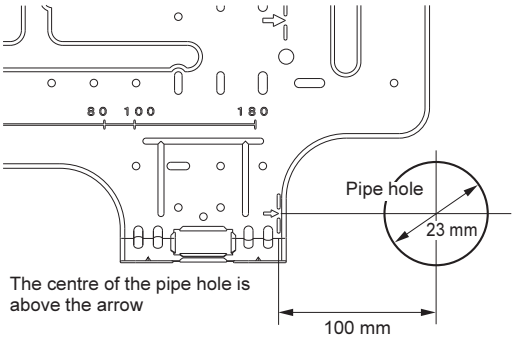


5. Cutting a Hole and Mounting Installation Plate

■ Cutting a hole

In case of installing the refrigerant pipes from the rear:

1 Decide the hole position for piping at 100 mm from the arrow mark (⇨) on the installation plate and drill a hole with Ø65 mm at a slight downward slant toward outdoor side.

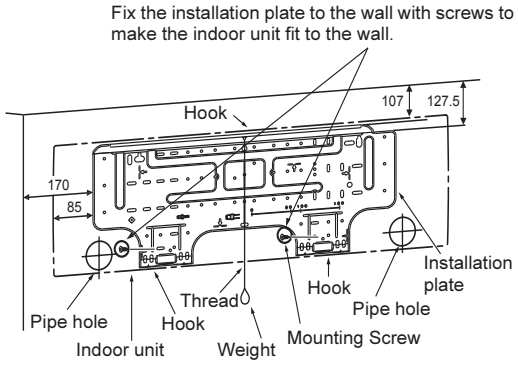


NOTE

- To drill a wall that contains a metal lath, wire lath or metal plate, use a pipe hole brim ring sold separately.

■ Mounting the installation plate

For installation of the indoor unit, use the paper pattern in the accessory parts.



■ When the installation plate is directly mounted on the wall

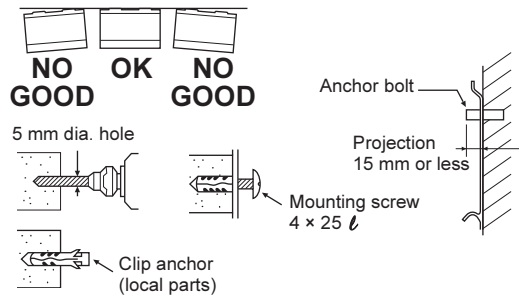
1 Securely fit the installation plate onto the wall by screwing it in the upper and lower parts to hook up the indoor unit.

2 To mount the installation plate on a concrete wall with anchor bolts, utilize the anchor bolt holes as illustrated in the above figure.

3 Install the installation plate horizontally in the wall.

⚠ CAUTION

To install the installation plate with a mounting screw, do not use the anchor bolt hole. Otherwise the unit may fall down and result in personal injury and property damage.



⚠ CAUTION

Failure to firmly install the unit may result in personal injury and property damage if the unit falls.

- In case of block, brick, concrete or similar type walls, make 5 mm dia. holes in the wall.
- Insert clip anchors for appropriate mounting screws.

NOTE

- Secure four corners and lower parts of the installation plate with 6 mounting screws to install it.

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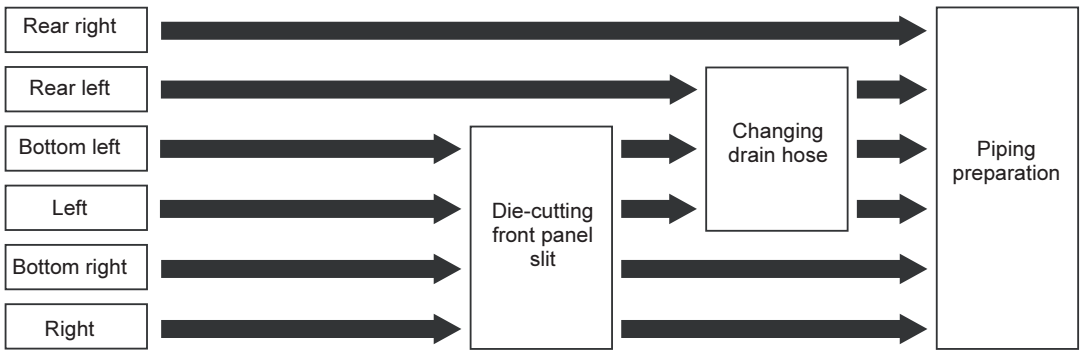
6. Piping and Drain Hose Installation

■ Piping and drain hose forming

* Apply heat-insulation for both refrigerant pipe and drain hose surely so that no dew generates inside of the equipment. (Use polyethylene foam for insulating material.)



1. Die-cutting front panel slit

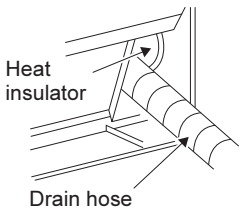
Cut out the slit on the leftward or right side of the front panel for the left or right connection and the slit on the bottom left or right side of the front panel for the bottom left or right connection with a pair of nippers.

2. Changing drain hose

For leftward connection, bottom-leftward connection and rear leftward connection's piping, it is necessary to change the drain hose and drain cap.
Without changing the drain hose position, the indoor unit will not fit to the wall.

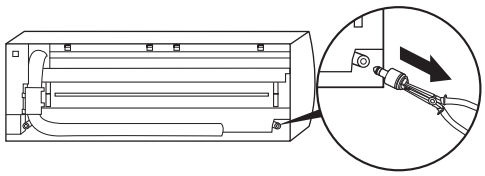
How to remove the drain hose

- The drain hose can be removed by pulling out the drain hose.
- To remove the drain hose, be careful of any sharp edges of steel plate. The edges can injuries.
- To install the drain hose, insert the drain hose firmly until the connection part contacts with heat insulator.



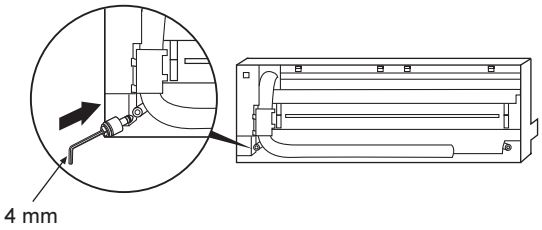
How to remove the drains cap

Clip the drain cap by needle-nose pliers and pull out.

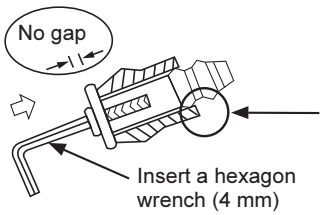


How to fix the drains cap

1) Insert hexagonal wrench (dia. 4 mm) in a centre head.



2) Firmly insert drains cap.



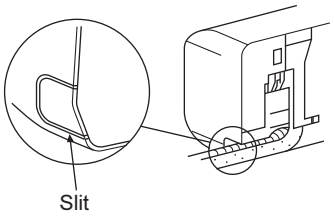
Do not apply lubricating oil (refrigerant machine oil) during inserting the drain cap.
Application causes deterioration and drain leakage from the plug.

⚠ CAUTION

Firmly insert the drain hose and drain cap; otherwise, water may leak.

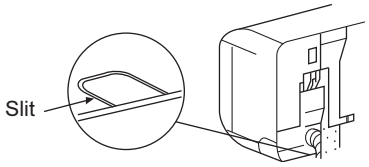
▼ In case of right or left piping

- After scribing slits of the front panel with a knife or a marking-off pin, cut them with a pair of nippers or an equivalent tool.



▼ In case of bottom right or bottom left piping

- After scribing slits of the front panel with a knife or a marking-off pin, cut them with a pair of nippers or an equivalent tool.



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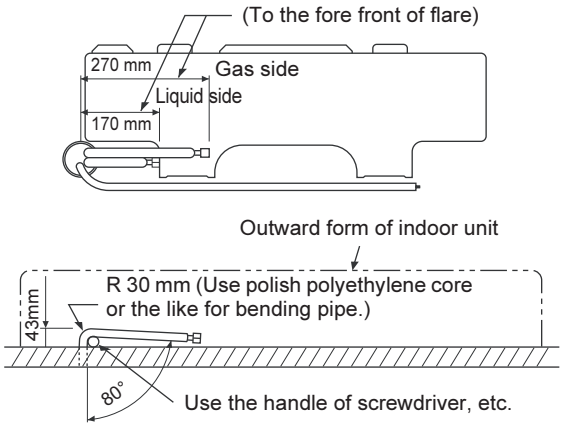
▼ Left-hand connection with piping

Bend the connecting pipe so that it is laid within 43 mm above the wall surface. If the connecting pipe is laid exceeding 43 mm above the wall surface, the indoor unit may unstably be set on the wall. To bending the connecting pipe, use a spring bender so as not to crush the pipe.

Bend the connection pipe within a radius of 30 mm.

To connect the pipe after installation of the unit (figure)

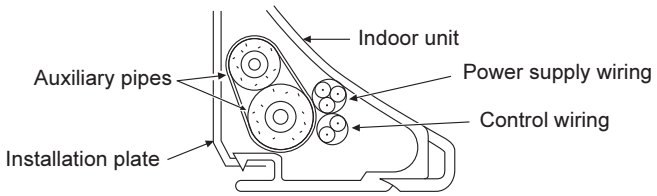


NOTE

If the pipe is bent incorrectly, the indoor unit may unstably be set on the wall.
After passing the connecting pipe through the pipe hole, connect the connecting pipe to the auxiliary pipes and wrap the facing tape around them.

⚠ CAUTION

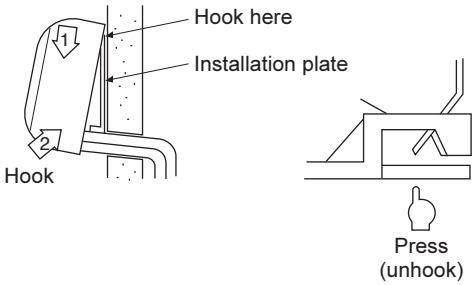
- Bind the auxiliary pipes (two) and power supply wiring and control wiring with facing tape tightly. In case of leftward piping and rear leftward piping, bind the auxiliary pipes (two) only with facing tape.



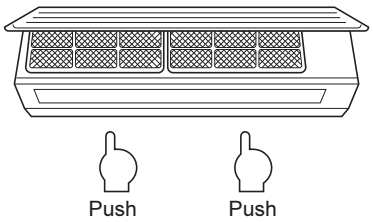
- Carefully arrange pipes so that any pipe does not stick out of the rear plate of the indoor unit.
- Carefully connect the auxiliary pipes and connecting pipes to one another and cut off the insulating tape wound on the connecting pipe to avoid double-taping at the joint, moreover, seal the joint with the vinyl tape.
- Since dew results in a machine trouble, insulate both the connecting pipes.
  (Use polyethylene foam as insulating material.)
- Bend a pipe carefully. Do not crush it.

7. Indoor Unit Fixing

1. **Pass the pipe through the hole in the wall, and hook the indoor unit on the installation plate at the upper hooks.**
2. **Swing the indoor unit to right and left to confirm that it is firmly hooked up on the installation plate.**
3. **While pressing the indoor unit onto the wall, hook it at the lower part on the installation plate. Pull the indoor unit toward you to confirm that it is firmly hooked up on the installation plate.**



- For detaching the indoor unit from the installation plate, pull the indoor unit toward you while pushing its bottom up at the specified parts.



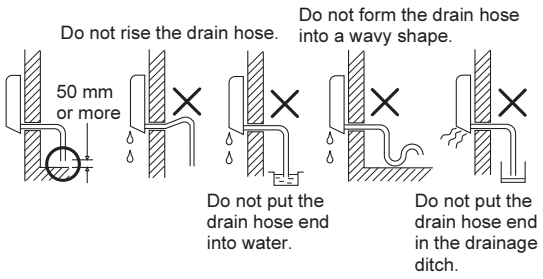
8. Drainage

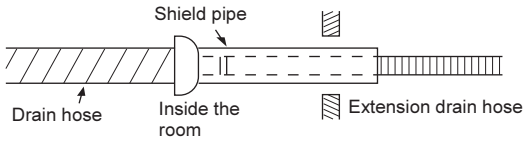
1. **Run the drain hose sloped downwards.**

NOTE

- Hole should be made at a slight downward slant on the outdoor side.

2. **Put water in the drain pan and confirm that the water is drained out of doors.**
3. **Before connecting extension drain hose, insulate the connecting part of extension drain hose with shield pipe.**

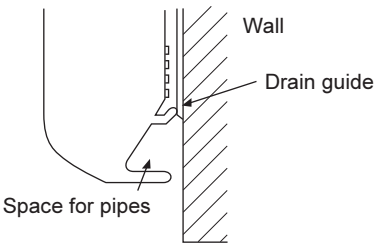




⚠ CAUTION

Arrange the drain pipe for proper drainage from the unit.
Improper drainage can result in dew-dropping.

This air conditioner has the structure designed to drain water collected from dew, which forms on the back of the indoor unit, to the drain pan.
Therefore, do not store the power cord and other parts at a height above the drain guide.



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9. Refrigerant Piping

■ Refrigerant piping

1 Use copper pipe with 0.8 mm or more thickness. (In case pipe size is dia. 15.9, with 1.0 mm or more.)

2 Flare nut and flare works are also different from those of the conventional refrigerant. Take out the flare nut attached to the main unit of the air conditioner, and use it.

REQUIREMENT

When the refrigerant pipe is long, provide support brackets at intervals of 2.5 to 3 m to clamp the refrigerant pipe. Otherwise, abnormal sound may be generated.

⚠ CAUTION

IMPORTANT 4 POINTS FOR PIPING WORK

1. Remove dust and moisture from the inside of the connecting pipes.
2. Tight connection (between pipes and unit)
3. Evacuate the air in the connecting pipes using VACUUM PUMP.
4. Check the gas leakage. (Connected points)

■ Pipe size

(dia.: mm)

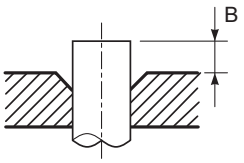
Gas side	9.5
Liquid side	6.4

■ Permissible piping length and height difference

They vary according to the outdoor unit.
For details, refer to the Installation Manual attached to the outdoor unit.

Flaring

- Cut the pipe with a pipe cutter.
  Remove burrs completely.
  Remaining burrs may cause gas leakage.
- Insert a flare nut into the pipe, and flare the pipe.
  As the flaring sizes of R410A differ from those of refrigerant R22, the flare tools newly manufactured for R410A are recommended.
  However, the conventional tools can be used by adjusting projection margin of the copper pipe.



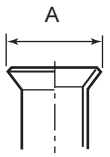
▼ Projection margin in flaring: B (Unit: mm)
Rigid (Clutch type)

Outer dia. of copper pipe	R410A tool used	Conventional tool used
6.4, 9.5	0 to 0.5	1.0 to 1.5
12.7, 15.9		

▼ Flaring dia. meter size: A (Unit: mm)

Outer dia. of copper pipe	$A^{+0}_{-0.4}$
	R410A
6.4	9.1
9.5	13.2
12.7	16.6
15.9	19.7

* In case of flaring for R410A with the conventional flare tool, pull it out approx. 0.5 mm more than that for R22 to adjust to the specified flare size.
The copper pipe gauge is useful for adjusting projection margin size.



Tightening connection

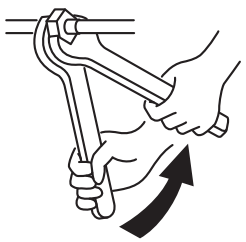
⚠ CAUTION

- Do not apply excessive torque. Otherwise, the nut may crack depending on the conditions.

(Unit: N•m)

Outer dia. of copper pipe	Tightening torque
6.4 mm	14 to 18 (1.4 to 1.8 kgf•m)
9.5 mm	33 to 42 (3.3 to 4.2 kgf•m)
12.7 mm	50 to 62 (5.0 to 6.2 kgf•m)
15.9 mm	63 to 77 (6.3 to 7.7 kgf•m)

▼ Tightening torque of flare pipe connections
Pressure of R410A is higher than that of R22. (Approx. 1.6 times) Therefore, using a torque wrench, tighten the flare pipe connecting sections which connect the indoor and outdoor units of the specified tightening torque.
Incorrect connections may cause not only a gas leak, but also a trouble of the refrigeration cycle. Align the centres of the connecting pipes and tighten the flare nut as far as possible with your fingers. Then tighten the nut with a spanner and torque wrench as shown in the figure.



Work using double spanner

⚠ CAUTION

Tightening with an excessive torque may cause the nut depending on installation conditions. Tighten the nut within the specified tightening torque.

■ Airtight test / air purge, etc.

For air tightness test, adding refrigerant, refer to the Installation Manual attached to the outdoor unit.

⚠ CAUTION

Do not supply power to the indoor unit until the airtight test and vacuuming are completed. (If the indoor unit is powered on, the pulse motor valve is fully closed, which extends the time for vacuuming.)

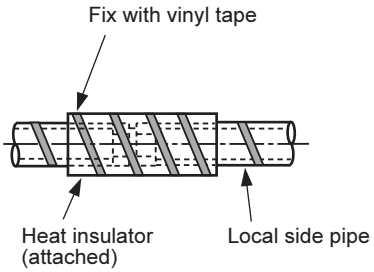
■ Open the valve fully

Open the valve of the outdoor unit fully.

Heat insulation

Heat insulation for the pipes should be done separately for the liquid side and gas side. Because both of the liquid and gas side pipes become a low temperature during cooling operation, sufficient heat insulation should be done to prevent condensation.

- Heat insulator with a heat resistance of 120 °C or more must be used for the gas side pipe.
- The pipe connection section of the indoor unit must be heat insulated securely and compactly with the attached heat insulator.



10. Electric Work

⚠ WARNING

- **Use the specified wires for wiring connect the terminals. Securely fix them to prevent external forces applied to the terminals from affecting the terminals.**
  Incomplete connection or fixation may cause a fire or other trouble.
- **Connect earth wire. (grounding work)**
  Incomplete grounding cause an electric shock.
  Do not connect earth wires to gas pipes, water pipes, lightning conductor or telephone earth wires.
- **Appliance shall be installed in accordance with national wiring regulations.**
  Capacity shortage of power circuit or incomplete installation may cause an electric shock or a fire.

⚠ CAUTION

- If incorrect / incomplete wiring is carried out, it will cause an electrical fire or smoke.
- Install an earth leakage breaker that is not tripped by shock waves.
  If an earth leakage breaker is not installed, an electric shock may be caused.
- Use the cord clamps attached to the product.
- Do not damage or scratch the conductive core and inner insulator of power and inter-connecting wires during peeling them.
- Use the power cord and Inter-connecting wire of specified thickness, type, and protective devices required.
- Do not connect 220 V – 240 V power to the terminal blocks (Ⓤ1 , Ⓤ2 , Ⓐ , Ⓑ) for control wiring. (Otherwise, the system will fail.)
- Perform the electric wiring so that it does not come to contact with the high-temperature part of the pipe. The coating may melt resulting in an accident.

REQUIREMENT

- For power supply wiring, strictly conform to the Local Regulation in each country.
- For wiring of power supply of the outdoor units, follow the Installation Manual of each outdoor unit.
- Perform the electric wiring so that it does not come to contact with the high-temperature part of the pipe.The coating may melt resulting in an accident.
- After connecting wires to the terminal blocks, provide a trap and fix wires with the cord clamp.
- Run the refrigerant piping line and control wiring line in the same line.
- Do not turn on the power of the indoor unit until vacuuming of the refrigerant pipes completes.

■ Power supply wire and communication wires specifications

Power supply wire and communication wires are procured locally.
For the power supply specifications, follow to the following table. If capacity is little, it is dangerous because overheat or burnout may be caused.
For specifications of the power capacity of the outdoor unit and the power supply wires, refer to the Installation Manual attached to the outdoor unit.

Indoor unit power supply

- For the power supply of the indoor unit, prepare the exclusive power supply separated from that of the outdoor unit.
- Arrange the power supply, circuit breaker, and main switch of the indoor unit connected to the same outdoor unit so that they are commonly used.
- Power supply wire specification: Cable 3-core 2.5 mm², **in conformity with Design 60245 IEC 57**.

▼ Power supply

Power supply	220 V – 240 V ~, 50 Hz 220 V ~, 60 Hz	
Power supply switch / circuit breaker or power supply wiring / fuse rating for indoor units should be selected by the accumulated total current values of the indoor units.		
Power supply wiring	Below 50 m	2.5 mm^2

Control wiring, Central controller wiring

- 2-core with polarity wires are used for the Control wiring between indoor unit and outdoor unit and Central controller wiring.
- To prevent noise trouble, use 2-core shield wire.
- The length of the communication line means the total length of the inter-unit wire length between indoor and outdoor units added with the central control system wire length.

▼ Communication line

Control wiring between indoor units, and outdoor unit (2-core shield wire)	Wire size	(Up to 1000 m) 1.25 mm² (Up to 2000 m) 2.0 mm²
Central control line wiring (2-core shield wire)	Wire size	(Up to 1000 m) 1.25 mm² (Up to 2000 m) 2.0 mm²

Wired remote controller wiring

- 2-core with non-polarity wire is used for wiring of the remote controller wiring and group remote controllers wiring.

Remote controller wiring, remote controller inter-unit wiring	Wire size: 0.5 mm² to 2.0 mm²

Total wire length of remote controller wiring and remote controller inter-unit wiring = L + L1 + L2 + … Ln	In case of wired type only	Up to 500 m
	In case of wireless type included	Up to 400 m
Total wire length of remote controller inter-unit wiring = L1 + L2 + … Ln		Up to 200 m

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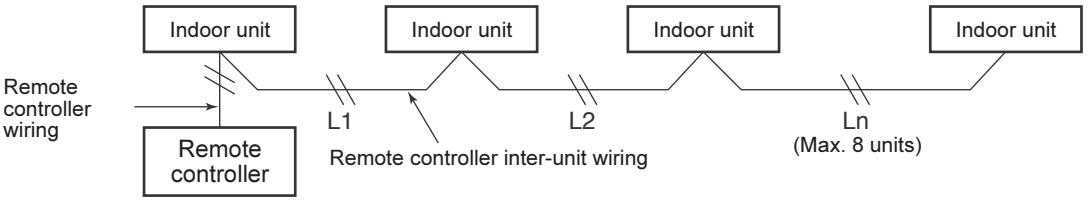
⚠ CAUTION

The remote controller wire (Communication line) and AC 220 – 240 V wires cannot be parallel to contact each other and cannot be stored in the same conduits. If doing so, a trouble may be caused on the control system due to noise or other factor.

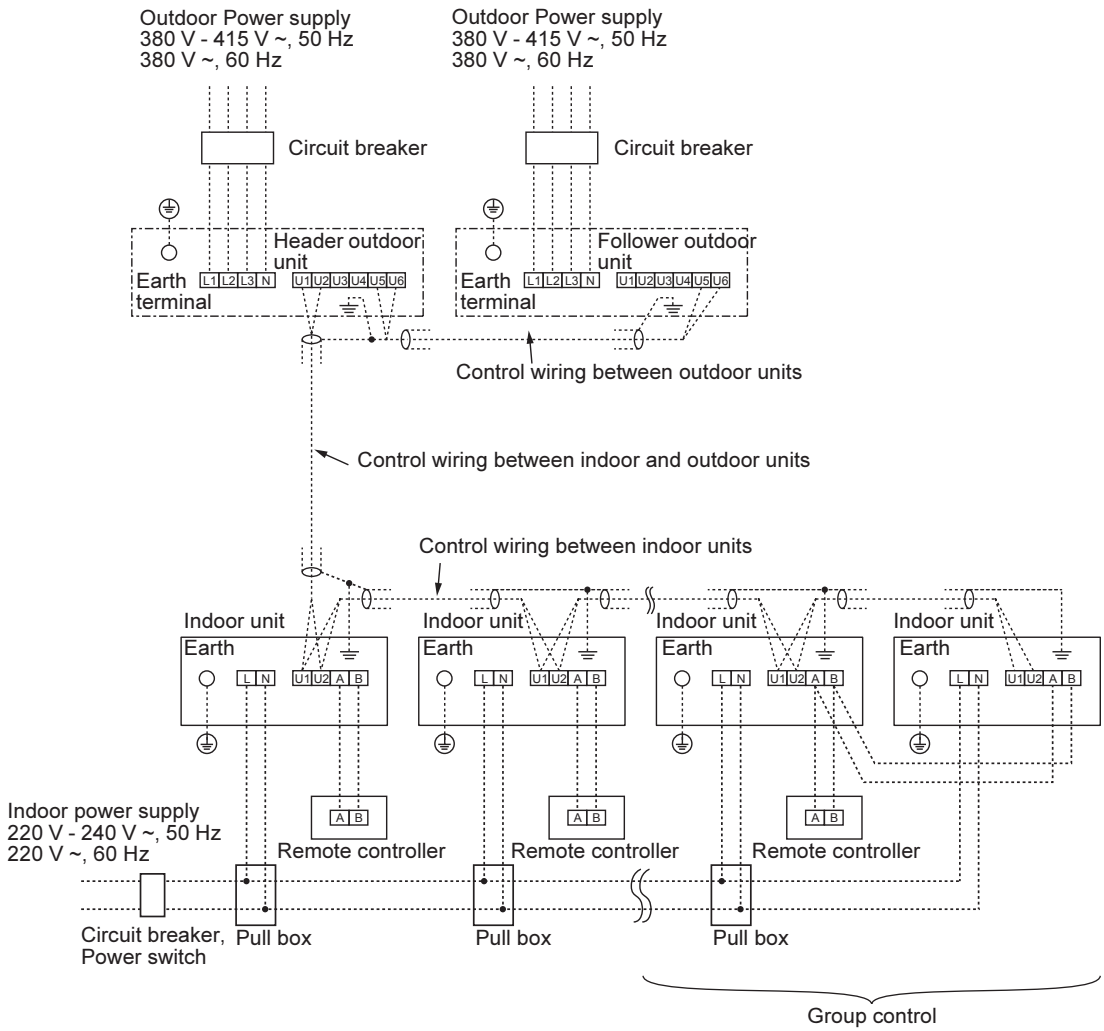


■ Wiring between indoor and outdoor units

NOTE

An outdoor unit connected with control wiring between indoor and outdoor units wire becomes automatically the header unit.

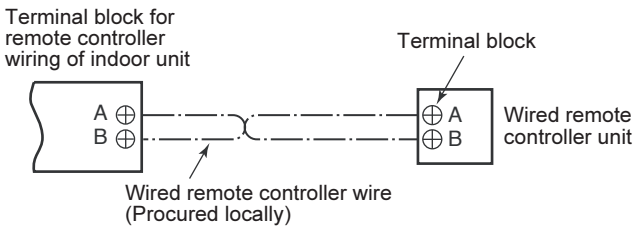
▼ **Wiring example**



■ Wired remote controller wiring

- As the wired remote controller wire has non-polarity, there is no problem if connections to indoor unit terminal blocks A and B are reversed.

▼ **Wiring diagram**



■ Address setup

Set up the addresses as per the Installation Manual supplied with Outdoor unit.

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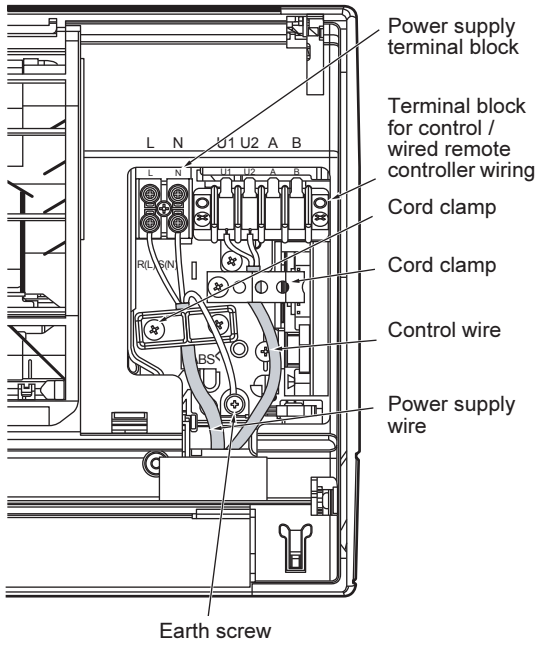
■ Wiring connection

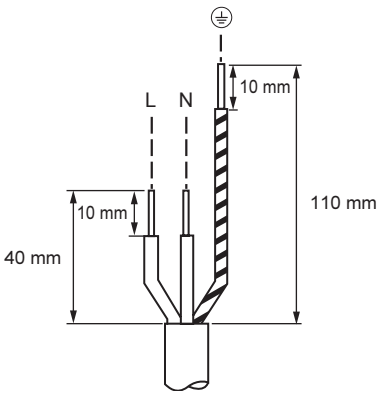
How to connect the power supply wiring and control wiring

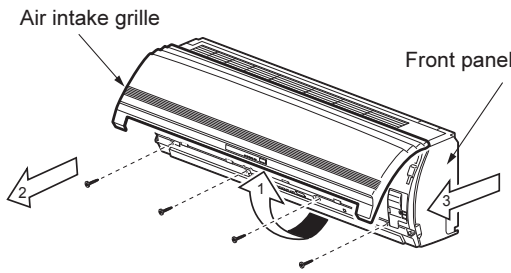
1. Remove the air intake grille.
   Open the air intake grille upward and pull it toward you.
2. Remove the four screws securing the front panel.
3. Slightly open the lower part of the front panel then pull the upper part of the front panel toward you to remove it from the rear plate.
4. Remove the terminal cover.
5. Insert the power supply wire and control wire (according to the local rule) into the pipe hole on the wall.
6. Take the power supply wire and the control wire out of the cable slot on the rear panel so that it protrudes about 150 mm from the front.
7. Insert the power supply wire fully into the terminal block and secure it tightly with screws. Tightening torque: 1.2 N·m (0.12 kgf·m) Secure the earth line with the earth screw.
8. Insert the control wire fully into the control / wired remote controller terminal block Ⓤ1, Ⓤ2, Ⓐ, Ⓑ and secure it tightly with screws.
9. Clamp the power supply wire and the control wire with the cord clamp.
10. Attach the terminal cover, the front panel and the air intake grille to the indoor unit.

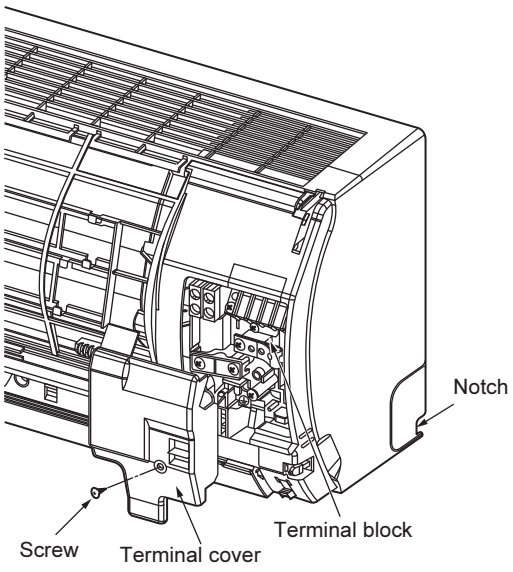
⚠ CAUTION

- Refer to the wiring diagram attached inside the front panel.
- Check local electrical cords and also any specific wiring instructions and limitations.







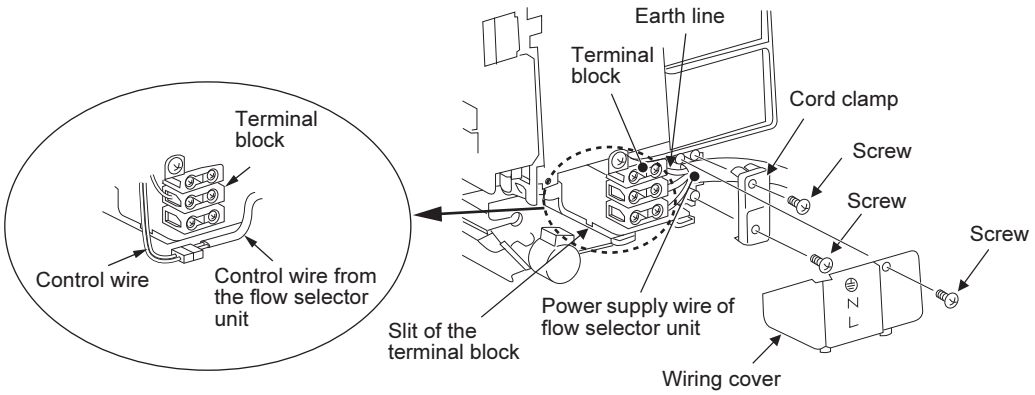


■ Wiring connection for the flow selector unit

Connect the wiring of the flow selector unit

Connect the power supply wire and the communication wire supplied with the flow selector unit to the indoor unit.

1. Remove the air intake grille.
   Open the air intake grille upward and pull it toward you.
2. Remove the four screws securing the front panel.
3. Slightly open the lower part of the front panel, and then pull the upper part of the front panel toward you to remove it from the rear plate.
4. Remove the wiring cover and cord clamp for right side of indoor unit.
5. Insert the power supply wire fully into the terminal block and secure it tightly with screws.
   Tightening torque: 1.2 N·m (0.12 kgf·m)
   Secure the earth line with the earth screw.
6. Connect the control wire connector of the flow selector unit to the lead with a connector to the under of the terminal block.
7. Take the control wire outwards through the slit of the terminal block.
8. Clamp the power supply wire and control wire of the flow selector unit tight with the cord clamp.
9. Attach the wiring cover, the front panel and the air intake grille to the indoor unit.



⚠ CAUTION

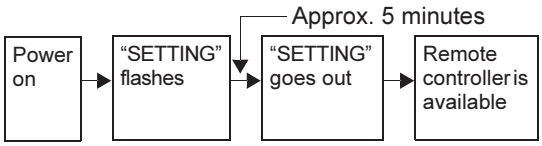
Confirm that every wires are stored in the electrical control box without getting caught before attaching the terminal cover.

11. Applicable Controls

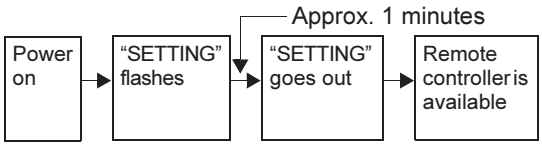
A wired remote controller is necessary for this function. This function cannot be operate with a wireless remote controller.

REQUIREMENT

- When this air conditioner is used for the first time, it takes approx. 5 minutes until the remote controller becomes available after power-on. This is normal.
  <When power is turned on for the first time after installation>
  It takes **approx. 5 minutes** until the remote controller becomes available.



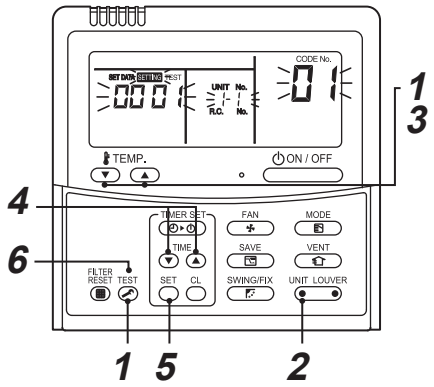
  <When power is turned on for the second (or later) time>
  It takes **approx. 1 minute** until the remote controller becomes available.



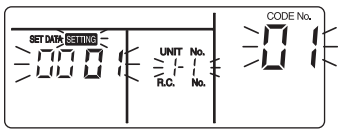
- Normal settings were made as factory default. Change the indoor unit settings as required.
- Use the wired remote controller to change the settings.
  * The settings cannot be changed using the wireless remote controller, sub remote controller, or remote-controller less system (for central remote controller only). Therefore, install the wired remote controller to change the settings.

■ Basic procedure for changing settings

Change the settings while the air conditioner is not working.
(Stop the air conditioner before making settings.)
The display content for setting differs from that on the former types of remote controller (RBC-AMT21E / AMT31E). (The number of CODE No. has increased.)



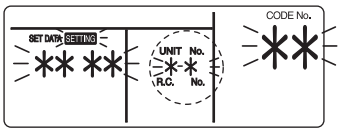
1 Push TEST button and "TEMP." (▼) button simultaneously for at least 4 seconds.
After a while, the display flashes as shown in the figure.
Confirm that the CODE No. is [01].
- If the CODE No. is not [01], push TEST button to erase the display content, and repeat the procedure from the beginning.
  (No operation of the remote controller is accepted for a while after TEST button is pushed.)
  (While air conditioners are operated under the group control, "ALL" is displayed first. When UNIT LOUVER is pushed, the indoor unit number displayed following "ALL" is the header unit.)



(* Display content varies with the indoor unit model.)

2 **Each time UNIT LOUVER button is pushed, indoor unit numbers in the control group change cyclically. Select the indoor unit to change settings for.**

The fan of the selected unit runs and the louvers start swinging. The indoor unit for change settings can be confirmed.



3 **Specify CODE No.[✱✱] with "TEMP." ▼ / ▲ buttons.**

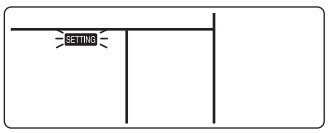
4 **Select SET DATA [✱✱✱✱] with "TIME" ▼ / ▲ buttons.**

5 **Push SET button. When the display changes from flashing to lit, the setup is completed.**

- To change settings of another indoor unit, repeat from Procedure ***2***.
- To change other settings of the selected indoor unit, repeat from Procedure ***3***.
  Use SET button to clear the settings.
  To make settings after SET button was pushed, repeat from Procedure ***2***.

6 **When settings have been completed, push TEST button to determine the settings.**

When TEST button is pushed, "SETTING" flashes and then the display content disappears and the air conditioner enters the normal stop mode.
(While "SETTING" is flashing, no operation of the remote controller is accepted.)



■ Filter sign setting

According to the installation condition, the lighting time of the filter sign (Notification of filter cleaning) can be changed.
Follow to the basic operation procedure (***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).

- For the CODE No.. in Procedure ***3***, specify [01].
- For the SET DATA in Procedure ***4***, select the SET DATA of filter sign term from the following table.

SET DATA	Filter sign term
0000	None
0001	150 H (Factory default)
0002	2500 H
0003	5000 H
0004	10000 H

■ To secure better effect of heating

When it is difficult to obtain satisfactory heating due to installation place of the indoor unit or structure of the room, the detection temperature of heating can be raised. Also use a circulator, etc. to circulate heat air near the ceiling.
Follow to the basic operation procedure (***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).

- For the CODE No.. in Procedure ***3***, specify [06].
- For the SET DATA in Procedure ***4***, select the SET DATA of shift value of detection temperature to be set up from the table below.

SET DATA	Detection temp shift value
0000	No shift
0001	+1 °C
0002	+2 °C (Factory default)
0003	+3 °C
0004	+4 °C
0005	+5 °C
0006	+6 °C

EN

■ Remote controller sensor

The temperature sensor of the indoor unit senses room temperature usually. Set the remote controller sensor to sense the temperature around the remote controller.
Select items following the basic operation procedure
(***1*** → ***2*** → ***3*** → ***4*** → ***5*** → ***6***).

- Specify [32] for the CODE No. in Procedure ***3***.
- Select the following data for the SET DATA in Procedure ***4***.

SET DATA	0000	0001
Remote controller sensor	Not used (Factory default)	Used

When  flashes, the remote controller sensor is defective.
Select the SET DATA [0000] (not used) or replace the remote controller.

■ Group control

In a group control, a remote controller can control up to maximum 8 units.

- The wired remote controller only can control a group control. The wireless remote controller is unavailable for this control.
- For cabling procedure and cables of the individual line (Identical refrigerant line) system, refer to “Electric work” in this Manual.
- Cabling between indoor units in a group is performed in the following procedure.
  Connect the indoor units by connecting the remote controller inter-unit cables from the remote controller terminal blocks (A, B) of the indoor unit connected with a remote controller to the remote controller terminal blocks (A, B) of the other indoor unit. (Non-polarity)
- For address setup, refer to the Installation Manual attached to the outdoor unit.

NOTE

“1:1 Model” Connection Interface (Model TCB-PCNT30TLE2) can not connect to this High Wall type air conditioner.

■ Adjustment of air direction

1 **Using the remote controller switch, change the up / down air direction by moving the horizontal louver.**

2 **Adjust the right / left air direction by bending the vertical grille inside of the air discharge port with hands.**

REQUIREMENT

Do not touch the horizontal louver directly with hands; otherwise a trouble may be caused.
For handling of the horizontal louver, refer to “Owner’s Manual”.

12. Test Run

A wired remote controller is necessary for this function. This function cannot be operate with a wireless remote controller.

■ Before test run

- Before turning on the power supply, carry out the following procedure.
  1) Using 500 V-megger, check that resistance of 1 MΩ or more exists between the terminal block of the power supply and the earth (grounding).
     If resistance of less than 1 MΩ is detected, do not run the unit.
  2) Check the valve of the outdoor unit being opened fully.
- To protect the compressor at activation time, leave power-ON for 12 hours or more be for operating.
- Do not press the electromagnetic contactor to forcibly perform a test run. (This is very dangerous because the protective device does not work.)
- Before starting a test run, set addresses following the installation manual supplied with the outdoor unit.

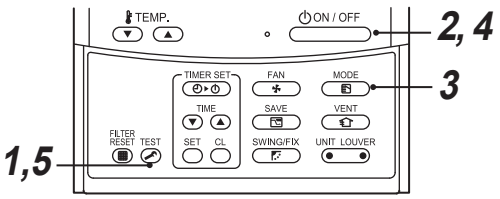
■ Execute a test run

Using the wired remote controller, operate the unit as usual.
For the procedure of the operation, refer to the attached Owner's Manual.
A forced test run can be executed in the following procedure even if the operation stops by thermo.-OFF.
In order to prevent a serial operation, the forced test run is released after 60 minutes have passed and returns to the usual operation.

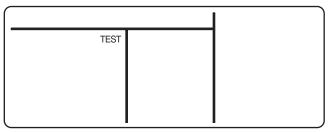
⚠ CAUTION

- Do not use the forced test run for cases other than the test run because it applies an excessive load to the devices.

Wired remote controller



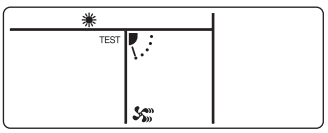
1 Push TEST button for 4 seconds or more. [TEST] is displayed on the display part and the selection of mode in the test mode is permitted.



2 Push ON / OFF button.

3 Select the operation mode with MODE button, [COOL] or [HEAT].

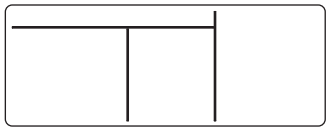
- Do not run the air conditioner in a mode other than [COOL] or [HEAT].
- The temperature controlling function does not work during test run.
- The detection of error is performed as usual.



EN

4 **After the test run, push ON / OFF button to stop a test run.**
(Display part is same as procedure 1.)

5 **Push TEST button to cancel (release from) the test run mode.**
([TEST] disappears on the display and the status returns to a normal.)



Wireless remote controller (Forced test operation is performed in a different way.)

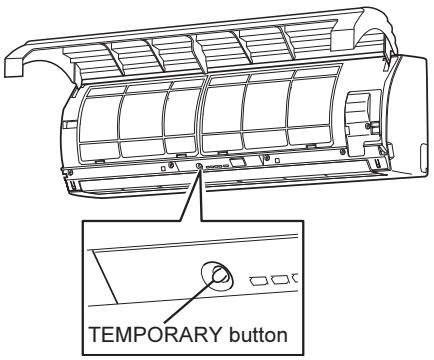
REQUIREMENT

- For the operation procedure, follow the Owner's Manual.
- Finish the forced cooling operation in a short time because it applies excessive strength to the air conditioner.
- A test operation of forced heating is unavailable. Perform a test operation by heating operation using the switches of the remote controller.
  However heating operation may be not carried out according to the temperature conditions.

- **Check wiring / piping of indoor and outdoor units**

1 **When "TEMPORARY" button is pushed for 10 seconds or more, "Pi!" sound is heard and the operation changes to a forced cooling operation. After approx. 3 minutes, a cooling operation starts forcedly.**
Check cool air starts blowing. If the operation does not start, check wiring again.

2 **To stop a test operation, push "TEMPORARY" button once again (Approx. 1 second).**
The louver closes and the operation stops.



- **Check transmission of remote controller**

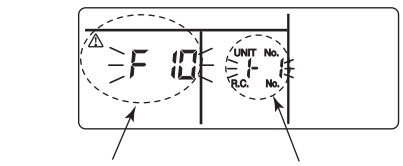
1 **Push "START / STOP" button of the remote controller to check an operation can also start by the remote controller.**
- "Cooling" operation by the remote controller may be unavailable according to the temperature conditions.
  Check wiring / piping of the indoor and outdoor units in forced cooling operation.

13. Troubleshooting

A wired remote controller is necessary for this function. This function cannot be operate with a wireless remote controller.

■ Confirmation and check

When an error occurred in the air conditioner, the check code and the indoor UNIT No. appear on the display part of the remote controller.
The check code is only displayed during the operation.
If the display disappears, operate the air conditioner according to the following “Confirmation of error log” for confirmation.

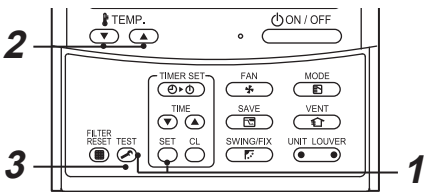


Check code

Indoor UNIT No. in which an error occurred

■ Confirmation of error log

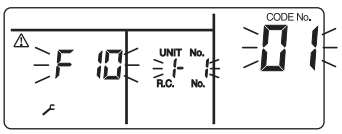
When an error occurred on the air conditioner, the error log can be confirmed with the following procedure. (The error log is stored in memory up to 4 errors.)
The log can be confirmed from both operating status and stop status.



1 When SET and TEST buttons are pushed simultaneously for 4 seconds or more, the following display appears.

If [Service check] is displayed, the mode enters in the error log mode.

- [**01**: Order of error log] is displayed in CODE No. window.
- [Check code] is displayed in CHECK window.
- [Indoor unit address in which an error occurred] is displayed in UNIT No.



2 Every pushing of “TEMP.” ▼ ▲ button used to set temperature, the error log stored in memory is displayed in order.

The numbers in CODE No. indicate CODE No. [**01**] (latest) → [**04**] (oldest).

REQUIREMENT

Do not push CL button because all the error log of the indoor unit will be deleted.

3 After confirmation, push TEST button to return to the usual display.

EN

Check method

On the wired remote controller, central control remote controller and the interface P.C. board of the outdoor unit (I/F), a check display LCD (Remote controller) or 7-segment display (on the outdoor interface P.C. board) to display the operation is provided. Therefore the operation status can be known. Using this self-diagnosis function, a trouble or position with error of the air conditioner can be found as shown in the table below.

Check code list

The following list shows each check code. Find the check contents from the list according to part to be checked.

- In case of check from indoor remote controller: See “Wired remote controller display” in the list.
- In case of check from outdoor unit: See “Outdoor unit 7-segment display” in the list.
- In case of check from AI-NET central control remote controller: See “AI-NET central control display” in the list.
- In case of check from indoor unit with a wireless remote controller: See “Sensor block display of receiving unit” in the list.

◯: Lighting, ☼: Flashing, ●: Goes off
AI-NET: Artificial Intelligence
IPDU: Intelligent Power Drive Unit
ALT: Flashing is alternately when there are two flashing LED.
SIM: Simultaneous flashing when there are two flashing LED.

Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
E01	—	—	—	☼	●	●		Communication error between indoor unit and remote controller (Detected at remote controller side)	Remote controller
E02	—	—	—	☼	●	●		Remote controller transmission error	Remote controller
E03	—	—	97	☼	●	●		Communication error between indoor unit and remote controller (Detected at indoor unit side)	Indoor unit
E04	—	—	04	●	●	☼		Communication circuit error between indoor / outdoor unit (Detected at indoor unit side)	Indoor unit
E06	E06	No. of indoor units in which sensor has been normally received	04	●	●	☼		Decrease of No. of indoor units	I/F
—	E07	—	—	●	●	☼		Communication circuit error between indoor / outdoor unit (Detected at outdoor unit side)	I/F
E08	E08	Duplicated indoor unit addresses	96	☼	●	●		Duplicated indoor unit addresses	Indoor unit • I/F

Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
E09	—	—	99	☼	●	●		Duplicated master remote controllers	Remote controller
E10	—	—	CF	☼	●	●		Communication error between indoor unit MC	Indoor unit
E12	E12	01:Indoor / Outdoor units communication 02:Outdoor / Outdoor units communication	42	☼	●	●		Automatic address start error	I/F
E15	E15	—	42	●	●	☼		No indoor unit during automatic addressing	I/F
E16	E16	00:Capacity over 01 ~:No. of connected units	89	●	●	☼		Capacity over / No. of connected indoor units	I/F
E18	—	—	97, 99	☼	●	●		Communication error between header and follower units Indoor unit	Indoor unit
E19	E19	00:No header 02:Two or more header units	96	●	●	☼		Outdoor header units quantity error	I/F
E20	E20	01:Outdoor unit of other line connected 02:Indoor unit of other line connected	42	●	●	☼		Other line connected during automatic address	I/F
E21	E21	02:No header unit 00:Multiple number of header units	42	●	●	☼		Error in number of heat storage master units	I/F
E22	E22	—	42	●	●	☼		Reduction in number of heat storage units	I/F
E23	E23	—	15	●	●	☼		Sending error in communication between outdoor units Error in number of heat storage units (trouble with reception)	I/F
E25	E25	—	15	●	●	☼		Duplicated follower outdoor addresses	I/F
E26	E26	No. of outdoor units which received signal normally	15	●	●	☼		Decrease of No. of connected outdoor units	I/F
E28	E28	Detected outdoor unit number	d2	●	●	☼		Follower outdoor unit error	I/F

EN

Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
E31	E31	Number of IPDU (*1)	CF	●	●	☼		IPDU communication error	I/F
F01	—	—	0F	☼	☼	●	ALT	Indoor unit TCJ sensor error	Indoor unit
F02	—	—	0d	☼	☼	●	ALT	Indoor unit TC2 sensor error	Indoor unit
F03	—	—	93	☼	☼	●	ALT	Indoor unit TC1 sensor error	Indoor unit
F04	F04	—	19	☼	☼	○	ALT	TD1 sensor error	I/F
F05	F05	—	A1	☼	☼	○	ALT	TD2 sensor error	I/F
F06	F06	01:TE1 sensor 02:TE2 sensor	18	☼	☼	○	ALT	TE1 sensor error TE2 sensor error	I/F
F07	F07	—	18	☼	☼	○	ALT	TL sensor error	I/F
F08	F08	—	1b	☼	☼	○	ALT	TO sensor error	I/F
F10	—	—	OC	☼	☼	●	ALT	Indoor unit TA sensor error	Indoor unit
F12	F12	—	A2	☼	☼	○	ALT	TS1 sensor error	I/F
F13	F13	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	43	☼	☼	○	ALT	TH sensor error	IPDU
F15	F15	—	18	☼	☼	○	ALT	Outdoor unit temp. sensor miscabling (TE, TL)	I/F
F16	F16	—	43	☼	☼	○	ALT	Outdoor unit pressure sensor miscabling (Pd, Ps)	I/F
F22	F22	—	B2	☼	☼	○	ALT	TD3 sensor error	I/F
F23	F23	—	43	☼	☼	○	ALT	Ps sensor error	I/F
F24	F24	—	43	☼	☼	○	ALT	Pd sensor error	I/F
F29	—	—	12	☼	☼	●	SIM	Indoor unit other error	Indoor unit
F31	F31	—	1C	☼	☼	○	SIM	Indoor unit EEPROM error	I/F
H01	H01	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	IF	●	☼	●		Compressor break down	IPDU
H02	H02	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	1d	●	☼	●		Compressor trouble (lock)	IPDU
H03	H03	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	17	●	☼	●		Current detect circuit system error	IPDU
H04	H04	—	44	●	☼	●		Comp. 1 case thermo operation	I/F
H05	H05	—	—	●	☼	●		TD1 sensor miswiring	I/F
H06	H06	—	20	●	☼	●		Low pressure protective operation	I/F
H07	H07	—	d7	●	☼	●		Oil level down detective protection	I/F

Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
H08	H08	01:TK1 sensor error 02:TK2 sensor error 03:TK3 sensor error 04:TK4 sensor error 05:TK5 sensor error	d4	●	¤	●		Oil level detective temp sensor error	I/F
H14	H14	—	44	●	¤	●		Comp. 2 case thermo operation	I/F
H15	H15	—	—	●	¤	●		TD2 sensor miswiring	I/F
H16	H16	01:TK1 oil circuit system error 02:TK2 oil circuit system error 03:TK3 oil circuit system error 04:TK4 oil circuit system error 05:TK5 oil circuit system error	d7	●	¤	●		Oil level detective circuit error	I/F
H25	H25	—	—	●	¤	●		TD3 sensor miswiring	I/F
L03	—	—	96	¤	●	¤	SIM	Indoor unit centre unit duplicated	Indoor unit
L04	L04	—	96	¤	○	¤	SIM	Outdoor unit line address duplicated	I/F
L05	—	—	96	¤	●	¤	SIM	Duplicated indoor units with priority (Displayed in indoor unit with priority)	I/F
L06	L06	No. of indoor units with priority	96	¤	●	¤	SIM	Duplicated indoor units with priority (Displayed in unit other than indoor unit with priority)	I/F
L07	—	—	99	¤	●	¤	SIM	Group line in individual indoor unit	Indoor unit
L08	L08	—	99	¤	●	¤	SIM	Indoor unit group / Address unset	Indoor unit, I/F
L09	—	—	46	¤	●	¤	SIM	Indoor unit capacity unset	Indoor unit
L10	L10	—	88	¤	○	¤	SIM	Outdoor unit capacity unset	I/F
L17	—	—	46	¤	○	¤	SIM	Outdoor unit type mismatch error	I/F
L20	—	—	98	¤	○	¤	SIM	Duplicated central control addresses	AI-NET, Indoor unit
L26	L26	Number of heat storage units connected	46	¤	○	¤	SIM	Too many heat storage units connected	I/F

EN

Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
L27	L27	Number of heat storage units connected	46	☼	○	☼	SIM	Error in number of heat storage units connected	I/F
L28	L28	—	46	☼	○	☼	SIM	Too many outdoor units connected	I/F
L29	L29	Number of IPDU (*1)	CF	☼	○	☼	SIM	No. of IPDU error	I/F
L30	L30	Detected indoor unit address	b6	☼	○	☼	SIM	Indoor unit outside interlock	Indoor unit
—	L31	—	—	—				Extended I/C error	I/F
P01	—	—	11	●	☼	☼	ALT	Indoor fan motor error	Indoor unit
P03	P03	—	1E	☼	●	☼	ALT	Discharge temp. TD1 error	I/F
P04	P04	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	21	☼	●	☼	ALT	High-pressure SW system operation	IPDU
P05	P05	00: 01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	AF	☼	●	☼	ALT	Phase missing detection / Power failure detection Inverter DC voltage error (comp.) Inverter DC voltage error (comp.) Inverter DC voltage error (comp.)	I/F
P07	P07	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	IC	☼	●	☼	ALT	Heat sink overheat error	IPDU, I/F
P09	P09	Detected heat storage address	47	●	☼	☼	ALT	No heat storage unit water error	Heat storage unit
P10	P10	Detected indoor unit address	Ob	●	☼	☼	ALT	Indoor unit overflow error	Indoor unit
P12	—	—	11	●	☼	☼	ALT	Indoor unit fan motor error	Indoor unit
P13	P13	—	47	●	☼	☼	ALT	Outdoor liquid back detection error	I/F
P15	P15	01:TS condition 02:TD condition	AE	☼	●	☼	ALT	Gas leak detection	I/F
P17	P17	—	bb	☼	●	☼	ALT	Discharge temp. TD2 error	I/F
P18	P18	—	E2	☼	●	☼	ALT	Discharge temp. TD3 error	I/F
P19	P19	Detected outdoor unit number	O8	☼	●	☼	ALT	4-way valve inverse error	I/F
P20	P20	—	22	☼	●	☼	ALT	High-pressure protective operation	I/F

Check code				Wireless remote controller				Check code name	Judging device
Wired remote controller display	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
P22	P22	0*:IGBT circuit 1*:Position detective circuit error 3*:Motor lock error 4*:Motor current detection C*:TH sensor error D*:TH sensor error E*:Inverter DC voltage error (outdoor unit fan)	1A	☼	●	☼	ALT	Outdoor unit fan IPDU error Note: Ignore 0 to F displayed in "*" position.	IPDU
P26	P26	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	14	☼	●	☼	ALT	G-TR short protection error	IPDU
P29	P29	01:Comp. 1 side 02:Comp. 2 side 03:Comp. 3 side	16	☼	●	☼	ALT	Comp. position detective circuit system error	IPDU
P31	—	—	47	☼	●	☼	ALT	Other indoor unit error (Group follower indoor unit error)	Indoor unit
—	—	—	b7	By alarm device			ALT	Error in indoor unit group	AI-NET
—	—	—	97	—				AI-NET communication system error	AI-NET
—	—	—	99	—				Duplicated network adapters	AI-NET

*1 Number of IPDU

01: Comp. 1
02: Comp. 2
03: Comp. 1 + Comp. 2
04: Comp. 3
05: Comp. 1 + Comp. 3
06: Comp. 2 + Comp. 3
07: Comp. 1 + Comp. 2 + Comp. 3
08: Fan
09: Comp. 1 + Fan
0A: Comp. 2 + Fan
0B: Comp. 1 + Comp. 2 + Fan
0C: Comp. 3 + Fan
0D: Comp. 1 + Comp. 3 + Fan
0E: Comp. 2 + Comp. 3 + Fan
0F: Comp. 1 + Comp. 2 + Comp. 3 + Fan

EN

Error detected by TCC-LINK central control device

Check code				Wireless remote controller				Check code name	Judging device
Central control device indication	Outdoor unit 7-segment display		AI-NET central control display	Sensor block display of receiving unit					
		Auxiliary code		Operation	Timer	Ready	Flash		
C05	—	—	—	—				Sending error in TCC-LINK central control device	TCC-LINK
C06	—	—	—	—				Receiving error in TCC-LINK central control device	TCC-LINK
C12	—	—	—	—				Batch alarm of general-purpose equipment control interface	General-purpose equipment, I/F
P30	Differs according to error contents of unit with occurrence of alarm							Group control follower unit error	TCC-LINK
	—	—	(L20 is displayed.)					Decrease of No. of indoor units	

TCC-LINK: TOSHIBA Carrier Communication Link.

Warnings on Refrigerant Leakage

Check of Concentration Limit

The room in which the air conditioner is to be installed requires a design that in the event of refrigerant gas leaking out, its concentration will not exceed a set limit.

The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws to be imposed which protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively. Suffocation from leakage of R410A is almost non-existent. With the recent increase in the number of high concentration buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared with conventional individual air conditioners. If a single unit of the multi conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

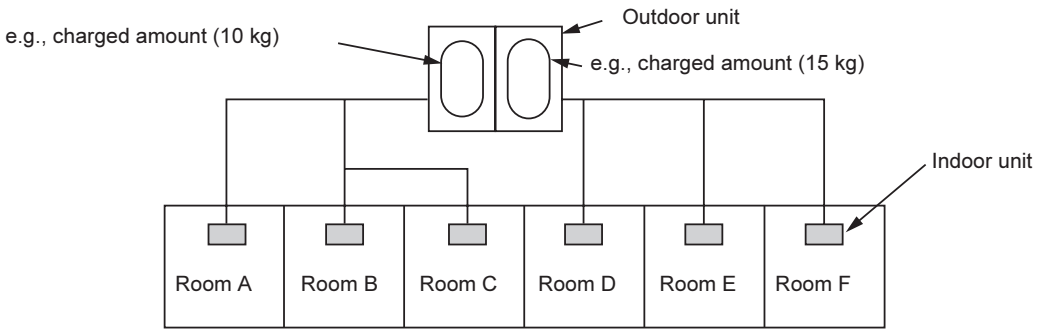
In a room where the concentration may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.The concentration is as given below.

$$\frac{\text{Total amount of refrigerant (kg)}}{\text{Min. volume of the indoor unit installed room (m}^3\text{)}} \leq \text{Concentration limit (kg/m}^3\text{)}$$

The concentration limit of R410A which is used in multi air conditioners is 0.3 kg/m^3.

▼ NOTE 1

If there are 2 or more refrigerating systems in a single refrigerating device, the amounts of refrigerant should be as charged in each independent device.



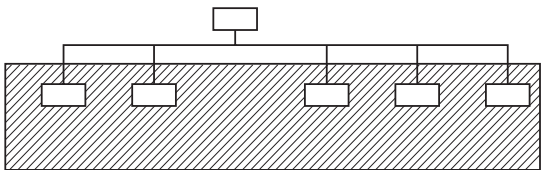
For the amount of charge in this example:

The possible amount of leaked refrigerant gas in rooms A, B and C is 10 kg.
The possible amount of leaked refrigerant gas in rooms D, E and F is 15 kg.

▼ NOTE 2

The standards for minimum room volume are as follows.

1. No partition (shaded portion)



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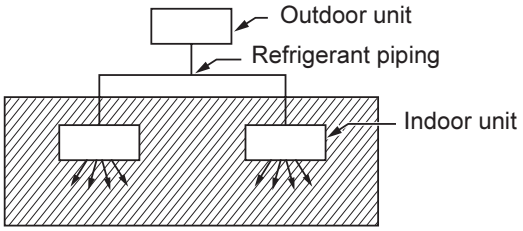
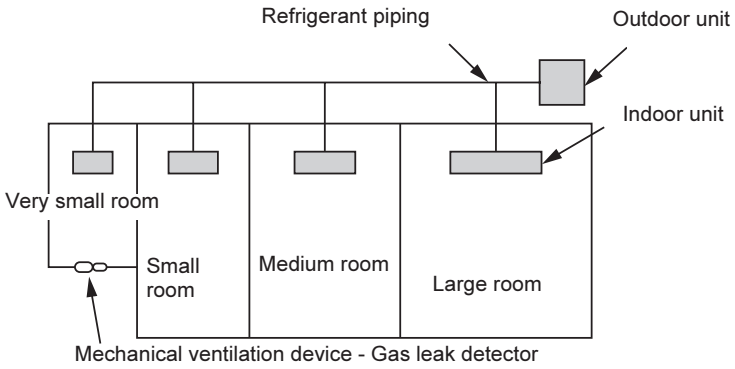
Important

2. When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15 % or larger than the respective floor spaces at the top or bottom of the door).

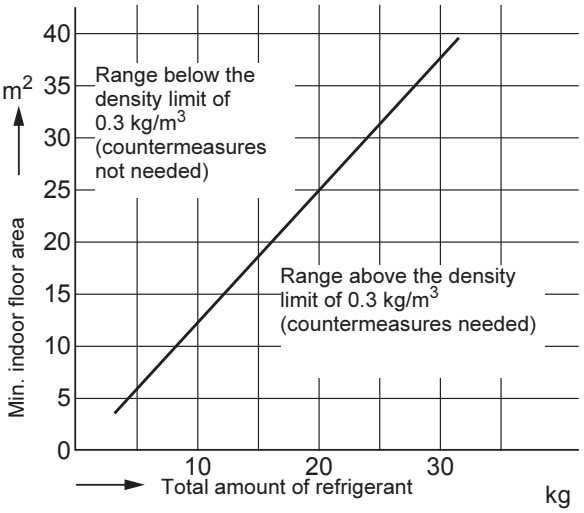


3. If an indoor unit is installed in each partitioned room and the refrigerant piping is interconnected, the smallest room of course becomes the object. But when a mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the volume of the next smallest room becomes the object.



▼ NOTE 3

The minimum indoor floor area compared with the amount of refrigerant is roughly as follows:
(When the ceiling is 2.7 m high)



■ Confirmation of indoor unit setup

Prior to delivery to the customer, check the address and setup of the indoor unit, which has been installed in this time and fill the check sheet (Table below). Data of four units can be entered in this check sheet. Copy this sheet according to the No. of the indoor units. If the installed system is a group control system, use this sheet by entering each line system into each installation manual attached to the other indoor units.

REQUIREMENT

This check sheet is required for maintenance after installation. Fill this sheet and then pass this Installation Manual to the customers.

Indoor unit setup check sheet

<table>
<tr><th colspan="3">Indoor unit</th><th colspan="3">Indoor unit</th><th colspan="3">Indoor unit</th><th colspan="3">Indoor unit</th></tr>
<tr><td colspan="3">**Room name**</td><td colspan="3">**Room name**</td><td colspan="3">**Room name**</td><td colspan="3">**Room name**</td></tr>
<tr><td colspan="3">**Model**</td><td colspan="3">**Model**</td><td colspan="3">**Model**</td><td colspan="3">**Model**</td></tr>
<tr><td colspan="12">Check indoor unit address. (For check method, refer to APPLICABLE CONTROLS in this manual.)
*In case of a single system, it is unnecessary to enter the indoor address. (CODE NO.: Line [12], Indoor [13], Group [14], Central control [03])</td></tr>
<tr><td>**Line**</td><td>**Indoor**</td><td>**Group**</td><td>**Line**</td><td>**Indoor**</td><td>**Group**</td><td>**Line**</td><td>**Indoor**</td><td>**Group**</td><td>**Line**</td><td>**Indoor**</td><td>**Group**</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">**Central control address**</td><td colspan="3">**Central control address**</td><td colspan="3">**Central control address**</td><td colspan="3">**Central control address**</td></tr>
<tr><td colspan="3"></td><td colspan="3"></td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td colspan="3">**Various setup**</td><td colspan="3">**Various setup**</td><td colspan="3">**Various setup**</td><td colspan="3">**Various setup**</td></tr>
<tr><td colspan="12">Have you changed lighting time of filter sign? If not, fill check mark [×] in [NO CHANGE], and fill check mark [×] in [ITEM] if changed, respectively.
(For check method, refer to APPLICABLE CONTROLS in this manual.)</td></tr>
<tr><td colspan="3">Filter sign lighting time
(CODE NO. [01])
☐ NO CHANGE
☐ NONE [0000]
☐ 150H [0001]
☐ 2500H [0002]
☐ 5000H [0003]
☐ 10000H [0004]</td><td colspan="3">Filter sign lighting time
(CODE NO. [01])
☐ NO CHANGE
☐ NONE [0000]
☐ 150H [0001]
☐ 2500H [0002]
☐ 5000H [0003]
☐ 10000H [0004]</td><td colspan="3">Filter sign lighting time
(CODE NO. [01])
☐ NO CHANGE
☐ NONE [0000]
☐ 150H [0001]
☐ 2500H [0002]
☐ 5000H [0003]
☐ 10000H [0004]</td><td colspan="3">Filter sign lighting time
(CODE NO. [01])
☐ NO CHANGE
☐ NONE [0000]
☐ 150H [0001]
☐ 2500H [0002]
☐ 5000H [0003]
☐ 10000H [0004]</td></tr>
<tr><td colspan="12">Have you changed detected temp. shift value? If not, fill check mark [×] in [NO CHANGE], and fill check mark [×] in [ITEM] if changed, respectively.
(For check method, refer to APPLICABLE CONTROLS in this manual.)</td></tr>
<tr><td colspan="3">Detected temp. shift value setup (CODE NO. [06])
☐ NO CHANGE
☐ NO SHIFT [0000]
☐ +1°C [0001]
☐ +2°C [0002]
☐ +3°C [0003]
☐ +4°C [0004]
☐ +5°C [0005]
☐ +6°C [0006]</td><td colspan="3">Detected temp. shift value setup (CODE NO. [06])
☐ NO CHANGE
☐ NO SHIFT [0000]
☐ +1°C [0001]
☐ +2°C [0002]
☐ +3°C [0003]
☐ +4°C [0004]
☐ +5°C [0005]
☐ +6°C [0006]</td><td colspan="3">Detected temp. shift value setup (CODE NO. [06])
☐ NO CHANGE
☐ NO SHIFT [0000]
☐ +1°C [0001]
☐ +2°C [0002]
☐ +3°C [0003]
☐ +4°C [0004]
☐ +5°C [0005]
☐ +6°C [0006]</td><td colspan="3">Detected temp. shift value setup (CODE NO. [06])
☐ NO CHANGE
☐ NO SHIFT [0000]
☐ +1°C [0001]
☐ +2°C [0002]
☐ +3°C [0003]
☐ +4°C [0004]
☐ +5°C [0005]
☐ +6°C [0006]</td></tr>
<tr><td colspan="3">**Incorporation of parts sold separately**</td><td colspan="3">**Incorporation of parts sold separately**</td><td colspan="3">**Incorporation of parts sold separately**</td><td colspan="3">**Incorporation of parts sold separately**</td></tr>
<tr><td colspan="3">☐ Others ( )
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☐ Others ( )</td><td colspan="3">☐ Others ( )
☐ Others ( )</td></tr>
</table>

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